



RDF Reference Guide

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This document contains descriptions of the POI attributes that are specific to the Product Name product. Additional, general attribute descriptions can be found in the POI XML: General Reference Guide.

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Introduction

Purpose

This document describes the contents of the RDF Core Extracts. It contains mainly the general (global) specifications. Additional rules are covered by accompanying documents that include the following:

- *Country Specific Rules* for specifications that apply to specific countries only
- *POI XML General Reference Guide* for additional POI attributes

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Document Conventions

British spellings are used throughout this document (e.g., harbour, manoeuvre, centre).

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Introduction

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Introduction

This document describes the structure and semantics of the Relational Database Format (RDF). RDF is a standard that provides a common reference model for organizations involved in the creation, update, supply, and application of referenced and structured road network data.

RDF enables road network data providers to use a common data publication reference model for their product definition, while allowing users to define their application independent of a specific data provider's model. The RDF is designed to support several application areas, such as Vehicle Navigation Systems, Highway Maintenance Systems, Road Transport Informatics, and Advanced Road Transport Telematics.

Scope and Limitations

This document does not include the following:

- Column constraints
- Indexes defined per table
- Full specification of cardinality relationships

Documentation Conventions Used in this Manual

Typographical conventions are as follows:

- Boldface type in the body of the text is used to emphasize key words and phrases.
- `Courier` font is used for lines of sample application code.

Data Types

Column data types include any of the following:

Notation	Column Data Type
N(x)	Integer Numeric, maximum of x digits.
CHAR(x)	Text. Length of x characters.
VARCHAR(x)	Text. Maximum length of x characters.
CLOB	Character large object
SDO	Oracle® SDO_Geometry object type.
BLOB	An Oracle data type containing binary data with a maximum size of 4 GB.

Primary Keys

The primary key is a column or set of columns that forms a key and is designated as the primary key. Although a primary key is optional for a table, the general RDF convention is that each table has a primary key defined.

Primary keys are documented using a single column name:

LINK_ID

or a comma separated list of column names for a multi-column key:

FEATURE_ID, FACE_ID

Foreign Keys

Foreign keys are used to establish and enforce referential integrity to the database.
Foreign keys are documented in this manner:

COUNTRY_ID → RDF_ADMIN_PLACE

COUNTRY_ID is the foreign key (in this case, in the RDF_COUNTRY table).
RDF_ADMIN_PLACE is the referenced table. COUNTRY_ID matches the primary key of
RDF_ADMIN_PLACE (which is not explicitly named).

ID Space

Various auxiliary data products can be used in relation with the RDF core map data product. To facilitate ongoing integration of such auxiliary data products with the core map data product, RDF publishes permanent identifiers in the core tables. A permanent identifier is also referred to as a PVID.

Permanent identifiers are globally unique within a specific type of feature; for example, a LINK_ID value is unique among all other links globally. The same permanent identifier can be used for different feature types; for example, a link and a node may have the same permanent identifier. Only the combination of feature type and permanent identifier provides a globally unique identification across all map object types.

Note: There is one exception to permanent identifiers being globally unique within a specific feature type; cartographic features. Permanent identifiers of Structure Footprints, i.e. BUILDING_ID, can overlap with permanent identifiers i.e. CARTO_ID of other cartographic features. Therefore, merging Structure Footprints with other cartographic features may result in overlapping permanent identifiers.

The permanent identifier is consistent between database releases; therefore, reference a map feature by its permanent identifier. Various RDF tables use an OWNER field to make it explicit which map feature is referenced.

Additionally, permanent identifiers can be used to connect RDF data to GDF 3.0 or SIF+ data. The permanent identifier values correspond to the FLD_VALUE in the External Update Reference Record in GDF 3.0 and generally correspond to all primary keys in the SIF+ file structure. For more information about connecting RDF data to GDF 3.0 data, see the RDF GDF 3.0 Cross Reference Guide.

Some RDF tables use non-permanent identifiers. Non-permanent identifiers can overlap with permanent identifiers. See *Chapter 12, RDF Schema* for the details of which identifiers are permanent and which are non-permanent.

External Files

The RDF File Model is used to associate auxiliary data (e.g., .dae, and .svg files) to features published in the core RDF tables. Examples include Enhanced Junction Views, 3D Landmarks. The model is generic and allows for association of files to all objects in the core RDF tables.

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Inclusion

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2.1 Introduction

This chapter describes the inclusion rules for the various coverage levels supported by HERE Map Content: Prime, Network, Complete, City-to-City, and Base.

- Prime (DETAILED_CITY = Y) inclusion reflects the highest level of inclusion of features for HERE. This coverage level has the most detail and enables door-to-door functionality.
- Network inclusion is a sub-set of Prime inclusion. Network coverage includes the main inter-town highway and all the necessary attributes required to allow routing from city to city. Network links receive DETAILED_CITY = N.
- Complete coverage represents a level between Network and Prime. Full Coverage areas have Prime level road inclusion, but the attribution of these roads is not yet at the Prime level. The IN_PROCESS_DATA attribute indicates whether a feature is part of a Complete area. These areas have varying geometric accuracy and attribute inclusion depending on the source of the data. These links are coded with DETAILED_CITY = N, N_PROCESS_DATA = Y, FULL_GEOMETRY = Y, and FUNCTIONAL_CLASS = 5.
- City-to-City coverage is intended to supplement the full Prime Areas defined by HERE. The combination of a Prime Area with City-to-City enables cross-Prime Area routing and substantially enhances the amount of destinations available on a navigable map database product. The Connector Road is a minimum coverage level in areas prior to full Prime, Network, City-to-City, or Complete.
- Base coverage consists of roads that are included in HERE Map Content but are not yet verified.

For each coverage level, the inclusion for each of the following categories is provided:

- Transportation Network
 - Lists geometry that is included as part of the road network
- Cartographic Features
 - Lists cartographic features that are included and the requirements for their inclusion.
- Attributes
 - Lists the attributes that are included
- Signs
 - Describes the inclusion of signs within the road network and the types of sign information provided
- Points of Interest (POIs)
 - Lists the POIs included and the attribution included for POIs
- Country and Administrative Areas
 - Lists the attributes for each country and administrative area

2.2 Prime

Prime is the highest coverage level. Prime coverage has the most detail and enables door-to-door routing functionality. All *Functional Class* (FUNCTIONAL_CLASS) = 1-5 links are published with: *Detailed City* (DETAILED_CITY) = Y and *In-Process Data* (IN_PROCESS_DATA) = N.

The following outlines the basic Prime coverage. Additional features may be included based on their cartographic or historic importance.

2.2.1 Transportation Network

2.2.1.1 Geometric Inclusion

- Named roads
- Named and addressed walkways. Unnamed walkways can be included when cartographically significant.
- Named and unnamed apartment, townhome, and mobile home geometry (North America only)
- Named forest service roads (U.S. only)
- Unnamed roads that substantially enhance routing
- Unnamed roads that serve as access to rest areas along motorways
- Unnamed, main paved roads which allow public access and that are within or lead to any included Land Cover features or facilities, e.g., Airports, Cemeteries, County Parks, Golf Courses, Hospital Complexes, Industrial Complexes, etc.
- Unnamed, paved roads that are used by public vehicles only
- Ferry Connections
- Enclosed Traffic Areas > 1.000 metres²/10.800 feet²
- Ramps (slip roads), roundabouts, special traffic figures, and turn lanes
- U-Turn lanes which are restricted to public vehicles only
- Frontage roads (service roads)
- Pedestrian streets and pedestrian zones
- Roads needed to connect isolated navigable features at the Prime and Network boundary.
- The transportation network within airports, which include the following:
 - Confirmed named roads
 - Arrivals and departures access roads
 - Rental car return and pick-up access roads (only if these are not in a parking garage)
 - Parking access roads if different entrance/exit roads exist.
 - Public vehicle roads (police, ambulance, bus, etc.)

- Any other public roads needed for connectivity
- Access roads, parking lanes, pedestrian walkways, and connections internal to the complex of select POIs (for Extended Navigation content)
Note: For multiple level parking structures, only the base level parking lanes are represented.

2.2.1.2 Roads and Ferries Attributes

Prime coverage includes the following attributes as applicable.

Addressing

- *Address Format Left*
- *Address Scheme Left*
- *Address Type*
- *First House Number Left/Right*
- *House Number Structure*
- *Last House Number Left/Right*
- Point Addressing
 - *Address*
 - *Display Location Longitude*
 - *Display Location Latitude*

Naming

- *Alternate Name/Official Name*
- *Base Name*
- *Bridge Name* (select countries only)
- *Building Name* (for Point Addresses)
- *Street Name* (for Point Addresses)
- *Street Type*
- *Prefix of Street Name*
- *Suffix of Street Name*
- *Explicable*
- *Intersection Name* (select countries)
- *Junction Name*
- *Postal Name*
- *State Name*
- *Vanity Name*

- *Exit Number*
- *Alternate Exit Number* (where applicable)
- *Route Number*
- *Route Number on Road Sign*
- *Name Route Type*
- *Overpass Name* (select countries)
- *Route Direction*
- *Scenic Route Name* (select countries)
- Transliteration and Transcription (where applicable)
 - *Transliterated Street Type*
 - *Transliterated Prefix*
 - *Transliterated Suffix*
 - *Transliterated Route Direction*
 - *Shortened Name*
- *Tunnel Name* (South Korea only)
- *Underpass Name* (select countries)

Annotation

- *Annotation Category* (select countries)
- *Display Category* (select countries)

All Other Attributes

- *Approximate Seasonal Closure*
- *Bridge/Tunnel*
- *Carpool Road* (where applicable)
- *Center Divider Marker*
- *Construction Status*
- *Controlled Access*
- *Coverage Indicator*
- *Dependent Access Type*
- *Dependent Special Speed Type* (country/extract dependent)
- *Detailed City Indicator* = 1
- *Divider* (Composite)
- *Direction Category*
- *Display Class*
- *Enhanced Geometry* (where applicable)
- *Enclosed Traffic Area*
- *Environmental Zone* (where applicable)
- *Environmental Zone ID*
- Evacuation Route attributes (select countries only)
- *Express Lane*
- *Feature Type*
- *Ferry Type*
- *Four-Wheel Drive* (where applicable)
- *Full Geometry* = 1
- *Functional Class*
- *Grade Category* (select countries only)
- *HOV Attribution* (where applicable)
- *Intersection Category*
- *In-Process Data* = 0
- *Junction Type*
- *Lane Category*
- *Lane Direction of Traffic Flow*
- *Lane Divider Marker*

- *Limited Access Road*
- *Low Mobility*
- *Multiply Digitised*
- *Number of Lanes*
- *Number of Passengers*
- *Overpass/Underpass* (select countries)
- *Ownership*
- *Parking Information-Composite* (select countries)
- *Parking Lot Road* (where applicable)
- *Paved*
- *Physical Number of Lanes*
- *Positive/Negative Direction*
- *Plural Junction Type*
- *Positive/Negative TPEG* (select countries)
- *Priority Road*
- *Ramp*
- *RDS-TMC*
- *Reversible*
- *Road Class* (select countries)
- *Scenic Route* (select countries)
- *Short Construction Warning*
- *Special Speed Type* (country/extract dependent)
- *Special Speed Limit* (country/extract dependent)
- *Special Restrictions*
- *Speed Category*
- *Speed Limit Source*
- *Speed Limit Unit*
- *Speed Restriction* (country/extract dependent)
- *Through Traffic*
- *Toll Feature Type*
- *Toll System Type*
- *Toll Road*
- *Travel Direction*

- *Urban*
- *Usage Fee Required*
- *Validity Period*
- *Variable Speed Limit Applicable*
- *Variable Speed Sign ID*

Conditions

- *Access Restriction*
- *Blackspot*
- *Construction Status Closed*
- *Environmental Zone*
- *Evacuation Route*
- *Gate*
- *Junction View*
- *Lane Direction Of Travel*
- *Lane Traversal*
- *No Overtaking*
- *Parking Information*
- *Permitted Driving Manoeuvre*
- *Protected Overtaking*
- *Railway Crossing*
- *Restricted Driving Manoeuvre*
- *Short Construction Warning*
- *Special Explication*
- *Special Speed Situation*
- *Through Route*
- *Toll Structure*
- *Traffic Signal*
- *Traffic Sign*
- *Usage Fee Required*
- *Variable Speed Limit Applicable*
- *Variable Speed Sign*

2.2.2 Administrative Inclusion

- RDF_ADMIN_PLACE.ADMIN_TYPE = 1111
- RDF_ADMIN_PLACE.ADMIN_TYPE = 1112
- RDF_ADMIN_PLACE.ADMIN_TYPE = 1113
- RDF_ADMIN_PLACE.ADMIN_TYPE = 1114
- RDF_ADMIN_PLACE.ADMIN_TYPE = 1115
- RDF_ADMIN_PLACE.ADMIN_TYPE = 1116
- RDF_ADMIN_PLACE.ADMIN_TYPE = 1117
- RDF_ADMIN_PLACE.ADMIN_TYPE = 1118
- RDF_ADMIN_PLACE.ADMIN_TYPE = 1119
 - A face record is published for the Order-8 Area Feature
- RDF_ADMIN_PLACE.ADMIN_TYPE = 3110
- RDF_ZONE
- RDF_POSTAL_AREA
- RDF_CARTO.FEATURE_TYPE = 900101
- RDF_CARTO.FEATURE_TYPE = 900156
- RDF_CARTO.FEATURE_TYPE = 900170
- RDF_ANNOTATION.ANNOTATION_TYPE (select countries)
- RDF_ANNOTATION.LABEL_DISPLAY_CLASS (select countries)

2.2.3 Cartographic Inclusion

Prime coverage includes the following features as applicable:

- *Airport*: Aircraft Roads are runway areas, tarmacs, and aircraft parking areas.
- *Airport Cargo Facilities* (U.S. only)
- Administrative Area Boundaries
 - *Country* (Feature Type(0907196)) linear feature
 - *State* (Feature Type(0909996)) linear feature
 - *County* (Feature Type(0900170)) polygonal feature
 - *City* (Feature Type(0900101)) polygonal feature
- *Allotment*
- *Built-up Area* polygon for each Named Place (greater than 250,000 metres²/2,700,000 feet² or smaller Built-up Areas where significant)
- *Cartographic Country Boundary* (linear feature)

- *Cartographic State/Province Boundary* (linear feature)
- *Cartographic Settlement Boundary* (polygonal feature)
- *Beach* (greater than 2.000 metres²/21.600 feet²)¹
- *Congestion Zone* (in select cities only)
- *Environmental Zone*
- *Flood/Hurricane/Tsunami Prone Area* (select countries only)
- *Land Use Features* (greater than 50.000 metres²/540.000 feet² unless specified otherwise)
 - ♦ Amusement Park (greater than 10.000 metres²/108.000 feet²)¹
 - ♦ Animal Park (greater than 10.000 metres²/108.000 feet²)¹
 - Cemetery (greater than 10.000 metres²/108.000 feet²)¹
 - Golf Course (greater than 10.000 metres²/108.000 feet²)¹
 - Hospital Complex
 - Industrial Complex
 - EMEA: Greater than 20.000 metres²/215.200 feet²
 - North America: Greater than 250.000 metres²/2,700,000 feet²
 - Military Base
 - Native American Reservation (N.A. only)
 - Shopping Centre¹
 - Sports Complex
 - University/College Complex

Land Use Features (greater than 10.000 metres²/108.000 feet²):

- Beach
- County/City Park
- Glacier
- National Monument
- National Park

Note: National Park is also included for historic parks, scenic parks, beach parks, and recreation areas.

- Park in Water
- Pedestrian Area
- State Park
- Woodland

Land Use Features (greater than 500 metres²/5400 feet²):

1. Specified areas correspond to standard inclusion. See *Section 8.3.5.1, Expanded Inclusion (EXPANDED_INCLUSION)* for Standard/Expanded Inclusion rules.

→ Parking Lot

Additional Building/Landmark features are included in select cities.

In Areas with Extended Navigation content, building footprints are also included for select POIs.

- *National Forest*

- *Neighbourhood*

- *Pedestrian Area*

- *Water Features* (polygonal):

→ Oceans: All oceans are included as Area Features.

→ Lakes: Included as Area Features when greater than 10.000 metres²/ 108.000 feet²¹.

→ Canals/Channels/Rivers: Included as Area Features when wider than 5 metres/16 feet; as Linear Features when between 2 metres/6.56 feet and 5 metres/16.4 feet in width. See *Section 8.3.5.1, Expanded Inclusion (EXPANDED_INCLUSION)* for Standard/Expanded Inclusion rules.

→ Harbours/Bays: Included as Area Features if greater than 1 million metres²/10.800.000 feet² and there is a logical closing point.

- *Water Features* (linear)

Canals/Channels/Rivers between 10 metres/33 feet and 25 metres/82 feet wide¹.

- *Woodland*

Included are Area Features whose outline is greater than 10.000 metres²/108.000 feet².

2.2.4 Signs

- Signs at decision points along motorways (Controlled Access roads) and ramps. Signs are also included globally inside National Public Airports.
- Entrance ramp signs on entrances to motorways (Controlled Access roads).
- Additional signs at other locations where such information is navigationally significant.

2.2.5 Points of Interest (POIs)

All POIs in the Standard POI Inclusion List are published in Prime areas. Although most of the POI categories are published globally, there are POIs that are published only for specific regions/countries. Additional POI categories may be published in premium products.

For more information, refer to the country specific POI inclusion spreadsheet in the Customer Technical Reference Guide (CTRG).

2.2.5.1 POI Attributes (Included when Applicable)

Some attributes are published for a subset of the POI categories.

1. Specified areas correspond to standard inclusion. See *Section 8.3.5.1, Expanded Inclusion (EXPANDED_INCLUSION)* for Standard/Expanded Inclusion rules.

- *Actual Admin* (Component of parsed Actual Address)
- *Actual House Number* (Component of parsed Actual Address)
- *Actual Postal* (Component of parsed Actual Address)
- *Actual Road Name* (Component of parsed Actual Address)
- *Administrative Level* (for Named Place POIs)
- *Alternate Name*
- *Actual Address*
- *Address Format*
- *Brand Name* (for select POI categories)
- *Building Type*(for Places of Worship)
- *Chain ID* (for select POI categories)
- *Capital Indicator* (for Names Place POIs)
- *Contact Information*
- *Contact Type*
- *Diesel* (for Petrol Stations in select countries only)
- *Display Location Longitude/Latitude* (for select POI categories)
- *Entrance Type* (where applicable)
- *Full House Number* (where applicable)
- *House Number*
- *Importance*
- *In Vicinity* = N
- *Official Name*
- *Open 24 Hours* (for Petrol Stations only)
- *Percent From Reference Node*
- *Population* (for Named Place POIs)
- *Preferred*
- *Private*
- *Rest Area Type* (for Rest Areas)
- Restaurant-specific attributes
- *Street Name*
- *Telephone Number*
- *POI Association*
- *Parent-Child Association*

- *POI Side*
- *Subcategory* (for select categories only)
- *Vanity City*

2.3 Complete

Complete coverage represents a level between Network and Prime. Complete coverage areas have Prime coverage road inclusion, but the attribution of these roads does not meet Prime coverage.

In many countries, local roads in the Network road network are from a commercial source. The links have varying geometric accuracy and attribution depending on the commercial source. The inclusion of this data allows improved map display and guidance.

In Complete coverage areas, links with *Functional Class* (FUNCTIONAL_CLASS) = 1-4 are published with: *Detailed City* (DETAILED_CITY) = N, *In-Process Data* (IN_PROCESS_DATA = N); links with *Functional Class* (FUNCTIONAL_CLASS) = 5 are published with: *Detailed City* (DETAILED_CITY) = N, IN_PROCESS_DATA = Y and *Full Geometry* (FULL_GEOMETRY) = Y.

Note: In some countries, links with *Functional Class* (FUNCTIONAL_CLASS = 3-5) may have *In-Process Data* (IN_PROCESS_DATA) = Y.

The following outlines the minimum inclusion required for Complete coverage areas. Additional attribution may be published.

2.3.1 Transportation Network

2.3.1.1 Geometric Inclusion

- Named roads
- All Unnamed roads that substantially enhance routing.
- Named and unnamed apartment, townhome, and mobile home road network (North America only).

2.3.1.2 Roads and Ferries Attributes (Included when Applicable)

- Administrative Area coding for each link
- Feature names
- Additional attributes are added when available in the source.

The attributes that have a Boolean value are defaulted to "N". The Coded value attributes are not published.

If available, the attribute and actual value may be included.

2.3.2 Cartographic Inclusion

- Administrative Area Boundaries
 - *Country* (Feature Type(0907196)) linear feature
 - *State* (Feature Type(0909996)) linear feature
 - *County* (Feature Type(0900170)) polygonal feature

→ *City* (Feature Type(0900101)) polygonal feature

- Cartographic Country Boundary (linear feature)
- Cartographic State/Province Boundary (linear feature)
- Cartographic Settlement Boundary (greater than 50.000 metres²/540.000 feet²)
- BUAs if included in the source
- Rivers (Based on standard and expanded inclusion rules; see *Section 8.3.7.2, Expanded Inclusion (EXPANDED_INCLUSION)*)
- Other features (e.g., parks) if included in the source

Note: Other features (similar to Prime inclusion) can be included when deemed significant for a particular country.

2.3.3 Points of Interest (POIs)

- *Airports*
- *Auto Service & Maintenance*
- *Automobile Dealership*
- *Bank*
- *Border Crossings*
- *Hamlets*
- *Hotels*
- *Named Place*
- *Petrol/Gasoline Station*
- *Restaurants*
- Additional POIs may be included.

2.3.3.1 POIs Attributes (Included when Applicable)

- Address Information
- *Airport Terminal*
- *Chain Name*
- *Facility Name, including Exonyms and Synonyms*
- *Food Type*
- *Population for Named Place POIs*
- *Rest Area Type*
- *POI Side*
- *Subcategory*

- *Vanity City*
- Additional POI attributes may be included.

2.3.3.2 POI Attributes (Not Included)

The following attributes are not applicable to this level of coverage and are therefore always set to N.

- *Long Haul*
- *In Vicinity*

Note: POIs that would have a *Capital Indicator* flagged or that would be of national importance would be included at the Network or Prime coverage levels. The *In-Vicinity* flag would not be applied in a Complete area, since the POI can be placed at its actual location.

2.4 Network

Network coverage includes the main highway network and all the necessary attributes required to allow routing from city to city. In Network coverage areas, links with *Functional Class* (FUNCTIONAL_CLASS) = 1 - 4 are published with: *Detailed City* (DETAILED_CITY) = N and *In-Process Data* (IN_PROCESS_DATA) = N.

The following outlines the minimum inclusion required for Network coverage areas. Additional attribution may be published.

2.4.1 Transportation Network

2.4.1.1 Geometric Inclusion

- Roads that are *Functional Class* = 1-4
- Roads that lead to an included *Named Place* POI
- Public roads within national public airports
- Unnamed roads that substantially enhance routing
- Named and unnamed apartment, townhouse, and mobile home roads
- Ferry connections that follow a regular schedule for automobiles and/or pedestrians via rail or boat between qualifying roads and to *Named Place* POIs.
- Roads that connect POI facilities that meet Network inclusion rules as described in *Section 2.4.5, Points of Interest (POIs)*.
- The main road within included Rest Areas
- Ramps, Roundabouts, Special Traffic Figures, and Turn Lanes
 - Note: Exit and entrance ramps along motorways (Controlled Access roads) are included even if they do not make a connection to an included road.
- U-Turn Lanes that are for use by public vehicles (e.g., police and ambulance) only.

2.4.1.2 Roads and Ferries Attributes/Conditions (Included when Applicable)

Naming

- *Alternate Name/Official Name*
- *Base Name*
- *Bridge Name* (select countries only)
- *Building Name* (for Point Addresses)
- *Street Name* (for Point Addresses)

- *Street Type*
- *Prefix of Street Name*
- *Suffix of Street Name*
- *Explicable*
- *Intersection Name* (select countries)
- *Junction Name*
- *Postal Name*
- *State Name*
- *Vanity Name*
- *Exit Number*
- *Alternate Exit Number* (where applicable)
- *Route Number*
- *Route Number on Road Sign*
- *Name Route Type*
- *Overpass Name* (select countries)
- *Route Direction*
- *Scenic Route Name* (select countries)
- Transliteration and Transcription (where applicable)
 - *Transliterated Street Type*
 - *Transliterated Prefix*
 - *Transliterated Suffix*
 - *Transliterated Route Direction*
- *Shortened Name*

All Other Attributes

- *Approximate Seasonal Closure*
- *Bridge/Tunnel*
- *Carpool Road* (where applicable)
- *Center Divider Marker*
- *Construction Status*
- *Controlled Access*
- *Coverage Indicator*
- *Dependent Access Type*
- *Dependent Special Speed Type* (country/extract dependent)

- *Detailed City Indicator* = 1
- *Divider* (Composite)
- *Direction Category*
- *Display Class*
- *Enhanced Geometry* (where applicable)
- *Enclosed Traffic Area*
- *Environmental Zone* (where applicable)
- *Environmental Zone ID*
- Evacuation Route attributes (select countries only)
- *Express Lane*
- *Feature Type*
- *Ferry Type*
- *Four-Wheel Drive* (where applicable)
- *Full Geometry* = Y
- *Functional Class*
- *HOV Attribution* (where applicable)
- *Intersection Category*
- *In-Process Data* = 0
- *Junction Type*
- *Lane Category*
- *Lane Direction of Traffic Flow*
- *Lane Divider Marker*
- *Limited Access Road*
- *Low Mobility*
- *Multiply Digitised*
- *Number of Lanes*
- *Number of Passengers*
- Overpass/Underpass (select countries)
- *Ownership*
- *Parking Information-Composite* (select countries)
- *Parking Lot Road* (where applicable)
- *Paved*
- *Physical Number of Lanes*

- *Positive/Negative Direction*
- *Plural Junction Type*
- *Positive/Negative TPEG* (select countries)
- *Priority Road*
- *Ramp*
- *RDS-TMC*
- *Reversible*
- *Road Class* (select countries)
- *Scenic Route* (select countries)
- *Short Construction Warning*
- *Special Speed Type* (country/extract dependent)
- *Special Speed Limit* (country/extract dependent)
- *Special Restrictions*
- *Speed Category*
- *Speed Limit Source*
- *Speed Limit Unit*
- *Speed Restriction* (country/extract dependent)
- *Through Traffic*
- *Toll Feature Type*
- *Toll System Type*
- *Toll Road*
- *Travel Direction*
- *Urban*
- *Usage Fee Required*
- *Validity Period*
- *Variable Speed Limit Applicable*
- *Variable Speed Sign ID*

Conditions

- *Blackspot*
- *Construction Status Closed*
- *Environmental Zone*
- *Evacuation Route*

- *Junction View*
- *Lane Direction Of Travel*
- *Lane Traversal*
- *No Overtaking*
- *Parking Information*
- *Permitted Driving Manoeuvre*
- *Protected Overtaking*
- *Railway Crossing*
- *Restricted Driving Manoeuvre*
- *Short Construction Warning*
- *Special Explication*
- *Special Speed Situation*
- *Through Route*
- *Toll Structure*
- *Traffic Signal*
- *Traffic Sign*
- *Usage Fee Required*
- *Variable Speed Limit Applicable*
- *Variable Speed Sign*

2.4.1.3 Roads and Ferries Attributes (Not Included)

- *Gate*
- *Vanity Name*
- *Access Restriction*

2.4.1.4 Roads and Ferries Attributes (Not Required)

The following attributes are not required. The attributes that have a Boolean value will be defaulted to “N”. The coded value attributes are not published.

If available, the attribute and actual value may be included.

Addressing

- *Address Format Left*
- *Address Scheme Left*
- *Address Type*

- *First House Number Left/Right*
- *House Number Structure*
- *Last House Number Left/Right*
- *Point Addressing*
- *Address*
- *Display Location Longitude*
- *Display Location Latitude*

2.4.2 Administrative Inclusion

- See Section 2.2.2, *Administrative Inclusion*.
- RDF_ZONE (Not Required)
- RDF_POSTAL_AREA (Not required)
- RDF_CARTO.FEATURE_TYPE = 900101 (Not required)
- RDF_CARTO.FEATURE_TYPE = 900156

2.4.3 Cartographic Inclusion

- Airport:
 - In the U.S., Puerto Rico, and U.S. Virgin Islands: FAA certificated airports are included.
 - Additional airports where significant.
 - Military airports are not included.
 - Aircraft Roads:
 - For included airports (see above), all runways within an airport area feature are included. The runways and aircraft taxi strips are represented as a separate feature from the Airport Area Feature.
 - Aircraft Roads are not included for military bases.
 - Administrative Area Boundaries
 - *Country* (Feature Type(0907196)) linear feature
 - *State* (Feature Type(0909996)) linear feature
 - *County* (Feature Type(0900170)) polygonal feature
- Note: A polygonal *City* (Feature Type(0900101)) boundary is also present in some countries.
- *Cartographic Country Boundary* (linear feature)
 - *Cartographic Settlement Boundary*
 - *Built-Up Area*
 - For Built-up areas greater than 250,000 metres²/2,700,000 feet²

- For every included *Built-up Area* (Feature Type(0900156)) that is included
- Island with navigable feature or greater than 250.000 metres²/2.700.000 feet²¹
North America: Islands greater than 1million metres²/10.800.000 feet² are included.
- Land Use Features (greater than 1 million metres²/10.800.000 feet²)
 - ◆ Military Base (North America only)
 - ◆ Native American Reservations (North America only)
- Land use Features (greater than 10.000 metres²/108.000 feet²):
 - Beach
 - Glacier
 - National Park
 - Note: National Park is also included for historic parks, scenic parks, beach parks, and recreation areas.*
 - National Monument
 - State Park
 - Park in Water
- *National Forest*
- Pedestrian Area: Not Included
- Railways
 - ◆ The main lines of all above-ground railways.
 - ◆ The National and Civil railways that comprise the main railway network.
- Woodland (greater than 250.000 metres²/2.700.000 feet²)
- Water Features (polygonal)¹
 - ◆ Bays/Harbours greater than 1 million metres²/10,800,000 feet² if there is a logical point of closure
 - ◆ Canals, Channels, and Rivers if wider than 100 metres/328 feet for at least 5km/3 miles
 - ◆ Lakes (greater than 250.000 metres²/2.700.000 feet² (N.A: greater than 250.000 metres²/2.700.000 feet²))
 - ◆ Oceans
- Water Features (linear)
 - ◆ Canals, Channels, and Rivers if between 25 metres/82 feet and 100 metres/328 feet wide
 - Note: In North America, if between 100 metres/328 feet and 250 metres/820 feet wide*

Note: Other features (similar to Prime inclusion) can be included when deemed significant for a particular country.

1. Specified areas correspond standard inclusion. See *Section 8.3.5.1, Expanded Inclusion (EXPANDED_INCLUSION)* for Standard/Expanded Inclusion rules.

2.4.4 Signs

- Signs at decision points along motorways (Controlled Access roads) and ramps. Signs are also included globally inside National Public Airports.
- Entrance ramp signs on entrances to motorways (Controlled Access roads).
- Additional signs at other locations where such information is navigationally significant.

2.4.5 Points of Interest (POIs)

- Airport
 - Global: International Airports
 - U.S./Puerto Rico/U.S. Virgin Islands: FAA Certificated Airports
- Automobile Dealership
- Ferry Terminal (International)
- Frontier Crossing
- Hotel
- Named Place
- National and State Parks, including United States National Monuments
- National Historical Monuments
- National Tourist Attractions
- Petrol Station
- Rent A Car Facility (at included Airports)
- Rest Area (along Controlled Access road) that include rest rooms and other facilities such as a restaurant or petrol station)
- Restaurants at Airports and Rest Areas only
- Ski Resorts
- Additional POIs may be included, but are not required.

2.4.5.1 POIs Attributes/Conditions (Included when Applicable)

- *Administrative Level* (for *Named Place* POIs)
- *Alternate Name*
- *Brand Name* (for select POI categories)
- *Chain ID* (for select POI categories)
- *Capital Indicator* (for *Names Place* POIs)
- *Contact Information*

- *Contact Type*
- *Diesel* (for Petrol Stations in select countries only)
- *Display Location Longitude/Latitude* (for select POI categories)
- *Entrance Type* (where applicable)
- *Importance*
- *In Vicinity* = N
- *Official Name*
- *Open 24 Hours* (for Petrol Stations only)
- *Percent From Reference Node*
- *Population* (for Named Place POIs)
- *Preferred*
- *Private*
- *Rest Area Type* (for Rest Areas)
- Restaurant-specific attributes
- *Street Name*
- *Telephone Number*
- *POI Association*
- *Parent-Child Association*
- *POI Side*
- *Subcategory* (for select categories only)
- *Vanity City*

2.4.5.2 POI Attributes (Not Required)

The following attributes are not required. The attributes that have a Boolean value are defaulted to "N". The Coded value attributes are not published.

If available, the attribute and actual value may be included.

- *Full House Number*
- *House Number*
- *Address Format*
- *Actual Address*
- *Actual Admin* (Component of parsed Actual Address)
- *Actual House Number* (Component of parsed Actual Address)
- *Actual Postal* (Component of parsed Actual Address)

- *Actual Road Name* (Component of parsed Actual Address)

2.5 City-to-City

City-to-City coverage is minimum coverage in areas before completing Prime, Complete, or Network coverage. Examples include:

- Connector Roads only, in a country where there is no existing coverage.
- Connector Roads to a city in a country where there is no other existing coverage.
- Connector Roads between existing Prime, Complete, or Network coverage areas.

This coverage level allows turn-by-turn guidance.

In City-to-City coverage areas, links with Functional Class (FUNCTIONAL_CLASS) = 1-2 are published with: *Detailed City* (DETAILED_CITY) = N and *In-Process Data* (IN_PROCESS_DATA) = N.

City-to-City coverage refers to three types of cities:

- Target Cities
- Connector Cities
- Other Cities along the Connector Roads

A network of major roads connects these cities. See *Figure 2-1* for an overview of these types of cities.

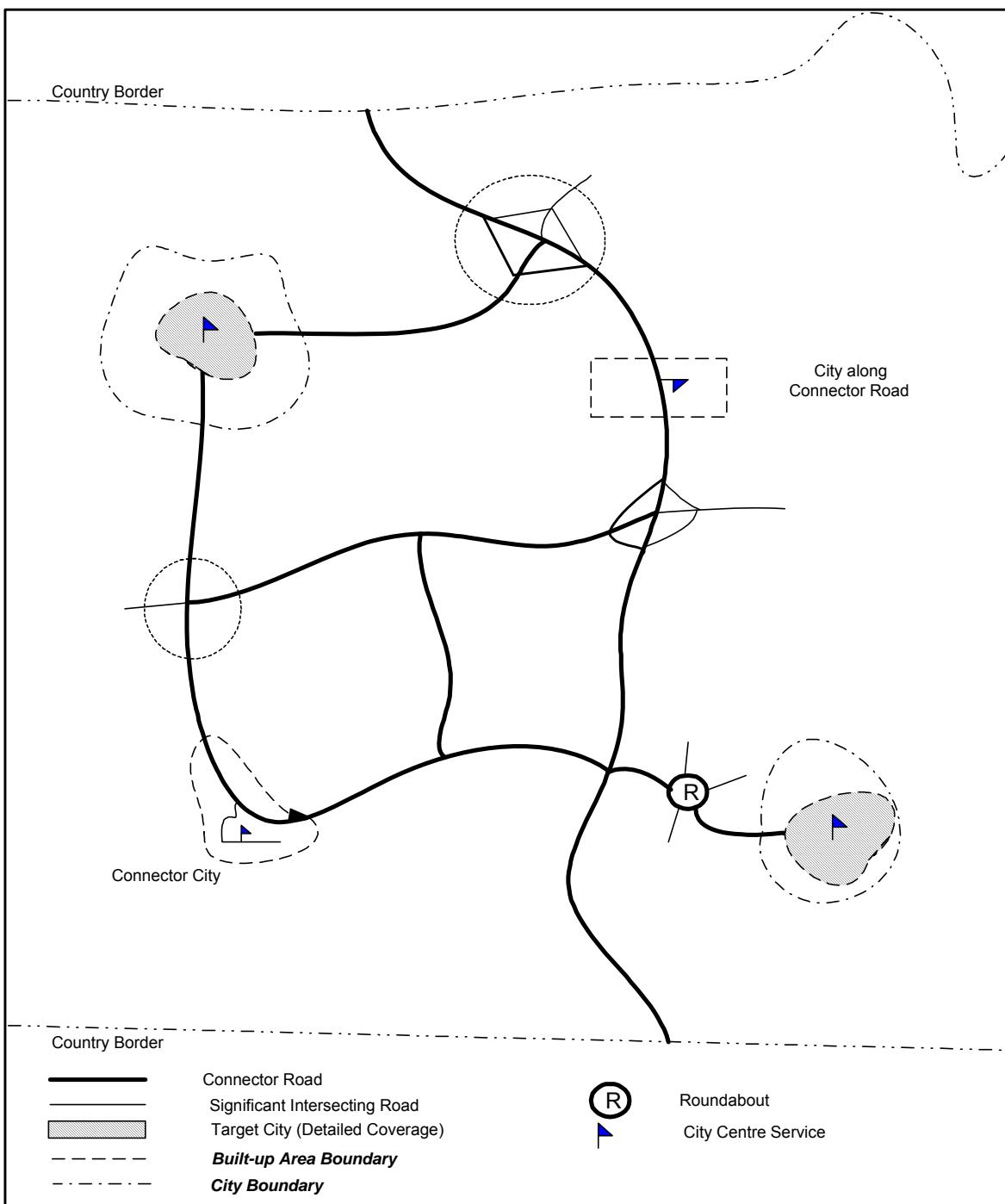


Figure 2-1

2.5.1 City

Target City

Everything within the coverage area of the Target City is published according to the Prime coverage specification. All links within the Target City are published with: DETAILED_CITY = Y and IN_PROCESS_DATA = N

FUNCTIONAL_CLASS attribution may contain dangles at the edge of the coverage area.

The outline of a Target City is based on administrative area boundaries or prominent physical features such as ring roads or rivers. Map display and maximising options for routing are the most important factors evaluated when defining the outline of a Target City.

Connector City

Connector Cities are included as part of a phased implementation process. All roads required to route to the Named Place POIs are included. The Connector Cities are DETAILED_CITY = N. In the future, they will be upgraded to Target Cities.

Other Cities along Connector Route

The Named Place POIs for these cities are located along the Connector Route. For detailed specifications on POI placement, see *Section 2.5.8, Points of Interest (POIs) (Connector Roads)*. These cities also have an associated Built-up Area polygon and receive administrative coding as detailed in *Section 2.5.6, Administrative Coding*.

2.5.2 Connector Roads

Roads that connect Target Cities, Connector Cities, and existing coverage in bordering countries.

2.5.3 Significant Intersecting Roads

Additional geometry at intersections where turn-by-turn guidance along the Connector Route is needed. This does not include all intersecting geometry that may exist in reality.

2.5.4 City-to-City Inclusion Rules

The following is a minimum specification requirement. These areas may be enhanced over time to create Prime, Network, or Complete coverage areas

2.5.4.1 Roads

The following area included where applicable:

- Major Roads (all Functional Class(Level 1) roads.

Note: In the United States, Functional Class(Level 1) and Functional Class(Level 2) and additional main logical connections between those functional class roads.

- Connections to Named Place POIs of included Long Haul cities.

- Rest Areas along motorways (Controlled Access roads).
- Connection to public airports with national importance and international flights.
- Road network within included airport areas according to the Airport specifications.
- Significant intersecting roads: Additional geometry at all intersections where turn-by-turn guidance is needed. See *Figure 2-2*.
- All Ramp geometry if the ramp is part of a decision point and is included and coded as a stub. See *Figure 2-3*.

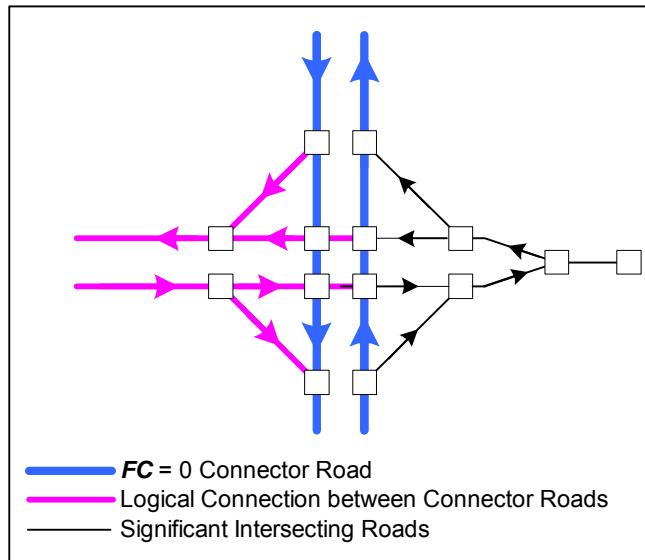


Figure 2-2

— FUNCTIONAL_CLASS = 1 Connector Road
— FUNCTIONAL_CLASS = 2 Logical Connection between Connector Roads
— Significant Intersecting Roads

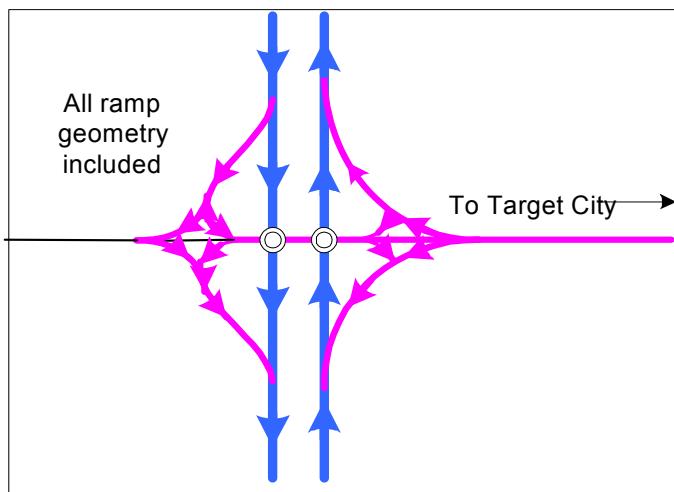


Figure 2-3

- > FUNCTIONAL_CLASS = 1 Connector Road
- > FUNCTIONAL_CLASS = 2 to Target City
- Significant Intersecting Roads

2.5.4.2 Additional Requirements

- FUNCTIONAL_CLASS connectivity is maintained with existing adjacent databases. The Connector Roads are accessible when merged with other databases, either via road or by Boat/Rail Ferry. However, FUNCTIONAL_CLASS attribution may contain dangles at the edge of the coverage area.
- At a minimum, Network coverage specifications for Geometric Accuracy are met.
- Only Roads and Ferries that are accessible for Autos and Through Traffic are included.

2.5.5 Cartographic Inclusion

- Administrative Features
- Country Area Feature
- Country Linear Feature

Note: In some countries the Country border may not fully represent reality if the Connector Route does not pass through a significant portion of the country.

- Administrative Level 2 for the complete country (based on the Country inclusion).
- “Spanning Set” polygons at a Spanning Set Level appropriate for the country (based on the Country inclusion above):
 - Accurate Administrative polygons in areas through which Connector Roads pass.
 - “Filler” polygons for areas not containing connector roads (see *Figure 2-4*).

Note: "Spanning Set" means the set of polygons completely covers the country without any gaps and without overlapping. In most countries, such an administrative level exists in reality, but in some cases it does not. If the administrative boundaries are not spanning in reality, "Filler" polygons with filler names and feature types complete the set. "Filler" polygons may not represent reality with regard to cartography, naming, or feature type.

- Where the Built-up Area concept exists in reality, Built-up Area polygons are included for Target Cities, Connector Cities, and Other Cities along the Connector Roads for which a Named Place POI is included.
- City Boundaries attribute for Target Cities only
- National Forest
- Oceans (where applicable)
- Significant cartographic features (e.g., National Parks, major rivers)
- Airport polygon with Aircraft Roads for included airports

Note: Other features (similar to Prime inclusion) can be included when deemed significant for a particular country.

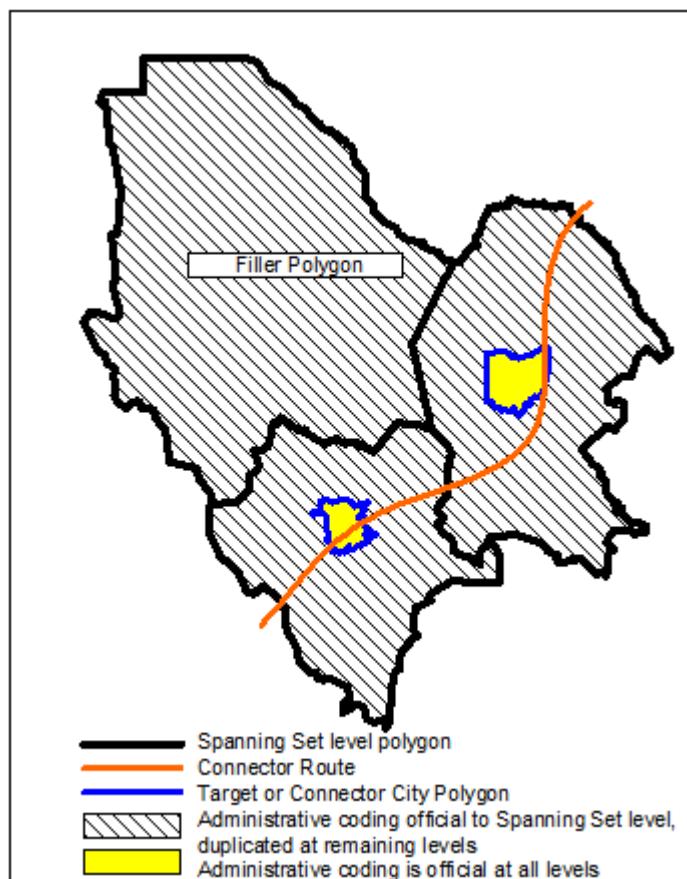


Figure 2-4

2.5.6 Administrative Coding

The Administrative Coding for the Connector Roads follows the official administrative structure for the country. Official administrative coding is reflected down to the level of the “Spanning Set” and duplicated at the remaining levels.

For example, Portugal has four Administrative Levels. The “Spanning Set” is Level 2. The administrative structure within a Filler area is:

Administrative Level	Admin Code Structure	Example	Named Place POIs Required Y/N
1	Official	Portugal	No
2	Official	Faro	No
3	Official Duplicated	Faro	No
4	Official Duplicated	Faro	No

Note: The Named Place POIs are not included because there are no roads in these areas.

2.5.6.1 Feature Name

Primary Route Number names and any other official names are published for Connector Roads in the Connector Cities and Other Cities along Connector Route where applicable. For example, a road may be named “US-23” in the rural area, but through a city additional names may be applied because they are the more recognizable names on the road signs.

2.5.6.2 Attributes Included (Connector Roads)

- Attributes meet Network coverage specifications.
- Connector Roads outside the Target City are published with:
 - DETAILED_CITY = N
 - IN_PROCESS_DATA = N
 - FULL_GEOMETRY = N
- Connector Roads are accessible to Autos and *Through Traffic*. Other *Vehicle Types* are published per reality.

2.5.6.3 Attributes Included (Significant Intersecting Roads)

- Significant Intersecting Roads are published with:
 - DETAILED_CITY = N

→ IN_PROCESS_DATA = N
 → FULL_GEOMETRY = N
 → FUNCTIONAL_CLASS = 5.

- Significant Intersecting Roads that are multiply digitised are digitised as in *Figure 2-5*. The roads are connected at one point and one additional link is added.
- One ways may not be published for links that are singly digitised.
- Names are published for Significant Intersecting Roads only if the Names are available. The Names are not required.
- Significant Intersecting Roads will not necessarily be accessible for Autos and *Through Traffic*. All other *Vehicle Types* are published per reality.

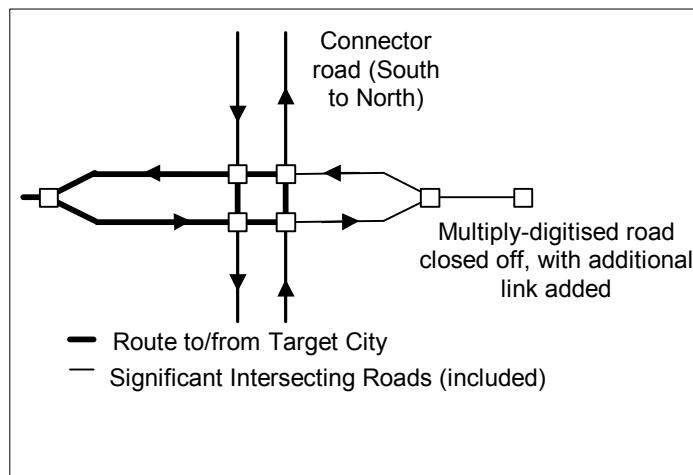


Figure 2-5

2.5.7 Signs and Conditions (Connector Roads)

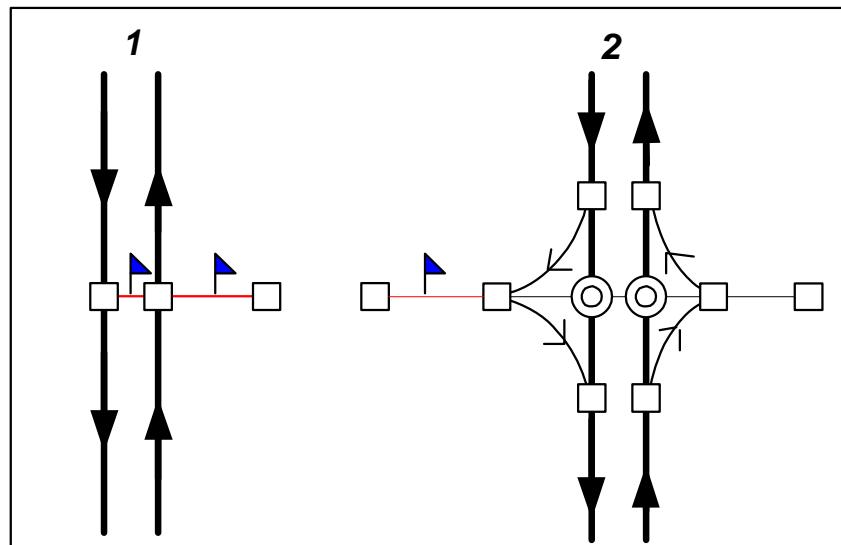
- Signs are published:
 - At points along the Connector Roads where the driver must enter or exit the motorway.
 - Where a motorway splits into two or more motorways.
- Signs are not required for ramp interchanges that are not part of the Connector Network.
- Conditions (such as RDF_CONDITION.CONDITION_TYPE = 9 Special Explication, RDF_CONDITION_RDM.RDM_TYPE, and RDF_CONDITION.CONDITION_TYPE = 3 Construction Status Closed) are not required, but may be published.

2.5.8 Points of Interest (POIs) (Connector Roads)

- For Connector Cities, the Named Place POI is placed according to Long Haul specifications.

RDF_CITY_POI.POPULATION is published for Named Place POIs for all POIs with LONG_HAUL and for Named Place POIs with more than 50,000 inhabitants. The LONG_HAUL, Capital Indicator - RDF_CITY_POI.CAPITAL_COUNTRY, CAPITAL_ORDER1, CAPITAL_ORDER_2, CAPITAL_ORDER8, and Vanity City - RDF_POI_VANITY_CITY.VANITY_CITY_ID, ADM_POI_SUBREGION.VANITY_CITY = Y, ADM_CITY_POI_SUBREGION.VANITY_CITY = Y attributes are published if applicable.

- For other Cities along Connector Route, if the Named Place POI is located along a path that is MULTI_DIGITIZED = Y, links are added within the City/Built-up Area for placement of the POI as shown in *Figure 2-6*.
- For other Cities along Connector Route, if the Named Place POI is located along a path that is MULTI_DIGITIZED = N, the POI is placed on the appropriate link.
- All POIs (except Named Place) on the Connector Roads are published according to Network coverage specifications.



Example 1,
RDF_NAV_LINK.CONTROLLED_ACCESS = N

— links added for placement of Named Place POI

Example 2
RDF_NAV_LINK.CONTROLLED_ACCESS = Y

Figure 2-6

2.6 Base

Base coverage consists of roads that are included in HERE Map Content but are not yet verified.

Geometric Representation

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3.1 Overview

The basic geometric primitives represented in RDF are nodes, links, and faces. A node can be further classified as either the end node of a link or the shape point (intermediate node) defining the geometric curvature of a link. Shape points and nodes are represented in the RDF_LINK_GEOMETRY table, while nodes are also represented in RDF_NODE table. A link is bounded by two nodes identifying its end points and may include shape points representing curvature. The RDF_LINK table identifies the beginning and end node of a link. A Face object representing a polygonal Cartographic feature consists of a closed set of 1 or more links representing the boundary of that Cartographic feature.

Nodes

Nodes can represent:

- Links intersecting at the same Z-Level.
- A change in attribute information (e.g., a name change, a bridge, tunnel, etc.).
- An intersection with a cartographic feature such as an administrative border or park.
- The geographic perimeter of a database.
- The end of a link.

Shape Points

The shape points of a link can represent:

- The curvature or sharp bend in the link that represents the real-world feature.
- The crossing of links at different elevations: Z-level.

Note: A node or shape point is required for all link crossings. A link crossing without a shape point or node is not allowed.

Note: A node cannot be attached to more than seven navigable links.

Links

Links can represent:

- Navigable Features (e.g., Roads)
- Non-Navigable Features (e.g., links that comprise a cartographic feature).

Note: For products other than Enhanced Curvature and Enhanced Height and Slope, a link contains two end node points and fewer than 490 shape points.

Links can have a length between 2 metres/7 feet (minimum) and 10 kilometres/6.2 miles (maximum).

Note: Links representing ferry connection are exception.

Cartographic Features

Cartographic Features (Cartographic objects) can represent:

- Cartographic features are comprised of a closed set of links (e.g., lakes, parks, municipalities)

3.2 Reference Node and Non-Reference Node

In addition to identifying the two end nodes, RDF_LINK.REF_NODE_ID publishes the reference node and RDF_LINK.NONREF_NODE_ID publishes the non-reference node of the link.

Reference node and non-reference node are identified using the following rules:

- The reference node is the node with the lower latitude. See Example 1 in *Figure 3-1*, where A is the reference node.
- If the latitudes of both end nodes are identical and their longitudes differ, the reference node is determined by the end node with the lower longitude. See Example 2 in *Figure 3-1*, where A is the reference node.
- If, however, the latitudes and longitudes of both end nodes are identical but their Z-levels are different, the reference node is determined by the end node with the lower Z-level. See Example 3 in *Figure 3-1*

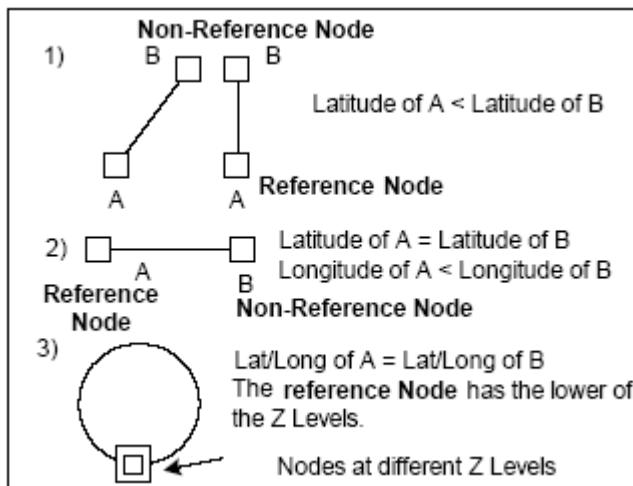


Figure 3-1

- The Non-Reference Node and Reference Node of a link may be the same node. This is called a teardrop. A teardrop link always contains at least two shape points. Teardrops are only valid for features other than road. Nodes are added to avoid teardrop situations on roads, as shown in *Figure 3-2*.

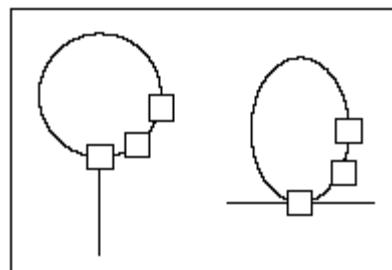


Figure 3-2: Teardrop

Side orientation is established using the Reference Node and Non-Reference Node. The Reference Node is located at the “beginning” of a link. The Non-Reference Node is located at the “end” of a link. Side orientation is used to assign sides to a link. The “right side” of a link is the side on the right when facing the Non-Reference Node, or “end” of a link, from the Reference Node, or “beginning” of the link. The right and left sides of a link are used to assign attributes such as address ranges and administrative area information.

3.3 Cartographic Feature Formation

A polygonal cartographic feature is comprised of a set of Faces. Each Face is comprised of a set of closed links. In this case, “closed links” means connected at X and Y coordinates, without a gap in geometry, name, or Feature Type.

A Face is comprised of a number of links. A link can participate in several Faces. Each Face has its own CARTO_ID published in the RDF_CARTO table. For each link that comprises that Face, there is an entry in RDF_FACE_LINK. The Carto name is published in the RDF_FEATURE_NAME table, where FEATURE_ID represents the CARTO_ID. Polygonal cartographic feature names are not associated with the individual links defining the cartographic feature. Names for Administrative Cartographic features are shared with the corresponding Administrative Area (RDF_ADMIN_PLACE) and therefore, should be retrieved via RDF_CARTO.NAMED_PLACE_ID.

Cartographic features can be comprised of one or more Faces. *Figure 3-3* shows a situation (disjoint polygons) where two Faces are defined for a cartographic feature; *Figure 3-4* shows a situation (polygon with hole) where one Face is defined for a cartographic feature.

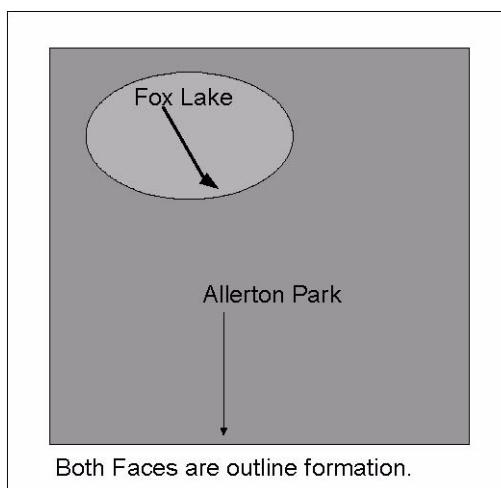
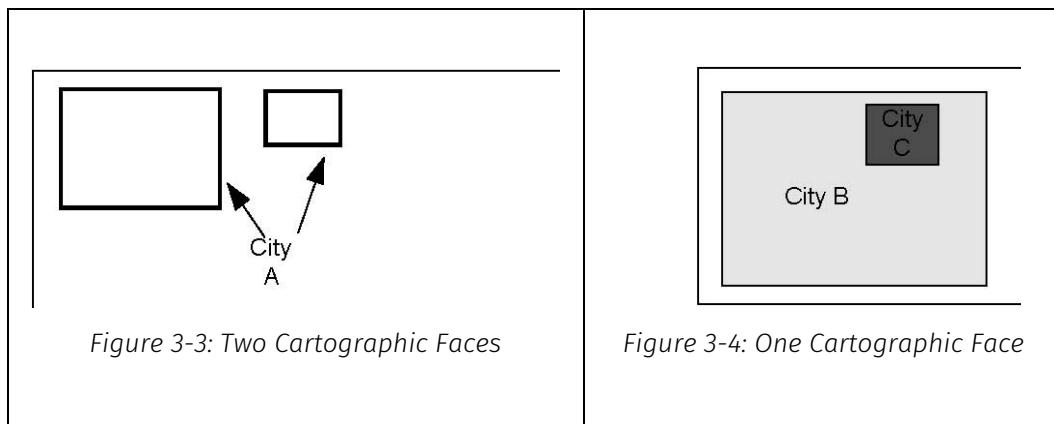


Figure 3-5: Cartographic Feature Outline Formation

A cartographic feature is either outline formation or full formation. Outline formation can be used for all cartographic features not listed in the full formation rules below. Outline formation requires representing only the perimeter of the feature. A lake inside of a park is an example of outline formation, as shown in *Figure 3-5*. The park feature and feature code are represented only on the perimeter of the park.

Full formation requires digitising the perimeter and “holes” or “pockets” enclosed within a cartographic feature but are not considered a part of that cartographic feature. Full formation is required only for water cartographic features when islands exist and airport runways when they have holes. In both cases, the holes must meet cartographic feature size inclusion rules. Small islands that contain roads must always be full formation, regardless of the size. In some cases administrative boundaries are represented using full formation cartographic features. When using full formation representation, the “hole” is part of the cartographic feature and therefore references the name of the feature, as shown in *Figure 3-6*.

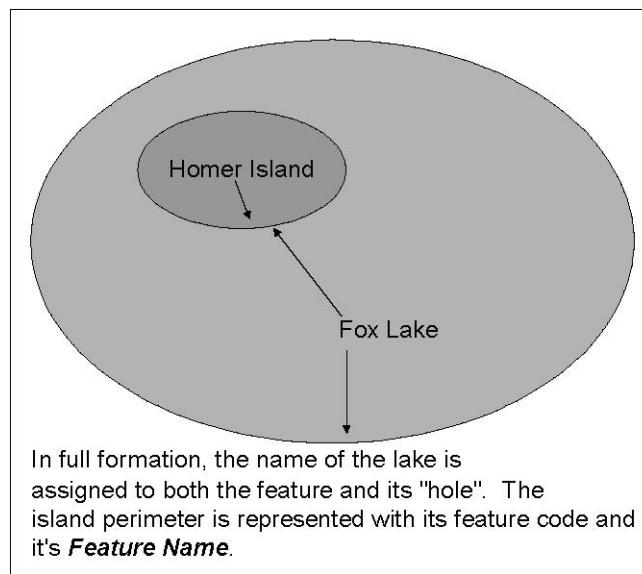


Figure 3-6: Cartographic Feature Full Formation

Unnamed islands located inside a water cartographic feature receive the same Feature Name and Feature Type of the water cartographic feature as shown in *Figure 3-7*.

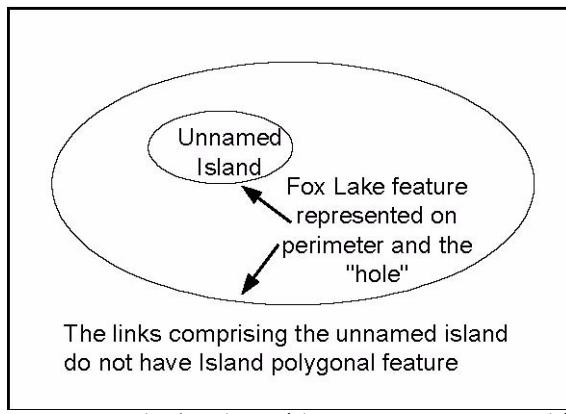


Figure 3-7: Unnamed Islands Inside a Water Cartographic Feature

3.4 Dedicated Raw Core Geometry

Dedicated raw core geometry is published in the following tables:

- RDF_LINK_GEOMETRY, which stores the full set of coordinates (nodes and shape points) for each link, where coordinate pairs are ordered from Reference Node to Non-Reference Node.
- RDF_NODE, which stores the coordinates for each node.

Node coordinates are represented at two locations: once in the RDF_NODE table and once in the RDF_LINK_GEOMETRY table (SEQ_NUM = 0 (Reference Node) or SEQ_NUM = 999999 (Non-Reference Node)).

The Z_COORD column is included to represent absolute elevation data (i.e., metres above sea level). Column Z-Level is used to represent the relative Z-level as applicable to each coordinate pair. This field is filled for all coverage areas.

3.5 Matching Links and Nodes between Databases

3.5.1 Geometry

- All nodes and shape points along a coincident link match so there is an equal number of links and sub-links between databases. *Aligned* (IS_ALIGNED) applies to all nodes and shape points that have been matched between sub-area product boundaries. Nodes only match to other nodes and shape points only match to other shape points. While the links, nodes, and shape points are duplicated, the features represented are not duplicated. Only ocean polygons may overlap between databases. *Aligned* (IS_ALIGNED) is not set where ocean polygons overlap or when an ocean is coincident with another country's land mass (distance between 2 countries < 200 kilometres).
- Z-Level (ZLEVEL) coding is consistent across database boundaries to ensure connectivity when databases are merged within the same quarter.
- The nodes and shape points of the ocean links are not set to *Aligned* (IS_ALIGNED), but they match the shoreline and islands exactly. *Aligned* (IS_ALIGNED) applies to the nodes and shape points of the adjacent sub-area product boundaries as if the ocean were not present. See *Figure 3-8*.

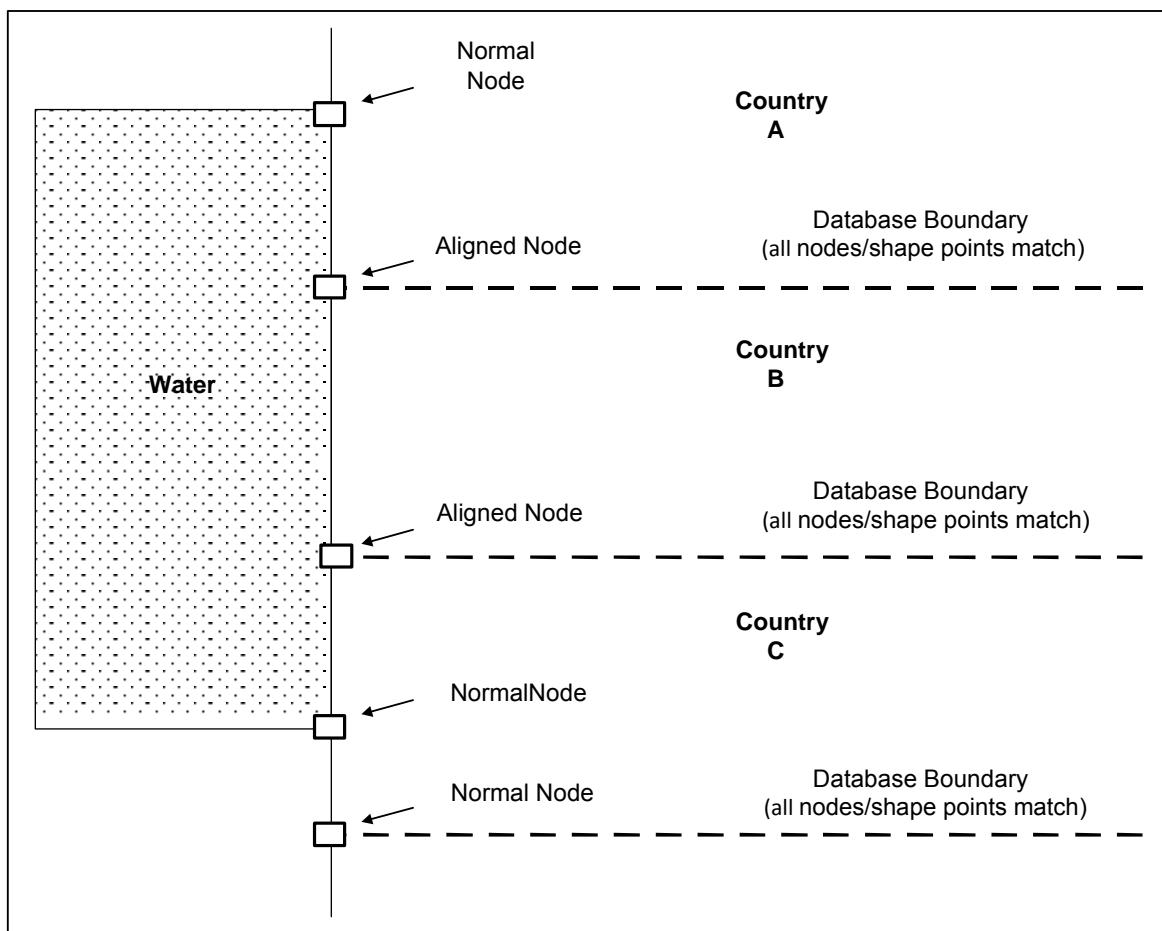


Figure 3-8

- *Aligned* (IS_ALIGNED) is used where ferries intersect between neighbouring sub-area product boundary. In order to avoid overlapping ferry routes in ocean polygon overlap areas, the ferry routes, in most cases, do not terminate at the perimeter of the ocean polygon. The ferry routes meet at a logical midpoint of the overlapping ocean area, as shown in *Figure 3-9* below.

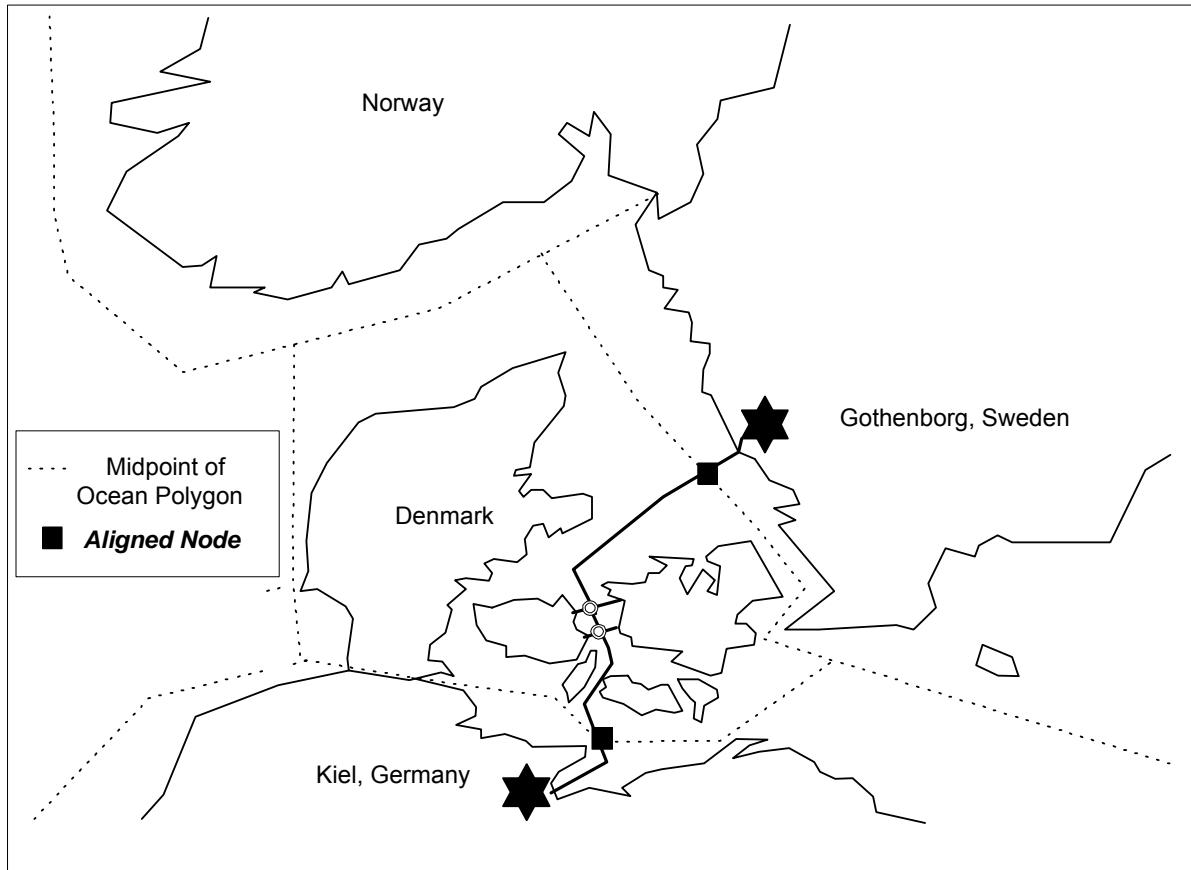


Figure 3-9

3.5.2 Linear Features

- Roads and Ferries coincident with a sub-area product boundary (not a country boundary) do not exist in both sub-areas. One sub-area is picked at random for representing the road feature. In *Figure 3-11*, Road A runs partly on the border in both databases. That part of the road is only represented in Database 1.
- The only Line Features duplicated between sub-areas are administrative boundaries. For example, in reality there is one administrative boundary between the states of California and Oregon but these states are in 2 different databases. The boundary link will exist in both sub-areas but the administrative features are split respectively: "California" and "Siskiyou" are included as the administrative features on the boundary for Database 1 containing California, and the features "Oregon" and "Jackson" are only included in Database 2 containing Oregon. See *Figure 3-10*.

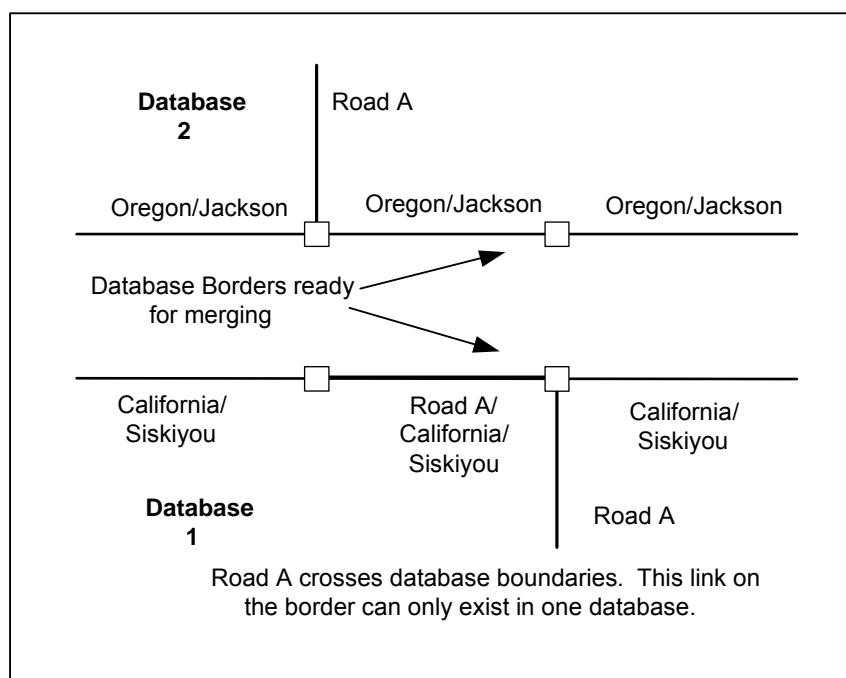


Figure 3-10

- A road and a country feature cannot coincide with each other. The link is digitised separately from the country boundary. See *Figure 3-11*.

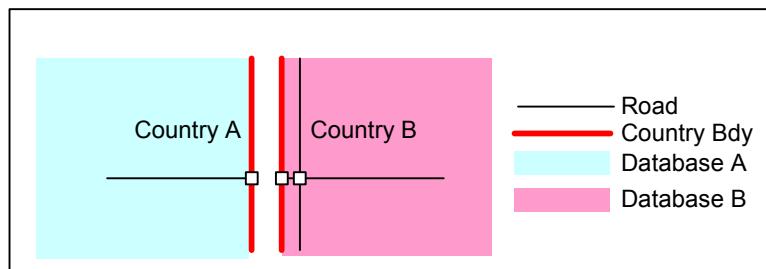


Figure 3-11

3.5.3 Polygons

- If a polygon crosses sub-area borders, then two separate polygons exist, one in sub-area.
- If a database boundary is defined by an administrative boundary that runs down the middle of a river polygon, then the river is split, one polygon in each database, for example, the Rhine River between France and Germany.

3.5.4 Administrative Area Coding

- On country boundaries, the appropriate administrative information is applied per side of the boundary. This is also true when a country is fully contained inside another country. For example, Monaco is fully contained within France.
- On non-country database borders the appropriate administrative coding is applied to each side. This means that even in the Oregon database, there is coding for California that represent administrative areas on the border. However, there is no any corresponding polygonal or linear features (as explained above) for these features.

3.5.5 Other

- Other attributes such as Feature Name, Direction of Travel, Access Characteristics, etc., are consistent across databases.

3.5.6 Attributes

3.5.6.1 Aligned (IS_ALIGNED)

Definition	<u>For Nodes:</u> Identifies nodes that are located at sub-area product boundaries.
	<u>For Links:</u> Identifies link aligned at a product boundary.
Table	RDF_NODE RDF_NAV_LINK_STATUS
Column	IS_ALIGNED
Values	Y - Aligned N - Not aligned
Related Attributes	Z Level (ZLEVEL)
Usage	Identifies nodes/links at the boundary of a database for merging with other databases.
Specification	See Section 3.5, <i>Matching Links and Nodes between Databases</i> .

3.5.6.2 Z Level (ZLEVEL)

Definition	Represents a relative vertical position of links, shape points, and nodes in relation to "0" when features do not meet at grade. For example, the intersection nodes of a motorway and an overpass will have different Z Levels.
-------------------	--

Note: The value is not an actual elevation.

Table	RDF_LINK_GEOMETRY RDF_NAV_LINK_STATUS RDF_NODE
Column	ZLEVEL
Values	Valid values for <i>Z Levels</i> range from -4 to +5.
Related Attributes	<i>Aligned</i> (IS_ALIGNED)
Usage	The <i>Z Level</i> is used to represent the crossing over or under of roads and ferries with other roads and ferries (grade separated crossing). The <i>Z Level</i> is also different when roads and ferries cross over or under railways, waterways, Pedestrian Areas, Building Landmark faces, or runways. Primarily, the value determines if two or more links with end nodes at the same latitude and longitude are connected. This attribute is not to be used to indicate actual elevation gain or loss.
Specification	<ul style="list-style-type: none">• <i>Z Level</i> values do not change in Network Areas on an included road if it crosses over another feature (road, railway, waterway) that is not included.• <i>Z Level</i> values do not change for a link that does not cross another link. Nodes or shape points are not added after a bridge in order to “lower” the <i>Z Level</i>.• The <i>Z Level</i> values change when a road crosses over or under another road, a railway, or a Building Landmark polygon.• Water features are represented at a <i>Z Level</i> different from crossing roads and railways.• A <i>Z Level</i> does not change when other cartographic features, not described above, intersect with another feature. For example, when an administrative boundary intersects a road, railway, or water feature, they may share the same <i>Z</i> coordinate.• Occasionally, when representing multi-level road features an link-on-link situation will occur. For example, some bridges have two levels where the top roadbed is directly above the lower. The upper or lower roadbed is reached via a ramp. When this occurs, the nodes for the upper and lower level road links are at the same latitude/longitude but are represented at different <i>Z Level</i> values. See <i>Figure 3-12</i>.• Ferry routes that cross other ferry routes are represented using shape points at different <i>Z Level</i> values. Different ferry routes can only connect at a node at the point where they connect to a road link.

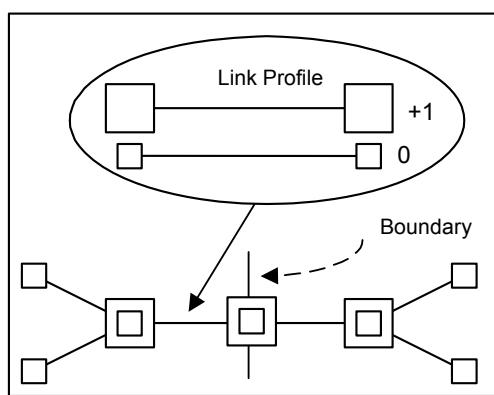


Figure 3-12

3.5.6.3 Map Edge Link (MAP_EDGE_LINK)

Definition	Identifies the outer edge of a link which is located on an RDF database border.
Table	RDF_LINK
Column	MAP_EDGE_LINK
Values	L – Left Side of the Link R – Right Side of the Link
Cardinality	1:0,1
Usage	Map Edge Link flags the outer edge of an RDF database border, and could be used to render the name of an administrative boundary on the correct side of the link.
Specification	<ul style="list-style-type: none">• <i>Map Edge Link</i> is only coded for RDF dataset borders, i.e., the outer links on the edge of an RDF map coverage area.• <i>Map Edge Link</i> attribute is applied only for landmass borders, and not for land-to-water or water-to-water borders between RDF datasets.• <i>Map Edge Link</i> is defined relative to the link direction, i.e., <i>Map Edge Link</i> = 'L' means the outer edge of the dataset is on the Left side of the Link in the positive Link direction (i.e., From Reference Node towards Non Reference Node)• <i>Map Edge Link</i> is only applied for links used in a cartographic context since navigable links can never be on an RDF dataset border.

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Navigable Network

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4.1 Road Network Representation

Road networks can be comprised of various components, such as:

- Bows and teardrops
- Complex features
- Curved features
- Dividers
- Enclosed traffic areas
- Ferry connections
- Ferry route
- Junctions
- Lanes
- Links
- Multicarriageway
- Nodes
- Pedestrian zones
- Roundabouts
- Toll structures
- Traffic islands and turn lanes
- Unstructured Traffic Squares

4.1.1 Link

A link (published in the RDF_NAV_LINK table) is the linear representation of road segments designed primarily for vehicular movement but may also include pedestrian only roads and named walkways.

A link is the basic unit of the road network and is bounded by a Junction node at each end. Individual links must be independent of one another. A change in the status of one link must not affect a change in another.

Links may also have different names or restrictions such as *Travel Direction*.

4.1.2 Lane

A lane is the linear representation of the distinct vehicle paths along a link. A lane shares the geometry of the link for which it provides additional information. If one of the lanes on a link has lane specific information associated with it, a lane object is published in RDF_LANE for each lane on the link.

4.1.3 Junction: Node

A Node (published in the RDF_NODE table) bounds each link or Ferry Connection. Nodes connecting links are referred to as Junctions in this document.

A link or Ferry Connection always forms a connection at a Junction; a link or Ferry Connection is always bounded by exactly two Junctions. A Junction feature represents the physical connection between its adjoining links and Ferry Connections.

A Junction is also located at the end of a dead-end road or at the intersection of a link and an enclosed traffic area, or a link and a Railway Element when they meet at-grade.

A Junction is located at the intersection of two or more road centrelines. If the road centrelines intersect in two different points, the situation has to be interpreted as two different Junctions. A Junction is also present to reflect an attribute change (i.e., the name changes or a speed change).

Grade separated crossings (e.g., bridges, overpasses, and underpasses) may be represented by a shape point instead of a junction. If there is also an attribute change at the grade separated crossing then a Junction is represented.

4.1.4 Ferry Connection: Link

A Ferry Connection is the linear representation of a boat or rail ferry route. Ferry Connections are connected to links at Junctions. Ferry links are published as RDF_NAV_LINK.LINK_ID with BOAT_FERRY = Y or RAIL_FERRY = Y.

4.1.5 Enclosed Traffic Area: Area Feature

An Enclosed Traffic Area is any confined area within which unstructured traffic movements are allowed.

An example of an Enclosed Traffic Area is a (traffic) square, which may occur in the middle of a small town. Enclosed Traffic Area links are published as RDF_NAV_LINK.LINK_ID with INTERSECTION_CATEGORY = 5.

Enclosed Traffic Area polygons are published as RDF_CARTO.FEATURE_TYPE = 900159.

4.1.6 Centreline Digitisation

The method of centreline digitisation is used to represent features as a single line. A centreline represents the median distance between the outer boundaries of a feature. For example, the centreline of a road indicates the middle of a roadbed.

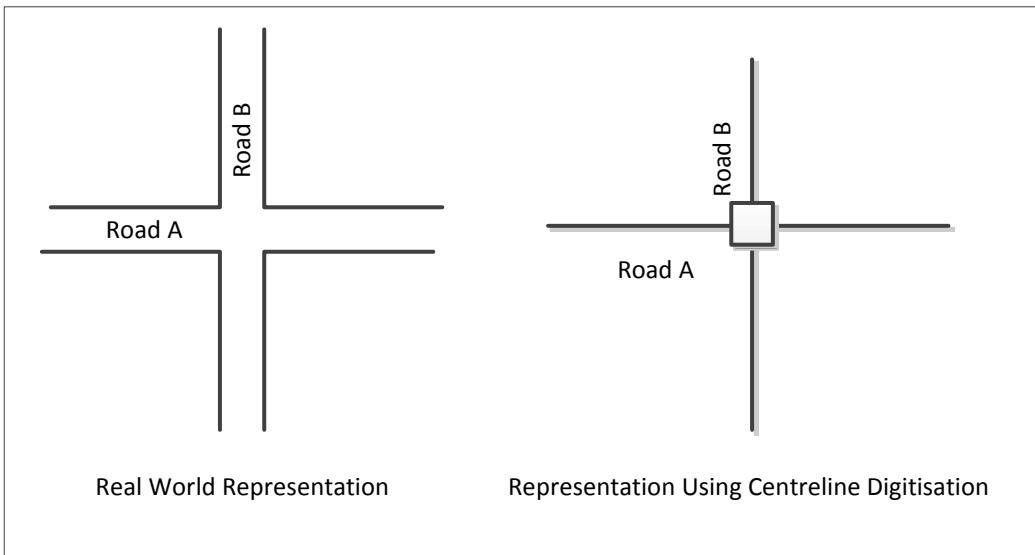


Figure 4-1: Centreline Digitisation

In centreline digitisation, any point along the link cannot deviate more than 3 metres/10 feet perpendicular to the centreline of the road relative to its nodes.

Junctions are represented within 15 metres/48 feet of absolute ground truth for Prime areas and within 100 metres/328 feet for Network coverage areas.

The requirements above may not apply to In-Process Data = Y. The accuracy varies based on the country and source used for adding these Complete coverage area links.

4.1.7 Curved Features

Shape points represent the curves along a link. A minimum number of shape points are used to maintain a curve, within 3 metres/10 feet of a road's centreline. The minimum distance between Junctions, and among Nodes and shape points, is 2 m/7 ft.

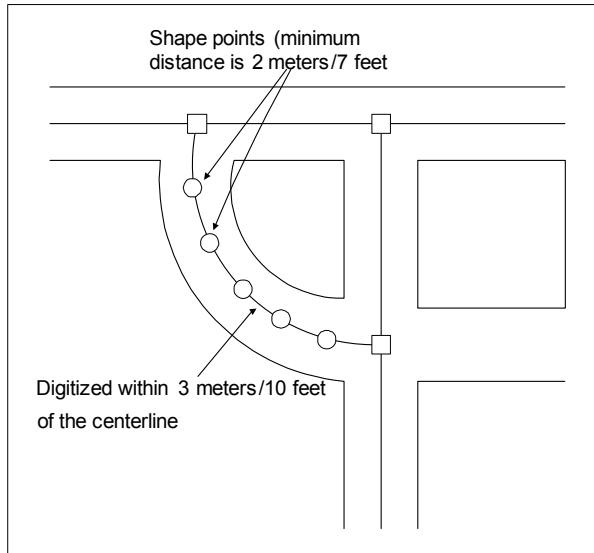


Figure 4-2: Curved Feature Representation

4.1.8 Multicarriageway

A single road may have physically separated roadbeds. Multiple digitisation is the method of representing these roads as multicarriageways. Multiple digitisation occurs when the distance separating these roadbeds becomes significant for map matching. For example, when opposing lanes of traffic diverge to a point, Multiply Digitised roads are coded with MULTI_DIGITIZED = Y. This field is coded in the RDF_NAV_LINK table. At the location where the criteria meets the point of multiple digitisation, the roads are separately digitised.

Roads are multiply digitised when one or more of the following situations exist:

- The road has limited access via ramps (slip roads) and crossings not at grade (motorways).
- A physical divider exists that is wider than 3 metres/10 feet, and longer than 40 metres/131 feet. If the divider stops for more than 25 metres/82 feet, the digitisation changes from multiply to singly digitised. A series of dividers where the gaps are shorter than 25 metres/82 feet are treated as one divider when measuring the length.
- The distance between the centrelines of the opposing traffic lanes is greater than 25 metres/82 feet and a physical divider of any size exists between these lanes.

Extensive Inclusion

In select countries, roads are also multiply digitised if all of the following are met:

- The real-world road centrelines of the opposing lanes are more than (7) seven metres apart.
- A physical divider exists and is at least 0.5 metres wide.

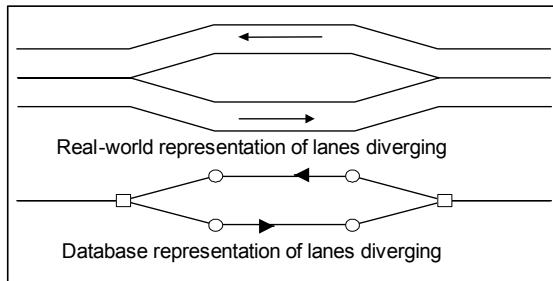


Figure 4-3: Multicarriageway

4.1.9 Separately Digitised Roads

Roads may be separately digitised when one of the following conditions exists:

- A road with one Travel Direction (one-way) splits into two parallel one-way roads separated by a divider and it is navigationally significant.
- A road is separated by a physical divider and is designated as either for reversible Travel Direction, for High Occupancy Vehicles (HOV), or for public vehicles.
- The road meets the criteria of a frontage road, regardless of the size of the divider that separates it from the main road.

4.1.10 Bows and Teardrops

Bows are situations where two links share the same From and To Nodes. Teardrops are situations where a link's From and To Nodes are at the same latitude, longitude, and Z-coordinate (e.g., a cul-de-sac). Bow and teardrop configurations are not valid for Roads and Ferries.

Junctions are added to break bows and teardrops according to the following Specifications:

- When two links share the same From and To Nodes regardless of naming or any other attributes, a Junction is added to eliminate the bow situation (see *Figure 4-4*).
- When a link starts and ends at the same XYZ coordinate, it is broken to eliminate the teardrop situation by adding two Junctions (see *Figure 4-5*).

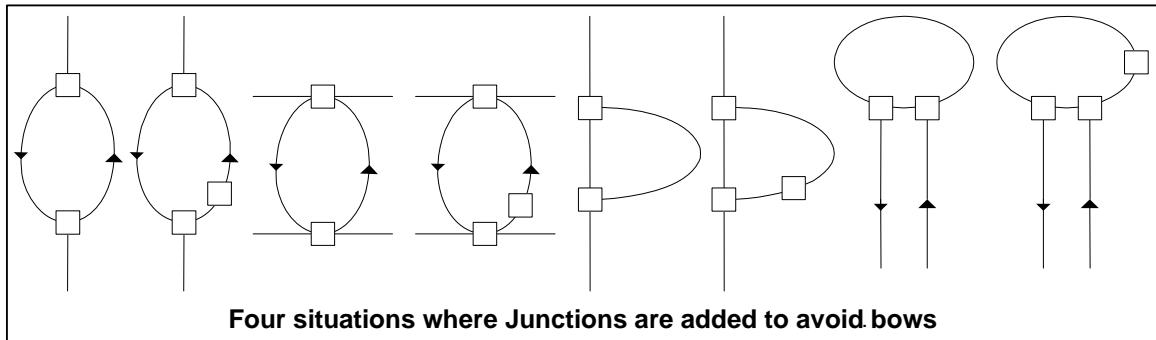


Figure 4-4: Bows and Teardrops with Added Junctions

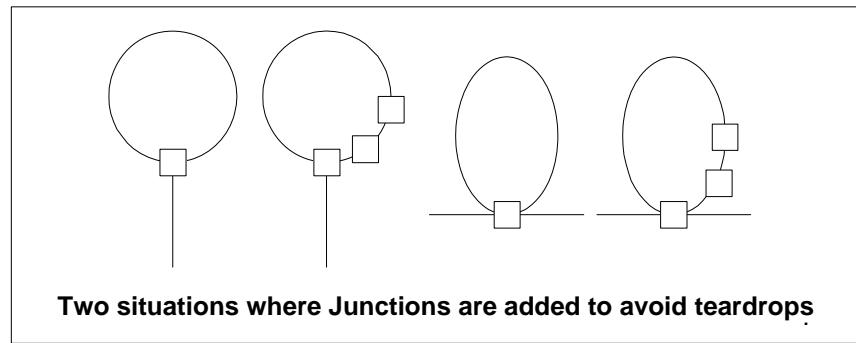


Figure 4-5: Adding Junctions to Avoid Teardrops

4.1.11 Ferry Route

A ferry route is represented as a generalised connection between the road points. In *Figure 4-6*, the Z-coordinate changes for the Junction where the road connects to the water because a road link and a waterway link cannot intersect at the same Z-coordinate.

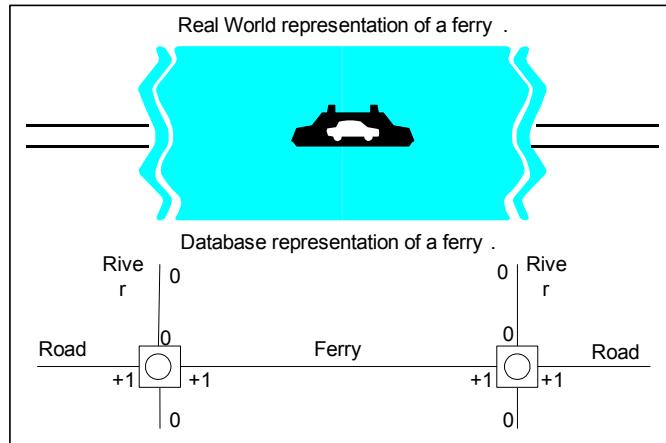


Figure 4-6: Ferry Route

Ferry crossings are represented as shape points with a Z-coordinate change between the Ferry Connections, as shown in *Figure 4-6*. The crossing cannot be represented as a Junction which would imply connectivity. Ferry Connections cannot connect at a Junction except when connecting with links at the shoreline (see *Figure 4-7*).

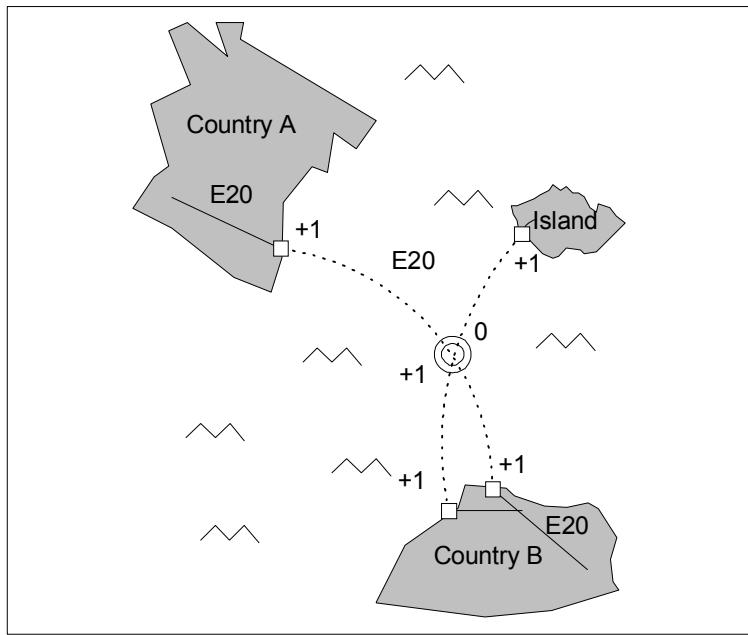


Figure 4-7: Ferry Crossing

Ferry crossings on a linear river are represented by a short Ferry Element. The Junctions are offset a short distance on either side of the river feature (see *Figure 4-8*).

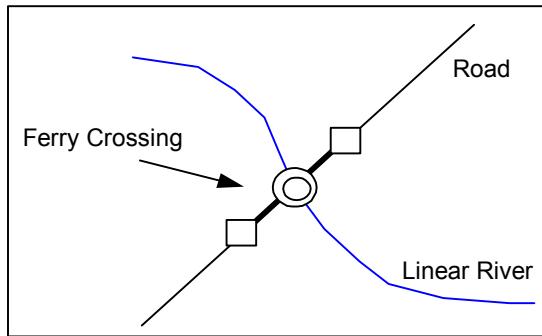


Figure 4-8: Linear Representation of a Ferry Crossing

Passenger only ferry routes are published with Pedestrian = Y only. For example, passenger only ferry routes that are commuter ferries such as Vallejo Baylink Ferry, Alameda Harbor Bay Ferry, Larkspur Ferry as well as passenger only ferry routes to islands with only pedestrian only geometry such Tiburon Ferry and Alcatraz Ferry are published.

If an official name exists, that name is published, otherwise unnamed passenger only ferry routes are named according to the naming rules for unnamed ferry routes.

Pedestrian only geometry is published to connect the passenger only ferry route to the nearest existing geometry. The white links in *Figure 4-9* represent passenger only ferry routes.



Figure 4-9

4.1.12 Pedestrian Zones

Pedestrian zones with a closed-off shopping area that is less than 30 metres/98 feet in width are represented by the centrelines of the addressed streets.



Figure 4-10: Real World Pedestrian Zone Representation

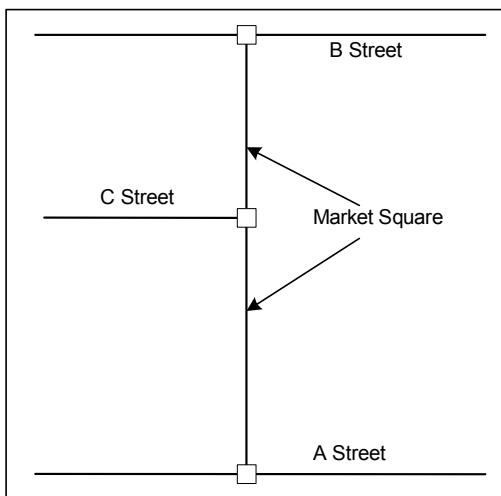


Figure 4-11: Database Pedestrian Zone Representation

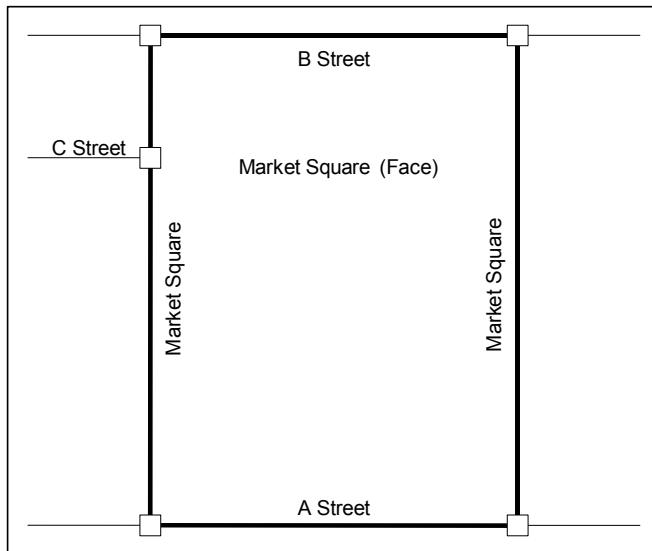


Figure 4-12: Pedestrian Zone Represented by a Cartographic Feature

A pedestrian zone wider than 30 metres/98 feet is represented by a Cartographic Feature (Pedestrian Area), reusing existing road links.

4.1.13 Roundabout and Special Traffic Figure

Standard Roundabout

A roundabout is represented (see *Figure 4-13*) when a divider of any size exists within the roundabout and the diameter of the entire Junction is equal to or greater than 25 metres/82 feet. Smaller roundabouts (10 – 25 metres) may be included where significant or available from a digital source. In some countries (e.g., Malaysia, New Zealand, etc.) roundabouts are included regardless of the size. The

geometry must function as a roundabout to be included. Otherwise, the roundabout is represented as a Junction.

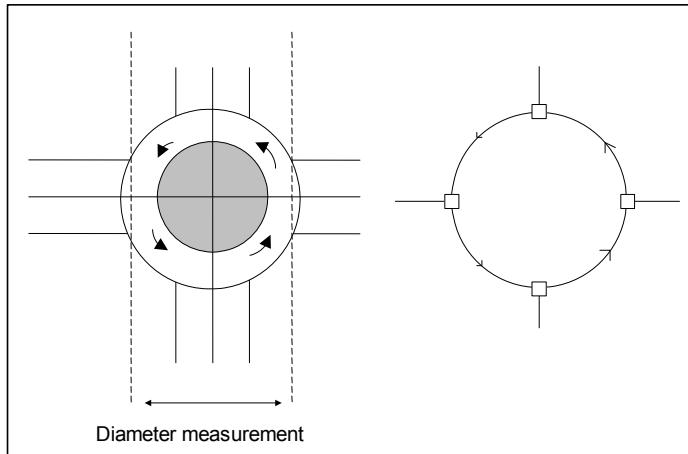


Figure 4-13: Roundabout

Turbo Roundabout

Turbo Roundabouts, roundabouts that have legal dividers or small physical dividers that restrict a lane change and ensure better traffic flow, are also represented as Roundabouts (i.e., without representing the lanes through separate digitisation). Traffic islands however are created prior to the roundabout. See Figure 4-14.

To fully represent a Turbo Roundabout, the following are applied (as shown in Figure 4-14 and Table 4-1):

- *Intersection Category* is applied on the different parts of the roundabout:
 - ◆ *Intersection Category* = 4 (Roundabout) - on the roundabout proper
 - ◆ *Intersection Category* = 2 (Manoeuvre) - green links
 - ◆ *Intersection Category* = 1 (Intersection Internal) - red Links
 See Section 4.4.17, *Grade Category (GRADE_CATEGORY)* for more information.
- *Special Explication* conditions are applied on the splits created by the traffic islands.
- *Restricted Driving Manoeuvre* conditions (of logical type) are applied for the connections that are blocked because of legal or physical dividers.
 See Section 6.4.4, *Restricted Driving Manoeuvre (CONDITION_TYPE = 7)* for more information.

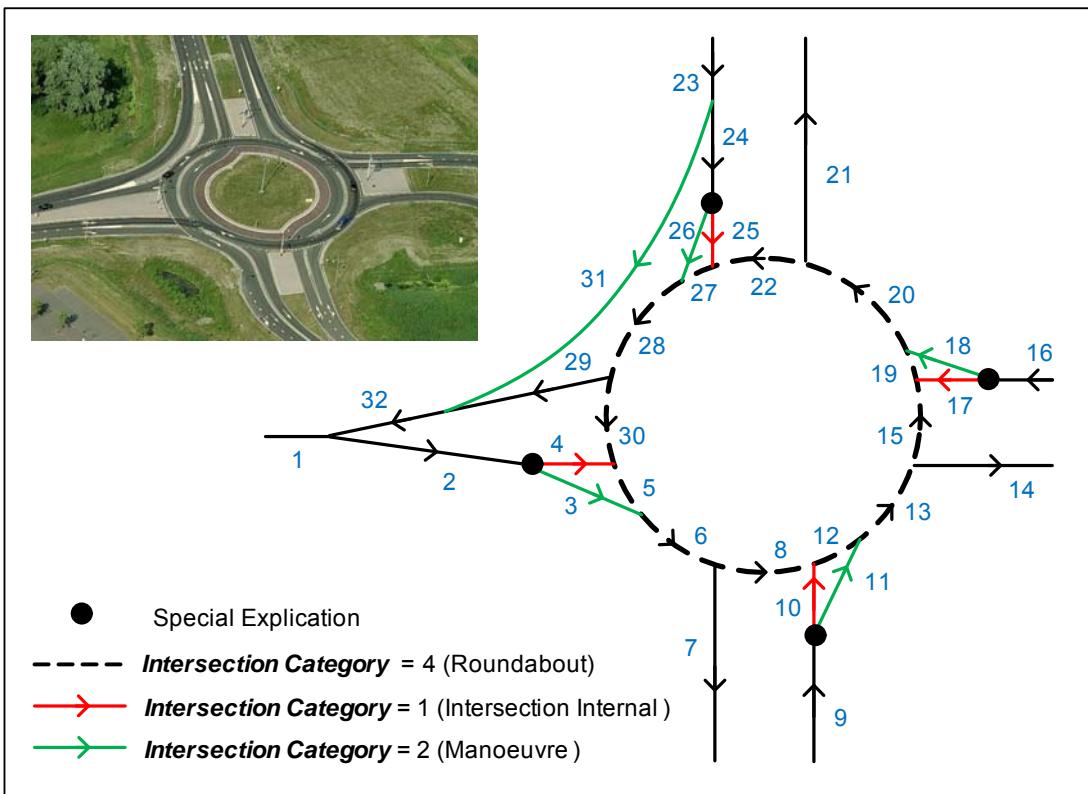


Figure 4-14: Turbo Roundabout

Restricted Driving Manoeuvre Applied

From the West	From the South	From the East	From the North
West to south: n/a	South to east: 10-12-13-14	East to north: n/a	North to west: 25-27-28-29
West to east: 3-6-8	South to north: n/a	East to west: 18-20-22	North to south: n/a
West to north: n/a	South to west: 11-13-15-19-20-22	East to south: n/a	North to east: 26-28-30-5-6-8
West to west: 4-5-6-8-12-13-15-19-20-22	South to south: n/a	East to east: 17-19-20-22-27-28-30-5-6-8	North to north: n/a

Table 4-1

Special Traffic Figure

A Special Traffic Figure (STF) is a somewhat circular intersection that controls the traffic flow from incoming roads. A STF occurs primarily when an intersection forms a closed loop like a roundabout but part of the loop contains a different direction of travel than the rest of the loop. See *Section 4.4.19, Intersection Category (INTERSECTION_CATEGORY)* for details in representation.

4.1.14 Single-Point Urban Interchange (SPUI)

A Single-Point Urban Interchange (SPUI) is a type of highway interchange that helps move large volumes of traffic efficiently through small areas. Typically, traffic is controlled by a single set of traffic signals allowing traffic to clear the intersection quickly and efficiently. It allows for traffic travelling in opposite directions to make left turns at the same time (without crossing paths). See *Figure 4-15* for an example.

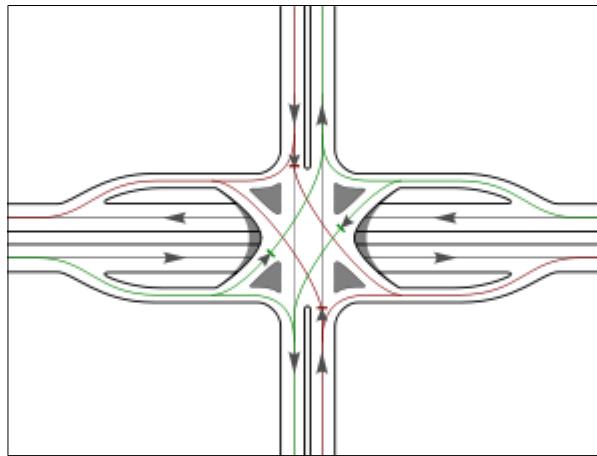


Figure 4-15

Manoeuvres at a SPUI are represented as follows:

- Each manoeuvre at a SPUI are separately digitised when they cross a separately digitised road. See *Figure 4-16-A* and *Figure 4-17* for a more detailed representation.
- Left turns are connected at one node if the manoeuvres cross a bidirectional road. See *Figure 4-16-B*.

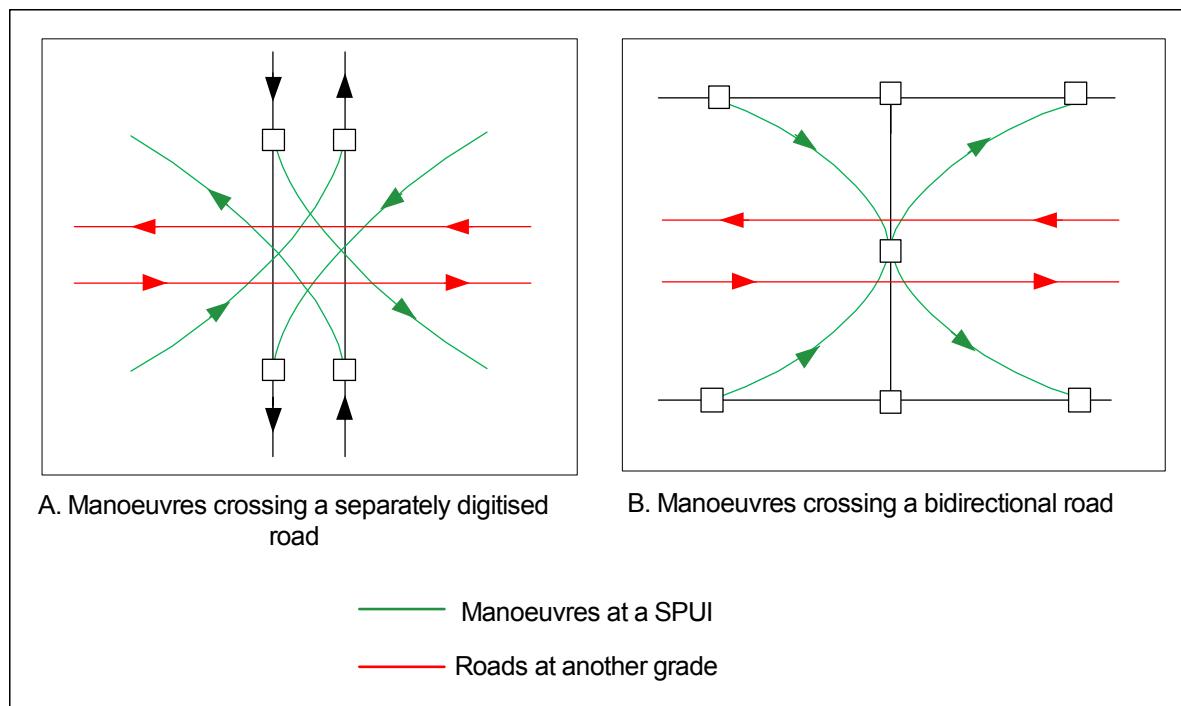


Figure 4-16

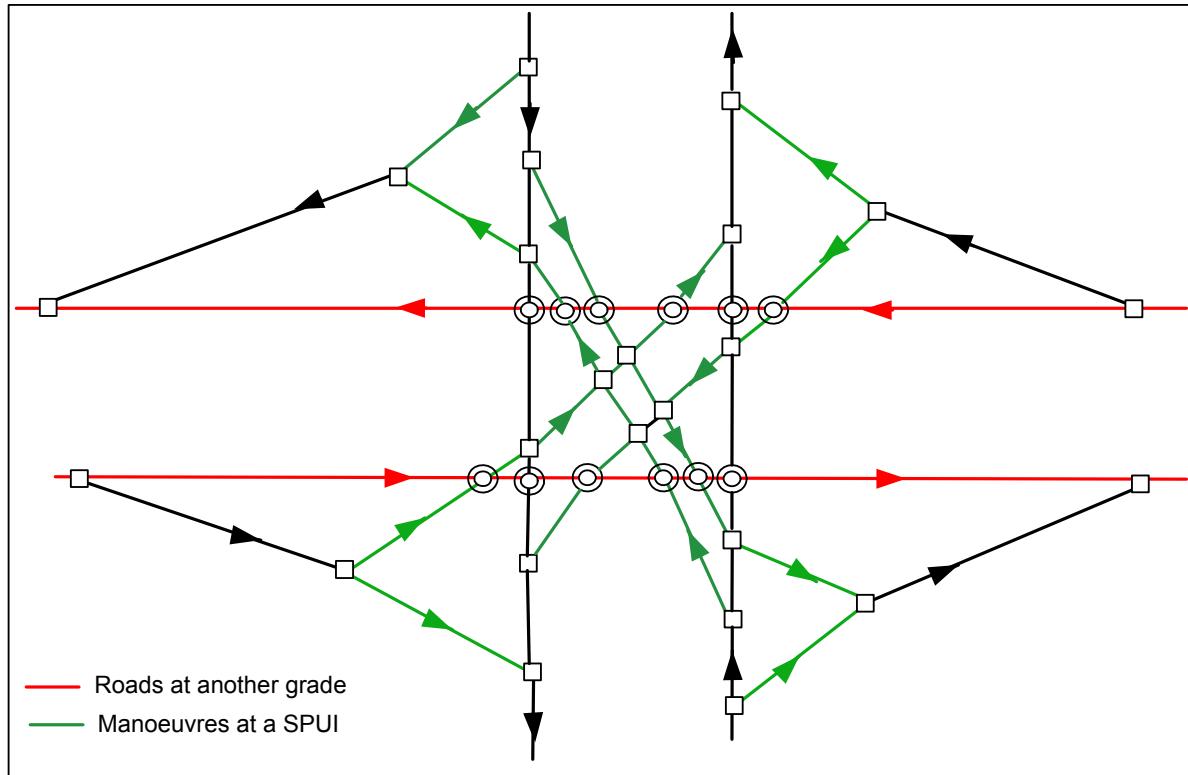


Figure 4-17

4.1.15 Traffic Islands and Turn Lanes

Traffic islands and turn lanes are separately digitised when any side of the physical or painted barrier is longer than 25 metres/82 feet.

A road that is classified as a ramp and has a physical divider that meets the criteria for digitisation of a turn lane/traffic island is separately digitised.

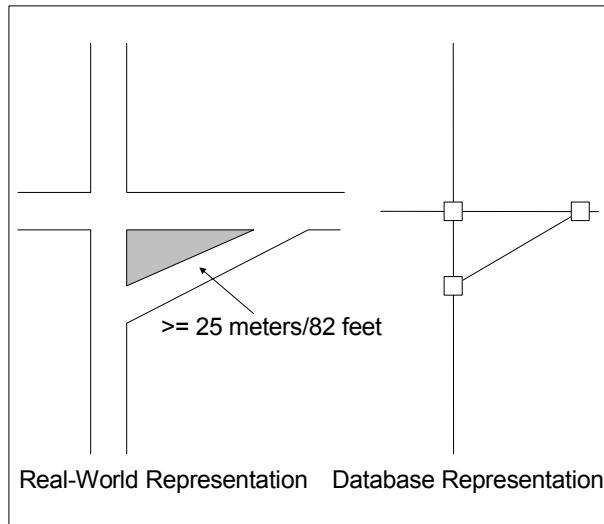


Figure 4-18: Traffic Islands and Turn Lanes

4.1.16 Unstructured Traffic Square

An unstructured traffic square is a paved area where a car can travel but there are no legally defined traffic paths. Unstructured Traffic Squares are predominantly found in Europe, not in North America.

RDF_CARTO entries with *Feature Type*= 900159 (Undefined Traffic Area) are represented with face using the outline of the paved area. All links entering the unstructured traffic area are connected at a node in the approximate centre. These links are attributed as INTERSECTION_CATEGORY = 5 (Undefined Traffic Square Internal). These links do not represent real roads and are included to guarantee connectivity at Unstructured Traffic Squares. Therefore, links with INTERSECTION_CATEGORY = 5 should receive special treatment when generating routing instructions.

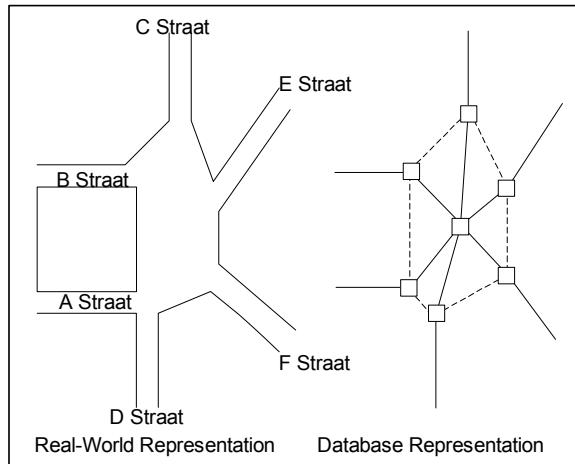


Figure 4-19: Unstructured Traffic Square

4.1.17 Toll Structures

Toll structures are represented by a junction identifying their location. (see *Figure 4-20*). Toll structures are modelled as conditions in RDF_CONDITION. See *Section 6.4.1, Toll Structure (CONDITION_TYPE = 1)*.

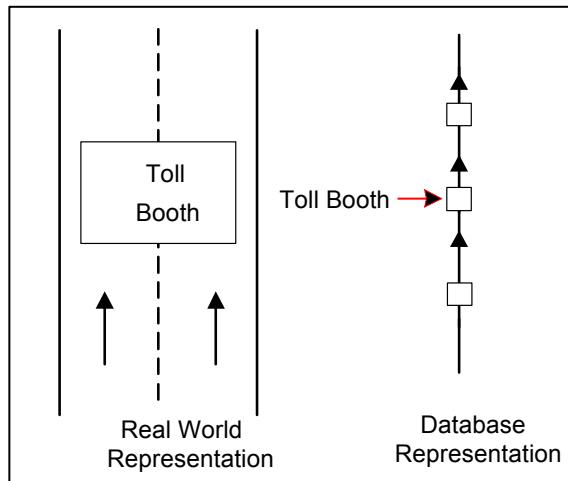


Figure 4-20: Toll Structure

4.1.18 Roads in Complex POI Locations

4.1.18.1 Airports

The overall purpose of airport geometry is to provide good guidance and access to the main destinations and facilities within the airport (terminals, rental car agencies, parking lots, etc.) without an excessive amount of detail.

Thus, the following geometry is included:

- Confirmed named roads
- Arrival and departure access roads
- Rental car return and pick-up access roads
- Parking access roads
- Public vehicle roads (buses, taxis, etc.)
- Any other public roads needed for connectivity

4.1.18.2 Rest Areas

Rest Area POI locations are generally comprised by various links. These include the following:

- The main driving path within the Rest Area.
- The components of the road network that are needed to locate and access the POIs within the Rest Area.
Note: Rest Area POIs that represent Scenic Overlooks may not have their own internal geometry and may be attached to the main road.
- The components of the road network within the Rest Area complex that are needed to navigate from one POI to another within the same Rest Area.

4.2 Addressing

4.2.1 Address Format (FORMAT)

Definition	<i>Address Format</i> is the representation format of the house number range on the left/right side of the link.
Table	RDF_ADDRESS_RANGE
Column	FORMAT
Values	See Section C.3, RDF_ADDRESS_RANGE.
Related Attributes	<i>First Address</i> (RDF_ADDRESS_RANGE.FIRST_ADDRESS) <i>Last Address</i> (RDF_ADDRESS_RANGE.LAST_ADDRESS) <i>Scheme</i> (RDF_ADDRESS_RANGE.SCHEME) <i>Address Type</i> (RDF_ROAD_LINK.ADDRESS_TYPE)
Usage	Use Address Format in conjunction with related address attributes and the associated road name for destination selection and geocoding.
Specification	<ul style="list-style-type: none"> For links flagged as <i>Detailed City</i> = Y, address information is applied to both right and left sides of the link, including the Prime/Network boundary edges. Additional addresses may be included outside these areas. Address inclusion varies by country. Most addresses are comprised of the numeric characters 0-9. However, other formats contain other characters such as letters and hyphens. Refer to the <i>Country Profiles: Address Format Descriptions</i> document for more information. If a link receives ADDRESS_LEVEL = L and FORMAT = H or 1, then an additional address range is published without the hyphen. See <i>Table 4-2</i>.

Real-World Address Format			Address Format Derived Upon Extraction		
Address Format	Address Type	Examples	Address Format	Address Type	Examples
H (Hyphenated)	B (Base)	n-nn nnn-nn	N (Numeric)	H (Alternate Base)	nnn nnnnn
H (Hyphenated)	B (Base)	0n-nn 0-0n	Z (Leading Zero)	H (Alternate Base)	0nnn 00n
1 (Alphahyphenated-5)	B (Base)	AA-n AAA-nnn	3 (Alphanumeric-3)	H (Alternate Base)	AAn AAAnnn

Table 4-2

Note: To determine the incrementing range for the additional address range, the original address range's *Address Format* (H or 1) must be taken into account.

Note: As a result of the hyphen removal, additional address overlaps are published. For example: A road may have the Hyphenated addresses: 10-101 and 101-01 on different links. Consequently, the Alternate Hyphenated addresses will be 10101 and 10101 for the corresponding links.

- See the *Country Profiles: Address Format Descriptions* document for valid combinations.

4.2.2 Address Level (ADDRESS_LEVEL)

Definition	<i>Address Level</i> indicates the type of address range.
Values	See Section C.3, <i>RDF_ADDRESS_RANGE</i> .
Table	RDF_ADDRESS_RANGE
Column	ADDRESS_LEVEL
Related Table	RDF_ROAD_LINK
Related Attributes	RDF_ADDRESS_POINT.ADDRESS_POINT_ID
Usage	<p>Using <i>Address Level</i> = A (actual) yields more accurate address resolution compared to <i>Address Level</i> = L (logical) due to linear address interpolation. This allows for the “you have arrived” message to be more precise.</p> <p>Using both <i>Address Level</i> = A and L for destination selection results in actual addresses overlapping with logical addresses. Therefore, it is suggested to use <i>Address Level</i> = A (actual) for address resolution, and to use <i>Address Level</i> = L (logical) to present the available addresses to an end-user.</p>
Specification	<ul style="list-style-type: none">• <i>Address Level</i> is assigned to ADDRESS_RANGE_ID as follows:<ul style="list-style-type: none">◆ <i>Address Level</i> = L (logical) if the address range associated with a Road Link is a logical range. <i>Address Level</i> = L (logical) defines the applicable addresses on a link as defined by the postal service. The logical address range may include addresses (house numbers) not yet used in reality.◆ <i>Address Level</i> = A (actual) if the address range associated with a Road Link is the actual range. <p><i>Note:</i> In select countries, e.g., Australia, North America, and Singapore, actual address is derived from Point Address data. Everywhere except for these countries, actual address is retrieved from other data sources. This results in Road Links having both <i>Address Level</i> = A and L. All other countries only publish one <i>RDF_ADDRESS_RANGE</i> entry, of type <i>Address Level</i> = A.</p> <ul style="list-style-type: none">• <i>Address Level</i> = A (actual) is always a subset of L (logical).

- One Road Link (RDF_ROAD_LINK) can be assigned to multiple entries in RDF_ADDRESS_RANGE if a link has both Actual and Logical address ranges associated. In these cases the ADDRESS_RANGE_ID is the same, and ADDRESS_LEVEL differentiates logical from actual ranges.
- RDF defines the actual address range as an additional First_Address/Last_Address to a Road_Link, with the same Address Type. The Address Type = B identifies both logical and actual address ranges. The RDF_ADDRESS_RANGE.ADDRESS_LEVEL value indicates logical address range or actual address range.

Example

ADDRESS RANGE ID	ADDRESS LEVEL	FIRST ADDRESS	LAST ADDRESS	SCHEME	FORMAT
455512	L	200	600	E	N
455512	A	340	584	E	N
455513	L	300	800	O	N
455513	A	425	787	O	N

4.2.3 Address Type (ADDRESS_TYPE)

Definition *Address Type* identifies the type of the house number range assigned to the link.

Table RDF_ROAD_LINK

Column ADDRESS_TYPE

Values See Section C.76, RDF_ROAD_LINK.

Related Attributes
Address Format
First Address
Last Address
Scheme

Usage *Address Type* is used in conjunction with related address attributes, *Official Name/Alternate Name*, for destination selection and geocoding.

Specification • Road names may be assigned multiple address ranges as illustrated in Table 4-3.

Country	Street Name	Address Range	Address Type
United States	Main Street	101-199	Base
	Main Street	12001-12099	County

Country	Street Name	Address Range	Address Type
Italy	Via Ettore Vernazza	2-46	Base
	Via Ettore Vernazza	8-8	Commercial

Table 4-3

- *Address Type* is applied as follows:
 - ◆ *Address Type = 1(Base)* is assigned to the address range that is most commonly used. Street names with one address range are set to *Address Type = 1(Base)*. Street names with multiple address ranges must have one range set to *Base* and the others set to any combination of the other values. A street name cannot contain two *Base* address ranges.
 - ◆ *Address Type = 2 (City)* is assigned to address ranges assigned by the city government.
 - ◆ *Address Type = 3 (Commercial)* is assigned to address ranges applied to commercial establishments along the link. For example, in some countries two ranges exist on the same road, one range is applied to residential addresses and a different range is applied to commercial establishments.
 - ◆ *Address Type = 4 (County)* is assigned to address ranges assigned by the county government.
 - ◆ *Address Type = 6 (Old)* is assigned to an address range to indicate a more recent address range has been assigned to the link.
 - ◆ *Address Type = 2, 3, 4, and 6* are assigned only when a *Address Type = 1* is already assigned to the link.
- In the U.S., if a link receives *Address Level = L* and *Address Format = H* or *1*, then an additional address range is published without the hyphen as *Address Type = 9 (Alternate Base)*.
 - ◆ If a link receives *Address Type = 9 (Alternate Base)*, then it can receive only *Address Format = N, Z, or 3*.
 - ◆ The additional address range results in additional entries in the *RDF_ROAD_LINK* and *RDF_ADDRESS_RANGE* tables.

Note: Legitimate overlaps are possible in the additional address range. For example, if a road has the hyphenated addresses 10-101 and 101-01 on different links, then in the additional address range the addresses are 10101 and 10101 for the corresponding links.

4.2.4 First Address (FIRST_ADDRESS)

Definition *First Address (FIRST_ADDRESS in RDF_ADDRESS_RANGE)* identifies the first address of the side of the link as specific in *RDF_ROAD_LINK* (*LEFT_ADDRESS_RANGE_ID* or *RIGHT_ADDRESS_RANGE_ID*).

Values Maximum of 15 characters

Related Attributes	<i>Address Format</i> <i>Address Type</i> <i>Scheme</i> <i>Last Address</i>
Usage	<i>First Address</i> is used in conjunction with related address attributes, <i>Official Name</i> / <i>Alternate Name</i> , for destination selection and geocoding.
Specification	<ul style="list-style-type: none">• <i>First Address</i> is applied for each applicable side of a named and addressed link.• Address data is applied to both the right and left sides of the link. Right and left sides are relative to the From Node of the link.• For links flagged as <i>Detailed City</i>, address information is applied to both right and left sides of the link, including the Prime/Network boundary edges. Addresses may also be included in additional areas.• Duplicate addresses may exist when present in reality and necessary for accurate representation. For example: if the addresses 2a and 2b exist on the same road, they are represented as 2 for both instances; 12 Main St. may exist twice within a city. Postal Districts usually make addresses unique within a city or Built-up Area.• Apartment numbers are not included in range addresses. Though the mailing address may be 500 E Weddell Dr. #120, only the 500 would be included as an address. Apartment numbers are supported by Point Addressing. See <i>Chapter 16, Point & Micro Point Addresses</i>.

4.2.5 Last Address (LAST_ADDRESS)

Definition	<i>Last Address</i> (LAST_ADDRESS in RDF_ADDRESS_RANGE) indicates the Last Address on the side of the link as specified in RDF_ROAD_LINK (LEFT_ADDRESS_RANGE_ID or RIGHT_ADDRESS_RANGE_ID).
Values	Maximum of 15 characters
Related Attributes	<i>Address Format</i> <i>First Address</i> <i>Address Type</i> <i>Scheme</i>
Usage	See Section 4.2.4, <i>First Address</i> (FIRST_ADDRESS).
Specification	<ul style="list-style-type: none">• <i>Last Address</i> is applied for each applicable side of a named and addressed link.• Address data is applied to both the sides of the link. Sides are relative to the From Node of the link.

4.2.6 Scheme (SCHEME)

Definition	<i>Scheme</i> identifies the numbering scheme for the addresses assigned to the link.
Table	RDF_ADDRESS_RANGE
Column	SCHEME
Values	See Section C.3, RDF_ADDRESS_RANGE.
Related Attributes	<i>Address Format</i> <i>First Address</i> <i>Last Address</i> <i>Address Type</i> <i>Address Level</i>
Usage	<i>Scheme</i> is used with related address attributes, Official Name/Alternate Name, for destination selection and geocoding.
Specification	<ul style="list-style-type: none">• <i>Scheme</i> = E indicates that only the even numbers of the address range are valid. Even address ranges must begin with "2", rather than "0", except in case of non-numeric addresses (i.e., 12-00 to 12-98).• <i>Scheme</i> = M indicates that the even and odd numbers of the address range are valid.• <i>Scheme</i> = O indicates that only the odd numbers of the address range are valid.• If RDF_ADDRESS_RANGE.FORMAT = \$, then <i>Scheme</i> is blank. This indicates that the link is unaddressed.• For RDF_NAV_LINK_STATUS.DETAILED_CITY = Y links, address information is applied to both right and left sides of the link, including the Prime/Network boundary edges. Additional addresses may be included in additional areas.

4.3 Road Names

4.3.1 Official Name/Alternate Name (IS_NAME_ON_ROADSIGN)

Definition	<p><i>Official Name</i> indicates the name assigned to a road by the official organization responsible for its existence and maintenance. For roads, the Official Name generally is the name posted on the street signs.</p> <p><i>Alternate Name</i> indicates the road name has no official status and is used by the general public.</p>
Table	RDF_ROAD_LINK
Column	IS_NAME_ON_ROADSIGN
Values	N - Alternate Name Y - Official Name
Related Attribute	<i>Base Name</i> <i>Street Name</i>
Specification	<ul style="list-style-type: none"><i>Official Name</i> is published as RDF_ROAD_LINK.IS_NAME_ON_ROADSIGN = Y.<i>Alternate Name</i> is published as RDF_ROAD_LINK.IS_NAME_ON_ROADSIGN = N.The <i>Official Name</i> may not be the name that is on every street sign. It is the predominant name(s) for a stretch of road.For information on names containing non-Latin-1 characters, see <i>Section A.1.5, Non-Latin-1 Names</i>.

4.3.2 Base Name (BASE_NAME)

Definition	<p><i>Base Name</i> is the main part of Street Name without the Prefix, Suffix, Route Direction, and Street Type. For example, Elm in Elm Street W is the Base Name.</p>
Table	RDF_ROAD_NAME
Column	BASE_NAME
Values	Text string of the name
Related Attributes	<i>Official Name/Alternate Name</i> <i>Street Type</i> <i>Prefix</i>

Suffix
Route Number
Exit Name
Street Name

Usage	Voice applications use Base Name when dividing Street Name into individual components. See <i>Chapter 21, Voice Phonetic Transcriptions</i> . If the individual components of Street Name is used for display or destination input list, ensure the sequence of the individual components matches Street Name to prevent misleading name representation.
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4.3.3 Bridge Name (IS_BRIDGE_NAME)

Definition	<i>Bridge Name</i> identifies a road name as a bridge name.
Table	RDF_ROAD_LINK
Column	IS_BRIDGE_NAME
Values	N – Not Bridge Name Y – Bridge Name
Default Value	N
Related Attributes	<i>Street Name</i>
Usage	<i>Bridge Name</i> can be used for route guidance and for map display.
Specification	<ul style="list-style-type: none">• <i>Bridge Name</i> is coded only for specific countries. Refer to the <i>Country Specific Rules</i> document.

4.3.4 Exit Name (IS_EXIT_NAME)

Definition	<i>Exit Name</i> identifies a name that is an exit. For example, 426 A-B, 49, and W4 are names published for exits.
Table	RDF_ROAD_NAME RDF_ROAD_NAME_TRANS RDF_ROAD_LINK
Column	IS_EXIT_NAME
Values	The full exit name.
Cardinality	1:0,1

Usage	<i>Exit Name</i> is a feature name that can be used for destination selection.
Specification	<ul style="list-style-type: none">• <i>Exit Name</i> is published for navigable links only.• <i>Exit Name</i> is published only for the first navigable link of an exit.• The name of the exit is published in RDF_ROAD_NAME.STREET_NAME and the name is identified as an exit in RDF_ROAD_LINK.IS_EXIT_NAME.• If the name of the exit is in a non-Latin-1 language, a transliteration is published in RDF_ROAD_NAME_TRANS.STREET_NAME. <p>Note: Representation differs for FRE/ENG translations in Arabic countries. These are also published in the RDF_ROAD_NAME table with the corresponding Language Codes.</p> <ul style="list-style-type: none">• See <i>Section 6.2.3, Exit Number (EXIT_NUMBER)</i> for information about exit data that can be used for route guidance.

4.3.5 Explicatable (EXPLICATABLE)

Definition	<i>Explicatable</i> indicates how to use a name.
Table	RDF_ROAD_LINK
Column	EXPLICATABLE
Values	N = Not Explicatable Y = Explicatable
Default Value	Y = Explicatable
Related Attributes	<i>Official Name/Alternate Name</i> <i>Route Number</i> <i>Exit Name</i> <i>Route Number on Road Sign</i>
Usage	<i>Official Name, Exit Name, or Route Number with Route Number on Road Sign = Y</i> are always suitable for explication. However, <i>Alternate Name</i> may or may not be suitable. Only use <i>Explicatable = N</i> names to assist in destination selection.
Specification	<ul style="list-style-type: none">• A name is identified as <i>Explicatable = Y</i> if it is a legal name or the name on road sign.• A name is identified as <i>Explicatable = N</i> if it is:<ul style="list-style-type: none">◆ Obtained from a postal service file and is known to be misspelled, or its Prefix, Suffix, or Street Type is incorrect.◆ An old street name which no longer appears on any sign but is still in use.◆ A name that represents a named building (IBM Plaza).

- ◆ A name that people commonly misunderstand or misrepresent when referring to a road.
- *Explicatable* is published for road and ferry links.

4.3.6 Intersection Name (IS_INTERSECTION_NAME)

Definition	<i>Explicatable</i> identifies a road name as an intersection name.
Table	RDF_ROAD_LINK
Column	IS_INTERSECTION_NAME
Values	N – Not Intersection Name Y – Intersection Name
Default Value	N – Not Intersection Name
Related Attributes	<i>Street Name</i>
Usage	<i>Intersection Name</i> can be used for destination selection, guidance and map display.
Specification	<ul style="list-style-type: none"> ● A 25 metre link is created on all sides of an intersection on which an intersection name is applied. See the red links in <i>Figure 4-21</i> below.

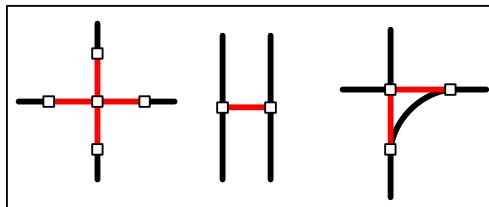


Figure 4-21

- If there is a multiply digitised road at the intersection, the intersection name is applied to the Intersection Internal and no additional links are created.

4.3.7 Junction Name (IS_JUNCTION_NAME)

Definition	<i>Junction Name</i> identifies a ramp system that comprises a named Junction between two or more motorways or a named motorway exit/entrance.
Table	RDF_ROAD_LINK
Column	IS_JUNCTION_NAME
Values	N = Not a Junction Name

Y = Junction Name

Default Value N = Not a Junction Name

Related Attribute *Ramp*

Usage *Junction Name* allows for explication of an exit or entry ramp (*Ramp* = Y) that comprises a named junction without having to use the sign text.

Specification

- *Junction Name* is primarily published for Europe.
- *Junction Name* is applied to the entire ramp system comprising a named junction.
- *Junction Name* is also applied Highway-to-Highway Connectors, regardless of the *Ramp* coding.

4.3.8 Overpass Name (IS_OVERPASS_NAME)

Definition *Overpass Name* identifies a road name as an overpass name.

Table RDF_ROAD_LINK

Column IS_OVERPASS_NAME

Values N – Not Overpass Name

Y – Overpass Name

Default Value N – Not Overpass Name

Related Attribute *Street Name*

Usage *Overpass Name* can be used for route guidance and for map display.

Specification

- *Overpass Name* is coded only for specific countries. Refer to the *Country Specific Rules* document.

4.3.9 Postal Name (IS_POSTAL_NAME)

Definition *Postal Name* identifies additional names that are added to a link in order to match a postal service file. The additional names could not be verified with any other sources or by field research.

Table RDF_ROAD_LINK

Column IS_POSTAL_NAME

Values N = Not a Postal Name

Y = Postal Name

Default Value N = Not a Postal Name

Related Attributes *Explicatable*
Alternate Name

Usage *Postal Name* can be used to assist in destination selection but should never be used for route guidance or map display.

Specification

- A *Postal Name* is always *Explicatable* = N.
- A *Postal Name* is always an *Alternate Name*.
- A *Postal Name* is published for navigable links.

4.3.10 Prefix of Street Name (PREFIX)

Definition *Prefix* is a directional identifier that precedes the base name of a road. For example, W in W Elm Street is a *Prefix*.

Table RDF_ROAD_NAME
RDF_ROAD_NAME_TRANS

Column PREFIX

Values The directional prefix

Related Attributes *Official Name/Alternate Name*
Base Name
Street Type
Suffix

Usage Voice applications use *Prefix* when dividing Street Name into individual components. See Chapter 21, *Voice Phonetic Transcriptions*.

If the individual components of Street Name are used for display or destination input list, it should be ensured that the sequence of the individual components matches Street Name to prevent misleading name representation.

Specification

- A *Prefix* is always published if one exists.
- The *Prefix* is included in the *Official Name/Alternate Name*.
- If a road name begins with a directional word such as North, South, East, etc., that is unrelated to addressing, the word is not published as a prefix. Rather, the word is published in the *Base Name*. For example, in "North Carolina Blvd", the word "North" is part of the name of the state North Carolina and not a directional prefix; therefore, North Carolina is published in the *Base Name*.
- French Prefixes are published in Canada only.

- The language code and direction abbreviation are published for Prefix. The appropriate direction (full name) can be found in the metadata and in the RDF_ROAD_NAME table.

4.3.11 Scenic Route Name (IS_SCENIC_NAME)

Definition	<i>Scenic Route Name</i> indicates if a name is the name of a scenic route.
Table	RDF_ROAD_LINK.
Column	IS_SCENIC_NAME
Values	Y = Scenic Route Name N = Not a Scenic Route Name (default)
Related Attributes	<i>Scenic Route</i>
Usage	<i>Scenic Route Name</i> can be used to identify whether a road link is on a named scenic route. Scenic Route Name can be used for destination selection and map display.
Specification	<ul style="list-style-type: none">• <i>Scenic Route Name</i> is applied if the name represents a Scenic Route.• <i>Scenic Route Name</i> is only applied to a link flagged as <i>Scenic Route</i> = Y. Not all links with <i>Scenic Route</i> = Y have a <i>Scenic Route Name</i> applied.• If a name associated with a scenic route is the only name on a link, the name is flagged as follows: <i>Scenic Route Name</i> = N, <i>Name on Roads sign</i> = Y, and <i>Explicable</i> = Y.• If the scenic route name is not the only name on the link, the name is flagged as follows: <i>Scenic Route Name</i> = Y, <i>Name on Roads sign</i> = N, and <i>Explicable</i> = N.

4.3.12 Scenic Route (SCENIC_ROUTE)

Definition	<i>Scenic Route</i> identifies links that are part of a scenic route.
Table	RDF_NAV_LINK_ATTRIBUTE
Column	SCENIC_ROUTE
Values	See Section C.55, <i>RDF_NAV_LINK_ATTRIBUTE</i>
Related Attributes	IS_SCENIC_NAME
Usage	<i>Scenic Route</i> can be used for route calculation, scenic route prioritisation, and map display.

- Specification**
- *Scenic Route* is published for links that comprise the main route and the spurs leading to a scenic view off the main route.
 - If it is not known if the link is part of a main route or spur to a scenic view, then either no entry is published for the link in `RDF_NAV_LINK_ATTRIBUTE` or `RDF_NAV_LINK_ATTRIBUTE.SCENIC_ROUTE = NULL`.
 - If a link is not part of a main route or spur to a scenic view, then either no entry is published for the link in `RDF_NAV_LINK_ATTRIBUTE` or `RDF_NAV_LINK_ATTRIBUTE.SCENIC_ROUTE = NULL`.
 - *Scenic Route* is not applied to Boat/Rail Ferries and Frontage Roads.
 - *Scenic Route* is applied to Ramps if applicable.
 - Any *Scenic Route* is navigable from start to end point (and back), meaning that guidance is not blocked by *Restricted Driving Manoeuvres*, *Gates*, *Dividers*, or *Direction of Travel*. However, it may be legitimately disconnected along a route.

4.3.13 Stale Name (IS_STALE_NAME)

Definition *Stale Name* identifies old names that are still in use.

Table `RDF_ROAD_LINK`

Column `IS_STALE_NAME`

Values N = Not a Stale Name

Y = Stale Name

Default Value N = Not a Stale Name

Related Attributes *Explicatable Street Name, with Name Type*

Usage Only use *Stale Name* to assist in destination selection.

- Specification**
- A *Stale Name* is only published for navigable links.
 - A *Stale Name* is always *Explicatable* = N.
 - A *Stale Name* is always an *Alternate Name*.

4.3.14 Route Direction (DIRECTION_ON_SIGN)

Definition *Route Direction* indicates the official directional identifier assigned to highways.

Table `RDF_ROAD_NAME`

Column `DIRECTION_ON_SIGN`

Values	See Section C.77, <i>RDF_ROAD_NAME</i>
Related Attributes	<i>Route Type</i> <i>Route Number</i> <i>Route Number on Road Sign</i> <i>Street Name</i>
Usage	Use <i>Route Direction</i> in conjunction with <i>Official Name</i> or <i>Route Number</i> with <i>Route Number on Road Sign</i> . For example, for route guidance, use US-101 S (<i>RDF_ROAD_NAME.STREET_NAME</i>) and not just US-101 when appropriate.
Specification	<ul style="list-style-type: none">• <i>Route Direction</i> is the official direction and not necessarily the travel direction. For example, US-101 through the city of Sunnyvale is physically located east to west. However, the official Route Direction is North/South.• <i>Route Direction</i> is published for the following:<ul style="list-style-type: none">◆ Non-multiply digitised roads, if a route diverges through an urban area due to one-way streets so that opposing directions of the route are on separate roads.◆ Separately digitised HOV (High Occupancy Vehicle) roads when associated with roads applied with <i>Route Type</i> = 1, 2, 3 and 4.◆ Other multiply digitised highways with non-numeric names like “Garden State Pky” if there are official directional identifiers. The highway name is published as an <i>Official Name</i> or an <i>Alternate Name</i>.• <i>Route Direction</i> is not published for names on frontage roads unless these are shielded routes and published with <i>Route Type</i>.• Numeric county routes do not usually require <i>Route Direction</i> unless field verified as officially posted.• The language code and direction abbreviation are published for <i>Route Direction</i>. The unabbreviated direction (full name) is published in <i>RDF_META.ATTR_DESCRIPTION</i>

4.3.15 Route Number (BASE_NAME / STREET_NAME)

Definition	<i>Route Number</i> is the official identifying number of the road designated by administrative authorities; for example, I-10, US-50, or A3. <i>Route Number</i> also represents route numbers depicted on signposts.
Table	<i>RDF_ROAD_NAME</i>
Column	BASE_NAME if ROUTE_TYPE = 1- 6 (Only the <i>Route Number</i> ; for example, I-290) STREET_NAME if ROUTE_TYPE = 1- 6 (The <i>Route Number</i> and <i>Route Direction</i> ; for example, I-290 East)
Values	Alphanumeric text

Related Attributes	<i>Route Direction</i> <i>Route Type</i>
Usage	<p><i>Route Number</i> is used in conjunction with <i>Route Type</i>, <i>Route Number on Road Sign</i>, and <i>Route Direction</i> may be used to display the appropriate route shield or destination selection.</p> <p><i>Route Number</i> with <i>IS_NAME_ON_ROADSIGN</i> = Y can be used for route guidance. This is the equivalent of the road link having an Official Name. If a road link has an Official Name and a <i>Route Number</i> with <i>IS_NAME_ON_ROADSIGN</i> = Y, they are treated the same.</p>
Specification	<ul style="list-style-type: none"> • <i>Route Number</i> is published only if <i>Route Type</i> is published. • If a <i>route number</i> does not have a <i>Route Type</i>, it is published as <i>Alternate Name</i> or <i>Official Name</i>, and <i>Base Name</i>. This is the case for route numbers on frontage roads, high-speed connectors, and route numbers included only for addressing purposes. • Any route number that is shielded is published as a <i>Route Number</i>; this includes truck routes, bypasses, alternate routes, etc. • A navigable link may have more than one preferred <i>Route Number</i> with <i>Route Number on Road Sign</i>. • A navigable link may have a <i>Route Number</i> with <i>Base Name</i>. For instance, in the U.S., county routes are usually published as a <i>Route Number</i> with <i>Base Name</i>. These <i>Route Number</i> should not be used for route guidance or map display. • If a route number is published from a postal source with a suffix or prefix, the route number is published as <i>Alternate Name</i>. For example, if N IL-53 appeared only in a postal source the following is published: <p>RDF_ROAD_LINK:</p> <p>ROAD_NAME_ID = 1234567890; EXPLICATABLE = N; IS_NAME_ON_ROADSIGN = N (this signifies that BASE_NAME and STREET_NAME values below = Alternate Name); IS_POSTAL_NAME = Y</p> <p>RDF_ROAD_NAME:</p> <p>ROAD_NAME_ID = 1234567890; ROUTE_TYPE = NULL; ATTACHED_TO_BASE = N; PRECEDES_BASE = N; PREFIX = NULL; STREET_TYPE = NULL; SUFFIX = N; BASE_NAME = IL-53; LANGUAGE_CODE = ENG; IS_EXONYM = N; NAME_TYPE = B; DIRECTION_ON_SIGN = NULL; STREET_NAME = IL-53 N</p> <ul style="list-style-type: none"> • Refer to the following accompanying documents: <ul style="list-style-type: none"> ◆ <i>Country Profiles</i> for the list of <i>Route Numbers</i>, and ◆ <i>Country Specific Rules</i> for additional naming conventions <p>Note: While these conventions are applied to most <i>Route Numbers</i>, developers should design their systems to be flexible with regard to naming conventions. Not all names in the extracts will follow these conventions. For example, data imported from 3rd Party suppliers as part of Complete Coverage projects may not conform to these specifications. Additionally, end users may enter the name without following these conventions.</p>

4.3.16 Route Number on Road Sign (IS_NAME_ON_ROADSIGN)

Definition	<i>Route Number on Road Sign</i> identifies the most commonly recognised Route Number(s) on a link.
Table	RDF_ROAD_LINK.IS_NAME_ON_ROADSIGN = Y and RDF_ROAD_NAME.ROUTE_TYPE < 1
Related Attributes	<i>Route Direction</i> <i>Route Type</i>
Usage	On a motorway, use the Route Number with Route Number on Road Sign = Y for route guidance.
Specification	<ul style="list-style-type: none">A link may have more than one Route Number with <i>Route Number on Road Sign</i> = Y.Route Number on Road Sign is published for road links and ferry linksIt is impossible to rank an Official Name and a Route Number with <i>Route Number on Road Sign</i>.

4.3.17 Route Type (ROUTE_TYPE)

Definition	<i>Route Type</i> indicates that the road's name is a route number and in many countries is displayed in a shield symbol (i.e. Interstate and State routes in the U.S.).
Table	RDF_ROAD_NAME
Column	ROUTE_TYPE
Values	See Section C.77, <i>RDF_ROAD_NAME</i>
Related Attributes	<i>Route Number</i> (RDF_ROAD_NAME.STREET_NAME if ROUTE_TYPE = 1-6) <i>Route Direction</i> (RDF_ROAD_NAME.DIRECTION_ON_SIGN)
Usage	Use <i>Route Type</i> to display the appropriate route shield when used in conjunction with the Route Number.
Specification	<ul style="list-style-type: none"><i>Route Type</i> applies to navigable links only.The appropriate <i>Route Type</i> is published for each numeric or alphanumeric route.Each name assigned to a road may have a different <i>Route Type</i>.<i>Route Type</i> is not published for:<ul style="list-style-type: none">Non-numeric routes which may or may not be represented in a shield symbol (e.g., such as Garden State Parkway, Bayshore Freeway, Grande Raccordo Anulare (in Italy), or Trans Canada Hwy/Autoroute Transcanadienne)Features with no associated route identifier.

- ◆ Frontage roads unless they are posted shield signs.
- ◆ Numbered routes that are added for address matching purposes only
- ◆ Separately digitised controlled access roads such as HOV, reversible, or express lanes.

4.3.18 Street Name (STREET_NAME)

Definition	<i>Street Name</i> is the full name of the road, route number, or exit.
Table	RDF_ROAD_NAME
Column	STREET_NAME
Values	Text string of the name
Related Attributes	<i>Official Name/Alternate Name</i> <i>Base Name</i> <i>Route Number</i> <i>Street Type</i> <i>Exit Name</i> <i>Prefix</i> <i>Route Number on Road Sign</i> <i>Suffix</i> <i>Stale Name</i> <i>Explicable</i> <i>Vanity Name</i> <i>Postal Name</i> <i>Route Direction</i>
Usage	For destination selection, use <i>Official Name/Alternate Name</i> , <i>Route Number</i> , or <i>Exit Name</i> . For route guidance, use only <i>Official Name/Alternate Name</i> and Route Numbers with <i>Route Number on Road Sign</i> . Always present the full road name, RDF_ROAD_NAME.STREET_NAME, whether <i>Official</i> or <i>Alternate</i> , or <i>Route Number</i> or <i>Exit Name</i> , to the user.
Specification	<ul style="list-style-type: none">• The name published as <i>Street Name</i> includes a combination of the following components:<ul style="list-style-type: none">◆ prefix◆ base name◆ street type◆ suffix

- ◆ route direction
- The name published as *Street Name* is a *Route Number* if *Route Type* = 1- 6 is also published for the name. See *Section 4.3.14, Route Direction (DIRECTION_ON_SIGN)* for more information.
- The name published in *Street Name* is an *Exit Name* if *Exit Name* = Y for the *ROAD_NAME_ID*. See *Section 4.3.14, Route Direction (DIRECTION_ON_SIGN)* for more information.

The name published in *Street Name* is a road name, either *Official Name* or *Alternate Name*, if it does not meet the criteria for *Route Number* or *Exit Name*.
- A link may have more than one *Official Name/Alternate Name* or *Route Number*. There is no distinction in this case to which name is more important than the other name.
- Every named link have at least one *Official Name/Alternate Name*, or one *Route Number* with *Route Number on Road Sign*.

Multiple *Official Name/Alternate Name* and/or *Route Numbers* with *Route Number on Road Sign* may exist for a link.
- An *Alternate Name* (*IS_NAME_ON_ROADSIGN* = N) cannot exist on a link without an *Official Name* (*IS_NAME_ON_ROADSIGN* = Y), a *Route Number* with *Route Number on Road Sign*, or *Exit Name* present.
- Highways that are multi-digitised with non-numeric names like “Garden State Pky” or others which typically have “Hwy” or “Pky” street types may also have Route Direction if there are official directional identifiers. The highway name is published as an *Official Name/Alternate Name*.

Example 1 Official Name = N California Ave

RDF_ROAD_NAME:

STREET_NAME = N CALIFORNIA AVE

LANGUAGE_CODE = ENG

PREFIX = N

BASE_NAME = CALIFORNIA

STREET_TYPE = AVE

SUFFIX = <NULL>

Therefore:

RDF_ROAD_LINK publishes IS_NAME_ON_ROADSIGN = Y

Example 2 Alternate Name = Hauptstrasse

RDF_ROAD_NAME:

STREET_NAME = HAUPTSTRASSE

LANGUAGE_CODE = GER

PREFIX = <NULL>

BASE_NAME = HAUPT

STREET_TYPE = STRASSE

SUFFIX = <NULL>

Therefore:

RDF_ROAD_LINK publishes IS_NAME_ON_ROADSIGN = N

- Each road name can be tied to one or more address ranges, which may be the same or different for other names on a link.
 - If no address ranges apply to a road link, the road link references an entry in RDF_ADDRESS_RANGE.FORMAT = # or \$.
 - If multiple address ranges exist, multiple RDF_ROAD_LINK entries are generated for a given LINK_ID. Each distinct combination of Street Name information and an Address Range results in a new ROAD_LINK_ID, being a new entry in RDF_ROAD_LINK. The RDF_ROAD_LINK table explicitly defines the applicable combination of Street Name and Address Range.

4.3.19 Street Type (STREET_TYPE / OFFICIAL_STREET_TYPE)

Definition	<i>Street Type</i> is the local municipality designator for each road, such as “street”, “road”, “strasse”, “stratt”, “via”, “rue de la”. For example, Street in Elm Street W is a Street Type.
Tables	RDF_ROAD_NAME RDF_STREET_TYPE
Columns	STREET_TYPE OFFICIAL_STREET_TYPE
Values	Refer to the co-delivered <i>Common Street Type Abbreviations</i> document for information.
Related Attributes	<i>Official Name/Alternate Name</i> <i>Base Name</i> <i>Prefix</i> <i>Suffix</i>
Usage	Voice applications use Street Type when dividing Street Name into individual components. See <i>Chapter 21, Voice Phonetic Transcriptions</i> . If the individual components of Street Name are used for display or destination input list, it should be ensured that the sequence of the individual components matches Street Name to prevent misleading name representation.
Specification	<ul style="list-style-type: none">• Street Type and <i>Official Street Type</i> values are the information that appears on the sign either abbreviated or unabbreviated, for example Ave or Avenue.• If abbreviations must be used due to space limitations, use RDF_STREET_TYPE_ABBREVIATION.ABBREVIATION.

In addition to the OFFICIAL_STREET_TYPE, there is a FULL SPELLING (e.g., Avenue) which is the unabbreviated street type.

Non-Latin-1 Street Types

- In some Asian countries, the names with *Transliteration Type* (e.g., VIE, THE, etc.) represent either a translation or transliteration. Unlike other countries using non-Latin-1 characters where HERE generates the transliteration, transliterated names are based on ground truth, i.e., as sign posted. As a result, a native non-Latin-1 name would have more than one equivalent: a translation, a transliteration, or various transliterations. The representation of the transliterated Street Type is simplified by adopting only one equivalent transliteration.

4.3.20 Suffix of Street Name (SUFFIX)

Definition	<i>Suffix</i> is a directional identifier that follows the base name of a road. For example, W in Elm Street W is a Suffix.
Table	RDF_ROAD_NAME RDF_ROAD_NAME_TRANS
Column	SUFFIX
Values	The directional suffix
Related Attributes	<i>Official Name/Alternate Name</i> <i>Base Name</i> <i>Street Type</i> <i>Prefix</i>
Usage	Voice applications use Suffix when dividing Street Name into individual components. See <i>Chapter 21, Voice Phonetic Transcriptions</i> . If you use the individual components of Street Name for display or destination input list, ensure the sequence of the individual components matches Street Name to prevent misleading name representation.
Specification	<ul style="list-style-type: none">• A suffix is always published if one exists.• French Suffixes are only used in Canadian databases.• The language code and direction abbreviation are published for Suffix (Street Suffix) (i.e., ENGE is English language and a direction of East). The appropriate direction (full name) can be found in the RDF_ROAD_NAME table.

4.3.21 Tunnel Name (IS_TUNNEL_NAME)

Definition	<i>Tunnel Name</i> identifies a road name as a tunnel name.
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Table	RDF_ROAD_LINK
Column	IS_TUNNEL_NAME
Values	N – Not Tunnel Name Y – Tunnel Name
Default Value	N – Not Tunnel Name
Related Attributes	<i>Street Name</i>
Usage	<i>Tunnel Name</i> can be used for route guidance and for map display.
Specification	<ul style="list-style-type: none">• <i>Tunnel Name</i> is coded only for specific countries. Refer to the <i>Country Specific Rules</i> document.

4.3.22 Underpass Name (IS_UNDERPASS_NAME)

Definition	<i>Underpass Name</i> identifies a road name as a tunnel name.
Table	RDF_ROAD_LINK
Column	IS_UNDERPASS_NAME
Values	N – Not Underpass Name Y – Underpass Name
Default Value	N – Not Underpass Name
Related Attributes	<i>Street Name</i>
Usage	<i>Underpass Name</i> can be used for route guidance and for map display.
Specification	<ul style="list-style-type: none">• <i>Underpass Name</i> is coded only for specific countries. Refer to the <i>Country Specific Rules</i> document.

4.3.23 Vanity Name (IS_VANITY_NAME)

Definition	<i>Vanity Name</i> identifies a name other than the official street name (specific to a business, settlement, location, etc.)
Table	RDF_ROAD_LINK
Column	IS_VANITY_NAME
Values	N = Not Vanity Name

Y = Vanity Name

Default Attribute	N = Not a Vanity Name
Related Attributes	<i>Street Name</i> <i>Name Type</i>
Usage	<i>Vanity Name</i> is used to assist in address identification, destination selection, and for route guidance.
Specification	<ul style="list-style-type: none">• <i>Vanity Name</i> identifies:<ul style="list-style-type: none">◆ A named building with an internal address (1 IBM Plaza).◆ A group of buildings along the same street (some Residences, Cities).◆ A group of buildings along different streets (some Housing Estates).◆ Settlements without street names, but with addresses that are numbered sequentially for the settlement, for example, Praglia 1...25 (in the settlement Praglia).• <i>Vanity Name</i> may only apply to one building along the street (e.g., IBM Plaza).• <i>Vanity Name</i> is included if it is well known or when there is no street name available. In case of a housing estate, only the name of the estate is entered and not the names of the individual buildings.• Only an <i>Alternate Name</i> can be a <i>Vanity Name</i>. However, if the <i>Vanity Name</i> is the only name on a navigable link, it is published as the <i>Official Name/Alternate Name</i> and have <i>Explicable</i> = Y (default value).• <i>Vanity Name</i> is only published for navigable links.

4.4 Display & Routing Attributes

4.4.1 Access Characteristics (RDF_ACCESS)

Definitions	Access Characteristics identify the vehicle types:
	<ul style="list-style-type: none">• allowed on a link (RDF_NAV_LINK.ACCESS_ID)• allowed on a lane (RDF_LANE.ACCESS_ID)• to which a condition applies (RDF_CONDITION.ACCESS_ID)
Table	RDF_ACCESS
Column	AUTOMOBILES BUSES TAXIS CARPOOLS PEDESTRIANS TRUCKS DELIVERIES EMERGENCY_VEHICLES THROUGH_TRAFFIC MOTORCYCLES
Cardinality	1:1
Values	Y or N
Related Tables	RDF_CONDITION RDF_NAV_LINK RDF_LANE RDF_ADMIN_ATTRIBUTE
Related Attributes	<i>Lane Number (LANE_NUMBER)</i> <i>Motorcycle Minimum Requirement (MOTORCYCLE_MIN_REQ)</i>
Usage	Access Characteristics enable correct route calculation and map display for a link or lane.
Specification	<ul style="list-style-type: none">• Access Characteristics are published for conditions, links, or lanes based upon what is legally allowed.• Mopeds are considered motorcycles.• Motorised bicycles are not considered motorcycles.

- RDF_CONDITION.ACCESS_ID identifies what the condition applies to; for example, See Example 3 under *Section 4.4.1.1, Through Traffic (THROUGH_TRAFFIC)*.
- RDF_NAV_LINK.ACCESS_ID identifies what vehicle types can use a link. N is published only if a vehicle type can never use the link.
- RDF_LANE.ACCESS_ID identifies what vehicle types can use a lane. N is published only if a vehicle type can never use the lane.
- Lane Access Characteristics are published for each applicable lane object.

Ferry Link and Road Network on Islands

- Access Characteristics for Ferry Connection and of the road network on the island reflect reality.

Examples See examples under *Section 4.4.1.1, Through Traffic (THROUGH_TRAFFIC)*.

4.4.1.1 Through Traffic (THROUGH_TRAFFIC)

Definition *Through Traffic* indicates whether routing through a link or lane with a passenger car is permitted.

Table RDF_ACCESS

Column THROUGH_TRAFFIC

Values Y or N

Default Value None

Usage This attribute can be used for route calculation and map display.

Specification • If a link or lane has *Through Traffic* = N, then routing through that link or lane with a passenger car is not permitted to reach a destination outside the no through traffic area. For example in *Figure 4-22*, A represents a link with *Through Traffic* = N.

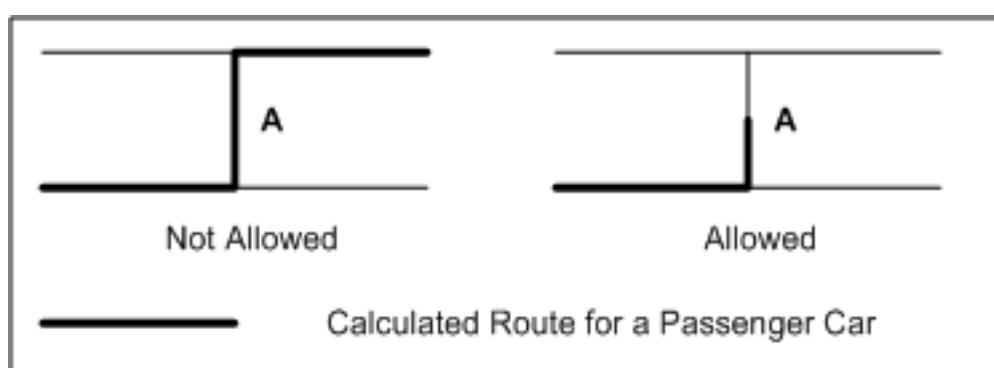


Figure 4-22

- *Through Traffic* only refers to passenger cars. If passenger cars are not allowed at all on a link or lane, *Through Traffic* = N.
- A link or lane that is privately owned does not automatically receive *Through Traffic* = N because it might be freely used by all passenger cars.
- *Through Traffic* = N is not published to reflect physical restrictions of the link or lane, such as a dead end road.
- In *Figure 4-23*, if *Through Traffic* = N for link A and B, then all the links within the enclosed area (shown in red) have *Through Traffic* = N because they are reachable only via link A or B.

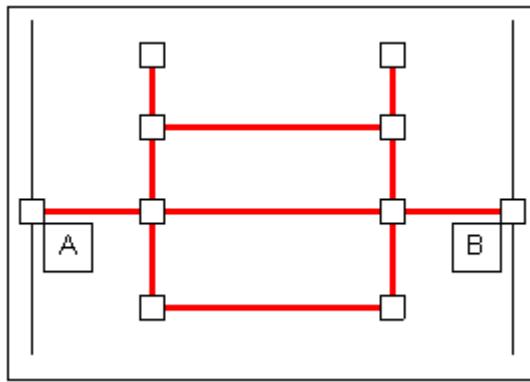


Figure 4-23

- *Through Traffic* = N is published for links or lanes in which routing is not permitted unless needed to reach a destination that is on a link or lane with *Through Traffic* = N. The following are examples:
 - ◆ If there is a posted or legal restriction stating, e.g., “No Through Traffic”, “Residents Only”, “Anlieger Frei”, etc.
 - ◆ If the link or lane or group of links becomes isolated by a Gate with Gate Type = 1 or 2 (Key Access or Permission Required, respectively.)
 - ◆ If the link or lane is in marginal or illegal settlements, such as those in developing countries
- See *Section 4.6.5, Attribution for Specific Features, POI Locations, or Areas* for examples on how *Through Traffic* is published, in combination with other attributes, to different Areas/POIs.

Example 1 Single Direction of Travel

The following is published for a single direction of travel link of two lanes, the leftmost lane does not allow trucks.

RDF_ACCESS	
ACCESS_ID	1023

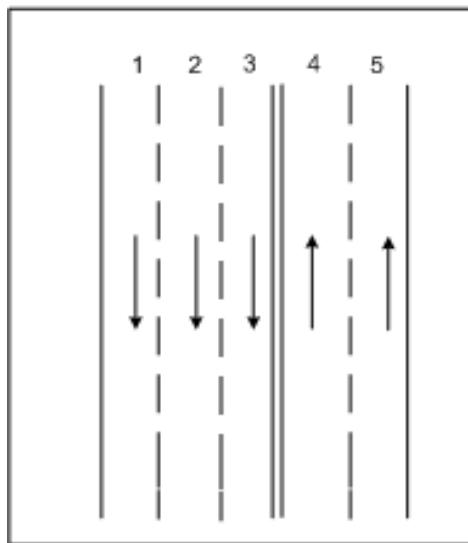
RDF_ACCESS	
AUTOMOBILES	Y
BUSES	Y
TAXIS	Y
CARPOOLS	Y
PEDESTRIANS	Y
TRUCKS	Y
DELIVERIES	Y
EMERGENCY_VEHICLES	Y
THROUGH_TRAFFIC	Y
MOTORCYCLES	Y

RDF_LANE	
LANE_NUMBER	2
ACCESS_ID	1007

RDF_ACCESS	
ACCESS_ID	1007
AUTOMOBILES	Y
BUSES	Y
TAXIS	Y
CARPOOLS	Y
PEDESTRIANS	Y
TRUCKS	N
DELIVERIES	Y
EMERGENCY_VEHICLES	Y
THROUGH_TRAFFIC	Y
MOTORCYCLES	Y

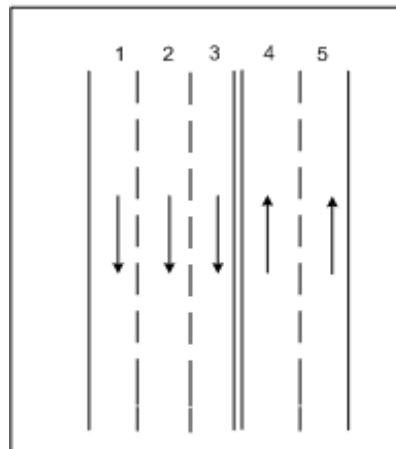
Example 2 Bidirectional Road with Lane Access Characteristics

Trucks and pedestrians cannot use lane 4.



RDF_LANE					
LANE_ID	5012012541	5012012542	5012012543	5012012544	5012012545
LINK_ID	364033408	364033408	364033408	364033408	364033408
LANE_NUMBER	1	2	3	4	5
LANE_TRAVEL_DIRECTION	T	T	T	F	F
LANE_TYPE	1	1	1	1	1
ACCESS_ID	1023	1023	1023	975	1023

RDF_ACCESS		
ACCESS_ID	975	1023
AUTOMOBILES	Y	Y
BUSES	Y	Y
TAXIS	Y	Y
CARPOOLS	Y	Y
PEDESTRIANS	N	Y
TRUCKS	N	Y
DELIVERIES	Y	Y
EMERGENCY_VEHICLES	Y	Y
THROUGH_TRAFFIC	Y	Y
MOTORCYCLES	Y	Y

Example 3 Bidirectional Road with Lane Access Characteristic - Trucks Allowed

If trucks can use lane 4 at certain times only, then the following is published:

RDF_LANE					
LANE_ID	5012012541	5012012542	5012012543	5012012544	5012012545
LINK_ID	364033408	364033408	364033408	364033408	364033408
LANE_NUMBER	1	2	3	4	5
LANE_TRAVEL_DIRECTION	T	T	T	F	F
LANE_TYPE	1	1	1	1	1

RDF_LANE					
ACCESS_ID	1023	1023	1023	1023	1023

Trucks = Y is published in RDF_ACCESS because Trucks can use the lane.

RDF_ACCESS	
ACCESS_ID	1023
AUTOMOBILES	Y
BUSES	Y
TAXIS	Y
DELIVERIES	Y
TRUCKS	Y
PEDESTRIANS	Y
EMERGENCY_VEHICLES	Y
CARPOOLS	Y
THROUGH_TRAFFIC	Y
MOTORCYCLES	Y

RDF_LANE_NAV_STRAND	
LANE_NAV_STRAND_ID	123456879
CONDITION_ID	1231321325
LANE_ID	5012012544
SEQ_NUM	0
NODE_ID	4546546545

RDF_CONDITION	
CONDITION_ID	1231321325
CONDITION_TYPE	8
NAV_STRAND_ID	
ACCESS_ID	16

Trucks = Y is published in RDF_ACCESS because CONDITION_ID 1231321325 applies to Trucks. CONDITION_ID 1231321325 does not apply to vehicle types that equal N.

RDF_ACCESS	
ACCESS_ID	16
AUTOMOBILES	N
BUSES	N
TAXIS	N
DELIVERIES	N
TRUCKS	Y
PEDESTRIANS	N
EMERGENCY_VEHICLE_S	N
CARPOOLS	N
MOTORCYCLES	N

RDF_DATE_TIME	
DT_ID	9876543219
DATETIME_TYPE	H
FROM_END	N
EXCLUDE_DATE	N
START_DATE	00040000
END_DATE	00110000
START_TIME	0
END_TIME	2400

RDF_CONDITION_DT	
CONDITION_ID	1231321325
DT_ID	9876543219
SEQ_NUM	0

4.4.2 Boat Ferry or Rail Ferry (BOAT_FERRY / BOAT_FERRY)

Definition	<i>Boat Ferry</i> represents the generalised route of a vehicle or passenger ferry over water. <i>Rail Ferry</i> represents the generalised route of a ferry for vehicles and passenger vehicles via rail.
Table	RDF_NAV_LINK
Columns	BOAT_FERRY RAIL_FERRY
Values	See Section C.54, RDF_NAV_LINK.
Cardinality	1:1
Default Value	None
Related Table	RDF_NAV_LINK
Usage	This attribute can be used for display.

Specifications [Boat Ferry](#)

- *Boat Ferry* is flagged on links that represent a ferry route for vehicles and/or passengers over water.
- *Boat Ferry* is flagged on links that comprise passenger-only ferry routes. These could include routes to pedestrian-only islands, tourist areas, etc.

[Rail Ferry](#)

- *Rail Ferry* is flagged on links that represent a ferry route for vehicles over rail.
- *Rail Ferry* is flagged on the following:
 - ◆ Links that represent a route for ferrying passengers over rail, if destination is not accessible by the road network or prohibits the use of automobiles
 - ◆ Links comprising a transporter bridge

4.4.3 Bridge/Tunnel (BRIDGE/TUNNEL)

Definition	<i>Bridge</i> indicates a structure that allows a road, railway, or walkway to pass over another road, railway, waterway, or valley. <i>Tunnel</i> indicates an enclosed (on all sides) passageway through or under an obstruction.
Table	RDF_LINK
Columns	BRIDGE TUNNEL

Values See Section C.47, *RDF_LINK*.

Cardinality 1:1

Default Value None

Related Table *RDF_NAV_LINK*

Usage This attribute can be used for display or route guidance.

Specifications [Bridge](#)

- *Bridge* is flagged on links that represent bridges, overpasses, or tunnels longer than 200 metres/656 feet for standard inclusion; 5 metres/17 feet for expanded inclusion.
- Smaller bridges, overpasses, or tunnels may be included where significant.

[Tunnel](#)

- *Tunnel* is flagged on road or railroad links that have tunnels equal to or longer than 200 metres/656 feet for standard Inclusion.
- See Section 4.4.12, *Expanded Inclusion (EXPANDED INCLUSION)* for more information.

4.4.4 Built Up Area Road (BUA_ROAD)

Definition *Built Up Area Road* identifies a link inside the built up area of a given city or settlement as primarily identified by the Built-Up Area signs.

Table *ADAS_LINK_BUAROAD*

Column *BUA_ROAD*

Values See Section C.94, *ADAS Tables*.

Cardinality 1:1

Default Value None

Related Attribute *Built Up Area Road Verified (BUA_ROAD_VERIFIED)*

Related Table *RDF_NAV_LINK*

Usage *Built Up Area Road* can be used to enable/disable certain (ADAS) Functionalities such as Cruise Control, Curve Speed Warning or High Beam as the car drives in/out of a city or settlement.

Knowing the position of a Built Up Area posted sign additionally improves Traffic Sign Recognition (TSR).

Specifications • *Built Up Area Road* is a link attribute.

- *Built Up Area Road* indicates whether a link is inside a Built-Up Area of a city or settlement.
- *Built Up Area Road* is applied as follows:
 - ◆ On verified links, *Built Up Area Road* is primarily based, but not limited to, the presence of a posted Built-Up Area sign.

Since Built-Up Area features (*Feature Type(@4)* = 900156) are generalised polygons for cartographic purposes only and are based on the presence of building agglomerates instead. A *Built Up Area Road* link may not necessarily be physically located inside a Built-Up Area polygon and not necessarily be flagged *Urban* = Y (Urban) in *RDF_NAV_LINK_STATUS* table.

 - ◆ When a Built-Up Area sign is not posted in reality, the *Built Up Area Road* attribute is based on the generalised Built Up Area polygon.
 - ◆ Built-Up Area signs vary by country. Some examples can be found in *Figure 4-24* below.
 - ◆ Built-Up Area sign may also provide implicitly (i.e., as defined by local rules) additional restrictions such as special driving rules within the Built Up Area boundary, e.g., applicable speed limits.
 - ◆ For unverified links, *Built Up Area Road* is based on the inclusion of the link inside a Built-Up Area polygon (*Feature Type(@4)* = 900156).

*Figure 4-24*

- On verified links, the following values of *Built Up Area Road* may apply (See *Figure 4-25* for an example):
 - ◆ *Built Up Area Road* = 1 (BUA Road) is published when:
 - The posted signs for Start and End of Built-Up Area are placed on the same location in both directions of travel.

- The posted signs for Start or End of Built-Up Area is located on a one way link, regardless of the direction of travel.
- ◆ *Built Up Area Road = 2* (BUA Road in positive direction) is published when:
 - The posted signs for Start and End of Built-Up Area are located at an offset, causing traffic in the positive direction to be considered within the Built-Up Area and traffic in the negative direction to be considered outside the Built-Up Area.
 - ◆ *Built Up Area Road = 2* is only coded on bidirectional links.
- ◆ *Built Up Area Road = 3* (BUA Road in negative direction) is published when:
 - The posted signs for Start and End of Built-Up Area are located at an offset, causing traffic in the negative direction to be considered within the Built-Up Area and traffic in the positive direction to be considered outside the Built-Up Area.
 - ◆ *Built Up Area Road = 3* is only valid on bidirectional links.
- ◆ *Built Up Area Road = 4* (Not a BUA Road) is published when:
 - The link is located before the posted sign for Start of Built-Up Area.
 - The link is located beyond the posted sign for End of Built-Up Area.
 - The posted signs for Start and End of Built-Up Area are placed on the same location in both directions of travel.
- All unverified links may not publish *Built Up Area Road = 2* or *3* (BUA Road in Positive or Negative Direction), because field verification is required to detect that in reality the posted entry and exit Built-Up Area signs are placed at an offset.

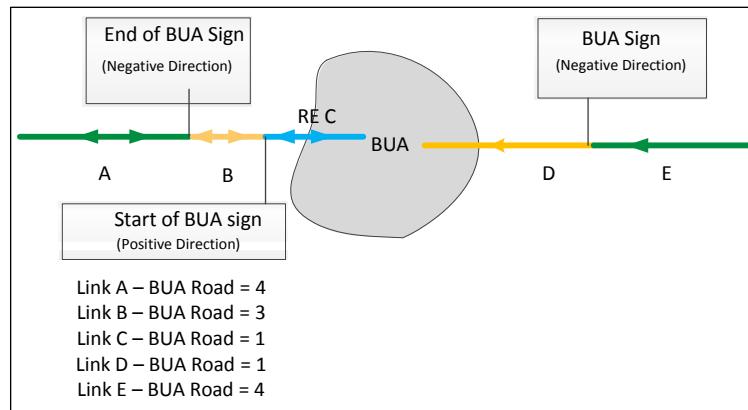


Figure 4-25

4.4.5 Built Up Area Road Verified (BUA_ROAD_VERIFIED)

Definition	<i>Built Up Area Road Verified</i> indicates if a link has been verified for Built Up Area Roads attribution.
Table	ADAS_LINK_BUAROAD
Column	BUA_ROAD_VERIFIED
Values	See Section C.94.2, ADAS_LINK_BUAROAD.
Cardinality	1:1
Default Value	None
Related Attribute	<i>Built Up Area Road (BUA_ROAD)</i>
Related Table	RDF_NAV_LINK
Usage	<i>Built Up Area Road Verified</i> can be used to selectively adjust an application by filtering the <i>Built Up Area Road</i> attribute based on the level of accuracy of the information.
Specification	<ul style="list-style-type: none"> • <i>Built Up Area Road Verified = Y (Verified)</i> is published for links that have been verified to be inside or outside the Built-Up Area. This applies also in situations where a Built-Up Area posted sign is not present in reality. • <i>Built Up Area Road Verified = N (Not verified)</i> is published links that have not been verified to be inside or outside the Built-Up Area. In this case, the <i>Built Up Area Road</i> value is solely based on the inclusion within the <i>Built-Up Area(900156)</i> feature and thus, may not accurately reflect reality. • Table 1 and Figure 3 below provide the application of <i>Built Up Area Road Verified</i> v.s. <i>Built Up Area Road</i>, and an example, resp.

Table 4-4 and Figure 4-26 below provide some examples for Built Up Area Roads attribution.

Built Up Area Road	Built Up Area Road Verified	Meaning
1, 2, 3	Y	The link is verified to be within Built-Up Area.
4	Y	The link is verified to be outside Built-Up Area.
1, 2, 3	N	The link is inside Built-Up Area however the information has not been verified.

Built Up Area Road	Built Up Area Road Verified	Meaning
4	N	The link is outside Built-Up Area however the information has not been verified.

Table 4-4

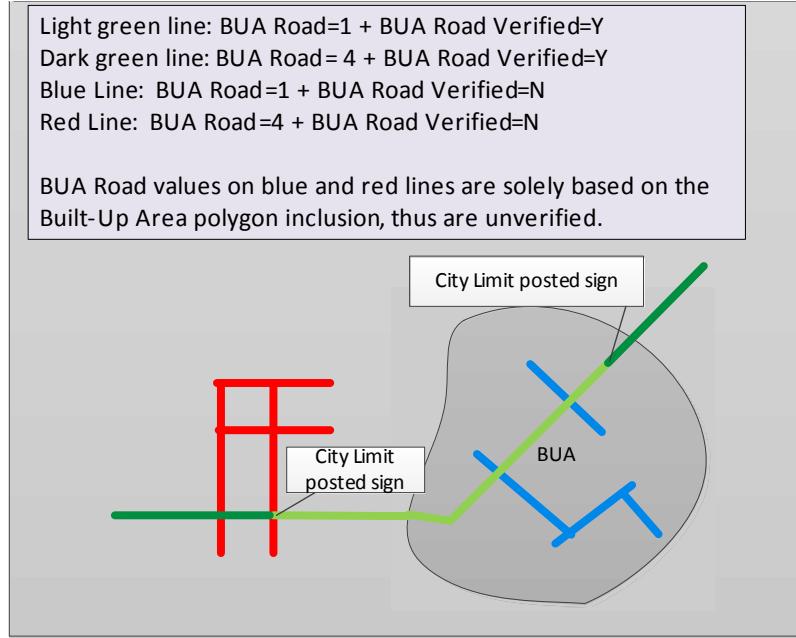


Figure 4-26

Example 1 The roads in shown in *Figure 4-27* would be represented according to *Table 4-5*.

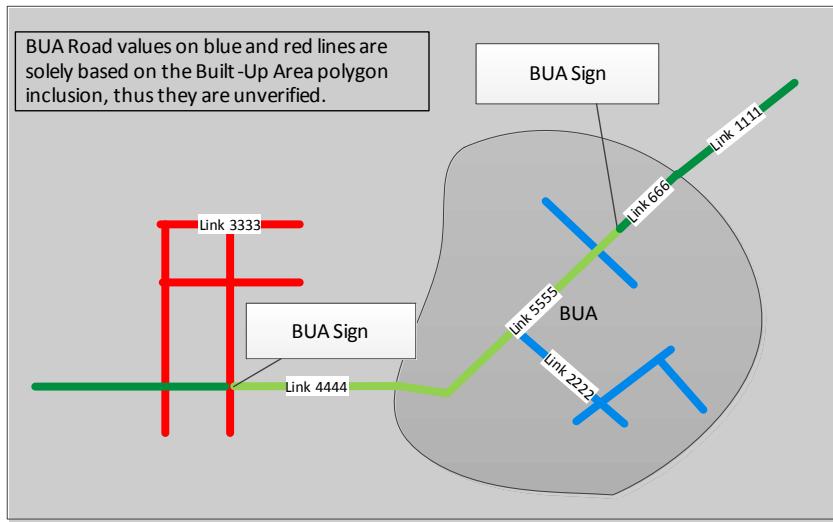


Figure 4-27

LINK	BUA_ROAD	BUA_ROAD_VERIFIED
1111	4	Y
2222	1	N
3333	4	N
4444	1	Y
5555	1	Y
6666	4	Y

Table 4-5

Example 2 The roads in shown in *Figure 4-28* would be represented according to *Table 4-6*.

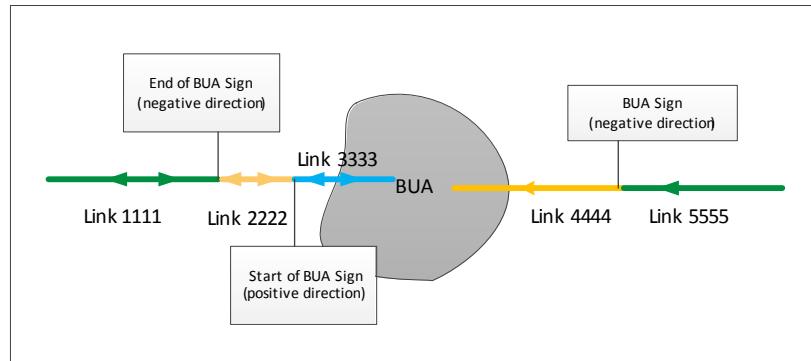


Figure 4-28

LINK	BUA_ROAD	BUA_ROAD_VERIFIED
1111	4	Y
2222	3	Y
3333	1	Y
4444	1	Y
5555	4	Y

Table 4-6

4.4.6 Carpool Road (CARPOOL_ROAD)

Definition	<i>Carpool Road</i> identifies a link where at some point all lanes serve as carpool lanes.
Table	RDF_NAV_LINK_ATTRIBUTE
Column	CARPOOL_ROAD
Values	See Section C.55, RDF_NAV_LINK_ATTRIBUTE.
Related Attributes	EXPRESS_LANE Reversible
Usage	<i>Carpool Road</i> can be used to avoid Carpool links in the routing and to provide explicit instructions in relation to Carpool links.
Specification	<ul style="list-style-type: none">• <i>Carpool Road</i> = Y is published for links if all lanes are used as carpool (HOV) at specific times.• <i>Carpool Road</i> = N is published for links if toll is imposed for all vehicles, including carpools, regardless of the number of lanes representing express/carpool (High Occupancy Toll) and ETL (Express Toll Lanes), i.e., even if all of the lanes are express/carpool lanes.• A link published with CARPOOL_ROAD = Y can be closed to all traffic at specific times, or can be open to non-HOV vehicles at specific times. <i>Carpool Road</i> = Y only indicates that a link is at some point only accessible to HOV vehicles.• If it is not known if all lanes are used as Carpool (HOV) at specific times, then either no entry is published for the link in RDF_NAV_LINK_ATTRIBUTE or RDF_NAV_LINK_ATTRIBUTE.CARPOOL_ROAD = NULL.• If all lanes are not used as Carpool (HOV) at specific times, then either no entry is published for the link in RDF_NAV_LINK_ATTRIBUTE or RDF_NAV_LINK_ATTRIBUTE.CARPOOL_ROAD = NULL.• If only a subset of lanes on the link is an HOV lane, then a Lane Object is published in RDF_LANE. See Section 4.5.2.2, <i>Lane Type (LANE_TYPE)</i> for further information.
Example	Reversible, Carpool, and Alternate Fuel
	<i>Figure 4-29</i> is a link represents a road that is: <ul style="list-style-type: none">• Fully reversible• At some point all lanes on the link are used as carpool (HOV) lanes• Alternate fuel vehicles can use the carpool (HOV) lanes

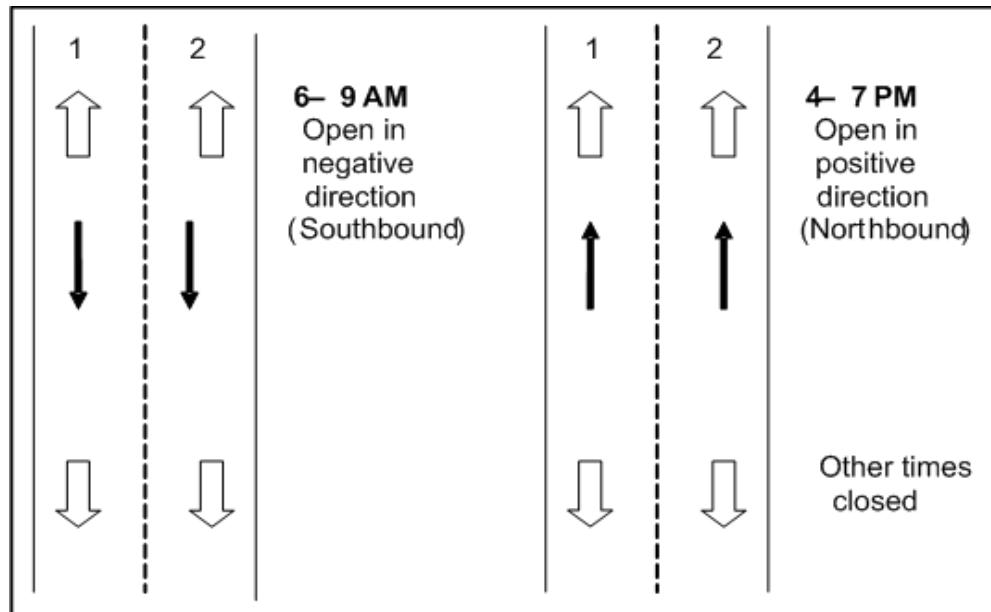


Figure 4-29

The link receives the following attribution:

RDF_NAV_LINK_ATTRIBUTE	
LINK_ID	203731724
REVERSIBLE	Y
CARPOOL_ROAD	Y

4.4.7 Confidence Level Rating (CONFIDENCE_LEVEL_RATING)

Definition	<p><i>Confidence Level Rating</i> indicates the level of trust in the source for the link. This confidence level provides the necessary information to make decisions regarding the link usage of community-generated map updates.</p> <p>Community-generated map updates include any updates coming from a non-traditional source. “Community” is an individual, group of people, or company that actively or passively provide data, but are not employed by HERE and may not meet HERE standards for inclusion and accuracy.</p>
Table	RDF_NAV_LINK
Column	CONFIDENCE_LEVEL_RATING
Values	See Section C.54, RDF_NAV_LINK.
Cardinality	1:0,1
Default value	Null
Usage	<p><i>Confidence Level Rating</i> can be used to modify the use or inclusion of geometry in an application based on trust in the source.</p>
Specification	<ul style="list-style-type: none">• <i>Confidence Level Rating</i> = 1 indicates a high level of trust in the source. A high rated source has demonstrated consistent accuracy.• <i>Confidence Level Rating</i> = 2 indicates a medium level of trust in the source. A medium rated source has demonstrated some accuracy.• <i>Confidence Level Rating</i> = 3 indicates a low level of trust in the source. A low rated source is a new or unverified source.

4.4.8 Controlled Access (CONTROLLED_ACCESS)

Definition	<p><i>Controlled Access</i> identifies roads with limited entrances and exits that allow uninterrupted high speed traffic flow. These roads constitute the interstate/freeway network in the U.S. and the motorway network in Europe.</p>
Table	RDF_NAV_LINK
Column	CONTROLLED_ACCESS
Values	See Section C.54, RDF_NAV_LINK.
Default Value	N = Not controlled access
Related Attribute	<i>Limited Access (LIMITED_ACCESS_ROAD)</i>

Usage	<i>Controlled Access</i> can be used for map display, avoidance of freeway/motorway, publishing speed limits, and route guidance timing.
Specification	<ul style="list-style-type: none"> • <i>Controlled Access</i> is published for links only. • Generally, <i>Controlled Access</i> is flagged on roads that meet the following: <ul style="list-style-type: none"> ◆ Limited entrances and exits that allow uninterrupted high speed traffic flow ◆ Separately digitised roads <p>Note: There can be slight variations in the application of this attribute. For example, in Europe, only roads with the "Motorway" sign are flagged as <i>Controlled Access</i>. See the <i>Country Specific Rules</i> document.</p> <ul style="list-style-type: none"> • <i>Controlled Access</i> is also applied to the following: <ul style="list-style-type: none"> ◆ Connections between two or more roads that received <i>Controlled Access</i> ◆ Spurs of significant length (e.g., at least 5 Km) from a road that received <i>Controlled Access</i> • <i>Controlled Access</i> is not applied to connections between a controlled access and a non-controlled access road (See <i>Figure 4-30 Link A</i>). • If a ramp exiting a controlled access road leads to another controlled access road and a non-controlled road, the full path leading to the other controlled access road is flagged <i>Controlled Access</i> and only the splitter ramp leading to the non-controlled access road does not receive <i>Controlled Access</i>. See <i>Figure 4-30</i>, links B and C.

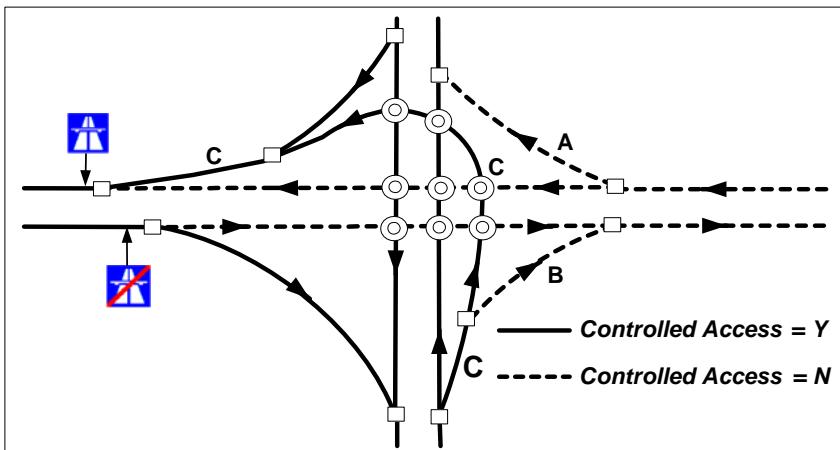


Figure 4-30: Controlled Access

4.4.9 Coverage Indicator (COVERAGE_INDICATOR)

Definition	<i>Coverage Indicator</i> is an attribute to a navigable link or to a cartographic feature that indicates a product level corresponding to the inclusion of database features, verification, and completeness for a particular feature in the database. <i>Coverage Indicator</i> provides a refinement to the existing Prime, Complete, Network, City-to-City, and Base attribution.
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Tables	RDF_BUILDING_FACE RDF_CARTO_FACE RDF_CARTO_LINK RDF_NAV_LINK
Column	COVERAGE_INDICATOR
Values	See <i>Section C.15, RDF_CARTO_FACE</i> See <i>Section C.16, RDF_CARTO_LINK</i> See <i>Section C.54, RDF_NAV_LINK</i>
Related Attributes	<i>Detailed City</i> (RDF_NAV_LINK_STATUS) <i>In-Process Data</i> (RDF_NAV_LINK_STATUS) <i>Full Geometry</i> (RDF_NAV_LINK_STATUS)
Usage	An application can use <i>Coverage Indicator</i> to provide specific guidance or display depending on the <i>Coverage Indicator</i> value. An example of specific guidance would be a message when entering an area with a particular <i>Coverage Indicator</i> .
Specification	<ul style="list-style-type: none">• <i>Coverage Indicator</i> is published for navigable links or cartographic features (linear or polygonal cartographic features).• Linear cartographic features can have multiple <i>Coverage Indicator</i> values applied. This means that some links of a linear cartographic feature could be coded with a different <i>Coverage Indicator</i> value than other links in the same linear cartographic feature.<ul style="list-style-type: none">◆ A linear cartographic feature may have multiple <i>Coverage Indicator</i> values applied, however at cartographic Link level (RDF_CARTO_LINK) only one <i>Coverage Indicator</i> value is published• Polygonal cartographic features are always entirely coded with the same <i>Coverage Indicator</i> value. This means that all Faces of a polygonal cartographic feature are coded with the same <i>Coverage Indicator</i> value.• A Link or polygonal Cartographic feature can have only one <i>Coverage Indicator</i> attribute associated.

4.4.10 Detailed City (DETAILED_CITY))

Definition	<i>Detailed City</i> indicates whether a road or ferry is part of a Prime coverage area.
Table	RDF_NAV_LINK_STATUS
Column	DETAILED_CITY
Values	N = Not a Prime coverage area Y = Prime coverage area

Default Value None

Cardinality 1:1

Related Attribute *In Process Data (IN_PROCESS_DATA)*

Usage *Detailed City* allows systems to adapt to different coverage area levels.

Specification

- If *Detailed City* = N, then the coverage area is either Complete, Network, or City-to-City.
- If *Detailed City* = Y, then the coverage area is Prime. See *Section 2.2, Prime* for further information about Prime coverage areas.

4.4.11 Dividers (DIVIDER & DIVIDER_LEGAL)

Definition *Divider* identifies the presence of a legal or physical divider preventing specific manoeuvres.

Divider Legal indicates if the divider is a legal (or physical).

Table RDF_NAV_LINK

Values DIVIDER

1 = Reference node and link

2 = Non reference node and link

A = Both nodes and link

L = Link only

N = No divider

DIVIDER_LEGAL

N = No legal divider

Y = Legal divider

Default Value DIVIDER = N (Not divided)

DIVIDER_LEGAL = N (No legal divider)

Related Attribute *Divided Junction*

Related Table RDF_CONDITION_DIVIDER

Usage Divider

Enables a system to prevent left turns (in right-side driving countries), right turns (in left side driving countries), and U-turns at divided intersections and in the middle of divided roads.

Divider Legal

Identifies physically passable dividers for emergency vehicle routing applications.

Specification

- Divider coding applies to links only.
- The following dividers can exist in the database:
 - ◆ Link only divided (DIVIDER = L): The link is divided. Turns are allowed at either end of the divided link. U-turns are not allowed along the divided link.
 - ◆ Link and both nodes are divided (DIVIDER = A). Left turns (in right side driving countries), right turns (in left side driving countries), and U-turns are not allowed, from the divided link to any link connecting to either node. The opposite turn from the link not divided to the divided link is also not allowed.
 - ◆ Link and one of the nodes are divided (DIVIDER = 1 or 2). Left turns (in right side driving countries), right turns (in left side driving countries), and U-turns are not allowed, from the divided link to any link at the blocked node flagged to be divided. The opposite turn from the link not divided to the divided link is also not allowed. See *Figure 4-31*.

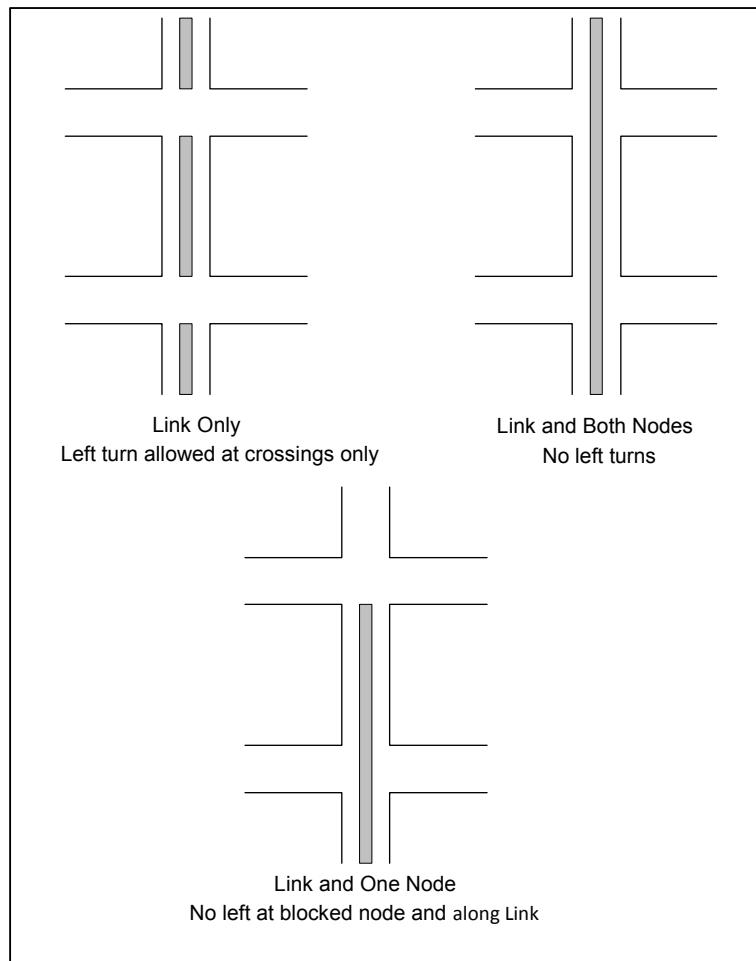


Figure 4-31: Divided Junction

Note: This figure represents right-side driving countries.

- *Restricted Driving Manoeuvre* conditions are not published for situations where Divider coding exists. Therefore the Divider coding on Link level (RDF_NAV_LINK.DIVIDER) should be interpreted into restricted driving manoeuvres in order to have correct driving instructions.
- No divider coding is applied if the divider only exists in a node, Restricted Driving Manoeuvres are added instead.
- DIVIDER_LEGAL = N in combination with DIVIDER = 1, 2, A, L: the divider is a physical barrier that cannot be traversed.
- DIVIDER_LEGAL = N only has a meaning if DIVIDER ≠ N.
- DIVIDER_LEGAL = Y in combination with DIVIDER = 1, 2, A, L: the divider is a physically passable barrier, such as painted lines, that prohibits traversal by statute only.
- If a divider is larger than 3 meters wide, then the opposing lanes of traffic are separately digitised, and each link is coded Multiply Digitised instead of Divider coding.
- Physical or painted dividers that only restrict driving manoeuvres at intersections are coded using *Restricted Driving Manoeuvre* conditions.
- If a link has DIVIDER = 1, 2, or A, then the adjacent link also has DIVIDER = 1, 2, or A.
- In *Figure 4-32*, a painted divider (DIVIDER_LEGAL = Y) goes through the intersection. The following manoeuvres are prohibited in reality:
 - ◆ link 1 to link 3
 - ◆ link 2 to link 4
 - ◆ link 3 to link 2
 - ◆ link 3 to link 4
 - ◆ link 4 to link 1
 - ◆ link 4 to link 3
 - ◆ link 1 to link 1 (No U-turn)
 - ◆ link 2 to link 2 (No U-turn)

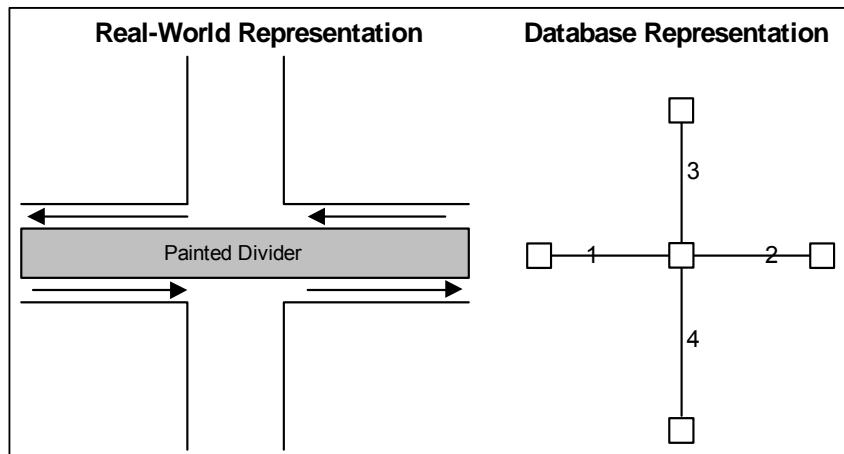


Figure 4-32: Representations of a Divided Junction

Link 1:

DIVIDER = '2' (Non Ref Node and Link are Divided) and
DIVIDER_LEGAL = 'Y'.
Divider Type = Legal

Link 2:

DIVIDER = '1' (Ref Node and Link are Divided) and
DIVIDER_LEGAL = 'Y'.

Note: An emergency vehicle would be able to make any of the turns restricted here when necessary.

- Divider coding alone does not prevent all illegal driving manoeuvres when two or more non-divided links connect at the same node to a divided link on the same side. “Link only” dividers (DIVIDER = L) and manoeuvres are applied to indicate restricted manoeuvres. See Figure 4-33.

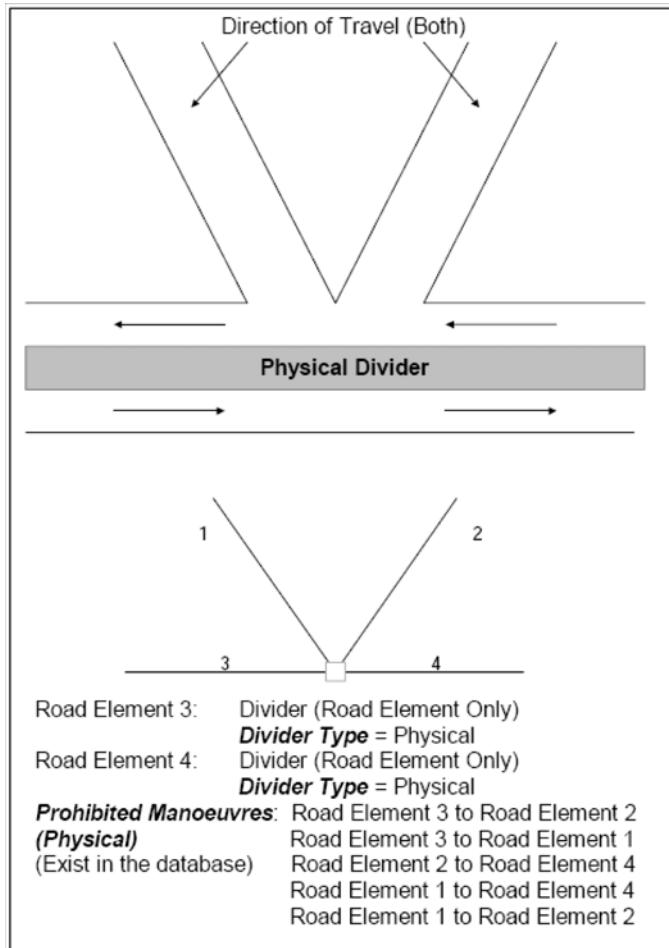


Figure 4-33: Link Only Divider

4.4.12 Expanded Inclusion (EXPANDED INCLUSION)

Definition	<i>Expanded Inclusion</i> identifies a feature (either a bridge or a tunnel for navigable links) that meets the expanded inclusion rule.
Table	RDF_NAV_LINK_ATTRIBUTE
Column	EXPANDED_INCLUSION
Values	See Section C.55, RDF_NAV_LINK_ATTRIBUTE.
Cardinality	1:0,1
Usage	<i>Expanded Inclusion</i> allows easy identification of links meeting expanded inclusion. It also provides the option to not publish these links if the inclusion of these links causes any size issues.

Note: HERE does not guarantee the connectivity of the road network if suppression of these links is chosen.

- Specification**
- *Expanded Inclusion* is applied to any bridge or tunnel according to *Table 4-7*.
 - *Expanded Inclusion* is not published if it does not apply to a particular link.

Feature	Coverage Level	Inclusion Rules	
		Standard	Expanded
Bridge	All HERE Maps	Longer than 200 metres/ 656 feet	Length between 5 metres/16.4 feet and 200 metres/656 feet
Tunnel	Prime		

Table 4-7

- *Expanded Inclusion* is also applied to other features (e.g., Land Cover, Waterways, etc.). See their respective chapters for details.

4.4.13 Express Lane (EXPRESS_LANE)

- Definition** *Express Lane* identifies links where all lanes are express lanes.
- Table** RDF_NAV_LINK_ATTRIBUTE
- Column** EXPRESS_LANE
- Values** See *Section C.55, RDF_NAV_LINK_ATTRIBUTE*.
- Cardinality** 1:1
- Usage** *Express Lane* can be used to prioritise ongoing traffic to take the express lane.
- Specification**
- *Express Lane* = Y is published if all lanes on a link are express lanes, which means links where all lanes are accessible in both directions at specific times of the day.
 - *Express Lane* = N is published for links if toll is imposed for all vehicles, including carpools, regardless of the number of lanes representing express/carpool (High Occupancy Toll) and ETL (Express Toll Lanes), i.e., even if all of the lanes are express/carpool lanes.
 - If it is not known if all lanes on a link are express lanes, then either no entry is published for the link in RDF_NAV_LINK_ATTRIBUTE or RDF_NAV_LINK_ATTRIBUTE.EXPRESS_LANE = NULL.
 - If all lanes on a link are not express lanes, then either no entry is published for the link in RDF_NAV_LINK_ATTRIBUTE or RDF_NAV_LINK_ATTRIBUTE.EXPRESS_LANE = NULL.
 - If a subset of lanes on the link is an express lane, then Lane Objects are published in RDF_LANE. See *Section 4.5.2.2, Lane Type (LANE_TYPE)* for further information.

- Express lanes have the same *Functional Class* as the main road to which the express lane is associated. Prioritization in routing to express lanes therefore should be based on the EXPRESS_LANE attribute.

4.4.14 Four-Wheel Drive (FOUR_WHEEL_DRIVE)

Definition	<i>Four-Wheel Drive</i> describes roads which are only suitable for vehicles with four-wheel drive.
Table	RDF_NAV_LINK_ATTRIBUTE
Column	FOUR_WHEEL_DRIVE
Values	See Section C.55, RDF_NAV_LINK_ATTRIBUTE.
Usage	<i>Four-Wheel Drive</i> is used primarily for cartographic representation. <i>Four-Wheel Drive</i> can affect routing algorithms by assigning higher penalties to roads which are only suitable for vehicles with four-wheel drive.
Specification	<ul style="list-style-type: none"> • Inclusion is for all coverage levels. • <i>Four-Wheel Drive</i> = Y is published for links suited for four-wheel drive vehicles only. • If it is not known if the link is suited for four-wheel drive vehicles only, then either no entry is published for the link in RDF_NAV_LINK_ATTRIBUTE or RDF_NAV_LINK_ATTRIBUTE.FOUR_WHEEL_DRIVE = NULL. • If a link is not suited for four-wheel drive vehicles only, then either no entry is published for the link in RDF_NAV_LINK_ATTRIBUTE or RDF_NAV_LINK_ATTRIBUTE.FOUR_WHEEL_DRIVE = NULL. • Access Characteristics on links with <i>Four-Wheel Drive</i> = Y are: <ul style="list-style-type: none"> ◆ AUTOS = Y ◆ BUSES (Reflect access in reality) ◆ CARPOOLS (Reflect access in reality) ◆ DELIVERIES (Reflect access in reality) ◆ EMERGENCY VEHICLES = Y ◆ PEDESTRIANS (Reflect access in reality) ◆ TAXIS (Reflect access in reality) ◆ THROUGH TRAFFIC = N ◆ TRUCKS (Reflect access in reality) • Links with <i>Four-Wheel Drive</i> = Y receive the following default attribute values: <ul style="list-style-type: none"> ◆ <i>Speed Category</i> = 8 (< 11 km/h) ◆ <i>Functional Class</i> = 5 ◆ PAVED = N

4.4.15 Frontage (FRONTAGE)

Definition	<i>Frontage</i> indicates local roads that run parallel to and usually contain the name and addresses of a road with a higher traffic flow.
Table	RDF_NAV_LINK
Column	FRONTAGE
Values	See Section C.54, RDF_NAV_LINK.
Usage	<p>When it is necessary to be guided along the Frontage, the flag enables navigation systems to provide an appropriate message, for example, “take the Frontage Road.”</p> <p>This attribute enables better route guidance. If this attribute is not taken into consideration, a system might say “you are approaching an intersection of many Main Streets. Take the one in the middle.” The <i>Frontage</i> flag indicates that although the name of the road is the same, the functionality is different. This way, strange explications can be avoided.</p>
Specification	<ul style="list-style-type: none">• Ramp is flagged on roads described as follows:<ul style="list-style-type: none">◆ Runs parallel to a main road◆ Usually contains the name(s) and addresses of a road with a higher traffic flow as shown in <i>Figure 4-34</i>◆ Only leads to the frontage road as shown in <i>Figure 4-35</i>

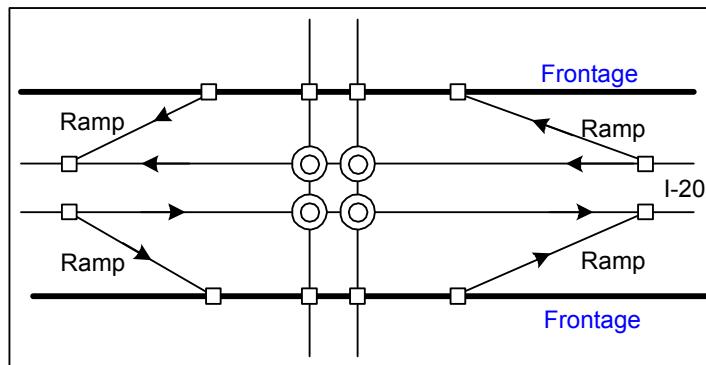


Figure 4-34

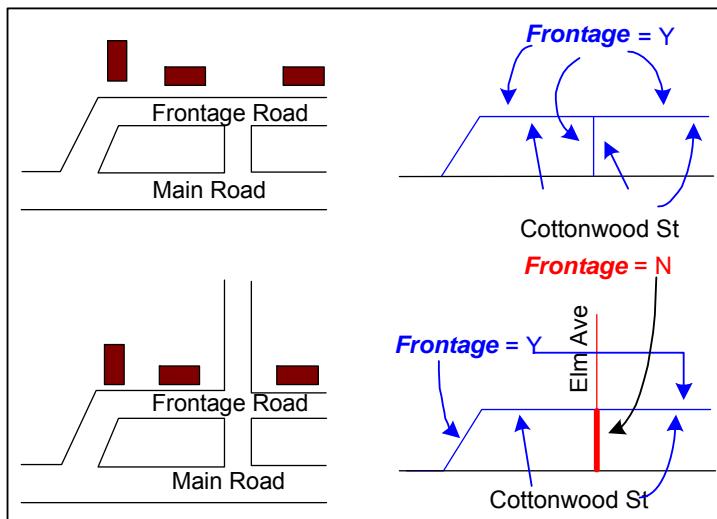


Figure 4-35

4.4.16 Functional Class (FUNCTIONAL_CLASS)

Definition	<i>Functional Class</i> defines a hierarchical network used to determine a logical and efficient route.
Table	RDF_NAV_LINK
Column	FUNCTIONAL_CLASS
Values	See Section C.54, RDF_NAV_LINK.
Related Attributes	<ul style="list-style-type: none"> Vehicle Type Speed Category Controlled Access
Usage	<i>Functional Class</i> can be used to determine sets of links that form connected graphs.
Specification	<ul style="list-style-type: none"> • The arterial network is connected. Each link has at least one connection in the network to every other link with the same <i>Functional Class</i> via a link with the same or higher functionality. • <i>Functional Class</i> = 1 roads allow for high volume, maximum speed traffic movement between and through major metropolitan areas. • <i>Functional Class</i> = 1 is published for roads with very few, if any, speed changes. Access to the road is usually controlled. • <i>Functional Class</i> = 2 roads are used to channel traffic to <i>Functional Class</i> = 1 roads for travel between and through cities in the shortest amount of time.

- *Functional Class = 2* is published for roads with very few, if any, speed changes that allow for high volume, high speed traffic movement.
- *Functional Class = 3* is published for roads that intersect *Functional Class = 2* roads and provide a high volume of traffic movement at a lower level of mobility than *Functional Class = 2* roads.
- *Functional Class = 4* is published for roads that provide for a high volume of traffic movement at moderate speeds between neighbourhoods. These roads connect with higher *Functional Class* roads to collect and distribute traffic between neighbourhoods.
- *Functional Class = 5* is published for roads with volume and traffic movement below the level of any other *Functional Class*.
- The following also receive *Functional Class = 5*:
 - ◆ Walkways, truck only roads, bus only roads, and emergency vehicle only roads
 - ◆ Access roads, parking lanes, and connections internal to certain POIs in North America.
 - ◆ Roads in marginal and illegal settlements in developing countries
 - ◆ U-turn lane unless it is considered part of an intersection. A U-turn lane is considered part of an intersection if the presence of turn restrictions at the intersection forces the use of the U-turn link, as shown in *Figure 4-36*.

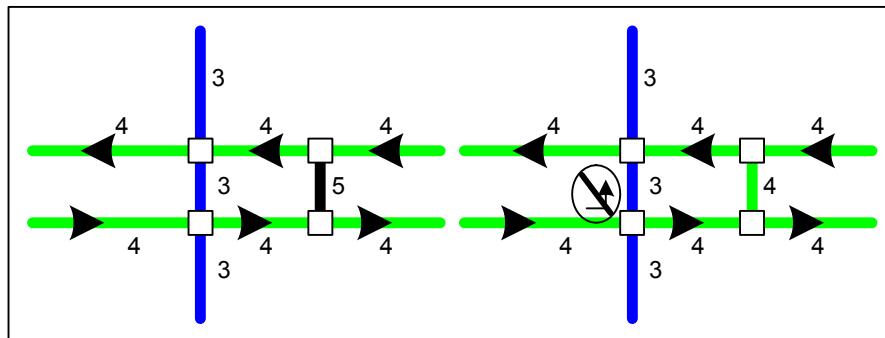


Figure 4-36

- Roads with *Functional Class = 5* also receive *Low Mobility = 1*. See *Section 4.4.25, Low Mobility (LOW_MOBILITY)*.
- As a general rule, *Functional Class* assignments have no direct correlation with other road attributes like *Speed Limit*, *Controlled Access*, *Route Type*, etc. While in general *Functional Class = 1* roads are controlled access this is not always the case, and it is also not the case that all controlled access roads are *Functional Class = 1*
- The *Functional Class* network is a hierarchical classification of roads based on reality. Density and pattern of each *Functional Class* level is influenced by the physical road network that exists in reality. Physical road network density variations between countries and between regions within a country are reflected in the *Functional Class* network. For example, the density of the road network differs between North American and European countries. Even within the U.S., for instance, density varies from the East Coast to the West Coast.

- Functional Class = 1, 2, 3, and 4 roads are connected to form a comprehensive road network for navigation of long distance, mid-range and short routes in any given coverage area.
- For example, long distance routes are often calculated by searching the road network through progressively higher *Functional Classes* to get to a Level 1 road. The route continues exclusively on Level 1 roads until travel is required through progressively lower *Functional Classes* in order to reach the destination.
- The lowest *Functional Class* necessary to produce inter-connectivity is applied to links attributed with:
 - ◆ RDF_NAV_LINK.RAMP = Y
 - ◆ RDF_LANE.LANE_TYPE = 2048
 - ◆ RDF_NAV_LINK.INTERSECTION_CATEGORY = 1
- If two or more roads with different *Functional Class* values connect, the lower *Functional Class* value is published for the connecting roads, see *Figure 4-37* and *Figure 4-38* for connectivity.

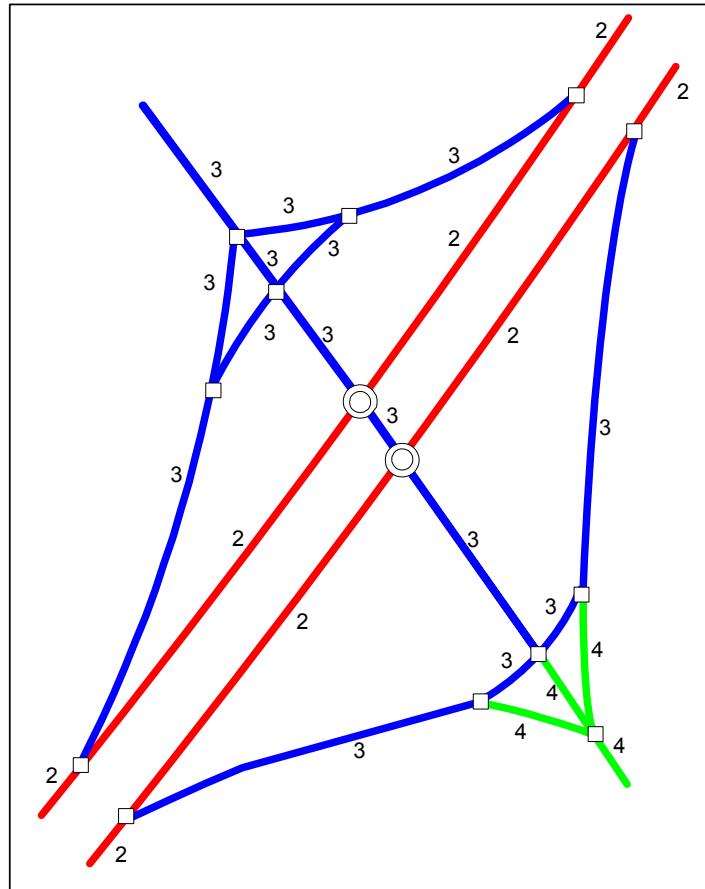


Figure 4-37

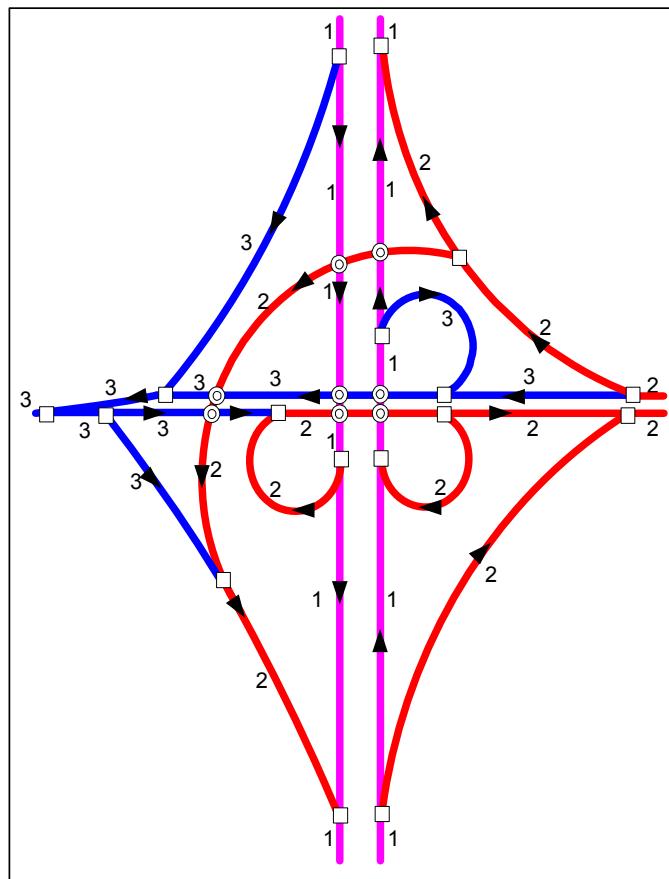


Figure 4-38

- If a road's *Functional Class* is the same on both sides of an intersection, then the links internal to the intersection receive the same value as illustrated in *Figure 4-39*.

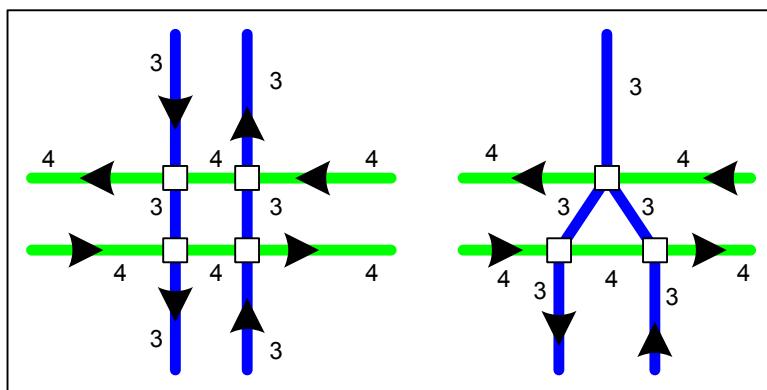


Figure 4-39

- Roundabout links receive the highest *Functional Class* of the roads connected to the Roundabout, as shown in *Figure 4-40*.

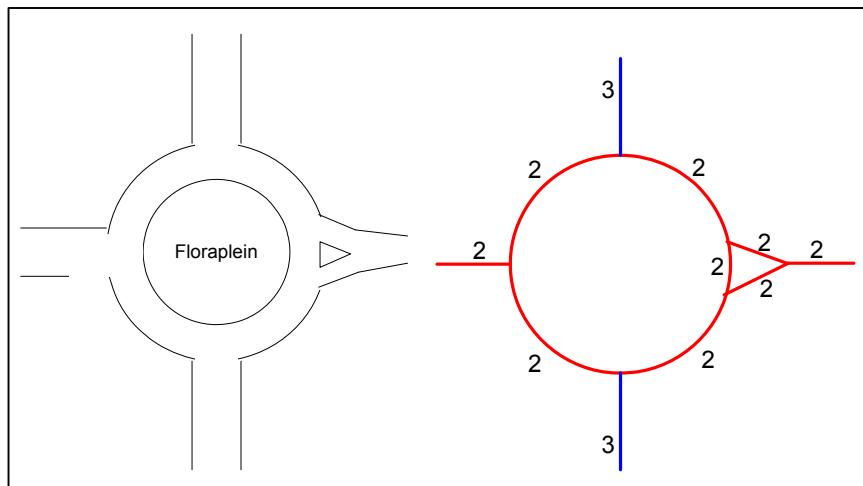


Figure 4-40

- A U-turn lane receives *Functional Class* = 5 unless it is considered part of an intersection. A U-turn lane is considered part of an intersection when the presence of turn restrictions at the intersection forces the use of the U-turn link, as shown in .

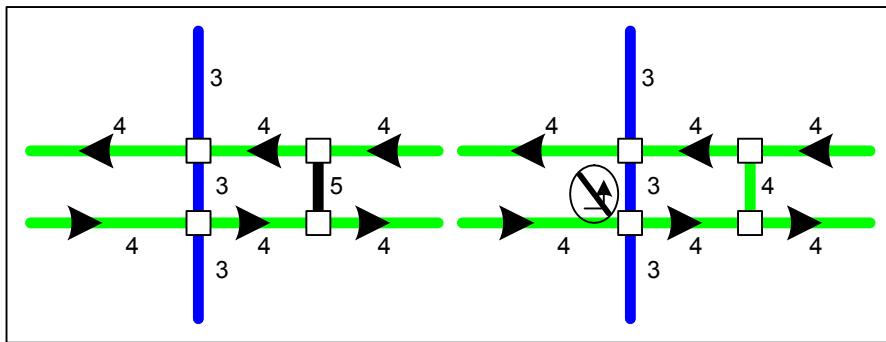


Figure 4-41

4.4.17 Grade Category (GRADE_CATEGORY)

Definition	<i>Grade Category</i> identifies a change in slope based on driver perception.
Table	RDF_NAV_LINK
Column	GRADE_CATEGORY
Values	See Section C.54, RDF_NAV_LINK.
Related Attributes	None

Usage *Grade Category* can be used to identify multiple levels of roads that may be present at a single place. For example, multiple flyovers one over the other. *Grade Category* may be used to differentiate between ramps connecting to flyovers at different levels.

Specification • *Grade Category* is published only for specific countries. Refer to the *Country Specific Rules*.

4.4.18 In-Process Data (IN_PROCESS_DATA)

Definition *In-Process Data* identifies that a link is included prior to completion to full specification.

Table RDF_NAV_LINK_STATUS

Column IN_PROCESS_DATA

Values See Section C.56, *RDF_NAV_LINK_STATUS*.

Related Attributes *Full Geometry (FULL_GEOMETRY)*

Usage The *In-Process Data* attribute on road links indicates that they do not have full routing attributes. *Travel Direction*, *Speed Category*, etc. may not represent reality.

Rules

- The minimum specification for these links are:
 - ◆ Complete administrative coding to the Maximum administrative level (*MAX_ADMIN_LEVEL*). For example, in the U.S., Puerto Rico, and U.S. Virgin Islands, there are four (4) administrative levels: 4 is the Maximum Administrative Level.
 - ◆ Complete local and route number names
- This attribute is set for links representing roads and ferries.
- Links with *In-Process Data* = Y and *Detailed City* = N receive *Full Geometry* = N.
- Link with *In-Process Data* = Y are usually road links with *Functional Class* = 5.

Note: In some countries, *In-Process Data* = Y may be applied to road links with *Functional Class* = 1 thru 4.

4.4.19 Intersection Category (INTERSECTION_CATEGORY)

Definition *Intersection Category* identifies the type of intersection.

Table RDF_NAV_LINK

Column INTERSECTION_CATEGORY

Values See Section C.54, *RDF_NAV_LINK*.

Related Attributes	None
Usage	The <i>Intersection Category</i> can be used for explication and display.
<u>Intersection Category = 1 (Intersection Internal)</u>	
This value indicates that a road segment should not be viewed as an individual piece of road but as part of the intersection. A separate guidance manoeuvre should not exist for this segment. For example, if making a u-turn in <i>Example A</i> in <i>Figure 4-42</i> , the driver should receive the instruction to "make the u-turn" and not "turn left, turn left".	
<u>Intersection Category = 2 (Manoeuvre)</u>	
This value indicates that only one command should be given despite the fact that two junctions occur – one at each end of the turn lane. It is only necessary to state "turn right" near the beginning of the manoeuvre because generally at the end the driver does not have a choice in direction. See <i>Example B</i> in <i>Figure 4-42</i> .	
<u>Intersection Category = 3 (Indescribable)</u>	
This value indicates a manoeuvre that cannot be explained in one command or at all. A graphic may be needed to illustrate the turn. In these situations a driver may need to go right to make a left turn. See <i>Example C</i> in <i>Figure 4-42</i> .	
<u>Intersection Category = 4 (Roundabout)</u>	
This value allows explication of manoeuvres involving roundabouts (i.e., "Take the third exit from roundabout").	
<u>Special Traffic Figure = 5 (Undefined Traffic Area)</u>	
A driver traversing through an Undefined Traffic Area would require extra guidance, i.e., in the form of a diagram, to route through the area. Though road links exist within an Undefined Traffic Area, once the driver enters the shaded area (see <i>Figure 4-43</i>), he or she can drive in any direction. As long as a driver is within the shaded area (though he/she may not be on an actual road link), the system should not try to recalculate a route.	
<u>Special Traffic Figure = 6 (Special Traffic Figure)</u>	
This value allows for guidance that uses the word "exit" instead of "turn." "Exit" is preferable because the Special Traffic Figure feels similar to a roundabout with regard to driving through it.	

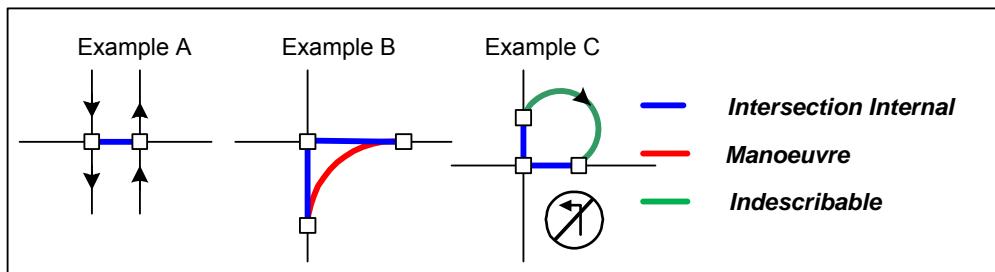


Figure 4-42

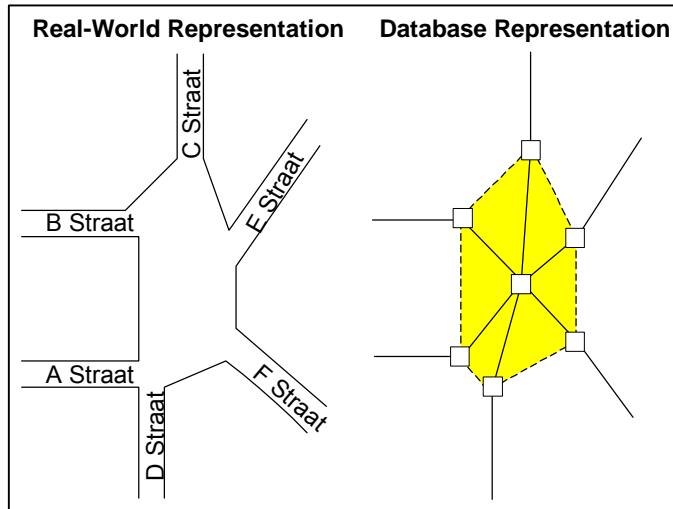


Figure 4-43

Specification Note: All measurements given in the following diagrams are guidelines.

Intersection Internal

- *Intersection Category = 1* is applied to links that meet any of the following criteria:
 - ◆ Crossing of Multiply Digitised roads.

A by-product of multiple digitisation is that one intersection is represented by 4 links. Similarly, the crossing link of a *Multiply Digitised (MULTI_DIGITIZED) = N* road and a *Multiply Digitised (MULTI_DIGITIZED) = Y* road is one intersection, as shown in the illustrations in *Figure 4-44* and *Figure 4-45*.

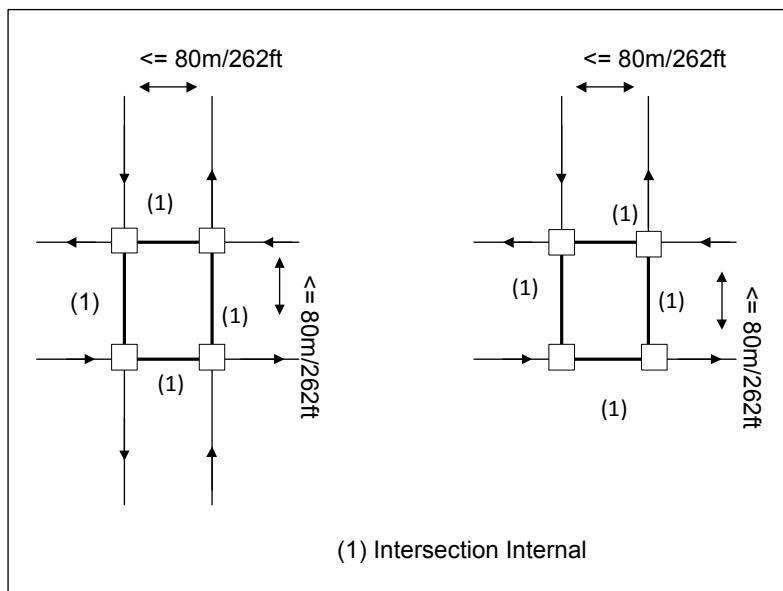


Figure 4-44

- ◆ Singly digitised road splitting into multiply digitised roads.

When a *Multiply Digitised* (MULTI_DIGITIZED) = N road splits into a *Multiply Digitised* (MULTI_DIGITIZED) = 1 road before a junction, the links that are the beginning of the *Multiply Digitised* (MULTI_DIGITIZED) = 1 link receive *Intersection Category* = 1 coding if the distance before the junction is less than 40 metres/131 feet, as shown in *Figure 4-45*.

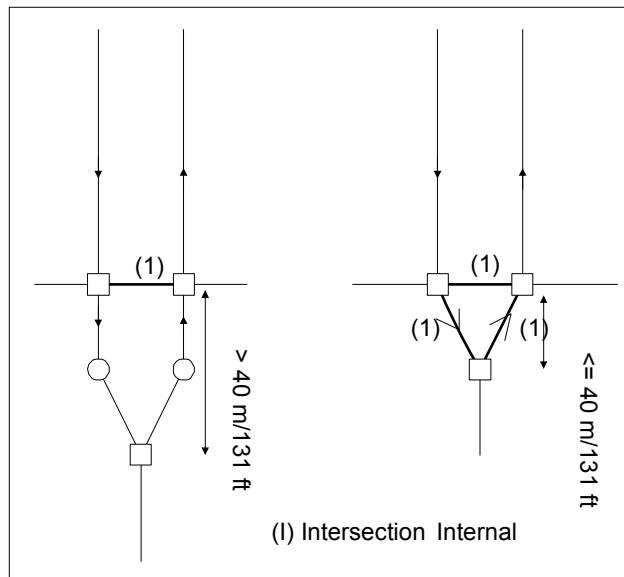


Figure 4-45

- ◆ Offset streets with overlapping casements.

The outer edge of a roadbed is called a road casement. When road casements overlap, the link that is created by offset centrelines is coded as *Intersection Category* = 1, as shown in *Figure 4-46*. The road names before and after a junction are not taken into account when determining *Intersection Category* coding. *Intersection Category* = 1 implies that the segment can be ignored for explication. In *Figure 4-46*, the driver would not want to hear – turn left then turn right.

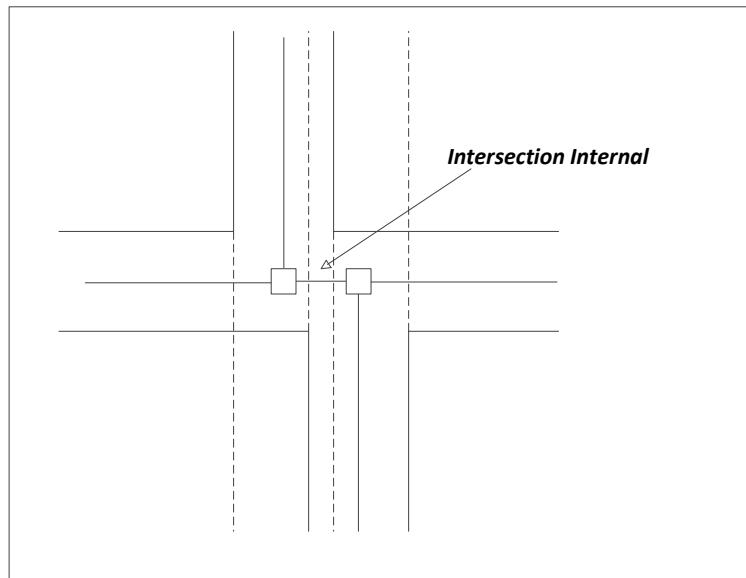


Figure 4-46

- ♦ A road crossing separately digitised lanes.

If the intersection is considered one intersection, even if separately digitised geometry exists in-between the multiply digitised road, it is coded as one intersection. Separately digitised geometry, such as bus only lanes, walkways, or other physical features may exist in-between each side of the road and the intersection can still be considered one intersection. The crossing link thus receives *Intersection Category* = 1 (see *Figure 4-47*).

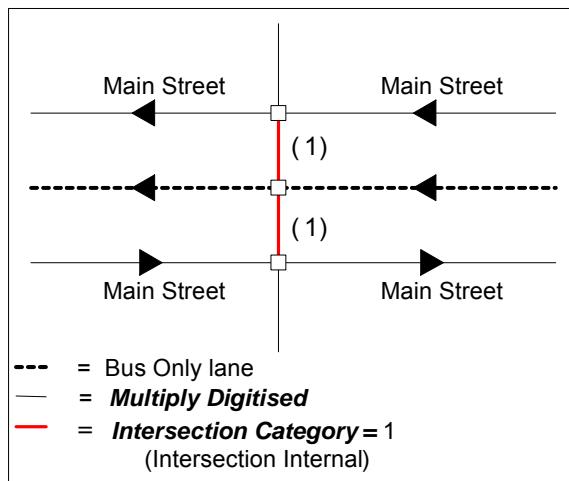


Figure 4-47

- The road is navigable and is internal to a Special Traffic Figure, as shown in Figure 4-48.

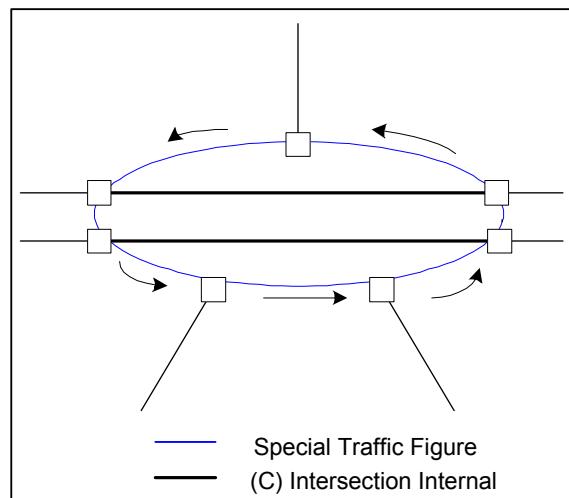


Figure 4-48

- Roads internal to a Single-Point Urban Interchange (SPUI) that did not receive *Intersection Category = 2*(Manoeuvre). See Figure 4-49.

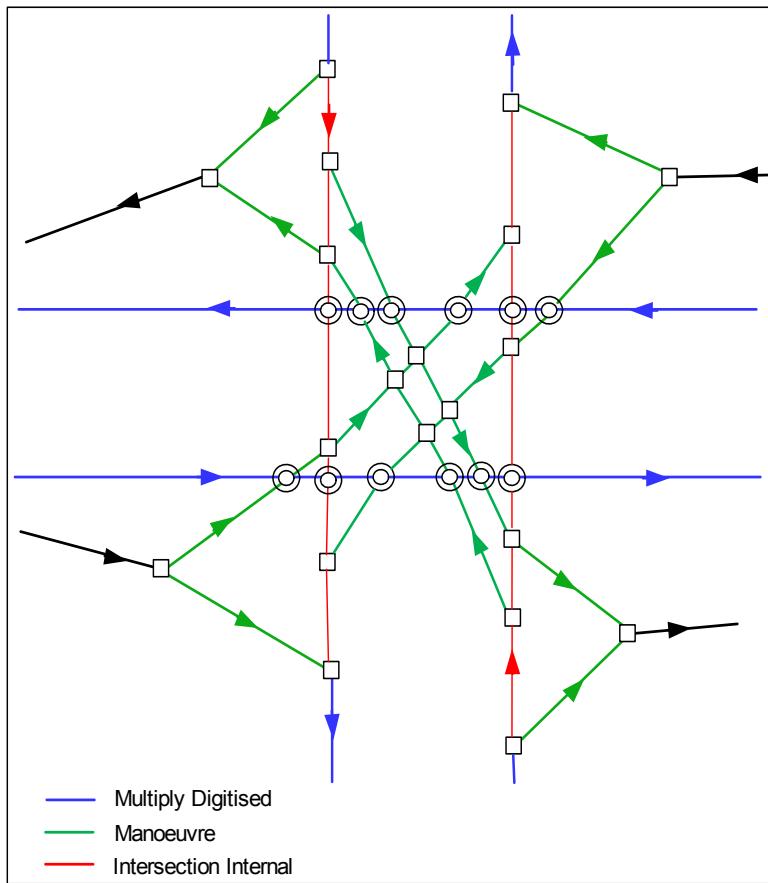


Figure 4-49

- ◆ Approaches to a Turbo Roundabout that did not receive *Intersection Category = 2* (Manoeuvre). See *Turbo Roundabout* under Section 4.1.13, *Roundabout and Special Traffic Figure* for an example.
- See additional cases of *Intersection Category = 1* applied in relation to the application of *Intersection Category = 2* and 1 in the following sections.

Manoeuvre

- *Intersection Category = 2* is applied to a link that meets any of the following criteria:
 - ◆ A links or group of links suggest a single manoeuvre be explicated, rather than multiple manoeuvres. For example, at an intersection with a turn lane (turn lane receives Manoeuvre), good explication would tell the driver to take a right slightly before the manoeuvre. Poor explication would tell the driver to turn right at both the beginning and end of the manoeuvre. Only one command is needed because at the end of the manoeuvre the driver does not have a choice in direction.
 - ◆ The U-turn lanes of a road that received *Multiply Digitised (MULTI_DIGITIZED) = Y*, as shown in *Figure 4-50*.

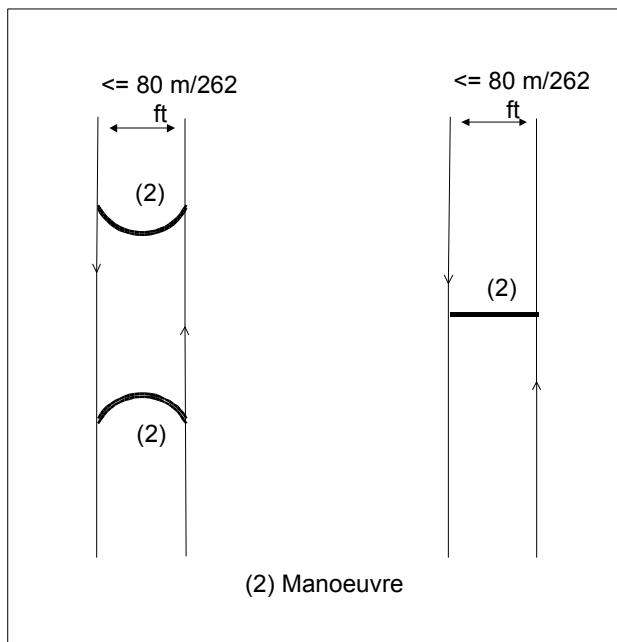


Figure 4-50

- ◆ An internal turn lane that is less than 120 metres/394 feet.

The distance is determined by measuring from the beginning of the turn lane to the end of the turn lane. The remaining triangle links are coded as internal intersection, as shown in *Figure 4-51*.

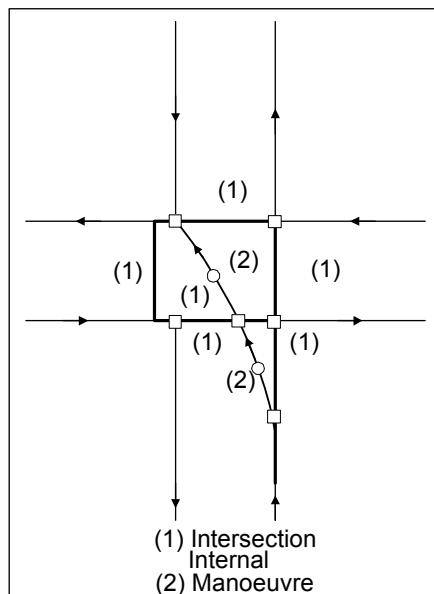


Figure 4-51

- ◆ An external turn lane that is less than 120 metres/394 feet.

This distance is determined by measuring from the beginning of the turn lane to the end of the turn lane. The remaining triangle links receive *Intersection Category* = 1 when both links are less than or equal to 40 metres/131 feet, as shown in Case 1 of *Figure 4-52*. If one of the remaining triangle segments is longer than 40 metres/131 feet, then neither of the remaining links is *Intersection Internal* as in Case 2.

The bearing of the turn lane does not change the application of *Intersection Category* = 2.

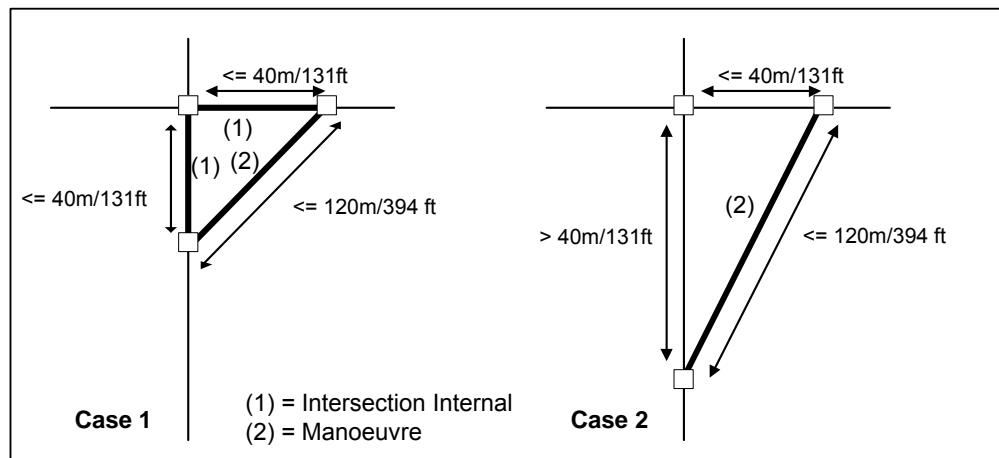


Figure 4-52

- *Intersection Category* = 2 is also applied in the following specific situations:
 - ◆ Situations where intervening roads connect to an intersection may not be perceived as one intersection, so only the turn lane is coded *Intersection Category* = 2 as shown in *Figure 4-53*.

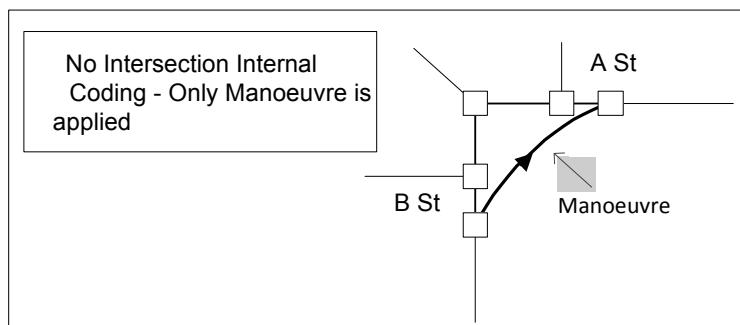


Figure 4-53

- ◆ External turn lanes are coded *Intersection Category* = 2 even if several manoeuvres can be made such as to roads A and B in *Figure 4-54*.

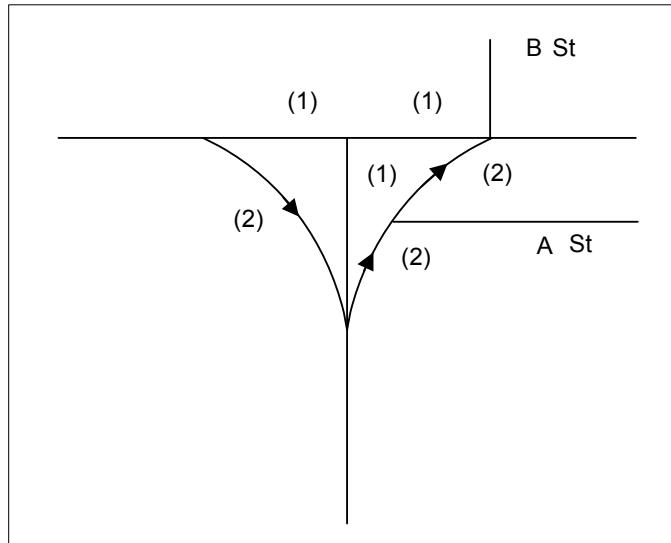


Figure 4-54

- When a ramp or turn lane forks into two separate links near the beginning or end of the ramp or turn lane connection, this is called a splitter. A splitter link receives intersection *Intersection Category* = 2 coding if it is less than 120 metres/394 feet and not connected to a motorway (controlled access road). When both splitter links receive *Intersection Category* = 2, the link of the main road that connects the two splitter segments receives *Intersection Category* = 1.
- Ramp splitters that are connected to a *Controlled Access* = Y road (diagram on the right) are not treated as one intersection as shown in Figure 4-55 and therefore do not receive *Intersection Category* coding. As opposed to when ramp splitters are connected to *Controlled Access* = N (diagram on the left) that does receive *Intersection Category* coding.

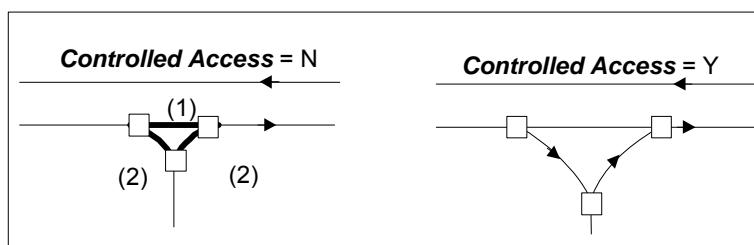


Figure 4-55

- When three or more singly digitised roads meet at a traffic island and each side of the connection is less than 40 metres/131 feet, then the edge which is perceived or which functions as a turn lane is coded as a *Intersection Category* = 2 and the remaining edges comprising the intersection are *Intersection Category* = 1, as shown in Figure 4-56 and Figure 4-57. This rule is used if there is a crossing of singly digitised roads due to extended centrelines, even though there is no actual physical traffic island.

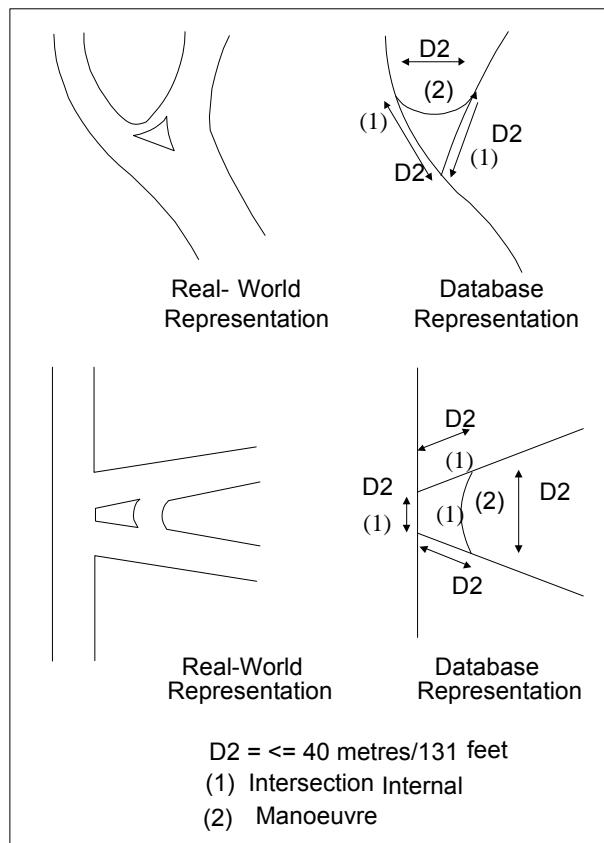


Figure 4-56

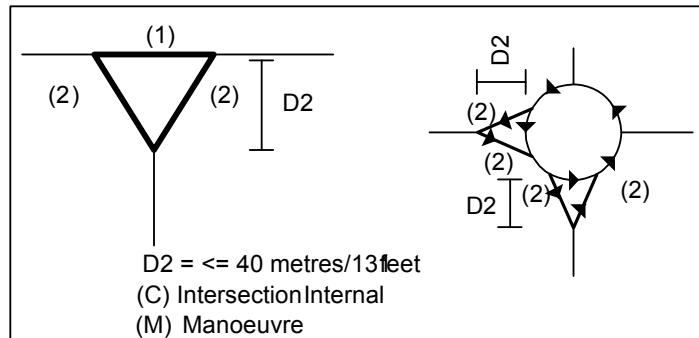


Figure 4-57

- ♦ A turn lane which connects two frontage roads over/under a motorway receives *Intersection Category* = 2. See *Figure 4-58*.

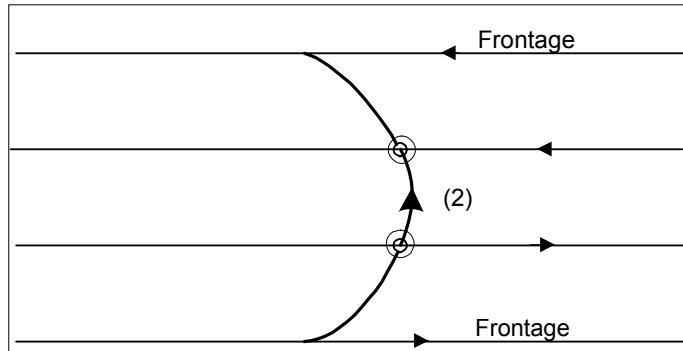


Figure 4-58

- ♦ A turn lane of a Single-Point Urban Interchange (SPUI) receives *Intersection Category* = 2. See *Figure 4-49*.
- ♦ Approaches to a Turbo Roundabout that did not receive *Intersection Category* = 1 (Internal Intersection). See *Turbo Roundabout* under *Section 4.1.13, Roundabout and Special Traffic Figure* for an example.

Indescribable

- *Intersection Category* = 3 (Indescribable) is applied to a link when a driver must exit to make a left turn or a U-turn and has no other decision points from that exit. Once the *Intersection* = 3 is coded, if the remaining triangle is shorter than 40 metres/131 feet, then the remaining links of the triangle are applied with *Plural Intersection* = 1 as shown in the following figures.

See *Figure 4-59* for example.

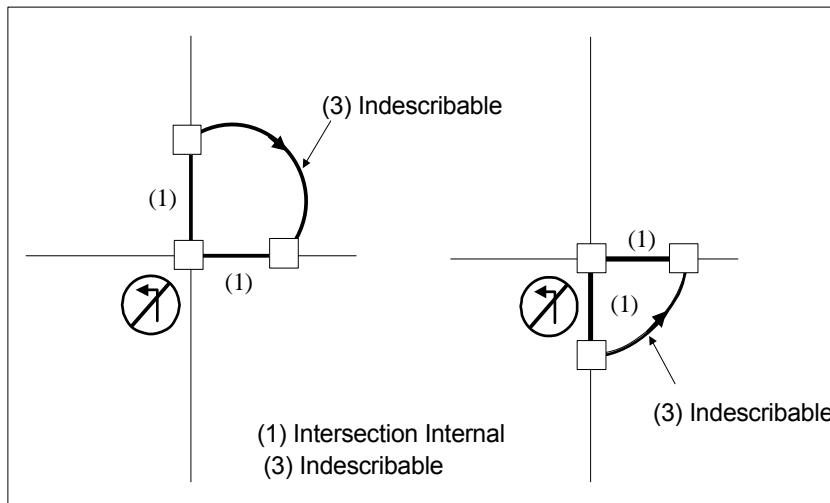


Figure 4-59

- The following are examples of Complex Intersections that do not get any *Intersection Category* = 3 (Indescribable).

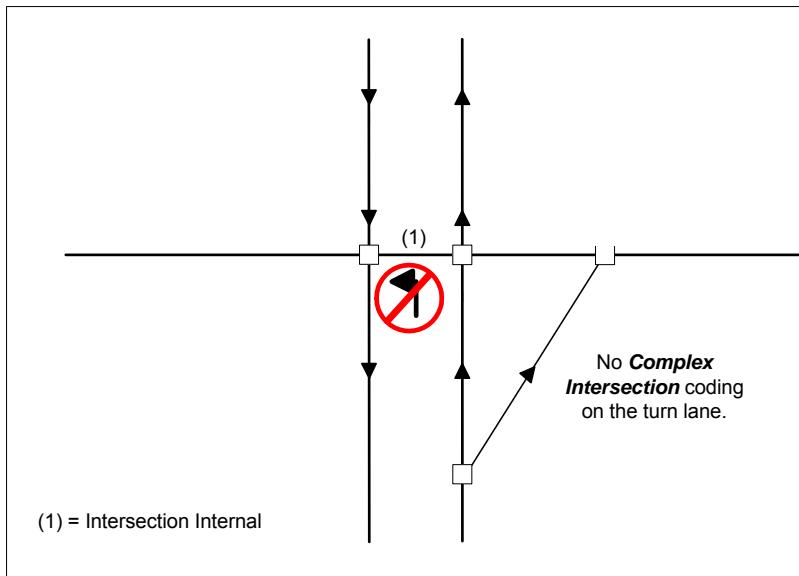


Figure 4-60

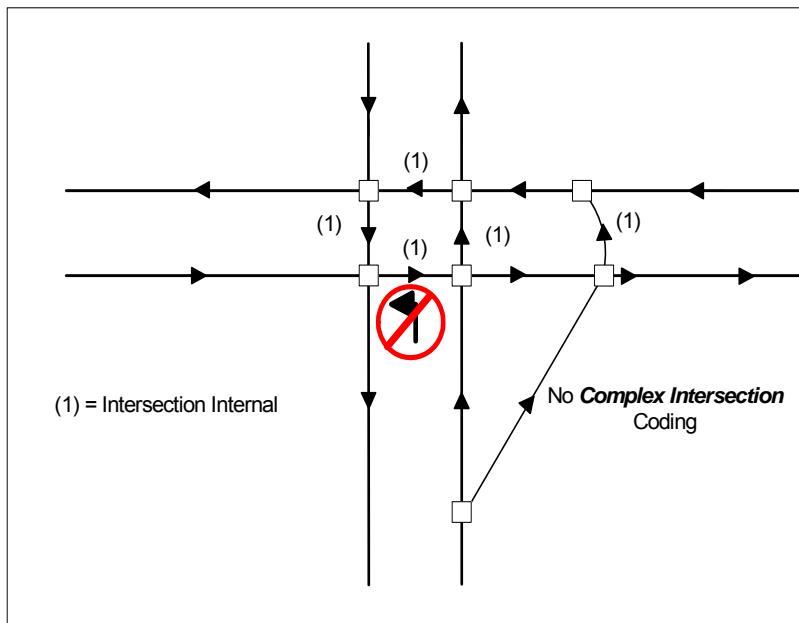


Figure 4-61

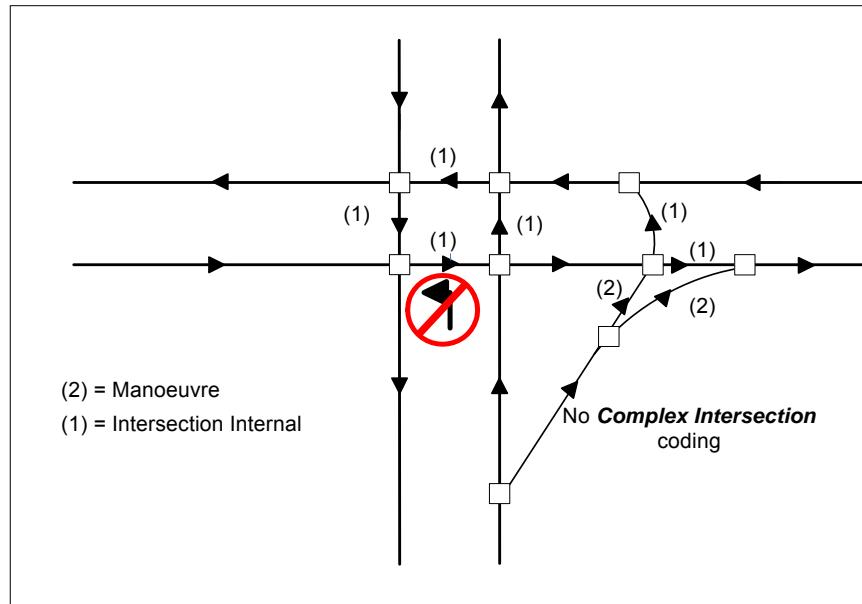


Figure 4-62

Roundabout

- A roundabout is a contiguous loop with consistent one-way traffic throughout the circle which controls the traffic flow from converging roads. See *Figure 4-63* below. A roundabout may have variations in configuration, e.g., a Turbo Roundabout, which has legal or small physical dividers that restrict a lane change and ensure better traffic flow. See *Turbo Roundabout* under *Section 4.1.13, Roundabout and Special Traffic Figure*.
Note: A geometry may have the shape of a roundabout but is not perceived as a roundabout. For examples: Cul-de-Sacs (global), two armed situations where the round geometry is added solely for slowing down traffic and all two armed reality situations. These do not receive *Intersection Category = 4 (Roundabout)*

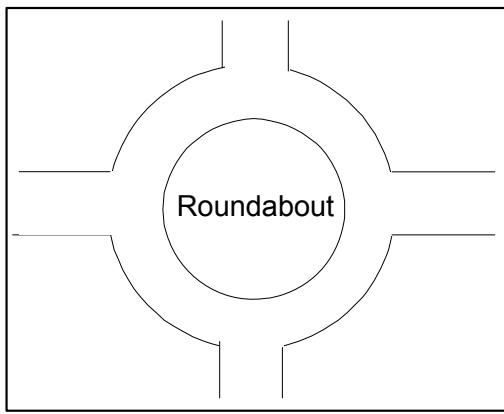


Figure 4-63

- *Intersection Category = 4* is also applied for the following situations:
 - ◆ If a roundabout has (3) three or more arms in reality it is coded as *Intersection Category = 4*, even if not all the roundabout arms are included in the database due to Network inclusion rules (see *Figure 4-64*).
 - ◆ A section of each additional intersecting road connecting to a roundabout in Network areas may be included, even if these roads do not meet Network inclusion rules (e.g., *Functional Class = 5* roads). This will help to assist guidance (see *Figure 4-64*).

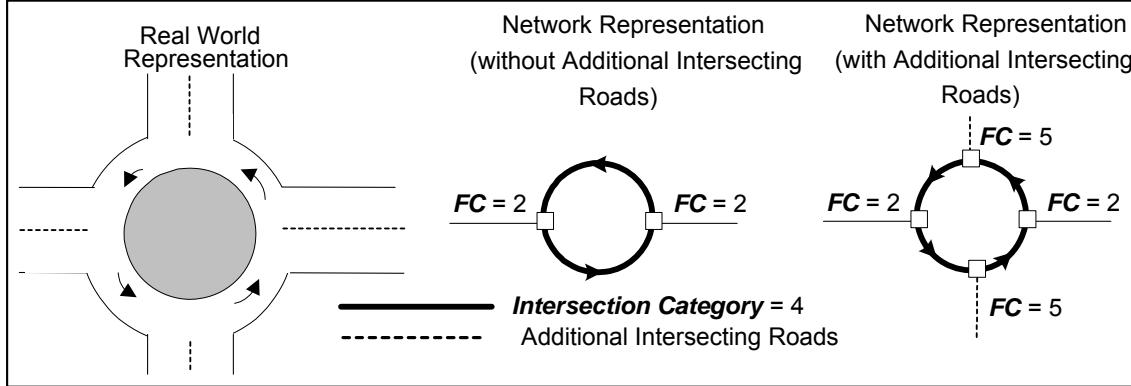


Figure 4-64

Special Traffic Figure

- A STF occurs when an intersection forms a closed loop like a roundabout, but:
 - ◆ One part of the loop contains a different direction of travel than the rest of the loop, as shown in *Figure 4-65*.
 - ◆ There are crossings at grade within the loop, as shown in *Figure 4-66*.
 - ◆ A road intersects from the inside, and is only connected at grade at one end, as shown in *Figure 4-67*.

- ♦ A junction is not perceived as a roundabout due to its shape, as shown in Figure 4-68. An example of this situation is “Place de la Concorde” in Paris.

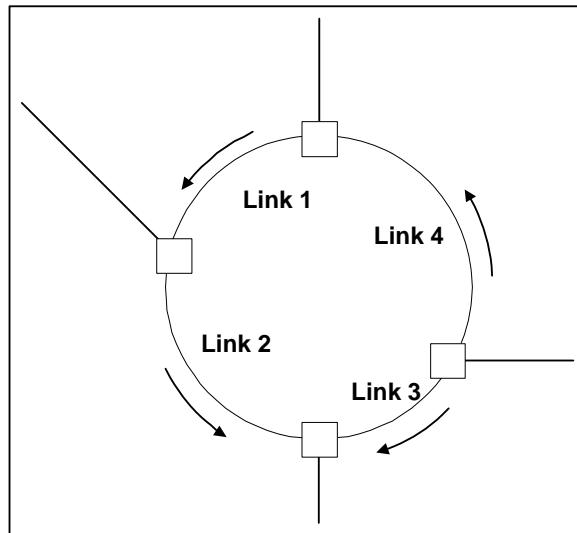


Figure 4-65

Links 1 thru 4 receive *Intersection Category* = 6
Link 3 also receives *Intersection Category* = 3

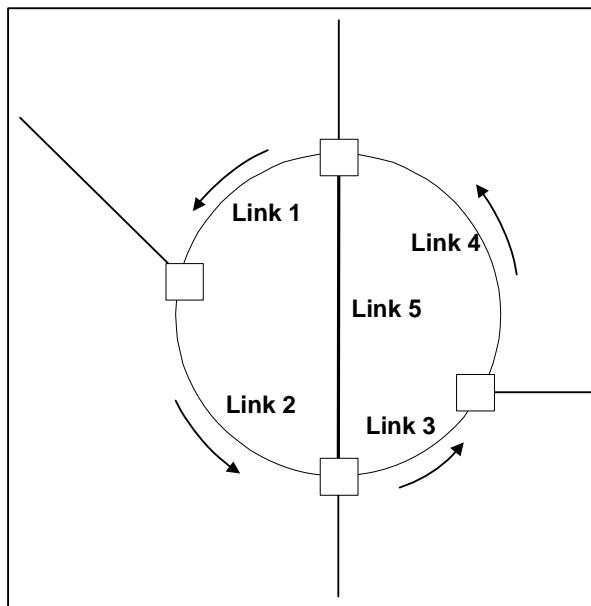


Figure 4-66

Links 1 thru 4 receive *Intersection Category* = 6
Link 5 also receives *Intersection Category* = 1

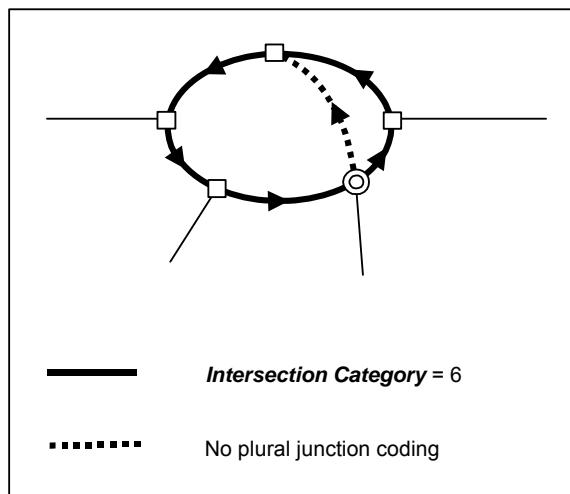


Figure 4-67

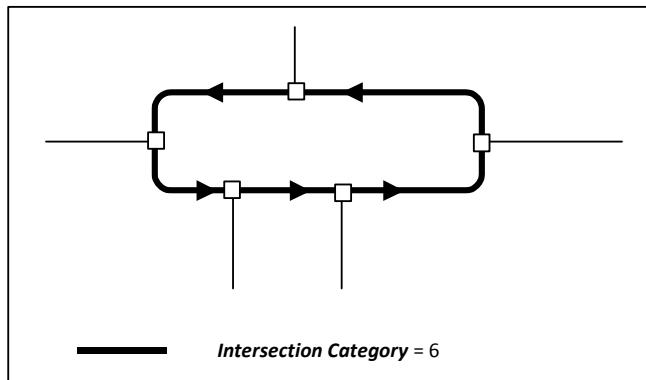


Figure 4-68

Undefined Traffic Area

- Undefined Traffic Area refers to the links inside of an Unstructured Traffic Square (*Feature Type* = 900159). An Unstructured Traffic Square is a paved area where a vehicle can travel, but there are no legally defined traffic paths.
- A vehicle is not limited to driving on the internal links of the Undefined Traffic Square. It can drive in any pattern in the Unstructured Traffic Square. Generalised paths are included so that real road segments retain connectivity, but systems should recognise that if the GPS signal isn't matching to these links, it does not mean the car is off route. Instead it should wait until the car reaches a real link again before determining its status as on/off route.

4.4.20 Lane Category (LANE_CATEGORY)

Definition	<i>Lane Category</i> classifies a link based on the quantity of lanes in each direction.
Table	RDF_NAV_LINK
Column	LANE_CATEGORY
Values	See Section C.54, RDF_NAV_LINK.
Related Tables	RDF_NAV_LINK RDF_LANE RDF_CONDITION_DIRECTION_TRAVEL
Related Attributes	Travel Direction (TRAVEL_DIRECTION) Lane Travel Direction (LANE_TRAVEL_DIRECTION) Bearing (BEARING) Dependent Access Type (DEPENDENT_ACCESS_TYPE)
Usage	<i>Lane Category</i> can be used for cartographic representation of road widths on printed maps, as well as traffic management and display applications. <i>Lane Category</i> may also be used for route guidance timing.
Specification	<ul style="list-style-type: none">• <i>Lane Category</i> is published for every link.• <i>Lane Category</i> describes the overall trend of the road. Short stretches where the <i>Lane Category</i> differs from the overall trend are disregarded if determined to be insignificant.• Carpool lanes that are not separately digitised are included in the number of lanes.• If the number of lanes is different for each direction of travel on the link, the higher of the two numbers is published.• Turn lanes are not included in the quantity of lanes.• The number of lanes in the <i>Lane Category</i> implies the number of lanes per direction, not the total number of lanes of the link. Therefore, this must be looked at with RDF_NAV_LINK.TRAVEL_DIRECTION.• Pedestrian zones, walkways, and ferry routes receive <i>Lane Category</i> = 1.

4.4.21 Lane Crossing Restriction (LANE_CROSSING_RESTRICTION)

Definition *Lane Crossing Restriction* is a lane attribute indicating where it is illegal to enter or exit a HOV lane.

HOV (High Occupancy Vehicle) lanes entry and exit points are stretches of road where it is legal to enter or exit HOV lanes. Generally, these entry and exit points are every 2-4km and are about 400m long.

Table RDF_LANE

Column LANE_CROSSING_RESTRICTION

Values See Section C.46, RDF_LANE.

Cardinality 1:0,1

Default Value Null

Related Tables RDF_NAV_LINK

RDF_ACCESS

Related Attributes Lane ID (LANE_ID)

Lane Type (LANE_TYPE)

Lane Number (LANE_NUMBER)

Lane Travel Direction (LANE_TRAVEL_DIRECTION)

Access Characteristics (ACCESS_ID)

Lane Divider Marker (LANE_DIVIDER_MARKER)

Usage *Lane Crossing Restriction* may be used for turn by turn HOV lane guidance and display.

- Specification**
- *Lane Crossing Restriction* is published for HOV lanes and lane(s) adjacent to either side of an HOV lane.
 - ◆ The initial scope includes all non-separately digitised HOV lanes.
 - If entering/exiting adjacent lanes is illegal, *Lane Crossing Restriction* is published in the positive link direction.
 - If entering/exiting adjacent lanes is legal, *Lane Crossing Restriction* is NULL.
 - *Lane Crossing Restriction* is published between drivable lanes only, not between a drivable lane and a shoulder lane.
 - Lane specific coding and restrictions should be considered to determine if crossing into an adjacent lane is possible at a given time. For example, lane access characteristics for the HOV lane might be limiting the access to some specific type of HOV vehicles like taxi, trucks.

Example 1 HOV Lane with Lane Crossing Restriction on one side

Lane 1 is an HOV lane and Lane Crossing Restriction is published only for Lane 1 and Lane 2.

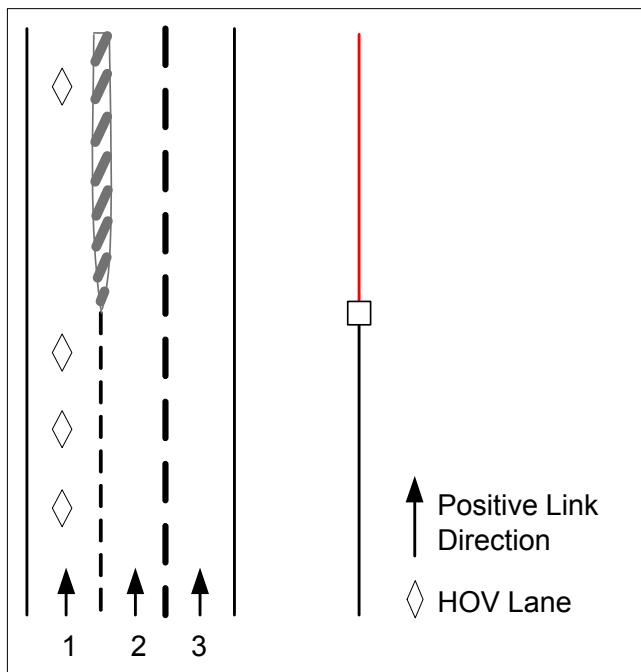


Figure 4-69

RDF_LANE		
LANE_ID	21440610	21440611
LINK_ID	764949831	764949831
LANE_NUMBER	1	2
LANE_TRAVEL_DIRECTION	F	F
LANE_TYPE	2	1
ACCESS_ID	450	1022
LANE_DIVIDER_MARKER	2	
CENTER_DIVIDER_MARKER		
DIRECTION_CATEGORY		
TRANSITION_AREA		
LANE_CROSSING_RESTRICTION	2	1

RDF_ACCESS		
ACCESS_ID	450	1022
AUTOMOBILES	N	Y
BUSES	Y	Y
TAXIS	Y	Y
CARPOOLS	Y	Y
PEDESTRIANS	N	Y
TRUCKS	N	Y
DELIVERIES	N	Y
EMERGENCY_VEHICLES	Y	Y
THROUGH_TRAFFIC	N	Y
MOTORCYCLES	N	N

Example 2 HOV Lane with Lane Crossing Restriction on Both Sides

Lane 2 is an HOV lane and Lane Crossing Restriction is published for Lane 1, Lane 2, Lane 3.

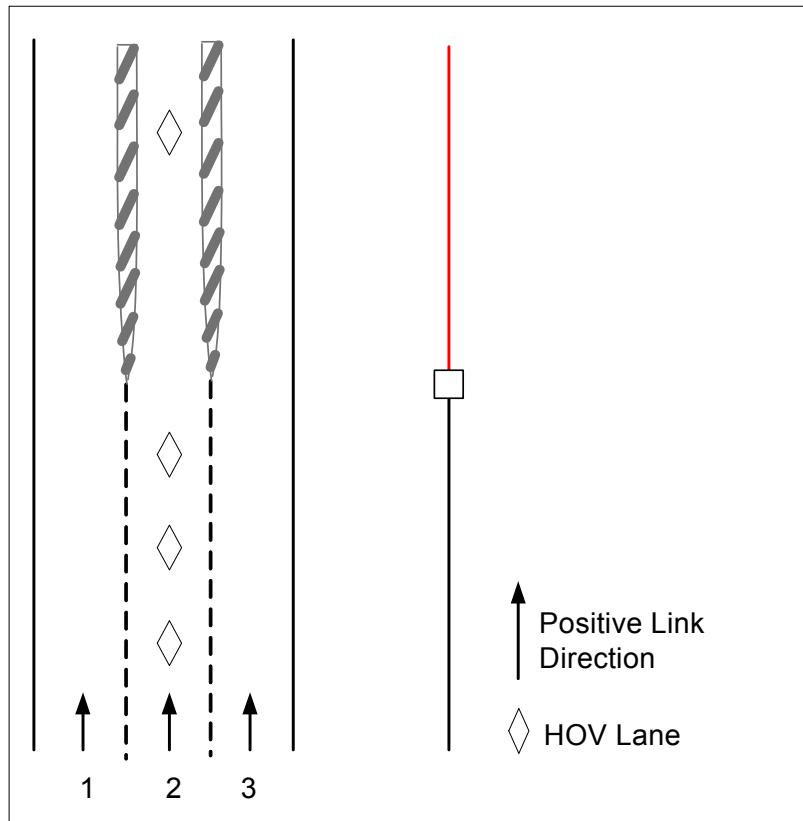


Figure 4-70

RDF_LANE			
LANE_ID	21440610	21440611	21440612
LINK_ID	764949831	764949831	764949831
LANE_NUMBER	1	2	3
LANE_TRAVEL_DIRECTION	F	F	F
LANE_TYPE	1	2	1
ACCESS_ID	1022	450	1022
LANE_DIVIDER_MARKER	2	2	
CENTER_DIVIDER_MARKER			
DIRECTION_CATEGORY			
TRANSITION_AREA			
LANE_CROSSING_RESTRICTION	2	3	1

RDF_ACCESS		
ACCESS_ID	450	1022
AUTOMOBILES	N	Y
BUSES	Y	Y
TAXIS	Y	Y
CARPOOLS	Y	Y
PEDESTRIANS	N	Y
TRUCKS	N	Y
DELIVERIES	N	Y
EMERGENCY_VEHICLES	Y	Y
THROUGH_TRAFFIC	N	Y
MOTORCYCLES	N	N

4.4.22 Lanes From/To (FROM/TO_REF_NUM_LANES)

Definition *Lanes From/To* indicates the number of lanes on a link.

Table Name RDF_NAV_LINK

Column Name FROM/TO_REF_NUM_LANES

Values 1-45

Cardinality 1:0,1

Default value None

Related Attributes *Lane Number*
Physical Number of Lanes

Usage *Lanes From/To* can be used for cartographic representation of road widths on printed maps, as well as traffic management and display applications. It may also be used for route guidance timing.

Specification

- *Lanes From/To* is a link-level attribute. It is based on lane markings (when available) or on the road width.
- Positional accuracy is within +/-50 metres.
- All lanes that are used as the main driving path are counted. The following lanes are also counted:
 - ◆ High Occupancy Vehicle lane

- ◆ Motorcycle-only lane if it is wide enough for a car or if the entire link is flagged for Motorcycle only.
- In general, lanes that are not used as the main driving path are not counted. The following are examples:
 - ◆ Shoulder Lanes (Emergency lanes)
 - ◆ Ramp Transition Lanes
 - ◆ Turn Lanes at intersection
 - ◆ Parking lanes at the side of the road
 - ◆ Bus/Taxi/Truck lanes
 - ◆ Lanes exclusively used for overtaking (see *Figure 4-71*), and temporary lanes such as “passing lanes” (see *Figure 4-72*) when these are shorter than 400 metres. These lanes typically have standard dashed lane markings and are considered part of the main driving path.

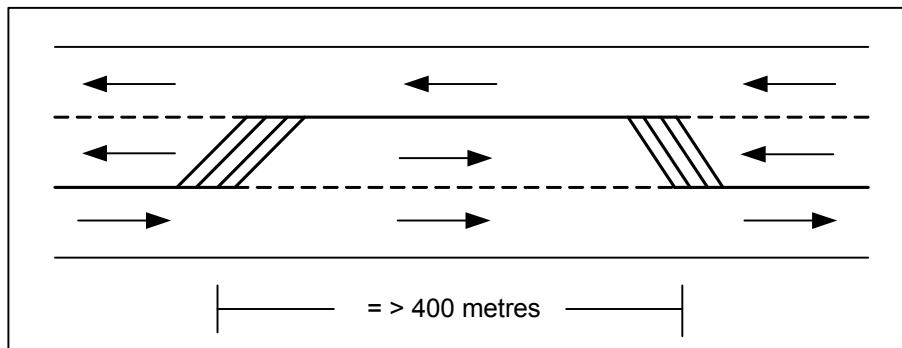


Figure 4-71

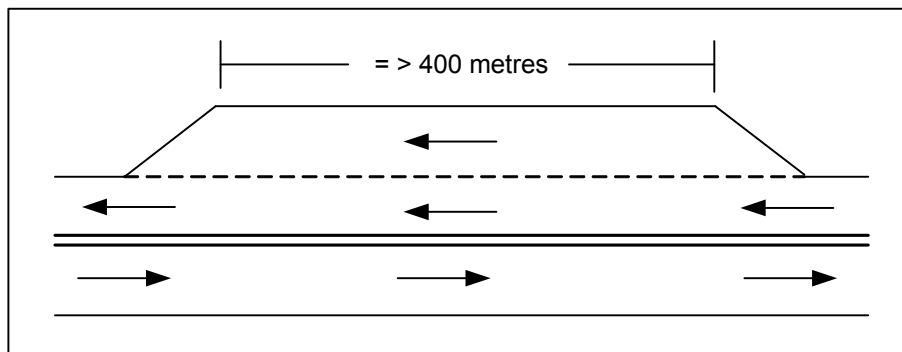


Figure 4-72

The following examples illustrate how *Lanes From/To* is determined for different road situations:

Example 1 For Reversible Lanes

- If a reversible lane is separately digitised, as shown in *Figure 4-73, Lanes From/To = the actual number of lanes*. In the example below, *Lanes From/To = 1*.

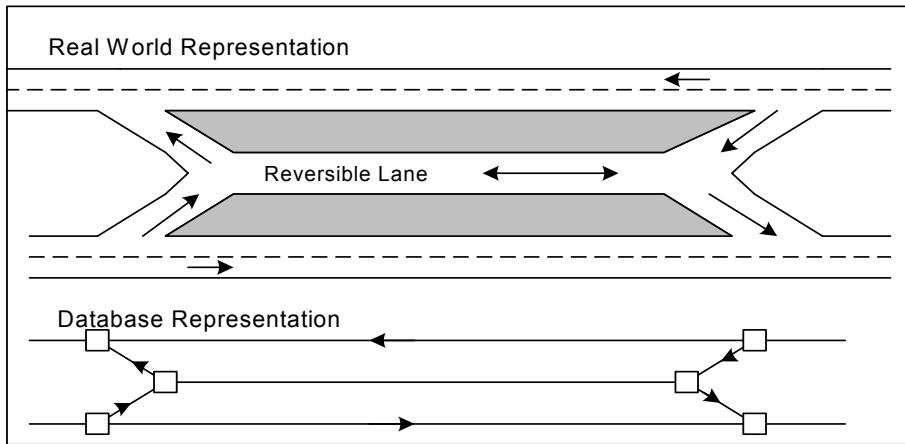


Figure 4-73

- If a reversible lane(s) is just an extra lane, not separately digitised, and accessible to autos, the following guidelines are used to apply *Lanes From/To*:
 - ◆ For roads with an even number of total lanes, *Lanes From/To* equals half of the total number of lanes.
 - ◆ If the road has an odd number of lanes, *Lanes From/To* equals half of the total number of lanes minus 1. See *Figure 4-74*.
 - ◆ If the lane is not accessible to automobiles, (bus-only, etc.), then the lane is not counted in the *Lanes From/To*.

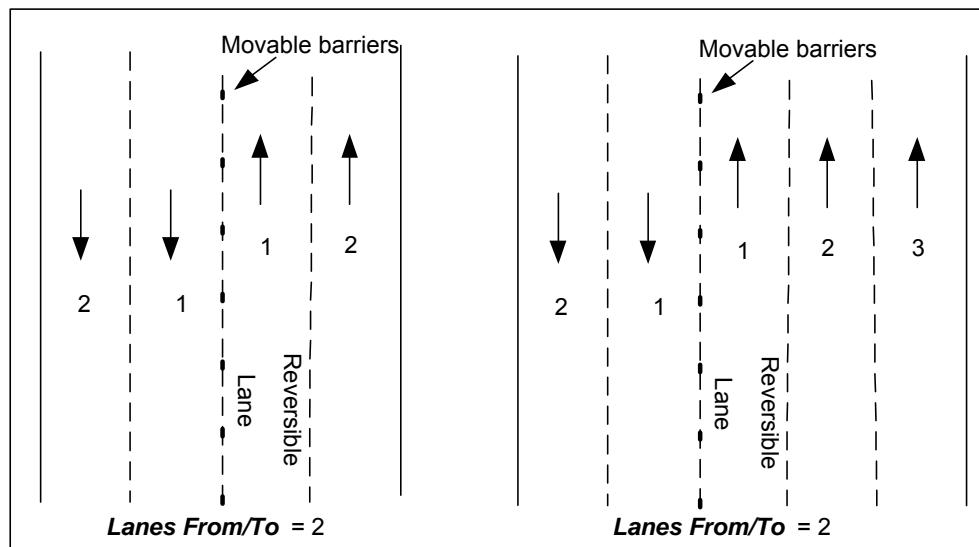


Figure 4-74

Example 2 At Toll Structures

- *Lanes From/To* is coded before and after the *Toll Structure* when additional lanes form at the Toll Structure area. Nodes are added to indicate the start and end of the area with additional lanes. When no lane markings occur at the Toll Structure area but the roadbed widens, nodes are added at the start of the roadbed (where the roadbed is at its maximum width) and at the end of the roadbed (where the roadbed narrows again), see *Figure 4-75*.

Note: Note: *Lanes From/To* is always coded on roads coded with *Enhanced Geometry* = Y, regardless of the number of lanes changes at the Toll Structure.

Note: When the number of lanes varies at a Toll Structure area, then the *Lanes From/To* reflects the total number of fixed lanes at the Toll Structure, excluding the reversible lanes.

- When the lanes are not marked at the Toll Structure area (i.e., open area at the Toll Structure), then the *Lanes From/To* reflects the total number of access points at the Toll Structure, excluding the reversible Toll access points.
- The maximum number of lanes published for a Toll Structure is 16 per driving direction. When the number of lanes at the Toll Structure exceeds 16, then the *Lanes From/To* published will be 16 due to the limitation.

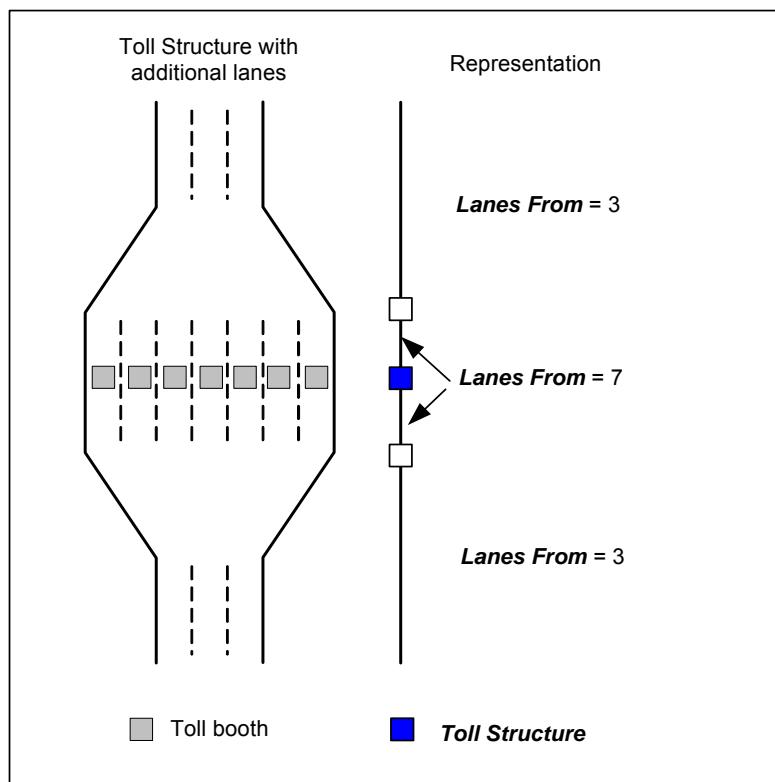


Figure 4-75

Example 3 Ramp Transition Lane

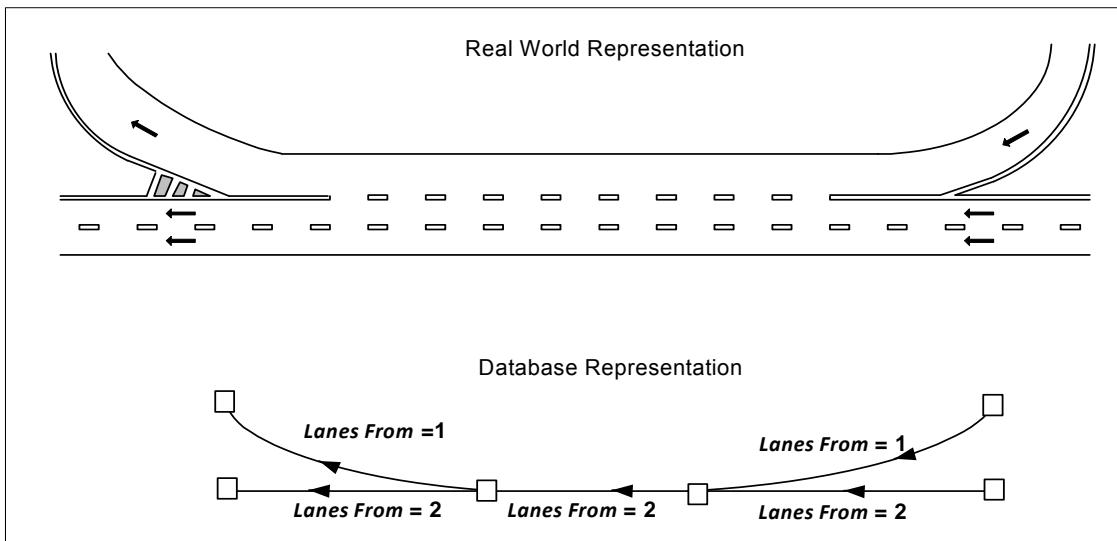


Figure 4-76

Example 4 Ramp Merge

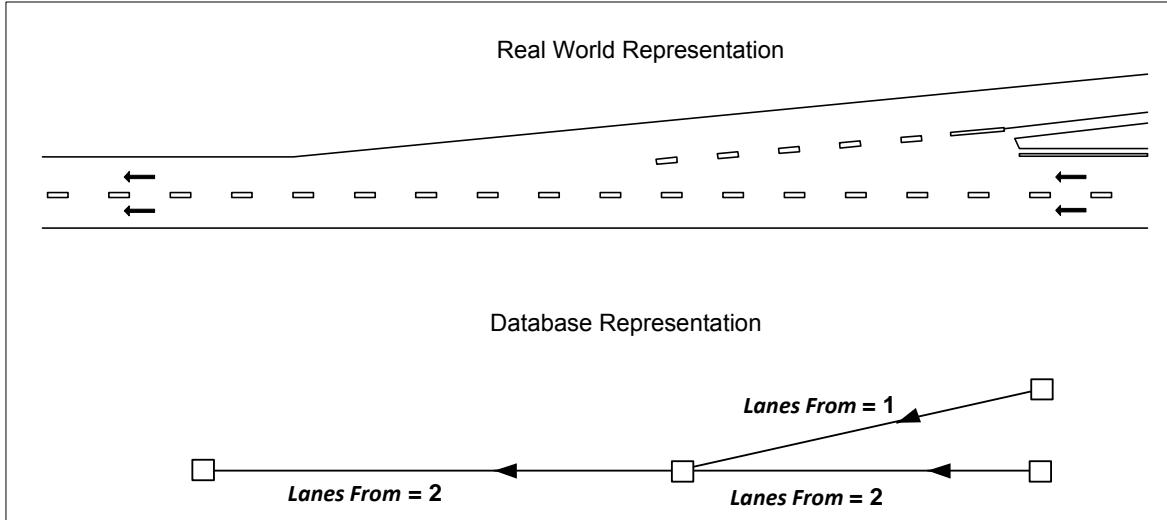


Figure 4-77

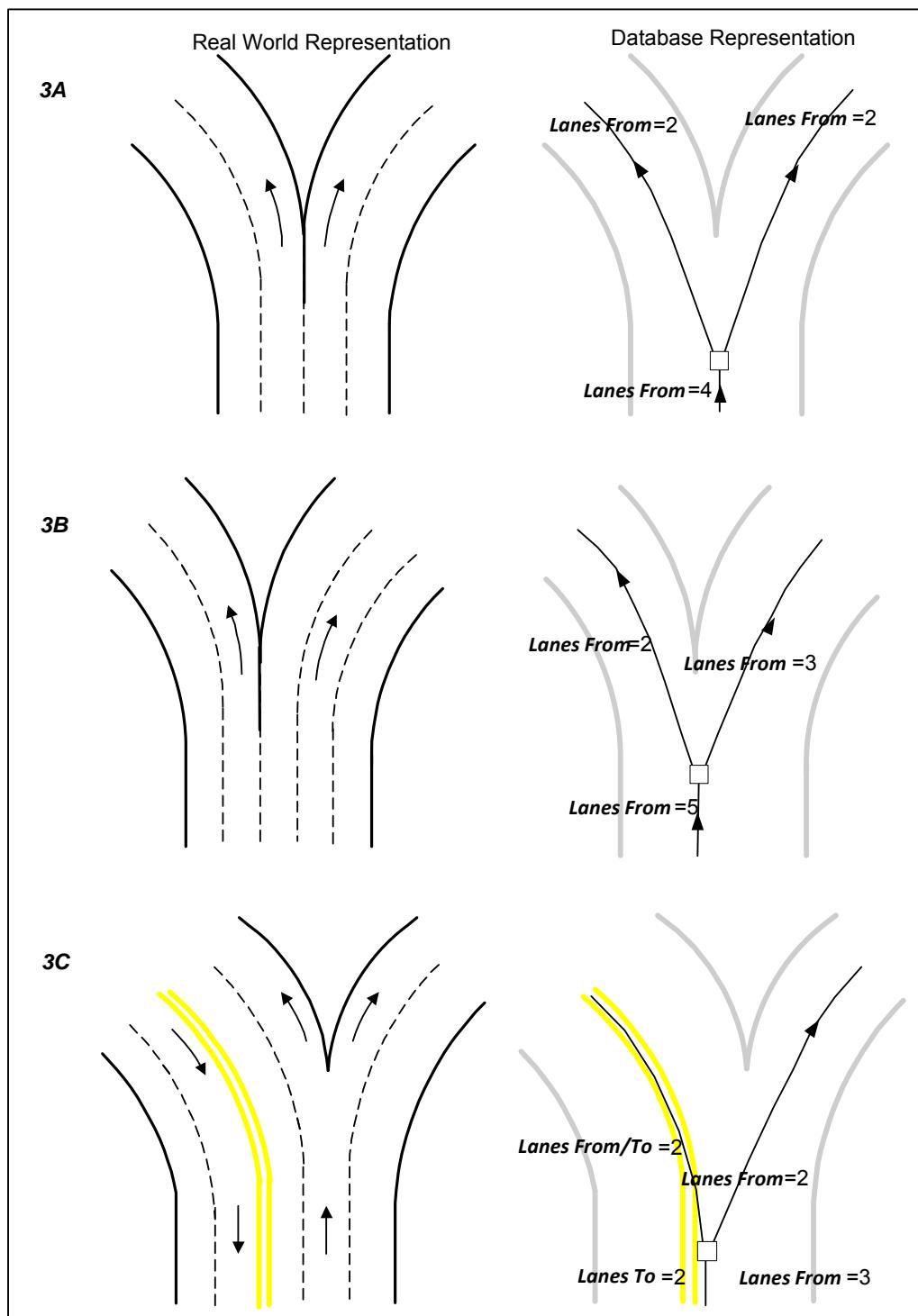
Example 5 Special Explication

Figure 4-78

Example 6 Turn Lanes on Multiply Digitised Road

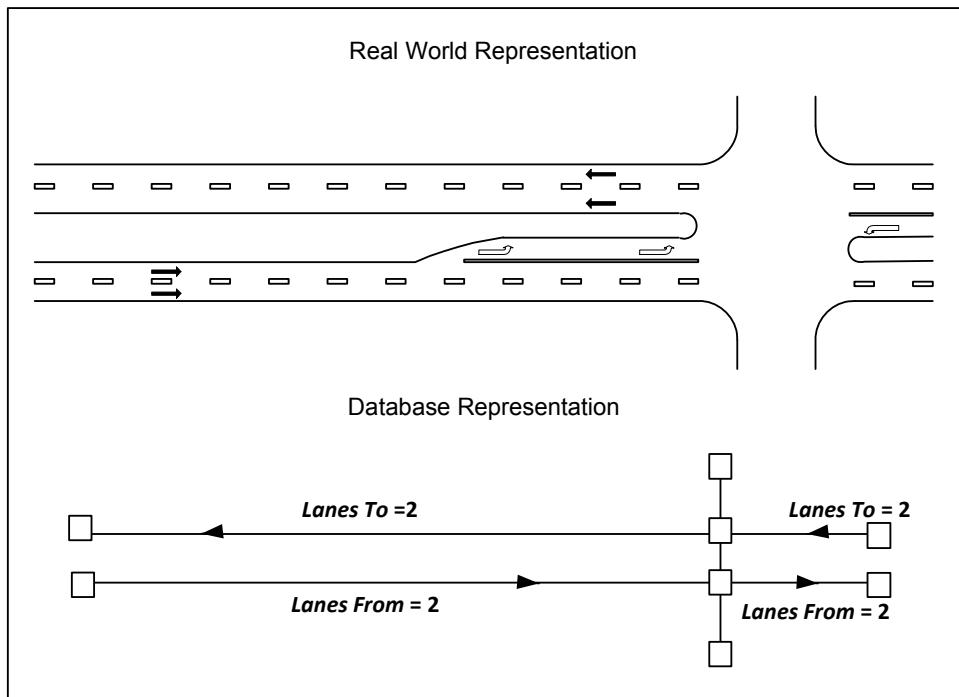


Figure 4-79

Example 7 Turn Lanes on Singly Digitised Road

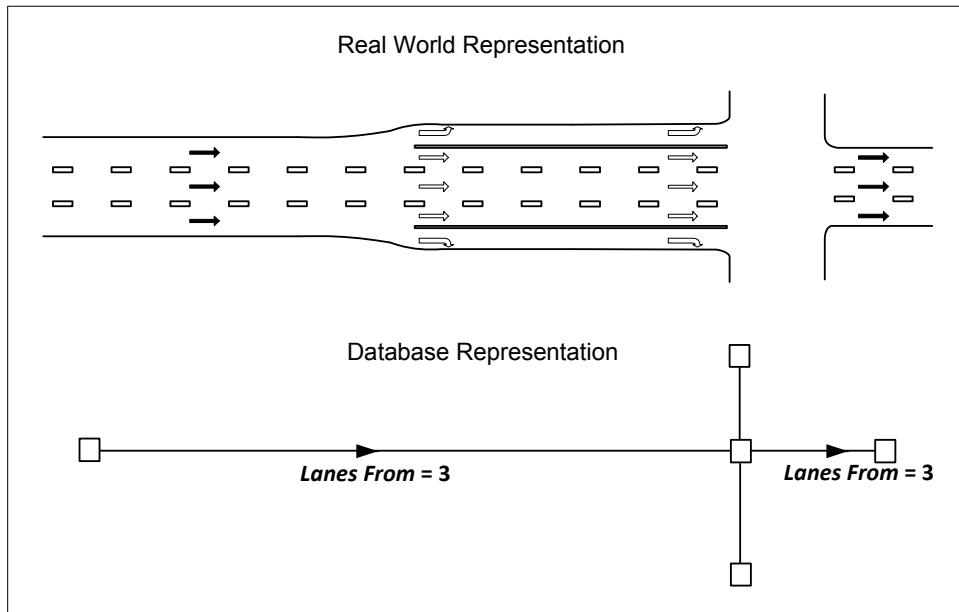


Figure 4-80

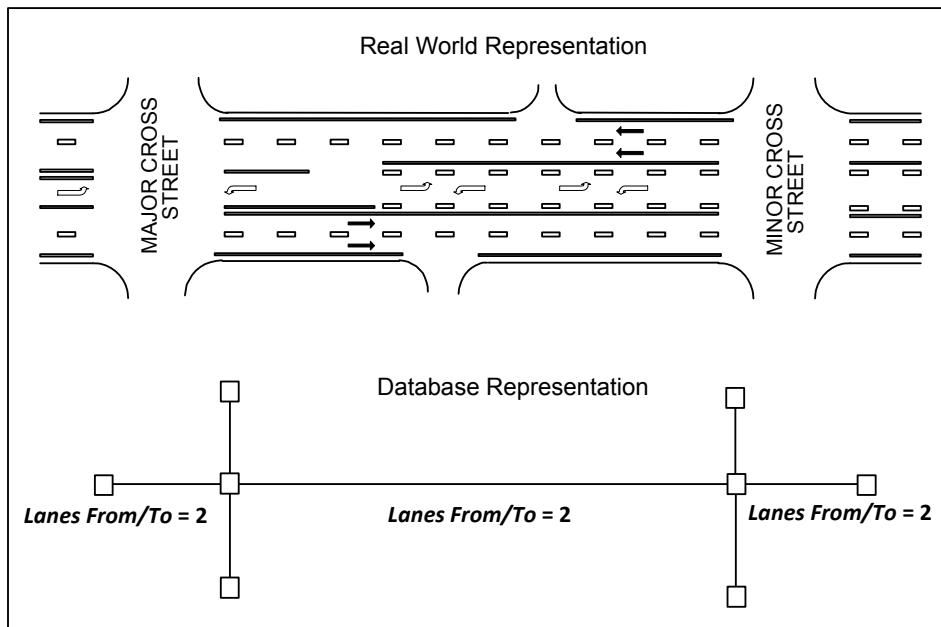
Example 8 Centre Turn Lanes

Figure 4-81

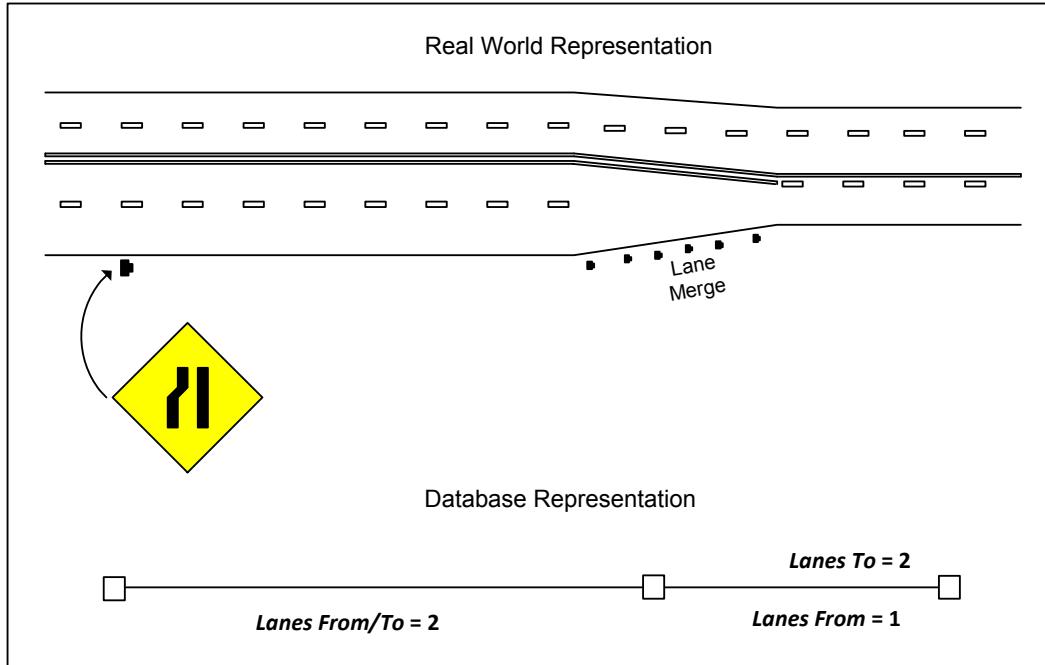
Example 9 Lane Merge

Figure 4-82

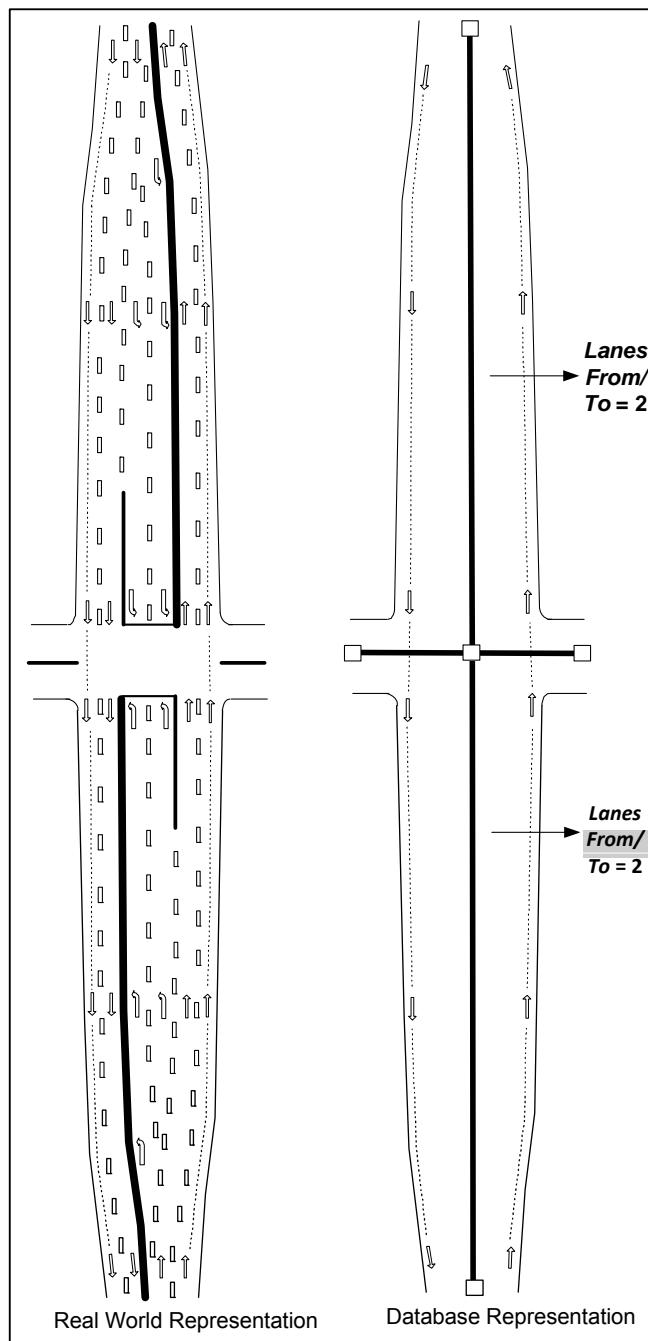
Example 10 Left Turn Lanes

Figure 4-83

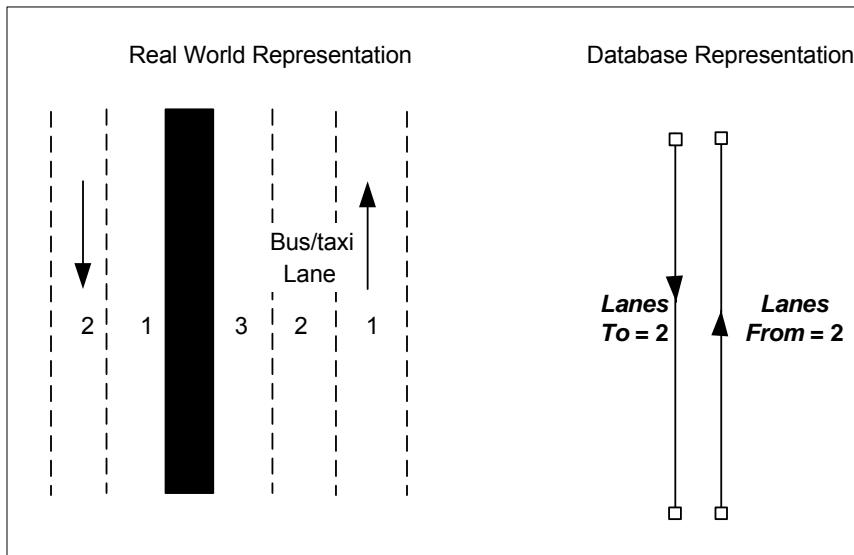
Example 11 Centre Bus/Taxi Lane (Lane 2 Northbound)

Figure 4-84

Note: Bus/Taxi lanes are not counted for applying the *Number of Lanes*.

4.4.23 Limited Access (LIMITED_ACCESS_ROAD)

Definition *Limited Access Road* indicates separately digitised, high speed roads where traffic is controlled via ramps.

Note: In EMEA², the Controlled Access road network is supplemented with other Limited Access roads that meet the specifications. In the rest of the world, *Limited Access* is the same as *Controlled Access*.

Table Name RDF_NAV_LINK

Column Name LIMITED_ACCESS_ROAD

Values N – Not limited access road
Y – Limited access road

Cardinality 1:1

Default value N – Not limited access road

Related Table RDF_LINK

Related Attributes Controlled Access (CONTROLLED_ACCESS)

2. Except for Russia.

- Usage** *Limited Access Road (LIMITED_ACCESS_ROAD)* can be used for map display, freeway/motorway avoidance, and route guidance timing.
- Specification**
- *Limited Access Road (LIMITED_ACCESS_ROAD)* is published when a road meets all the following:
 - ◆ All connections with other roads, except the start/end, is controlled via ramps
 - ◆ Number of Lanes is equal to, or greater than, two.
 - ◆ The road is applied with *Multiply Digitised (MULTI_DIGITIZED) = 1* (Yes)
 - ◆ The road is applied with *Speed Category (SPEED_CATEGORY) = 5* (51-70 km/h / 31-40 MPH) or higher.
 - *Limited Access Road (LIMITED_ACCESS_ROAD)* is published on a closed set of links. Gaps are not allowed. The complete Limited Access Road network does not have to be a closed network.
 - *Limited Access Road (LIMITED_ACCESS_ROAD)* is applied to stretches that are at least 5 km long, measured from an intersection or junction to another. It may be applied to stretches less than 5 km if these are connected on both sides to roads that received *Limited Access Road (LIMITED_ACCESS_ROAD) = Y*.
 - All connections, i.e., Ramps and Highway-to-Highway connectors, between roads that received *Limited Access Road (LIMITED_ACCESS_ROAD) = Y* are also published as *Limited Access Road (LIMITED_ACCESS_ROAD) = Y*.
 - Connections between two or more roads that received *Limited Access Road (LIMITED_ACCESS_ROAD) = Y* are published as *Limited Access Road (LIMITED_ACCESS_ROAD) = N* when it is compulsory to make a stop because of traffic lights or when there is a crossing at grade with another priority road. See *Figure 4-85*.

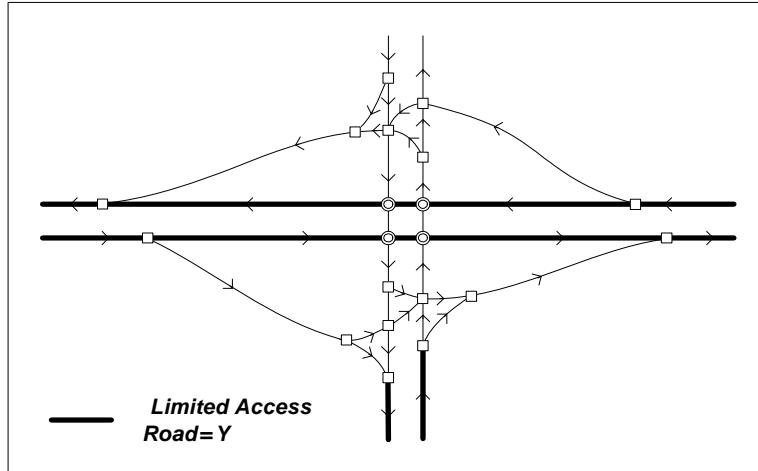


Figure 4-85

- *Limited Access Road (LIMITED_ACCESS_ROAD) = Y* is applied on emergency ramps or U-turns connecting two Limited Access Roads.
- Rest areas receive *Limited Access Road (LIMITED_ACCESS_ROAD) = N*.

- Roads that received *Limited Access Road* (LIMITED_ACCESS_ROAD) = Y receive Pedestrian access characteristics based on reality.

4.4.24 Long Haul Attribution

4.4.24.1 Long Haul (LONG_HAUL_NAV)

Definition	<i>Long Haul</i> indicates if the navigable features on a link are used in a long haul product.
Table	RDF_NAV_LINK_STATUS
Column	LONG_HAUL_NAV
Values	N - not included in a Long Haul product Y - included in a Long Haul product
Related Attribute	<i>Stub Link</i> (STUB_LINK)
Usage	<i>Long Haul</i> can be used for: <ul style="list-style-type: none">• Calculating routes• Displaying roads that connect major metropolitan areas• Adjusting route guidance based on geometry inclusion
Specification	<ul style="list-style-type: none">• Use <i>Long Haul</i> (LONG_HAUL_NAV) only if extracting a Long Haul network.• <i>Long Haul</i> (LONG_HAUL_NAV) is applicable to navigable features only.• If a Long Haul Administrative/Built-up Area Boundary (RDF_CARTO_FACE and RDF_CARTO_LINK LONG_HAUL = Y) is coincident with a navigable link coded LONG_HAUL_NAV = N, then the link is considered non-navigable when a Long Haul network is created.

4.4.24.2 Stub Link (STUB_LINK)

Definition	<i>Stub Link</i> identifies links that intersect included LONG_HAUL_NAV = Y navigable links.
Table	RDF_NAV_LINK_STATUS
Column	STUB_LINK
Values	N - not a Stub Link Y - Stub Link
Related Attribute	LONG_HAUL_NAV

Usage For a Long Haul network, the first link of every road intersecting a navigable link flagged as *Long Haul* is included as *Stub Link* (STUB_LINK) to improve guidance; for example, allow explication indicating that the road is the third right rather than the next right.

Specification

- Use *Stub Link* only when creating a Long Haul network.
- Do not use links flagged as *Stub Link* for destination selection. There may not be a route off of them.
- *Stub Link = Y* is applied to the first link of all links that intersect a LONG_HAUL_NAV road.
- *Stub Link = Y* is applied to all links that are part of a Composite Road Feature Intersection, Road, or Object (see *Figure 4-86*).

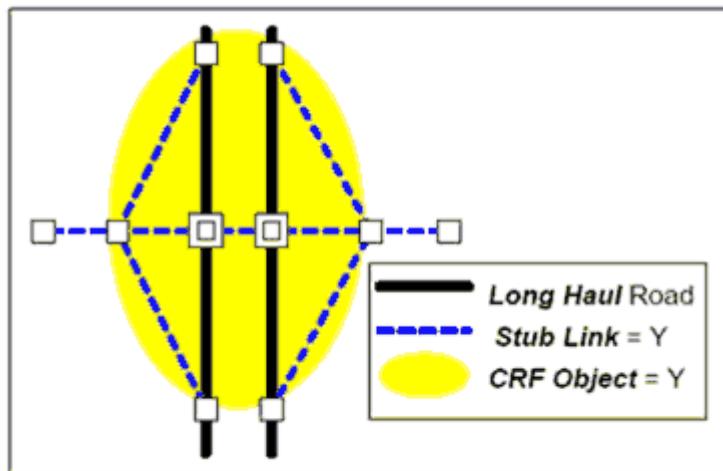


Figure 4-86

4.4.25 Low Mobility (LOW_MOBILITY)

Definition *Low Mobility* provides for display of links differently from other *Functional Class 5* and low *Speed Category* roads. It further distinguishes functionality of *Functional Class 5* roads similar to the attributes *Parking Lot Road* and *Four Wheel Drive*.

Table RDF_NAV_LINK

Column LOW_MOBILITY

Values See *Section C.54, RDF_NAV_LINK*.

Cardinality 1:1

Usage *Low Mobility* provides for display of links differently from other *Functional Class 5* and low *Speed Category* roads. It further distinguishes functionality of *Functional Class 5* roads similar to the attributes *PARKING_LOT_ROAD* and *Four-Wheel Drive*.

Specification

- *Low Mobility* is published at link level.

- A link with *Low Mobility* = 1 further distinguishes functionality of *Functional Class* 5 roads. This information can be used in route calculation to avoid specific navigable links.
- *Low Mobility* = 1 is applied to links with the following attribution:
 - ◆ The *Functional Class* = 5.
 - ◆ The number of lanes per direction of travel *Lane Category* = 1
 - ◆ The *Speed Category* = 7 or 8.
- *Low Mobility* = 1 is applied to all links with *Four-Wheel Drive* = Y
- *Low Mobility* = 1 is applied to all links with *Parking Lot Road* = Y
- All links with *Low Mobility* = 1 are validated for connectivity. This means that there cannot be a link with *Low Mobility* = 2 in the middle of links with *Low Mobility* = 1
- *Low Mobility* = 2 is applied to links where driving conditions do not require low speed.
- *Low Mobility* = 3 is applied to links where it is unknown whether driving conditions require low speed.

Note: This is the default value except in the United States and Canada
- All links with *Low Mobility* = 1 are validated for connectivity. This means that there can be no link with *Low Mobility* = 2 in the middle of links with *Low Mobility* = 1.
- Links with *Low Mobility* = 1 can have POI except when *Parking Lot Road* = Y.
- A link with *Low Mobility* = 1 may have speed bumps.
- *Low Mobility* = 1 does not have a one-to-one relationship with either *Through Traffic* or with *Unpaved*.
- Exceptions to the above rules may exist in individual cases.

4.4.26 Multiply Digitised (MULTI_DIGITIZED)

Definition	<i>Multiply Digitised</i> identifies multiply digitised links, i.e., links that are digitised with one line per direction of traffic instead of one line per road observing the rules listed below.
Table	RDF_NAV_LINK
Column	MULTI_DIGITIZED
Values	See Section C.54, RDF_NAV_LINK.
Cardinality	1:1
Usage	For wide roads, a link is digitised for each direction of traffic (instead of for each road) in order to improve map matching of the car to the road map. The <i>Multiply Digitised</i> flag identifies these opposing lanes of traffic when it is reasonable to represent them as a single line on displays and printed maps.

When route guidance calls for a u-turn involving a multi-digitised road, the guidance given should be "make a u-turn at intersection" and not "make a left turn", followed by "make a left turn."

- Specification** • *Multiply Digitised (MULTI_DIGITIZED) = Y* is applied to roads where opposing lanes of traffic are:

- ◆ Separated by either a physical or a legal divider wider than 3 metres/10 feet, and longer than 40 metres/131 feet, and
- ◆ No more than 80 metres/262 feet apart. See *Figure 4-87* and *Figure 4-88* below.

This rule does not apply when any of the following are applied to the link:

- ◆ *Ramp* = Y,
- ◆ *Travel Direction* = B (both direction), or
- ◆ *Intersection Category* = 2 (Manoeuvre)

In these cases, the road segment receives *Multiply Digitised (MULTI_DIGITIZED) = N*.

- *Multiply Digitised (MULTI_DIGITIZED) = Y* is also applied to roads when certain physical features are located between the separately digitised opposing lanes of traffic exist but do not affect driver perception that the opposing roadbeds are part of the same road.

The following are examples:

- ◆ An elevated/underground road or rail
- ◆ A tunnel
- ◆ A tram/light rail tracks, which restrict crossings from one side to another.
- ◆ A walkway
- ◆ A bus lane

Note: Roads that do not meet the above criteria may receive *Multiply Digitised = Y*. For example, if a change in a multiply digitised road continues for less than 100 metres/328 feet, then the *Multiply Digitised = Y* attribution is maintained. This exception ensures cartographic consistency by preventing the display of "hour glass" shaped roads when this attribute is used to simplify display.

- *Multiply Digitised (MULTI_DIGITIZED) = N* is applied to the following road situations:

- ◆ If any linear feature (e.g., railroad tracks, canal, etc.) or thick vegetation is located between the separately digitised opposing lanes of traffic. The reason for this is that to maintain proper map display with the other feature, the roadbeds must remain separate in map display.
- ◆ Separately digitised opposing lanes of traffic are on top of each other instead of being separated horizontally, e.g., a double-decker bridge.
- ◆ If there are two different names for each side of the road.

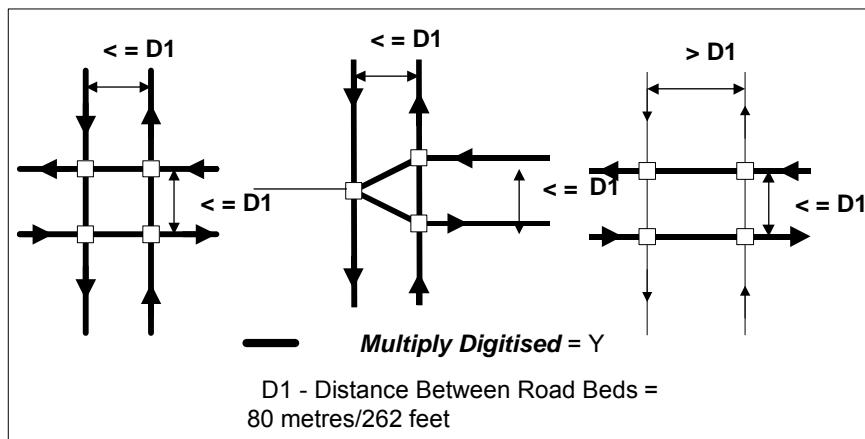


Figure 4-87

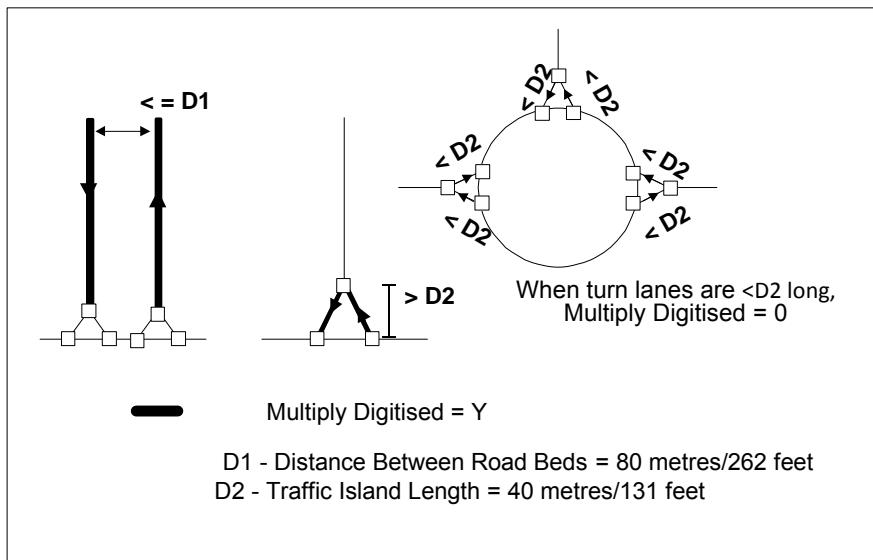


Figure 4-88

4.4.27 Overpass/Underpass (OVERPASS_UNDERPASS)

Definition Overpass/Underpass indicates if a road goes over/under another road.

Table RDF_NAV_LINK

Column OVERPASS_UNDERPASS

Value 1 – Overpass

2 – Underpass

Cardinality	1:0,1
Usage	<i>Overpass/Underpass</i> can be used to enhance (both audible and visual) route guidance, e.g., "Take the overpass".
Rules	<ul style="list-style-type: none">• If a link received <i>Ramp</i> = Y, then <i>Overpass/Underpass</i> is not applied.• If a road is over/under other road(s) for more than two intersections, it is not considered an overpass or underpass.• If the driver does not perceive a change in the elevation when moving along the road even though it may cross over or under another road, <i>Overpass/Underpass</i> is not applied.• <i>Overpass/Underpass</i> is independent of any (RDF_LINK) <i>Bridge</i> or <i>Tunnel</i> attribution.

4.4.28 Paved (PAVED)

Definition	<i>Paved</i> describes roads that are made of materials which create a solid surface.
Table	RDF_NAV_LINK
Column	PAVED
Values	See Appendix C.54, RDF_NAV_LINK.
Default	1 - Paved
Related Attributes	None
Usage	<i>Paved</i> is primarily used for cartographic representation (map display). This attribute could also affect routing algorithms by assigning higher penalties to unpaved roads.
Rules	<ul style="list-style-type: none">• Roads that are made of concrete, asphalt, brick or cobblestone are examples of road links that receive <i>Paved</i> = Y.• Roads that are not solid (e.g., gravel, dirt or grass) are examples of road links that receive <i>Paved</i> = N.

4.4.29 Physical Number of Lanes (PHYSICAL_NUM_LANES)

Definition	<i>Physical Number of Lanes</i> indicates the total number of all lanes on a link across all travel directions. Note: Reversible lanes are counted as one lane.
Table	RDF_NAV_LINK
Column	PHYSICAL_NUM_LANES

Values	Counter (1-32)
Default	No default applies. Column null for links that do not have Lane Objects published.
Related Attributes	<i>Number of Lanes</i> (FROM_REF_NUM_LANES / TO_REF_NUM_LANES) <i>Lane Category</i> <i>Lane Number</i> <i>Reversible</i>
Related Table	RDF_LANE
Usage	<p><i>Physical Number of Lanes</i> can be used to correctly render the road layout, in combination with Lane Marking, Lane Type and Lane Travel Direction coding.</p> <p>Note: Lane Feature coding can only be correctly interpreted in combination with <i>Physical Number of Lanes</i>.</p>
Specification	<ul style="list-style-type: none"> • <i>Physical Number of Lanes</i> is published only for links that require lane level attribution; corresponding Lane Objects published in RDF_LANE. Either FROM_REF_NUM_LANES / TO_REF_NUM_LANES or LANE_CATEGORY is published for links that do not require lane level attribution. • <i>Physical Number of Lanes</i> counting is independent of the driving direction and counts reversible lanes only once. <i>Physical Number of Lanes</i> reflects the actual number of lanes on a link. • <i>Physical Number of Lanes</i> is a Link-only attribute. • The following Lane Types are counted in <i>Physical Number of Lanes</i>:

Lane Types

Value	Description
1	Regular Lane
2	HOV Lane
4	Reversible Lane
8	Express Lane
16	Acceleration Lane
32	Deceleration Lane
64	Auxiliary
128	Slow Lane
256	Passing Lane/Overtaking Lane
512	Shoulder Lane
1024	Regulated Lane Access

Lane Types (Continued)

Value	Description
2048	Turn Lane
4096	Center Turn Lane
8192	Truck Parking Lane
16384	Parking Lane
32768	Variable Driving Lane
65536	Bicycle Lane

4.4.30 POI Access Road (POI_ACCESS)

- Definition** Identifies roads that connect POIs to the road network. These roads provide the only means of entrance or exit from a POI to a public road.
- Table** RDF_NAV_LINK
- Column** POI_ACCESS
- Values** Y - The link is a POI access road.
N - The link is not a POI access road.
- Usage** POI Access allows an entrance to be identified by the POI name for route guidance. For example, the entrance road to a golf course may be explicated as "Turn right at the golf course entrance."
- Specification**
- POI Access is applied to identify roads that are used solely to enter or exit a POI.
 - POI Access = Y is applied to unnamed roads within POI polygons, generally except for the following:
 - ◆ Golf Course
 - ◆ Hospitals
 - ◆ Rest Area
 - ◆ Park & Ride
 - See *Link Attribution for Specific Features, POIs, or Areas* for examples how POI Access is applied, in combination with other attributes, to links associated with different Areas/POIs.
 - POI Access is published as N for non-navigable links.

4.4.31 Priority Road (PRIORITY_ROAD)

Definition	<p><i>Priority Road</i> defines road stretches that have signs indicating priority on the road. On these roads all traffic has priority over the traffic on the incoming roads.</p>
Table	RDF_NAV_LINK_ATTRIBUTE
Column	PRIORITY_ROAD
Value	See Section C.55, RDF_NAV_LINK_ATTRIBUTE.
Cardinality	1:0,1
Usage	<p><i>Priority Road</i> can be used for route planning to achieve lower fuel consumption. By prioritising priority roads during route planning, the “stop and go” at intersections, resulting in high fuel consumption, is significantly less.</p>
Specification	<ul style="list-style-type: none">● <i>Priority Road</i> is a link only attribute.● <i>Priority Road</i> is applied based on signs indicating priority on the road. Priority on a road is indicated by the sign as shown in <i>Figure 4-89</i>, Sign A. End of priority road is indicated by Sign B in <i>Figure 4-89</i>. <i>Priority Road</i> can also be indicated by the signs indicating the priority at a junction (see <i>Figure 4-90</i>) or by the supplemental sign panel indicating the priority road direction when the priority road is making a sharp bend (see <i>Figure 4-91</i>).● The <i>Priority Road</i> attribute stops when one of the following signs is posted:<ul style="list-style-type: none">◆ End of Priority sign (<i>Figure 4-89</i>, Sign B)◆ Stop Sign◆ Yield sign (See <i>Country Profiles: Signs, Signals, and Warnings</i> for country-specific examples.)◆ Crossing with Priority from the Right (See <i>Country Profiles: Signs, Signals, and Warnings</i> for country-specific examples.) <p>However when traffic lights or signposted pedestrian crossings are present, the priority on the road continues unless one of the signs defined above is posted at the same time (see <i>Figure 4-92</i>).</p> <p><i>Note:</i> Certain countries have a rule that the priority road is continuing until the End of Priority Sign is posted. A list of countries will be provided when the product is released.</p>

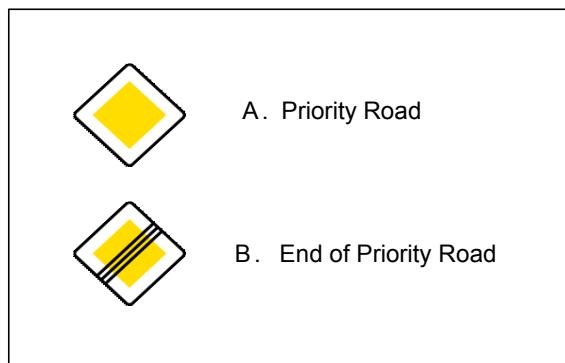
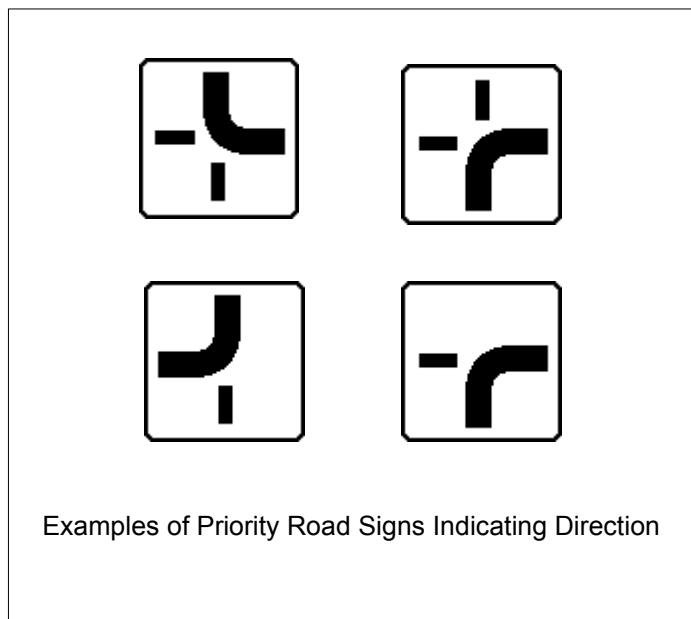


Figure 4-89



Figure 4-90



Examples of Priority Road Signs Indicating Direction

Figure 4-91

- The *Priority Road* attribute is published only from intersection to intersection. This means that the *Priority Road* attribute does not necessarily start or stop exactly where signposted. The sign indicating priority on the road can be signposted before or after an intersection. The *Priority Road* attribution starts from the intersection prior to where the sign is posted until the next intersection, regardless the actual position of the sign (see *Figure 4-92*, Link 1, 2, and 10).

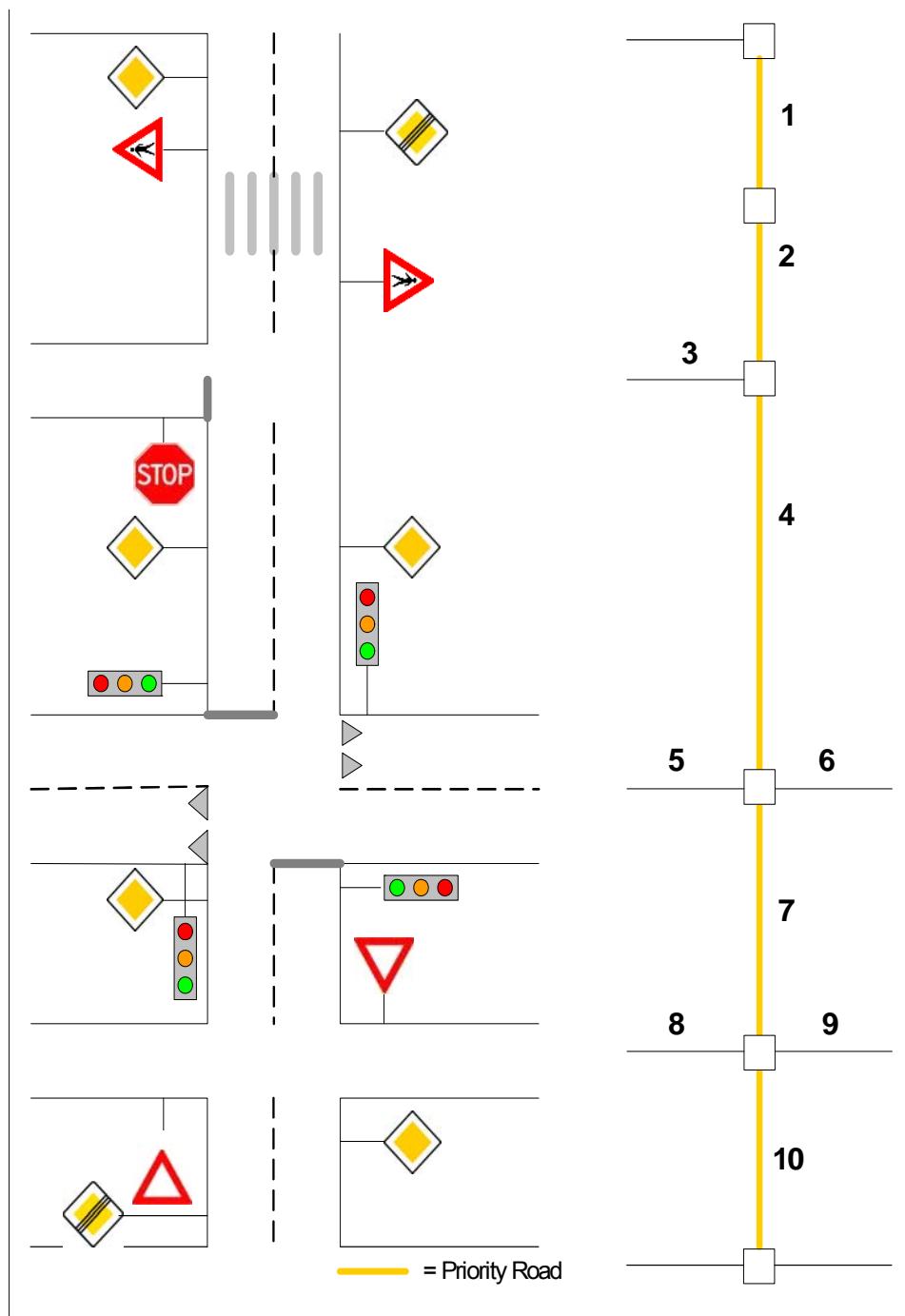


Figure 4-92

- Priority Junction Signs (*Figure 4-90*) are signposted just before an intersection. The *Priority Road* attribution starts from the intersection prior to where the Priority Junction sign is posted until the next intersection (see *Figure 4-93*). In case the next

intersection is also posted with a Priority Junction sign, then the *Priority Road* attribution continues until priority ends, see *Figure 4-94*.

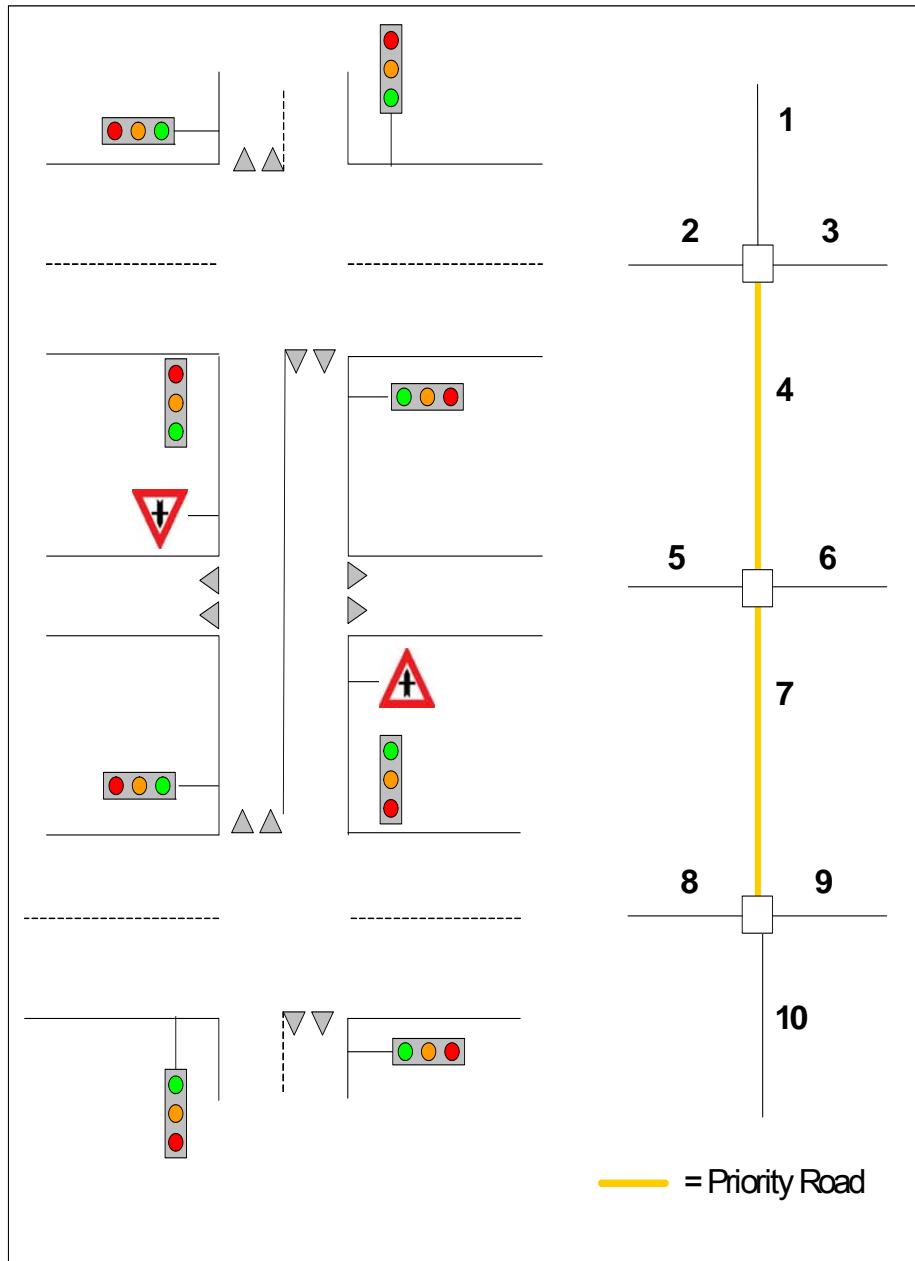


Figure 4-93

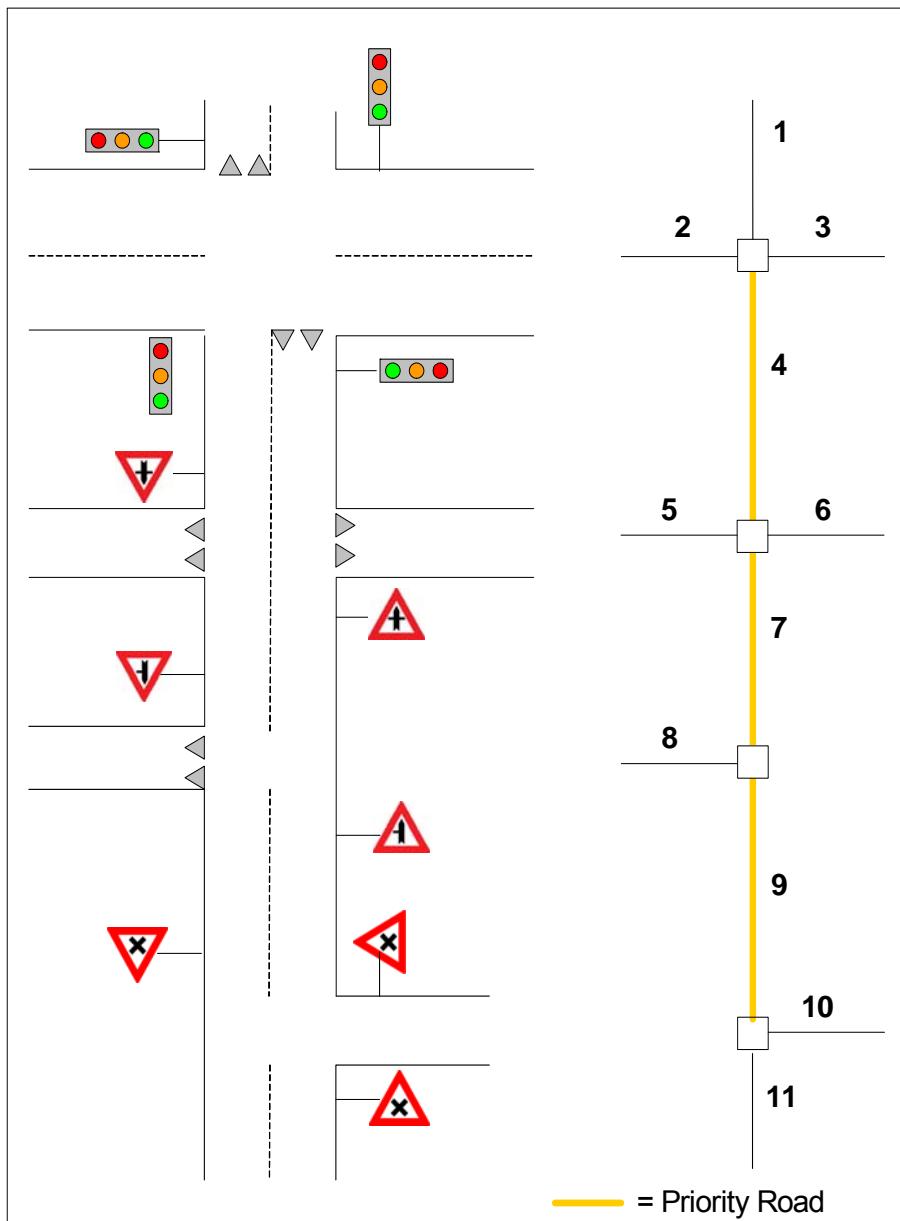


Figure 4-94

- Priority Road can be published for Links that have a *Through Route* condition.
- The priority rules on priority roads can be impacted by other traffic regulations such as traffic lights at the intersections or pedestrian crossings (either signposted or controlled by lights) along the priority road. The *Priority Road* attribute continues after such an intersection unless signs are present indicating that the priority road ends.
- Priority Road is not published for the following situations:

- Roundabouts
- The priority rules on roundabouts are such that traffic either has to yield to traffic on the roundabout when entering the roundabout or yield to traffic that enters the roundabout when travelling on the roundabout.
- Highway/motorway
- It is considered a priority road by default.
- Turn lane or ramp
- A road is not (or unknown to be) a priority road.

Example A priority road with traffic signs.

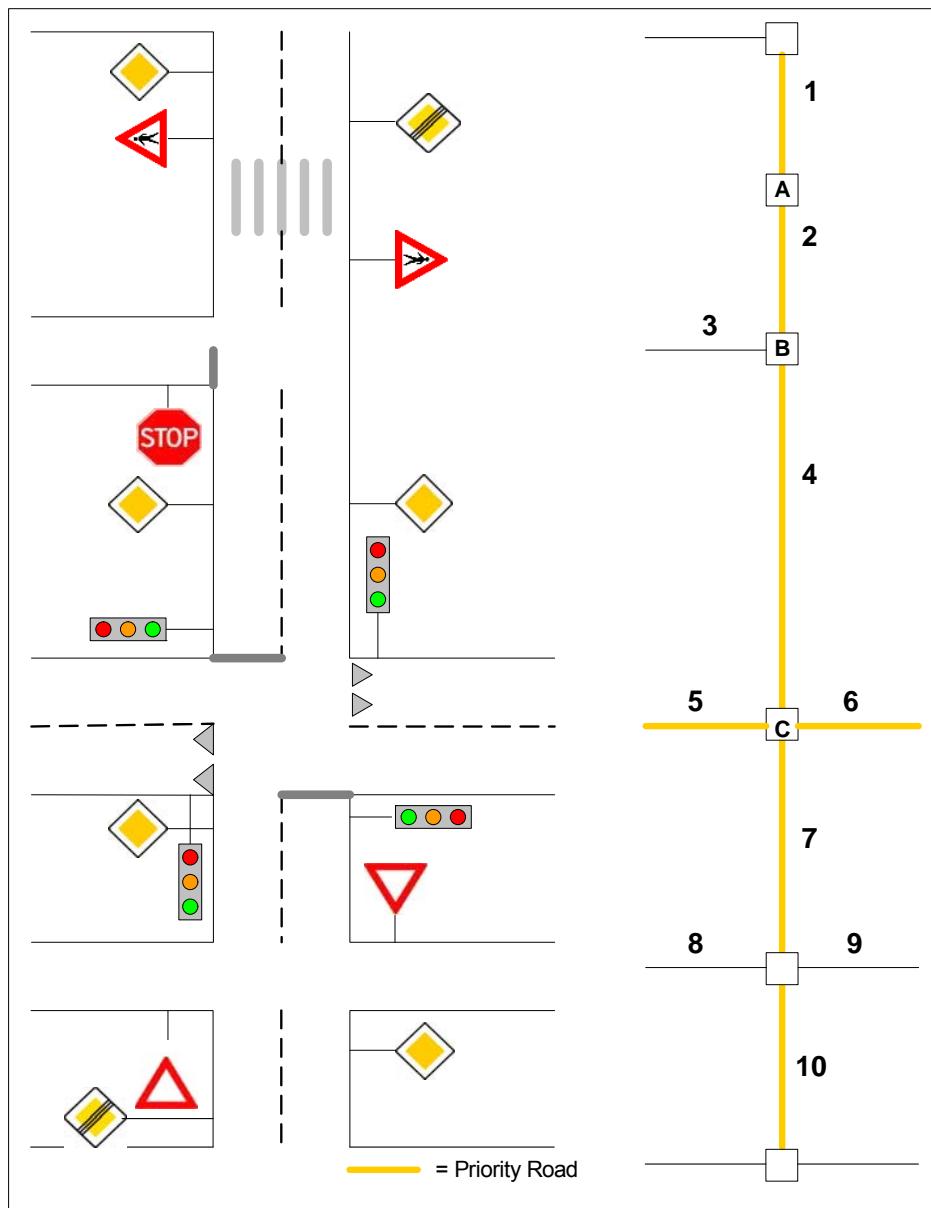


Figure 4-95

Link 1

- PRIORITY_ROAD = Y - Link is a Priority Road
- *Traffic Sign* (CONDITION_TYPE = 17): Link 1 and Node A
 - ◆ TRAFFIC_SIGN_TYPE = 41 - Pedestrian Crossing
 - ◆ TRAFFIC_SIGN_CATEGORY = 3 - Warning Sign

Link 2

- PRIORITY_ROAD = Y - Link is a Priority Road
- *Traffic Sign* (CONDITION_TYPE = 17): Link 2 and Node A
 - ◆ TRAFFIC_SIGN_TYPE = 41 - Pedestrian Crossing
 - ◆ TRAFFIC_SIGN_CATEGORY = 3 - Warning Sign

Link 3

- PRIORITY_ROAD = NULL - Link is not a Priority Road
- *Traffic Sign* (CONDITION_TYPE = 17): Link 3 and Node B
- TRAFFIC_SIGN_TYPE = 20 - Stop Sign
- TRAFFIC_SIGN_CATEGORY = 1 - Regulatory Sign
- TRAFFIC_SIGN_SUBCATEGORY = 1 - Priority Sign

Link 4

- PRIORITY_ROAD = Y - Link is a Priority Road
- *Traffic Signal* (CONDITION_TYPE = 16): Link 4 and Node C

Link 5

- PRIORITY_ROAD = Y - Link is a Priority Road
- *Traffic Signal* (CONDITION_TYPE = 16): Link 5 and Node C
- *Traffic Sign* (CONDITION_TYPE = 17): Link 5 and Node C
 - ◆ TRAFFIC_SIGN_TYPE = 42 - Yield
 - ◆ TRAFFIC_SIGN_CATEGORY = 1 - Regulatory Sign
 - ◆ TRAFFIC_SIGN_SUBCATEGORY = 1 - Priority Sign

Link 6

- PRIORITY_ROAD = Y - Link is a Priority Road
- *Traffic Signal* (CONDITION_TYPE = 16): Link 6 and Node C
- *Traffic Sign* (CONDITION_TYPE = 17): Link 6 and Node C
 - ◆ TRAFFIC_SIGN_TYPE = 42 - Yield
 - ◆ TRAFFIC_SIGN_CATEGORY = 1 - Regulatory Sign
 - ◆ TRAFFIC_SIGN_SUBCATEGORY = 1 - Priority Sign

Link 7

- PRIORITY_ROAD = Y - Link is a Priority Road
- *Traffic Signal* (CONDITION_TYPE = 16): Link 7 and Node C

Link 8

- PRIORITY_ROAD = NULL - Link is not a Priority Road

Link 9

- PRIORITY_ROAD = NULL - Link is not a Priority Road

Link 10

- PRIORITY_ROAD = Y - Link is a Priority Road

4.4.32 Private (PRIVATE)

Definition *Private* identifies roads that are not maintained by an organisation responsible for maintenance of public roads.

Table RDF_NAV_LINK

Column PRIVATE

Values See Section C.54, RDF_NAV_LINK.

Cardinality 1:1

Usage *Private* allows for unique cartographic representation of roads that restrict public use.

Rules

- *Private* is flagged on the following:
 - ◆ Roads that are not maintained by a public organisation
 - ◆ Roads that are signed posted as “Private”
 - ◆ Roads that are for military use only

4.4.33 Public Access (PUBLIC_ACCESS)

Definition *Public Access* indicates whether or not the link allows public access.

Table RDF_NAV_LINK

Column PUBLIC_ACCESS

Values See Section C.54, RDF_NAV_LINK.

Cardinality 1:1

Usage	<u>Route Calculation</u> The Public Access attribute indicates if the link can be used in route calculation to avoid specific navigable links.
	<u>Route Guidance</u> The Public Access attribute can be used in route guidance for additional guidance instructions.
	<u>Map Display</u> The Public Access attribute can be used in map display to differentiate navigable links.
Specification	<ul style="list-style-type: none">• Public Access is published at link level.• A link published with <i>Public Access</i> = N indicates that access by the general public is restricted• The attributes <i>Private</i> and <i>Through Traffic</i> are independent of <i>Public Access</i> coding.

4.4.34 Ramp (RAMP)

Definition	<i>Ramp</i> identifies connectors which provide access between roads that do not cross at grade.
Table	RDF_NAV_LINK
Column	RAMP
Values	See Section C.54, RDF_NAV_LINK.
Cardinality	1:1
Usage	<i>Ramp</i> allows explication of manoeuvres involving ramps (e.g., “Take the ramp”). This attribute can also be used for display at different zoom levels or by different colours and for route guidance when determining if sign text should be used.
Specification	<ul style="list-style-type: none">• <i>Ramp</i> is flagged mainly on the following:<ul style="list-style-type: none">◆ Roads that connect other roads that are not at grade.◆ Roads connecting controlled access roads (motorways and freeways). All entrance and exit roads that connect controlled access roads to non-controlled access roads are flagged as <i>Ramp</i> as do entrance and exit roads that connect frontage roads to the controlled access roads as shown in <i>Figure 4-96</i> and <i>Figure 4-97</i>.

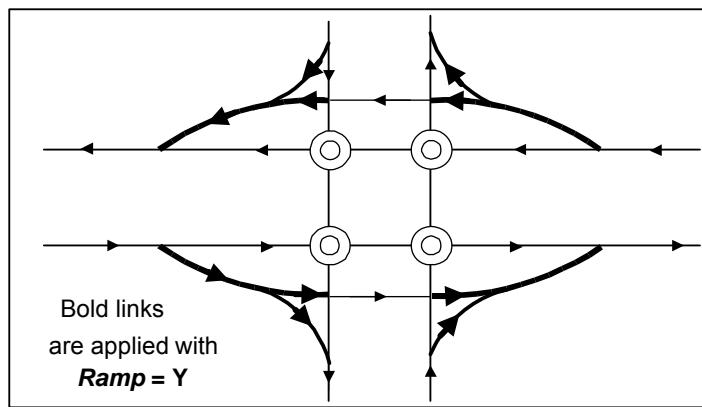


Figure 4-96

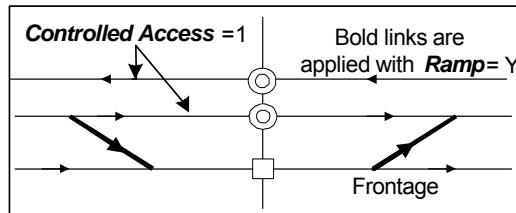


Figure 4-97

- *Ramp* is also flagged on the following:
 - ◆ Connections between *Controlled Access* roads if perceived as an exit as shown in *Figure 4-98* and *Figure 4-99*.
 - ◆ Roads that serve for making a U-turn on motorways if perceived as part of the ramp system.

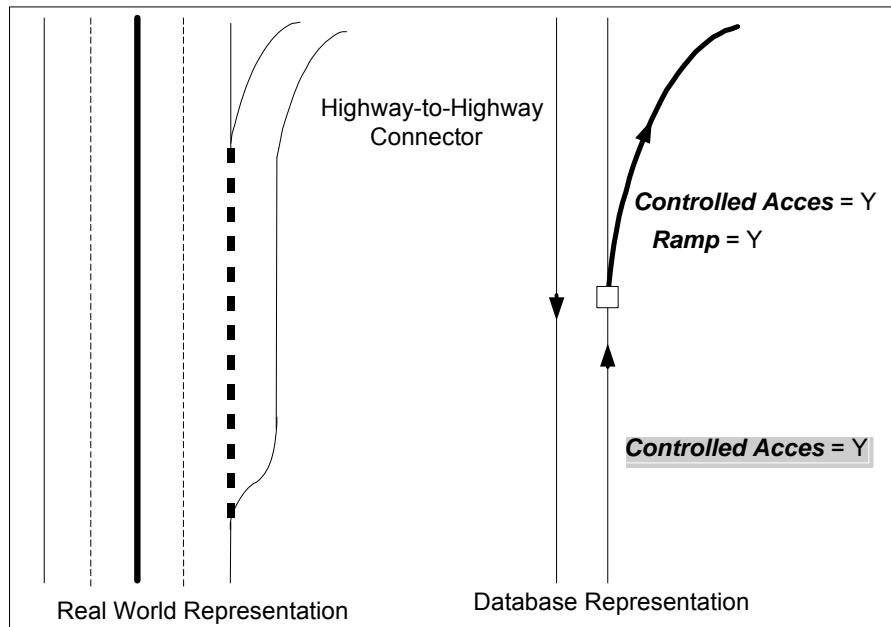


Figure 4-98

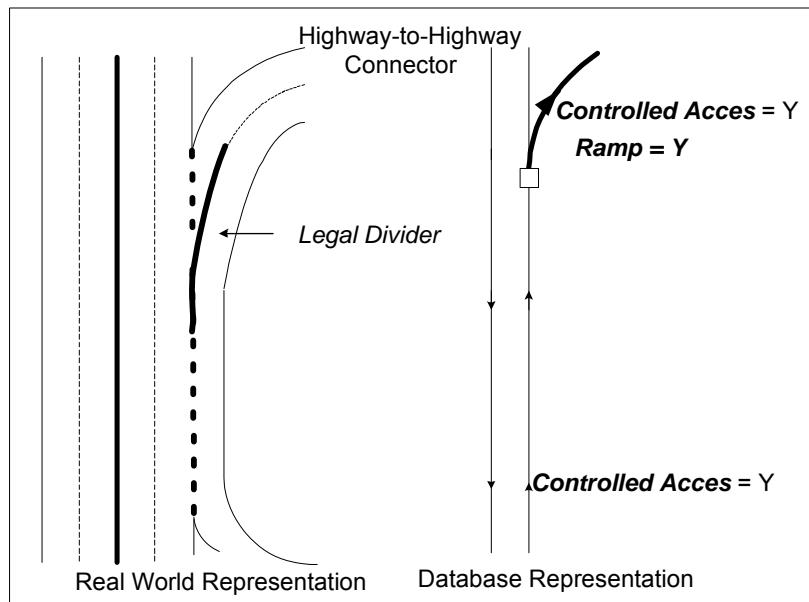


Figure 4-99

4.4.35 Reversible (REVERSIBLE)

Definition	<i>Reversible</i> identifies that all lanes on the link are reversible, which implies that traffic is allowed in both directions at specific times of day.
Table	RDF_NAV_LINK_ATTRIBUTE
Column	REVERSIBLE
Values	See Section C.55, RDF_NAV_LINK_ATTRIBUTE.
Cardinality	1:1
Usage	<i>Reversible</i> can be used to identify links that are fully reversible. Reversible aids in the interpretation of lane dependent coding and enables correct rendering of lane marking content.
Specification	<ul style="list-style-type: none">• <i>Reversible</i> = Y is published if all lanes on the link are reversible, which means links where all lanes are accessible in both directions at specific times of the day.• Either no entry is published for the link in RDF_NAV_LINK_ATTRIBUTE or RDF_NAV_LINK_ATTRIBUTE.REVERSIBLE = NULL. for the following:<ul style="list-style-type: none">◆ If it is not known if all lanes on a link are reversible◆ If all lanes on a link are not reversible.◆ If traffic flow switches between one-way and bi-directional for any portion of the day.• If a fully reversible link is HOV, Lane Objects are published.• If a fully reversible link is non-HOV, Lane Objects are not published.• If only a subset of lanes on the link is reversible, then Lane Objects are published in RDF_LANE. See Section 4.5.2.2, Lane Type (LANE_TYPE) for further information.

4.4.36 Road Class (ROAD_CLASS)

Definition	<i>Road Class</i> identifies a road network based on governmental classification.
Table	RDF_NAV_LINK
Column	ROAD_CLASS
Values	See Section C.54, RDF_NAV_LINK.
Cardinality	1:0,1
Usage	<i>Road Class</i> can be used for map display. Additionally, <i>Road Class</i> can be used for route guidance, e.g., "Enter the express highway" or "Enter the urban expressway."
Rules	<ul style="list-style-type: none">• <i>Road Class</i> values are defined by the country's regulating body.

- *Road Class* is published for select countries only. Refer to the *Country Specific Rules*.

4.4.37 Speed Category (SPEED_CATEGORY)

Definition	<p><i>Speed Category</i> classifies the general speed trend of a road based on posted or legal speed and is provided to enhance route calculation and the timing of route guidance. <i>Speed Category</i> values represent the combination of several factors besides legal speed limit (e.g., physical restrictions or access characteristics). Therefore, <i>Speed Category</i> values can differ from FROM_REF_SPEED_LIMIT and TO_REF_SPEED_LIMIT values, which represent the legal speed limit only.</p>
Table	RDF_NAV_LINK
Column	SPEED_CATEGORY
Value	See Section C.54, <i>RDF_NAV_LINK</i> .
Usage	<p><i>Speed Category</i> may be used to estimate link traversal times, prioritise link selection during route calculation, and calculate timing of the route guidance.</p>
Specification	<ul style="list-style-type: none">• A value is published for all navigable links based on the posted or implied speed limit. Generally, <i>Speed Category</i> is applied from road intersection to road intersection to reflect the overall speed trend of a road.• <i>Speed Category</i> values can differ from <i>Speed Limit</i> values, which are applied on a link-by-link basis.• Posted speed limits that are not full time are not published. For example, a road with 40 mph speed limit has a zone where, for one link, the posted speed limit is 25 mph during specific hours. In this case, <i>Speed Category</i> = 5 is published for all links to reflect the overall trend of the road.• If the posted speed limit is different for the two directions on a bidirectional road, then the lower speed limit is used to determine <i>Speed Category</i>.• <i>Speed Category</i> can be lower than the legal speed limit in any of the following situations:<ul style="list-style-type: none">◆ Roads which have physical restrictions such as speed bumps or chicanes that affect the overall trend of the road.◆ Narrow roads (difficult for two cars to pass in opposite directions) and/or very curvy roads, e.g., country lanes and mountain roads.◆ Unpaved roads.

Intersections

- *Speed Category* for the following can reflect the values applied to the road they are connected to:
 - ◆ Turn lanes (i.e., links attributed with *Lane Type* = 2048)
 - ◆ Intersection Internal (*Intersection Category* = 1)

Ramps and Highway-to-Highway Connectors

- For Ramps and Highway-to-Highway connectors, the *Speed Category* based on the advisory speed limit is applied. If an advisory speed limit is not present, the *Speed Category* is applied based on the posted speed limit. See *Figure 4-100* and *Figure 4-101*.
If an advisory or posted speed limit is not present, the *Speed Category* of the road it is leading towards is applied. See *Figure 4-100*.
- The *Speed Category* is applied based on the advisory speed limit if a Ramp or Highway-to-Highway connector has both an advisory and posted speed limit.
If the advisory or posted speed limit sign is halfway along the ramp, the *Speed Category* that reflects the variable or posted speed limit on the complete ramp is applied. See link B in *Figure 4-100* and link B and C in *Figure 4-101*.

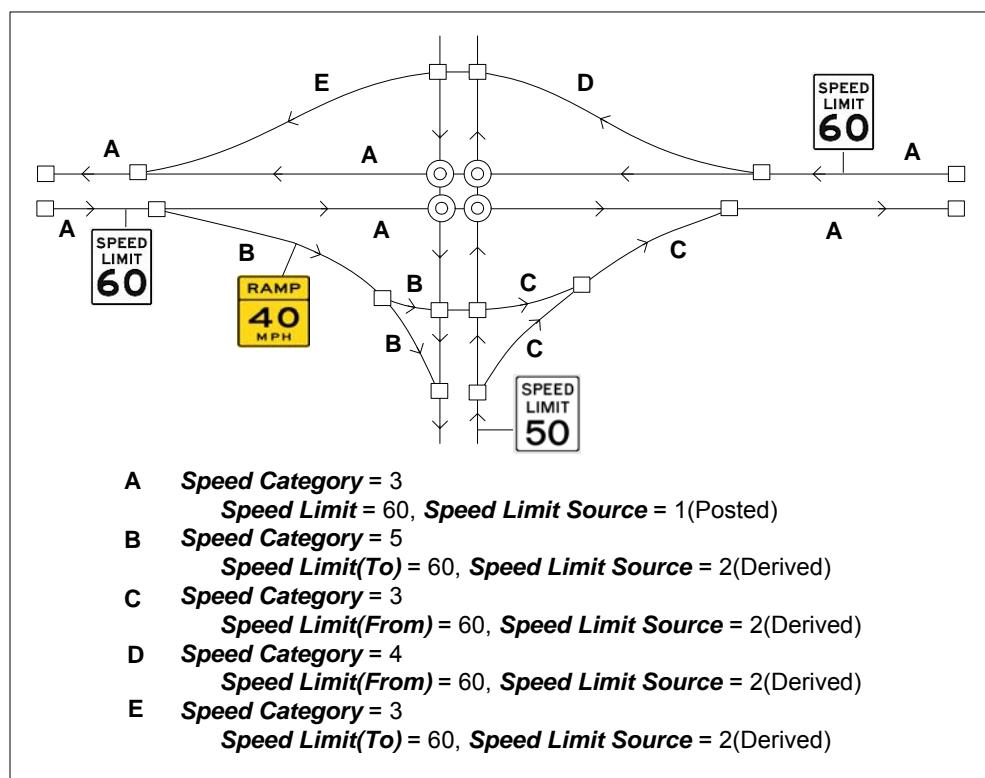


Figure 4-100

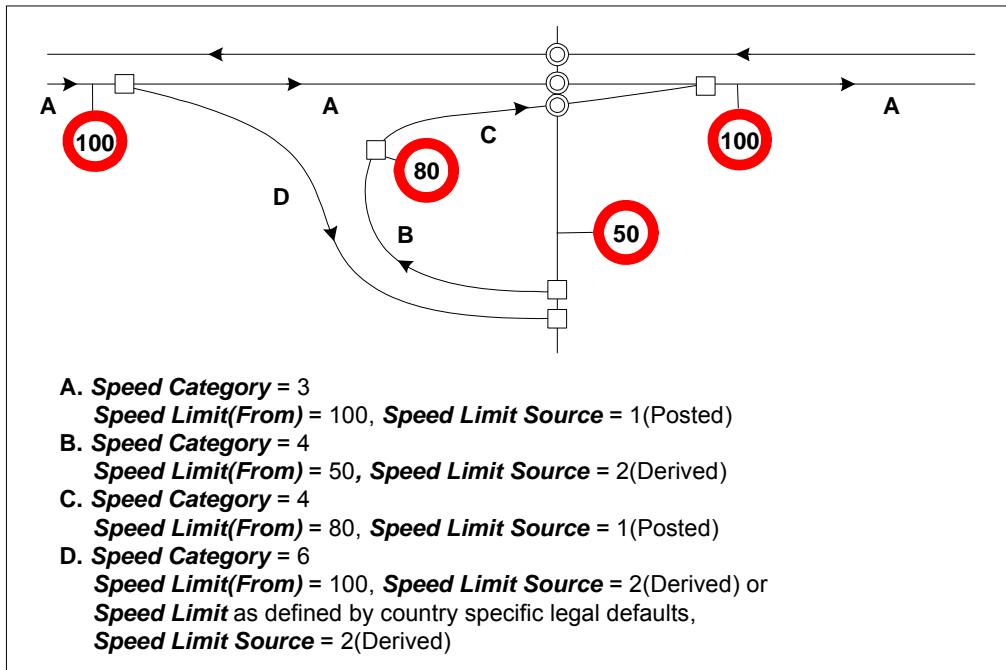


Figure 4-101

- The same Speed Category is applied for both the entrance and exit ramps if they share a link. The lower Speed Category of the two roads connected by the ramp is applied. See Figure 4-102.

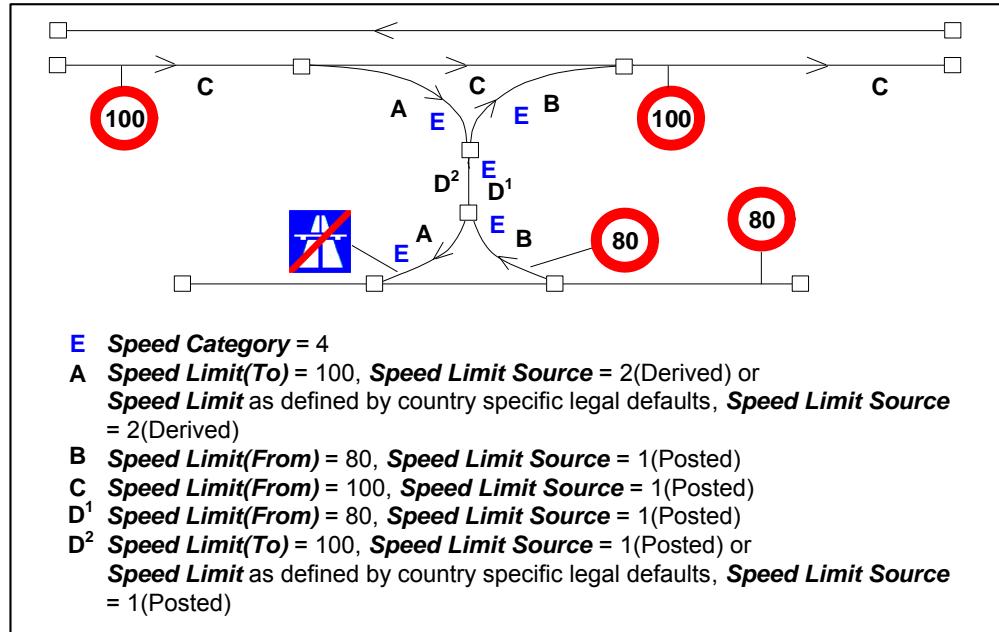


Figure 4-102

- For parallel ramps, where the main roads and the parallel ramp have the same *Functional Class*, the *Speed Category* on the parallel ramp is generally applied to be one category lower than that of the main road.

Other Road Situations

- Speed Category* is published for specific situations generally as follows:

Speed Category	Description
7	Ferry Routes
	POI Access and roads inside Rest Areas
	Roads in marginal and illegal settlements in developing countries
8	Walkways and Pedestrian Zones
	Narrow roads that are accessible only to Motorcycles and Pedestrians.
	Parking lanes, and connections internal to a complex (e.g., shopping mall grounds)

4.4.38 Speed Limit (FROM_REF_SPEED_LIMIT / TO_REF_SPEED_LIMIT)

Definition *Speed Limit* is the legal speed limit for vehicle travel.

Table RDF_NAV_LINK

Column FROM_SPEED_LIMIT
TO_SPEED_LIMIT

Value 1-999

Default value None

Related Attributes *Speed Limit Unit*
Speed Limit Source
Travel Direction

Usage *Speed Limit* may be used in combination with *Speed Limit Unit* to estimate traversal times, to prioritise link selection during route calculation, to calculate timing of the route guidance and for display purposes.

When applied to a Lane level, *Speed Limit* can be used to determine speed limit specific to a lane.

Specification General

- *Speed Limit* is generally applied for all links. Inclusion varies however per country and/or extract variation, e.g., only *Speed Limit* for links with *Functional Class*= 1 and 2 are published for base contents.
- *Speed Limit* is generally published for links only. It is also published for a lane when the lane speed limit differs from the general limit on the road.
- *Speed Limit* is the maximum legal speed allowed on the road or lane.
- Positional accuracy is within +/-50 metres.
- *Speed Limit* is published in kilometres per hour (even for countries where miles per hour is used) to maintain consistency in calculations used with complex internal algorithms. The conversion from kilometres per hour (K) to miles per hour (M) is: $M = 0.6213*K$
- *Speed Limit* values are collected and included only when applicable to autos (not autos with trailers, trucks, or any other configuration).

Basis for Speed Limit Values

- *Speed Limit* is based either on overall country/administrative rules, posted signs or road markings.
- When there is no posted sign a default *Speed Limit* value is implemented. Defaults are based on administrative-wide regulations. For example in Germany, if no sign is posted the value is 50 kph within the Built-up Areas.
- When a road has a different speed during certain times, the *Speed Limit* value is based on the speed that applies most of the time. The additional speed limit information is included as a *Special Speed Situation* condition. See *Section 6.4.7, Special Speed Situation (CONDITION_TYPE = 10)*.
For example, night-time speeds are in effect on some roads in Montana. In this case, day-time speed is predominant, and thus is used as the *Speed Limit* value, while the night-time speed is included as a *Special Speed Situation*. Signs describing seasonal changes are evaluated on an individual basis.
- For roads that allow an unlimited speed, the *Speed Limit* value is 999. For example, many motorways in Germany do not have a maximum speed.

Lane level

- *From/To Lane Speed Limit* is published only if a lane's speed limit differs from the general speed limit on the link.
- *From Lane Speed Limit* is published if the lane has a speed limit posted in the positive direction of travel. *To Lane Speed Limit* is published if the lane has a speed limit posted in the negative direction of travel.
- On Reversible Lanes, *From/To Lane Speed Limit* may be publishing different speed values.

Ramps (Non-Highway-to-Highway Connectors)

The following rules are not applicable to countries with legal speed limits for ramps. See the *Country Specific Rules* document.

- For exit and entrance ramps without posted speed limit signs, the same *Speed Limit* as the high speed road is applied with *Speed Limit Source* = 2(Derived). See *Figure 4-103*.

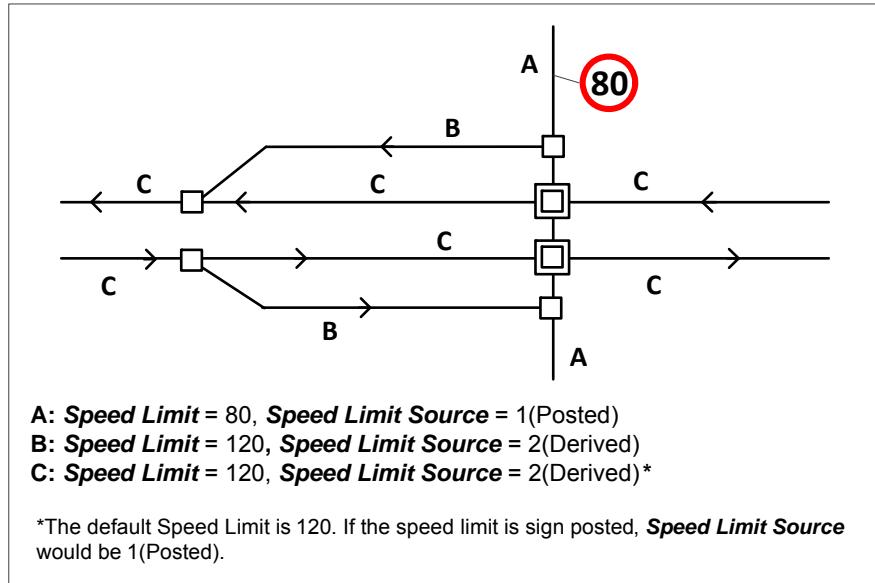


Figure 4-103

- Motorway or Motorised Vehicles Only sign is not used for determining the *Speed Limit* if present on a ramp. See *Figure 4-104*.

Note: A *Special Speed Situation* is applied on the ramp if this is also applied on the high speed road.

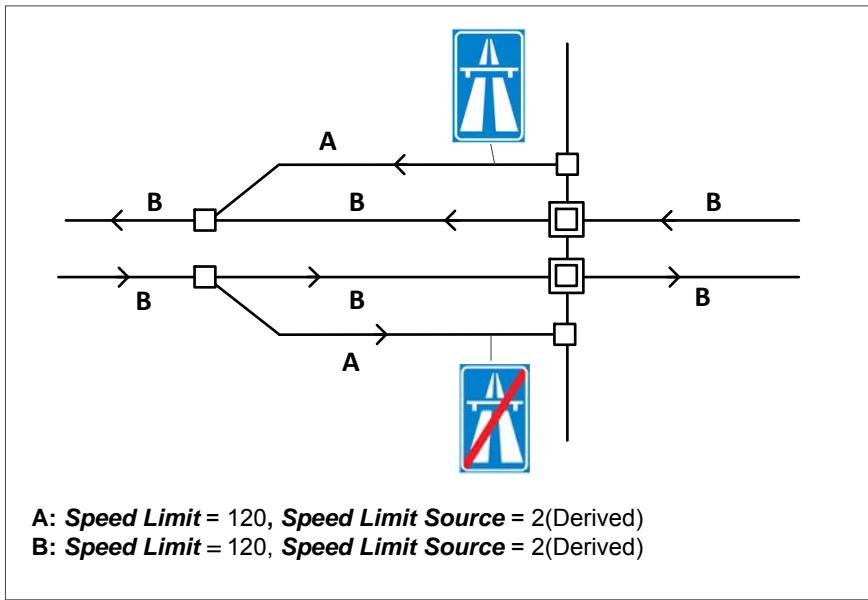


Figure 4-104

- The implied Speed Limit for built-up areas is applied if a built-up area sign is present somewhere on the ramp.
- The Speed Limit of the road the driver is leaving from is applied for exit ramps with posted speed limit signs, with Speed Limit Source = 2(Derived) on all links prior to the posted speed limit sign. See Figure 4-105.

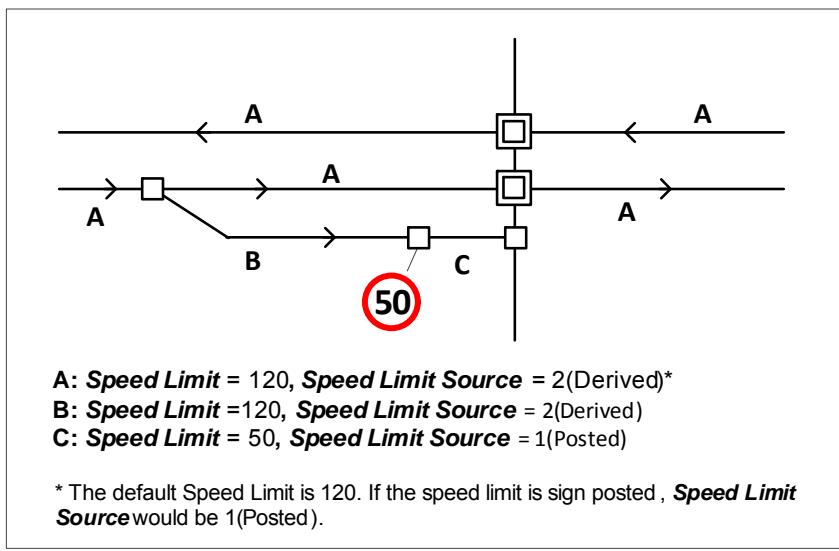


Figure 4-105

- For entrance ramps with posted speed limit signs, the *Speed Limit* of the connected non-ramp links is applied with *Speed Limit Source* = 2(Derived) on all links prior to the posted speed limit sign. See *Figure 4-106* for example.
 - The highest speed limit value on link C is applied if the connected non-ramp link, Road A and Road B have different *Speed Limit* values.

Note: *Restricted Driving Manoeuvre* or legal divider coding is disregarded.

 - Speed Limit* with *Speed Limit Source* = 2(Derived) based on the posted speed limit sign on the ramp is applied if Road A and Road B do not have *Speed Limit* values.

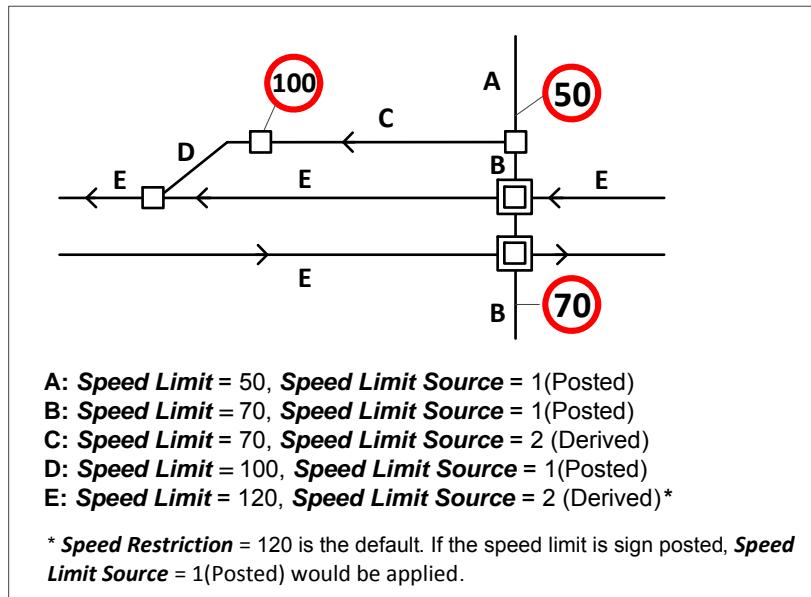


Figure 4-106

- If entrance and exit ramps share a link, the shared link is applied with the appropriate direction dependent coding. See *Figure 4-107*.

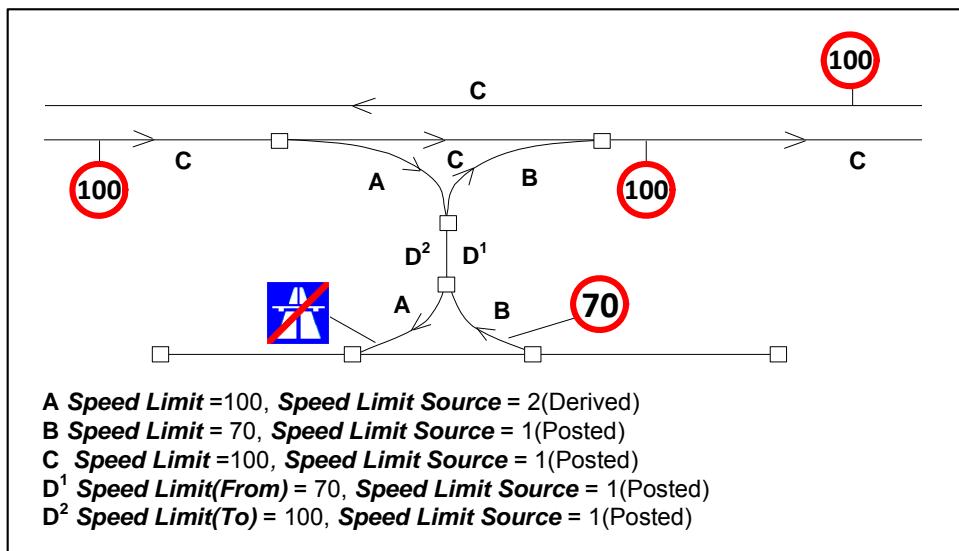


Figure 4-107

- For entrance ramps without a posted speed limit, *Speed Limit* of the connected non-ramp links with *Speed Limit Source* = 2(Derived) is applied if one or more of the below is applicable:
 - ◆ There is no acceleration lane
 - ◆ The angle between the ramp and high speed road is around 90 degrees, see link E to link A in *Figure 4-108*.
 - ◆ It is expected that a driver will need to slow down to 20/30 km/h to safely travel from the ramp to the high speed road.

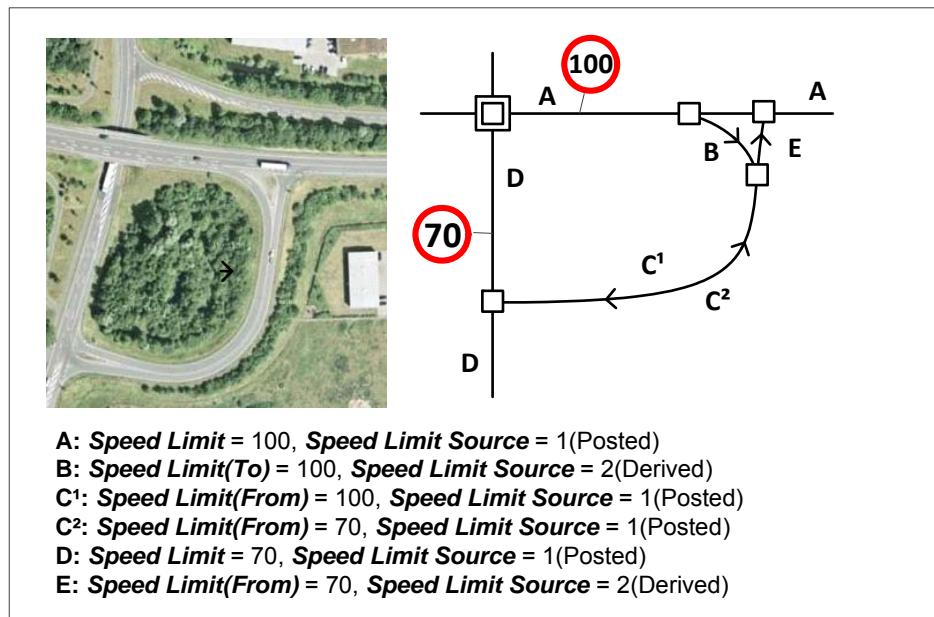


Figure 4-108

- For exit ramps whose speed limits are posted on the motorway (see *Figure 4-109* for an example):
 - ◆ The posted speed limit on the motorway is applied if it is the only posted limit and it explicitly indicates that it is applicable to the ramp (e.g., presence of a co-posted diagonal arrow).
 - ◆ The final speed limit applicable to the actual ramp is applied if successive speed limits are posted.



Figure 4-109

Ramps (Highway-to-Highway Connectors)

- Motorway or Motorised Vehicles Only signs are disregarded in the application of *Speed Limit* coding on Highway-to-Highway connectors.
- On Highway-to-Highway connectors that are flagged as *Ramp* and:
 - have posted speed limit signs, the *Speed Limit* of the road the driver is leaving is applied with *Speed Limit Source* = 2(Derived) on all links prior to the posted speed limit sign.
 - do not have posted speed limit signs, the *Speed Limit* of the road the driver is leaving is applied with *Speed Limit Source* = 2(Derived).
- For parallel ramps:
 - If the parallel ramp has a posted speed limit, the *Speed Limit* is applied for the complete parallel ramp with *Speed Limit Source* = 1(Posted). See link A in *Figure 4-110*.
 - If the parallel ramp does not have a posted speed limit, the *Speed Limit* of the road the driver is leaving is applied with *Speed Limit Source* = 2(Derived) for the complete parallel ramp. See link B in *Figure 4-110*.

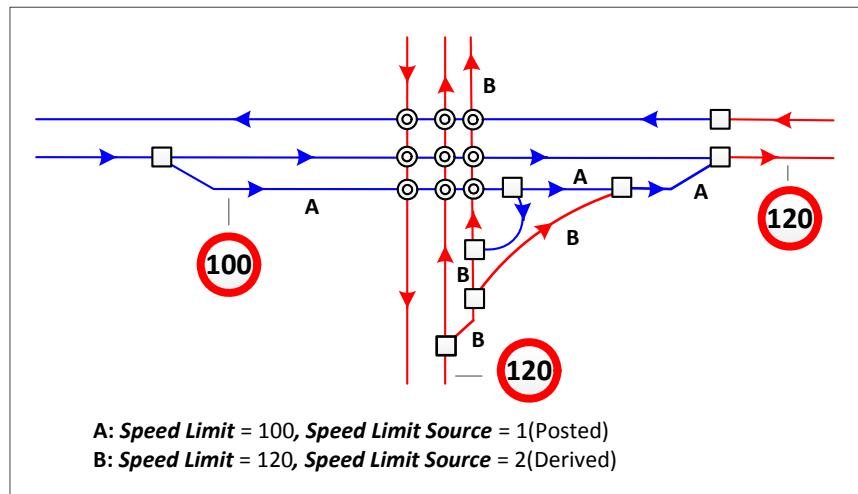


Figure 4-110

In the Vicinity of Intersections

- The *Speed Limit* value for turn lanes is the lowest speed of the connecting roads.
- When a speed changes within 50 metres of an intersection, the speed attribute change is coded from the intersection.
- When a speed change occurs that is not within 50 metres of an intersection, any existing node within +/-50 metres of the sign is used to code the speed change. If an existing node is not available, a node is added.

4.4.39 Speed Limit Source (SPEED_LIMIT_SOURCE)

Definition	<i>Speed Limit Source</i> is a generalised identification of the source of FROM_REF_SPEED_LIMIT/ TO_REF_SPEED_LIMIT information.
Table	RDF_NAV_LINK
Column	SPEED_LIMIT_SOURCE
Values	See Section C.54, RDF_NAV_LINK.
Cardinality	1:0,1
Default value	None
Related Table	RDF_LINK
Related Attributes	FROM_REF_SPEED_LIMIT TO_REF_SPEED_LIMIT
Usage	<i>Speed Limit Source</i> provides information to speed limit recognition applications about the generalised source of <i>Speed Limit</i> information, to allow the application to choose the <i>Speed Limit</i> value or the speed limit from the camera.
Specification	<ul style="list-style-type: none"> • <i>Speed Limit Source</i> = 1 – Posted is published if <i>Speed Limit</i> is based on a posted speed limit sign, speed limit information painted on the road, or data obtained from official sources. • <i>Speed Limit Source</i> = 2 – Derived is published if <i>Speed Limit</i> is based on administrative regulations; such as: <ul style="list-style-type: none"> ◆ State specific speed limits on highways (U.S.) ◆ Country specific speed limits on roads outside Built-up Areas (EU) ◆ Signs implying a certain speed such as Motorway signs (EU), Built-up Area signs (EU), Traffic Calming Zones • Speed Limit sources can differ per travel direction, for example Posted in one direction and Derived in the opposite direction. In these cases, <i>Speed Limit Source</i> = 1 – Posted is published.
Example	RDF publishes the following if the speed limit value in FROM_REF_SPEED_LIMIT/ TO_REF_SPEED_LIMIT for a link is posted on a sign.

RDF_NAV_LINK	
Column	Value
LINK_ID	931050817
FROM_REF_SPEED_LIMIT	50

RDF_NAV_LINK	
Column	Value
TO_REF_SPEED_LIMIT	50
SPEED_LIMIT_SOURCE	1

4.4.40 Supplemental Geometry Bitset (SUPPLEMENTAL_GEO_BITSET)

Definition *Supplemental Geo Bitset* identifies the uses of supplemental geometry, which represents geometry with specific uses beyond the HERE Map Content's road network.

Table RDF_NAV_LINK_ATTRIBUTE

Column SUPPLEMENTAL_GEO_BITSET

Values See Section C.55, RDF_NAV_LINK_ATTRIBUTE.

Cardinality 1:0, 1, M

Related Table RDF_LINK

Usage *Supplemental Geometry Bitset* attribution published for supplemental geometry supports improved map display and route calculation.

Specification

- *Supplemental Geometry Bitset* (SUPPLEMENTAL_GEO_BITSET) is NULL if a link is not a Supplemental Geometry.
Note: SUPPLEMENTAL_GEO_BITSET = 0 is not published.
- *Supplemental Geo Bitset* value is published to reflect multiple use of paths and trails for combined use (e.g., bicycling and walking). For example, *Supplemental Geo Bitset* = 48 (i.e., combined 16 and 32) indicates Bicycle Path and Walking Path usage.
- See Section A.2.26, *Supplemental Geometry* for additional information.

Race Track

Definition Tracks within a racing facility.

Value 1

Specification

- All links that are part of a race track are published as *Supplemental Geometry Bitset* = 1 (Race Track).
- The following default attribution is published:
 - ◆ *Functional Class* = 5
 - ◆ *Speed Category* = 8 (<11 KPH / <6 MPH)

- ◆ *Low Mobility* = 2 or 3 (whichever is applicable to a country)
- ◆ All other attributes per reality.
- Access Characteristics is defined as follows:
 - ◆ Autos = Y
 - ◆ Emergency vehicles = Y
 - ◆ Through Traffic = N
 - ◆ All others = N
- All other attributes per reality.

Undetermined Geometry Type

Definition A generic representation in the core product (e.g., RDF, GDF, etc.) for Outdoor Supplemental Geometry. The specific geometry type is specified in the HERE Outdoor Plug-In Product (e.g., Mountain Bike Trail, Hiking Trail, Cross Country Ski Trail, etc.).

Value 2

Specification Refer to the *HERE Outdoor Plug-in Specification* document.

Oil Field Road

Definition A road used for the sole purpose of accessing an oil field and oil field operations.

Value 262144

Specification ● Links published as *Supplemental Geometry Bitset* = 262144 (Oil Field Road) receive the following attribution:

- ◆ *Functional Class* = 5
- ◆ *Speed Category* = 7
- ◆ *Lane Category* = 1
- ◆ *Low Mobility* = 1
- ◆ *Public Access* = N
- ◆ *Through Traffic* = N
- ◆ All other attributes per reality.

4.4.41 Tollway (TOLLWAY)

Definition *Tollway* identifies a link for which a fee must be paid to use the road.

Table RDF_NAV_LINK

Column TOLLWAY

Values See Section C.54, *RDF_NAV_LINK*.

Usage	<p><i>Tollway</i> is intended for map display (e.g., different rendering of toll roads) and routing.</p>
	<p>Note: When used for routing however, it is advised to use the <i>Usage Fee Required</i> condition as well. <i>Tollway</i> and <i>Usage Fee Required</i> values do not necessarily match. A road can be flagged as <i>Tollway</i> without receiving <i>Usage Fee Required</i> condition. See Section 6.4.9, <i>Usage Fee Required</i> (CONDITION_TYPE = 12).</p>
Specification	<ul style="list-style-type: none">• <i>Tollway</i> = Y is published for links that require a fee for traversal. This does not include bridges and tunnels that require payment for access.• <i>Tollway</i> = Y is published for RAMP = Y links, if the links connect two toll ways.• <i>Tollway</i> = N is published for non-navigable links.

4.4.42 Travel Direction (TRAVEL_DIRECTION / LANE_TRAVEL_DIRECTION)

Definition	<p><i>Travel Direction</i> identifies the general direction that vehicles are allowed to travel on a link or lane.</p>
Table	<p>RDF_NAV_LINK (Link) RDF_LANE (Lane)</p>
Column	<p>TRAVEL_DIRECTION (Link) LANE_TRAVEL_DIRECTION (Lane)</p>
Values	<p>See Section C.54, <i>RDF_NAV_LINK</i> or Section C.46, <i>RDF_LANE</i>.</p>
Related Attributes	<p>Section 4.4.41, <i>Tollway</i> (TOLLWAY) Section 6.4.3, <i>Direction of Travel</i> (CONDITION_TYPE = 5) Section 6.4.5, <i>Access Restriction</i> (CONDITION_TYPE = 8) RDF_DATE_TIME</p>
Usage	<p><i>Travel Direction</i> enables correct route calculation, route guidance, and map display. For example, display of one-way icon.</p>
Specification	<ul style="list-style-type: none">• <i>Travel Direction</i> identifies the general travel direction for a link or lane.<ul style="list-style-type: none">◆ If the general travel direction changes seasonally, then <i>Travel Direction</i> identifies the most restrictive travel direction instead of the general travel direction. For example, if a road is one-way in summer and two-way the rest of the year, <i>Travel Direction</i> identifies the one-way travel direction. This exception supports customers who do not use <i>Direction of Travel</i> (CONDITION_TYPE = 5).• The positive and negative directions reflect the direction from or towards the From Node respectively.

- The *Travel Direction* is determined based on each individual link or lane. Links or lanes of the same one-way road may have a different value because of the relative positions of the From Node and To Node. See *Figure 4-111*.

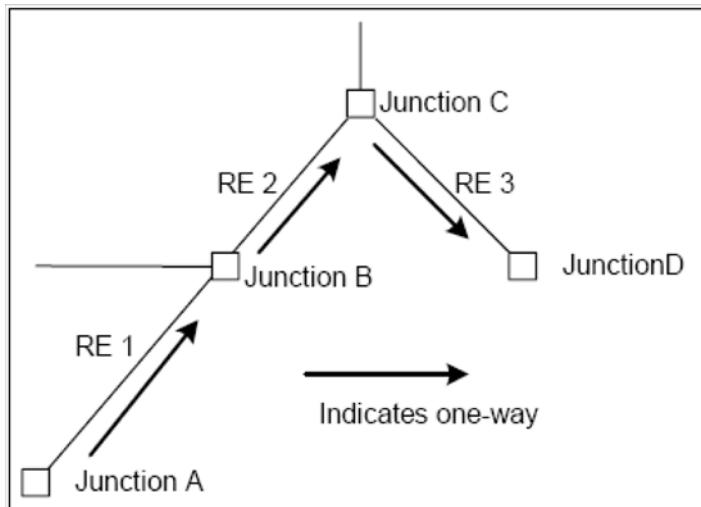


Figure 4-111

Link	From Node	To Node	Travel Direction
1	A	B	F
2	B	C	F
3	D	C	T

- Travel Direction* = B is applied to the following:
 - ♦ Ferry connections
 - ♦ Walkways
 - ♦ Parking Lot Roads (default, unless verified otherwise)
- Use *Travel Direction* in conjunction with RDF_NAV_LINK.ACCESS_ID and the Date/Time Modifier in RDF_DATE_TIME to determine the applicable travel direction of the link for specific vehicles at specific times.
- If differences in *Travel Direction* exist between lanes on the same link, Lane Objects are published, each with their respective Lane *Travel Direction*.
- Use Lane *Travel Direction* in conjunction with RDF_LANE.ACCESS_ID and the Date/Time Modifier in RDF_DATE_TIME to determine the applicable travel direction of the lane for specific vehicles at specific times.
- If at specific times or for specific vehicles the travel direction changes, a Direction of Travel condition that overrides the general *Travel Direction* is published. See *Section 6.4.3, Direction of Travel (CONDITION_TYPE = 5)*.

- If at specific times or for specific vehicles the travel direction is closed, an Access Restriction condition that overrides the general Travel Direction is published. See [Section 6.4.5, Access Restriction \(CONDITION_TYPE = 8\)](#).

4.4.43 Transition Area (TRANSITION_AREA)

Definition	<i>Transition Area</i> defines a stretch of road where the number of lanes changes and lane markings are not on the road surface.
Table	RDF_NAV_LINK_ATTRIBUTE
Column	TRANSITION_AREA
Values	See Section C.55, RDF_NAV_LINK_ATTRIBUTE .
Related Attributes	None
Usage	<i>Transition Area</i> can be used for display purposes to inform the user that the number of lanes changes and show when the transition starts and ends.
Specification	<ul style="list-style-type: none">• <i>Transition Area</i> is applicable to link and to lane level. It is always published for both. If lane-level <i>Transition Area</i> is published for all lanes or a subset of lanes, <i>Transition Area</i> = Y is published.• <i>Transition Area</i> indicates an area where the number of lanes changes and no lane markings are present on the road.• <i>Transition Area</i> is also coded in situations where the number of lanes changes without a transition area on the road surface. In this situation, lanes do not form on the right or left of the road but equally across. See Figure 4-112.

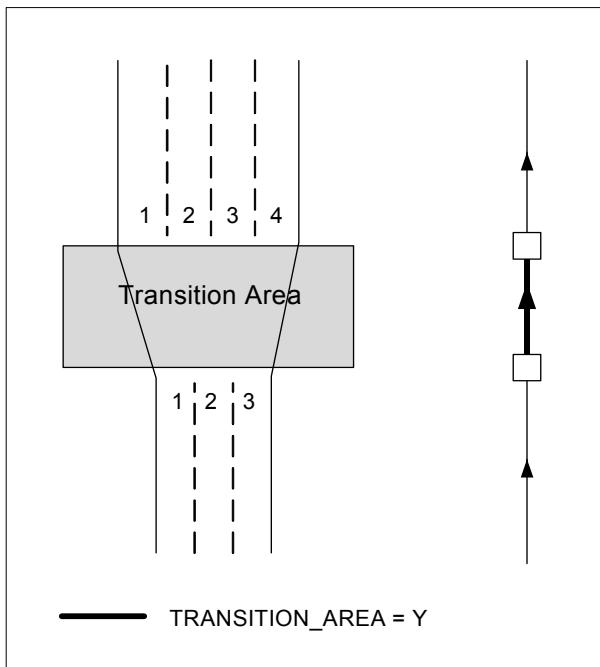


Figure 4-112

4.4.44 Urban (URBAN)

Definition *Urban* identifies road or ferry links located with in a Built-up Area.

Table RDF_NAV_LINK_STATUS

Column URBAN

Values See Section C.56, RDF_NAV_LINK_STATUS.

Cardinality 1:1

Default value None

Usage *Urban* can be used for map display.

- Rules**
- *Urban* is flagged on all links inside a *Built-Up Area* polygon including the *Built-Up Area* boundary. See Figure 4-113.

Urban has specific speed connotations in generally in Europe and Canada. In these areas, commercial maps display *Built-Up Areas*. In other countries, e.g., U.S., Puerto Rico, and U.S. Virgin Islands, speed is not tied to development areas and commercial maps display city boundaries.

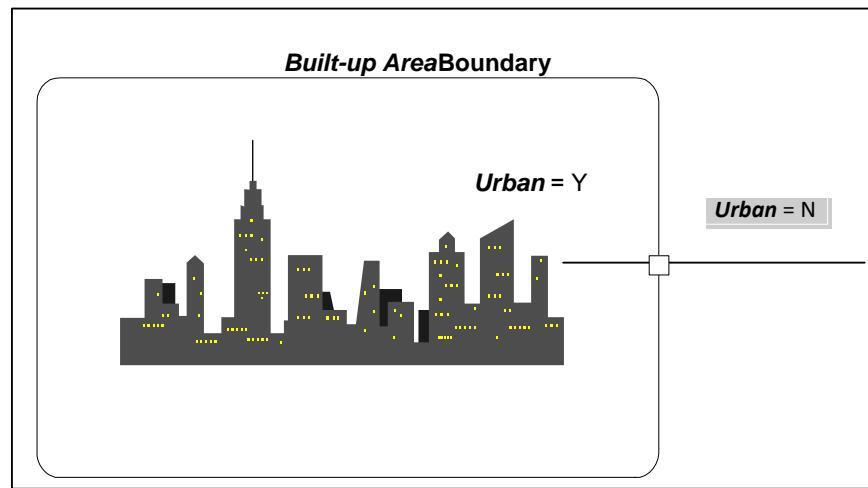


Figure 4-113

4.5 Lane Attribution

4.5.1 Overview

The lane model identifies the usage of lanes on a link. A Lane Object represents a lane of a link. Each entry in RDF_LANE for a unique LANE_ID is a lane object. If all lanes on a link have the same attribution, no Lane Object is published.

Lane attribution is contained in the following tables:

- RDF_LANE
- RDF_LANE_NAV_STRAND

RDF_LANE defines a unique lane object. Each lane receives a unique key, LANE_ID. Each LANE_ID has a corresponding LINK_ID, which can be used to obtain all lanes associated with a given link.

Multiple RDF_LANE records are published if multiple lanes with lane attributes exist on a link. A lane object can be used to model general lane attribution or lane associations.

Lane attributes are published for the following situations:

- Links where Lane Marking information is published.
- Related Lane - level attribution:
 - Lane Traversal (RDF_CONDITION.CONDITION_TYPE = 13 with corresponding RDF_LANE_NAV_STRAND entries)
 - HOV Lanes (Lane objects for Access Conditions).
- Links comprising an intersection, see *Figure 4-114*.

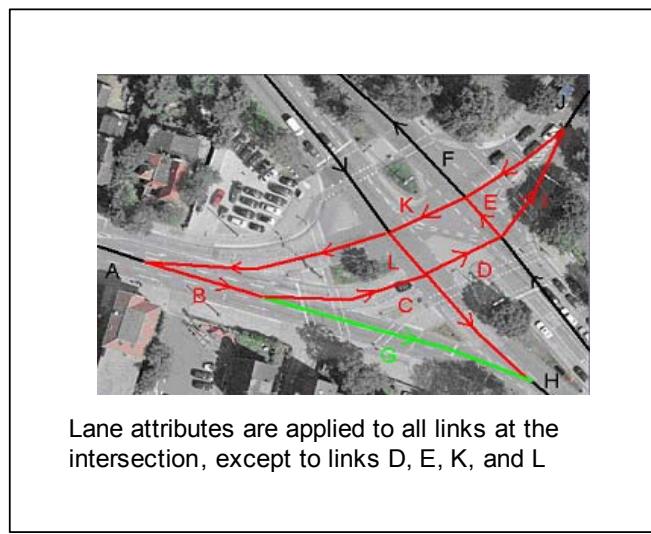


Figure 4-114: Actual Intersection of two multiply-digitised Roads

Usage	Lane level attribution can be used for cartographic representation and for proper lane guidance.
--------------	--

- Specification**
- If one of the lanes on a link has lane specific information associated with it, a lane object is published for each lane on a link.
 - Lanes on the link that do not have lane specific information have the following attributes only:
 - ◆ Lane Number
 - ◆ Lane Travel Direction
 - ◆ Lane Type (1 – Regular)
 - Lanes on the link have lane specific information if:
 - ◆ *Lane Traversal* condition is published on the link
 - ◆ Lane specific attributes differ from the general link attributes.
 - ◆ Any of the following traffic situations occurs:
 - HOV Lanes
 - Express Lanes
 - Reversible Lanes
 - Lane objects for lanes with lane specific information include the following attributes:
 - ◆ Lane Number
 - ◆ Lane Travel Direction
 - ◆ Lane Type
 - ◆ Access Characteristics (same as the link's Access Characteristics unless otherwise specified).
 - Lane Objects are not published for non-HOV fully reversible links Lane Objects are published for a Lane on links with Internal Intersection, Manoeuvre, or Indescribable Links when the Link is internal to a Lane Traversal condition, independently of the number of lanes of the link. See *Section 6.4.10, Lane Traversal (CONDITION_TYPE = 13)*. The Lane Object in this case publishes the following information:
 - ◆ Lane Number (Defaulted to 1)
 - ◆ Lane Travel Direction
 - ◆ Lane Type = 1 - Regular Lane
 - ◆ Access Characteristics (same as the link's Access Characteristics unless otherwise specified)

4.5.2 Attributes

4.5.2.1 Lanes From/To (FROM/TO_REF_NUM_LANES)

See Section 4.4.22, *Lanes From/To (FROM/TO_REF_NUM_LANES)*.

4.5.2.2 Lane Type (LANE_TYPE)

Definition *Lane Type* identifies the type of lane present along the link.

Table RDF_LANE

Column LANE_TYPE

Value See Section C.46, *RDF_LANE*.

Default Value No default applies.

Related Attributes *Lane Number (LANE_NUMBER)*

Physical Number of Lanes (PHYSICAL_NUM_LANES)

Travel Direction (LANE_TRAVEL_DIRECTION)

Access Characteristics

Usage *Lane Type* may be used for route guidance and map display.

Specification • *Lane Type* is a lane only attribute.

• *Lane Type* is a bitmask value attribute.

• *Lane Type* is not published for Lane Objects representing a lane on Internal Intersection, Manoeuvre, or Indescribable Links if the Link is internal to a Lane Traversal condition. See Section 6.4.10, *Lane Traversal (CONDITION_TYPE = 13)*.

• *Lane Type* represents the lane's predominant use if a lane is used for multiple purposes.

For example, a lane is used as a regular lane from 0000-0700, 1000-1400, and 1700-2400. For the rest of the day, 0700-1000 and 1400-1700, it is only used for making turns. For this lane, *Lane Type* = 1 (Regular Lane) is applied.

• The *Lane Type* values can be combined as follows:

Values	Description
6	HOV, Reversible
10	HOV and Express
12	Reversible and Express
14	HOV, Reversible and Express

Values	Description
18	HOV and Acceleration
20	Reversible, Acceleration Lane ¹
22	HOV, Reversible, Acceleration Lane ¹
24	Express and Acceleration
34	HOV and Deceleration
36	Reversible, Deceleration Lane ¹
38	HOV, Reversible, Deceleration Lane ¹
40	Express and Deceleration

1. Combinations are valid but not actually used.

- *Lane Types* are described in the following pages. Refer to *Appendix , Lane Model* for more information.

Regular Lane

Value 1

Definition Regular lane is a lane that does not have a specific use. It is also published for a lane on Plural Junctions when the link is internal to a *Lane Traversal* condition.

HOV Lane

Value 2

Definition An HOV (High occupancy Vehicle) lane or carpool lane is reserved for carpool usage. Carpool lane requires a minimum number of passengers in order for the car to use the carpool lane. HOV lanes may also be reserved for hybrids, motorcycles, alternate fuel, etc. HOV Lane may require a fee.

- *Lane Type* = 2 - HOV is published only if a lane is used by HOV or carpool at all times.



Figure 4-115

Reversible Lane

Value 4

Definition A reversible lane is lane element that is fully reversible, i.e., traffic changes direction for a specific time frame. For example, direction is northbound in the morning, then reversed to be southbound in the evening.

See Section 4.4.35, *Reversible (REVERSIBLE)*.

Express Lane

Value 8

Definition An express lane is a lane of a road that is used for faster moving traffic and has fewer accesses to exits/off ramps.

Acceleration Lane

Value 16

Definition An acceleration lane is a lane, typically on the right side of a roadway, that lets a vehicle increase its speed to where it can safely merge with ongoing traffic. These lanes can be accessed from ramps, rest areas, or weigh stations.

Specification

- *Lane Type = 16 (Acceleration Lane)* is published for any lane that is designated for the purpose of accelerating and merging into traffic on surface street as well as on non-surface streets, e.g., motorways.
- Access Characteristics of the Acceleration Lane are applied according to reality.
- Lanes of *Lane Type = 16 (Acceleration Lane)* may receive the following:
 - ◆ *Lane Forming/Ending*
 - ◆ *Lane Divider Marker/Center Divider Marker*
 - ◆ *Direction Category*
 - ◆ *Lane Traversal* condition.

- Acceleration and Deceleration Lane Types may be applied instead of, or in succession with Auxiliary Lane. See *Auxiliary Lane*.

Example See *Section F.3.6, Acceleration Lane* under *Appendix F, Lane Model*.

Deceleration Lane

Value 32

- Definition**
- Acceleration and Deceleration Lane Types are only applied when in reality, a Deceleration lane longer than 100 m exists prior to the split point or an Acceleration Lane exists more than 100 m following the merge point of the ramp in the database.
 - Acceleration and Deceleration Lane Types may only be coded on Motorways (See *Figure 4-117*) and to roads that function as a Motorway (e.g., roads that received Functional Class = 1-4 roads that are only accessible via ramps).

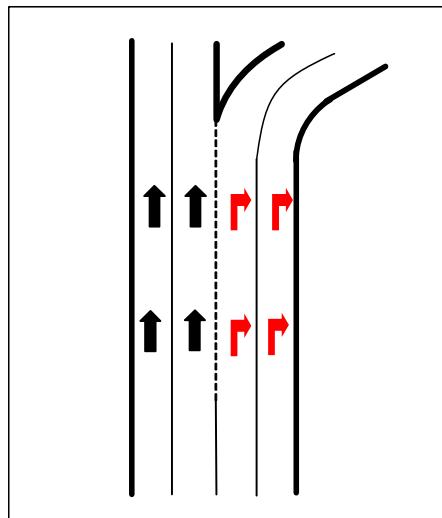


Figure 4-116

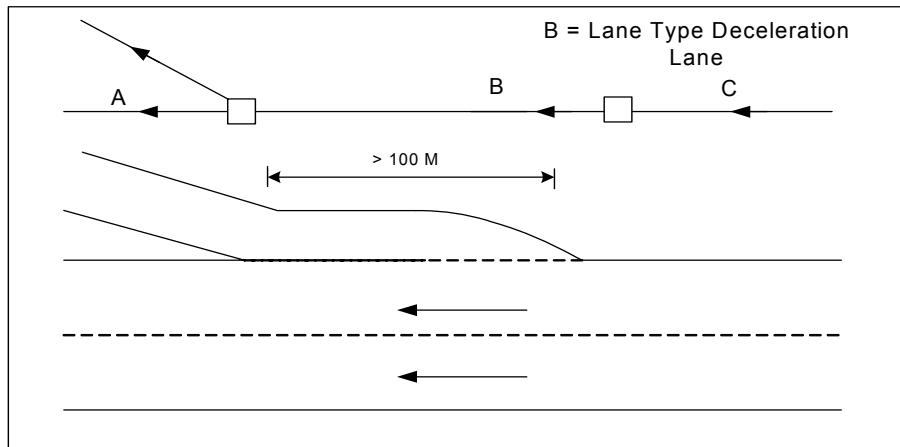


Figure 4-117

- *Lane Type = 16 and Lane Type = 32 are published only on Motorways and on roads that function as a Motorway (Functional Class = 1-4 and accessible via ramps).*
- Acceleration and Deceleration Lane Types may be applied instead of, or in succession with Auxiliary Lane. See *Auxiliary Lane*.

Auxiliary Lane

Value 64

Definition An Auxiliary Lane is a lane that runs parallel to a motorway and connects the entrance ramp/acceleration lane from one interchange exit ramp/deceleration lane of the next interchange (See *Figure 4-118*). This does not include separately digitised parallel ramps.

- *Lane Type = 64 - Auxiliary is published only on Motorways and on roads that function as a Motorway (Functional Class = 1-4 and accessible via ramps).*

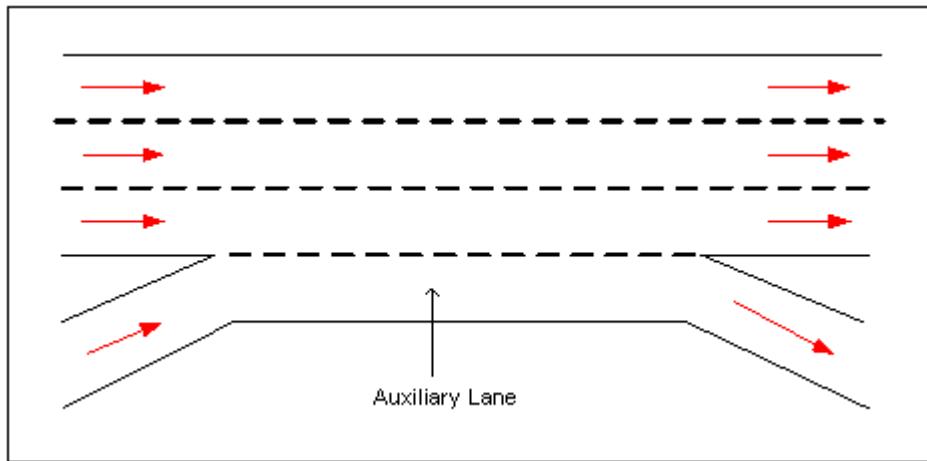


Figure 4-118

- Only auxiliary lanes shorter than 500 metres can receive *Lane Type = 64(Auxiliary Lane)*.
- An entire auxiliary lane can receive a succession of different *Lane Type* values as follows:
 - ◆ For auxiliary lanes shorter than 1km: Acceleration Lane - Deceleration Lane
 - ◆ For auxiliary lanes longer than 1 km: Acceleration Lane - Regular/Auxiliary Lane (whichever function is indicated by lane markings) - Deceleration Lane

Slow Lane

Value 128

Definition A Slow Lane, e.g., truck lane (U.S.), also known as crawler lane (Great Britain), is a lane on long and/or steep uphill/downhill stretches of high-speed roads that is designated to facilitate slow traffic (see *Figure 4-119*).

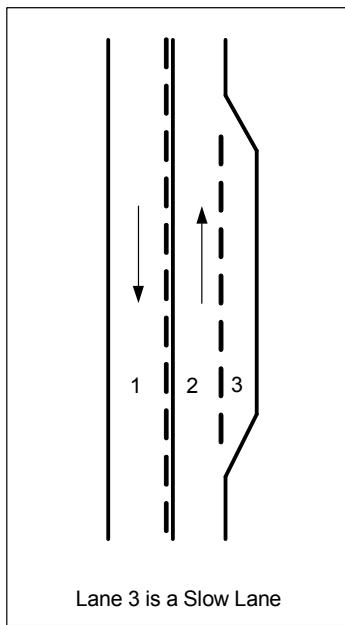


Figure 4-119

Passing/Overtaking Lane

Value 256

Definition • A Passing Lane is a lane that can occur on steep mountain grades or other roads where overtaking needs to be regulated for safety (i.e., curvy roads). They are used to safely pass slow moving vehicles. See *Figure 4-120*.

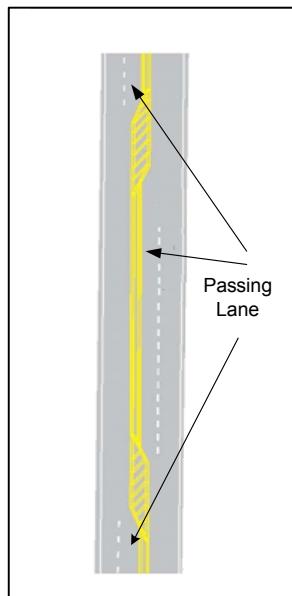


Figure 4-120

Shoulder Lane

Value 512

Definition A Shoulder Lane is reserved paved area on the side of the road (one or both sides) that are not generally used for driving, although it is possible under certain circumstances (see *Figure 4-121*).



Figure 4-121

- Specification**
- *Lane Type* = 512 (Shoulder Lane) is coded if the paved area representing the shoulder is at least wide enough to accommodate an automobile.
Note: In the initial product phase, only shoulder lanes designated as a part-time driving lane are represented. Shoulder lanes that are never drivable are not included and represented upon product launch.
 - Access Characteristics of the Shoulder Lane are coded according to reality.
 - Shoulder lanes that are designated as part-time driving lanes can be represented in two ways:
 - If times are specified:
 - ◆ Lane Access Restriction with Date/Time modifier is included.
 - ◆ Lane *Travel Direction* is included.
 - If times are not specified, or the lanes are controlled via variable indicators/electronic controls (see *Figure 4-122*):
 - ◆ Lane Access Restriction with *Dependent Access Type* modifier is included. See *Section 6.4.6, Special Explication (CONDITION_TYPE = 9)*.
 - ◆ Lane *Travel Direction* is included.



Figure 4-122

- The Date/Time modifier publishes the date and time when the shoulder lane is restricted for driving.
- If no Lane Access Restriction is published, then the lane is a non-drivable shoulder lane. Non-drivable shoulder lanes that are never used for driving are coded Lane *Travel Direction* = N (Closed in both directions).
- Lane *Travel Direction* for shoulder lanes match the Travel Direction of the Lanes From/To (FROM/TO_REF_NUM_LANES) for the road link it is located unless administrative rules, signs or painted lane text indicate otherwise.
- Lanes of *Lane Type* = 512 (Shoulder Lane) may receive the following:
 - ◆ *Lane Forming/Ending*
 - ◆ *Lane Divider Marker/Center Divider Marker*
 - ◆ *Direction Category*
 - ◆ *Width* (default values provided in the HERE Country Profile)
 - ◆ *Lane Traversal* condition

Example See Section F.3.7, *Shoulder Lane* under Appendix F, *Lane Model*.

Regulated Lane Access

Value 1024

Definition A Regulated Lane Access is a lane designated as a holding zone, used to regulate traffic using time intervals.

- Regulated Lane Access is only coded for truck holding zones that are used to regulate truck access into tunnels and over bridges using time intervals (e.g., some tunnel accesses in Switzerland).
- In *Figure 4-123*, Lane 3 is a Regulated Lane Access. Only trucks are allowed on this lane. Lane 1 and 2 are prohibited to trucks.

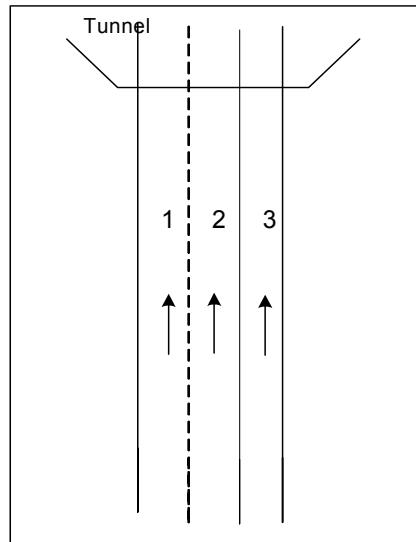


Figure 4-123

Turn Lane

Value 2048

Definition Turn Lane is a dedicated lane that is used for making a turn in order not to disrupt ongoing traffic. See *Figure 4-124* for an example of a right turn lane.

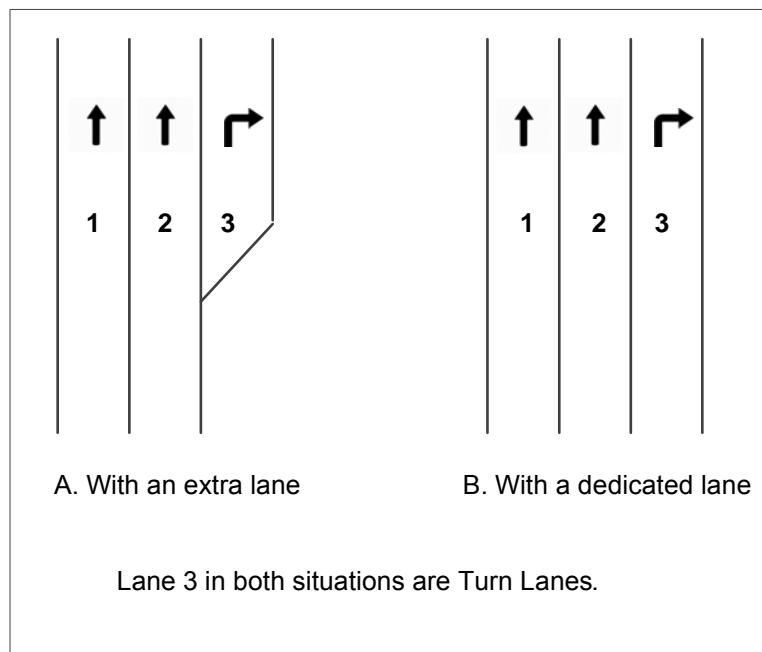


Figure 4-124

Center Turn Lane

Value 4096

Definition Center Turn Lane is a bidirectional turn lane located in the middle of a road that allows traffic in both directions to turn left (right for left side driving countries). See *Figure 4-125*.

Specification

- Center Turn Lanes are bidirectional lanes.
- Only Center Turn Lanes longer than 20 metres are included. However, shorter Center Turn Lanes may be included if significant.

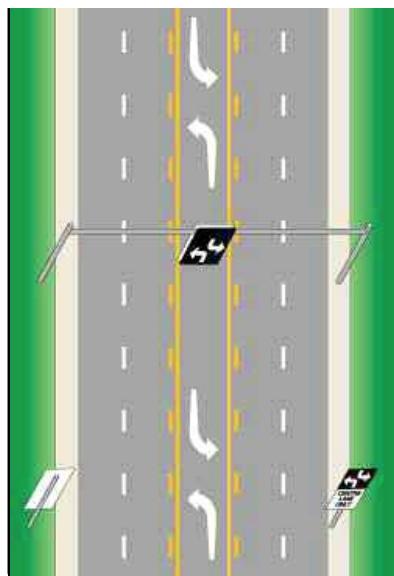


Figure 4-125

Truck Parking Lane

Value 8192

Definition Truck Parking Lanes is a wide shoulder lane that maybe used for truck parking as well as for emergency. See *Figure 4-126*.



Figure 4-126

Parking Lane

Value 16384

Definition Parking Lanes are portions of the road bed that may be used for parking legally. They may allow vehicles to use them as driving lane at times, though.

Note: Legality may be indicated by "Parking Allowed" signs, "No Parking" signs, or markings on the roadbed.

Specification • *Lane Type = 16384 (Parking Lane)* is a lane, typically on the right side of a roadway (in right-side driving countries), that may be used for parking as indicated by markings and/or signs.

Note: In the initial product phase, only parking lanes designated as a part-time driving lane are represented.



Figure 4-127

- Access characteristics of the parking lane are applied according to reality.

- Lane Access Restrictions with Date/Time modifier indicate if the parking lane is a part-time driving lane.
- If a Lane Access Restriction is applied, then the lane is a part-time driving lane, and may be used for driving at times. Specific times when the parking lane can be used as a driving lane may be indicated via signs.
- Date/Time modifier publishes the date and time when the parking lane is restricted for driving.
- Permanent parking lanes that are never used for driving are coded Lane *Travel Direction*= N (Closed in both directions).
Note: Permanent parking lanes that are never drivable are not included and represented upon product launch.
- Lane *Travel Direction* for parking lanes match the *Travel Direction* of the Lanes From/To (FROM/TO_REF_NUM_LANES) for the road link it is located on, unless administrative rules, signs or painted lane text indicate otherwise.
- Lanes of *Lane Type* = 16384 (Parking Lane) may receive the following:
 - ◆ *Lane Forming/Ending*
 - ◆ *Lane Divider Marker/Center Divider Marker*
 - ◆ *Lane Traversal* condition
 - ◆ *Width* (default values provided in the HERE Country Profile)

Example See Section F.3.5, *Bidirectional Road with Bicycle and Part-time Parking Lanes* under Appendix F, *Lane Model*.

Variable Driving Lane

Value 32768

Definition Variable Driving Lanes are lanes added to a road that open and close to accommodate traffic volume and flow using variable indicators (see Figure 4-128).

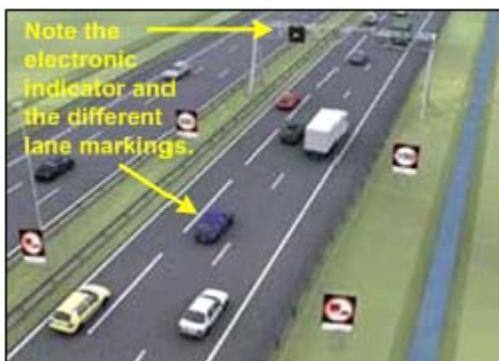


Figure 4-128

- Specification**
- Access Characteristics of the variable driving lane match those of the link unless signage indicates that certain vehicles are excluded to use the variable driving lane, e.g., buses or trucks.
 - For *Lane Type* = 32768 (Variable Driving Lane), a Lane Access Restriction with *Dependent Access Type* is included. See *Section 6.4.6, Special Explication (CONDITION_TYPE = 9)*.
 - Lanes of *Lane Type* = 32768 (Variable Driving Lane) may receive the following:
 - ◆ *Lane Forming/Ending*
 - ◆ *Lane Divider Marker/Center Divider Marker*
 - ◆ *Direction Category*
 - ◆ *Lane Traversal* condition.

Example See Appendix F.3.8, *Variable Driving Lane* under Appendix F, *Lane Model*.

Bicycle Lane

Value 65536

Definition Bicycle Lanes are lanes added to the roadbed that only allow bicycle travel as indicated by lane markings, signs, buffers or barriers.

- Specification**
- *Lane Type* = 65536 (Bicycle Lane) is coded for lanes dedicated to bicycle traffic.
 - *Lane Travel Direction* for bicycle lanes match the *Travel Direction* of the *Lanes From/To* (FROM/TO_REF_NUM_LANES) for the road link it is located on unless administrative legal rules, signs or painted lane text indicate otherwise.
 - A bidirectional bicycle lane along a singly digitised one-way road is coded *Lane Travel Direction* = B (Open in both directions).
 - Lanes of *Lane Type* = 65536 (Bicycle Lane) may receive the following:
 - ◆ *Lane Divider Marker/Center Divider Marker*
 - ◆ *Direction Category*

Example See Section F.3.5, *Bidirectional Road with Bicycle and Part-time Parking Lanes* under Appendix F, *Lane Model*.

4.5.2.3 Lane Number (LANE_NUMBER)

Definition *Lane Number* identifies the number of the lane on the specified link

Table RDF_LANE

Column LANE_NUMBER

Values Number of the lane

Default Value No default applies.

Related Attributes	<i>Lane Type</i> <i>Lane Travel Direction</i>
Usage	<i>Lane Number</i> is used to uniquely identify lanes on a link.
Specification	<i>Lane Number</i> provides the lane number for a lane based on counting left to right in the positive link direction independent of travel direction and of driving side. See <i>Figure 4-129</i> and <i>Figure 4-130</i> .

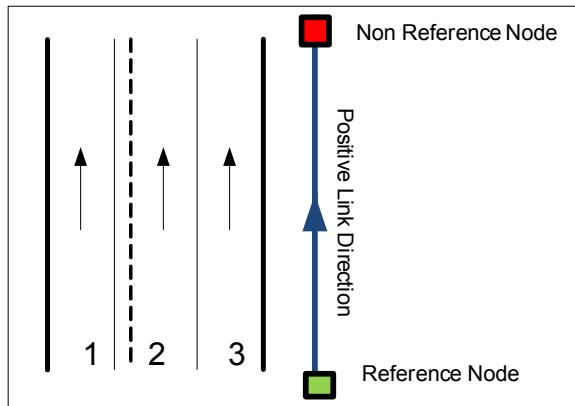


Figure 4-129

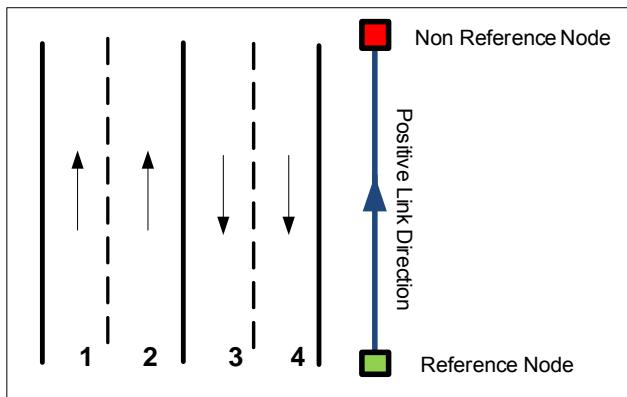


Figure 4-130

4.5.2.4 Lane Marking: Lane Divider Marker (LANE_DIVIDER_MARKER)

Definition	<i>Lane Divider Marker</i> describes the appearance of lane markings between lanes of a link.
Table	RDF_LANE
Column	LANE_DIVIDER_MARKER
Values	See Section C.46, RDF_LANE.

Usage *Lane Divider Marker* can be used to show the driver the lane separators matching the road ahead.

Specification

- *Lane Divider Marker* is applied to:
 - ◆ Road links where connectivity or other lane-level attribution is applied.
 - ◆ *High Occupancy Vehicles(HOV)* lanes - Lane Divider Markers between the HOV lanes and the adjacent lanes.
- *Lane Divider Marker* is published for the lane marking on the right side of a lane in the positive link direction.
 - ◆ The positive link direction is the direction from the reference node (southwestern most) to the non-reference node (northeastern most).

For example in *Figure 4-131*, a bidirectional link with two lanes in each driving direction, *Lane Divider Marker* = 6 is published for lane 1 and lane 3.

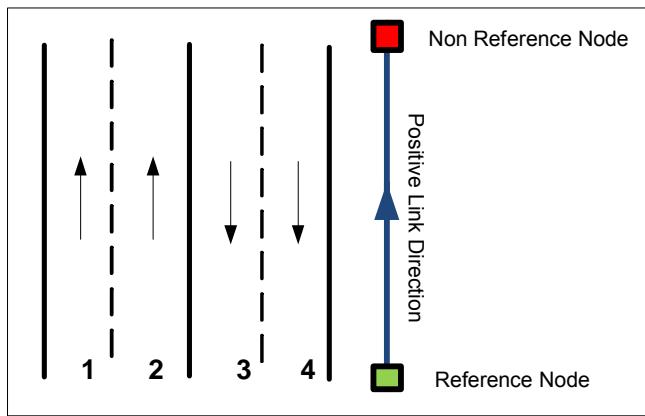
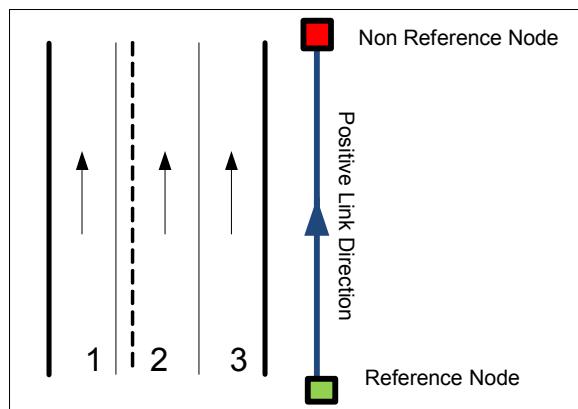


Figure 4-131

For *Lane Divider Marker* = 4 or 5 - Double Line, the inner line is the line that is to the left in the positive link direction. The outer line is the line to the right in the positive link direction. In *Figure 4-132*, the *Lane Divider Marker* for lane 1 = 5 – inner single solid and outer dashed line.



- *Lane Divider Marker* is not published for road boundary lane markings.

- Centre dividers for bidirectional roads are published with the *Center Divider Marker* attribute. See *Section 4.5.2.5, Lane Marking: Center Divider Marker (CENTER_DIVIDER_MARKER)*.

4.5.2.5 Lane Marking: Center Divider Marker (CENTER_DIVIDER_MARKER)

Definition	<i>Center Divider Marker</i> describes the appearance of lane markings for centre dividers on bidirectional links.
Table	RDF_LANE
Column	CENTER_DIVIDER_MARKER
Values	See <i>Section C.46, RDF_LANE</i> .
Usage	<i>Center Divider Marker</i> can be used to show the driver the type of centre divider matching the road.
Specifications	<ul style="list-style-type: none">• <i>Center Divider Marker</i> is published for lanes on bidirectional links only that have lane-level attribution.• <i>Center Divider Marker</i> is generally not specified for the following:<ul style="list-style-type: none">◆ HOV lane, unless part of a link that has lane-level attribution.◆ One-way links applied with a <i>Direction of Traffic Flow</i> = 1 (both) for specific vehicle types, e.g., a link is one-way for autos but buses and emergency vehicles may travel in the opposite direction.◆ Links flagged <i>Reversible</i> or Lane Objects with <i>Lane Type</i>=4(<i>Reversible Lane</i>) or any combination involving <i>Reversible Lane</i>. See <i>Section 4.5.2.2, Lane Type (LANE_TYPE)</i>.• <i>Center Divider Marker</i> is published for the lane marking on the right side of a lane in the positive link direction. The positive link direction is the direction from the reference node (southwestern most) to the non-reference node (northeastern most).• For <i>Center Divider Marker</i> = 4 or 5 (which are values that represent double lines), the inner line refers to the line that is to the left in the positive link direction. The outer line is the line to the right in the positive link direction. For example (see <i>Figure 4-132</i>), the <i>Center Divider Marker</i> for lane 1 = 4 (inner single solid line and outer dashed line).

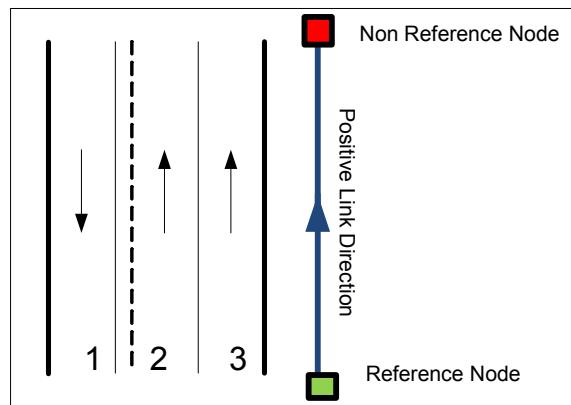


Figure 4-132

4.5.2.6 Lane Marking: Direction Category (DIRECTION_CATEGORY)

Definition *Direction Category* refers to the arrow direction shown on a sign or by road markings for a specific lane.
 Sign-posted markings are signs showing an overview of the direction markers for each lane. See *Figure 4-133* for an example.

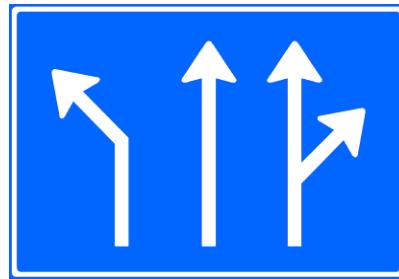
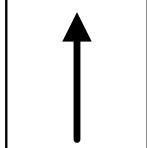
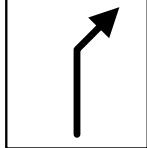
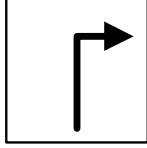
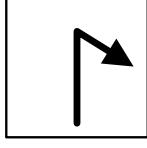
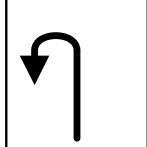
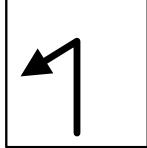
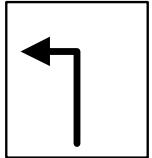
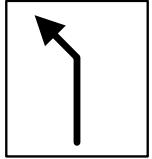
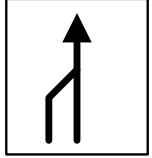
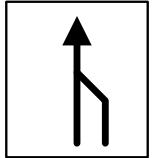
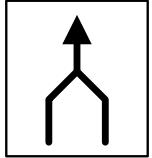
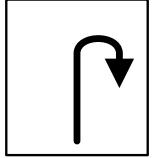
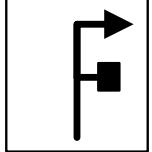
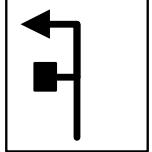


Figure 4-133

Table	RDF_LANE
Column	DIRECTION_CATEGORY
Values	See Section C.46, RDF_LANE. <i>Direction Category</i> represents bitmask coding used with the components illustrated in the table below:

Value	Description	Representation
1	Straight	
2	Slight Right	
4	Right	
8	Hard Right	
16	U-turn Left	
32	Hard Left	

Value	Description	Representation
64	Left	
128	Slight Left	
256	Merge Right ¹	
512	Merge Left ¹	
1024	Merge Lanes (no priority) ¹	
2048	U-turn Right	

Value	Description	Representation
4096	Second Right	
8192	Second Left	

- One of these Direction Category Markers are used for a lane merge marker, even when a different Direction Category Marker exists in reality.

Related Tables RDF_LANE

- Specification**
- Direction Category* is applied to links (where extended lane connectivity or other lane-level attribution is applied) for the following situations:
 - One or more lanes have painted lane markings.
 - All lanes have signposted lane markings.
 - All lanes have a combination of painted or signposted lane markings.
 - Direction Category* uses bitmask encoding; the actual values published for *Direction Category* can be a combination of individual values; for example, *Direction Category*= 5 is a combination of Straight (value 1) and Right (value 4).
 - Only one *Direction Category* value is published for each lane.
 - Direction Category* represents the physical characteristics of the lanes; therefore, Access Characteristics and Date/Time Modifier information are not applicable to *Direction Category*.

See examples on the following pages.

Example 1 Bidirectional Link with Lane Markings

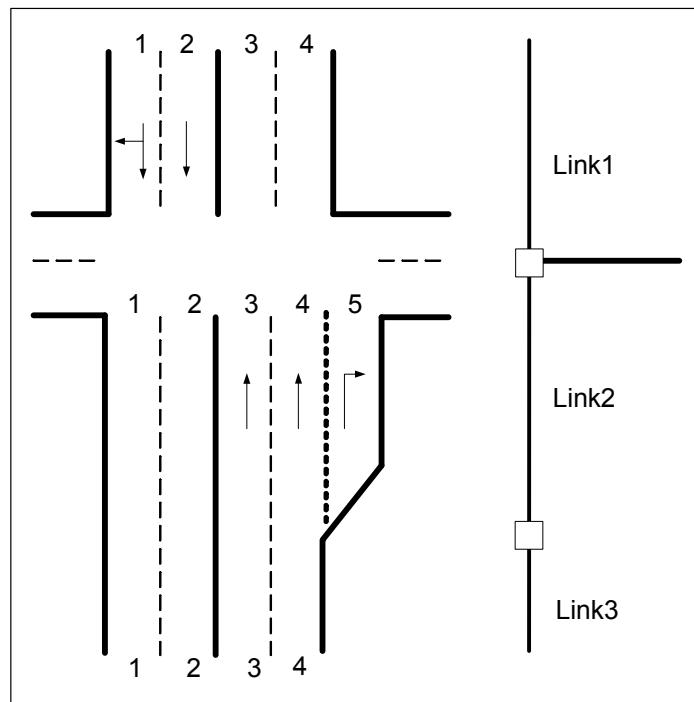


Figure 4-134

For the example in *Figure 4-134*, the following would be published.

LINK 1

RDF_LANE			
LANE_ID	12340	12342	12343
LINK_ID	98762	98762	98762
LANE_NUMBER	1	2	3
LANE_TRAVEL_DIRECTION	T	T	F
LANE_TYPE			
LANE_DIVIDER_MARKER	1		1
CENTER_DIVIDER_MARKER		2	
DIRECTION_CATEGORY	5	1	

RDF_ACCESS	
ACCESS_ID	1023
AUTOMOBILES	Y

BUSES	Y
TAXIS	Y
CARPOOLS	Y
PEDESTRIANS	Y
TRUCKS	Y
THROUGH_TRAFFIC	Y
DELIVERIES	Y
EMERGENCY_VEHICLES	Y
MOTORCYCLES	Y

LINK 2

RDF_LANE					
LANE_ID	12345	12346	12347	12348	12349
LINK_ID	98763	98763	98763	98763	98763
LANE_NUMBER	1	2	3	4	5
LANE_TRAVEL_DIRECTION	T	T	F	F	F

LINK3

RDF_LANE			
LANE_ID	12350	12351	12352
LINK_ID	98765	98764	98763
LANE_NUMBER	1	2	3
LANE_TRAVEL_DIRECTION	T	T	F
LANE_DIVIDER_MARKER	1		1
CENTER_DIVIDER_MARKER		2	

Example 2 Bidirectional Road with Lane Markings and Deceleration Lane

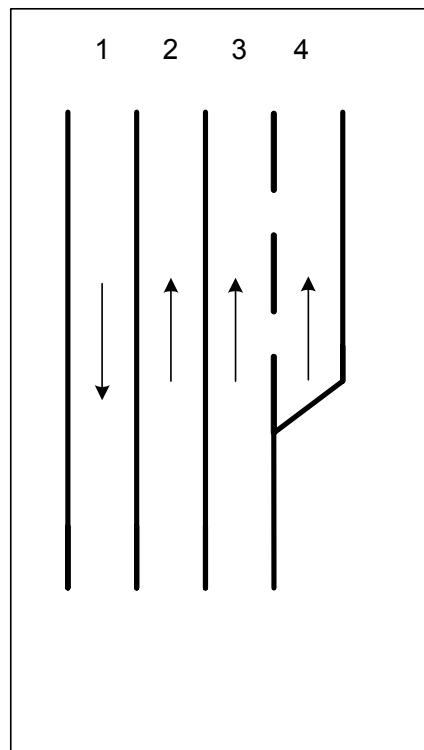
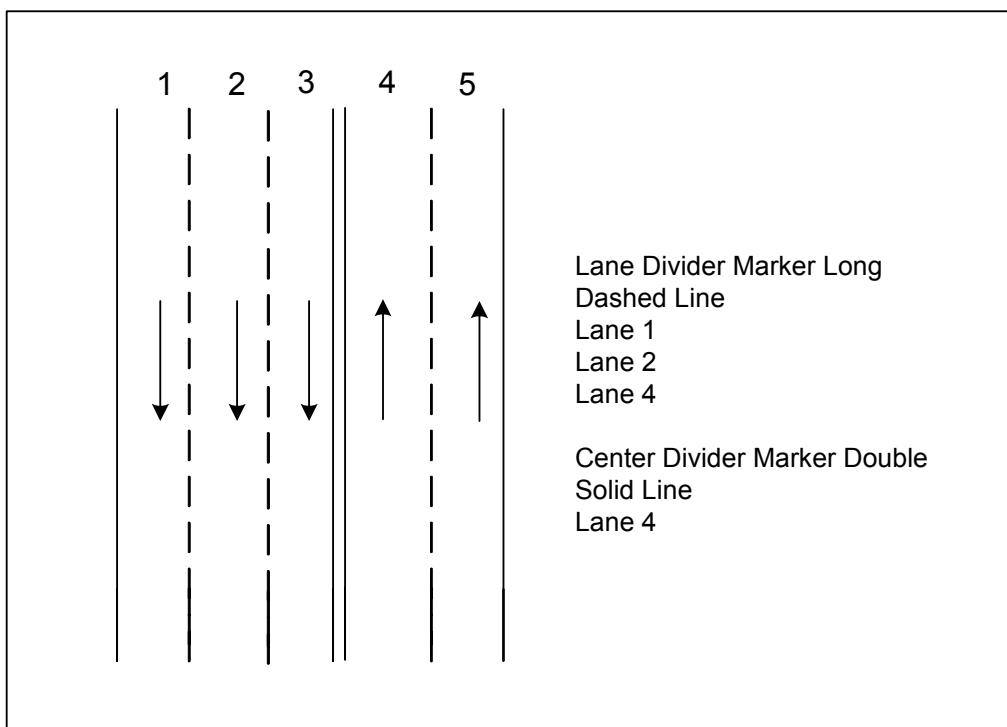


Figure 4-135

RDF_LANE			
LANE_ID	5012012545	5012012546	5012012547
LINK_ID	364033408	364033408	364033408
LANE_NUMBER	2	3	4
LANE_TRAVEL_DIRECTION	F	F	F
LANE_TYPE	1	1	32
CENTER_DIVIDER_MARKER	3		
LANE_DIVIDER_MARKER	3	1	
LANE_FORMING_ENDING			1

RDF_ACCESS	
ACCESS_ID	1023
AUTOMOBILES	Y
BUSES	Y

RDF_ACCESS	
TAXIS	Y
CARPOOLS	Y
PEDESTRIANS	Y
TRUCKS	Y
DELIVERIES	Y
EMERGENCY_VEHICLES	Y
THROUGH_TRAFFIC	Y
MOTORCYCLES	Y

Example 3 Bidirectional Road with Lane Markings

RDF_LANE					
LANE_ID	5012012544	5012012545	5012012546	5012012547	5012012548
LINK_ID	364033408	364033408	364033408	364033408	3640334081
LANE_NUMBER	1	2	3	4	5
LANE_TRAVEL_DIRECTION	T	T	T	F	F

RDF_LANE					
LANE_DIVIDER_MARKER	1	1		1	
CENTER_DIVIDER_MARKER				2	

4.5.2.7 Height (HEIGHT_RESTRICTION)

Definition	<i>Height</i> specifies the occurrence of a height restriction on a lane limiting access to vehicles exceeding a specific height.
Table	RDF_LANE
Column	HEIGHT_RESTRICTION
Value	Height Restriction is specified in Centimetres with precision zero.
Default value	None
Cardinality	1:0,1
Related Attributes	<i>Lane Number (LANE_NUMBER)</i> <i>Lane Travel Direction (LANE_TRAVEL_DIRECTION)</i>
Usage	Height can be used to restrict access of vehicles to specific Lane Elements based on the vehicle's height.
Specification	<ul style="list-style-type: none"> • Lane heights posted at the location of a physical structure are published for the following: <ul style="list-style-type: none"> ◆ A posted height restriction is applicable to a subset of lanes on a link. ◆ All lanes in the travel direction have differing height restrictions posted. The Lane where the height restriction applies publishes Height attribute. For example, at arch-bridges, only a sub-set of lanes can have a height specified. In this case, Height is published only for the lanes with a posted height restriction. • <i>Height</i> is specified in metric units globally. This is related to the continental nature of RDF requiring a single unit of measure. Transformation from metric unit to local units of measure can be achieved through conversion.

4.5.2.8 Lane Forming/Ending (LANE_FORMING_ENDING)

Definition	<i>Lane Forming/Ending</i> specifies lane forming and lane ending if the number of lanes changes between two consecutive Links.
Table	RDF_LANE
Column	LANE_FORMING_ENDING

Values See Section C.46, *RDF_LANE*.

Default Value Not Published

Related Attributes *Lane Number (LANE_NUMBER)*

Lane Travel Direction (LANE_TRAVEL_DIRECTION)

Usage *Lane Forming/Ending* can be used for display to determine on which side of the road a lane is forming.

Specification

- *Lane Forming/Ending* is a Lane only attribute.
- *Lane Forming/Ending* is published based on the lane travel direction. See *Figure 4-136*.

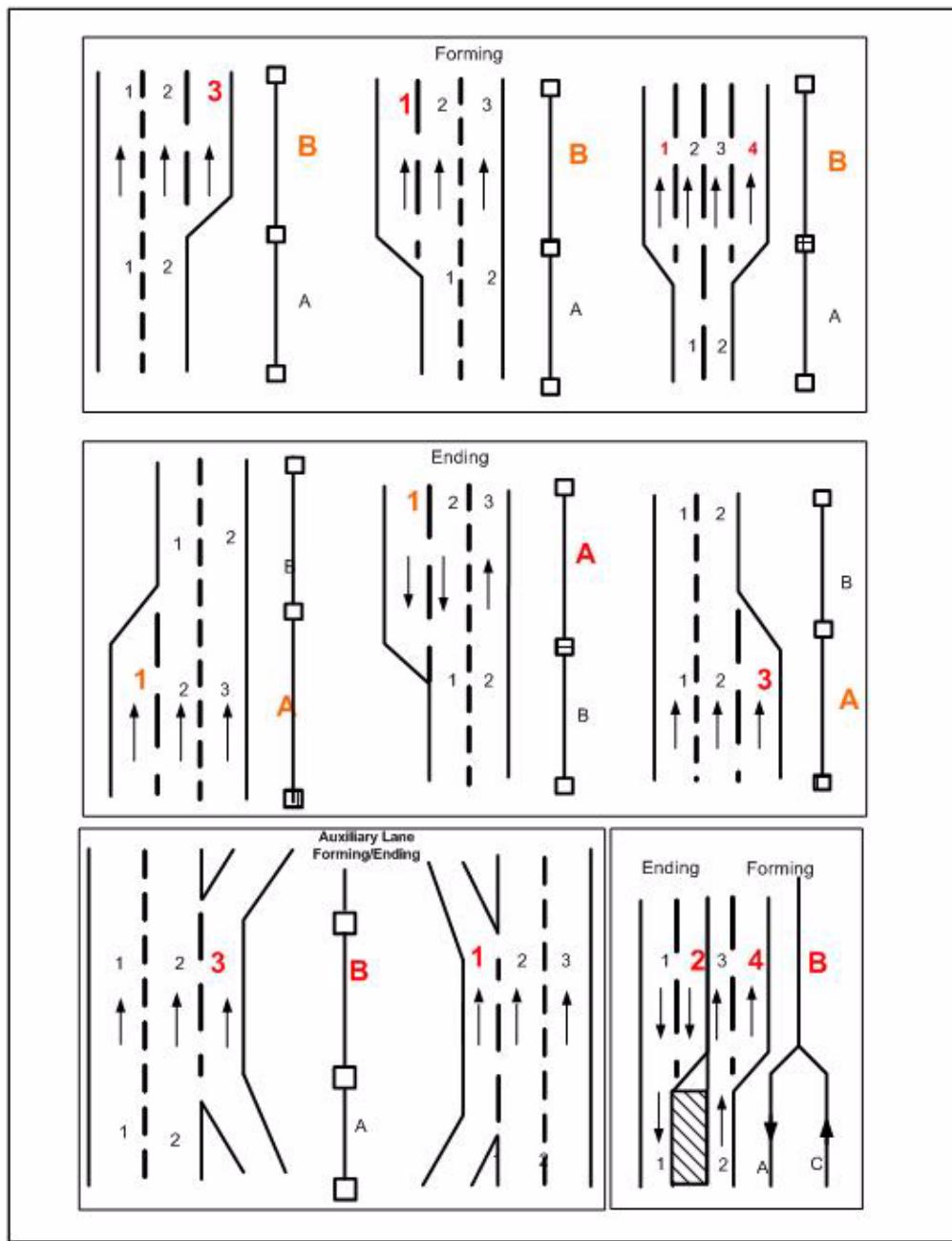


Figure 4-136

- *Lane Forming/Ending = 3 (FORMING_ENDING)* may be used in conjunction with *Lane Type = 64 (Auxiliary Lane)* if the additional lane forms and ends on one Link. See *Figure 4-137*.

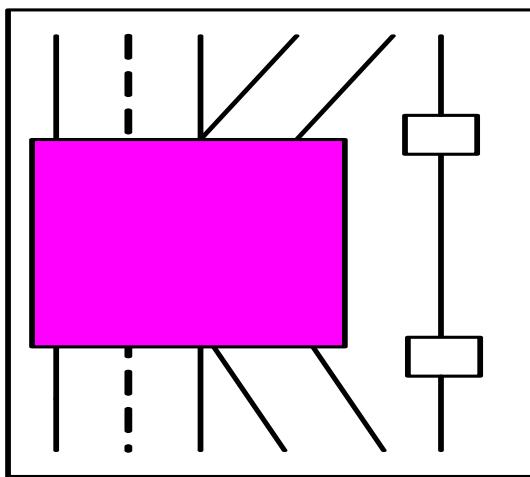


Figure 4-137

4.5.2.9 Speed Limit (FROM/TO_SPEED_LIMIT)

Definition *Speed Limit* is the legal speed limit for vehicle travel for a particular lane.

Table RDF_LANE

Column FROM_SPEED_LIMIT
TO_SPEED_LIMIT

Specification • See *Basis for Speed Limit Values* under Section 4.4.38, *Speed Limit (FROM_REF_SPEED_LIMIT / TO_REF_SPEED_LIMIT)*.

4.5.2.10 Transition Area (TRANSITION_AREA)

Definition *Transition Area* defines a stretch of road where the number of lanes changes and lane markings are not present on the road surface.

Table RDF_LANE

Column TRANSITION_AREA

Values Y - Is Transition Area

Default Value Not Applicable (Not published).

Related Attributes Lane Number (LANE_NUMBER)
Lane Travel Direction (LANE_TRAVEL_DIRECTION)
Lane Forming/Ending (LANE_FORMING_ENDING)

Usage *Transition Area* can be used for display purposes to inform the user that the number of lanes changes and show when the transition starts and ends.

Specification

- *Transition Area* is an area where the number of lanes changes and no lane markings are present along the link.
- *Transition Area* lane attribute is also published as a link attribute. See *Section 4.4.43, Transition Area (TRANSITION_AREA)*.
- *Transition Area* is published in situations where the number of lanes changes and the transition area has lane markings on the road surface. In this situation lanes are not forming on the right or left of the road but equally across. In these cases a *Transition Area Link* is introduced, see *Figure 4-138, Link B*. Lane connectivity is provided for lanes on links A through C.

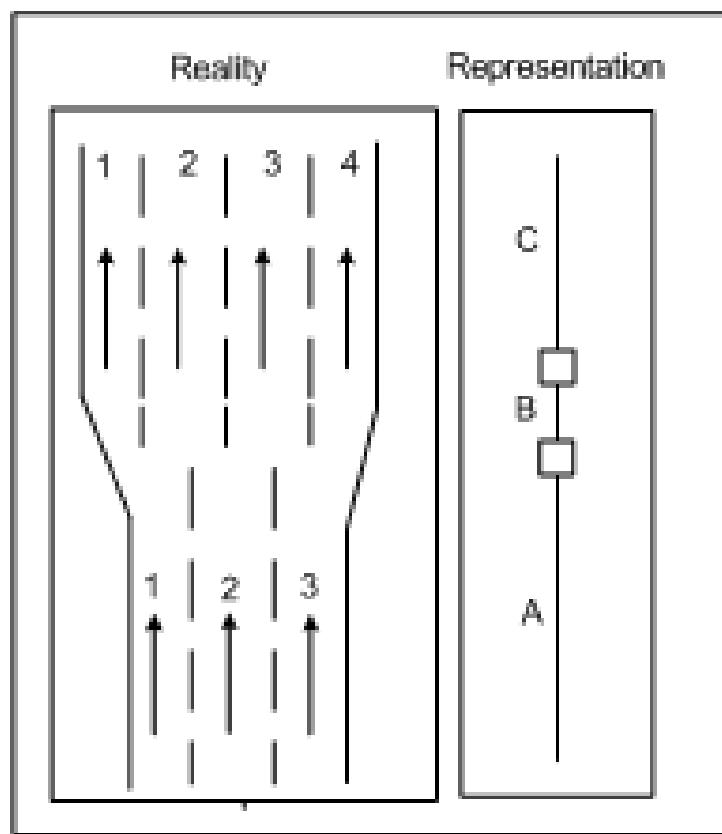


Figure 4-138

- Transition Areas that are only applicable to a subset of lanes are published with a *Transition Area Link* attribute. See *Section 4.4.43, Transition Area (TRANSITION_AREA)*.
- Transition Areas must be at least 50 meters long and not longer than 500 meters. Longer Transition Areas are published if significant. Shorter Transition Areas are published in situations as shown in *Figure 4-139*.
- If *Transition Area = Y* is published, the number of lanes corresponds to the number of lanes value at the transition end. See *Figure 4-139* and *Figure 4-140*.

- Lane Divider Markers are not published on *Transition Area* lanes.
- *Transition Area* may be published for a subset of lanes. See *Figure 4-140*.

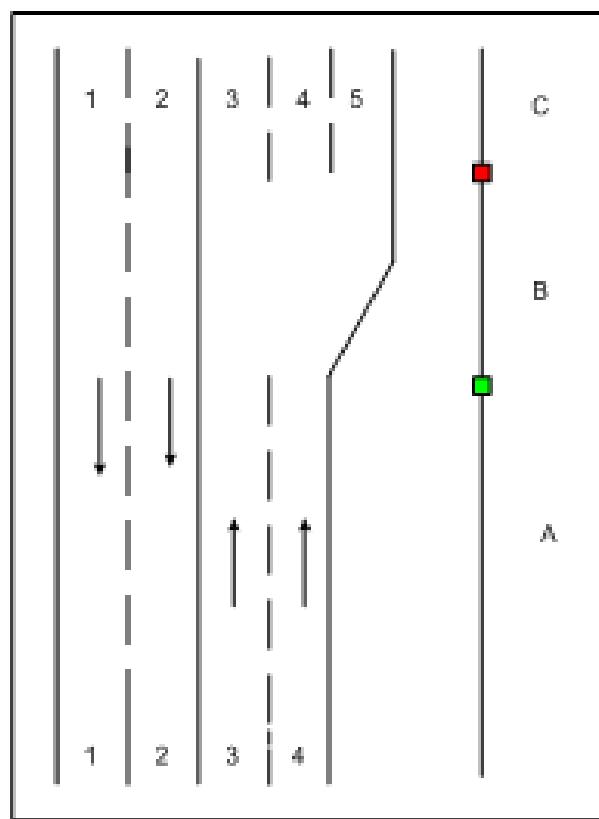


Figure 4-139 Transition Area in one travel direction

Link	Physical Number of Lanes	Lane Object	Lane Travel Direction	Transition Area
B	5	1	T	N
		2	T	N
		3	F	Y
		4	F	Y
		5	F	Y

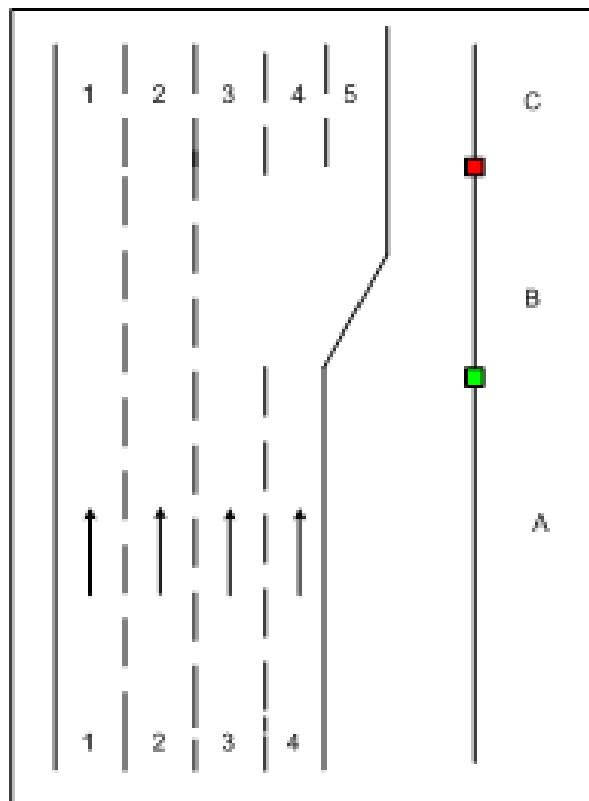


Figure 4-140 Transition Area on a subset of lanes

Link	Physical Number of Lanes	Lane Object	Lane Travel Direction	Transition Area
B	5	1	F	N
		2	F	N
		3	F	Y
		4	F	Y
		5	F	Y

RDF_LANE (for Link B)					
LANE_ID	5012012545	5012012546	5012012547	5012012548	5012012549
LINK_ID	364033408	364033408	364033408	364033408	364033408
LANE_NUMBER	1	2	3	4	5
LANE_TRAVEL_DIRECTION	F	F	F	F	F
LANE_TYPE	1	1	1	1	1
TRANSITION_AREA			Y	Y	Y

RDF_LANE (for Link B)					
LANE_FORMING_ENDING					1
ACCESS_ID	1023	1023	1023	1023	1023

RDF_ACCESS	
ACCESS_ID	1023
AUTOMOBILES	Y
BUSES	Y
TAXIS	Y
DELIVERIES	Y
TRUCKS	Y
PEDESTRIANS	Y
EMERGENCY_VEHICLES	Y
CARPOOLS	Y
THROUGH_TRAFFIC	Y
MOTORCYCLES	Y

4.5.2.11 Width (WIDTH)

Definition *Width* specifies the lane width that differs from the country specific default value.

Table RDF_LANE

Column WIDTH

Value *Width* is specified in Centimetres with precision zero.

Default value None

Cardinality 1:0,1

Related Attributes Lane Number (LANE_NUMBER)
Lane Travel Direction (LANE_TRAVEL_DIRECTION)

Usage *Width* can be used to determine the lane width if it differs from the country specific default value.

Specification

- *Width* is only specified when there is a posted sign indicating a deviation from the standard lane widths for a country.
- Country specific default width values are provided in the *Country Profiles* document.

- *Width* is specified in metric units globally. This is related to the continental nature of RDF requiring a single unit of measure. Transformation from metric unit to local units of measure can be achieved through conversion.

4.6 Attribution for Specific Locations/Contents

4.6.1 Bicycling

4.6.1.1 Bicycle Access (BICYCLE_ACCESS)

Definition *Bicycle Access* indicates if a link is designated for bicycle traversal. It overrides the bicycle access restriction of a controlled access road link.

Table RDF_NAV_LINK_ATTRIBUTE

Column BICYCLE_ACCESS

Values See Appendix C, RDF_NAV_LINK_ATTRIBUTE.

Cardinality 1:0,1

Default Value Null

Related Table RDF_LINK

Usage *Bicycle Access* can be used to calculate a bicycle route.

Specification

- *Bicycle Access = Y* is applied to controlled access roads (including the ramp systems) that legally allow bicycle traversal.
- *Bicycle Access = N* is applied to the following:
 - ◆ Non-controlled access roads (including the ramp systems) where bicycles are not allowed.
 - ◆ Pedestrian-only paths and trails.
- *Bicycle Access* is not applied to regular road network links that are not designated for bicycles. It is assumed that bicycles are allowed to traverse on these road links.

4.6.1.2 Bicycle Protection Type (BICYCLE_PROTECTION_TYPE)

Definition *Bicycle Protection Type* describes the physical road characteristics for bicycles and how this protects them from regular traffic on a road link.

Table RDF_NAV_LINK_ATTRIBUTE

Column BICYCLE_PROTECTION_TYPE

Values See Appendix C, RDF_NAV_LINK_ATTRIBUTE.

Cardinality 1:0,1

Default Value Null

Related Table RDF_LINK

Usage *Bicycle Protection Type* enables bicycle route calculation and map display. This attribute can be used to identify safe bicycle routes on road network which also allows regular traffic.

Specification

- *Bicycle Protection Type = 1 (Generic Lane)* is a lane added to the roadbed adjacent to the lanes for vehicular travel that allows bicycles only. Generic bicycle lanes are marked by painted lines indicating the legal separation between the bicycle lane and motor vehicle lanes.
- *Bicycle Protection Type = 2 (Protected Lane)* is a lane that is physically separated from the lanes for vehicular traffic by buffers or barriers.
- *Bicycle Protection Type = 3 (Sharrows Lane)* is a lane that has markings placed on the centre or on the side of a lane to indicate that a bicyclist may use the full lane. See *Figure 4-141*.
- *Bicycle Protection Type = 4 (Unknown Bicycle Lane Type)* is published when a bicycle lane exists on a road but the information on protection type is unknown.



Figure 4-141

4.6.1.3 Bicycle Road Name (BICYCLE_ROAD_NAME)

Definition *Bicycle Route Name* identifies names specific to bicycles either on navigable geometry or on dedicated bicycle paths or trails. *Bicycle Route Name* can be applied to navigable geometry with or without the presence of bicycle lanes.

Table RDF_ROAD_LINK

Column IS_BICYCLE_ROUTE_NAME

Values See Appendix C, RDF_ROAD_LINK.

Cardinality 1:1

Default Value None

Related Table RDF_LINK

Usage *Bicycle Route Name* may be used for map display or for guidance (explication).

- Specification**
- Bicycle route names may be route names or route numbers.
Examples:
Route name: Los Angeles River Bikeway (LA)
Route number: NCN1 (Denmark)
 - When applicable, Bicycle Route names may be associated with a *Prefix* or *Suffix* to explicate the directional identifier.
 - *Explicatable* and *Name on Road Sign* publishes values according to reality.
 - Additional alternate names are published with *Explicatable* = 'N' and *IS_NAME_ON_ROADSIGN* = 'Y' in RDF_ROAD_LINK table.
Example: The Los Angeles River Bikeway is also known with the alternate name of "Lario".
 - *Bicycle Route Name* = Y may be published on mixed use supplemental geometry paths (e.g. hiking trails and mountain bike trail) when the name on the trail is specifically related to the bicycling activity.

4.6.1.4 Bicycle Travel Direction Override (BICYCLE_TRAVEL_DIR_OVERRIDE)

Definition *Bicycle Travel Direction Override* identifies the permitted direction of travel for bicycles when different from that of the road link.

Table RDF_NAV_LINK_ATTRIBUTE

Column BICYCLE_TRAVEL_DIR_OVERRIDE

Values See Appendix C, RDF_NAV_LINK_ATTRIBUTE.

Cardinality 1:0,1

Default Value Null

Related Attribute *Travel Direction* (TRAVEL_DIRECTION)

Related Table RDF_LINK

Usage *Bicycle Travel Direction Override* enables correct bicycle route calculation, route guidance, and map display.

- Specification**
- The positive or negative directions reflect the From or To Reference Node in HERE map content respectively.

- *Bicycle Travel Direction Override* is coded to reflect reality when the bicycle travel direction deviates from the road link's direction of travel.
Example: A road with one-way traffic for vehicles allows bicycles to traverse in both directions. In this, case *Bicycle Travel Direction Override* = B (Both Directions) is published.
- If *Bicycle Travel Direction Override* is not published for a road link, the direction of travel information of the road link should be used for routing.

4.6.1.5 Generalised Bicycle Path (GENERALISED_BICYCLE_PATH)

Definition	<i>Generalised Bicycle Path</i> describes a separated bicycle path that is not part of the main road geometry.
Table	RDF_NAV_LINK_ATTRIBUTE
Column	GENERALISED_BICYCLE_PATH
Values	See Appendix C, RDF_NAV_LINK_ATTRIBUTE.
Cardinality	1:0,1
Default Value	Null
Related Table	RDF_LINK
Usage	<i>Generalised Bicycle Path</i> may be used for routing purposes and map display to identify bicycle routes. This attribute can be used to identify safe bicycle routes along road network which also allows regular traffic
Specification	<ul style="list-style-type: none"> • <i>Generalised Bicycle Path</i> values are published when a bicycle path adjacent to the road network exists on any side of the road. See Figure 4-142 below. • <i>Generalized Bicycle Path</i> is not published on links publishing any <i>Supplemental Geo Bitset</i> value.



Figure 4-142

4.6.1.6 Surface Type (SURFACE_TYPE)

Definition *Surface Type* indicates the surface material of a bicycle path or trail.

Table RDF_NAV_LINK_ATTRIBUTE

Column SURFACE_TYPE

Values See Appendix C, RDF_NAV_LINK_ATTRIBUTE.

Cardinality 1:0,1

Default Value Null

Related Table RDF_LINK

Usage *Surface Type* enables different bicycle routing options.

Specification

- *Surface Type* information is published based on information available in the source data. See Figure 4-143 for examples.
- *Surface Type* = “null” is published if information is unknown.



Figure 4-143

4.6.1.7 Traffic Sign Type (TRAFFIC_SIGN_TYPE)

Definition *Traffic Sign Type* identifies the type of warning sign.

Table RDF_CONDITION_DRIVER_ALERT

Column TRAFFIC_SIGN_TYPE

Value 59 - Bicycle Crossing

60 - Yield to bicycles

See *Section C.27, RDF_CONDITION_DRIVER_ALERT*.

Related Tables *RDF_CONDITION*

Usage Generally, *Traffic Sign Type* can be used to give specific driver alert messaging using the sign type. *Traffic Sign Type* can also be used to display the traffic sign. Bicycling specific *Traffic Sign Type* may be used for guidance explication.

Specification See the following subsections

[Bicycle Crossing Sign](#)

Definition Bicycle Crossing sign informs vehicle drivers of an upcoming intersection with bicycles.

Traffic Sign Type 59

Related Attributes *Traffic Sign Type*
Traffic Sign Category

Specification

- The following modifiers apply to this *Traffic Sign Type* in the *RDF_CONDITION_DRIVER_ALERT* table:
 - ◆ *Traffic Sign Type* = 59 (Bicycle Crossing)
 - ◆ *Traffic Sign Category* = 3 (Warning Traffic Sign Category)
- *Traffic Sign Type* = 59 (Bicycle Crossing) sign is published in case of posted signs warning traffic for intersecting bicycles. See *Figure 4-144*.

Note: Bicycle Crossing signs may vary by country.



Figure 4-144

[Yield to Bicycles](#)

Definition Yield to Bicycle traffic sign informs vehicle drivers to yield to bicycles.

Traffic Sign Type 60

Related Attributes	<i>Traffic Sign Type</i> <i>Traffic Sign Category</i> <i>Traffic Sign Subcategory</i>
Specification	<ul style="list-style-type: none">• The following modifiers apply to this <i>Traffic Sign Type</i> in the <i>RDF_CONDITION_DRIVER_ALERT</i> table:<ul style="list-style-type: none">◆ <i>Traffic Sign Type</i> = 60 (Yield to bicycles)◆ <i>Traffic Sign Category</i> = 1 (Regulatory Traffic Sign Category)◆ <i>Traffic Sign Subcategory</i> = 1 (Priority Sign)• <i>Traffic Sign Type</i> = 60 (Yield to Bicycles) is published in case of posted signs warning traffic to yield for bicycles. See example in <i>Figure 4-145</i>. <p>Note: Yield to Bicycle signs may vary by country.</p>



Figure 4-145

4.6.2 Areas Regarded as Unsafe

There are certain areas that are regarded as unsafe for non-local drivers. These are typically marginal or illegal settlements. Links representing these roads receive the following standard attribution:

Main Roads

- *Functional Class* = 5
- *Speed Category* = 7
- *Through Traffic* = Y
- Other attributes are applied as appropriate.

Roads in Residential Areas

- *Functional Class* = 5
- *Speed Category* = 7
- *Through Traffic* = N
- Other attributes are applied as appropriate.

For other attributes for roads in these areas, see *Section 4.6.5, Attribution for Specific Features, POI Locations, or Areas*.

4.6.3 Loading Dock Locations

- Links representing Loading Dock locations receive the following standard attribution:
 - *Delivery Road* = Y
 - *Functional Class* = 5
 - *Lane Category* = 1
 - *Long Haul* = N
 - *Parking Lot Road* = N
 - *Private* = Y
 - *Public Access* per reality
 - *Speed Category* = 8
 - *Through Traffic* = N
 - *Access Characteristics* (Delivery Truck, Transport Truck)
 - *Transport Verified* per reality
- Links representing Loading Dock locations are unnamed.

4.6.4 Road Crossing Dry River Beds

These locations receive the following attribution:

- *Bridge* = N
- *Access Restriction* condition with *Seasonal Closure* = Y, or
- *Four Wheel Drive* = Y (if *Four Wheel Drive* content is available in the country)

4.6.5 Attribution for Specific Features, POI Locations, or Areas

Link Attribution for Specific Features, POIs, or Areas

Facility Type/ Area	Through Traffic	Private	POI Access Road	Public Access	Low Mobility
Airport	Yes, except if posted No, if Bus/Taxi lane	No, except Restricted Areas	No	Yes, except Restricted Areas	No, except Restricted Areas
Airport Cargo	No	Yes	No	No	Yes, if SC7 or SC8.

Link Attribution for Specific Features, POIs, or Areas (Continued)

Facility Type/ Area	Through Traffic	Private	POI Access Road	Public Access	Low Mobility
Amusement Park	No, except thoroughfare ¹ that does not require payment	Yes, excluding thoroughfare ¹	No	Yes	Yes, except if thoroughfare ¹
Animal Park	No, except thoroughfare ¹	Yes, excluding thoroughfare ¹	No	Yes	Yes, except if thoroughfare ¹
Casino	No	Yes, except Native American Reservation Casinos	No	Yes	Yes, if SC7 or SC8
Business Facility	No	Yes	No	Yes, unless gated	Yes, if SC7 or SC8
Cemetery	No, except if thoroughfare ¹	No, if owned by city Yes, if owned by church	No	Yes	Yes
Convention Centre	No	Yes, excluding thoroughfare ¹	No	Yes	Yes, if SC7 or SC8 and excluding thoroughfare ¹
Ferry Terminal	No, except if thoroughfare	No, except restricted areas	No	Yes, except restricted areas	Yes, if SC7 or SC8 and excluding thoroughfare
Gated Communities	No	Yes	No	No	No
Golf Course without homes	No, except if thoroughfare ¹	No, except if posted	Yes, if geometry to clubhouse is unnamed	Yes, except if gated	Yes, if SC7 or SC8 and excluding thoroughfare ¹
Golf Course with homes and Gate	No, except if thoroughfare ¹	Yes	Yes, if geometry to clubhouse is unnamed	No	No, except if there is a clubhouse entrance road
Golf Course with homes and No Gate	Yes, except if posted	No, except if posted	Yes, if geometry to clubhouse is unnamed ²	Yes	No, except if there is a clubhouse entrance road

Link Attribution for Specific Features, POIs, or Areas (Continued)

Facility Type/ Area	Through Traffic	Private	POI Access Road	Public Access	Low Mobility
Higher Education(University or College)	No, except if thoroughfare ¹	Yes, except if thoroughfare ¹	No	Yes	Yes, if SC7 or SC8 and excluding thoroughfare ¹
Historical Monument	Yes, except if posted	No, except if posted	No	Yes	Yes, if SC7 or SC8 and excluding thoroughfare ¹
Hospital	No, except if thoroughfare ¹	No, except if posted	Yes, if geometry to main entrance and ER is unnamed ²	Yes	Yes, except if thoroughfare ¹
Hotel or Motel	No	No	No	Yes	Yes, if SC7 or SC8 and excluding thoroughfare ¹
Industrial Complex	Yes, except if posted	No, except if posted or private in reality	No	Yes, except if gated	Yes, if SC7 and SC8
Marina	No	No	No	Yes	Yes, if SC7 or SC8 and excluding thoroughfare ¹
Military Base	No, except if thoroughfare ¹	Yes, except if thoroughfare ¹	No	No, excluding thoroughfare ¹	Yes, if SC7 or SC8 and excluding thoroughfare ¹
Native American Reservation	Yes, except if posted	No, except if posted	No	Yes	Yes, if SC7 or SC8 and excluding thoroughfare ¹
Park & Ride	No	No	Yes	Yes	Yes, if SC7 or SC8 and excluding thoroughfare ¹
Park(National)	Yes, except if posted	No, except if posted	No	Yes	Yes, if SC7 or SC8 and excluding thoroughfare ¹

Link Attribution for Specific Features, POIs, or Areas (Continued)

Facility Type/ Area	Through Traffic	Private	POI Access Road	Public Access	Low Mobility
Park(State)	Yes, except if posted	No, except if posted	No	Yes	Yes, if SC7 or SC8 and excluding thoroughfare ¹
Park(City)	No, excluding thoroughfare ¹	No	No	Yes	Yes, if SC7 or SC8 and excluding thoroughfare ¹
Parking Lot/ Garage	No	No, except if posted	No ²	Yes	Yes
Pedestrian Zone	No, excluding thoroughfare ¹	No	No	Yes	Yes
Rail Yard	No, excluding thoroughfare ¹	Yes	No	No	Yes
Residential Area/Building	No, excluding thoroughfare ¹	No, unless gated or posted	No	Yes, unless gated	Yes, if SC7 or SC8
Rest Area	Yes	No	Yes	Yes	Yes
Seaport/ Harbour	No, excluding thoroughfare ¹	Yes	No	No	Yes
Shopping Centre	No, interior to ring road Yes, if ring road or any thoroughfare ¹	Yes, excluding thoroughfare ²	No	Yes	Yes, interior to ring road
Sports Complex	No, excluding thoroughfare ¹	Yes, excluding thoroughfare ¹	No	Yes	Yes, excluding thoroughfare ¹
Tourist Attraction	No, except if posted	Yes, except if managed by a public (i.e., city) department	No	Yes	Yes, excluding thoroughfare ¹
Train Station	No	No	No	Yes	Yes, if SC7 or SC8 and excluding thoroughfare
Undefined Traffic Area	Yes, except if posted	No	No	Yes	No
University	No, except if thoroughfare ¹	Yes, except if thoroughfare ¹	No	Yes	Yes, if SC7 and below

Link Attribution for Specific Features, POIs, or Areas (Continued)

Facility Type/ Area	Through Traffic	Private	POI Access Road	Public Access	Low Mobility
Unsafe Areas	No	No	No	Yes	Per reality
Weigh Station	No	No	Yes	Yes	Yes
Winery	No	Yes	Yes, if POI is located on winery entrance link	Yes	Yes, if SC7 or SC8
Woodland	Yes, except if posted	No, except if posted	No	Yes	Yes, if SC7 or SC8

1. Thoroughfare is a public road that allows city traffic to continue through/around the feature (i.e., park, shopping centre, etc). The thoroughfare is not limited to just the traffic accessing the feature in question.
2. POI Access receives Yes for any Parking Lot/Garage coded for RDS-TMC.

4.7 Traffic Attributes

4.7.1 Positive TPEG ID (POS_TPEG_ID)

Definition *Positive TPEG ID* identifies the TPEG ID in the positive direction of the link.

Table Name RDF_LINK_TPEG

Column Name POS_TPEG_ID

Value 10-digit numeric

Default Value None

Related Attributes *Link ID*
Negative TPEG ID

Usage The inclusion of *Positive/Negative TPEG ID* allows applications to receive traffic messages and communicate this information to the driver by displaying real time traffic situations (traffic flow, congestion status, or actual average speed). The attribution can also be used for route calculation.

- Specification**
- *Positive TPEG ID* and *Negative TPEG ID* are published only for specific countries. Refer to the *Country Specific Rules*.
 - TPEG (Transport Protocol Expert Group) is a technology standard for providing traffic and travel information through DMB (Digital Multimedia Broadcasting) network.
 - HERE supports TPEG Link IDs by RTIC. Originally, *TPEG Link ID* values are provided by the MLTM (Ministry of Land, Transport and Maritime Affairs), named as Government Standard Node/Link IDs.
 - HERE supports the ID in both the positive and negative direction of the road.
 - *Positive TPEG ID* represents the real-time traffic information Link ID for negative direction, from Reference Node to Non-Reference Node.
Negative TPEG ID represents the real-time traffic information Link ID for positive direction, from Non-Reference Node to Reference Node.
 - A link may have either a Positive and Negative TPEG ID or both.

4.7.2 Negative TPEG ID (NEG_TPEG_ID)

Definition *Negative TPEG ID identifies the TPEG ID in the negative direction of the link.*

Table Name RDF_LINK_TPEG

Column Name POS_TPEG_ID

Value 10-digit numeric

Default Value None

Related Attributes *Link ID*
Positive TPEG ID

Usage See Section 4.7.1, *Positive TPEG ID (POS_TPEG_ID)*.

Specification See Section 4.7.1, *Positive TPEG ID (POS_TPEG_ID)*.

Administrative Coding

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5.1 Administrative Entities

5.1.1 Country

Definition	Identifies a country, as defined by national boundaries.
Usage	This feature can be used for destination selection and map display. Destination selection should not require entering a country unless a different country is desired. Addresses are not unique within the country feature.
Specification	<ul style="list-style-type: none">A Country Feature is coded for all countries covered by HERE Map Content products. Some countries are enclaves and are entirely surrounded by another country.A Country Feature is also coded for external territories (i.e., areas that are controlled by, but are not part of another country).Country boundaries are published only for countries that are covered by HERE Map Content products. Country boundaries on the outer edge of coverage areas are included only for the covered area, and not for the bordering non-covered country.The cartographic representation of the Country is generally related to the administrative Country. This association is established by RDF_CARTO.NAMED_PLACE_ID.Country boundaries are not represented by a face. They are, however, represented as linear features.

5.1.2 Order-1

Definition	An <i>Order-1 Area</i> identifies the highest administrative level in which a country can be subdivided.
Specification	<ul style="list-style-type: none">The cartographic representation of the Order-1 area is generally related to the administrative Order-1 area. This association is established by the NAMED_PLACE_ID in RDF_CARTO. The number of intermediate administrative levels differs per country. Some Countries have only 3 administrative levels, and therefore, do not publish Order-1 or Order-2 administrative levels.Order-1 Administrative Areas are generally not represented by polygons. A linear cartographic feature however is included for the Order-1 administrative boundary, and is represented as a RDF_CARTO entry, referencing the corresponding RDF_ADMIN_PLACE entry. The corresponding RDF_CARTO <i>Feature Type</i> for Order-1 is country dependent.Two Order-1 Area features exist in RDF for every boundary in the database at that particular level. However, if the boundary is a border between two databases or adjacent to an area not yet built, this is not the case.

5.1.3 Order-2

Definition	An Order-2 Area identifies an intermediate administrative level of a country and is a subdivision of an Order-1 area. Only countries with a five (or more) level administrative hierarchy have Order-2 administrative levels defined. This feature can be used for destination selection and map display.
Specification	<ul style="list-style-type: none"> • The cartographic representation of the Order-2 area is generally related to the administrative Order-2 area. This association is established by the NAMED_PLACE_ID in RDF_CARTO. The number of intermediate administrative levels differs per country. • The boundary feature associated with Order-2 Area is represented as either a Carto Feature with a face or a Line Feature depending on the country and the order level. • Two Order-2 Area features exist in RDF for every boundary in the database at that particular level. However, this is not the case if the boundary is a border between two databases or adjacent to an area not yet built.

5.1.4 Order-8

Definition	An Order-8 Area identifies the lowest level of the country's administrative hierarchy that is present country-wide. (No gaps exist in the coverage.)
Usage	This feature can be used for destination selection and map display. For destination selection, all roads and POIs inside of an Order-8 Area should be selectable under the Order-8 Area name.
Specification	<ul style="list-style-type: none"> • See the co-delivered <i>Country Profiles</i> document for <i>Order-8 Area</i> per country. • Two Order-8 Area features exist in RDF for every Order-8 boundary in the database. However, if the boundary is a border between two databases or adjacent to an area not yet built, this is not the case. • The cartographic representation of the Order-8 area is generally related to the administrative Order-8 area. This association is established by the NAMED_PLACE_ID in RDF_CARTO. • If duplicate addresses exist at a lower level (such as Built-up Area (ADMIN_TYPE = 3110), the higher level (such as Order-8) may be needed for a refined address resolution.
	<p><u>Bilingual Areas</u></p> <ul style="list-style-type: none"> • In bilingual areas, an Order-8 Area feature has one Face associated and have Alternate Names in addition to the <i>Official Name/Alternate Name</i>.
Examples	<p>The following are examples of special representations for <i>Order-8</i>:</p> <ul style="list-style-type: none"> • In the U.S., for independent cities such as Baltimore, MD, St Louis, MO, Carson City, NV, etc., which are not officially in any Order-8, the city is specified in the Order-8 name. <p>The city of Baltimore is published as:</p>

- ◆ Built-up Area (ADMIN_TYPE = 3110) for Baltimore, with GOVERNMENT_CODE attribute of 4000
- ◆ Order-8 for Baltimore (city), with GOVERNMENT_CODE attribute of 510. However, do not confuse this Order-8 RDF_CARTO with the county of Baltimore (GOVERNMENT_CODE = 5).
- In the Republic of Ireland where Order-8 Area = Post Town, a number of Post Towns span multiple Counties. For example, the Post Town of Carlow spans the following; County Wicklow, County Kildare, County Kilkenny, County Carlow, and County Laois. The administrative coding reflects this situation. For example:

Administrative Levels	Areas	
Country	Ireland	
Post County	County Carlow	County Laois
Post Town	Carlow	
Locality	Agha	Ardateggle

5.1.5 Built-Up Area

Definition Identifies the lowest administrative level for a country. This level does not cover the entire country, (as opposed to the *Order-8 Area* level which does cover the entire country). This feature should be used in conjunction with Zone and Order-8 Area for destination selection. The Built-up Area polygon, as published in RDF_CARTO, can also be used for map display.

For destination selection, all roads and POIs inside of a Built-up Area should be selectable under the Built-up Area name.

Specification

- Generally, *Built-up Areas* represent the urban areas. These areas are usually clearly defined on commercial maps in these areas.
- In the U.S., the city level is published as Built-up Area (ADMIN_TYPE = 3110). These are also usually clearly defined on commercial U.S. maps.
- Generally, if the name of the Built-up Area boundary matches the Built-up Area feature name, then a face record is published in the Built-up Area feature.
- In bilingual areas, a Built-up RDF_CARTO feature has one set of Faces associated and has a relation to multiple Names. Of these associated Names, some are flagged Official (NAME_TYPE = B) and others can be flagged Alternate (NAME_TYPE >> B).
- Built-up Area features may also exist for areas that have been added as Vanity City to a POI. This is modelled via the RDF_POI_VANITY_CITY table. Field VANITY_CITY_ID represents the Built-up Area, as published in RDF_ADMIN_PLACE, that is used as a Vanity City.
- A Built-up Area feature may exist in more than one Order-8 Area feature. For instance in the U.S. this is the case when a city spans multiple counties. For

example, the city of Portland, OR, exists in three counties. This situation occurs in both Europe and North America.

Notes on Built-up Area representation in the U.S.:

- In the U.S. and Puerto Rico, incorporated cities and townships are coded at this level. In some areas of the U.S., this can mean that all areas are part of an ADMIN_TYPE feature (i.e., the Built-up Area (ADMIN_TYPE = 3110) can be spanning in these specific areas).
 - ◆ The administrative hierarchy as defined for the U.S. has four levels: Country, State, County, and City. The City level was designed to model incorporated places. However, in some states, there are other legally defined entities called “towns” or “townships” that are similar to incorporated cities. Towns and townships are both labelled by the U.S. Census Bureau as townships and are treated as cities in the database.
 - ◆ In states where townships exist, cities and townships form a spanning set of the lowest administrative level. This means wherever you are within any county, you are always within either a township or city.

U.S. Example The city of Hampstead (Government code, 36500) exists in both Carroll county and Baltimore county.

The following is published.

- Order-8 for Carroll, with the Government Code of 13
- Order-8 for Baltimore, with Government Code of 5
- Two Built-up Areas for Hampstead, with Government Code of 36500 are published in RDF_ADMIN_PLACE. Each Built-up Area for Hampstead has its own entry in the administrative hierarchy to model the different parent counties (Order-8 admin levels).
- The two Built-up Areas for Hampstead can be combined based on the same Government Code, as opposed to two separate cities which would have different Government Codes.

European Example The settlement of Obertauern exists in both the Untertauern municipality and the Tweng municipality.

The following is published.

- Order-8 ADMIN_PLACE_ID (ADMIN_TYPE = 1119) for Untertauern, with Government Code of 224
- Order-8 ADMIN_PLACE_ID (ADMIN_TYPE = 1119) for Tweng, with Government Code of 125
- Built-up Area ADMIN_PLACE_ID (ADMIN_TYPE = 3110) for Obertauern, with Government Code of 3008
- Obertauern in Untertauern municipality and Obertauern in Tweng municipality. The Built-up Area for Obertauern has two entries in the administrative hierarchy. This is modelled via two entries in RDF_ADMIN_HIERARCHY and two entries in RDF_ADMIN_GRAPH for Built-up Obertauern.

- The two Built-up Areas for Obertauern can be combined based on the same Government Code, as opposed to two separate settlements which would have different Government Codes.

Each Built-up Area Admin Place has a corresponding Named Place POI. However, in the case of the one Built-up Area in multiple Order-8 areas, only one Named Place POI is published.

When a POI has a Vanity City, an entry is created in RDF_POI_VANITY_CITY. This table models vanity cities, alternate city, for a POI. As a result, a link in Built-up Area exists that points to Built-up Area B. Built-up Area A and Built-up Area B represent the same city.

5.1.6 Postal Code

Definition A Postal Code represents the code generated by the government to facilitate mail delivery.

There are a maximum of 11-alphanumeric characters in acceptable formats.

Specification

- A Postal Code is assigned to each side of a link.
- In Prime coverage areas, if a coastline or country border (where the adjacent country is not built yet) defines the boundary duplicate, the known Postal Code is reflected on both sides.
- Communities served by P.O. boxes still have the appropriate Postal Code applied to the links. For example, Carmel-by-the-Sea only has P.O. Boxes and no addresses, but carries the Postal Code for the P.O. Boxes.
- Postal Codes in Europe are not always coded to the most detailed postal level.
- In some countries, Postal Codes only refer to a few houses, so coding the full Postal Code would require splitting existing links to create very small links.
- Refer to the *Country Profiles* document for information on Postal Code format per country.

5.1.7 Extended Postal Codes

Definition Midpoints are the centre point of the Postal Code, known as the Postal Code centroid, which can be used to enhance destination selection.

- Midpoints are identified by latitude and longitude or a Link ID, an accuracy level, and a position relative to the link. Midpoints are floating and not guaranteed to be on a navigable link.
- For further information *Section 12.2.11, Extended Postal Code Model*.

5.1.8 Zone

Definition A Zone defines an alternate coding for a link in the RDF_LINK_ZONE table. The zone name is an alternate name to the administrative name for destination selection. This allows the user of a navigation system to specify a destination when the administrative coding of the destination link does not reflect the area name commonly known to users. Zones are non-hierarchical.

Postal Area Zones (ZONE_TYPE = PA) identify the names of areas which are used in address identification. In the U.S., these zones are also referred to as PA Zones.

Known As zones identify what most users think is the “city” name, regardless of whether or not it is the true administrative name. There are two types of Known As zones:

Known As that Replaces Admin (ZONE_TYPE = KA) indicates that the zone name should be used when displaying or saying the name back to the user, since that is what is commonly seen and known as the area’s name.

Known As that Does Not Replace Admin (ZONE_TYPE = KD) indicates that the zone name should NOT be used when displaying or saying the name back to the user because the zone name is not used and locally well known.

A Greater City Zone (ZONE_TYPE = GC) is a zone that defines a metropolitan area that may encompass multiple municipalities.

- Specification**
- Each side of a link may have from 0-10 zones associated with it.
 - The explicit association between Administrative Areas and zones (as coded via ADMIN_PLACE_ID in RDF_ZONE) must be at the max-admin level. For instance in the U.S., the admin level specified for a Zone must be at administrative level 4 (city); the maximum admin level in the U.S.

A *Named Place* POI is included for each Postal Area zone (PA, KA, and KD). A *Named Place* POI is not included for a *Zone Types* = GC, PA such as O’Hare Airport, and KD Zones in the UK).

- For Known As that Replaces Admin (ZONE_TYPE = KA) zones, place the Named Place POI that corresponds to the KA zone within the largest Built-up Area for that Zone, if a Built-up Area exists.
- For Known As that Replaces Admin (ZONE_TYPE = KA) zones, Known As Zones must have the same government code as the Administrative Area they are matching to (ADMIN_PLACE_ID in RDF_ZONE).
- All Zones are named. Regular naming rules apply to Zones.

Note: For Zones explicitly associated with an Administrative Area (via ADMIN_PLACE_ID in RDF_ZONE), the names applicable to the Administrative Area are automatically applied to the Zone as well. This implies that Exonyms and/or Synonyms applied to the Administrative Area also apply to the Zone.

- Zones are further defined by the *Zone Type*. See Section 5.3.2.14, *Zone Type* (ZONE_TYPE).

5.2 Representation of Specific Areas

5.2.1 Uninhabited Islands

For uninhabited islands that are the territory of another country, the following representation is observed:

- “Uninhabited Island” is applied as the name for the Country Administrative feature.
- Each named island of an island group is mapped as Level 3.
- If the island is not part of an island group, island name is mapped as Level 2 and Level 3.

See *Table 5-1* for an example.

Representation of Various Uninhabited Islands in the Territory of New Zealand

Level	Feature Type	Administrative Area Name		
Level 1	907196	Uninhabited Island		
Level 2	900170	Auckland Islands	Antipodes Islands	Campbell Island
Level 3	900101	Auckland Island Disappointment Island Ewing Island Rose Island Dundas Island Green Island Blanche Rock Frenchs Island Ocean Island Yule Island	Antipodes Island Bollons Island	Campbell Island

Table 5-1

5.3 Attributes

The following section describes the attributes that are included for Administrative Areas. When an attribute only applies to a particular Administrative Area, it is noted.

5.3.1 Country Attributes

5.3.1.1 Currency Precision (CURRENCY_PRECISION)

Definition	The amount of digits used after the decimal point or comma for the currency in question. The Currency Precision attribute specifies the amount of digits to use, after the comma or decimal point, when displaying currency values. Currency Precision should be used in conjunction with Currency Type.
Values	See <i>Section C.36, RDF_COUNTRY</i> .
Related Attributes	Currency Type

5.3.1.2 Currency Type (CURRENCY_TYPE)

Definition	Identifies the default currency of a country. The Currency Type attribute specifies the type of currency to use, when displaying currency values. Currency Type should be used in conjunction with Currency Precision.
Values	See <i>Section C.36, RDF_COUNTRY</i> .
Related Attributes	Currency Precision

5.3.1.3 Default Language Code (LANGUAGE_CODE)

Definition	This is the language for the majority of the names in a country. In most cases this is the Language Code of the official national language for that country.
Table	RDF_COUNTRY
Column	LANGUAGE_CODE
Values	See <i>Section C.36, RDF_COUNTRY</i> .
Usage	The default language for a country can be used in route guidance, destination selection, and map display
Specification	<ul style="list-style-type: none">• The default language of a country is the national language.

- Certain countries can have more than one national language: for these, the attribute Default Language Code contains the code of the language that is commonly spoken; if there is no predominant language, the Default Language Code attribute contains the code of one of the languages that is commonly spoken in the country. For example, in Canada, the Default Language Code is ENG. However, in certain provinces, English may not be the primary language spoken.

5.3.1.4 Driving Side (DRIVING_SIDE)

Definition This attribute identifies the legal driving side in a country. This attribute is critical for route calculation and route guidance.

Values See Section C.36, RDF_COUNTRY.

5.3.1.5 House Number Format (HOUSE_NUMBER_FORMAT)

Definition *House Number Format* identifies the position of the house number, in the standard address notation for a country. Each country has a different convention in the representation of addresses. In some countries the house number is written after the street name, in others it is before: for example, "VIA NAPOLEONE, 6" in Italy (house number after the street name) and "600 E Weddell Dr" in the U.S. (house number before the street name). This attribute specifies which convention is used for a specific country.

Table RDF_COUNTRY

Column HOUSE_NUMBER_FORMAT

Values See Section C.36, RDF_COUNTRY.

Specification In bilingual countries, the HOUSE_NUMBER_FORMAT may not be the same for each language in reality. However, only the HOUSE_NUMBER_FORMAT for the default language is specified.

5.3.1.6 ISO Country Code

Definition This attribute identifies the ISO-3166 Alpha-3 code of the country. This is included for all countries.

Values See Section C.36, RDF_COUNTRY.

5.3.1.7 Maximum Administrative Level

Definition This attribute identifies the valid number of administrative levels of a country. When creating the administrative hierarchy, this attribute can be used to determine the valid number of administrative levels per country.

Values 1-7

Specification This attribute identifies the number of administrative level of a country, including the Built-up Area level; 5 is the Maximum Administrative Level.

5.3.1.8 Phone Country Code (PHONE_COUNTRY_CODE)

Definition Phone Country Code identifies the international dialling code for a country.

Table RDF_COUNTRY

Column PHONE_COUNTRY_CODE

Values The international dialling code for a country.

Related Tables RDF_POI_CONTACT_INFORMATION

Related Attributes RDF_COUNTRY.PHONE_PREFIX
RDF_POI_CONTACT_INFORMATION.PHONE_AREA_CODE
RDF_POI_CONTACT_INFORMATION.PHONE_LOCAL_NUMBER

Usage This attribute can be used when displaying the phone numbers for the Points of Interest.

5.3.1.9 Phone Prefix (PHONE_PREFIX)

Definition The prefix of a phone number. The phone number prefix precedes the phone area code for internal country dialling. (This is sometimes a leading 0 and is considered to be part of the area code when dialling inside a country). The prefix is not used when dialling from outside a country.

Table RDF_COUNTRY

Column PHONE_PREFIX

Values The country phone prefix

Cardinality 1:0,1

Related Tables RDF_POI_CONTACT_INFORMATION

Related Attributes RDF_COUNTRY.PHONE_COUNTRY_CODE
RDF_POI_CONTACT_INFORMATION.PHONE_AREA_CODE
RDF_POI_CONTACT_INFORMATION.PHONE_LOCAL_NUMBER

Usage *Phone Prefix* precedes the area code in a phone number. It can be combined with other phone number components for display or for automatic dialling purposes.

Specification

- *Phone Prefix* is published if dialling from inside a country requires a leading digit before the area code. For example in Germany, the phone number 089-99614232 is published as:

- ◆ PHONE_PREFIX: 0
- ◆ PHONE_AREA_CODE: 89
- ◆ PHONE_LOCAL_NUMBER: 99614232
- The leading digit is published as a *Phone Prefix* only if it is dropped when dialling from outside a country. If the leading digit must be dialled when dialling from inside and outside the country, then the leading digit is published in PHONE_AREA_CODE and *Phone Prefix* is not published. For example in Italy, the phone number 091 8691623 is published as:
 - ◆ PHONE_AREA_CODE: 091
 - ◆ PHONE_LOCAL_NUMBER: 8691623
- *Phone Prefix* is not published some countries. See the *Country Specific Rules* document.

5.3.1.10 Unit of Measure (UNIT_OF_MEASURE)

Definition	Identifies the unit of measure mostly used in that country to describe road and traffic conditions. This attribute can be used to determine which measurement system to use as default in a specific country. If unknown, this attribute is not published.
Values	See Section C.36, RDF_COUNTRY.

5.3.2 Administrative Area Attributes

5.3.2.1 Abbreviation of Area Name (NAME_TYPE = A)

Definition	<i>Abbreviation of Area Name</i> indicates whether an alternate name is an abbreviation.
Table	RDF_FEATURE_NAMES
Column	NAME_TYPE
Value	A = Abbreviation of Area Name.
Related Attributes	<ul style="list-style-type: none"> <i>Official Name</i> (NAME_TYPE=B) <i>Synonym</i> (NAME_TYPE=S) <i>Exonym</i> (NAME_TYPE=E) <i>Additional Exonym</i> (NAME_TYPE=E)
Usage	<i>Abbreviations of Area Name</i> can be used for destination selection and map display for supported languages.
Specification	<ul style="list-style-type: none"> • <i>Abbreviation of Area Name</i> applies to features 1111 through 1119, 3110, and 3120. • <i>Abbreviation of Area Name</i> is based on the official abbreviations for a country. For instance, in the U.S., the official abbreviation for California is CA. The state abbreviations are very common in the U.S. • Abbreviations are not included for all administrative levels. They are applied when an official abbreviation list exists. In North America, the State and Province levels have official abbreviations.

5.3.2.2 Synonym/Exonym (NAME_TYPE = S or E)

Definition	<i>Synonym</i> and <i>Exonym</i> (Alternate Names) identify alternate names of an administrative or boundary feature, in the default and other languages, respectively.
Table	RDF_FEATURE_NAMES
Column	NAME_TYPE
Values	<ul style="list-style-type: none"> NAME_TYPE=S (Synonym) NAME_TYPE=E (Exonym)
Related Attributes	<ul style="list-style-type: none"> <i>Abbreviation of Area Name</i> (NAME_TYPE = A) <i>Official Name</i> (NAME_TYPE = B) <i>Additional Exonym</i> (NAME_TYPE=E)

Usage *Synonym/Exonym* (Alternate Name) can be used for destination selection and map display for supported languages.

- Specification**
- Synonyms (NAME_TYPE = S) and exonyms (NAME_TYPE = E) are published as Alternate Names. The Language Code identifies whether the name is a synonym or an exonym of the *Official Name*.
 - ◆ If the name is in the same language as the *Official Name*, it is a synonym.
 - ◆ If the name is in a different language than the *Official Name*, it is an exonym.
 - For features 1111-1119, 3110, and 3120, all official *Synonyms* for Administrative Areas in the official language(s) are included.
 - Alternate Names which are abbreviations are identified are also identified as *Abbreviation of Area Name* (NAME_TYPE = A).

Synonym

- A synonym is an alternative name for a feature, in the same language as the *Official Name*. See examples below.

Official Name	Synonym
Hull upon the Sea	Hull
Kingston upon Thames	Kingston
Stoke on Trent	Stoke
Frankfurt am Main	Frankfurt
Manila	City of ¹ Manila

1. Official sources indicate the variant with the prefix, "City of", to be the official name. For improved destination input however, the variant without the prefix is applied as the *Official Name*.

- A synonym can also represent an abbreviation of an Administrative Area. For example. Province abbreviations in Italy are added as synonyms, e.g., RM for Rome.

Exonym

- An *Exonym* is an alternative name for a feature in a language that is different from the default language.
The Language Code identifies whether the name is a synonym or an exonym of the *Official Name*.
- An *Exonym* for an Administrative Area is included even when the spelling is the same as the spelling in the country's official languages.
For example, for Italy, where the *Official Name* (in ITA Language Code) is "Italia", a name with the same spelling is published as *Exonym* in SPA Language Code.
- See *Appendix A, Exonyms and Transliterations* for more information.

5.3.2.3 Additional Exonym (NAME_TYPE = F)

Definition	Represents non-preferred exonyms when more than one exonym for a country name exists in a single language.
Table	RDF_FEATURE_NAMES
Column	NAME_TYPE
Value	NAME_TYPE=F (Additional Exonym)
Related Attributes	<p><i>Abbreviation of Area Name</i> (NAME_TYPE A)</p> <p><i>Official Name</i> (NAME_TYPE=B)</p> <p><i>Synonym</i> (NAME_TYPE=S)</p> <p><i>Exonym</i> (NAME_TYPE=E)</p>
Usage	It can be used to identify the preferred name in cases where more than one exonym exists in the same Language Code.
Specification	<ul style="list-style-type: none"> • Only the preferred <i>Exonym</i> per language is published with: NAME_TYPE = B and IS_EXONYM = Y. • Any additional <i>Exonyms</i>, or non-preferred <i>Exonyms</i> per language are published with: NAME_TYPE = F and IS_EXONYM = Y. • Country Feature names that may be published with <i>Additional Exonym</i> include: • Admin Area (FEATURE_ID = ADMIN_PLACE_ID) • Admin Area boundaries (FEATURE_ID = CARTO_ID) <ul style="list-style-type: none"> ◆ Country boundary ◆ Disputed Country boundary

5.3.2.4 Administrative Level Description

Definition	The Administrative Level Description identifies the Administrative Area level name, specified in the local spelling for the applicable country. In conjunction with ADMIN_LEVEL_ADMIN_TYPE in the RDF_COUNTRY table, this attribute can be used to map the administrative levels to the real world administrative levels description.
Value	Varies by country
Related Attributes	ADMIN_LEVEL_ADMIN_TYPE in RDF_COUNTRY.
Specification	<ul style="list-style-type: none"> • This attribute applies to Administrative Areas with ADMIN_TYPE Features 1111 through 1119 and 3110. • The Country level ADMIN_TYPE = 1111 is not translated: it always has the value of "COUNTRY".

- The Built-up (settlement) level (ADMIN_TYPE = 3110) is not translated: it always has the value of “SETTLEMENT”.
- Other intermediate administrative levels are translated in the default language of the country, in the singular form.
- From this set of attributes it is deducible that the administrative structure of the country has the following 5 levels:
 - ◆ Country feature - Country
 - ◆ Order-1 Area - Regione
 - ◆ Order-2 Area - Provincia
 - ◆ Order-8 Area - Comune
 - ◆ Built-up Area - Settlement

5.3.2.5 Administrative Level (ADMIN_LEVEL in RDF_ADMIN_PLACE)

Definition	<i>Administrative Level</i> identifies the administrative level. In conjunction with Administrative Level Description in RDF_COUNTRY, this attribute can be used to map the RDF administrative levels to the real world administrative levels.
Values	1-9
Related Attributes	Administrative Level Description
Specification	<ul style="list-style-type: none">● This attribute applies to Administrative Area features 1111 through 1119 and 3110.● The RDF_ORDER_LEVEL table provides an explicit mapping of Administrative Level to the corresponding ADMIN_TYPE. The same information can be deduced from the fields ADMIN_LEVEL_DESCRIPTION and ADMIN_LEVEL_ADMIN_TYPE in RDF_COUNTRY.

5.3.2.6 Daylight Saving Time Observed

Definition	Identifies whether Daylight Saving Time is observed for the given administrative feature. If a whole Administrative Area observes the same Daylight Saving Time, an entry in RDF_ADMIN_DST defines for which time frame the Daylight Saving Time is in effect for the Administrative Area. This can be used to automatically adjust the vehicle clock, depending on the location of the vehicle, the time zone and the GPS GMT time. The Date/Time information, as published in RDF_ADMIN_DST, must be observed for the period in which the Daylight Saving Time is in effect.
Values	Entry in RDF_ADMIN_DST for the Administrative Area to which the Daylight Saving Time applies.
Related Attributes	None.
Specification	The Daylight Saving Time applies to Administrative Area features 1111 through 1119, or 3110.

Daylight Saving Time is applied starting at the highest administrative level, if Daylight Saving Time can not be applied to the highest level, it is applied at the next highest level. This process is repeated until Daylight Saving Time has been applied to the appropriate level.

In the U.S., Daylight Saving Time is not observed everywhere. For instance Arizona does not observe Daylight Saving Time. Thus, Daylight Saving Time Observed is not published at the country level. It is published at the state level (Order-1 Area). However, if certain counties in a state do observe Daylight Saving Time, then Daylight Saving Time Observed is published at the county level.

For the U.S. the following would be coded:

Administrative Level	DST Published
Country	<i>Daylight Saving Time Observed</i> is not published.
Order-1 Area	Arizona/Hawaii; <i>Daylight Saving Time Observed</i> = N
All other states	<i>Daylight Saving Time Observed</i> = 1; <i>Appropriate Validity Period</i> is published.

See the *Country Profile* document in the Customer Technical Reference Guide (CTRG) for countries that observe daylight saving time.

5.3.2.7 Admin Wide Regulations (ADMIN_WIDE_REGULATIONS)

Definition	<i>Admin Wide Regulations</i> identifies Administrative Areas in which admin wide u-turn restrictions exist.
Table	RDF_ADMIN_ATTRIBUTE
Column	ADMIN_WIDE_REGULATIONS
Value	See Section C.4, RDF_ADMIN_ATTRIBUTE.
Related Table	RDF_CONDITION RDF_CONDITION_RDM RDF_NAV_STRAND RDF_ACCESS RDF_LANE_NAV_STRAND RDF_DATE_TIME RDF_CONDITION_DT
Related Attribute	<i>Permitted Driving Manoeuvre</i> (Condition Type = 39) <i>PDM Type</i>

Usage	<i>Permitted Driving Manoeuvre</i> conditions support optimised route calculation and improved route guidance.
Specification	<ul style="list-style-type: none">• If a country, state, county, or city has <i>Admin Wide Regulations</i> prohibiting U-turns, ADMIN_WIDE_REGULATIONS = 1 is published for that Administrative Area. For example, in the country of Singapore, U-turns are prohibited at intersections unless otherwise posted.• Where exceptions exist to the admin wide regulation, <i>Permitted Driving Manoeuvre</i> conditions (PDMs) are published.• If regulations are not known, <i>Admin Wide Regulations</i> is not published.

5.3.2.8 Government Code (GOVERNMENT_CODE)

Definition	Identifies the Government Code of an administrative feature. It can be used to identify an Administrative Area based on its Government Code.
Table	RDF_ADMIN_PLACE
Column	GOVERNMENT_CODE
Values	0-999999999
Specification	<ul style="list-style-type: none">• This attribute applies to Administrative Areas of all levels (1111, 1112, 1113, 1119 and 3110) and to Zones.• If available, official government codes as used within a country.• If official government codes are not available for a country, Government Codes are generated.• Some areas (Order-2 (1112) and Order-8 Areas (1119) in Germany do not have a Government Code assigned, therefore a Government Code of zero (0) is published. For example, Hamburg (Order-2) has a Government Code of zero (0) published.• Administrative features at the same level and part of the same higher administrative level are guaranteed to have a unique Government Code. That is, if administrative feature "A" and administrative feature "B" are both part of the same higher administrative feature "C", they do not have the same Government Code. They might have the same Government Code as administrative feature "D" which is part of administrative feature "E" (same level as "C").• In the case of Built-up Area (3110) existing in multiple Order-8 Areas (for example, Portland), the Government Code remains the same. The Government Code can be used to determine that all three components of Portland belong together and should be treated as one Built-up Area. Even though there is in fact only one Built-up Area, the higher level administrative level still needs to be retained in case it is needed for address resolution.

5.3.2.9 Official Name (NAME_TYPE = B)

Definition	<i>Official Name</i> indicates The official name of an administrative or boundary feature, in a language that is considered official within the specified Administrative Area.
Table	RDF_FEATURE_NAMES
Column	NAME_TYPE
Values	See the <i>Country Profiles</i> document.
Related Attributes	<p><i>Abbreviation of Area Name</i> (NAME_TYPE = A)</p> <p><i>Synonym</i> (NAME_TYPE=S)</p> <p><i>Exonym</i> (NAME_TYPE=E)</p> <p><i>Additional Exonym</i> (NAME_TYPE=E)</p>
Usage	<i>Official Names</i> of a feature can be used for destination selection and map display for languages supported by HERE.
Specification	<ul style="list-style-type: none"> • This <i>Official Name</i> applies to administrative levels Country through Order-8 Area, Built-up Area, Zones, and cartographic administrative boundary features, as published in RDF_CARTO. Cartographic Administrative Boundaries share names with Administrative Areas, where possible. This is enforced by a NAMED_PLACE_ID in RDF_CARTO, which defines an explicit mapping of Cartographic Administrative Areas to the administrative features in RDF_ADMIN_PLACE. However, Builtup Area cartographic features never relate to their Administrative Area; therefore, the NAMED_PLACE_ID in RDF_CARTO for Builtup Area (900156) is empty. The name for Cartographic Administrative Areas (RDF_CARTO entry with Feature Type: 900101, 900170, 909996, 907196) must be retrieved via the ADMIN_PLACE_ID (NAMED_PLACE_ID in RDF_CARTO). • If multiple names exist (in the same official language) for a particular Administrative Area, the most commonly used administrative name is published as the <i>Official Name</i>, and the additional name is published as the <i>Synonym</i>.

5.3.2.10 Long Haul (LONG_HAUL)

Definition	This attribute can be used to identify whether or not the admin feature is part of Long Haul products. This attribute can be used to identify if an administrative feature has been included as part of the Long Haul network coverage or not.
Values	<p>N = Not Part of Long Haul</p> <p>Y = Part of Long Haul</p>
Default Value	N = Not Part of Long Haul
Specification	<ul style="list-style-type: none"> • This attribute applies to all administrative boundary features defined in RDF_COUNTRY (FEATURE_TYPE = 900156, 900101, 900170, 909996, 907196, 908000 and 908001). The LONG_HAUL attribute is published, respectively, in RDF_CARTO_FACE

and RDF_CARTO_LINK, since only sub-parts of the full Cartographic administrative unit could be included in the Long Haul products.

5.3.2.11 Motorcycle Minimum Requirement (MOTORCYCLE_MIN_REQ)

Definition	Identifies the minimum engine size in cubic centimetres for a motorcycle to be legally allowed on a motorway or other designated controlled access roads.
Table	RDF_ADMIN_ATTRIBUTE
Column	MOTORCYCLE_MIN_REQ
Values	###
Cardinality	1:0, 1
Related Tables	RDF_ACCESS
Related Attributes	MOTORCYCLES
Usage	Enables proper route calculation for motorcycles with the specified engine size to be allowed on motorways.
Specification	<ul style="list-style-type: none">• <i>Motorcycle Minimum Requirement</i> is specified by the appropriate Administrative Area to identify the minimum engine size requirement for motorcycles to be allowed on the motorways and other designated controlled access roads in the particular area.• Engine size is specified by cubic centimetres.• <i>Motorcycle Minimum Requirement</i> is blank if values is unknown.

5.3.2.12 Postal Code (POSTAL_CODE)

Definition	The official code of a postal area as defined by the national postal organization. While this feature can be used for destination selection this is usually not recommended, except in the case of refined address resolution. For example, when the same address exists twice with a city, a postal code selection may narrow down which address is preferred.
	When displaying an address, the system may also want to display the postal code.

Value	POSTAL_CODE in RDF_POSTAL_AREA.
Specification	<ul style="list-style-type: none">• For the U.S. and Europe, Postal Codes are included for all Prime coverage areas. Postal Codes may be included in Network coverage areas.

5.3.2.13 Time Zone (TIME_ZONE)

Definition	Identifies the difference between local time and GMT/UTC for an area.
Values	A number between -12.00 and +12.00. Half an hour values (e.g., +11.50) are allowed.
Related Attributes	Daylight Saving Time as published in RDF_ADMIN_DST.
Usage	This can be used to automatically adjust the vehicle clock, depending on the time zone in which the vehicle is located, the Daylight Saving Time value, and the GPS GMT/UTC time.
Specification	<ul style="list-style-type: none"> The Time Zone information is specified for an administrative feature only if the whole administrative feature is in the same time zone. If not, the Time Zone is specified for smaller Administrative Areas. RDF_ADMIN_PLACE.TIME_ZONE is populated only for the highest Administrative Area to which the time zone information applies. The Time Zone is then applicable to all Administrative Areas in which this higher level Administrative Area can be subdivided.

Example 1

In the continental U.S., there are 4 time zones. Therefore, the U.S. Country feature does not have a Time Zone published.

Eastern Time Zone states (Order-1):

Time Zone(18) = -5.0

Central Time Zone states (Order-1):

Time Zone(18) = -6.0

Mountain Time Zone states (Order-1):

Time Zone(18) = -7.0

Pacific Time Zone states (Order-1):

Time Zone(18) = -8.0

Example 2

Deutschland (Country(1111))

Time Zone(18) = +1.0

5.3.2.14 Zone Type (ZONE_TYPE)

Definition	This attribute identifies the Zone type.
Table	RDF_ZONE
Column	ZONE_TYPE
Value	See Section C.89, RDF_ZONE.

Usage	Depending on the <i>Zone Type</i> , Zones have different uses.
Specification	<u>General Rules for Zones</u> <ul style="list-style-type: none">• In all cases, the <i>Zone</i> is an additional name to the <i>Built-up Area</i> name for destination selection. Systems should recognise the association of a link to all of the <i>Built-up Areas</i> and <i>Zones</i> when allowing destination input.• Each side of an edge may have from 0 to 10 <i>Named Areas</i> associated with it.• A <i>Named Place</i> POI is included for each <i>Named Area</i> for the following <i>Zone Types</i> = PA, KA, and KD. A <i>Named Place</i> POI is not included for a <i>Named Area</i> for <i>Zone Types</i> = GC, PA such as O'Hare Airport, and KD Zones in the UK.• <i>Named Area</i> features (except NB) do not have corresponding cartographic features.• If there are multiple occurrences of an address within a <i>Built-up Area</i>, <i>Zones</i> can be used for refined address resolution.
	<u>Postal Area (<i>Zone Type</i> = PA)</u>
	Postal Zones are assigned to areas the postal service designates for mail delivery. They reflect names of incorporated cities, military bases, unincorporated communities, or such entities as O'Hare Airport. <ul style="list-style-type: none">• A Postal Zone is not published if its name matches the Administrative Name of the city or settlement.• In the U.S., Puerto Rico, and the U.S. Virgin Islands, Postal Zones (<i>Zone Type</i> = PA) identify the post office which is responsible for the mail delivery in the particular area. (These are also referred to as Last Line City in the U.S. and Puerto Rico. In the United States Postal Service (USPS) file, the Last Line City is identified by the term "acceptable default".• A link can be associated with more than one Postal Zone (i.e., on the border). For example, on a postal code boundary, each side of the link may have a different PA Zone.• In some cases, residents may refer to their postal area name rather than the city in which they live or they may use the postal area name because they are not located within a city.• PA Zones do not indicate the actual Postal Code, but reflect the location name used by the appropriate postal service.
	<u>Known As (<i>Zone Type</i> = KA/KD)</u> <p>The Known As Zones identify what most end-users feel is the “place” name, regardless of whether or not it is the true administrative name. The zone types are:</p> <ul style="list-style-type: none">◆ Known As that Replaces Admin (<i>Zone Type</i> = KA)◆ Known As that Does Not Replace Admin (<i>Zone Type</i> = KD)• The KA and KD information is used when deciding which name to display or return to the user.

- ◆ KA indicates that the Zone name should be used in conjunction with the city or settlement name since that is what is commonly used as the area's name.
- ◆ KD indicates that the Zone name should NOT be used when displaying or returning the name back to the user. In the KD situation, the Zone name is not used since the boundaries for it may not be clear.
- The *Named Place* POI that corresponds to the KA Zone is placed within the largest Built-up Area for that zone. For the KD Zone, it is placed logically for that area.
- Known As Zones (either KA or KD zones) are assigned to *Named Place* POIs within incorporated cities or unincorporated areas that are significant for destination selection and may not be represented in the administrative hierarchy. However, a KA Zone name may be the same as the PA Zone name on the same link.
- It may be the case that the Zone exists in the administrative structure for links outside of that Administrative Area. Therefore, a KA or KD Zone may be applied to represent the Administrative Area though officially the links belong to another Administrative Area.
- For example (see *Figure 5-1*), the area outlined in red officially belongs to City B but it is often referred to as City A. Therefore, a KD or KA Zone is applied to represent City A. This allows for a street or POI in this area to be selected either under City A or City B.
- In Puerto Rico, urbanization names are published as KD Zones. Urbanization names are required for address uniqueness in urban areas and are part of the U.S. Postal Service mailing standards for Puerto Rico. In the following example, Royal Oaks is the urbanization name published as a KD Zone.

MR OSIRIS GONZALEZ
 URB ROYAL OAKS
 123 CALLE 1
 BAYAMON PR 00961-0123

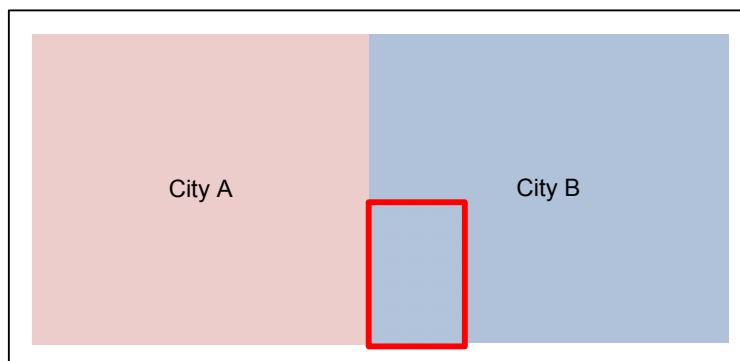


Figure 5-1

Neighbourhood (Zone Type = NB)

A community within a larger city, town, or suburban area. Typically, a neighbourhood is officially recognised by the municipality and can have one or more of the following: central meeting place, library, school, and/or fire and safety POIs.

- Neighbourhood Zones are published with a corresponding Neighbourhood cartographic Area Feature. See *Section 8.3.4.13, National Forest*. However, there is no direct association published between the Zone and the Neighbourhood feature.
- Neighbourhood Zones can overlap in areas where neighbourhood boundaries are not clearly defined.
- Neighbourhood Zones have corresponding *Government Codes*.
- A corresponding Neighbourhood POI (Feature Code = 9709) is included at the centre of the Neighbourhood Zone.

Greater City (Zone Type = GC)

- A Greater City Zone is a zone that defines a metropolitan area that may encompass multiple municipalities. Greater City Zones can be used to enhance destination selection. Greater City Zones are applied to all links that define the metropolitan area.
- Greater City Zones do not have to be coded on contiguous links.
- Greater City Zones are coded per link. They do not have to span an entire administrative level. For example, Los Angeles Greater City Zone does not exist for every link in Los Angeles County.
- Greater City Zones receive the name of the metropolitan area. For example, Los Angeles Metro Area, San Francisco Bay Area, etc.
- Government Codes are assigned to Greater City Zones.
- Named Place POIs are not required for Greater City Zones except if the Zone represents an administrative level that is not available for destination selection. For examples, the city of Delhi exists at Administrative Level 2 which is not available for destination selection. However, the city of Delhi is widely known and is therefore needed for destination selection. In this case, a Greater City Zone is published as "Delhi". Additionally, a Named Place POI for Delhi is also published. The metro area of Chicago is represented by a Greater City Zone with the name, Chicagoland. Since the city of Chicago is represented in the administrative structure and by a Named Place POI, this Greater City Zone does not receive a Named Place POI.
- Addresses are not unique within Greater City Zones.

Traffic Area (Zone Type = TA)

Note: This content is no longer maintained.

Unlike the other Zone Types, the *TMC Area Zone* is not intended for destination input or other geocoding related functionality. *TMC Area Zone* is only used to associate TMC Area coding to navigable links.

For more information on TMC Area Zone, see *Section 5.3.2.15, TMC Areas*.

5.3.2.15 TMC Areas

Note: This content is no longer maintained.

Definition TMC Areas represents a set of attributes that can be used to implement traffic messages related to area locations in the traffic location table in conjunction with the HERE Map Content. Additionally, TMC Areas can be used to provide traffic message information in route calculation and during route guidance.

Table RDF_AREA_TMC

Cardinality 1:0, 1, M

Related Attributes EBU_COUNTRY_CODE
LOCATION_TABLE_NR
LOCATION_CODE

Related Tables RDF_LINK_TMC

Usage The inclusion of RDS/TMC Area codes allows applications to receive traffic messages and communicate this information to the driver. The RDS/TMC Area codes must be used with the corresponding traffic tables. The following use cases can be supported by RDS/TMC Areas:

- Inclusion of traffic message information in route calculation. Based on the traffic event (e.g., “Serious fire” or “Avalanche risk”) the route can be minimized through the affected area or all together avoid the affected area.
- Inclusion of traffic messages information in route timing. Based on the traffic event (e.g., “Fog”) the route time can be longer through the affected area.
- Inclusion of traffic messages information in route information. Based on the traffic event (e.g., “earthquake damage”) the user could be informed that “earthquake damage” is present in the area through which the planned route is leading or that the affected area is nearby.
- Display of traffic messages in the map. Based on the traffic event (e.g., “falling rocks” or “flooding”) icons can be displayed in the affected area.
- Display of weather forecast messages in the map. Based on the forecast events and values for the different areas a weather forecast could be constructed in the map.

Specification • The following RDS TMC Area codes are published:

- ◆ TMC Area codes applicable to Administrative Areas
- ◆ Cartographic Built-Up Area (Code depends on the country)
- ◆ Water Areas (Main Type A5.0, SubTypes A5.1 and A5.2)
- ◆ Fuzzy Area (Main Type A6.0, SubTypes A6.1, A6.3, and A6.4)
- ◆ Application Region (Code A12.0)

- In Europe, TMC Area codes identify a RDS-TMC location of category Area as defined by a public body responsible for creating the RDS-TMC table.
- RDS/TMC Area codes can be published for administrative features Country(1111), Order-1 Area(1112), Order-2 Area(1113), Order-8 Area(1119) or Built-up Area(3110) depending on the RDS-TMC Area codes present in the RDS-TMC table per country.
- Additionally, the RDS/TMC Area codes for the cartographic administrative boundaries County Boundary(900170) and City Boundary(900101) (polygonal only) are published with the corresponding RDS/TMC Area code.
- An administrative feature can have one or more RDS/TMC Area codes assigned. An RDF_AREA_TMC record is published for each administrative feature that has a RDS/TMC Area code. Multiple RDF_AREA_TMC records are published when multiple RDS/TMC Area codes exist for the same admin feature (Named Place).
- The polygonal cartographic administrative boundaries can also have one or more TMC Area codes assigned. An RDF_AREA_TMC record is published for each cartographic feature with its associated RDS/TMC Area code
- TMC Area codes are published for polygonal cartographic administrative boundaries only. For administrative features that do not have a corresponding polygonal cartographic administrative boundary, the TMC Area codes are assigned to the next lower cartographic administrative boundary that is the slice level for the country.
For example, a country Country(1111) has a RDS/TMC Area code assigned in the RDS-TMC table. *Table 5-2* shows The Netherlands with four administrative levels. *Table 5-3* shows country Germany with five administrative levels. The fourth column in each table indicates the cartographic administrative boundary for which the TMC Area code for the country are published for a 4 and 5 level country.
- RDS-TMC Area codes can be published for
 - ◆ Polygonal cartographic features of various feature types (for example water polygons, land use (e.g., park, forest) or cartographic built-up area feature (900156))
 - ◆ Zone of Zone Type - TA, see *Section 5.3.2.16, TMC Area Zone (TA Zone)*.
- RDS-TMC Area codes are only published when the traffic location table for the corresponding country defines a TMC Area Code for a specific area feature.
- The TMC Area Code for a Fuzzy Area, Water Area or Built-Up Area defined in the traffic location table only gets associated with the HERE Map Content when a corresponding polygon (cartographic feature) exists in the map. No new polygons are added to the HERE Map Content to enable TMC Area Code publication.
- Application Region (A12.0) and Built-Up Area (Code depends on the country) as defined in the traffic location table only result in a TMC Area Code in the HERE Map Content when corresponding Administrative Area(s) are available in the map. The TMC Areas in the traffic location table are matched to the HERE Map Content primarily based on name comparison. No new Administrative Areas are published in the HERE Map Content to enable TMC Area Code publication.
- RDS-TMC Codes for the Built-Up Area in the traffic location table are published for the cartographic Built-up Area boundary(900156) and also to the administrative Built-up Area(3110).

- ◆ The TMC Area Code for the cartographic Built-up Area boundary(900156) supports the Display use-case.
- ◆ The TMC Area code for the administrative Built-up Area(3110) supports the route calculation and route guidance use-case.
- The geographic extent of the administrative Built-up Area(3110) may be different from the geographic extent of the cartographic Built-up Area(900156).
- An area can have multiple RDS-TMC Area codes assigned. An RDF_AREA_TMC record is published for each area and its corresponding RDS-TMC Area code. Multiple RDF_AREA_TMC records are published for a single area if multiple RDS-TMC Area codes are defined in the traffic location table for such area.
- TMC Area Code is published for polygonal cartographic features only; TMC Area Code are not published for linear cartographic features.
- Since the traffic location tables do not explicitly define the geographic extent of TMC Areas, the polygon in the HERE Map Content to which the TMC Area Code is associated is only an approximation of the geographic extent.

Administrative Area Name	Administrative Feature	Cartographic Administrative Boundary	Cartographic Administrative Boundary with TMC Area Code
Country	Country(1111)	Country Boundary (907196)	
Provincie	Order-1 Area(1112)	County Boundary (900170)	X
Gemeente	Order-8 Area(1119)	City Boundary (900101)	
Settlement	Built-up Area(3110)	Built-up Area Boundary (900156)	

Table 5-2

Administrative Area Name	Administrative Feature	Cartographic Administrative Boundary	Cartographic Administrative Boundary with TMC Area Code
Country	Country(1111)	Country Boundary (907196)	
Bundesland	Order-1 Area(1112)	State Boundary (909996)	
Kreis	Order-2 Area(1113)	County Boundary (900170)	X
Gemeinde	Order-8 Area(1119)	City Boundary (900101)	
Settlement	Built-up Area(3110)	Built-up Area Boundary (900156)	

Table 5-3

Examples [Country and Province](#)

TMC Area code “11223” is assigned to “Nederland” - admin level Country (1111) in the RDS-TMC table for the Netherlands. Country level is not polygonal so the TMC Area code for country is assigned to the next lower administrative boundary feature that is the slice level for the country. For the Netherlands this is administrative boundary feature County Boundary (900170).

TMC Area code “12345” is assigned to “Noord-Brabant” - admin level Provincie Order-1 Area (1112) in the RDS-TMC table for the Netherlands. Province corresponds to administrative boundary feature County Boundary (900170). As a result the administrative boundary feature County Boundary (900170) is assigned two TMC area codes, one for the country level and one for the province.

Entry to code the Area Location Code to the Country (Admin_Type = 1111) Administrative Area (OWNER = AD).

RDF_AREA_TMC	
FEATURE_ID	11223344
OWNER	AD
EBU_COUNTRY_CODE	8
LOCATION_TABLE_NR	17
LOCATION_CODE	11223

Entry to code the Area Location Code to the Order1 (Admin_Type = 1112) Administrative Area (OWNER = AD).

RDF_AREA_TMC	
FEATURE_ID	12345678
OWNER	AD
EBU_COUNTRY_CODE	8
LOCATION_TABLE_NR	17
LOCATION_CODE	12345

Entry for Cartographic Feature (OWNER = CO) representing County Boundary (900170), with the TMC code for the Country (Location Code = 11223).

RDF_AREA_TMC	
FEATURE_ID	99887766
OWNER	CO
EBU_COUNTRY_CODE	8
LOCATION_TABLE_NR	17
LOCATION_CODE	11223

Entry for Cartographic Feature (OWNER = ‘CO’) representing County Boundary (900170), with the TMC code for the Order1 Area (Location Code = 12345).

RDF_AREA_TMC	
FEATURE_ID	99887766
OWNER	CO
EBU_COUNTRY_CODE	8
LOCATION_TABLE_NR	17
LOCATION_CODE	12345

City (order 8)

TMC Area code “11443” is assigned to “Veldhoven” - admin level Gemeente *Order-8 Area* (1119) in the RDS-TMC table for the Netherlands. Gemeente corresponds to administrative boundary feature *City Boundary* (900101).

Entry to code the Area Location Code to the Order8 (Admin_Type = 1111) Administrative Area (OWNER = ‘AD’).

RDF_AREA_TMC	
FEATURE_ID	34326579
OWNER	AD
EBU_COUNTRY_CODE	8
LOCATION_TABLE_NR	17
LOCATION_CODE	11443

Entry for Cartographic Feature (OWNER = ‘CO’) representing City Boundary (900101), with the TMC code for the Order8 Area (Location Code = 11443).

RDF_AREA_TMC	
FEATURE_ID	87564326
OWNER	CO
EBU_COUNTRY_CODE	8
LOCATION_TABLE_NR	17
LOCATION_CODE	11443

5.3.2.16 TMC Area Zone (TA Zone)

Note: This content is no longer maintained.

Definition	TMC Area Zone is a type of Zone that identifies a fuzzy area or water area from the traffic location table.
Table	RDF_ZONE
Column	ZONE_TYPE
Value	See <i>Section C.89, RDF_ZONE</i> .
Related Table	RDF_LINK_ZONE for associations between Links and TMC Area Zone. RDF_AREA_TMC
Usage	The TMC Area Zone can be used to retrieve all navigable links that located within a specific TMC Area. The TMC Area Zone allows for dynamic guidance or route calculation based on broadcasted Events that relate to a TMC Area. The TMC Area Zone is not to be used for destination input.
Specification	<ul style="list-style-type: none">• TMC Area Zone is applied to all navigable links located within one of the following TMC Areas:<ul style="list-style-type: none">◆ Water Area (A5.0, SubType A5.1 and A5.2) (only for boat ferry links and bridges crossing the water area)◆ Fuzzy Area (A6.0) of type:<ul style="list-style-type: none">— Tourist Area (A6.1)— Industrial Area (A6.3)— Traffic Area (A6.4)• To describe TMC Areas representing administrative units, or groupings of administrative units, existing Administrative Areas in the HERE Map Content are used (e.g., Built-Up, Order-8, Order-2, Order-1, and Country). For such administrative units the existing Link - Admin coding associates the TMC Area Code to the navigable link. No TMC Area Zone is used for these situations. For example, 'Nordbayern' is an Application Region (A12.0) in the German traffic location table. 'Nordbayern' can be described using existing Administrative Areas in the HERE Map Content. If 'Nordbayern' can be described using existing Kreis-areas (Order-2 areas), each Kreis (Order-2 areas) in the map is published with the TMC Area Code for Application Region (A12.0) 'Nordbayern' as defined in the location table.• The TMC Area Zone is unnamed.• The TMC Area Zone always has an associated TMC Area Code. The TMC Area Code is published in RDF_AREA_TMC with OWNER = ZN.• The TMC Area Zone should not be used for destination input or other geocoding related functionality. TMC Area Zone is only used to associate TMC Area coding to navigable links.

- The TMC Area Zone has no associated Government Code.
- Since the TMC Area Zone is not used for geocoding related functionality, the TMC Area Zone is not associated with other Administrative Areas. This implies that the TMC Area Zone does not have corresponding entries in:
 - ◆ RDF_PLACE_ZONE
 - ◆ RDF_ZONE_POSTAL
 - ◆ ADM_% (Administrative Extension tables)
- POI and Named Place POI are not associated with a TMC Area Zone.
- TMC Area Zone is published for a Water Area when ferry links or bridge(s) cross the water feature. When no ferry link and no bridge exist on the water feature representing a Water Area, no TMC Area Zone is published.
- A TMC Area Zone is published for all navigable links located within a TMC Area. If no navigable links exist within a specific TMC Area (Fuzzy Area or Water Area) then no TMC Area Zone is published.

The green area in *Figure 5-2* is an existing land-use polygon in the HERE Map Content corresponding to the TMC Fuzzy Area. All Links located within this green area are associated with the TMC Area Zone (*Section Figure 5-3*,), using standard link - zone coding principles (RDF_LINK_ZONE).

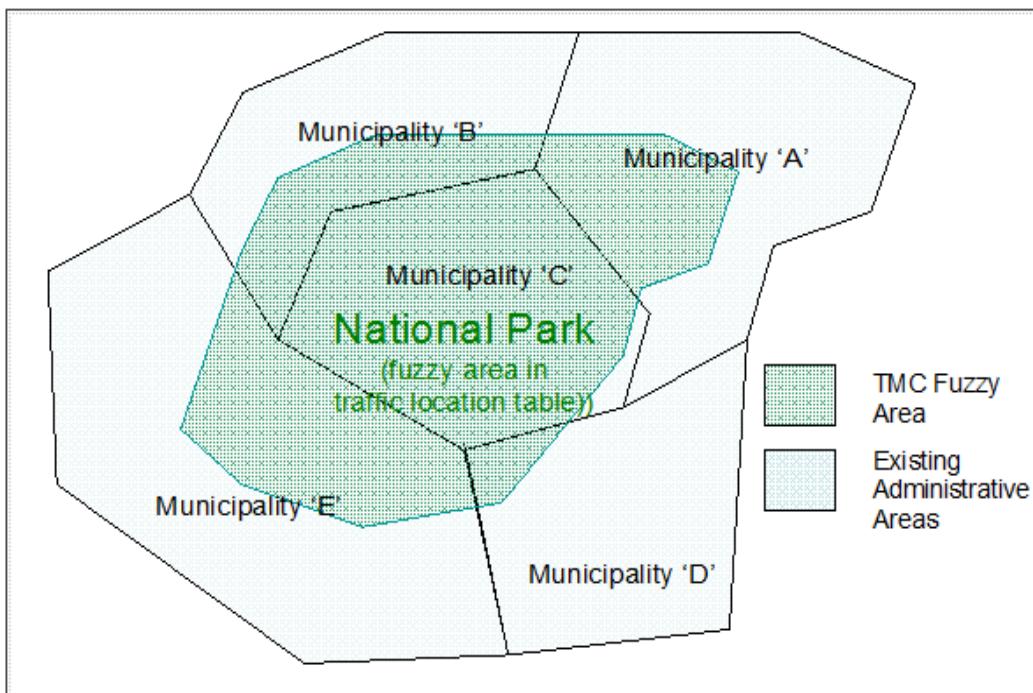


Figure 5-2

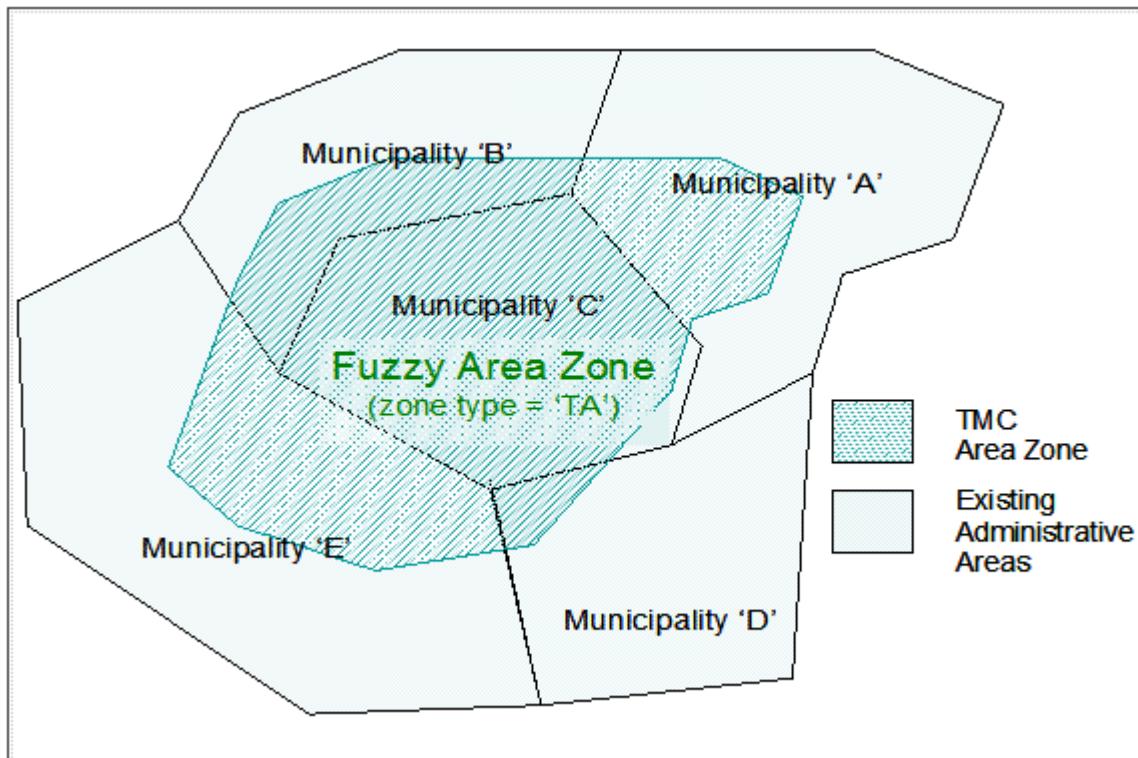


Figure 5-3

ExamplesWater Area

The traffic location table in Germany includes an A5.2 code (Lake), for 'Kochelsee'.

D	58	7.01	1	35110	A5.2		Kochelsee	00332
---	----	------	---	-------	------	--	-----------	-------

The attribution for this Water Area is:

Existing cartographic feature for Lake 'Kochelsee' is published with a TMC Area code. This results in RDF_AREA_TMC entry, where AREA_ID = CARTO_ID for the Lake 'Kochelsee' and Owner = CO (Carto). The LOCATION_CODE = 35110.

RDF_CARTO entry for Lake 'Kochelsee'.

CARTO_ID	FEATURE_TYPE	NAMED_PLACE_ID	NAMED_PLACE_TYPE
150781109	500421		

RDF_FEATURE_NAME entry for the naming of this Lake:

NAME_ID	LANGUAGE_CODE	NAME
500335797	GER	KOCHELSEE

RDF_AREA_TMC entry for the cartographic feature:

FEATURE_ID	OWNER	EBU_COUNTRY_CODE	LOCATION_TABLE_NR	LOCATION_CODE
150781109	CO	D	1	35110

Visually the following could be achieved with the TMC Area code for water area Lake Kochelsee in this example. This highlighted area in *Figure 5-4* represents the lake; the Event Type could trigger specific display of the lake.

If Ferries would cross this Lake, the ferries links are published with Link - TMC Area Zone coding. The TMC Area Zone then has a corresponding entry in RDF_AREA_TMC, and is published with Location Code = 35110

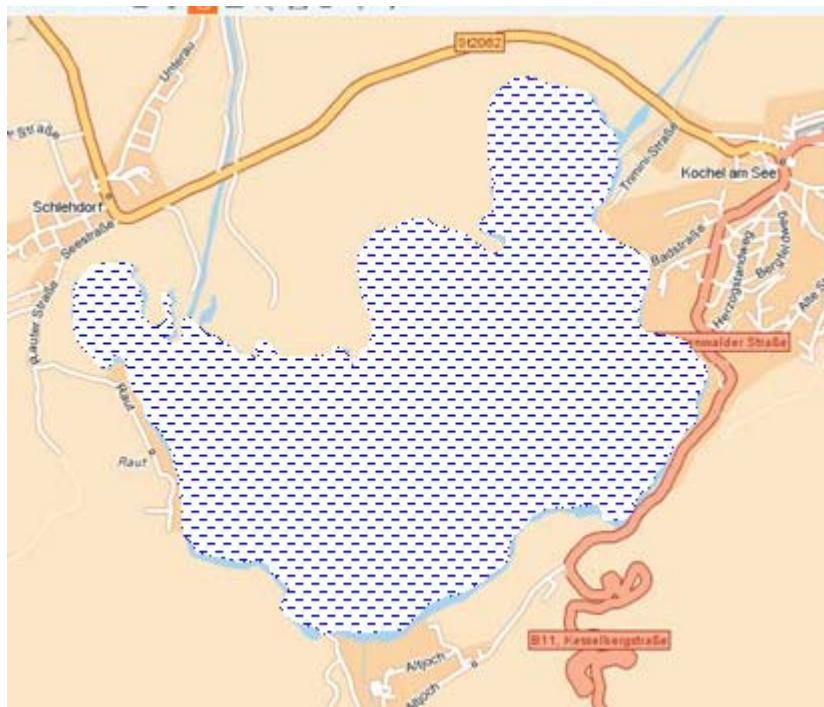


Figure 5-4

Fuzzy Area

The traffic location table in Germany defines a Fuzzy Area A6.1 code (Tourist Area), for 'Harz'.

D	58	7.01	1	6017	A6.1		Harz	00258
---	----	------	---	------	------	--	------	-------

The map includes a polygon for National Park Harz (FEATURE_TYPE = 900103). This cartographic feature gets an associated TMC Area Code, in RDF_AREA_TMC:

RDF_CARTO entry (existing) for National Park 'HARZ':

CARTO_ID	FEATURE_TYPE	NAMED_PLACE_ID	NAMED_PLACE_TYPE
170333940	900103		

RDF_FEATURE_NAME for the naming of this park:

NAME_ID	LANGUAGE_CODE	NAME
500463334	GER	NATIONALPARK HARZ

RDF_AREA_TMC table entry for the cartographic feature, and for the corresponding TMC Area Zone:

FEATURE_ID	OWNER	EBU_COUNTRY_CODE	LOCATION_TABLE_NR	LOCATION_CODE
170333940	CO	D	1	6017
449954325	ZN	D	1	6017

In addition, a TMC Area Zone is created (in RDF_ZONE) for the entire area covered by the National Park Harz. This TMC Area Zone is used to associate the TMC Area Code to all navigable links within the park.

ZONE_ID	ZONE_TYPE	ADMIN_PLACE_ID	GOVERNMENT_CODE
449954325	TA		0

All navigable links inside the green area in *Section Figure 5-5*, named National Park Harz are associated with TMC Area Zone, through regular Link - Zone coding (RDF_LINK_ZONE). This corresponds to the green polygon in *Section Figure 5-5*.

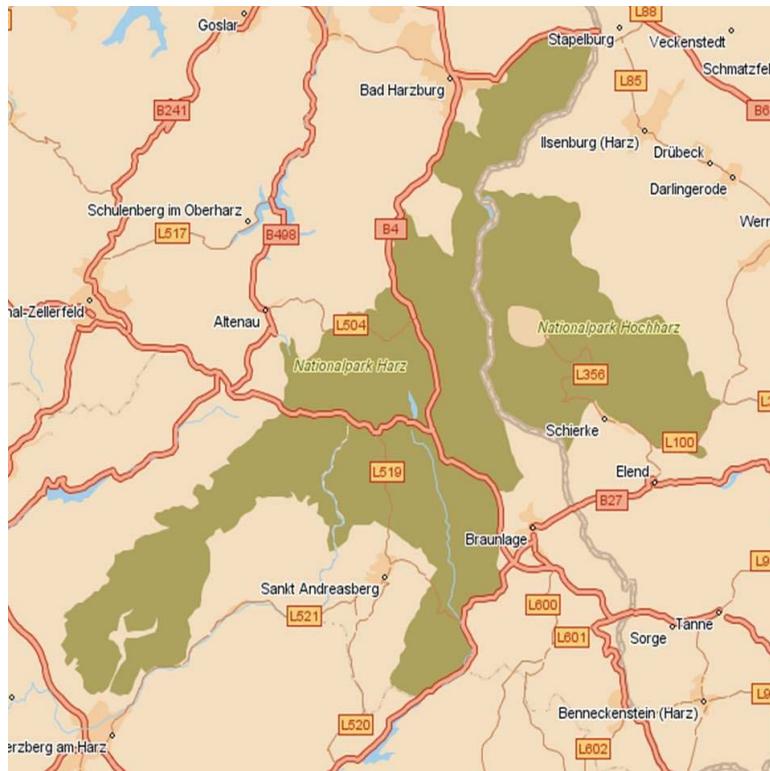


Figure 5-5

The existing national park polygon for the Harz (900103) can be used to highlight for specific traffic events applicable to the Fuzzy tourist area 'Harz'.

The new Link - Zone coding for TMC Area Zone Type = 'TA') can be used to adapt route calculation or route guidance based on specific Event Types

5.3.3 Administrative Hierarchies

5.3.3.1 Graph Structure

RDF_ADMIN_GRAPH

RDF_ADMIN_GRAPH defines a graph-representation of the administrative hierarchy. The graph is defined as a set of parent-child relationships between Administrative Areas.

This structure supports multiple parents per child, however in practice only a single parent is used. Country-level admin places appear in the RDF_ADMIN_GRAPH only as PARENT_ID values.

5.3.4 Flat Hierarchy Structure

RDF_ADMIN_HIERARCHY

RDF_ADMIN_HIERARCHY is a denormalized version of the admin graph for Administrative Areas (Country down to Builtup level) as well as Postal Zones. This table is not required

for the tuple model, being the Administrative Extension in RDF, but is included to simplify queries on administrative information. The table has high redundancy in the sense that administrative entities are replicated - this is just to allow for quick data retrieval without performing additional joins.

There is a one-to-one relationship between the RDF_ADMIN_HIERARCHY and the RDF_ADMIN_PLACE table. Each administrative level in RDF_ADMIN_HIERARCHY has a corresponding entry in RDF_ADMIN_PLACE.

5.4 Census IDs

Census IDs is modelled as attributes of Administrative Areas and Zones. The model is global and can represent any type of census data. The model includes:

- Tables
 - RDF_ADMIN_CENSUS
 - RDF_ZONE_CENSUS
 - RDF_CENSUS
- Attributes
 - Census ID
 - Census Type
 - Census Value
 - Census Name

Currently, the model publishes U.S. census data; Census Codes, Census Class Codes, new Geographic Names Information System (GNIS) Feature IDs, Core Based Statistical Areas (CBSA), and New England City and Town Areas (NECTAs) including Metropolitan and Micropolitan Statistical Areas, NECTA Divisions, and Metropolitan Divisions.

Related Tables RDF_ADMIN_PLACE

RDF_ZONE

Usage For GIS and government markets, Census IDs can be used for geocoding, displaying, and analyzing census data.

Specification

- Census data can be defined for admin places or zones. The attributes can be associated with the following Admin Types:
 - ◆ 1111: Country
 - ◆ 1112: Order1
 - ◆ 1113: Order2
 - ◆ 1119: Order8 Area
 - ◆ 3110: Built-Up Area
- GNIS codes can be specified for Administrative Areas that are not published in RDF. The inclusion of these Administrative Areas is not part of the scope Census IDs product

5.4.1 Census ID (CENSUS_ID)

Definition *Census ID* defines a unique identifier that indicates that the data is referencing Census data.

Tables RDF_CENSUS, See Section 12.3.34, *RDF_CENSUS* for schema.

RDF_ADMIN_CENSUS, See *Section 12.3.8, RDF_ADMIN_CENSUS* for schema.

RDF_ZONE_CENSUS, See *Section 12.3.145, RDF_ZONE_CENSUS* for schema.

Column	CENSUS_ID
Value	Numeric ID
Related Attributes	CENSUS_TYPE CENSUS_VALUE CENSUS_NAME LANGUAGE_CODE
Usage	<i>Census ID</i> can be used to identify the census data in the different Census related RDF tables.
Specification	<ul style="list-style-type: none">• <i>Census ID</i> values are unique per census area.• An Admin Place or Zone can belong to one or more census areas.• The <i>Census ID</i> is not permanent.

5.4.2 Census Type (CENSUS_TYPE)

Definition	<i>Census Type</i> defines the type of census data for an area; for example, GNIS Feature ID or Census Class Code.
Table	RDF_CENSUS, See <i>Section 12.3.34, RDF_CENSUS</i> for schema.
Column	CENSUS_TYPE
Value	See <i>Section C.17, RDF_CENSUS</i> .
Cardinality	1:0, 1, M (Admin Place/Zone: Census Type)
Related Tables	RDF_ADMIN_CENSUS, See <i>Section 12.3.8, RDF_ADMIN_CENSUS</i> for schema. RDF_ZONE_CENSUS, See <i>Section 12.3.145, RDF_ZONE_CENSUS</i> for schema.
Related Attributes	CENSUS_ID CENSUS_VALUE CENSUS_NAME LANGUAGE_CODE GOVERNMENT_CODE
Usage	<i>Census Type</i> can be used to identify the type of census data.
Specification	<ul style="list-style-type: none">• <i>Census Type</i> = 1 – Census Code defines that the Census data is referencing the Census Codes, previously known as the Federal Information Processing Standard

(FIPS) code. Census Codes are currently published as the Admin Place government code. Census Codes are also published in the RDF_CENSUS table with *Census Type* = 1 – Census Code.

- *Census Type* = 2 – Census Class Code defines the census classification of a place. An example would be:

C1: Identifies an active incorporated place that is not also recognized as an Alaska Native Village statistical area, and does not also serve as a primary county division; that is, it is included in and is part of a primary county division. For example, the city of Hammond, Indiana is within and part of North township; the city of Austin, Texas is within and part of several census county divisions in several counties; Hammond and Austin are coded C1.
- *Census Type* = 3 – GNIS Feature ID defines that the Census data is referencing the Geographic Names Information System (GNIS) Feature ID. GNIS Feature IDs are similar to Census Codes. GNIS includes geographic names for all known places, features, and areas in the United States that are identified by a proper name. Census Codes defined for level 4 Administrative Areas and Zones are being phased out by the U.S. government and replaced by GNIS Feature IDs. However, GNIS Feature IDs are an addition to and not a replacement of Census Codes. New places only get a GNIS Feature ID assigned. For new places the government code publishes the GNIS feature ID. In addition, the GNIS Feature ID is published with *Census Type* = 2 – GNIS Feature ID in table RDF_CENSUS.
- *Census Type* = 4 – CBSA Metropolitan Statistical Area defines that the Census data is referencing the Core Based Statistical Area (CBSA). CBSA is a collective term for both metro and micro areas. A metro area contains a core urban area of 50,000 or more population, and a micro area contains an urban core of at least 10,000 (but less than 50,000) population. Each metro or micro area consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration with the urban core (as measured by commuting to work).
- *Census Type* = 5 – CBSA Micropolitan Statistical Area. See definition above.
- *Census Type* = 6 – NECTA Metropolitan Statistical Area defines a set of geographic areas that are defined using cities and towns in the six New England states. The New England City and Town Areas (NECTAs) are defined using the same criteria as Metropolitan and Micropolitan Statistical Areas and are identified as either Metropolitan or Micropolitan. A metro area contains a core urban area of 50,000 or more population, and a micro area contains an urban core of at least 10,000 (but less than 50,000) population.
- *Census Type* = 7 – NECTA Micropolitan Statistical Area. See definition above.
- *Census Type* = 8 – Metropolitan Division defines that the Census data is referring to a county or group of closely tied contiguous counties that serve as a distinct employment region within a metropolitan statistical area that has a population core of at least 2.5 million. While a Metropolitan Division is a subdivision of a larger metropolitan statistical area, it often functions as a distinct social, economic, and cultural area within a larger region.
- *Census Type* = 9 – NECTA Division defines NECTAs (see definition above) containing a single core with a population of at least 2.5 million that are subdivided to form smaller groupings of cities and towns referred to as NECTA Divisions.

5.4.3 Census Value (CENSUS_VALUE)

Definition	Census Value defines the actual values defined in the Census Data (e.g., GNIS Feature ID, Census Class Code etc.).
Table	RDF_CENSUS, See <i>Section 12.3.34, RDF_CENSUS</i> for schema.
Column	CENSUS_VALUE
Value	Number or Census Class Code
Cardinality	1:0, 1, M (Admin Place/Zone: Census Value)
Related Tables	RDF_ADMIN_CENSUS, See <i>Section 12.3.8, RDF_ADMIN_CENSUS</i> for schema. RDF_ZONE_CENSUS, See <i>Section 12.3.145, RDF_ZONE_CENSUS</i> for schema.
Related Attributes	CENSUS_ID CENSUS_TYPE CENSUS_NAME LANGUAGE_CODE GOVERNMENT_CODE
Usage	Census Value can be used to identify the value that corresponds to the Census Type.
Specification	<ul style="list-style-type: none">• Census Value for Census Type = 1 publishes the Census Code. Census Codes are used as the government codes currently published for Admin Places in the U.S. This data is also published as Census data for completeness.• Census Value for Census Type = 2 publishes the Census Class Code corresponding to the FIPS 55-3 standard. Census Class Codes are alphanumeric and defined at http://geonames.usgs.gov/pls/gnispublic. Census Class Codes are published only for level 3 and 4 Administrative Areas and Zones.• Census Value for Census Type = 3 publishes the GNIS Feature ID.<ul style="list-style-type: none">◆ Census Codes (Census Type = 1) and GNIS Feature IDs (Census Type = 3) are published for Administrative Areas (Admin Level 1-4 in the U.S.) and all Zones with official government codes.• Census Value for Census Type = 4 publishes the CBSA code for Metropolitan Statistical Areas. CBSA codes are published for one or more Counties where applicable.• Census Value for Census Type = 5 publishes the CBSA code for Micropolitan Statistical Areas. CBSA codes are published for one or more Counties where applicable.<ul style="list-style-type: none">◆ CBSA Metropolitan or Micropolitan areas (Census Type = 4 or 5) can span multiple Counties. There is one CBSA that defines a partial county. St. Louis, MO-IL Metropolitan Statistical Area only includes the Sullivan City part of

Crawford County, MO. For this specific case the complete Crawford County are published with the CBSA code (41180) for St. Louis, MO-IL.

- *Census Value for Census Type = 6* publishes the NECTA code for Metropolitan Statistical Areas. NECTAs are published for one or more cities or towns where applicable.
- *Census Value for Census Type = 7* publishes the NECTA code for Micropolitan Statistical Areas. NECTAs are published for one or more cities or towns where applicable.
- *Census Value for Census Type = 8* publishes the Metropolitan Division Code.
- *Census Value for Census Type = 9* publishes the NECTA Division code.

5.4.4 Census Name (CENSUS_NAME)

Definition	Census Name defines the name for Census Areas as defined in the census data.
Table	RDF_CENSUS, See <i>Section 12.3.34, RDF_CENSUS</i> for schema.
Column	CENSUS_NAME
Values	Name of the Census Area.
Cardinality	1:0, 1, M (Admin Place/Zone: Census Name)
Related Tables	RDF_ADMIN_CENSUS, See <i>Section 12.3.8, RDF_ADMIN_CENSUS</i> for schema. RDF_ZONE_CENSUS, See <i>Section 12.3.145, RDF_ZONE_CENSUS</i> for schema.
Related Attributes	CENSUS_ID CENSUS_TYPE CENSUS_VALUE LANGUAGE_CODE
Usage	Census Name can be used to identify the name of the CBSA (metropolitan or micropolitan), NECTA (metropolitan or micropolitan), Metropolitan Division, or NECTA Division.
Specification	<ul style="list-style-type: none"> • Census Names are published for the following areas: <ul style="list-style-type: none"> ◆ CBSA Metropolitan Statistical Area ◆ CBSA Micropolitan Statistical Area ◆ NECTA Metropolitan Statistical Area ◆ NECTA Micropolitan Statistical Area ◆ Metropolitan Division ◆ NECTA Division • Census Names are referred to as “Title” in the Census Data.

- For CBSA and NECTA Metropolitan and Micropolitan Statistical Areas the Name does not include “Metropolitan Statistical Area” or “Micropolitan Statistical Area”. CENSUS_TYPE defines “Metropolitan Statistical Area” or “Micropolitan Statistical Area”.

Example CBSA Micropolitan Statistical Area “Zanesville, OH”:

CENSUS_TYPE = 5 – CBSA Micropolitan Statistical Area

CENSUS_VALUE = 49780

CENSUS_NAME = Zanesville, OH

LANGUAGE_CODE = ENG

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Signs and Conditions

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6.1 Introduction

This section describes road signs and the conditions they impose on route guidance.

6.2 Signs

6.2.1 Signpost Information

Signs represent textual and graphic information posted along roads. The information is always represented as text, but may originate from a graphical icon. Signs are coded by a Start and End link, which are not necessarily contiguous.

Signpost information can be used for route guidance (both audible and graphical/textual guidance) and map display. It is important to use the sign text and not the name on the ramp or the name at the end of the ramp because that doesn't always match what is on the sign and may confuse a system user.

In Europe, Toward Text is most relevant for guidance, while in the North America, both Branch and Toward Route Numbers information are most relevant. Furthermore, in North America, if Route Numbers are not present, Branch Text is preferred over Towards Text.

Additionally, Route Direction is important for both audible and graphical route guidance in North America.

Related Attributes	<i>Route Direction</i> <i>Official Name/Alternate Name</i> <i>Exit Number</i> <i>Sign Text Type</i>
---------------------------	--

Related Tables RDF_SIGN_DESTINATION

RDF_SIGN_ORIGIN
RDF_SIGN_ELEMENT

- Specification**
- Route Number/Route Direction icons are not published.
 - The Signpost representation is an association between two links, the “From link” (RDF_SIGN_ORIGIN.ORIGINATING_LINK_ID) and the “To link” (RDF_SIGN_DESTINATION.DEST_LINK_ID). They are not necessarily contiguous.
 - The “From link” is the link prior to a manoeuvre decision. A manoeuvre decision is a point where the road splits and the driver is unable to determine the direction to traverse.
 - The “To link” is the link traversed after the decision point.
 - Signpost information at qualifying decision points is entered Route Direction, Route Number, Official Name/Alternate Name, Exit Number, and Sign Text Type.

General Inclusion

- Advisory signs are included generally at decision points along motorways including ramps, intersections, and junctions.

- The signs included are generally the last signs before the decision point. If no sign is located at the decision point, the next closest sign leading to the necessary manoeuvre is applied.
- Additional signs may be added at other locations where such information is navigationally significant. See the *Country Specific Rules* document for country-specific inclusions.
- The following types of sign information are included:
 - ◆ Street Names (e.g., Main St)
 - ◆ Route Names (e.g., A5)
 - ◆ City Names (e.g., Eindhoven)
 - ◆ Airport Names (e.g., Heathrow)
 - ◆ Country Names (e.g., Frankreich)
 - ◆ Exit Numbers (e.g., 12)
 - ◆ Generic terms for City Centre posted (e.g., Downtown, Zentrum, City Center, etc.)
 - ◆ Generic terms for City Centre when sign posted with a city name (e.g., San Francisco City Center, Downtown San Jose, etc.)
 - ◆ Tourist information if posted with a destination sign and provides useful information
 - ◆ Navigationally significant text (including icons or symbols) posted on official road signs (e.g., Airport, Ferry Boat/Train, Harbour, Train, etc.)
 - ◆ Other relevant information for aiding the driver
- The following types of sign are not included:
 - ◆ Signs indicating the exit without a unique number or name (Exit, Ausfahrt, etc.)
 - ◆ Speed Limit Signs
 - ◆ Tourist Information Signs (e.g., Museum or Downtown)
 - ◆ Route number signs (as well as Route shield icons) along the motorway
 - ◆ Signs indicating distance to a city or location
 - ◆ City name that is followed by the designation of a country in a circle (i.e., D in a circle for Germany)
 - ◆ Extraneous sign text such as “Exit Only”, “Keep Left”, “To”, “To”, “Sortie”, “Uit”, and “Uscita”, etc.
 - ◆ Signs pointing to all destinations, such as “Toutes Directions” and “Alle Richtungen”. etc.
 - ◆ Signs indicating a Rest Area or parking lot
 - ◆ Signs with variable text.

Inclusion on Motorways

- The following sign information are included:
 - ◆ Exit ramps (Origin: Motorway; Destination: Ramp)

- ◆ On the motorway (Origin: Motorway; Destination: Motorway)
- ◆ Ramp splits (Origin: Ramp; Destination: Ramp)
- ◆ Motorway entrance Ramps (Origin: Local Road; Destination: Ramp)
- ◆ Continuation Sign (Origin: Motorway; Destination: Motorway)
- ◆ Ramp End (Origin: Ramp; Destination: Local Road) - in select regions/countries only. See the *Country Specific Rules* document.

Inclusion on Non-Motorways (Non-Controlled Access)

- The following sign information are included:
 - ◆ Branch and Toward signs for all directions accessing the ramps
 - ◆ Sign information on bifurcations applied with *Special Explication*
- See the *Country Specific Rules* document for region/country specific inclusion.

Inclusion at Airports

- The following are specific inclusion guidelines for Airports.
 - ◆ Signs are entered at all decision points, including signs pointing to cargo terminals.
 - ◆ Airline names are not included in the sign text. If the text on the sign is "Terminal 1: KLM/Martinair", only "Terminal 1" is included.
 - ◆ All other sign information that is significant to a driver is included. Examples: Arrivals, Departures, Rental Cars, Rental Return, Short Term Parking, Long Term Parking, Terminal information, etc.
 - ◆ Signs listing multiple terminal names are included as one line of text with no spaces between the terminal numbers, e.g., "Terminal A/B/C".
 - ◆ Symbols are converted to text if applicable. For all symbols, the symbol is only converted when there is no additional name attached, where the symbol for Rental Car is followed by Hertz, only Hertz is added. See *Figure 6-1* for European examples and *Figure 6-2* thru *Figure 6-5* for U.S. examples.

Note: These are not necessarily consistent throughout the U.S.



Figure 6-1



Figure 6-2



Figure 6-3



Figure 6-4



Figure 6-5

Representation

- The sign information is entered from the top of the sign down. The information at the top is deemed to be the most important. Any supplemental sign, e.g., a sign for a car rental, however is entered last even it is located on top of the sign.
- Signpost information is entered exactly as spelled on a signpost, including punctuations.
- Symbols depicted on a sign are translated into word in the national language and included as Toward Text, if applicable. For example, if an airport symbol is depicted on a sign and followed by the location name, e.g., Frankfurt, if the sign was in Germany, the sign entry would be "Flughafen Frankfurt".

- Exit numbers posted just outside the decision point can be combined with the other signs at the decision point.

6.2.2 Sign Text Type (ENTRY_TYPE)

Definition identifies whether signpost information is a specific destination at the end of a ramp (Branch) or beyond where the ramp ends (Towards).

Table
RDF_SIGN_ELEMENT
RDF_SIGN_DESTINATION
RDF_SIGN_ORIGIN

Column ENTRY_TYPE

Values
B - Branch
T - Towards

Related Attribute *Text Type (TEXT_TYPE)*

Usage *Sign Text Type* in conjunction with other sign information can be used for route guidance (both audible and graphical/textual guidance) and map display. For example, this attribute can trigger guidance of “take the main street exit” or “take the exit toward main street”.

Specification Branch

- *Sign Text Type (ENTRY_TYPE) = B* is only applied when the ramp system is directly connected to the link identified in the signpost.
 - ◆ Route Numbers that are Branch information are published as a Sign Text with *Sign Text Type (ENTRY_TYPE) = B* with *Text Type (TEXT_TYPE) = R* (Route Number).
 - ◆ Numbered routes represented on a sign as text (no shield) are entered as *Sign Text Type (ENTRY_TYPE) = B* with *Text Type (TEXT_TYPE) = T* (Sign Text).
 - ◆ Non-numeric routes represented in a shield or symbol (e.g., routes such as “Garden State Parkway”, “New Jersey Turnpike North”, and “Florida’s Turnpike South”) are flagged *Text Type = T* (Sign Text) with *Sign Text Type = B*. The directional identifiers are spelled out in the Sign Text.

Example

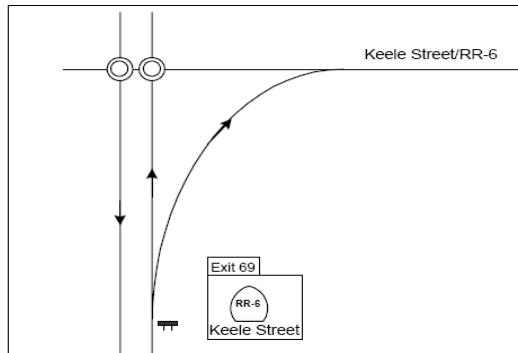


Figure 6-6: Branch Route

In Figure 6-6, Keele Street would be applied as *Text Type = T* (*Text*) with *Sign Text Type = B*. The other information in the signpost would be published as follows: RR-6 would be applied as *Text Type = R* (*Route Number*), Exit number 69 would be applied as *Exit Number*.

Toward

- *Sign Text Type = T* (*Toward*) is only applied when an entire ramp system is not directly connected to the link named in the signpost, but is toward an eventual destination identified in the signpost. For example, in the U.S., the sign includes Main St. However, the ramp system does not touch Main St. Main St would be applied as a *Text Type = T* (*Sign Text*) with *Sign Text Type = T* (*Toward*).
 - ◆ Numbered routes represented on a sign as text (no shield) are flagged as *Text Type = T* (*Sign Text*) with *Sign Text Type(@T) = T*. For example, a sign reads, “Eindhoven (A12)”. “Eindhoven” and “(A12)” would be both published as *Text Type = T* with *Sign Text Type(@T) = T*.
 - ◆ Non-numeric routes represented in a shield or symbol (e.g., routes such as “Garden State Parkway”, “New Jersey Turnpike North”, and “Florida’s Turnpike South”) are entered as *Text Type = T* (*Sign Text*) with *Sign Text Type(@T) = T*. The directional identifiers are spelled out in the *Sign Text*.
 - ◆ All non-road name destinations (e.g., O’Hare Airport, San Francisco, Paris, etc.) are applied as *Sign Text Type(@T) = T*.

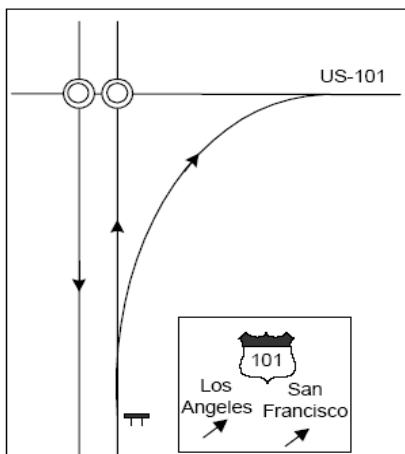
Example

Figure 6-7:Toward Text

In Figure 6-7, Los Angeles & San Francisco are examples of Towards Text. They are destinations that are not reached directly at the exit from the ramp system. Both are flagged as *Text Type* = T (Sign Text).

6.2.3 Exit Number (EXIT_NUMBER)

Definition *Exit Number* identifies sign text that is an exit. For example, 426 A-B, 49, and W4 are published for exits.

Table RDF_SIGN_DESTINATION

Column EXIT_NUMBER

Values The full exit name.

Cardinality 1:0:1

Usage Exit Number can be used for route guidance.

Specification

- *Exit Number* is the identification of a road exit assigned by a government body. Not all road exits have exit numbers.
- If a Sign has an associated Exit Number, the *Exit Number* is published in RDF_SIGN_DESTINATION.EXIT_NUMBER.
- The *Exit Number* applies to all corresponding sign text published in RDF_SIGN_ELEMENT.

6.2.4 Alternate Exit Number (ALT_EXIT_NUMBER)

Definition *Alternate Exit Number* provides an alternate (or a translated) Exit Number.

Table	RDF_SIGN_DESTINATION
Column	ALT_EXIT_NUMBER
Value	The alternate exit number for the sign.
Related Attributes	<i>Source Link ID</i> <i>Exit Number</i> <i>Branch Route ID</i> <i>Branch Route Direction</i> <i>Text Type</i> <i>Sign Text</i> <i>Toward Route ID</i>
Specification	<ul style="list-style-type: none"> • <i>Alternate Exit Number</i> publishes an additional exit number for a Sign. • <i>Alternate Exit Number</i> may only represent a value that is Latin-1.

Arabic Countries:

- *Alternate Exit Number* in countries where ARA is the default Language Code, is the corresponding translation of the *Exit Number*. It is published even if the text is numeric only and has the same value as that of EXIT_NUMBER field of the RDF_SIGN_DESTINATION table.

Example:

RDF_SIGN_DESTINATION	
SIGN_ID	729201733
DESTINATION_NUMBER	1
DEST_LINK_ID	901990314
EXIT_NUMBER	63
STRAIGHT_ON_SIGN	N
LANGUAGE_CODE	ARA
ALT_EXIT_NUMBER	63

Chinese-speaking Countries:

- *Alternate Exit Number* is published only if, in addition to an EXIT_NUMBER in the local non-Latin-1 language, an additional exit number is present on the sign.
- *Alternate Exit Number* has no Language Code associated.

Example: In Hong Kong, the following exit numbers appear on signs:

- ◆ Exit Number: 南 11A
- ◆ Exit Number: 11A

RDF_SIGN_DESTINATION		
Column	Value	LANGUAGE_CODE
EXIT_NUMBER	南 11A	CHI
ALT_EXIT_NUMBER	11A	not coded

6.2.5 Straight-on-Sign (STRAIGHT_ON_SIGN)

- Definition** *Straight-on-Sign* indicates that the sign is a Straight-on-sign.
Straight-on-Sign is only included at decision points where an exit sign is also present.
The Straight-on-Sign attribute is set to Y for a Straight-on-Sign.
- Values** The Boolean values for Straight-on-Sign are:
Y = Sign information is a Straight-on-Sign.
N = Sign information is not a Straight-on-Sign (default value).
Note: The Straight-on-Sign value cannot be NULL.
- Related Tables** RDF_SIGN_DESTINATION
RDF_SIGN_ORIGIN
RDF_SIGN_ELEMENT
- Usage** This attribute can be used to differentiate between exit signs and straight-on-signs.
- Specification**
- Straight-on-Sign follows the same rules as for Signpost Information (see Section 6.2.1, *Signpost Information*).
 - Straight-on-Sign has the Straight-on-Sign attribute set to N when one of the following is applicable:
 - ◆ A Special Explication situation.
 - ◆ A highway name changes or a different name becomes the preferred name, but there is no manoeuvre required by the driver.
 - ◆ In case a motorway splits into two or more motorways.
 - Straight-on-Sign is applied only to signs with TEXT_TYPE = T (Towards an eventual destination link).

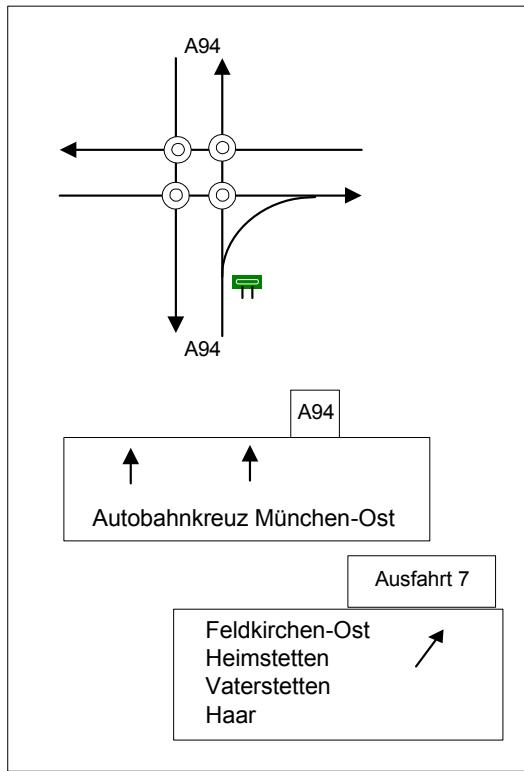


Figure 6-8: Straight-on-Sign Representation

The exit ramp information for Figure 6-8:

RDF_SIGN_ELEMENT				
Column	Value 1	Value 2	Value 3	Value 4
DESTINATION_NUMBER	1	1	1	1
ENTRY_NUMBER	1	2	3	4
ENTRY_TYPE	T	T	T	T
TEXT_NUMBER	1	1	1	1
TEXT_TYPE	T	T	T	T
TEXT	FELDKIRCHEN-OST	HEIMSTETTEN	VATERSTETTEN	HAAR
LANGUAGE_CODE	GER	GER	GER	GER
DIRECTION_CODE				

RDF_SIGN_DESTINATION	
Column	Value
DESTINATION_NUMBER	1
DEST_LINK_ID	1462631
EXIT_NUMBER	7
STRAIGHT_ON_SIGN	N

The Straight-on-Sign information for :

RDF_SIGN_ELEMENT		
Column	Value 1	Value 2
DESTINATION_NUMBER	1	1
ENTRY_NUMBER	1	2
ENTRY_TYPE	T	T
TEXT_NUMBER	1	1
TEXT_TYPE	T	R
TEXT	AUTOBAHNKREUZ MÜNCHEN-OST	A94
LANGUAGE_CODE	GER	GER
DIRECTION_CODE		

RDF_SIGN_DESTINATION	
Column	Value
DESTINATION_NUMBER	1
DEST_LINK_ID	1462631
EXIT_NUMBER	-
STRAIGHT_ON_SIGN	Y

Note: Only the relevant fields of the RDF_SIGN_ELEMENT and RDF_SIGN_DESTINATION tables are represented in the previous examples.

Inclusion Guidelines

Straight-on-Sign is only included at decision points where an exit sign is also present.

6.3 General Condition Modifiers

6.3.1 Direction (DIRECTION)

Definition	<i>Direction</i> is a general condition attribute used for select single-link conditions and indicates the link direction for which a direction-dependent attribute is applicable. <i>Direction</i> is a sub-attribute to direction dependent condition attribution.
Table	RDF_CONDITION_DRIVER_ALERT RDF_CONDITION_TRANSPORT RDF_CONDITION_BLACKSPOT
Column	DIRECTION
Value	See <i>Section C.27, RDF_CONDITION_DRIVER_ALERT, Section C.35, RDF_CONDITION_TRANSPORT, Section C.25, RDF_CONDITION_BLACKSPOT</i> .
Default value	None
Cardinality	RDF_CONDITION_DRIVER_ALERT, RDF_CONDITION_TRANSPORT - 1:1 RDF_CONDITION_BLACKSPOT - 1:0, 1 RDF_CONDITION_SPEED - 1:1
Related Condition	No Overtaking (RDF_CONDITION.CONDITION_TYPE = 19) Protected Overtaking (RDF_CONDITION.CONDITION_TYPE = 21) Blackspot (RDF_CONDITION.CONDITION_TYPE = 38) Variable Speed Limit Applicable (RDF_CONDITION.CONDITION_TYPE = 40)
Usage	<i>Direction</i> can be used to retrieve the link direction for which the <i>No Overtaking</i> or <i>Protected Overtaking</i> conditions apply.
Specification	<ul style="list-style-type: none"> • <i>Direction</i> = 1 - Positive is published if the condition is only applicable in the positive direction of the link (from reference node towards non-reference node) • <i>Direction</i> = 2 - Negative is published if the condition is only applicable in the negative direction (from non-reference node towards reference node) • <i>Direction</i> = 3 - Both is published if the condition is applicable in both driving directions. • <i>Direction</i> is published for all <i>No Overtaking</i> and <i>Protected Overtaking</i> conditions. • <i>Direction</i> is published for single link <i>Blackspot</i> conditions. <p>Refer to the attribute's corresponding condition for specific information.</p>

Example Entry in RDF_CONDITION to define Protected Overtaking condition.

RDF_CONDITION	
CONDITION_ID	931050817
CONDITION_TYPE	21
NAV_STRAND_ID	931050816
ACCESS_ID	1023

Entry in RDF_CONDITION_DRIVER_ALERT to define the *DIRECTION* attribute:

RDF_CONDITION_DRIVER_ALERT	
Column	Value
CONDITION_ID	931050817
....	
DIRECTION	1

This attribution indicates that the Protected Overtaking condition on this link applies only in the positive link direction.

6.3.2 Date/Time Modifier

6.3.2.1 Date Time Type (DATETIME_TYPE)

Definition *Date Time Type* defines a categorization of the type of period defined in the RDF_DATE_TIME table entry.

Table RDF_DATE_TIME

Column DATETIME_TYPE

Value See Section C.37, *RDF_DATE_TIME*.

Related Tables RDF_ASSO_DT

RDF_CONDITION_DT

Related Attributes *Exclude Date*

From End

Start Date

End Date

Start Time

End Time

Usage	Date Time information is used to specify periods, dates, or times during which a specific coding is in effect.
Specification	<ul style="list-style-type: none"> • For <i>Date Time Type</i> = A-I, the <i>Start Date</i> represents the start of the range and the <i>End Date</i> represents the end of the range. • For <i>Date Time Type</i> = 1, <i>Start Date</i> identifies the day(s) of the week. <i>End Date</i> is not published for <i>Date Time Type</i> = 1. • For <i>Date Time Type</i> = 2, <i>Start Date</i> identifies the name of the external date. The only currently existing situation is 'Easter'. <i>End Date</i> is not published for <i>Date Time Type</i> = 2.

6.3.2.2 Exclude Date (EXCLUDE_DATE)

Definition	<i>Exclude Date</i> identifies exceptions to the previously published Date Time period.
Table	RDF_DATE_TIME
Column	EXCLUDE_DATE
Value	See Section C.37, RDF_DATE_TIME.
Related Attribute	<i>Date Time Type</i> <i>From End</i> <i>Start Date</i> <i>End Date</i> <i>Start Time</i> <i>End Time</i>
Related Tables	RDF_ASSO_DT RDF_CONDITION_DT
Usage	Date Time information is used to specify periods, dates, or times during which a specific coding is in effect.
Specification	<ul style="list-style-type: none"> • If the <i>Exclude Date</i> is published with another Date Time period for a map feature, the exception applies to the previously published Date Time period. • If the <i>Exclude Date</i> is the only Date Time period specified for a map feature, then the exception exists to the general 24 hours a day/ 7 days a week situation.

6.3.2.3 From End (FROM_END)

Definition	<i>From End</i> allows time to be specified "from the end" of a standard time period such as month and year.
Table	RDF_DATE_TIME

Column	FROM_END
Value	See Section C.37, <i>RDF_DATE_TIME</i> .
Related Attribute	<i>Date Time Type</i> <i>Excluded Date</i> <i>Start Date</i> <i>End Date</i> <i>Start Time</i> <i>End Time</i>
Related Tables	RDF_ASSO_DT RDF_CONDITION_DT
Usage	Date Time information is used to specify periods, dates, or times during which a specific coding is in effect.
Specification	<ul style="list-style-type: none">• <i>From End</i> is not published if the <i>Date Time Type</i> is Day of Month, Day of Week, or Day of Year.• For example, if Day of Week of Month (D) is specified as the <i>Date Time Type</i> and Day = 02, Week = 01, and <i>From End</i> = Y. The time represented would be the last Monday of the month.

6.3.2.4 Start Date and End Date (START_DATE / END_DATE)

Definition	<i>Start Date</i> identifies the start dates of the period for DATETIME_TYPE = A - I. <i>Start Date</i> identifies the days of the week for DATETIME_TYPE = 1 and the external date for DATETIME_TYPE = 2. <i>End Date</i> identifies the end date of the period, for DATETIME_TYPE = A – I.
Table	RDF_DATE_TIME
Column	START_DATE END_DATE
Value	See Section C.37.1, <i>Valid Start and End Date Values</i> .
Related Attribute	<i>Date Time Type</i> <i>From End</i> <i>Excluded Date</i> <i>Start Time</i> <i>End Time</i>
Related Tables	RDF_ASSO_DT RDF_CONDITION_DT

Usage	<i>Date Time</i> information is used to specify periods, dates, or times during which a specific coding is in effect.
Specification	<ul style="list-style-type: none"> • <i>Start Date</i> defines the start for the period. • <i>End Date</i> defines the end for the period. • <i>Date Time Type</i> = 1 denotes the days of the week. The <i>Start Date</i> publishes: <ul style="list-style-type: none"> ◆ 1st Position = Sunday ◆ 2nd Position = Monday ◆ 3rd Position = Tuesday ◆ 4th Position = Wednesday ◆ 5th Position = Thursday ◆ 6th Position = Friday ◆ 7th Position = Saturday • <i>Date Time Type</i> = 1 and 2 do not have an <i>End Date</i>..

6.3.2.5 Start Time and End Time (START_TIME / END_TIME)

Definition	<i>Start Time</i> identifies the start time of the <i>Date/Time Modifier</i> . <i>End Time</i> identifies the end time of the <i>Date/Time Modifier</i> .
Table	RDF_DATE_TIME
Column	START_TIME END_TIME
Value	Time in format HHMM, where a 24 hour clock is used. Range 0000 – 2400. Example: 1130 means 11:30 and 2115 means 21:15
Related Attribute	<i>Date Time Type</i> <i>From End</i> <i>Excluded Date</i> <i>Start Date</i> <i>End Date</i>
Related Tables	RDF_ASSO_DT RDF_CONDITION_DT
Usage	<i>Date Time</i> information is used to specify periods, dates, or times during which a specific attribution is in effect.
Specification	<ul style="list-style-type: none"> • If the <i>Date/Time Modifier</i> applies all day, then the Start Time = 0000 and the End Time = 2400.

Example

RDF_DATE_TIME		
DATETIME_TYPE	START_DATE or END_DATE	Explanation
C – Day of Month	00010000	1 January, 1 February,..., 1 December
D - Day of Week of Month	00010002 00020001 00070002 00060005	2nd Sunday of each month 1st Monday of each month 2nd Saturday of each month 5th Friday of each month
E - Day of Week of Year	00030020 00050052	Tuesday of week 20 Thursday of week 52
F - Week of Month	00020000	2nd week of each month
H - Month of Year	00010000 00070000	January July
I - Day of Month of Year	00150001 00300004	15 January of each year 30 April of each year

6.3.2.6 Seasonal Closure (SEASONAL_CLOSURE)

Definition *Seasonal Closure* indicates that the period entered is approximate.

Table RDF_CONDITION_ACCESS

Column SEASONAL_CLOSURE

Value Y = Link is seasonally closed.

Usage Seasonal Closure enables a system to have the user verify the open/closed status of the road.

Specification

- Entries in RDF_CONDITION_ACCESS only exist if the link is seasonally closed (SEASONAL_CLOSURE = Y). If the link is not seasonally closed, no attribute is published.
- If seasonally closed roads have gates, only SEASONAL_CLOSURE is published; GATE_TYPE is not published.
- Seasonally closed roads or ferries are represented with a SEASONAL_CLOSURE attribute. SEASONAL_CLOSURE always has associated Date/Time Modifier (RDF_DATE_TIME) published to indicate during what times the road is closed. Approximate date ranges (based on past closure dates) are created for these seasonally closed links.

Usage An actual use case: Tioga Pass in the Sierra Nevada Mountains is closed approximately from November 1st through May 15th. An Access Restriction condition is published where the Condition Applies to all Vehicle Types allowed on the link, as specified in RDF_ACCESS

for the relevant link. This Access Restriction condition is published with the following values in RDF_DATE_TIME:

- DATETIME_TYPE = H
 - ◆ START_DATE = 00110000
 - ◆ END_DATE = 00120000
- DATETIME_TYPE = H
 - ◆ START_DATE = 00010000
 - ◆ END_DATE = 00040000
- DATETIME_TYPE = I
 - ◆ START_DATE = 00010005
 - ◆ END_DATE = 00150005
- The Access Restriction condition SEASONAL_CLOSURE = Y is published only if there is an Access Restriction condition that represents seasonal closure. Otherwise, RDF_CONDITION_ACCESS records are not published.

6.3.2.7 Time Override (TIME_OVERRIDE)

Definition Identifies the duration, from Dawn to Dusk or Dusk to Dawn, a restriction applies.

Table Name RDF_CONDITION_ACCESS
 RDF_CONDITION_RDMRDF_CONDITION_SPEED
 RDF_VIRTUAL_CONNECTION

Column Name TIME_OVERRIDE

Values 1 = Dawn to Dusk
 2 = Dusk to Dawn
 Null if not applicable

Cardinality 1:0,1

Default value Null

Related Table None

**Related Conditions/
Attributes** Restricted Driving Manoeuvre (CONDITION_TYPE = 7,26)
 Access Restriction (CONDITION_TYPE = 8,23)
 Special Speed Situation (CONDITION_TYPE = 10,25)
 Connection Type (CONNECTION_TYPE)
 Stairs Traversal (STAIRS_TRAVERSAL)

Usage Time Override may be used for pedestrian route calculation in order to provide virtual connection operation hours.

- Specification**
- *Time override* = 1 (Dawn to Dusk) is published if the restriction goes into effect at dawn and is no longer in effect at dusk.
 - *Time override* = 2 (Dusk to Dawn) is published if the restriction goes into effect at dusk and is no longer in effect at dawn.
 - *Time override* = Null (Not Applicable) is published for geometry that is represented by a Virtual Connection when the path is not restricted to pedestrians at any time of day or night.

6.3.3 Dependent Access Type (DEPENDENT_ACCESS_TYPE)

Definition *Dependent Access Type* indicates that there is a dependency for when a link or lane access restriction is in effect and a time is not specified or known.

Table RDF_CONDITION_ACCESS
RDF_CONDITION_DIRECTION_TRAVEL

Column DEPENDENT_ACCESS_TYPE

Values See Section C.24, RDF_CONDITION_ACCESS or Section C.26, RDF_CONDITION_DIRECTION_TRAVEL.

Default None

Related Condition Access Restriction (Condition_Type = 8)
Direction of Travel (Condition_Type = 5)

Related Attributes RDF_CONDITION.ACCESS_ID
RDF_LANE.ACCESS_ID
RDF_LINK.ACCESS_ID

Usage *Dependent Access Type* can be used in conjunction with the related conditions/attributes to guide the driver through lanes.

Specification General

- *Dependent Access Type* is applicable to either link or lane level to the following conditions:
 - ◆ *Access Restriction*
 - ◆ *Direction of Travel*
- *Dependent Access Type* modifier is used for a condition when no specific times are known or indicated.
- *Dependent Access Type* modifier may be applied for the following lane types:
 - ◆ Shoulder Lane
 - ◆ Variable Driving Lane
 - ◆ HOV Lane

- ◆ Reversible Lane

Access Restriction

- The *Access Restriction* condition is applicable to the link when:
 - ◆ RDF_CONDITION.CONDITION_TYPE = 8, and
 - ◆ RDF_CONDITION.NAV_STRAND_ID is not NULL.
- The *Access Restriction* condition is applicable to the lane when:
 - ◆ RDF_CONDITION.CONDITION_TYPE = 8, and
 - ◆ RDF_CONDITION.NAV_STRAND_ID is NULL.
- *Dependent Access Type* modifier is published as modifier to a lane-level *Access Restriction* condition only if lane objects are included for a road link.

Direction of Travel

- *Direction of Travel* condition with *Dependent Access Type* = 1 (Variable) is always published in conjunction with an *Access Restriction*.

Examples

See the following:

- *Bidirectional Road with a Reversible Middle Lane (at Unknown Times)*
- *Separately Digitised Reversible Roads at Unknown Times*

6.4 Conditions

Note: Conditions contained in a particular product (e.g., Trucks) may not be included in the following section. They are contained instead in the chapter for their respective contents/products.

6.4.1 Toll Structure (CONDITION_TYPE = 1)

Definition *Toll Structure* identifies the presence of physical toll structures or automatic controls at entry and exit points along a toll link or lane and requires (electronic) payment or ticket retrieval in order to pass through.

Condition Type 1

Column CONDITION_TYPE

Table RDF_CONDITION

Value See Section C.23, RDF_CONDITION.

Default Value None

Related Tables RDF_NAV_STRAND (Link)

RDF_LANE_NAV_STRAND (Lane)

RDF_ACCESS

Related Attributes *Toll Structure Type*
Method of Payment

Usage *Toll Structure* can be used for display and map publishing purposes and can be used in conjunction with the *Tollway* attribute (RDF_NAV_LINK.TOLLWA) may be used for toll avoidance routing.

Lane *Toll Structure* can be used to determine where a toll structure exists, the type of toll structure per lane, and the payment methods that are accepted at the toll structure per lane.

Specification

- If RDF_CONDITION.CONDITION_TYPE = 1 and RDF_CONDITION.NAV_STRAND_ID is not NULL, the Toll Structure condition is applicable to the link.
- If RDF_CONDITION.CONDITION_TYPE = 1 and RDF_CONDITION.NAV_STRAND_ID is NULL, the Toll Structure condition is applicable to a lane or subset of lanes on a link.
- *Toll Structure* conditions are applied to a series of two contiguous links or lanes as origin and destination. The origin is the link or lane prior to the *Toll Structure* and the destination is the link or lane after the *Toll Structure*.

Note: Going forward, the destination link or lane of the *Toll Structure* no longer follows the specification to be less than or equal to 100 metres. However, existing *Toll Structures* will not be updated to follow this new specification.

- FROM_REF_NUM_LANES / TO_REF_NUM_LANES is published before and after the *Toll Structure* if additional lanes form at the Toll Structure area. Nodes are added to indicate the start and end of the area with additional lanes. If no lane markings occur at the Toll Structure area but the roadbed widens, nodes are added at the start of the roadbed (where the roadbed is at its maximum width) and at the end of the roadbed (where the roadbed narrows again), see *Figure 6-9*.

Note: TO/FROM_REF_NUM_LANES are always coded on ADAS compliant roads, regardless if the number of lanes changes at the Toll Structure.

- If the number of lanes varies at a Toll Structure area, then the TO/FROM_REF_NUM_LANES reflects the total number of fixed lanes at the Toll Structure, excluding the reversible lanes.
- If the lanes are not marked at the Toll Structure area (i.e., open area at the Toll Structure), then the TO/FROM_REF_NUM_LANES reflect the total number of access points at the Toll Structure, excluding the reversible access points.
- The maximum number of lanes published for a Toll Structure is 45 per driving direction. If the number of lanes in reality at the toll structure exceeds 45, then the FROM_REF_NUM_LANES / TO_REF_NUM_LANES published is 45 due to the limitation.

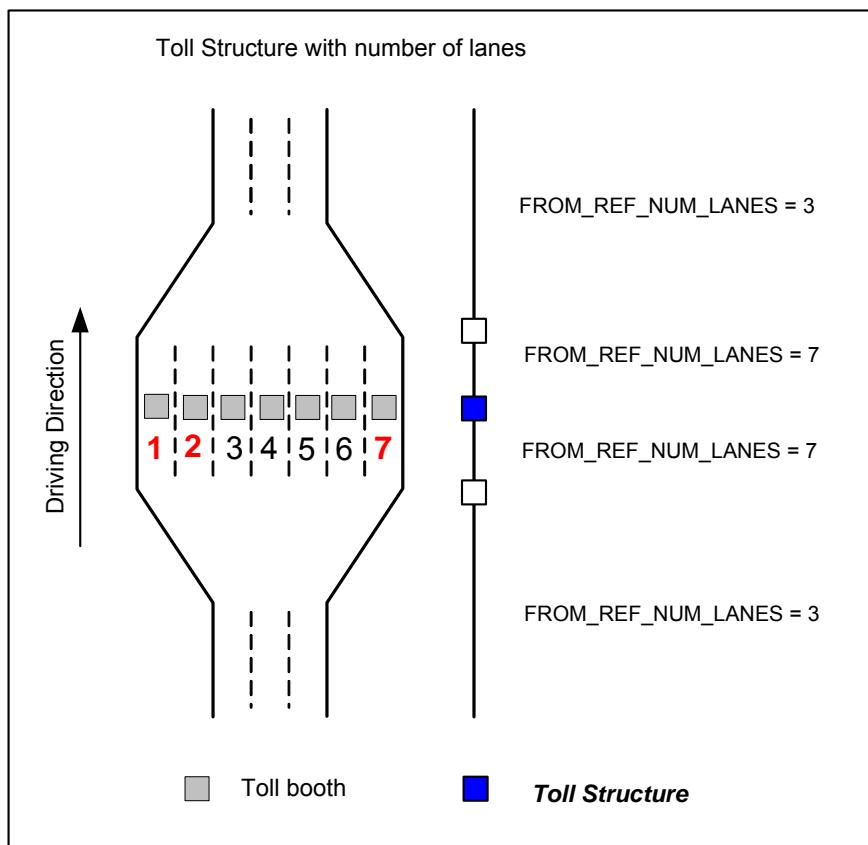


Figure 6-9

- At some Toll Structures, lanes that allow automatic payment (FastTrak, transponder lanes) can be physically divided from the other lanes at the Toll Structure. In this case, the lanes are separately digitised. An example is a Toll Structure on CA-73. At this Toll Structure the FastTrak (Transponder) lanes are physically divided from the cash lanes and in this case, the FastTrak lanes are separately digitised from the cash lanes. See *Figure 6-10*.



Figure 6-10

- For a Toll Structure located on a bidirectional link which requires toll payment in both directions, two conditions are published, one for each direction.
- A *Toll Structure* condition is not entered for Ferry Terminals.
- The Access Characteristics of the *Toll Structure* condition are set to Y for all Vehicle Types.
- Date/time information is not published in RDF_DATE_TIME for *Toll Structure* conditions. Instead, date/time information is published through the Usage Fee Required condition.
- Lane *Toll Structure* condition attributes *Toll Structure Type* and *Method of Payment* follows the same rules as *Toll Structure Type* and *Method of Payment* attributes for the *Toll Structure* condition at link level.
- Lane *Toll Structure* is published only if *Toll Structure* specific attributes are different per *Toll Structure* on each lane. See *Figure 6-9*.
 - ♦ *Toll Structure* condition on the link provides the aggregated *Toll Structure* condition attributes.
 - ♦ *Toll Structure* condition on the lane provides the Toll specific attributes per lane.

- Lane *Toll Structure* condition applies to the same Access Characteristics applied in the corresponding *Usage Fee Required*.

In *Figure 6-9* a *Toll Structure* condition is published at lane level. The Toll Structure is made of seven different lanes; on Lane 1, 2 and Lane 7 the *Toll Structure* have different settings in regards to:

- ◆ Lane Access Characteristics
- ◆ *Method of Payment*
- ◆ *Toll Structure Type*

Lane	Structure Type	Method Of Payment	Lane Access Characteristics ¹
Lane 1	4 - Electronic	5 - Transponder	Emergency Vehicles
Lane 2	3 - Pay per Ticket 4 - Electronic	3 - Credit Card 4 - Pass/Subscription 5 - Transponder 8 - Travel Card	Trucks, Buses
Lane 3	3 - Pay per Ticket	1 - Cash 3 - Credit Card	All Vehicles
Lane 4	3 - Pay per Ticket	1 - Cash 3 - Credit Card	All Vehicles
Lane 5	3 - Pay per Ticket	1 - Cash 3 - Credit Card	All Vehicles
Lane 6	3 - Pay per Ticket	1 - Cash 3 - Credit Card	All Vehicles
Lane 7	3 - Pay per Ticket 4 - Electronic	3 - Credit Card 4 - Pass/Subscription 5 - Transponder 8 - Travel Card	Autos, Taxis

1. Lane Access Characteristics provides the access information per Vehicle Type.

Toll Structure Link Condition		
Structure Type	Method Of Payment	Access Characteristics
3 - Pay per Ticket 4 - Electronic	1 - Cash 3 - Credit Card 4 - Pass/Subscription 5 - Transponder 8 - Travel Card	All vehicles

Electronic Toll Structures

- Electronic Toll Structures are only included when the Toll Structure is used to calculate the amount of Toll to be paid. Electronic Toll Structures are not included when the Toll Structure only monitors if payment has been done. The Electronic Toll

Structures that are not included are typically present along the motorway, not at entry and exit points to the motorway. These types of Toll Structures are found in Germany and Austria.

HOT (High Occupancy Toll) and ETL (Express Toll Lanes)

- *Toll Structure* condition is applied to identify the Method of Payment required for HOT/ETL lanes.

Toll Structure vs. Usage Fee Required

- A relationship between a *Toll Structure* condition and a *Usage Fee Required* condition is not identified. If multiple *Usage Fee Required* conditions are applied to a toll road, it cannot be determined which one is related to a specific *Toll Structure* condition. The XML Toll Cost file (product) provides this information.

6.4.1.1 Toll Structure Type

Definition *Toll Structure Type* identifies the type of toll structure and specifies if (electronic) payment and/or ticket retrieval is required at the toll structure.

Condition Type 1

Table	RDF_CONDITION_TOLL
Column	STRUCTURE_TYPE_FIXED_FEE
	STRUCTURE_TYPE_OBTAIN_TICKET
	STRUCTURE_TYPE_PAY_TICKET
	STRUCTURE_TYPE_ELECTRONIC

Cardinality 1:1:M

Related Table RDF_CONDITION

- Specification**
- STRUCTURE_TYPE_FIXED_FEE = Y if it has been verified that a fixed fee is required in order to pass through.
 - STRUCTURE_TYPE_OBTAIN_TICKET = Y if it has been verified that a ticket must be obtained at the Toll Structure.
 - STRUCTURE_TYPE_PAY_TICKET = Y if it has been verified that payment is required based on the travelled distance between the Toll Structure where the ticket was obtained and the Toll Structure at which the toll road is exited.
 - STRUCTURE_TYPE_ELECTRONIC = Y if it has been verified that automatic controls exist that automatically record the beginning and end of the stretch of toll road that has been travelled. See *Figure 6-11*. Payment is calculated based on the travelled distance between the entry and exit point. For example, 407 ETR - Greater Toronto area. Toll is collected by using transponders or through scanning the license plate for vehicles without a transponder. Another example is the German Toll Collect

system for Trucks. Toll is collected by payment through the internet, cash payment at designated Toll Terminals or through an on-board unit.

STRUCTURE_TYPE_ELECTRONIC = Y if it has been verified that automatic controls exist that automatically record vehicles entering a toll zone in the centre of a city. Payment is determined by scanning the license plate. This is typical for the London and Stockholm Congestion Zones.



Figure 6-11

- If electronic payment (e.g., transponder) and non-electronic payment/ticket retrieval are possible at a Toll Structure, then the following are published:
 - ◆ STRUCTURE_TYPE_FIXED_FEE = Y
 - ◆ STRUCTURE_TYPE_OBTAIN_TICKET = Y
 - ◆ STRUCTURE_TYPE_PAY_TICKET = Y
 - ◆ STRUCTURE_TYPE_ELECTRONIC = Y
- STRUCTURE_TYPE_FIXED_FEE, STRUCTURE_TYPE_OBTAIN_TICKET, STRUCTURE_TYPE_PAY_TICKET, and STRUCTURE_TYPE_ELECTRONIC are NULL if the *Toll Structure Type* has not been verified.
- If PAYMENT_TRANSPOUNDER = Y or PAYMENT_VIDEO = Y is published for a toll structure, then STRUCTURE_TYPE_ELECTRONIC = Y is published. See *Table 6-1* for more detail.
- A toll structure that is published only with STRUCTURE_TYPE_FIXED_FEE = Y is not published with PAYMENT_TRANSPOUNDER = Y or PAYMENT_VIDEO = Y. The same is true for Toll Structure of type STRUCTURE_TYPE_PAY_TICKET = Y only. See *Table 6-1* for more detail.

Toll Structure Type and Toll Cost

- Toll Cost, a separate XML product, can be associated with RDF via *Toll Structure Type*. See also *Section 13.5, XML Products and Section , Usage Fee Required and Toll Cost*.

6.4.1.2 Method of Payment

Definition	<i>Method of Payment</i> identifies the payment methods that are accepted at the Toll Structure.
Table	RDF_CONDITION_TOLL
Column	PAYMENT_CASH PAYMENT_BANK_CARD PAYMENT_CREDIT_CARD PAYMENT_PASS PAYMENT_TRANSPOUNDER PAYMENT_VIDEO PAYMENT_EXACT_CASH
Cardinality	1:0:1:M
Related Table	RDF_CONDITION
Specification	<ul style="list-style-type: none"> • If STRUCTURE_TYPE_OBTAIN_TICKET = Y, no <i>Method of Payment</i> information is published. • <i>Method of payment</i> values are: <ul style="list-style-type: none"> ◆ PAYMENT_CASH = Y is published if cash payment is accepted at the Toll Structure. ◆ PAYMENT_BANK_CARD = Y is published if bank card payment is accepted at the Toll Structure. ◆ PAYMENT_CREDIT_CARD = Y is published if credit card payment is accepted at the Toll Structure. ◆ PAYMENT_PASS = Y is published if access at the toll structure is obtained by using a pre-purchased pass or subscription. ◆ PAYMENT_TRANSPOUNDER = Y is published if access at the toll structure is obtained by using a transponder. ◆ PAYMENT_VIDEO = Y is published if automatic controls monitor vehicles that enter the toll road without a transponder. ◆ PAYMENT_EXACT_CASH = Y is published if exact cash payment or tokens are accepted at the toll structure. Tokens are pre-purchased coins used to pay toll. For example, The Garden State Parkway in New Jersey accepts tokens for payment. ◆ PAYMENT_TRAVEL_CARD = Y is published if payment can be done through a Travel Card at the Toll Structure. A Travel Card is a card that is specifically used for purchasing fuel. In some countries this card can also be used to pay toll at the Toll Structure. • <i>Method of Payment</i> is published only if payment methods have been verified.

Toll Structure Type	Method of Payment
STRUCTURE_TYPE_FIXED_FEE = Y	1 - Cash 2 - Bank Card 3 - Credit Card 4 - Pass/Subscription 7 - Exact Cash 8 - Travel Card
STRUCTURE_TYPE_OBTAIN_TICKET = Y	None
STRUCTURE_TYPE_PAY_TICKET = Y	1 - Cash 2 - Bank Card 3 - Credit Card 4 - Pass/Subscription 7 - Exact Cash 8 - Travel Card
STRUCTURE_TYPE_ELECTRONIC = Y	4 - Pass/Subscription 5 - Transponder 6 - Video Toll Charge

Table 6-1

6.4.1.3 Link Toll Structure Examples

Vignette

On motorways in Austria, all vehicles except trucks and buses require a vignette in order to pass through.

The *Usage Fee Required* condition is published for all links that are affected by the vignette system.

RDF_CONDITION	
CONDITION_ID	567890
CONDITION_TYPE	12
NAV_STRAND_ID	<Published for each link affected by the toll>
ACCESS_ID	751

RDF_CONDITION_TOLL	
CONDITION_ID	567890
TOLL_FEATURE_TYPE	7
TOLL_SYSTEM_TYPE	508

RDF_DATE_TIME information is not published because the toll applies all the time.

Fixed Fee

A fixed fee toll is required for travelling a bridge. There are three lanes at the toll structure. Payment by credit card, bank card, and cash are accepted.

Toll Structure:

FROM/TO_REF_NUM_LANES = 3

RDF_CONDITION	
CONDITION_ID	345678
CONDITION_TYPE	1
NAV_STRAND_ID	654321
ACCESS_ID	1023

RDF_CONDITION_TOLL	
CONDITION_ID	345678
STRUCTURE_TYPE_FIXED_FEE	1
PAYMENT_CASH	Y
PAYMENT_BANK_CARD	Y
PAYMENT_CREDIT_CARD	Y

Usage Fee Required

RDF_CONDITION	
CONDITION_ID	789012
CONDITION_TYPE	12
NAV_STRAND_ID	<NAV_STRAND_ID is a reference to the links affected by the toll>
ACCESS_ID	1023

RDF_CONDITION_TOLL	
CONDITION_ID	789012
TOLL_FEATURE_TYPE	2

RDF_DATE_TIME information is not published because the toll applies all the time.

Turnpike Example

Turnpike systems calculate cost based on travelled distance. Toll structures exist at every entry and exit to the turnpike system. *Method of Payment* is cash, credit card, or E-Z Pass.

The toll structure at exit 5 has 12 lanes. Lanes 1-9 are accessible to all vehicles except trucks. Lanes 10-12 are accessible to trucks only. The toll structure at exit 6 has 12 lanes.

Toll Structure at Exit 5:

FROM/TO_REF_NUM_LANES = 12

RDF_CONDITION	
CONDITION_ID	456789
CONDITION_TYPE	1
NAV_STRAND_ID	987654
ACCESS_ID	1023

RDF_CONDITION_TOLL	
CONDITION_ID	456789
STRUCTURE_TYPE_OBTAIN_TICKET	Y
STRUCTURE_TYPE_ELECTRONIC	Y

Toll Structure at Exit 6

FROM/TO_REF_NUM_LANES = 12

RDF_CONDITION	
CONDITION_ID	678901
CONDITION_TYPE	1
NAV_STRAND_ID	098765
ACCESS_ID	1023

RDF_CONDITION_TOLL	
CONDITION_ID	678901
STRUCTURE_TYPE_ELECTRONIC	Y
STRUCTURE_TYPE_PAY_TICKET	Y
PAYMENT_CASH	Y

RDF_CONDITION_TOLL	
PAYMENT_CREDIT_CARD	Y
PAYMENT_TRANSPOUNDER	Y

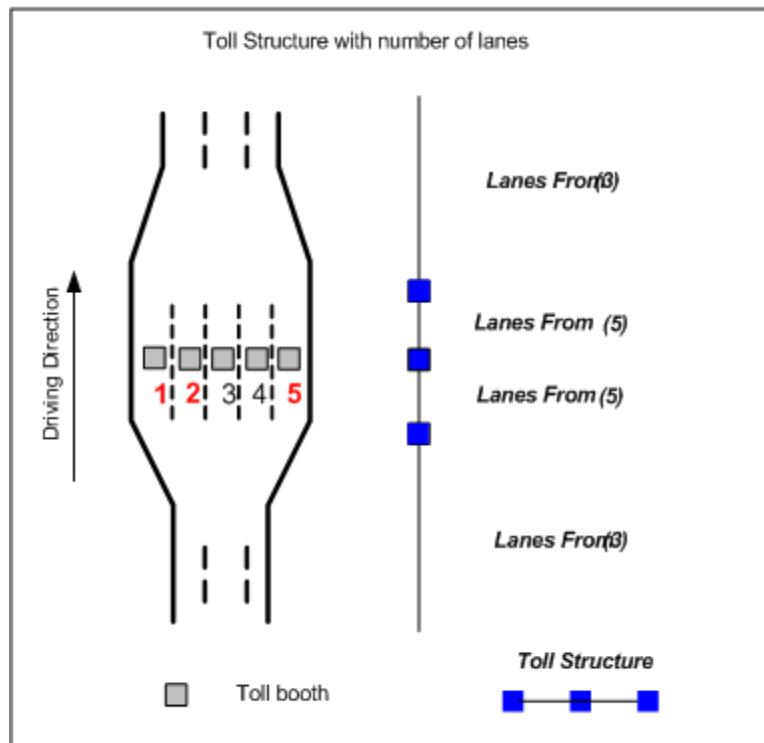
Usage Fee Required

RDF_CONDITION	
CONDITION_ID	890123
CONDITION_TYPE	12
NAV_STRAND_ID	<The NAV_STRAND_ID is a reference to the links affected by the toll>
ACCESS_ID	1023

RDF_CONDITION_TOLL	
CONDITION_ID	890123
TOLL_FEATURE_TYPE	1

RDF_DATE_TIME information is not published because the toll applies all the time.

6.4.1.4 Lane Toll Structure Example



Toll Structure Link Condition

RDF_CONDITION	
CONDITION_ID	126487208
CONDITION_TYPE	1
NAV_STRAND_ID	128591304
ACCESS_ID	1023

RDF_CONDITION_TOLL	
CONDITION_ID	126487208
PAYMENT_CASH	Y
PAYMENT_CREDIT_CARD	Y
PAYMENT_PASS	Y
PAYMENT_TRANSPOUNDER	Y
STRUCTURE_TYPE_FIXED_FEE	Y
STRUCTURE_TYPE_ELECTRONIC	Y

Lane Conditions

RDF_LANE					
LANE_ID	5012012544	5012012545	5012012546	5012012547	5012012549
LINK_ID	364033408	364033408	364033408	364033408	364033408
LANE_NUMBER	1	2	3	4	5
LANE_TRAVEL_DIRECTION	F	F	F	F	F
LANE_TYPE	1	1	1	1	1
ACCESS_ID	991	991	991	991	141

RDF_CONDITION			
CONDITION_ID	126487209	126487211	126487212
CONDITION_TYPE	1	1	1
NAV_STRAND_ID			
ACCESS_ID	1023	1023	1023

RDF_CONDITION_TOLL			
CONDITION_ID	126487209	126487211	126487212
PAYMENT_CASH		Y	Y
PAYMENT_TRANSPOUNDER	Y		Y
PAYMENT_CREDIT_CARD		Y	Y
STRUCTURE_TYPE_ELECTRONIC	Y		Y
STRUCTURE_TYPE_PAY_TICKET		Y	Y
PAYMENT_PASS			Y

RDF_LANE_NAV_STRAND				
LANE_NAV_STRAND_ID	CONDITION_ID	SEQ_NUM	LANE_ID	NODE_ID
448596605	126487209	0	5012012544	454654654 5
448596605	126487209	1	5012012600	454654654 5
448596606	126487209	0	5012012545	454654654 5

RDF_LANE_NAV_STRAND				
448596606	126487209	1	5012012601	4546546545
448596607	126487211	0	5012012546	4546546545
448596607	126487211	1	5012012602	4546546545
448596608	126487211	0	5012012547	4546546545
448596608	126487211	1	5012012603	4546546545
448596609	126487212	0	5012012548	4546546545
448596609	126487212	1	5012012604	4546546545

6.4.2 Gate (CONDITION_TYPE = 4)

Definition *Gate* identifies the presence of a gate/movable barrier that prohibits the traveler from progressing along the road. The *Gate* condition can be used for map display, route guidance, and route calculation.

Condition Type 4

Table RDF_CONDITION

Column CONDITION_TYPE

Condition Attributes RDF_CONDITION_GATE.GATE_TYPE

Related Tables RDF_NAV_STRAND

Specification

- *Gate* condition is applied to two contiguous links. The first LINK_ID in RDF_NAV_STRAND contains the link prior to the gate. The second LINK_ID in RDF_NAV_STRAND contains the link after the gate.
- *Gate* condition is published with *Gate Type* as follows:
 - ◆ GATE_TYPE = 1 (Key Access) when the gate is unattended and locked and the driver must use a key, keycard or pre-assigned password to open it. (Usually the entrance into a private community.)
 - ◆ GATE_TYPE = 2 (Permission Required) when the gate is attended, but permission must be obtained from an authorized source in order to pass through.

- ◆ GATE_TYPE = 3 (Emergency Gate) when the gate remains closed to all traffic except emergency vehicles. (For example, a chain link fence across a street with a padlock that can only be opened by emergency personnel).
- Gate condition may be published with Date/Time information (RDF_DATE_TIME).
- Gate condition's Access Characteristics are set to Y for all Vehicle Types. This does not reflect which vehicles may pass through the gate. The links' Access Characteristics in RDF_ACCESS identify which Vehicle Types are allowed on the links and the Gate Type (GATE_TYPE) attribute identifies the permissions to use the gate.
- Gate condition does not exist between two links that each have Functional Class = 1 through 4.
- Gate condition is not applied to walkways or ferries.
- Gate condition may also be applied when the link is also coded with Access Restriction condition with Seasonal Closure (SEASONAL_CLOSURE).
- A Gate condition is applied in all directions for which a traveller is required to use a key, keycard, password, etc., or to receive permission before progressing. See Figure 6-12. A gate which has the above restrictions in one direction and but not in the other is coded with one Gate condition. See Figure 6-13.
- If the gate is within 10 metres/32 feet of an intersection, then the gate is entered at the intersection node. See . If the gate is more than 10 metres/32 feet from the intersection, the gate is entered where it is located.

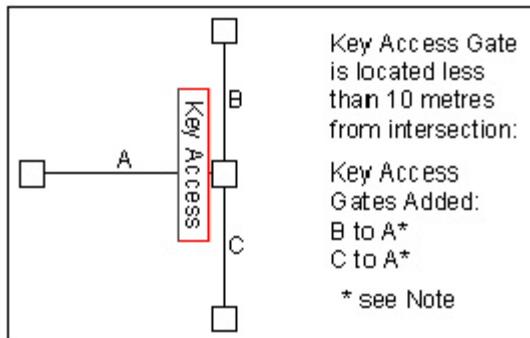


Figure 6-12

Note: In , the key is required only to enter, not to exit. If the key is required to enter and to exit, then Gate is also applied from A to B and A to C.

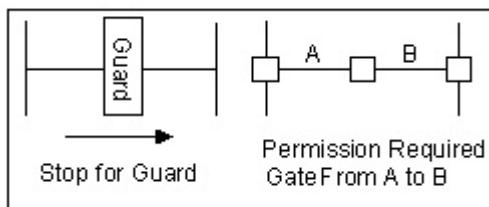


Figure 6-13

When the Participating Link (on which the gate is located) would be isolated, or is a dead end, and the GATE_TYPE = 3, the Link Access Characteristics are changed. See .

To represent reality, the link Access Characteristics for H and K are Emergency Vehicle (Y), Pedestrian (Y or N), Bike (Y or N), Autos (N), Buses (N), Carpools (N), Deliveries (N), Trucks (N), Through Traffic (N), and Taxis (N). Pedestrian information based on whether or not they are allowed

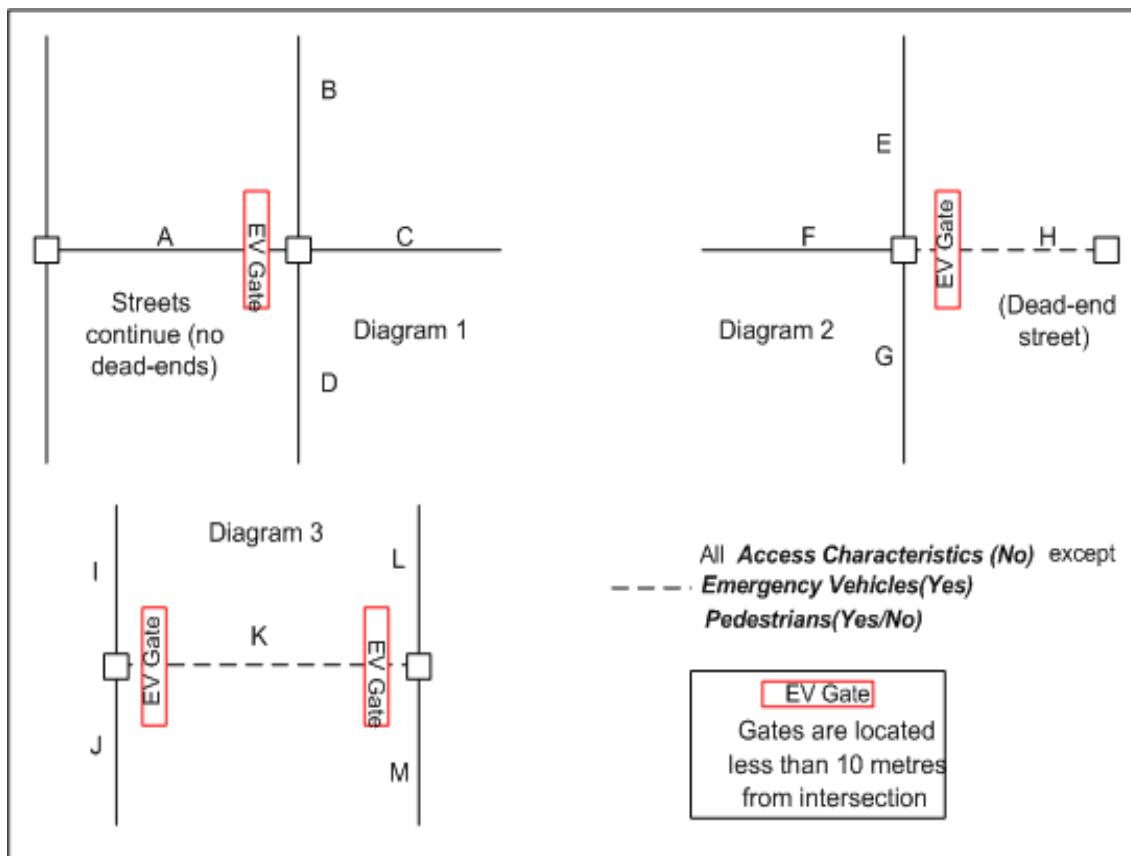


Figure 6-14

	Diagram 1	Diagram 2	Diagram 3
EV Gate:	B to A, A to B C to A, A to C D to A, A to D	E to H, H to E F to H, H to F G to H, H to G	I to K, K to I J to K, K to J L to K, K to L M to K, K to M

When the Participating Link (on which the gate is located) would be isolated, or is a dead end, and the GATE_TYPE = 1 or 2, the Link Access Characteristics are changed so that Through Traffic = N. Other characteristics are based on which vehicles are allowed in reality.

6.4.3 Direction of Travel (CONDITION_TYPE = 5)

Definition *Direction of Travel* condition indicates if vehicles can travel in a direction other than the general link or lane travel direction. The *Direction of Travel* condition describes the direction of travel on a link or lane for specific time periods and for specific vehicles.

Condition Type 5

Table Name RDF_CONDITION

Column Name CONDITION_TYPE

Value See Section C.23, RDF_CONDITION.

Condition Bearing (BEARING)

Attributes Dependent Access Type (DEPENDENT_ACCESS_TYPE)

Related Tables RDF_ACCESS

RDF_DATE_TIME

RDF_LANE_NAV_STRAND

RDF_NAV_STRAND

RDF_LANE

RDF_NAV_LINK

Related Attributes Section 4.4.41, Tollway (TOLLWAY)

Section 4.4.42, Travel Direction (TRAVEL_DIRECTION/LANE_TRAVEL_DIRECTION)

Usage *Direction of Travel* enables correct route calculation, route guidance, and map display.

Specification General

- The *Direction of Travel* condition applies only to vehicle types with Y published in RDF_ACCESS for the link.
- For link-level conditions, the *Direction of Travel* condition overrides the Travel Direction of the link as published in RDF_NAV_LINK.TRAVEL_DIRECTION.
- For lane-level conditions, the *Direction of Travel* condition overrides the Travel Direction of the lane as published in RDF_LANE.LANE_TRAVEL_DIRECTION.
 - ◆ If differences in Travel Direction exist between lanes on the same link, Lane Objects are published for each lane, each with their respective Lane Travel Direction. Each Lane Object can be involved in a *Direction of Travel* condition to override the Lane Travel Direction for specific vehicles at specific times.
- RDF_CONDITION_DIRECTION_TRAVEL.BEARING, RDF_CONDITION.ACCESS_ID, and RDF_DATE_TIME with the *Direction of Travel* condition together indicate the applicable link or lane direction of travel for specific vehicles at specific times.
 - ◆ RDF_CONDITION_DIRECTION_TRAVEL.BEARING indicates the link or lane direction of travel as contained in the table below.

Bearing	Description
1	Vehicles can travel from the reference node.
2	Vehicles can travel towards the reference node.
3	Vehicles can travel in both directions.

- ◆ RDF_CONDITION.ACCESS_ID indicates the specific types of vehicles to which the *Direction of Travel* condition applies.
- ◆ RDF_DATE_TIME indicates the specific times for the *Direction of Travel* condition.

Non-Reversible Roads

- For non-reversible roads where vehicles can travel in a direction different from the general travel direction, the following is published:
 - ◆ General link travel direction - RDF_NAV_LINK.TRAVEL_DIRECTION
 - ◆ General lane travel direction - RDF_LANE.LANE_TRAVEL_DIRECTION
 - ◆ If the general travel direction changes seasonally, then Travel Direction identifies the most restrictive travel direction instead of the general travel direction.
For example, if a road is one-way in summer and two-way the rest of the year, Travel Direction identifies the one-way travel direction. This exception supports customers who do not use *Direction of Travel* conditions.
 - ◆ One *Direction of Travel* condition - RDF_CONDITION
 - ◆ Associated Date/Time Modifier in RDF_DATE_TIME to reflect the times when the direction changes
- See example: *Non-Reversible Link*

Reversible Roads with Specific Times

- For reversible roads where traffic is allowed in both directions at specific times, the following is published:
 - ◆ Reversible link - RDF_NAV_LINK.TRAVEL_DIRECTION = B
 - ◆ Reversible lane - RDF_LANE.LANE_TRAVEL_DIRECTION = B
 - ◆ Two *Direction of Travel* conditions in RDF_CONDITION, one for the link or lane going from the reference node and one for the link or lane going to the reference node
 - ◆ Associated Date/Time Modifier in RDF_DATE_TIME to reflect the times the link or lane reverses
- See the following examples:

Reversible Link

*Reversible Lane with Specific Times*Reversible Roads without Specific Times

- For reversible roads where traffic direction reverses at unknown times, the following is published:
 - Reversible link - RDF_NAV_LINK.TRAVEL_DIRECTION = B
 - Reversible lane - RDF_LANE.LANE_TRAVEL_DIRECTION = B
 - Access restriction to prohibit traffic on the lane with a *Dependent Access Type* modifier
 - Direction of Travel* condition with *Dependent Access Type* = 1 (Variable) to inform that the lane might actually serve traffic in the other direction of travel
- See the following examples:

Bidirectional Road with a Reversible Middle Lane (at Unknown Times)

Separately Digitised Reversible Roads at Unknown Times

Example 1Non-Reversible Link

All types of vehicles can use the link. Buses, trucks, and deliveries can travel only from the reference node.

TRAVEL_DIRECTION indicates the general link travel direction. ACCESS_ID indicates the types of vehicles that can use the link.

RDF_NAV_LINK	
LINK_ID	364033408
TRAVEL_DIRECTION	B
ACCESS_ID	1023

RDF_ACCESS	
ACCESS_ID	1023
AUTOMOBILES	Y
BUSES	Y
TAXIS	Y
DELIVERIES	Y
TRUCKS	Y
PEDESTRIANS	Y
EMERGENCY_VEHICLES	Y
CARPOOLS	Y
THROUGH_TRAFFIC	Y

RDF_ACCESS	
MOTORCYCLES	Y

CONDITION_ID 1231321325 indicates the vehicles that can travel from the reference node. ACCESS_ID indicates that CONDITION_ID 1231321325 applies to buses, deliveries, and trucks only.

RDF_CONDITION	
CONDITION_ID	1231321325
CONDITION_TYPE	5
NAV_STRAND_ID	836403340
ACCESS_ID	276

RDF_ACCESS	
ACCESS_ID	276
AUTOMOBILES	N
BUSES	Y
TAXIS	N
DELIVERIES	Y
TRUCKS	Y
PEDESTRIANS	N
EMERGENCY_VEHICLES	N
CARPOOLS	N
MOTORCYCLES	N

RDF_CONDITION_DIRECTION_TRAVEL	
CONDITION_ID	1231321325
BEARING	1

Example 2 Reversible Link

All types of vehicles except buses, trucks, and pedestrians can use a non-HOV reversible link. Vehicles can travel from the reference node from 06:30 – 09:00. Vehicles can travel towards the reference node from 16:00 – 19:00.

TRAVEL_DIRECTION indicates the general link travel direction. ACCESS_ID indicates the types of vehicles that can use the link.

RDF_NAV_LINK	
LINK_ID	830644033
TRAVEL_DIRECTION	B
ACCESS_ID	719

RDF_ACCESS	
ACCESS_ID	719
AUTOMOBILES	Y
BUSES	N
TAXIS	Y
CARPOOLS	Y
PEDESTRIANS	N
TRUCKS	N
DELIVERIES	Y
EMERGENCY_VEHICLES	Y
THROUGH_TRAFFIC	Y
MOTORCYCLES	Y

CONDITION_ID 5122331132 indicates the vehicles that can travel from the reference node from 06:30 – 09:00. CONDITION_ID 5122331133 indicates the vehicles that can travel towards the reference node from 16:00 – 19:00. ACCESS_ID indicates that CONDITION_ID 5122331132 and 5122331133 apply to automobiles, taxis, deliveries, emergency vehicles, and carpools only.

RDF_CONDITION		
CONDITION_ID	5122331132	5122331133
CONDITION_TYPE	5	5
NAV_STRAND_ID	2000039595	2000039595
ACCESS_ID	710	710

RDF_ACCESS	
ACCESS_ID	710
AUTOMOBILES	Y
BUSES	N

RDF_ACCESS	
TAXIS	Y
CARPOOLS	Y
PEDESTRIANS	N
TRUCKS	N
DELIVERIES	Y
EMERGENCY_VEHICLES	Y
THROUGH_TRAFFIC	N
MOTORCYCLES	N

RDF_CONDITION_DIRECTION_TRAVEL		
CONDITION_ID	5122331132	5122331133
BEARING	1	2

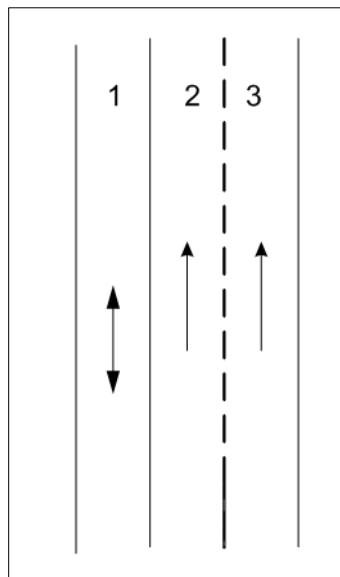
RDF_DATE_TIME		
DT_ID	8876543288	8876543289
DATETIME_TYPE	1	1
FROM_END	N	N
EXCLUDE_DATE	N	N
START_DATE	XXXXXXX	XXXXXXX
END_DATE		
START_TIME	0630	1600
END_TIME	0900	1900

RDF_CONDITION_DT		
CONDITION_ID	5122331132	5122331133
DT_ID	8876543288	8876543289
SEQ_NUM	0	0

Example 3 Reversible Lane with Specific Times

A link has three lanes and one of the lanes is reversible. All types of vehicles except buses, trucks, and pedestrians can use the reversible lane. Vehicles can travel from the

reference node from 06:30 – 09:00. Vehicles can travel towards the reference node from 16:00 – 19:00.



LANE_TRAVEL_DIRECTION indicates the general travel direction for each lane:

RDF_LANE			
LANE_ID	5012012545	5012012546	5012012547
LINK_ID	204358512	204358512	204358512
LANE_NUMBER	1	2	3
LANE_TRAVEL_DIRECTION	B	F	F
LANE_TYPE	4	1	1
ACCESS_ID	719	1023	1023
LANE_DIVIDER_MARKER	3	1	

RDF_LANE_NAV_STRAND		
LANE_NAV_STRAND_ID	634838601	634838602
CONDITION_ID	634838574	634838575
SEQ_NUM	0	0
LANE_ID	5012012545	5012012545
NODE_ID	4546546545	4546546546

CONDITION_ID 634838574 indicates the vehicles that can travel from the reference node from 06:30 – 09:00. CONDITION_ID 634838575 indicates the vehicles that can travel towards the reference node from 16:00 – 19:00. ACCESS_ID indicates the types of vehicles to which CONDITION_ID 634838574 and 634838575 are applicable.

RDF_CONDITION		
CONDITION_ID	634838574	634838575
CONDITION_TYPE	5	5
NAV_STRAND_ID		
ACCESS_ID	719	719

RDF_CONDITION_DIRECTION_TRAVEL		
CONDITION_ID	634838574	634838575
BEARING	1	2

RDF_DATE_TIME		
DT_ID	7876543287	9787654327
DATETIME_TYPE	1	1
FROM_END	N	N
EXCLUDE_DATE	N	N
START_DATE	XXXXXXX	XXXXXXX
END_DATE		
START_TIME	0630	1600
END_TIME	0900	1900

RDF_CONDITION_DT		
CONDITION_ID	634838574	634838575
DT_ID	7876543287	9787654327
SEQ_NUM	0	0

Example 4 Bidirectional Road with a Reversible Middle Lane (at Unknown Times)

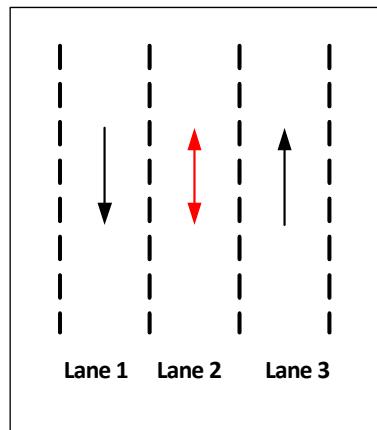


Figure 6-15

The link is attributed as follows:

- *Physical Number of Lanes* =2
- *From Number of Lanes* =1
- *To Number of Lanes* = 1

RDF_LANE		
LANE_ID	31817979	31818002
LINK_ID	744758174	744758174
LANE_NUMBER	1	2
LANE_TRAVEL_DIRECTION	F	T
LANE_TYPE	1	1
ACCESS_ID	1023	1023

Two conditions are published for the dependent access lane:

- Access Restriction condition to prohibit traffic on the lane with *Dependent Access Type* (DAT) modifier
- *Direction of Travel* condition with *Dependent Access Type* to inform that the lane might actually serve traffic in the other direction of travel

RDF_CONDITION			
CONDITION_ID	547434648	547434649	547434650
CONDITION_TYPE	8	5	5
NAV_STRAND_ID			

RDF_CONDITION (Continued)			
ACCESS_ID	1023	1023	1023
RDF_CONDITION_ACCESS			
CONDITION_ID	547434648		
SEASONAL_CLOSURE			
TIME_OVERRIDE			
DEPENDENT_ACCESS_TYPE	1		
RDF_CONDITION_DIRECTION_TRAVEL			
CONDITION_ID	547434649	547434650	
BEARING	1	2	
DEPENDENT_ACCESS_TYPE	1	1	
RDF_LANE_NAV_STRAND			
LANE_NAV_STRAND_ID	20025207	20025208	20025209
SEQ_NUM	0	0	0
CONDITION_ID	547434648	547434649	547434650
LANE_ID	99928872	99928872	99928872
NODE_ID			

Example 5 Separately Digitised Reversible Roads at Unknown Times

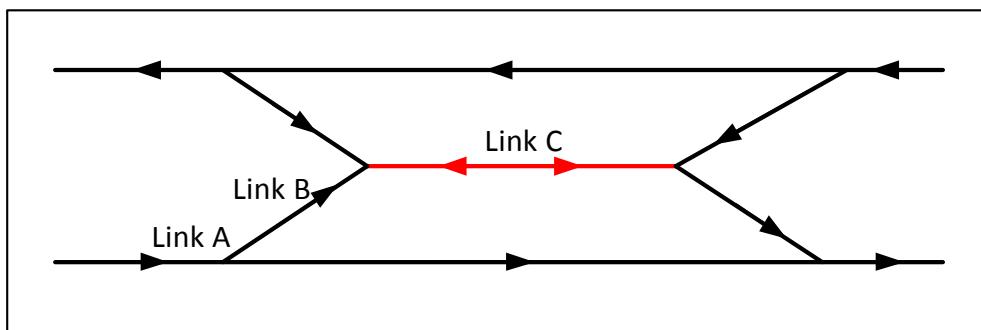


Figure 6-16

Link A: 1122334455

Link B: 1122334466

Link C: 1122334488

Link B and C are attributed as follows:

Link ID	1122334466	1122334488
Direction of Travel	F	B
Physical Number of Lanes	2	2
From Number of Lanes	2	2
To Number of Lanes	0	0
Functional Class	1	1
Reversible	N	Y

RDF_LANE				
LANE_ID	676727671	676727672	676727688	676727689
LINK_ID	1122334466	1122334466	1122334488	1122334488
LANE_NUMBER	1	2	1	2
LANE_TRAVEL_DIRECTION	F	F	B	B
LANE_TYPE	1	1	4	4
ACCESS_ID	1023	1023	1023	1023
...

Three conditions are published to represent that the link is reversible at unknown times:

- One *Access Restriction* condition per link to prohibit traffic on the links (cells in green)
- Two *Direction of Travel* conditions with *Dependent Access Type* to inform that the link might actually serve traffic in one of the directions of travel (cells in red)

RDF_CONDITION				
CONDITION_ID	547434600	547434601	547434602	547434603
CONDITION_TYPE	8	8	5	5
NAV_STRAND_ID	899838838	899838839	899838840	899838841
ACCESS_ID	1023	1023	1023	1023

RDF_CONDITION_ACCESS		
CONDITION_ID	547434600	547434601
SEASONAL_CLOSURE		
TIME_OVERRIDE		
DEPENDENT_ACCESS_TYPE	1	1

RDF_CONDITION_DIRECTION_TRAVEL		
CONDITION_ID	547434602	547434603
BEARING	1	2
DEPENDENT_ACCESS_TYPE	1	1

RDF_LANE_NAV_STRAND				
NAV_STRAND_ID	899838838	899838839	899838840	899838841
SEQ_NUM	0	0	0	0
LINK_ID	1122334466	1122334488	1122334488	1122334488
NODE_ID				

6.4.4 Restricted Driving Manoeuvre (CONDITION_TYPE = 7)

Definition *Restricted Driving Manoeuvre (RDM)* describes a manoeuvre from one link to another that is prohibited. The *Restricted Driving Manoeuvre* condition is used to prevent a vehicle from making a prohibited manoeuvre, resulting in more accurate route calculation.

Condition Type 7

Condition Attributes RDF_CONDITION_RDM.RDM_TYPE
RDF_CONDITION_RDM.TIME_OVERRIDE

Related Tables

RDF_NAV_STRAND

RDF_CONDITION_DIVIDER

Specification

- *Restricted Driving Manoeuvre* conditions are applied to two or more contiguous links that uniquely define the restricted manoeuvre.
- The links involved in a *Restricted Driving Manoeuvre* are published in RDF_NAV_STRAND. Each link in RDF_NAV_STRAND has a sequence number applied (SEQ_NUM) which determines the Link-order for which the RDM applies. SEQ_NUM = 0 represents the first link (Source).

- All links involved in the RDM are contained in RDF_NAV_STRAND, where the SEQ_NUM determines the order of links in the condition. The order of the links is still significant. An order of A, B, C, D, E would mean that the car cannot traverse the links in that order to get from A to E. Note that this does not imply that traversing subsets of these links is prohibited (for example travelling from C to D to E may be legal even if going from A to E is illegal).
- The number of links that can be involved in a *Restricted Driving Manoeuvre* is minimised to the point where the restriction is uniquely identified.
- “No U-turns” at intersections of single digitised links are represented as an RDF_NAV_STRAND where the First (SEQ_NUM = 0) and Second (SEQ_NUM = 1) link are the same. The NODE_ID in RDF_NAV_STRAND distinctly identifies the side of the link at which a U-turn is prohibited. See *Figure 6-17*.

Note: *Restricted Driving Manoeuvre* condition is not applied to represent Administrative Area wide (e.g., municipal or regional, etc.) traffic restrictions such as "No U-turns allowed in a specific city. These are represented instead by *Admin Wide Regulations (ADMIN_WIDE_REGULATIONS)*. A listing of areas can be found in a separate document, *Administrative Areas where U-Turns are not Allowed*.

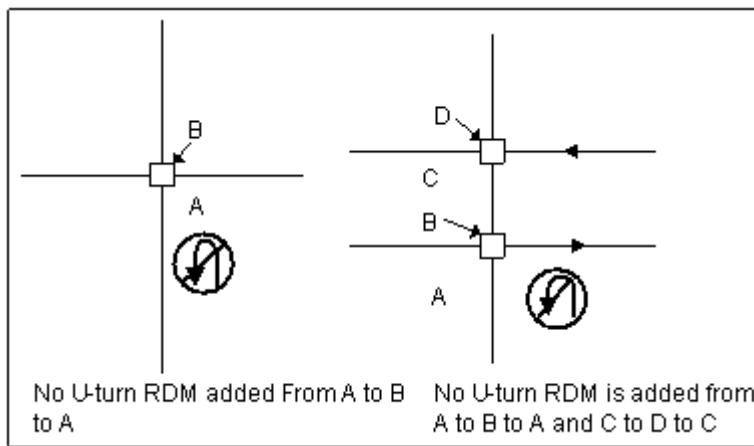


Figure 6-17

- *Restricted Driving Manoeuvre* conditions are not published if accessibility is restricted already by other attributes or conditions, such as:
 - ◆ *Direction of Travel*
 - ◆ *Access Characteristics*
 - ◆ *Divider*
 - ◆ *Z-Level*
 - ◆ *Condition Type = 4 (Gate)*
- A *Restricted Driving Manoeuvre* may be published with associated Date/Time Modifier in RDF_DATE_TIME.
- If an associated Date/Time Modifier is not published, the *Restricted Driving Manoeuvre* is in effect 24 hours a day, every day of the year.

- Outside the period contained in the associated Date/Time Modifier in RDF_DATE_TIME, the *Restricted Driving Manoeuvre* is not in effect.
- The Access Characteristics for the condition, published in RDF_CONDITION, are published based on the information posted. For example, “No left turn for trucks only”.

RDM Type

- *RDM Type = 1 (Legal)*: The manoeuvre is illegal due to posted turn restriction signs, restricted manoeuvre signs, painted traffic restrictions, or other traffic regulations. See *Figure 6-18*.

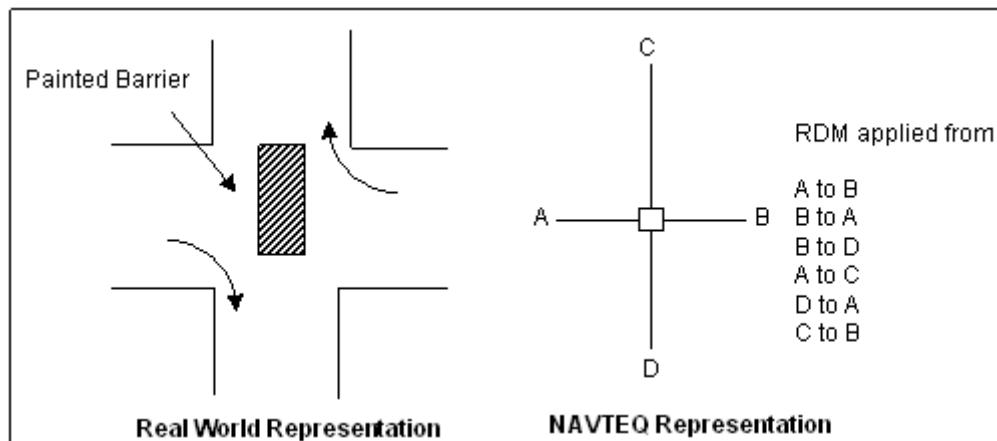


Figure 6-18

- ◆ *Restricted Driving Manoeuvre RDM Type = 1 (Legal)* is never in effect for Emergency Vehicles or Pedestrians.
- ◆ *Restricted Driving Manoeuvre RDM Type = 1 (Legal)* can apply only to vehicles that generally are allowed on the link. For example, if Buses generally are not allowed on the link (BUSES = Y in RDF_ACCESS) then the *Restricted Driving Manoeuvre* cannot apply to Buses.
- *Restricted Driving Manoeuvre RDM Type = 3 (Logical)*: The manoeuvre is logically prohibited. Although not legally or physically restricted, logically, no vehicle would make this manoeuvre to traverse a link or intersection. See *Figure 6-19*.

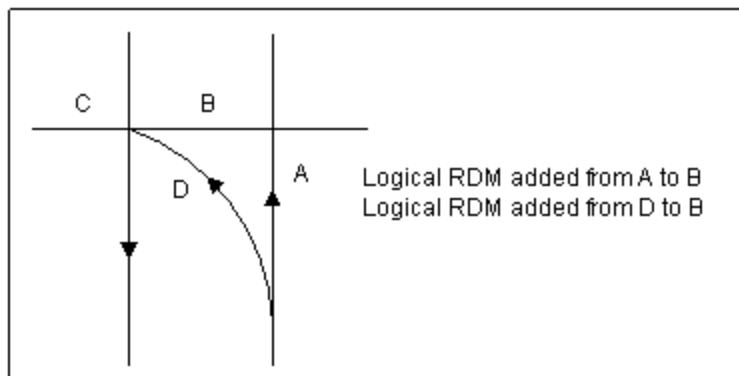


Figure 6-19

- *Restricted Driving Manoeuvre RDM Type = 3 (Logical)* is always in effect for all Access Characteristics except for Pedestrians. Emergency Vehicles are also restricted from Restricted Driving Manoeuvre RDM Type = 3 (Logical). See Figure 6-20.

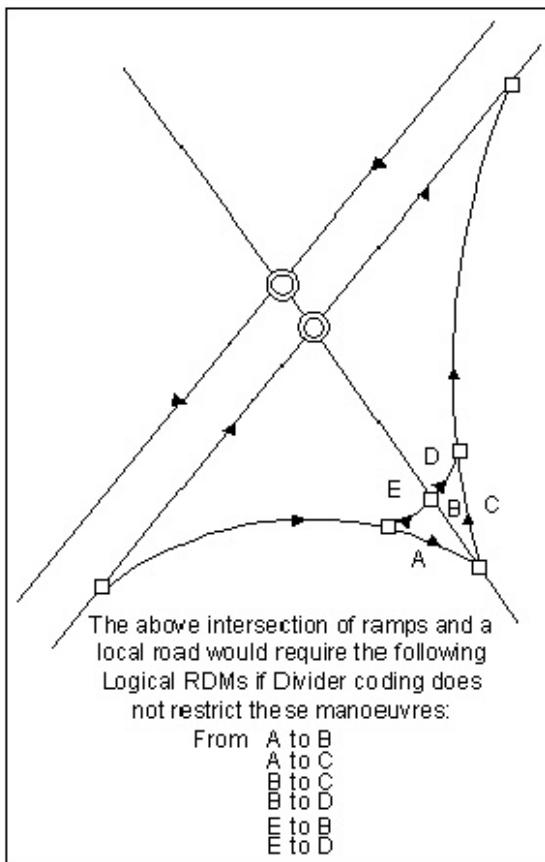


Figure 6-20

- *Restricted Driving Manoeuvre conditions RDM_TYPE = 2 (Physical)*: The manoeuvre is physically prohibited due to permanent barriers or other permanent physical impediments. See Figure 6-21.

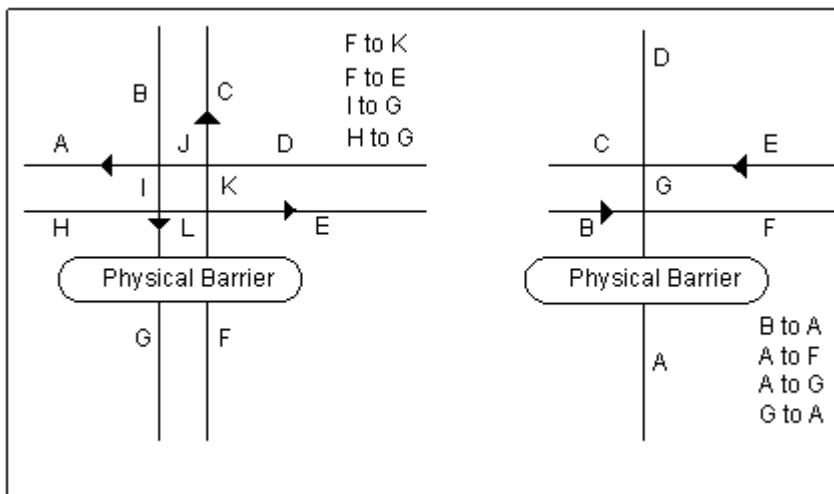


Figure 6-21

- *Restricted Driving Manoeuvre* Conditions of RDM Type = 2 (Physical) are always in effect for all vehicles allowed on the first link of the manoeuvre, which is found in RDF_NAV_STRAND with SEQ_NUM = 0.

Time Override:

- ◆ *Restricted Driving Manoeuvre* condition Time Override = 1 (Dawn to Dusk) is published if the restricted driving manoeuvre goes into effect at dawn and is no longer in effect at dusk.
- ◆ *Restricted Driving Manoeuvre* Time Override = 2 (Dusk to Dawn) is published if the restricted driving manoeuvre goes into effect at dusk and is no longer in effect at dawn.

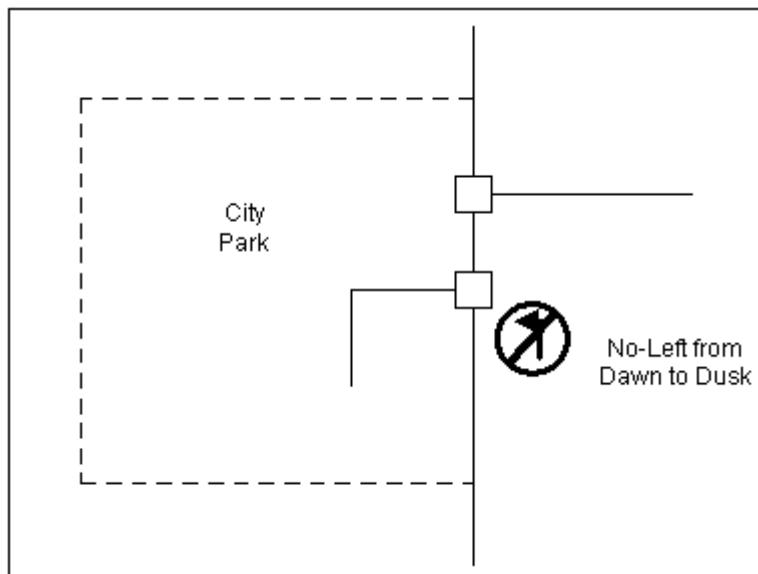


Figure 6-22

6.4.5 Access Restriction (CONDITION_TYPE = 8)

Definition *Access Restriction* conditions identify situations where specified types of vehicles are prohibited from travelling on the road at specific times. It also identifies which lane(s) allow access for HOV vehicles only, and provides requirements for accessing these lanes.

Condition Type 8

Column CONDITION_TYPE

Table RDF_CONDITION

Value See Section C.23, *RDF_CONDITION*.

Condition Attributes RDF_CONDITION_HOV.MIN_PASSENGERS
RDF_CONDITION_HOV.HYBRID_CAR
RDF_CONDITION_HOV.MOTORCYCLE
RDF_CONDITION_HOV.ALTERNATE_FUEL_CARPOOL
RDF_CONDITION_HOV.FEE_PAY_CARPOOL
RDF_CONDITION_ACCESS.SEASONAL_CLOSURE
RDF_CONDITION_ACCESS.TIME_OVERRIDE
RDF_CONDITION_ACCESS.DEPENDENT_ACCESS_TYPE

Related Tables RDF_NAV_LINK

RDF_DATE_TIME

RDF_LANE_NAV_STRAND

Usage *Access Restriction* conditions enable correct route calculation and map display. For example, if an *Access Restriction* exists that limits the access of automobiles for a specified time period, automobiles may be routed around that link for the duration of the restriction.

Specification

- If RDF_CONDITION.CONDITION_TYPE = 8 and RDF_CONDITION.NAV_STRAND_ID is not NULL, the *Access Restriction* condition is applicable to the link.
- If RDF_CONDITION.CONDITION_TYPE = 8 and RDF_CONDITION.NAV_STRAND_ID is NULL, the *Access Restriction* condition is applicable to the lane.
- *Access Restriction* condition is used with a Date/Time Modifier in RDF_DATE_TIME to define access limitations at specific times or for specific vehicles. RDF_DATE_TIME.DT_ID corresponds to RDF_CONDITION.CONDITION_ID and can be used to associate a Date/Time Modifier to a specific condition. A single condition can have multiple associated Date/Time Modifiers.
 - ◆ For example, a link that is open for all traffic in the morning and closed for the rest of the day has RDF_NAV_LINK.TRAVEL_DIRECTION = B. In addition, this link has RDF_CONDITION.CONDITION_TYPE = 8, with a Date / Time Modifier to indicate the times at which the link is closed to specific vehicles.

- The *Access Restriction* conditions in this record override the Access Characteristics on the link as published in RDF_ACCESS during the period published in RDF_DATE_TIME.
- For example, if a Carpool Only road (separately digitised), is closed to all traffic during non-commuting hours, then an *Access Restriction* condition is published for the closed time. The condition applies to the types of traffic that are allowed when the road is open.
Another example: In an area which is restricted to residents only (i.e., no through traffic) between 20:00 and 08:00, the *Access Restriction* condition applies to Through Traffic = Y.

High-Occupancy Vehicle (HOV)

HOV access conditions identify which lane(s) allows access for HOVs only and provide the requirements for legally accessing the HOV lane(s). A HOV can be a bus, van, car, etc., which carries multiple riders. Specific HOV lanes are modelled via regular Access Conditions in the RDF_CONDITION.CONDITION_TYPE = 8.

Specification

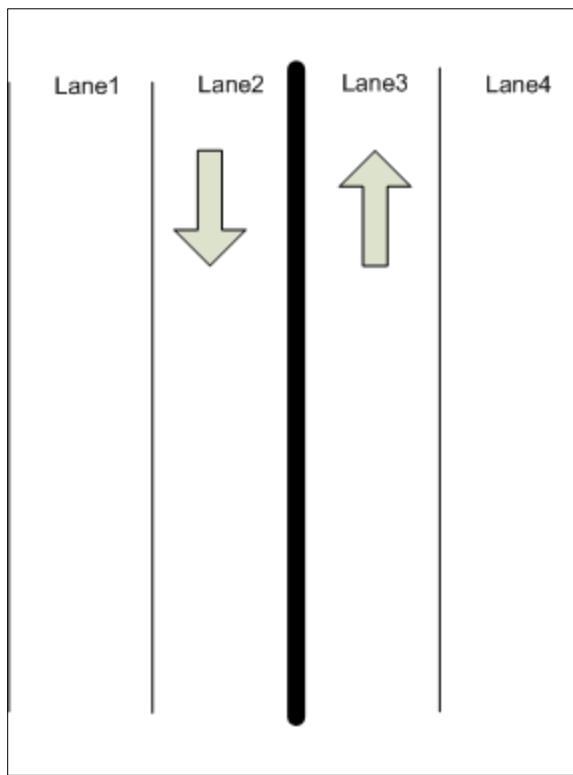
- HOV lane(s) is specified by the Access Characteristics in the *Access Restriction* condition (all lanes) or by the Access Characteristics at lane level in lane object (subset of lanes HOV).
- If only a subset of lanes on the link are open to HOV vehicles only, RDF_LANE_NAV_STRAND.LANE_NAV_STRAND_ID is published that corresponds to the RDF_CONDITION.CONDITION_ID.
- An HOV lane is coded with an *Access Restriction* condition, which applies to all Access Characteristics = Y except for Carpool = N, Bus = N (depending if they are allowed or not), and Emergency Vehicles = N. This implies that the Access Condition does not pose restrictions to vehicles flagged as N in RDF_ACCESS.
- Date/Time Modifiers are published in RDF_DATE_TIME to indicate specific time periods when the lane is open to HOV vehicles only, or to specify changes in the number of passengers required at certain hours of the day. Each unique combination of HOV lane open and number of passengers is a separate *Access Restriction* condition.
- Reversible HOV lanes are separately digitised, regardless of the type of divider (physical or painted) between the HOV lane and the other lanes. This is done to accommodate the reversible situation.
- Each HOV lane has the minimum number of passengers specified. The minimum number of passengers is published in RDF_CONDITION_HOV.MIN_PASSENGERS for the *Access Restriction* condition.
Note: The minimum number of passengers is only applicable to Carpools, not to any other Access Characteristics.
- The links with the RDF_NAV_LINK table publish the following relevant attribution for HOV lanes:
 - ♦ Travel Direction of the link

- ◆ Number of Lanes for both travel directions of the link (TO_REF_NUM_LANES and FROM_REF_NUM_LANES) accessibility to the link. The road has a certain number of lanes in each direction, with a maximum of 45 lanes per direction
- ◆ Specific HOV lanes are modelled via regular Access Conditions, CONDITION_TYPE = 8. These Access Conditions have specific attribution for modelling HOV situations:
 - RDF_LANE.LANE_TRAVEL_DIRECTION indicates the travel direction allowed on the HOV lane(s).
 - MIN_PASSENGERS indicates the minimum number of passengers required in the vehicle for entering the HOV lane.
 - RDF_LANE_NAV_STRAND.LANE_NAV_STRAND_ID indicates to which specific lanes of the link the HOV attribution is applicable.
 - MOTORCYCLE indicates whether Motorcycles are allowed in the HOV lane.
 - HYBRID_CAR indicates whether Hybrid Cars are allowed in the HOV lane.
 - Date/Time Modifiers are published as applicable in RDF_DATE_TIME.

Specific HOV Lane Attribution

- Minimum Number of Passengers (MIN_PASSENGERS) is published for all HOV Access Conditions. MIN_PASSENGERS indicates the minimally required number of passengers in a vehicle to qualify as an carpool vehicle.
- Lane travel direction (RDF_LANE.LANE_TRAVEL_DIRECTION) identifies the travel direction to which the HOV Access *Restriction* applies.
Lane travel direction defines the travel direction of the lane, with possible values:
 - ◆ T = Lane Travel Direction is Toward the reference Node.
 - ◆ F = Lane Travel Direction is From the reference Node.
- Lane travel direction is required to correctly interpret the HOV Lane condition on bidirectional links.
- Hybrid Car (HYBRID_CAR) – Some HOV lanes allow Hybrid cars on the HOV lane. If hybrid cars are allowed on the HOV lane, then RDF_CONDITION_HOV.HYBRID_CAR = Y is published for the Access *Restriction* condition.
- Most HOV lanes in North America allow Motorcycles on the HOV lane. If Motorcycles are allowed on the HOV lane, then RDF_CONDITION_HOV.MOTORCYCLE = Y is published for the Access *Restriction* condition.

Example 1 HOV Access Restriction Condition at Lane Level



The HOV coding is published as two access conditions RDF_CONDITION.CONDITION_TYPE = 8 and is an example of a regular HOV lane. The HOV condition and the access characteristics in the RDF_CONDITION table indicate that the HOV lane(s) is closed for non-HOV allowed vehicles. This condition leaves the HOV lane(s) open for allowed Vehicle Types, as shown in RDF_CONDITION and RDF_ACCESS.

RDF_CONDITION		
CONDITION_ID	123456	The unique ID of the condition
CONDITION_TYPE	8	The condition type is an access restriction indicating that the road is closed for specified vehicles.
NAV_STRAND_ID	654321	This references the link to which the access restriction applies.
ACCESS_ID	701	The Access ID indicates the vehicle types the condition applies to.

RDF_ACCESS		
ACCESS_ID	70 1	The Access ID associated with the specific set of access characteristics.

AUTOMOBILES	Y	HOV lane access restriction applies to automobiles.
BUSES	N	HOV lane access restriction does not apply to buses
TAXIS	Y	HOV lane access restriction applies to taxis.
CARPOOLS	N	HOV lane access restriction does not apply to carpools.
PEDESTRIANS	Y	HOV lane access restriction applies to pedestrians.
TRUCKS	Y	HOV lane access restriction applies to trucks.
DELIVERIES	Y	HOV lane access restriction applies to deliveries.
EMERGENCY_VEHICLES	N	HOV lane access restriction does not apply to emergency vehicles
THROUGH_TRAFFIC	Y	HOV lane access restriction applies to through traffic.
MOTORCYCLES	Y	HOV lane access restriction applies to motorcycles.

Several HOV condition attributes are published in RDF_CONDITION_HOV.

MIN_PASSENGERS indicates that the access restriction does not apply to carpool vehicles with at least two passengers.

RDF_CONDITION_HOV		
CONDITION_ID	123456	123457
MIN_PASSENGERS	2	2

Absence of HYBRID_CAR indicates that hybrid cars do not have access to HOV lane(s).

Absence of MOTORCYCLE indicates that motorcycles do not have access to HOV lane(s).

LANE_TRAVEL_DIRECTION attribute indicates that the travel direction for the HOV lane is from the reference node.

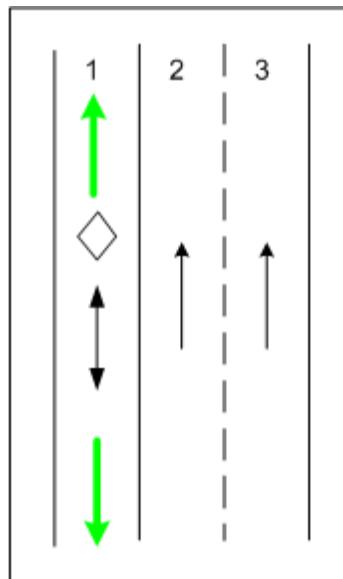
RDF_LANE		
CONDITION_ID	123456	123457
LANE_TRAVEL_DIRECTION	F	T

If HOV Access Restrictions only apply during specific times of day, table RDF_DATE_TIME lists the specific time periods for which the Access Restriction applies.

RDF_LANE_NAV_STRAND.LANE_ID indicates to which lane the HOV restriction applies.

RDF_LANE_NAV_STRAND		
LANE_NAV_STRAND_ID	445566	556677
CONDITION_ID	123456	123457

RDF_LANE_NAV_STRAND		
LANE_ID	987654	789546
SEQ_NUM	0	0
NODE_ID	456456	456457

Example 2 Reversible HOV Lane


RDF_LANE			
LANE_ID	5012012545	5012012546	5012012547
LINK_ID	204358512	204358512	204358512
LANE_NUMBER	1	2	3
LANE_TRAVEL_DIRECTION	B	F	F
LANE_TYPE	6	1	1
ACCESS_ID	710	991	991
LANE_DIVIDER_MARKER	3	1	

RDF_LANE_NAV_STRAND				
LANE_NAV_STRAND_ID	634838601	634838602	634838603	634838604
CONDITION_ID	634838574	634838575	634838577	634838578

RDF_LANE_NAV_STRAND				
SEQ_NUM	0	0	0	0
LANE_ID	5012012545	5012012545	5012012545	5012012545
NODE_ID	4546546545	4546546546	4546546545	4546546546

RDF_CONDITION				
CONDITION_ID	634838574	634838575	634838577	634838578
CONDITION_TYPE	8	8	5	5
NAV_STRAND_ID				
ACCESS_ID	493	333	991	991

RDF_CONDITION_HOV	
CONDITION_ID	634838575
MIN_PASSENGERS	2
HYBRID_CAR	Y
MOTORCYCLE	Y
ALTERNATE_FUEL_CARPOOL	N
FEE_PAY_CARPOOL	N

RDF_CONDITION_DIRECTION_TRAVEL		
CONDITION_ID	634838577	634838578
BEARING	2	1

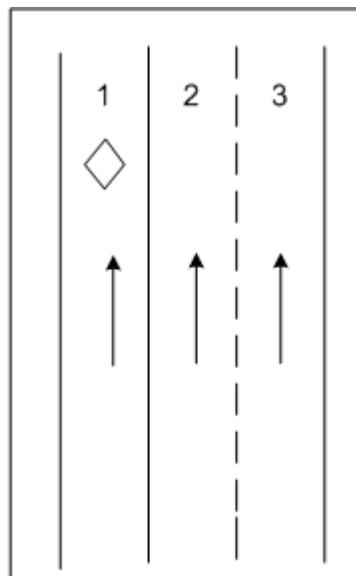
RDF_DATE_TIME					
DT_ID	9876543218	9876543217	9876543216	8765432198	7654321789
DATETIME_TYPE	H	H	H	H	H
FROM_END	N	N	N	N	N
EXCLUDE_DATE	N	N	N	N	N
START_DATE	00010000	00010000	00010000	00010000	00010000
END_DATE	00120000	00120000	00120000	00120000	00120000
START_TIME	0000	1000	1800	0800	1600

RDF_DATE_TIME					
END_TIME	0800	1600	2400	1000	1800

RDF_CONDITION_DT					
CONDITION_ID	634838574	634838574	634838574	634838577	634838578
DT_ID	9876543218	9876543217	9876543216	8765432198	7654321789
SEQ_NUM	0	1	2	0	0

Example 3 HOV Lane

Lane 1 is always a HOV lane.



RDF_LANE			
LANE_ID	5012012545	5012012546	5012012547
LINK_ID	364033408	364033408	364033408
LANE_NUMBER	1	2	3
LANE_TRAVEL_DIRECTION	F	F	F
LANE_TYPE	2	1	1
ACCESS_ID	710	991	991

RDF_ACCESS		
ACCESS_ID	710	991
AUTOMOBILES	Y	Y
BUSES	N	Y
TAXIS	Y	Y
DELIVERIES	Y	Y
TRUCKS	N	Y
PEDESTRIANS	N	N
EMERGENCY_VEHICLES	Y	Y
CARPOOLS	Y	Y
THROUGH_TRAFFIC	Y	Y
MOTORCYCLES	Y	Y

RDF_CONDITION	
CONDITION_ID	113637361
CONDITION_TYPE	8
NAV_STRAND_ID	
ACCESS_ID	653

RDF_ACCESS	
ACCESS_ID	653
AUTOMOBILES	Y
BUSES	N
TAXIS	Y
CARPOOLS	N
PEDESTRIANS	N
TRUCKS	N
DELIVERIES	Y
EMERGENCY_VEHICLES	N
THROUGH_TRAFFIC	Y
MOTORCYCLES	Y

RDF_CONDITION_HOV	
CONDITION_ID	113637361
ALTERNATE_FUEL_CARPOOL	N
FEE_PAY_CARPOOL	N
HYBRID_CAR	N
MIN_PASSENGERS	2
MOTORCYCLE	Y

RDF_LANE_NAV_STRAND	
LANE_NAV_STRAND_ID	115922216
CONDITION_ID	113637361
LANE_ID	5012012545
SEQ_NUM	0
NODE_ID	454654654 5

6.4.5.1 Fee Pay Considered Carpool (FEE_PAY_CARPOOL)

Definition	<i>Fee Pay Considered Carpool</i> is an (HOV) Access condition attribute that indicates if an HOV lane can be used by vehicles that pay a fee to use the HOV lane. The fee could be for a pay-per-use or pass scenario.
Table	RDF_CONDITION_HOV
Column	FEE_PAY_CARPOOL
Values	See Section C.30, RDF_CONDITION_HOV.
Default	None
Related Condition	Access Restriction (CONDITION_TYPE = 8)
Related Attributes	Hybrids Considered Carpool Alternate Fuel Considered Carpool Motorcycle Considered Carpool
Specification	<ul style="list-style-type: none"> If payment of additional fees allows vehicles to use the HOV Lane, then <i>Fee Pay Considered Carpool</i> = 1 is published for the HOV Access condition.

- *Fee Pay Considered Carpool* is published only for HOV Access conditions, which is CONDITION_TYPE = 8 with a Minimum Passenger condition attribute.

6.4.5.2 Alternate Fuel Considered Carpool (ALTERNATE_FUEL_CARPOOL)

Definition	<i>Alternate Fuel Considered Carpool</i> is an (HOV) access condition attribute that identifies if vehicles using alternate fuel are considered carpool; and therefore, are allowed on carpool lanes.
Table	RDF_CONDITION_HOV
Column	ALTERNATE_FUEL_CARPOOL
Values	See Section C.30, RDF_CONDITION_HOV.
Default	No default
Related Condition	Access Restriction (Condition_Type = 8)
Related Attributes	<i>Hybrids Considered Carpool</i> (HYBRID_CAR) <i>Fee Pay Considered Carpool</i> (FEE_PAY_CARPOOL) <i>Motorcycle Considered Carpool</i> (MOTORCYCLE)
Specification	<ul style="list-style-type: none">• If vehicles using alternate fuel are allowed on HOV lanes, then <i>Alternate Fuel Considered Carpool</i> = 1 is published for the HOV Access condition.• <i>Alternate Fuel Considered Carpool</i> is published only for HOV Access conditions, which is Condition_Type = 8 with a Minimum Passenger condition attribute.

6.4.6 Special Explication (CONDITION_TYPE = 9)

Definition	<i>Special Explication</i> condition indicates a point where a road splits into two or more roads. If no route guidance advice was provided, the driver may not be able to determine in which direction to continue. Special Explication can be used for map display and route guidance.
Condition Type 9	
Condition Attributes	None
Related Tables	None
Specification	<ul style="list-style-type: none">• At qualifying decision points (see rules below), two or more <i>Special Explication</i> conditions are always added, one for each link after the split. Figure 6-23 shows a case where Special Explication is required.

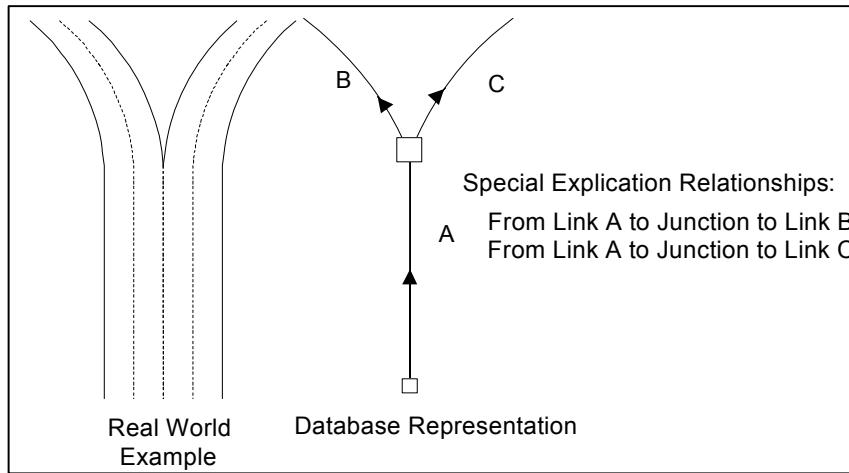


Figure 6-23: Special Explication

- The Access Characteristics of the *Special Explication* condition are set to Y for all Vehicle Types.
- A *Special Explication* condition is applied when:
 - ◆ The driver perceives a *Controlled Access = N* road as splitting and instruction to keep to the left or right is necessary to continue in the correct direction, as shown in *Figure 6-24*.
 - ◆ The driver perceives a controlled access road as splitting into two or more controlled access roads.
 - ◆ The driver perceives a Highway-to-Highway Connector as splitting into two or more Highway-to-Highway Connectors.
 - ◆ The controlled access road widens to include two (or more) extra lanes for at least 1000 metres before the decision point. In this case, the driver perceives a motorway as splitting into a motorway and a Highway-to-Highway Connector. See *Figure 6-25* and *Figure 6-26*.
- A *Special Explication* condition is not applied in situations where an instruction to keep to the left or right is not necessary. The following are examples:
 - ◆ Splits of low speed ramps
 - ◆ Highway splits on approaches to Toll Structures to accommodate different toll paying options

Examples

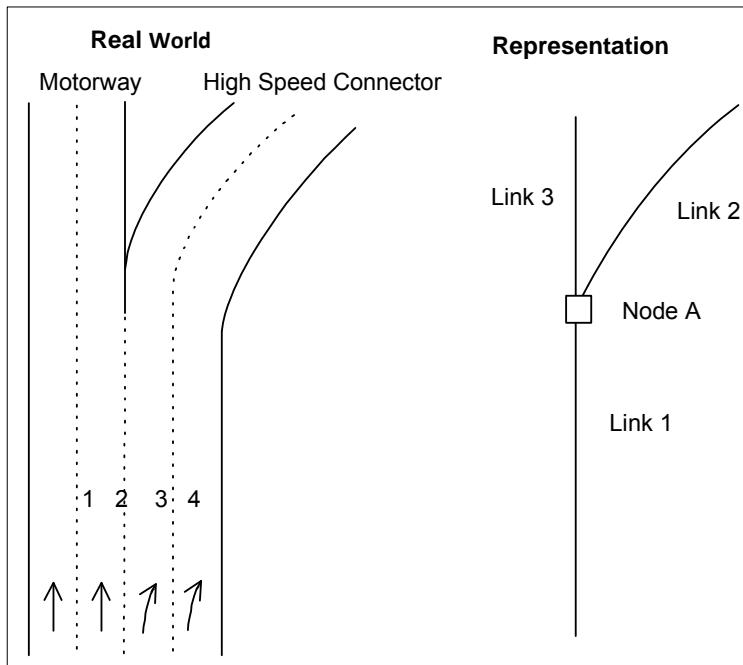


Figure 6-24

In Figure 6-24, Special Explication conditions are applied from:
 Link 1 to Node A to Link 2
 Link 1 to Node A to Link 3

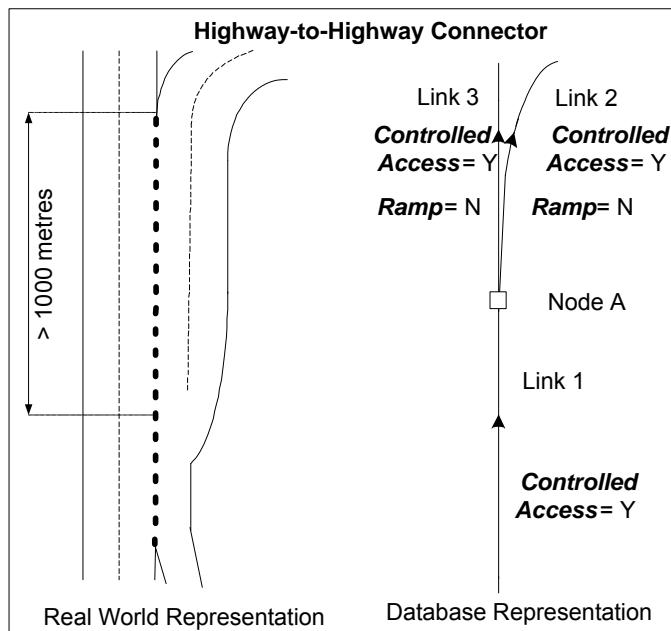


Figure 6-25

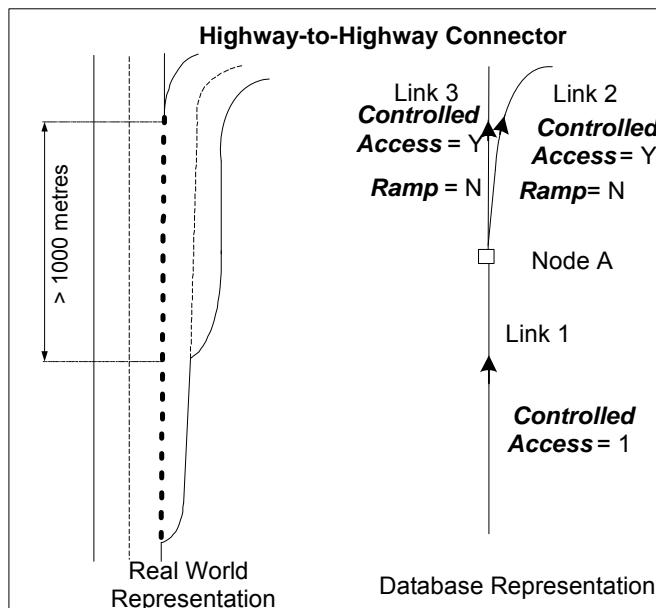


Figure 6-26

In Figure 6-25 and Figure 6-26, Special Explication conditions are applied from:

Link 1 to Node A to Link 2

Link 1 to Node A to Link 3

6.4.7 Special Speed Situation (CONDITION_TYPE = 10)

Definition *Special Speed Situation* indicates a speed that exists under special circumstances.

Condition Type 10

Condition Attributes *Dependent Speed Type*

Special Speed Type

Time Override

See Section C.33, *RDF_CONDITION_SPEED*.

Related Tables *RDF_NAV_LINK*

Usage *Special Speed Situation* can be used to further refine the estimation of link traversal times, prioritization of link selection during route calculation and calculation of route guidance timing.

Specification

- *Special Speed Situation* can be applied for any road regardless of *Functional Class*. Inclusion varies however per country and/or extract variation, e.g., only *Special Speed Situation* for links with *Functional Class* = 1 and 2 are published for base contents.

- *Special Speed Situation* is indicated when a road has both a legal speed limit and some situation that causes the legal speed limit to change. The change can be due to time, conditions, or activity. Only *Special Speed Situation* signs with a posted speed value or representing a specific speed value by legal statute are included.
- Positional accuracy is within +/-50 metres from the start and end of a particular Special Speed Situation location.
- RDF_CONDITION_SPEED.SPECIAL_SPEED_TYPE is always indicated. Special Speed Type values are as follows:

Advisory

- Advisory Speed (SPECIAL_SPEED_TYPE = 1). These posted speeds are not the legal limit, but rather serve to warn a driver that road conditions indicate a lower speed is practical. Typically, the road condition is a curved road or a ramp but it may be due to a narrow road, narrow bridge, intersecting road, drainage dip, etc. In some cases, the advisory sign is on a different road than the one for which it applies (this can happen with ramps). In this case, the advisory speed is indicated for the road for which it is intended, even if the sign is further than 50 metres from the particular road.
- Advisory speed signs due to construction are not included.
- A speed value is published for advisory signs.

Dependent

- Dependent Speed Type (SPECIAL_SPEED_TYPE = 2). This is a speed that is enforced if certain criteria are met. Examples include: School, Rain, Snow, Fog, Time Dependent, etc.
See Appendix C, RDF_CONDITION_SPEED for the complete values.
- School (RDF_CONDITION_SPEED.DEPENDENT_SPEED_TYPE = 1): School zone signs are often placed to slow drivers before reaching an intersection where children are crossing. Nodes are added to apply the Special Speed Limit if the school zone sign is greater than 50 metres from an intersection, as shown in *Figure 6-27*.
- The speed value for school zones can be based on signs that have a posted speed value or signify a specific speed based on a legal statute.
- Time Dependent (RDF_CONDITION_SPEED.DEPENDENT_SPEED_TYPE = 4): These are speed limits that are in effect only during a specified time period. The date range corresponding to the time is indicated in RDF_DATE_TIME. Also, there are cases where a different speed is applicable at night. This is indicated by RDF_CONDITION_SPEED.TIME_OVERRIDE = 2 Dusk to Dawn.
- These are speed limits that are in effect only under specific weather conditions:
 - ◆ Rain (RDF_CONDITION_SPEED.DEPENDENT_SPEED_TYPE = 2)
 - ◆ Snow (RDF_CONDITION_SPEED.DEPENDENT_SPEED_TYPE = 3)
 - ◆ Fog (RDF_CONDITION_SPEED.DEPENDENT_SPEED_TYPE = 7)

For example, in Germany, speed limits on motorways can be reduced in case of rain.

- Approximate Seasonal Time (RDF_CONDITION_SPEED.DEPENDENT_SPEED_TYPE = 5): These are the “seasonal” situations. For example, in Chicago, Lake Shore Drive changes from 45 mph to 40 mph during the winter.
- Lane Dependent (RDF_CONDITION_SPEED.DEPENDENT_SPEED_TYPE = 6): These are situations where a road has different speed limits per lane. No Special Speed Limit is published for this Dependent Speed Type. The Speed Limit value is the predominant speed allowed.

Speed Bumps Present

- Speed Bumps or Chicanes (RDF_CONDITION_SPEED.SPECIAL_SPEED_TYPE = 3). This indicates that for a stretch of road, speed bumps are present or chicanes are present that effectively reduce the posted speed. A Special Speed Limit value is not indicated for Speed Bumps.

The following situations are not considered speed bumps/chicanes:

- ◆ rumble strips (commonly rows of raised reflectors used to warn drivers when approaching a speed change or other situation)
- ◆ cattle grids
- ◆ chicanes that do not effectively slow down the traffic

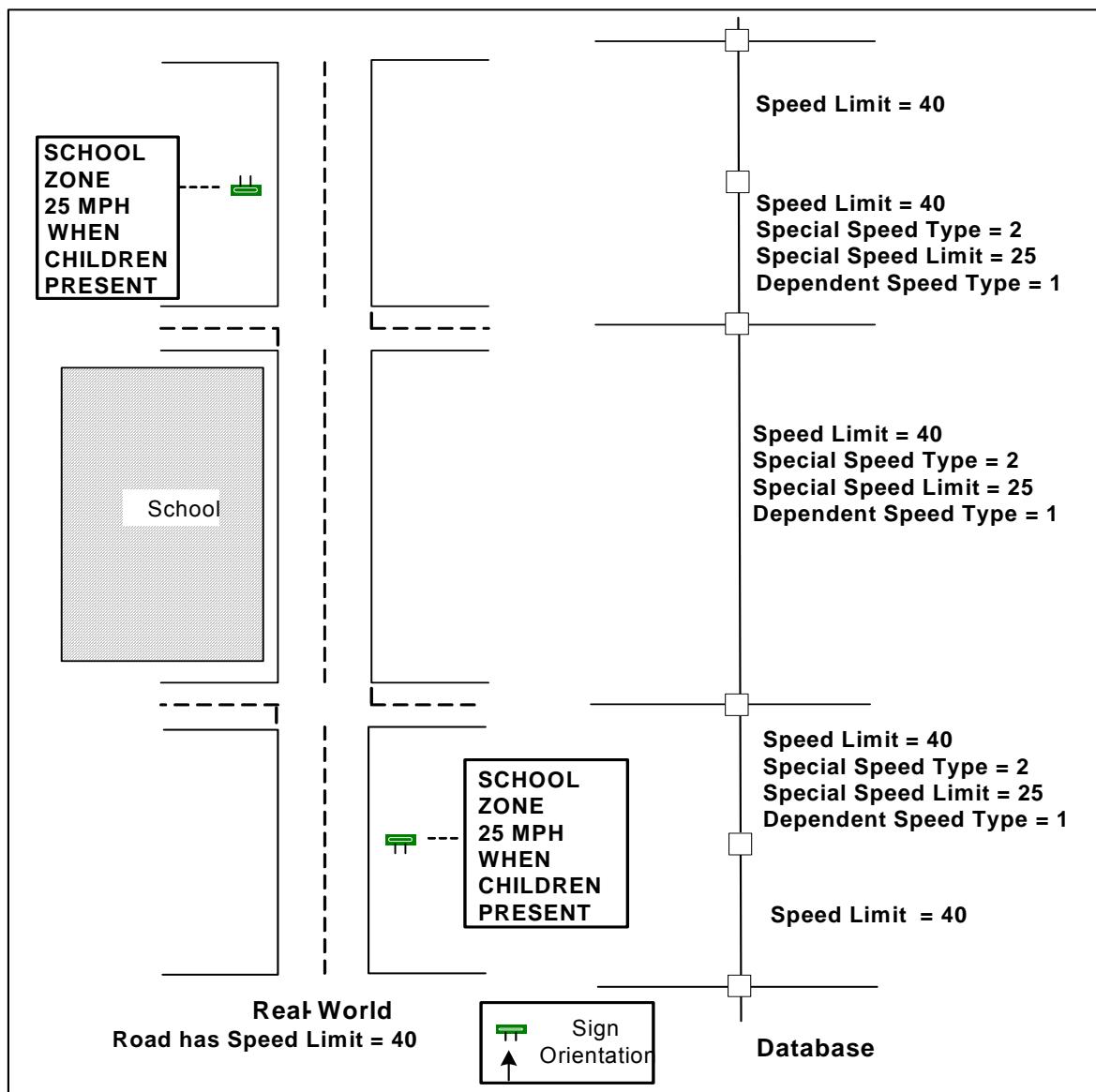


Figure 6-27: Special Speed Situation for School Zone

6.4.8 Variable Speed Sign (CONDITION_TYPE = 11)

Definition *Variable Speed Sign* indicates the location of a typically automated sign where the posted speed limit can vary.

Condition Type 11

Table RDF_CONDITION_SPEED

Column VARIABLE_SPEED_SIGN_LOCATION

Values 1 = Left

2 = Right

3 = Overhead

Related Tables RDF_NAV_LINK

RDF_CONDITION

- Specification**
- *Variable Speed Sign* (RDF_CONDITION.CONDITION_TYPE = 11) and Variable Sign Location (RDF_CONDITION_SPEED.VARIABLE_SPEED_SIGN_LOCATION) are published on links with Controlled Access = Y.
 - *Variable Speed Sign* represents the location of a variable speed sign. The Condition consists of two links. The order of the links determines the facing direction of the sign.
 - *Variable Speed Sign* location identifies if the location is to the Left, Right or Overhead. If located in more than one spot, the most prominent one is chosen as the location.
 - Positional accuracy is within +/-50 metres of the location of the Variable Speed Sign.
 - A *Variable Speed Sign* location is indicated if a variable speed sign exists and is permanently placed, as shown in *Figure 6-28*.
 - The Access Characteristics of the *Variable Speed Sign* condition are set to Y for all Vehicle Types.
 - *Figure 6-28* shows a road where only a digital speed limit sign exists. With this type of sign the local authorities can change the speed limit without notice. In this situation, only *Variable Speed Sign* is published, the speed limit value is not published.



Figure 6-28: Variable Speed Sign

6.4.8.1 Variable Speed Sign ID (VSS_ID)

Definition	<i>Variable Speed Sign ID</i> attribute uniquely identifies the Variable Speed Sign.
Values	Unique numeric value for the Variable Speed Sign.
Entity-Attribute Relation	1:1
Table Name	RDF_CONDITION_SPEED
Related Condition Types	<i>Variable Speed Sign</i> (Condition Type = 11) <i>Variable Speed Limit Applicable</i> (Condition Type = 40)
Column Name	VSS_ID
Usage	<i>Variable Speed Sign ID</i> (VSS_ID) attribute uniquely identifies a Variable Speed Sign. Based on the VSS_ID the following functionality is enabled: <ul style="list-style-type: none">• Cross-reference between the <i>Variable Speed Limit Applicable</i> conditions and the corresponding <i>Variable Speed Sign</i> condition.• Facilitates a future linkage of a dynamic speed limit feed to the map database
Specification	<ul style="list-style-type: none">• <i>Variable Speed Sign ID</i> (VSS_ID) is coded for each <i>Variable Speed Sign condition</i> (Condition_Type = 11) and for each <i>Variable Speed Limit Applicable</i> condition (Condition_Type = 40).• The VSS_ID attribute for the <i>Variable Speed Sign Applicable</i> condition explicitly relates the <i>Variable Speed Limit Applicable</i> condition at link level to the <i>Variable Speed Sign</i> condition which enforces the dynamic speed limit onto the link.

- Each *Variable Speed Limit Applicable* condition always has a corresponding *Variable Speed Sign ID* (VSS_ID) attribute, since each dynamic speed limit relates to a variable speed sign.
- The *Variable Speed Sign ID* (VSS_ID) attribute is coded for each *Variable Speed Sign condition* (Condition Type = 11). Based on this VSS_ID the Variable Speed Sign can be associated to the navigable links impacted by this variable speed sign.
- The *Variable Speed Sign ID* (VSS_ID) is a globally unique identifier, defined as a positive 32-bit integer value (i.e., unsigned integer).

6.4.9 Usage Fee Required (CONDITION_TYPE = 12)

Definition [Link](#)

Usage Fee Required identifies the links that are affected by toll, the Access Characteristics to which the toll applies, and the type of toll feature it is representing. Date and time information may be published if the toll only is required certain times during the day or on certain days.

[Lane](#)

Usage Fee Required identifies situations where Toll Systems apply in one direction only. *Usage Fee Required* is modelled as a single lane Condition. The direction in which the Toll System is applicable is modelled using RDF_LANE.LANE_TRAVEL_DIRECTION.

Condition Type 12

Column CONDITION_TYPE

Value See Section C.23, RDF_CONDITION.

Table RDF_CONDITION

Related Tables RDF_NAV_LINK publishes the links involved in the *Usage Fee Required* condition.

RDF_ACCESS
RDF_LANE
RDF_LANE_NAV_STRAND
RDF_CONDITION_TOLL

Related Attributes *Toll Feature Type*
Toll System Type

Usage [Link](#)

Usage Fee Required condition can be primarily used for routing and guidance (e.g., for enabling avoidance of toll roads). It can be used for display purposes by displaying the links that are affected by toll.

Usage Fee Required condition can also be used to differentiate display of toll feature types, toll system types, and/or the Access Characteristics to which the toll applies.

Lane

Usage Fee Required can be used to retrieve the lane direction in which the *Usage Fee Required* condition applies.

Specification Link level

- *Usage Fee Required* condition is applied to all links that are affected by any type of toll, as in the following examples:

Note: *Usage Fee Required* and *Tollway* values do not necessarily match. A road can be flagged as *Tollway* without receiving *Usage Fee Required* condition.

- ◆ If a Toll Structure is on a ramp, then the *Usage Fee Required* condition is applied starting at the point where the driver has no option other than entering the toll road. If a Toll Structure is on an exit ramp, then the *Usage Fee Required* condition is applied to the complete ramp. See *Figure 6-29*.

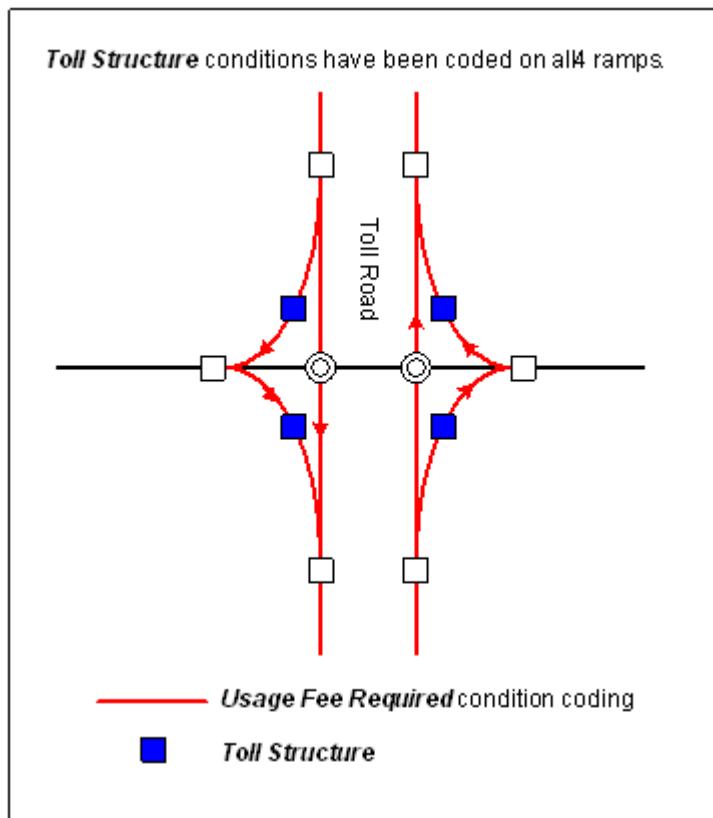


Figure 6-29

- ◆ If Toll Structures are located at a Bridge, then the *Usage Fee Required* condition is applied starting after the Toll Structure and ending at the logical end point of the Bridge. In most cases, this is the point where the Toll Structure is located for the other driving direction, see *Figure 6-30*.

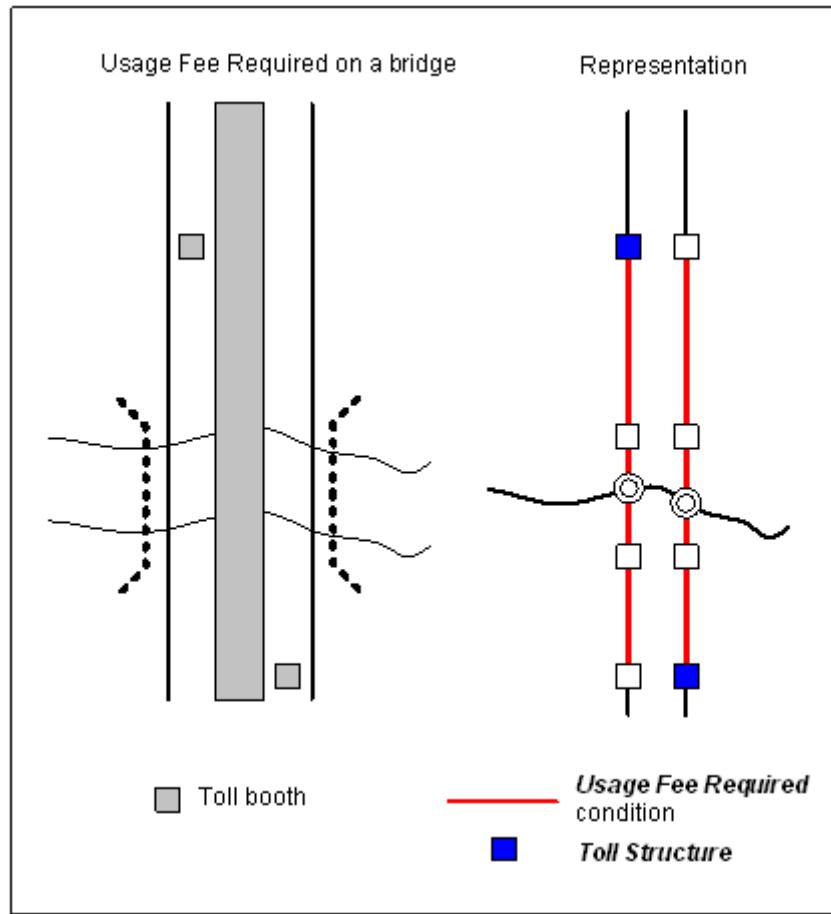


Figure 6-30

- The *Usage Fee Required* condition is applied to all links that connect two or more toll roads.
- Rest areas along a toll road are published with the *Usage Fee Required* condition.
- Multiple *Usage Fee Required* conditions can be present for one link in case the link serves multiple types of Toll. For example in Austria, Trucks and Buses pay Toll through the Toll Collect system (Electronic Toll Structures). All other vehicles pay Toll through the Vignette system. In this case, one link has two *Usage Fee Required* conditions, one for the Toll Collect system and one for the Vignette system.
- The Access Characteristics indicate to which Vehicle Types the toll applies. For example, in Germany only Trucks are required to pay a toll in order to traverse the motorway network.
- RDF_DATE_TIME information is published if the toll is in effect only on specific days or during specific times of the day.

Lane level (Single Direction Toll Roads)

- *Usage Fee Required* is published for a lane when either of the following is true:
 - ◆ A link is bidirectional and the Toll System (including HOT (High Occupancy Toll) Lanes and ETL (Express Toll Lanes)) is applicable to all of the lanes in only one direction of travel.
 - ◆ The attribute is only applicable to a subset of lanes on the link.
- RDF_LANE.LANE_TRAVEL_DIRECTION = F – From the Reference Node is published if the *Usage Fee Required* condition is applicable only in the positive link direction (from reference node towards non-reference node).
- RDF_LANE.LANE_TRAVEL_DIRECTION = T – To the Reference Node is published if the *Usage Fee Required* condition is applicable only in the negative link direction (from non-reference node towards reference node)
- If the Toll System is applicable in both driving directions, then *Usage Fee Required* is published at link level.

Usage Fee Required and Toll Cost

- Toll Cost, a separate XML product, can be associated with RDF via Usage Fee Required. See also *Section 13.5, XML Products and Toll Structure Type and Toll Cost*.
- See HOT (High Occupancy Toll) and ETL (Express Toll Lanes) under *Section 6.4.1, Toll Structure (CONDITION_TYPE = 1)*.

ExampleLane - Usage Fee Required

In *Figure 6-31*, the *Usage Fee Required* condition on the link applies only in the positive link direction (from the Reference Node) on lane 3 and 4.

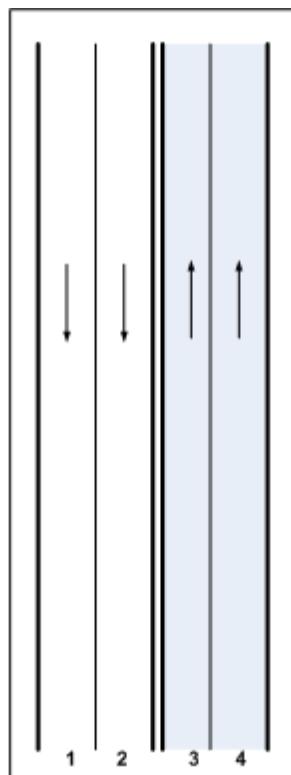


Figure 6-31

Entry RDF_NAV_LINK in specifying the Physical Number of Lanes.

RDF_NAV_LINK	
LINK_ID	865300 5
PHYSICAL_NUM_LANES	4
ACCESS_ID	1023
.....	

Entry in RDF_ACCESS specifying the Access Characteristics applicable to the link and lanes.

RDF_ACCESS	
ACCESS_ID	1023
AUTOMOBILES	Y
BUSES	Y
TAXIS	Y

RDF_ACCESS	
CARPOOLS	Y
PEDESTRIANS	Y
TRUCKS	Y
DELIVERIES	Y
EMERGENCY_VEHICLES	Y
THROUGH_TRAFFIC	Y
MOTORCYCLES	Y

Entry in RDF_LANE_NAV_STRAND defining the lanes for the *Usage Fee Required* condition.

RDF_LANE_NAV_STRAND		
LANE_NAV_STRAND_ID	65637365 3	65637365 4
LANE_ID	11223344 55	11223344 56
SEQ_NUM	0	0
CONDITION_ID	93105081 7	93105081 7

Entry in RDF_LANE specifying lane 3 and 4 to which the Usage Fee Required condition is applicable.

RDF_LANE		
LANE_ID	1122334455	1122334456
LINK_ID	8653005	8653005
LANE_NUMBER	3	4
LANE_TRAVEL_DIRECTION	F	F
LANE_TYPE	1	1
ACCESS_ID	1023	1023
.....		

Entry in RDF_CONDITION defining the Usage Fee Required condition.

RDF_CONDITION	
CONDITION_ID	931050817
CONDITION_TYPE	12
NAV_STRAND_ID	
ACCESS_ID	733

Entry in RDF_ACCESS defining the Access Characteristics to which the Usage Fee Required condition applies:

RDF_ACCESS	
ACCESS_ID	733
AUTOMOBILES	Y
BUSES	N
TAXIS	Y
CARPOOLS	Y
PEDESTRIANS	N
TRUCKS	Y
DELIVERIES	Y
EMERGENCY_VEHICLES	N
THROUGH_TRAFFIC	Y
MOTORCYCLES	Y

Entry in RDF_CONDITION_TOLL defining the *Toll Feature Type* condition attribute:

RDF_CONDITION_TOLL	
CONDITION_ID	931050817
TOLL_FEATURE_TYPE	1
TOLL_SYSTEM_TYPE	121

6.4.9.1 Toll Feature Type (TOLL_FEATURE_TYPE)

Definition *Usage Fee Required* condition attribute *Toll Feature Type* identifies the type of toll it represents.

Toll Feature Type can be used for display purposes and offers the possibility to differentiate in display between the different *Toll Feature Type* values.

Table RDF_CONDITION_TOLL

Column TOLL_FEATURE_TYPE

Value See Section C.34, RDF_CONDITION_TOLL.

Cardinality 1:1:M

Related Table RDF_CONDITION

Specification • The *Usage Fee Required* condition attribute *Toll Feature Type* is equal to one of the following values:

- ◆ *Toll Feature Type* = 1 - TOLL ROAD is applied when toll is paid at Toll Structures in order to traverse a designated toll road, and the Toll Road is not of any of the type of *Toll Feature Types* listed below.
- ◆ *Toll Feature Type* = 2 - BRIDGE is applied when toll is paid in order to traverse a bridge.
- ◆ *Toll Feature Type* = 3 - TUNNEL is applied when toll is paid in order to traverse a tunnel.
- ◆ *Toll Feature Type* = 4 - PARK is applied when toll is paid in order to travel through a (national) park.
- ◆ *Toll Feature Type* = 5 - MOUNTAIN PASS is applied when toll is paid in order to traverse a mountain pass.
- ◆ *Toll Feature Type* = 6 - SCENIC ROUTE is applied when toll is paid in order to traverse a scenic route.
- ◆ *Toll Feature Type* = 7 - VIGNETTE ROAD is applied when a Vignette is required in order to traverse the Toll Road.
- ◆ *Toll Feature Type* = 8 - TOLL ZONE is applied when toll is paid in order to traverse a toll zone within a city. Example: London Congestion Zone and toll zones in Stockholm.

Note: If multiple *Toll Feature Type* values exist for a road or stretch of road, then multiple *Usage Fee Required* conditions are published with different *Toll Feature Type* values.

- The *Usage Fee Required* condition sub- attribute *Toll Feature Type* is not published if the type of Toll feature has not been verified.

6.4.9.2 Toll System Type (TOLL_SYSTEM_TYPE)

Definition *Usage Fee Required* condition attribute *Toll System Type* identifies toll systems that have a common toll operator and toll collection scheme.

Table RDF_COUNTRY
RDF_CONDITION_TOLL

Column TOLL_SYSTEM_TYPE

Value The unique ID for each toll system that has a common toll operator and toll collection scheme.

Default Value Null

Cardinality 1:0:1 (RDF_COUNTRY)
1:1 (RDF_CONDITION_TOLL)

Related Tables RDF_ACCESS
RDF_CONDITION

Related Look - Vehicle Category XML file aside File

Usage Toll System Type IDs can be used to retrieve the detailed vehicle characteristics that are applicable to a specific toll system.

Specification

- All congestion zones have some type of physical (electronic) toll structure at the entrance(s) to the toll zone; therefore, they do not qualify as a *Toll System Type*.
- A unique *Toll System Type* ID is published for each Toll System. Toll systems are defined by a common Toll Operator and Toll collection scheme.
- The *Toll System Type* is an attribute of the Usage Fee Required condition. Usage Fee Required is published for toll roads and toll zones like congestion zones.
- Toll Systems can apply to a complete country. For example, trucks over 3.5 tons must pay a toll on all roads in Switzerland; in this case the *Toll System Type* is published in the RDF_COUNTRY table.

Example 1 Toll System Type for a Country

Trucks over 3.5 tons must pay a toll on all roads In Switzerland. In this case, the RDF_COUNTRY.TOLL_SYSTEM_TYPE is published to reference the detailed Vehicle Category XML information. The actual cost is published in the Toll Cost XML data.

RDF_COUNTRY	
COUNTRY_ID	887766

RDF_COUNTRY	
TOLL_SYSTEM_TYPE	667788990 0

Only the RDF_COUNTRY table columns relevant to this example are shown.

Example 2 Toll System Type for Usage Fee Required

For a toll bridge, all trucks over 7.5 tons must pay a fee to cross the bridge. In this case, the Usage Fee Required condition is published with Toll condition attribute *Toll System Type*. The *Toll System Type* IDs reference the detailed Vehicle Category information in XML.

RDF_CONDITION			
CONDITION_ID	158524411	158524331	158524445
CONDITION_TYPE	12	12	12
NAV_STRAND_ID	160229245	160229879	160229213
ACCESS_ID	16	16	16

RDF_ACCESS	
ACCESS_ID	16
AUTOMOBILES	N
BUS	N
TAXI	N
CARPOOL	N
PEDESTRIAN	N
TRUCKS	Y
THROUGH_TRAFFIC	N
DELIVERY	N
EMERGENCY_VEHICLES	N
MOTORCYCLES	N

RDF_CONDITION_TOLL			
CONDITION_ID	158524411	158524331	158524445
TOLL_SYSTEM_TYPE	98	98	98
TOLL_FEATURE_TYPE	2	2	2

6.4.10 Lane Traversal (CONDITION_TYPE = 13)

Definition *Lane Traversal* condition defines lane connectivity; how lanes are connected between origin and destination lanes for making a specific manoeuvre. Lane connectivity is modelled via a combination of Lane IDs which form the path through the junction.

Condition Type 13

Table RDF_CONDITION

Column CONDITION_TYPE

Value See Section C.23, RDF_CONDITION.

Related Table RDF_LANE
RDF_LANE_NAV_STRAND

Usage The *Lane Traversal* condition can be used to provide specific lane-level visual or audible instructions (e.g., Stay in the right lane to turn right) for traversing through a junction.

Inclusion Lane Traversal is part of the Extended Lane content, which is generally applied at the following locations, within the scope set by HERE:

- Highway-to-highway connectors.
- Motorway and non-motorway exit ramps with more than one exiting lane.
- Points where *Special Explication* exists.
- Roads between *Controlled Access* = 1 roads and all Airport POIs with *National Importance* = Y. This includes all POI with Facility Type 4581 (Airports and Terminals).
- Surface street intersections with complicated lane configurations, including the following:
 - ◆ Exit ramps with more than one lane
 - ◆ Intersections involving five or more meeting roads.
 - ◆ Intersections with multiple left or right turn lanes.
 - ◆ Roundabouts or Special Traffic Figures with multiple lanes.
 - ◆ Where lane dividers longer than 50 metres force vehicles into specific lanes prior to the intersection.
 - ◆ Intersections where angles of streets make it difficult to determine how the roads connect.
 - ◆ Points requiring *Special Explication*.
- Extended Lane content is not applied in the following situations:
 - ◆ To or from any lane that is not wide enough for an automobile, except motorcycle only lanes.
 - ◆ To or from roads/paths that are not meant for regular navigation by most, if not all, vehicle types and are not navigationally significant, e.g., parking lot

roads, cemetery roads, petrol/gasoline station roads, alleys, walkways, weigh stations, etc.

- ◆ At toll booth plazas if the toll booth plaza is applied with *Transition Area = Y*.
- ◆ A road has e.g., two turn lanes, both to the left, so the only possible manoeuvre is to the left. In this case, the two lanes are not considered turn lanes but as the roadbed itself. See *Figure 6-32*.

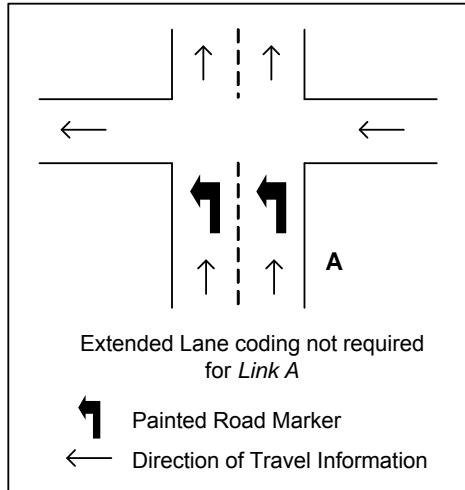


Figure 6-32

On Interchanges:

For each included interchange, *Lane Traversal* conditions are published at two specific points:

- The “transition point” is the point along the where lane marking (or in some cases road signage) clearly indicates to the driver that a lane or set of lanes is required to continue along a route.
- The “split point” is the point along the where it is no longer possible to travel across the sets of lanes from either direction to continue along the route. The split point coincides in the database with a “point of no return” where the driver can no longer change lanes.

Figure 6-33 shows the relationship between the transition point and split point in reality and in the HERE database representation.

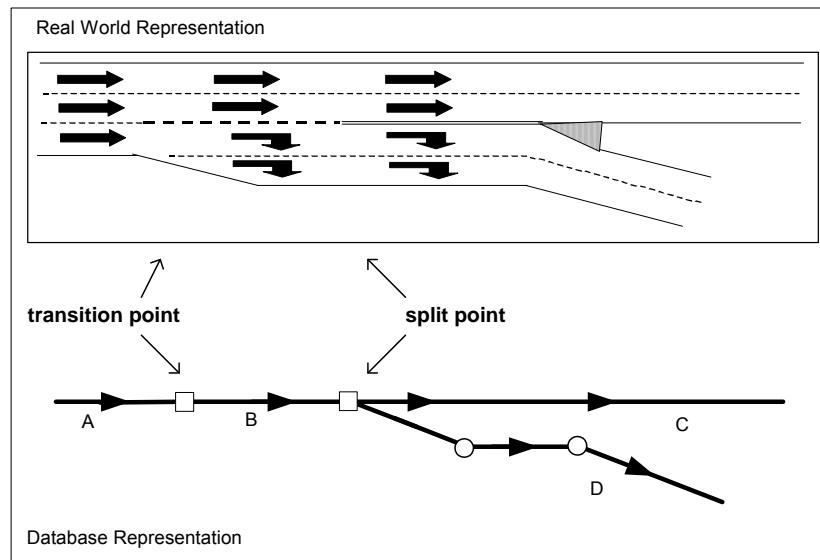


Figure 6-33

HERE always places a transition point in the database prior to the split point. In reality, some lanes are not marked exit when approaching a complicated interchange. In the rare cases where the exit lane is not marked and there is no indication to the driver via posted signs until the split point itself, HERE creates a transition point no more than 2km prior to the split point so that proper guidance information can be provided to the driver.

Acceleration lanes are not generally coded, except when the acceleration lane forms less than 2 km from the split point. In this case, the acceleration lane will be treated as a transition point. See *Figure 6-34*.

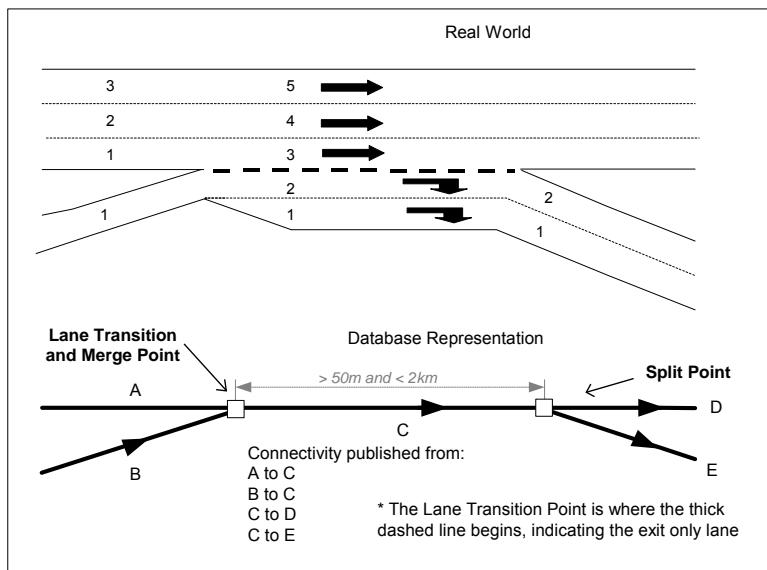


Figure 6-34

In cases where additional point features split the roadway into multiple links between the transition point and split point, HERE publishes the extended lane attributes for all links in between.

Specifications

- *Lane Traversal* is published in RDF_CONDITION.CONDITION_TYPE = 13.
- The Lane Objects involved in the *Lane Traversal* condition are published in RDF_LANE.
- RDF_LANE_NAV_STRAND defines the lanes involved in the *Lane Traversal* condition. A *Lane Traversal* condition has at minimum an In Lane and an Out Lane. There could be more lanes if traversing a complex intersection, see *Figure 6-35*. RDF_LANE_NAV_STRAND.SEQ_NUM defines the order of lanes involved in the *Lane Traversal* condition. For example, RDF_LANE_NAV_STRAND publishes the connectivity between lanes as follows:
 - ♦ In Lane - LANE_ID with SEQ_NUM = 0
 - ♦ Out Lane - LANE_ID with SEQ_NUM = 1

The important Lanes involved in the *Lane Traversal* condition are the first Lane (SEQ_NUM = 0) and the last Lane (highest SEQ_NUM for the LANE_NAV_STRAND_ID). The first and last Lane ID involved in the for the *Lane Traversal* condition represent the important content for *Lane Traversal* information: these define the explicit Lanes which are connected when traversing the junction. The intermediate lane(s) for the *Lane Traversal* condition are merely included to complete the Lane Nav Strand and provide a fully connected set of Lanes.

- If more than two links are involved in the same *Lane Traversal* condition, see *Figure 6-35*, a default lane object for the intermediate link(s) is used to ensure lane connectivity. Lane 1 is used as default for the lane(s) present on the link(s) internal to the *Lane Traversal* condition, independent of the total number of lanes on the links.

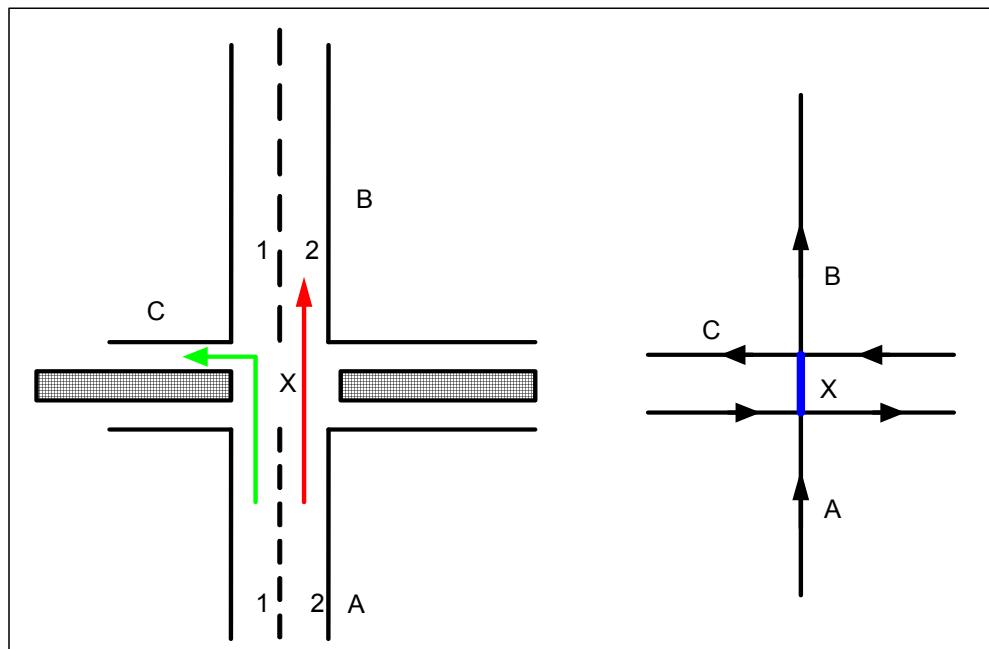
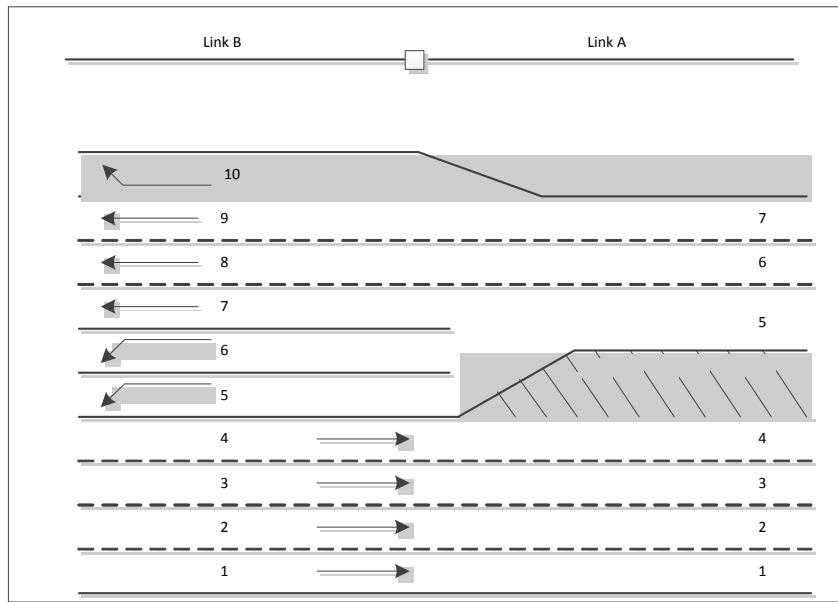


Figure 6-35

	Number of Lanes	Lane 1	Lane 2
Link A	2	123456	123457
Link B	2	223456	223457
Link C	1	333456	
Link X	2	443456	

Lane Traversal	Origin Link	Through Link	Destination Link
Red Manoeuvre	A	X	B
Green Manoeuvre	A	X	C
	Origin Lane	Through Lane	Destination Lane
Red Manoeuvre	123457	443456	223457
Green Manoeuvre	123456	443456	333456

Example



This example illustrates *Lane Traversal* conditions for the following lanes:

Link A, Lane 7 - Lane ID 1213154655

Link B, Lane 9 - Lane ID 1213154657

Link B, Lane 10 - Lane ID 1213154790

RDF_CONDITION	
CONDITION_ID	113637361
CONDITION_TYPE	13
NAV_STRAND_ID	
AUTOMOBILES	Y
BUSES	Y
TAXIS	Y
CARPOOLS	Y
PEDESTRIANS	N
TRUCKS	Y
THROUGH_TRAFFIC	Y
DELIVERIES	Y
EMERGENCY_VEHICLES	Y

RDF_LANE_NAV_STRAND				
LANE_NAV_STRAND_ID	115922216	115922216	115922217	115922217
CONDITION_ID	113637361	113637361	113637361	113637361
LANE_ID	1213154655	1213154657	1213154655	1213154790
SEQ_NUM	0	1	0	1
NODE_ID	4546546545	4546546545	4546546545	4546546545

- *Lane Traversal* applies to two or more contiguous lanes that uniquely identify the connection of lanes.
- *Lane Traversal* is published in both directions, even if the split point applies only to one side of the road.

Note: If the number of lanes increases related to an upcoming split point, a *Lane Traversal* condition is published to indicate which lane is used to connect to the new lanes. See *Figure 6-36*.

- All arrows of the same colour in *Figure 6-36* are grouped in the same condition. A new colour indicates a new *Lane Traversal* condition. The arrows show the Origin or Destination Lanes.
- If the manoeuvre between the lanes is restricted to certain time periods and vehicles, the *Lane Traversal* conditions contain that information via the associated Date Time and Access Characteristics information.

- If the Access Characteristics or Date Time information is not consistent for all lanes on a link, multiple *Lane Traversal* conditions are published. *Lane Traversal* conditions on the same link are grouped into a single condition if they share the same Access Characteristics and Date/Time Modifier information.
- If a lane or group of lanes is allowed only for a specific Vehicle Type, the Access Characteristics are indicated within the condition record. Access Characteristics, which are not allowed on the lane itself, are not specified.
- A *Lane Traversal* condition is not published between two lanes for the same time periods and vehicles as a *Restricted Driving Manoeuvre* condition.

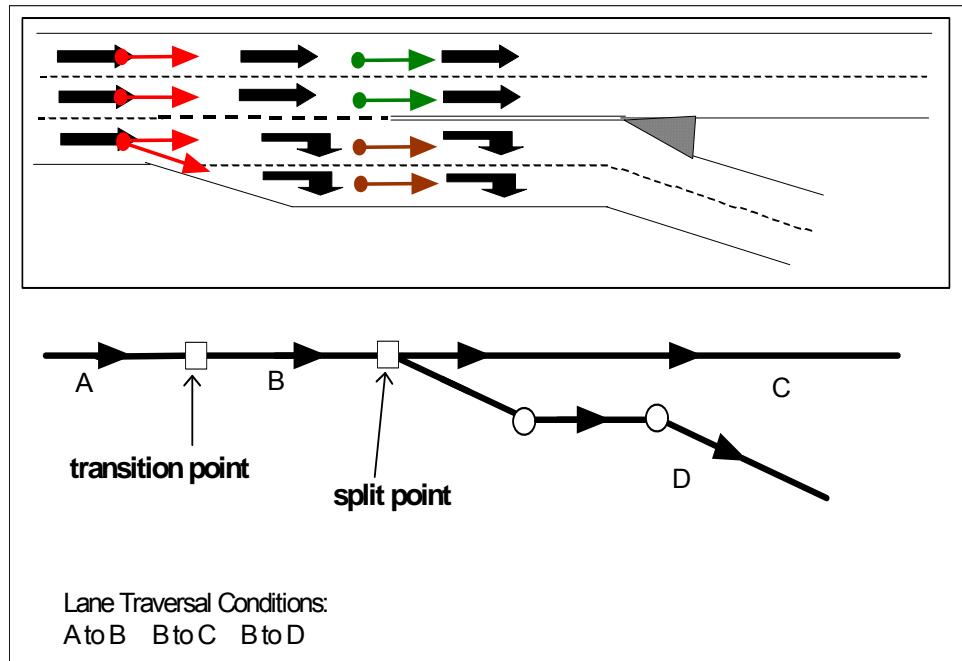


Figure 6-36: Single-Direction Lanes, Similar Traversal Conditions Grouped

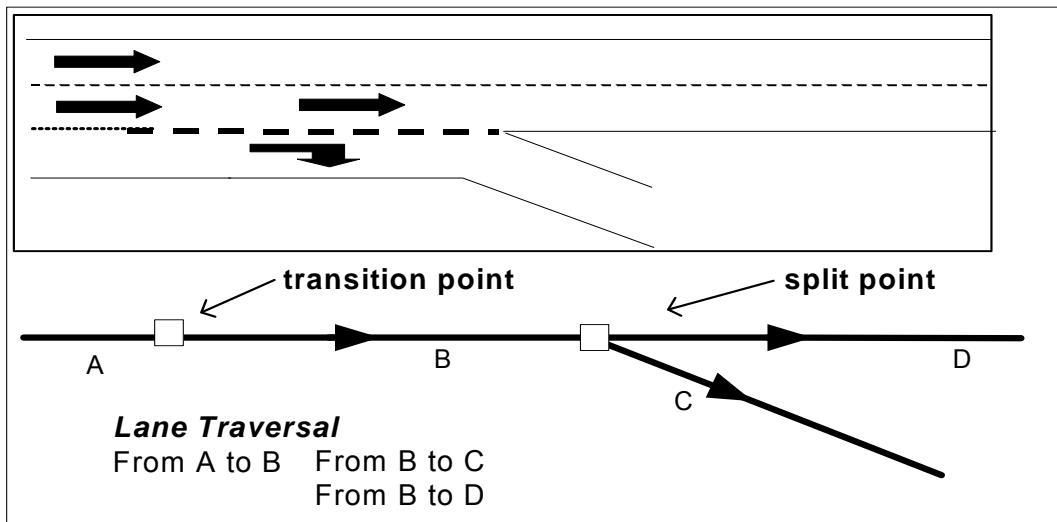


Figure 6-37: Single-Direction Lanes with a Split Point

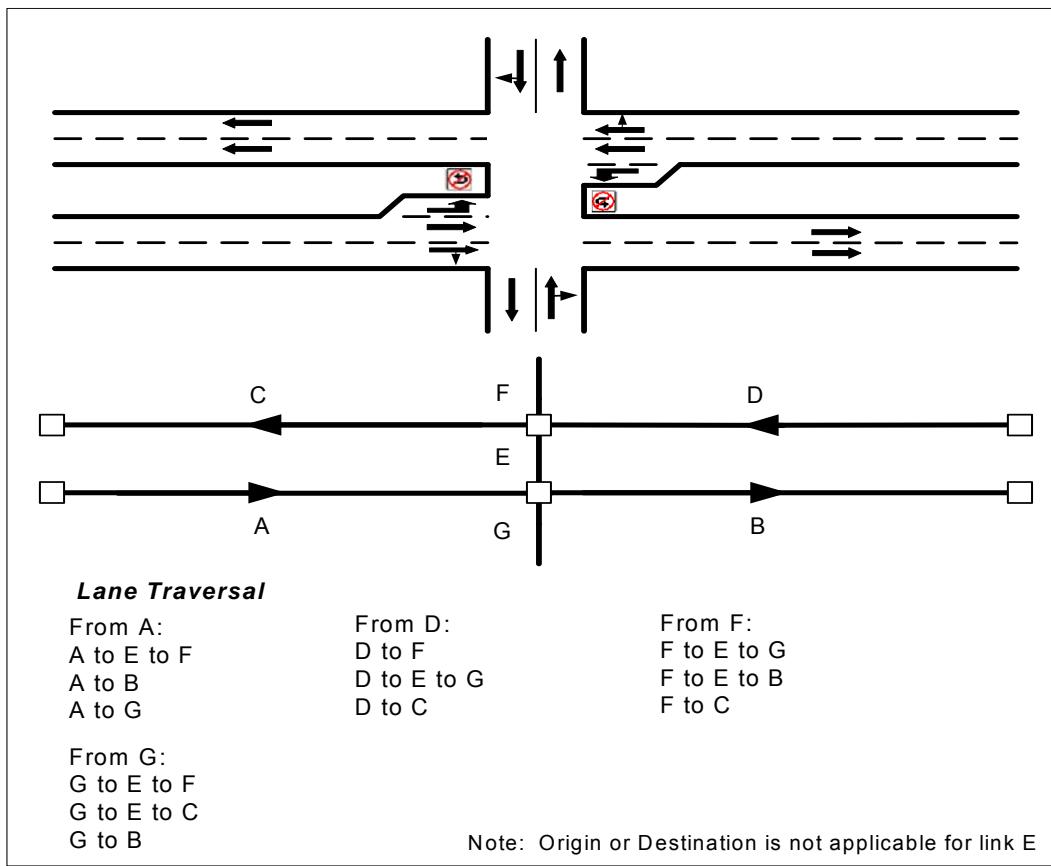


Figure 6-38: Complex Intersection Lane Traversal Conditions

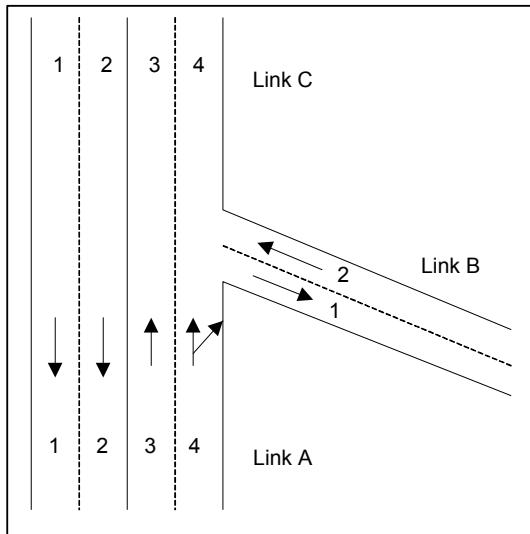


Figure 6-39

If *Lane Traversal* conditions are published for all driving directions in *Figure 6-39*, the link level attribution published in `RDF_NAV_LINK` would be:

Link A

`PHYSICAL_NUM_LANES = 4`

Link B

`PHYSICAL_NUM_LANES = 2`

Link C

`PHYSICAL_NUM_LANES = 2`

Lane Traversal conditions would be published for:

Lane A3 → Lane C3

Lane A4 → Lane C4

Lane A4 → Lane B1

Lane B2 → Lane C4

Lane C1 → Lane A1

Lane C2 → Lane A2

6.4.11 Through Route (CONDITION_TYPE = 14)

Definition *Through Route* condition represents the links indicating the continuation of the main road through an intersection.

Condition Type 14

Column `CONDITION_TYPE`

Table `RDF_CONDITION`

Related Tables `RDF_NAV_STRAND`

Usage *Through Route* can be used in guidance messaging to either give no guidance when following the main road or to give specific guidance, such as “turn left to follow the main road,” when driving from A to B as shown in .

Specification • *Through Route* conditions are applied to two contiguous links as origin and destination. The origin is the link prior to the road split and the destination is the link reflecting the continuation. See *Figure 6-40*, link A (origin) and B (destination).

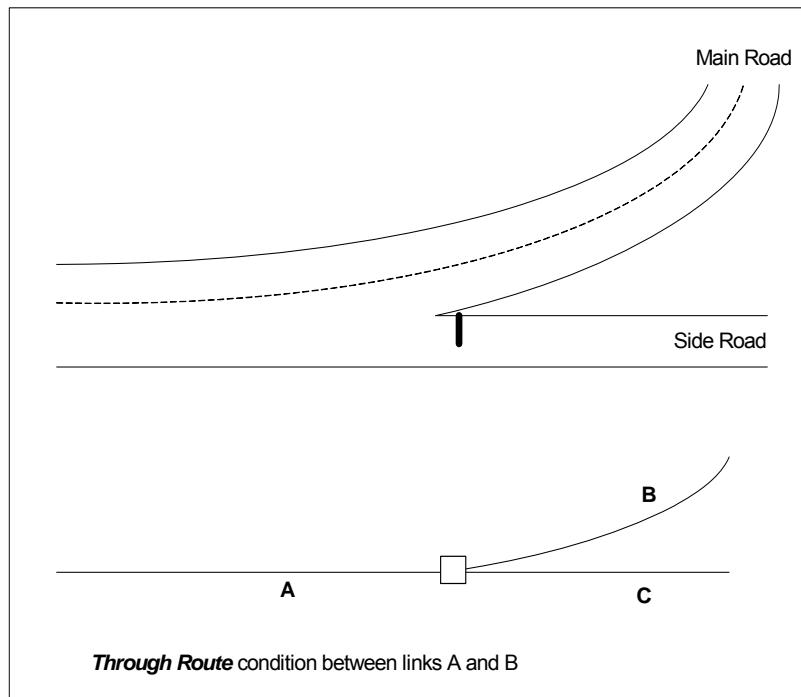


Figure 6-40: Through Route Condition Between Link A and B

- *Through Route* condition can exist in only one direction or in both directions, depending on the road marking (see *Figure 6-41*) or sign in each direction.
Note: The *Through Route* condition is never applied against the direction of travel.

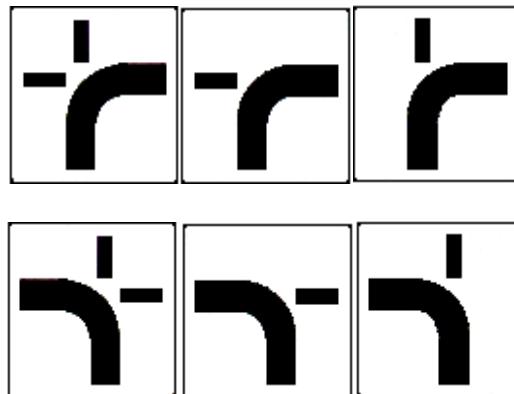


Figure 6-41: Through Route Direction

- *Through Route* conditions are applied to the links that uniquely identify the continuation of the road within an intersection. See *Figure 6-42*, link A and B.

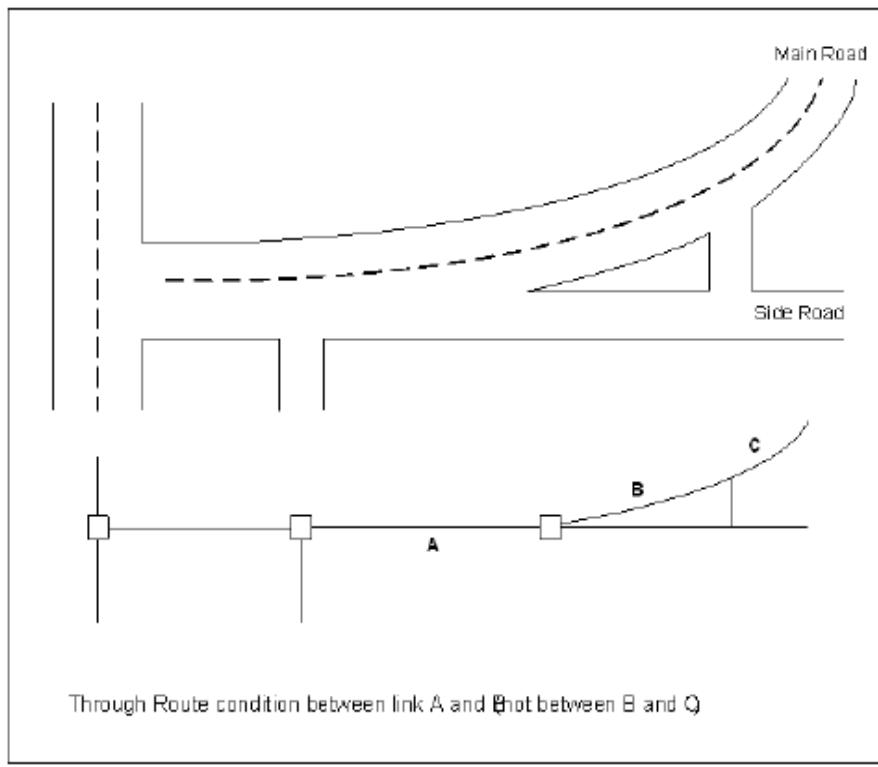


Figure 6-42: Through Route Condition between Link A and B

- *Through Route* conditions only exist on roads which are open to automobiles.
- The Access Characteristics of *Through Route* condition is flagged on all Vehicle Types (i.e., published as Y in the RDF_ACCESS table).
- *Through Route* conditions can have Date/Time Modifier published.
- *Through Route* conditions are not coded on roads that received Controlled Access = Y.

6.4.12 Traffic Signal (CONDITION_TYPE = 16)

Definition *Traffic Signal* condition indicates if a traffic light is present at an intersection. It also indicates the location of the traffic light.

The Traffic Signal information can be used for map display. When coverage is extended, Traffic Signal information can be used for improved travel time guidance.

Note: There are several factors that might influence the use case for improved travel time. In case of limited coverage, the improved travel time use case can not be supported. Other factors that might influence the travel time are situations where it is allowed to turn right at a red traffic signal. However, in these situations the driver always needs to yield to other traffic and pedestrians so the impact is minimal. Additionally, there are cases where traffic lights are turned off (flashing only) at night or in weekends which might also impact the travel time. These specific situations are not modelled at this time.

Condition Type 16

Column CONDITION_TYPE

Table RDF_CONDITION

Related Tables RDF_NAV_STRAND The RDF_NAV_STRAND table publishes the link and node involved in the *Traffic Signal* condition

- Specification**
- *Traffic Signal* conditions are included on the following:
 - ◆ All roads (regardless of the *Functional Class* value applied)
 - ◆ Junctions that received *Lane Traversal* condition
 - *Traffic Signal* conditions are applied to one link as origin and one connected Junction as the destination. The origin is the link prior to the traffic sign location and the destination is the intersection Junction affected by the *Traffic Signal*. See *Figure 6-43*, link = 2 and node = B.
 - Turn lanes not affected by a traffic light do not get *Traffic Signal* condition applied. See *Figure 6-44* below.

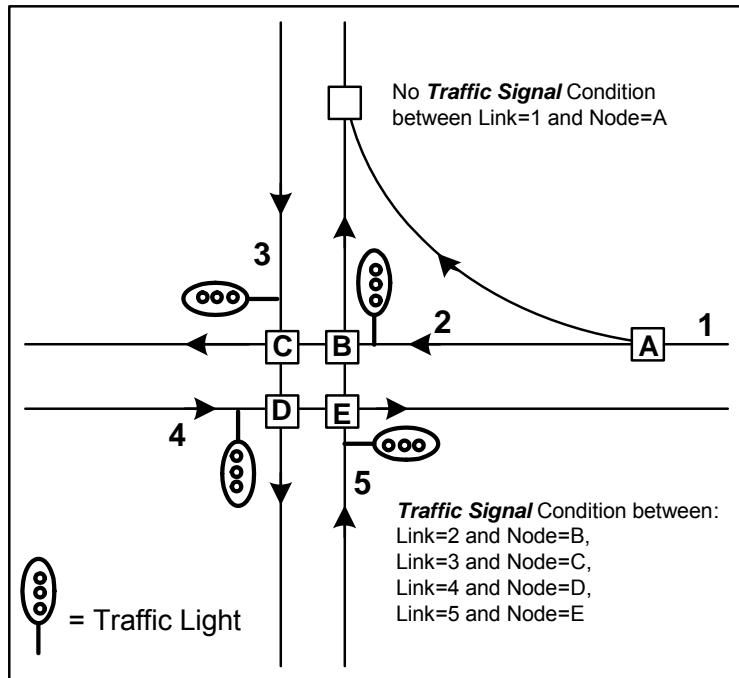
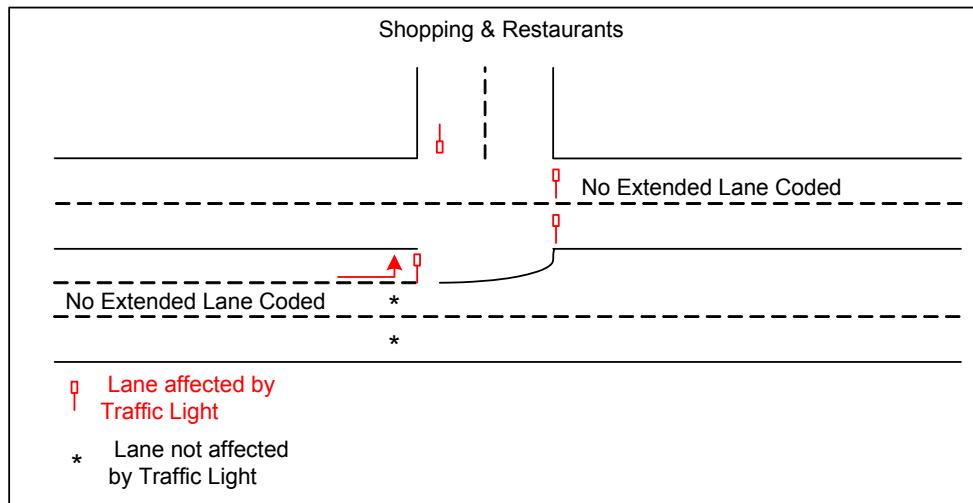


Figure 6-43

- Only Traffic Lights directly affecting the intersection are included. Traffic Lights prior to the intersection, indicating an upcoming Traffic Light intersection, are not included.
- The *Traffic Signal* condition does not indicate which lanes are affected by the Traffic Light and the direction arrows on the Traffic Light.
- *Traffic Signal* conditions are not applied in the following situations:

- Traffic Lights used for protected left turns (see *Figure 6-44* below).
- Lights dedicated to crosswalks.
- Metering lights - lights that control the traffic flow when entering freeways
- Signal lights along Bus only roads
- Traffic Lights at Toll Stations

*Figure 6-44*

6.4.12.1 Signal/Sign Location (SIGNAL_SIGN_LOCATION)

Definition *Signal/Sign Location* identifies the location of a given Traffic Light at an intersection.

Note: Included mainly in Europe.

Table RDF_CONDITION_DRIVER_ALERT

Column SIGNAL_SIGN_LOCATION

Value

- 1 = Right (Traffic light is located on the right side in the direction of travel.)
- 2 = Left (Traffic light is located on the left side in the direction of travel.)
- 3 = Overhead (Traffic light is located overhead in the direction of travel.)

Default Value Null

Related Tables RDF_ACCESS

RDF_CONDITION

Usage *Signal/Sign Location* can be used to display the location of the Traffic Light at an intersection.

- Specification**
- The *Traffic Signal* condition is published with attribute *Signal/Sign Location* as follows:
 - Signal/Sign Location* = 1 - Right is applied when the Traffic Light is located on the right side in the travel direction.
 - Signal/Sign Location* = 2 - Left is applied when the Traffic Light is located on the left side in the travel direction.
 - Signal/Sign Location* = 3 - Overhead is applied when the Traffic Light is located overhead in the travel direction.

Note: Multiple *Traffic Signal* conditions are applied in case multiple Traffic Lights exist at the same location. The *Signal/Sign Location* attribute indicates the detailed position of the Traffic Light. See Figure 6-45 below.

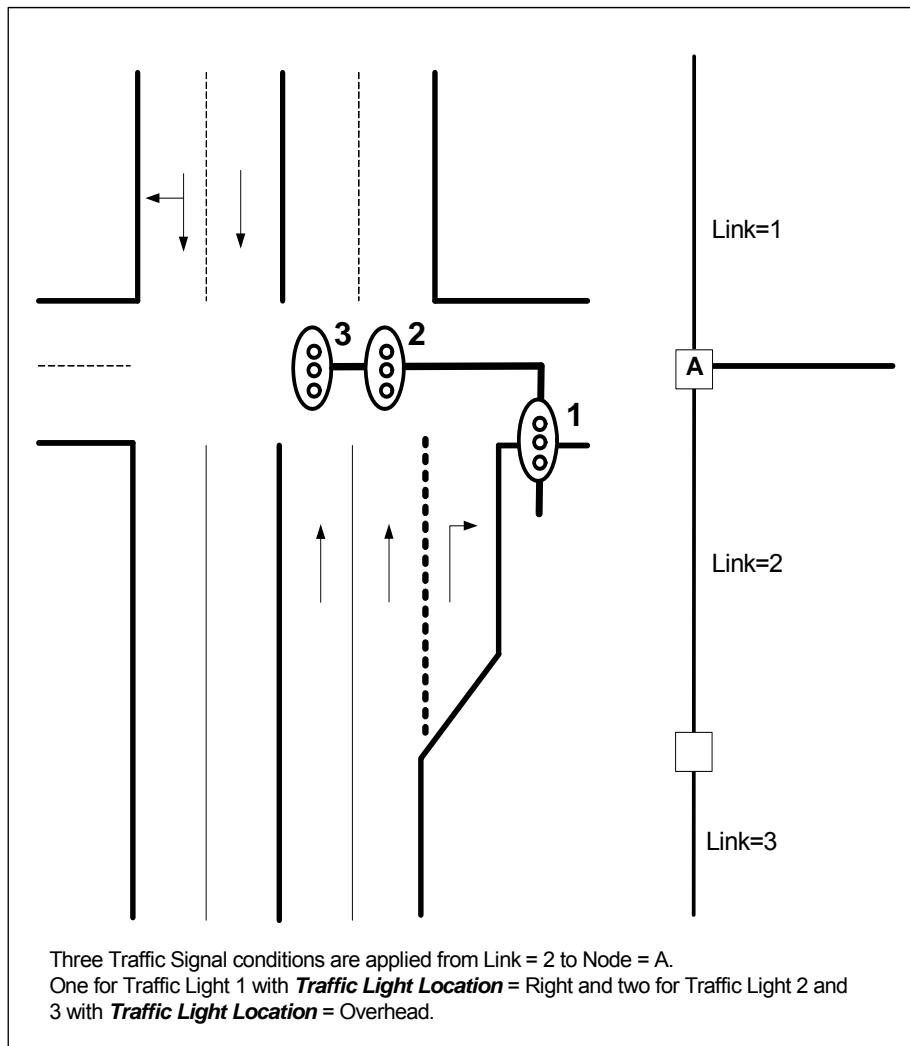


Figure 6-45

6.4.13 Traffic Sign (CONDITION_TYPE = 17)

Definition *Traffic Sign* is a condition indicating the location of a traffic sign, the type of sign, and the sign category. It also includes supplemental signs if present indicating distance or other specific information.

Condition Type 17

Column CONDITION_TYPE

Table RDF_CONDITION

Value See Section C.23, RDF_CONDITION.

See country-specific examples in the *Country Profiles: Signs, Signals, and Warnings*.

Related Attributes *Traffic Sign Type*

Traffic Sign Category

Supplemental Sign Duration

Supplemental Sign Pre-Warning

Supplemental Sign Validity Time

Supplemental Sign Applicable Vehicle (SIGN_VEHICLE_TRUCK,
SIGN_VEHICLE_HEAVY_TRUCK, SIGN_VEHICLE_BUS, SIGN_VEHICLE_AUTO_TRAILER,
SIGN_VEHICLE_MOTORHOME, SIGN_VEHICLE_MOTORCYCLE,
RDF_CONDITION_DRIVER_ALERT.WEATHER_TYPE)

Related Tables RDF_CONDITION_DRIVER_ALERT

RDF_NAV_STRAND - publishes the link and node involved in the *Traffic Signal* condition (RDF_CONDITION.CONDITION_TYPE = 16)

Usage *Traffic Sign* can be used for map display and to generate specific driver alert messages.

Traffic Sign in conjunction with *Traffic Sign Type* = 37(Crossing with priority from the right), 41(Pedestrian Crossing), or 42(Yield) can also be used in optimizing route calculation.

- Specification**
- The *Traffic Sign* condition is published only where a physical sign exists. *Traffic Sign* conditions are applied to the intersection node affected by the Stop Sign, even if the actual Stop Sign is located prior to the intersection.
 - The *Traffic Sign* conditions are included with an accuracy of 50 metres.
 - RDF_CONDITION_TEXT.LANGUAGE_CODE allows for different languages in which supplemental sign text is published. Supplemental sign text for attributes *Supplemental Sign Duration*, *Supplemental Sign Pre-Warning* and *Supplemental Sign Validity Time* are UTF8 encoded and can be published with any Language Code.
 - If present in reality, multiple supplemental sign texts of the same attribute can be published for one *Traffic Sign* condition.
 - The *Traffic Sign* condition is not published for the following:

- ◆ Temporarily posted traffic signs
- ◆ Traffic signs painted on the road
- The *Traffic Sign* conditions are published traffic signs listed in *Section 6.4.13.1, Traffic Sign Type (TRAFFIC_SIGN_TYPE)*.
- Yield signs are published as follows:
 - ◆ Yield signs are published in countries where no signs are present that explicitly indicate priority (i.e., Priority Road signs (*Figure 4-89*, sign A), Priority Junction signs (*Figure 4-90*) and Priority Road Direction signs (*Figure 4-91*)).
 - ◆ Yield signs are not published in countries where Priority Road sign and Priority Junction signs are present except for situations where two (or more) priority roads meet. In that case the Yield signs are published to clarify the priority rules at the intersection. See *Section 4.4.30, POI Access Road (POI_ACCESS)*.
- Stop Signs, Crossing with Priority from the Right, and Pedestrian Crossing signs are published wherever signposted in reality.
- *Traffic Sign* conditions are applied to one link as origin and one connected node as the destination. The origin is the link prior to the *Traffic Sign* location and the destination is the node affected by the *Traffic Sign* (see *Figure 6-46*).

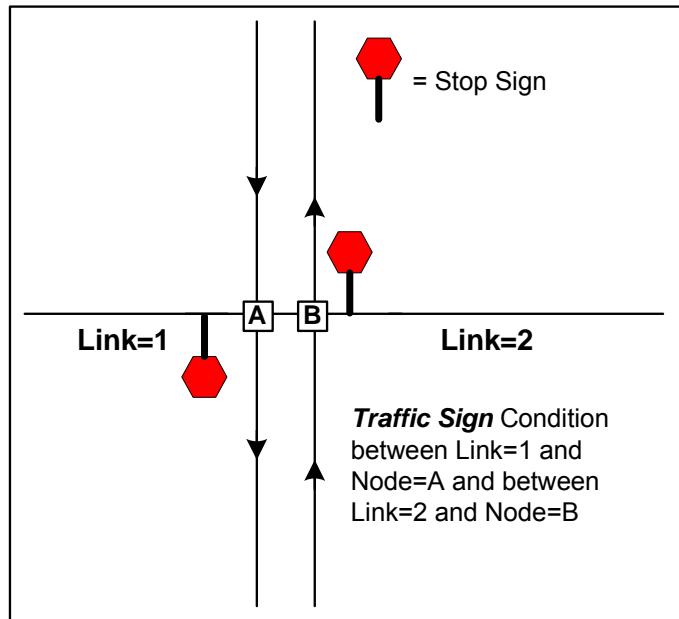


Figure 6-46: Traffic Sign Condition

- *Traffic Sign* conditions are defined in relation to the driving direction. Different *Traffic Signs* may be included.
- The Access Characteristics of the *Traffic Sign* condition are set to Y for all Vehicle Types.
- Date/Time Modifiers are not published for *Traffic Sign* conditions.

6.4.13.1 Traffic Sign Type (TRAFFIC_SIGN_TYPE)

Definition	<i>Traffic Sign Type</i> identifies the type of warning sign.
Table	RDF_CONDITION_DRIVER_ALERT
Column	TRAFFIC_SIGN_TYPE
Value	<p>See <i>Section C.27, RDF_CONDITION_DRIVER_ALERT</i>.</p> <p>See <i>Country Profiles: Signs, Signals, and Warnings</i> for country-specific examples.</p>
Related Tables	RDF_CONDITION
Usage	<p><i>Traffic Sign Type</i> can be used to give specific driver alert messaging using the sign type. <i>Traffic Sign Type</i> can also be used to display the traffic sign.</p> <p>The Stop Sign attribute is used for map display and to improve travel time guidance.</p>
Specification	<p>Traffic Sign Type is applied as follows:</p> <ul style="list-style-type: none"> • <i>Traffic Sign Type</i> = 1 – Start of No Overtaking is applied when overtaking is prohibited for all vehicles. • <i>Traffic Sign Type</i> = 2 – End of No Overtaking is applied when the No Overtaking restriction ends. • <i>Traffic Sign Type</i> = 3 – Protected Overtaking – extra lane is applied when an extra lane is forming on the right or left side to support safe overtaking. It is not indicated on the sign on which side the extra lane is forming. • <i>Traffic Sign Type</i> = 4 – Protected Overtaking – extra lane right side is applied when an extra lane is forming on the right side to support safe overtaking. • <i>Traffic Sign Type</i> = 5 – Protected Overtaking – extra lane left side is applied when an extra lane is forming on the left side to support safe overtaking. • <i>Traffic Sign Type</i> = 6 – Lane Merge Right is applied when an extra lane ends and the lane merges on the right side. Lane Merge Right is also applied when two motorways merge together and one lane coming in from the right side ends. • Lane Merge Right is also used to indicate the end of a Protected Overtaking zone. • <i>Traffic Sign Type</i> = 7 – Lane Merge Left is applied when an extra lane ends and the lane merges on the left side. Lane Merge Left is also applied when two motorways merge together and one lane coming in from the left side ends. <p>Note: Lane Merge Left is also used to indicate the end of a Protected Overtaking zone.</p> <ul style="list-style-type: none"> • <i>Traffic Sign Type</i> = 8 – Lane Merge Center is applied when two lanes merge into one lane. • <i>Traffic Sign Type</i> = 9 – Railway Crossing Protected is applied when a sign is present indicating a protected railway crossing with barriers. • <i>Traffic Sign Type</i> = 10 – Railway Crossing Unprotected is applied when a sign is present indicating an unprotected railway crossing without barriers.

Note: Unprotected railway crossings can just have a St. Andrew's Cross (see *Figure 6-47*) or other type of indication (country specific) at the actual railway crossing and no sign indicating a railway crossing prior to the crossing. The signs at the actual railway crossing are not considered for Traffic Sign implementation. However, all railway crossings with and without a Railway Crossing sign prior to the crossing are published with a Railway Crossing condition with RAILWAY_CROSSING_TYPE = Protected or Unprotected.

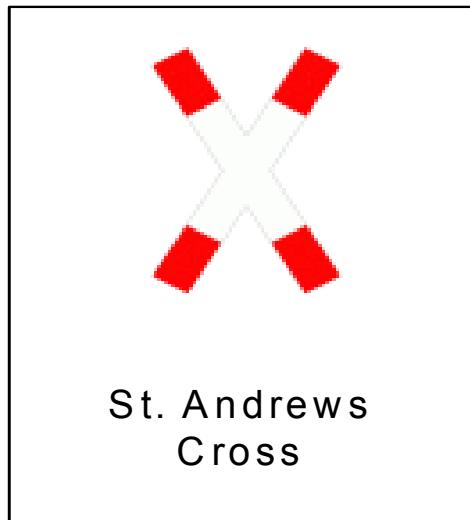


Figure 6-47: St. Andrew's Cross

- *Traffic Sign Type* = 11 – Road Narrows is applied when a sign is present indicating that a road is narrowing. This can be from both sides or from the left or right side only.
- *Traffic Sign Type* = 12 – Sharp Curve Left is applied when a sign is present indicating a sharp curve to the left.
- *Traffic Sign Type* = 13 – Sharp Curve Right is applied when a sign is present indicating a sharp curve to the right.
- *Traffic Sign Type* = 14 – Winding Road starting Left is applied when a sign is present indicating a winding road with the first curve starting to the left.
- *Traffic Sign Type* = 15 – Winding Road starting Right is applied when a sign is present indicating a winding road with the first curve starting to the right.
- *Traffic Sign Type* = 16 – Start of No Overtaking Trucks is applied when a sign is present indicating no overtaking for trucks.
- *Traffic Sign Type* = 17 – End of No Overtaking Trucks is applied when the No Overtaking for Trucks restriction ends.
- *Traffic Sign Type* = 18 – Steep Hill Upwards is applied when a sign is present indicating a steep ascent.
- *Traffic Sign Type* = 19 – Steep Hill Downwards is applied when a sign is present indicating a steep descent.

- *Traffic Sign Type* = 20 - Stop Sign is applied when a Stop Sign is present in reality. Stop signs can have a different colour as defined per country regulations. Also, the word, STOP, can be in the country specific language(s).
- *Traffic Sign Type* = 21 - Lateral Wind is applied when a sign is present which indicates a possibility of strong cross winds.
- *Traffic Sign Type* = 22 – General Warning Sign is applied when a sign is present indicating a general warning. General Warning Signs are only included when they have a corresponding supplemental sign in reality.
- *Traffic Sign Type* = 25 - End of all restrictions is applied when a sign is present indicating the end of a restriction indicated on a previous sign.
- *Traffic Sign Type* = 27 – Animal Crossing is applied when a sign is present indicating a warning that animals might be crossing. This sign represents any type of animal crossing.
- *Traffic Sign Type* = 28 – Icy Conditions is applied when a sign is present indicating that the road ahead can be icy.
- *Traffic Sign Type* = 29 – Slippery Road is applied when a sign is present indicating that the road ahead can be slippery.
- *Traffic Sign Type* = 30 – Falling rocks is applied when a sign is present indicating a warning that rocks might be falling down.
- *Traffic Sign Type* = 31 – School Zone is applied when a sign is present indicating a warning that children may be crossing. This sign is posted near schools and playgrounds.
- *Traffic Sign Type* = 32 – Tramway Crossing is applied when a sign is present indicating that a Tramway crossing is ahead.
- *Traffic Sign Type* = 33 – Congestion Hazard is applied when a sign is present indicating a congestion prone area.
- *Traffic Sign Type* = 34 – Accident Hazard is applied when a sign is present indicating an accident prone area.
- *Traffic Sign Type* = 35 – Priority over oncoming traffic is applied when a sign is present indicating that the driver has right-of-way over oncoming traffic.
- *Traffic Sign Type* = 36 – Yield to oncoming traffic is applied when a sign is present indicating that the driver must give-way to oncoming traffic.
- *Traffic Sign Type* = 37 - Crossing with Priority from the Right is applied when a sign is present indicating that the driver is approaching a crossing where traffic has to give way to traffic approaching the intersection from the right.
- *Traffic Sign Type* = 41 - Pedestrian Crossing is applied when a sign is present indicating that the driver is approaching a pedestrian crossing.
- *Traffic Sign Type* = 42 - Yield is applied when a sign is present indicating that the driver has to give priority (yield) to traffic on the crossing road.

Note: The appearance of the signs listed above can vary depending on the situation in reality. There are also differences in the appearance of signs between

countries. The examples in the table above and *Figure 6-47* are European examples

Bicycling Content

- *Traffic Sign Type* = 59 - Bicycle Crossing is applied when a sign is present indicating that the driver is approaching an intersection with bicycles.
- *Traffic Sign Type* = 60 - Yield to Bicycles is applied when a sign is present indicating that the driver has to give priority (yield) to bicycles.
- See *Section 4.6.1.7, Traffic Sign Type (TRAFFIC_SIGN_TYPE)* for details.

6.4.13.2 Traffic Sign Category (TRAFFIC_SIGN_CATEGORY)

Definition *Traffic Sign Category* identifies the main sign category to which the sign belongs.

Table RDF_CONDITION_DRIVER_ALERT

Column TRAFFIC_SIGN_CATEGORY

Value See *Section C.27, RDF_CONDITION_DRIVER_ALERT*.

Related Tables RDF_CONDITION

Related Condition *Traffic Sign (Condition Type* = 17)

Usage *Traffic Sign Category* can be used to provide specific informative messages.

Specification

- *Traffic Sign Category* = 1 (Regulatory Sign) is applied when the Traffic Sign indicates a regulation.
- *Traffic Sign Category* = 2 (Informative Sign) is applied when the Traffic Sign indicates information to alert the driver.
- *Traffic Sign Category* = 3 (Warning Sign) is applied when the Traffic Sign indicates a warning.
- *Traffic Sign Category (TRAFFIC_SIGN_CATEGORY)* is applied according to the table below:

Traffic Sign Category

Value	Description	Regulatory	Informative	Warning
1	Start of No Overtaking	X		
2	End of No Overtaking	X		
3	Protected Overtaking - extra lane		X	

Traffic Sign Category (Continued)

Value	Description	Regulatory	Informative	Warning
4	Protected Overtaking - extra lane right side		X	
5	Protected Overtaking - extra lane left side		X	
6	Lane Merging From The Right			X
7	Lane Merging From The Left			X
8	Lane Merge Centre			X
9	Railway Crossing Protected			X
10	Railway Crossing Unprotected			X
11	Road Narrows			X
12	Sharp Curve Left			X
13	Sharp Curve Right			X
14	Winding Road starting Left			X
15	Winding Road starting Right			X
16	Start of No Overtaking Trucks	X		
17	End of No Overtaking Trucks	X		
18	Steep Hill Upwards			X
19	Steep Hill Downwards			X
20	Stop Sign	X		
21	Lateral Wind			X
22	General Warning			X
23	Risk of Grounding			X
24	General Curve			X
25	End of all Restrictions	X		
26	General Hill			X
27	Animal Crossing			X
28	Icy Condition			X
29	Slippery Road			X
30	Falling Rocks			X
31	School Zone			X
32	Tramway Crossing			X

Traffic Sign Category (Continued)

Value	Description	Regulatory	Informative	Warning
33	Congestion Hazard			X
34	Accident Hazard			X
35	Priority over oncoming traffic	X		
36	Yield to oncoming traffic	X		
37	Crossing with Priority from the Right			X
41	Pedestrian Crossing			X
42	Yield	X		
43-52 ¹				
53	No Engine Brake	X		
54	End of No Engine Brake	X		
55	No Idling	X		
56	Truck Rollover			X
57	Low Gear		X	
58	End of Low Gear		X	
59	Bicycle Crossing			X
60	Yield to Bicycles	X		

1. These values are obsolete but may be published in the metadata.

6.4.13.3 Traffic Sign Subcategory (TRAFFIC_SIGN_SUBCATEGORY)

Definition	<i>Traffic Sign Subcategory</i> identifies the subcategory of TRAFFIC_SIGN_CATEGORY = 1 - Regulatory Sign
Table	RDF_CONDITION_DRIVER_ALERT
Column	TRAFFIC_SIGN_SUBCATEGORY
Value	See Section C.27, RDF_CONDITION_DRIVER_ALERT.
Related Table	RDF_CONDITION
Related Attributes	TRAFFIC_SIGN_CATEGORY
Related Condition	<i>Traffic Sign (Condition Type = 17)</i>

Usage	<i>Traffic Sign Subcategory</i> can be used to group Traffic Signs related to Priority.
Specification	<ul style="list-style-type: none"> • <i>Traffic Sign Subcategory</i> is published only for <i>Traffic Sign Category</i> = 1 - Regulatory Sign. • The <i>Traffic Sign</i> condition is published with <i>Traffic Sign Subcategory</i> = 1 - Priority Sign for the following <i>Traffic Sign Type</i> values: <ul style="list-style-type: none"> ◆ <i>Traffic Sign Type</i> = 35 - Priority over oncoming traffic ◆ <i>Traffic Sign Type</i> = 36 - Yield to oncoming traffic ◆ <i>Traffic Sign Type</i> = 20 - Stop Sign ◆ <i>Traffic Sign Type</i> = 42 - Yield ◆ <i>Traffic Sign Type</i> = 60 - Yield to Bicycles <p>See Yield to Bicycles in Section 4.6.1.7, <i>Traffic Sign Type (TRAFFIC_SIGN_TYPE)</i>.</p>

6.4.13.4 General Warning Sign Type (GEN_WARNING_SIGN_TYPE)

Definition	<i>General Warning Sign Type</i> specifies the type of a general warning sign (TRAFFIC_SIGN_TYPE = 22).
Table	RDF_CONDITION_DRIVER_ALERT
Column	GEN_WARNING_SIGN_TYPE
Value	See Section C.27, <i>RDF_CONDITION_DRIVER_ALERT</i> .
Related Table	RDF_CONDITION
Related Attributes	<i>Traffic Sign Type</i>
Related Condition	<i>Traffic Sign (Condition Type</i> = 17)
Usage	<i>General Warning Sign Type</i> can be used to explicitly indicate the type of warning for a General Warning sign.
Specification	<ul style="list-style-type: none"> • Traffic Signs of <i>Traffic Sign Type</i> = 22 – General Warning Sign are published only if a supplemental sign exists in reality. The General Warning Sign is published with the applicable <i>General Warning Sign Type</i>. • <i>General Warning Sign Type</i> = 1 – Object Overhang is published only if an overhang sign of any type exists on a supplemental sign in reality. • <i>General Warning Sign Type</i> = 2 – Risk of Grounding is published only if the risk of grounding sign exists on a supplemental sign in reality. • <i>General Warning Sign Type</i> = 3 – Animal Crossing is published only if the animal crossing sign exists as supplemental sign in reality. See table under Section 6.4.13.1, <i>Traffic Sign Type (TRAFFIC_SIGN_TYPE)</i>.

- General Warning Sign Type = 4 – Accident Hazard is published only if the accident hazard sign exists as supplemental sign in reality. See table under Section 6.4.13.1, Traffic Sign Type (TRAFFIC_SIGN_TYPE).

6.4.13.5 Traffic Sign Value (TRAFFIC_SIGN_VALUE)

Definition	<i>Traffic Sign Value</i> provides values visible on the sign related to specific Sign Types.
Table	RDF_CONDITION_DRIVER_ALERT
Column	TRAFFIC_SIGN_VALUE
Value	Textual description of the value visible on the sign. The <i>Traffic Sign Value</i> publishes the text with the default Language Code for the country.
Related Table	RDF_CONDITION
Related Attributes	Traffic Sign Type
Related Condition	<i>Traffic Sign</i> (Condition Type = 17)
Usage	<i>Traffic Sign Value</i> can be used to display the traffic signs with the exact restriction or information as provided on the sign.
Specification	<ul style="list-style-type: none">• The <i>Traffic Sign Value</i> publishes the text on the sign with the default Language Code of the country. Note: The <i>Traffic Sign Value</i> attribute is not transliterated and not translated.• <i>Traffic Sign Value</i> is published for the following <i>Traffic Sign Type</i> values:<ul style="list-style-type: none">18 – Steep Hill Upwards19 – Steep Hill Downwards• Inclination values for <i>Traffic Sign Type</i> = 18 - Steep Hill Upwards and 19 - Steep Hill Downwards have the percentage indication included (e.g., 9% on the traffic sign is published as <i>Traffic Sign Value</i> = 9%).

6.4.13.6 Supplemental Sign Duration (SIGN_DURATION)

Definition	<i>Supplemental Sign Duration</i> indicates additional sign shields, which are displayed below the Traffic Sign, indicating the duration of the warning.
Table	RDF_CONDITION_DRIVER_ALERT
Column	SIGN_DURATION
Value	Identifier of text visible on the supplemental sign indicating duration

Related Tables RDF_CONDITION

RDF_CONDITION_TEXT

Usage SIGN_DURATION with RDF_CONDITION_TEXT.TEXT can be used for map display or to indicate the duration of the warning in the driver alert messaging.

Specification • Supplemental signs indicating the duration typically show the distance information with arrows on either side of the distance information, as shown in *Figure 6-48*.



Figure 6-48

- The distance information is published with the measurement indication in RDF_CONDITION_TEXT.TEXT. The supplemental sign text for duration is represented as spelled on the sign, excluding spaces, e.g., '2400m' as shown in *Figure 6-48*.
- Multiple *Supplemental Sign Duration* attributes are published for one Traffic Sign condition if the Sign Duration supplemental text is posted in more than one language. See *Figure 6-49*. This is published as two Sign Duration attributes.

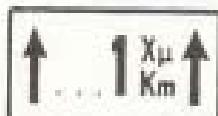


Figure 6-49

RDF_CONDITION_DRIVER_ALERT		
CONDITION_ID	19519646	19519646
SIGN_DURATION	9999999991	9999999992

RDF_CONDITION_TEXT		
CONDITION_ID	19519646	19519646
TEXT_ID	999999999 1	999999999 2
SEQ_NUM	1	2
LANGUAGE_CODE	ENG	GRE

RDF_CONDITION_TEXT		
TEXT	1KM	1Xμ

- Each *Supplemental Sign Duration* has a corresponding Language Code in RDF_CONDITION_TEXT.LANGUAGE_CODE. The Language Code can be used as an indication if the text is a Latin-1 or a non-Latin-1 string.
- The RDF_CONDITION_TEXT.TEXT for the *Supplemental Sign Duration* attribute is not transliterated and not translated. Only Latin-1 supplemental text posted on signs in non-Latin-1 countries is published.
- Latin-1 text posted in countries where a non-Latin-1 language is applicable is published with Language Code = ENG. See *Figure 6-49*.
- Non-Latin-1 *Supplemental Sign Duration* text posted in countries where a non-Latin-1 language is applicable is published with the default Language Code for that country.

6.4.13.7 Supplemental Sign Pre-Warning (SIGN_PREWARNING)

Definition	<i>Supplemental Sign Pre-Warning</i> indicates additional sign shields, which are displayed below the Traffic Sign, indicating an upcoming warning or regulation. These signs are only included if no additional Traffic Sign is present at the actual start of the warning or regulation.
Table	RDF_CONDITION_DRIVER_ALERT
Column	SIGN_PREWARNING
Value	Identifier of text visible on the supplemental sign indicating prewarning
Related Tables	RDF_CONDITION RDF_CONDITION_TEXT
Usage	The supplemental sign pre-warning can be used for map display or to indicate a pre-warning for an upcoming warning or regulation in driver alert messaging.
Specifications	<ul style="list-style-type: none"> • Traffic Signs with supplemental signs indicating the distance to an upcoming warning or regulation are not included when an additional Traffic Sign is present at the start of the warning. If no Traffic Sign is present at the start of the warning, then the Traffic Sign with the supplemental sign indicating the distance to the upcoming warning or regulation is included. These types of supplemental signs are typically showing the distance information without the arrows on either side of the distance information, as illustrated in <i>Figure 6-50</i>.



Figure 6-50

- The distance information is published with the measurement indication in `RDF_CONDITION_TEXT.TEXT`. The supplemental sign text for pre-warning is represented as spelled on the sign, excluding spaces. *Figure 6-50* would be represented as '400m'.
- Each Sign Pre-warning has a corresponding Language Code in `RDF_CONDITION_TEXT.LANGUAGE_CODE`. The Language Code can be used as an indication if the Sign Prewarning is a Latin-1 or a non-Latin-1 string.
- Multiple *Supplemental Sign Pre-warning* attributes are published for one *Traffic Sign* condition if the Sign Prewarning supplemental text is posted in different languages. See *Figure 6-51*. This is published as two *Supplemental Sign Pre-warning* condition attributes, each with its own Language Code.



Figure 6-51

RDF_CONDITION_DRIVER_ALERT		
CONDITION_ID	19519646	19519646
SIGN_PREWARNING	9999999999	9999999998
RDF_CONDITION_TEXT		
CONDITION_ID	19519646	19519646
TEXT_ID	9999999999	9999999998
SEQ_NUM	1	2
LANGUAGE_CODE	ENG	GRE

RDF_CONDITION_TEXT		
TEXT	200M	200μ

- The Sign Pre-warning attribute is not transliterated and not translated. Only Latin-1 text posted on supplemental signs in non-Latin-1 countries is published.
- Latin-1 Sign Pre-warning text posted in countries where a non-Latin-1 language is applicable is published with Language Code = ENG.
- Non-Latin-1 Sign Pre-warning text posted in countries where a non-Latin-1 language is applicable is published with the default Language Code for that country.

6.4.13.8 Supplemental Sign Validity Time (SIGN_VALIDITY_TIME)

Definition *Supplemental Sign Validity Time* indicates that an additional sign shield exists, illustrated by *Figure 6-52*, indicating a specific time(s) at which the Traffic Sign is applicable. For example, No Overtaking for Trucks between 8:30 and 18:00 hours. The supplemental sign displaying validity time can be used for map display.

Table RDF_CONDITION_DRIVER_ALERT

Column SIGN_VALIDITY_TIME

Value Identifier of text visible on the supplemental sign indicating specific time(s) at which Traffic Sign is applicable

Related Tables RDF_CONDITION

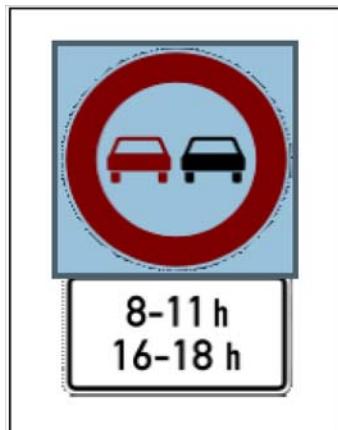
RDF_CONDITION_TEXT

Specification • Supplemental signs displaying validity time indicate a specific time at which the Traffic Sign is applicable, as illustrated in *Figure 6-52*.



Figure 6-52

- The time period in the RDF_CONDITION_TEXT.TEXT is published as spelled on the sign, including hour indication. The minimum amount of spaces are used. For example: the representation of the supplemental sign in *Figure 6-52* is represented as 8:30-18h.
 Note: If no separator is present between the hour and the minutes, then the separator ":" is used. For example, the Start Time, 830 in *Figure 6-52* is represented as 8:30.
- When multiple time periods exist on one supplemental sign, a comma is published as a separator between them. For example, the representation of the supplemental sign in *Figure 6-53* is published as 8-11h, 16-18h.

*Figure 6-53*

6.4.13.9 Supplemental Sign Applicable Vehicles

Definition	<i>Supplemental Sign Applicable Vehicles</i> indicates additional sign shields which are displayed below a given Traffic Sign indicating to which vehicle(s) the Traffic Sign is applicable.
Table	RDF_CONDITION_DRIVER_ALERT
Column	SIGN_VEHICLE_TRUCK SIGN_VEHICLE_HEAVY_TRUCK SIGN_VEHICLE_BUS SIGN_VEHICLE_AUTO_TRAILER SIGN_VEHICLE_MOTORHOME SIGN_VEHICLE_MOTORCYCLE
Value	N - if N is published in the column, the sign is not applicable to the vehicle Y - if Y is published in the column, the sign is applicable to the vehicle

Related Tables RDF_CONDITION

Usage The supplemental sign showing vehicles can be used for map display.

Specification • Supplemental signs displaying specific vehicles indicate to which specific vehicle(s) the Traffic Sign applies, as illustrated in *Figure 6-54*.



Figure 6-54: Supplemental Sign with Applicable Vehicles

- *Supplemental Sign Applicable Vehicles* is published as applicable base upon what appears on the supplemental sign.

Vehicles on Supplemental Signs	
	SIGN_VEHICLE_TRUCK = Y
	SIGN_VEHICLE_HEAVY_TRUCK = Y
	SIGN_VEHICLE_BUS = Y
	SIGN_VEHICLE_AUTO_TRAILER = Y
	SIGN_VEHICLE_MOTORHOME = Y

Vehicles on Supplemental Signs	
	SIGN_VEHICLE_MOTORCYCLE = Y

- SIGN_VEHICLE_HEAVY_TRUCK = Y is published if the Traffic Sign is applicable to trucks over 3.5 tons, trailers, and semi-trailers.
- SIGN_VEHICLE_AUTO_TRAILER = Y is published if the Traffic Sign is applicable to passenger vehicles with trailer.

6.4.13.10 Weather Type (WEATHER_TYPE)

Definition *Weather Type* provides the weather situation that affects the *Traffic Sign* condition or to other conditions it may be applied to.

Table RDF_CONDITION_DRIVER_ALERT

Column WEATHER_TYPE

Value See Section C.27, RDF_CONDITION_DRIVER_ALERT.

Related Tables RDF_CONDITION

Usage *Weather Type* can be used to display the type of weather condition affecting the related specific sign types, or any other condition.

6.4.14 Railway Crossing (CONDITION_TYPE = 18)

Definition *Railway Crossing* is a condition indicating the location of a Railway Crossing. It also indicates the type of Railway Crossing.

Condition Type 18

Column CONDITION_TYPE

Condition Attributes RAILWAY_CROSSING_TYPE

Related Tables RDF_CONDITION

RDF_NAV_STRAND

Usage The Railway Crossing condition can be used for map display and to generate specific driver alerts when approaching a railway crossing.

- Specification**
- The *Railway Crossing* condition is included for every Railway Crossing which is part of the scope, regardless of whether a Traffic Sign is present that indicates a Railway Crossing.
 - The *Railway Crossing* condition is applied in both driving directions.
 - *Railway Crossing* conditions are only applied to roads open to Autos.
 - The Access Characteristics of the *Railway Crossing* condition are set to Y for all Vehicle Types.
 - Date/Time Modifiers are not published for *Railway Crossing* conditions.

6.4.14.1 Railway Crossing Type (RAILWAY_CROSSING_TYPE)

Definition *Railway Crossing Type* indicates if the Railway Crossing is protected with a barrier or unprotected without barriers.

Table RDF_CONDITION_DRIVER_ALERT

Column RAILWAY_CROSSING_TYPE

Values See Section C.27, RDF_CONDITION_DRIVER_ALERT.

Related Tables RDF_CONDITION

RDF_NAV_STRAND

Usage The type of Railway Crossing can be used for map display or to give a specific warning message indicating that the Railway Crossing is protected or unprotected.

- Specification**
- *Railway Crossing Type* is associated with Railway Crossing, which is modelled as a Condition in RDF_CONDITION, where CONDITION_TYPE = 18. The RDF_NAV_STRAND table defines the links involved in the Railway Crossing condition.
 - The *Railway Crossing* condition is published with RDF_CONDITION_DRIVER_ALERT. RAILWAY_CROSSING_TYPE which has the value of Protected or Unprotected.
 - *Railway Crossing Type* = 1 - Protected is published if the Railway Crossing is protected with a barrier, as illustrated in Figure 6-55.



Figure 6-55: Protected Railway Crossing

- *Railway Crossing Type = 2 - Unprotected* is published if the Railway Crossing is not protected with a barrier, as illustrated in *Figure 6-56*.



Figure 6-56: Unprotected Railway Crossing

- If a Traffic Sign indicating a Railway Crossing exists, then two conditions are applied per driving direction. One condition indicates the location of the Traffic Sign and one condition indicates the actual Railway Crossing.

6.4.15 No Overtaking (CONDITION_TYPE = 19)

Definition *No Overtaking* is a single-link condition indicating whether passing other cars on the associated link is allowed and is based on the presence of a Start of No Overtaking sign. A *No overtaking* condition can be published with Access Characteristics and Date/Time Modifiers.

Condition Type 19

Column CONDITION_TYPE

Table RDF_CONDITION

Related Tables RDF_NAV_STRAND (defines the links involved in the *No Overtaking* condition)

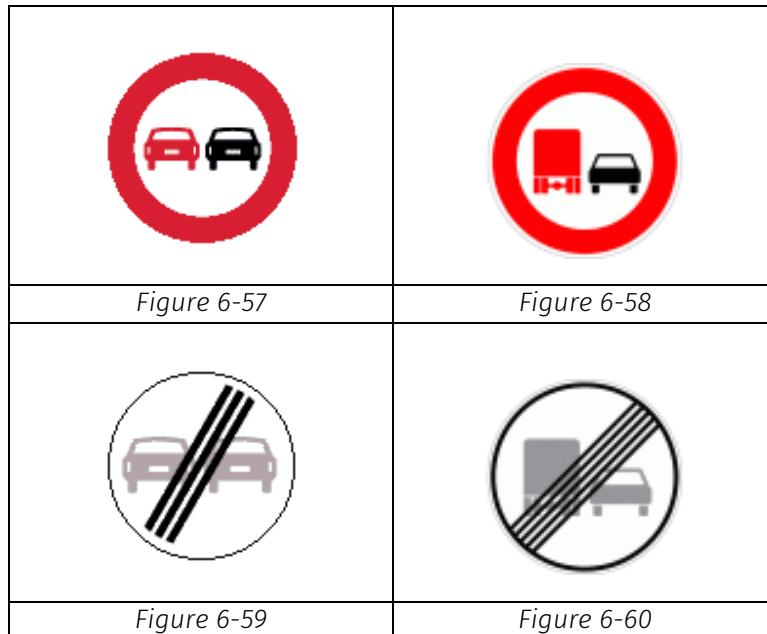
RDF_ACCESS

RDF_DATE_TIME

Usage *No Overtaking* can be used to warn the driver of an upcoming road stretch indicating a no passing zone for all or certain vehicles. *No Overtaking* can also be used to visualize and highlight no overtaking zones because it is based at the link level

Specification • The *No Overtaking* condition is published for all links affected by Traffic Signs indicating no overtaking. Signs indicating no overtaking are shown in *Figure 6-57*, *Figure 6-58*, *Figure 6-59*, and *Figure 6-60*.

Note: There are cases where no sign indicating the end of the *No Overtaking Zone* is present in reality. In these cases, the End of *No Overtaking* is based on the lane marking indicating an end of *No Overtaking*.



- Use *No Overtaking* conditions with the Traffic Sign condition on bidirectional roads to determine the direction.
- There are no gaps in the *No Overtaking* condition attribution, which consists of a closed set of links.
- A *No Overtaking* condition is published with Access Characteristics information indicating to which Access Characteristic the *No Overtaking* condition is applicable.
- A *No Overtaking* condition is published with a Date/Time Modifier. For example in *Figure 6-52*, Date/Time Modifier is published for the *No Overtaking* condition if there was a sign indicating no overtaking for trucks from 8:30 until 18:00.

6.4.16 Junction View (CONDITION_TYPE = 20)

Definition *Junction View* condition is a link-node-link condition used for associating images (background image for a junction and arrow overlay image) to the road network. It ties an image representation of a junction and arrow overlays to the corresponding road geometry so that an application is able to display the *Junction View* image for this junction with the appropriate arrow overlay prior to the desired manoeuvre.

Condition Type 20

Column CONDITION_TYPE

Condition Attributes Auxiliary files (delivered as external content) referenced from RDF, via RDF_FILE_FEATURE and RDF_FILE.

Table RDF_CONDITION

Related Tables RDF_NAV_STRAND publishes the links involved in the *Junction View* condition.

RDF_FILE_FEATURE defines the relation between the *Junction View* condition and the associated File(s). FEATURE_ID in RDF_FILE_FEATURE represents the CONDITION_ID in RDF_CONDITION.

Table RDF_FILE publishes the specifics of the auxiliary file associated with the *Junction View* condition. The image representing the Junction is published in RDF_FILE, with FILE_TYPE and ATTACHMENT_TYPE.

Usage A *Junction View* condition ties an image representation of a junction and arrow overlays to the corresponding road geometry. This enables an application to display the *Junction View* graphic for this junction with the appropriate arrow overlay prior to the desired manoeuvre.

Junction View

Junction View Images facilitate greater clarity in the navigation experience at unique and confusing intersections. They represent complex controlled access and urban level intersections where additional guidance is necessary. Junction View Images are pictures shown on a navigation display which provide visual context for a driving manoeuvre. It represents details of junction geometry featuring the recommended manoeuvre (using an arrow), as well as some additional context of the driver's surroundings. The Junction

View conditions offer enhanced map display and intersection guidance functionality. Junction View Images guidance in complex highway and urban intersections simplifies lane level guidance using easy to understand images. Approaching such described junctions, navigation devices could aide the driver by visualizing an enlarged view of the junction.

The level of detail for this feature can vary from a basic guidance including road geometry, lane information and arrow overlay to a detailed and complex guidance with photorealistic pictures and arrow overlay (see *Figure 6-61* and *Figure 6-62*).

There is no disadvantage, in terms of coverage, for not using junction view images. The images need customising for each application to have a proprietary look and feel.

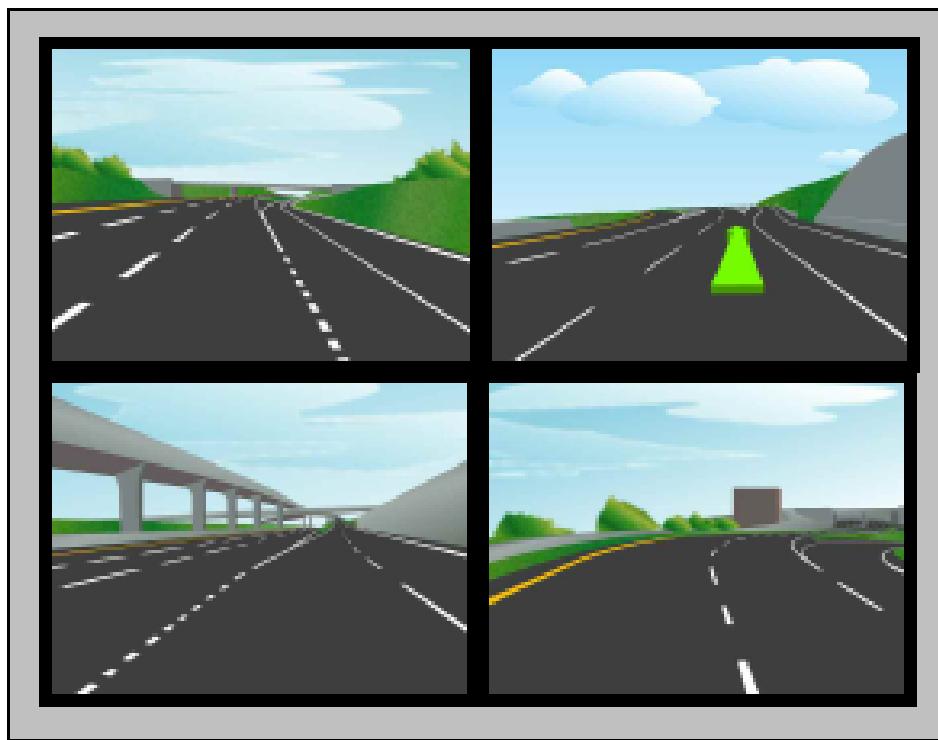


Figure 6-61: Junction View Images

Junction View Images provide a one-directional view of the upcoming interchange with possible multiple overlaid arrow manoeuvre indication. An image is provided for each direction of travel approaching the complex interchange. See *Figure 6-62*.



Figure 6-62: Junction View of Complex Interchange

2D Sign

2D Sign provides a realistic graphical representation of a sign. The 2D Sign files are delivered as look-aside Scalable Vector Graphics (SVG) files.

The auxiliary file association for 2D Sign SVG files is modelled using the File Association concept. The 2D Sign content can be combined with Junction View Images content; therefore the 2D Sign SVG files are associated with the existing Junction View Images conditions (Condition_Type = 20). Therefore, some Junction View Images conditions have the following File Types associated:

- 2D Pattern
- 2D Arrow
- 2D Sign

Some Junction View Images conditions do not have a 2D Sign SVG file associated. For these Junction View Images conditions, graphical guidance can be provided based on the existing Junction View Images only.

Some 2D Sign SVG files do not have a Junction View Image condition associated. In these cases, the 2D Sign file cannot be combined with a Junction View Image for graphical guidance.

Combination of 2D Sign with Junction View Images

The 2D Sign graphic is associated with the Junction View Images condition. For select junctions the Junction View Images condition publishes both Junction View Images graphics and 2D Sign graphics. This allows for the following usage of graphics to provide junction view guidance:

- 1.Only use 2D Sign
- 2.Only use Junction View Images (combination of Junction View and Arrow)
- 3.Use combination of Junction View Images and 2D Sign graphics

Option 2 and 3 are regionally available only where Junction View Images is published. Option 3 requires the combined usage of Junction View Images (2D Patterns, and 2D Arrow) and the 2D Sign SVG files.

To facilitate the integration of Junction View Images and 2D Sign, the 2D Sign SVG file has a transparent canvas surrounding the actual sign boards. The transparent canvas exactly matches the Junction View Image to which the 2D Sign image is associated. The combination of Junction View Images with the 2D Sign graphics results in a representation as shown in *Figure 6-63*. The arrow in *Figure 6-63* is part of Junction View Images.

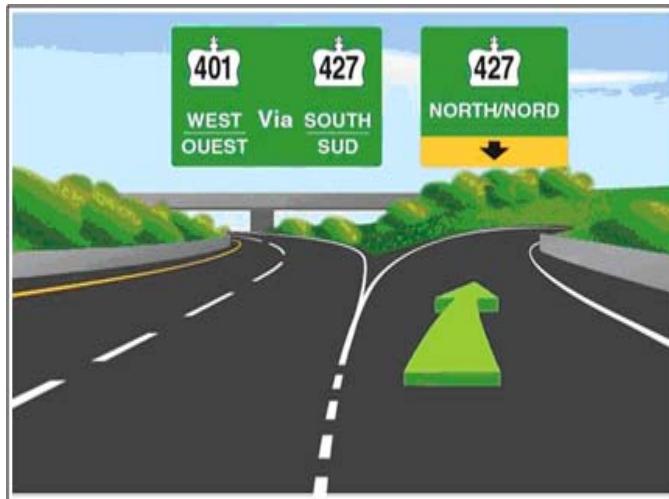


Figure 6-63

Motorway Junction Object

A Motorway Junction Object is a 3D model of a crossing that consists of navigable links which form a connected group such as where a road crosses over or under another road and a connection exists between the roads via one or more ramps, frontage roads, etc. such as at a motorway interchange. Additionally, locations such as motorway bifurcations are represented. The 3D model is depicted as close to reality as possible and delivered as COLLADA (Collaborative Design Activity) auxiliary files.

A Motorway Junction Object provides a functional reference and orientation to allow fast and secure decision making, while still providing the additional information that the consumer likes to receive.

The Motorway Junction Object is modelled using a Complex Feature type that is a complete representation of the features that make up the Motorway Junction Object.

A Motorway Junction Object provides a 3D rendition of a complex intersection that can be used to provide drivers a real 3D display of upcoming complex locations. A Motorway Junction Object is a 3D rendition of a crossing that consists of navigable links which form a connected group as where a road crosses over or under another road and a connection exists between the roads via one or more ramps, frontage roads, etc., such as at a motorway interchange.

The Motorway Junction Object feature is also published for qualifying motorway bifurcations.

Overall the CRF Junction Object includes all links that reflect what a driver perceives in reality as important when traversing through a motorway/highway junction or bifurcation.

The Motorway Junction Object representation comprises of the following main elements

Motorway Junction Object Complex Feature (MJO-CF)

This element represents the collection of features that form the basis of the MJO-COLLADA and that must be used for positioning the MJO-COLLADA and to map features to the underlying map. See *Section 7.3.5, Motorway Junction Object Complex Feature (MJO-CF)*.

A 3D model constructed out of the collection of features that make up the MJO-CF delivered as auxiliary COLLADA files (MJO-COLLADA).

The MJO-COLLADA file is tied to the MJO-CF using the File Association Model. See *Section 12.2.10, File Association Model*.

Inclusion *Junction View* images data is included in *Junction View Images* coverage for junctions with Extended Lane product data. A *Junction View Image* is included for all the junctions that are within 250 metres.

- Specification**
- The location chosen is the node where the manoeuvre shown in the image occurs.
 - Views from different distances prior to the junction viewpoint may be included in case of lengthy junctions (i.e., distance between decision points is greater than 250 metres).
 - Each junction view covers one decision point in the junction, with the appropriate arrow overlay.

Note: The decision point is the location where the driver must receive the information in order to make the manoeuvre.

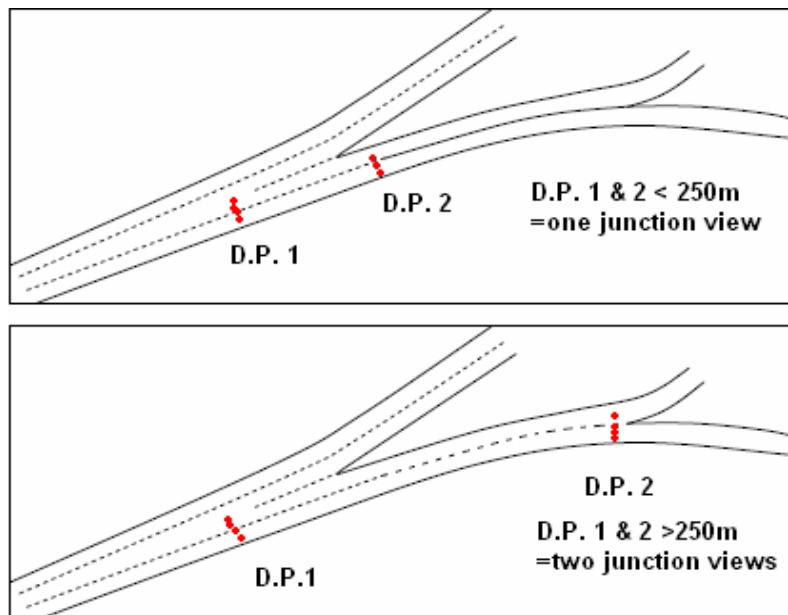


Figure 6-64: Junction View Images-Decision Points

- Along motorways, a *Junction View* condition may be published at any exit that has Extended Lane product data referencing a corresponding image showing the motorway and exiting ramp. Appropriate arrow overlay images are included for the exiting manoeuvres only.
- No *Junction View* conditions for background and arrow overlay images are included for the “straight-on” direction (i.e., when a driver continues on the motorway).
- In case of a bifurcation or a parallel ramp split along motorways, *Junction View* conditions must be coded for each possible driving direction.
- *Junction View* conditions can involve multiple links (i.e., more than two links). The links participating in a multi-link condition must be consecutive.
- See *Chapter 11, File Association* for information on the file attachments.

6.4.17 Protected Overtaking (CONDITION_TYPE = 21)

Definition *Protected Overtaking* is a single link condition, which indicates where a Protected Overtaking sign is physically located and extra lane(s) are available to support safe overtaking. A *Protected Overtaking* condition can be used to pre-warn the driver of a safe upcoming road stretch and can also be used to visualize and highlight protected overtaking zones.

Condition Type 21

Column CONDITION_TYPE

Related Tables RDF_CONDITION

RDF_NAV_STRAND

Specification • The *Protected Overtaking* condition is applied to all links which are affected by Protected Overtaking Traffic Signs. *Figure 6-65* illustrates the start of a *Protected Overtaking* condition, while *Figure 6-66* illustrates the end of a *Protected Overtaking* condition.

Note: Number of Lanes is published for the links with a *Protected Overtaking* condition.

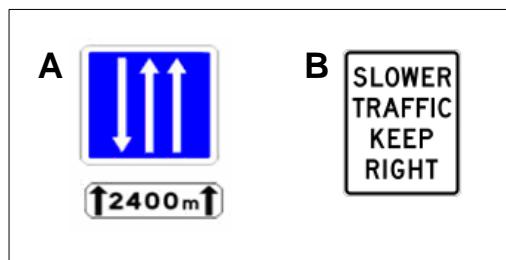


Figure 6-65: Beginning of Overtaking

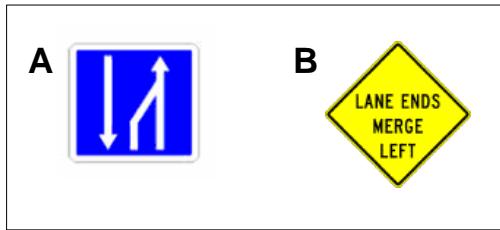


Figure 6-66: End of Overtaking

- The *Protected Overtaking* condition is only coded when a sign is present on a bidirectional road indicating the start of a *Protected Overtaking* condition. In the U.S. an additional lane is formed in these situations. The lane for slower traffic is also referred to as a “climbing lane.”
- The *Protected Overtaking* condition should be used in conjunction with the Traffic Sign on bidirectional roads to determine the direction.
- The *Protected Overtaking* condition coding consists of a closed set of links without gaps.
- The Access Characteristics of the *Protected Overtaking* condition are set to Y for all Vehicle Types.
- Date/Time Modifiers are not published for *Protected Overtaking* conditions.

6.4.18 Evacuation Route (CONDITION_TYPE = 22)

Definition *Evacuation Route* indicates that a road is designated by local authorities as a preferred route for vehicles to use for evacuation in case of a disaster.

Condition Type 22

Column CONDITION_TYPE

Related Tables RDF_CONDITION
RDF_CONDITION_EVACUATION

Specification • *Evacuation Route* is published on the Functional Class road network 1 through 5.

Example The condition with ID 126523157 indicates that a given link is an evacuation route of type Hurricane and that the direction of travel for the evacuation is from the reference node. The condition with ID 126525095 indicates that a given link is an evacuation route of type Hurricane and that the direction of travel for the evacuation is toward the reference node. The condition with ID 126522378 indicates that a given link is closed to traffic in case of evacuation route of type Hurricane.

RDF_CONDITION			
CONDITION_ID	126523157	126525095	126522378
CONDITION_TYPE	22	22	22
NAV_STRAND_ID	128596048	128604086	128613196
ACCESS_ID	1023	1023	1023

RDF_CONDITION_EVACUATION			
CONDITION_ID	126523157	126525095	126522378
EVACUATION_BEARING	1	2	4
EVENT_TYPE	1	1	1
EVENT_CODE	10000	10001	10002

6.4.18.1 Event Type (EVENT_TYPE)

Definition *Event Type* specifies the event associated with an evacuation route.

Table RDF_CONDITION_EVACUATION

Column EVENT_TYPE

Values See Section C.28, RDF_CONDITION_EVACUATION.

Condition Type *Event Type* is associated with Evacuation Route, which is modelled as RDF_CONDITION.CONDITION_TYPE = 22.

Usage *Event Type* can be used to identify the evacuation paths for a specific emergency event.

Specification

- *Event Type* identifies the event associated with an evacuation route.
- *Event Type* is published as appropriate based on sources.

6.4.18.2 Evacuation Direction of Travel (EVACUATION_BEARING)

Definition *Evacuation Direction of Travel* specifies the evacuation route travel direction.

Table RDF_CONDITION_EVACUATION

Column EVACUATION_BEARING

Values See Section C.28, RDF_CONDITION_EVACUATION.

Usage *Evacuation Direction of Travel* can be used for map display and routing purposes.

Specification

- *Evacuation Direction of Travel* specifies or overrides the basic link travel direction.

- *Evacuation Direction of Travel* is published on bidirectional links to specify the evacuation route travel direction. See *Figure 6-67*.

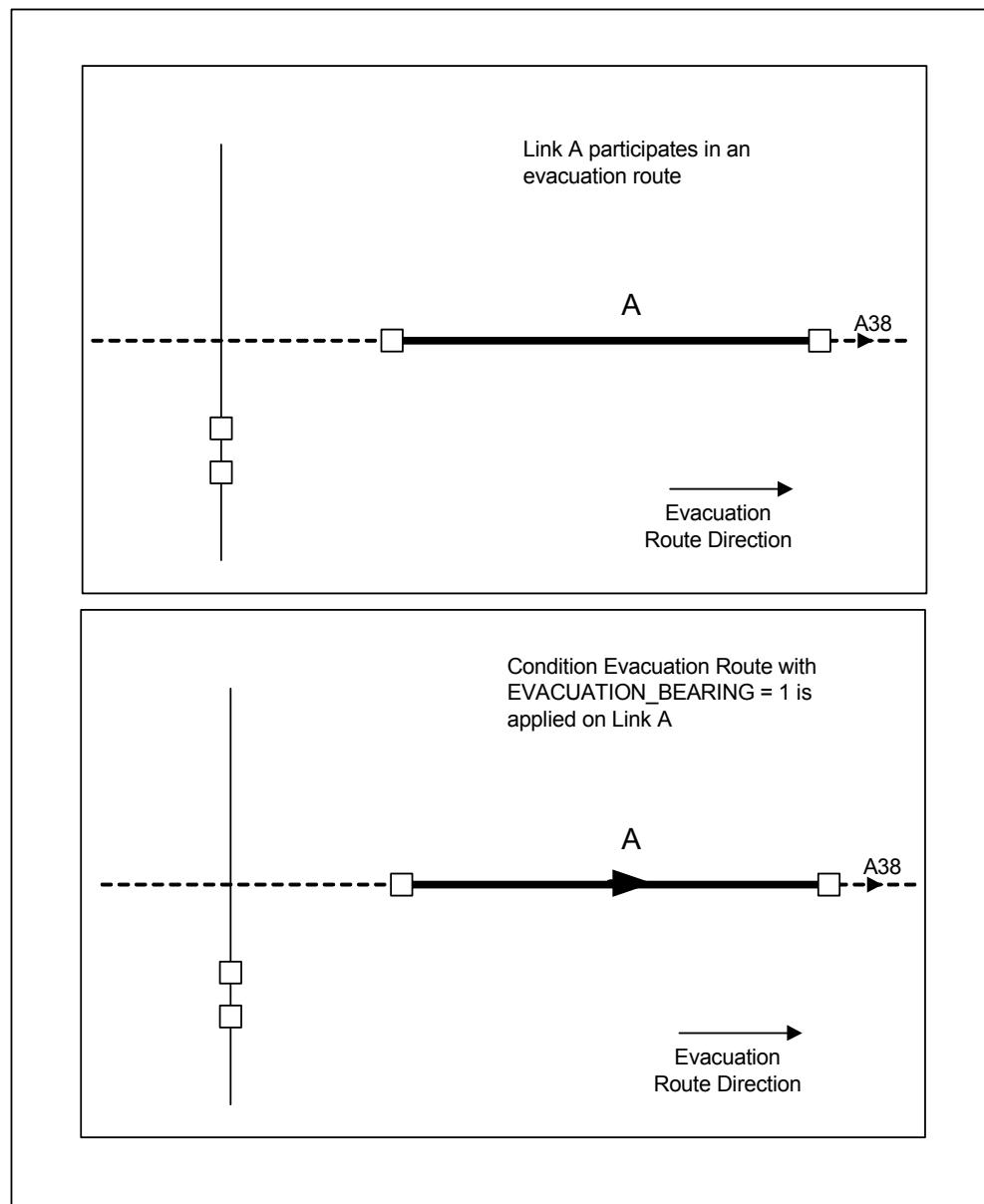


Figure 6-67

- *Evacuation Direction of Travel* is published on one-way links to override the basic link travel direction. See *Figure 6-68*.

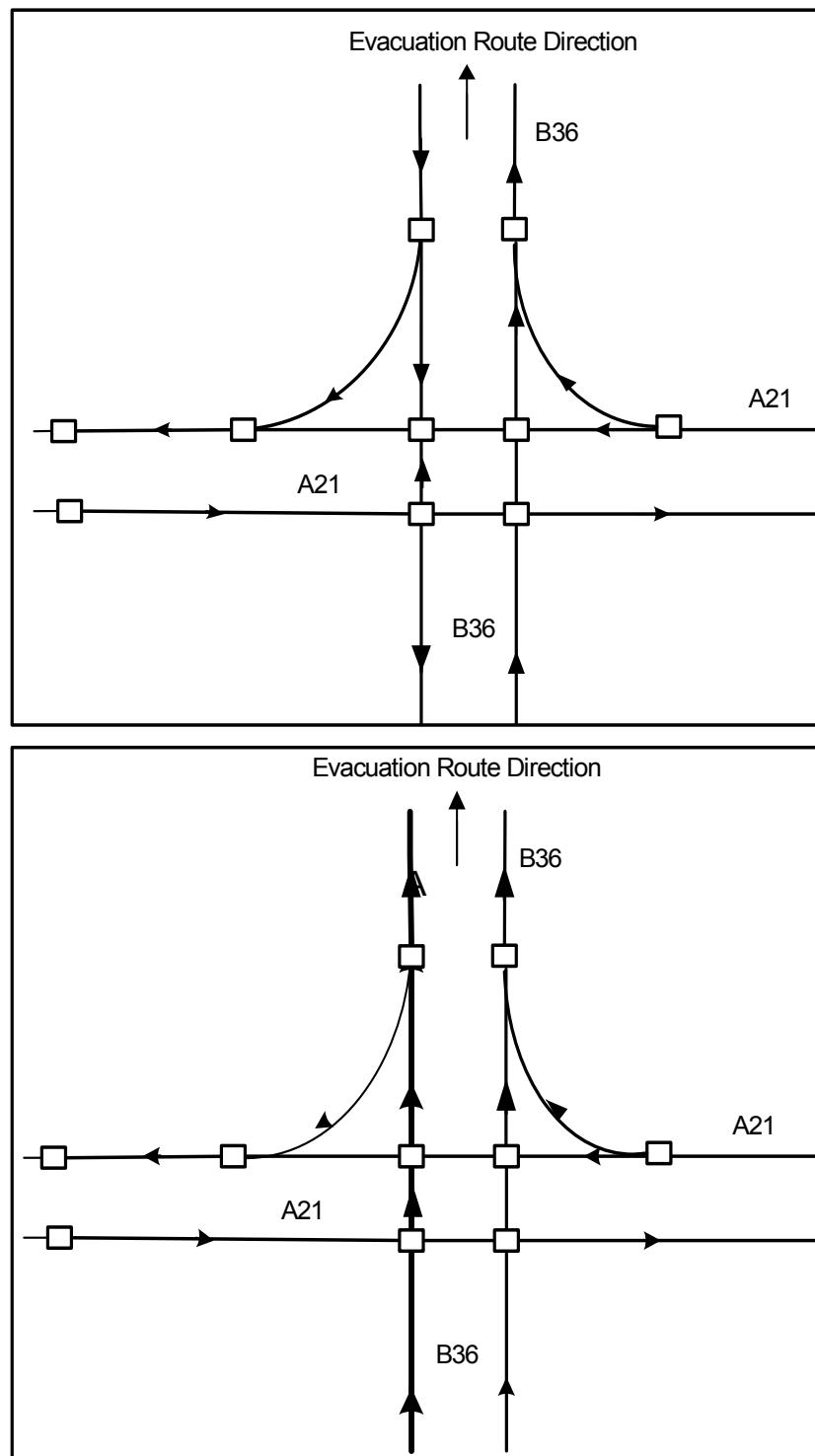


Figure 6-68

Note: Counterflows are established for certain expressways and interstates in order to use the most highway lanes possible for evacuation in a threatened area. When

a contra flow is activated, sections of these highways are set up to route traffic in one direction heading away from the event causing evacuation. See *Figure 6-69*.

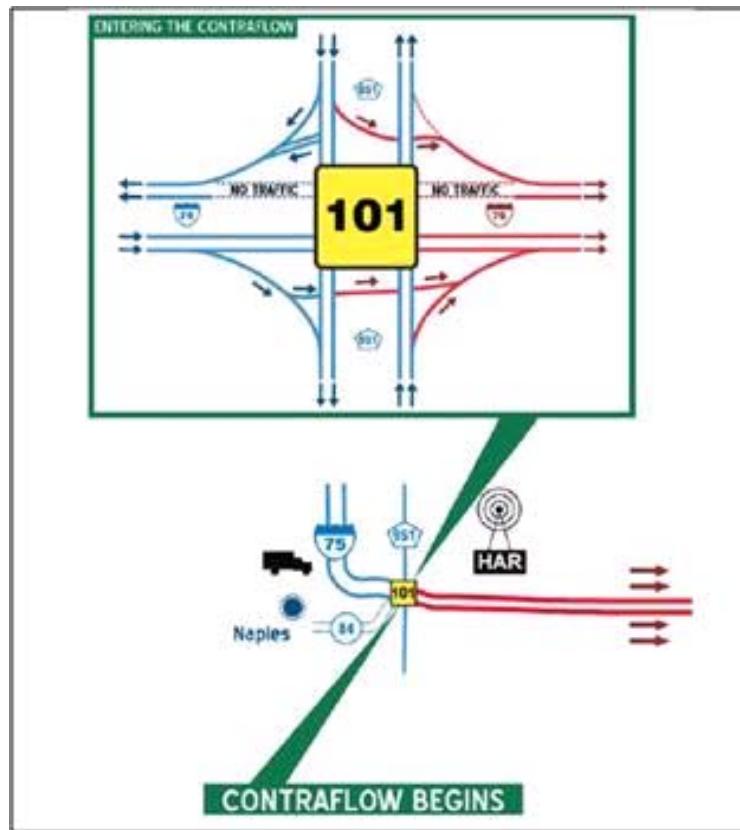


Figure 6-69

- *Evacuation Direction of Travel* can be used to open a link for the purpose of evacuation when the link is closed to traffic. See *Figure 6-70*.

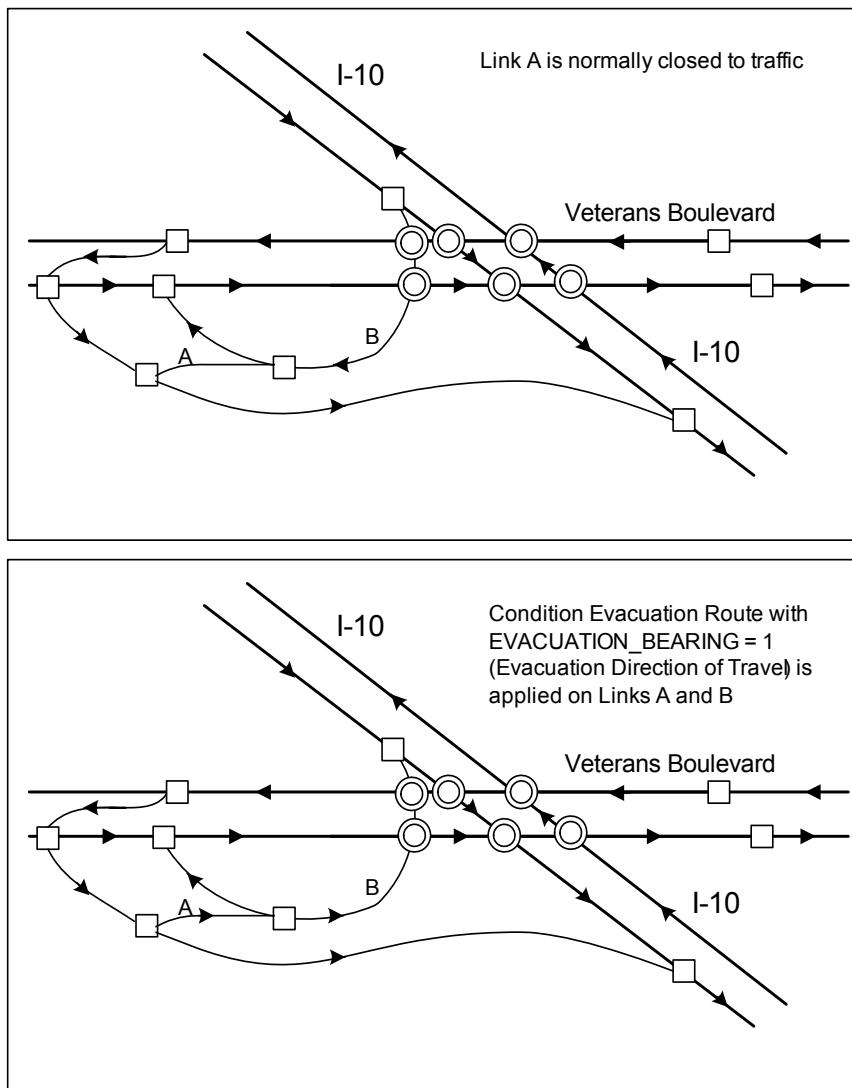


Figure 6-70

6.4.18.3 Event Code (EVENT_CODE)

Definition	<i>Event Code</i> is a value that represents a specific evacuation route path.
Table	RDF_CONDITION_EVACUATION
Column	EVENT_CODE
Values	See Section C.28, RDF_CONDITION_EVACUATION.
Usage	<i>Event Code</i> can be used to determine a specific evacuation route path when more than one <i>Evacuation Route</i> condition is coded on a link.
Specification	<ul style="list-style-type: none"> • <i>Event Code</i> can be used to publish two <i>Evacuation Route</i> conditions on the same link. See <i>Figure 6-71</i>.

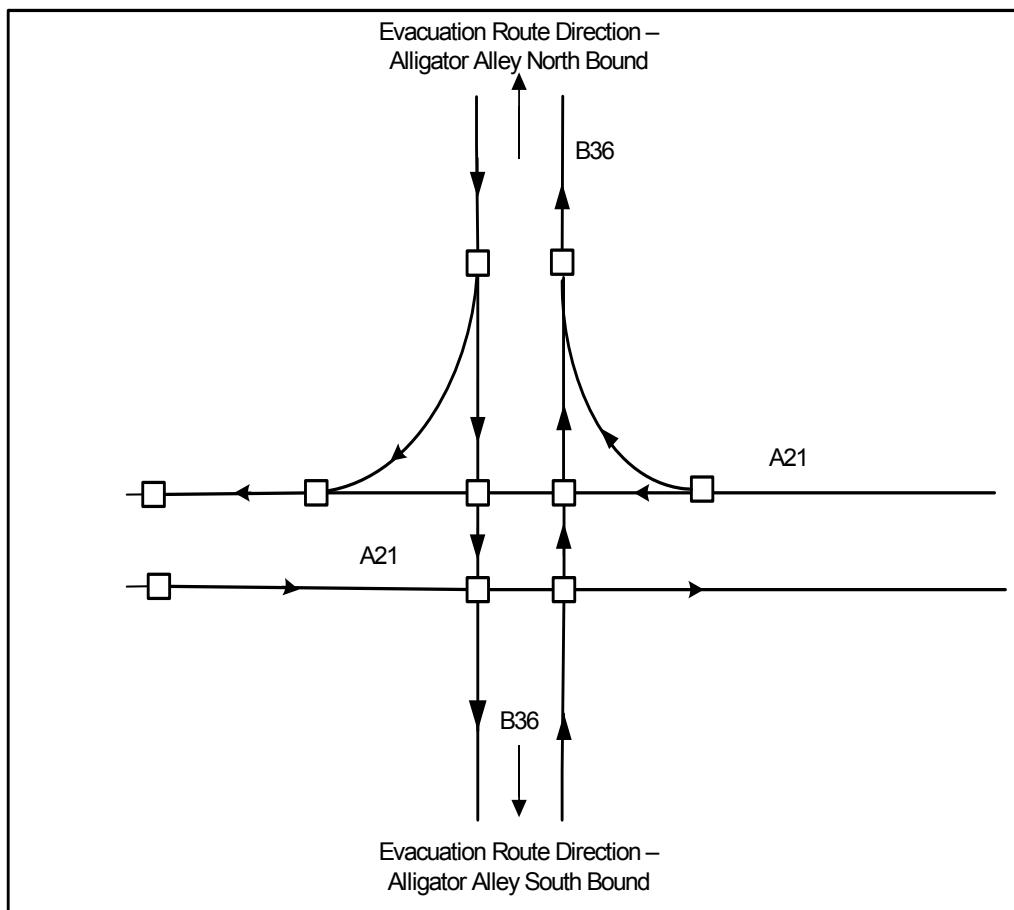


Figure 6-71

- Event Code with modifier value 1 is published on links A, B, C, and D. See *Figure 6-72*.

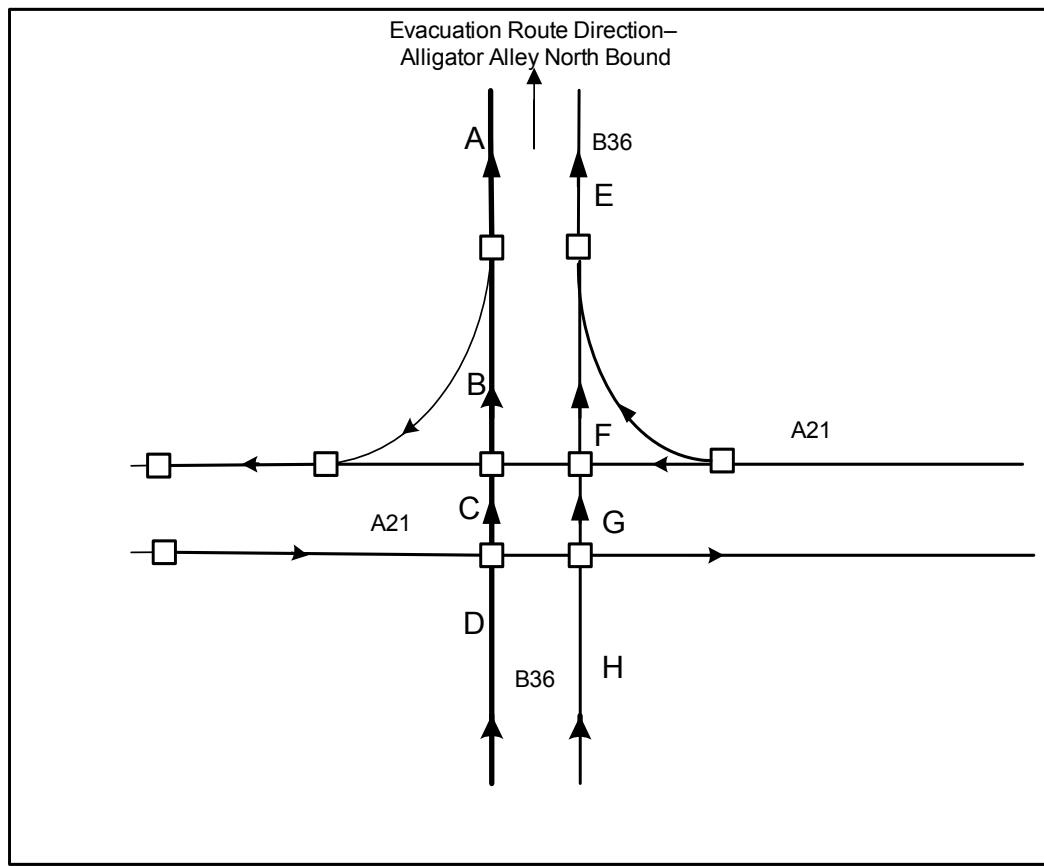


Figure 6-72

- Event Code with modifier value 2 is published on links E, F, G, and H. See *Figure 6-73*.

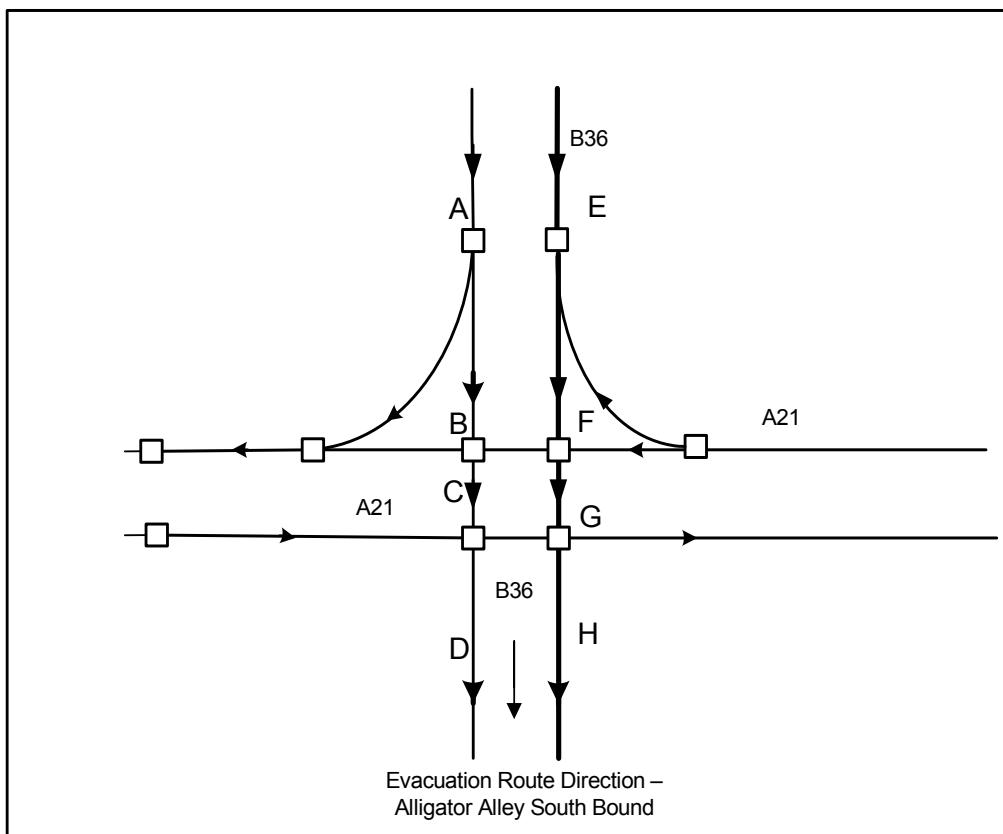


Figure 6-73

6.4.19 Parking Information

Definition *Parking Information* defines the parking information on a link.

Condition Type 31

Column CONDITION_TYPE

Related Tables *Parking Type (PARKING_TYPE)*

Parking Side of Street (PARKING_SIDE_OF_STREET)

Parking Restriction (PARKING_RESTRICTION)

Specification See the following related attributes:

- *Section 6.4.19.1, Parking Type (PARKING_TYPE)*
- *Section 6.4.19.2, Parking Side of Street (PARKING_SIDE_OF_STREET)*
- *Section 6.4.19.2, Parking Side of Street (PARKING_SIDE_OF_STREET)*

Usage See the individual sub-attributes.

6.4.19.1 Parking Type (PARKING_TYPE)

Definition	Identifies the type of parking available on a link.
Table	RDF_CONDITION_PARKING
Column	PARKING_TYPE
Values	See Section C.31, RDF_CONDITION_PARKING.
Related Attributes	<i>Parking Side of Street</i> (PARKING_SIDE_OF_STREET) <i>Parking Restriction</i> (PARKING_RESTRICTION)
Usage	<i>Parking Type</i> can be used to determine whether parking on a link is permissible and requires payment.
Specification	<ul style="list-style-type: none">• PARKING_TYPE = 1 is published where parking is not allowed at any time .• PARKING_TYPE = 2 is published where, primarily, there is no cost for parking.• PARKING_TYPE = 4 is published where, primarily, a permit is required for parking.• PARKING_TYPE = 5 is published where, primarily, payment is required for parking, usually via a meter.

6.4.19.2 Parking Side of Street (PARKING_SIDE_OF_STREET)

Definition	Identifies the side of the street the <i>Parking Type</i> applies to.
Table	RDF_CONDITION_PARKING
Column	PARKING_SIDE_OF_STREET
Values	See Section C.31, RDF_CONDITION_PARKING.
Related Attributes	<i>Parking Type</i> (PARKING_TYPE) <i>Parking Restriction</i> (PARKING_RESTRICTION)
Usage	<i>Parking Side of Street</i> is used to identify the side of the link the <i>Parking Type</i> applies to.
Specification	<ul style="list-style-type: none">• <i>Parking Type</i> is published with <i>Parking Side of Street</i> as follows:<ul style="list-style-type: none">◆ <i>Parking Side of Street</i> = 1: The parking type applies to the Left side of the link from the reference node.◆ <i>Parking Side of Street</i> = 2: The parking type applies to the Right side of the link from the reference node.◆ <i>Parking Side of Street</i> = 3: The parking type applies to both sides of the link.◆ <i>Parking Side of Street</i> = 4: The parking side is not known.

6.4.19.3 Parking Restriction (PARKING_RESTRICTION)

Definition	Indicates whether a parking restriction applies to the <i>Parking Type</i> .
Table	RDF_CONDITION_PARKING
Column	PARKING_RESTRICTION
Values	See Section C.31, RDF_CONDITION_PARKING.
Related Attributes	<i>Parking Type</i> (PARKING_TYPE) <i>Parking Side of Street</i> (PARKING_SIDE_OF_STREET)
Usage	<i>Parking Restriction</i> is used to determine if additional restrictions apply to the <i>Parking Type</i> .
Specification	<ul style="list-style-type: none"> • <i>Parking Type</i> is published with <i>Parking Restriction</i> as follows: <ul style="list-style-type: none"> ◆ <i>Parking Restriction</i> = 1: <i>Parking Type</i> changes based on time, side of street alternation, etc. ◆ <i>Parking Restriction</i> = 2: <i>Parking Type</i> published is applicable at all times and does not vary. ◆ <i>Parking Restriction</i> = 3: The presence of <i>Parking Restrictions</i> is not known.

6.4.20 Environmental Zone (CONDITION_TYPE = 34)

Definition	<i>Environmental Zone</i> condition identifies links that are located within an environment zone area.
Condition Type	34
Table	RDF_CONDITION
Column	CONDITION_TYPE
Participants in	Links
Condition	
Related Attributes	RDF_CONDITION.ACCESS_ID <i>Environmental Zone ID</i> (ENVIRONMENTAL_ZONE_ID)
Usage	The <i>Environmental Zone</i> condition can be used to inform the user of the special limitation on the link and may be used in route calculation to avoid routing on participating links.
Specification	<ul style="list-style-type: none"> • <i>Environmental Zone</i> condition informs that a link is within an Environmental Zone.

- When an *Environmental Zone* polygon exists for a city or area, all links inside the related *Environmental Zone* polygon publishes the *Environmental Zone* condition accordingly to the link access characteristics.
 - ◆ RDF_CONDITION.ACCESS_ID indicates to which vehicles the Environmental Zone applies.
 - ◆ Condition Access Characteristics (RDF_CONDITION.ACCESS_ID) may occasionally be extending the link access characteristics. For example, on a link with no access to Trucks only, an *Environmental Zone* condition that applies to Auto, Buses, and Trucks may be published.
- Links within an *Environmental Zone* may not be involved in an *Environmental Zone* condition if they are exempted from the *Environmental Zone* restriction (i.e. motorway intersecting a city or built-up).

6.4.20.1 Environmental Zone ID (ENVIRONMENTAL_ZONE_ID)

Definition	<i>Environmental Zone ID</i> provides a unique identifier for the environmental zone, and is used as a reference to the Environmental Zone XML file.
	See the Customer Technical Reference Guide (CTRG) for the Environmental Zone XML documentation.
Table	RDF_CONDITION_ENV_ZONE
Column	ENVIRONMENTAL_ZONE_ID
Value	The Environmental Zone Unique ID
Cardinality	1:1
Related Attributes	RDF_CONDITION and RDF_ACCESS
Usage	The <i>Environmental Zone ID</i> uniquely defines a specific environmental zone, and should be used to relate the Environmental Zone XML file to the RDF dataset.
Specification	<ul style="list-style-type: none">● Environmental Zone provides a general a unique identifier for the environmental zone that can be used to associate links to an Environmental Zone.● <i>Environmental Zone ID</i> is a unique identifier that can be used to retrieve additional environmental zone information published in the Environmental Zone XML file.

6.4.21 Blackspot (CONDITION_TYPE = 38)

Definition	<i>Blackspot</i> identifies intersections, points or stretches along a road with an unusual high number of accidents. The <i>Blackspot</i> definition is based on what the external source data defines as a blackspot or based on posted signs at intersections and roads. The <i>Blackspot</i> definition can vary between sources, regions, or countries.
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Condition Type 38

Table	RDF_CONDITION
Column	CONDITION_TYPE
Value	See Section C.23, RDF_CONDITION.
Related Table	RDF_ACCESS RDF_NAV_STRAND RDF_CONDITION_BLACKSPOT
Related Attribute	<i>Blackspot Source</i> <i>Direction</i>
Usage	<i>Blackspot</i> can be used to warn drivers as they approach Blackspots. This warning can be audible, visual by displaying an exclamation mark on the screen, or both. The information can be provided at the location itself as well as in advance, e.g., warning, "Blackspot in 200 metres".
Specification	<ul style="list-style-type: none"> • The <i>Blackspot</i> inclusion is based on posted Blackspot locations or Blackspot source data. The <i>Blackspot</i> definition as defined by the external source data will be used for <i>Blackspot</i> inclusion. Posted Blackspot Signs are also considered for <i>Blackspot</i> inclusion. • <i>Blackspot</i> conditions are published on roads and intersections where applicable and available. • A <i>Blackspot</i> condition can be a Link – Node or a Link only condition. <i>Blackspot</i> conditions are published as follows: <ul style="list-style-type: none"> → Link – Node condition: Involves one link as origin and one connected Node as the destination in case the Blackspot is referencing a point, or single node intersection, see <i>Figure 6-74</i>. Points can be based on coordinate references in source data or based on posted signs indicating a Blackspot location. Blackspot signs are not standardised and vary widely between regions and countries. → Link only condition: Is applied to link(s) in case the Blackspot is referencing a stretch of road or intersection links, see <i>Figure 6-75</i>. If a Blackspot sign indicates an extent, then the Blackspot sign is published on the link(s) that reflect the extent indicated on the sign.

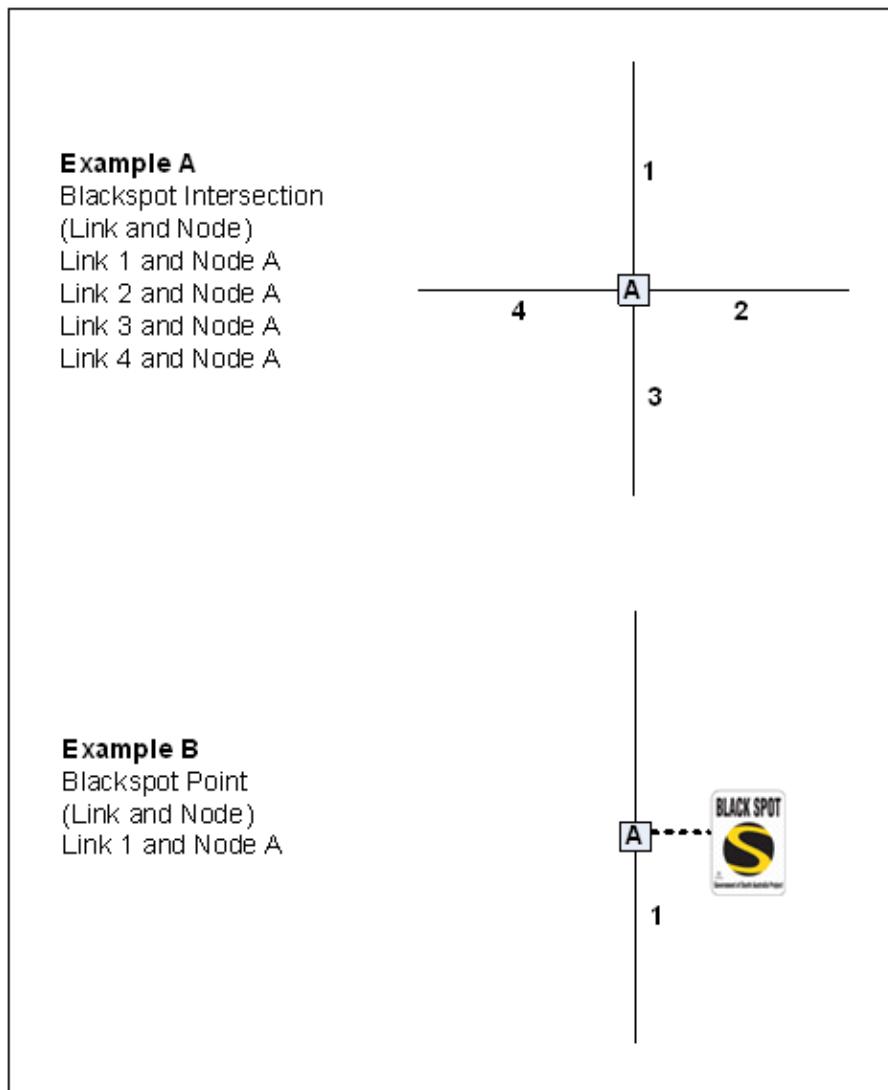


Figure 6-74

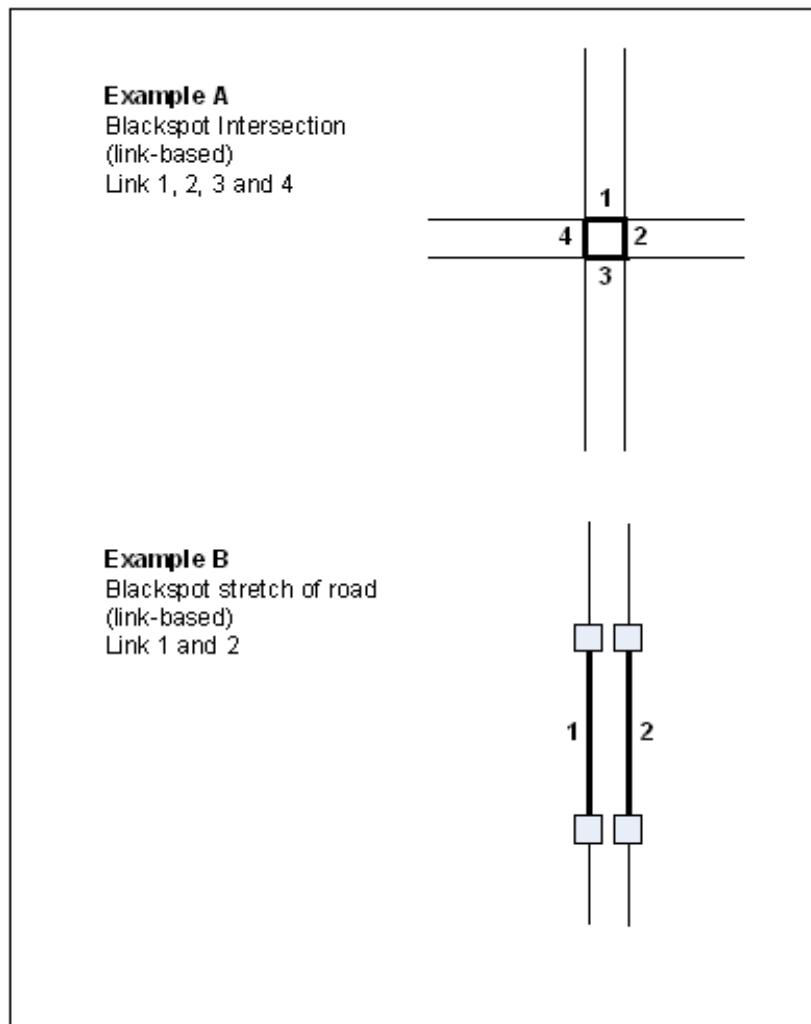


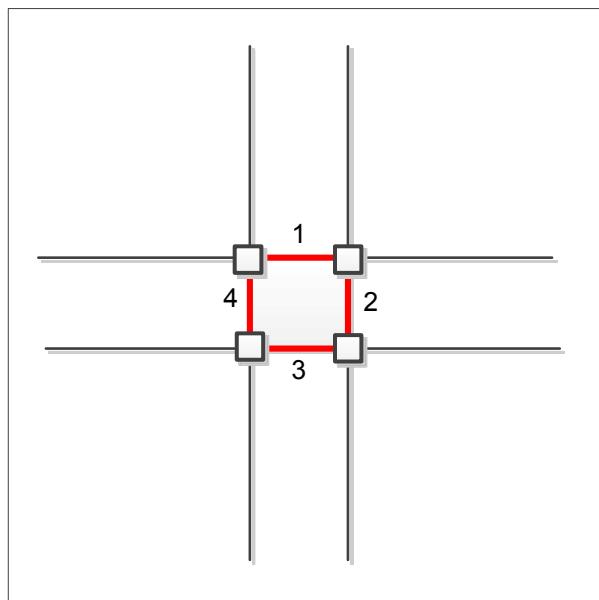
Figure 6-75

6.4.21.1 Blackspot Source (**BLACKSPOT_SOURCE**)

Definition	<i>Blackspot Source</i> identifies the source of the Blackspot data. Blackspot data can be based on field collected data or data from external sources; for example, government data.
Table	RDF_CONDITION_BLACKSPOT
Column	BLACKSPOT_SOURCE
Value	See Section C.25, RDF_CONDITION_BLACKSPOT.
Cardinality	1:1

Related Table RDF_CONDITION

Related Attribute	DIRECTION
Usage	Use Blackspot Source to identify the source of the Blackspot data.
Specification	<ul style="list-style-type: none"> Blackspot Source is published for each Blackspot Condition. <i>Blackspot Source = 1</i> is published for Blackspot data that is field collected based on posted blackspot signage. <i>Blackspot Source = 2</i> is published for Blackspot data that is based on external source data, e.g., government, insurance, or accident statistics If signage and source data reference the same Blackspot location, then a Blackspot condition is published for each Blackspot Source type.
Example	Blackspot at an intersection of Multiply Digitised roads



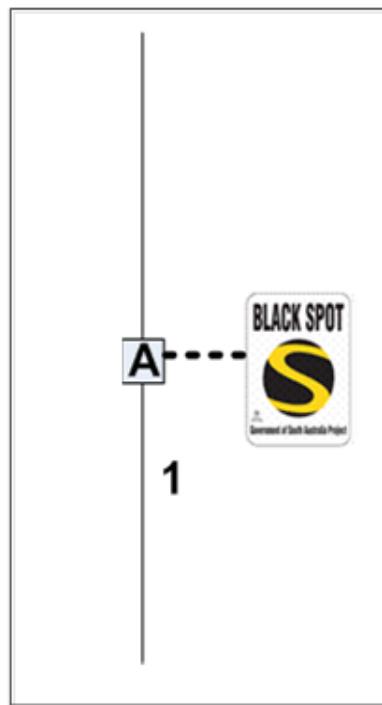
The following is published for sourced blackspots applicable in both directions on links 1 -4. Only the columns relevant to the example are shown

RDF_NAV_STRAND				
NAV_STRAND_ID	34335688	7759044	3670912	3875901
LINK_ID	12446781	9847655	4466223	2222768
RDF_CONDITION				
CONDITION_ID	5976880	591234	592345	593456

RDF_CONDITION				
NAV_STRAND_ID	34335688	7759044	3670912	3875901
CONDITION_TYPE	38	38	38	38

RDF_CONDITION_BLACKSPOT				
CONDITION_ID	597688 0	59123 4	59234 5	59345 6
BLACKSPOT_SOURCE	2	2	2	2
DIRECTION	3	3	3	3

Example Blackspot on road stretch



The following is published for a posted blackspot on Link 1 and Node A. Only the columns relevant to the example are shown.

RDF_NAV_STRAND	
NAV_STRAND_ID	45454511
LINK_ID	7009856 6
NODE_ID	3001122

6.4.22 Permitted Driving Manoeuvre (CONDITION_TYPE = 39)

Definition *Permitted Driving Manoeuvre* conditions indicate if a U-turn is allowed in areas where administrative wide U-turn restrictions exist.

Note: *Restricted Driving Manoeuvre* conditions are not published at intersections in areas where administrative wide U-turn restrictions exist.

Condition Type 39

Table Name RDF_CONDITION

Column Name CONDITION_TYPE

Value See Section C.23, RDF_CONDITION.

Cardinality 1:0, 1, M

Related Tables RDF_ADMIN_ATTRIBUTE

RDF_NAV_STRAND

RDF_ACCESS

RDF_LANE_NAV_STRAND

RDF_DATE_TIME

RDF_CONDITION_DT

Related Attributes Admin Wide Regulations
PDM Type

Usage Permitted Driving Manoeuvre Conditions support optimised route calculation and improved route guidance.

Specification

- Permitted Driving Manoeuvre Conditions (PDMs) can only be published in areas with Admin Wide Regulations = 1.
- PDMs are published if exceptions exist to the area wide U-turns restrictions allowing a manoeuvre to take place. These exceptions must be legally posted. For example, in Figure 6-76, PDMs are published as indicated in . Restricted manoeuvres are not published as RDMs; however, they are implied by Admin Wide Regulations = 1.

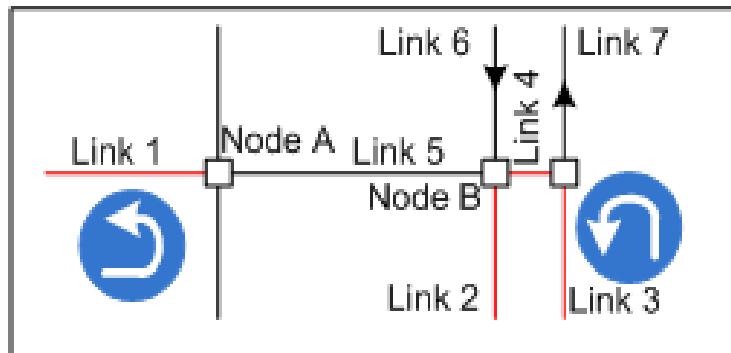


Figure 6-76

Permitted Manoeuvres	Restricted Manoeuvres
Link 1 at Node A	Link 5 at Node A
Link 3 to Link 4 and to Link 2	Link 5 at Node B
	Link 4 at Node B
	Link 4 at Node C
	Link 6 to Link 4 to Link 7

- End of Link is specified for a permitted u-turn manoeuvre if only one link involved.
- Date Time Modifier or *Time Override* for the PDM is published if applicable.

Example

In the country of Singapore, U-turns are not allowed unless there is a sign posted. For the situation illustrated in Figure 6-77, the following is published:

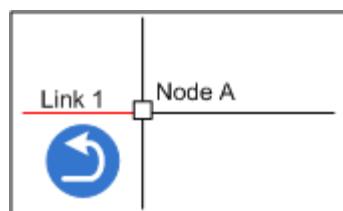


Figure 6-77

RDF_ADMIN_ATTRIBUTE	
ADMIN_PLACE_ID	2116046 8
ADMIN_WIDE_REGULATIONS	1

RDF_CONDITION	
CONDITION_ID	392093935 6
CONDITION_TYPE	39
NAV_STRAND_ID	3943033433
ACCESS_ID	1023

RDF_CONDITION_RDM	
CONDITION_ID	392093935 6
RDM_TYPE	
PDM_TYPE	1
TIME_OVERRIDE	

RDF_NAV_STRAND	
NAV_STRAND_ID	3943033433
SEQ_NUM	1
LINK_ID	1
NODE_ID	A

6.4.22.1 PDM Type (PDM_TYPE)

Definition PDM Type identifies the type of Permitted Driving Manoeuvre.

Table Name RDF_CONDITION_RDM

Column Name PDM_TYPE

Value See Section C.31, RDF_CONDITION_PARKING.

Cardinality 1:1

Related Tables RDF_CONDITION

RDF_ADMIN_ATTRIBUTE
RDF_NAV_STRAND
RDF_ACCESS
RDF_LANE_NAV_STRAND

	RDF_DATE_TIME
	RDF_CONDITION_DT
Related Attributes	<i>Admin Wide Regulations</i> <i>Permitted Driving Manoeuvre (CONDITION_TYPE = 39)</i>
Usage	<i>Permitted Driving Manoeuvre</i> supports optimised route calculation and improved route guidance.
Specification	<ul style="list-style-type: none"> Posted U-turns which are exceptions to the admin wide U-turn restrictions are published with <i>PDM Type</i> = 1.

6.4.23 Variable Speed Limit Applicable (CONDITION_TYPE = 40)

Definition	<i>Variable Speed Limit Applicable</i> identifies navigable links that are impacted by a dynamic speed limit, as posted on a variable speed sign.
Condition Type 40	
Table	RDF_CONDITION
Related Tables	RDF_CONDITION_SPEED RDF_NAV_LINK
Related Attributes	VSS_ID Direction
Usage	<i>Variable Speed Limit Applicable</i> can be used to detect if a stretch or road is potentially impacted by a dynamic speed limit. This allows the application to dynamically act on speed limit changes for a road.
Specification	<ul style="list-style-type: none"> <i>Variable Speed Limit Applicable</i> condition is coded for navigable links that are affected by a variable speed sign. The extent of the <i>Variable Speed Limit Applicable</i> condition coding starts with the first link after the Variable Speed Sign. The outgoing link of the <i>Variable Speed Sign</i> condition is the first link of the extent of the <i>Variable Speed Limit Applicable</i> condition coding related to that Variable Speed Sign. The end of the <i>Variable Speed Limit Applicable</i> condition coding is at a location which is different per country. In some countries, the Variable Speed Limit ends with an explicitly posted sign; in other countries, this is defined at the next junction, or at the next posted legal speed limit. <i>Variable Speed Limit Applicable</i> coding is specific per travel direction. Therefore, <i>Variable Speed Limit Applicable</i> condition has a <i>Direction</i> attribute. Actual dynamic speed limits, as posted on the Variable Speed Sign, are not coded. Such dynamic speed limits may be part of a future live data feed. The <i>Variable</i>

Speed Limit Applicable only indicates if the link is impacted by a dynamic speed limit.

- *Figure 6-78* exemplifies the *Variable Speed Limit Applicable* coding. Three Variable Speed Signs are present in the road network. *Variable Speed Limit Applicable* condition is coded for each travel direction, where the *Variable Speed Sign* condition is also included for each driving direction.
 - The *Variable Speed Limit Applicable* condition coding typically continues onto Highway-to-Highway connector ramps until the point where the crossing highway is reached.
 - The *Variable Speed Limit Applicable* condition coding is not applied to Exit or Entry Ramps. Only when a dedicated Variable Speed Sign is posted at an Entry or Exit ramp (i.e., the Destination Link ID of the Variable Speed Sign is a Ramp), the *Variable Speed Limit Applicable* is coded at such ramps.
- For specific countries, the *Variable Speed Limit Applicable* condition coding may be coded on the Exit Ramps. Such coding would occur when local country regulations indicate that Variable Speed Signs also apply to Exit Ramps.
- *Variable Speed Limit Applicable* is not coded for rest areas or service roads connected to the main road network.
 - *Variable Speed Limit Applicable* ends at the point where an 'end of all restriction' sign is posted. This is exemplified in *Figure 6-78* at the right end of the road network. Rules specific to a particular country apply as to when the dynamic speed limits end. The application of the *Variable Speed Limit Applicable* condition takes such local situations into account.

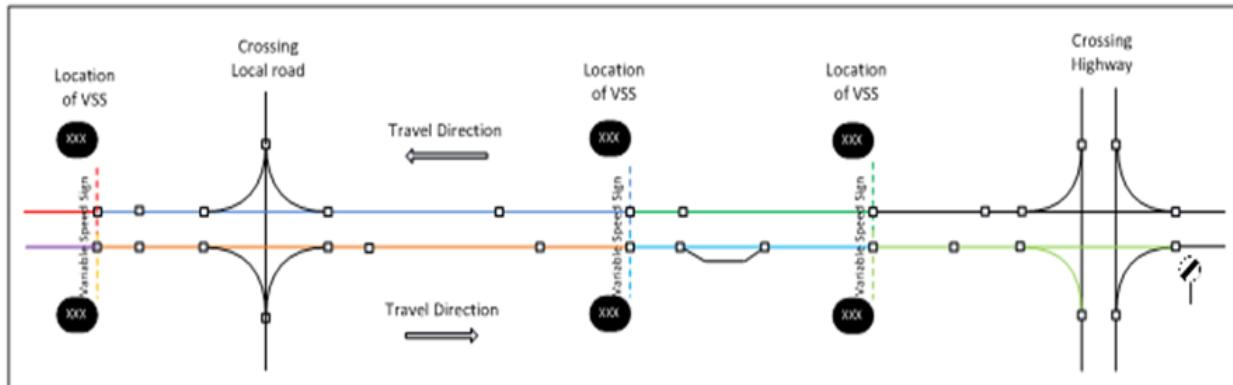


Figure 6-78

Example Variable Speed Limits on one side of a bidirectional road.

Two variable speed signs are coded on a bidirectional road. The links impacted by the Variable Speed Signs are identified by colours in *Figure 6-79*.

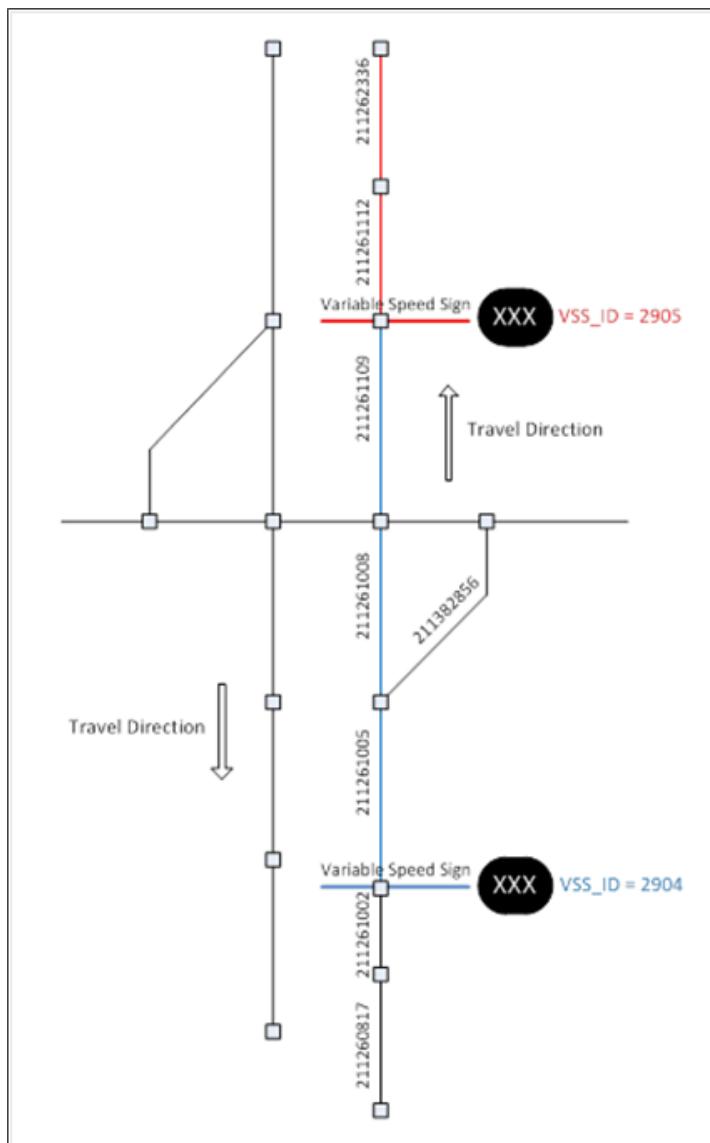


Figure 6-79

The above situation would be represented as follows:

The RDF_CONDITION table publishes the Condition Types for each link impacted in a *Variable Speed Limit Applicable* condition.

CONDITION_ID	CONDITION_TYPE	NAV_STRAND_ID	ACCESS_ID
2088978471	40	39205918	1023 (all vehicles)
2088978472	40	39205919	1023
2088978473	40	39205920	1023

CONDITION_ID	CONDITION_TYPE	NAV_STRAND_ID	ACCESS_ID
2088978474	40	39205921	1023
2088978475	40	39205922	1023
2088978476	40	39205923	1023
2088978477	40	39205924	1023

RDF_NAV_STRAND publishes the links to which the Speed Limit Applicable condition applies.

NAV_STRAND_ID	LINK_ID	SEQ_NUM	NODE_ID
39205918	211260817	0	<Null>
39205919	211261002	0	<Null>
39205920	211261005	0	<Null>
39205921	211261008	0	<Null>
39205922	211261109	0	<Null>
39205923	211261112	0	<Null>
39205923	211262336	0	<Null>

RDF_CONDITION_SPEED table publishes the attributes for the *Variable Speed Limit Applicable* condition.

CONDITION_ID	SPECIAL_SPEED_LIMIT	...	TIME_OVERRIDE	VSS_ID	DIRECTION
2088978471	<Null>		<Null>	2903	1 (positive)
2088978472	<Null>		<Null>	2903	1
2088978473	<Null>		<Null>	2904	1
2088978474	<Null>		<Null>	2904	1
2088978475	<Null>		<Null>	2904	1
2088978476	<Null>		<Null>	2905	1
2088978477	<Null>		<Null>	2905	1

In addition, the *Variable Speed Sign* condition will receive a new VSS_ID attribute, which also is published in RDF_CONDITION_SPEED.

CONDITION_ID	SPECIAL_SPEED_LIMIT	...	VARIABLE_SPEED_SIGN_LOCATION	TIME_OVERRIDE	VSS_ID	DIRECTION
1725012899	<Null>		3	<Null>	2903	<Null>
1725012721	<Null>		3	<Null>	2904	<Null>
1725388578	<Null>		3	<Null>	2905	<Null>

6.4.23.1 Variable Speed Sign ID

See Section 6.4.8.1, *Variable Speed Sign ID (VSS_ID)*.

6.4.23.2 Direction (DIRECTION)

Definition *Direction* indicates the direction of the link to which the *Variable Speed Sign Applicable* condition applies.

Entity-Attribute Relation 1:1

Table Name RDF_CONDITION_SPEED

Column Name DIRECTION

Usage The *Direction* attribute indicates in which direction of the link the variable speed limit applies. This enables users to understand what travel direction is impacted by the variable speed limit.

Specification

- *Direction* is applied following the general rules contained in Section 6.3.1, *Direction (DIRECTION)*.
- *Direction* is coded for each Variable Speed Limit Applicable condition.
- *Direction = 3 (Both Directions)* is a generic condition attribute. For the *Variable Speed Limit Applicable* condition however, *Direction = 3* is never coded, since a variable speed limit is by design in one direction only.

6.4.24 Road Construction Information

Short Construction Warning condition is introduced to model roads which are opened in the HERE maps but are not yet open in reality. The *Short Construction Warning* condition can be used to warn the driver that a road is opening soon, but may not be fully accessible until the anticipated opening date defined in the HERE map.

HERE is adjusting the coding to model new road construction with corresponding attribution prior to the actual opening date. HERE is pre-emptively opening roads since a delay exists between HERE releasing the map data to its customers and the release of that map data to the end-consumer. To accommodate an increased frequency and reduced latency of the map releases, the following is changed in the HERE map data:

- *Short Construction Warning* condition allows warnings to the consumer that a road is opening soon, but is already pre-emptively opened in the HERE map data
- *Construction Status Closed* coding timing is adjusted in the HERE map data, from current (6) six months to only (3) three months prior to the opening date.

Both changes are in response to the general trend to release map data to the market faster.

When an old stretch of road is replaced with a newly built road, the old road could remain in the HERE maps as isolated geometry. HERE physically disconnects decommissioned roads from the existing road geometry to avoid guidance issues or other negative side effects. The old road however may not be demolished immediately, and consequently, HERE may leave such old stretches of road with the following attribution:

- *Functional Class = 5*
- *Construction Status Closed*, with a remote End Date

6.4.24.1 Construction Status Closed (CONDITION_TYPE = 3)

Definition *Construction Status Closed* provides information regarding the ability to access a road that is under construction. If there is no construction, there is no status. If there is construction on the road, then the attribution is published.

Condition Type 3

Table RDF_CONDITION

Column CONDITION_TYPE

Related Attributes *Short Construction Warning* (CONDITION_TYPE = 41)
Access Characteristics (ACCESS_ID)
Validity Period (RDF_DATE_TIME)

Usage *Construction Status Closed* can be used for map display and route calculation. When a road is closed, no traffic can travel on the road for the duration of the construction.

Specification • *Construction Status Closed* indicates that the links are closed to public use for at least three months after the database release date.

Note: For shorter construction period, *Short Construction Warning* condition is applied instead. See Section 6.4.24.2, *Short Construction Warning* (*CONDITION_TYPE* = 41).

- *Construction Status Closed* is published for all links affected by the construction. This includes roads that become physically impassable and navigable links that are isolated from the navigable network due to the construction. In *Figure 6-80*, if links A and B are under construction, then all the links within the complex (shown in bold) receive *Construction Status Closed*.

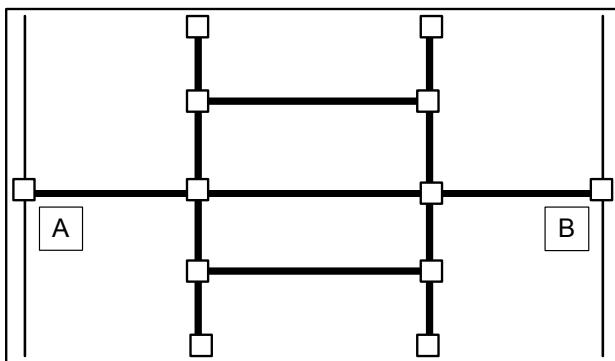


Figure 6-80

- *FUNCTIONAL_CLASS* = 1-4 is not changed to *FUNCTIONAL_CLASS* = 5 if *Construction Status Closed* is published for a link. *FUNCTIONAL CLASS* = 1 - 4 is published for an alternative route to maintain navigability
- A link's Access Characteristics (*ACCESS_ID*) do not change when a *Construction Status Closed* condition is applied. The information about the Access Characteristics for a *Construction Status Closed* condition exactly matches the link's Access Characteristics.
- The construction period is published in *RDF_DATE_TIME*.

6.4.24.2 Short Construction Warning (*CONDITION_TYPE* = 41)

Definition Identifies navigable links that have been opened in the HERE Map, based on an anticipated opening in the next three months, but are not yet open in reality.

Condition Type 41

Table RDF_CONDITION

Column CONDITION_TYPE

Cardinality 1:0:M

Related Attributes *Construction Status Closed* (*CONDITION_TYPE* = 3)
Access Characteristics (*ACCESS_ID*)

Validity Period (*RDF_DATE_TIME*)

Usage	<p><i>Short Construction Warning</i> condition can be used for map display and route guidance.</p> <p>Based on the <i>Short Construction Warning</i> coding, the end-user can be prepared for the upcoming opening of a new road situation. <i>Short Construction Warning</i> can be used to provide warnings to the end-user when approaching a road situation which opens soon. The duration of such warnings can be dynamic based on the anticipated End Date of the <i>Short Construction Warning</i> condition.</p>
Specification	<p>Usage Notes:</p> <ul style="list-style-type: none">• The <i>Short Construction Warning</i> coding can enable the end-user to be prepared for an upcoming opening of a new road situation.• The <i>Short Construction Warning</i> coding aims Rapid Refresh customers with higher frequency of releasing map data, and shorter cycles. In such high freshness scenarios, it is important to have up-to-date information regarding road construction plans. <p>Note: When a road construction ends earlier than anticipated, it is possible that the removal of <i>Construction Status Closed</i> condition coding is not followed by <i>Short Construction Warning</i> coding.</p> <ul style="list-style-type: none">• <i>Short Construction Warning</i> condition is generally coded for the following situations:<ul style="list-style-type: none">◆ When a road is closed for construction for three months or less◆ When <i>Construction Status Closed</i> condition is removed from a link• <i>Short Construction Warning</i> condition is applied for all navigable links that used to be coded with <i>Construction Status Closed</i>.<p><i>Construction Status Closed</i> condition is removed three (3) months prior to the anticipated end date of the construction. The map data represents the correct navigable network with all attribution when the <i>Construction Status Closed</i> condition is removed. This implies that the map is prepared for the upcoming opening of roads under construction (3) three months prior to the actual opening date.</p><p><u>Example:</u> a new road opening on October 1st will have <i>Construction Status Closed</i> coding removed from the HERE map around July 1st, i.e., three (3) months prior to the anticipated opening time.</p>• <i>Short Construction Warning</i> condition is applied in the three (3) months transition period when <i>Construction Status Closed</i> condition is removed and the road is not yet open in reality.• <i>Short Construction Warning</i> condition is applicable to all vehicle types, and hence coded with Access ID = 1023 (applies to all vehicles)• <i>Short Construction Warning</i> condition is removed from the HERE Map just before the actual opening time of the road. It is anticipated that removal of <i>Short Construction Warning</i> happens in the week before the actual opening of the road. The removal of <i>Short Construction Warning</i>, coding happens only when HERE has confirmed the road has opened.

- *Short Construction Warning* condition has Date - Time information, which indicates the anticipated opening date of the road. In Rapid Refresh deliverables the End Date can change based on most recent information on opening plans.
- *Short Construction Warning* condition may have a Start Date information, which indicates the anticipated start of short construction period.

Example In this example, a link is opened in the RDF by 1 April 2015. However, the road in reality is expected to open by 1 July.

A Condition ID is defined, with a link-only Nav Strand.

RDF_CONDITION	
CONDITION_ID	702959827
CONDITION_TYPE	41
NAV_STRAND_ID	2558295
ACCESS_ID	1023

RDF_NAV_STRAND	
NAV_STRAND_ID	2558295
SEQ_NUM	0
LINK_ID	10029487
NODE_ID	

The condition has a Date Time Modifier associated to indicate the expected End Date of the *Short Construction Warning* condition.

RDF_CONDITION_DT	
CONDITION_ID	702959827
DT_ID	5562
SEQ_NUM	1

The Date Time table indicates the Start Date (2015, 1 April) and End Date (2015, 1 July) of the *Short Construction Warning* condition.

RDF_DATE_TIME	
DT_ID	5562
DATETIME_TYPE	A
FROM_END	N
EXCLUDE_DATE	N

RDF_DATE_TIME	
START_DATE	20150401
END_DATE	20150701
START_DATE	0
END_DATE	2400

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Complex Features

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7.1 Introduction

Complex Features represent groupings of simple features into aggregated Complex Features. The RDF_CF table allows for the publication of any aggregation of simple features into Complex Features. The following Complex Features are currently published in RDF_CF:

- CF Road
- CF Intersection
- CF Object
- CF Grouped Structure
- CF Motorway Junction Object

7.2 Geometric Representation of Complex Features

Complex features are represented geometrically by links and Junctions, as illustrated in *Figure 7-1*, showing multicarriageways, road intersections, and motorway interchanges with ramps. The highlighted areas show how links and Junctions are grouped into Intersection and Complex Road Features.

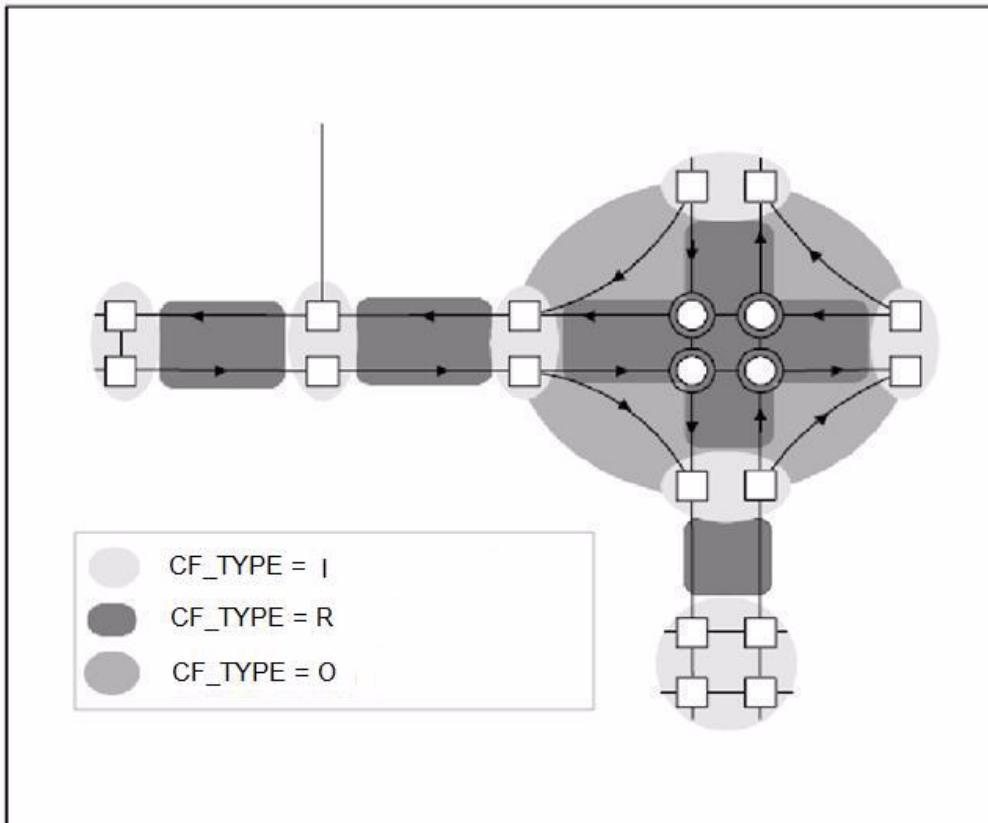


Figure 7-1: Geometric Representation of Complex Features

Figure 7-2 illustrates how the geometry can be generalised to a basic representation after creating Intersection (CF_TYPE = I) and Road (CF_TYPE = R) structures.

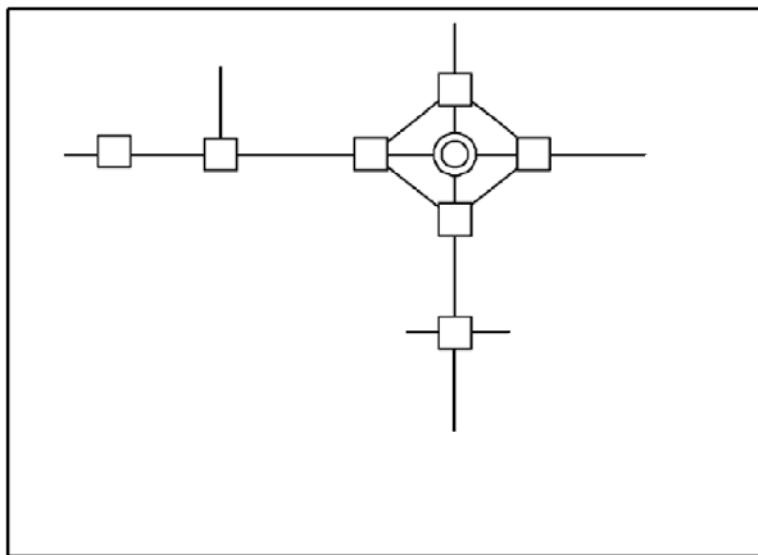


Figure 7-2: Simplified Geometric Road and Intersection

7.3 Complex Feature Types

Complex Feature Types include:

- Complex Roads
- Complex Intersections
- Complex Objects
- Grouped Structures
- Motorway Junction Objects

Data for Complex Feature Types is structured by the following tables:

- RDF_CF - *Section 12.3.35, RDF_CF*
- RDF_CF_LINK - *Section 12.3.40, RDF_CF_LINK*
- RDF_CF_NODE - *Section 12.3.41, RDF_CF_NODE*

7.3.1 Complex Road

The Complex Road Feature (CF_TYPE = R) consists of opposing groups of links along a multicarriageway between two Intersections (CF_TYPE = I). Complex Roads are created from multiply-digitised coded links. Reference and non-Reference Intersection IDs are published for a Complex Road; Latitude and Longitude are not published for a Complex Road.

Reference Intersection

The REF_INTERSECTION_ID column in the RDF_CF table is an identifier for an intersection bounding the Complex Road on the reference end. The REF_INTERSECTION_ID is published for CF_TYPE = R (Road).

Non-Reference Intersection

The NREF_INTERSECTION_ID column in the RDF_CF table is an identifier for an intersection bounding the Complex Road on the non-reference end. The NREF_INTERSECTION_ID is published for CF_TYPE = R (Road).

Example:

CF_ID	CF_TYPE	LAT	LON	REF_INTERSECTION_ID	NREF_INTERSECTION_ID
105190 3	R	Not Published	Not Published	1032152	1048882

The Complex Road identifies which elements of a multicarriageway can be generalised. The simplified representation of these features can be used for more efficient map display and route calculation.

- Complex Roads are created to relate opposing sides of a multiply-digitised road. Complex Roads are not comprised of singly-digitised roads.
- A Complex Road is bounded by two Intersections, one at each end.

- A link does not participate in more than one Complex Road.
- The number of links selected on one side of the multiply-digitised road is usually equal to the number of corresponding links on the opposing side, as shown in *Figure 7-3*.
- In *Figure 7-3*, opposing links are selected between each intersection to form Complex Roads; Road 1 through Road 5. These represent the most simplistic cases where one link on a multiply-digitised road is matched to one opposing link.

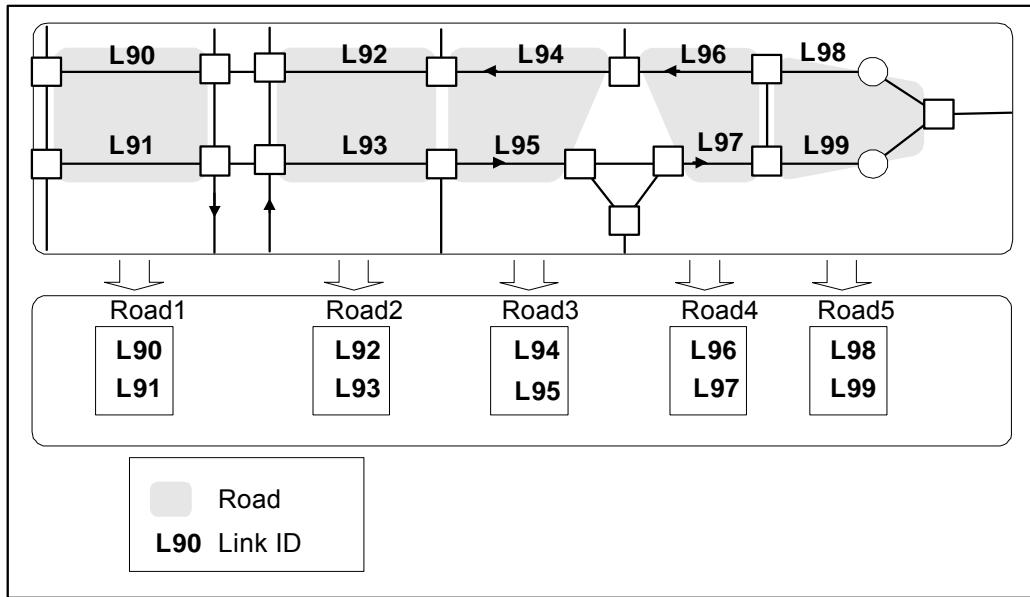


Figure 7-3: Road Structures

In *Figure 7-4*, the matching of opposing links to create a Complex Road is more complicated because non-navigable features, or nodes for attribute changes, intersect the multiply-digitised road. In these cases, the number of links selected on one side is not equal to the number of links on the opposing side.

- Road 1 is represented using the three links between the crossing road and the county boundary. An opposing node is not required where a county boundary intersects one side of a multiply-digitised road.
- Road 2 is represented from three links on one side and one link on the other. The nodes where the park boundary (non-navigable feature) intersects the multiply-digitised road do not require the addition of opposing nodes and are ignored when creating Complex Intersections and Roads.
- Road 3 is represented using three links. One side of the multiply-digitised road is intersected by a node which represents an attribute change. This node does not require the addition of an opposing node and is ignored when creating Complex Intersections and Roads.

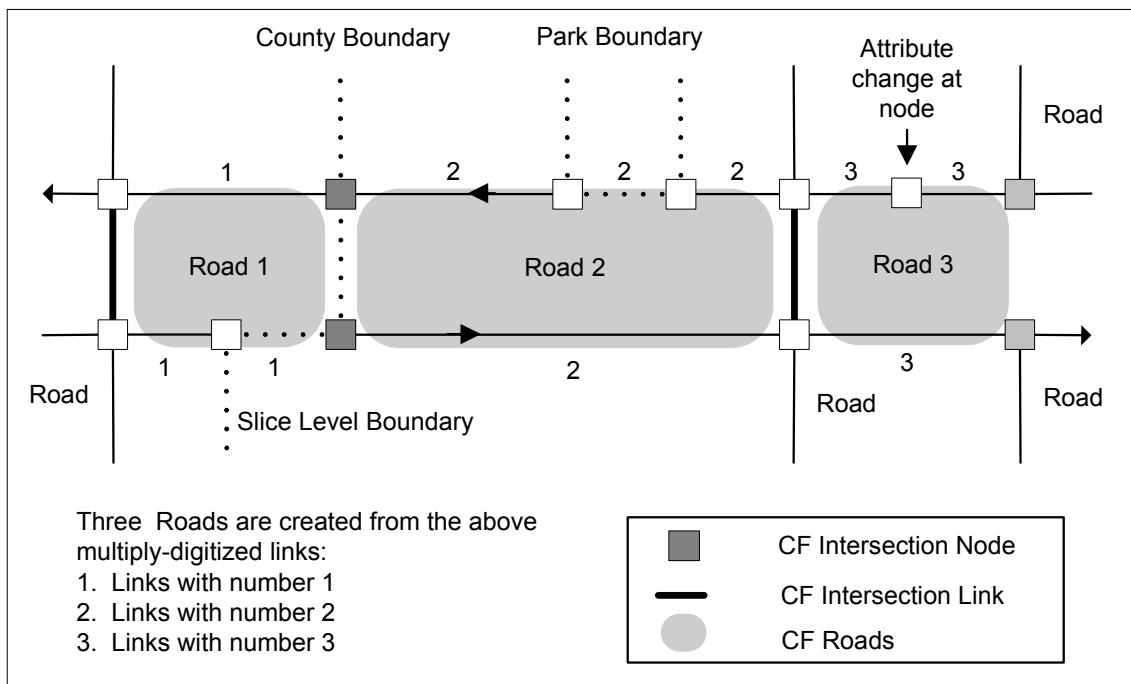


Figure 7-4: Roads Created from Multiply-Digitised Links

When internal turn lanes are longer than 100 metres, they are not included in the Intersection. Additionally, an opposing node is added so that the two adjacent links of the multiply-digitised road are not included in either Intersection or Road coding, as shown in *Figure 7-5*.

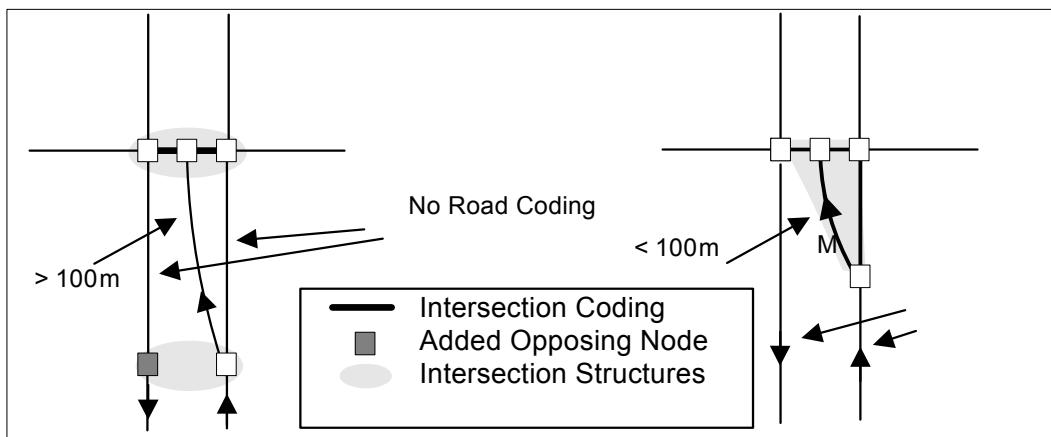


Figure 7-5: Adding an Opposing Node for Internal Turn Lanes > 100 metres

7.3.2 Complex Intersection

Complex Intersection (CF_TYPE = I) is a Complex Feature (RDF_CF) that consists of links, nodes, and Junctions that intersect at grade. Generally, all links published with INTERSECTION_CATEGORY = 1 or 2 are included.

Generally, all links at intersections published with INTERSECTION_CATEGORY = 1 or 2 are Complex Intersections. These represent intersecting roads at grade.

Note: Due to a variety of situations, there are some links with INTERSECTION_CATEGORY = 1 or 2 that are not included as Complex Intersections. See *Figure 7-6*.

- If INTERSECTION_CATEGORY = 1 links exist due to overlapping casements, Complex Intersection is published.
- U-turn links between multiply-digitised roads are published as a Complex Intersection.

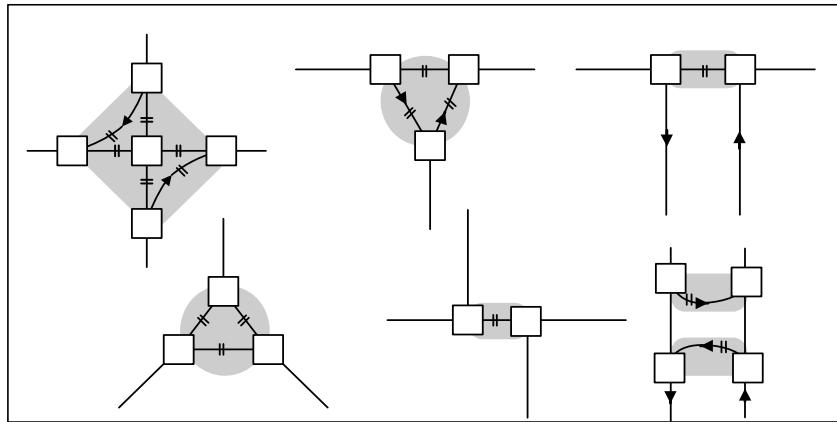


Figure 7-6

In *Figure 7-6*, || illustrates various Complex Road Feature intersections and ● intersection structures created from links with INTERSECTION_CATEGORY = 1 or 2. Complex Intersections are also identified by:

- The nodes at the intersection of sectioning level boundary and a multiply-digitised road.
- The opposing links and nodes of navigable features that intersect a multiply-digitised road.
- The link(s) at the intersection of a multiply-digitised road and a Roundabout or Special Traffic Figure.
- The node formed when a multiply-digitised road becomes singly digitised. See *Figure 7-7*, Int-1.

General Rules for Complex Intersections:

- Any link that is connected at both nodes to the same Complex Intersection is included in that Complex Intersection.
- Complex Intersections do not share links with Complex Roads.
- Complex Intersections do not overlap. They do not share links or nodes.
- Complex Intersection coding is applied to intersections where one instruction is needed to navigate through the intersections from all directions e.g., "turn right", "turn left." If in some cases two instructions are needed, then Complex Intersection is not applied.

Representing Complex Intersections along multiply-digitised Roads (MULTI_DIGITIZED = Y):

- A Complex Intersection is represented when a navigable feature intersects a multiply-digitised road at the same Z-level.
- For links that are not part of a multiply-digitised road, a Complex Intersection is represented by the connected links of the crossing road. If the intersecting road does not cross, then nodes or a

combination of links and nodes are identified as the Complex Intersection as shown in *Figure 7-7*. Nodes may be added in order to create the Complex Intersection as shown in *Figure 7-7*, Int-7.

Figure 7-7 illustrates examples of Complex Intersections:

- Int-1 is a single node where a multiply-digitised road becomes singly digitised.
- Int-2 consists of four INTERSECTION_CATEGORY = 1 links.
- Int-3 consists of two opposing nodes of roads that intersect on opposite sides of the multiply-digitised road but do not cross it.
- Int-4 is similar to Int-2 except it consists of the INTERSECTION_CATEGORY = 1 and INTERSECTION_CATEGORY = 2 links on one side and only the node on the other.
- Int-5 consists of the U-turn lane.
- Int-6 consists of the six links with INTERSECTION_CATEGORY = 1 and INTERSECTION_CATEGORY = 2 coding.
- Int-7 consists of six intersection links on one side and an added opposing node on the other side.
- Int-8 defines the Complex Intersection that is the terminus of the multiply-digitised road and consists of the six links with INTERSECTION_CATEGORY = 1 and INTERSECTION_CATEGORY = 2.

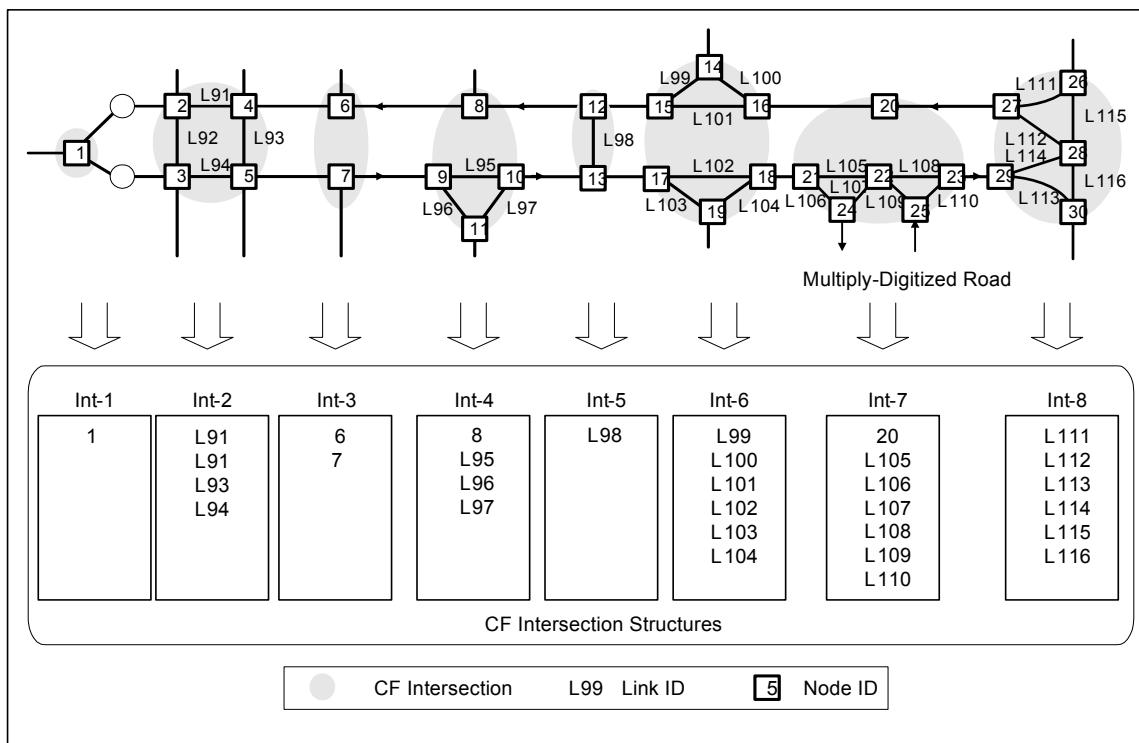


Figure 7-7: Intersection Structures

7.3.2.1 Specifications for Opposing Nodes for Intersection Creation

MULTI_DIGITIZED = Y

When a road intersects but does not cross a multiply-digitised road, a node is added within 25 metres on the opposite side. See *Figure 7-8*.

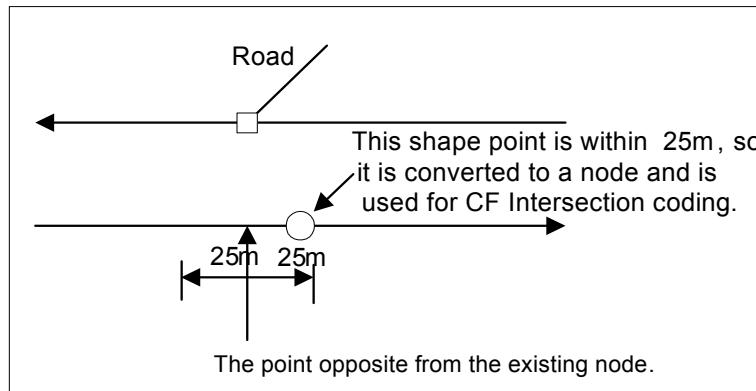


Figure 7-8: Road Intersecting, but not Crossing

It is important that Complex Intersections are represented on multiply-digitised roads as much as possible so that Complex Roads can be included. See *Figure 7-9*.

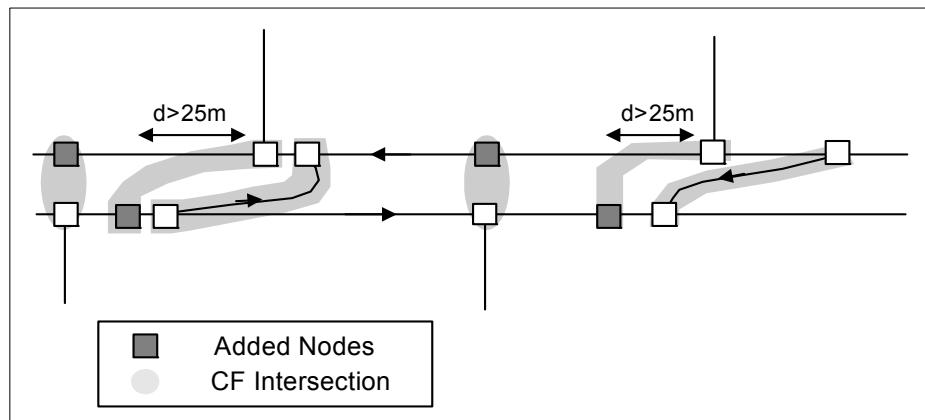


Figure 7-9: Adding Nodes to Complex Intersections

The following are cases where an opposing node needs to be created:

Example 1: When a multiply-digitised road has an intersection on one side only, an opposing node is needed on the other side, as shown in *Figure 7-10*.

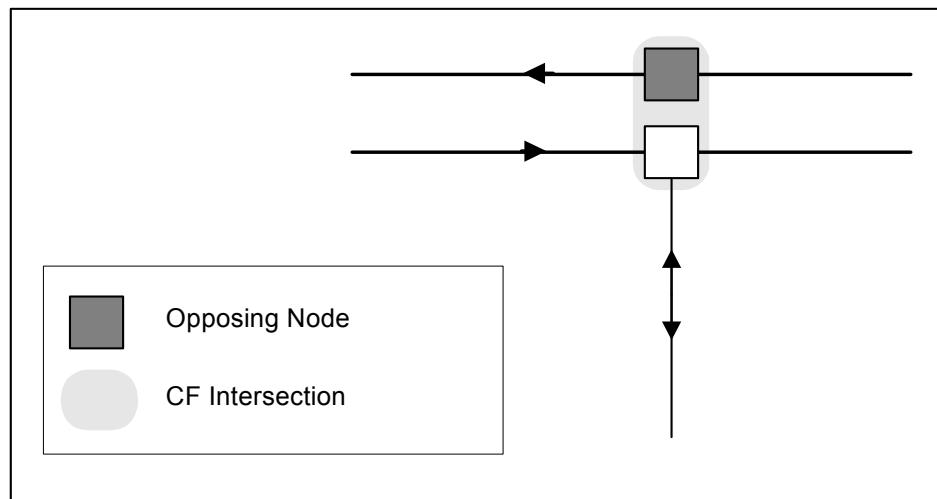


Figure 7-10 Multiply-Digitised Road with Single-link Intersection

Example 2: If a multiply-digitised road has a multilink intersection on one side only (denoted by ||), it is acceptable to have only one opposing node on the other side, as shown in *Figure 7-11*.

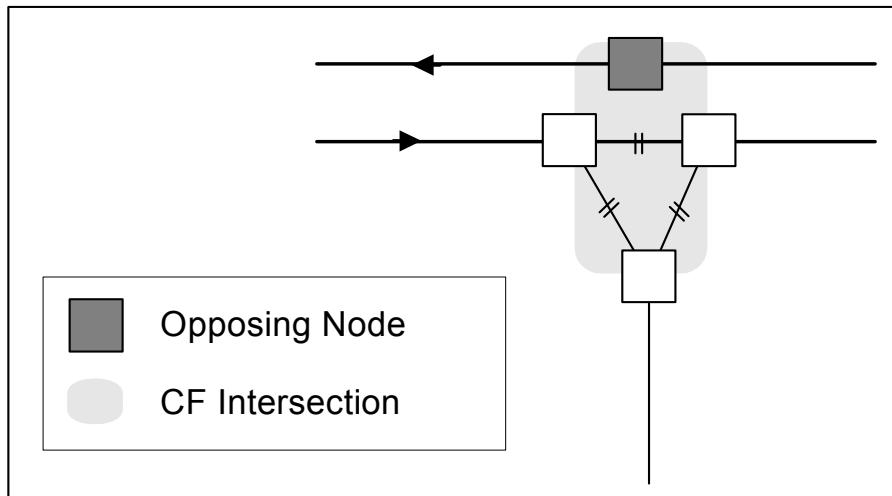


Figure 7-11: Multiply-Digitised Road with Multilink Intersection

Example 3: An opposing node is not required for links representing a turn lane. *Figure 7-12* shows an example where an eastbound lane of a multiply-digitised road has a turn lane. A node is not added on the West bound lanes of the same road opposite the turn lane link. In this case, one Complex Intersection is created.

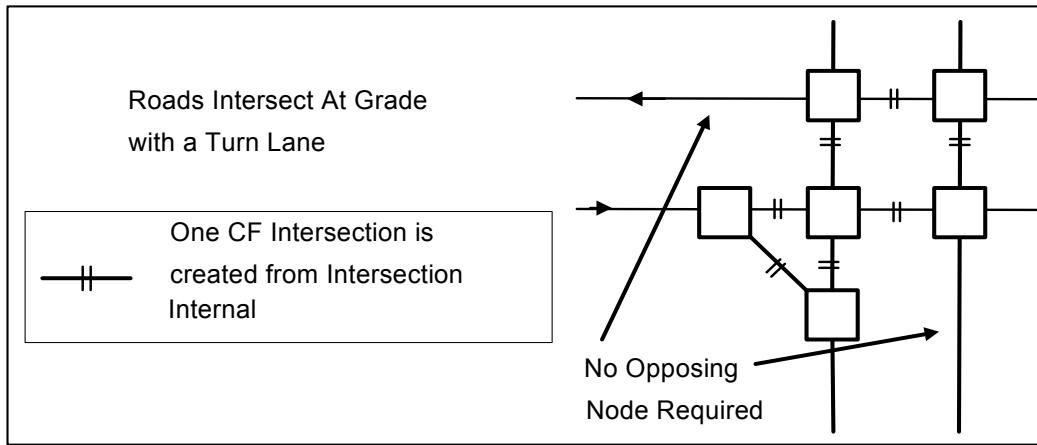


Figure 7-12: Roads Intersecting at Grades with a Turn Lane

MULTI_DIGITIZED = N

An opposing node is required opposite exit ramps on MULTI_DIGITIZED = N roads as shown in *Figure 7-13* and *Figure 7-14*.

Complex Intersections on MULTI_DIGITIZED = N roads are comprised of matching pairs of nodes only. Ramp splitters that are connected to a road with MULTI_DIGITIZED = N are not published as INTERSECTION_CATEGORY = 1 or INTERSECTION_CATEGORY = 2 and are not treated as one intersection as shown in *Figure 7-13*. These links are not also used to form Complex Intersections along MULTI_DIGITIZED = N roads.

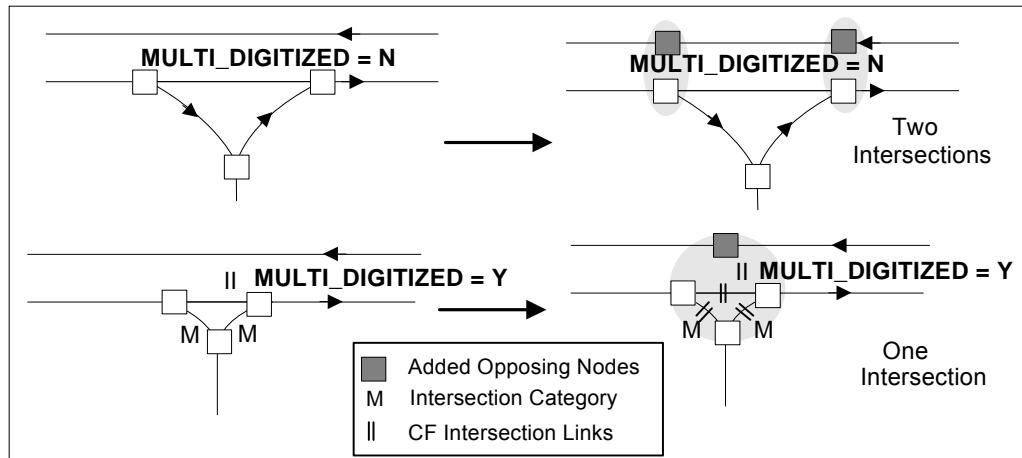


Figure 7-13: Opposing Nodes on Multiply-Digitised Exit Ramps

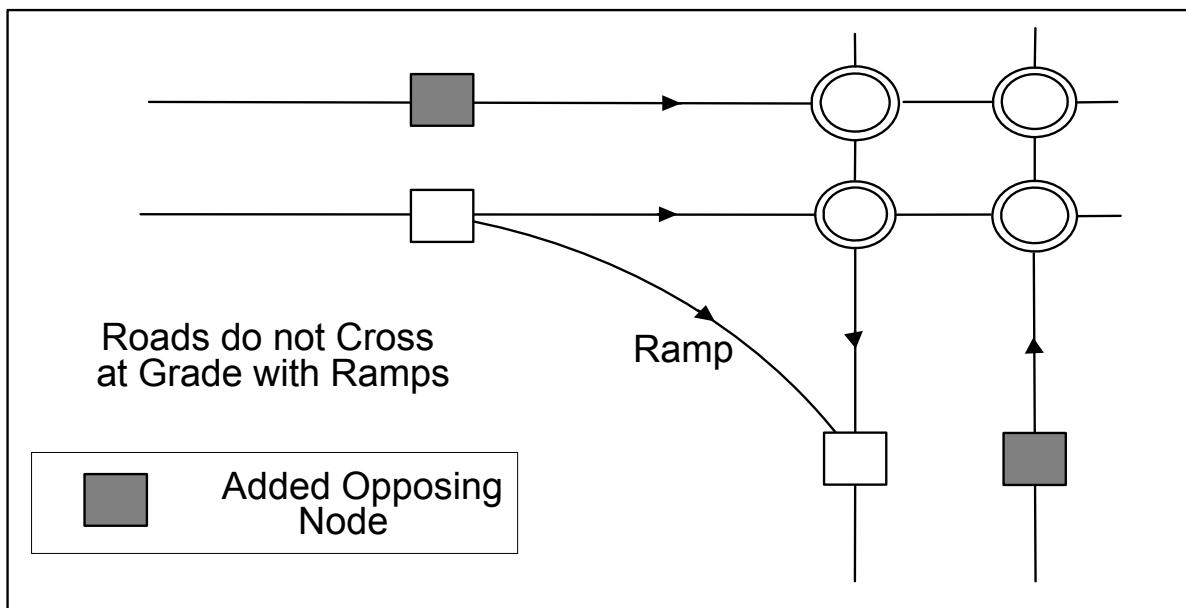


Figure 7-14: Opposing Nodes on Multiply-Digitised Exit Ramps

7.3.2.2 Complex Intersections and Indescribable Links

In most cases, Complex Intersection is not published for links with INTERSECTION_CATEGORY = 3 (Indescribable) or their functional connections, as shown in *Figure 7-15*. However, Complex Intersection is published for links with INTERSECTION_CATEGORY = 3 (Indescribable) if the link is between a multiply-digitised road, as shown in *Figure 7-16*.

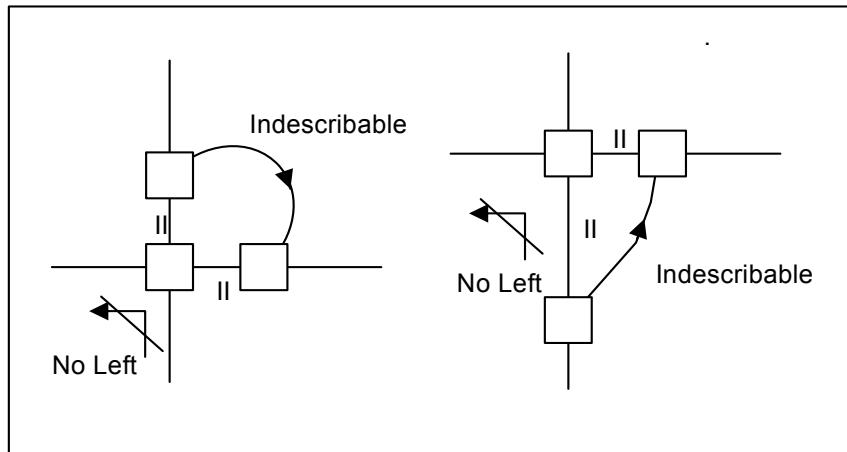


Figure 7-15

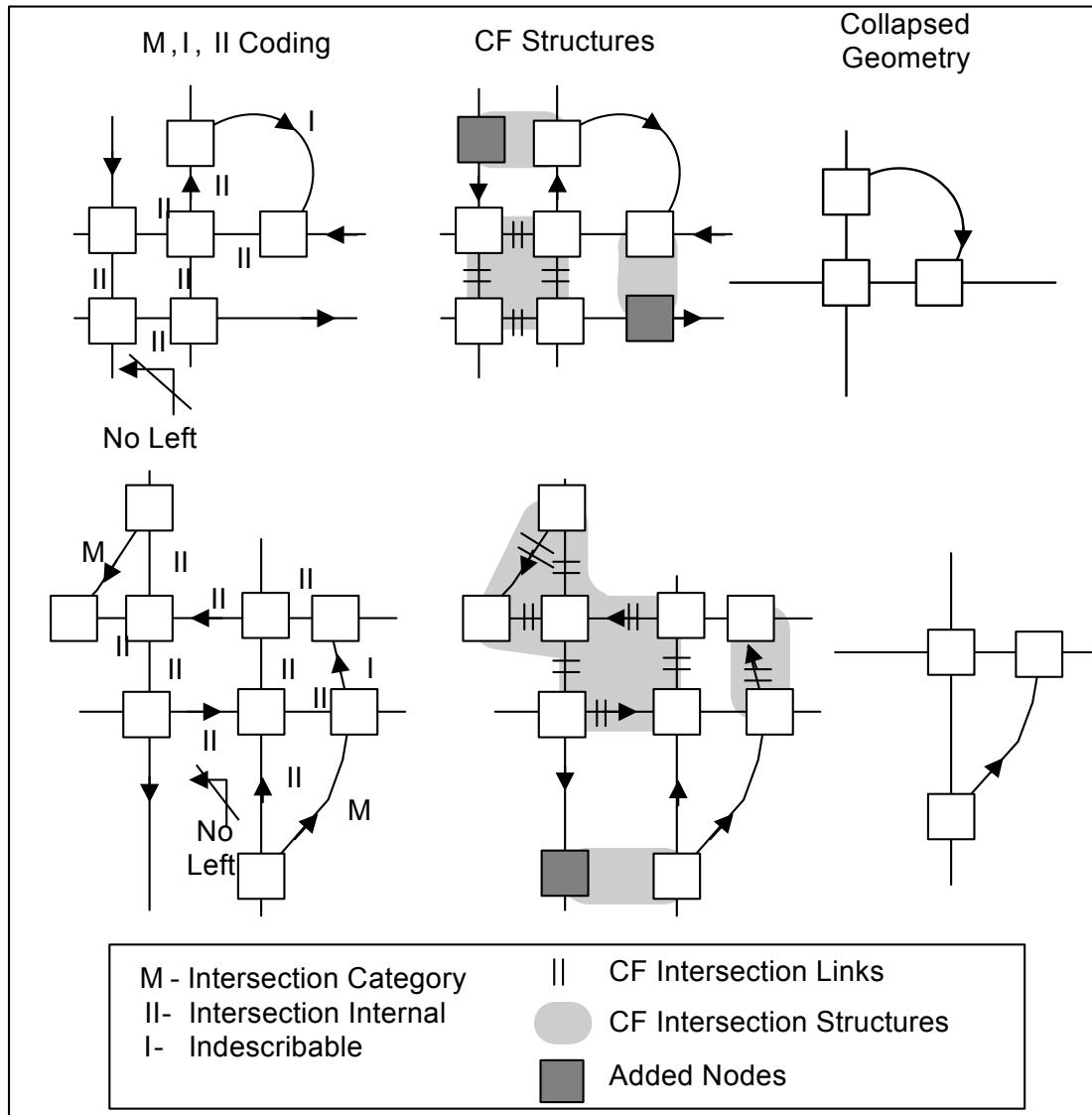


Figure 7-16

7.3.2.3 Intersections at Roundabouts or Special Traffic Figures

When a multiply-digitised road intersects a Roundabout or Special Traffic Figure at two points, the link of the Roundabout or Special Traffic Figure forms the Complex Intersection, as shown in Figure 7-17.

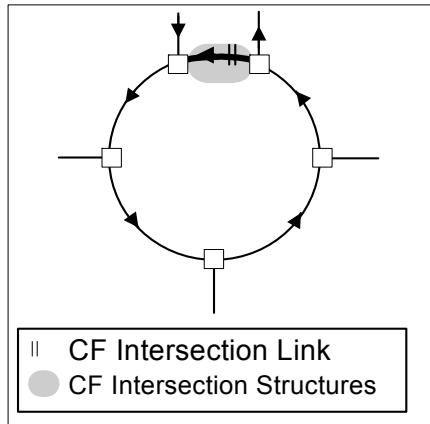


Figure 7-17: Multiply-Digitised Road and Roundabout

When a singly-digitised road intersects a roundabout or special traffic figure at a traffic island, all three links forming the triangle are used to create a Complex Intersection, as shown in *Figure 7-18*. When a singly-digitised road intersects a roundabout at one node, no Complex Intersection is created.

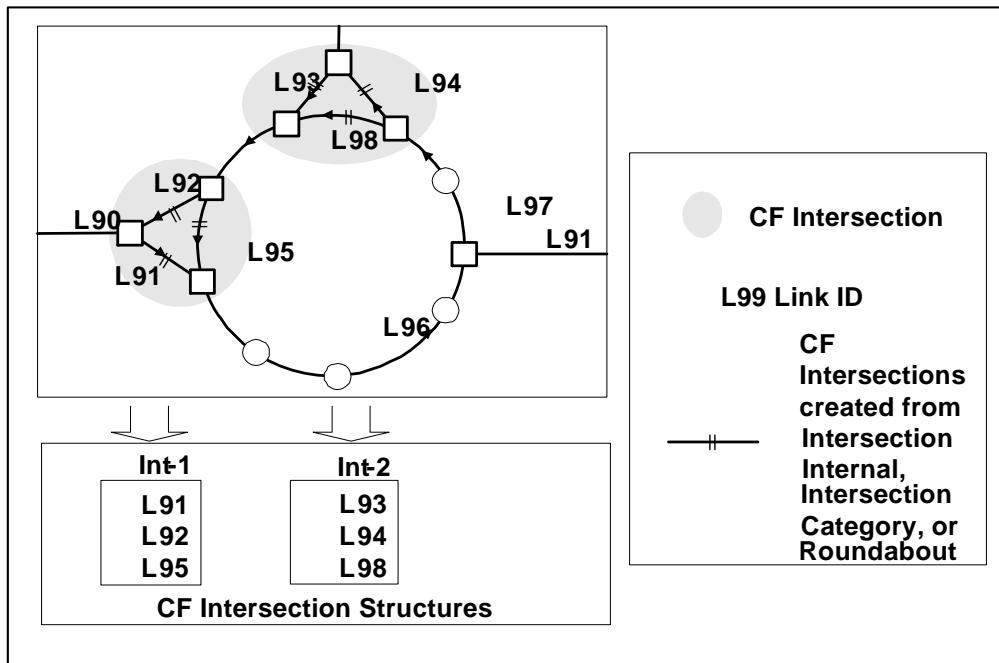


Figure 7-18: Singly-Digitised Road and Roundabout

7.3.2.4 Overlapping Complex Intersections

Complex Intersections cannot overlap. For example, if along a multiply-digitised road the node at the end of the turn lane is also the beginning of another turn lane for a different intersection, then some of the links are not part of the Complex Intersection, as shown in *Figure 7-19*. In these cases, simplified Complex Intersections are created so the Complex Road coding can be applied to the multiply-digitised road.

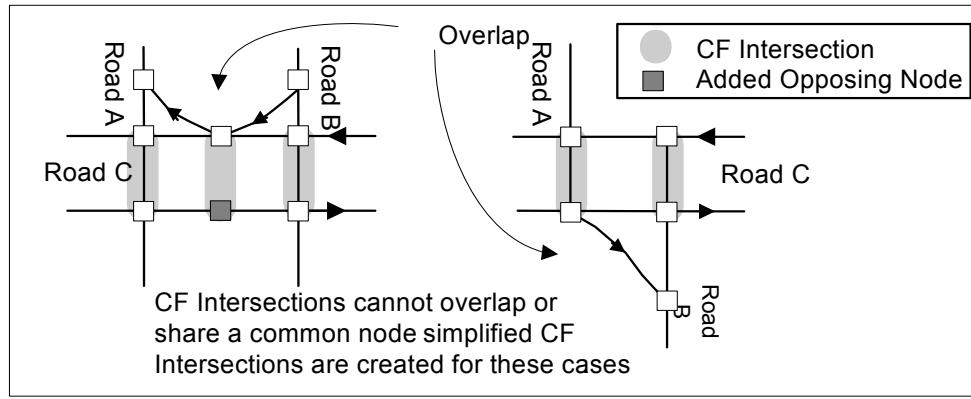


Figure 7-19: Simplifying Complex Intersections

If a vehicle can move from one turn lane to another without entering the Roundabout or Special Traffic Figure, no Complex Intersection is created, as shown in *Figure 7-20*. However, if a vehicle has to enter the Roundabout or Special Traffic Figure, geometry is adjusted to separate the turn lanes. See *Figure 7-21*.

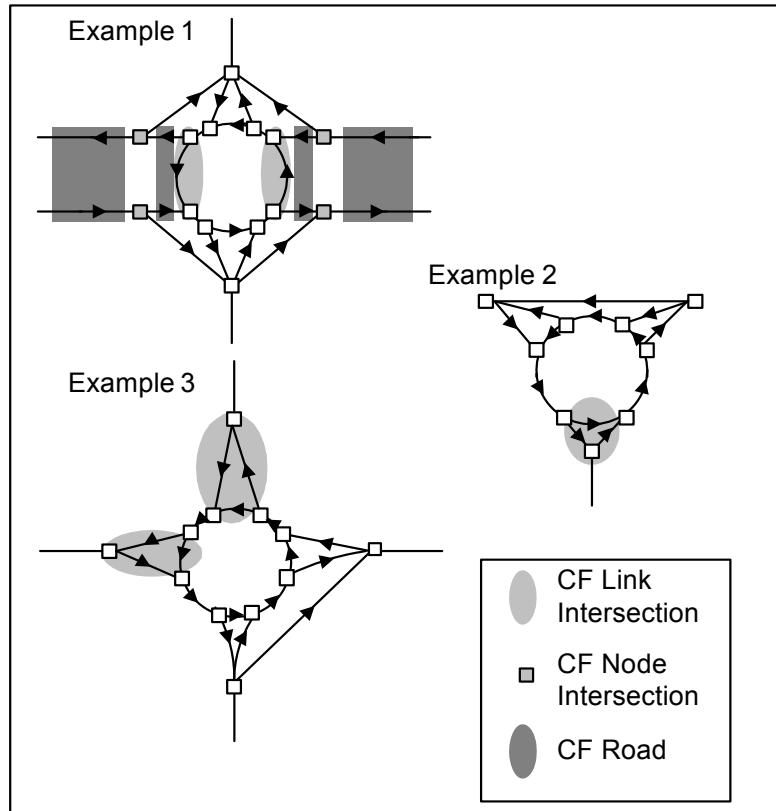


Figure 7-20: Turn Lanes and Roundabout Complex Intersections

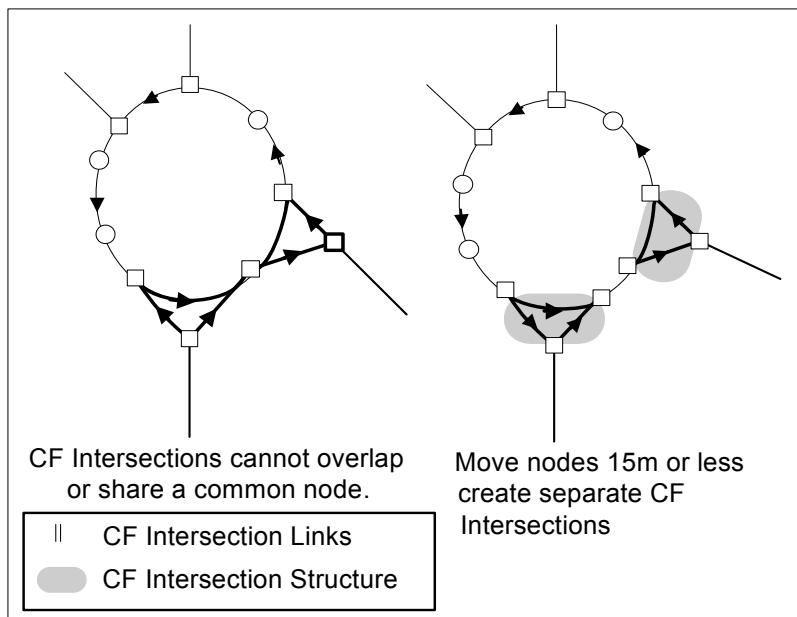


Figure 7-21: Avoiding Overlapping Intersections

7.3.2.5 Complex Intersections of Non-Navigable Features and Multiply-Digitised Roads

A Complex Feature defined with CF_TYPE = I, is either: a group of links and nodes that intersect a multicarriageway and form the bounds of a Complex Road; links forming plural Junctions. A Complex Intersection is created when the sectioning level administrative boundary crosses any road that is multiply-digitised. Except for the sectioning level administrative boundaries, Complex Intersections are not created when non-navigable features intersect or cross multiply-digitised roads.

- A Complex Intersection identifies which links and nodes can be generalised. The simplified representation of these features can be used for more efficient map display and route calculation. In Figure 7-22, only the two nodes at the county boundary crossing are used to create a Complex Intersection. If the Section Level boundary is also a road, then the link is used to create the Complex Intersection. The table below contains examples for sectioning levels for various countries. Refer to the *Country Profiles* document for all the countries.

Spanning Set Level Examples

Country	Spanning Set Level	Level Name
Andorra	2	Parroquia
Denmark	2	Region
France	3	Département
United States	3	County

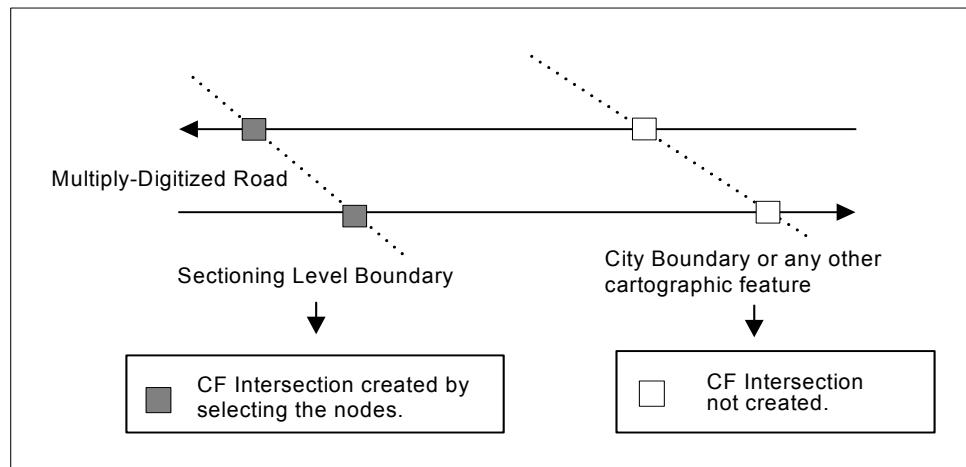


Figure 7-22: Administrative Boundaries on Multiply-Digitised Roads

A sectioning level boundary that intersects a multiply-digitised road but does not cross it is valid. No Complex Intersection is required, as shown in *Figure 7-23*.

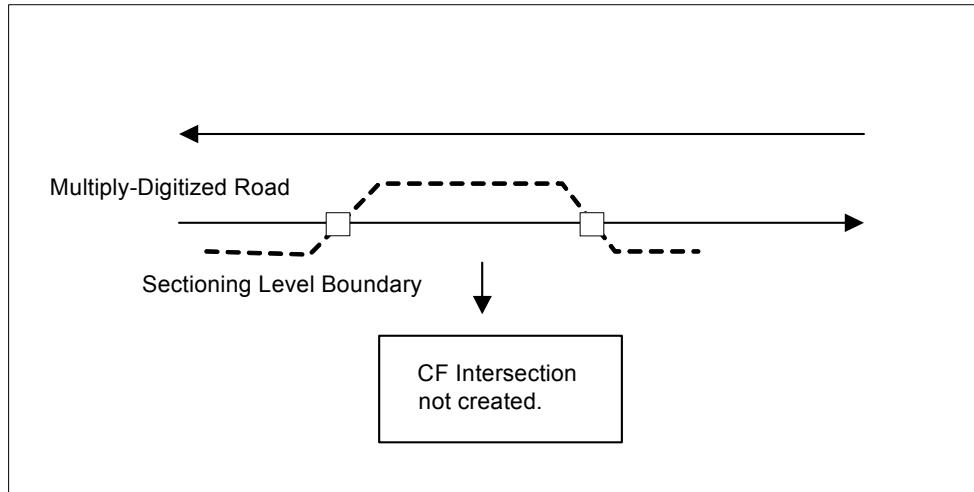


Figure 7-23: Section Level Boundary, Not Crossing a Multiply-Digitised

7.3.3 Complex Object

Complex Objects (CF_TYPE = 0) are larger intersections comprised of a group of links and Junctions. These connect to form a grade separated crossing such as a motorway exit, motorway interchange, or exit from a multicarriageway.

Figure 7-24 represents how a motorway interchange with ramps can be simplified by designating it as CF_TYPE = 0. The result can be used for map display at scales where detail is not desired and for simplified route planning.

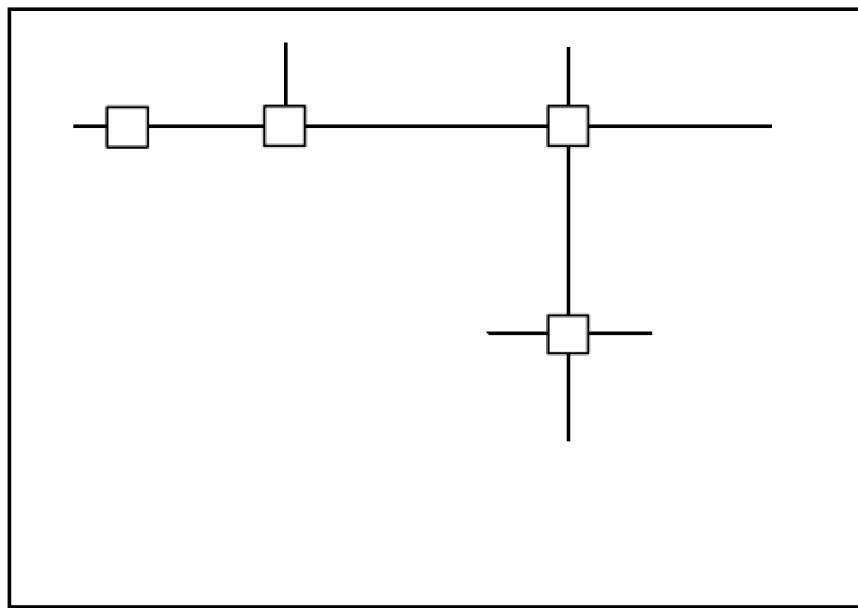


Figure 7-24: Simplified Geometric Intersection, Road, and Object

7.3.3.1 Motorway Exit

The complex feature, Motorway Exit, is a CF_TYPE = 0 (e.g., Complex Object, Freeway Exit) and is comprised of the following:

- A group of links and Junctions where a road crosses another road at a different Z-Coordinate value and there are ramp connections, such as a motorway interchange.
- The links and Junctions forming the terminus of a multiply-digitised road (e.g., motorways, freeways).

The complex feature Motorway Exit identifies which links, comprising crossings of multiply-digitised roads (motorway Junctions), can be generalised. The simplified representation of these features can be used for more efficient map display and route calculation.

7.3.3.2 Centre Point of Complex Objects

Complex Objects (CF_TYPE = 0) have a Centre Point defined. The Centre Point represents the logical location of the centre of a Complex Intersection, and its location is represented by the LAT and LON fields in the RDF_CF table.

- The centre location for Complex Object (e.g., Motorway Exit) can be used to determine the location for collapsing a motorway exit to a single point for display. An appropriate icon can then be placed at this position.
- A Centre Point of a Complex Object is included for all Complex Features with CF_TYPE = 0. The centre point is placed at the logical crossing point of the two roads involved and identifies the point at which the CF_TYPE = 0 should be collapsed, as shown in *Figure 7-25* below.

- In Europe, if a Junction Name exists for the motorway crossing, an Official Name/Alternate Name is included for the Centre Point of the Feature.

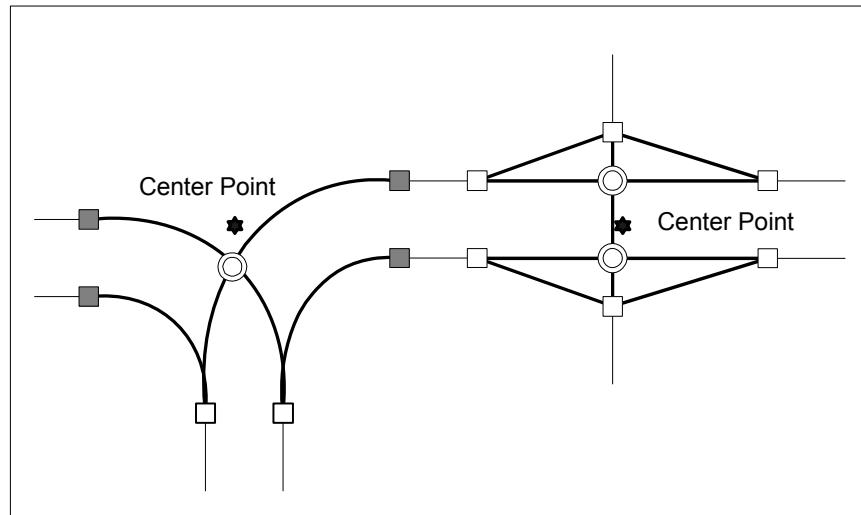


Figure 7-25: The Centre Point of a Complex Object Digitised

- Complex Objects are included at singly-digitised crossing where there are ramps, as shown in Figure 7-26.

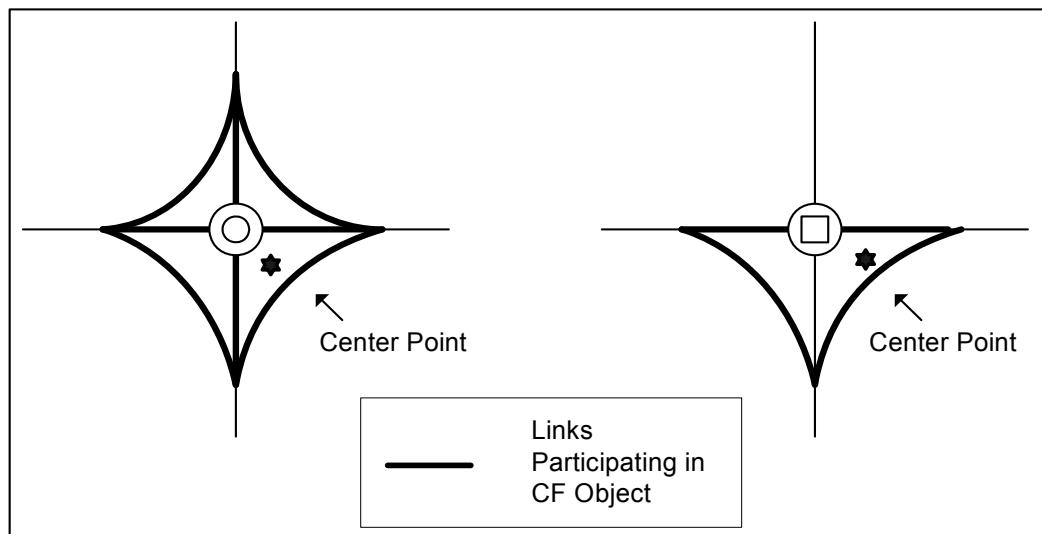


Figure 7-26: Complex Object at Singly-Digitised Crossing

- When a frontage road is used to connect the exit and entrance ramps at a highway crossing, then it is usually included as part of the Complex Object, as shown in Figure 7-27.
- Roads that cross at a different Z-level but have no connectivity to the multiply-digitised road are not included as part of a Complex Object. For example, if a road goes over or under a motorway but does not connect to the motorway via ramps or frontage roads, then it is not included as part of a Complex Object, as illustrated by Figure 7-27, for C St.

- Navigable links that connect to a Complex Object at both ends are included in the Complex Object.
- Roads that only connect to a Complex Object at one end and are not needed to connect the crossing roads are excluded, as illustrated in *Figure 7-27*, for A St. and B St. There is no limit to the number of intervening roads connecting to a Complex Object.

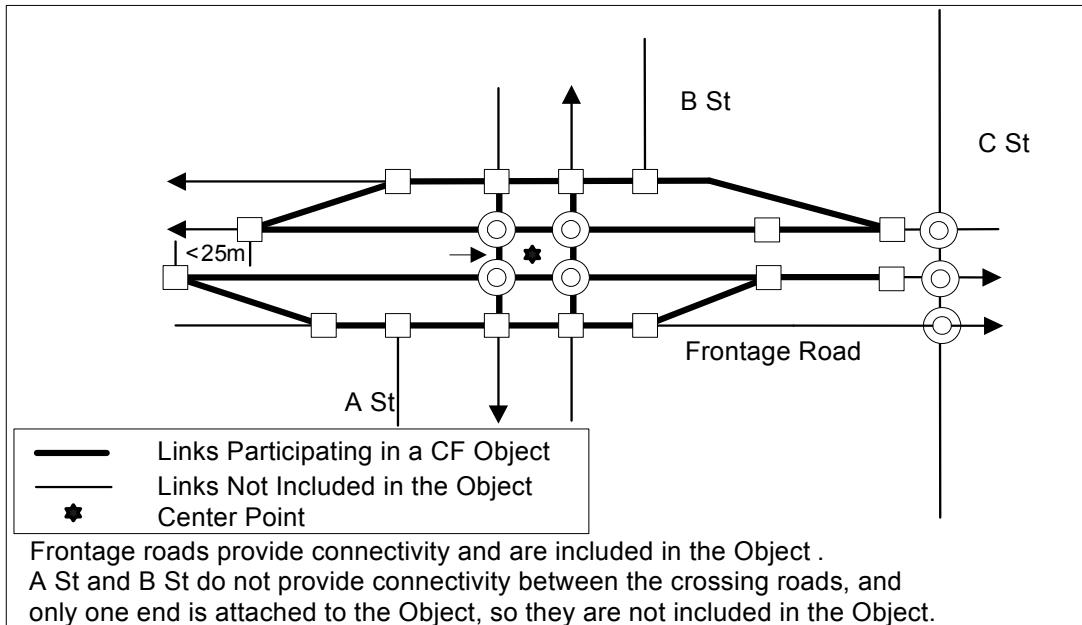


Figure 7-27: Connecting Frontage Roads to a Complex Object

- A Complex Object is represented at the beginning and end of a multiply-digitised road even though there is no Z-level crossing involved. When a multiply-digitised road begins at a roundabout, intersection at grade, or at a node, the Complex Object is represented as shown in *Figure 7-28*.

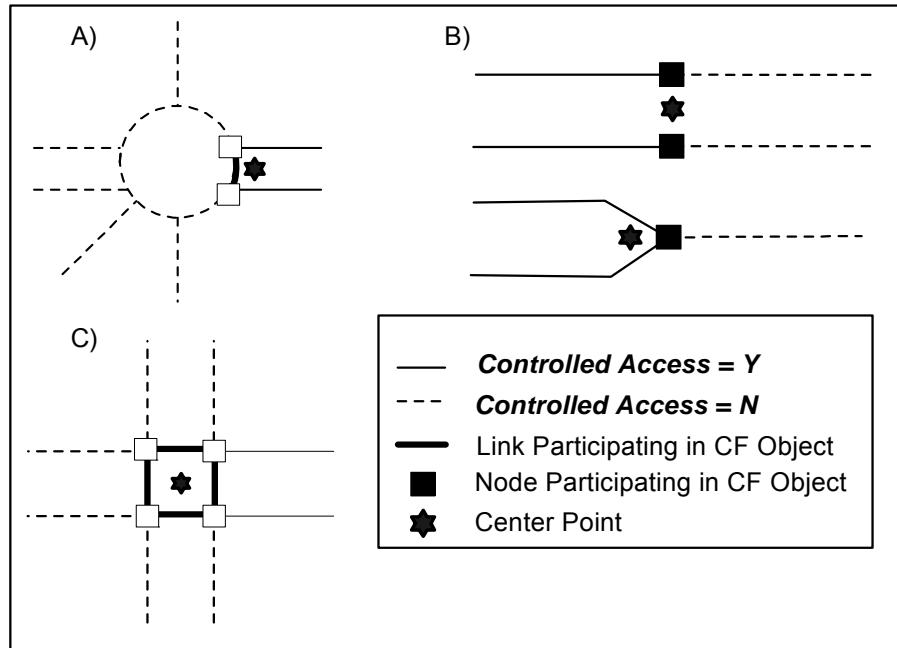


Figure 7-28: Multiply-Digitised Roads Connecting to a Complex Object

- Complex Objects are not created on multiply-digitised roads from isolated ramps which do not correspond to any crossing road, as shown in *Figure 7-29*. Except at the ends of multiply-digitised roads, if there is no crossing with a Z-level, then no Complex Object is included.

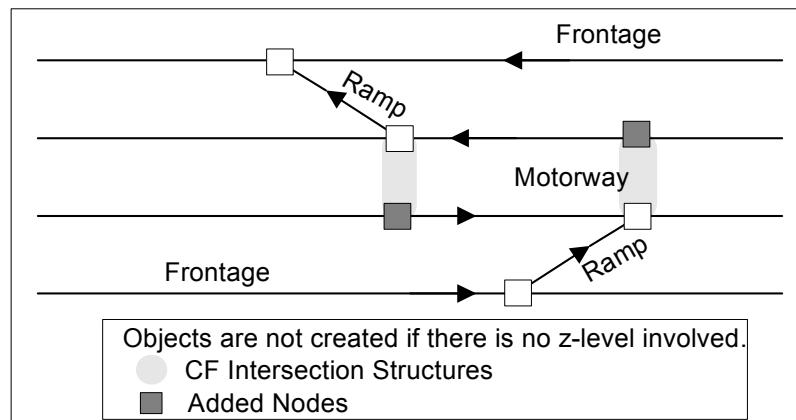


Figure 7-29: Isolated Ramps on Multiply-Digitised Roads

- A link or node does not participate in more than one Complex Object, as shown in *Figure 7-30* and *Figure 7-31*.

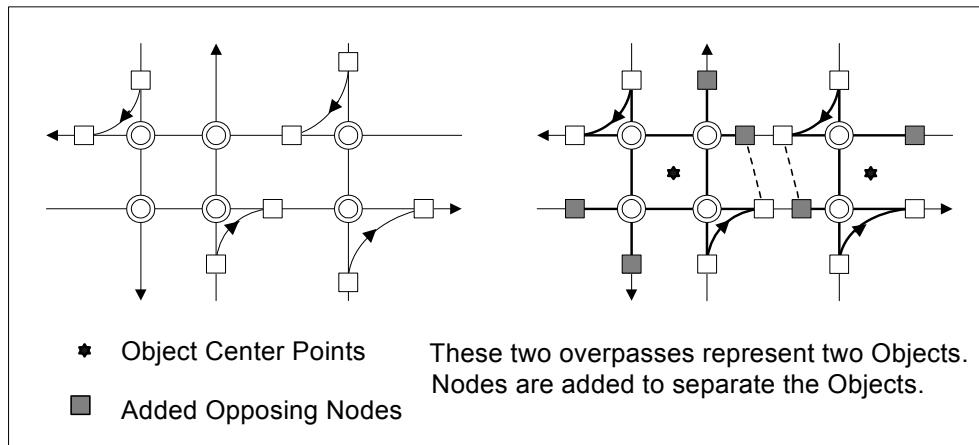


Figure 7-30: Adding Links or Nodes to Separate Complex Objects

- Nodes may be introduced to limit the extent of an Complex Object as shown in *Figure 7-31*, *Figure 7-32*, and *Figure 7-33*.

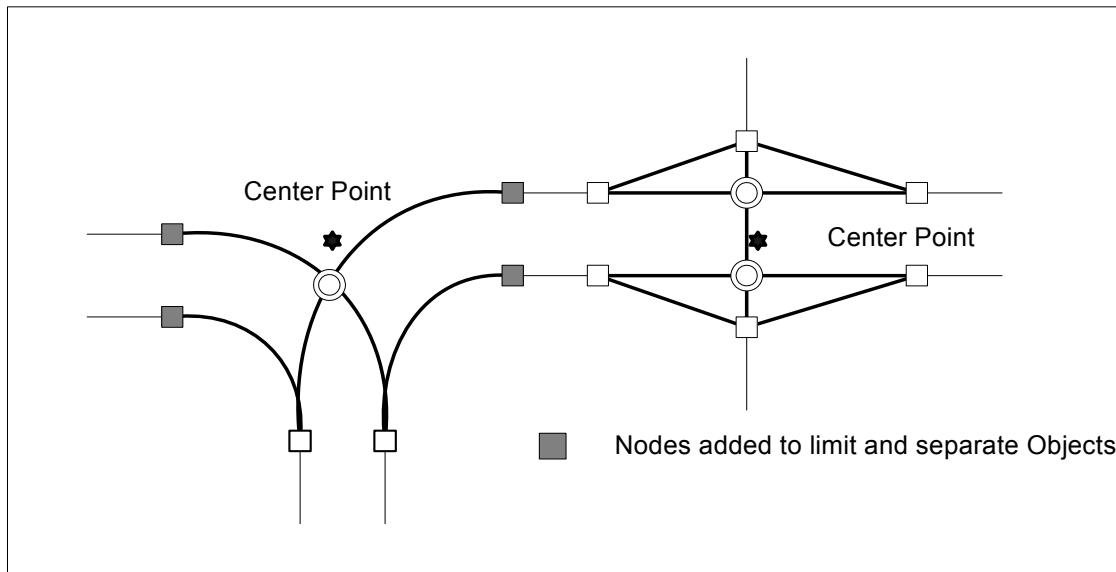


Figure 7-31: Adding Nodes to Limit or Separate Complex Objects

- A Centre Point is included for all Complex Objects. This is the logical point of the crossing and is used to identify the point for collapsing the Complex Object.
- Centre Points possess correct administrative coding according to their location, even when objects cross administrative boundaries.

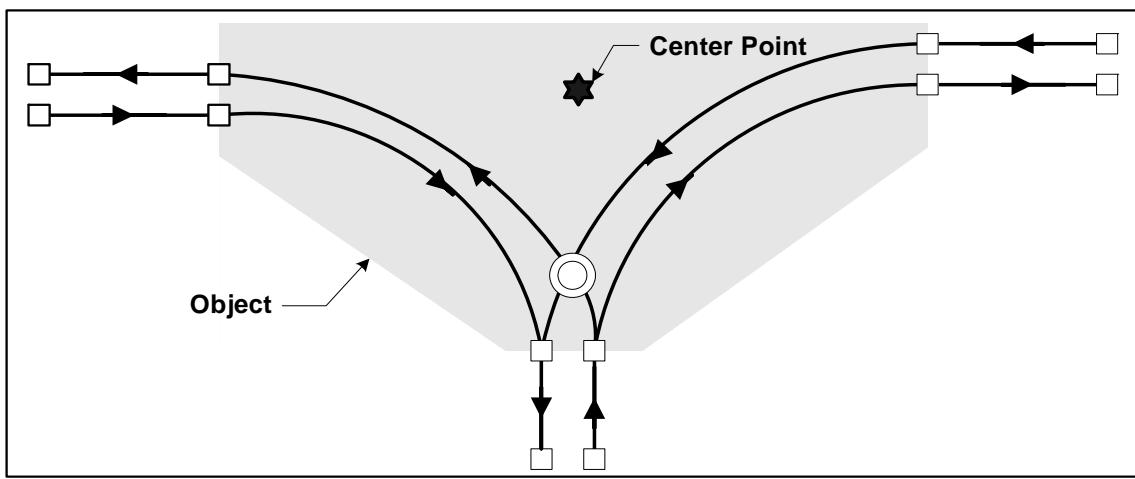


Figure 7-32: Centre Point of a Complex Object

- If any part of a Complex Road participates in a Complex Object, then all parts are included in the Complex Object. For example, when Complex Road links on one side of a multiply-digitised road are included in a Complex Object, then all the corresponding links on the other side must also be included in the Complex Object.
- If any part of a Complex Intersection (links or nodes) participates in an Complex Object, then all parts are included in the Complex Object. For example, where exit ramps connect to the local road, there may be traffic islands with INTERSECTION_CATEGORY = 2 coding. This triangle intersection would be a Complex Intersection and therefore, if one of the links of this Complex Intersection is included in an Complex Object then the other two must also be included.
- If an Object shares a common node with a Complex Intersection, then the entire Complex Intersection must be included in the Object.
- At motorway exits, at least one link of the cross street connected to the ramps is included in the Object. As shown in *Figure 7-33*, a node is added to create link A for Object inclusion as well as

limiting its extent. The cross-street link(s) extends from the ramp to the opposite side of the multiply-digitised road.

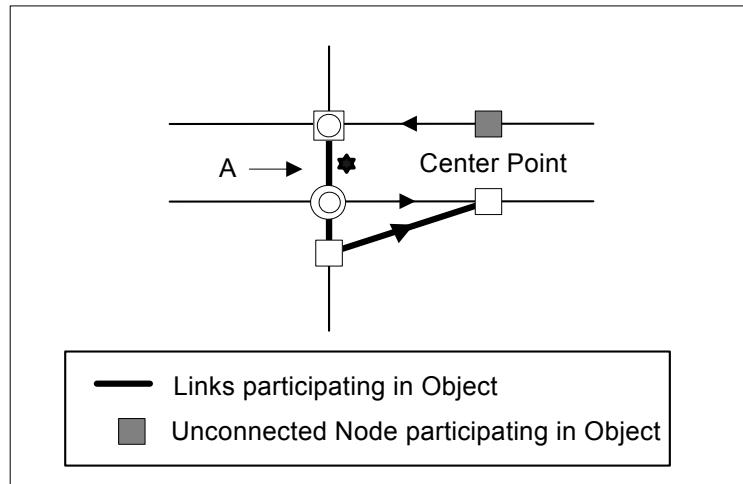


Figure 7-33: Cross-Street Link at Ramp on Motorway Exit

- Links that connect to a Complex Object at only one end but are interior to the extent of the Object are included in the Object, as shown in *Figure 7-34*.

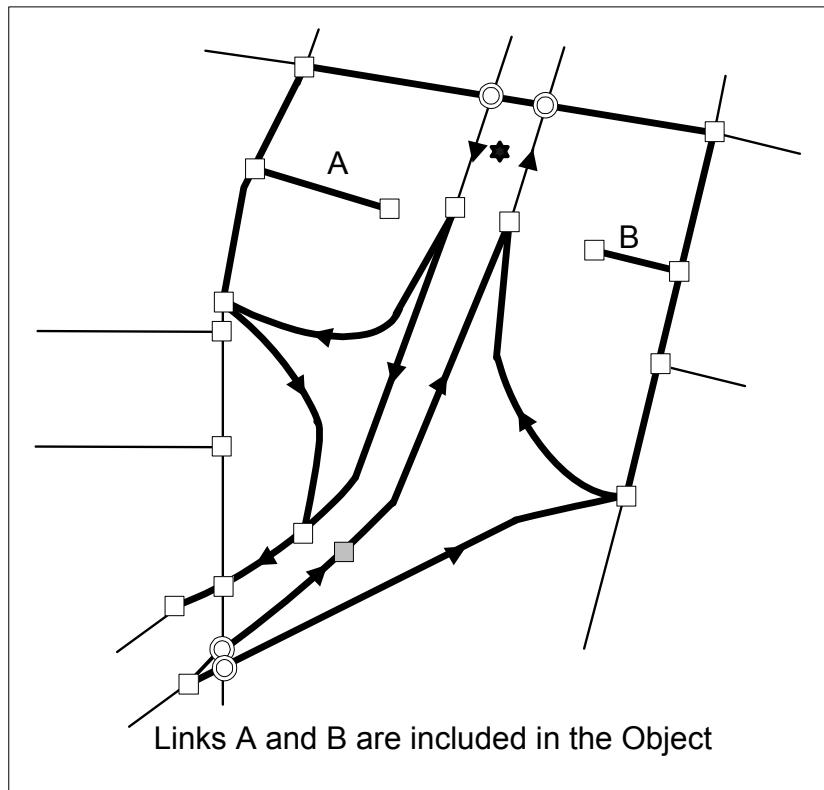


Figure 7-34: Interior Links

- Ramps which are contained within the extent of the Object are included even if they do not have connectivity to the main cross road, as shown in *Figure 7-35*.

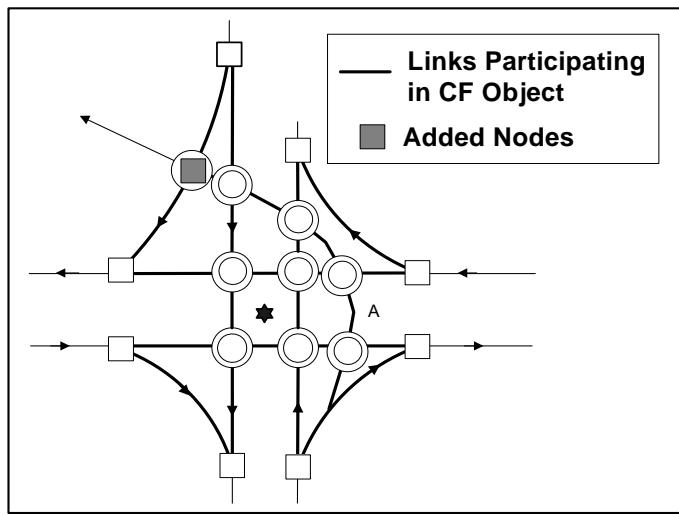


Figure 7-35: Ramps without Connectivity to the Main Crossroad

7.3.3.3 Overlapping Objects

The rule that “objects cannot overlap” takes precedence over the rule stating “generally, at a motorway crossing, all links necessary for connectivity are included in the Object.” In the situations where two motorway interchanges overlap, two Objects are created without full connectivity between the motorway and crossing road. In *Figure 7-36*, in order to go from east to north, a driver must exit onto a parallel ramp at the interchange on the right to proceed north through the interchange on the left. Since links can only participate in one Object, nodes are added to minimize the extent of the Objects and prevent an overlap. The added nodes for the right Object are created from existing shape points which also limits the size of the Object to its logical minimum extent.

If the nodes that are added to limit Objects are located on multiply-digitised roads, then a Complex Intersection is created from these nodes.

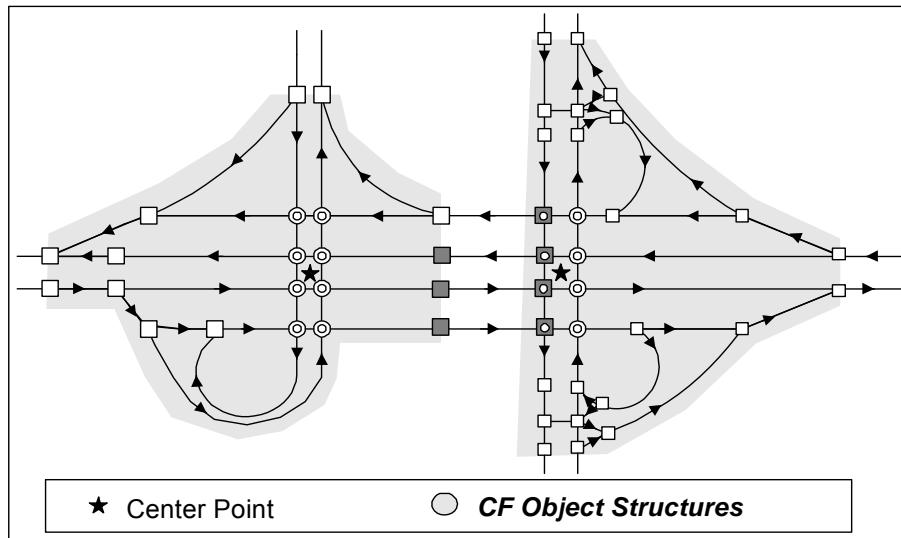


Figure 7-36: Overlapping Motorway Interchanges

7.3.3.4 Very Long Objects

Nodes may be added in some cases to limit the extent of very long Objects.

7.3.3.5 Separately-Digitised Roads

Separately-digitised motorway lanes, such as High Occupancy Vehicle (HOV) or reversible, are included in Objects created at crossings. In *Figure 7-37*, the HOV lanes are multiply-digitised and Complex Road.

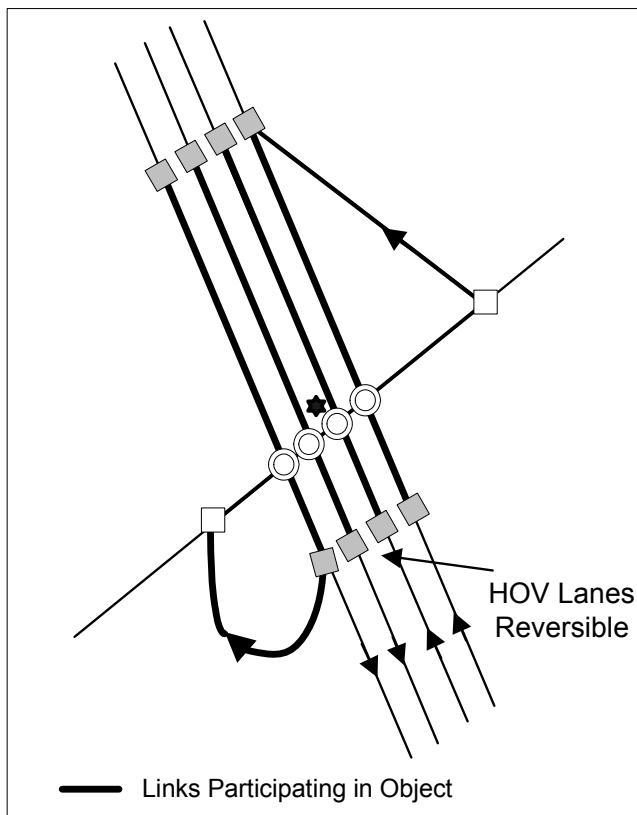


Figure 7-37: HOV Lanes

7.3.3.6 Components of Complex Objects

Links and nodes are components of Complex Objects (CF_TYPE = 0). Complex Objects have latitude and longitude, but do not have intersection references (i.e., these are used only for CF_TYPE = 1), so these columns are not published for CF_TYPE = 0. The table below illustrates a Complex Object.

CF_ID	CF_TYPE	LAT	LON	REF	NREF
1036634	0	-3003657	3089827	Not Published	Not Published

Table 7-1

Example: RDF_CF_LINK and RDF_CF_NODE tables contain the LINK_ID and NODE_ID components for each link and node of a Complex Feature.

The table below shows the LINK_IDS associated with the Complex Object, CF_ID = 1036634. The sequence numbers are not published. The identified links are components of this Complex Object. Associated nodes are identified in the RDF_CF_NODE table. See Section 12.3.40, *RDF_CF_LINK* and Section 12.3.41, *RDF_CF_NODE*.

CF_ID	LINK_ID	SEQ_NUM
1036634	4026595	
1036634	4474807	
1036634	3849507	
1036634	3930395	
1036634	3856512	
1036634	4384189	
1036634	3747910	
1036634	4140407	
1036634	4133100	

Table 7-2

Centre Point X-Coordinate

RDF_CF.LON contains the Centre Point X-coordinate, which is the longitude of the Centre Point in 0.00001 degree precision. This is the longitude of the Complex Feature, which is only published for a Complex Object (CF_TYPE = O). It is not published for a Complex Intersection (CF_TYPE = I) or a Complex Road (CF_TYPE = R).

In Table 7-1, the CF_ID = 1036634 is a CF_TYPE = O, with a LON = 3089827, and a LAT = -3003657. See Section 12.3.35, *RDF_CF*.

Centre Point Y-Coordinate

RDF_CF.LAT contains the Centre Point Y-coordinate, which is the latitude of the Centre Point in 0.00001 degree precision. This is the latitude of the Complex Feature, which is only published for a Complex Object (CF_TYPE = O). It is not published for a Complex Intersection (CF_TYPE = I) or a Complex Road (CF_TYPE = R).

In Table 7-1, the CF_ID = 1036634 is a CF_TYPE = O, with LAT = -3003657 and a LON = 3089827. See Section 12.3.35, *RDF_CF*.

7.3.4 Grouped Structures - Buildings/City Model Data

Buildings/City Model data provides Structure Footprints of buildings that are created using aerial imagery and are associated with the map database, enabling 2D or 3D display. The following types of display illustrated in Figure 7-38, Figure 7-39, and Figure 7-40 are supported by this data.

City Model and 3D Landmark data is modelled so that components of the product offering can be combined for the specific capabilities and requirements of a navigation application. The components are:

- 2D polygon for different heights of a building
- Height associated with 2D polygons
- Grouping of 2D polygons to create one building

- 3D Model for special buildings (Landmarks)
- Point of Interest (POI) for each Landmark
- Bitmap representation for each Landmark

RDF models a Structure Footprint as a cartographic feature, published in the RDF_BUILDING table (see *Section 12.3.28, RDF_BUILDING* and *Section 8.3.2, Building/Landmark Features*). Each Structure Footprint has a Feature Type defining the type of building represented by the Structure Footprint.

These Structure Footprints are included such that overlap between the building polygons and road network does not occur.

Buffers around the road centrelines must be employed to ensure sufficient space for street extrusion when displaying the map.

Height (in metres) is provided for building rooftop elevations. The model should reflect differences of 10 metres or more to enable accurate representation.

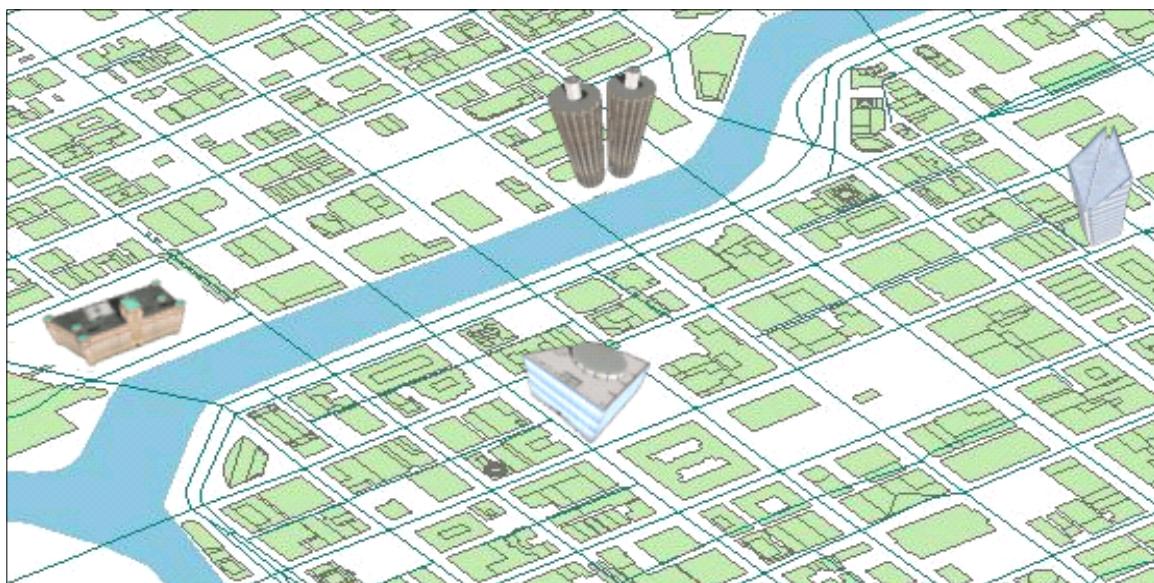


Figure 7-38: 3D Icons

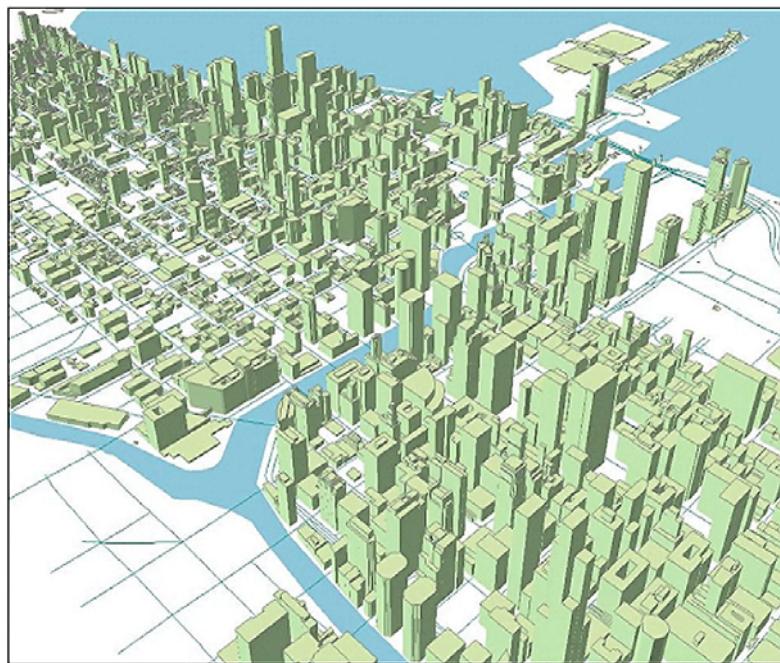


Figure 7-39: 3D City Models

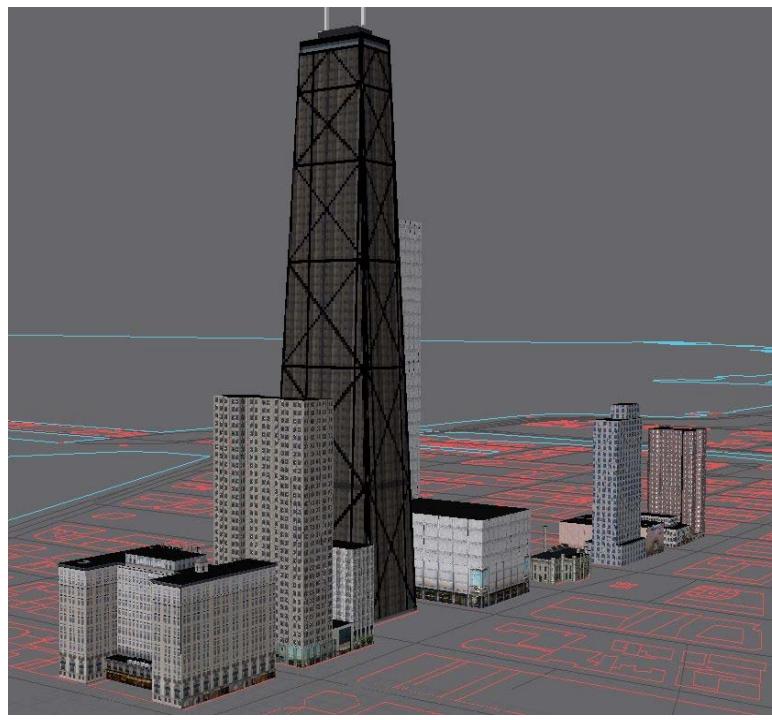


Figure 7-40: 3D Blocks

7.3.4.1 3D Model and Landmark Naming Convention

The 3D Model and Landmark Icon folder and file name format is:

<XXX_YYZZZ_A_B_C>

XXX is the three character ISO 3166 country code. For U.S. data, an underscore and two character state abbreviation follows the country code.

YY is a two character landmark indicator.

ZZZ is a four digit model number.

A is the city and abbreviated landmark name.

B is the level of detail; either L (Low) or S (Standard).

C is an identifier of multi-part models; for example, PART2.

The 3D Model and Landmark Icon folder name and file names have a maximum character length of 40 characters for single part models. Multi-part models have the C information in addition to the 40 character limit.

7.3.4.2 Structure Footprint

RDF models a Structure Footprint as a cartographic feature, published in the RDF_BUILDING table (see *Section 12.3.28, RDF_BUILDING* and *Section 8.3.2, Building/Landmark Features*). Each Structure Footprint has a Feature Type defining the type of building represented by the Structure Footprint. A name is published for a Structure Footprint only if the Structure Footprint is not part of a Grouped Structure.

7.3.4.3 Grouped Structure

A Grouped Structure represents an aggregation of Structure Footprints into a larger feature. Grouped Structures are modelled in the RDF_CF table (see *Section 12.3.35, RDF_CF*), a Complex Feature with CF_TYPE = G. A Grouped Structure Complex Feature is a collection of RDF_BUILDING entities, representing the Structure Footprints. The RDF_CF_BUILDING table (see *Section 12.3.37, RDF_CF_BUILDING*) contains the Structure Footprint(s) defining a Grouped Structure.

The Grouped Structure allows an application to associate the different parts of a structure into one entity for the purposes of display.

For Grouped Structures with an associated 3D Object, the associated Structure Footprint(s) are not intended to be displayed simultaneously with the 3D model.

- Specification**
- A Grouped Structure can be associated with a POI. This POI can be used as a destination point when routing to a specific building.
 - A Grouped Structure that has an associated 3D Object always has an associated POI(s). The associated POI is published in table RDF_POI_FEATURE, where FEATURE_ID is the CF_ID.
 - Optionally, a Name is associated with the Grouped Structure. This name is the same as the POI name that is associated with the Grouped Structure.
 - The POI associated with a Grouped Structure can have an associated Landmark Icon, which is a simplified 2D representation of the Building. The Landmark Icon association to the POI is represented via table RDF_FILE_FEATURE, where FEATURE_ID is the POI_ID.

- A Grouped Structure can have an associated 3D Object, which is a detailed 3-dimensional representation of the Building. The 3D Object association to the Grouped Structure is represented via table RDF_FILE_FEATURE, where Feature_ID represents the CF_ID.
- A 3D Object has a corresponding anchor point in the map data that should be used to position the 3D Object correctly in relation to the Grouped Structure. The anchor point that corresponds to a 3D Object is the southernmost point (Shape or Node) over the collection of all associated Structure Footprint polygons. If multiple points have the same lowest latitude, then the southwestern most point is the anchor point.
- A Grouped Structure can have the following combinations:

Usage	POI	Landmark Icon for POI	3D Object for Structure
Destination input for building Icon display for building 3D Object display for building	X	X	X
Destination input for building Icon display for building	X	X	
Destination input for building	X		

- A Grouped Structure that has an associated 3D Object also has a POI associated with a corresponding Landmark Icon for zoomed-out display.
- For Grouped Structure that has an associated 3D Object, the Structure Footprint(s) correspond equally to both the lower and higher resolution 3D Object.
- A POI association exists for all building/landmark polygons present in the previously released Building/ Landmark Polygon product.

7.3.4.4 POI Association to City Model Data

The association of a POI to a Grouped Structure is enabled via the RDF_POI_FEATURE table. The FEATURE_ID column is used to publish the Grouped Structure, with which the POI is associated (OWNER = V). The POI_ID column is the POI associated with a Grouped Structure.

If a POI is associated with a Grouped Structure and receives National Importance, exonyms are published in the languages according to *Figure 9-12* under *Section 9.7.22, Official Name/Alternate Name (NAME_TYPE)*.

7.3.4.5 File Association to City Model Features

Various City Model components (Grouped Structure and POI) can have files associated with them. This is done for 3D Objects and Landmark Icons.

RDF provides a generic model to associate files (external to the core map database) to map features, via the RDF_FILE_FEATURE table (*Section 12.3.80, RDF_FILE_FEATURE*).

- 3D Objects are associated with a Grouped Structure
- Landmark Icons are associated with a POI relating to a Grouped Structure. The POI-Grouped Structure is modelled via the RDF_POI_FEATURE table (*Section 12.3.117, RDF_POI_FEATURE*).

The RDF_FILE table (see *Section 12.3.79, RDF_FILE*) defines the specifics of the file associated with a map feature. This includes the type of file and the file format specifics.

7.3.5 Motorway Junction Object Complex Feature (MJO-CF)

Definition	The <i>Motorway Junction Object Complex Feature (MJO-CF)</i> represents the collection of features that are used to create the <i>MJO-COLLADA</i>
Table	RDF_CF
Value	See <i>Section C.18, RDF_CF</i> .
Related Table	RDF_CF_ATTRIBUTE RDF_CF_LINK RDF_FILE_FEATURE
Usage	The <i>MJO-CF</i> enables the user to identify the collection of features that are part of the associated <i>MJO-COLLADA</i> .
Specification	The <i>MJO-CF</i> contains all features of a Junction that form the basis for the creation of the <i>MJO-COLLADA</i> .

Inclusion

A *MJO-CF* is published in the following situations:

- *MJO-CF* is published for locations along FUNCTIONAL_CLASS = 1 and 2 roads where a junction exists with one or more other roads that are FUNCTIONAL_CLASS = 1 through 5. Typically, for all these junctions a *CF Object* also exists. See *Section 7.3.3, Complex Object* for further *CRF Object* information. This, however, is not mandatory. There is not always a *MJO-CF* published where *CF Object* coding is present and vice versa.
- A *MJO-CF* is also published for all locations along Functional Class (1 and 2) roads where one or more *Special Explication* conditions are present.
- For all locations where a *Junction View* condition is published also a *MJO-CF* is published. The *MJO-CF* may cover more than one *Junction View* condition. See also *Section 6.4.16, Junction View (CONDITION_TYPE = 20)*.
- For all cases where a *MJO-CF* is published and the *MJO-CF* contains decision points also one or more *Junction View* conditions are published. The node in a *Junction View* condition explicitly defines the location of a decision point in the *MJO-CF*.
 - ◆ A decision point in a *MJO-CF* is a point where the road splits in one or more roads, and where the driver needs specific guidance to continue in the correct direction. See also *Section 6.4.6, Special Explication (CONDITION_TYPE = 9)*.

- Non-navigable links are not included in the *MJO-CF*.

Rules

Overall, the *MJO-CF* includes all links that reflect what a driver perceives in reality as important when traversing through a motorway/highway junction or bifurcation.

In the situation that a *MJO-CF* is published for junctions where also a *CF Object* and/or one or more *Junction View* conditions are published, the following rules apply:

- All of the links that are included in the *CF Object* at the junction or bifurcation should be included in the *MJO-CF*.
- All of the links that participate in any *Junction View* condition(s) at the junction or bifurcation should be included in the *MJO-CF*.
- All links are included that are *Functional Class* = 1 through 5 up to a minimum of 100 metres beyond the furthest exit or entry point of the *CF Object*. See *Figure 7-41*.

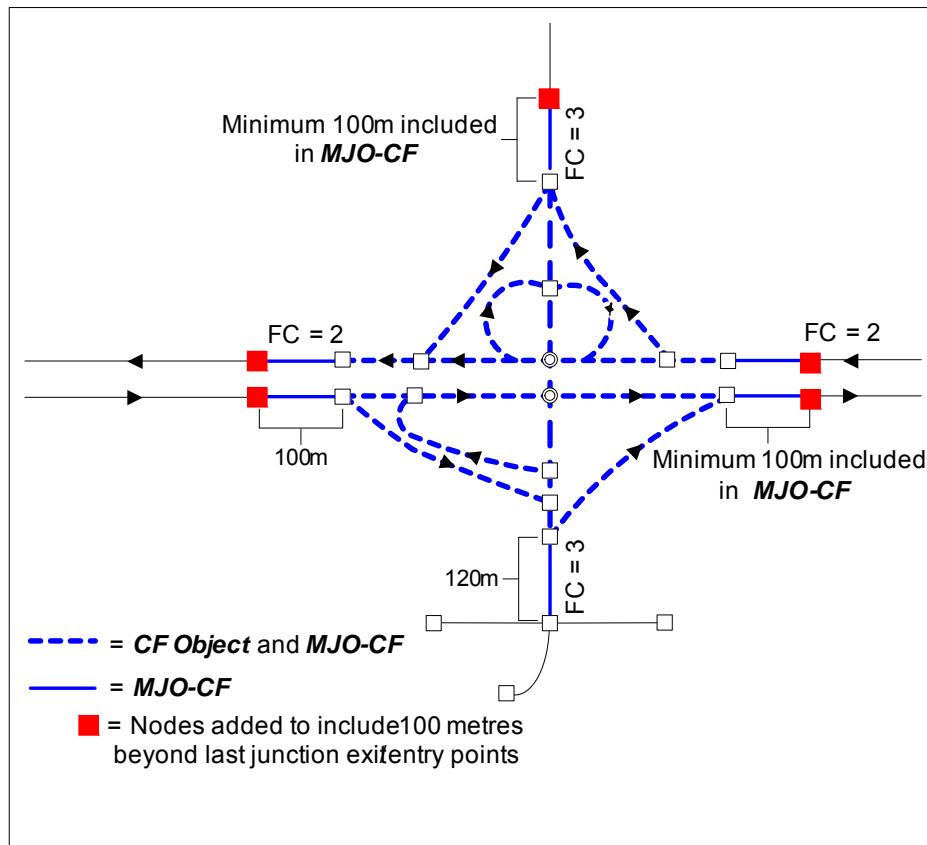


Figure 7-41 Minimum 100 m distance included

- Additional geometry is included when significant for display and driver orientation. The inclusion of this geometry enables the driver to see additional road geometry in the 3D object when traveling into, out of, or through the junction/bifurcation. All navigable links that exist within the extent of the junction along the motorway/highway are included. For example, rest area geometry within the ramp system or petrol station geometry along the ramp system that is only accessible from the

ramps is included if it's important for driver orientation. Also, all overpassing or underpassing roads that are within the spatial extent of the Junction/bifurcation are included. See *Figure 7-42*.

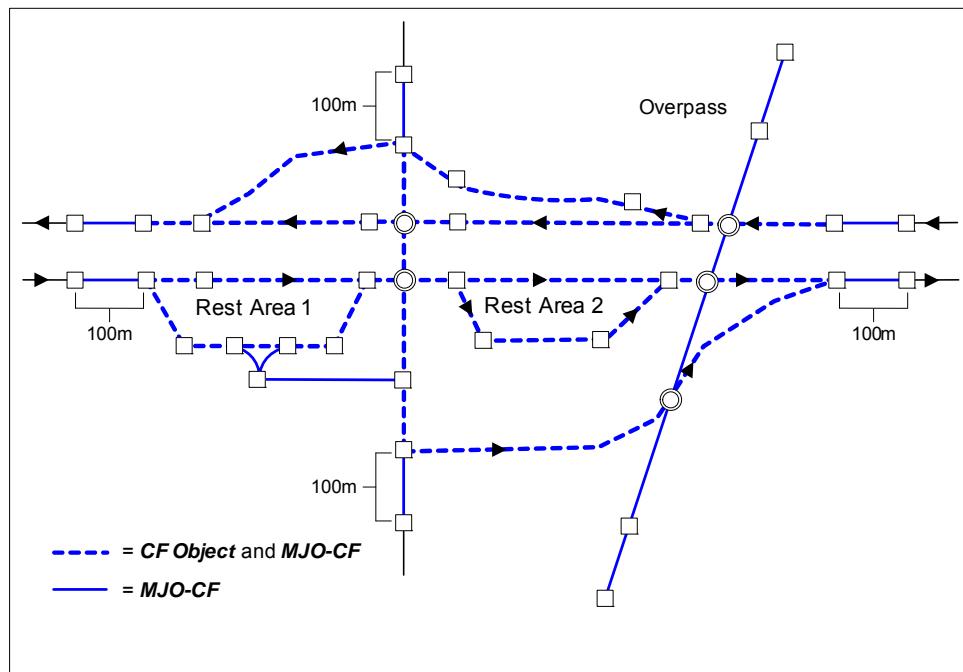


Figure 7-42 Possible inclusion of extra geometry for display and driver orientation

- Junctions which end the MJO-CF are always close to each other on each side of a multiply digitised road. This creates an equally visible display of both sides of the road in the MJO-CF. See *Figure 7-43*.

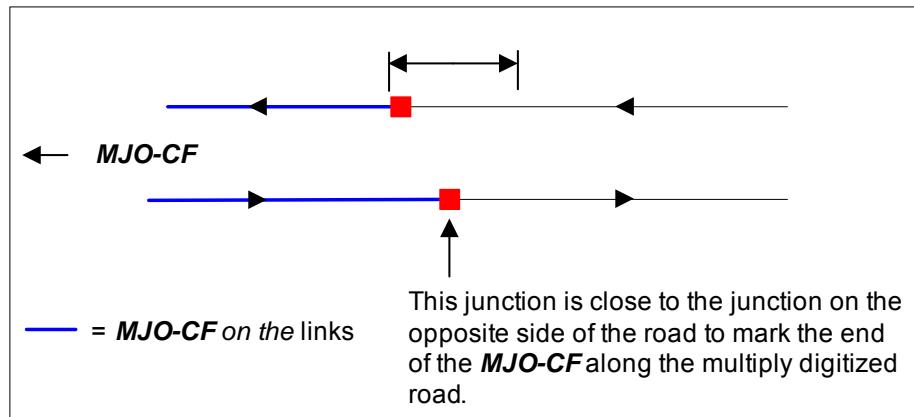


Figure 7-43 Opposed Junctions

- MJO-CF Objects do not overlap, i.e., a link cannot be part of more than one MJO-CF.
- When two or more motorway/highway junctions or bifurcations are close together, i.e., there is less than 200 metres of *Functional Class* = 1 and 2 links that exist between the nearest exit or entry points of each junction, one MJO-CF is published which includes the multiple junctions. Additional *Functional Class* = 1 through 5 links

are included to a minimum guideline of 100 metres beyond the furthest exit or entry points of the junctions. See *Figure 7-44*.

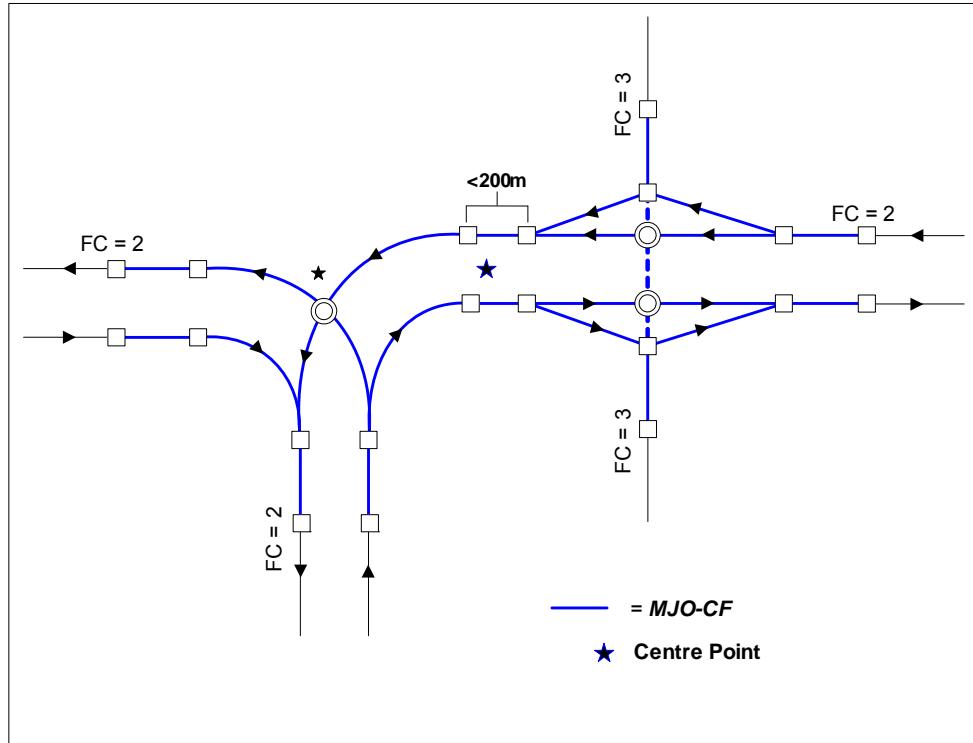


Figure 7-44. Multiple junctions combined in one MJO-CF

- Two *MJO-CF* objects cannot overlap spatially. If they do, they are combined and published as one *MJO-CF*
- In the situation that a *MJO-CF* is published for junctions where no *CF Object* is published, the basic coding rules for the *CF Object* have been applied, extended with the above rules.
- The *MJO-CF* includes the centre point that defines the centre coordinates of the *MJO-COLLADA*. The location corresponds to the real world location of the origin of the *COLLADA File*. This information is essential for positioning the *MJO-COLLADA* on the right position in the Map. See *Figure 7-45*.

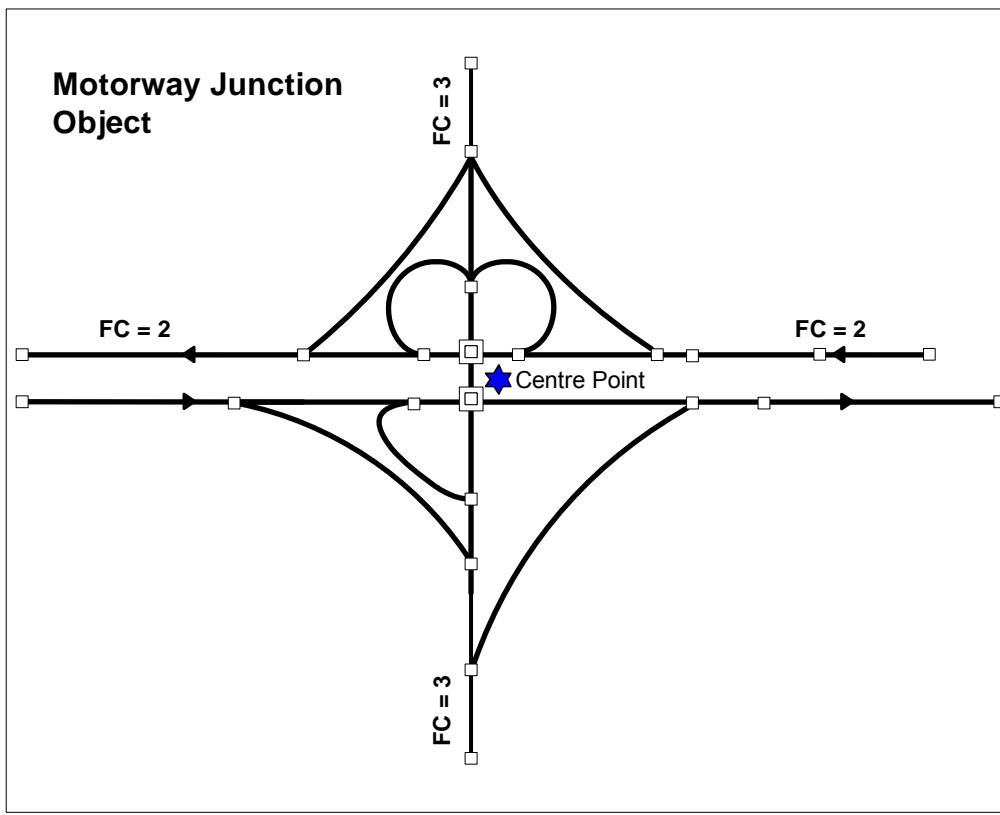


Figure 7-45 Centre point in the MJO-CF

- The MJO-CF has no defined name.
- MJO-CF objects have a Permanent Identifier.

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Cartographic Representation

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8.1 Cartographic Modelling

RDF publishes Structure Footprints in RDF_BUILDING and all other cartographic features in RDF_CARTO. The cartographic features can be areas or lines. The geometrical representation depends on the type of feature published:

- Linear cartographic features have entries in RDF_CARTO_LINK to identify the link(s) associated with the linear cartographic feature.
- Structure Footprints have entries in RDF_BUILDING_FACE to identify the polygonal geometry defining the Structure Footprint.
- Polygonal cartographic features other than Structure Footprints, have entries in RDF_CARTO_FACE to identify the polygonal geometry defining the cartographic feature.

Chapter 3, Geometric Representation includes a detailed description of the topological modelling for cartographic features.

Linear cartographic features generally are aggregated features in the sense that only one RDF_CARTO entity is defined and composed of a collection of link IDs. An example is the linear Country Boundary for Belgium. One RDF_CARTO entity exists for the country boundary of Belgium. This RDF_CARTO entity has many links associated, via RDF_CARTO_LINK, in order to describe the full topology for the country boundary.

8.2 Naming of Cartographic Features

Cartographic features can be named. The names are published in RDF_FEATURE_NAME, where table RDF_FEATURE_NAMES provides a mapping of Cartographic Features (FEATURE_ID = CARTO_ID) to NAME_IDs.

Transliterations of non-Latin-1 cartographic feature names are published in RDF_FEATURE_NAME_TRANS.

Translations of names in Arabic countries are described in *Section A.1.5.2, Translations for Multilingual Countries*.

8.3 Cartographic Inclusion

The following items are included when applicable. The levels of polygonal inclusion may vary due to differences in basic cartographic techniques and differences in scale between coverage areas.

8.3.1 Administrative Area Boundaries

Administrative areas have an entry in RDF_ADMIN_PLACE to enable administrative coding for features, and an entry in RDF_CARTO, to model the cartographic representation for administrative areas. The RDF_CARTO and RDF_ADMIN_PLACE tables are connected via RDF_CARTO.NAMED_PLACE_ID. Administrative entities typically have a cartographic equivalent; each Administrative Area is coded with a *Feature Type*. Administrative Areas are always named. Each Administrative Area has a parent Administrative Area at the next highest level in the administrative hierarchy. The data model allows multiple parents, but in practice only a single parent is used. Countries are at Level 1 and have no parent.

Administrative Area Name	RDF_ADMIN_PLACE.ADMIN_TYPE	RDF_CARTO.FEATURE_TYPE
Country	1111	907196
Order1 (e.g., State)	1112	909996
Order2 (e.g., County)	1113	900170
Order8 (e.g., City)	1119	900101
Built-up Area	3110	900156

See the *Country Profiles* document for information on administrative levels for each country.

See *Chapter 17, Disputed Territories* for information on Administrative Area boundaries in disputed areas.

8.3.1.1 Country Boundary

Definition	<i>Country Boundary</i> is a Feature Type for country borders.
Table	RDF_CARTO
Column	FEATURE_TYPE
Value	See Section C.14, RDF_CARTO.
Related	RDF_CARTO_LINK RDF_FEATURE_NAME
Usage	<i>Country Boundary</i> can be used for map display to render country borders.
Specification	<ul style="list-style-type: none"> • <i>Country Boundary</i> is a linear feature. • Only one <i>Country Boundary</i> feature exists for a country. For example, the <i>Country Boundary</i> feature for Canada does not appear in the U.S. even though they physically share borders. Exceptions to this are: <ul style="list-style-type: none"> ◆ Two <i>Country Boundary</i> features can exist on the boundary link. This occurs if a country is fully contained within another country. For example, the Vatican City State exists fully within Italy. Therefore, two <i>Country Boundary</i> features for Italy are published on the Vatican City State border. ◆ Two <i>Country Boundary</i> features can exist due to the presence of an enclave. In Canada, the U.S. <i>Country Boundary</i> feature also exists for the portions of the U.S./ Canadian border that connect Point Roberts, WA and the Red Lake Indian Reservation in Minnesota to Canada. The remainder of the border only represents Canada. • <i>Country Boundary</i> is published for all links. To find the administrative hierarchy for a link, the Left and Right Admin Place IDs point to the Admin Place ID which can be used to determine the administrative hierarchy. • Generally (except for the exceptions listed above), the Left and Right Admin Place IDs are the same on a country border link. For example, in Canada, the Left and Right Admin Place IDs are identical on the country border with the U.S.; there is no U.S. Administrative coding in Canada for any link. However, for the exceptions listed above, the links representing the boundary of the enclave or another fully contained country have different Left and Right Admin Place IDs to represent the two countries respectively.

8.3.1.2 State/Province Boundary

Definition	<i>State/Province Boundary</i> is a Feature Type for borders of the administrative level two administrative area in countries with five administrative levels.
Table	RDF_CARTO
Column	FEATURE_TYPE

Value	See Section C.14, <i>RDF_CARTO</i> .
Related	<i>RDF_CARTO_LINK</i> <i>RDF_FEATURE_NAME</i>
Usage	<i>State/Province Boundary</i> can be used for map display to render borders of the administrative level two administrative area in countries with five administrative levels.
Specification	<ul style="list-style-type: none">• <i>State/Province Boundary</i> is a linear feature.• Two <i>State/Province Boundary</i> features exists for every boundary link at this level.• The <i>State/Province Boundary</i> is published for all links. To find the administrative hierarchy for a link, the Left and Right Admin Place IDs point to the Admin Place ID which can be used to determine the administrative hierarchy.• Different Left and Right Admin Place IDs exist for every <i>State/Province Boundary</i> link at this level except if the Left and Right Admin Place IDs are the same on database boundary links. For example, on a U.S. country border link, the Left and Right Admin Place IDs are identical; there is no Canadian administrative coding in the U.S. databases for any link.

8.3.1.3 Cartographic Country Boundary

Table	RDF_CARTO
Column	FEATURE_TYPE
Value	See <i>Section C.14, RDF_CARTO</i> .
Usage	Cartographic Country Boundary can be used to display the country boundaries on land between adjacent countries. For example, see the red lines in <i>Figure 8-1</i> .

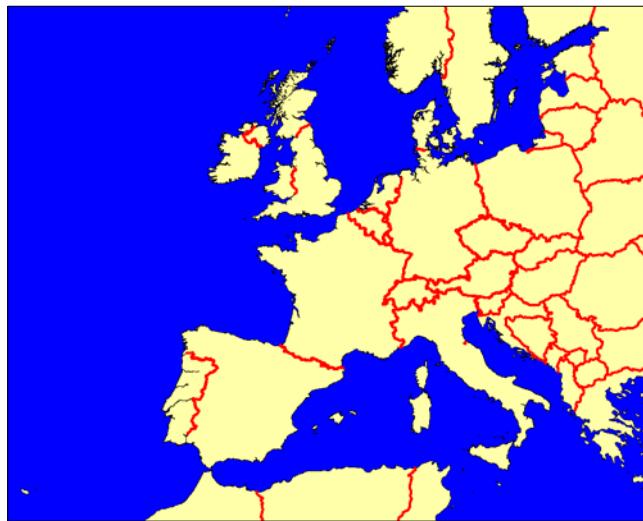


Figure 8-1

- | | |
|----------------------|--|
| Specification | <ul style="list-style-type: none"> • <i>Cartographic Country Boundary</i> is published on links that meet the following criteria: <ul style="list-style-type: none"> ◆ A shared land border with another country and ◆ <i>Feature Type</i> = 907196, and ◆ No major water features (e.g., oceans, Great Lakes, etc.) • For <i>Cartographic Disputed Country Boundary</i>, see <i>Section 17.2.1.2, Cartographic Disputed Country Boundary</i>. |
|----------------------|--|

8.3.1.4 Cartographic State/Province Boundary

Table	RDF_CARTO
Column	FEATURE_TYPE
Value	See Section C.14, RDF_CARTO.
Usage	Cartographic State/Province Boundary can be used to display the State/Province boundaries on land between adjacent states and provinces.
Specification	<ul style="list-style-type: none">• <i>Cartographic State/Province Boundary</i> is published on links that meet the following criteria:<ul style="list-style-type: none">◆ No major water features (i.e., Oceans, Great Lakes, etc.) and◆ State Boundary (Feature Type = 909996) or◆ County Boundary (Feature Type = 900170), if the country has 4 Administrative Levels and the lowest level is Settlement.

8.3.2 Building/Landmark Features

Building Landmarks provide the outline of buildings to enable a 2-dimensional representation of a city map. Building Landmarks are included for a subset of POIs flagged as nationally important, major tourist attractions and historical monuments, significant buildings used in directions (e.g., Buckingham Palace), and other significant buildings appearing on commercial maps.

Note: The inclusion of these polygons is generally limited to the city centre/downtown area of selected cities, but additional buildings outside the city centre may also be included, if significant.

8.3.2.1 Structure Footprint

Definition	Structure Footprint is a cartographic feature, published in the RDF_BUILDING table. RDF_BUILDING.FEATURE_TYPE publishes 2005999 for all Building/Landmark Structure Footprints. Each Structure Footprint has at least one RDF_BUILDING_ENH_FEATURE.FEATURE_TYPE published that defines the building type of the Structure Footprint.
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8.3.3 Building/Landmark Attributes

8.3.3.1 Feature Type (FEATURE_TYPE)

Definition	RDF_BUILDING_ENH FEATURE.FEATURE_TYPE defines types of Building/Landmark Structure Footprints.
Table	RDF_BUILDING RDF_BUILDING_ENH FEATURE
Column	FEATURE_TYPE
Related Attributes	RDF_BUILDING.FEATURE_TYPE RDF_BUILDING_ENH FEATURE.MAIN_FEAT_TYPE
Values	See Section C.12, <i>RDF_BUILDING</i> . See Section C.13.1, <i>Feature Type - High vs. Low Level Values for Building/Landmarks</i> under Section C.13, <i>RDF_BUILDING_ENH FEATURE</i> .
Cardinality	1:1,M
Usage	RDF_BUILDING_ENH FEATURE.FEATURE_TYPE uniquely identifies a cartographic category; and therefore, allows identification of cartographic items using symbols or colouring for display and map publishing.
Specification	<ul style="list-style-type: none"> • The <i>Feature Type</i> information of a Building/Landmark polygon is determined by appropriate sources. Also, the type of the POI (CAT_ID) that corresponds to the same building or landmark can be used to derive the <i>Feature Type</i> information of a Building/Landmark polygon. • If multiple (i.e., different) feature types apply to the same building or landmark, the appropriate <i>Feature Type</i> values for the Building/Landmark polygon are published. For example, the following is published for the Structure Footprint for Colosseo, Rome: <ul style="list-style-type: none"> ◆ <i>Feature Type</i> = 2005301 (Historical Monument Building/Landmark) ◆ <i>Feature Type</i> = 2005601 (Tourist Attraction Building/Landmark) • <i>Feature Type</i> = 2005700 (Unclassified Building/Landmark) is published if the feature type of a Building/Landmark polygon is unknown. Unclassified Building/Landmarks polygons are unnamed. • The high-level feature type is published if it is the only feature type known or if it reflects the building's most common usage/function. Although the high-level feature type is not always published, users can derive the high-level feature type from the lower level feature types. See example in <i>Table 8-1</i>. • Attribute <i>Building Main Feature Type</i> (MAIN_FEAT_TYPE) indicates the building's most common usage/functionality.

Example of High Level vs. Low Level Feature Types

Feature Description (High Level)	Feature Type Code (High Level)	Feature Description (Low Level)	Feature Type Code
Business/Commerce	2005000	Bank	2005001
		Business Facility	2005002
		Hotel or Motel	2005003

Table 8-1

8.3.3.2 Building Main Feature Type (MAIN_FEAT_TYPE)

Definition *Building Main Feature Type* indicates if a *Feature Type* represents the most common usage of a building.

Table RDF_BUILDING_ENH_FEATURE

Column MAIN_FEAT_TYPE

Related Attributes RDF_BUILDING_ENH_FEATURE.FEATURE_TYPE

Values See Section C.13, RDF_BUILDING_ENH_FEATURE.

Cardinality 1:0, 1

Usage An application can use this data to filter on main feature types and prioritize building display accordingly.

Specification

- *Building Main Feature Type* is a sub-attribute of *Feature Type* = 2005000 - 2005999.
- If a building has multiple feature types assigned, *Building Main Feature Type* = Y is published for the feature type which represents the building's most common usage.
- If the *Building Main Feature Type* attribute is unknown for a feature type the attribute value is published as 'NULL'.

Example Carto ID 12345 represents building "NIKOLAIKIRCHE" in Berlin, Germany.

RDF_BUILDING.FEATURE_TYPE publishes a placeholder value = 2005999 for BUILDING_ID 12345.

RDF_BUILDING			
BUILDING_ID	FEATURE_TYPE	NAMED_PLACE_ID	NAMED_PLACE_TYPE
12345	2005999		

If the *Building Main Feature Type* of BUILDING_ID 12345 is known, RDF_BUILDING_ENH_FEATURE publishes the following data:

RDF_BUILDING_ENH_FEATURE		
BUILDING_ID	FEATURE_TYPE	MAIN_FEAT_TYPE
12345	2005751	Y
12345	2005301	N
12345	2005601	N

Feature Type = 2005751 (Church), *Building Main Feature Type* = Y (Is Main Feature Type)

Feature Type = 2005301 (Historical Monument) (Is Not Main Feature Type)

Feature Type = 2005601 (Tourist Attraction) (Is Not Main Feature Type)

If the *MAIN_FEAT_TYPE* of BUILDING_ID 12345 is known, RDF_BUILDING_ENH_FEATURE publishes the following data:

RDF_BUILDING_ENH_FEATURE		
CARTO_ID	FEATURE_TYPE	MAIN_FEAT_TYPE
12345	2005751	NULL
12345	2005301	NULL
12345	2005601	NULL

If none of the published *Feature Type* values are the *Building Main Feature Type* of BUILDING_ID 12345, RDF_BUILDING_ENH_FEATURE publishes the following data:

RDF_BUILDING_ENH_FEATURE		
BUILDING_ID	FEATURE_TYPE	MAIN_FEAT_TYPE
12345	2005751	N
12345	2005301	N
12345	2005601	N

8.3.3.3 Display Class (DISPLAY_CLASS)

Definition Display Class is a classification of features that enables a meaningful display of these specific features.

The classification is assigned according to the importance of the associated feature.

Table RDF_POI

Table Name RDF_POI

Column Name	DISPLAY_CLASS
Values	1 – First class 2 – Second class 3 – Third class
Cardinality	1:0,1
Default value	Not applicable
Nullable	Yes
Related Table	Not Applicable
Related Attributes	<i>National Importance (NATIONAL_IMPORTANCE)</i>
Usage	<p><i>Display Class</i> information can be used to determine which features to display at different zoom levels.</p> <p><i>Display Class</i> information can be used to prune out icons/landmarks of lower importance for memory-limited devices.</p> <p>Note: <i>Display Class</i> definitions for hydrographic features use different criteria for the individual classes. See <i>Section 8.3.7.4, Display Class (DISPLAY_CLASS)</i>.</p>
Rules	<ul style="list-style-type: none"> • The classification is assigned according to the importance of the associated landmark in such a way that the most important landmark instances are classified in the first class. • The <i>Display Class</i> information for landmarks is based on local knowledge and sources. • <i>Display Class</i> is applied on every Service that has an associated 3D Landmark model and/or an associated 2D Landmark icon. • <i>Display Class</i> is applied as follows: <ul style="list-style-type: none"> ◆ <i>Display Class</i> = 1 identifies Services that represent buildings or landmarks that are nationally significant. Services that are received <i>National Importance</i> = Y and have a reference to a 3D Landmark model and/or 2D Landmark icon file receive <i>Display Class</i> = 1. ◆ Examples: Brandenburger Tor (Berlin, Germany), White House (U.S.) ◆ <i>Display Class</i> = 2 identifies Services that represent buildings/landmarks that are prominent and recognizable at a regional or city level. These are buildings/landmarks for which the city or region is well known. ◆ <i>Display Class</i> = 2 is applied to any Service associated with a 3D Landmark model and/or 2D Landmark icon that represents a building/landmark that exists outside a major city, and for which the region is well known, such as a famous castle in a rural area. <p>Buildings/landmarks that are significant on a regional or city level would include the following:</p>

- Building/landmarks (that are not *Display Class* = 1 that possess a high level of historical, cultural, touristic, or educational value/interest in the city or region. Examples: Places of Worship, museums, tourist attractions, etc.
- Large, highly visually prominent, and unique buildings or landmarks. Examples: Popular, well-known, large business facilities, high-rise towers, well-known and prominent train stations, universities, famous shopping centres, etc.
 - ◆ *Display Class* = 3 identifies Services that represent notable buildings/landmarks that are not nationally recognisable or highly important/prominent at a city or regional level.
 - ◆ *Display Class* = 3 is applied to all Services that have an associated 3D Landmark model and/or 2D Landmark icon which are less prominent than those identified as *Display Class* = 1 or 2.

8.3.3.4 Enhanced Building/Landmark

Definition	An identifier that publishes a placeholder value for building/landmark features.
Table	RDF_BUILDING
Column	FEATURE_TYPE
Value	See Section C.12, <i>RDF_BUILDING</i> .
Related Table	RDF_BUILDING_ENH_FEATURE
Related Attribute	Building Main Feature Type
Specification	<ul style="list-style-type: none"> • The <i>Feature Type</i> of a Building/Landmark polygon is published as 2005999 (placeholder value). • To derive the actual feature type(s) of a building it is necessary to use the RDF_BUILDING_ENH_FEATURE table. • See the following examples how this attribute is applied to major landmarks.
Example 1	<u>Winery</u> <ul style="list-style-type: none"> • Structure Footprints are included for any winery which provides tours or wine tasting. For example: Franciscan Oakville Estates, see <i>Figure 8-2</i>.

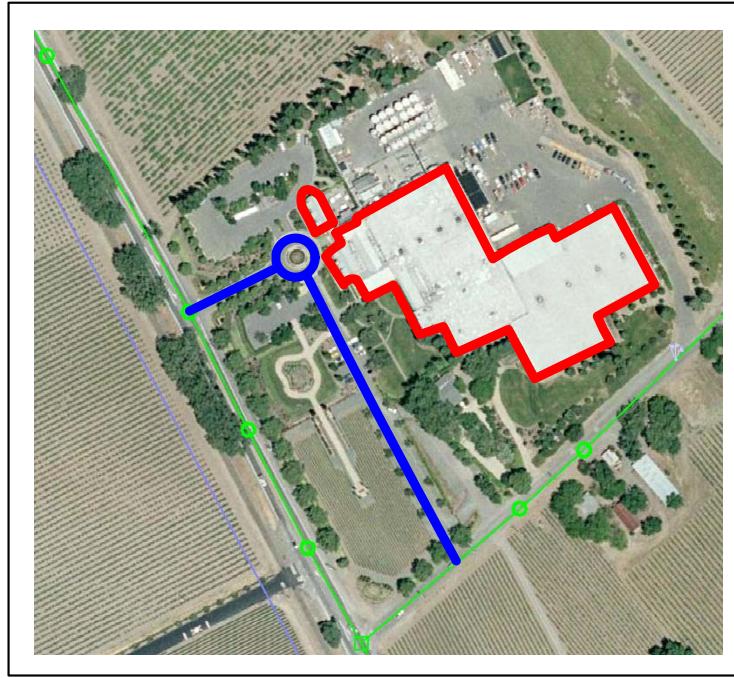


Figure 8-2

- Feature Type = 2005999 is published in RDF_BUILDING.
- Feature Type = 2005406 for the winery is published in RDF_BUILDING_ENH_FEATURE with MAIN_FEAT_TYPE = Y indicating the building's most common usage/ functionality.
- In addition to the building/landmark feature, the entrance roads are included. See blue links in . The Winery POI is published on an entrance link. The entrance roads are published as POI_ACCESS = Y.
- Each winery has a corresponding POI.
- The name of the POI matches the name of the building.

Example 2 Casino

- Currently, Casino buildings may be coded with the following Building/ Landmark Features:
 - ◆ Park/Leisure Building/Landmark
 - ◆ Tourist Building/Landmark
 - ◆ Business/Commerce Building/Landmark
 - ◆ Convention/Exhibition Centre
- A casino resort area may consist of the following Building/Landmark Features:
 - ◆ Casino (2005403)
 - ◆ Hotel (2005003)
 - ◆ Convention/Exhibition Centre (2005050)

- ◆ Shopping Centre (2005512)
- ◆ Parking (2005850)
- Each feature has a corresponding POI. For example, see *Figure 8-3* for the representation of Harrah's Casino in Las Vegas. The front portion of the feature is the gambling establishment. The middle portion is where the hotel feature of the resort is located. The feature on the far right is the parking garage.

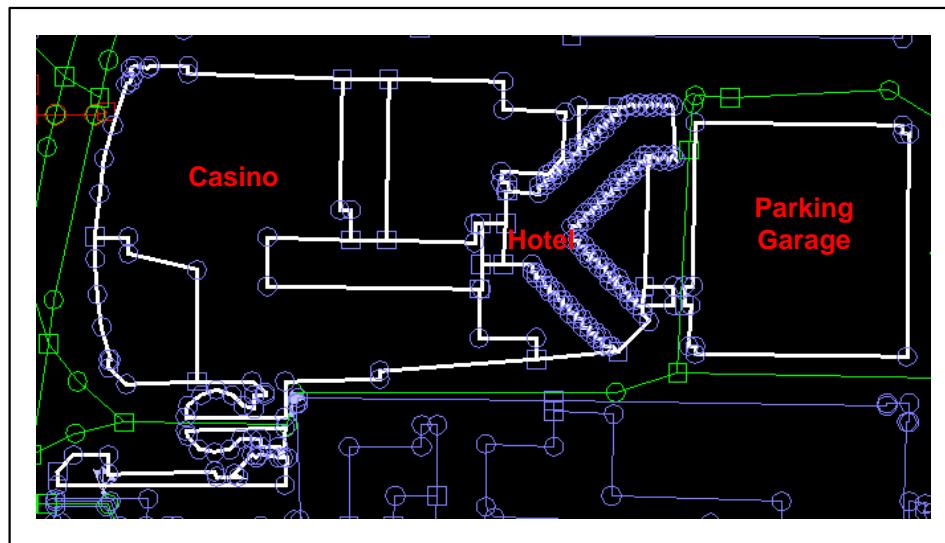


Figure 8-3

- If the functional areas of a casino resort can be clearly identified as a casino, hotel, parking garage, shopping centre, or convention/exhibition centre, then:
 - ◆ The appropriate *Feature Type* is published for that particular building in *RDF_BUILDING_ENH_FEATURE* with *MAIN_FEAT_TYPE* = Y.
 - ◆ *Feature Type* = 2005999 is published in *RDF_BUILDING*.
 - ◆ For example, the Venetian Casino has a convention/exhibition centre attached to the casino resort; this building is published with:
 - ◆ *RDF_BUILDING.FEATURE_TYPE* = 2005999
 - ◆ *RDF_BUILDING_ENH_FEATURE.FEATURE_TYPE* = 2005050 (Convention/Exhibition Centre)
 - ◆ *RDF_BUILDING_ENH_FEATURE.MAIN_FEAT_TYPE* = Y
 - ◆ Another example, the shopping centre at Caesar's Palace is identified as separate building; this building is published with:
 - ◆ *RDF_BUILDING.FEATURE_TYPE* = 2005999
 - ◆ *RDF_BUILDING_ENH_FEATURE.FEATURE_TYPE* = 2005512 (Shopping Centre)
 - ◆ *RDF_BUILDING_ENH_FEATURE.MAIN_FEAT_TYPE* = Y
- If multiple functions exist for a building, multiple *RDF_BUILDING_ENH_FEATURE.FEATURE_TYPE* records are published for that building. For example, if a building is both a casino and a hotel:

- ◆ *Feature Type* = 2005999 is published in RDF_BUILDING.
- ◆ *Feature Type* = 2005403 (Casino) is published in RDF_BUILDING_ENH_FEATURE with MAIN_FEAT_TYPE = Y indicating this is the main function of this building indicating the building's most common usage/functionality.
- ◆ *Feature Type* = 2005003 (Hotel) is published in RDF_BUILDING_ENH_FEATURE with MAIN_FEAT_TYPE = N.

Example 3 Parking Facilities

- Parking garages may be included as Parking Building/Landmark features.
- *Feature Type* = 2005999 is published in RDF_BUILDING.
- The *Feature Type*= 2005580 for the parking garage is published in RDF_BUILDING_ENH_FEATURE indicating the building's most common usage/ functionality with MAIN_FEAT_TYPE = Y.
- Parking lots are not considered parking garages and are not included.
- Each Parking feature has a corresponding POI.

8.3.3.5 Height (HEIGHT)

Definition Height indicates the height of the Structure Footprint.

Table RDF_BUILDING

Column HEIGHT

Usage Height can be used in combination with the Structure Footprint polygon to create a perspective view of a building for enhanced map display

- Specification**
- Separate polygons are included for each Structure Footprint height. A new Structure Footprint is generated when the height of surface areas for a building changes more than 10 metres.
 - Height is published in metres, regardless of the country's measurement system.
 - Height is measured from the base of the building to the highest point of the roof line of the building. Roof line is also known as base line or eaves.
 - Height is not published for a Structure Footprint when 3D-rendering based on a height value is not possible.

8.3.3.6 Ground Clearance (GROUND_CLEARANCE)

Definition Ground Clearance identifies the distance in metres from ground level to the bottom of the skyway at its lowest point.

Table RDF_BUILDING

Column GROUND_CLEARANCE

Value	##### distance in metres
Cardinality	1:0,1
Usage	Ground Clearance enhances 3D City Model display.
Specification	<ul style="list-style-type: none"> • Ground Clearance is always published in metres, regardless of the country's measurement system. • Ground Clearance is published for every skyway. • If the distance to the ground varies at either end of the skyway, the Ground Clearance is the shortest distance. • Ground Clearance is indicated for the two skyways in <i>Figure 8-4</i> by the red lines.

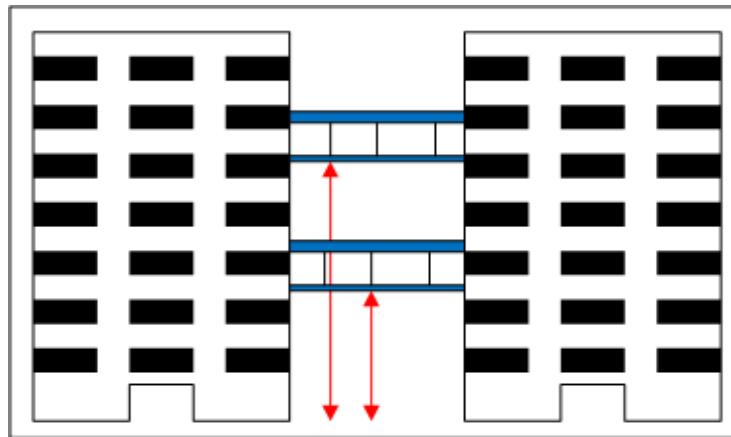


Figure 8-4

- In *Figure 8-4*, two polygons are directly on top of each other. They have the same latitude/longitude coordinates. The only difference is the Ground Clearance.
- Ground Clearance is within 10 metres of actual distance between ground and the lowest point of the skyway.

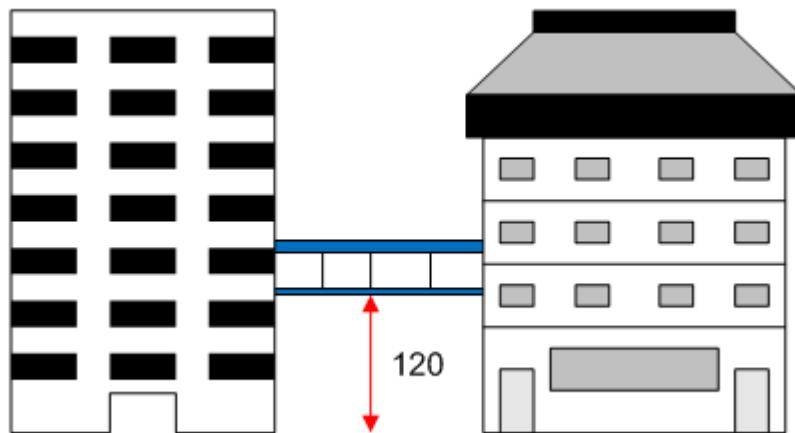
Example 1

Figure 8-5

RDF_BUILDING	
BUILDING_ID	193030444
FEATURE_TYPE	2005901
HEIGHT	15
GROUND_CLEARANCE	120

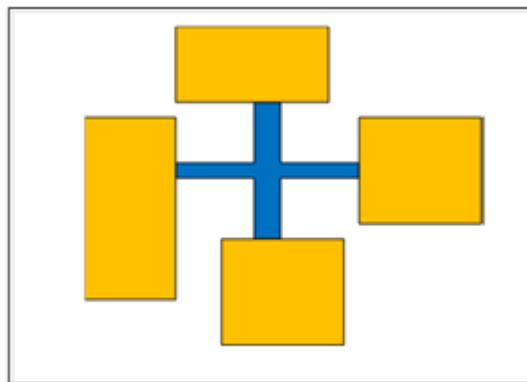
Example 2

Figure 8-6

Figure 8-6 shows an overhead view of connecting skyways. The connecting skyways are represented as one polygon.

RDF_BUILDING	
BUILDING_ID	18213456
FEATURE_TYPE	2005901

RDF_BUILDING	
HEIGHT	10
GROUND_CLEARANCE	100

8.3.4 Land Cover/Land Usage Features

The following section covers some of the features. For complete list, see *Section C.14, RDF_CARTO*.

8.3.4.1 Aircraft Roads

Definition An aircraft road feature is the polygonal outline of the runway.

Specification • The runways and aircraft taxi strips are represented as polygons within the Airport polygon. See *Figure 8-7*.

8.3.4.2 Airport

Definition A facility designated for the landing and take-off of aircraft and the dispensing and loading of aircraft contents.

Specification • The entire area of the airport, including buildings, parking areas, aircraft roads, and terminals is represented. See *Figure 8-7*.

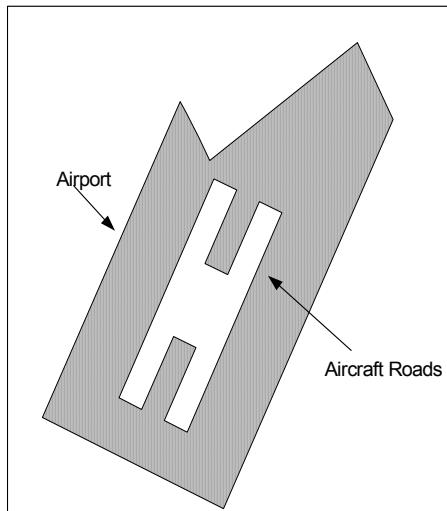


Figure 8-7

8.3.4.3 Allotment

Definition A small piece of land, usually public, rented by an individual for gardening or private use.

- Specification**
- Only features previously included as Park(City/County) in France, Germany, the Netherlands, Norway, and Sweden are included.
 - All allotment areas greater than 10,000m² are included. See *Section 8.3.7.2, Expanded Inclusion (EXPANDED_INCLUSION)*.
 - These features can be unnamed if no Official Name exists.

8.3.4.4 Animal Park

Definition A park that is open to the public for viewing of various animals, for example, a zoo, wild animal park, or wildlife refuge.

- Specification**
- A face (*Feature Type* = 2000461) is included if the outline of the animal park is \geq 50,000 m²/540,000 feet². See *Section 8.3.5.1, Expanded Inclusion (EXPANDED_INCLUSION)* for additional inclusion information.
 - A zoo, wild animal park, or wildlife refuge may be included if it is smaller than the size inclusion above if it is regionally significant.
Note: Petting zoos and aquariums are not included in this feature.
 - The animal park face includes all the parking facilities belonging to the particular animal park. See *Figure 8-8*.

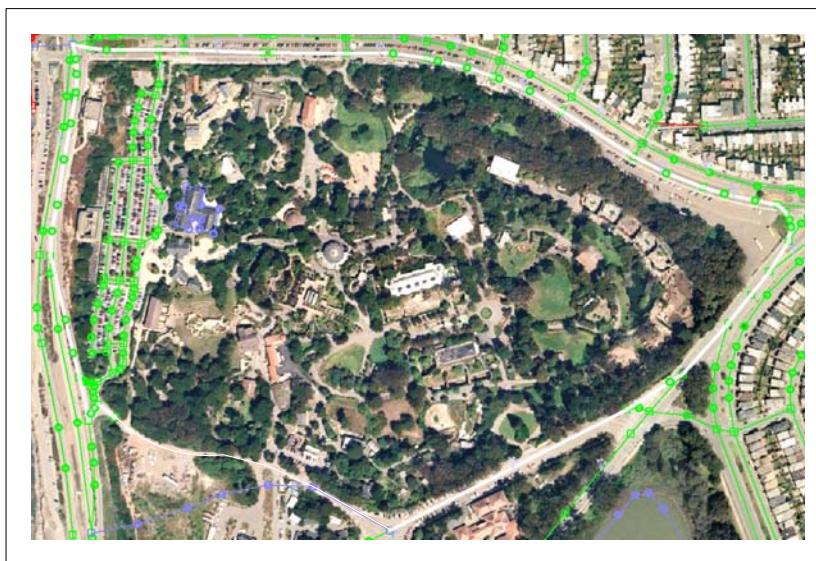


Figure 8-8

- Animal park faces are Outline Formation.
- Each animal park features has a corresponding POI.
- The name of the park matches the corresponding POI's name.

8.3.4.5 Amusement Park

Definition A park that contains rides or other entertainment which may be based on a central theme.

Specification

- A face (*Feature Type* = 2000460) is published if the outline of the amusement park is $\geq 50,000 \text{ m}^2/540,000 \text{ feet}^2$. See *Section 8.3.5.1, Expanded Inclusion (EXPANDED_INCLUSION)* for additional inclusion information.
- The Amusement Park face should reflect all the properties belonging to a particular amusement park/resort. The following entities that fall within the amusement park/resort are used to determine the size for inclusion:
 - ◆ All parking garages/lots
 - ◆ Hotels
 - ◆ Restaurants
 - ◆ Golf courses
 - ◆ Shopping areas
 - ◆ Entertainment Centres
- For an example, see *Figure 8-9, Six Flags Discovery Kingdom, Vallejo, CA:*

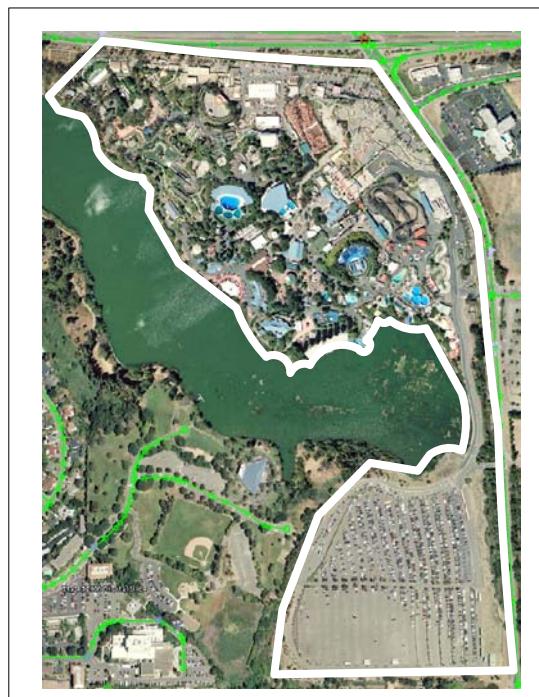


Figure 8-9

- When an amusement park resort consists of more than one park, a separate face is published for the larger resort area and one for each park within the resort area that requires admission to be paid.

Example 1:

Walt Disney World Resort is included as a face. In addition, faces are added for the Magic Kingdom park, Epcot, Disney's Hollywood Studios, Disney's Animal Kingdom, Disney's Blizzard Beach, and Disney's Typhoon Lagoon.

Example 2:

Universal Studios Orlando Resort is included as a face. Additionally there would be two faces published, one for the Islands of Adventure and one for Universal Studios Florida.

Example 3:

Disneyland Resort is included as a face. In addition, Disneyland and Disney's California Adventure would each be included as a face.

- Amusement Park faces are Outline Formation.
- Each amusement park feature has a corresponding POI.
- The name of the park matches the corresponding POI's name.

8.3.4.6 Beach

Beaches $\geq 10.000 \text{ m}^2$ are included. See *Section 8.3.5.1, Expanded Inclusion (EXPANDED_INCLUSION)* for additional inclusion information.

- All sandy areas along ocean coastlines, as well as any connecting bay/harbours.
- All sandy areas along the shores of Long-Haul lakes.
- All beaches are included, regardless of whether they are public or private.

8.3.4.7 Built-up Area Polygon for Named Places

Generally, Built-up Area polygons (*Feature Type* = 900156) representing named places are included.

- Built-up areas greater than $250.000 \text{ metres}^2 / 2.700.000 \text{ feet}^2$ are included. Smaller Built-up Areas are included where significant.
- U.S.: Not Included. In the U.S., City boundaries and Township boundaries for selected States are included as RDF_CARTO entities with *Feature Type*= 900101.

8.3.4.8 Cartographic Settlement Boundary

Definition A Settlement Boundary is a cartographic feature representing the administrative boundary of features mapped to "Built-up Area" (*Feature Type* = 0900156).

Inclusion

- Included in Mexico (for Colonias) and Colombia only.
- Cartographic Settlement Boundary Area feature is limited to the availability of data obtained from a third party source.

Rule For Mexico

- In urban areas, Cartographic Settlement Boundary is contained within a Built-up Area.
- A Built-up Area may contain one or multiple Cartographic Settlement Boundary features.

8.3.4.9 Cemetery

Definition A parcel of land designated for the burial of human remains.

Inclusion • A face (*Feature Type* = 2000420) is published if the outline of the cemetery is ≥ 50,000 m²/540,000 feet². See *Section 8.3.5.1, Expanded Inclusion (EXPANDED_INCLUSION)* for additional inclusion information.

8.3.4.10 Elevation

Definition Elevation polygons enclose all points whose elevation, compared with mean sea level is above a certain value. Each polygon represents the height on the Earth's surface above mean sea level.

Inclusion Levels are included for 100m/328ft, 200m/656ft, 500m/1640ft, 1000m/3280ft, 1500m/4920ft, 2000m/6560ft, 3000m/9840ft, and 4000m/13120ft.

8.3.4.11 Glacier

Definition Glacier is cartographic feature representing a large mass of ice created from accumulating snow that melts and moves slowly across a surface of land or through a valley.

Inclusion

- Only glaciers greater than 10.000 metres²/108.000 feet² are included.
- Included only in countries where they comprise significant part of the terrain, e.g., Iceland and Nepal.
- Only one Glacier face (*Feature Type* = 50997) is published as outline formation to represent a particular glacier.

8.3.4.12 Island

Definition An area surrounded by water, possibly connected to other land by means of a bridge or tunnel, or accessible by ferry.

Inclusion Prime/Complete

- Islands greater than 10.000 metres²/108.000 feet² are included.
- Islands with road network are included regardless of size.
- A face is created for each named island. The island is a “hole” in the waterway.

Network/City-to-City

- Islands greater than 250.000 metres²/2.700.000 feet².
- Islands with road network are included regardless of size.
- Island greater than 1 million metres²/10.800.000 feet² in North America are included.

Note: Island Feature, regardless of size, is added to Building Landmark features that exist in a body of water.

8.3.4.13 National Forest

Definition A forested area of considerable size that is owned, maintained, and preserved by the government at a country level.

Inclusion • Features identified in source data as National Forest or features that have an indication of "national forest" in the name are published as National Forest.

Note: Only national forest features previously included as Park/Monument (National) in Canada and the United States are included.

- All National Forests greater than 10,000m² are included. See *Section 8.3.5.1, Expanded Inclusion (EXPANDED_INCLUSION)*.
- All National Forest polygons are named. If a name does not exist in reality, the polygon is coded under *Feature Type=Woodland*, named "National Forest".

8.3.4.14 Neighbourhood

Definition A cartographic Area Feature defining a localised community within a city.

Inclusion • One Neighbourhood Area Feature is included for each defined neighbourhood within a city.
• Generally, a Neighbourhood Feature is represented as an outline formation. If one neighbourhood is completely enclosed within another neighbourhood (e.g., a named subdivision completely contained within a larger Neighbourhood of a different name), the outer Neighbourhood is included as full formation feature.

Note: Neighbourhood Zone cartographic features can exist without a corresponding Zone in RDF_ZONE. Consequently, the Neighbourhood Zone cartographic entity does not have a NAMED_PLACE_ID. Thus, the name of the Neighbourhood Zone cartographic entity is obtained based on the CARTO_ID.

8.3.4.15 Park

Definition A natural area designated for recreational or environmental purposes.

Inclusion • Parks can be published with the following *Feature Types*:
◆ Municipal (City)/County Park - 900150

- ◆ National Park/ National Monument - 900103
- ◆ State Park - 900130

See *Section 8.3.5.1, Expanded Inclusion (EXPANDED_INCLUSION)* for the inclusion information.

- Generally, Park features can represent historic parks, scenic parks, beach parks, and recreation areas that meet the size inclusion.

Note: In Europe Park/Monument (National) polygons are included for parks and woodlands only.

 - ◆ In North America, historic parks, scenic parks, beach parks and recreation areas that meet the size inclusion are included.
 - ◆ In South Africa, nature reserves that meet the size inclusion are included.

8.3.4.16 Railyard

Definition A Railyard is a major hub for freight trains where the freight is transferred to and from cargo ships and/or trucks.

Value See *Section C.14, RDF_CARTO*.

Specification

- A face is published for each included Railyard.
- Enhanced rail line representation is included; basically expanding the existing rail geometry to include all rail lines contained within the railyard.
- Railyards may exist within a Seaport/Harbour. For example, the Port of Oakland contains the Oakland Int'l Gateway BNSF Intermodal Yard and the Railport Oakland Union Pacific Intermodal Yard (See *Figure 8-10*).The following outline formation are published:
 - ◆ Port of Oakland (Seaport/Harbour)
 - ◆ Oakland Int'l Gateway BNSF Intermodal Yard
 - ◆ Railport Oakland Union Pacific Intermodal Yard

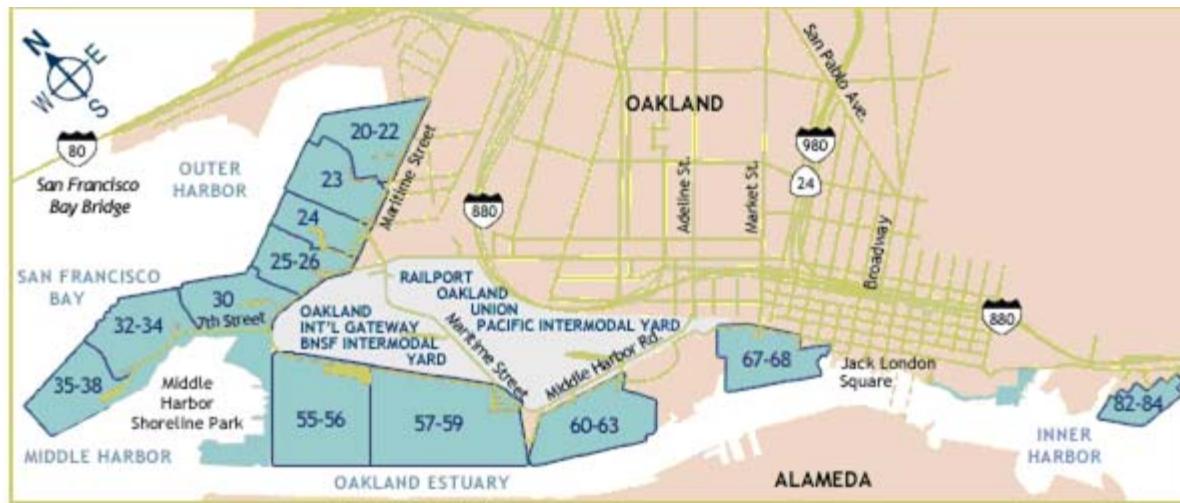


Figure 8-10

- All internal road geometry within the railyard boundary is included. These are roads that are traversable by the truck traffic picking up and dropping off cargo containers as well as any railyard management vehicles.
- All internal road geometry receives the following attribution:
 - ◆ FUNCTIONAL_CLASS = 5
 - ◆ THROUGH_TRAFFIC = N
 - ◆ PRIVATE = Y
 - ◆ POI_ACCESS = N
 - ◆ SPEED_CATEGORY = 7 (unless otherwise posted)
- All internal road geometry is published as navigable links. Unless otherwise posted, roads are unnamed.
- All gates leading into the Railyard are included and published with GATE_TYPE = 2.

8.3.4.17 Seaport/Harbour

Definition A Seaport/Harbour is a location where large container ships dock to load and unload cargo.

Value See Section C.14, RDF_CARTO.

- Specification**
- A face is published for each included Seaport/Harbour.
 - All internal road geometry within the Seaport/Harbour face is included. These are roads that are traversable by the truck traffic picking up and dropping off cargo containers as well as any seaport/harbour management vehicles.
 - All internal road geometry receives the following attribution:
 - ◆ Functional Class = 5

- ◆ *Through Traffic* = N
- ◆ *Private* = Y
- ◆ *POI Access* = N
- ◆ *Speed Category* = 7 (unless otherwise posted)
- All internal road geometry is published as navigable links. Unless otherwise posted, roads are unnamed.
- Enhanced rail line representation is included; basically the existing rail geometry is expanded and/or rail lines are added if they do not already exist in order to include all appropriate rail lines within the seaport/harbour.
- The face published is the land portion of the Seaport/Harbour only. The face does not extend into the water. For example, see *Figure 8-11*.



Figure 8-11

- All gates leading into the Seaports/Harbours are included and published with GATE_TYPE = 2.

8.3.4.18 Water Boundary

Definition A line that represents an administrative border on water, which is required from a legal perspective in a country.

Note: Content is available in the current version of the Feature Introduction Map and succeeding versions of the Baseline Map.

Inclusion

- Included in select countries only.

- Included to demarcate an official boundary between two administrative areas per local government agencies.

8.3.4.19 Woodland

Definition An area of the earth's surface covered by trees or other dense vegetation, and generally void of residences and other buildings.

Inclusion

- Included are Area Features whose outline is greater than:
 - ◆ 10.000 metres²/108.000 feet² for Prime areas
 - ◆ 250.000 metres²/2.700.000 feet² for Network areas

8.3.5 Land Cover Attributes

The following section describes the attributes that are included for Land Cover and Water Features. When an attribute only applies to a particular Land Cover feature code, it is noted.

8.3.5.1 Expanded Inclusion (EXPANDED_INCLUSION)

Definition	<i>Expanded Inclusion</i> identifies the cartographic features or links that meet the expanded inclusion criteria.
Table	RDF_CARTO RDF_CARTO_LINK RDF_NAV_LINK_ATTRIBUTE
Column	EXPANDED_INCLUSION
Value	See <i>Section C.14, RDF_CARTO</i> . See <i>Section C.16, RDF_CARTO_LINK</i> . See <i>Section C.55, RDF_NAV_LINK_ATTRIBUTE</i> .
Cardinality	1:0, 1
Related Attributes	Bridge Tunnel
Usage	<i>Expanded Inclusion</i> identifies all links and cartographic features that meet the expanded inclusion criteria and gives customers the option to not publish these links and cartographic features in case of storage space issues. If a customer suppresses these links, road connectivity is not guaranteed.
Specification	<ul style="list-style-type: none"> • <i>Expanded Inclusion</i> = 1 is published only if a link or cartographic feature meets the following criteria:

Features	Coverage Level	Inclusion Rules	
		Standard	Expanded
Allotment	All HERE Maps	$\geq 10.000 \text{ m}^2$	$\geq 500 \text{ m}^2$ and $< 10.000 \text{ m}^2$
Amusement Park	All HERE Maps	$\geq 50.000 \text{ m}^2$	$\geq 10.000 \text{ m}^2$ and $< 50.000 \text{ m}^2$
Animal Park	All HERE Maps	$\geq 50.000 \text{ m}^2$	$\geq 10.000 \text{ m}^2$ and $< 50.000 \text{ m}^2$
Beach	All HERE Maps	$\geq 10.000 \text{ m}^2$	$\geq 2.000 \text{ m}^2$ and $< 10.000 \text{ m}^2$
Cemetery	All HERE Maps	$\geq 50.000 \text{ m}^2$	$\geq 10.000 \text{ m}^2$ and $< 50.000 \text{ m}^2$
Golf Course	All HERE Maps	$\geq 50.000 \text{ m}^2$	$\geq 10.000 \text{ m}^2$ and $< 50.000 \text{ m}^2$

Features	Coverage Level	Inclusion Rules	
		Standard	Expanded
Island ¹	Prime/Complete	$\geq 10.000 \text{ m}^2$	N/A
	Network/City-to-City	$\geq 250.000 \text{ m}^2$ (NA: $\geq 1 \text{ million m}^2$)	N/A
National Forest ¹	All HERE Maps	$\geq 10.000 \text{ m}^2$	$\geq 500 \text{ m}^2$ and $< 10.000 \text{ m}^2$
National Park	All HERE Maps	$\geq 10.000 \text{ m}^2$	$\geq 500 \text{ m}^2$ and $< 10.000 \text{ m}^2$
City/County Park	All HERE Maps	$\geq 10.000 \text{ m}^2$	$\geq 500 \text{ m}^2$ and $< 10.000 \text{ m}^2$
Shopping Centre	All HERE Maps	$\geq 50.000 \text{ m}^2$ (EMEA: $\geq 20.000 \text{ m}^2$, NA: $\geq 250.000 \text{ m}^2$)	$\geq 10.000 \text{ m}^2$ and $< 50.000 \text{ m}^2$ (EMEA: $\geq 10.000 \text{ m}^2$ and $< 20.000 \text{ m}^2$ NA: $\geq 10.000 \text{ m}^2$ and $< 250.000 \text{ m}^2$)
State Park	All HERE Maps	$\geq 10.000 \text{ m}^2$	$\geq 500 \text{ m}^2$ and $< 10.000 \text{ m}^2$
Polygonal River	Prime/Complete	$\geq 25 \text{ m wide}$	$\geq 5 \text{ m and } < 25 \text{ m wide}$
	Network/City-to-City	$\geq 100 \text{ m wide}$	$\geq 5 \text{ m and } < 25 \text{ m wide}$
Linear River	Prime/Complete	$\geq 10 \text{ and } < 25 \text{ m wide}$	$\geq 2 \text{ m and } < 5 \text{ m wide}$
	Network/City-to-City	$\geq 25 \text{ and } < 100 \text{ m wide}$	$\geq 2 \text{ m and } < 5 \text{ m wide}$
Lake	Prime/Complete	$\geq 10.000 \text{ ms}^2$	N/A
	Network/City-to-City	$> 250.000 \text{ m}^2$ (NA: $> 1 \text{ million m}^2$)	$> 10.000 \text{ m}^2$ and $< 250.000 \text{ m}^2$ (NA: $> 10.000 \text{ m}^2$ and $< 1 \text{ million m}^2$)

1. All islands with navigable road network are included. Inclusion sizes provided apply to islands without navigable road network. For Expanded Inclusion, Islands are included if within a hydro feature included under Expanded inclusion rule.

Note: Features that exceed the standard size requirement do not receive *Expanded Inclusion*. However, features that are flagged as *Expanded Inclusion* at a lower *Coverage Indicator* level retain the *Expanded Inclusion* flag when the *Coverage Indicator* gets upgraded to a higher level where the *Standard Inclusion* size overlaps with that of the *Expanded Inclusion*. For example, if a lake feature flagged with *Expanded Inclusion* in Canada has a *Coverage Indicator* value of N4 and is upgraded to N0, it maintains the *Expanded Inclusion* flag regardless of meeting standard inclusion size for *Coverage Indicator* value = N0.

8.3.5.2 Feature Type

Definition	<i>Feature Type</i> uniquely identifies a cartographic category; and therefore, allows identification of cartographic items using symbols or colouring for display and map publishing.
-------------------	--

See *Section C.14, RDF_CARTO*. for values.

8.3.5.3 Long Haul (LONG_HAUL)

Definition	This attribute identifies that a feature is part of a long haul delivery and indicates level of inclusion for display. Long_Haul can be used to extract specific Long_Haul products from the seamless, detailed RDF product. In the future, the RDF Clipping logic can be used to extract Long-Haul products.
-------------------	---

Values	N = Not Part of Long Haul Y = Part of Long Haul
---------------	--

Default Value	N = Not Part of Long Haul
----------------------	---------------------------

Related Tables	RDF_CARTO_FACE RDF_CARTO_LINK
-----------------------	----------------------------------

Specification	<ul style="list-style-type: none">Within the Land Cover/Land Usage Cartographic Features, the value <i>Long Haul</i> = Y only applies to Islands. Islands are the only Land Cover/Land Usage feature which can receive <i>Long Haul</i> = Y.
----------------------	--

8.3.5.4 Official Name/Alternate Name (NAME_TYPE)

Definition	This attribute is used to ensure the cartographic name displayed is the one most prominently displayed or used for the area. Official Name/Alternate Name indicates the name that should be displayed for the feature.
-------------------	--

Related Attributes	Distinct Names are published in RDF_FEATURE_NAME. Table RDF_FEATURE_NAMES provides a mapping of Features to Names. The CARTO_ID corresponds to FEATURE_ID in RDF_FEATURE_NAMES.
---------------------------	---

Related Tables	RDF_FEATURE_NAME RDF_FEATURE_NAMES
-----------------------	---------------------------------------

Specification	<ul style="list-style-type: none">The Language Code applicable to the name is published in the RDF_FEATURE_NAME table (for example, ENG for name Basset County Park).In most cases, a feature has only one name. In a truly bilingual area, it can occur that the same real world feature has more than one name. If different names exist for each Official Language, two features are included to enable the publication of the Base Names in their respective languages.For information on names containing non-Latin-1 characters, see <i>Section A.1.5, Non-Latin-1 Names</i>.
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8.3.6 Water Features

8.3.6.1 Canals, Channels and Rivers

- Prime**
- Canals, Channels and Rivers are included as Area Features when:
 - ◆ Wider than 25 metres/82 feet for standard inclusion.
 - ◆ Between 5 metres/16 feet and 25 metres/82 feet in width for expanded inclusion.
 See *Section 8.3.5.1, Expanded Inclusion (EXPANDED_INCLUSION)*.
 - They are included as Line Features when:
 - ◆ Between 10 metres/33 feet and 25 metres/82 feet in width for standard inclusion.
 - ◆ Between 2 metres/7 feet and 5 metres/16 feet in width for expanded inclusion.
 See *Section 8.3.5.1, Expanded Inclusion (EXPANDED_INCLUSION)*.
- Complete**
- Canals, Channels and Rivers are included as Area Features when:
 - ◆ Wider than 25 metres/82 feet for standard inclusion.
 - ◆ Between 5 metres/16 feet and 25 metres/82 feet in width for expanded inclusion.
 See *Section 8.3.5.1, Expanded Inclusion (EXPANDED_INCLUSION)*.
- Network**
- Europe
- These features are included as:
 - ◆ Area Features when wider than 100 metres/328 feet for at least 5 km/3 miles.
 - Linear features if they are between 25 metres/82 feet and 100 metres/328 feet wide.
- North America
- North America: Canals, Channels and Rivers are included as Area Features if they are wider than 250 metres/820 feet for at least 10 km/6 miles.
 - These features are included as Line Features when they are between 100 metres/328 feet and 250 metres/820 feet wide.
- Specification**
- A waterway is represented until it becomes permanently thinner than the width for Line Feature waterway inclusion Specifications. Intermittent lakes and rivers are not included.
 - A Line Feature River may become an Area Feature River when the width of the river changes to meet the Area Feature inclusion. In these cases, the transition between the Line Feature and the Area Feature is digitised at an angle (as a gradual change) and is completed within 25 metres/82 feet of the point where the river's width changes. The general trend of the river is digitised as a Line Feature or an Area Feature based on the overall trend of the river.

- Waterway features cannot share edges with Road, Ferry, and Railway features.
- Water Area Features (except Oceans) do not overlap with other water features.

8.3.6.2 Park in Water

Definition Park in Water represents national, state, county, or city park boundaries that encompass entire or partial water features.

Inclusion

- Two separate polygons are included if the park is partly in water and partly on land:
 - ◆ One polygon representing the Park in Water (*Feature Type(0900140)*), and
 - ◆ One polygon representing the park on land (*Feature Type(0900103, 0900130 or 0900150)*).

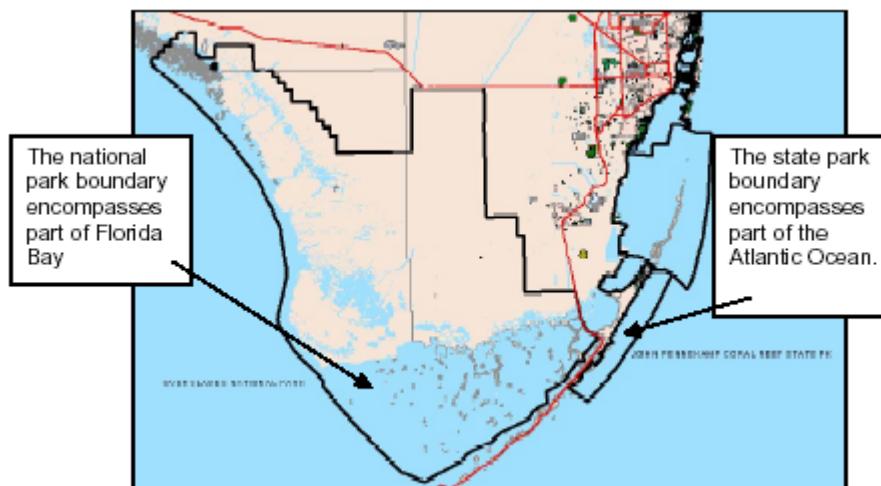


Figure 8-12

8.3.7 Water Feature Attributes

The following section describes the attributes which are included for Waterways features:

- Detailed City
- Display Class
- Long Haul
- Official Name/Alternate Name

8.3.7.1 Detailed City (DETAILED_CITY)

Definition Detailed City indicates whether a feature is part of a Prime coverage area.

Table RDF_NAV_LINK_STATUS

Column	DETAILED_CITY
Values	N = Not a Prime coverage area Y = Prime coverage area
Default Value	None
Cardinality	1:1
Related Attribute	<i>In Process Data (IN_PROCESS_DATA)</i>
Usage	<i>Detailed City</i> allows systems to adapt to different coverage area levels.
Specification	<ul style="list-style-type: none"> • If <i>Detailed City</i> = N, then the coverage area is either Complete, Network, or City-to-City. • If <i>Detailed City</i> = Y, then the coverage area is Prime. See <i>Section 2.2, Prime</i> for further information about Prime coverage areas.

8.3.7.2 Expanded Inclusion (EXPANDED_INCLUSION)

See *Section 8.3.5.1, Expanded Inclusion (EXPANDED_INCLUSION)*.

8.3.7.3 Long Haul

Definition	This attribute identifies that a feature is part of a long-haul delivery and indicates the level of inclusion for display. <i>Long Haul</i> for Cartographic Features is published in RDF_CARTO_LINK.LONG_HAUL, RDF_CARTO_FACE.LONG_HAUL, RDF_BUILDING_FACE.LONG_HAUL.
Values	N = Not Part of Long Haul Y = Part of Long Haul
Related Tables	RDF_CARTO_LINK RDF_CARTO_FACE RDF_BUILDING_FACE
Usage	Long_Haul can be used to extract specific Long_Haul network from the seamless, detailed RDF product. In the future, the RDF Clipping logic can be used to extract Long-Haul products.
Specification	<ul style="list-style-type: none"> • <i>Long Haul</i> = Y is published for the following water features: <ul style="list-style-type: none"> ◆ Ocean (<i>Long Haul</i> = Y always applies to Oceans) ◆ Lake ◆ River ◆ Harbour/Port

8.3.7.4 Display Class (DISPLAY_CLASS)

Definition *Display Class* is a classification of features which enables specific features to be displayed.

Values See Section C.14, *RDF_CARTO*.

Default Value NULL

Table RDF_CARTO

Column DISPLAY_CLASS

- Specification**
- *Display Class* is assigned according to the importance of a feature. The most important features are classified in the first class.
 - *Display Class* is published only for (linear and polygonal) water features. *Display Class* is published for the following water features:
 - ◆ Ocean (500116)
 - ◆ Bay/Harbour (507116)
 - ◆ Lake (500421)
 - ◆ River (500412)
 - ◆ Canal/Water Channel (500414)
 - ◆ Intermittent River (500413)
 - All features which are not water features have no assigned *Display Class* value.
 - *Table 8-2* shows water features and their respective *Display Class* value.

Display Class	Water Feature
1	Oceans Rivers, Canals, and Intermittent Rivers displayed at world overview maps at an approximate scale of 1:50.000.000 or based on local knowledge. Bay/Harbours touching Oceans or touching Rivers included at <i>Display Class</i> = 1, or based on local knowledge. Lakes according to Regional Display Class Values for Lakes.
2	Rivers, Canals, and Intermittent Rivers on commercial maps at an approximate scale of 1:25.000.000 or based on local knowledge. Bay/Harbours touching Rivers included as <i>Display Class</i> = 2 or based on local knowledge. Lakes according to Regional Display Class Values for Lakes.
3	Rivers, Canals, and Intermittent Rivers on commercial maps at an approximate scale of 1:10.000.000 or based on local knowledge. Bay/Harbours touching Rivers included as <i>Display Class</i> = 3 or based on local knowledge. Lakes according to Regional Display Class Values for Lakes.

Display Class	Water Feature
4	Rivers, Canals, and Intermittent Rivers on commercial maps at an approximate scale of 1:2.500.000 or based on local knowledge. Bay/Harbours touching Rivers included as <i>Display Class</i> = 4 or based on local knowledge. Lakes according to Regional Display Class Values for Lakes.
5	Rivers, Canals, and Intermittent Rivers on commercial maps at an approximate scale of 1:1.000.000 or based on local knowledge. Bay/Harbours touching Rivers included as <i>Display Class</i> = 5 or based on local knowledge. Lakes according to Regional Display Class Values for Lakes.
6	Rivers, Canals, and Intermittent Rivers on commercial maps at an approximate scale of 1:500.000 or based on local knowledge. Bay/Harbours touching Rivers included as <i>Display Class</i> = 6 or based on local knowledge. Lakes according to Regional Display Class Values for Lakes.
7	Rivers, Canals, and Intermittent Rivers on commercial maps at an approximate scale of 1:150.000 or based on local knowledge. Bay/Harbours touching Rivers included as <i>Display Class</i> = 7 or based on local knowledge. Lakes according to Regional Display Class Values for Lakes.
8	Rivers, Canals, and Intermittent Rivers on commercial maps at an approximate scale of 1:30.000 or based on local knowledge. Bay/Harbours touching Rivers included as <i>Display Class</i> = 8 or based on local knowledge. Lakes according to Regional Display Class Values for Lakes.

Table 8-2

- Islands do not have an assigned *Display Class* value.
 - Water features can be assigned a more important *Display Class* based on local knowledge, even though their individual size does not reflect their importance. Large rivers sometimes originate from smaller rivers that merge together. In this case, the large river originates from the smaller rivers and therefore, the smaller rivers should receive the same *Display Class* as the larger river for correct map display.
Example: River Weser in Germany originates from river Fulda and river Werra, which are smaller rivers compared to river Weser. The two rivers, Fulda and Werra, merge together and form river Weser. Therefore, these two smaller rivers should receive the same *Display Class* as the river Weser.
 - Rivers receive the same *Display Class* for the complete feature, regardless of the changes in width throughout the course of the river.
- Note: Branches of main rivers do not necessarily receive the same *Display Class* as the main river.
- *Display Class* values 1 through 8 are not necessarily populated for all water features. For example, Greece does not have any rivers coded at *Display Class* = 1 and 2, since no large rivers run through Greece. However, all water features have an assigned *Display Class*. See Table 8-3

Regional Display Class Values for Lakes

Display Class	Europe/Middle East/Asia-Pacific (square metres)	Canada (square metres)	Americas ¹ and Australia (square metres)
1	> 100.000.000	>200.000.000	>100.000.000
2	> 50.000.000 < 100.000.000	>50.000.000 <200.000.000	> 10.000.000 < 100.000.000
3	> 10.000.000 < 50.000.000	>10.000.000 <50.000.000 >	5.000.000 < 10.000.000
4	> 5.000.000 < 10.000.000 >	5.000.000 < 10.000.000 >	2.500.000 < 5.000.000
5	> 2.500.000 < 5.000.000	>1.000.000 < 5.000.000	>1.000.000 < 2.500.000
6	> 1.000.000 < 2.500.000 >	600.000 < 1.000.000 >	600.000 < 1.000.000
7	> 250.000 < 1.000.000 >	250.000 < 600.000 >	250.000 < 600.000
8	> 0 < 250.000	> 0 < 250.000	> 0 < 250.000

1. Excludes Canada; includes U.S.V.I. and Puerto Rico.

Table 8-3

8.3.7.5 Official Name/Alternate Name (NAME_TYPE)

Definition This attribute represents the Official Name/Alternate Name of a waterway, in the default language of the country.

Official Name/Alternate Name indicates the name that should be used for the map display of the water feature.

Table RDF FEATURE_NAME

Column NAME

Related Tables RDF_CARTO

RDF_FEATURE_NAMES provides a mapping of Features to Names. The CARTO_ID corresponds to FEATURE_ID in RDF_FEATURE_NAMES.

Specification

- The Language Code is also published in RDF_FEATURE_NAME.
- RDF_FEATURE_NAME publishes Latin-1 and non-Latin-1 names.
- In most cases, a feature has only one name. In a truly bilingual area, it can occur that the same real world feature has more than one name. If different names exist for each Official Language, two features are included to enable the publication of the Base Names in their respective languages.
- For information on names containing non-Latin-1 characters, see Section A.1.5, Non-Latin-1 Names.

- If the waterway is *Feature Type*= 500116 (Ocean), then exonyms are published according to the table below:

Exonym Inclusion for Administrative/Cartographic Features and POIs

Feature Name	Languages Included					
	Global	Regional				
		APAC	Africa	Europe	N. America	Mid. East
Administrative Area Names (Administrative Level 1-5) (Administrative Level 0 - 4)	X ¹					
Country Capitals for Administrative Level 1 (i.e., <i>Name Placed POIs with Capital Indicator = 1</i>).Country Capitals for Administrative Level 0 (i.e., <i>Named Place POI with Capital Indicator = Y</i>)	X ¹					
Cartographic Feature: Ocean	X ¹					
Cartographic Feature: Island				X ²		
Cartographic Feature: Select categories		X ³				X ⁴
POI Attributes: Restaurant Type, Food Type, Regional Food TypePOI Attributes: Restaurant Type, Cuisine ID, Regional Cuisine ID	X ⁵					
Named Place POIs with Capital Indicator 2.Named Place POIs with Capital Indicator=Y	X ⁵			X ⁵	X ⁶	
Nationally important POIs	X ⁷					

1. Language inclusion can vary by country/feature but generally include the following: ARA, BUL, CHT, CZE, DAN, DUT, ENG, EST, FIN, FRE, GER, HIN, HUN, ICE, IND, ITA, JPN, KOR, LIT, NOR, POL, POR, RUM, RUS, SCR, SLO, SPA, SWE, THA, TUR, and UKR. In addition, the corresponding transliteration language is added if applicable.
2. Currently included only in Greece:TUR
3. Currently included only in India: HIN
4. Currently included only in Israel and Palestine: ENG (for features that include that may not be limited to the following: Airport, Amusement/Animal Park, Cemetery, Hospital, Industrial Complex, Lake, Park(City/County/State), Park/Monument(National), River, Shopping Centre, Sports Complex, and University/College).
5. Language inclusion can vary by region but generally include the following: CZE, DAN, DUT, ENG, FIN, FRE, GER, GRE, HUN, ITA, NOR, POL, POR, RUS, SLO, SPA, and SWE.
6. Language inclusion can vary by country but generally include the following: ENG, FRE, and SPA.
7. Language inclusion can vary by region but generally include the following as minimum: DUT, FRE, GER, ITA, and SPA.

Table 8-4

- An exonym is published in each language in even if the spelling is the same.

8.3.7.6 Feature Type (FEATURE_TYPE)

Definition *Feature Type* differentiates types of Waterways.

Values See Section C.14, *RDF_CARTO*.

Related Tables *RDF_FEATURE_NAME*
RDF_FEATURE_NAMES

Specification • *Feature Type* determines the Water Element Type.

8.3.8 Railroad Features

The following features are included within the Railways theme.

8.3.8.1 Railway Element

Definition A path with tracks that are, or can be, used for trains. Railway Element is a Linear Feature.

Inclusion Prime and Network:

- The following are included:
 - ◆ National and civil railways that comprise the main railway network are included.
 - ◆ The main lines of all above ground railways.
- Local commuter rail network, light rail networks or cable car lines are not included.
- Railway yards are generalised to include the main track in and out of the railway yard and approximately every third track in the yard. If more than one main line track runs outside of a railroad yard, the centre line of the track bed is digitised.

8.3.9 Railroad Attributes

The following section describes the attributes that are included for Railways features. When an attribute only applies to a particular Railways feature code, it is noted.

8.3.9.1 Railway Crossing (FP_TYPE = RC)

Definition Identifies a railway intersecting a road.

Table *RDF_FEATURE_POINT*

Column *FP_TYPE*

Values See Section C.42, *RDF_FEATURE_POINT*.

Usage Allows for map display

Specification • Railway Crossings is published only if a railroad intersects a road at the same level. See Figure 8-13. The Feature Points represents the midpoint of the intersection of the road and railroad.

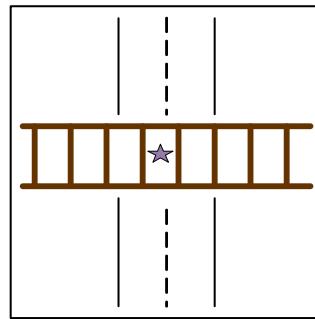


Figure 8-13

- If multiple railroad tracks intersect a road at one location and are perceived to be one intersection, only one Feature Point is published. See *Figure 8-14*.

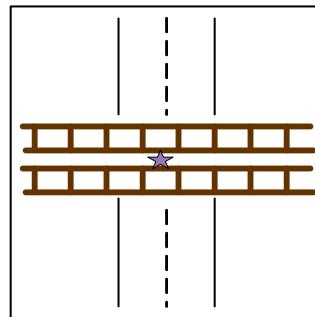


Figure 8-14

- Railway Crossings may be published even if the railroad tracks are not present in the map data.
- Railway Crossings are not associated to any link or Node; therefore, SIDE = N is published in these cases.
- The presence of a Railway Crossing does not indicate that the crossing is protected or unprotected. See *Section 6.4.14.1, Railway Crossing Type (RAILWAY_CROSSING_TYPE)*.
- The presence of a Railway Crossing does not indicate if the tracks are in use. The Railway Crossing may represent railroad tracks that are no longer in use.
- Positional accuracy is within +/- 50 metres.

8.3.9.2 Official Name/Alternate Name (NAME_TYPE)

Definition This attribute represents the Official Name/Alternate Name of a railway, in the default language and indicates the name that should be displayed for the feature. The Official Name/Alternate Name is only published in North America.

Default Value	Distinct Names are published in RDF_FEATURE_NAME. Table RDF_FEATURE_NAMES provides a mapping of Features to Names. The CARTO_ID corresponds to FEATURE_ID in RDF_FEATURE_NAMES.
Specification	<ul style="list-style-type: none"> • In most cases, a Railway has only one name. It can occur that multiple names exist for a Railway Element. In these cases, multiple Official Names/Alternate Names would exist. • The Language Code applicable to the Railroad is published in the Name Record RDF_FEATURE_NAME table (for example, ENG for Southern Pacific). • In Europe, Railway Elements are not named.

8.3.10 Calamity Prone Area Features

8.3.10.1 Hurricane Prone Area

Definition	A <i>Hurricane Prone Area</i> polygon can be used for map display to identify areas that have the same hurricane severity risk rating. Usually, Hurricane Risk Area polygons are related to a corresponding evacuation route.
-------------------	---

Table RDF_CARTO

Column FEATURE_TYPE

Values See Section C.14, *RDF_CARTO*.

Related Attribute Severity Rating

Specification	<ul style="list-style-type: none"> • A <i>Hurricane Prone Area</i> polygon can exist on a land mass only. • Polygon name is included if present in governmental sources. • <i>Hurricane Prone Area</i> polygons are published in the U.S. only. • One or more polygons are included to represent areas subject to hurricane risk. See <i>Figure 8-15</i>.
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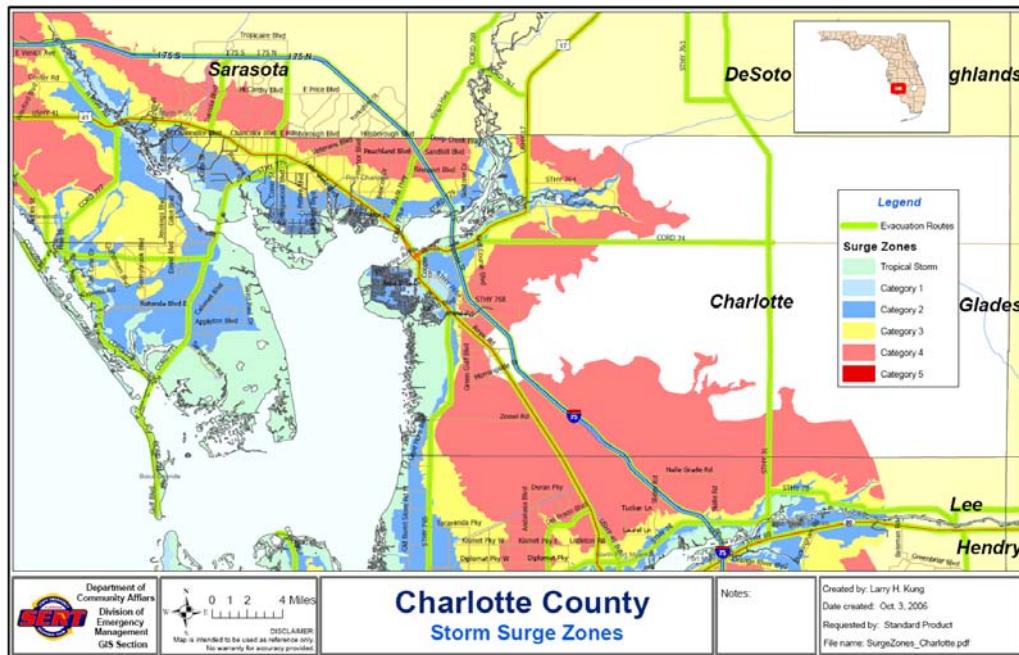


Figure 8-15

8.3.10.2 Flood Prone Area

Definition A *Flood Prone Area* polygon identifies areas subject to the same severity rating risk in case of flood. Usually, *Flood Prone Area* polygons are related to a corresponding evacuation route.

Table RDF_CARTO

Column FEATURE_TYPE

Value See Section C.14, RDF_CARTO.

Related Attribute Severity Rating

Usage The *Flood Prone Area* polygon can be used for map display to highlight areas subject to a specific flood risk level.

- Specification**
- *Flood Prone Area* polygon can only exist on land mass.
 - Polygon name is included if present on governmental sources.
 - One or more polygon is included to represent areas subject to Flood risk.
 - *Flood Prone Area* identify areas subject to an overflow of water.
 - *Flood Prone Area* polygons are published in the U.S. only.

8.3.10.3 Tsunami Prone Area

Definition	A <i>Tsunami Prone Area</i> polygon identifies areas subject to the same severity rating risk in case of a tsunami. Usually, <i>Tsunami Prone Area</i> polygons are related to a corresponding evacuation route.
Table	RDF_CARTO
Column	FEATURE_TYPE
Value	See Section C.14, <i>RDF_CARTO</i> .
Related Attribute	Severity Rating
Usage	A <i>Tsunami Prone Area</i> polygon can be used for map display to highlight areas subject to a specific tsunami risk level.
Specification	<ul style="list-style-type: none"> • <i>Tsunami Prone Area</i> polygon can only exist on land mass. • Polygon name is included if present on governmental sources. • One or more polygons is included to represent areas subject to Tsunami risk. • <i>Tsunami Prone Area</i> polygons identify areas subject to an overflow of water due to a rapid water body displacement. • <i>Tsunami Prone Area</i> polygons are published in the U.S. only.

8.3.11 Calamity Prone Area Attribute

8.3.11.1 Severity Rating (SEVERITY_RATING)

Definition	<i>Severity Rating</i> is a risk classification of flood, hurricane, or tsunami in a specific area.
Table	RDF_CARTO
Column	SEVERITY_RATING
Values	See Section C.14, <i>RDF_CARTO</i> .
Usage	<i>Severity Rating</i> can be used to colour code areas that are subject to the same level of risk.
Specification	<ul style="list-style-type: none"> • <i>Severity Rating</i> is applied to the following polygons: <ul style="list-style-type: none"> ◆ Hurricane Prone Area ◆ Flood Prone Area ◆ Tsunami Prone Area • Government sources are used to determine the applicable <i>Severity Rating</i> value.

8.3.12 Environmental Zone

8.3.12.1 Environmental Zone Feature

Definition	<i>Environmental Zone</i> polygon is the cartographic representation of an area where access to traffic is limited and governed by specific environmental criteria.
Value	See Section C.14, <i>RDF_CARTO</i> .
Related Attribute	Polygon Restriction
Usage	<i>Environmental Zone</i> polygons can be used for map display, to highlight areas to which environmental restrictions apply.
Specification	<ul style="list-style-type: none">• An <i>Environmental Zone</i> polygon is optionally included for an Environmental Zone.<ul style="list-style-type: none">◆ An Environmental Zone is optionally provided with a corresponding <i>Environmental Zone Polygon</i>.◆ When an environmental zone applies to a stretch of road only, for example a highway or part of an highway, an <i>Environmental Zone Polygon</i> (Feature Type = 9997010) is not published.◆ For example, A12 Motorway in Austria has emissions requirements; however no <i>Environmental Zone</i> polygon is published.• All internal road geometry within the <i>Environmental Zone</i> polygon is published with <i>Environmental Zone</i> condition when applicable.• <i>Environmental Zone</i> polygons may be published in one city, an area of a city or to multiple cities.• An <i>Environmental Zone</i> polygon may overlap with an existing Congestion Zone (9997004) polygon.• The <i>Environmental Zone</i> polygon is named with the name assigned by the official authorities.• If no official name is known for the environmental zone, a name is generated based on the following rule: "<city or area name> + "LEZ" (i.e. "Köln LEZ")

8.3.13 Environmental Zone Attribute

8.3.13.1 Polygon Restriction (POLYGON_RESTRICTION)

Definition	Polygon Restriction identifies whether the polygon applies to passenger cars or to trucks only.
Table	RDF_CARTO
Column	POLYGON_RESTRICTION
Value	See Section C.14, RDF_CARTO.
Usage	Polygon Restriction can be used to selectively filter <i>Environmental Zone</i> polygons not relevant for the user's profile. For example, a driver of a passenger car may not be interested in having each truck-only <i>Environmental Zone</i> polygon in the map display.
Specification	<ul style="list-style-type: none">• Polygon Restriction is published for all <i>Environmental Zone</i> polygons.• <i>Polygon Restriction = 1 (Trucks Only)</i> identifies polygons related to Environmental Zone restricting access to trucks only.• <i>Polygon Restriction = 2 (Autos Only)</i> identifies polygons related to Environmental Zone restricting access to autos only.• <i>Polygon Restriction = 3 (Autos and Trucks)</i> identifies polygons related to Environmental Zone restricting access to autos and trucks.• The Access Characteristics applicable to the <i>Environmental Zone</i> condition (CONDITION_TYPE = 34) indicate to which vehicles the environmental restriction applies. The Polygon Restriction only indicates if the <i>Environmental Zone</i> polygon applies to trucks or passenger cars.

Points of Interest

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9.1 Introduction

Point of Interest is a generic term for an activity at a specific location. A *POI* can be a bank, park, hotel, tourist attraction, or one of many other categories. It is important to notice that a *POI* represents an activity and not the building in which this activity (possibly) takes place.

Many *POIs* are particularly relevant to the road environment, such as vehicle maintenance, emergency services, border crossings, and retail services. The *POI* feature can be further characterised by attributes describing the address, phone number, cuisine type (of a restaurant), etc.

HERE does not publish *POI* icons.

Note: The rules described in this chapter apply to the *POIs* published in the NAVMAP products and not those contained within rich content products unless otherwise stated. For example, although Electric Vehicle Charging Stations in the Fuel Types XML product can be published on parking lot roads, no references to this product are given in this chapter.

9.2 General Rules

- Only one Feature Code can be associated with a single POI.
- POIs may exist in multiple categories.
- For example, multiple POIs are added when a facility, which functions mainly as a Coffee Shop, changes its function depending on the time of the day. e.g., changes to a restaurant in the evening, and then becomes a bar in the late evening/night. Restaurant and Nightlife POIs are also added.
- POIs may exist on links with *In-Process Data* = Y.
- POIs are published generally only for facilities that are accessible by the general public or by membership.

9.3 Placement of POIs

9.3.1 Airport-Related POIs

Main Airport POI

- The following rules explain the inclusion and placement of *Airport POIs*.
 - The main *Airport POI* is located at the main entrance of the airport building. If there is a decision point to go toward different airport terminals before reaching the main entrance, the main *Airport POI* is located on the last link before the decision point.

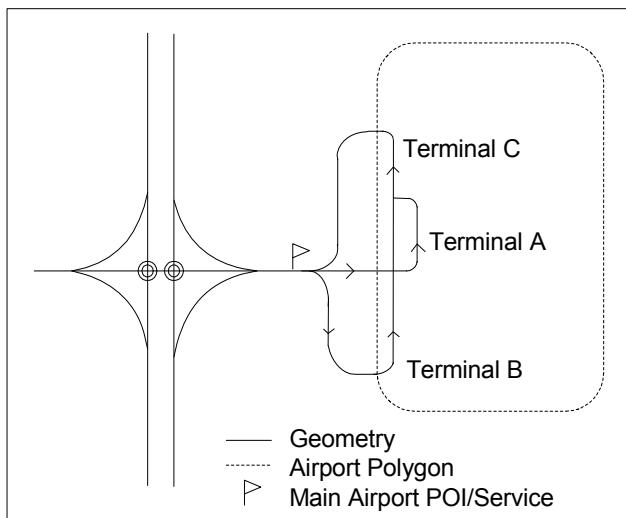


Figure 9-1

- When there are multiple entrances, *Airport POIs* are included for each entrance, regardless of whether or not it is possible to drive from one entrance to the other through the airport area. The main entrance POI is named after the official airport name and is considered the parent POI.

If each entrance is considered to be a main entrance, a POI for each entrance is added in addition to one centrally located *Airport POI*. The entrance(s) are differentiated by additions to the name in the national language (e.g., junction name, street name, north/south). For example, Flughafen Frankfurt Main-A3 Zugang.

- Only the main *Airport POI* is included when all terminals, including Arrivals and Departures, are at the same entrance link, e.g., Eindhoven Airport. See *Figure 9-2*.

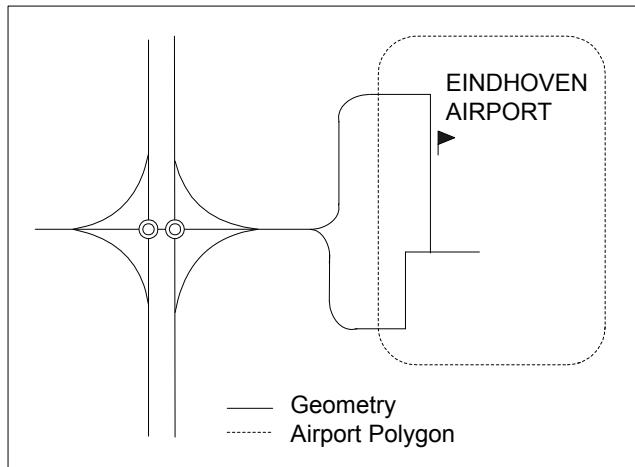


Figure 9-2

Airport Terminal POIs

- If there is only one terminal, but the entrances to Arrivals and Departures are on different link, each Arrival and Departure terminal receives a separate *Airport POI*, e.g., Schiphol-Aankomst (Arrival) and Schiphol-Vertrek (Departure). See *Figure 9-3*.

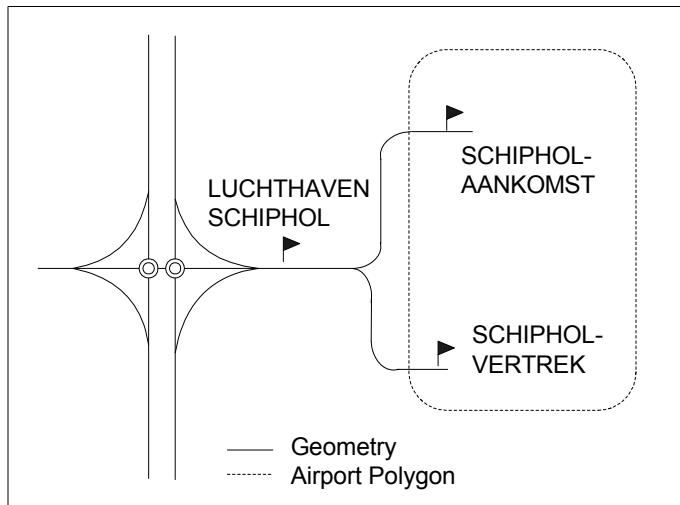


Figure 9-3

- When an entrance link serves multiple terminals and Arrivals and Departures are at the same entrance link, only one *Airport POI* is added for the terminal, e.g., Stockholm-Arlanda-Terminal 2&3. If airport terminals are reached via different access link, each terminal is included as a separate *Airport POI*. See *Figure 9-4*.

Note: If the link is very long, nodes are inserted to improve destination placement.

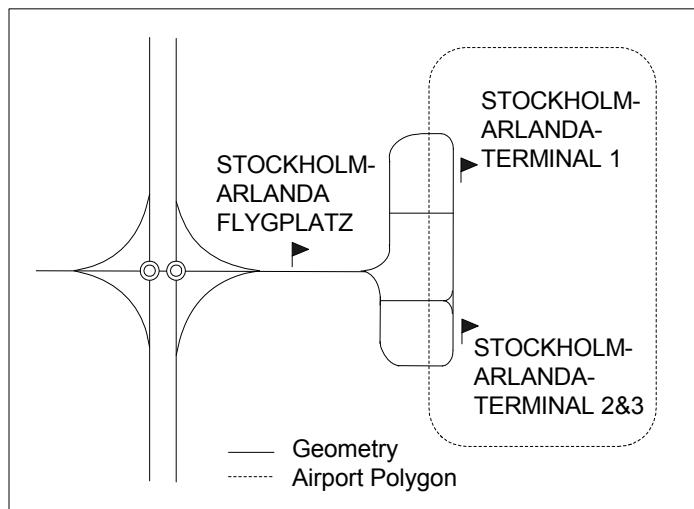


Figure 9-4

- When an entrance link serves multiple terminals and Arrivals and Departures are reached via different link, then Arrivals and Departures receive separate Airport POIs, e.g., Logan Int'l-T1&2 Arrivals and Logan Int'l-T1&2 Departures. See *Figure 9-5*.

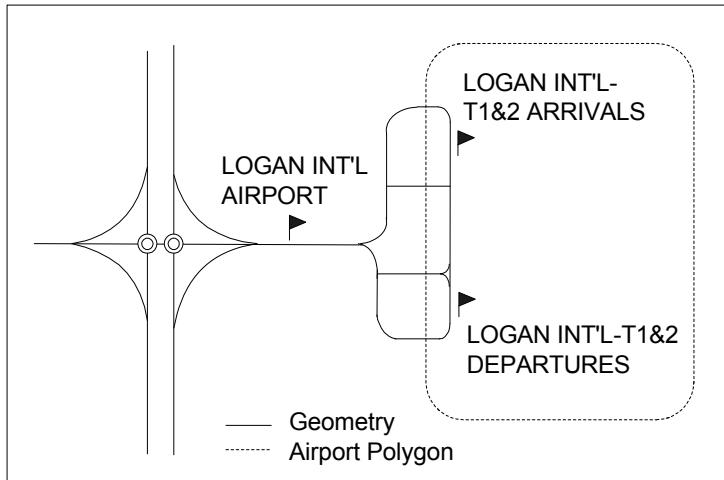


Figure 9-5

- When Arrivals and Departures are on different Levels, two separate Airport POIs are included, one for each Terminal, e.g., Los Angeles Int'l-T1 Arrivals and Los Angeles Int'l-T1 Departures. Even though the access road is a loop accessing all the terminals, the POIs are placed on the link pertinent to the terminal. See *Figure 9-6*.

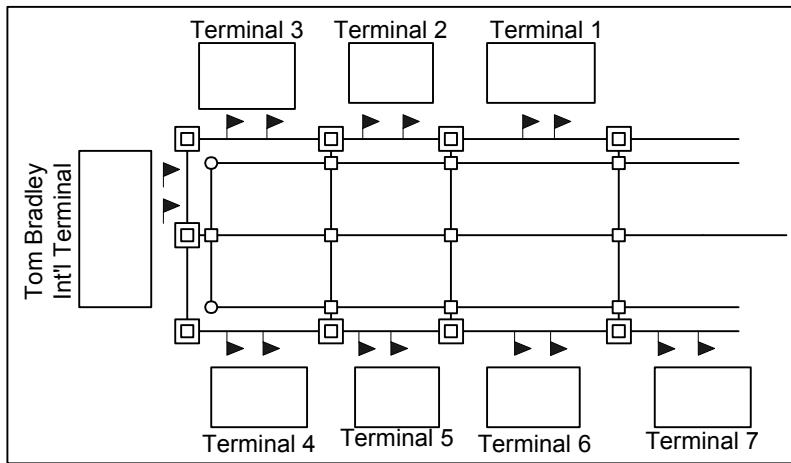


Figure 9-6

Additional POIs at Airports

- All Hotels, Restaurants, Rental Car Agencies, and Parking Lots/Garages located in the publicly accessible area are included.
Note: Cellphone parking lots are included as an Open Parking Area POI in the U.S. and Canada.
- If the Rental Car pick up and return are located on different links, two separate POIs are added.

9.3.2 POIs with Multiple Entrances

Multiple entrances are not limited to specific POI categories, but are most commonly published for the following:

- *Airports*
- *Amusement Parks*
- *Animal Park*
- *Commuter Rail Stations*
- *Hospital/Polyclinics*
- *Parks*
- *Recreational Facility*
- *Rest Areas*
- *Shopping Centres*

9.3.3 POIs - Extended Navigation

- Generally, attribution and inclusion are enhanced for select POIs that are included in Extended Navigation content. POI categories for each targeted area can vary and may include the following:

- Airport
 - Amusement Park
 - Casino
 - Convention Centre
 - Golf Course
 - Historical Monument
 - Hospital
 - Museum
 - Park/Recreation Area
 - Railway Station
 - School
 - Shopping Centre
 - Sports Complex
 - Tourist Attraction
 - University
 - Winery
- Each location has one main POI with the official name of the facility, placed at the main entrance. Additional entrances are added at their actual locations for large features, e.g., Hospitals, Parks and Sports Complexes.
 - For Shopping Centres, the anchor store entrance locations are added at their actual location in addition to the main entrances to the Shopping Centre facility. *Figure 9-7* and corresponding *Table 9-1* illustrate the placement of the multiple entrances of a typical complex Shopping Centre.
 - A POI can be included for a Parking Garage/House, if navigationally significant.
 - See *Section 9.4.3, POIs with Multiple Entrances / Extended Navigation Content* for information on naming.

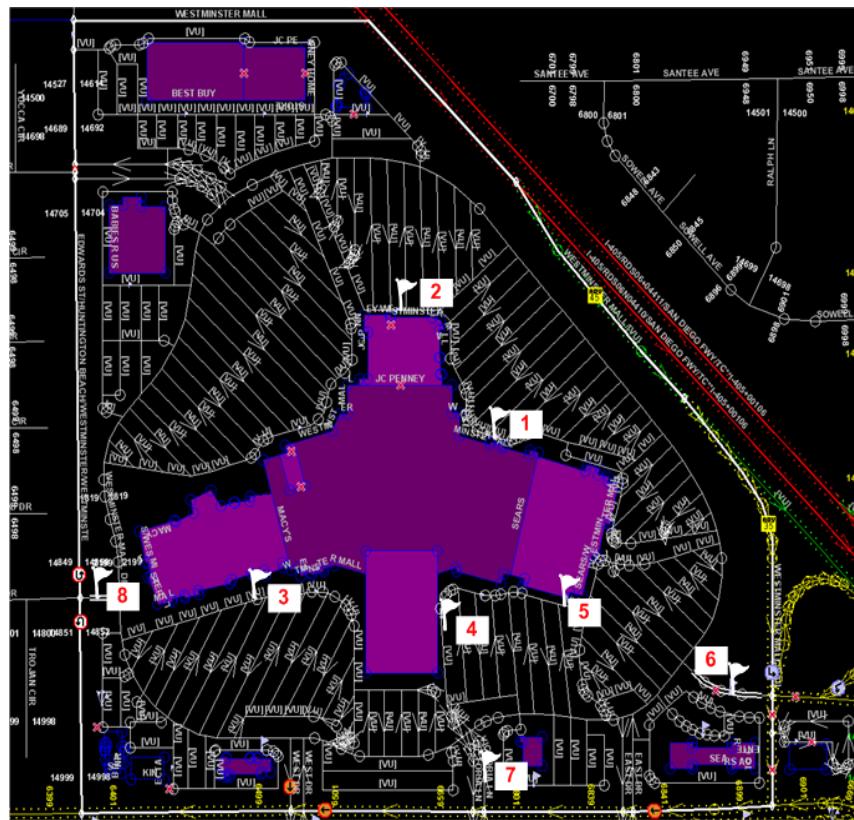


Figure 9-7

Position	Entrance Name
1	Westminster Mall
2	JC Penney-Westminster Mall
3	Macy's-Westminster Mall
4	Target-Westminster Mall
5	Sears-Westminster Mall
6	Westminster Mall-East
7	Westminster Mall-South
8	Westminster Mall-West

Table 9-1

See Section 9.8.6, *POI to POI Association (Parent - Child)* for details.

See Chapter 15, *Extended Navigation*.

9.3.4 Golf Course

- *Golf Course* and associated *Restaurant* POIs are placed on the first entrance link inside the golf course. See *Figure 9-8*. All other POIs are placed on the main road outside the entrance.

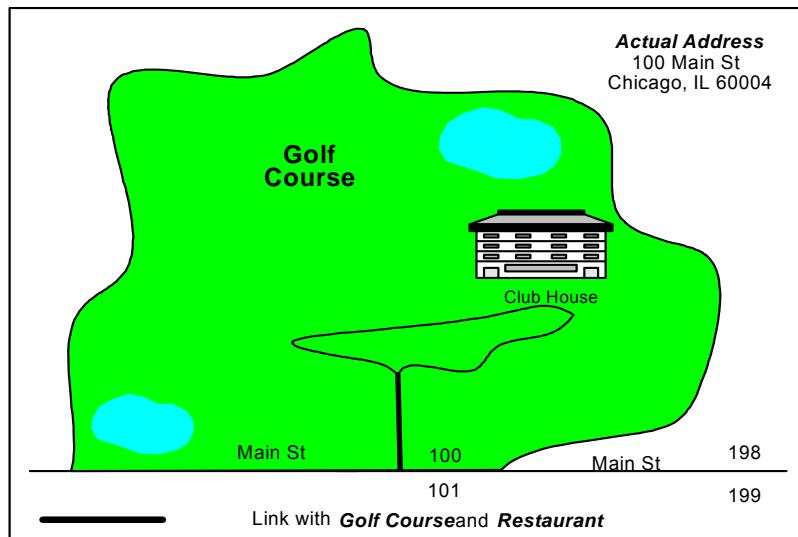


Figure 9-8

Golf Course within a Housing Community

- When a golf course is located within a housing community, the *Golf Course* POI is placed on the link where the clubhouse is addressed.
- See *Section 4.6.5, Attribution for Specific Features, POI Locations, or Areas*.

9.3.5 Loading Dock Locations

Delivery Entrance:

- One *Delivery Entrance* POI is located on a link published with *Delivery Road = N* leading to the delivery area.
- See *National Park* under *Section 9.8.6.1, Parent-Child Association Type (ASSOCIATION_TYPE)* for more information.

Dock

- One *Dock* POI is published for every dock or group of docks at the same delivery location.
- See *National Park* under *Section 9.8.6.1, Parent-Child Association Type (ASSOCIATION_TYPE)* for more information.

Loading Zone

- One *Loading Zone* POI is published to represent each loading zone servicing one or more business services.

9.3.6 Business Facility - Select Automobile Factories

- In Europe, attribution and inclusion are enhanced for select Automobile Factories.
- A *Business Facility* POI is added within the bounds of the Automobile Factory.
- Each plant has one main *Business Facility* POI with the official name of the facility placed at the main entrance. This POI is published as the Parent POI.
Note: Parent-Child association is applied if multiple entrances exist.
- Parking Garage/Houses and Parking Lots outside the bounds of an Automobile Factory are added if they are open to the public.

9.3.7 Named Place

- A *Named Place* POI is placed on a link located in the centre of the area it represents: either an Administrative Area (i.e., City/Municipality or Settlement) or Zone (e.g., KD, KA, etc.). Generally, this link is open for autos at all times in both directions and applied with *Functional Class* = 1 thru 4.
- A *Named Place* POI may be placed on links flagged as *In Process Data* = 1.

9.3.8 Rest Area

- A *Rest Area* POI is placed on the first link of the entrance to the facility at a point before the road splits based on vehicle access or to provide access to different facilities, e.g., Petrol/Gasoline Station, Restaurant, etc. See *Figure 9-9*.
This rule applies mainly to significant *Rest Area* POIs (e.g., facilities of *Rest Area Type* such as Complete Rest Area, Parking and Rest Room only; and Parking only).
- A *Rest Area* POI is placed on the first ramp link and in each direction if a ramp system makes a Rest Area accessible from both sides of the motorway. See *Figure 9-10*.

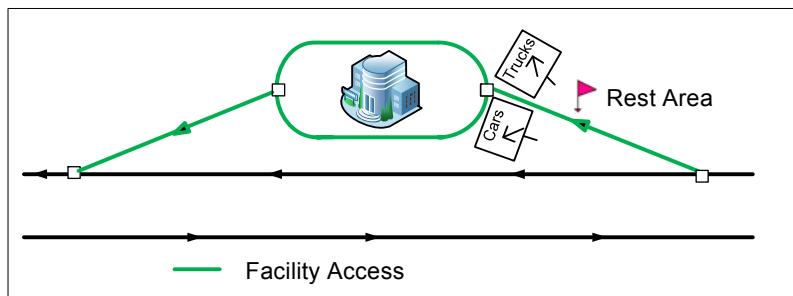


Figure 9-9

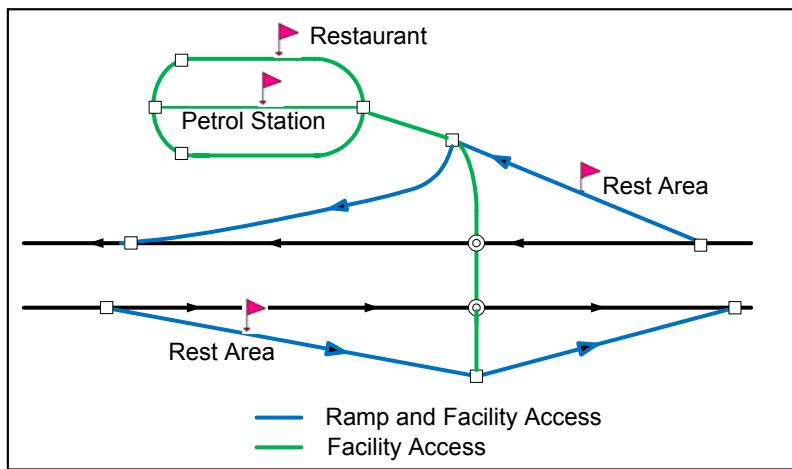


Figure 9-10

9.3.9 Ski Lift

- A *Ski Lift* POI is placed on the closest link in the database. This link may be restricted to pedestrians only.
- *Ski Lift* POIs are included in rural areas where they exist in reality. In these cases, a *Ski Lift* POI is placed on the closest navigable link in the database. This can be on the same link as the *Parking Lot* POI, or along the main road.

9.4 Naming of POIs

9.4.1 General

- POIs are generally named with their official names if available. However, there are country-specific conventions in naming if these are unnamed in reality.
- The following categories may be unnamed:
 - Parking Lots
 - Parking Garage/House
 - Place of Worship
 - Public Restrooms
 - Taxi Stand

Punctuations

- POI names may contain periods, e.g., names that include “.com”.
- Apostrophes are may be included to indicate possession, e.g., “Frankie’s Restaurant”.
- If dashes or hyphens exist in a POI name, spaces are not included before or after the dash/hyphen, e.g., “Tied-House Cafe and Brewery.”
- Commas may be included, e.g., “Wright, Jones, and Smith.”
- Space or apostrophe is not included in names such as: Mc_/_Mac_/_O_/_O’ or similar letter combinations in POI names. For example, the following POI names would be entered as “McDonnell” and “OBrien”.
- If a POI name has double parenthesis in reality, only single parenthesis used instead, eg., Wild Bills (Best (Bison) Burgers) would be included as Wild Bills (Best Bison Burgers).

Location Identifier

- A Location Identifier can be included in a POI name. Conventions can vary by country and by category. The following are examples of Location Identifiers added to the the POI Name:
 - Anchor Store Name (generally for Extended Navigation content)
Examples: Macy's-Woodfield Mall, Home Depot-Mall 205, etc.
 - Branch Name
Examples: 7-Eleven-Madison Ave Branch, Starbucks-Greenbelt Branch, etc.
 - “Off-Road”, to indicate that the location is accessible only by Four-Wheel Drive vehicles.
Example: Oasis Camping-Off-Road

POI to Street Name Association

- For bilingual areas (see *Country Profiles: Regional Bilingual/Multilingual Information*), a Base Name is associated with a single Street Name.
- For countries defined by HERE as multilingual (see *Country Profiles: Regional Bilingual/Multilingual Information*), a Base Name is associated with multiple Street Names.

These POIs (Neighbourhood, Hamlet, and Named Place) are exception to the above rule. Base Name for these is associated with a single Street Name.

Category Specific

- Specific naming rules are generally listed by *POI*; however, the naming rules for *POIs* associated with *Airports* are found in *Section 9.3, Placement of POIs*.
- See *Appendix A, Naming Rules* for more specific naming conventions. The same rules that apply to link names apply to *POI* names.
 - ◆ See *Section A.1.3, Bilingual Areas* for naming *POIs* in bilingual areas.
 - ◆ See *Section A.1.5, Non-Latin-1 Names* for naming *POIs* with non-Latin-1 characters.

9.4.2 Airport-Related POIs

- The following rules explain the naming of Airport-related *POIs*.

POI	Naming	Example
Airport (4581)	Official Name.	Aeropuerto de Málaga
	In the case of a well-known name being above the official name, the well-known name is added as the <i>Official Name</i> name and the official name is added as a synonym (<i>Alternate Name</i>). All other <i>POIs</i> will also use the well-known name when referencing the airport.	<i>Official Name</i> = Logan Int'l Airport <i>Alternate Name</i> = General Edward Lawrence Logan Int'l Airport
	The airport name is included in the national language.	
	If more than one main entrance exists the airport name is followed by the junction name if available, otherwise by the street name.	Flughafen Frankfurt Main-A3 Zugang
	For exonym/synonym inclusion see bullets below.	

POI	Naming	Example
Airport Terminal (4581)	The word “airport” is not added to airport terminals.	Barcelona-Terminal A, instead of: Airport de Barcelona-Terminal A
	If there is only one terminal designation and “Arrival” and “Departure” are reached via different access roads, the POI name is the official name (without “airport”) followed by a dash followed by Arrival or Departure. Arrival/Departure is included in the national language.	Schiphol-Aankomst
	If an entrance link serves multiple terminals, and “Arrival” and “Departure” are for both terminals at the same location, the POI name is the official name (without “airport”) followed by a dash, followed by the terminal names divided by the & sign. The terminal names are included in the national language.	Stockholm-Arlanda-Terminal 2&3
	If an entrance link serves multiple terminals, and “Arrivals” and “Departures” are not at the same location, the POI name is the official name (without “airport”) followed by a dash, followed by the terminal name(s) divided by the & symbol followed by Arrivals or Departures. The terminal names and Arrivals/Departures are included in the national language.	Logan Int'l-T1&2 Arrivals
Rental Car Agency (7510)	The word “airport” is not added to the Rental Car Agency POIs.	AVIS-Eindhoven, instead of AVIS-Eindhoven Airport.
	Company Name followed by a dash and the official airport name.	AVIS-Sacramento Int'l
	In case rental car pick-up and return are on different links, the POI name is the company name followed by pick-up or return followed by a dash and the official airport name (without “airport”).	AVIS Pick-up-Sacramento Int'l
Hotel or Motel (7011)	The word “airport” is not added to the hotel name.	Sheraton-Sacramento Int'l, instead of Sheraton-Sacramento Int'l Airport
	Hotel name followed by a dash and the official airport name (without “airport”).	Crown Plaza-Hannover Airport
	<u>U.S:</u> POIs that are added via TPD require this naming convention for <i>National Importance</i> = Y airports only.	

POI	Naming	Example
Restaurant (5800)	The word “airport” is not added to the restaurant POIs.	Apollo-Paris Charles de Gaulle, Instead of Apollo- Aéroport de Paris Charles de Gaulle
	Restaurant name followed by a dash and the official airport name (without “airport”).	Apollo-Paris Charles De Gaulle
	<u>U.S:</u> POIs that are added via TPD require this naming convention for <i>National Importance</i> = Y airports only.	
Parking Lot (7520) Parking Garage (7521)	The word “airport” is not added to the Parking Lot/Garage POIs.	Leonardo da Vinci-Parcheggio, instead of Aerop Leonardo da Vinci-Parcheggio
	“Parking” is included in the national language.	Leonardo da Vinci-Parcheggio
	<u>U.S:</u> Parking Lots that are added via TPD require this naming convention for <i>National Importance</i> = Y airports only.	
	Official airport name (without “airport”) followed by a dash and the parking name or “parking” if no name is available.	Schiphol-P3 Lang Parkeren
	“Long term” or “Short term” information is included in the name if applicable.	Logan Int'l-Parking A Hourly
	<u>North America</u> If the parking is private, the POI name is the name of the airport followed by a dash followed by the name of the Hotel or Restaurant followed by the parking name or “parking” if no name is available.	Logan Int'l-sheraton Parking

- If the POI name exceeds 35 characters with the naming rules above, then parts of the official name are abbreviated.

Note: Periods are not used in abbreviations.

→ Table 9-2 lists abbreviations that are used.

Name	Language	Abbreviation
Airport	ALL	Arpt
Aéroport	FRE	Aérop
Aeroport	CAT	Aerop
Aeropuerto	SPA	Aerop
Aeroporto	GAG, POR	Aerop

Name	Language	Abbreviation
Aeroportua	BAQ	Aerop
Aeroporto	ITA	Aerop
Aérodrome	FRE	Aérodr
Arrival	ENG	Arr
Departure	ENG	Dep
Flygplats	SWE	Flygpl or Flpl
Flygstation	SWE	Flygst or Flst
Flughafen	GER	Flugh or Flh
Flugplatz	GER	Flugpl or Flpl
International	ENG	Int'l
Letiste	CZE	Let
Letisko	SLO	Let
Lentokenttä	FIN	Lent
Lufthavn	DAN, NOR	Lufthvn or Lufth
Luchthaven	DUT	Luchthvn or Luchth
Terminal	ENG	T

Table 9-2

→ In North America, International is abbreviated “Int'l”

- Synonyms (*Alternate Names*) are included for the main *Airport(4581)* POI(s) only.
 - The 3-character IATA airport code is included as a synonym to the main *Airport(4581)* POI. When there are multiple entrances, this synonym is only applied to the one that is the Parent POI. The Language Code matches the one used for the main *Airport(4581)* POI. See <http://www.airportcitycodes.com/aaa/CCDBFrame.html> for a list of airport codes.
 - Note: Some airports do not have a 3-digit airport code in reality.
 - Other well-known synonyms are also included when applicable. See *Table 9-3* for U.S. examples.

Airport Name/Base Name	Synonym
San Francisco Int'l Airport	SFO Int'l Airport
Los Angeles Int'l Airport	LAX Int'l Airport
Dallas/Ft Worth Int'l Airport	DFW Int'l Airport
John F Kennedy Int'l Airport	JFK Int'l Airport

Table 9-3

- When a well-known name is preferred over the official name, this name is added as the *Official Name* and the airport's official name is added as an *Alternate Name*. For example, *Official Name* = Logan Int'l Airport and *Alternate Name* = General Edward Lawrence Logan Int'l.
- Exonyms (AN) are included for all main Airport(4581) POIs and Airport Terminals(4581). See Section 9.7.22, *Official Name/Alternate Name (NAME_TYPE)* for definition of exonyms and synonyms.
- *Table 9-4* contains some examples of the POIs related to Aéroport de Paris Charles De Gaulle:

ON or AN	Lang.	Name	Feature Class Code	Description	Parent /Child	Association Type
ON	FRE	Aéroport de Paris Charles de Gaulle	7373	Airport	Parent	
AN	POR	Aeroporto de Paris Ch de Gaulle				
AN	ITA	Aeroporto Di Parigi Ch de Gaulle				
AN	SPA	Aeropuerto París Charles de Gaulle				
AN	GER	Flughafen Paris Charles de Gaulle				
AN	DUT	Luchthaven Parijs/Charles de Gaulle				
AN	FIN	Parisin Lentokenttä Ch de Gaulle				
AN	ENG	Paris Charles de Gaulle Airport				
AN	SWE	Paris Charles de Gaulle Flygplats				
AN	DAN	Paris Charles de Gaulle Lufthavn				
AN	NOR	Paris Charles de Gaulle Lufthavn				
AN	SLO	Letisko Paríz-charlese de Gaullea				
AN	CZE	Letiste Paríz-charlese de Gaullea				
AN	FRE	Roissy				
AN	FRE	CDG				
AN	FRE	PAR				
ON	FRE	Charles de Gaulle Aérogare 1	7373	Airport	Child	P

ON or AN	Lang.	Name	Feature Class Code	Description	Parent /Child	Association Type
ON	FRE	Charles de Gaulle Aérogare 2	7373	Airport	Child	P
ON	FRE	Charles de Gaulle Aérogare 2a	7373	Airport	Child	P
ON	FRE	Charles de Gaulle Aérogare 2b	7373	Airport	Child	P
ON	FRE	Charles de Gaulle Aérogare 2c	7373	Airport	Child	P
ON	FRE	Charles de Gaulle Aérogare 2d	7373	Airport	Child	P
ON	FRE	Charles de Gaulle Aérogare 2e	7373	Airport	Child	P
ON	FRE	Charles de Gaulle Aérogare 2f	7373	Airport	Child	P
ON	FRE	Charles de Gaulle Aérogare 3	7373	Airport	Child	P
ON	FRE	Campanile-Paris Charles de Gaulle	7314	Hotel	Child	L
ON	FRE	Copthorne-Paris Charles de Gaulle	7314	Hotel	Child	L
ON	FRE	Hilton-Paris Charles de Gaulle	7314	Hotel	Child	P
ON	FRE	Holiday Inn-Paris Charles de Gaulle	7314	Hotel	Child	L
ON	FRE	Avis-Paris Charles de Gaulle	7312	Rental Car	Child	P
ON	FRE	Campanile-Paris Charles de Gaulle	7315	Restaurant	Child	L
ON	FRE	Copthorne-Paris Charles de Gaulle	7315	Restaurant	Child	L
ON	FRE	Holiday Inn-Paris Charles de Gaulle	7315	Restaurant	Child	L
ON	FRE	Paris Charles de Gaulle-parking	7313	Parking Garage	Child	P
ON	FRE	Paris CDG-Parking (Abonnés)	7313	Parking Garage	Child	P
ON	FRE	Paris Charles de Gaulle-parking	7369	Open Parking Area	Child	P

Table 9-4

9.4.3 POIs with Multiple Entrances / Extended Navigation Content

The following rules are observed:

- The official name is applied to the main entrance, i.e., Parent POI.
- The additional entrances are given the official name plus a location identifier which makes the name unique. See *Table 9-5* for examples. See *Location Identifier*.
See *Table 9-5* for naming examples.

Main Entrance Name	Additional Entrance Name
Wrigley Field	Wrigley Field-North Entrance
	Wrigley Field-South Entrance
	Wrigley Field-East Entrance
Woodfield Mall	Woodfield Mall-North Door
	Woodfield Mall-South Door
AIIMS Hospital	AIIMS Hospital-Gate No. 4

Table 9-5

9.4.4 Off-Road POIs

In the Middle East, POIs on links that received *Four-Wheel Drive = Y* are named to indicate that these are located off road. The following convention is observed:

<POI Name>-Off-road

9.4.5 Land Cover or Administrative Area vs. POI Inclusion

This section identifies POIs that correlate to Land Cover and Administrative Area Features.

Polygon	POI Inclusion
Airport (1900403)	All Airport(1900403) polygons have an associated POI. There can be Airport(4581) POIs that do not correspond to polygons. Some small airports, such as sport airports, are included as POIs, but do not warrant polygonal inclusion.
Amusement Park (2000460)	All Amusement Park(2000460) polygons have an associated POI.
Animal Park(2000461)	All Animal Park(2000461) polygons have an associated POI.
Beach(2005601)	A Tourist Attraction(7999) POI is included for each beach polygon. However, it is possible that there will be an additional POI because some beaches do not meet size inclusion rules for a polygon.
Built-up Area (900156)	A Named Place(4444) POI is included for each Built-Up Area(900156) polygon.
Cemetery (2000420)	Generally, all Cemetery(2000420) polygons correspond to a Cemetery(9591) POI. However, it is possible that there will be an additional POI because some cemeteries do not meet size inclusion rules for a polygon.

Polygon	POI Inclusion
City (900101)	There is a <i>Named Place(4444)</i> POI for every <i>City(900101)</i> polygon. However, there are more <i>Named Place(4444)</i> POIs than <i>City(900101)</i> polygons.
City Park (900150)	There may be additional <i>Park/Recreation Area(7947)</i> POIs due to some city park areas not meeting the size inclusion rules.
County Park (900150)	All <i>County Park(900150)</i> polygons have an associated <i>Park/Recreation Area(7947)</i> POI. However, there may be more <i>Park/Recreation Area(7947)</i> POIs than <i>County Park(900150)</i> polygons. Some County Park areas do not meet the size inclusion rules and some <i>Park/Recreation Area(7947)</i> POIs correspond to other Land Use features.
Golf Course (2000123)	Generally, all <i>Golf Course(2000123)</i> polygons correspond to a <i>Golf Course(7992)</i> POI; however it is possible that in rare cases the golf course area does not meet size inclusion rules for a polygon and there will be an extra POI.
Hospital (2000408)	All <i>Hospital(2000408)</i> polygons have a corresponding <i>Hospital(8060)</i> POI. However, there may be more <i>Hospital(8060)</i> POIs since some hospitals do not meet the size inclusion rules for polygons.
Industrial Complex (2000200)	<i>Business Facility(5000)</i> POIs may exist, but are not required for <i>Industrial Complex(2000200)</i> polygons. In databases of France, <i>Industrial Zone(9991)</i> POIs exist for most <i>Industrial Complexes(2000200)</i> .
Military Base (900108)	If a military base exists as a Postal Area Zone, there is a corresponding <i>Named Place(4444)</i> POI. If it is owned and operated by the military, there is an additional <i>Military Base(9715)</i> POI.
National Park/Monument (900103)	All <i>National Monument(900103)</i> polygons correspond to either a <i>Park/Recreation(7947)</i> POI or a <i>Historical Monument(5999)</i> POI. However, there may be more <i>Park/Recreation(7947)</i> and <i>Historical Monument(5999)</i> POIs than <i>National Monument(900103)</i> polygons. In rare cases, national park/monument areas may not be big enough to warrant polygonal inclusion. Additionally, some <i>Park/Recreation(7947)</i> POIs correspond to other Land Use features.
Railyard (997007)	All <i>Railyard(997007)</i> polygons correspond to a <i>Cargo Centre(9714)</i> POI with <i>Railyard</i> Subcategory.
Seaport/Harbour (9997008)	All <i>Seaport/Harbour(9997008)</i> polygons correspond to a <i>Cargo Centre(9714)</i> POI with <i>Seaport/Harbour</i> Subcategory.
Shopping Centre (2000124)	Generally, all <i>Shopping Centre(2000124)</i> polygons correspond to a <i>Shopping(6512)</i> POI; however, it is possible that in rare cases the shopping centre area does not meet size inclusion rules for a polygon and there will be an extra POI.
Sports Complex (2000457)	There may be additional <i>Sports Complex(7940)</i> POIs due to some Sports Complex areas not meeting the size inclusion rules. However, this is probably rare.
State Park (900130)	All <i>State Park(900130)</i> polygons have an associated <i>Park/Recreation (7947)</i> POI. However, there are more <i>Park/Recreation(7947)</i> POIs than <i>State Park(900130)</i> polygons. In rare cases, state park areas may not meet the size inclusion rules for a polygon and some <i>Park/Recreation(7947)</i> POIs correspond to other Land Use features.

Polygon	POI Inclusion
<i>University/College (2000403)</i>	Generally, all <i>University/College(2000403)</i> polygons correspond to a <i>Higher Education(8200)</i> POI; however, it is possible that in rare cases the University area does not meet size inclusion rules for a polygon and there will be an extra POI.
<i>Building/Landmark (200123 thru 2005999)</i>	The polygons representing Building Landmarks correspond to POIs, e.g., a Bus Station Building/Landmark corresponds to a Bus Station POI.

9.5 Standard POI Inclusion

The following sections contain the definition and inclusion for every category contained in the core map. Variation in inclusion and POI naming across different regions or countries, when deemed significant, are indicated. For an overview of inclusion across different regions/countries, see the accompanying *Standard POI Inclusion List (SPIL)* file: SPIL_CTRG_YYYY-QN, where YYYY-QN stands for the release year and quarter, e.g., 2011-Q4.

Note: There may be legitimate exceptions where a Phone Number is not available for POIs for which it is required for inclusion as indicated per category.

9.5.1 Airport

Category ID 4581

Definition A facility designated for the landing and take off of aircraft, and the dispensing and loading of aircraft contents.

- Inclusion**
- In Prime Areas: All civil aviation (non-military) airports that have scheduled air transport or general aviation facilities and are open to the public.
 - In Network, Complete, and City-to-City (minimum inclusion):
 - Global: Intercontinental airports
 - U.S.: The following are also included:
 - FAA certified airports
 - Non-military airports
 - Airports that are open to the public
 - Individually maintained landing strips, heliports, balloonports, gliderports or military airports are not included.

Note: The RDF_POI_AIRPORT table indicates if the Airport POI is a terminal or main entrance.

Phone Number

- Europe: Included.

- North America: Not Included.

Naming See Section 9.4.2, *Airport-Related POIs*.

9.5.2 Amusement Park

Category ID 7996

Definition A park that contains rides or other entertainment which may be based on a central theme.

- Inclusion** The following are included:
- Major amusement parks that are regionally known.
 - Miniature golf courses, go-cart raceways, and aquatic parks with wavepools and/or waterslides.

Phone Number Included if available.

9.5.3 Animal Park

Category ID 9718

Definition Animal Park identifies an entity that is open to the public for viewing of various animals, for example, a zoo, wild animal park, or wildlife refuge.

- Inclusion**
- The following are included:
 - ◆ Zoo
 - ◆ Wild Animal Park
 - ◆ Wild Refuge
 - ◆ Aquarium
 - Petting Zoos are not included.

Naming The official name is included for the animal park.

- Specification**
- Every Animal Park face has a corresponding Animal Park POI with the appropriate *Subcategory* published. The names of the two features match.
 - The POI for each Animal Park is placed on the main entrance to the facility.
 - See *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Phone Number Included, if available.

9.5.4 ATM

Category ID 3578

Definition A computer terminal (Automated Teller Machine) that allows bank customers to deposit, withdraw, or transfer funds without the assistance of a bank teller.

Inclusion All ATMs which may be located at a bank, credit union, grocery store, convenience store, mall, etc.

Phone Number Not included.

9.5.5 Auto Dealerships

Category ID 5511

Definition Automobile dealerships that sell new cars.

Inclusion

- Generally, dealerships are included when a special agreement is signed between HERE and the manufacturer and a list is provided by the manufacturer.
- Additional dealerships may be included.
- Multiple POIs are published when the dealer represents multiple auto dealership brands.

Naming The following examples demonstrate general naming.

Example 1:

“Import Motors” sells BMW, Lexus, and Subaru, but only BMW and Lexus have agreements with HERE for inclusion.

Two Services are represented in arbitrary order: “Import Motors BMW” (with BMW Chain ID) and “Import Motors Lexus” (with Lexus Chain ID).

Example 2:

“Aguzzi S.P.A.” sells Fiat and Lancia.

Two Services are represented: “Aguzzi S.P.A. (Fiat)” (with the Fiat Chain ID) and “Aguzzi S.P.A. (Lancia)” (with the Lancia Chain ID).

Refer to the *Country Specific Rules* document for country specific naming.

Phone Number Included.

9.5.6 Auto Dealership-Used Cars

Category ID 5512

Definition An automobile dealership that sells used cars.

Inclusion Dealerships that sell second-hand cars.
U.K. - Services supplied by a third party data provider.

Phone Number Included if available

9.5.7 Automobile Club

Category ID 8699

Definition An association that provides travel related and emergency services to its members.

Inclusion	<ul style="list-style-type: none">Main or branch office locations.
Naming	The office name is represented as shown in the AAA/CAA sources, e.g., California State Automobile Association, AAA Michigan, CAA Toronto.
Phone Number	Included.

9.5.8 Auto Service & Maintenance

Category ID	7538
Definition	A major automotive service chain.
Inclusion	<ul style="list-style-type: none">Car repair facilities - automotive service centres and certified garages.POI provided by third party supplier.See also <i>Section 9.7.27, Subcategory (SUBCATEGORY)</i>.
Phone Number	Included.

9.5.9 Bank

Category ID	6000
Definition	An establishment that primarily maintains, lends, exchanges, or issues money for its customers.
Inclusion	Banks, savings and loans, credit unions, currency exchanges, and dedicated money transfer offices.
Phone Number	Included, if available.

9.5.10 Bar or Pub

Category ID	9532
Definition	An establishment that serves alcoholic beverages, provides seating, and may serve food.
Inclusion	POIs supplied by third party data supplier.
Phone Number	Included, if available.

9.5.11 Bicycling

9.5.11.1 Bicycle Sharing Location

Category ID 9050

Definition A facility in which shared use bicycles are made available to individuals on a very short term basis. The main purpose is transportation: bike share allows people to depart from point "A" and arrive at point "B".

Inclusion

- All Bicycle Sharing Locations that are designated by the local Bicycle Sharing System are included.
- Bicycle rental locations are excluded.

Phone Number Included, if available.

9.5.11.2 Bicycle Parking

Category ID 9051

Definition A facility dedicated for parking and securing bicycles. These may include bike racks, bicycle locks, etc., and can be manned or unmanned.

Inclusion

- All bicycle parking locations that are open for public use.
- Private use bicycle parking locations are not included.

Phone Number Included, if available.

9.5.11.3 Bicycle Service

Category ID 9059

Definition A facility that offers bicycle repairs, maintenance and services.

Inclusion

- Facilities that offer services related to bicycles in general, such as bicycle repairs and maintenance.

Phone Number Included, if available.

9.5.12 Bookstore

Category ID 9995

Definition A retail business that primarily sells books.

Inclusion

- All bookstores that meet the definition.

Phone Number Included, if available.

9.5.13 Border Crossing

Category ID 9999

Definition International border crossing.

- Inclusion**
- All operational international border crossings.
 - One *Border Crossing* POI is placed on the outgoing road in each country where HERE has coverage (See *Figure 9-11*).

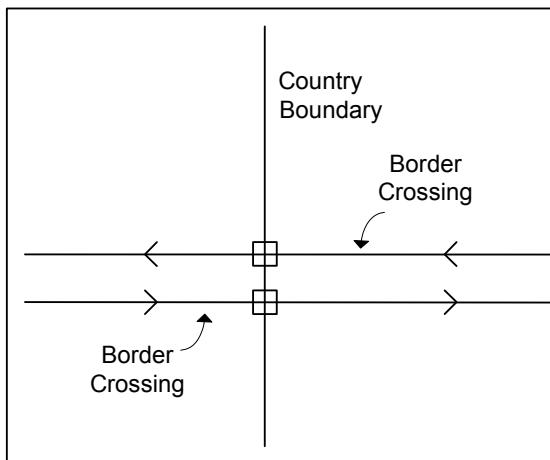


Figure 9-11

- Naming**
- A *Border Crossing* POI is named as follows:
 - ◆ City/Route Number/Name of Country to which the driver is headed.
 - ◆ City/Local Name/Route Number/Name of the Country to which the driver is headed (if a local name is known)
 - ◆ City/Local Name/Country to which the driver is headed (if there is only a local name)

Examples:

In Austria: Andau/L206/Ungarn

Arnbach-Sillian/B100/Italien

Dhrractal/Deutschland

In the U.S.: Blaine/WA-543/Canada

Sweetgrass/I-15/Canada

- If a *Border Crossing* POI is for trucks only, the name includes “-TRUCK” at the end of the Frontier Crossing Name in the appropriate country language, e.g., SARLES/ND-20/CANADA-TRUCK.

Phone Number Not included.

9.5.14 Bowling Centre

Category ID 7933

Definition A facility designed for bowling.

Inclusion

- Major bowling centres that are regionally known and have more than 6 bowling alleys.

Note: Inclusion may vary by region/country. See the *Country Specific Rules* document.

Phone Number Included, if available.

9.5.15 Bus Station

Category ID 4170

Definition A facility that functions as a hub in the inter-city bus service network

Inclusion Bus stations that serve as park and ride facilities, provide long distance bus service, or provide inter-city bus service.

Naming The POI is named using the country exonym for “bus station” or the company name with additional city name.

Phone Number Included, if available.

9.5.16 Business Facility

Category ID 5000

Definition Businesses that are considered the largest employers in each city as determined by the Chambers of Commerce.

Inclusion

- General office buildings (housing multiple different businesses).
- In E.M.E.A., Business facilities that do not meet the criteria for another more specific category (e.g., government office, hospitals, etc.) are also included.

Note: In some countries, named business parks and businesses based on size, top-employers list, etc. are also included under this category.

U.K. - POIs supplied by a third party data provider.

Phone Number Included, if available.

9.5.17 Campground

Category ID 9517

Definition An area designated for short-term tent, trailer, and/or recreational vehicle camping.

Inclusion Global

- All campgrounds.

North America

- Campgrounds that have water supply and restroom facilities.

Naming North America: See *Location Identifier* under *Section 9.4, Naming of POIs*.

Phone Number Included, if available.

9.5.18 Cargo Centre

Category ID 9714

Definition A facility where cargo is handled between different modes of transportation, such as, ship to rail, ship to truck, or air to truck.

See also *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Naming POIs are included for of the following:

- Seaport/Harbour
- Railyard
- Airport Cargo Facility

Phone Number Not included.

9.5.19 Casino

Category ID 7985

Definition A gambling establishment.

Inclusion Any variety of gambling and gaming establishments ranging from the large casinos in Las Vegas to riverboat gambling and card rooms of regional draw such as the Bay 101 Club in San Jose. In Europe, only those that are licensed by the government are included.

Phone Number Included.

9.5.20 Cemetery

Category ID 9591

Definition A parcel of land designated for the burial of human remains.

See also *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Phone Number Included, if available.

9.5.21 City Hall

Category ID 9121

Definition The main building that houses the seat of an incorporated government for a municipality, city, borough, town, etc.

Inclusion The city hall of each municipality or settlement.

Phone Number Included, if available.

9.5.22 Civic/Community Centre

Category ID 7994

Definition A public building used for community events.

Inclusion Global

All civic or community centres.

Europe

Only civic or community centres with a regional function.

Phone Number Included, if available.

9.5.23 Cinema

Category ID 7832

Definition A building used for showing movies to a large audience.

Inclusion

- Included: All cinemas open to the public and showing:
 - ◆ Mainstream genres
 - ◆ Independent productions
 - ◆ Art house movie theatres
- Not Included: Thematic cinemas, e.g., within a park, convention centre, or museum.

Phone Number Included, if available.

9.5.24 Clothing Store

Category ID 9537

Definition A retail business that sells general apparel, garments, and/or fashion accessories for men, women, and children.
A business that specialises in a specific type of clothing.
See also *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Inclusion • All locations fitting the definition are included.

Naming See *Section 9.4.3, POIs with Multiple Entrances / Extended Navigation Content*.

Phone Number Included, if available.

9.5.25 Coffee Shop

Category ID 9996

Definition All major chain coffee shops (e.g., Starbucks), locally owned coffee shops, drive-thru coffee stands, and tearooms that provide coffee as primary service.
U.K. - POI supplied by a third party data provider.

Phone Number Included, if available.

9.5.26 Commuter Rail Station

Category ID 4100

Definition A facility that provides access to rail transit for metropolitan commuters within a city or from the suburbs to/from the city centre.
See also *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Inclusion The following are published as *Commuter Rail Station POIs*:
• Light Rail
• Metro Rail
• Subway

Naming The POI is represented using the name of the railroad followed by the name of the station, e.g., “Marc-Union Station”, or if there is no station name, the location is represented, e.g., “BART-Fremont.”

Phone Number Not included.

9.5.27 Consumer Electronics Store

Category ID 9987

Definition A business establishment that sells consumer electronics and electronic entertainment equipment

See also *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Inclusion All locations fitting the definition are included.

Naming See *Section 9.4.3, POIs with Multiple Entrances / Extended Navigation Content*.

Phone Number Included, if available.

9.5.28 Convenience Store

Category ID 9535

Definition A small store that sells beverages, snacks, magazines/newspapers, toiletries, tobacco products and may or may not sell gasoline.

Inclusion All locations fitting the definition are included.

Naming See *Section 9.4.3, POIs with Multiple Entrances / Extended Navigation Content*.

Phone Number Included, if available.

9.5.29 Convention/Exhibition Centre

Category ID 7990

Definition A facility used for large events such as trade shows, trade fairs, or conventions.

Inclusion

- All convention centres that are regionally known are included.
- Hotels with attached meeting facilities are not included.

Phone Number Included, if available.

9.5.30 County Council

Category ID 9994

Definition The main building which houses the seat of any incorporated local government.

Inclusion

- Seats of local local government mainly at the county level.

U.K. - POIs supplied by a third party data provider.

Phone Number Included, if available.

9.5.31 Court House

Category ID 9211

Definition A building that houses courts of law.

Inclusion

- Court houses at any level of government.
- Military court houses are not included.

Phone Number Included, if available.

9.5.32 Department Store

Category ID 9545

Definition A retail store divided into departments, which sells kitchen items, cosmetics, clothing, jewellery, shoes, and accessories.

Inclusion All locations fitting the definition are included.

Naming See *Section 9.4.3, POIs with Multiple Entrances / Extended Navigation Content*.

Phone Number Included, if available.

9.5.33 Embassy

Category ID 9993

Definition A building which houses diplomatic representatives of foreign countries.

Inclusion The following are included:

- Embassy
- Consulate, Honorary Consulate, General Consulate
- High Commission
- Vatican Nunciature (in select countries)

Note: POIs are included for embassies of all countries recognised by the United Nation.

Naming

- The following words in parenthesis are represented in the language of the country where the POI is located:

- ◆ Embassy: <Embassy><Country Name>
- ◆ Consulate: <Consulate><Country Name>
- ◆ General Consulate: <General Consulate><Country Name>
- ◆ Honorary Consulate: <Honorary Consulate><Country Name>
- ◆ High Commission: <High Commission> <Country Name>

Phone Number Included

9.5.34 Ferry Terminal

Category ID 4482

Definition A facility established to provide ferry service.

See also *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Inclusion

- Terminals of ferry services that transport passengers and/or automotive vehicles by rail or water (e.g., lakes, straits, rivers, etc.). *Ferry Terminal* POI is included if ferry geometry is included regardless of the presence of a physical terminal structure.

Note: Linear Ferry geometry may exist without a *Ferry Terminal* POI.

- Big cruise ship terminals may be included under this category.
- Separate POIs are included for different ferry companies leaving from and going to the same destination.
- Two POIs are included if in addition to entrance for cars, there is a dedicated entrance road for trucks.
- See *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Naming

- Official Names are used when they exist. When there is no Official Name for a terminal, the city name, e.g., “Calais”, is used. River ferry terminals when unnamed may be named with cities/settlements connected by the route, e.g., Grubbenvorst-Velden.
- When there is no Official Name for more than one terminal, then the city name/company name is used, e.g., “Genova/ Tirrenia Navigazione”.
- For truck-only terminals, “-Truck” is added at the end of the Ferry Terminal name, e.g., Calais/Port de Calais-Truck.

Phone Number Included, if available.

9.5.35 Fire Department

Category ID 9527

Definition A station from which fire fighters are dispatched.

Inclusion Select countries only.

9.5.36 Golf Course

Category ID 7992

Definition An area designated and maintained for playing golf.

Inclusion All private (including military) and public golf courses, excluding driving ranges and miniature golf facilities.

Phone Number Included, if available.

9.5.37 Golf Practice Range

Category ID 9573

Definition A Golf Practice Range is an area for practicing golf shots.

Inclusion Select APAC Countries Only

All public and private facilities are included regardless of the number of tees.

The following are not included:

- Miniature golf facilities
- Driving ranges located inside Golf Courses

Phone Number Included, if available.

9.5.38 Government Office

Category ID 9525

Definition An office where government employees work.

Inclusion A Government Office can include federal offices, municipality offices, state offices, ministries, etc. Examples include Department of Finance, Tax Offices, Public Prosecutors, Public Employment Centres, National Offices (e.g., National Office for Environment, Nature and Water, National Office of Cultural Heritage).

Phone Number Included, if available.

9.5.39 Grocery Store

Category ID 5400

Definition A store that sells a variety of foods and other home goods. The store is organised into aisles and various departments such as meat, produce, bakery, dairy, cleaning products, etc.

Inclusion Global

- Chains and other locally known large grocery stores.
Note: Large locally known markets are included if they are in a permanent covered structure and are open most days of the week, e.g., Mon-Sat from 7am- 5pm; similar to a schedule of a standard grocery store.
- Convenience stores and other small stores that sell some groceries, but do not provide all of the services of a large grocery store, are not included.

EMEA³

- Included are supermarkets and grocery stores such as:
 - ALDI
 - Supermarkets and Hipermarts in Spain
- Not Included are:
 - Shops which focus on one specialty, like butchers, bakery, cigar shop, greengrocer, etc.

Phone Number Included, if available.

9.5.40 Hamlet

Category ID 9998

Definition A *Hamlet* is generally a very small village, typically without a church. In some countries, these Hamlets are well known locations and are used by inhabitants to refer to their home address. It can also be a community without an official, independent political structure (a.k.a. an “unincorporated” community).

Refer to the *Country Specific Rules* document.

Inclusion

- Generally, a *Hamlet* POI is published for places that fit the definition, e.g., “Lieux dits” in France, “Lugares” and “Aldeas” in Spain, etc.
- *Hamlet* POIs are included for small villages or groups of scattered houses that do not meet the Prime size inclusion guidelines for a Built-up Area polygon. Therefore, *Hamlet* do not necessarily have a Built-up Area polygon.
- *Hamlet* POIs are also included for various communities. See the *Country Specific Rules* document.
- When a Hamlet is a duplicate of an existing *Named Place* POI, no additional *Hamlet* POI is published.

3. EMEA stands for Europe, Middle East, and Africa.

Note: *Hamlet* POIs may be on unnamed streets.

Phone Number Not Included.

9.5.41 Higher Education

Category ID 8200

Definition Public or private schools that provide post-secondary education.

Inclusion

- Any post secondary education facility such as:
 - ◆ Junior college
 - ◆ Colleges of further education
 - ◆ Universities. One POI with the official name of the university, located at the main administration building. Additional POIs, representing each faculty on the university campus. A Parent-Child Association Type = Physical is added when the faculty is located in the same building as the Parent POI and a Logical association type is added when the faculty is located in a different building.

Not included:

- Correspondence schools

Phone Number Included, if available.

9.5.42 Highway Exit

Category ID 9592

Definition Highway Exits of the Controlled Access network of North America.

Inclusion

- All Exits of the motorway are included.
- Highway Exit POIs are associated to all POIs within a ¼ mile (approximately 400 metres) driving distance from the interchange for categories that include but may not be limited to the following:
 - ATM
 - Bank
 - Business Facility
 - Coffee Shop
 - Grocery Store
 - Hotel
 - Petrol/Gasoline Station
 - Rest Area

- Restaurant
- Shopping
- Vehicle Repair Facility

Note: Additional POIs beyond 1/4 mile driving distance may be included when deemed significant to that exit.

Phone Number Not included.

9.5.43 Historical Monument

Category ID 5999

Definition Building, statues, monuments, or sites with important historical or cultural value.

Inclusion All locally known buildings, statues, monuments, and sites of regional importance.

Phone Number Included, if available

9.5.44 Home Improvement & Hardware Store

Category ID 9986

Definition A retail establishment that sells a variety of building materials, hardware, and home improvement products.

See also *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Inclusion All locations fitting the definition are included.

Naming See *Section 9.4.3, POIs with Multiple Entrances / Extended Navigation Content*.

Phone Number Included, if available.

9.5.45 Home Specialty Store

Category ID 9560

Definition A retail store which sells items for the home, such as furniture, carpets, organizer items.

Inclusion All locations fitting the definition are included.

Naming See *Section 9.4.3, POIs with Multiple Entrances / Extended Navigation Content*.

Phone Number Included, if available.

9.5.46 Hospital

Category ID 8060

Definition A facility that provides medical care for patients.

Inclusion

- The following are included:
 - ◆ *Hospital/Clinics*, including Children's Hospitals, that provide 24-hour emergency care.
 - ◆ Two POIs for each hospital are included, one representing the main entrance and one representing the emergency entrance.
- Note: When both a *Hospital/Clinic* and a Children's Hospital are located within the same physical structure and each has their own associated ER, four POIs are published, two for each facility.
- The following are not included:
 - ◆ Psychiatric hospitals
 - ◆ Veterans Administration
 - ◆ Private Hospitals /Clinics that are exclusive to members
 - ◆ Hospitals that do not provide emergency care

Phone Number Included, if available.

9.5.47 Hotel

Category ID 7011

Definition A commercial establishment that provides lodging to the public.

Inclusion

- Hotel and motel chains
- Independent motels and motels
- Appartels, condotels, and lodges
- Bed & Breakfasts if not included as *Other Accommodation*.

Phone Number Included.

9.5.48 Ice Skating Rink

Category ID 7998

Definition A facility designated for all types of ice skating.

Inclusion Include all indoor and outdoor ice skating rinks.

Phone Number Included, if available.

9.5.49 Industrial Zone

Category ID 9991

Definition A non-residential area which contains a complex dedicated to industrial activities and/or storage facilities.

Inclusion

- POIs included for each named Industrial Complex polygon.
- Business parks containing service industries.

Phone Number Not Included.

9.5.50 Library

Category ID 8231

Definition A place in which literary, musical, artistic, or reference materials are kept for use and circulation, but are not for sale.

Inclusion

- All libraries that meet the definition.

Phone Number Included, if available.

9.5.51 Loading Dock Locations

9.5.51.1 Delivery Entrance

CAT_ID 9722

Definition *Delivery Entrance* identifies a location at a business facility where trucks enter to access the loading/unloading area.

Inclusion

- One *Delivery Entrance* POI is located on a link that immediately precedes the first *Delivery Road* = Y link that leads to the delivery area.
- A *Delivery Entrance* POI is included if trucks must be guided to a specific loading/unloading area located off the main driving path.
- Each *Delivery Entrance* POI is published as a child of the corresponding business POI(s) utilizing the related delivery road(s).
- The name of the *Delivery Entrance* POI is the street name of the business POI that corresponds to the delivery entrance.

Phone Number Not included.

9.5.51.2 Dock

CAT_ID 9723

Definition *Dock* identifies the location of a loading dock, or group of docks, for one or multiple businesses.

Specification

- One *Dock* POI is included for every delivery road containing one or more loading docks.
- One *Dock* POI is published for every dock or group of docks at the same delivery location.
- Each *Dock* POI is published as a child of the corresponding *Delivery Entrance* POI.
- The name of the *Dock* POI is the dock number/letter, or range of dock numbers/letters located along the same delivery road path.

Phone Number Not included.

9.5.51.3 Loading Zone

CAT_ID 9724

Definition *Loading Zone* identifies specified parking spaces or restricted areas for use by those making deliveries to a nearby business.

Table RDF_POI

Specification

- A *Loading Zone* POI is included for each loading zone space or group of adjacent spaces.
- One *Loading Zone* POI is published to represent each loading zone servicing one or more business POIs.
- *Loading Zone* POIs are named with the proper term for “Loading Zone” in the default language of the country.

Phone Number Not included.

9.5.52 Marina

Category ID 4493

Definition A dock that provides secure moorings for small pleasure craft.

Inclusion Only yacht harbours and public docking facilities.

Phone Number Included, if available.

9.5.53 Medical Service

Category ID 9583

Definition A facility that performs medical services which is not directly associated or connected with a medical hospital

See also *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Inclusion • The following are included:

- ◆ *Hospital/Clinics*, including Children's Hospitals, that provide 24-hour emergency care.
- ◆ Two POIs for each hospital are included, one representing the main entrance and one representing the emergency entrance.

Note: When both a *Hospital/Clinic* and a Children's Hospital are located within the same physical structure and each has their own associated ER, four POIs are published, two for each facility.

• The following are not included:

- ◆ Psychiatric hospitals
- ◆ Veterans Administration
- ◆ Private Hospitals /Clinics that are exclusive to members
- ◆ Hospitals that do not provide emergency care

• See *Section 9.8.6, POI to POI Association (Parent - Child)*.

Phone Number Included, if available.

9.5.54 Meeting Point

Category ID 9727

Definition A designated place where people can gather or must report to during an emergency (e.g., tsunami, earthquake, fire, etc.)

Inclusion Limited inclusion. See accompanying *Standard POI Inclusion List (SPIL)* file: SPIL_CTRG_YYYY-QN, where YYYY-QN stands for the release year and quarter, e.g., 2011-Q4.

See *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Phone Number Included, if available.

9.5.55 Military Base

Category ID 9715

Definition A facility that is directly owned and operated by the military or one of its branches. The military base shelters military equipment and personnel, and facilitates military training and operations.

Naming See *Location Identifier* under *Section 9.4, Naming of POIs*.

Inclusion Select countries only.

Phone Number Included, if available.

9.5.56 Motorcycle Dealership

Category ID 5571

Definition Motorcycle dealerships that sell new motorcycles.

Inclusion Only the dealerships on manufacturer-supplied lists are included.

Phone Number Included, if available.

9.5.57 Museum

Category ID 8410

Definition A building for the preservation and exhibition of artistic, historical, or scientific objects.
See also *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Inclusion • Museums of regional importance that are open to the public.

Phone Number Included, if available.

9.5.58 Named Intersection

Category ID 9730

Definition An intersection/crossroad/flyover with an official name.

Inclusion Select countries only.
See the *Country Specific Rules* document.

Phone Number Not Included.

9.5.59 Named Place

Category ID 4444

Definition A Named Place POI is a routing destination (either an admin place or a zone) for a named place. The name of a Named Place POI is contained in RDF_CITY_POI_NAME. This table stores all Named Place POIs, including hamlets.

There can be multiple Capital Indicators for a single Named Place POI. This is published in the following:

- ◆ RDF_CITY_POI.CAPITAL_COUNTRY
- ◆ RDF_CITY_POI.CAPITAL_ORDER1
- ◆ RDF_CITY_POI.CAPITAL_ORDER2
- ◆ RDF_CITY_POI.CAPITAL_ORDER8

Note: Built-Up Area (3110) is never used in the context of Capital Indicator.

For information about Named Place POIs in Disputed Areas, see Section 17.2.4, *Named Place POI in Disputed Areas*.

- Inclusion**
- *Named Place POI* is included for all settlements and cities/municipalities.
 - Note:* In Canada, *Named Place POI* is also included for Indian reserves.
 - Note:* If there is a settlement and a city with the same name (e.g., Berlin), only one *Named Place POI* is published. Some countries (e.g., the U.S.) do not have settlement in their Administrative structure. For these countries, *Named Place POI* is only applied to the city/municipality level.
 - Note:* There is only one *Named Place POI* for cities that cross county lines, e.g., New York City.
 - *Named Place POI* is also included generally for Zones: PA, KA, and KD.
 - Note:* There can be exceptional cases where no *Named Place POI* is published for a Zone. These include but may not be limited to the following: if there is an important POI that corresponds to a Zone of the same name (e.g., O'Hare); the Zone represents an area that is not significant enough to be considered as a *Named Place POI*; etc.
 - Other areas may be represented as *Named Place POI*, e.g., unincorporated cities in the U.S. that received *Vanity City*.

Phone Number Not Included.

- Specification**
- If a Named Place POI receives *Capital Indicator* = 1, then exonyms are published according to the table under Section 9.7.22, *Official Name/Alternate Name (NAME_TYPE)*.
 - If a Named Place POI receives *Capital Indicator* = 2, then exonyms are published according to the table under Section 9.7.22, *Official Name/Alternate Name (NAME_TYPE)*. An exonym is published in each language even if the spelling is the same.

9.5.60 Neighbourhood

Category ID 9709

Definition A Neighbourhood POI is a centre point of a *Neighbourhood Zone*.

Inclusion • *Neighbourhood POI* is included for the following:

- ◆ Community officially recognised by the municipality, which can have one or more of the following: central meeting place, library, school, and/or fire and safety services.
- ◆ Housing development (i.e., subdivision) meeting the definition.
- Each *Neighbourhood POI* corresponds to a *Neighbourhood Zone* and a *Neighbourhood cartographic feature*.
- A *Neighbourhood POI* is not published if there is an existing place (e.g., a place represented a *Named Place* or *Hamlet POI*) of the same name and corresponds to the same locality.

Phone Number Not included.

9.5.61 Nightlife

Category ID 5813

Definition A place that offers live music.

See also *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Inclusion • Bars, pubs, live music clubs, dance clubs, pool halls, arcades, karaoke, and stand-up comedy clubs.

Phone Number Included, if available.

9.5.62 Office Supply and Service Store

Category ID 9988

Definition A retail store selling office supplies, such as paper, printer supplies, writing implements, filing supplies, and office services, such as producing copies, computer files, collating, and printing.

Inclusion All locations fitting the definition are included.

Naming See *Section 9.4.3, POIs with Multiple Entrances / Extended Navigation Content*.

Phone Number Not Included.

9.5.63 Other Accommodation

Category ID 7013

Definition	A lodging facility that cannot be described as a standard hotel or motel. See also <i>Section 9.7.27, Subcategory (SUBCATEGORY)</i> .
	<ul style="list-style-type: none"> • The following are included in regions where the <i>Subcategory</i> attribute is not available: <ul style="list-style-type: none"> ◆ Guest House ◆ Hostel ◆ Holiday Park ◆ Bed & Breakfast
	U.K. - POIs supplied by a third party data provider.

Phone Number Included, if available.

9.5.64 Park/Recreation Area

Category ID 7947

Definition An area of public land preserved and maintained for recreational use.

See also *Section 9.7.27, Subcategory (SUBCATEGORY)*.

- Inclusion**
- Public parks and recreation areas
 - Privately owned parks and recreation areas that are open to the general public
 - Named and unnamed beaches

Note: This category may include Allotments and National Forests that have been historically in the map.

Phone Number Included, if available for national and state parks.

Not included for county/city parks.

9.5.65 Park & Ride

Category ID 7522

Definition A parking facility that is designated as a Park & Ride, a facility where people leave their vehicles to join a carpool/bus/etc.

Inclusion All park and ride facilities as designated on official city plans or on signs as a Park & Ride.

Naming The name is applied based on any the following:

- The Official Name/Alternate Name.
- “Park & Ride” followed by the name of the related facility.

- “Park & Ride” followed by the name of the street on which the Park & Ride is located.

Examples:

- ◆ Park & Ride am Bahnhof
- ◆ Park & Ride A9-Leibnitz
- ◆ Park & Ride Markt Allhau
- ◆ Big Cottonwood Park & Ride
- ◆ Park & Ride-Cheesequake

Phone Number Not Included.

9.5.66 Parking Garage/House

Category ID 7521

Definition An enclosed facility for parking motor vehicles.

Inclusion Global

- Public parking houses and garages based on local knowledge and parking garages in airports.

Note: Multiple POIs may be published for a single facility when multiple entrances exist on different streets.

North America:

- A Parking Garage POI is included for downtown hotels if:
 - ◆ the parking garage is accessed on a different street from the hotel entrance.
 - ◆ a driver would need to be re-routed on city streets to gain access to the parking garage from the main entrance of the hotel.
- An additional Parking Garage POI is added for the visitors parking garage if a hotel has a separate garage for visitors of hotel guests and either rule above applies.

Naming U.S.: Parking garages can be named for the company operating the facility with a location identifier e.g., “Ampco Parking-7th St.”

Phone Number Not Included.

9.5.67 Parking Lot

Category ID 7520

Definition An open area for parking motor vehicles.

See also *Section 9.7.27, Subcategory (SUBCATEGORY)*.

-
- Inclusion**
- The following are included:
 - ◆ All parking areas associated with included airports.
 - ◆ Public parking lots at a sports stadium, convention centre, shopping centre, etc., if these are always accessible.
 - ◆ Public parking lots based on local knowledge.
 - The following are not included:
 - ◆ Parking lots at a sports stadium, hospital, university, shopping centre, etc. that are for visitors only.
 - ◆ Parking lots dedicated only to vehicles other than autos.
 - ◆ Parking lots for apartment buildings.
 - ◆ Private parking lots owned and maintained by private businesses such as hotels, office buildings, strip malls.

Phone Number Not Included.

9.5.68 Performing Arts

Category ID 7929

Definition A building or outdoor structure in which performing arts are presented.

Inclusion Cultural centres, concert halls, and theatres that seat more than 250 people, or that are locally known.

Phone Number Included if available.

9.5.69 Petrol/Gasoline Station

Category ID 5540

Definition A retail business which sells fuel for automotive vehicles.

Inclusion The following are included:

- Petrol Stations and businesses such as convenience stores which sell gasoline.
- Petrol/Gasoline Station that serve only specific fleet and members.
- Petrol/Gasoline Station POIs that are electric vehicle charging stations can be published on links with Parking Lot Road = Y.

Phone Number Not Included.

9.5.70 Pharmacy

Category ID 9565

Definition A business that sells prescription and non-prescription medications as well as other products such as cosmetics and toiletry items.
See also *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Inclusion All locations fitting the definition are included.

Phone Number Included, if available.

9.5.71 Place of Worship

Category ID 9992

Definition A building where religious services are held.

Naming M.E.A. only

- Unnamed Places of Worship (e.g., mosque) are named by the location's name.
 - ◆ If located inside a facility, e.g., Hotel, Shopping, etc.), the facility name is used.
Example: Meridien Mosque
 - ◆ If a stand-alone Place of Worship, the settlement name is used.
Example: Ar Rabiya Mosque

Phone Number Included, if available.

9.5.72 Police Station

Category ID 9221

Definition Law enforcement facilities from which officers are dispatched.

Inclusion

- Included:
 - All police stations that are open to the public
- Not included:
 - Campus, tribal, airport, harbour or military police
 - Federal law enforcement agencies

Phone Number Not included.

9.5.73 Post Office

Category ID 9530

Definition A local branch or national office processing and transmitting the mail for a specific area.

- Inclusion**
- Post offices that provide postal service to the public
 - Shops that deliver basic retail postal services

Note: Post offices within shops are added only when visible from the outside.

Note: If the Post Office also has the facilities of a Bank, then a Bank POI is also added. A Parent/Child relationship, however, is not added.

Phone Number Included, if available.

9.5.74 Public Restroom

Category ID 9589

Definition A restroom open for public use.

Phone Number Not included.

9.5.75 Public Sports Airport

Category ID 4580

Definition A facility designated for different kinds of aviation sports.

Inclusion Include all airfields designated for recreational purposes (e.g., use gliders, get flying lessons, fly private aeroplanes.)

Phone Number Included, if available.

9.5.76 Race Track

Category ID 9572

Definition A facility that provides auto, motorcycle, horse, or dog racing for entertainment.

Inclusion Select countries only.

See the *Country Specific Rules* document.

Phone Number Included, if available.

9.5.77 Rental Car Agency

Category ID 7510

Definition A retail business that rents automotive vehicles.

Inclusion

- The following are included:
 - ◆ All rental car agency chains (all for pick-up and return locations)
 - ◆ Car rental complexes in airports (complexes where multiple rental car agency chains are centrally located)
- Not included: Administrative offices for rental car agencies

Naming

- See *Section 9.4.2, Airport-Related POIs* for the naming conventions used for airport rent a car facilities.
- See *Location Identifier* under *Section 9.4, Naming of POIs*.

Phone Number Included, if available.

9.5.78 Repair Services

Category ID 9595

Definition A business that provides repair service for various items.
See also *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Inclusion Included only in India.

Phone Number Included, if available.

9.5.79 Residential Area/ Building

Category ID 9590

Definition A residential building with a sign that is clearly visible from the main road and is more than eight (8) stories high.
Note: The number of stories required may vary by country; for example, in India only four stories are required.
Note: Since addresses are not prevalent and are not coded in some countries, Residential Area/Building POIs that are very common become important for destination selection.

Inclusion

- Residential buildings, gated communities, and golf estates.
- Select countries only.

See the *Country Specific Rules*.

Phone Number Not Included.

9.5.80 Rest Area

Category ID 7897

Definition Areas along a motorway (controlled-access road) that provide rest rooms and parking.

Inclusion

- Any signed/named rest areas or scenic overlooks with parking along motorways and non-motorways.
- Along non-motorways, duly designated locations that provide parking only (i.e., posted with a sign similar to the sign below) are also included.



Figure 9-12

- See *Section 4.1.18.2, Rest Areas* for more details.

Naming Official Name/Alternate Name is represented, if known (e.g., Belvidere Oasis, George Ade Service Area, etc.). Otherwise the country specific generic name is represented (e.g., Rest Area, Service Area, etc.).

Phone Number Not Included.

9.5.81 Restaurant

Category ID 5800

Definition An establishment that sells refreshments and prepared meals and provides seating.

Inclusion

- All chains and locally owned restaurants.
- All publicly accessible restaurants associated with airports.
- Fast food establishments such as McDonald's "Express" version found within gas stations and convenience stores.
- Restaurants that provide "pick-up" and/or "take-out" only service for food orders at the restaurant premises, e.g., Dominos.
- Restaurants located at rest areas along motorways.

Phone Number Included, if available.

9.5.82 School

Category ID 8211

Definition Public or private schools that provide post-secondary education.

- Inclusion**
- Preschools. Preschools are schools children attend before attending elementary school.
 - Any type of public or private elementary or secondary education facilities

Not included

- Daycare centres

See *Section 9.7.27, Subcategory (SUBCATEGORY)* for attribution applicable to School.

Phone Number Included, if available.

9.5.83 Shopping

Category ID 6512

Definition A complex of businesses, such as retail stores and restaurants, grouped together and sharing common services, such as parking or utilities.

- All shopping malls of regional importance and major outlet malls.
- All covered shopping centres, pedestrian areas, and famous shopping streets with shops and restaurants.
- Major retail brands that are individual stores, usually located in shopping areas/boulevards. Inclusion is based on merchant sourced list.

Note: In France, out-of-town shopping centres that typically comprise large furniture stores, carpet warehouses, and home improvement stores are also included.

- Department stores occupying buildings that are included as *Building/Landmark* features.

Not Included: Strip Malls except in North America.

Phone Number Not Included.

9.5.84 Ski Lift

Category ID 7014

Definition Ski lifts are located in urban and rural areas of ski resorts and ski areas with the purpose to transport people up a mountain. Ski lifts can be gondolas, funiculars, chair lifts, or ski/rope tow.

Inclusion	<ul style="list-style-type: none"> • The following are included: <ul style="list-style-type: none"> ◆ Ski lifts leaving from a ski resort or village. ◆ Ski lifts not associated with a ski resort/ski area. ◆ Ski/rope tow lifts that are used to access other lifts • The following are not included: <ul style="list-style-type: none"> ◆ Further connecting gondolas, chairlifts, or ski tows. ◆ Ski lifts returning to a ski resort or village. ◆ Ski/rope tow lifts that access playgrounds or practice fields.
Naming	<ul style="list-style-type: none"> • Official name of the Ski Lift is applied when available. • If a name does not exist, generic “Ski Lift” is applied to a <i>Ski Lift</i> POI. • In the EMEA region, a Synonym with the name of the ski resort (or the village name instead in case the resort has multiple names) followed by a slash and the name of the ski lift is added. <p>Examples: Ischgl/Gletscherjet, Sappee/Hissi 5, Coll de Pal/Coll de Pal</p>

9.5.85 Ski Resort

Category ID 7012

Definition	A ski resort is a resort built specifically for skiing, snowboarding, and other activities, such as snowmobiling, sledding, ice-skating, etc. A ski resort includes accommodations, restaurants, and other forms of entertainment such as clubs, cinema, theatre, game rooms, etc. A ski area is a village or a group of villages with a church, city hall, etc., not built specifically for skiing, and snowboarding. A ski area includes accommodations, restaurants, and other forms of entertainment such as clubs, cinema, theatre, game rooms, etc.
Inclusion	<ul style="list-style-type: none"> • Included: Nationally or regionally recognised downhill ski resorts/areas. These are the larger resorts with multiple ski lifts and lodge facilities. • The following are not included: <ul style="list-style-type: none"> ◆ Small ski areas providing limited facilities and not considered a resort. ◆ Indoor ski areas
Naming	<ul style="list-style-type: none"> • The official name of the ski resort or ski area is used, e.g., Alpine Valley, Skiwelt Wilder Kaiser. • When an additional name exists, representing multiple ski areas/resorts, the name is included as part of the <i>Ski Resort</i> POI name in that ski area, e.g., Courchevel/Les 3 Vallées, Les Menuires / Les 3 Vallées, etc. <p>Note: Additional names are not used if they have the same name as the ski area/resort.</p>

Phone Number Included, if available.

9.5.86 Specialty Food Store

Category ID 9536

Definition A retail business that sells unique, ethnic, or superior quality food.

Inclusion Select countries only.

See the *Country Specific Rules* document.

Phone Number Included, if available.

9.5.87 Specialty Store

Category ID 9567

Definition A store selling specialty items, such as sports equipment, shoes, jewellery, luggage, etc.

Inclusion The following are included:

Global

- Stores that do not fit into one of the other shopping-related categories.
- Independent gift shops.

North America

- Wine and liquor stores are supplied by third party data supplier.

The following are not included:

- Gift shops in Amusement Parks, Museums, Tourist Attractions, etc.

Naming See *Section 9.4.3, POIs with Multiple Entrances / Extended Navigation Content*.

See also *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Phone Number Included if available.

9.5.88 Sporting Goods Store

Category ID 9568

Definition A store selling sports equipment.

Inclusion All locations fitting the definition are included.

Naming See Section 9.4.3, *POIs with Multiple Entrances / Extended Navigation Content*.

Phone Number Included if available.

9.5.89 Sports Centre

Category ID 7997

Definition A facility designated for recreational sports.

Inclusion

- All combined-sports centres, swimming and tennis facilities, and well-known public fitness centres that also offer other facilities like sauna and massage.
- See also Section 9.7.27, *Subcategory (SUBCATEGORY)*.

Naming

- The type of facility is included in the name, e.g., “Olympus (fitness)”, “Witte Raven (tennis)”.

Phone Number Included, if available.

9.5.90 Sports Complex

Category ID 7940

Definition An area where sporting events are held.

Global

All multi-use indoor arenas that seat more than 1.000 people, multi-use outdoor arenas that seat more than 10.000 people, and race tracks (auto, motorcycle, horse, dog, etc.).

North America

All regionally significant indoor and outdoor arenas. This generally includes venues for professional and semi-professional sports, as well as some large, regionally significant university arenas.

Phone Number Included if available.

9.5.91 Taxi Stand

Category ID 9989

Definition A Taxi Stand is a designated queuing, loading and unloading area for taxis. They are usually located outside of airports, in city centres, and areas with a high volume of pedestrian traffic.

Inclusion

- The following are included:

- ◆ All taxi stands officially designated by the local government.
- ◆ Signed or unsigned taxi stands at well-known places, e.g., hotels
- Temporary (e.g., night only) Taxi stands are not included.

Phone Number Not included.

9.5.92 Tollbooth

Category ID 9717

Definition The building or facility in which a toll is collected.

Inclusion Select countries only.

9.5.93 Tourist Attraction

Category ID 7999

Definition Place or object of special interest to tourists.

See also *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Inclusion Regionally known landmarks that do not meet the criteria for another more specific category (e.g., Eiffel Tower, zoos, and missions).

Phone Number Included, if available.

9.5.94 Tourist Information

Category ID 7389

Definition A facility that provides service such as lodging procurement, tourism information, and event schedules and information.

Inclusion All tourist information offices.

Phone Number Included if available.

9.5.95 Trailhead

Category ID 9052

Definition A location where a trail is accessed from a road or other trail, where the trail is often intended for hiking, biking, skiing, or off-road vehicle drives, etc.

-
- Inclusion**
- All bicycling and hiking trailheads are included. They are placed on the last navigable road link touching the trail geometry.
 - See *Section 9.7.27, Subcategory (SUBCATEGORY)*.

Phone Number Included, if available.

9.5.96 Training Centre/Institute

Category ID 9596

- Definition** Locations outside the scope of basic elementary, secondary, and/or higher education, that provides the training or study of various topics.
See also *Section 9.7.27, Subcategory (SUBCATEGORY)*.

- Inclusion** Select countries only.
See the *Country Specific Rules* document.

9.5.97 Train Station

Category ID 4013

- Definition** A facility designated as a hub for passengers and goods travelling between metropolitan areas along the railway network.

- Inclusion** Train stations that meet the definition, excluding light rail stations or terminals.

- Naming** Railway stations are represented by the name shown in official timetables. In the U.S., the name of the railroad is represented followed by the name of the station, e.g., "Amtrak-Pennsylvania Station", or if there is no station name, the location, e.g., "Amtrak-Roseville is represented."

Phone Number Included, if available.

9.5.98 Transportation Service

Category ID 9593

- Definition** Companies that consist of charter air travel, limousine services, and taxi services

- Inclusion** Charter air travel, limousine services, and taxi services.

Phone Number Included, if available.

9.5.99 Truck Dealership

Category ID 9719

Definition A retail business that sells new heavy trucks/lorries.

Inclusion POIs supplied by third party data supplier.

Naming The official name is published for the truck dealership; for example, Triple Cities Mack, Scaffidi Truck Center, etc.

Specification • *Chain ID* is published for Truck Dealership POIs

Phone Number Included if available.

9.5.100 Truck Parking

Category ID 9720

Definition An area for parking heavy trucks/lorries. These areas may service other facilities (e.g., restaurants, rest areas, warehouse stores), but offer parking for heavy trucks.

Inclusion Based on Third Party data.

Naming The official name of the associated facility is used, i.e., WAL-MART, etc.

Phone Number Included, if available.

9.5.101 Truck Stop/Plaza

Category ID 9522

Definition A business facility used by long distance truck drivers that includes fuel pumps for heavy trucks and may include a restaurant, a service facility, sleeping and shower facilities, etc.

Inclusion Based on Third Party data.

Naming The official name is published for truck stops.

Phone Number Included.

9.5.102 Weigh Station

Category ID 9710

Definition A checkpoint along the highway to inspect vehicular weights.

Inclusion Generally, Weigh Stations along motorways that received *Functional Class* = 1 to 2.

Phone Number Included, if available.

9.5.103 Winery

Category ID 2084

Definition A wine making facility.

Inclusion Any winery which is open to the public for tours or wine tasting. Wine tasting may be by appointment only.

Phone Number Included if available.

9.6 POI Inclusion

To determine which POI categories are published where, See the accompanying *Standard POI Inclusion List (SPIL)* file: SPIL_CTRG_YYYY-QN, where YYYY-QN stands for the release year and quarter, e.g., 2011-Q4.

9.7 POI Attributes

9.7.1 Addressing: Actual Address - Free Form

Definition *Actual Address* represents the official mailing address, which is different than the physical location of the POI entrance.

Tables RDF_POI_ADDRESS
RDF_POI_ADDRESS - Optional

Column ACTUAL_ADDRESS

Related Attributes
Full House Number
Actual Road Name
Actual House Number
Actual Admin
Actual Postal

Usage *Actual Address* allows the official mailing address of a POI to be displayed if the POI entrance is not physically located at that official mailing address.

For example in *Figure 9-13*, the Actual Address for the POI is 10 Weimar Ave, but the POI entrance is physically located on Jersey Ave. In this case, the POI is attached to Jersey Ave with no HOUSE_NUMBER, but with Actual Address of 10 Weimar Ave Chicago, IL 60018. Even though Jersey Ave has an address range of 100-200, the HOUSE_NUMBER for the POI is blank.

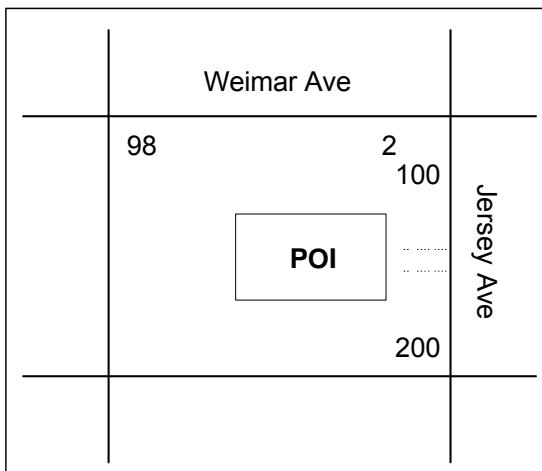


Figure 9-13: Actual Address for a POI

Specification • *Actual Address* is published in a free-form text field.

- *Street name* and *House number* are published in positions 1-50 of *Actual Address*. *Postal code* and *Named Place* are published in positions 51 -100 of *Actual Address*.
- *Actual Address* is represented using the standard format employed in each respective countries. See *Table 9-6* for various examples, and the *Country Specific Rules* document for complete listing.
- *Actual Address* is published primarily for Golf Course, Casino, and Shopping Centre POIs. However, *Actual Address* may be published for any POI. Refer to the *Country Specific Rules* document.

Non-Latin-1 Actual Addresses

- For languages containing non-Latin-1 characters (e.g., Russian, Greek, etc.), a transliteration is published in *RDF_POI_ADDRESS_TRANS*.

Examples of Actual Addresses

Country	Lang. Code	Format	Example
France	FRE	<house number>, <street name> <postal code> <city>	196, Rue Houdan 92330 Sceaux
Germany	GER	<street name> <house number> <postal code> <city>	Steintorweg 8 20099 Hamburg
Singapore	ENG	<house number> <street name> <settlement> <postal code>	16 Sandilands Road Singapore 546080
Spain	SPA	<street name> <house number> <postal code> <city>	Carrer Balmes 89 08008 Barcelona
United States	ENG	<address> <street name> <city>, <state> <postal code>	740 E Arques Ave Sunnyvale, CA 94086

Table 9-6

9.7.2 Addressing: Actual Address - Components

The *Actual Address* components provide the actual address information published in *RDF_POI_ADDRESS*. *ACTUAL_ADDRESS* parsed into distinct components.

For the schema, see *Section 12.3.109, RDF_POI_ADDRESS*.

9.7.2.1 Actual Street Name (*ACTUAL_STREET_NAME*)

Definition	<i>Actual Street Name</i> identifies the road name component of the Actual Address for a POI.
Tables	<i>RDF_POI_ADDRESS</i> <i>RDF_POI_ADDRESS</i> - Optional
Column	<i>ACTUAL_STREET_NAME</i>

Related Attributes	<i>Actual Address</i> <i>Actual Named Place</i> <i>Actual Postal Code</i> <i>Actual House Number</i>
Usage	<i>Actual Street Name</i> identifies the Street Name component of the Actual Address for display and destination selection.
Specification	<ul style="list-style-type: none"> • <i>Actual Street Name</i> is published as one text string. The individual components used for geocoding street addresses (e.g., <i>Street Type</i>, <i>Base Name</i>, <i>Prefix</i>, etc.) are not published for this field. <p>Note: <i>Actual Street Name</i> is a component of the Actual Address field which identifies the official address of a POI and is not a geocoding address,. Thus, <i>Actual Street Name</i> does not fully match with a corresponding record in RDF_ROAD_LINK</p>

Non-Latin-1 Actual Addresses

- For languages containing non-Latin-1 characters (e.g., Russian, Greek, etc.), components of the Actual Address are transliterated and are published in the RDF_POI_ADDRESS_TRANS.

9.7.2.2 Actual House Number (ACTUAL_HOUSE_NUMBER)

Definition	<i>Actual House Number</i> identifies the house number component of the Actual Address for a POI.
Tables	RDF_POI_ADDRESS RDF_POI_ADDRESS - Optional
Column	ACTUAL_HOUSE_NUMBER
Related Attributes	<i>Actual Address</i> <i>Actual Named Place</i> <i>Actual Postal Code</i> <i>Actual Street Name</i>
Usage	<i>Actual House Number</i> identifies the House Number component of the Actual Address for display and destination selection.
Specification	<u>Non-Latin-1 Actual Addresses</u> <ul style="list-style-type: none"> • For languages containing non-Latin-1 characters (e.g., Russian, Greek, etc.), components of the Actual Address are transliterated and are published in the RDF_POI_ADDRESS_TRANS.

9.7.2.3 Actual Named Place (ACTUAL_NAMED_PLACE)

Definition	<i>Actual Named Place</i> identifies the Administrative Area component of the Actual Address for a POI.
Tables	RDF_POI_ADDRESS RDF_POI_ADDRESS - Optional
Column	ACTUAL_NAMED_PLACE
Related Attributes	<i>Actual Address</i> <i>Actual Postal Code</i> <i>Actual House Number</i> <i>Actual Street Name</i>
Usage	<i>Actual Named Place</i> identifies the Administrative Area component of the Actual Address for display and destination selection.
Specification	<ul style="list-style-type: none">• <i>Actual Named Place</i> identifies the official Administrative Place for a POI and is not for geocoding an Administrative place. Thus, <i>Actual Named Place</i> does not fully match with a corresponding record in RDF_ADMIN_PLACE.
	<u>Non-Latin-1 Actual Addresses</u> <ul style="list-style-type: none">• For languages containing non-Latin-1 characters (e.g., Russian, Greek, etc.), components of the Actual Address are transliterated and are published in the RDF_POI_ADDRESS_TRANS.

9.7.2.4 Actual Postal Code (ACTUAL_POSTAL_CODE)

Definition	<i>Actual Postal Code</i> identifies the Postal Code component of the Actual Address for a POI
Tables	RDF_POI_ADDRESS RDF_POI_ADDRESS - Optional
Column	ACTUAL_POSTAL_CODE
Related Attributes	<i>Actual Address</i> <i>Actual Named Place</i> <i>Actual House Number</i> <i>Actual Street Name</i>
Usage	<i>Actual Postal Code</i> identifies the Postal Code component of the Actual Address for display and destination selection.
Specification	<u>Non-Latin-1 Actual Addresses</u> <ul style="list-style-type: none">• For languages containing non-Latin-1 characters (e.g., Russian, Greek, etc.), components of the Actual Address are transliterated and are published in the RDF_POI_ADDRESS_TRANS.

9.7.3 House Number of POI (HOUSE_NUMBER)

Definition	Identifies the house number of the POI.
Value	A maximum of 10 alphanumeric characters is allowed, including hyphens.
Table	RDF_POI_ADDRESS
Column	HOUSE_NUMBER
Related Attributes	<p><i>Street Name</i> <i>Address Format</i> (RDF_LOCATION.HOUSE_NUMBER_FORMAT) <i>In Vicinity</i> <i>Actual Address</i></p>
Related Tables	RDF_POI_ADDRESS RDF_POI_ADDRESS_TRANS
Usage	This data in conjunction with the related attributes may be used to locate and calculate a coordinate for a POI. This attribute may be used to display POI address to the user.
Specification	<ul style="list-style-type: none"> • An address for a POI may not be included if one does not exist (such as for a park, park & ride facility, etc.) or is not provided by third party suppliers. • A POI's address is comprised of the <i>Street Name</i>, <i>House Number of POI</i>, and <i>Address Format</i>. • <i>In Vicinity</i> POIs do not carry an Address when located on an unaddressed Network link. • The <i>Actual Address</i> is an address that is different from the street address where the entrance of the POI is physically located. Refer to Actual Address section for more information. • When addresses are not present in Network, POIs in the Network areas do not have an address.

9.7.4 Full House Number (FULL_HOUSE_NUMBER)

Definition	<i>Full House Number</i> identifies the complete house number for the POI.
Value	Maximum 25 alphanumeric characters. Hyphens are allowed.
Tables	RDF_POI_ADDRESS RDF_POI_ADDRESS - Optional
Related Attributes	HOUSE_NUMBER

Usage *Full House Number* can be used for destination selection and map display.

Specification • *Full House Number* is always published along with the *POI House Number* only in countries where the standard *HOUSE_NUMBER* field is not sufficient to represent the *POI house number* according to reality (e.g., in Russia).

Non-Latin-1 Full House Number

- For languages containing non-Latin-1 characters (e.g., Russian, Greek, etc.), *Full House Number* is transliterated and published in the *RDF_POI_ADDRESS_TRANS*.

9.7.5 Address Format (HOUSE_NUMBER_FORMAT)

Definition The representation format of the house number for a POI.

Table *RDF_LOCATION*

Column *HOUSE_NUMBER_FORMAT*

Values See *Appendix C, RDF_LOCATION*.

Related Attributes *House Number of POI*
Full House Number

Usage This data is necessary when calculating coordinates for a POI.

Specification • Only one format can apply per address.

9.7.6 Actual POI Location: Display Location (DISPLAY_LAT/LON)

Definition *Display Location* (Actual POI Location) coordinates represent the actual position (latitude and longitude) of the POI.

Display Location represents the actual position of a POI that has an associated 2D Landmark icon file.

Tables *RDF_POI*
RDF_CITY_POI

Column *DISPLAY_LAT*
DISPLAY_LON

Column *DISPLAY_LAT, DISPLAY_LON*

Value *DISPLAY_LAT*: Latitude defined with a precision of 0.00001 degrees
DISPLAY_LON: Longitude defined with a precision in 0.00001 degrees

Cardinality	1:0,1
Related Table	None
Related Attribute	None
Usage	<p><i>Display Location</i> provides the coordinates of the location representing generally the centre point of the main building/facility/complex or named place represented by the POI.</p> <p><i>Display Location</i> information can be used to display the 2D Landmark Icon properly on the 2D map.</p>
Specification	<ul style="list-style-type: none"> • Actual POI display location coordinates are floating coordinates not positioned on any existent road network geometry. • Generally, <i>Display Location</i> coordinates are published for categories that include, but may not be limited to the following POI Features: <ul style="list-style-type: none"> ◆ Amusement Parks ◆ Auto Dealerships (brand dependent) ◆ Casinos ◆ Exhibition and Conference Centres ◆ Golf Courses ◆ Hospitals ◆ Shopping Centres ◆ Sports Complexes • <i>Display Location</i> coordinates are also published for POIs that have a 2D landmark icon file associated. • <i>Display Location</i> coordinates may be published for the following POIs that represent named places: <ul style="list-style-type: none"> ◆ Hamlet ◆ Named Place ◆ Neighbourhood

Placement of Coordinates

- The *Display Location* coordinates are placed on the centre point of the main building/facility/complex. See *Figure 9-14*.
- Note: Although *Display Location* is placed at the centre point of buildings and most complexes, few exceptions exist. These are as follows:
- ◆ For Amusement Parks, the main entrance is the preferred placement.
 - ◆ For some structures, the building/structure footprints do not reflect the entire spatial area of the entity in reality. For example, in the case of a bridge the building/structure footprints represent the pillars that support the bridge at its base. In these situations, the most appropriate Display Location is in the

centre area of the structure in reality. Therefore, the Display Location will fall outside of the building/structure footprint but will reflect the most appropriate location to display the 2D Landmark Icon.

- The *Display Location* is centred relative to the ‘main’ building if a building complex is represented with separate building/structure footprints (see *Figure 9-15*).
- The *Display Location* is placed at a central location for the overall structure in case a “main” building cannot be identified, for the best central display of the 2D Landmark Icon (if there are multiple buildings) (see *Figure 9-16*).
- The *Display Location* is placed at a location on the building footprint near the pedestrian entrance, equally spaced between outside edge and inside edge of the building footprint for “stadium-shape” (toroidal or similar) buildings (see *Figure 9-17*).

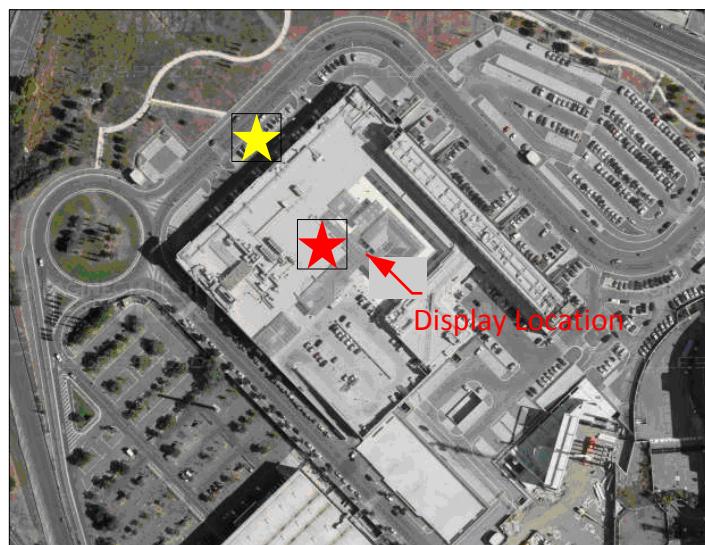


Figure 9-14

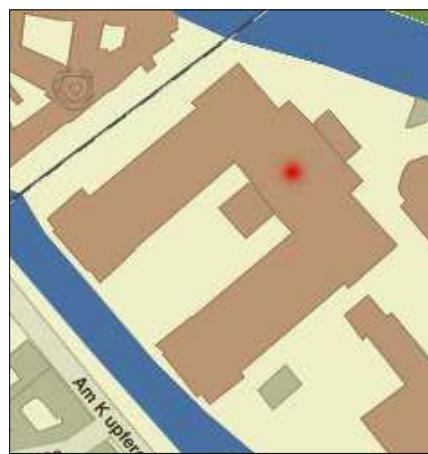


Figure 9-15



Figure 9-16

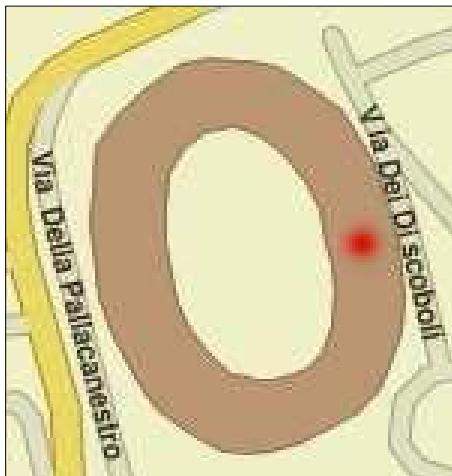


Figure 9-17

9.7.7 Airport Type (AIRPORT_TYPE)

Definition Airport Type is an attribute for Airport POIs.

Table RDF_POI_AIRPORT

Column AIRPORT_TYPE

Values See Section C.62, RDF_POI_AIRPORT.

Specification

- There is no default value.
- This attribute is published for Airport POIs (CAT_ID = 4581) only.

9.7.8 Association

9.7.8.1 ASSOCIATION ID (ASSOCIATION_ID)

Definition	<i>Association ID</i> identifies the POIs involved in the association.
Table	RDF_POI_ASSOCIATION
Values	The Unique ID of the association.
Usage	<i>Association ID</i> is used to group POIs belonging to the same association.
Specification	<ul style="list-style-type: none">• POI association does not replace POI Parent-Child relationship published in RDF_POI_CHILDREN table.• POIs in a POI association may not participate to a Parent-Child relationship if all POIs in the association are part of the same Parent-Child Relationship.• A POI in an association must relate at least two POIs.• POI Association ID is not a Permanent ID.

9.7.8.2 POI ID (POI_ID)

Definition	<i>POI ID</i> identifies the POIs participating to the association.
Table	RDF_POI_ASSOCIATION
Values	The Unique ID of the POI
Usage	<i>POI ID</i> is used to determine the single POI elements involved in the association.
Specification	<ul style="list-style-type: none">• A POI can belong to more than one association of different <i>Association Type</i> values.

9.7.8.3 Primary POI ID (PRIMARY_POI_ID)

Definition	<i>Primary POI ID</i> identifies the predominant POI.
Table	RDF_POI_ASSOCIATION
Values	POI ID
Usage	<i>Primary POI ID</i> is used to inform user that a POI is the predominant POI among those in the POI association.
Specification	<ul style="list-style-type: none">• Only one POI in an association can be <i>Primary POI ID</i>.• <i>Primary POI ID</i> identifies the POI as the predominant POI in the association.

Example: The Lincoln Memorial is considered an Historical Monument (9113) before being and a Tourist Attraction (7376). The POI with Facility Type 9113 (Historical Monument) in the association is PRIMARY_POI_ID = Y

Example: a Walmart POI is associated with three facility types. Department Store is considered the predominant one. The POI with Facility Type 7327 (Department Store) in the association is attributed with PRIMARY_POI_ID = Y

9.7.8.4 Association Type (ASSOCIATION_TYPE)

Definition	<i>Association Type</i> identifies the type of relationship that exists between POIs involved in a POI association.
Table	RDF_POI_ASSOCIATION
Column	ASSOCIATION_TYPE
Values	See Section C.60, <i>RDF_POI_ASSOCIATION</i> .
Usage	<i>Association Type</i> can be used for map display and destination selection to inform a user that a relationship between specific POIs exists.
Specification	<ul style="list-style-type: none"> • <i>Association Type</i> = 1 (Identity) is published if: <ul style="list-style-type: none"> ◆ An individual POI is associated with multiple Facility Types but one facility only exists in reality (e.g., Lincoln Memorial is an Historical Monument (5999) and a Tourist Attraction (7999)). In this situation, the POI is duplicated in order to publish both POI Facility Type. • Only Tourist Attraction and Historical Monument POIs may be published with <i>Association Type</i> = 1 (Identity) generally with the following categories: <ul style="list-style-type: none"> ◆ 8410 Museum ◆ 7929 Performing Arts ◆ 4013 Railway Station ◆ 7990 Exhibition or Conference Centre ◆ 4110 Commuter Rail Station ◆ 7996 Amusement Park ◆ 7933 Bowling Centre ◆ 7985 Casino ◆ 7832 Cinema ◆ 7998 Ice Skating Rink ◆ 7999 Tourist Attraction ◆ 5999 Historical Monument ◆ 9121 City Hall ◆ 9211 Court House ◆ 9591 Cemetery

- ◆ 9992 Place Of Worship
- ◆ 4013 Train Station
- ◆ 3578 Bank
- ◆ 8200 Higher Education
- ◆ 8211 School
- ◆ 9530 Post Office
- ◆ 8231 Library
- ◆ 7997 Sports Centre
- ◆ 7947 Park/Recreation Area
- ◆ 4493 Marina
- ◆ 2084 Winery
- ◆ 7940 Sports Complex
- ◆ 7992 Golf Course
- ◆ 7012 Ski Resort
- ◆ 7382 Tourist Information

Note: Note: Additional categories may be included.

- *Association Type = 1 (Identity)* is published for POIs if POIs only differ by the Facility Type.
 - ◆ Published attributes of associated POIs are identical.
- *Association Type = 2 (Location)* is published if:
 - ◆ An individual POI is associated with multiple Facility Types.
 - ◆ All Facility Type identify a specific POI function (e.g., Walmart is a Department Store a Pharmacy and a Grocery Store).
- POIs with *Association Type = 2 (Location)* have:
 - ◆ different Facility Type
 - ◆ different contact information
 - ◆ different POI attributes
 - ◆ same RDF_POI_ADDRESS.LOCATION_ID (same street address, address, and city)
- POIs with *Association Type = 2 (Location)* must have the following attributes matching, when applicable:
 - ◆ Point Address
 - ◆ Parsed Actual Address (all components)
 - ◆ Display Location
- *Association Type = 2 (Location)* is published only for POIs with the following categories:
 - ◆ 9565 Pharmacy
 - ◆ 9545 Department Store

- ◆ 5400 Grocery Store
- ◆ 9535 Convenience Store
- ◆ 9537 Clothing Store
- ◆ 9560 Home Specialty Store
- ◆ 9567 Specialty Store
- ◆ 9568 Sporting Goods Store
- ◆ 9987 Consumer Electronics Store
- ◆ 7538 Auto Service & Maintenance
- ◆ 5540 Petrol/Gasoline Station

Example:

A 7-Eleven Convenience Store exists that has an associated Chevron Gas Station. The two POIs participate to the same association.

7-Eleven Convenience Store has POI Name “7-Eleven”.

7-Eleven Petrol Station has POI Name “7-Eleven”.

7-Eleven Petrol Station have *Chain ID* 'Chevron'

9.7.9 Bicycle Service (BICYCLE_SERVICE)

Definition Identifies bicycle specific services at the POI facility.

Table RDF_POI_BICYCLE

Column BICYCLE_SERVICE

Values See Section C.63, *RDF_POI_BICYCLE*.

Cardinality 1:0,1

Related Attributes Not Applicable

Related Table RDF_POI

Usage *Bicycle Service* may be used to provide additional information on a bicycle POI for destination selection and map display.

Specification

- Air Station (BICYCLE_SERVICE = 1) indicates the availability at the POI of a facility to air bicycle types.
- Bicycle Vending Machine (BICYCLE_SERVICE = 2) indicates the availability at the POI of an automated vending machine selling bicycle repair parts and accessories.

9.7.10 Chain Name (NAME)

Definition	<i>Chain Name</i> identifies the chain associated with the POI. Chain Name represents a brand name, such as "Shell" for petrol stations.
Table	RDF_CHAIN_NAME
Column	NAME
Values	See the POI inclusion spreadsheet in the Customer Technical Reference Guide (CTRG).
Related Attributes	<i>Chain ID (CHAIN_ID)</i>
Related Tables	RDF_POI RDF_CHAIN RDF_POI_CHAINS
Usage	A chain name allows a user or system to limit searches to a preferred chain. For example, the user may receive incentives for buying Shell gas, thus would like to limit searches to that chain name only.
Rules	<ul style="list-style-type: none"> • Chain names are published in RDF_CHAIN_NAME.NAME. Examples of chain names are "BMW" for an Automobile Dealership POI or "Best Western" for a Hotel POI. • RDF_POI_CHAINS is associated with RDF_POI via POI_ID. This model allows for multiple chains to be associated with a single POI. • <i>Chain Name</i> is applied to a group of POIs that meet all the following requirements: <ul style="list-style-type: none"> ◆ They have the same brand. ◆ They are of the same <i>Facility Type</i>. ◆ They have global/regional presence, e.g., there are at least 20 locations globally. • See <i>Section 9.7.12, Chain ID (CHAIN_ID)</i>.

9.7.11 Chain Name Translations (TRANSLITERATION)

Definition	A chain name in a non-Latin-1 language that is sometimes known under the Latin-1 spelling to accommodate foreigners. Examples include Tsing Tao Beer in Chinese-speaking countries, the chain Teaspoon in Russia, etc. The translation represents a commonly known, western oriented spelling of a chain name.
Table	RDF_CHAIN_NAME_TRANS
Column	TRANSLITERATION

Related Table RDF_CHAIN
RDF_CHAIN_NAME

Chain Name
Translation
Example

RDF_CHAIN
CHAIN_ID
1456
NAME
LANGUAGE_CODE

RDF_CHAIN_NAME		
CHAIN_ID	LANGUAGE_CODE	NAME
1456	ENG	TEASPOON
1456	RUS	ЧАЙНАЯ ЛОЖКА

RDF_POI_CHAINS	
POI_ID	CHAIN_ID
87827766	1456

9.7.12 Chain ID (CHAIN_ID)

- Definition** *Chain ID* is a distinct ID that is associated with the textual chain name. Table RDF_CHAIN
- Column** CHAIN_ID
- Values** See the POI inclusion spreadsheet in the Customer Technical Reference Guide (CTRG).
- Related Attributes** Chain Name as published in RDF_CHAIN_NAME.NAME
- Related Tables** RDF_CHAIN_NAME
RDF_POI_CHAINS

Usage *Chain ID* is used to associate a POI to a specific chain name. *Chain ID* is necessary to avoid confusion between duplicate chain names in different POI categories. By having the explicit *Chain ID*, eventual incremental updates can reference the correct name.

Specification

- *Chain ID* is published for certain POI categories. See the POI inclusion spreadsheet in the Customer Technical Reference Guide (CTRG).
- See *Section 9.7.10, Chain Name (NAME)*.

9.7.13 Building Type (BUILDING_TYPE)

Definition *Building Type* indicates the building type of a Place of Worship POI.

Values See *Section C.64, RDF_POI_PLACE_OF_WORSHIP*.

Usage *Building Type* can be used to identify the building type of a Place of Worship POI.

9.7.14 Capital Indicator (CAPITAL_<Admin Level>)

Definition *Capital Indicator* identifies Named Place POIs that are capitals of an administrative area.

Table RDF_CITY_POI

Column CAPITAL_COUNTRY
CAPITAL_ORDER1
CAPITAL_ORDER2
CAPITAL_ORDER8

Value N = Not capital

Y = Capital

Default Value N = Not capital

Related Attributes Population

Related Tables RDF_POI

Usage *Capital Indicator* can be used to identify Named Place POIs that may be important for map display.

Specification

- *Capital Indicator* (CAPITAL_COUNTRY) = Y for all country capitals.
- A small number of countries do not have a capital in reality.
- If a Named Place POI represents a Named Area that is a capital, then *Capital Indicator* (CAPITAL_ORDER#) = Y.

Where # is the Order Number (Administrative Level) of the area.

- If a Named Place POI is a capital for multiple administrative levels, CAPITAL_ORDER1 = Y, CAPITAL_ORDER2 = Y, and CAPITAL_ORDER8 = Y are published for each applicable administrative levels.
- Examples for *Capital Indicator* definition for various countries are provided in the table below. See the *Country Profiles* document for the complete listing.

Examples of Capital Indicators by Country

Country	CAPITAL_ORDER1	CAPITAL_ORDER2
Germany	Bundesland	Kreis
Italy	Regione	Provincia
Spain	Autonomía	Provincia
United States	State	N/A

9.7.15 Contact Information

9.7.15.1 Contact Type (CONTACT_TYPE)

Definition *Contact Type* identifies the type of contact published.

Table RDF_POI_CONTACT_INFORMATION

Value See Section C.69, RDF_POI_CONTACT_INFORMATION.

Usage *Contact Type* is used to allow the user to select the appropriate contact information.

Specification

- Alternate phone numbers are published with *Contact Type* = 1 and *Preferred* = 0.
- The maximum number of contacts allowed per *Contact Type* per POI is:

Contact Type	Maximum Contacts Published
1 - Phone Number	3
2 - Toll Free Number	2
3 - URL or Web Address	2
4 - Email Address	2
5 - Mobile Phone	2

Table 9-7

9.7.15.2 Contact (CONTACT)

Definition	<i>Contact</i> is the contact information of the POI.
Table	RDF_POI_CONTACT_INFORMATION
Value	<i>Contact</i> publishes the following data: Phone Number Toll Free Number Email Address Web Address/URL Mobile Phone
Related Attributes	<i>Contact Type</i>
Usage	<i>Contact</i> provides the contact information of a POI contact for the selected POI.
Specification	<ul style="list-style-type: none">• <i>Contact</i> with <i>Contact Type</i> = 3 only include one of the following URL address types: <code>http://www.address.###</code> <code>http://address.###</code> <code>https://address.###</code> <code>https://www.address.###</code>• <i>Contact</i> with <i>Contact Type</i> = 4 are published as <code>emailaddress@domain.##</code>• General toll free numbers that are in addition to a POI phone number. In North America, these numbers start with 800, 855, 866 or 888. In the Netherlands these numbers start with 0800.• <i>Contact</i> with <i>Contact Type</i> = 3 or 4 may contain lowercase and uppercase characters.

9.7.15.3 Preferred (PREFERRED)

Definition	<i>Preferred</i> indicates if the <i>Contact</i> is the preferred or non-preferred communication method for further information about the POI.
Table	RDF_POI_CONTACT_INFORMATION
Column	PREFERRED
Value	N - Non-preferred communication method Y - Preferred communication method
Specification	<ul style="list-style-type: none">• Preferred is published for each <i>Contact Type</i> as shown below.

POI_ID	SEQ_NUM	CONTACT_TYPE	CONTACT	PREFERRED	PHONE_AREA_CODE	PHONE_LOCAL_NUMBER
12345	1	1	+31-30-6566021	Y	30	6466021
12345	2	1	+31-30-6566000	N	30	6566000
12345	3	3	www.here.com	Y		
12345	4	4	info@here.com	Y		

Table 9-8

9.7.15.4 Phone Area Code (PHONE_AREA_CODE)

- Definition** Provides the area or city code of a phone number.
- Table** RDF_POI_CONTACT_INFORMATION
- Column** PHONE_AREA_CODE
- Values** PHONE_AREA_CODE publishes the phone area code
- Cardinality** 1:0,1
- Related Table** RDF_COUNTRY
- Related Attributes** RDF_COUNTRY.PHONE_COUNTRY_CODE
RDF_COUNTRY.PHONE_PREFIX
RDF_POI_CONTACT_INFORMATION.PHONE_LOCAL_NUMBER
- Usage** Phone Area Code precedes the local telephone number. It can be combined with other phone number components for display or for automatic dialling purposes.
- Specification**
- Phone Area Code is published only if Contact Type = 1, 2 or 5 is published.
 - Phone Area Code is published for all phone numbers with area codes. For example in Germany, the phone number 089-99614232 is published as:
 - ◆ PHONE_PREFIX: 0
 - ◆ PHONE_AREA_CODE: 89
 - ◆ PHONE_LOCAL_NUMBER: 99614232
 - If a non-geographic code such as a toll-free or mobile identifier is used in place of an area code, the non-geographic code is published in the PHONE_AREA_CODE field. For example, in the toll-free number 800-1234567, PHONE_AREA_CODE = 800.
 - If area codes are not used in a phone numbering system, the PHONE_AREA_CODE field is NULL.

- *Phone Area Code* is not published in some countries. See the *Country Specific Rules* document.

9.7.15.5 Phone Local Number (PHONE_LOCAL_NUMBER)

Definition	Provides the local portion of a telephone number. This includes the exchange and suffix combined.
Values	PHONE_LOCAL_NUMBER publishes the local phone number.
Cardinality	1:0,1
Table	RDF_POI_CONTACT_INFORMATION
Column	PHONE_LOCAL_NUMBER
Related Table	RDF_COUNTRY
Related Attributes	RDF_COUNTRY.PHONE_COUNTRY_CODE RDF_COUNTRY.PHONE_PREFIX RDF_POI_CONTACT_INFORMATION.PHONE_AREA_CODE
Usage	<i>Phone Local Number</i> follows the area code. It can be combined with other phone number components for display or for automatic dialling purposes.
Specification	<ul style="list-style-type: none">• <i>Phone Local Number</i> is published only if <i>Contact Type</i> = 1, 2 or 5 is published.• <i>Phone Local Number</i> is published for all phone numbers. For example in Germany, the phone number 089-99614232 is published as:<ul style="list-style-type: none">◆ PHONE_PREFIX: 0◆ PHONE_AREA_CODE: 89◆ PHONE_LOCAL_NUMBER: 99614232

9.7.15.6 E.164 Phone Number (E164_PHONE_NUMBER)

Definition	Provides the representation of the phone number in E164 format: +[country code][area code][local number]
Table	RDF_POI_CONTACT_INFORMATION
Column	E164_PHONE_NUMBER
Values	Phone number in this format: +[country code][area code][local number]
Cardinality	1:0,1
Related Attribute	<i>Contact Type</i> (CONTACT_TYPE)

Usage	<i>E164 Phone Number</i> supports phone number normalisation and consistency. It can be used for display or for automatic dialling purposes.
Specification	<ul style="list-style-type: none"> • <i>E.164 Phone Number</i> does not contain any parentheses "(", ")", or hyphens "-". • Only the following <i>Contact Type</i> (CONTACT_TYPE) values publish <i>E.164 phone numbers</i>: <ul style="list-style-type: none"> ◆ 1 - Phone Number ◆ 2 - Toll Free Number ◆ 5 - Mobile Phone Number

9.7.16 Diesel (DIESEL)

Definition	<i>Diesel</i> is published for petrol/gas stations in North America to indicate whether or not a petrol/gas station sells diesel fuel. The attribute is published for CAT_ID = 5540 (Petrol Station).
Table	RDF_POI_PETROL_STATION
Column	DIESEL
Value	See Section C.61, <i>RDF_POI_PETROL_STATION</i> .

Related Tables RDF_POI

Specification	<ul style="list-style-type: none"> • No record is published if the information is unknown. • There is no default value published.
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9.7.17 Entrance Type (ENTRANCE_TYPE)

Definition	<i>Entrance Type</i> indicates preferred entrances to a POIs.
Table	RDF_POI
Column	ENTRANCE_TYPE
Values	See Section C.57, <i>RDF_POI</i> .
Usage	<i>Entrance Type</i> can be used for destination selection and map display to identify preferred entrances to POIs.
Specification	Generally, <i>Entrance Type</i> is published only as part of Extended Navigation content. See Section 9.3.3, <i>POIs - Extended Navigation</i> .

9.7.18 Family Chain ID (CHAIN_TYPE)

Definition *Family Chain ID* specifies the type of *Chain ID*.

Table RDF_POI_CHAINS

Column CHAIN_TYPE

Values See Section C.67, *RDF_POI_CHAINS*.

Usage CHAIN_TYPE can be used for POI destination selection and display.

- Specification**
- *Family Chain ID* is the family chain name to which the POI belongs to (e.g., A POI Holiday Inn Express, is coded with Family Chain Name “IHG”)
 - A POI can have one *Family Chain ID* only.
 - Family Chain Name may be published for any POI Facility Type.

Example:

The following Auto Dealership POIs are published in a Location association.

POI with POI ID 342524480 publishes Family *Chain ID* BMW since Mini is part of the BMW auto dealership family.

POI_ID	NAME	LOCATION_ID	CAT_ID	CHAIN_ID	PHONE_NUMBER
342510592	BARON BMW	1413519	5511	10265	+(1)-913-7225100
342524480	BARON MINI	1413519	5511	938	+(1)-913-7225100

- *Family Chain ID* is associated with a POI based on the Chain Name.
 - ◆ When in reality more than one distinct Family Chain Name exists for a specific Chain, only the predominant Family Chain Name is published. Thus, a Family *Chain ID* might not be valid for some specific POIs. These situations are limited in frequency and to specific areas.
 - ◆ For example, “AGIP” Petrol Stations are coded with Family *Chain ID* “ENI”. However, only in Portugal, these POIs should be coded with Family *Chain ID* “GALP” instead.

Examples

RDF_POI_ASSOCIATION			
ASSOCIATION_ID	POI_ID	PRIMARY_POI_ID	ASSOCIATION_TYPE
32355	555679903	555679903	1
32355	555679904	555679903	1
32355	555679905	555679903	1

32558	555673232	555673232	2
32558	555673233	555673232	2
32558	555674444	555673232	2

RDF_POI_CHAINS		
POI_ID	CHAIN_ID	CHAIN_TYPE
555679903	10	1
555679903	10252	2
555673232	314	1
555673232	10004	2

9.7.19 National Importance (NATIONAL_IMPORTANCE)

Definition *National Importance* indicates the POI name is recognizable without a city name. For example, Heathrow Airport is recognizable without the city name of London.

Table RDF_POI

Column NATIONAL_IMPORTANCE

Value N = Local Importance

Y = National Importance

Default Value N = Local Importance

For systems that require city input first, National Importance allows display of regionally prominent POIs in a scroll list without needing to identify the city name.

Specification • *National Importance* is applied to well known categories that include, but may not be limited to the following:

- ◆ International Ferries

Note: If they are small and not well known, the attribute is not applied.

- ◆ National Historical Monuments

- ◆ National Parks

- ◆ National Public Airports

In Europe, *National Importance* = Y is applied to airports with more than 300,000 passengers per year.

In North America, *National Importance* = Y is applied to major public airports.

Only the main entrance Airport POI is coded *National Importance* = Y. Airport terminal POIs and all other children associated with the airport are coded *National Importance* = 0.

- ◆ National Tourist Attractions
 - ◆ Frontier Crossings (on *Functional Class* = 1 or 2 links only)
 - ◆ Amusement Park (with more than 2 million visitors per year)
 - Note: If there are no Amusement Parks with more than 2 million visitors per year, the top 5 in a country are coded as *National Importance* = Y.
 - ◆ Museum (with more than 1 million visitors per year)
 - Note: If there are no Museums with more than 1 million visitors per year, the top 5 are coded as *National Importance* = Y.
 - ◆ Ski Resort
 - ◆ Sports Complex
 - ◆ Winery
- Other POI categories not listed above generally do not receive *National Importance* = Y. However, pre-determined deviations exist.
 - When a POI qualifies for *National Importance* = Y, but is located on an *In-Process Data* = Y link, the POI will be added but will not receive *National Importance* = Y.
 - If a *Parent-Child Association Type* relationship exists because of multiple entrances for POIs that represent wide areas, e.g., National Parks, and the parent POI is coded *National Importance* = Y, the children will also be *National Importance* = Y.

9.7.20 In Vicinity (IN_VICINITY)

Definition	<i>In Vicinity</i> identifies if a POI has been associated with road representing its true location, or on a road nearby due to Network road inclusion levels.
Table	RDF_POI
Column	IN_VICINITY
Values	N = POI is placed at its physical location Y = POI is placed near its physical location
Default Value	N - POI is placed at its physical location
Related Attributes	<i>House Number</i> <i>Street Name</i>
Usage	<i>In Vicinity</i> tells a system what kind of route guidance information to provide to users. If the IN_VICINITY = N the system can state 'you have arrived'. If IN_VICINITY = Y, the system can tell the user the POI is nearby but that further routing advice is unavailable.
Specification	<ul style="list-style-type: none">● If the POI is attached to a road other than the road where the POI is physically located, it is identified as IN_VICINITY = Y. This situation occurs if, due to the Network or City-to-City inclusion rules, the road where the POI is actually located is

not contained in the database. In these situations, and Address may not be published for the POI.

- Only POIs (Automobile and Motorcycle Dealerships) in E.M.E.A. can be identified as IN_VICINITY = Y.

9.7.21 Long Haul (LONG_HAUL)

Definition *Long Haul* indicates if a POI is included for display or destination selection in a *Long Haul* network.

Values N - not included in a Long Haul network
Y - included in a Long Haul network

Related Tables RDF_POI

RDF_CITY_POI

- Specification**
- Use *Long Haul* only when extracting a *Long Haul* network.
 - *Long Haul* = Y is published to the following POIs along included links:
 - ◆ *Named Place* (4444)
 - ◆ *Rest Area* (7897)
 - ◆ *Restaurants* (5800), *Hotels* (7011), and *Petrol Stations* (5540) that are included within Rest Areas.
 - ◆ *Border Crossing* (9999)

9.7.22 Official Name/Alternate Name (NAME_TYPE)

Definition The *Official Name/Alternate Name* of a POI in the default language. Official Names/Alternate Names can be used for destination selection and map display.

Related Attributes RDF_POI_NAME.NAME or RDF_CITY_POI_NAME.NAME are associated with names via RDF_POI_NAMES and RDF_CITY_POI_NAMES.

Related Tables RDF_POI_NAME

RDF_CITY_POI_NAME

RDF_POI_NAMES

- Specification**
- *Official Names* for POIs are published with NAME_TYPE = B and IS_EXONYM = N.
 - In most cases, a feature has only one name. In a truly bilingual area, it can occur that the same real world feature has more than one name. If different names exist for each Official Language, two features are included to enable the publication of the Base Names in their respective languages.
 - *Alternate Names* for POIs are either Exonyms or Synonyms.

- ◆ If the Alternate Name for a POI is an Exonym, NAME_TYPE = B and IS_EXONYM = Y.
- ◆ If the Alternate Name for a POI is a Synonym, NAME_TYPE = S and IS_EXONYM = N.
- POIs supplied by third-party data supplier do not follow the specified naming rules.
- See *Section A.1.4, Exonyms and Transliterations* for information on Exonyms.

Airport-related POIs

- See *Section 9.4.2, Airport-Related POIs* for specific information about the synonyms and exonyms applied to *Airport* POIs.

Sky Lift POIs (E.M.E.A.)

- An *Alternate Name* is added for the name of the ski resort/area the Ski Lift POI is associated with.

9.7.23 Percent From Reference Node (PERCENT_FROM_REF)

Definition	<i>Percent From Reference Node</i> is a percent value that represents the distance from the From Node of the link to the location of the POI.
Related Attributes	<i>House Number</i> (HOUSE_NUMBER)
Values	See <i>Section C.51, RDF_LOCATION</i> .
Table	RDF_LOCATION
Usage	<i>Percent From Reference Node</i> could be used to determine icon placement and timing of guidance information. Usage of <i>Percent From Reference Node</i> is optional, since the POI Coordinates could be used for the purpose of guidance timing and Icon placement.
Specification	<ul style="list-style-type: none">● -1 indicates that a <i>Percent From Reference Node</i> percentage is unavailable for the POI.● A <i>Percent From Reference Node</i> value of 0 to 100 represents the percentage distance from the From Node of the link to the location of the POI.● POI icon placement can be determined using the <i>Percent From Reference Node</i> value, however, using POI Coordinates is a more direct and more efficient way for POI Icon placement.

9.7.24 Population (POPULATION)

Definition	The Population of a Named Place POI is the number of inhabitants of that Named Place POI.
Table	RDF_CITY_POI
Column	POPULATION
Related Attributes	<i>Capital Indicator</i>
Usage	<i>Population</i> information can be used to vary icon size and to display subsets of Named Place POI icons at various zoom levels.
Specification	<ul style="list-style-type: none"> Generally, <i>Population</i> is published for all <i>Named Place</i> POIs that represent municipalities/cities (<i>Feature Type</i> = 0900101). <i>Population</i> can also be published for other Administrative levels that are deemed significant, e.g., settlement. See the <i>Country Specific Rules</i>. <i>Population</i> is not included to <i>Hamlet</i> POIs.

9.7.25 Private (PRIVATE_ACCESS)

Definition	<i>Private</i> identifies POIs that normally require membership for admission.
Column	PRIVATE_ACCESS
Related Tables	RDF_POI
Values	See Section C.57, <i>RDF_POI</i> .
Default Value	N - Not Private
Usage	<i>Private</i> can be used to inform users during destination selection and route guidance that the POI is a private facility and therefore, the POI may restrict access based on membership.
Specification	<ul style="list-style-type: none"> <i>Private</i> is generally applied to the following: <ul style="list-style-type: none"> Golf Courses <ul style="list-style-type: none"> <i>Note:</i> If a Restaurant is located within a private golf course, it is also flagged as <i>Private</i>. Petrol Stations serving only specific fleet and members <i>Private</i> can also be applied to other POIs, e.g., Hospital, Park (National/State), etc. See the <i>Country Specific Rules</i> document.

9.7.26 Street Name (STREET_NAME)

Definition	<i>Street Name</i> is the name of a road the POI lists as its address.
Related Attributes	House Number of POI. Field STREET_NAME in RDF_POI_ADDRESS, publishes the fully spelled <i>Street Name</i> for a POI. For Named Place POIs, Street Name is published in RDF_CITY_POI.STREET_NAME.
Related Tables	RDF_CITY_POI RDF_POI A system user can use <i>Street Name</i> to differentiate between POIs at different locations but possessing the same name. For example, in one city there may be more than one hotel or restaurant with the same name.
Specification	<ul style="list-style-type: none">• Maximum of 35 characters.

9.7.27 Subcategory (SUBCATEGORY)

Definition	<i>Subcategory</i> indicates the attribute type associated with the Point of Interest (POI) and provides additional classification information for explication and display.
Table	RDF_POI_SUBCATEGORY See Section 12.3.125, <i>RDF_POI_SUBCATEGORY</i> for schema information.
Column	SUBCATEGORY
Values	See Section C.66, <i>RDF_POI_SUBCATEGORY</i> .
Usage	<i>Subcategory</i> allows user to select POIs by subcategory.
Specification	<ul style="list-style-type: none">• <i>Subcategory</i> provides additional POI information for explication and display.• <i>Subcategory</i> can be published only for POIs that belong to the facility types in <i>Table 9-9</i>.• The number of <i>Subcategory</i> values that can be published for a POI depends on the facility type to which the POI belongs. See <i>Table 9-9</i> for the maximum quantity of <i>Subcategory</i> values that can be published for a POI in each facility type.

Note: For inclusion information, see the accompanying *Standard POI Inclusion List (SPIL)* file: SPIL_CTRG_YYYY-QN, where YYYY-QN stands for the release year and quarter, e.g., 2011-Q4

Subcategory Coverage

POI Category	Number of Values	Value	Description	Definition
Animal Park (9718)	1	55	Zoo	An Animal Park POI where live animals are kept in cages or large enclosures for public exhibition.
		56	Wild Animal Park	An Animal Park POI where wild animals are kept in an open environment for public exhibition.
		57	Wildlife Refuge	An Animal Park POI where animals are kept in their natural environment for conservation and public exhibition.
		58	Aquarium	An Animal Park POI where fish or other aquatic animals are kept for public exhibition.
Auto Service and Maintenance (7538)	Multiple	1	Car Wash	An Auto Service & Maintenance POI with car washing as its primary function.
		2	Auto Parts	An Auto Service & Maintenance POI with the sale of automotive parts as its primary function. Auto dealerships that sell auto parts as a sub-service are not applicable.
		3	Car Repair	Automotive service centres and certified garages.
		4	Truck Repair	An Auto Service & Maintenance POI with truck repair as its primary function.
		5	Tire Repair	An Auto Service & Maintenance POI with tire repair as its primary function.
		6	Emission Testing	An Auto Service & Maintenance POI with emission testing as its primary function.
		64	Van Repair	An Auto Service & Maintenance POI with van repair as its primary function.
Cargo Centre(9714)	1	52	Seaport/ Harbour	A Cargo Centre POI where large container ships dock to load/unload their cargo.
		53	Railyard	A Cargo Centre POI, which is a major hub for freight trains where freight is transferred to/from cargo ships.
		54	Airport Cargo	A Cargo Centre POI, which is a portion of an airport, dedicated to the transportation of cargo.

Subcategory Coverage (Continued)

POI Category	Number of Values	Value	Description	Definition
Cemetery (9591)	Multiple	32	Cemetery	Cemetery POI that represents a parcel of land designated for the burial of human remains.
		33	Crematorium	Cemetery POI that represents a facility specialising in the incineration of human remains.
		1097	Funeral Hall	Cemetery POI that represent a facility that offers funeral related services.
		1098	Cinerarium	Cemetery POI that represent a facility where the ashes of the deceased are kept.
Clothing Store (9537)	Multiple	47	Men's Apparel	Clothing Store POI that primarily sells men's wear and accessories.
		48	Women's Apparel	Clothing Store POI that primarily sells women's wear and accessories.
		49	Children's Apparel	Clothing Store POI that primarily sells clothes and accessories for children.
		50	Shoes/ Footwear	Clothing Store POI that primarily sells shoes.
Commuter Rail Station (4100)	Multiple	28	Underground Train/Subway	Commuter Rail Station POI that provides access to an underground rail transit system.
		29	Commuter Rail Station	Commuter Rail Station POI that provides access to an above ground rail transit system.
Consumer Electronics Store (9987)	Multiple	70	Mobile Retailer	Consumer Electronics Store POI are company-authorised cell phone retailers.
		71	Mobile Service Centre	Consumer Electronics Store POI that offers cell phone repair.
Ferry Terminal (4482)	1	62	Boat Ferry	Boat Ferry Terminal POI that is for a boat ferry.
		63	Rail Ferry	Rail Ferry Terminal POI that is for a rail ferry.
Grocery Store (5400)	1	93	Outdoor Market	Grocery Store POI that represents large locally known markets in an open air environment that are open most days of the week with a set schedule; similar to a schedule of a standard grocery store.
		94	Indoor Market	Grocery Store POI that represents large locally known markets in a permanent covered structure that are open most days of the week with a set schedule; similar to a schedule of a standard grocery store.
Home Improvement & Hardware Store (9986)	1	77	Power Equipment Dealer	Home Improvement & Hardware Store POI where one can purchase, rent, or service heavy duty or light duty power equipment such as lawn mowers, generators, snow blowers, tillers, pumps, etc.

Subcategory Coverage (Continued)

POI Category	Number of Values	Value	Description	Definition
Hotel (7011)	1	17	Hotel	A Hotel facility that primarily provides lodging and usually meals, entertainment, and various personal services for the public.
		18	Motel	A Hotel facility that primarily provides lodging and parking and in which the rooms are usually accessible from an outdoor parking area.
		1026	Non-Star Hotel	A Hotel facility that has no star ratings.
		1030	1-2 Star	A Hotel facility that has 1 or 2 star rating.
		1029	3 Star	A Hotel facility that has 3 star rating.
		1028	4 Star	A Hotel facility that has 4 star rating.
		1027	5 Star	A Hotel facility that has 5 star rating.
Medical Service (9583)	Multiple	23	Family/General Practice	A Medical POI that offers medical services to individual persons or families.
		24	Dentist	A Medical POI that offers dental services.
		25	Clinic/Medical Centre	A Medical POI that offers quality medical services to the general public.
		26	Nursing Home	A Medical POI that primarily functions as a facility that provides constant nursing care to the elderly.
		27	Psychiatric Institute	A Medical POI that primarily functions as a facility for mental health services.
		81	Pediatrician	Physician specializing in the care and treatment of children.
		92	Blood Bank	A location where blood is collected from donors (may be on behalf of recipients), typed, separated into components, stored, and prepared for transfusion to recipients.
Meeting Point (9725)	Multiple	100	Tsunami	A Meeting Point POI that serves for tsunami incident.
		101	Fire	A Meeting Point POI that serves for fire incident.
		102	Earthquake	A Meeting Point POI that serves for earthquake incident.
		103	Volcanic Eruption	A Meeting Point POI that serves for volcanic eruption.
		104	Flood	A Meeting Point POI that serves for flood incident.

Subcategory Coverage (Continued)

POI Category	Number of Values	Value	Description	Definition
Museum (8410)	Multiple	66	Science	A Museum POI that primarily contains objects of scientific interest.
		67	Children's	A Museum POI that primarily contains objects of interest to children.
		68	History	A Museum POI that primarily contains historical objects.
		69	Art	A Museum POI that primarily contains objects of art..
Nightlife (5813)	1	34	Bar/Pub/ Stube/ Biergarten	Nightlife POI that provides alcoholic beverages (i.e., beer, wine, liquor drinks) and light meals.
		36	Nightclub	Nightlife POI that provides evening entertainment generally until the very early morning.
		37	Dancing	Nightlife POI that provides a place to dance.
		38	Karaoke	Nightlife POI that provides a place to sing Karaoke.
		39	Live Entertainment/ Music/Cabaret	Nightlife POI that provides music or live entertainment.
		40	Billiards/Pool Hall	Nightlife POI where one can play billiards/pool.
		41	Video Arcade/ Gaming Room	Nightlife POI where one can play video games.
		42	Jazz Club	Nightlife POI where one can enjoy jazz music in a club setting.

Subcategory Coverage (Continued)

POI Category	Number of Values	Value	Description	Definition
Other Accommodation (7013)	1	19	Guest House	A small house or cottage, adjacent to a main house, available for lodging.
		20	Hostel	A supervised, inexpensive lodging place for travellers, especially youth
		21	Holiday Park	An area with rental cottages and a variety of holiday related activities (e.g., bowling, restaurants, swimming, mini golf, etc.).
		22	Bed & Breakfast	A lodging facility providing breakfast (but not other meals) and lodging at an inclusive price. These are typically private homes with only one or two bedrooms available for commercial use.
		51	Short -Time Motel	A lodging facility designed for romantic encounters, usually not requiring a full night's accommodation.
		1093	Condo	A lodging facility that is a condominium.
		1094	Home Lodging	A lodging facility that is actually a home available for lodging.
Park/ Recreation Area(7947)	1	59	Garden	Park/Recreation Area POI that is a garden, e.g., a botanic garden.
		60	Beach	Park/Recreation Area POI that primarily functions as a beach.
		61	Sports Field	Park/Recreation Area POI that primarily serves as a public sports field.
		78	Trailhead	Park/Recreation POI/Service indicating the start or entrance of an Off-Highway Vehicle (OHV) trail or area specifically designated for OHV driving.
		80	Off Road Vehicle (ORV) Area	A defined entrance or parking lot that is associated with an open area (not a trail) where off road vehicles can drive
Parking Lot (7520)	1	74	Cellphone Parking Lot	Parking Lot POI where a driver, picking up an airline passenger, can park for a short term while waiting for the passenger to call for pick-up.
Pharmacy (9565)	1	30	Pharmacy	A Pharmacy POI that prepares and dispenses prescription drugs.
		31	Drugstore	A Pharmacy POI that sells other goods (i.e., cosmetics, snacks, beverages) in addition to prescription drugs.
Petrol/Gasoline Station (5540)	1	1099	LPG only	A Petrol Station POI that sells LPG (Liquefied Petroleum Gas) only.

Subcategory Coverage (Continued)

POI Category	Number of Values	Value	Description	Definition
Repair Services (9595)	Multiple	90	Electrical	Shop/location where a consumer can take electrical items in for repair.
		91	Plumbing	Shop/location where a consumer can take plumbing items in for repair or book an appointment for a plumber to visit the premises.
School (8211)	1	86	Pre-School	The education for children before the start of statutory education, usually between the ages of two and five, dependent on the education system in each country.
Specialty Store (9567)	1	44	Pet Supply	Specialty Store POI that provides goods and services for family pets.
		45	Warehouse/ Wholesale	Specialty Store POI where one can buy goods in bulk, e.g., Sam's Club, Costco.
		46	Food/Beverage	Specialty Store POI that sells specialty food and/or beverages, e.g., liquor stores, wine stores, candy shops.
		79	Hobby, Toy, and Game Store	Specialty Store POI that specialises in hobby supplies such as model airplanes, trains, boats, and remote control cars; toys and games such as board games, video games, puzzles, and dolls.
		82	Bakery	Specialty Store POI where a consumer can purchase fresh bakery items and associated goods.
		83	Butcher	Specialty Store POI where a consumer can purchase fresh meats and associated goods.
		84	Dairy Goods	Specialty Store POI where a consumer can purchase fresh dairy products and associated goods.
		85	Sweets Shop	Shop/location where a consumer can purchase candies, sweets, and associated items.

Subcategory Coverage (Continued)

POI Category	Number of Values	Value	Description	Definition
Sporting Goods Store (9568) ¹	Multiple	106	Hunting/Fishing Shop	Sporting Goods Store POI that primarily sells equipment for fishing and hunting.
		107	Running/Walking Shop	Sporting Goods Store POI that primarily sells equipment used in running and walking.
		108	Skate Shop	Sporting Goods Store POI that primarily sells equipment for skating.
		109	Ski Shop	Sporting Goods Store POI that primarily sells equipment for skiing.
		110	Snowboard Shop	Sporting Goods Store POI that primarily sells equipment for snowboarding.
		111	Surf Shop	Sporting Goods Store POI that primarily sells equipment for surfing.
		112	Bicycle Shop	Sporting Goods Store POI that primarily sells equipment for bicycling.
		113	BMX Shop	Sporting Goods Store POI that primarily sells equipment for BMX bicycling.
		114	Camping/Hiking Shop	Sporting Goods Store POI that primarily sells equipment related to outdoor camping and hiking.
		115	Canoe/Kayak Shop	Sporting Goods Store POI that primarily sells equipment for canoeing and kayaking.
		116	Cross Country Ski Shop	Sporting Goods Store POI that primarily sells cross country skiing related items, such as skis, ski boots, clothing and other accessories.
		117	Tack Shop	Sporting Goods Store POI that primarily sells horse riding equipment, apparel, and related items.

Subcategory Coverage (Continued)

POI Category	Number of Values	Value	Description	Definition
Sports Centre (7997)	Multiple	7	Fitness & Health Club	A Sports Centre POI that houses exercise equipment for the purpose of physical exercise.
		8	Racket Ball Court	A Sports Centre POI that primarily functions as a facility for playing racket ball.
		9	Shooting Range	A Sports Centre POI that primarily functions as a shooting range
		10	Indoor Ski	A Sports Centre POI that primarily functions as a facility for participating in indoor ski activities.
		11	Soccer Club	A Sports Centre POI that primarily functions as a facility for playing soccer.
		12	Squash	A Sports Centre POI that primarily functions as a facility for playing squash
		13	Swimming Pool	A Sports Centre POI that primarily functions as a facility for swimming (indoor and/or outdoor).
		14	Tennis Court	A Sports Centre POI that primarily functions as a facility for playing tennis.
		15	Indoor Sports	A Sports Centre POI that functions as a facility for participating in a variety of indoor sports.
		16	Hockey	A Sports Centre POI that functions as a facility for playing hockey.
		72	Basketball	A Sports Centre POI that functions as a facility for playing basketball.
		73	Badminton	A Sports Centre POI that functions as a facility for playing badminton.
		75	Rugby	A Sports Centre POI that functions as a facility for playing rugby.
		76	Diving Centre	A Sports Centre POI that functions as a facility for scuba diving.
		1092	Ping Pong	A Sports Centre POI that functions as a facility for playing ping pong.
		1092	Sauna	A Sports Centre POI that functions as a facility for sauna.
		1035	Fishing	A Sports Centre POI that functions as a facility for fishing.
Tourist Attraction (7999)	1	65	Gallery	A Tourist Attraction POI that exhibits works of art.

Subcategory Coverage (Continued)

POI Category	Number of Values	Value	Description	Definition
Trailhead (9052) ²	Multiple	95	Walking Path	A Trailhead POI that represents the access point for a Walking Path.
		96	Bicycle Path	A Trailhead POI that represents the access point for a Bicycle Path.
		97	Off-Road	A Trailhead POI that represents the beginning point for a trail that is used for off road driving by any kind of vehicles, including 4WD vehicles.
		98	Mountain Bike Trail	A Trailhead POI that represents the access point for a Mountain Bike Trail.
		99	Hiking Trail	A Trailhead POI that represents the access point for a Hiking Trail.
		1102	Cross Country Ski Trail	A Trailhead POI that represents the access point for a Cross Country Ski Trail.
		1107	Horse Trail	A Trailhead POI that represents the access point for a Horse Trail.
Training Centre/ Institute (9596)	Multiple	87	Coaching Institute	Course/classroom studies where individuals are “coached” on various topic, e.g., Preparation for competitive Exams, Preparation for Government Jobs, Preparation to get Admission in reputed universities, etc.
		88	Fine Arts	Course/classroom studies where individuals learn an aspect of the Fine Arts, e.g., Painting, Photography, Tap Dance, etc.
		89	Language Studies	Course/classroom studies where individuals learn a particular language.

1. Published in the metadata only (a subset populated in the Bicycling content).
2. Published in the metadata only.

Table 9-9

Subcategory Example

RDF_POI_SUBCATEGORY		
POI_ID	SEQ_NUM	SUBCATEGORY
1234561880	1	1
1234561883	1	2
1234561790	1	19

RDF_POI_SUBCATEGORY		
POI_ID	SEQ_NUM	SUBCATEGORY
1234561723	1	22
1234561724	1	23
1234561725	1	26
1234561723	1	48
1234561723	2	49
1234561723	3	50

9.7.28 Shortened Name (SHORT_NAME)

Definition *Shortened Name* publishes the shortened, abbreviated name for a POI base name.

Table RDF_POI_NAME
RDF_CITY_POI_NAME

Column SHORT_NAME

Values Text - the shortened, abbreviated POI base name

Usage *Shortened Name* can be used for destination selection and map display.

Specification

- A Base Name is a name in a language that is considered official in a given administrative area.
 - ◆ Associated *Shortened Name* represent alternative (additional) name, of 35 characters or less, for a POI base name longer than 35 characters.
- An exonym is a name in a foreign language (i.e. a language that is not considered official within a given administrative area).
- A synonym is an alternative (additional) name for a feature in a Language that is official within a given administrative area.
 - ◆ Associated *Shortened Name* represent alternative (additional) name, of 35 characters or less, for a POI exonym or synonym longer than 35 characters.
- *Shortened Name* do not provide an approved, formal abbreviation of a name; it rather is an abbreviation based on common sense.

Example

RDF_POI_NAME			
NAME_ID	LANGUAGE_CODE	NAME	SHORT_NAME

44452111	GRE	NAME > 35 CHARS	SHORTENED NAME <35
44452112	DUT	NAME < 35 CHARS	
44452113	GRE	NAME > 35 CHARS	SHORTENED NAME <35
44452114	GRE	SHORTENED NAME <35 CHARS	
44452115	DUT	SHORTENED NAME <35 CHARS	

9.7.29 Transliterated Shortened Name (SHORT_NAME)

- Definition** SHORT_NAME publishes the transliterations for the shortened, abbreviated name for a POI base name.
- Table** RDF_POI_NAME_TRANS
RDF_CITY_POI_NAME_TRANS
- Column** SHORT_NAME
- Values** SHORTENED NAME transliteration
- Usage** SHORT_NAME transliterations can be used for destination selection and map display.
- Specifications**
- SHORT_NAME in RDF_POI_NAME_TRANS provides the transliteration for the shortened name published in RDF_POI_NAME
 - SHORT_NAME in RDF_CITY_POI_NAME_TRANS provides the transliteration for the shortened name published in RDF_CITY_POI_NAME

Example

RDF_POI_NAME_TRANS			
NAME_ID	TRANSLITERATION_TYPE	NAME	SHORT_NAME
44452111	GRX	TRANSLITERATED NAME	SHORTENED TRANS NAME
44452112	
44452113	
44452114	
44452115	

9.7.30 Rest Area Type (REST_AREA_TYPE)

- Definition** Rest Area Type indicates the range and type of facilities available at a Rest Area POI.

Table	RDF_POI_REST_AREA
Column	REST_AREA_TYPE
Values	See Section C.65, RDF_POI_REST_AREA.
Usage	Rest Area Type can be used to determine the range and type of facilities available at a Rest Area POI.
Specification	<ul style="list-style-type: none"> • Each Rest Area POI has zero or one Rest Area Type. • If Rest Area Type is not published, then this information is unknown. • Complete Rest Area is published if a Rest Area POI has rest room facilities, plus at least one of the following: petrol station, restaurant, hotel. • Parking and Rest Room Only is published if a Rest Area POI provides only parking and a rest room. • Parking Only is published if a Rest Area POI provides only parking. • Motorway Service Area is published if a Rest Area POI is signposted on the motorway, but require the driver to exit the motorway for access. • Scenic Overlook is published if signs indicating scenic overlook/scenic area are posted for the Rest Area POI.

9.7.31 Restaurant Attributes

9.7.31.1 Cuisine ID (CUISINE_ID)

Definition	<i>Cuisine ID</i> identifies the type of food primarily offered at a restaurant.
Table	RDF_POI_RESTAURANT
Column	CUISINE_ID
Values	See Section C.70, RDF_POI_RESTAURANT.
Related Attribute	<i>Alternate Cuisine ID (ALTERNATE_CUISINE_ID)</i> <i>Regional Cuisine ID (REGIONAL_CUISINE_ID)</i> <i>Restaurant Type (RESTAURANT_TYPE)</i>
Usage	<i>Cuisine ID</i> enables Restaurant POIs to be indexed, queried, and displayed by cuisine. Implementation of <i>Cuisine ID</i> allows an end-user to select restaurants by desired cuisine.
Specification	<ul style="list-style-type: none"> • Each Restaurant POI receives at least one <i>Cuisine ID</i>. • Icons for <i>Cuisine ID</i> are not published. • An Exonym is published even when the spelling of a Cuisine Type description is the same in a different language, e.g., “Sushi” in SPA would be published in addition to

“Sushi” in ENG. Exonyms for all *Cuisine ID* values are published in RDF_META. See Section A.1.4, *Exonyms and Transliterations*.

9.7.31.2 Alternate Cuisine ID (ALTERNATE_CUISINE_ID)

Definition	<i>Alternate Cuisine ID</i> identifies a cuisine served by a restaurant that is secondary to the primary cuisine that the restaurant serves.
Table	RDF_POI_RESTAURANT
Column	ALTERNATE_CUISINE_ID
Values	See Section C.70, <i>RDF_POI_RESTAURANT</i> .
Related Attribute	<i>Contact Information</i> <i>Regional Cuisine ID (REGIONAL_CUISINE_ID)</i> <i>Restaurant Type (RESTAURANT_TYPE)</i>
Usage	<i>Alternate Cuisine ID</i> allows a user to select restaurants by more than one cuisine. <i>Alternate Cuisine ID</i> enables restaurants to be indexed, queried, and displayed by an additional cuisine.
Specification	<ul style="list-style-type: none"> • <i>Alternate Cuisine ID</i> is published only if <i>Cuisine ID</i> is published. • The value of <i>Alternate Cuisine ID</i> cannot be the same as the value of <i>Cuisine ID</i>.

9.7.31.3 Regional Cuisine ID (REGIONAL_CUISINE_ID)

Definition	<i>Regional Cuisine ID</i> identifies regional cuisine.
Table	RDF_POI_RESTAURANT
Column	REGIONAL_CUISINE_ID
Values	See Section C.70, <i>RDF_POI_RESTAURANT</i> .
Usage	<i>Regional Cuisine ID</i> enables Restaurant POIs to be indexed, queried, and displayed by a regional cuisine. Implementation of <i>Regional Cuisine ID</i> allows a user to select restaurants by a regional cuisine.
Related Attribute	<i>Cuisine ID</i> <i>Alternate Cuisine ID</i> <i>Restaurant Type</i>
Specification	<ul style="list-style-type: none"> • <i>Regional Cuisine ID</i> is published only for the Restaurant POI’s CUISINE_ID record. • The valid <i>Cuisine ID</i> and <i>Regional Cuisine ID</i> combinations are:

Cuisine-ID	Regional_Cuisine_ID	
	Value	Description
Chinese ¹	1	Szechuan
	2	Cantonese
Indian ¹	3	Tandoori
	4	Punjabi
Mexican	5	Yucateca
	6	Oaxaqueña
	7	Veracruzana
	8	Poblana
Brazilian	9	Baiana
	10	Capixaba
	11	Mineira
Indian	12	Rajasthani
	13	Mughlai
	14	Bengali
	15	Goan
	16	Jain
	17	Konkani
	18	Gujarati
	19	Parsi
	20	South Indian
	21	Maharashtrian
	22	North Indian
	23	Malvani
	24	Hyderabadi

CUISENE-ID	REGIONAL_CUISINE_ID	
	Value	Description
French	25	Alsacian
	26	Auvergnate
	27	Basque
	28	Corse
	29	Lyonnaise
	30	Provençale
	31	Sud-ouest
Brazilian	32	Bakery

- Additional Regional Food Types for this Food Type are published only in the metadata and in their respective countries.

- If there is no regional cuisine applicable to the Restaurant POI, then REGIONAL_CUISINE_ID is NULL.
- Exonyms for all REGIONAL_CUISINE_ID values are published in RDF_META in the same languages as those for *Cuisine ID* values. See *Section 9.7.15, Contact Information*.
 - An exonym is published in each language even if the spelling is the same.

9.7.31.4 Restaurant Type (RESTAURANT_TYPE)

Definition	<i>Restaurant Type</i> describes a Restaurant POI.
Table	RDF_POI_RESTAURANT
Column	RESTAURANT_TYPE
Values	See <i>Section C.70, RDF_POI_RESTAURANT</i> .
Related Attributes	<p><i>Contact Information</i></p> <p><i>Regional Cuisine ID (REGIONAL_CUISINE_ID)</i></p>
Usage	<i>Restaurant Type</i> enables Restaurant POIs to be indexed, queried, and displayed by restaurant classification. Implementation of <i>Restaurant Type</i> allows an end-user to select restaurants by restaurant classification.
Specification	<ul style="list-style-type: none"> One <i>Restaurant Type</i> is published for each Restaurant POI. The published <i>Restaurant Type</i> value is the one that best describes the Restaurant POI according to the table below:

Value	Description	Remarks
1	Fast Food	Restaurants serving quickly prepared, or readily available, processed food.
2	Casual Dining	Restaurants serving moderately-priced food in a casual atmosphere.
3	Fine Dining	High-end restaurants, usually with trained chefs and an elegant atmosphere.
4	Take-out & Delivery Only	Restaurants without seating, only offering take-out and/or delivery service.
5	Food Market/ Stall	Outdoor restaurants providing specialty foods.
6	Taqueria	Restaurants or stands selling quickly prepared Mexican food, such as tacos or burritos.
7	Deli	Restaurants selling ready-to-serve delicatessens including cheeses, cold cooked meats, and salads.
8	Cafeteria	Restaurants where, instead of tables there are food-serving counters/stalls, either in a line or allowing arbitrary walking paths. Customers take the food they require as they walk along, placing it on a tray and pay at check-out. Private institutions such as schools are excluded.
9	Bistro	Restaurants that could be described as a small café, usually serving modest, down-to-earth food and wine.

- If a description of a Restaurant POI is unknown, then *Restaurant Type* = <NULL>.
- Exonyms for all *Restaurant Type* values are published in RDF_META. See *Section A.1.4, Exonyms and Transliterations*.
- An exonym is published in each language even if the spelling is the same.

Examples [CUISINE_ID and RESTAURANT_TYPE Examples](#)

RDF_POI_RESTAURANT				
POI_ID	CUISINE_ID	ALTERNATE_CUISINE_ID	REGIONAL_CUISINE_ID	RESTAURANT_TYPE
1234561880	83	77	10	3
1234561883	47	77		2
1234561790	85			1

9.8 Administrative Coding associated with POIs

9.8.1 POI in Order8 (ORDER8_ID)

Definition Order8_ID in RDF_POI_ADDRESS and RDF_CITY_POI Identifies which Order-8 Area a POI belongs to.

Related Tables RDF_POI_ADDRESS
RDF_CITY_POI

Usage *POI in Order8* allows identification and destination selection of POIs located outside of Built-up Areas.

Specification

- Each POI has a corresponding ORDER8_ID, since the Order8 area is a spanning level present in every country.
- For POIs located along an Order-8 Area border the ORDER8_ID corresponding to the Side of the POI relative to the link is published.

9.8.2 POI in Built-up Area (BUILTUP_ID)

Definition The BUILTUP_ID column in RDF_POI_ADDRESS and RDF_CITY_POI identifies to which built-up area a POI belongs.

Related Tables RDF_POI_ADDRESS
RDF_CITY_POI

Usage *POI in Built-up Area* allows identification and destination selection of POIs located within built-up areas or incorporated areas.

Specification

- The BUILTUP_ID for a POI is only published when the POI is located inside of a Built-up Area (Admin_Type = 3110). When the POI is located outside the Built-up Area, field BUILTUP_ID is empty in RDF_POI_ADDRESS and RDF_CITY_POI.
- The UK is an exception to this rule, all POIs having Built-up Areas coded are published even when outside a Built-up Area. This relates to the Built-up Area being a spanning level in the UK. Therefore, in the UK the BUILTUP_ID is published for all POIs.
- A POI may be associated with multiple Built-up Areas, when the POI has Vanity City assigned. The POI-Vanity City association however is not published in the BUILTUP_ID field. The POI-Vanity City association is modelled in RDF_POI_VANITY_CITY.
- Named Place POI addressability should not be limited to a direct match between the Built-up Area or Order8 administrative name and the Named Place POI name. For example, when looking for the Named Place under the Built-up Area name (i.e.,

Los Angeles), an application should list all the Named Place POIs related to the Built-up Area of Los Angeles, not just the single Named Place named Los Angeles.

- For POIs located along a Built-up Area border, the BUILTUP_ID corresponds to the Side of the link on which the POI is located.

9.8.3 POI - Administrative Area Mapping

Definition	Each POI is associated with the full Administrative Area applicable to the link on which the POI is located. This mapping is coded by the following fields in RDF_POI_ADDRESS and RDF_CITY_POI:
	<ul style="list-style-type: none">• Country_ID: Admin_Place_ID of the country in which the POI is located (required).• Order1_ID: Admin_Place_ID of the Order1-Area in which the POI is located (optional).• Order2_ID: Admin_Place_ID of the Order2-Area in which the POI is located (optional).• Order8_ID: Admin_Place_ID of the Order8-Area in which the POI is located (required).• BUILTUP_ID: Admin_Place_ID of the Builtup-Area in which the POI is located (optional).

Related Tables RDF_CITY_POI

RDF_POI_ADDRESS

Specification	<ul style="list-style-type: none">• Names for the administrative levels can be obtained via RDF FEATURE_NAME, where FEATURE_ID = ADMIN_PLACE_ID (or Country_ID, Orderx_ID, Builtup_ID).
----------------------	---

9.8.4 POI in Zone

Definition	The association of a Zone to a POI allows identification and destination selection of POIs by the name of the Zone. The POI-Zone relation can be retrieved via two methods:
	<ul style="list-style-type: none">• Administrative Extension (ADM_POI_SUBREGION or ADM_CITY_POI_SUBREGION) where table ADM_SUBREGION_DEF references the Zone (REGION_TYPE = Z)• Via LINK_ID - SIDE published for the Location (RDF_LOCATION) associated with the POI. The LINK - SIDE can be used for RDF_LINK_ZONE to retrieve the Zone in which the POI is located.

Related Attributes Zone Type

Related Tables RDF_LINK_ZONE

RDF_LOCATION

ADM_CITY_POI_SUBREGION

ADM_SUBREGION_DEF

Usage	<i>POI in Zone</i> allows identification and destination selection of POIs by Zone.
Specifications	<ul style="list-style-type: none"> • A POI may exist in multiple Zones. • For POIs located along a Zone border: <ul style="list-style-type: none"> ◆ If it is known that the POI is located on the left or right side of the link, the POI is related to the Zone corresponding to the coded POI Side. So, when the POI SIDE = L, the POI is associated with the Zone on the Left side of the link on which the POI is located. ◆ If it is unknown whether the POI is on the left or right side of the link, the POI is associated with the Zone on the Left and Right Side of the link when the Left and Right Zone coding is different for the applicable link. • For POIs located along a non-Zone border: <ul style="list-style-type: none"> ◆ Only one POI to Zone association is coded. If the POI side is known, the Zone is published for that POI Side. If the POI side is unknown, the POI gets associated with Zone and Admin coding on both sides of the link.

9.8.5 POI to Link Association

Definition	Identifies to which link a POI is associated.
Related Attributes	<i>House Number of POI</i> <i>Street Name</i> <i>Address Format</i>

Related Tables RDF_LOCATION

Usage	<i>POI to Link Association</i> relates a POI to link for icon placement and route calculation. It is also used for destination selection (reverse geocoding).
Specification	<ul style="list-style-type: none"> • If it is unknown whether the POI is located on the left or the right side of the link, SIDE = N (Neither) is published in RDF_LOCATION.

9.8.6 POI to POI Association (Parent - Child)

Definition	The association between POIs is used for POIs that functionally belong to or are related to each other.
Related Attributes	Parent-Child Association Type
Usage	It allows a system to group on a scroll list the POIs that functionally support, or are located within another POI. For instance, a system user may want to know which POIs, such as hotels, are close to an airport. A system can also inform a user that the selected restaurant is located within the larger hotel.

The POI association can also be used for icon display. For example, only one icon is displayed at the location instead of 10 icons. POI Association is coded in table RDF_POI_CHILDREN. The POI_ID field represents the Parent POI and field CHILD_POI_ID represents the Child POI in the Parent-Child association.

- Specification**
- Parent-Child Association is applied when two POIs have relationships (i.e., the child POI has a relationship to the parent POI). Facilities sharing the same building does not necessarily qualify for Parent/Child coding. For example, Parent-Child Association is applied for a Restaurant in a Hotel or for a Bookstore in a Train Station. Parent-Child Association however, is not applied for a Bank at the ground floor of a Business Facility POI if this bank is directly accessible from the street.
 - A POI may have from 0 to 10 parents.
 - A POI may have unlimited number of children.
- In N.A., for example, Hospital POIs (both the main entrance and the ER entrance) within a driving distance of 4.8 kilometres (3 miles) from a Highway Exit POI are applied as children. This results in an unusually large number of P/C relationships. See section *Section 9.5.42, Highway Exit*.
- This attribute is published as an attribute of the relationship. Refer to *Section 9.8.6, POI to POI Association (Parent - Child)* for more details.
 - The POI coded in the POI_ID field is considered the parent POI.
 - The POI coded in CHILD_POI_ID field is considered the child POI.

9.8.6.1 Parent-Child Association Type (ASSOCIATION_TYPE)

- Definition** *Parent-Child Association Type* identifies the type of relationship that exists between two POIs involved in a parent - child association.
- Table** RDF_POI_CHILDREN
- Value** See *Section C.68, RDF_POI_CHILDREN*.
- Usage** *Parent-Child Association Type* allows retrieval of information that the desired destination is located within, or serves another POI, such as a hotel near an airport.
- Specification** [Physical vs. Logical](#)
- Physical relationship is identified when the parent/child POIs are physically located in, or are directly attached, to each other.

Examples:

 - ◆ Physical is applied for additional POIs placed on the multiple entrances of a National Park POI.
 - ◆ Physical is applied for all POIs within the boundary of the main POI that represents a facility with limited access, e.g., industrial zones with checkpoints or requires payment for admission.
 - Logical relationship is identified when the parent/child POIs are not physically located in, or not directly attached, to each other.

Example:

- ◆ Logical is applied for an Open Parking Area POI that is located outside any of the terminal buildings at an airport.

Multiple Parent-Child Associations

- A POI can be designated both as a parent and a child if it is according to reality. The following are examples:
 - ◆ A Hotel is a parent to a Restaurant and a child to a Highway Exit.
 - ◆ A Delivery Entrance is the parent of a Dock and a child to a Shopping Centre.
 - ◆ An Airport Terminal can be a child of the Airport and the parent of an Open Parking Area.

Multiple Entrances:

- When there are multiple entrances to a feature on different streets, then a POI is created for each entrance, when it is navigationally significant.
- The main entrance (if possible) is designated as the parent POI and the remaining entrances as the children POIs with a physical relationship.
- Parent/Child coding is applied to POIs with the same Facility Type located in the same building but representing two different facilities. For example, Embassy and Consulate (both coded as Embassy) or Dental and Medical Clinic (both coded as Medical Service).

Examples	The following are illustrations how Parent-Child Associations are implemented on select POIs.
-----------------	---

Airport

- The Airport is designated as the Parent and the facilities associated with the Airport as the Children.
 - ◆ *Parent-Child Association Type = P(Physical)* is applied if the facility is within any of the main airport buildings, e.g., terminals, ticketing/booking buildings, etc.
 - ◆ *Parent-Child Association Type = P(Physical)* is applied between the main Airport and Airport terminal POIs.
 - ◆ *Parent-Child Association Type = L(Logical)* is applied if the facilities are outside of any of the above-mentioned major buildings, but associated with the Airport.
- *Parent-Child Association Type = L* is applied to Hotels and Motels when:
 - ◆ Phone book lists the Hotel at the airport location.
 - ◆ Hotel name includes the Airport name.
 - ◆ Hotel is within approximately two miles of main entrance of the Airport.

Airport Terminals

- The Airport terminal is designated as the Parent of a Parking Garage or Parking Lot when the parking facility is designated on signage as a parking area for a particular Airport Terminal.

Business Facility

- Parent-Child Association is applied between a Business Facility and additional POIs located at the ground floor if they are only accessible from inside the building. *Parent-Child Association Type = P(Physical)* is applied.

Automobile Dealership with Motorcycle Dealership

- The Automobile Dealership POI is designated as the parent of a Motorcycle Dealership POI when located in the same building. *Parent-Child Association* is not applied between Automobile Dealership and Auto Service & Maintenance POIs.

Hospital/Polyclinic

- The main public entrance and the emergency entrance are added at their actual locations. The main Hospital entrance is designated as the parent and the emergency entrance as the child. *Parent-Child Association Type = P(Physical)* is applied.

Hotel/Parking Garage

- Parent-Child Association is applied between the main hotel entrance and the Parking Garage POI.

Industrial Zone

- Parent-Child Association is applied between an Industrial Zone and other POIs only if the facilities are related to the Industrial Zone. For example: Business Facility POI can be the child of an Industrial Zone POI.

National Park

- When a National Park has multiple entrances on different streets, a POI is created for each entrance, when it is navigationally significant. The main entrance is designated as the Parent and the remaining entrances as the children. *Parent-Child Association Type = P(Physical)* is applied.

Residential Area/Building

- Parent-Child Association is applied between a Residential Area/Building and additional POIs located at the ground floor if they are only accessible from inside the building. *Parent-Child Association Type = P(Physical)* is applied.

Rest Areas

- Parent-Child Association is applied between Rest Area POIs (Parent) and associated POIs (children) located at the Rest Areas (e.g., Restaurants, Hotels, and Petrol stations).
- For Rest Areas that have facilities at both sides of the motorway which are accessible via a bridge or tunnel for pedestrians (See *Figure 9-18*), the physical Parent-Child Association shown in *Table 9-10* is applied:

Parent	Children
Rest Area (A)	Restaurant (A)
	Petrol Station (A)
Rest Area (B)	Petrol Station (B)

Table 9-10

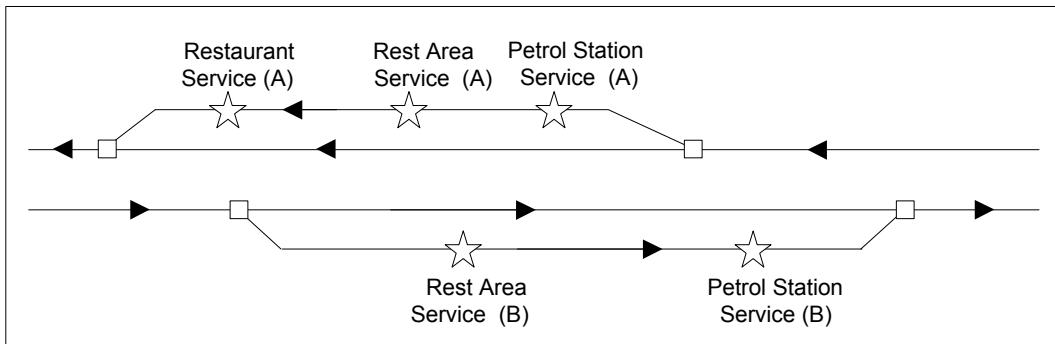


Figure 9-18

Ski Resort-Ski Lift

- Parent-Child Association is applied between the Ski Resort POI and the associated Ski Lift POI. The Ski Resort is designated as the parent and the Ski Lift POIs as the child if the Ski Lift is part of a ski resort/ski area. *Parent-Child Association Type = L (Logical)* is applied.

9.8.7 POI Side (SIDE)

Definition	SIDE identifies whether the POI is on the right or left side of a link. This can be used with other related attributes to place POI icons on a map and determine the proper timing and wording for arrival guidance.
Table	RDF_LOCATION
Values	See Section C.51, RDF_LOCATION.
Related Attributes	<p><i>Street Name</i> <i>House Number of POI</i> <i>Address Format</i> <i>Percent from Reference Node</i></p>
Usage	POI Side can be used with other related attributes to place POI icons on a map and determine the proper timing and wording for arrival guidance.
Specification	<ul style="list-style-type: none"> • SIDE also affects the number of Admin, Zone and Postal Code associations to a POI. See rules below: <ul style="list-style-type: none"> ◆ If it is known whether the POI is located on the left or the right side of the link, the following POI - Admin, POI - Zone, POI - Postal Code associations are published. One POI Link ID One POI association to Builtup_ID (if applicable) One POI association to Order8

- One POI association to Zone (if applicable)
- One POI association to Postal Area (if applicable)
- ♦ If it is unknown whether the POI is located on the right or left side of the link (SIDE = N) and the link is not an administrative boundary, the following POI - Admin, POI - Zone and POI - Postal Code associations are published:
 - One POI to Built-up area. Two POIs to Zone associations, if the zone coding would be different on Left / Right sides of the link.
 - One POI to link association, with SIDE = N. Two POI - Postal Code associations, would be Postal Code be different on Left / Right Side of the link.
- ♦ If it is unknown whether the POI is located on the right or left side of the link, and the link is an administrative boundary, the following is published:
 - One POI to link association, with SIDE = N
 - Two POIs to Order8 associations, if link is on an Order8 boundary.
 - Two POIs to Built-up associations, if the link is on a Built-up area boundary.
 - Two POIs to Zone associations, would the link have different Left / Right zone coding.
 - Two POI to Postal Area code associations, would the link have different Left / Right Postal Coding.

9.8.8 Vanity City (VANITY_CITY_ID)

Definition	<i>Vanity City</i> attribution identifies a city that is different than the city where the POI is physically located. For example, Charles-de-Gaulle airport is located in Roissy-en-France, not in Paris. It is common, however, for people to think the airport is in Paris.
Related Attributes	<i>Street Name</i> <i>Address Format</i> <i>In Vicinity</i> <i>Actual Address</i>
Values	<i>Vanity City</i> POIs are published in RDF_POI_VANITY_CITY. The VANITY_CITY_ID field identifies the Vanity City; this field references the RDF_ADMIN_PLACE tables. <i>Vanity City</i> attribution can also be retrieved from the Admin Extension (ADM_CITY_POI_SUBREGION and ADM_POI_SUBREGION, field VANITY_CITY).
Related Tables	RDF_ADMIN_PLACE ADM_CITY_POI_SUBREGION ADM_POI_SUBREGION
Usage	<i>Vanity City</i> allows identification and selection as a destination under the official address, or the city/location name that commonly is associated with the POI.
Specification	<ul style="list-style-type: none">• If the POI address does not match the Built-up Area applied to each side of the link to which the POI is associated, then the POI is published in RDF_POI_VANITY_CITY.

-
- If the POI address matches the Built-up Area applied to each side of the link to which the POI is associated, then the POI is not published in RDF_POI_VANITY_CITY.

Example

POI Name	Built-Up Area	Vanity City
Disneyland Paris	Coupvray	Paris
Aéroport de Lille-Lesquin	None	Lesquin

- Parent/Child associations in relation to Vanity City coding:
 - ◆ If the parent POI has a Vanity City, then the children also have the same Vanity City.
 - ◆ If the parent POI does not have a Vanity City (e.g., an airport) and the child POI is in a different administrative area, then the child POI includes a Vanity City for the parent POI.
 - ◆ However, if the parent POI does have a Vanity City and the child POI falls within the administrative area of the Vanity City, then no Vanity City is indicated for that child POI.

Annotation

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10.1 Introduction

Annotations represent fixed-point labels that can be used for name display in the map. The annotation points are floating and are not associated with a road network on the map database. Only use annotation points to render text display in the map.

Names of annotation points are published in RDF_FEATURE_NAME and can be retrieved via RDF_FEATURE_NAMES.

This chapter describes the attributes contained in the table, which include the following:

- *Annotation Category* (ANNOTATION_TYPE)
- *Display Category* (LABEL_DISPLAY_CLASS)

10.2 Annotation Category (ANNOTATION_TYPE)

Definition	<i>Annotation Category</i> identifies the type of feature represented by the annotation point.
Table	RDF_ANNOTATION
Column	ANNOTATION_TYPE
Values	See <i>Section C.8, RDF_ANNOTATION</i> .
Related Attribute	<i>Display Category</i> (LABEL_DISPLAY_CLASS)
Usage	An application can use this information to display an icon for the type of feature or to selectively display text for specific label points.
Specification	<ul style="list-style-type: none">• This attribute is applied for specific countries only. See the <i>Country Specific Rules</i> document.• See the following sections for related attributes for more information:<ul style="list-style-type: none">◆ <i>Section 11.3, Attachment Type (ATTACHMENT_TYPE)</i>◆ <i>Section 11.4, File Name (FILE_NAME)</i>

10.3 Display Category (**LABEL_DISPLAY_CLASS**)

Definition *Display Category* indicates the relative importance of the annotation point for map display.

Table RDF_ANNOTATION

Column LABEL_DISPLAY_CLASS

Values See *Section C.8, RDF_ANNOTATION*.

Related Attribute Annotation Category (ANNOTATION_TYPE)

Usage An application can use this attribute to assign points to different zoom levels.

Specification

- This attribute is applied for specific countries only. See the *Country Specific Rules* document.
- See the following sections for related attributes for more information:
 - ◆ *Section 11.3, Attachment Type (ATTACHMENT_TYPE)*
 - ◆ *Section 11.4, File Name (FILE_NAME)*

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File Association

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11.1 Introduction

RDF offers a generic model to associate files (external to the core-map database) to map features, via table RDF_FILE_FEATURE.

This chapter describes the attributes contained in the table, which include the following:

- File Type (FILE_TYPE)
- Attachment Type (ATTACHMENT_TYPE)
- File Name (FILE_NAME)

In addition, a selection of attachment files are also described:

11.2 File Type (FILE_TYPE)

Definition	<i>File Type</i> identifies the type of auxiliary content referenced by the File Association mechanism.
Values	See Section C.43, <i>RDF_FILE</i> .
Cardinality	1:1
Related Condition	CONDITION_TYPE = 20 (for Junction View Images)
Related Attributes	<i>File Name</i> <i>Attachment Type</i>
Usage	<i>File Type</i> is used to identify the auxiliary content referenced by the <i>Junction View Images</i> condition as 2D Sign content.
Specification	<p><u>Landmarks</u></p> <ul style="list-style-type: none"> • External file attachments with <i>Attachment Type</i> = "TGA" are part of 3D Landmarks product. • External file attachments coded with <i>Attachment Type</i> = "SVG" are part of 2D Landmarks product. • The pixel size for <i>File Type</i> = 5 and 6: 0064x0064. • Two levels of 3D Object resolution are provided for each <i>Grouped Structure</i>. There is one level of resolution provided for each <i>Grouped Complex</i>⁴. <ul style="list-style-type: none"> ◆ <i>File Type</i> = 11 represents the Standard 3D Landmark Model ◆ <i>File Type</i> = 12 represents the Light 3D Landmark Model <p><u>Annotation Category</u></p> <ul style="list-style-type: none"> • <i>File Type</i> = 10 and 18. <p>These values for this attribute are applied for specific countries only. See the <i>Country Specific Rules</i> document.</p> <p><u>POI Icons / POI Category Icons</u></p> <ul style="list-style-type: none"> • <i>File Type</i> = 19 thru 23. <p><u>Junction Visuals and 2D Sign Images</u></p>

4. The initial release of City Model and 3D Landmark data does not yet publish Grouped Complexes. References to this data in this chapter are for informational purposes only.

- The Junction View images (*File Type* = 1 and *File Type* = 2) associated to existing Junction View conditions can be combined with the 2D Sign SVG file to obtain an integrated image representing the junction.
See the SVG file specification document for description on how the SVG files can be combined with the Junction View images.
- When a 3D Object is included for non Landmark buildings, the resolution is detailed enough to be recognizable at the lightest weight.
- *File Type* = 25 is coded as an additional file association for existing *Junction View*(9064) relationships, which also have *File Type* = 1 (2D Pattern) and *File Type* = 2 (2D Arrow) associated.

Building Texture Pattern

- *File Type* = 38
This value for this attribute is applied for specific countries only. See the *Country Specific Rules* document.
- See Section 11.2.3, *Building Texture Pattern*.

Toll Structure View

- *File Type* = 39
This value for this attribute is applied for specific countries only. See the *Country Specific Rules* document.
- See Section 11.2.4, *Toll Structure View*.

11.2.1 Junction View and 2D Sign Images

See Usage information under Section 6.4.16, *Junction View* (*CONDITION_TYPE* = 20).

11.2.2 Motorway Junction Objects COLLADA (MJO-COLLADA)

Definition Motorway Junction Object COLLADA (MJO-COLLADA) is a 3D model constructed out of the collection of features that make up the MJO-CF, delivered as auxiliary COLLADA files.

Related Table The MJO-COLLADA is delivered as auxiliary file in RDF_FILE.

Related Attributes *Attachment Type*
 File Type

Usage Using MJO-COLLADA, it is possible to provide the driver with real time guiding assistance in a visual form, based on reference and orientation principles.

Specification

- The MJO-COLLADA objects are given in a 3D Cartesian Coordinate System whose origin is placed at the geo location of the MJO-CF centre coordinates.
The X-axis points eastward along the parallel and the Y-axis points northward along

the meridian, and the Z-axis points up (away from the earth's surface); *Figure 11-1* below illustrates this.

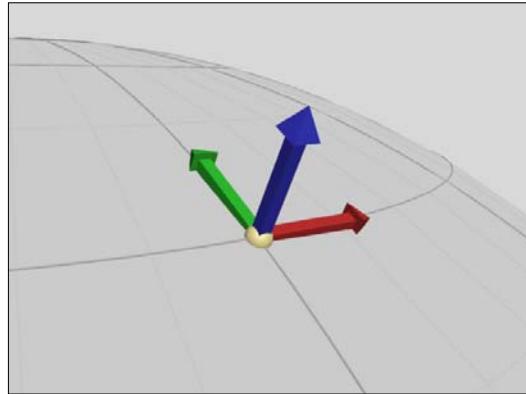


Figure 11-1(red: X axis, green: Y axis, blue: Z axis)

- All geo locations are mapped using a planar mapping, i.e., all locations at the same height are mapped to the same Z value.
- The basis for the *MJO-COLLADA* are the features as defined in the *MJO-CF*. To enable efficient processing, the *MJO-COLLADA* also includes the identification of:
 - The exiting and entering links with their corresponding direction of travel information.
 - The boundary nodes, to give explicit information about begin and end of the *COLLADA* Model in terms of Database features.
- In addition to the *MJO-COLLADA* file(s) that are specified in the File Association Model, there is an extra *COLLADA* (.DAE) file that contains auxiliary spline curve data and which is not referenced in RDF.
- For a detailed description of the *MJO-COLLADA* and the auxiliary spline curve data, please refer to the Motorway Junction Objects *COLLADA* Specification.

Referencing *COLLADA* Files to Map Data

- The *MJO-COLLADA* is tied to the *MJO-CF* using the File Association Model. See Section 12.2.10, *File Association Model*.
 - ◆ *RDF_FILE_FEATURE* defines the relation between the *MJO-CF* and the associated *MJO-COLLADA* File(s). The *FEATURE_ID* in *RDF_FILE_FEATURE* represents the *CF_ID* in *RDF_CF*.
 - ◆ *RDF_FILE* publishes the specifics of the *MJO-COLLADA*. The actual *MJO-COLLADA* file representing the *MJO-CF* is always published as auxiliary file with attributes *FILE_TYPE* and *ATTACHMENT_TYPE*. This means that attribute *BLOB* is always NULL.
- Up to three different *FILE_TYPE* of *MJO-COLLADA* files can be provided for each *MJO-CF*, for different levels of detail. The level of detail determines the number of triangles in the 3D rendition. Fewer triangles result in lower amount of detail but improved storage requirements and rendering performance.

- In exceptional cases it may happen that a file attachment is specified in the data but the actual referenced file is not part of the delivery (dangling references).

Example

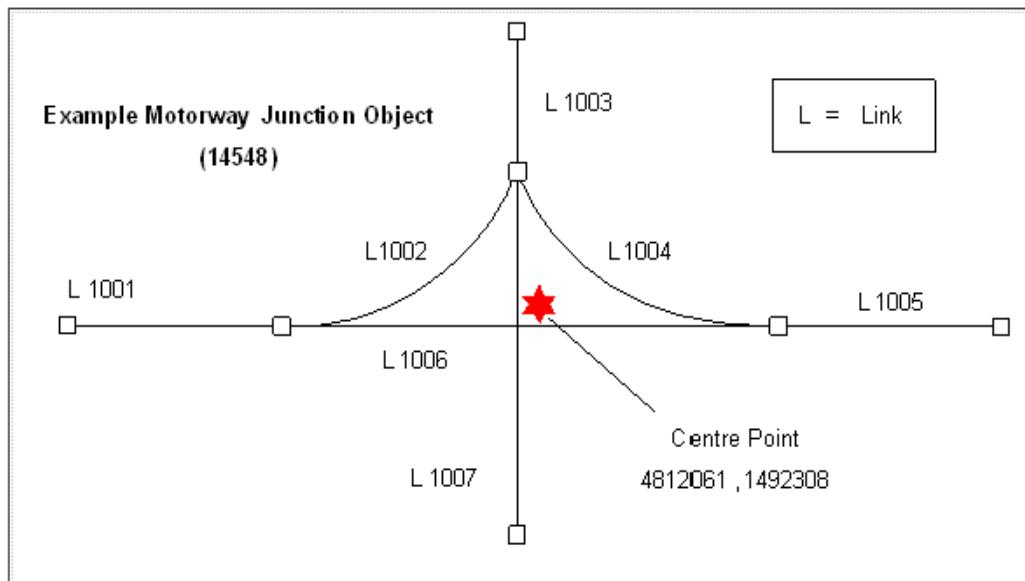


Figure 11-2

RDF_CF		
Attribute	Value	Remark
CF_ID	14548	
CF_TYPE	J	Motorway Junction Object
LAT	4812061	
LON	1492308	
REF_INTERSECTION_ID		
NREF_INTERSECTION_ID		

RDF_CF_LINK	
CF_ID	LINK_ID
14548	1001
14548	1002
14548	1003

14548	1004
14548	1005
14548	1006
14548	1007

RDF_FILE_FEATURE		
FEATURE_ID	OWNER	FILE_ID
14548	V	567
14548	V	568
14548	V	569

RDF_FILE				
FILE_ID	FILE_TYPE	ATTACHMENT_TYPE	FILE_NAME ¹	FILE_OBJECT
567	27	DAE	COLLADA1.DAE	NULL
568	28	DAE	COLLADA2.DAE	NULL
569	29	DAE	COLLADA3.DAE	NULL

1. Actual file names and/or directories may differ.

11.2.3 Building Texture Pattern

Definition Building Texture Patterns consist of template images that can be overlaid on the faces of an extruded building.

Table Name RDF_FILE

Cardinality 1:0,1

Related Table RDF_FILE_FEATURE
RDF_BUILDING

Usage In combination with *Height* attribute, Building Texture Pattern may be used to enhance the visual representation of extruded buildings.

Rules

- These files are applied for specific countries only. See the *Country Specific Rules* document.
- Building Texture Pattern follows the Multi Media File Attachment RDF convention.
- Only one Building Texture Pattern is published per each Building (Feature Type (2005700) Area Features.

- Building Texture Pattern applies to all sides of the Building (Feature Type (2005700)).
- Multiple Unclassified Building/Landmark(2005700) features of the same Grouped Structure may be rendered in various files (i.e., various Building Texture Patterns).
Example: *Figure 11-3* depicts the Louvre Museum. Although part of the same Grouped Structure, the Pyramid building requires a texture pattern that is different from the rest of the building making up the museum structure.



Figure 11-3

- Building Texture Pattern template images are provided in a folder structure with the following path:
`/BuildingTexturePattern/AAA/File Name`, where:
 - ◆ AAA is the ISO-3166 Alpha-3 Code and only publishes 'KOR' (South Korea)
- Building Texture Patterns are provided in a day and night mode in order to improve realistic representation of a building (See figures below).
 - ◆ One single day template is provided (see *Figure 11-4*)
 - ◆ Six different night templates are provided in order to provide a more realistic look and feel of a building (see *Figure 11-5*).

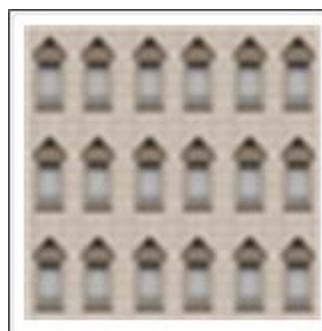


Figure 11-4

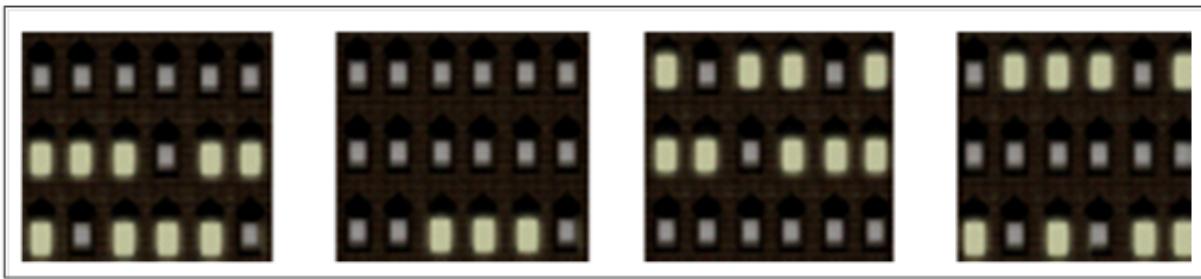


Figure 11-5

See file naming in *Section 11.4, File Name (FILE_NAME)*.

11.2.4 Toll Structure View

Definition	<i>Toll Structure View</i> is a visual representation of a toll structure.
Table Name	RDF_FILE
Cardinality	1:0,1
Usage	Toll Structure View may be used for guidance purposes in order to provide a visual representation of the toll structure the user is approaching to.
Rules	Included in select countries only. See the <i>Country Specific Rules</i> document.

11.3 Attachment Type (ATTACHMENT_TYPE)

Definition	<i>Attachment Type</i> identifies the type of file referenced by the File Association mechanism.
Values	See Section C.43, <i>RDF_FILE</i> .
Cardinality	1:1
Related Condition	CONDITION_TYPE = 20 (for Junction View Images)
Related Attributes	<i>File Name</i> <i>File Type</i>
Usage	<i>Attachment Type</i> is used to identify the structure of the file referenced by the <i>Junction View</i> condition.
Specification	<ul style="list-style-type: none">• <i>Attachment Type</i> = SVG is published for all 2D Sign graphics. The auxiliary 2D Sign graphics are defined using Scalable Vector Graphics (SVG), V1.1.• The SVG files can be used to automatically render graphics for signs using tools that allow SVG rendering.• A separate 2D Sign SVG file specification document is available and documents the SVG file in detail.

11.4 File Name (**FILE_NAME**)

Definition	<p><i>File Name</i> uniquely identifies the SVG file related to a particular condition.</p> <p><i>File Name</i> allows for retrieving the associated file in the set of auxiliary SVG files.</p>
Value	Textual description of the file name, including extension
Cardinality	1:1
Related Condition	CONDITION_TYPE = 20 (Junction View)
Related Attributes	<i>File Type</i> <i>Attachment Type</i>
Usage	FILE_NAME provides an explicit reference to the auxiliary file and allows for retrieval of the SVG file.
Specification	<ul style="list-style-type: none">Detailed File Name conventions are defined for the Scalable Vector Graphic (SVG) file.File names are always in Latin-1 characters and reference content published as external data to RDF.File names published in RDF_FILE use the same spelling and capitalization as the auxiliary external file name. For naming convention of SVG files, see the <i>2D Landmarks Specifications</i> document.

RDF Schema

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12.1 Introduction

This document describes the structure and semantics of the Relational Database Format and provides descriptions of the following elements:

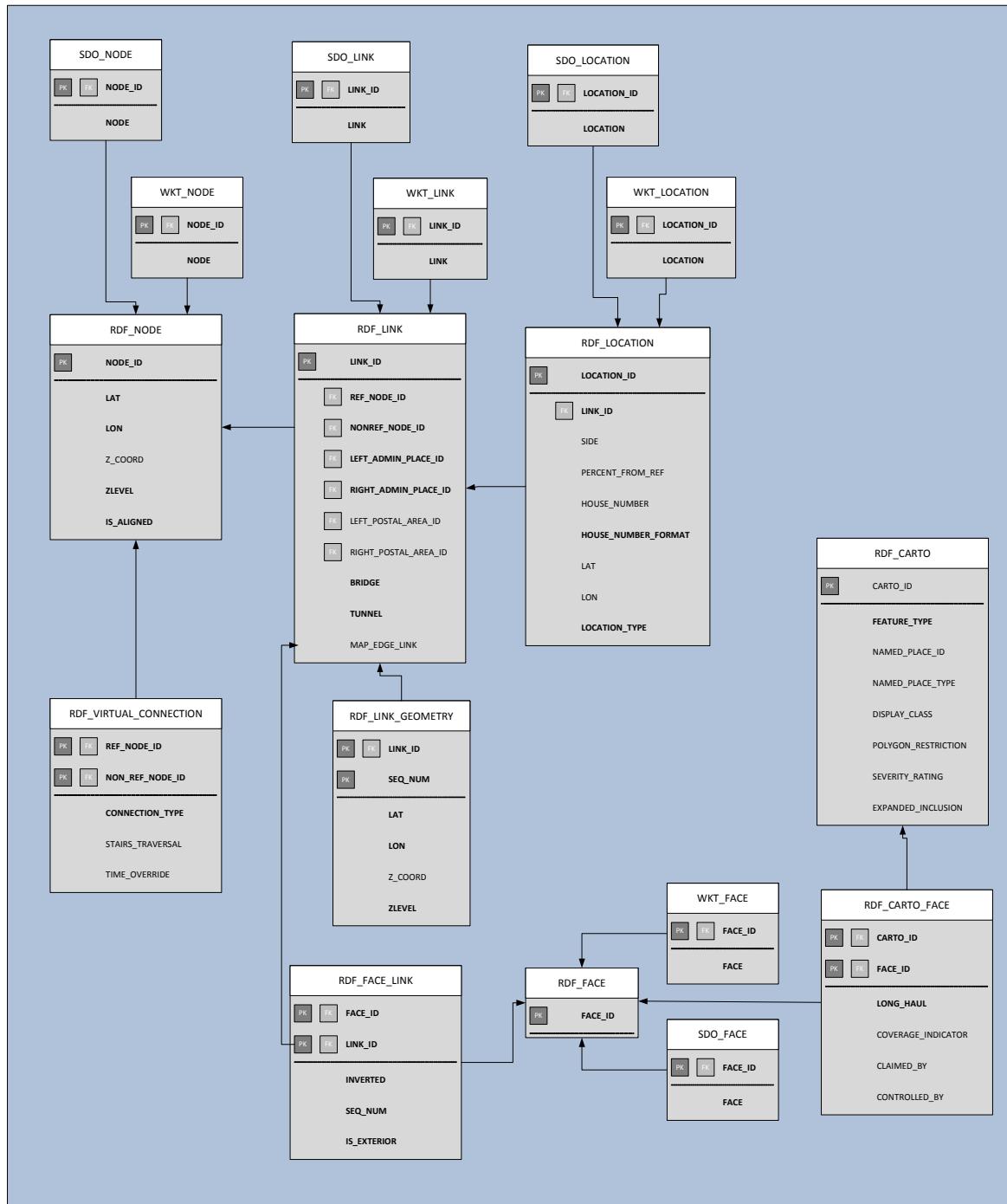
- Tables
- Columns
- Column data type
- Column descriptions
- Primary and foreign keys
- Entity Relationship Diagrams

12.2 Entity Relationship Diagrams (ERD)

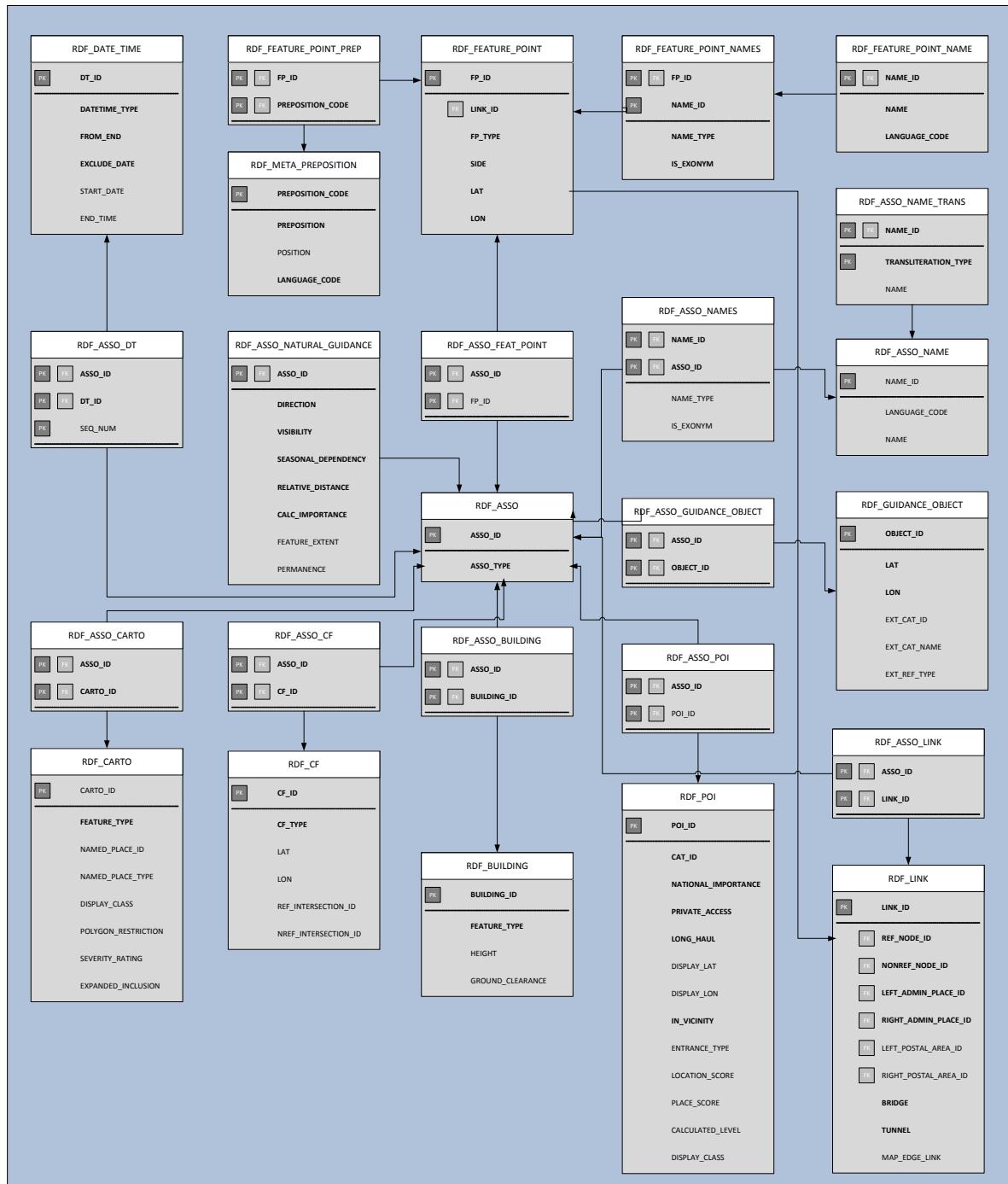
The Entity Relationship Diagrams are thematically subdivided.

Note: The following diagrams represent mainly the structure and semantics of the relational database format. Thus, the tables may not contain the complete list of the attributes. Refer to the co-delivered *RDF Master ERD* instead.

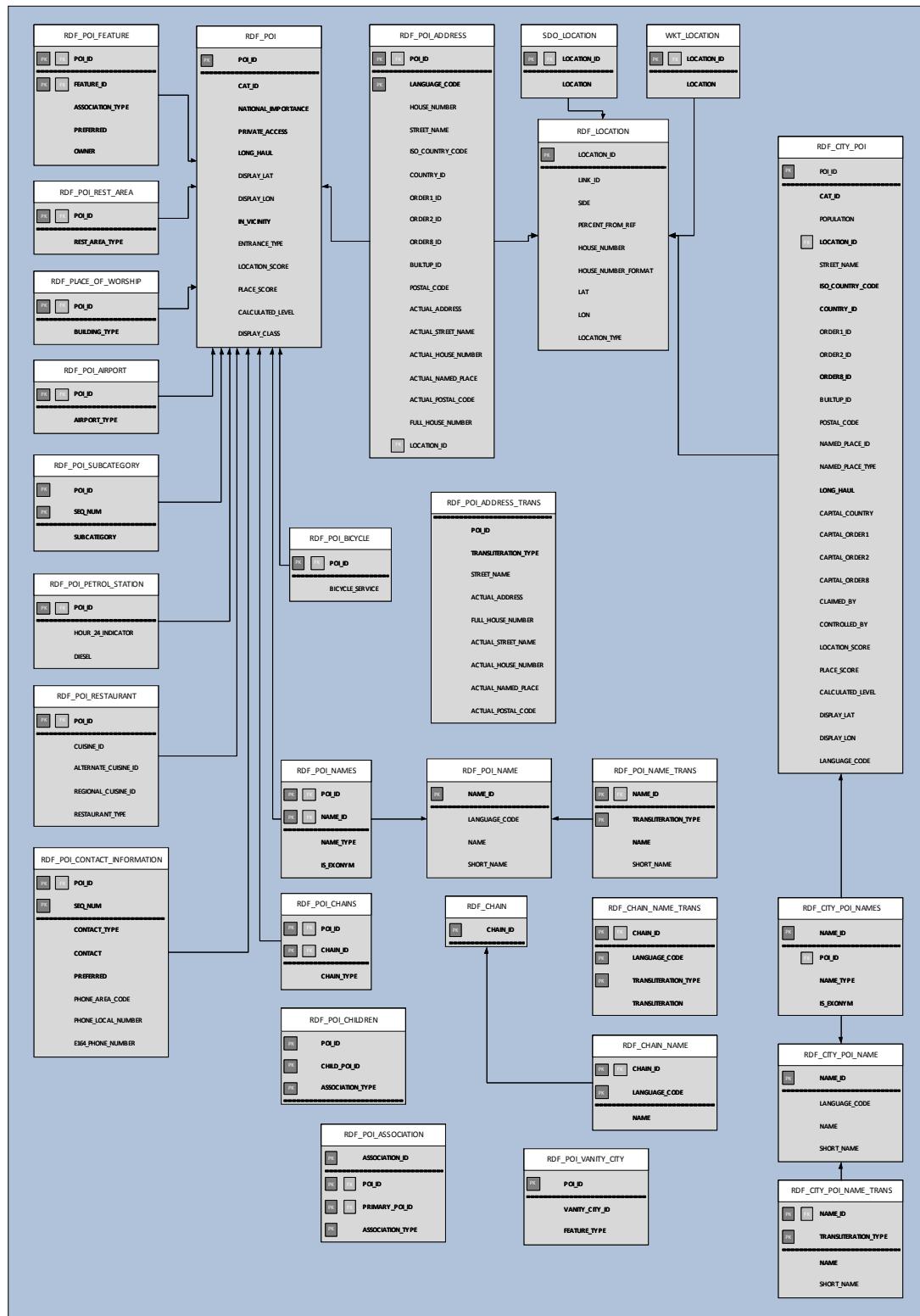
12.2.1 Geometry Model



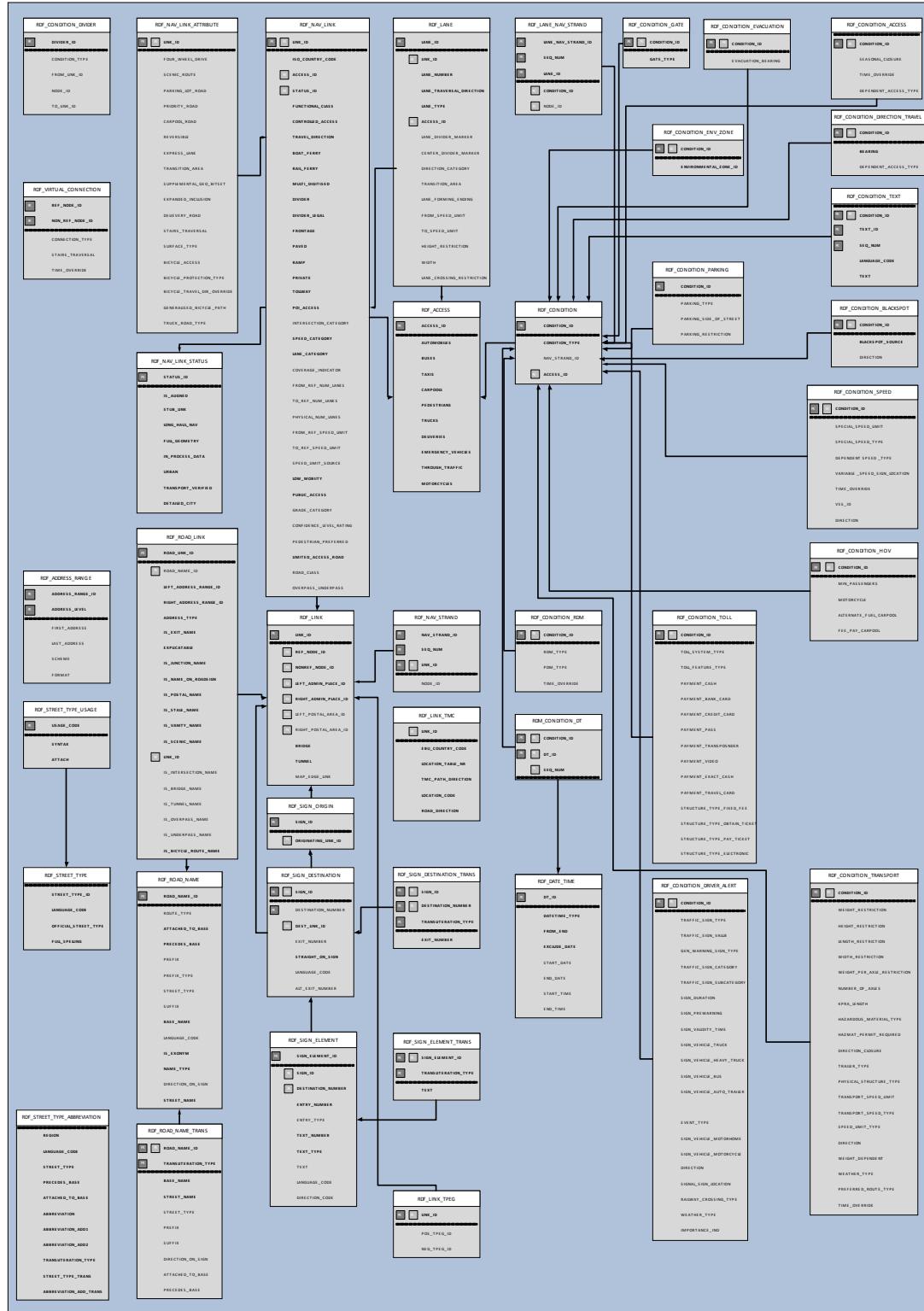
12.2.2 Feature Association Model



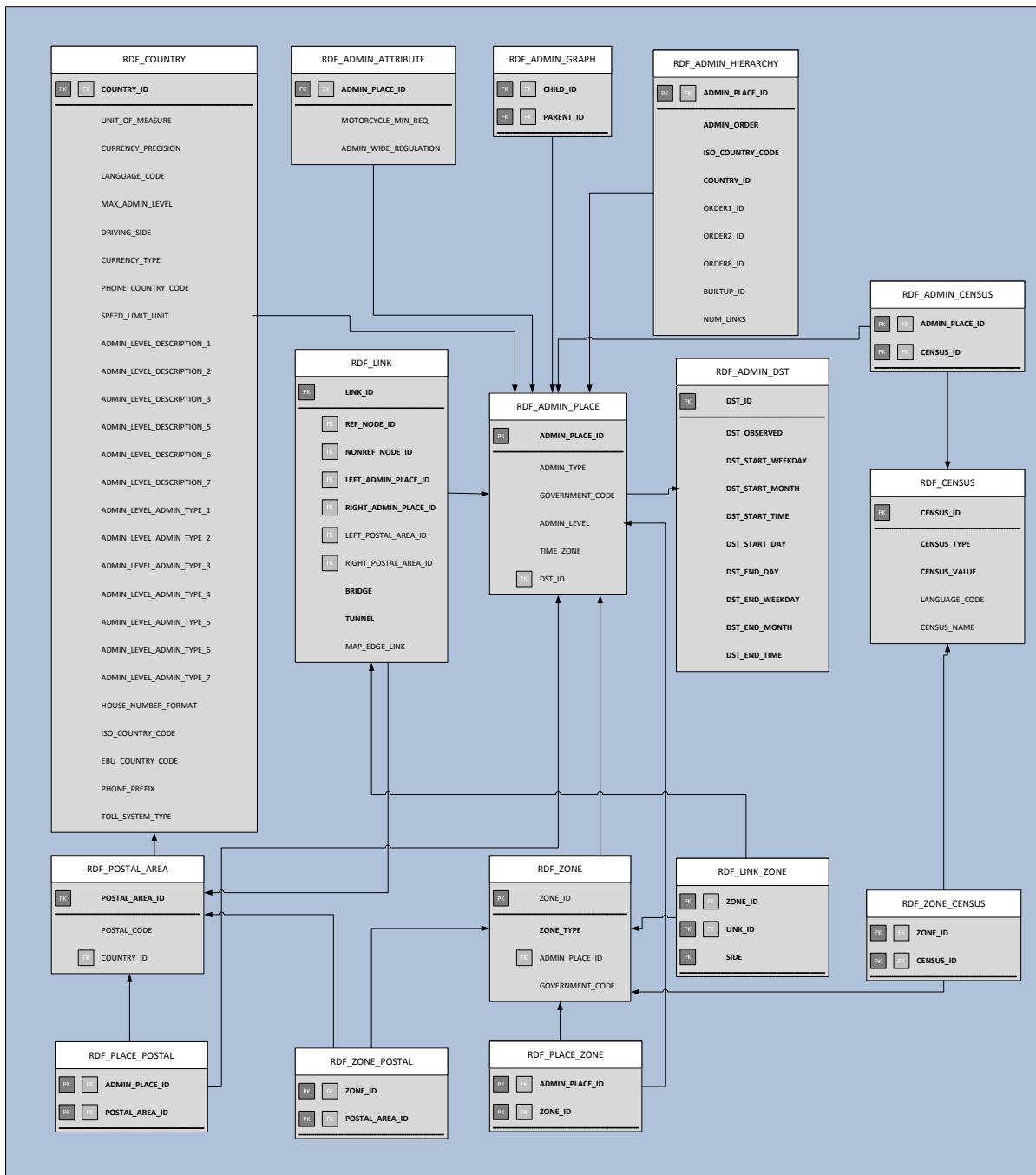
12.2.3 POI Model



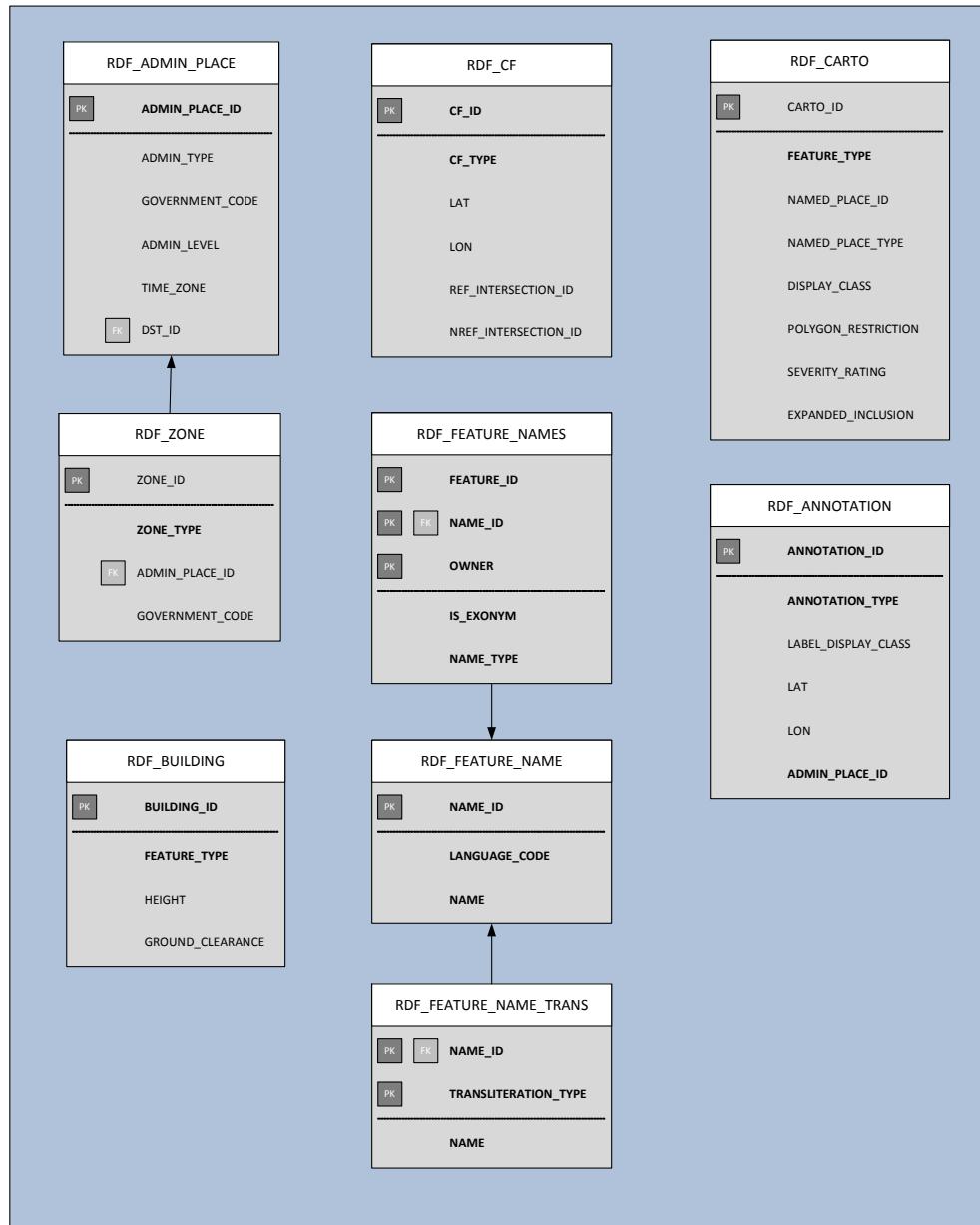
12.2.4 Road Attributing Model



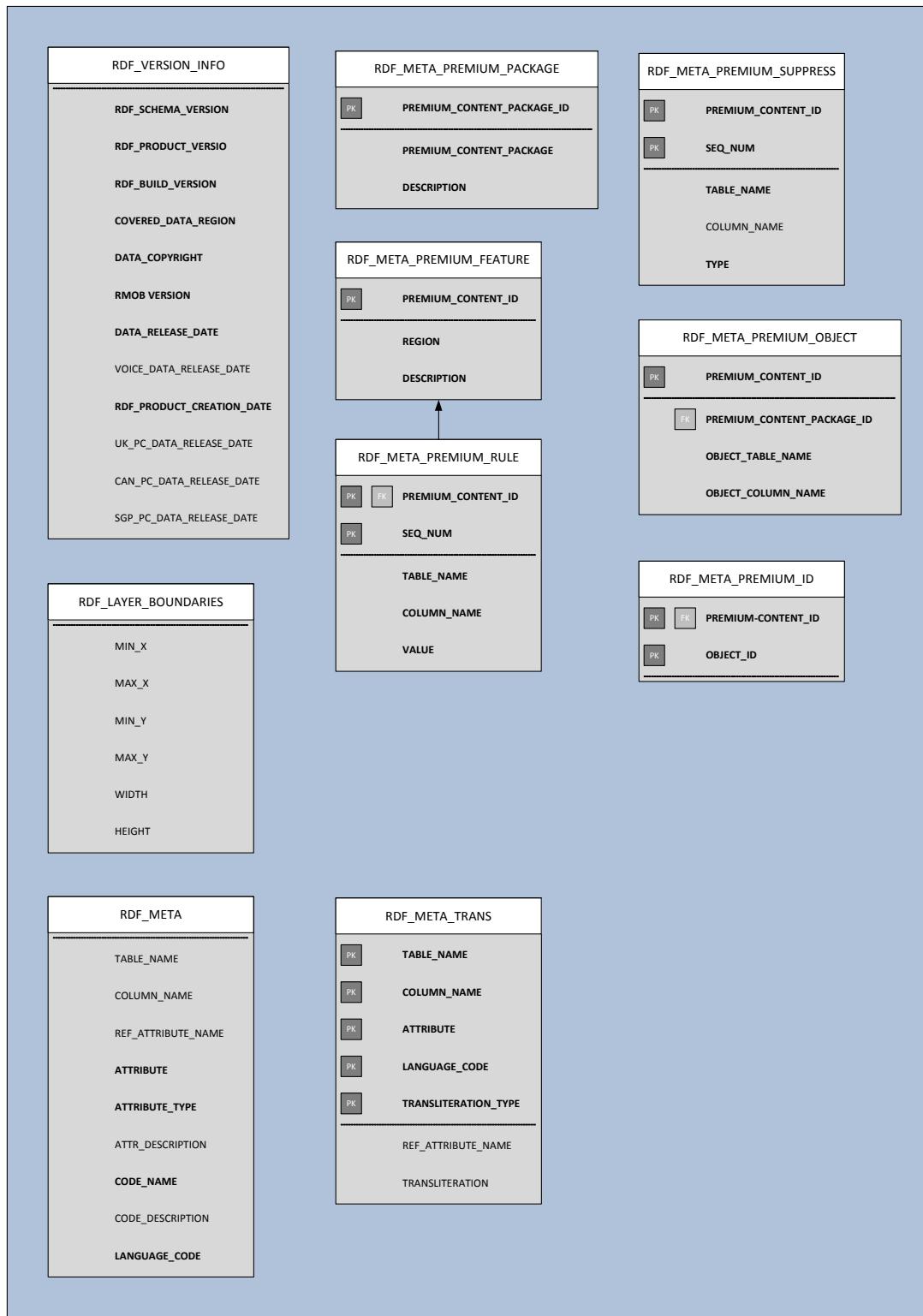
12.2.5 Administrative Model



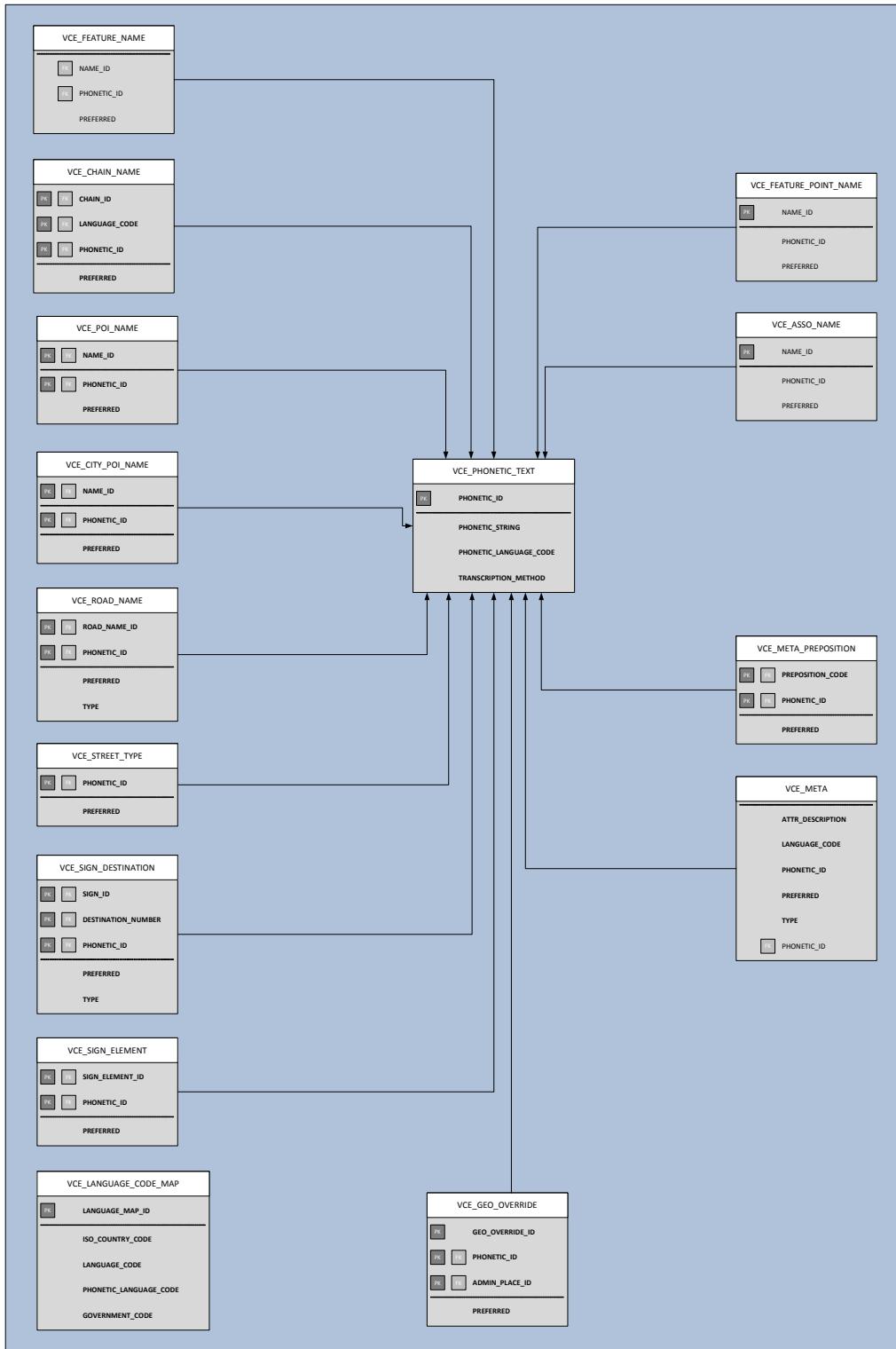
12.2.6 Feature Naming Model



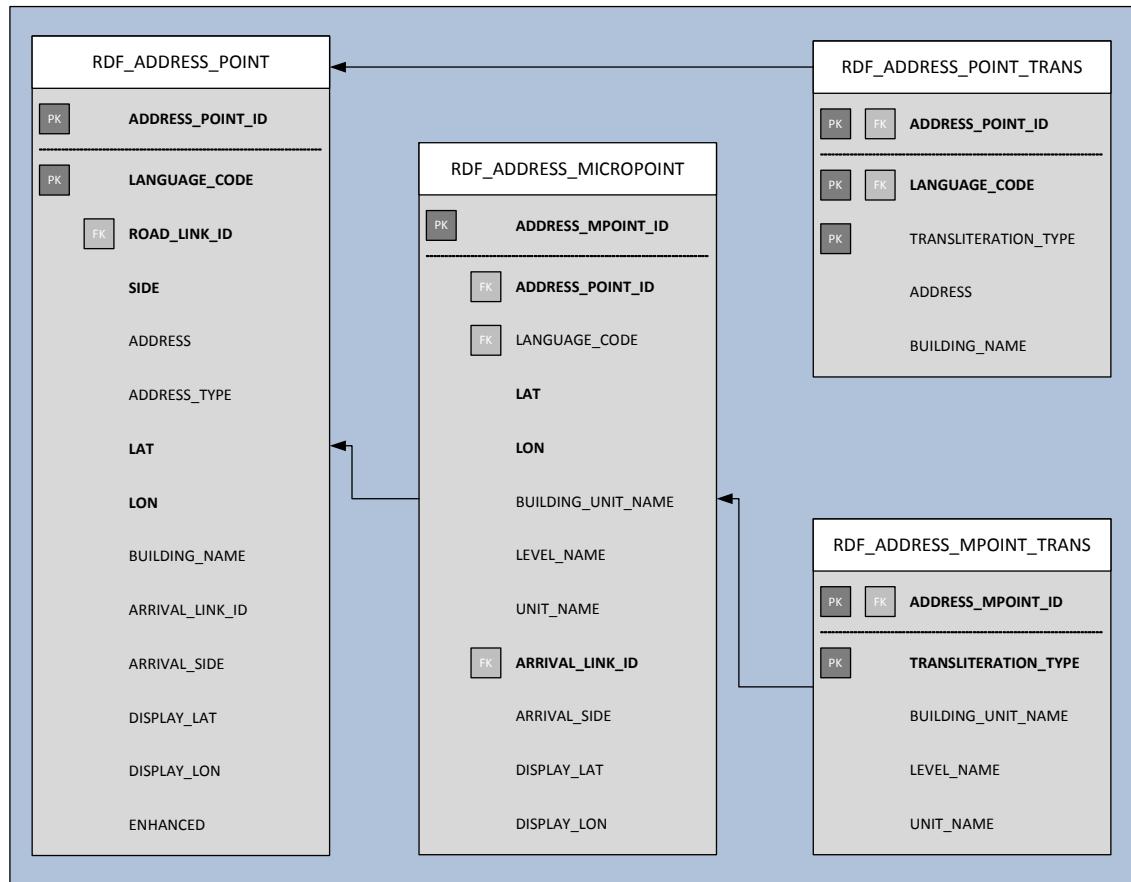
12.2.7 Metadata Model



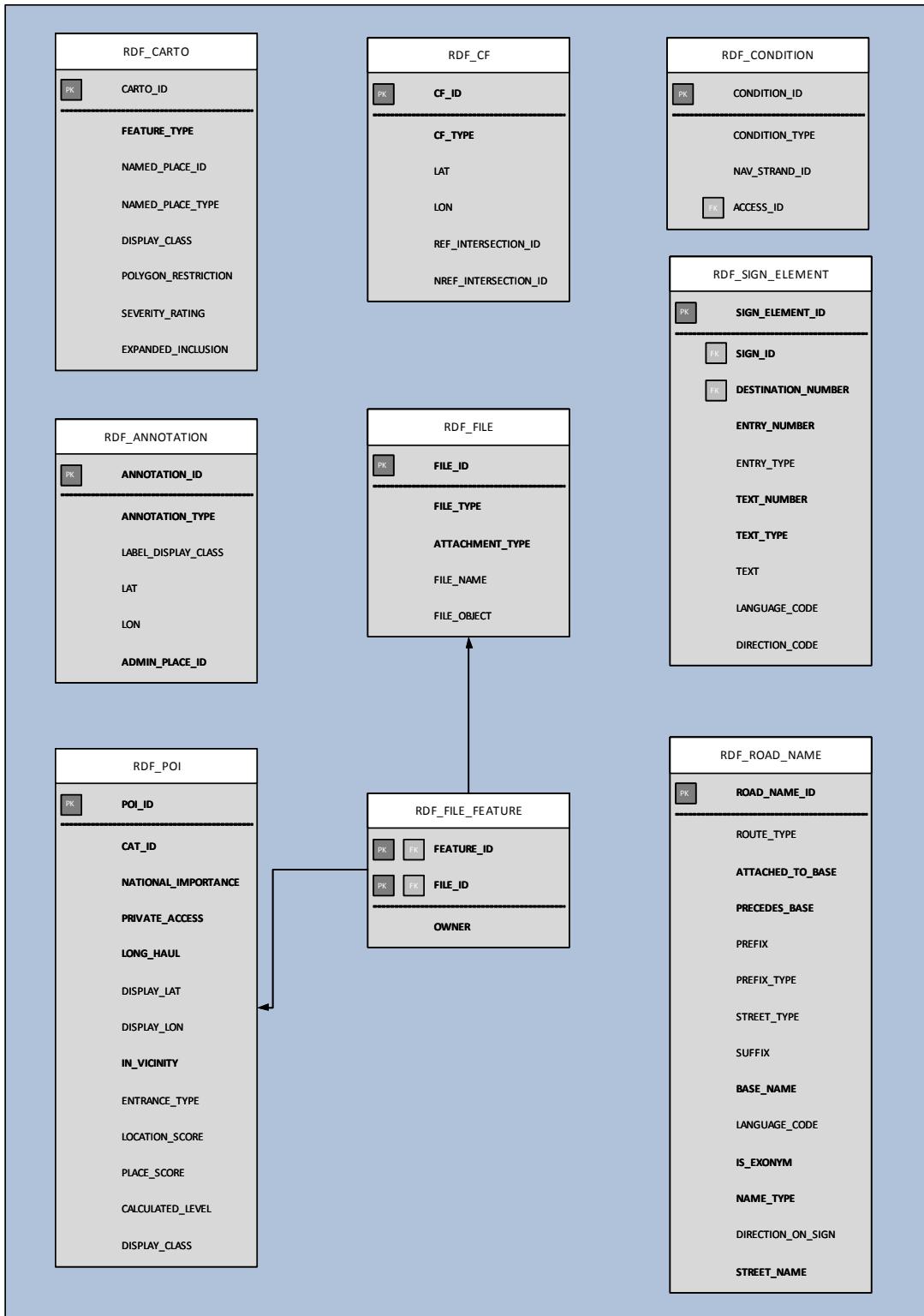
12.2.8 Voice Model



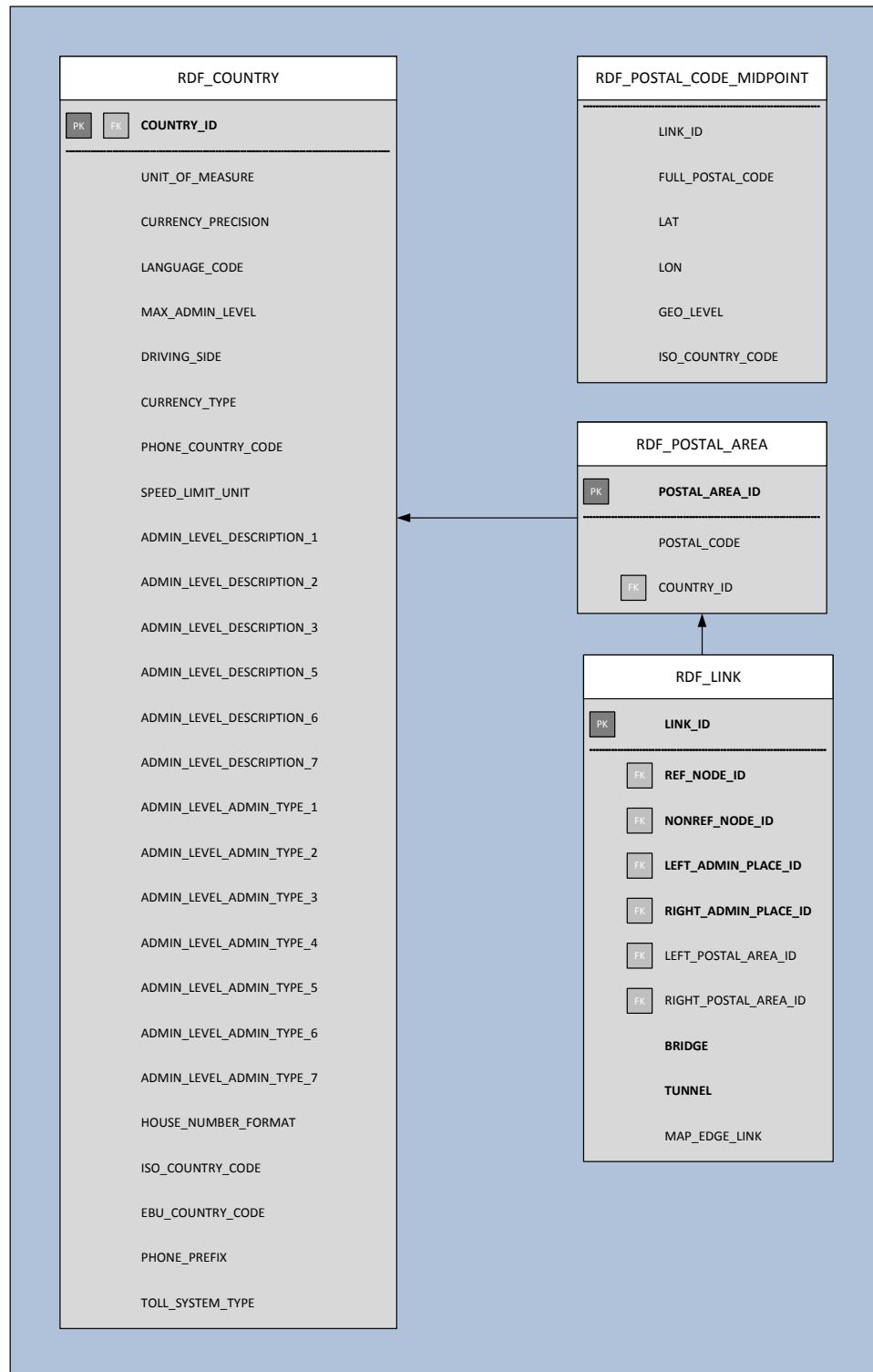
12.2.9 Point Address Model



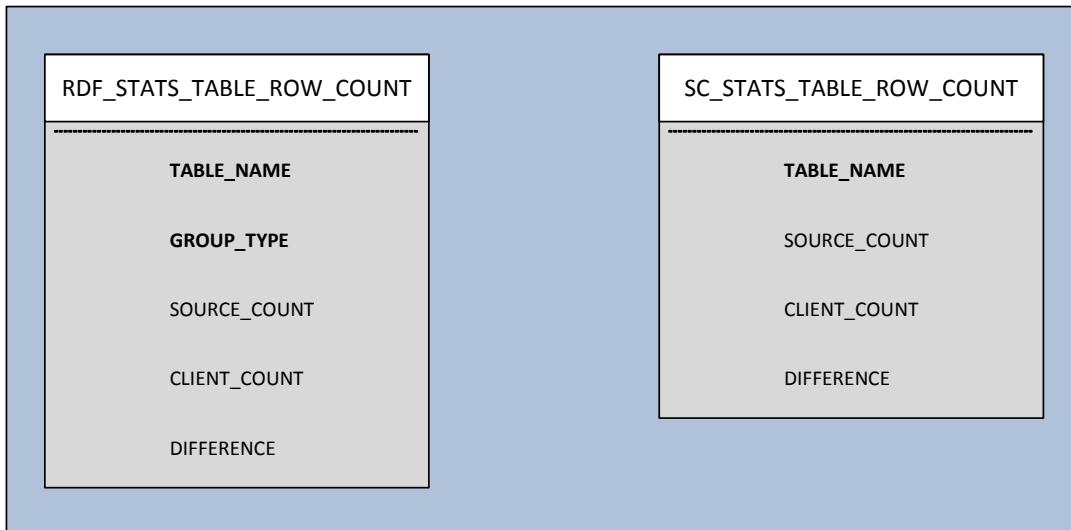
12.2.10 File Association Model



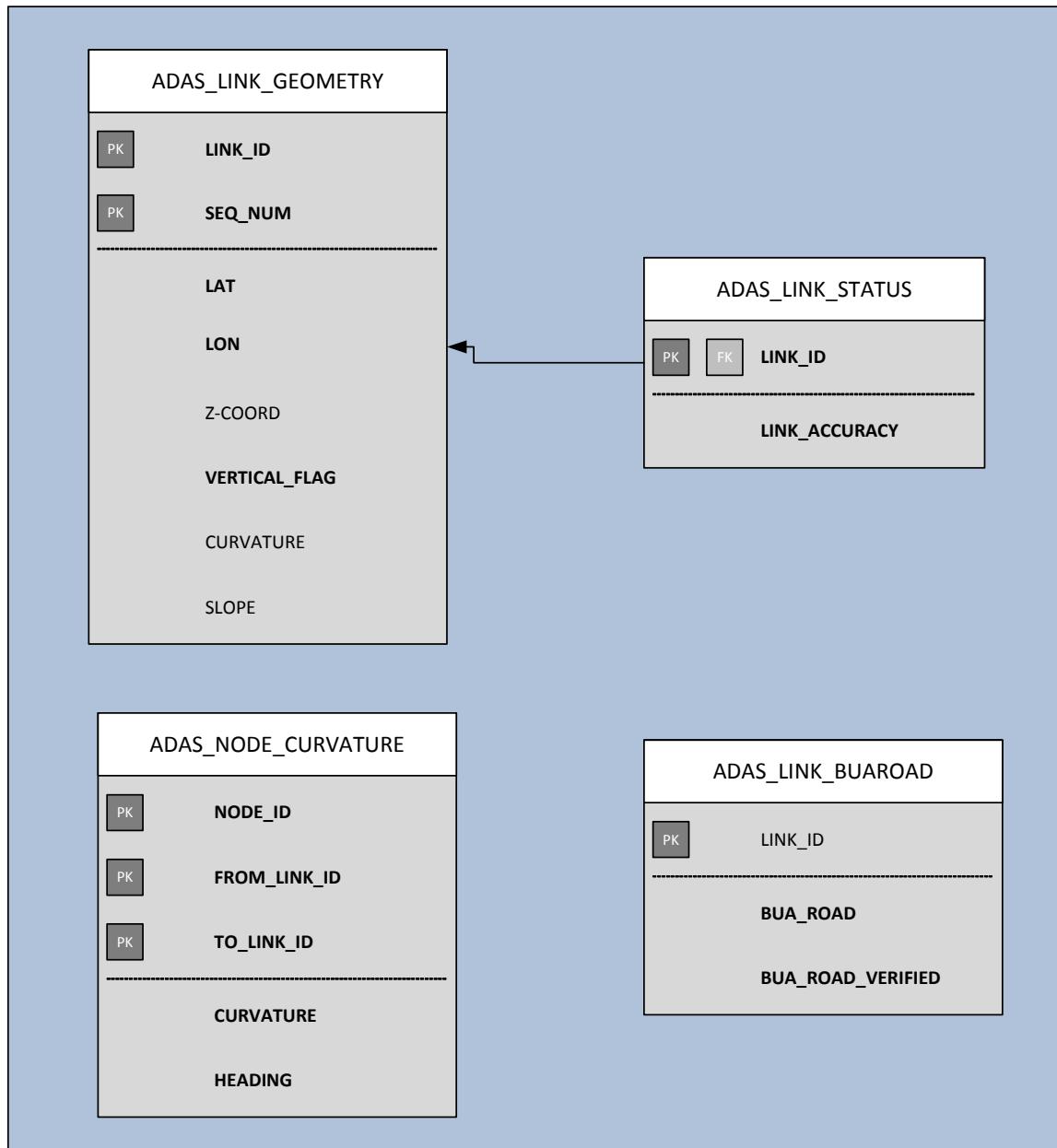
12.2.11 Extended Postal Code Model



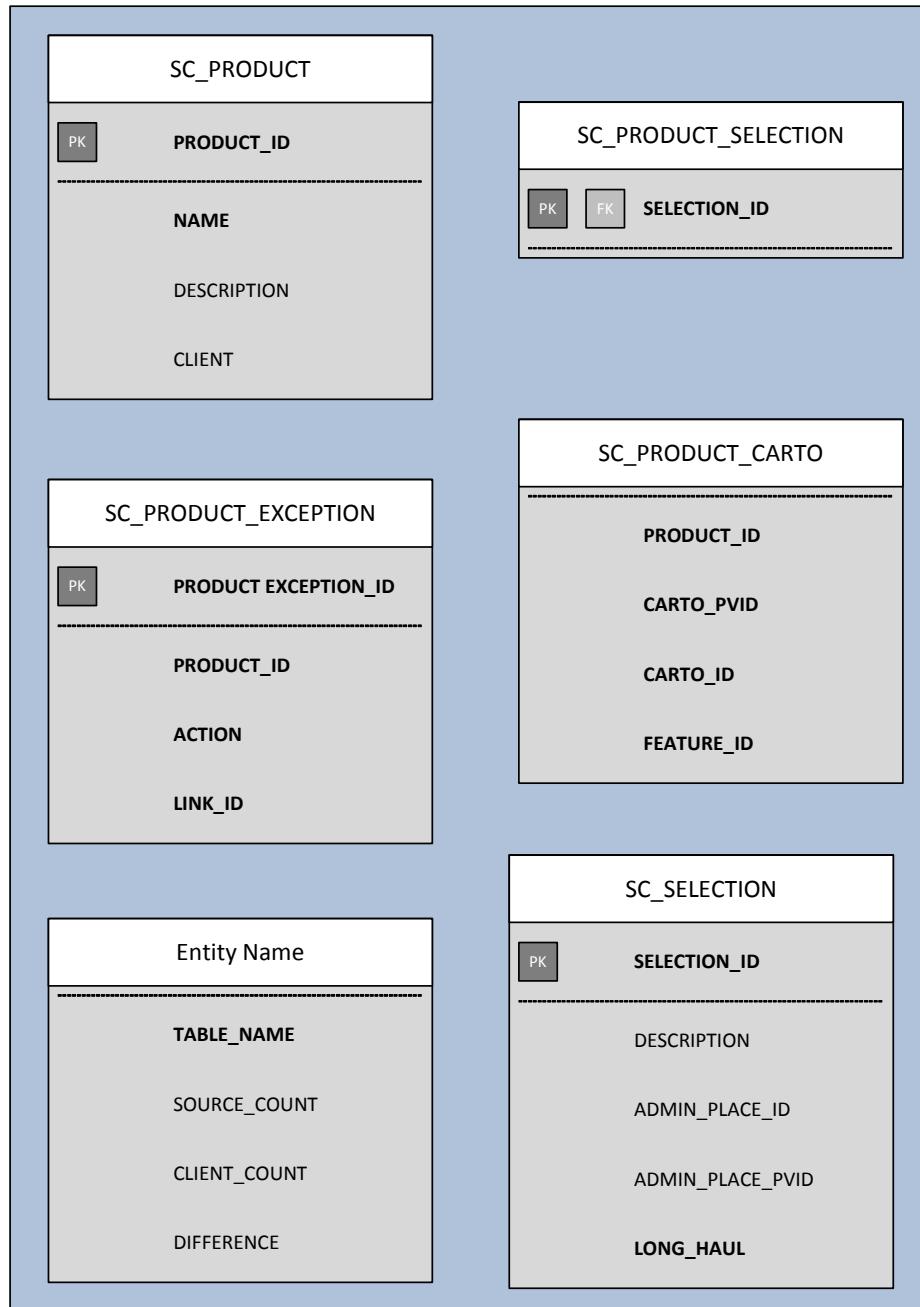
12.2.12 Data Integrity Statistics Model



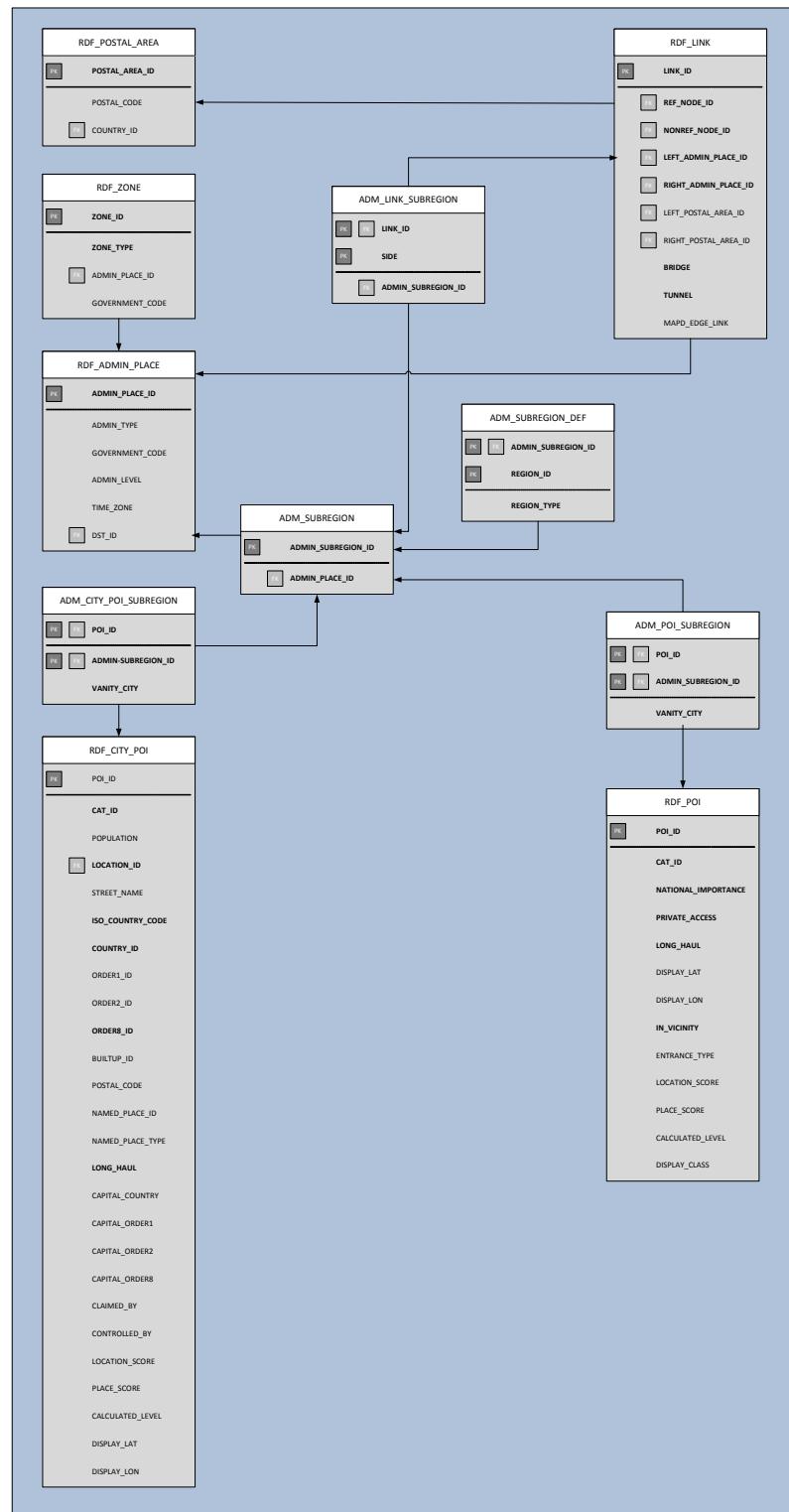
12.2.13 ADAS Model



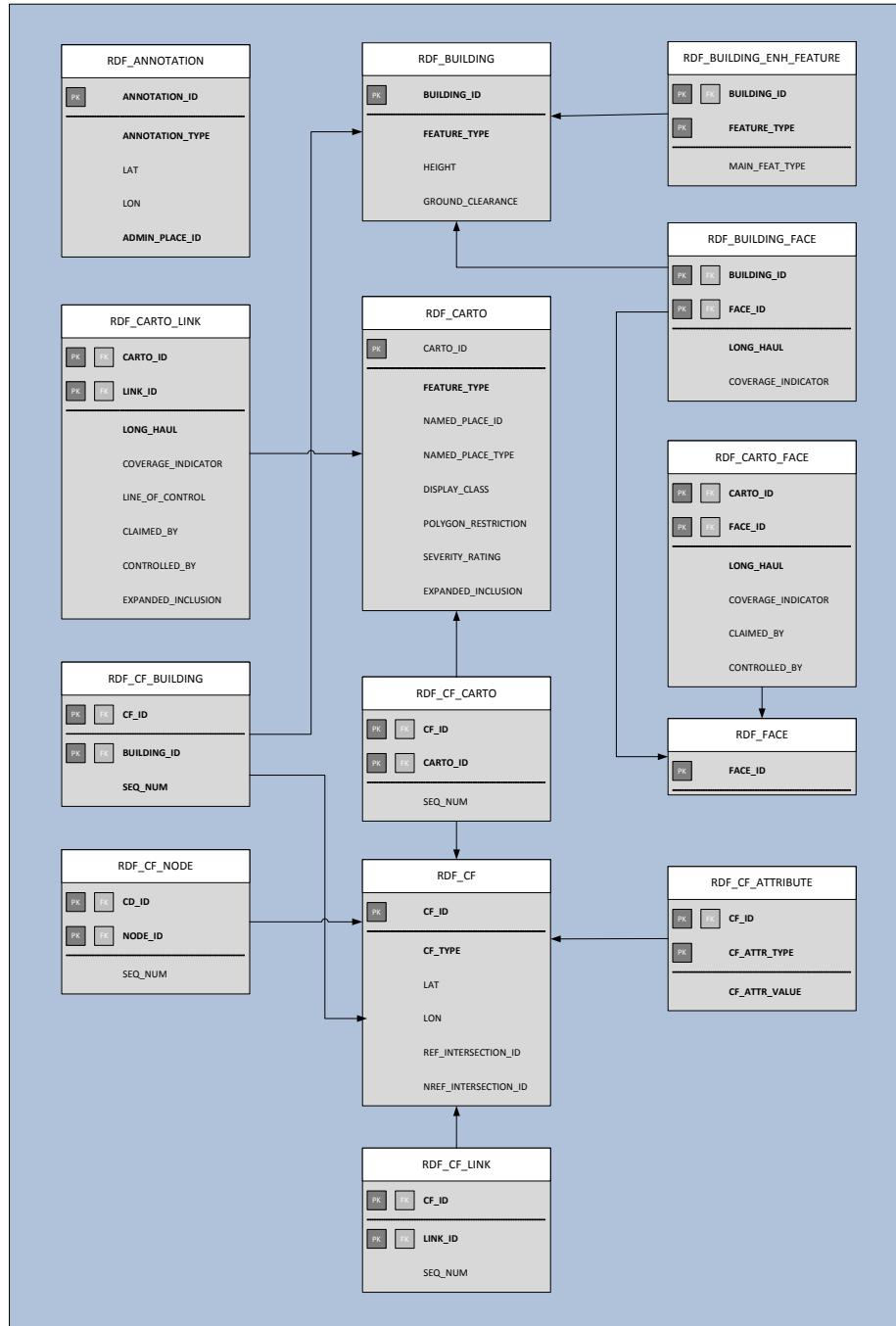
12.2.14 Selection Clipper Configuration Model



12.2.15 Administrative Extension Model



12.2.16 Cartographic and Complex Features Model



12.3 RDF Core Tables

The following chapter provides a technical description of the tables as defined in the RDF core schema. These tables are the core dataset produced by the task LoadRDFCore.

RDF is Unicode enabled and supports a concept of Unicode; Transliteration. Unicode data is published in core tables; Transliterations are published in specific Transliteration tables, indicated by the _TRANS suffix.

12.3.1 RDF_ACCESS

RDF_ACCESS represents every combination of Access Characteristics. RDF_NAV_LINK, RDF_LANE, and RDF_CONDITION publish ACCESS_ID.

RDF_ACCESS		
Column	Format	Contents
ACCESS_ID	N(5)	Permanent value that corresponds to the combination of Access Characteristics.
AUTOMOBILES	CHAR(1)	Indicates if automobiles are involved in the Access Characteristics.
BUSES	CHAR(1)	Indicates if buses are involved in the Access Characteristics.
TAXIS	CHAR(1)	Indicates if taxis are involved in the Access Characteristics.
CARPOOLS	CHAR(1)	Indicates if carpools are involved in the Access Characteristics.
PEDESTRIANS	CHAR(1)	Indicates if pedestrians are involved in the Access Characteristics.
TRUCKS	CHAR(1)	Indicates if trucks are involved in the Access Characteristics.
DELIVERIES	CHAR(1)	Indicates if deliveries are involved in the Access Characteristics.
EMERGENCY_VEHICLES	CHAR(1)	Indicates if emergency vehicles are involved in the Access Characteristics.
THROUGH_TRAFFIC	CHAR(1)	Indicates if through traffic (residents only) is involved in the Access Characteristics.
MOTORCYCLES	CHAR(1)	Indication if motorcycles are involved in the Access Characteristics.

RDF_ACCESS Key

Primary key	ACCESS_ID
-------------	-----------

12.3.2 RDF_ADDRESS_MICROPOINT

RDF_ADDRESS_MICROPOINT		
Column	Format	Contents
ADDRESS_MPOINT_ID	N(10)	Permanent identifier for Micro Point Address
ADDRESS_POINT_ID	N(10)	Permanent identifier for associated Point Address
LANGUAGE_CODE	CHAR(3)	Language Code of Building Unit Name, Level Name, and Unit Name for the Micro Point Address. NULLABLE
LAT	N(10)	Latitude defining the arrival position of the Micro Point Address, defined in 0.00001 degree precision.
LON	N(10)	Longitude defining the arrival position of the Micro Point Address, defined in 0.00001 degree precision.
BUILDING_UNIT_NAME	VARCHAR(150)	Name of the Building associated to the Micro Point Address. NULLABLE
LEVEL_NAME	VARCHAR(150)	Name of floor or level within a building associated to the Micro Point Address. NULLABLE
UNIT_NAME	VARCHAR(150)	Name of the unit (suite, etc) associated to the Micro Point Address NULLABLE
ARRIVAL_LINK_ID	N(10)	Permanent identifier that defines the Arrival Link ID to represent the drive-to location for a Micro Point Address.
ARRIVAL_SIDE	C(1)	Side of the Arrival Link on which the Micro Point Address is located. NULLABLE
DISPLAY_LAT	N(10)	Latitude of the display position for the Micro Point Address. NULLABLE
DISPLAY_LON	N(10)	Longitude of the display position for the Micro Point Address NULLABLE

RDF_ADDRESS_MICROPOINT Keys	
Primary key	ADDRESS_MPOINT_ID

Foreign key	ADDRESS_POINT_ID → RDF_ADDRESS_POINT.ADDRESS_POINT_ID LANGUAGE_CODE → RDF_ADDRESS_POINT.LANGUAGE_CODE ARRIVAL_LINK_ID → RDF_NAV_LINK.LINK_ID
-------------	--

12.3.3 RDF_ADDRESS_MPOINT_TRANS

RDF_ADDRESS_MPOINT_TRANS		
Column	Format	Contents
ADDRESS_MPOINT_ID	N(10)	Permanent identifier for Micro Point Address
TRANSLITERATION_TYPE	CHAR(3)	Transliteration Type used to transliterate a non-Latin-1 name into a Latin-1 name.
BUILDING_UNIT_NAME	VARCHAR(600)	Transliteration of the Building Unit Name of a Micro Point Address. NULLABLE
LEVEL_NAME	VARCHAR(600)	Transliteration of a Level Name of a Micro Point Address. NULLABLE
UNIT_NAME	VARCHAR(600)	Transliteration of the Unit Name of a Micro Point Address NULLABLE

RDF_ADDRESS_MPOINT_TRANS Keys	
Primary key	ADDRESS_MPOINT_ID, TRANSLITERATION_TYPE
Foreign key	ADDRESS_POINT_ID → RDF_ADDRESS_MICROPOINT.ADDRESS_POINT_ID

12.3.4 RDF_ADDRESS_POINT

Each Point Address is defined in RDF_ADDRESS_POINT. The Point Address has a unique permanent identifier, ADDRESS_POINT_ID, and a location in terms of Latitude / Longitude.

A Point Address can share the position with a POI representing the exact same location as the Point Address. See *Section 16.2, Point Address* for additional information.

See *Section C.2, RDF_ADDRESS_POINT* for metadata information.

RDF_ADDRESS_POINT		
Column	Format	Contents
ADDRESS_POINT_ID	N(10)	Permanent identifier for Point Address

RDF_ADDRESS_POINT (Continued)		
Column	Format	Contents
LANGUAGE_CODE	CHAR(3)	Language Code of Address and Building Name for the Point Address.
ROAD_LINK_ID	N(10)	Identifier of the road link with which the point address is associated. The Road Link is used to retrieve the Street Name, Administrative, Postal, and Zone coding for the Point Address.
SIDE	CHAR(1)	Side of the Road Link on which the Point Address is located
ADDRESS	VARCHAR(150)	Address / House Number uniquely identifying the address along the specified road link. NULLABLE
ADDRESS_TYPE	N(1)	Address Type defines the type of address represented by the Point Address (e.g., Base, Commercial). NULLABLE
LAT	N(10)	Latitude defining the arrival position of the Point Address, defined in 0.00001 degree precision
LON	N(10)	Longitude defining the arrival position of the Point Address, defined in 0.00001 degree precision
BUILDING_NAME	VARCHAR(150)	Name of the Building to which the Point Address is associated. NULLABLE
ARRIVAL_LINK_ID	N(10)	Permanent identifier that defines the Arrival Link ID to represent the drive-to location for a Point Address. NULLABLE
ARRIVAL_SIDE	CHAR(1)	Side of the Arrival Link on which the Point Address is located. NULLABLE
DISPLAY_LAT	N(10)	Latitude of the display position for the Point Address. NULLABLE
DISPLAY_LON	N(10)	Longitude of the display position for the Point Address. NULLABLE
ENHANCED	CHAR(1)	Identifies if the Point Address has been field verified NULLABLE

RDF_ADDRESS_POINT Keys	
Primary key	ADDRESS_POINT_ID LANGUAGE_CODE

Foreign key	ROAD_LINK_ID → RDF_ROAD_LINK.ROAD_LINK_ID ARRIVAL_LINK_ID → RDF_LINK.LINK_ID
Related Table	RDF_ROAD_LINK, RDF_LINK

12.3.5 RDF_ADDRESS_POINT_TRANS

A Building Name can have a corresponding transliteration if the name in the native language includes non-Latin-1 characters.

RDF_ADDRESS_POINT_TRANS		
Column	Format	Contents
ADDRESS_POINT_ID	N(10)	Permanent identifier for Point Address
LANGUAGE_CODE	CHAR(3)	Language Code of Address and Building Name for the Point Address.
TRANSLITERATION_TYPE	CHAR(3)	Transliteration Type used to transliterate a non-Latin-1 name into a Latin-1 name.
ADDRESS	VARCHAR(150)	Transliteration of the ADDRESS of a Point Address. NULLABLE
BUILDING_NAME	VARCHAR(300)	Transliteration of the Building Name to which the Point Address is associated. NULLABLE

RDF_ADDRESS_POINT_TRANS Keys	
Primary Key	ADDRESS_POINT_ID, LANGUAGE_CODE, TRANSLITERATION_TYPE
Foreign Key	ADDRESS_POINT_ID → RDF_ADDRESS_POINT.ADDRESS_POINT_ID LANGUAGE_CODE → RDF_ADDRESS_POINT.LANGUAGE_CODE

12.3.6 RDF_ADDRESS_RANGE

This table lists distinct address range values. Multiple road links may share a single address range. Two reserved rows represent unresearched and valid unaddressed address ranges (links that do not have address ranges in reality). The unresearched row has FORMAT('#') and all other fields are blank. The valid unaddressed row has FORMAT('\$'); all other fields are blank. Only road links that have unresearched address ranges or are valid unaddressed reference these reserved rows.

See Section C.3, RDF_ADDRESS_RANGE for metadata information.

RDF_ADDRESS_RANGE		
Column	Format	Contents
ADDRESS_RANGE_ID	N(10)	Non-permanent identifier of the address range.

ADDRESS_LEVEL	CHAR(1)	Indicates the type of address range
FIRST_ADDRESS	VARCHAR(15)	House number at start of range (reference end) NULLABLE.
LAST_ADDRESS	VARCHAR(15)	House number at end of range (non-reference end). NULLABLE
SCHEME	CHAR(1)	The numbering scheme for the addresses assigned to the link NULLABLE
FORMAT	CHAR(2)	Format of the house number NULLABLE

RDF_ADDRESS_RANGE Keys	
Primary key	ADDRESS_RANGE_ID, ADDRESS_LEVEL
Related Table	RDF_ROAD_LINK

12.3.7 RDF_ADMIN_ATTRIBUTE

RDF_ADMIN_ATTRIBUTE		
Column Name	Type	Contents
ADMIN_PLACE_ID	N(10)	Permanent identifier of the admin place.
MOTORCYCLE_MIN_REQ	N(3)	Minimum requirement for engine size in order to be classified as a motorcycle. Publishes the engine's cubic centimetres (cc). NULLABLE
ADMIN_WIDE_REGULATIONS	N(1)	Indicates if U-turns are restricted throughout the entire administrative area unless otherwise posted NULLABLE

RDF_ADMIN_ATTRIBUTE Keys	
Primary key	ADMIN_PLACE_ID

12.3.8 RDF_ADMIN_CENSUS

RDF_ADMIN_CENSUS		
Column	Format	Contents

ADMIN_PLACE_ID	N(10)	Permanent identifier of an Admin Place to which the census data is applicable
CENSUS_ID	N(10)	Unique ID published in RDF_CENSUS.CENSUS_ID referencing Census data

RDF_ADMIN_CENSUS Keys	
Primary key	ADMIN_PLACE_ID, CENSUS_ID
Foreign key	ADMIN_PLACE_ID → RDF_ADMIN_PLACE.ADMIN_PLACE_ID CENSUS_ID → RDF_CENSUS.CENSUS.ID

12.3.9 RDF_ADMIN_DST

This table lists the Daylight Saving Time applicable to certain administrative levels.

The Daylight Saving Time is published only for the highest administrative level to which the DST is applicable. For example, DST in Europe is published at Administrative Level 1 only.

See *Section C.5, RDF_ADMIN_DST* for metadata information.

RDF_ADMIN_DST		
Column	Format	Contents
DST_ID	N(10)	Non-permanent identifier for Daylight Saving Time entry.
DST_OBSERVED	CHAR(1)	Is Daylight Saving Time observed?
DST_START_DAY	N(2)	Day of Year when Daylight Saving Time is starting.
DST_START_WEEKDAY	N(1)	Day of Week when Daylight Saving Time is starting.
DST_START_MONTH	N(2)	Month when Daylight Saving Time is starting.
DST_START_TIME	N(4)	Time in specified day when Daylight Saving Time is starting.
DST_END_DAY	N(2)	Day of Year when Daylight Saving Time is ending.
DST_END_WEEKDAY	N(1)	Day of Week when Daylight Saving Time is ending.
DST_END_MONTH	N(2)	Month when Daylight Saving Time is ending.
DST_END_TIME	N(4)	Time in specified day when Daylight Saving Time is ending.

RDF_ADMIN_DST Keys	
Primary key	DST_ID

RDF_ADMIN_DST Keys	
Related Table	RDF_ADMIN_PLACE

12.3.10 RDF_ADMIN_GRAPH

RDF_ADMIN_GRAPH defines a graph-representation of the administrative hierarchy. The graph is defined as a set of parent-child relationships between administrative areas.

This table supports multiple parents per child; however, in practice only one parent is used. Country-level admin places appear in this table only as PARENT_ID values.

RDF_ADMIN_DST		
Column	Format	Contents
CHILD_ID	N(10)	Permanent identifier of the child admin place.
PARENT_ID	N(10)	Permanent identifier of the parent admin place.

RDF_ADMIN_GRAPH Keys	
Primary key	CHILD_ID, PARENT_ID
Foreign keys	CHILD_ID → RDF_ADMIN_PLACE.ADMIN_PLACE_ID PARENT_ID → RDF_ADMIN_PLACE.ADMIN_PLACE_ID
Related Table	RDF_ADMIN_PLACE ADM_ORDER_HIERARCHY

12.3.11 RDF_ADMIN_HIERARCHY

RDF_ADMIN_HIERARCHY is a denormalized version of the admin graph for administrative areas (Country to Built-up level) as well as Postal Zones. This table is included to simplify queries on administrative information. The table has redundancy in the sense that administrative entities are replicated - this is a performance enhancement for quick data retrieval without requiring additional joins.

There is a one-to-one relationship between the RDF_ADMIN_HIERARCHY and the RDF_ADMIN_PLACE table. Each administrative level in RDF_ADMIN_HIERARCHY has a corresponding entry in RDF_ADMIN_PLACE.

See *Section C.6, RDF_ADMIN_HIERARCHY* for metadata information.

RDF_ADMIN_HIERARCHY

RDF_ADMIN_HIERARCHY		
Column	Format	Contents
ADMIN_PLACE_ID	N(10)	Permanent identifier of the admin place. Unique key to RDF_ADMIN_HIERARCHY

RDF_ADMIN_HIERARCHY (Continued)

RDF_ADMIN_HIERARCHY		
Column	Format	Contents
ADMIN_ORDER	N(1)	Order number of ADMIN_PLACE_ID
ISO_COUNTRY_CODE	CHAR(3)	ISO Country Code
COUNTRY_ID	N(10)	Permanent identifier ADMIN_PLACE_ID for Country Implied FK to RDF_ADMIN_PLACE.
ORDER1_ID	N(10)	Permanent identifier ADMIN_PLACE_ID for Order1. Implied FK to RDF_ADMIN_PLACE. NULLABLE
ORDER2_ID	N(10)	Permanent identifier ADMIN_PLACE_ID for Order2. Implied FK to RDF_ADMIN_PLACE. NULLABLE
ORDER8_ID	N(10)	Permanent identifier ADMIN_PLACE_ID for Order8. Implied FK to RDF_ADMIN_PLACE. NULLABLE
BUILTUP_ID	N(10)	Permanent identifier ADMIN_PLACE_ID for BUILTUP_ID. Implied FK to RDF_ADMIN_PLACE. NULLABLE
NUM_LINKS	N(10)	Number of links (navigable and non-navigable) directly associated with the published administrative hierarchy. NULLABLE

RDF_ADMIN_HIERARCHY Keys	
Primary key	ADMIN_PLACE_ID
Foreign keys	ADMIN_PLACE_ID → RDF_ADMIN_PLACE
Related Table	RDF_ADMIN_GRAPH

12.3.12 RDF_ADMIN_PLACE

This table stores an entry for every Administrative Area and every U.S. Postal Area Zone (formerly known as Last Line (LL) City Zone) defined in the data set. Non-postal area Zones and Postal Codes are not part of the RDF_ADMIN_PLACE table.

Admin Places are always named. Additional country attribution is published in the RDF_COUNTRY table. Each Admin Place has a parent Admin Place at the next highest level in the administrative hierarchy; these Parents are defined in RDF_ADMIN_GRAPH. The RDF_ADMIN_GRAPH table supports multiple parents per child, but in practice only one parent is used. Countries are Administrative Level 1 and have no parent.

See *Section C.7, RDF_ADMIN_PLACE* for metadata information.

RDF_ADMIN_PLACE

RDF_ADMIN_PLACE		
Column	Format	Contents
ADMIN_PLACE_ID	N(10)	Permanent identifier of the admin place.
ADMIN_TYPE	N(4)	Type of admin place – e.g., country, state, county. 1111:Country 1112:Order1 1113:Order2 1119:Order8 Area (lowest country-wide spanning administrative level) 3110:Built-Up Area NULLABLE
GOVERNMENT_CODE	N(10)	Official published government code, identifying a given administrative level. Examples: US FIPS code or France ‘INSEE’ codes. NULLABLE
ADMIN_LEVEL	N(1)	Defines Administrative Level, where levels are filled top-down. Administrative Level 1 is Country. Range is 1-7. NULLABLE
TIME_ZONE	VARCHAR(4)	Time zone defined in hours and minutes, with an offset from UTC. As an example, EST is ‘-060’ and “CET” is ‘010’ Time Zone information is published only for the highest administrative level to which the time zone applies (e.g., Administrative Level 1 in Europe, Administrative Level 2 in the U.S.). NULLABLE
DST_ID	N(10)	Non-permanent identifier of daylight saving time information. Only populated for highest Administrative Level to which the daylight saving time applies. NULLABLE

RDF_ADMIN_PLACE Keys	
Primary key	ADMIN_PLACE_ID
Foreign keys	DST_ID → RDF_ADMIN_DST

Related Table	RDF_COUNTRY for related country information. RDF_ADMIN_GRAPH for parent-child relationships. RDF_FEATURE_NAME for names RDF_CITY_POI for Named Place POIs for related postal areas. RDF_ZONE for related zones. RDF_CARTO for administrative boundaries (linear or polygonal).
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12.3.13 RDF_ANNOTATION

Annotations represent fixed-point labels that can be used for name display in the map. The annotation points are floating and are not associated with a road network on the map database. Only use annotation points to render text display in the map.

Names of annotation points are published in RDF_FEATURE_NAME and can be retrieved via RDF_FEATURE_NAMES.

See *Section C.8, RDF_ANNOTATION* for metadata information.

RDF_ANNOTATION		
Column	Format	Contents
ANNOTATION_ID	N(10)	Non-permanent identifier for the annotations.
ANNOTATION_TYPE	N(10)	The type of annotation.
LABEL_DISPLAY_CLASS	N(2)	The display class of the label. Display Category 1 is used for the largest scale maps, while Display Category 4 is used for the smallest scale maps. 1 = Display Category 1 2 = Display Category 2 3 = Display Category 3 4 = Display Category 4 NULLABLE
LAT	N(10)	The latitude corresponding to the location of the label point. NULLABLE
LON	N(10)	The longitude corresponding to the location of the label point. NULLABLE
ADMIN_PLACE_ID	N(10)	Permanent identifier of an Administrative Area to which an Annotation is associated. NULLABLE

RDF_ANNOTATION Keys	
Primary key	ANNOTATION_ID

12.3.14 RDF_AREA_TMC

Note: This content is no longer maintained.

RDF_AREA_TMC indicates that a RDS-TMC (Radio Data System - Traffic Message Channel) code is published for a specific area for traffic messaging purposes.

See *Section C.11, RDF_AREA_TMC* for metadata information.

RDF_AREA_TMC		
Column	Format	Contents
FEATURE_ID	N(10)	ID of a RDF map entity to which the TMC Area location code is associated. If OWNER = AD, CO, ZN, then the FEATURE_ID is a permanent identifier.
OWNER	CHAR(2)	Defines the map entity referenced by the FEATURE_ID.
EBU_COUNTRY_CODE	CHAR(1)	The EBU (European Broadcasting Union) code associated with the Location Table from where the TMC code is derived.
LOCATION_TABLE_NR	N(2)	Identification of the location table number, as assigned by the Location Table provider.
LOCATION_CODE	N(10)	Area Location code assigned to the Named Place; the code references an Area Code in the Location Table referred to in LOCATION_TABLE_NR.

12.3.15 RDF_ASSO

RDF_ASSO contains all attributes defined for the Natural Guidance association.

See *Section C.9, RDF_ASSO* for metadata information.

RDF_ASSO		
Column	Format	Contents
ASSO_ID	N(10)	A permanent ID that is unique across all associations.
ASSO_TYPE	CHAR(2)	The type of the association.

RDF_ASSO Keys	
Primary key	ASSO_ID

12.3.16 RDF_ASSO_BUILDING

RDF_ASSO_BUILDING		
Column	Format	Contents
ASSO_ID	N(10)	Permanent identifier of the Association.
BUILDING_ID	N(10)	Permanent identifier of the associated Structure Footprint

RDF_ASSO_BUILDING Keys	
Primary key	ASSO_ID, BUILDING_ID
Foreign key	ASSO_ID → RDF_ASSO BUILDING_ID → RDF_BUILDING

12.3.17 RDF_ASSO_CARTO

RDF_ASSO_CARTO identifies the cartographic feature that is part of the Natural Guidance association.

RDF_ASSO_CARTO		
Column	Format	Contents
ASSO_ID	N(10)	Permanent Association ID.
CARTO_ID	N(10)	Permanent identifier of the associated cartographic feature

RDF_ASSO_CARTO Keys	
Primary key	ASSO_ID, CARTO_ID
Foreign key	ASSO_ID → RDF_ASSO CARTO_ID → RDF_CARTO

12.3.18 RDF_ASSO_CF

RDF_ASSO_CF identifies the Complex Feature that is part of the Natural Guidance association.

RDF_ASSO_CF		
Column	Format	Contents
ASSO_ID	N(10)	Permanent Association ID.

RDF_ASSO_CF		
Column	Format	Contents
CF_ID	N(10)	Permanent identifier of the associated Complex Feature

RDF_ASSO_CF Keys	
Primary key	ASSO_ID, CF_ID
Foreign key	ASSO_ID → RDF_ASSO CF_ID → RDF_CF

12.3.19 RDF_ASSO_DT

RDF_ASSO_DT associates Date Time period(s) with Feature Associations. The Date Time periods are uniquely defined: RDF_DATE_TIME entries may be re-used between different map features.

RDF_ASSO_DT		
Column	Format	Contents
ASSO_ID	N(10)	Unique ID for the Association.
DT_ID	N(10)	Unique ID for RDF_DATE_TIME
SEQ_NUM	N(2)	Sequence Number for the Date Time period associated with the Association. Multiple DT_ID can be associated with one Association.

RDF_ASSO_DT Keys	
Primary Key	ASSO_ID, DT_ID, SEQ_NUM
Foreign Key:	ASSO_ID → RDF_ASSO DT_ID → RDF_DATE_TIME

12.3.20 RDF_ASSO_FEAT_POINT

RDF_ASSO_FEAT_POINT publishes the Feature Point that is part of the Natural Guidance association. There can be only one Feature Point included in an association.

RDF_ASSO_FEAT_POINT		
Column	Format	Contents
ASSO_ID	N(10)	Permanent Association ID.

RDF_ASSO_FEAT_POINT		
Column	Format	Contents
FP_ID	N(10)	ID of the associated Feature Point

RDF_ASSO_FEAT_POINT Keys	
Primary Key	ASSO_ID, FP_ID
Foreign Key	FP_ID → RDF_FEATURE_POINT

12.3.21 RDF_ASSO_GUIDANCE_OBJECT

RDF_ASSOCIATION_GUIDANCE_OBJECT		
Column	Format	Contents
ASSO_ID	N(10)	Permanent Association ID.
OBJECT_ID	N(10)	Unique ID for the

RDF_ASSOCIATION_GUIDANCE_OBJECT Keys	
Primary Key	ASSO_ID, OBJECT_ID
Foreign Key	ASSO_ID, OBJECT_ID
Related Tables	RDF_ASSO RDF_GUIDANCE_OBJECT

12.3.22 RDF_ASSO_LINK

RDF_ASSO_LINK identifies the Link that is part of the Natural Guidance association.

RDF_ASSO_LINK		
Column	Format	Contents
ASSO_ID	N(10)	A permanent ID that is unique across all associations.
LINK_ID	N(10)	Permanent identifier of the associated Link

RDF_ASSO_LINK Keys	
Primary Key	ASSO_ID, LINK_ID

Foreign Key:	ASSO_ID → RDF_ASSO LINK_ID → RDF_LINK
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12.3.23 RDF_ASSO_NAME

RDF_ASSO_NAME specifies the name, or other text, that is related to the association. RDF_ASSO_NAME defines unique names belonging to associations. Names can be re-used between associations.

RDF_ASSO_NAME		
Column	Format	Contents
NAME_ID	N(10)	Non-permanent identifier for the name for the association
LANGUAGE_CODE	CHAR(3)	Language Code of the Name
NAME	VARCHAR(120)	The Preferred Name or text related to the association

RDF_ASSO_NAME Keys	
Primary Key	NAME_ID
Foreign Key:	NAME_ID → RDF_ASSO_NAME_TRANS

12.3.24 RDF_ASSO_NAME_TRANS

RDF_ASSO_NAMES_TRANS specifies the transliterated names or other text related to the association.

RDF_ASSO_NAME_TRANS		
Column	Format	Contents
NAME_ID	N(10)	Non-permanent identifier of the name for the association
TRANSLITERATION_TYPE	CHAR(3)	The type of the transliteration (e.g., RUX for Russian Transliterated)
NAME	VARCHAR(250)	The representation of the Name in Latin-1 characters

RDF_ASSO_NAME_TRANS Keys	
Primary Key	NAME_ID

Foreign Key:	NAME_ID → RDF_ASSO_NAME
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12.3.25 RDF_ASSO_NAMES

RDF_ASSO_NAMES contains the related names of the Feature Association. A Feature Association can have multiple names. At least one name is flagged IS_EXONYM = N; this name is to be considered as the preferred description for the Association to be used. If multiple Names are flagged IS_EXONYM = N, the user must select one name using the Language Code.

RDF_ASSO_NAMES		
Column	Format	Contents
NAME_ID	N(10)	Non-permanent identifier of the Name related to the association.
ASSO_ID	N(10)	The association ID.
NAME_TYPE	CHAR(1)	Type of Name
IS_EXONYM	CHAR(1)	Indicates if the Name related to the association represents an exonym.

RDF_ASSO_NAMES Keys	
Primary Key	NAME_ID, ASSO_ID
Foreign Key	ASSO_ID → RDF_ASSO NAME_ID → RDF_ASSO_NAME

12.3.26 RDF_ASSO_NATURAL_GUIDANCE

RDF_ASSO_NATURAL_GUIDANCE contains all attributes defined for the Natural Guidance association. See *Section C.10, RDF_ASSO_NATURAL_GUIDANCE* for metadata information.

RDF_ASSO_NATURAL_GUIDANCE		
Column	Format	Contents
ASSO_ID	N(10)	Unique identifier for the association
DIRECTION	CHAR(1)	Indicates the applied direction of the association. Direction is defined related to the Reference Node
VISIBILITY	N(1)	Defines the visibility of the Feature, from the direction of the associated Link.
SEASONAL_DEPENDENCY	CHAR(1)	Identifies whether the importance of a Feature is (negatively) affected during a specific time period.

RDF_ASSO_NATURAL_GUIDANCE		
Column	Format	Contents
RELATIVE_DISTANCE	N(1)	The Relative Distance between the Feature and the associated Link.
CALC_IMPORTANCE	N(2)	A rating on the scale of 1 to 10 of the importance of a Feature for route guidance. The value is calculated based on the other Natural Guidance attributes.
FEATURE_EXTENT	N(5)	Distance of visibility of a feature.
PERMANENCE	CHAR(1)	Permanence of a feature.

RDF_ASSO_NATURAL_GUIDANCE Keys	
Primary Key	ASSO_ID
Foreign Key	ASSO_ID → RDF_ASSO

12.3.27 RDF_ASSO_POI

RDF_ASSO_POI identifies the POI that is part of the Natural Guidance association.

RDF_ASSO_POI		
Column	Format	Contents
ASSO_ID	N(10)	Permanent identifier of the Association
POI_ID	N(10)	Permanent identifier of the associated POI

RDF_ASSO_POI Keys	
Primary Key	ASSO_ID, POI_ID
Foreign Key	ASSO_ID → RDF_ASSO POI_ID → RDF_POI

12.3.28 RDF_BUILDING

RDF_BUILDING stores Structure Footprints.

The name can be retrieved from RDF_FEATURE_NAME and RDF_FEATURE_NAMES through the BUILDING_ID.

Names are published for Structure Footprints only if the Structure Footprints are not part of a Grouped Structure. Each name associated with a Structure Footprint results in one row in the RDF_FEATURE_NAME table.

To retrieve Structure Footprint names join RDF_FEATURE_NAMES.FEATURE_ID = RDF_BUILDING.BUILDING_ID.

RDF_BUILDING		
Column	Format	Contents
BUILDING_ID	N(10)	Permanent identifier for the Structure Footprint
FEATURE_TYPE	N(10)	Defines the type of building represented by the Structure Footprint.
HEIGHT	N(4)	Height of the Structure Footprint in metres NULLABLE
GROUND_CLEARANCE	N(4)	Height from ground level to the lowest point of the building footprint in metres NULLABLE

RDF_BUILDING Keys	
Primary Key	BUILDING_ID
Foreign Key	None

12.3.29 RDF_BUILDING_ENH_FEATURE

RDF_BUILDING_ENH_FEATURE		
Column	Format	Contents
BUILDING_ID	N(10)	Permanent identifier for the Structure Footprint.
FEATURE_TYPE	N(10)	FEATURE_TYPE differentiates types of Building/ Landmark structures
MAIN_FEAT_TYPE	CHAR(1)	Indicates if RDF_BUILDING_ENH_FEATURE.FEATURE_TYPE represents the most common usage of a building NULLABLE

RDF_BUILDING_ENH_FEATURE Keys	
Primary key	BUILDING_ID, FEATURE_TYPE
Foreign keys	BUILDING_ID → RDF_BUILDING.BUILDING_ID

12.3.30 RDF_BUILDING_FACE

Defines the association between a Structure Footprint and its polygonal face components.

RDF_BUILDING_FACE		
Column	Format	Contents
BUILDING_ID	N(10)	Permanent identifier of the Structure Footprint. The BUILDING_ID is the same as the FACE_ID.
FACE_ID	N(10)	Permanent identifier of the Face associated with the Structure Footprint. The FACE_ID is the same as the BUILDING_ID.
LONG_HAUL	C(1)	Indicates if the Structure Footprint is included in a Long Haul product
COVERAGE_INDICATOR	C(2)	Indicates a product level corresponding to the inclusion of database features, verification and completeness for a particular feature in the database. NULLABLE

RDF_BUILDING_FACE Keys	
Primary Key	BUILDING_ID, FACE_ID
Foreign Key	BUILDING_ID → RDF_BUILDING.BUILDING_ID FACE_ID → RDF_FACE.FACE_ID

12.3.31 RDF_CARTO

RDF_CARTO stores linear cartographic features and all polygonal cartographic features except Structure Footprints. This includes:

- Railways
- Water Features (linear and polygonal)
- Parks
- Administrative Areas / Boundaries (linear and polygonal)

Cartographic features published in RDF_CARTO are optionally named. Each name associated with a cartographic feature results in one row in the RDF_FEATURE_NAME table. The name can be retrieved from RDF_FEATURE_NAME and RDF_FEATURE_NAMES through the CARTO_ID.

If the Cartographic feature represents an Administrative Area (e.g., city boundary, state, country boundary, etc.), RDF_CARTO.NAMED_PLACE_ID is populated. This NAMED_PLACE_ID is the association of the Cartographic model (RDF_CARTO) to the Administrative Hierarchy model (RDF_ADMIN_PLACE). For these administrative cartographic features, the name is shared with the Administrative Area name, and therefore, should be retrieved via a join of RDF_FEATURE_NAMES. FEATURE_ID = RDF_CARTO.NAMED_PLACE_ID.

Two options for retrieving cartographic feature names are:

RDF_FEATURE_NAMES.FEATURE_ID = RDF_CARTO.CARTO_ID

RDF_FEATURE_NAMES.FEATURE_ID = RDF_CARTO.NAMED_PLACE_ID

See *Section C.14, RDF_CARTO* for metadata information.

RDF_CARTO		
Column	Format	Contents
CARTO_ID	N(10)	Permanent identifier for the cartographic feature.
FEATURE_TYPE	N(10)	Type of cartographic feature.
NAMED_PLACE_ID	N(10)	Permanent identifier of ADMIN_PLACE or ZONE for which the cartographic feature is the boundary. This field is populated for cartographic features that represent administrative areas or zones only. NULLABLE
NAMED_PLACE_TYPE	CHAR(1)	A - ADMIN_PLACE Z - ZONE Blank - cartographic feature does not represent an administrative area or zone NULLABLE
DISPLAY_CLASS	N(1)	Provides a classification of cartographic features which enables features to be displayed at specific scales only. NULLABLE
POLYGON_RESTRICTION	N(1)	Identifies if the Environmental Zone polygon restriction is applicable to all vehicles or to trucks only NULLABLE
SEVERITY_RATING	N(2)	A classification of hurricane intensity used to display Hurricane Prone Areas in different colours. NULLABLE
EXPANDED_INCLUSION	N(1)	Identifies cartographic features that meet the Q2, 2011 expanded inclusion criteria. NULLABLE

RDF_CARTO Keys	
Primary key	CARTO_ID
Related Table	RDF_FEATURE_NAME for the names. RDF_CARTO_LINK for the linear components. RDF_CARTO_FACE for the polygonal components.

12.3.32 RDF_CARTO_FACE

Defines the association between a Cartographic Feature and its polygonal face components. A Cartographic Object can be associated with multiple Faces. For example, a Cartographic Object

representing a Country could be composed of various Islands with each island represented by a different Face.

See *Section C.15, RDF_CARTO_FACE* for metadata information.

RDF_CARTO_FACE		
Column	Format	Contents
CARTO_ID	N(10)	Permanent identifier of the Cartographic Feature.
FACE_ID	N(10)	Permanent identifier of the Face.
LONG_HAUL	CHAR(1)	Indicates if the non-navigable Cartographic Feature is included in Long Haul product
COVERAGE_INDICATOR	CHAR(2)	Indicates a product level corresponding to the inclusion of database features, verification and completeness for a particular feature in the database. This provides a refinement to Prime, Network, In-Process Data, and Full Geometry coding. NULLABLE
CLAIMED_BY	CHAR(3)	Indicates which country claims the cartographic administrative polygon in a disputed territory. NULLABLE
CONTROLLED_BY	CHAR(3)	Indicates which country is in control of the cartographic administrative polygon in a disputed territory. NULLABLE

RDF_CARTO_FACE Keys	
Primary key	CARTO_ID, FACE_ID
Foreign keys	CARTO_ID → RDF_CARTO.CARTO_ID FACE_ID → RDF_FACE.FACE_ID
Related Table	RDF_CARTO RDF_FACE_LINK

12.3.33 RDF_CARTO_LINK

Defines the association between a Cartographic Feature and its linear components. Since linear Cartographic Features are grouped based on common Feature Type and Feature Name, a Cartographic Feature is composed of a collection of links.

See *Section C.16, RDF_CARTO_LINK* for metadata information.

RDF_CARTO_LINK		
Column	Format	Contents
CARTO_ID	N(10)	Permanent identifier of the cartographic feature.
LINK_ID	N(10)	Permanent identifier of the link.
LONG_HAUL	CHAR(1)	Indicates if the non-navigable Cartographic Feature is included in Long Haul product
COVERAGE_INDICATOR	CHAR(2)	Indicates a product level corresponding to the inclusion of database features, verification and completeness for a particular feature in the database. This provides a refinement to Prime, Network, In-Process Data, and Full Geometry coding. NULLABLE
LINE_OF_CONTROL	CHAR(1)	Identifies Links of linear cartographic features that represent internationally accepted boundaries, but are located in an area under dispute. NULLABLE
CLAIMED_BY	CHAR(3)	Indicates which country claims specific sections of the cartographic linear administrative boundary in a disputed territory. NULLABLE
CONTROLLED_BY	CHAR(3)	Indicates which country is in control of specific sections of the cartographic linear administrative boundary in a disputed territory. NULLABLE
EXPANDED_INCLUSION	N(1)	Identifies linear rivers that meet the Q2, 2011 expanded inclusion criteria. NULLABLE

RDF_CARTO_LINK	
Primary key	CARTO_ID, LINK_ID
Foreign keys	LINK_ID → RDF_LINK CARTO_ID → RDF_CARTO
Related Table	RDF_LINK RDF_CARTO

12.3.34 RDF_CENSUS

See Section C.17, *RDF_CENSUS* for metadata information.

RDF_CENSUS		
Column	Format	Contents
CENSUS_ID	N(10)	Unique ID indicating that the data is referencing Census data. CENSUS_ID is also published in RDF_ADMIN_CENSUS and RDF_ZONE_CENSUS.
CENSUS_TYPE	CHAR(2)	Defines the Census Type that is applicable to the Admin Place or Zone.
CENSUS_VALUE	CHAR(10)	Defines the Census Value applicable to the Admin Place or Zone.
LANGUAGE_CODE	CHAR(3)	Language Code of the Census Name. NULLABLE
CENSUS_NAME	VARCHAR(120)	Identifies the Census Name. NULLABLE

RDF_CENSUS	
Primary key	CENSUS_ID

12.3.35 RDF_CF

Complex Features represent groupings of simple features into aggregated Complex Features. The RDF_CF table allows for the publication of any aggregation of simple features into Complex Features. The following Complex Features are published in RDF_CF:

- ◆ CF Road
- ◆ CF Intersection
- ◆ CF Object
- ◆ CF Grouped Structure
- ◆ CF Motorway Junction Object

See *Section C.18, RDF_CF* for metadata information.

RDF_CF		
Column	Format	Contents
CF_ID	N(10)	Permanent identifier of the Complex Feature.
CF_TYPE	CHAR(1)	Identifies the Complex Feature type
LAT	N(10)	Latitude representing the midpoint of a Complex Object. Only published for Complex Objects. Not applicable for Grouped Structure. NULLABLE

RDF_CF		
Column	Format	Contents
LON	N(10)	Longitude representing the midpoint of a Complex Object. Only published for Complex Objects. Not applicable for Grouped Structure NULLABLE
REF_INTERSECTION_ID	N(10)	Defines the reference Complex Intersection for a Complex Road. Only populated for CF Road. Not applicable for Grouped Structure. NULLABLE
NREF_INTERSECTION_ID	N(10)	Defines the non-reference Complex Intersection for a Complex Road. Only populated for CF Road. Not applicable for Grouped Structure. NULLABLE

RDF_CF	
Primary key	CF_ID

12.3.36 RDF_CF_ATTRIBUTE

This table defines a TYPE - VALUE pair for publishing attributes to Complex Features.

RDF_CF_ATTRIBUTE		
Column	Format	Contents
CF_ID	N(10)	Permanent identifier of the Complex Feature
CF_ATTR_TYPE	VARCHAR(60)	Description of an attribute associated with a Complex Feature. HEIGHT = Modelling height for Structure Footprints. Not published for City Model.
CR_ATTR_VALUE	VARCHAR(60)	The attribute value for the complex feature attribute.

RDF_CF_ATTRIBUTE Keys	
Primary key	CF_ID, CF_ATTR_TYPE
Foreign key	CF_ID → RDF_CF.CF_ID

12.3.37 RDF_CF_BUILDING

RDF_CF_BUILDING is used to model the Structure Footprints contained in a Grouped Structure.

RDF_CF_BUILDING		
Column	Format	Contents
CF_ID	N(10)	Permanent identifier for the Complex Feature (Grouped Structure)
BUILDING_ID	N(10)	Permanent identifier for the Structure Footprint
SEQ_NUM	N(4)	Sequence Number for the Structure Footprint in a single Grouped Structure.

RDF_CF_BUILDING Keys	
Primary key	CF_ID, BUILDING_ID
Foreign key	CF_ID → RDF_CF.CF_ID BUILDING_ID → RDF_BUILDING.BUILDING_ID

12.3.38 RDF_CF_CARTO

This table defines the polygonal Cartographic Features that are involved in a Complex Feature.

RDF_CF_CARTO		
Column	Format	Contents
CF_ID	N(10)	Permanent identifier representing the Complex Feature
CARTO_ID	N(10)	Permanent identifier involved in the definition of the Complex Feature.
SEQ_NUM	N(4)	Sequence number NULLABLE

RDF_CF_CARTO Keys	
Primary key	CARTO_ID, CF_ID
Foreign key	CF_ID → RDF_CF.CF_ID CARTO_ID → RDF_CARTO.CARTO_ID
Related Table	RDF_CF

12.3.39 RDF_CF_CF

RDF_CF_CF		
Column	Format	Contents
CF_ID	N(10)	
CHILD_CF_ID	N(10)	
SEQ_NUM	N(4)	NULLABLE

12.3.40 RDF_CF_LINK

This table defines the nodes involved in a Complex Feature.

RDF_CF_LINK		
Column	Format	Contents
CF_ID	N(10)	Permanent identifier representing the Complex Feature.
LINK_ID	N(10)	Permanent identifier that is involved in the definition of the Complex Feature.
SEQ_NUM	N(4)	Sequence number. NULLABLE

RDF_CF_LINK Keys	
Primary key	CF_ID, LINK_ID
Foreign keys	CF_ID → RDF_CF LINK_ID → RDF_LINK
Related Table	RDF_CF RDF_LINK

12.3.41 RDF_CF_NODE

This table defines the nodes involved in a Complex Feature.

RDF_CF_NODE		
Column	Format	Contents
CF_ID	N(10)	Permanent identifier representing the Complex Feature.

RDF_CF_NODE		
Column	Format	Contents
NODE_ID	N(10)	Permanent identifier of the node involved in the definition of the Complex Feature.
SEQ_NUM	N(4)	Sequence number NULLABLE

RDF_CF_NODE Keys	
Primary key	CF_ID, NODE_ID
Foreign keys	CF_ID → RDF_CF NODE_ID → RDF_NODE
Related Table	RDF_CF RDF_NODE

12.3.42 RDF_CHAIN

RDF_CHAIN		
Column	Format	Contents
CHAIN_ID	N(10)	Unique identifier for the chain

RDF_CHAIN Keys	
Primary key	CHAIN_ID
Related Table	RDF_CHAIN_NAME, RDF_POI_CHAINS

12.3.43 RDF_CHAIN_NAME

RDF_CHAIN_NAME		
Column	Format	Contents
CHAIN_ID	N(10)	Unique identifier for the chain
LANGUAGE_CODE	CHAR(3)	The Language Code of the Name
NAME	VARCHAR(100)	The chain name of the selected CHAIN_ID

RDF_CHAIN_NAME Keys	
Primary key	CHAIN_ID, LANGUAGE_CODE
Foreign key	CHAIN_ID → RDF_CHAIN.CHAIN_ID
Related Table	RDF_CHAIN, RDF_POI_CHAINS

12.3.44 RDF_CHAIN_NAME_TRANS

Listing of all Chain transliterations that can be associated with a POI.

RDF_CHAIN_NAME_TRANS		
Column	Format	Contents
CHAIN_ID	N(10)	Database ID.
LANGUAGE_CODE	CHAR(3)	The Language Code of the Name.
TRANSLITERATION_TYPE	CHAR(3)	The type of the transliteration (e.g., RUX for Russian Transliterated)
TRANSLITERATION	VARCHAR(250)	The representation of Name in the Latin-1 alphabet.

RDF_CHAIN_NAME_TRANS Keys	
Primary key	CHAIN_ID, LANGUAGE_CODE, TRANSLITERATION_TYPE
Foreign key	CHAIN_ID → RDF_CHAIN
Related Table	RDF_CHAIN, RDF_CHAIN_NAME, RDF_POI_CHAINS

12.3.45 RDF_CITY_POI

This table stores all POIs that correspond to named places (i.e., Named Place, Neighbourhood and Hamlet. A Named Place POI is a routing destination (either an admin place or a zone) for a Named Place. The name of a Named Place POI is in RDF_CITY_POI_NAME.

The transliterated full street name is in RDF_ROAD_NAME_TRANS. Obtain these transliterations via RDF_LOCATION.

See *Section C.19, RDF_CITY_POI* for metadata information.

RDF_CITY_POI

RDF_CITY_POI		
Column	Format	Contents
POI_ID	N(10)	A permanent identifier that is unique across all published POIs.
CAT_ID	N(10)	Identification of type of POI stored. 4444 = Named Place POI 9998 = Hamlet POI
POPULATION	N(10)	Population for city represented by the POI. NULLABLE
LOCATION_ID	N(10)	Non-permanent identifier of the location defining the position of the POI.
STREET_NAME	VARCHAR(200)	Full Street Name of link where the POI is located. NULLABLE
ISO_COUNTRY_CODE	CHAR(3)	ISO Country Code of side of link where the POI is located.
COUNTRY_ID	N(10)	Permanent identifier for the Country of the side of link where the POI is located.
ORDER1_ID	N(10)	Permanent identifier for the Order1 of the side of link where the POI is located. NULLABLE
ORDER2_ID	N(10)	Permanent identifier for the Order2 of the side of link where the POI is located. NULLABLE
ORDER8_ID	N(10)	Permanent identifier for the Order8 of the side of link where the POI is located.
BUILTUP_ID	N(10)	Permanent identifier for the BUILTUP_ID of the side of link where the POI is located. NULLABLE
POSTAL_CODE	VARCHAR(15)	Postal code of side of link where the POI is located. NULLABLE
NAMED_PLACE_ID	N(10)	Permanent identifier of Admin Place or Zone associated with the Named Place POI. NULLABLE
NAMED_PLACE_TYPE	CHAR(1)	'A' for Admin, 'Z' for Zone. NULLABLE
LONG_HAUL	CHAR(1)	Indicates if the POI is included in Long Haul product
CAPITAL_COUNTRY	CHAR(1)	Indicator if Named Place POI is the capital of the Country NULLABLE

RDF_CITY_POI (Continued)

RDF_CITY_POI		
Column	Format	Contents
CAPITAL_ORDER1	CHAR(1)	Indicator if Named Place POI is the capital of the Order1 area NULLABLE
CAPITAL_ORDER2	CHAR(1)	Indicator if Named Place POI is the capital of the Order2 area NULLABLE
CAPITAL_ORDER8	CHAR(1)	Indicator if Named Place POI is the capital of the Order8 area NULLABLE
CLAIMED_BY	CHAR(3)	The ISO country code of the country that claims a Named Place POI in a disputed area. NULLABLE
CONTROLLED_BY	CHAR(3)	The ISO country code of the country that controls a Named Place POI in a disputed area. NULLABLE
LOCATION_SCORE	N(3)	NULLABLE
PLACE_SCORE	N(3)	NULLABLE
CALCULATED_LEVEL	CHAR(1)	NULLABLE
DISPLAY_LAT	N((10))	Latitude defined with a precision of 0.00001 degrees.
DISPLAY_LON	N((10))	Longitude defined with a precision of 0.00001 degrees.
LANGUAGE_CODE	CHAR(3)	Language Code of the Name. NULLABLE

RDF_CITY_POI Keys	
Primary key	POI_ID
Foreign keys	LOCATION_ID → RDF_LOCATION.LOCATION_ID

12.3.46 RDF_CITY_POI_NAME

Table RDF_CITY_POI_NAME lists all Named Place POI Names. A single Name can be shared by multiple Named Place POI IDs.

See *Section C.20, RDF_CITY_POI_NAME* for metadata information.

RDF_CITY_POI_NAME		
Column	Format	Contents
NAME_ID	N(10)	Permanent identifier of a Named Place POI Name.
LANGUAGE_CODE	CHAR(3)	Language Code of the Name. NULLABLE
NAME	VARCHAR(100)	Full spelling of the Named Place POI Name. NULLABLE
SHORT_NAME	VARCHAR(35)	Abbreviated name for a POI with NAME greater than 35 characters. NULLABLE

RDF_CITY_POI_NAME Keys	
Primary key	NAME_ID
Related Table	RDF_CITY_POI

12.3.47 RDF_CITY_POI_NAME_TRANS

This is the transliteration table for the Named Place POI name.

See *Section C.21, RDF_CITY_POI_NAME_TRANS* for metadata information.

RDF_CITY_POI_NAME_TRANS		
Column	Format	Contents
NAME_ID	N(10)	Permanent identifier of a Named Place POI Name
TRANSLITERATION_TYPE	CHAR(3)	The type of the transliteration (e.g., RUX for Russian Transliterated)
NAME	VARCHAR(250)	The representation of Name in the Latin-1 alphabet.
SHORT_NAME	VARCHAR(250)	The transliteration for the abbreviated name published in RDF_CITY_POI_NAME.SHORT_NAME. NULLABLE

RDF_CITY_POI_NAME_TRANS Keys	
Primary key	NAME_ID, TRANSLITERATION_TYPE
Foreign key	NAME_ID → RDF_CITY_POI_NAME
Unique key	NAME_ID, TRANSLITERATION_TYPE
Related Table	RDF_POI, RDF_POI_NAMES

12.3.48 RDF_CITY_POI_NAMES

RDF_CITY_POI_NAMES provides an association between a Named Place POI and its Name(s). A single Named Place POI can be associated with multiple Names (e.g., in cases where there are spellings in different languages (exonyms)) or multiple Official Names/Alternate Names.

See *Section C.22, RDF_CITY_POI_NAMES* for metadata information.

RDF_CITY_POI_NAMES		
Column	Format	Contents
POI_ID	N(10)	A permanent identifier that is unique across all published Named Place POIs.
NAME_ID	N(10)	Permanent identifier of a Named Place POI Name.
NAME_TYPE	CHAR(1)	Type of name, BASE, ABBREVIATION, SYNONYM.
IS_EXONYM	CHAR(1)	Is the Name defined as an Exonym for the Named Place POI?

RDF_CITY_POI_NAMES	
Foreign keys	POI_ID → RDF_CITY_POI NAME_ID → RDF_CITY_POI_NAME
Related Table	RDF_CITY_POI RDF_CITY_POI_NAME

12.3.49 RDF_CONDITION

RDF_CONDITION contains all conditions relevant to routing or route guidance. Each condition has associated attribution in the RDF_CONDITION_% tables as well as RDF_DATE_TIME.

An associated NavStrand defines the contiguous connected strand of links involved in the condition. Single-link conditions, (e.g., time-dependent accessibility), are defined as a single-link NavStrand entity.

CONDITION_ID can be used to identify Lane NavStrand in RDF_LANE_NAV_STRAND. An associated Lane NavStrand defines the contiguous connected strand of lanes involved in the condition. Single lane conditions such as time dependent accessibility, are defined as single lane Lane NavStrand entities.

See *Section C.23, RDF_CONDITION* for metadata information.

RDF_CONDITION		
Column	Format	Contents
CONDITION_ID	N(10)	Permanent identifier of the entity.
CONDITION_TYPE	N(2)	Defines the conditions stored in RDF_CONDITION.

RDF_CONDITION		
Column	Format	Contents
NAV_STRAND_ID	N(10)	Permanent identifier of NavStrand (sequence of links) or if NULL, permanent identifier of Lane NavStrand (sequence of lanes). NULLABLE
ACCESS_ID	N(5)	ID into RDF_ACCESS to identify the Access Characteristics to which the condition applies.

RDF_CONDITION Keys	
Primary Key	CONDITION_ID
Foreign Key	ACCESS_ID → RDF_ACCESS

12.3.50 RDF_CONDITION_ACCESS

RDF_CONDITION_ACCESS		
Column	Type	Contents
CONDITION_ID	N(10)	Unique ID for the condition.
SEASONAL_CLOSURE	CHAR(1)	Indicates if the Link is seasonally closed due to weather conditions NULLABLE
TIME_OVERRIDE	N(1)	Indication if the Access Restriction is applicable only from Dusk to Dawn or Dawn to Dusk: NULLABLE
DEPENDENT_ACCESS_TYPE	N(1)	Indicates that there is a dependency for when a link or lane access restriction is in effect and a time is not specified or known. NULLABLE

RDF_CONDITION_ACCESS Keys	
Primary Key	CONDITION_ID
Foreign Key	CONDITION_ID → RDF_CONDITION.CONDITION_ID

12.3.51 RDF_CONDITION_BLACKSPOT

RDF_CONDITION_BLACKSPOT		
Column	Type	Contents
CONDITION_ID	N(10)	Unique ID for the condition.
BLACKSPOT_SOURCE	N(1)	Identifies the source of the Blackspot data.
DIRECTION	N(1)	Indicates, for single link conditions, the link direction for which a direction-dependent attribute is applicable NULLABLE

RDF_CONDITION_BLACKSPOT Keys	
Primary Key	CONDITION_ID
Foreign Key	CONDITION_ID → RDF_CONDITION.CONDITION_ID

12.3.52 RDF_CONDITION_DIRECTION_TRAVEL

RDF_CONDITION_DIRECTION_TRAVEL		
Column	Type	Contents
CONDITION_ID	N(10)	Unique ID for the condition.
BEARING	N(2)	Indicates the conditional travel direction
DEPENDENT_ACCESS_TYPE	N(1)	Classifies accessibility of lanes or links that are reversible at unknown times. NULLABLE

RDF_CONDITION_DIRECTION_TRAVEL Keys	
Primary Key	CONDITION_ID
Foreign Key	CONDITION_ID → RDF_CONDITION.CONDITION_ID

12.3.53 RDF_CONDITION_DIVIDER

Identifying turn restrictions at Divided Junctions is essential for valid routing. DIVIDER and DIVIDER_LEGAL attribution is the only attribution that models traffic situations at Divided Junctions. RDF_CONDITION_DIVIDER publishes turn restrictions computed from DIVIDER and DIVIDER_LEGAL attribution. Each row in RDF_CONDITION_DIVIDER details a turn restriction from the originating link (FROM_LINK_ID) to the restricted link (TO_LINK_ID). RDF_CONDITION_DIVIDER publishes a row for each

turn restricted by the Divided Junction. This includes turns for which other attribution already prevents routing; for example, a turn restriction from an originating link onto a oneway link.

RDF_CONDITION_DIVIDER		
Column	Format	Contents
DIVIDER_ID	N(10)	Non-permanent identifier for the turn restriction generated from divider coding.
CONDITION_TYPE	C(2)	Condition Type for RDF_CONDITION_DIVIDER entries generated from the Divider Conversion. 30 = Calculated restricted driving manoeuvre NULLABLE
FROM_LINK_ID	N(10)	Permanent identifier of the originating LINK_ID. NULLABLE
NODE_ID	N(10)	Permanent identifier of the node connecting FROM_LINK_ID and TO_LINK_ID. This NODE_ID represents the Divided Junction. NULLABLE
TO_LINK_ID	N(10)	Permanent identifier of the restricted turn LINK_ID. NULLABLE

RDF_CONDITION_DIVIDER Keys	
Primary key	DIVIDER_ID
Related Table	RDF_LINK

12.3.54 RDF_CONDITION_DRIVER_ALERT

See *Section C.27, RDF_CONDITION_DRIVER_ALERT* for metadata information.

RDF_CONDITION_DRIVER_ALERT		
Column	Type	Contents
CONDITION_ID	N(10)	Unique ID for the condition.
TRAFFIC_SIGN_TYPE	N(3)	Identifies the type of warning sign. NULLABLE
TRAFFIC_SIGN_VALUE	VARCHAR(100)	Publishes values visible on the sign related to specific Traffic Sign Types NULLABLE
GEN_WARNING_SIGN_TYPE	N(2)	Specifies the nature of a general warning sign. NULLABLE

RDF_CONDITION_DRIVER_ALERT		
Column	Type	Contents
TRAFFIC_SIGN_CATEGORY	N(2)	Identifies the main sign category to which the sign belongs. NULLABLE
TRAFFIC_SIGN_SUBCATEGORY	N(1)	Identifies the subcategory of TRAFFIC_SIGN_CATEGORY = 1 - Regulatory Sign. NULLABLE
SIGN_DURATION	N(10)	Sign shield indicating the duration, in terms of distance, of the warning. Contains TEXT_ID as reference to RDF_CONDITION_TEXT. NULLABLE
SIGN_PREWARNING	N(10)	Sign shield indicating a pre-warning, in terms of distance, of the upcoming warning or regulation. Contains TEXT_ID as Key to RDF_CONDITION_TEXT. NULLABLE
SIGN_VALIDITY_TIME	N(10)	Indication during which times a sign is valid. Contains TEXT_ID as Key to RDF_CONDITION_TEXT. NULLABLE
SIGN_VEHICLE_TRUCK	CHAR(1)	Indication if supplemental sign applies to trucks. Y or N. NULLABLE
SIGN_VEHICLE_HEAVY_TRUCK	CHAR(1)	Indication if supplemental sign applies to heavy trucks. Y or N. NULLABLE
SIGN_VEHICLE_BUS	CHAR(1)	Indication if supplemental sign applies to buses. Y or N. NULLABLE
SIGN_VEHICLE_AUTO_TRAILER	CHAR(1)	Indication if supplemental sign applies to auto trailers. Y or N. NULLABLE
SIGN_VEHICLE_MOTORHOME	CHAR(1)	Indication if supplemental sign applies to motor homes. Y or N. NULLABLE
SIGN_VEHICLE_MOTORCYCLE	CHAR(1)	Indication if supplemental sign applies to motorcycles. NULLABLE
DIRECTION	N(1)	Indicates for single link conditions the link direction for which a direction-dependent attribute is applicable NULLABLE
SIGNAL_SIGN_LOCATION	N(1)	Indicates the location of the sign relative to the travel direction NULLABLE.

RDF_CONDITION_DRIVER_ALERT		
Column	Type	Contents
RAILWAY_CROSSING_TYPE	N(1)	Indication if railway crossing is protected or unprotected. NULLABLE
WEATHER_TYPE	N(2)	Indicates the type of weather situation that is affecting the Driver Alert or No Overtaking condition. NULLABLE
IMPORTANCE_IND	N(2)	Indicates the importance of a Traffic Signal or Stop Sign for natural guidance. NULLABLE

RDF_CONDITION_DRIVER_ALERT	
Primary key	CONDITION_ID
Foreign key	CONDITION_ID → RDF_CONDITION

12.3.55 RDF_CONDITION_DT

RDF_CONDITION_DT		
Column	Type	Contents
CONDITION_ID	N(10)	Unique ID for the Condition
DT_ID	N(10)	Unique ID for the Date Time table.
SEQ_NUM	N(2)	Sequence Number for the Date Time period associated with the Condition. Multiple DT_ID can be associated with one Condition.

RDF_CONDITION_DT Keys	
Primary key	CONDITION_ID, DT_ID, SEQ_NUM
Foreign key	CONDITION_ID → RDF_CONDITION DT_ID → RDF_DATE_TIME

12.3.56 RDF_CONDITION_ENV_ZONE

RDF_CONDITION_ENV_ZONE		
Column	Type	Contents
CONDITION_ID	N(10)	Unique ID for the condition.
ENVIRONMENTAL_ZONE_ID	N(5)	Unique identifier for the environmental zone. This id is a reference into the look-aside Environmental Zone XML file with additional content on environmental zones.

RDF_CONDITION_ENV_ZONE Keys	
Primary key	CONDITION_ID
Foreign key	CONDITION_ID → RDF_CONDITION.CONDITION_ID

12.3.57 RDF_CONDITION_EVACUATION

See *Section C.28, RDF_CONDITION_EVACUATION* for metadata information.

RDF_CONDITION_EVACUATION		
Column	Type	Contents
CONDITION_ID	N(10)	Unique ID for the condition.
EVACUATION_BEARING	N(1)	Specifies the evacuation route travel direction NULLABLE
EVENT_TYPE	N(2)	Specifies the nature of the event associated with a given evacuation route. NULLABLE
EVENT_CODE	N(2)	Specifies an evacuation route path, which is valuable when more than one Evacuation Route conditions are coded on a Link. NULLABLE

RDF_CONDITION_EVACUATION Keys	
Primary key	CONDITION_ID
Foreign key	CONDITION_ID → RDF_CONDITION.CONDITION_ID

12.3.58 RDF_CONDITION_GATE

See *Section C.29, RDF_CONDITION_GATE* for metadata information.

RDF_CONDITION_GATE		
Column	Type	Contents
CONDITION_ID	N(10)	Unique ID for the condition.
GATE_TYPE	N(1)	Indicates the type of gate

RDF_CONDITION_GATE Keys	
Primary key	CONDITION_ID
Foreign key	CONDITION_ID → RDF_CONDITION.CONDITION_ID

12.3.59 RDF_CONDITION_HOV

See *Section C.30, RDF_CONDITION_HOV* for metadata information.

RDF_CONDITION_HOV		
Column	Type	Contents
CONDITION_ID	N(10)	Unique ID for the condition.
MIN_PASSENGERS	N(2)	Minimum number of passengers to qualify as HOV vehicle. NULLABLE
HYBRID_CAR	CHAR(1)	Indication if Hybrid Car can use the HOV lane(s) NULLABLE
MOTORCYCLE	CHAR(1)	Indication if Motorcycle can use the HOV lane(s) NULLABLE
ALTERNATE_FUEL_CARPOOL	CHAR(1)	Indication if cars running on alternate fuel can use the HOV lane(s) NULLABLE
FEE_PAY_CARPOOL	CHAR(1)	Indication if payment of a fee allows for using the HOV lane(s) NULLABLE

RDF_CONDITION_HOV	
Primary key	CONDITION_ID
Foreign key	CONDITION_ID → RDF_CONDITION.CONDITION_ID

12.3.60 RDF_CONDITION_PARKING

See *Section C.31, RDF_CONDITION_PARKING* for metadata information.

RDF_CONDITION_PARKING		
Column	Type	Contents
CONDITION_ID	N(10)	Unique ID for the condition.
PARKING_TYPE	N(2)	Identifies the type of parking. NULLABLE
PARKING_SIDE_OF_STREET	CHAR(1)	Identifies the side of the street the parking type applies to. NULLABLE
PARKING_RESTRICTION	N(2)	Indicates if a parking restriction applies. NULLABLE

RDF_CONDITION_RDM Keys	
Primary key	CONDITION_ID
Foreign key	None
Related Table	RDF_CONDITION

12.3.61 RDF_CONDITION_RDM

See *Section C.31, RDF_CONDITION_PARKING* for metadata information.

RDF_CONDITION_RDM		
Column	Type	Contents
CONDITION_ID	N(10)	Unique ID for the condition.
RDM_TYPE	N(1)	Indicates the type of restricted driving manoeuvre (RDM) NULLABLE
PDM_TYPE	N(1)	Indicates the type of permitted driving manoeuvre (PDM) NULLABLE
TIME_OVERRIDE	N(1)	Indication if the RDM or PDM is applicable only from Dusk to Dawn or Dawn to Dusk NULLABLE

RDF_CONDITION_RDM Keys	
Primary key	CONDITION_ID
Foreign key	CONDITION_ID → RDF_CONDITION.CONDITION_ID

12.3.62 RDF_CONDITION_SPEED

See Section C.33, *RDF_CONDITION_SPEED* for metadata information.

RDF_CONDITION_SPEED

RDF_CONDITION_SPEED		
Column	Type	Contents
CONDITION_ID	N(10)	Unique ID for the condition.
SPECIAL_SPEED_LIMIT	N(3)	Indicates the applicable speed limit in km/hr NULLABLE
SPECIAL_SPEED_TYPE	N(2)	Defines which situation triggers the speed limit NULLABLE
DEPENDENT_SPEED_TYPE	N(2)	Indicates situations which would limit travel speed, such as weather, certain times of day, or special zones. NULLABLE
VARIABLE_SPEED_SIGN_LOCATION	N(2)	Indicates on which side of the link, in driving direction, the Variable Speed Sign is located. NULLABLE
TIME_OVERRIDE	N(1)	Indication if Special Speed has Dusk - Dawn or Dawn - Dusk time restriction NULLABLE
VSS_ID	N(10)	Unique identifier for the Variable Speed Sign ID. Used to associate the Variable Speed Applicable condition to the Variable Speed Sign condition NULLABLE
DIRECTION	N(1)	Indication if the Variable Speed Sign Applicable condition is in effect in the positive or negative travel direction of the link. NULLABLE

RDF_CONDITION_SPEED Keys	
Primary key	CONDITION_ID
Foreign key	CONDITION_ID → RDF_CONDITION.CONDITION_ID

12.3.63 RDF_CONDITION_TEXT

RDF_CONDITION_TEXT		
Column	Type	Contents
CONDITION_ID	N(10)	Unique ID for the condition.
TEXT_ID	N(10)	Unique Text identifier which relates the Condition Attribute Value to the RDF_CONDITION_TEXT table. TEXT_ID relates to the textual field in one of the condition attribute tables, when a column publishes textual content requiring a Language Code. Currently limited to RDF_CONDITION_DRIVER_ALERT.
SEQ_NUM	N(2)	Sequence number, reset for each condition ID, increased for each Text for a given Text Id.
LANGUAGE_CODE	CHAR(3)	Language Code of the Text.
TEXT	VARCHAR(256)	Full spelling of the text applicable to the condition.

RDF_CONDITION_TEXT Keys	
Primary key	CONDITION_ID, TEXT_ID, SEQ_NUM
Foreign key	CONDITION_ID → RDF_CONDITION

12.3.64 RDF_CONDITION_TOLL

See Section C.34, RDF_CONDITION_TOLL for metadata information.

RDF_CONDITION_TOLL		
Column	Type	Contents
CONDITION_ID	N(10)	Unique ID for the condition.
TOLL_SYSTEM_TYPE	N(10)	Identifies toll system types that do not have toll structure or have automatic controls Unique ID for each toll system that has a common Toll Operator and Toll Collection Scheme. NULLABLE
TOLL_FEATURE_TYPE	N(2)	Identifies the type of toll feature NULLABLE
PAYMENT_CASH	CHAR(1)	Is payment possible using Cash (Y/N) NULLABLE
PAYMENT_BANK_CARD	CHAR(1)	Is payment possible using Bank Card (Y/N) NULLABLE

RDF_CONDITION_TOLL		
Column	Type	Contents
PAYMENT_CREDIT_CARD	CHAR(1)	Is payment possible using Credit Card (Y/N) NULLABLE
PAYMENT_PASS	CHAR(1)	Is payment possible using Pass (Y/N) NULLABLE
PAYMENT_TRANSPONDER	CHAR(1)	Is payment possible using Transponder (Y/N) NULLABLE
PAYMENT_VIDEO	CHAR(1)	Is payment possible using Video (Y/N) NULLABLE
PAYMENT_EXACT_CASH	CHAR(1)	Is payment possible using Exact Cash (Y/N) NULLABLE
PAYMENT_TRAVEL_CARD	CHAR(1)	Is payment possible using Travel Card (Y/N) NULLABLE
STRUCTURE_TYPE_FIXED_FEE	CHAR(1)	Identifies if the Toll Structure is fixed fee type NULLABLE
STRUCTURE_TYPE_OBTAIN_TICKET	CHAR(1)	Identifies if the Toll Structure is obtain ticket type NULLABLE
STRUCTURE_TYPE_PAY_TICKET	CHAR(1)	Identifies if the Toll Structure is Pay per Ticket type NULLABLE
STRUCTURE_TYPE_ELECTRONIC	CHAR(1)	Identifies if the Toll Structure is Electronic type NULLABLE

RDF_CONDITION_TOLL Keys	
Primary key	CONDITION_ID
Foreign key	CONDITION_ID → RDF_CONDITION.CONDITION_ID

12.3.65 RDF_CONDITION_TRANSPORT

See Section C.35, RDF_CONDITION_TRANSPORT for metadata information.

RDF_CONDITION_TRANSPORT

RDF_CONDITION_TRANSPORT		
Column	Type	Contents
CONDITION_ID	N(10)	Unique ID for the condition
WEIGHT_RESTRICTION	N(10)	Weight Restriction applicable to the Transport condition NULLABLE

RDF_CONDITION_TRANSPORT (Continued)

RDF_CONDITION_TRANSPORT		
Column	Type	Contents
HEIGHT_RESTRICTION	N(10)	Height Restriction applicable to the Transport condition NULLABLE
LENGTH_RESTRICTION	N(10)	Length Restriction applicable to the Transport condition NULLABLE
WIDTH_RESTRICTION	N(10)	Width Restriction applicable to the Transport condition NULLABLE
WEIGHT_PER_AXLE_RESTRICTION	N(10)	Weight per Axle Restriction applicable to the Transport condition NULLABLE
NUMBER_OF_AXLES	N(2)	Number of Axles is used to model signs specifying the number of Axles that are restricted. NULLABLE
KPRA_LENGTH	N(10)	KPRA Length is used to model signs specifying the "Kingpin to Rear Axle" length. North America only. NULLABLE
HAZARDOUS_MATERIAL_TYPE	N(3)	Defines the type of hazardous good(s) applicable to a specific transport condition NULLABLE
HAZMAT_PERMIT_REQUIRED	N(2)	Used to indicate the driver is required to have a HAZMAT Permit document to legally drive on the road with hazardous cargo. NULLABLE
DIRECTION_CLOSURE	N(1)	Defines the direction of the link closed for vehicles with specific restrictions NULLABLE
TRAILER_TYPE	N(1)	Defines the occurrence of a restriction on a link related to Trucks with a specified number of Trailers NULLABLE
PHYSICAL_STRUCTURE_TYPE	N(2)	Defined if a Transport Access Restriction is caused by an Overpass (Bridge) or Underpass (Tunnel) or any other type of structure. NULLABLE
TRANSPORT_SPEED_LIMIT	N(3)	Defines a speed limit applicable to trucks. NULLABLE
TRANSPORT_SPEED_TYPE	N(2)	Defines the type of speed restriction for trucks. NULLABLE

RDF_CONDITION_TRANSPORT (Continued)

RDF_CONDITION_TRANSPORT		
Column	Type	Contents
SPEED_LIMIT_TYPE	N(2)	Indicates if the Transport Speed Limit is either Legal or Advisory. NULLABLE
DIRECTION	N(1)	Indicates for single link conditions the link direction for which a direction-dependent attribute is applicable NULLABLE
WEIGHT_DEPENDENT	N(10)	Indication of a Weight Dependency for specific Transport conditions; currently used for Transport Special Speed Situations and Transport Preferred Route conditions only. NULLABLE
WEATHER_TYPE	N(2)	Indicates the type of weather condition that is affecting the transport speed limit NULLABLE
PREFERRED_ROUTE_TYPE	N(2)	Defines the type of preferred route NULLABLE
TIME_OVERRIDE	CHAR(1)	Indication if Truck restriction is applicable Dusk to Dawn or Dawn to Dusk. NULLABLE

RDF_CONDITION_TRANSPORT Keys	
Primary key	CONDITION_ID
Foreign key	CONDITION_ID → RDF_CONDITION.CONDITION_ID

12.3.66 RDF_COUNTRY

This table stores Country-specific data that extends the information in RDF_ADMIN_PLACE. Countries are a subtype (specialization) of Admin Places.

A Country is a specialized type of Administrative Place. Each country row has a corresponding row in RDF_ADMIN_PLACE with the same ID (COUNTRY_ID = ADMIN_PLACE_ID). Similar to Admin Places, countries have names and participate in the admin graph (always at level 1).

See *Section C.36, RDF_COUNTRY* for metadata information.

RDF_COUNTRY

RDF_COUNTRY		
Column	Format	Contents

RDF_COUNTRY (Continued)

COUNTRY_ID	N(10)	Permanent identifier for the country, corresponds to ADMIN_PLACE_ID.
UNIT_OF_MEASURE	CHAR(1)	'M' for Metric or 'E' for English. NULLABLE
CURRENCY_PRECISION	N(3)	Number of digits (e.g., 2 for U.S.). NULLABLE
LANGUAGE_CODE	CHAR(3)	Language Code for primary language for the country. Bilingual countries (e.g., Belgium, Canada) are represented with the preferred language of the bilingual country. NULLABLE
MAX_ADMIN_LEVEL	N(1)	Maximum administrative level used in the country. NULLABLE
DRIVING_SIDE	CHAR(1)	Left or Right. NULLABLE
CURRENCY_TYPE	CHAR(3)	Three character currency code based on ISO Standard 4217 NULLABLE
PHONE_COUNTRY_CODE	VARCHAR(4)	International phone country code. NULLABLE
SPEED_LIMIT_UNIT	CHAR(1)	M = Miles per hour K = Kilometres per hour ¹ NULLABLE
ADMIN_LEVEL_DESCRIPTION_1	VARCHAR(35)	Description of level 1 admin place-COUNTRY NULLABLE
ADMIN_LEVEL_DESCRIPTION_2	VARCHAR(35)	Description of level 2 admin place, e.g., STATE. NULLABLE
ADMIN_LEVEL_DESCRIPTION_3	VARCHAR(35)	Description of level 3 admin place, e.g., COUNTY. NULLABLE
ADMIN_LEVEL_DESCRIPTION_4	VARCHAR(35)	Description of level 4 admin place; blank if not defined. e.g., CITY. NULLABLE
ADMIN_LEVEL_DESCRIPTION_5	VARCHAR(35)	Description of level 5 admin place; blank if not defined. e.g., SETTLEMENT. NULLABLE
ADMIN_LEVEL_DESCRIPTION_6	VARCHAR(35)	Description of level 6 admin place; blank if not defined. NULLABLE
ADMIN_LEVEL_DESCRIPTION_7	VARCHAR(35)	Description of level 7 admin place; blank if not defined. NULLABLE

RDF_COUNTRY (Continued)

ADMIN_LEVEL_ADMIN_TYPE_1	N(4)	Numeric admin type of level 1 admin place. NULLABLE
ADMIN_LEVEL_ADMIN_TYPE_2	N(4)	Numeric admin type of level 2 admin place; NULL if not defined. NULLABLE
ADMIN_LEVEL_ADMIN_TYPE_3	N(4)	Numeric admin type of level 3 admin place; NULL if not defined. NULLABLE
ADMIN_LEVEL_ADMIN_TYPE_4	N(4)	Numeric admin type of level 4 admin place; NULL if not defined. NULLABLE
ADMIN_LEVEL_ADMIN_TYPE_5	N(4)	Numeric admin type of level 5 admin place; NULL if not defined. NULLABLE
ADMIN_LEVEL_ADMIN_TYPE_6	N(4)	Numeric admin type of level 6 admin place; NULL if not defined. NULLABLE
ADMIN_LEVEL_ADMIN_TYPE_7	N(4)	Numeric admin type of level 7 admin place; NULL if not defined. NULLABLE
HOUSE_NUMBER_FORMAT	CHAR(1)	Code indicating the typical house number position used for addressing in the applicable country. NULLABLE
ISO_COUNTRY_CODE	CHAR(3)	Three character country code based on ISO Standard 3166. NULLABLE
EBU_COUNTRY_CODE	CHAR(1)	The EBU (European Broadcasting Union) code associated with the Location Table from where the TMC code is derived. NULLABLE
PHONE_PREFIX	VARCHAR(2)	Country phone prefix for internal dialling NULLABLE
TOLL_SYSTEM_TYPE	N(10)	Identifies toll system types that do not have toll structure or have automatic controls Unique ID for each toll system that has a common Toll Operator and Toll Collection Scheme. NULLABLE

1. RDF speed limit data is always given in kilometres per hour (even for countries where miles per hour is used) to maintain consistency in calculations used with complex internal algorithms. The conversion from kilometres per hour (K) to miles per hour (M) is: $K * .6213 = M$.

RDF_COUNTRY Keys	
Primary key	COUNTRY_ID

Foreign key	COUNTRY_ID → RDF_ADMIN_PLACE.ADMIN_PLACE_ID
Related Table	RDF_ADMIN_PLACE RDF_FEATURE_NAME for name the Country RDF_CARTO for cartographic representation of the Country

12.3.67 RDF_COUNTRY_TRANS

RDF_COUNTRY_TRANS		
Column	Format	Contents
COUNTRY_ID	N(10)	
TRANSLITERATION_TYPE	CHAR(3)	
ADMIN_LEVEL_DESCRIPTOR_1	VARCHAR(250)	NULLABLE
ADMIN_LEVEL_DESCRIPTOR_2	VARCHAR(250)	NULLABLE
ADMIN_LEVEL_DESCRIPTOR_3	VARCHAR(250)	NULLABLE
ADMIN_LEVEL_DESCRIPTOR_4	VARCHAR(250)	NULLABLE
ADMIN_LEVEL_DESCRIPTOR_5	VARCHAR(250)	NULLABLE
ADMIN_LEVEL_DESCRIPTOR_6	VARCHAR(250)	NULLABLE
ADMIN_LEVEL_DESCRIPTOR_7	VARCHAR(250)	NULLABLE

12.3.68 RDF_DATE_TIME

Use either RDF_DATE_TIME or RDF_TIME_DOMAIN for time dependent conditions. RDF_TIME_DOMAIN stores time syntax information in GDF representation.

See *Section C.37, RDF_DATE_TIME* for metadata information.

RDF_DATE_TIME		
Column	Format	Contents
DT_ID	N(10)	Non-permanent identifier for RDF_DATE_TIME

RDF_DATE_TIME		
Column	Format	Contents
DATETIME_TYPE	CHAR(2)	High level indication of the period for which the date time restriction is valid.
FROM_END	CHAR(1)	This attribute allows time to be specified “from the end” of a standard time period such as month and year
EXCLUDE_DATE	CHAR(1)	Flag that indicates if the specified data (in Date Time Type) represents an excluded date. Example, all year except 30 April is modelled Exclude Date = Y, with Start Date = 30 April.
START_DATE	VARCHAR(8)	Identifies the start dates of the Date/Time for Date Time Type = A-I. Identifies the days of the week for Date Time Type = 1 and the external date for Date Time Type = 2. NULLABLE
END_DATE	VARCHAR(8)	Identifies the end date of the Date/Time for Date Time Types = A-I. NULL for other Date Time Type. NULLABLE
START_TIME	VARCHAR(4)	Identifies the start time for the time period in which the Date Time restriction is in effect. NULLABLE
END_TIME	VARCHAR(4)	Identifies the end time for the time period in which the Date Time restriction is in effect. NULLABLE

12.3.69 RDF_DISTANCE_MARKER

See Section C.38, *RDF_DISTANCE_MARKER* for metadata information.

RDF_DISTANCE_MARKER		
Column	Format	Contents
POINT_FEATURE_ID	N(10)	Unique Identifier of the Distance Marker
ROAD_LINK_ID	N(10)	Identifier of the Road Link with which the Distance Marker is associated. The Road Link is used to retrieve the Route Number, Direction on Sign, Street Name attribution for the Distance Marker
DISTANCE_VALUE	VARCHAR(10)	The Distance Marker value

RDF_DISTANCE_MARKER		
Column	Format	Contents
DIRECTION_ON_SIGN	CHAR(1)	Direction on Sign indicates the official directional identifiers assigned to the Distance Marker. NULLABLE
DIRECTION	CHAR(1)	The applicable Direction of Travel for the Distance Marker.
UNIT_OF_MEASURE	CHAR(1)	The unit of measure mostly used in that country to describe road and traffic conditions
ENHANCED	CHAR(1)	Indicates whether a Distance Marker meets the positional accuracy requirements
LAT	N(10)	Latitude defining the position of the Distance Marker, defined in 0.00001 degree precision
LON	N(10)	Longitude defining the position of the Distance Marker, defined in 0.00001 degree precision

RDF_DISTANCE_MARKER Keys	
Primary key	POINT_FEATURE_ID
Foreign keys	ROAD_LINK_ID → RDF_ROAD_LINK

12.3.70 RDF_FACE

This table defines all Faces (polygons) in the database.

Faces are used to describe the geometric outline for Cartographic Features defining polygons. A single Cartographic Feature can be composed of one or more Faces. Multiple Faces are used when a Cartographic Feature is represented by a collection of disjointed areas, (e.g., a group of islands).

RDF_FACE		
Column	Format	Contents
FACE_ID	N(10)	Permanent identifier of the Face.

RDF_FACE Keys	
Primary key	FACE_ID

12.3.71 RDF_FACE_LINK

This table defines the links composing a face (polygon).

A face consists of the sequence of links with a common FACE_ID, ordered by SEQ_NUM, oriented based on INVERTED.

RDF_FACE_LINK		
Column	Format	Contents
FACE_ID	N(10)	Permanent identifier of the Face
LINK_ID	N(10)	Permanent identifier of the link
INVERTED	CHAR(1)	Defines whether the link orientation on the face boundary is inverted from its standard reference orientation. The boundary orientation is such that the right side of the link is the inside of the polygon. If this value equals 'N', then the polygon interior is on the right side of the link. If this value equals 'Y', then the polygon interior is on the left side of the link in its standard reference orientation.
SEQ_NUM	N(10)	Link sequence number; proceeding clockwise.
IS_EXTERIOR	CHAR(1)	Indicates if the link represents an exterior ring or an interior ring of a Face.

RDF_FACE_LINK Keys	
Primary key	FACE_ID, LINK_ID
Foreign keys	LINK_ID → RDF_LINK FACE_ID → RDF_FACE
Related Table	RDF_CARTO_FACE RDF_FACE RDF_LINK

12.3.72 RDF_FEATURE_NAME

RDF_FEATURE_NAME is a generic name table that stores the names for the following features:

- AdminPlace (all administrative areas, RDF_ADMIN_PLACE)
- Structure Footprints (RDF_BUILDING)
- Cartographic feature (RDF_CARTO)
- Complex Feature (RDF_CF)
- Zone (RDF_ZONE)
- Annotation (RDF_ANNOTATION)

Names are shared between features of the same category (same owner in RDF_FEATURE_NAMES). A Name can be shared by multiple features and one feature can have multiple names.

Names of Roads are stored in RDF_ROAD_NAME.

Names of POIs are stored in RDF_POI_NAME.

Names of Named Place POIs are stored in RDF_CITY_POI_NAME.

See *Section C.39, RDF_FEATURE_NAME* for metadata information.

RDF FEATURE NAME		
Column	Format	Contents
NAME_ID	N(10)	Permanent identifier of the feature name.
LANGUAGE_CODE	CHAR(3)	Language Code of NAME.
NAME	VARCHAR(60)	Name text.

RDF FEATURE NAME Keys	
Primary key	NAME_ID
Related Table	RDF_FEATURE_NAMES RDF_ADMIN_PLACE for named AdminPlaces RDF_CF for named CF Objects RDF_CARTO for named Carto Features RDF_ZONE for named Zones RDF_ROAD_NAME for Road Names RDF_POI_NAME for POI Names RDF_CITY_POI_NAME for Named Place POI Names

12.3.73 RDF_FEATURE_NAME_TRANS

The following table describes the data format for transliteration. Transliteration is the use of Latin-1 characters to represent non-Latin-1 characters present in languages such as Czech and Russian.

See *Section C.40, RDF_FEATURE_NAME_TRANS* for metadata information.

RDF FEATURE NAME_TRANS		
Column	Format	Contents
NAME_ID	N(10)	Permanent identifier of the feature name.
TRANSLITERATION_TYPE	CHAR(3)	The type of transliteration.
NAME	VARCHAR(250)	The feature name represented in Latin-1 characters.

RDF_FEATURE_NAME_TRANS Keys	
Primary key	NAME_ID, TRANSLITERATION_TYPE
Foreign keys	RDF_FEATURE_NAME→NAME_ID
Related Table	RDF_FEATURE_NAMES RDF_ADMIN_PLACE for named AdminPlaces RDF_CF for named CF Objects RDF_CARTO for named Carto Features RDF_ZONE for named Zones RDF_ROAD_NAME for Road Names RDF_POI_NAME for POI Names RDF_CITY_POI_NAME for Named Place POI Names RDF_ANNOTATION for Annotation Names

12.3.74 RDF_FEATURE_NAMES

RDF_FEATURE_NAMES is a generic name table that stores the names for following features:

- AdminPlace (all administrative areas, RDF_ADMIN_PLACE)
- Structure Footprints (RDF_BUILDING)
- Cartographic feature (RDF_CARTO)
- Retrieve Names of Administrative Cartographic Features via RDF_CARTO.NAMED_PLACE_ID.
- Complex Feature (RDF_CF)
- Zone (RDF_ZONE)
- Annotation Names (RDF_ANNOTATION)

Names of links are stored in RDF_ROAD_NAME.

Names of POIs are stored in RDF_POI_NAME.

Names of Named Place POIs are stored in RDF_CITY_POI_NAME.

See Section C.41, RDF_FEATURE_NAMES for metadata information.

RDF_FEATURE_NAMES		
Column	Format	Contents
FEATURE_ID	N(10)	ID of feature to which this name applies. If OWNER = A, B, C, or V, then FEATURE_ID is a permanent identifier. If OWNER = B, then the value published in FEATURE_ID is a BUILDING_ID.
NAME_ID	N(10)	Permanent identifier of the feature name.
IS_EXONYM	CHAR(1)	Is the name an exonym?
NAME_TYPE	CHAR(1)	Type of name

RDF_FEATURE_NAMES		
Column	Format	Contents
OWNER	CHAR(1)	Code indicating type of feature to which this name belongs. This column allows identification of the type of feature to which a NAME_ID applies.

RDF_FEATURE_NAMES Keys	
Primary key	FEATURE_ID, NAME_ID, OWNER
Foreign keys	RDF_FEATURE_NAME→NAME_ID
Related Table	RDF_FEATURE_NAME

12.3.75 RDF_FEATURE_POINT

RDF_FEATURE_POINT contains all FEATURE_POINT objects.

See *Section C.42, RDF_FEATURE_POINT* for metadata information.

RDF_FEATURE_POINT		
Column	Format	Contents
FP_ID	N(10)	Permanent identifier of the Feature Point
LINK_ID	N(10)	Permanent identifier of the associated link
FP_TYPE	CHAR(2)	Feature Point type
SIDE	CHAR(1)	Side of the link the Feature Point is located
LAT	N(10)	Latitude defining the position of the Feature Point.
LON	N(10)	Longitude defining the position of the Feature Point.

12.3.76 RDF_FEATURE_POINT_PREP

RDF_FEATURE_POINT_PREP		
Column Name	Type	Content
FP_ID	N(10)	Unique ID for the Feature Point of type 'RG' (Route Guidance Point).
PREPOSITION_CODE	VARCHAR(10)	Preposition Code applicable to the Feature Point. Key into RDF_META_PREPOSITION.

RDF_FEATURE_POINT_PREP Keys	
Primary key	FP_ID, PREPOSITION_CODE
Foreign key	FP_ID → RDF_FEATURE_POINT.FP_ID PREPOSITION_CODE → RDF_META_PREPOSITION.PREPOSITION_CODE

12.3.77 RDF_FEATURE_POINT_NAME

RDF_FEATURE_POINT_NAME		
Column	Format	Contents
NAME_ID	N(10)	Permanent identifier for the Name related to the Feature Point
NAME	VARCHAR(120)	The Name of the Feature Point. Publishes the Name for Voice Natural Guidance.
LANGUAGE_CODE	CHAR(3)	Language Code of the Name

RDF_FEATURE_POINT_NAME Keys	
Primary key	NAME_ID
Foreign keys	none

12.3.78 RDF_FEATURE_POINT_NAMES

RDF_FEATURE_POINT_NAMES		
Column	Format	Contents
FP_ID	N(10)	Permanent identifier of the Feature Point
NAME_ID	N(10)	Permanent identifier for the Name related to the Feature Point
NAME_TYPE	CHAR(1)	Type of Name
IS_EXONYM	CHAR(1)	Indicates if the Name related to the Feature Point represents an exonym

RDF_FEATURE_POINT_NAMES Keys	
Primary key	FP_ID, NAME_ID

Foreign keys	FP_ID→RDF_FEATURE_POINT.FP_ID NAME_ID→RDF_FEATURE_POINT_NAME.NAME_ID
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12.3.79 RDF_FILE

This table publishes the File associated with a specific map feature. This includes type of file and file format specifics. The file can be referenced via FILE_NAME, as published as an external repository or to be published as a binary object (blob) inside the RDF database.

See *Section C.43, RDF_FILE* for metadata information.

RDF_FILE		
Column	Format	Contents
FILE_ID	N(10)	Non-permanent identifier of the published file.
FILE_TYPE	N(2)	A definition of the type of contents published within the file.
ATTACHMENT_TYPE	VARCHAR(3)	A definition of the format for the published file.
FILE_NAME ¹	VARCHAR(100)	A textual description of the associated file name. This is included to enable look-aside deliveries for the auxiliary data. NULLABLE
FILE_OBJECT ¹	BLOB	This publishes the file associated with the FILE_ID. It can be empty if auxiliary data is published as look-aside data. NULLABLE

1. A FILE_NAME may not necessarily have a corresponding FILE_OBJECT. For example, a file name generated by the application of a Junction View condition may not always have a corresponding file attachment.

RDF_FILE Keys	
Primary key	FILE_ID
Related Table	RDF_FILE_FEATURE

12.3.80 RDF_FILE_FEATURE

This table defines the association between entries in RDF_FILE and the corresponding Features via RDF_FILE_FEATURE for all Map Features.

Association of auxiliary files to City Model features.

Various city model components (Grouped Structure, and POI) can have auxiliary files associated. In the current City Model specifications 3D Objects and Landmark Icons are defined as auxiliary files.

RDF is offering a generic model to associated files (external to the core-map database) to map features, via table RDF_FILE_FEATURE.

- 3D Objects are associated with Grouped Structure.
- Landmark Icons are associated with a POI that is related to a Grouped Structure. The POI – Grouped Structure is modelled via table RDF_POI_FEATURE.

See *Section C.44, RDF_FILE_FEATURE* for metadata information.

RDF_FILE_FEATURE

RDF_FILE_FEATURE		
Column	Format	Contents
FEATURE_ID	N(10)	Combined key which references a feature referencing the File. The OWNER column defines the type of referenced feature. If OWNER = C, P, or V, then FEATURE_ID is a permanent identifier.
FILE_ID	N(10)	Non-permanent identifier of the file associated with a feature.
OWNER	CHAR(1)	Defines the type of Feature referenced in FEATURE_ID within this table.

RDF_FILE_FEATURE Keys	
Primary key	FILE_ID, FEATURE_ID
Foreign key	FILE_ID → RDF_FILE.FILE_ID
Related Table	RDF_FILE

12.3.81 RDF_GUIDANCE_OBJECT

See *Section C.45, RDF_GUIDANCE_OBJECT* for metadata information.

RDF_GUIDANCE_OBJECT

RDF_GUIDANCE_OBJECT		
Column	Format	Contents
OBJECT_ID	OBJECT_ID	Permanent identifier of the Guidance Object.
LAT	N(10)	Latitude defining the position of the Guidance Object.
LON	N(10)	Longitude defining the position of the Guidance Object.
CATEGORY	N(2)	Provides a category for the Guidance Object.
EXT_CAT_ID	VARCHAR(50)	Category identifier for an object external to product. NULLABLE

RDF_GUIDANCE_OBJECT

RDF_GUIDANCE_OBJECT		
Column	Format	Contents
EXT_CAT_NAME	VARCHAR(150)	Description of an external category. NULLABLE
EXT_REF_TYPE	N(2)	Indicates the external file or product publishing the external object reference. NULLABLE

RDF_GUIDANCE_OBJECT Keys	
Primary key	OBJECT_ID
Foreign key	None
Related Table	RDF_ASSO_GUIDANCE_OBJECT

12.3.82 RDF_LANE

This table is used to define the lanes to which the lane content applies.

See Section C.46, *RDF_LANE* for metadata information.

RDF_LANE

RDF_LANE		
Column	Format	Contents
LANE_ID	N(12) ¹	Permanent identifier for lane object.
LINK_ID	N(10)	Permanent identifier for link to which the lane belongs.
LANE_NUMBER	N(2)	Counter for lane within a link. Counting is left to right in the positive link direction.
LANE_TRAVEL_DIRECTION	CHAR(1)	Travel direction applicable to lane.
LANE_TYPE	N(10)	Identifies the type of lane
ACCESS_ID	N(5)	ID into RDF_ACCESS to identify the Access Characteristics of the lane.
LANE_DIVIDER_MARKER	N(2)	Defines the type of divider on the right side of the Lane in the positive Link direction. NULLABLE
CENTER_DIVIDER_MARKER	N(2)	Defines the Center Divider Marker for the Lane. NULLABLE

RDF_LANE (Continued)

RDF_LANE		
Column	Format	Contents
DIRECTION_CATEGORY	N(10)	Defines the Direction Category ('arrows on the road') for the Lane. Direction Category is a bitmask, since multiple types of arrows can exist on one Lane. NULLABLE
TRANSITION_AREA	CHAR(1)	Defines the stretch of road where the number of lanes changes and lane markings are not present on the road surface NULLABLE
LANE_FORMING_ENDING	N(1)	Specifies lane forming and lane ending when number of lanes changes between two consecutive Links NULLABLE
FROM_SPEED_LIMIT	N(3)	Speed Limit on the Lane, in the positive lane direction NULLABLE
TO_SPEED_LIMIT	N(3)	Speed Limit on the Lane, in the negative lane direction NULLABLE
HEIGHT_RESTRICTION	N(10)	Height restriction applicable to the Lane NULLABLE
WIDTH	N(10)	Width of the Lane NULLABLE
LANE_CROSSING_RESTRICTION	N(1)	Indicates where it is illegal to enter or exit a HOV lane NULLABLE

1. This is an exception to the general N(10) format used for the rest of Entity IDs.

RDF_LANE Keys	
Primary key	LANE_ID
Foreign keys	LINK_ID → RDF_NAV_LINK.LINK_ID ACCESS_ID → RDF_ACCESS.ACCESS_ID

12.3.83 RDF_LANE_NAV_STRAND

A Lane NavStrand defines an ordered sequence of lanes and nodes. A Lane NavStrand is a contiguous, connected sequence of navigable lanes representing a route fragment. Lane NavStrands are used to define the lanes and nodes for a condition.

A lane-level condition can be coded with multiple LANE_NAV_STRAND_ID values. This happens in the following situations:

- Multiple lanes of one link are involved in a condition with the exact same condition attribution (e.g., two lanes of a link having an Access Restriction condition with same attributes).
- Multiple lane-pairs of the same In Link and Out Link are involved in a lane-level condition, and share the same attribution (e.g., lane connectivity for different Lane pairs of an InLink - OutLink result in one condition with multiple referenced Lane NavStrand IDs).

RDF_LANE_NAV_STRAND		
Column	Format	Contents
LANE_NAV_STRAND_ID	N(10)	Permanent identifier of the Lane NavStrand
SEQ_NUM	N(10)	Position/order of the lane in the Lane NavStrand
CONDITION_ID	N(10)	Permanent identifier of the condition to which the Lane Nav Strand relates. One Condition can have multiple Lane NavStrand IDs associated, if multiple Lane Conditions for one Link are grouped into a single Condition ID.
LANE_ID	N(12)	Permanent identifier of the lane involved in the Lane NavStrand.
NODE_ID	N(10)	Permanent identifier of the intermediate node connecting the first lane to the second lane in a Lane NavStrand. Subsequent links in a Lane NavStrand do not have an associated node ID NULLABLE

RDF_LANE_NAV_STRAND Keys	
Primary key	LANE_NAV_STRAND_ID, LANE_ID, SEQ_NUM
Foreign keys	CONDITION_ID→RDF_CONDITION.CONDITION_ID NODE_ID→RDF_NODE.NODE_ID LANE_ID→RDF_LANE.LANE_ID

12.3.84 RDF_LAYER_BOUNDARIES

The RDF_LAYER_BOUNDARIES table stores bounding (minimum and maximum) latitude and longitude information for the database product. This bounding box is used for well-known text (WKT) and Oracle SDO functionality and calculations.

For additional information, see *Section 12.3.86, RDF_LINK_GEOMETRY*.

RDF_LAYER_BOUNDARIES		
Column	Format	Contents
MIN_X	N(8,5)	The minimum x-coordinate, representative of the latitude in 0.00001 degree precision.
MAX_X	N(8,5)	The maximum x-coordinate, representative of the latitude in 0.00001 degree precision.
MIN_Y	N(8,5)	The minimum y-coordinate, representative of the longitude in 0.00001 degree precision.
MAX_Y	N(8,5)	The maximum y-coordinate, representative of the longitude in 0.00001 degree precision.
WIDTH	N(8,5)	The width of the bounding box (metres).
HEIGHT	N(8,5)	The height of the bounding box (metres).

12.3.85 RDF_LINK

RDF_LINK has an entry for every link (navigable and non-navigable) in the database. Every link has an association to its Left and Right Administrative coding, Postal Code, and Zone(s). This is published in tables RDF_LINK and RDF_LINK_ZONE.

For navigable links, non-naming attribution is represented in RDF_NAV_LINK

For navigable links, naming attribution is represented in RDF_ROAD_LINK and RDF_ROAD_NAME. Cartographic usage of a link is coded via RDF_CARTO_LINK and RDF_CARTO. RDF_CARTO defines in which cartographic context a link is used.

A link direction is defined by either its reference or non-reference node. The following logic is used to define the Reference end of a link, in order of importance:

- Smallest latitude
- Smallest Longitude
- Smallest Z-level

This establishes a normalized orientation of a link. The reference node is also called the “from” end of the link and the non-reference node is called the “to” end of the link. The notions of Left and Right sides of a link are based on starting from the reference node and advancing along the length of the link towards the non-reference end. The position of intermediate shape points does not affect the standard orientation of the link—it depends only on the coordinates of the two end nodes. The Reference and Non Reference Nodes are used to define the direction of a link. Direction dependent attribution is relative to this defined direction of the link.

RDF_LINK		
Column	Format	Contents
LINK_ID	N(10)	Permanent identifier of the link.
REF_NODE_ID	N(10)	Permanent identifier for the reference node of the link
NONREF_NODE_ID	N(10)	Permanent identifier for the non-reference node of the link
LEFT_ADMIN_PLACE_ID	N(10)	Permanent identifier for the administrative coding on the left side of the link.
RIGHT_ADMIN_PLACE_ID	N(10)	Permanent identifier for the administrative coding on the right side of the link
LEFT_POSTAL_AREA_ID	N(10)	Non-permanent identifier for the postal code on the left side of the link NULLABLE
RIGHT_POSTAL_AREA_ID	N(10)	Non-permanent identifier for the postal code on the right side of the link NULLABLE
BRIDGE	CHAR(1)	Is this navigable link or railroad a bridge?
TUNNEL	CHAR(1)	Is this navigable link or railroad a tunnel?
MAP_EDGE_LINK	CHAR(1)	Identifies the outer edge of a link which is located on an RDF database border. NULLABLE

RDF_LINK Keys	
Primary key	LINK_ID
Foreign keys	REF_NODE_ID → RDF_NODE.NODE_ID NONREF_NODE_ID → RDF_NODE.NODE_ID LEFT_ADMIN_PLACE_ID → RDF_ADMIN_PLACE.ADMIN_PLACE_ID RIGHT_ADMIN_PLACE_ID → RDF_ADMIN_PLACE.ADMIN_PLACE_ID LEFT_POSTAL_AREA_ID → RDF_POSTAL_AREA.POSTAL_AREA_ID RIGHT_POSTAL_AREA_ID → RDF_POSTAL_AREA.POSTAL_AREA_ID

12.3.86 RDF_LINK_GEOMETRY

This table stores the full link geometry, including both Nodes and all intermediate shape points. Each coordinate pair results in a new entry in RDF_LINK_GEOMETRY. Coordinate pairs are ordered in the direction of the link (from reference node to non-reference node).

RDF_LINK_GEOMETRY		
Column	Format	Contents
LINK_ID	N(10)	Permanent identifier for the link.
SEQ_NUM	N(10)	0 for the reference node. 999999 for the non-reference node. 1+ for shape points in reference to non-reference order.
LAT	N(10)	Latitude for the coordinate pair of the link (Shape or Node)
LON	N(10)	Longitude for the coordinate pair of the link (Shape or Node).
Z_COORD	N(10)	Absolute Elevation, is NULL for the current RDF release. NULLABLE
ZLEVEL	N(5)	The relative z-coordinate that can be used to derive relative position of a link when crossing other links.

RDF_LINK_GEOMETRY Keys	
Primary key	LINK_ID, SEQ_NUM
Foreign keys	LINK_ID → RDF_LINK
Related Table	RDF_LINK

12.3.87 RDF_LINK_TMC

This table stores Traffic codes (Traffic Message Channel or TMC) per link. A link can be associated with multiple TMC codes.

See *Section C.48, RDF_LINK_TMC* for metadata information.

RDF_LINK_TMC		
Column	Format	Contents
LINK_ID	N(10)	Permanent identifier for the link.
EBU_COUNTRY_CODE	CHAR(1)	The EBU (European Broadcasting Union) code associated with the Location Table from where the TMC code is derived.
LOCATION_TABLE_NR	N(2)	Identification of the Location Table number, as assigned by the Location Table provider.

TMC_PATH_DIRECTION	CHAR(1)	Indicates of direction as defined in the Location Table
LOCATION_CODE	N(10)	Point Location code assigned to link; the code references a Point Code in the Location Table referred to in LOCATION_TABLE_NR column.
ROAD_DIRECTION	CHAR(1)	Identification of TMC-coding direction relative to Direction Of Traffic (one-way) coding.

RDF_LINK_TMC Keys	
Foreign keys	LINK_ID → RDF_NAV_LINK
Related Table	RDF_NAV_LINK

12.3.88 RDF_LINK_TPEG

This table relates the Positive and Negative TPEG IDs to the HERE Korean database.

See Section C.47, *RDF_LINK* for metadata information.

RDF_LINK_TPEG		
Column	Format	Contents
LINK_ID	N(10)	Permanent identifier for the link.
POS_TPEG_ID	N(10)	TPEG ID in the positive direction. NULLABLE
NEG_TPEG_ID	N(10)	TPEG ID in the negative direction. NULLABLE

RDF_LINK_TPEG Keys	
Foreign keys	LINK_ID → RDF_LINK
Related Table	RDF_LINK

12.3.89 RDF_LINK_ZONE

This table defines the Zone coding for a given side of a link. Unlike an admin place or postal area, a given side of a link may have more than one zone associated with it. Therefore, the primary key is a combination of all three columns.

RDF_LINK_ZONE provides a Link-Zone association for Postal Area Zone, formerly known as LL-Zones, in the U.S., U.S. Virgin Islands, and Puerto Rico.

See *Section C.50, RDF_LINK_ZONE* for metadata information.

RDF_LINK_ZONE		
Column	Format	Contents
ZONE_ID	N(10)	Permanent identifier of the zone.
LINK_ID	N(10)	Permanent identifier for the link
SIDE	CHAR(1)	'B' for both, 'L' for left, 'R' for right.

RDF_LINK_ZONE Keys	
Primary key	LINK_ID, ZONE_ID, SIDE
Foreign keys	LINK_ID → RDF_LINK ZONE_ID → RDF_ZONE
Related Table	RDF_LINK RDF_ZONE

12.3.90 RDF_LOCATION

This table stores the location information related to a POI (i.e., A POI may have multiple locations). A Location defines the position of a POI in terms of relevant components defining the position of a POI. A change in one of the Location's components can trigger the relocation of a POI in terms of Latitude and Longitude.

See *Section C.51, RDF_LOCATION* for metadata information.

RDF_LOCATION		
Column	Format	Contents
LOCATION_ID	N(10)	Non-permanent identifier for a Location.
LINK_ID	N(10)	Permanent identifier of the link on which the POI is located. NULLABLE
SIDE	CHAR(1)	Position of the POI relative to the link. 'L' for left, 'R' for right, 'N' for neither. NULLABLE
PERCENT_FROM_REF	N(10)	POI position defined as a percentage distance from the reference node. NULLABLE

RDF_LOCATION		
Column	Format	Contents
HOUSE_NUMBER	VARCHAR(10)	The House Number of the POI associated with street address, e.g., "10600" NULLABLE
HOUSE_NUMBER_FORMAT	CHAR(2)	Format of the POI House Number using same values as RDF_ADDRESS_RANGE.FORMAT.
LAT	N(10)	Latitude for the POI Coordinate NULLABLE
LON	N(10)	Longitude for the POI Coordinate NULLABLE
LOCATION_TYPE	CHAR(3)	Location Type identifies the type of POI position.

RDF_LOCATION Keys	
Primary key	LOCATION_ID
Foreign keys	LINK_ID→RDF_LINK.LINK_ID
Related Table	RDF_POI_ADDRESS RDF_CITY_POI

12.3.91 RDF_META

This table stores all metadata for the RDF database.

See *Section C.52, RDF_META* for metadata information.

RDF_META		
Column	Format	Contents
TABLE_NAME	VARCHAR(30)	Defines RDF Table Name to which the metadata applies. NULLABLE
COLUMN_NAME	VARCHAR(30)	Defines Column Name in the table to which the metadata applies. NULLABLE
REF_ATTRIBUTE_NAME	VARCHAR(100)	The reference attribute name. This distinguishes the correct attribute in key-value mapping tables. NULLABLE
ATTRIBUTE	VARCHAR(100)	Attribute value
ATTRIBUTE_TYPE	CHAR(1)	Attribute format

RDF_META		
Column	Format	Contents
ATTR_DESCRIPTION	VARCHAR(100)	Description of the attribute. NULLABLE
CODE_NAME	VARCHAR(30)	Short Code for the attribute.
CODE_DESCRIPTION	VARCHAR(100)	Full description of the attribute. NULLABLE
LANGUAGE_CODE	CHAR(3)	The language in which ATTR_DESCRIPTION is published.

12.3.92 RDF_META_PREMIUM_FEATURE

RDF_META_PREMIUM_FEATURE		
Column	Format	Contents
PREMIUM_CONTENT_ID	N(5)	Unique Identifier for a component of a Premium Content Package.
PREMIUM_CONTENT_PACKAGE_ID	N(3)	Unique identifier for the premium content package.
REGION	VARCHAR(100)	Geographic region in which premium content package is applicable.
DESCRIPTION	VARCHAR(250)	Textual description of premium content piece defined in this row.

RDF_META_PREMIUM_FEATURE Keys	
Primary key	PREMIUM_CONTENT_ID
Foreign key	PREMIUM_CONTENT_PACKAGE_ID → RDF_META_PREMIUM_PACKAGE.PREMIUM_CONTENT_PACKAGE_ID

12.3.93 RDF_META_PREMIUM_ID

RDF_META_PREMIUM_ID		
Column	Format	Contents
PREMIUM_CONTENT_ID	N(5)	Unique Identifier for the Premium Content Package component
OBJECT_ID	N(10)	Unique identifier of the map feature (object). The Table Name and Column Name in RDF_META_PREMIUM_OBJECT define what type of ID is published in OBJECT_ID

RDF_META_PREMIUM_ID Keys	
Primary key	PREMIUM_CONTENT_ID + OBJECT_ID
Foreign key	PREMIUM_CONTENT_ID → RDF_META_PREMIUM_OBJECT.PREMIUM_CONTENT_ID

12.3.94 RDF_META_PREMIUM_OBJECT

RDF_META_PREMIUM_OBJECT		
Column	Format	Contents
PREMIUM_CONTENT_ID	N(5)	Unique Identifier for the Premium Content Package component
PREMIUM_CONTENT_PACKAGE_ID	N(3)	Unique identifier for the premium content package.
OBJECT_TABLE_NAME	VARCHAR(30)	Defines the table where the Object IDs identifying premium content are stored
OBJECT_COLUMN_NAME	VARCHAR(30)	Defines the column in the table identified by the OBJECT_TABLE_NAME field where Object IDs identifying premium content are stored.

RDF_META_PREMIUM_OBJECT Keys	
Primary key	PREMIUM_CONTENT_ID

Foreign key	PREMIUM_CONTENT_PACKAGE_ID → RDF_META_PREMIUM_PACKAGE.PREMIUM_CONTENT_ PACAKGE_ID
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12.3.95 RDF_META_PREMIUM_PACKAGE

RDF_META_PREMIUM_PACKAGE		
Column	Format	Contents
PREMIUM_CONTENT_PAC KAGE_ID	N(3)	Unique identifier for the premium content package
PREMIUM_CONTENT_PAC KAGE	VARCHAR(50)	Textual description of the premium content package
DESCRIPTION	VARCHAR(250)	Detailed description of the premium content package.

RDF_META_PREMIUM_PACKAGE Keys	
Primary key	PREMIUM_CONTENT_PACKAGE_ID

12.3.96 RDF_META_PREMIUM_RULE

RDF_META_PREMIUM_RULE		
Column	Format	Contents
PREMIUM_CONTENT_ID	N(5)	Unique Identifier for the Premium Content Package component
SEQ_NUM	N(1)	Sequence Number of the Rule within a Premium Content Package component. Offset used is '1'.
TABLE_NAME	VARCHAR(30)	Defines the table where premium content is stored
COLUMN_NAME	VARCHAR(30)	Defines the column in TABLE_NAME where premium content is stored
VALUE	VARCHAR(100)	Value, as published in the column defined by field COLUMN_NAME, that identifies premium content

RDF_META_PREMIUM_RULE Keys	
Primary key	PREMIUM_CONTENT_ID + SEQ_NUM

Foreign key	PREMIUM_CONTENT_ID → RDF_META_PREMIUM_FEATURE.PREMIUM_CONTENT_ID
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12.3.97 RDF_META_PREMIUM_SUPPRESS

RDF_META_PREMIUM_SUPPRESS		
Column	Format	Contents
PREMIUM_CONTENT_ID	N(5)	Unique identifier for the premium content package
SEQ_NUM	N(1)	Sequence Number increased for each Suppress criteria within one Premium Content ID.
TABLE_NAME	VARCHAR(30)	Name of the RDF Table in which the premium content is published (e.g., RDF_NAV_LINK, RDF_BUILDING).
COLUMN_NAME	VARCHAR(30)	Column Name of the RDF Table in which the premium content is published (e.g., SCENIC_ROUTE, FOUR_WHEEL_DRIVE). NULLABLE
TYPE	CHAR(1)	Indicates if this the Premium Content ID relates to RDF_META_PREMIUM_FEATURE or to RDF_META_PREMIUM_ID table. Values: R – Rule based (Premium Content ID published in RDF_META_PREMIUM_FEATURE) O – Object ID based (Premium Content ID published in RDF_META_PREMIUM_ID)

RDF_META_PREMIUM_SUPPRESS Keys	
Primary key	PREMIUM_CONTENT_ID + SEQ_NUM
Pseudo foreign key:	PREMIUM_CONTENT_ID → RDF_META_PREMIUM_FEATURE.PREMIUM_CONTENT_ID PREMIUM_CONTENT_ID → RDF_META_PREMIUM_OBJECT.PREMIUM_CONTENT_ID

12.3.98 RDF_META_PREPOSITION

See Section C.53, *RDF_META_PREPOSITION* for metadata information.

RDF_META_PREPOSITION		
Column	Format	Contents
PREPOSITION_CODE	VARCHAR(10)	Unique identifier for the preposition

PREPOSITION	VARCHAR(100)	Textual string for the preposition in the defined language
POSITION	N(1)	Defines location of Preposition in relation to the Name of the association.
LANGUAGE_CODE	CHAR(3)	Language Code of the Preposition.

RDF_META_PREPOSITION Keys	
Primary key	PREPOSITION_CODE

12.3.99 RDF_META_TRANS

This is the transliteration table for the metadata.

RDF_META_TRANS		
Column	Format	Contents
TABLE_NAME	VARCHAR(30)	Defines RDF Table Name to which the metadata applies.
COLUMN_NAME	VARCHAR(30)	Defines Column Name in the table to which the metadata applies.
ATTRIBUTE	VARCHAR(100)	Attribute value.
REF_ATTRIBUTE_NAME	VARCHAR(100)	The reference attribute name. This distinguishes the correct attribute in key-value mapping tables. NULLABLE
LANGUAGE_CODE	CHAR(3)	The Language Code for the selected language.
TRANSLITERATION_TYPE	CHAR(3)	The type of the transliteration (e.g., RUX for Russian Transliterated)
TRANSLITERATION	VARCHAR(250)	The representation of Name in the Latin-1 alphabet. NULLABLE

RDF_META_TRANS Keys	
Primary key	TABLE_NAME, COLUMN_NAME, ATTRIBUTE, LANGUAGE_CODE, TRANSLITERATION_TYPE
Related Table	RDF_META

12.3.100 RDF_NAV_LINK

See *Section C.54, RDF_NAV_LINK* for metadata information.

RDF_NAV_LINK

RDF_NAV_LINK		
Column	Format	Contents
LINK_ID	N(10)	Unique identifier for the navigable link. Foreign key into RDF_LINK.
ISO_COUNTRY_CODE	CHAR(3)	ISO Country Code identifies the country in which the navigable link is located.
ACCESS_ID	N(5)	ID into RDF_ACCESS to identify the Access Characteristics of the navigable link.
STATUS_ID	N(5)	ID into RDF_NAV_LINK_STATUS to identify the status attributes related to the navigable link.
FUNCTIONAL_CLASS	N(1)	Identifies the hierarchical classification of the road network.
CONTROLLED_ACCESS	CHAR(1)	Identifies roads with limited entrances and exits that allow uninterrupted high speed traffic flow.
TRAVEL_DIRECTION	CHAR(1)	Identifies in which direction the traffic is allowed on a navigable link
BOAT_FERRY	CHAR(1)	The link represents a generalised route of a ferry for passengers or vehicles over water.
RAIL_FERRY	CHAR(1)	The link represents a generalised route of a ferry for passengers or vehicles via rail.
MULTI_DIGITIZED	CHAR(1)	Indicates if the navigable link is part of a road network where each driving direction is separately digitised.
DIVIDER	CHAR(1)	Identifies the presence of a legal or physical divider preventing specific manoeuvres.
DIVIDER_LEGAL	CHAR(1)	Indicates if the divider is a Legal or Physical divider.
FRONTAGE	CHAR(1)	Indication if the navigable link is a frontage road. Frontage roads are local roads that run parallel to and usually contain the name(s) and addresses of a road with a higher traffic flow.
PAVED	CHAR(1)	Indication if the navigable link is paved.
RAMP	CHAR(1)	Indication if the navigable link represents a Ramp. Ramps are connectors that provide access between roads that do not cross at grade.
PRIVATE	CHAR(1)	Identifies roads not maintained by an organization responsible for maintenance of public roads.
TOLLWAY	CHAR(1)	This attribute identifies a navigable link for which a fee must be paid to use the road.

RDF_NAV_LINK (*Continued*)

RDF_NAV_LINK		
Column	Format	Contents
POI_ACCESS	CHAR(1)	Indication if a navigable link is a POI Access Road. POI Access Roads connect Points of Interest (POIs) to the road network. These roads provide the only means of entrance or exit from a POI to a public road.
INTERSECTION_CATEGORY	N(1)	Identifies the type of intersection the navigable link is NULLABLE
SPEED_CATEGORY	N(1)	Classifies the general speed trend of a navigable link based on posted or legal speed
LANE_CATEGORY	N(1)	Classifies a navigable link based on the number of lanes in each travel direction.
COVERAGE_INDICATOR	CHAR(2)	Indicates a product level corresponding to the inclusion of database features, verification and completeness for a particular feature in the database. NULLABLE
FROM_REF_NUM_LANES	N(2)	Number of Lanes in the positive direction of the navigable link (From the Reference Node). NULLABLE
TO_REF_NUM_LANES	N(2)	Number of Lanes in the negative direction of the navigable link (Towards Reference Node). NULLABLE
PHYSICAL_NUM_LANES	N(3)	Indicates the total number of lanes of a navigable link covering both driving directions. NULLABLE
FROM_REF_SPEED_LIMIT	N(3)	Speed limit in the positive direction of the navigable link (From the Reference Node). NULLABLE
TO_REF_SPEED_LIMIT	N(3)	Speed limit in the negative direction of the navigable link (Towards the Reference Node). NULLABLE
SPEED_LIMIT_SOURCE	CHAR(2)	Speed Limit Source is a generalised identification of the source of the From/To Speed Limit information NULLABLE
LOW_MOBILITY	N(1)	Indication if the navigable link is a Low Mobility link.
PUBLIC_ACCESS	CHAR(1)	Indication if the navigable link is accessible to general public.
GRADE_CATEGORY	N(1)	Indication of the grade along a stretch of road. NULLABLE

RDF_NAV_LINK (Continued)

RDF_NAV_LINK		
Column	Format	Contents
CONFIDENCE_LEVEL_RATING	CHAR(1)	Indication of trust in the source. NULLABLE
PEDESTRIAN_PREFERRED	CHAR(1)	Indication whether a link is appropriate for pedestrian navigation. NULLABLE
LIMITED_ACCESS_ROAD	CHAR(1)	Identifies roads that feel and function as a Controlled Access road (i.e., they are multiply digitised, high speed roads where traffic is controlled via ramps) and are published as Controlled Access.
ROAD_CLASS	N(2)	Identification of the road network based on governmental classification. NULLABLE
OVERPASS_UNDERPASS	N(1)	Indicates when a road goes over/under another road. NULLABLE

RDF_NAV_LINK Keys	
Primary key	LINK_ID
Foreign key	LINK_ID → RDF_LINK.LINK_ID ACCESS_ID → RDF_ACCESS.ACCESS_ID STATUS_ID → RDF_NAV_LINK_STATUS.STATUS_ID

12.3.101 RDF_NAV_LINK_ATTRIBUTE

See Section C.55, *RDF_NAV_LINK_ATTRIBUTE* for metadata information.

RDF_NAV_LINK_ATTRIBUTE

RDF_NAV_LINK_ATTRIBUTE		
Column	Type	Contents
LINK_ID	N(10)	Permanent identifier for the link
FOUR_WHEEL_DRIVE	CHAR(1)	Indicates roads which are only suitable for vehicles with four-wheel drive NULLABLE
SCENIC_ROUTE	CHAR(1)	Indicates if a road is offering scenic views in terms of natural landscapes NULLABLE

RDF_NAV_LINK_ATTRIBUTE (*Continued*)

RDF_NAV_LINK_ATTRIBUTE		
Column	Type	Contents
PARKING_LOT_ROAD	CHAR(1)	Indication if a link is internal to a parking lot area. NULLABLE
PRIORITY_ROAD	CHAR(1)	Defines road stretches that have signs indicating priority on the road. On these roads all traffic has priority over the traffic on the incoming roads. NULLABLE
CARPOOL_ROAD	CHAR(1)	Identifies a link where, at specific times, all lanes serve as Carpool lane. NULLABLE
REVERSIBLE	CHAR(1)	Indicates that a link is fully reversible, which implies that traffic changes direction for a specific time frame. NULLABLE
EXPRESS_LANE	CHAR(1)	Indication if the link serves as an Express Lane. NULLABLE
TRANSITION_AREA	CHAR(1)	Defines a stretch of road where the number of lanes changes and lane markings are not present on the road surface. NULLABLE
SUPPLEMENTAL_GEO_BIT_SET	N(10)	Identifies geometry types included for special or limited use. NULLABLE
EXPANDED_INCLUSION	N(1)	Identifies links that meet the expanded inclusion criteria. NULLABLE
DELIVERY_ROAD	CHAR(1)	Indicates if a link is dedicated to accessing the loading/unloading area of a business POI. NULLABLE
STAIRS_TRAVERSAL	CHAR(1)	Identifies whether stairs exist on a pedestrian suitable route. NULLABLE
SURFACE_TYPE	N(2)	Indicates the surface material of a bicycle path or trail. NULLABLE
BICYCLE_ACCESS	CHAR(1)	Indicates if a link is designated for bicycle traversal. NULLABLE
BICYCLE_PROTECTION_TYPE	N(1)	Describes the physical road characteristics for bicycles and how this protects them from regular traffic on a road link. NULLABLE

RDF_NAV_LINK_ATTRIBUTE (Continued)

RDF_NAV_LINK_ATTRIBUTE		
Column	Type	Contents
BICYCLE_TRAVEL_DIR_OVERRIDE	CHAR(1)	Identifies the permitted direction of travel for bicycles when different from the road link's direction of travel. NULLABLE
GENERALISED_BICYCLE_PATH	CHAR(1)	Describes a separated bicycle path that is not part of the main road geometry. NULLABLE
TRUCK_ROAD_TYPE	N(2)	Identifies the truck road type. NULLABLE

RDF_NAV_LINK_ATTRIBUTE Keys	
Primary key	LINK_ID
Foreign key	LINK_ID → RDF_NAV_LINKLINK.ID

12.3.102 RDF_NAV_LINK_STATUS

RDF_NAV_LINK_STATUS		
Column	Type	Contents
STATUS_ID	N(5)	Unique ID for the status table entry.
IS_ALIGNED	CHAR(1)	Indicates if a link is aligned at a product boundary
STUB_LINK	CHAR(1)	Identifies navigable links that intersect the included long haul navigable network.
LONG_HAUL_NAV	CHAR(1)	Indicates that navigable link is part of a Long Haul product.
FULL_GEOMETRY	CHAR(1)	Identifies that a link has the complete geometry of the road network surrounding it.
IN_PROCESS_DATA	CHAR(1)	Identifies that a link is included prior to completion to full specification.
URBAN	CHAR(1)	Indicates if the link is located within the Built-up Area.
TRANSPORT_VERIFIED	CHAR(1)	Indicates if the link has been verified for the attribution as defined in the Trucks product specification
DETAILED_CITY	CHAR(1)	Specifies whether a link is part of a Prime coverage area.

RDF_NAV_LINK_STATUS Keys	
Primary key	STATUS_ID

12.3.103 RDF_NAV_STRAND

A NavStrand defines an ordered sequence of links and a node. NavStrands are used to define the links and nodes for a condition. A NavStrand is a contiguous, connected, sequence of navigable links presenting a route fragment. Single-link NavStrands are possible for modelling single link conditions. Each Condition references one NavStrand.

The NavStrand entity has no table of its own. A NavStrand consists of a sequence of rows with a common NAV_STRAND_ID.

RDF_NAV_STRAND		
Column	Format	Contents
NAV_STRAND_ID	N(10)	Permanent identifier of NavStrand (sequence of links).
SEQ_NUM	N(10))	Position of link in strand.
LINK_ID	N(10)	Permanent identifier of link.
NODE_ID	N(10)	Permanent identifier of the intermediate node in the condition connecting the first link to the second link in a NavStrand. Subsequent links in a strand do not have an associated node ID. Associated node IDs are relevant for identifying the side of a link to which a U-turn applies. NULLABLE

RDF_NAV_STRAND Keys	
Primary key	NAV_STRAND_ID, LINK_ID, SEQ_NUM
Foreign keys	LINK_ID → RDF_LINK.LINK_ID NODE_ID → RDF_NODE.NODE_ID

12.3.104 RDF_NODE

Stores all Nodes in the map, both nodes in the navigable network as well as nodes in the non-navigable network.

RDF_NODE		
Column	Format	Contents
NODE_ID	N(10)	Permanent identifier of the node
LAT	N(10)	The latitude defined in 0.00001 degree precision.
LON	N(10)	The longitude defined in 0.00001 degree precision.
Z_COORD	N(10)	The absolute elevation for a node. NULLABLE
ZLEVEL	N(5)	The relative elevation of a Node. Values not equal to '0' are used to model situations where links do not cross at the same level.
IS_ALIGNED	CHAR(1)	This field identifies Nodes that are located at sub-area product boundaries.

RDF_NODE Keys	
Primary key	NODE_ID
Related Table	RDF_LINK

12.3.105 RDF_ORDER_LEVEL

This table provides a mapping of administrative levels to GDF administrative order levels. Level 1 is mapped to its respective GDF ordering (1=order 0).

RDF_ORDER_LEVEL		
Column	Format	Contents
COUNTRY_ID	N(10)	Permanent identifier Reference to country ID.
ADMIN_LEVEL	N(1)	Administrative level (1, 2, 3, 4, 5).
ADMIN_ORDER	N(1)	Administrative order (0, 1, 2, 8, 9).
ADMIN_TYPE	N(4)	Feature type.

RDF_ORDER_LEVEL Keys	
Primary key	COUNTRY_ID, ADMIN_LEVEL

Foreign keys	COUNTRY_ID → RDF_COUNTRY
Related Table	RDF_COUNTRY

12.3.106 RDF_PLACE_POSTAL

This table associates postal areas to admin places. Each distinct combination of Postal Code and Admin Place results in an entry in the RDF_PLACE_POSTAL table. The association is only provided for the lowest administrative level covered by a postal code area.

RDF_PLACE_POSTAL		
Column	Format	Contents
ADMIN_PLACE_ID	N(10)	Permanent identifier identifying an Administrative Area to which a Postal Code is associated. Reference to RDF_ADMIN_PLACE.
POSTAL_AREA_ID	N(10)	Non-permanent identifier of a Postal Code associated with a given administrative area.

RDF_PLACE_POSTAL Keys	
Primary key	ADMIN_PLACE_ID, POSTAL_AREA_ID
Foreign keys	ADMIN_PLACE_ID → RDF_ADMIN_PLACE POSTAL_AREA_ID → RDF_POSTAL_AREA

12.3.107 RDF_PLACE_ZONE

This table relates zones to admin places. Each distinct combination of Zone and Admin Place results in an entry in RDF_PLACE_ZONE. The association is only provided for the lowest administrative level covered by a zone.

RDF_PLACE_ZONE		
Column	Format	Contents
ADMIN_PLACE_ID	N(10)	Permanent identifier of an Administrative Area to which a Zone is associated.
ZONE_ID	N(10)	Permanent identifier of a Zone associated with a given Administrative area.

RDF_PLACE_ZONE Keys	
Primary key	ADMIN_PLACE_ID, ZONE_ID

Foreign keys	ADMIN_PLACE_ID → RDF_ADMIN_PLACE ZONE_ID → RDF_ZONE
Related Table	RDF_ADMIN_PLACE RDF_ZONE

12.3.108 RDF_POI

Stores all Points of Interest (POIs), except Named Place POIs.

See Section C.57, *RDF_POI* for metadata information.

RDF_POI		
Column	Format	Contents
POI_ID	N(10)	A permanent identifier that is unique across all published POIs.
CAT_ID	N(10)	Category ID
NATIONAL_IMPORTANCE	CHAR(1)	Indicates if POI is of national importance.
PRIVATE_ACCESS	CHAR(1)	Indicates if POI is privately accessible.
LONG_HAUL	CHAR(1)	Indicates if the POI is included in a Long Haul product.
DISPLAY_LAT	N(10)	Publishes the Latitude of the actual POI Location (also known as Display Location) Published as an integer, 5 digit accuracy degrees (e.g., 412345 is 4,12345 degrees, or -345 is -0,00345 degrees) NULLABLE
DISPLAY_LON	N(10)	Publishes the Longitude of the actual POI Location (also known as Display Location). Published as an integer, 5 digit accuracy degrees (e.g., 4812345 is 48,12345 degrees, or -1200353 is -12,00353 degrees) NULLABLE
IN_VICINITY	CHAR(1)	Identifies whether a POI has been associated with road representing its true location, or on a road nearby due to Inter-Town road inclusion levels. Values Y / N.
ENTRANCE_TYPE	CHAR(1)	Identifies the type of entrance for the POI. Values: 1 - Preferred Entrance If not applicable, the field is empty (NULL). NULLABLE
LOCATION_SCORE	N(3)	NULLABLE
PLACE_SCORE	N(3)	NULLABLE
CALCULATED_LEVEL	CHAR(1)	NULLABLE

RDF_POI Keys	
Primary key	POI_ID

12.3.109 RDF_POI_ADDRESS

This table stores the Address information related to a POI. The table contains the address used to geocode (locate on the map) the POI. A POI is associated with one or more LOCATION_IDs, which refers to a distinct location in the map. The actual address for a POI provides the actual address information parsed into distinct single components and is provided by the ACTUAL_ fields.

POI-Street Name Association

See *Section 12.3.118, RDF_POI_NAME*.

See *Section C.58, RDF_POI_ADDRESS* for metadata information.

RDF_POI_ADDRESS		
Column	Format	Contents
POI_ID	N(10)	A permanent identifier that is unique across all POIs.
LOCATION_ID	N(10)	Non-permanent identifier of the Location
HOUSE_NUMBER	VARCHAR(10)	The House Number of the POI associated with street address, e.g., "10600" NULLABLE
STREET_NAME	VARCHAR(200)	The full street address without the house number (e.g., "W HIGGINS RD"). NULLABLE
ISO_COUNTRY_CODE	CHAR(3)	The ISO country code for the link where the POI is located. NULLABLE
COUNTRY_ID	N(10)	The permanent identifier for the Country ID of the side of the link where the POI is located. NULLABLE
ORDER1_ID	N(10)	The permanent identifier for the Order1 ID of the side of the link where the POI is located. NULLABLE
ORDER2_ID	N(10)	The permanent identifier for the Order2 ID of the side of the link where the POI is located. NULLABLE
ORDER8_ID	N(10)	The permanent identifier for the Order8 ID of the side of the link where the POI is located. NULLABLE

BUILTUP_ID	N(10)	The permanent identifier for the BUILTUP_ID of the side of the link where the POI is located. NULLABLE
POSTAL_CODE	VARCHAR(15)	The Postal code (e.g., "60018") of the link where the POI is located. NULLABLE
ACTUAL_ADDRESS	VARCHAR(800)	The complete address for the POI. With the actual address street name, house number, named place, and postal code now present, this field allows for backward compatibility. NULLABLE
LANGUAGE_CODE	CHAR(3)	The Language Code of ACTUAL_ADDRESS.
ACTUAL_STREET_NAME	VARCHAR(75)	The Actual Street Name of the POI parsed from ACTUAL_ADDRESS. NULLABLE
ACTUAL_HOUSE_NUMBER	VARCHAR(10)	The Actual House Number for the POI parsed from ACTUAL_ADDRESS. NULLABLE
ACTUAL_NAMED_PLACE	VARCHAR(50)	The Actual Named Place of the POI parsed from ACTUAL_ADDRESS. NULLABLE
ACTUAL_POSTAL_CODE	VARCHAR(15)	The Actual Postal Code of the POI parsed from ACTUAL_ADDRESS. NULLABLE
FULL_HOUSE_NUMBER	VARCHAR(35)	Identifies the complete house number for the POI. NULLABLE

RDF_POI_ADDRESS Keys	
Primary key	POI_ID, LANGUAGE_CODE
Foreign keys	POI_ID → RDF_POI LOCATION_ID → RDF_LOCATION
Related Table	RDF_POI RDF_LOCATION

12.3.110 RDF_POI_ADDRESS_TRANS

This table provides Street Name and Actual Address transliterations for POIs published in RDF_POI_ADDRESS.

RDF_POI_ADDRESS_TRANS		
Column	Format	Contents

POI_ID	N(10)	A permanent identifier that is unique across all published POIs.
TRANSLITERATION_TYPE	CHAR(3)	Transliteration type of RDF_POI_ADDRESS.STREET_NAME, RDF_POI_ADDRESS.ACTUAL_ADDRESS, and FULL_HOUSE_NUMBER.
STREET_NAME	VARCHAR(200)	Transliteration of RDF_POI_ADDRESS.STREET_NAME. NULLABLE
ACTUAL_ADDRESS	VARCHAR(800)	Transliteration of RDF_POI_ADDRESS.ACTUAL_ADDRESS NULLABLE
ACTUAL_STREET_NAME	VARCHAR(800)	Transliteration of RDF_POI_ADDRESS.ACTUAL_STREET_NAME. NULLABLE
ACTUAL_HOUSE_NUMBER	VARCHAR(50)	Transliteration of RDF_POI_ADDRESS.ACTUAL_HOUSE_NUMBER. NULLABLE
ACTUAL_NAMED_PLACE	VARCHAR(200)	Transliteration of RDF_POI_ADDRESS.ACTUAL_NAMED_PLACE. NULLABLE
ACTUAL_POSTAL_CODE	VARCHAR(50)	Transliteration of RDF_POI_ADDRESS.ACTUAL_POSTAL_CODE. NULLABLE
FULL_HOUSE_NUMBER	VARCHAR(120)	Transliteration of RDF_POI_ADDRESS.FULL_HOUSE_NUMBER.

12.3.111 RDF_POI_AIRPORT

RDF_POI_AIRPORT		
Column	Type	Contents
POI_ID	N(10)	Permanent identifier for the Airport POI
AIRPORT_TYPE	N(1)	Indicates the type of Airport.

RDF_POI_AIRPORT Keys	
Primary key	POI_ID
Foreign key	POI_ID → RDF_POI.POI_ID

12.3.112 RDF_POI_ASSOCIATION

See Section C.60, RDF_POI_ASSOCIATION for metadata information.

RDF_POI_ASSOCIATION		
Column	Format	Contents
ASSOCIATION_ID	N(10)	Unique identifier of the POI association
POI_ID	N(10)	A permanent identifier that is unique across all published POIs.
PRIMARY_POI_ID	N(10)	Unique identifier of the primary POI in the association
ASSOCIATION_TYPE	CHAR(1)	Defines how a POI is related to the association

RDF_POI_ASSOCIATION Keys	
Primary key	ASSOCIATION_ID, POI_ID, PRIMARY_POI_ID, ASSOCIATION_TYPE
Foreign key	POI_ID, PRIMARY_POI_ID → RDF_POI.POI_ID

12.3.113 RDF_POI_BICYCLE

RDF_POI_BICYCLE		
Column	Format	Contents
POI_ID	N(10)	A permanent identifier that is unique across all published POIs.
BICYCLE_SERVICE	N(10)	Identifies bicycle specific services at the POI facility.

RDF_POI_CHAINS Keys	
Primary key	POI_ID, CHAIN_ID
Foreign keys	POI_ID → RDF_POI.POI_ID

12.3.114 RDF_POI_CHAINS

This table identifies a distinct association between a POI_ID and its Chain(s). A single POI can be associated with multiple Chains.

RDF_POI_CHAINS		
Column	Format	Contents

POI_ID	N(10)	A permanent identifier that is unique across all published POIs.
CHAIN_ID	N(10)	Chain ID.
CHAIN_TYPE	CHAR(2)	Associates multiple Chain IDs to a POI

RDF_POI_CHAINS Keys	
Primary key	POI_ID, CHAIN_ID
Foreign keys	POI_ID → RDF_POI.POI_ID CHAIN_ID → RDF_CHAIN.CHAIN_ID
Related Table	RDF_CHAIN, RDF_CHAIN_NAME, RDF_POI

12.3.115 RDF_POI_CHILDREN

This table defines relations between POIs. POI-association is referred to as a parent – child relationship. Note that most POIs are not associated with other POIs. Therefore, only a limited set of POIs appears in this table (e.g., Hotel or Airport).

See *Section C.68, RDF_POI_CHILDREN* for metadata information.

RDF_POI_CHILDREN		
Column	Format	Contents
POI_ID	N(10)	A permanent identifier that is unique across all published POIs.
CHILD_POI_ID	N(10)	The ID of the Child POI in the Parent-Child association.
ASSOCIATION_TYPE	CHAR(1)	Association type ID.

RDF_POI_CHILDREN Keys	
Primary key	POI_ID, CHILD_POI_ID, ASSOCIATION_TYPE

12.3.116 RDF_POI_CONTACT_INFORMATION

See *Section C.69, RDF_POI_CONTACT_INFORMATION* for metadata information.

RDF_POI_CONTACT_INFORMATION		
Column	Format	Contents
POI_ID	N(10)	Permanent identifier for the POI

SEQ_NUM	N(2)	Sequence Number, reset for each POI ID, increased for each contact for a POI.
CONTACT_TYPE	CHAR(1)	The POI contact type
CONTACT	VARCHAR(200)	The POI contact information
PREFERRED	CHAR(1)	Indication per contact type if the contact is preferred (Y) or non-preferred (N) for a POI.
PHONE_AREA_CODE	VARCHAR(6)	The phone number area code NULLABLE
PHONE_LOCAL_NUMBER	VARCHAR(15)	The local phone number NULLABLE
E164_PHONE_NUMBER	VARCHAR2(15)	The phone number in this format: +[country code][area code][local number] NULLABLE

RDF_POI_CONTACT_INFORMATION Keys	
Primary key	POI_ID, SEQ_NUM
Foreign key	POI_ID → RDF_POI.POI_ID

12.3.117 RDF_POI_FEATURE

RDF_POI_FEATURE defines a relationship between a POI and a Feature. A Feature can represent various entities in the RDF database. The OWNER field identifies to which Feature the POI is associated.

The association of a POI to a Grouped Structure is enabled via a table RDF_POI_FEATURE. Table RDF_POI_FEATURE is generic in design; FEATURE_ID is used to publish the Grouped Structure with which the POI is associated (OWNER = V). The field POI_ID is the POI associated with a Grouped Structure.

RDF_POI_FEATURE		
Column	Format	Contents
POI_ID	N(10)	A permanent identifier that is unique across all published POIs.
FEATURE_ID	N(10)	Combined key referencing a Feature to which the POI is associated. If OWNER = C or V, then FEATURE_ID is a permanent identifier
ASSOCIATION_TYPE	CHAR(1)	This defines how the POI and Carto features are associated.
PREFERRED	CHAR(1)	This defines whether the POI is the preferred POI to be used for a given Feature. This value has relevance in cases where multiple POIs are associated with a single Feature.

OWNER	CHAR(1)	Defines the type of Feature with which the POI is associated
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RDF_POI_FEATURE Keys	
Primary key	POI_ID, FEATURE_ID
Foreign keys	POI_ID → RDF.POI.POI_ID FEATURE_ID → RDF_CF.CF_ID
Related Table	RDF_POI, RDF_CARTO

12.3.118 RDF_POI_NAME

This table defines unique names associated with POIs. Names can be re-used between POIs. This table does not list names of Named Place POIs.

POI-Street Name Association

There are cases where a POI has a name in more than one language, but the corresponding Street Name exists in only one language, or is the same in all languages. In this case, the POI name has multiple entries in the RDF_POI_NAME table with each relevant language, but the Street Name is published only once in the RDF_POI_ADDRESS table with the country's default Language Code. If, for example, there is no RDF_POI_ADDRESS record for a POI with the ENG Language Code, then the POI name entry in the RDF_POI_NAME table can use the ARA entry in the RDF_POI_ADDRESS table for address information.

Note: Although this representation allows for multiple names and addresses in a single POI instead of duplicating POIs for bilingual countries, this is implemented only in countries with ARA Language Code.

See *Section C.72, RDF_POI_NAME* for metadata information.

RDF_POI_NAME		
Column	Format	Contents
NAME_ID	N(10)	Permanent identifier of the Name associated with a POI.
LANGUAGE_CODE	CHAR(3)	Language Code of the Name. NULLABLE
NAME	VARCHAR(250)	Name of the POI. NULLABLE
SHORT_NAME	VARCHAR(35)	Abbreviated name for a POI with NAME greater than 35 characters. NULLABLE

RDF_POI_NAME Keys	
Primary key	NAME_ID

Related Table	RDF_POI, RDF_POI_NAMES
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12.3.119 RDF_POI_NAME_TRANS

This is the transliteration table for the POI name.

See *Section C.73, RDF_POI_NAME_TRANS* for metadata information.

RDF_POI_NAME_TRANS		
Column	Format	Contents
NAME_ID	N(10)	Permanent identifier for the Name associated with a POI. FK to RDF_POI_NAME.
TRANSLITERATION_TYPE	CHAR(3)	The type of the transliteration (e.g., RUX for Russian Transliterated)
NAME	VARCHAR(250)	The representation of Name in the Latin-1 alphabet.
SHORT_NAME	VARCHAR(250)	The transliteration for the abbreviated name published in RDF_POI_NAME.SHORT_NAME. NULLABLE

RDF_POI_NAME_TRANS Keys	
Primary key	NAME_ID, TRANSLITERATION_TYPE
Foreign key	NAME_ID→RDF_POI_NAME.NAME_ID
Related Table	RDF_POI_NAME

12.3.120 RDF_POI NAMES

This table contains the association of a POI and its names. A POI can have multiple names. IS_EXONYM = N is published for at least one name for a POI; this name is the preferred name.

See *Section C.74, RDF_POI NAMES* for metadata information.

RDF_POI NAMES		
Column	Format	Contents
POI_ID	N(10)	A permanent identifier that is unique across all published POIs.
NAME_ID	N(10)	Permanent identifier of the POI Name.
NAME_TYPE	CHAR(1)	Type of name
IS_EXONYM	CHAR(1)	Indicates if name represents an exonym for a given POI.

RDF_POI_NAMES Keys	
Primary key	POI_ID, NAME_ID
Foreign keys	POI_ID → RDF_POI NAME_ID → RDF_POI_NAME
Related Table	RDF_POI, RDF_POI_NAME

12.3.121 RDF_POI_PETROL_STATION

RDF_POI_PETROL_STATION		
Column	Type	Contents
POI_ID	N(10)	Permanent identifier for the Petrol Station POI
HOUR_24_INDICATOR	CHAR(1)	Indicates if the Petrol Station is open 24 hours per day. NULLABLE
DIESEL	CHAR(1)	Indication is the Petrol Station sells Diesel fuel. NULLABLE

RDF_POI_PETROL_STATION Keys	
Primary key	POI_ID
Foreign key	POI_ID → RDF_POI.POI_ID

12.3.122 RDF_POI_PLACE_OF_WORSHIP

RDF_POI_PLACE_OF_WORSHIP		
Column	Type	Contents
POI_ID	N(10)	Permanent identifier for the Place of Worship POI
BUILDING_TYPE	N(1)	Indicates the type of Place of Worship POI.

RDF_POI_PLACE_OF_WORSHIP Keys	
Primary key	POI_ID
Foreign key	POI_ID → RDF_POI.POI_ID

12.3.123 RDF_POI_REST_AREA

RDF_POI_REST_AREA		
Column	Type	Contents
POI_ID	N(10)	Permanent identifier for the Rest Area POI
REST_AREA_TYPE	N(1)	Indicates the type of Rest Area.

RDF_POI_REST_AREA Keys	
Primary key	POI_ID
Foreign key	POI_ID → RDF_POI.POI_ID

12.3.124 RDF_POI_RESTAURANT

RDF_POI_RESTAURANT		
Column	Type	Contents
POI_ID	N(10)	Permanent identifier for the Restaurant POI
CUISINE_ID	N(5)	Defines the preferred Cuisine Type for the Restaurant. NULLABLE
ALTERNATE_CUISINE_ID	N(5)	Defines an alternate, non-preferred Cuisine Type for the Restaurant. NULLABLE
REGIONAL_CUISINE_ID	N(5)	Defines a regional type of food, as associated with the preferred Cuisine Type of the Restaurant. NULLABLE
RESTAURANT_TYPE	N(2)	Defines a type of Facility for a Restaurant. NULLABLE

RDF_POI_RESTAURANT Keys	
Primary key	POI_ID
Foreign key	POI_ID → RDF_POI.POI_ID

12.3.125 RDF_POI_SUBCATEGORY

See Section 9.7.27, *Subcategory (SUBCATEGORY)* for attribute specification.

See Section C.66, *RDF_POI_SUBCATEGORY* for metadata information.

RDF_POI_SUBCATEGORY		
Column	Type	Contents
POI_ID	N(10)	Permanent identifier for the POI
SEQ_NUM	N(1)	Sequence Number which is increased for each Subcategory for one POI. Offset = 1.
SUBCATEGORY	N(4)	Indicates the attribute type associated with the Point of Interest and provides additional classification information for explication and display.

RDF_POI_SUBCATEGORY Keys	
Primary key	POI_ID, SEQ_NUM

12.3.126 RDF_POI_VANITY_CITY

This table lists the Vanity City coding for all types of POIs, including Named Place POIs. The POI ID could represent a regular POI or a Named Place POI.

RDF_POI_VANITY_CITY		
Column	Format	Contents
POI_ID	N(10)	A permanent identifier that is unique across all POIs.
VANITY_CITY_ID	N(10)	Permanent identifier of the Admin Place ID representing the Vanity City coding for the POI.
FEATURE_TYPE	N(10)	Identifies the type of POI to which the Vanity City applies.

12.3.127 RDF_POSTAL_AREA

This table stores a postal area. It requires postal code text (e.g., 60654) and an associated Country.

A Named Place POI is included for each POSTAL AREA (exceptions are Postal Areas, such as O'Hare Airport, which have an airport POI).

A link references a left and right-side postal area.

RDF_POSTAL_AREA		
Column	Format	Contents
POSTAL_AREA_ID	N(10)	Non-permanent identifier of the Postal Area.

POSTAL_CODE	VARCHAR(15)	Full postal code; could be numeric or alphanumeric postal code. NULLABLE
COUNTRY_ID	N(10)	The permanent identifier of country for this postal code. NULLABLE

RDF_POSTAL_AREA Keys	
Primary key	POSTAL_AREA_ID
Foreign keys	COUNTRY_ID → RDF_COUNTRY
Related Table	RDF_LINK RDF_ADMIN_PLACE RDF_COUNTRY RDF_ZONE

12.3.128 RDF_POSTAL_CODE_MIDPOINT

See *Section C.75, RDF_POSTAL_CODE_MIDPOINT* for metadata information

RDF_POSTAL_CODE_MIDPOINT		
Column	Format	Contents
LINK_ID	N(10)	The link ID with which the full postal code is associated.
FULL_POSTAL_CODE	VARCHAR(15)	Full string for the Postal Code
LAT	N(10)	Defines the Latitude for the position of the Postal Code Point
LON	N(10)	Defines the Longitude for the position of the Postal Code Point
GEO_LEVEL	N(1)	Indication what the Postal Code Point represents.
ISO_COUNTRY_CODE	CHAR(3)	3-letter Country Code in which the Postal Code Midpoint is located. NULLABLE

12.3.129 RDF_ROAD_LINK

The RDF_ROAD_LINK table has an entry for each navigable link. A ROAD_LINK is defined as a distinct combination of road name and address range information for a link. A Road Link references shared Road Name values in RDF_ROAD_NAME and left and right Address Range values in RDF_ADDRESS_RANGE.

See *Section C.76, RDF_ROAD_LINK* for metadata information.

RDF_ROAD_LINK		
Column	Format	Contents
ROAD_LINK_ID	N(10)	Identifier of the road link.
ROAD_NAME_ID	N(10)	Identifier of the road name. NULLABLE - NULL is used for unresearched and valid unnamed links.
LEFT_ADDRESS_RANGE_ID	N(10)	Non-permanent identifier of the left address range. Always non-NULL, non-zero. Valid-unaddressed or unresearched addresses are indicated by reserved rows from RDF_ADDRESS_RANGE.
RIGHT_ADDRESS_RANGE_ID	N(10)	Non-permanent identifier of the right address range. Always non-NULL, non-zero. Valid-unaddressed or unresearched addresses are indicated by reserved rows from RDF_ADDRESS_RANGE.
ADDRESS_TYPE	N(1)	Address type encoding.
IS_EXIT_NAME	CHAR(1)	Is the name an exit name?
EXPLICATABLE	CHAR(1)	Is the name explicatable?
IS_JUNCTION_NAME	CHAR(1)	Is the name a junction name?
IS_NAME_ON_ROADSIGN	CHAR(1)	Is the name on the road sign?
IS_POSTAL_NAME	CHAR(1)	Is the name a postal name?
IS_STALE_NAME	CHAR(1)	Is the name a stale name?
IS_VANITY_NAME	CHAR(1)	Is the name a vanity name?
IS_SCENIC_NAME	CHAR(1)	Indicates whether the link is part of a scenic route.
LINK_ID	N(10)	The permanent identifier of the link with which this Road Link is associated.
IS_INTERSECTION_NAME	CHAR(1)	Identifies a road name as an intersection name.
IS_OVERPASS_NAME	CHAR(1)	Identifies a road name as an overpass name.
IS_UNDERPASS_NAME	CHAR(1)	Identifies a road name as an underpass name.
IS_BRIDGE_NAME	CHAR(1)	Identifies a road name as a bridge name.
IS_TUNNEL_NAME	CHAR(1)	Identifies a road name as a tunnel name.
IS_BICYCLE_ROUTE_NAME	CHAR(1)	Identifies a road name as a bicycle route name.

RDF_ROAD_LINK Keys	
Primary key	ROAD_LINK_ID
Foreign keys	LINK_ID → RDF_LINK ROAD_NAME_ID → RDF_ROAD_NAME LEFT_ADDRESS_RANGE_ID → RDF_ADDRESS_RANGE RIGHT_ADDRESS_RANGE_ID → RDF_ADDRESS_RANGE
Related Table	RDF_ROAD_NAME RDF_ADDRESS_RANGE RDF_LINK

12.3.130 RDF_ROAD_NAME

RDF_ROAD_NAME stores names of road links. Road names are shared by road links. Multiple road links may share a single common road name. In a partial North American database of 11 million links, the average reuse was 8.7 road links per road name.

Please note that the word “BASE” has two connotations for road names. “Base” designates the part of the name that is separate from the street type or directional indications. “Base” is also used as part of the RDF naming model for all names, designating that this name is not a Exonym, Synonym, or Abbreviation. Currently, all road names are identified as NAME_TYPE = B Base. Exonyms, synonyms and abbreviations for road names are defined in the RDF schema to maintain a consistent naming model; however, the names are not published.

For countries with ARA Language Code, the Official Language entry and the translated language entry have different Road Name IDs. The Language Code for each entry represents the language of the Street Name, Base Name and Street Type entries, as well as Prefix and Suffix where applicable.

See Section C.77, *RDF_ROAD_NAME* for metadata information.

RDF_ROAD_NAME		
Column	Format	Contents
ROAD_NAME_ID	N(10)	Identifier of the road name.
ROUTE_TYPE	N(1)	Numeric code for type of route. NULLABLE
ATTACHED_TO_BASE	CHAR(1)	Is the street type attached to the base?
PRECEDES_BASE	CHAR(1)	Does the street type precede the base?
PREFIX	VARCHAR(10)	Directional prefix NULLABLE
STREET_TYPE	VARCHAR(30)	The street type: Ave, Avenue, Rue, Strasse, etc. NULLABLE
SUFFIX	VARCHAR(10)	Directional suffix NULLABLE
BASE_NAME	VARCHAR(60)	Base part of road name

LANGUAGE_CODE	CHAR(3)	Language Code of the Name NULLABLE
IS_EXONYM	CHAR(1)	Is this an exonym? This is always N.
NAME_TYPE	CHAR(1)	Type of Name
DIRECTION_ON_SIGN	CHAR(1)	Route direction. The value is determined by the Language Code (e.g., O for Ouest if the Language Code is FRE). NULLABLE
STREET_NAME	VARCHAR(100)	The full spelling of the street name, including Prefix, Base Name, Suffix, Street Type, and Direction on Sign.

RDF_ROAD_NAME Keys	
Primary key	ROAD_NAME_ID
Related Table	RDF_ROAD_LINK RDF_FEATURE_NAME

12.3.131 RDF_ROAD_NAME_TRANS

This is the transliteration table for the road name.

See Section C.78, *RDF_ROAD_NAME_TRANS* for metadata information.

RDF_ROAD_NAME_TRANS		
Column	Format	Contents
ROAD_NAME_ID	N(10)	Identifier of the road name.
TRANSLITERATION_TYPE	CHAR(3)	The type of the transliteration (e.g., RUX for Russian Transliterated)
BASE_NAME	VARCHAR(250)	The representation of a base name in the Latin-1 alphabet.
STREET_NAME	VARCHAR(250)	The representation of a street name in the Latin-1 alphabet.
STREET_TYPE	VARCHAR(250)	The representation of a street type in the Latin-1 alphabet. NULLABLE
PREFIX	VARCHAR(250)	The representation of a prefix in the Latin-1 alphabet. NULLABLE
SUFFIX	VARCHAR(250)	The representation of a suffix in the Latin-1 alphabet. NULLABLE

DIRECTION_ON_SIGN	CHAR(1)	Route direction: '', N, S, E, W for Language Code ENG. The value is determined by the Language Code (e.g., O for Ouest if the Language Code is FRE). NULLABLE
ATTACHED_TO_BASE	CHAR(1)	Is the street type attached to the base? NULLABLE
PRECEDES_BASE	CHAR(1)	Does the street type precede the base? NULLABLE

RDF_ROAD_NAME_TRANS Keys	
Primary keys	ROAD_NAME_ID, TRANSLITERATION_TYPE
Foreign keys	ROAD_NAME_ID → RDF_ROAD_NAME.ROAD_NAME_ID
Related Table	RDF_ROAD_NAME

12.3.132 RDF_SIGN_DESTINATION

The sign destination description. See *Section 12.3.134, RDF_SIGN_ELEMENT* for a description of signs.
See *Section C.79, RDF_SIGN_DESTINATION* for metadata information.

RDF_SIGN_DESTINATION		
Column	Format	Contents
SIGN_ID	N(10)	Permanent identifier of the sign. A sign represents a structure with associated sign texts, optionally for multiple directions.
DESTINATION_NUMBER	N(2)	Identifies a single destination for a given SIGN_ID.
DEST_LINK_ID	N(10)	Permanent identifier of destination link.
EXIT_NUMBER	VARCHAR(10)	Exit number associated with the Sign applicable to the Destination Link ID. NULLABLE
STRAIGHT_ON_SIGN	CHAR(1)	Is this a Straight-on-Sign?
LANGUAGE_CODE	CHAR(3)	Language Code of the sign text NULLABLE
ALT_EXIT_NUMBER	VARCHAR(10)	Provides an alternate Exit Number for the sign NULLABLE

RDF_SIGN_DESTINATION Keys	
Primary key	SIGN_ID, DESTINATION_NUMBER

Foreign keys	DEST_LINK_ID → RDF_LINK SIGN_ID → RDF_SIGN_ORIGIN
Related Table	RDF_SIGN_ELEMENT RDF_SIGN_ORIGIN

12.3.133 RDF_SIGN_DESTINATION_TRANS

See *Section C.80, RDF_SIGN_DESTINATION_TRANS* for metadata information.

RDF_SIGN_DESTINATION		
Column	Format	Contents
SIGN_ID	N(10)	Permanent identifier of the sign. A Sign represents a structure with associated sign texts, optionally for multiple directions.
DESTINATION_NUMBER	N(2)	Identifies a single destination for a given SIGN_ID.
TRANSLITERATION_TYPE	CHAR(3)	The type of the transliteration (e.g., RUX for Russian Transliterated)
EXIT_NUMBER	VARCHAR(40)	Transliterated version of the Exit Number NULLABLE

RDF_SIGN_DESTINATION_TRANS Keys	
Primary key	SIGN_ID, DESTINATION_NUMBER, TRANSLITERATION_TYPE
Foreign keys	SIGN_ID, DESTINATION_NUMBER → RDF_SIGN_DESTINATION

12.3.134 RDF_SIGN_ELEMENT

A Sign is comprised of a sequence of destinations. A destination is comprised of a sequence of entries. A sign entry is comprised of a sequence of route numbers and an independent sequence of descriptive texts. Route numbers and descriptive texts are known collectively as sign elements. Route numbers have an optional direction code (N, S, E, W).

See *Section C.81, RDF_SIGN_ELEMENT* for metadata information.

RDF_SIGN_ELEMENT		
Column	Format	Contents
SIGN_ELEMENT_ID	N(10)	Non-permanent identifier for the Sign Element.

SIGN_ID	N(10)	Permanent identifier of the sign. A sign represents a structure with associated sign texts, optionally for multiple directions.
DESTINATION_NUMBER	N(2)	Identifies a single destination for a given SIGN_ID.
ENTRY_NUMBER	N(2)	Identifies a single sign destination entry.
ENTRY_TYPE	CHAR(1)	Branch or Toward code. NULLABLE
TEXT_NUMBER	N(2)	Identifies a single sign element: text or route.
TEXT_TYPE	CHAR(1)	Type of TEXT: Route or descriptive sign text.
TEXT	VARCHAR(60)	Entry text: a route number text or descriptive sign text, depending on TEXT_TYPE. NULLABLE
LANGUAGE_CODE	CHAR(3)	Language code of the TEXT NULLABLE
DIRECTION_CODE	CHAR(1)	Sign route direction code. Possible value are N, S, E, or W. If TEXT_TYPE is Text (T), then DIRECTION_CODE is NULL. NULLABLE

RDF_SIGN_ELEMENT Keys	
Primary key	SIGN_ELEMENT_ID
Unique key	SIGN_ID, DESTINATION_NUMBER, ENTRY_NUMBER, TEXT_NUMBER, TEXT_TYPE
Foreign keys	SIGN_ID, DESTINATION_NUMBER → RDF_SIGN_DESTINATION
Related Table	RDF_SIGN_DESTINATION RDF_SIGN_ORIGIN SIGN_ELEMENT_ID

12.3.135 RDF_SIGN_ELEMENT_TRANS

See Section C.82, *RDF_SIGN_ELEMENT_TRANS* for metadata information.

RDF_SIGN_ELEMENT_TRANS		
Column	Format	Contents
SIGN_ELEMENT_ID	N(10)	Non-permanent identifier for the Sign. A Sign represents a structure with associated sign texts, optionally for multiple directions.
TRANSLITERATION_TYPE	CHAR(3)	The transliteration type.

TEXT	VARCHAR(250)	Entry text: a route number text or descriptive sign text, depending on TEXT_TYPE.
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RDF_SIGN_ELEMENT_TRANS Keys	
Primary key	SIGN_ELEMENT_ID, TRANSLITERATION_TYPE
Foreign key	SIGN_ELEMENT_ID → RDF_SIGN_ELEMENT
Related Table	RDF_SIGN_DESTINATION RDF_SIGN_ORIGIN SIGN_ELEMENT_ID

12.3.136 RDF_SIGN_ORIGIN

This table stores the Originating Link (first link) of the Sign. Each RDF_SIGN_ORIGIN has a corresponding RDF_SIGN_DESTINATION to publish the Destination Link for the SIGN_ID. The actual sign text is published in RDF_SIGN_ELEMENT.

RDF_SIGN_ORIGIN		
Column	Format	Contents
SIGN_ID	N(10)	Permanent identifier of the Sign. A Sign represents a structure with associated sign texts, optionally for multiple directions.
ORIGINATING_LINK_ID	N(10)	Permanent identifier of source (originating) link in the Sign.

RDF_SIGN_ORIGIN Keys	
Primary key	SIGN_ID
Foreign keys	ORIGNATING_LINK_ID → RDF_LINK
Related Table	RDF_SIGN_DESTINATION RDF_SIGN_ELEMENT

12.3.137 RDF_STATS_TABLE_ROW_COUNT

The following table contains row count information for a specified table.

See *Section C.83, RDF_STATS_TABLE_ROW_COUNT* for metadata information.

RDF_STATS_TABLE_ROW_COUNT		
Column	Format	Contents

TABLE_NAME	VARCHAR(30)	Name of the specified table.
GROUP_TYPE	VARCHAR(15)	Associates records with RDF extensions in order to verify counts.
SOURCE_COUNT	N(10)	The number of rows in a column for the table from the production database. NULLABLE
CLIENT_COUNT	N(10)	The number of rows in a column for the table from the client database. NULLABLE
DIFFERENCE	N(10)	The difference between SOURCE_COUNT and CLIENT_COUNT. A difference may be an expected result; for example, SDO geometry should not be loaded for SQL Server 2005 and WKT geometry should not be loaded for Oracle. Or a difference may indicate that the data load was unsuccessful. NULLABLE

12.3.138 RDF_STREET_TYPE

This table stores Street Type parts of a road name.

See *Section C.84, RDF_STREET_TYPE* for metadata information.

RDF_STREET_TYPE		
Column	Format	Contents
STREET_TYPE_ID	N(10)	Unique identifier for a Street Type.
LANGUAGE_CODE	CHAR(3)	Language Code of the OFFICIAL_STREET_TYPE.
OFFICIAL_STREET_TYPE	VARCHAR(30)	Publishes the preferred spelling of the Street Type. For certain countries the preferred spelling is an abbreviation, for others it is the full spelling.
FULL_SPELLING	VARCHAR(30)	Full form (e.g., "STREET").

RDF_STREET_TYPE Keys	
Primary key	STREET_TYPE_ID
Related Table	RDF_STREET_TYPE_USAGE

12.3.139 RDF_STREET_TYPE_ABBREVIATION

This table publishes commonly known abbreviations for street types, by Country and by Language Code. These Street Type abbreviations are generally known abbreviations for street types in the defined

country. Some Street Types have multiple abbreviations, which are included in the Alternate Abbreviation fields in RDF_STREET_TYPE_ABBREVIATION.

The RDF_STREET_TYPE_ABBREVIATION is not explicitly linked to the RDF_ROAD_NAME or RDF_STREET_TYPE table. When applying a Street Type Abbreviation to a specific Street Name in RDF_ROAD_NAME, it is required to consider the Country in which the Street Type is used.

The RDF_STREET_TYPE_ABBREVIATION table can be related to RDF_ROAD_NAME by making the following table joins:

- RDF_STREET_TYPE_ABBREVIATION = RDF_ROAD_NAME.STREET_TYPE, and
- RDF_STREET_TYPE_ABBREVIATION.LANGUAGE_CODE = RDF_ROAD_NAME.LANGUAGE_CODE, and
- Road Link ID is located in the country defined in RDF_STREET_TYPE_ABBREVIATION.

The ABBREVIATION and the ABBREVIATION_TRANS columns in RDF_STREET_TYPE_ABBREVIATION table publish the abbreviated version of the Street Type. These Abbreviations represent the important information in this table.

In some cases, the ABBREVIATION publishes a value which is not an Abbreviation, but rather a placeholder (e.g., symbols like - and *) to indicate the following:

- Symbol - indicates that street type cannot be abbreviated.
- Symbol * indicates that it is yet unclear if the Street Type can be abbreviated.

RDF_STREET_TYPE_ABBREVIATION		
Column	Format	Contents
REGION	VARCHAR(100)	Defines the Continental Region to which the abbreviation applies.
COUNTRY	VARCHAR(100)	Defines the country name (in English) in which the abbreviation is used.
LANGUAGE_CODE	VARCHAR(3)	Language Code for the Street Type.
STREET_TYPE	VARCHAR(100)	Full spelling of the Street Type.
PRECEDES_BASE	VARCHAR(1)	Indicates if Street Type is before or after the Base Name. Values: Y = Preceding base name N = Following the base name
ATTACHED_TO_BASE	VARCHAR(1)	Indicates if Street Type is Attached or Unattached the Base Name. Values: Y = Attached to the base name N = Unattached to the base name
ABBREVIATION	VARCHAR(100)	Primary Abbreviation of the Street Type.
ABBREVIATION_ADD1	VARCHAR(100)	First Alternate Abbreviation of the Street Type.
ABBREVIATION_ADD2	VARCHAR(100)	Second Alternate Abbreviation of the Street Type.

TRANSLITERATION_TYPE	VARCHAR(3)	Transliteration Type to the Transliterated Street Type and its Transliterated Abbreviations.
STREET_TYPE_TRANS	VARCHAR(100)	Full spelling of the Transliterated Street Type.
ABBREVIATION_TRANS	VARCHAR(100)	Primary Abbreviation of the Transliterated Street Type.
ABBREVIATION_ADD_TRANS	VARCHAR(100)	Alternate Abbreviation of the Transliterated Street Type.

RDF_STREET_TYPE_ABBREVIATION Keys	
Primary key	None
Foreign keys	None
Related Table	RDF_STREET_TYPE

12.3.140 RDF_STREET_TYPE_USAGE

This table defines the valid combinations of a Street Type with Attach and Position information that is used to describe the street type relative to the base name. Each street type may have more than one valid combination.

See *Section C.86, RDF_STREET_TYPE_USAGE* for metadata information.

RDF_STREET_TYPE_USAGE		
Column	Format	Contents
STREET_TYPE_ID	N(10)	Unique identifier for the Street Type.
USAGE_CODE	VARCHAR(30)	Unique 4-character code that identifies this usage.
SYNTAX	CHAR(1)	Position relative to base. F for follows base, P for precedes base.
ATTACH	CHAR(1)	Attachment semantics: A for attached to base, U for unattached from base.

RDF_STREET_TYPE_USAGE Keys	
Primary key	STREET_TYPE_ID, USAGE_CODE
Foreign keys	STREET_TYPE_ID → RDF_STREET_TYPE.STREET_TYPE_ID
Related Table	RDF_STREET_TYPE

12.3.141 RDF_TIME_DOMAIN

RDF_TIME_DOMAIN stores time syntax information in GDF 3.0 representation. See *Section , Time Domain*. Use either RDF_TIME_DOMAIN or RDF_DATE_TIME for time dependent conditions.

See *Section C.87, RDF_TIME_DOMAIN* for metadata information.

RDF_TIME_DOMAIN		
Column	Format	Contents
FEATURE_ID	N(10)	Unique identifier for the feature.
OWNER	CHAR(1)	Indicates the type of feature to which the data belongs. NULLABLE
TIME_DOMAIN	VARCHAR(1024)	ISO compliant syntax string. NULLABLE

12.3.142 RDF_VERSION_INFO

This table provides database release, version, and date information on the RDF product.

RDF_VERSION_INFO		
Column	Format	Contents
RDF_PRODUCT_VERSION	VARCHAR(32)	Defines the Product Version of RDF.
RDF_SCHEMA_VERSION	VARCHAR(32)	Defines the version of the RDF database schema used for the product.
RDF_BUILD_VERSION	VARCHAR(32)	Defines the software version used to create the RDF product,
COVERED_DATA_REGION	VARCHAR(25)	Defines the geographic region covered by the RDF product.
DATA_COPYRIGHT	VARCHAR(256)	Copyright information which is applicable to the dataset.
RMOB_VERSION	VARCHAR(32)	The internal database, RMOB, used to generate RDF product.
DATA_RELEASE_DATE	VARCHAR(15)	An indicator for the release date of the published data.
VOICE_DATA_RELEASE_DATE	VARCHAR(15)	An indicator for the release date of the published voice data. NULLABLE
RDF_PRODUCT_CREATION_DATE	VARCHAR(15)	The date the RDF product is created.

UK_PC_DATA_RELEASE_DATE	VARCHAR(15)	The date the UK postal code product is released. NULLABLE
CAN_PC_DATA_RELEASE_DATE	VARCHAR(15)	The date the Canada postal code product is released. NULLABLE
SGP_PC_DATA_RELEASE_DATE	VARCHAR(15)	The date the Singapore postal code product is released. NULLABLE

12.3.143 RDF_VIRTUAL_CONNECTION

RDF_VIRTUAL_CONNECTION publishes an entry for each virtual connection.

See *Section C.88, RDF_VIRTUAL_CONNECTION* for information.

RDF_VIRTUAL_CONNECTION		
Column	Format	Contents
REF_NODE_ID	N(10)	Reference to the First Node ID.
NONREF_NODE_ID	N(10)	Reference to the Second Node ID.
CONNECTION_TYPE	N(2)	Values in decreasing order of accessibility. Note: If in reality multiple types of connection are applicable, this attribute is published with the most “accessible” indication. For example, if in reality ‘stairs’ and ‘elevator’ are applicable, CONNECTION_TYPE =‘ELEVATOR’ is published.
STAIRS_TRAVERSAL	CHAR(1)	Indicates the presence of stairs on a connection. NULLABLE
TIME_OVERRIDE	N(1)	Indication if the connection is applicable only from Dusk to Dawn or Dawn to Dusk NULLABLE

RDF_VIRTUAL_CONNECTION Keys	
Primary key	REF_NODE_ID + NONREF_NODE_ID
References	REF_NODE_ID is reference into NODE_ID in RDF_NODE NONREF_NODE_ID is reference into NODE_ID in RDF_NODE

12.3.144 RDF_ZONE

RDF_ZONE entries associated with an ADMIN_PLACE_ID represent Zones that correspond to an existing administrative area in RDF_ADMIN_PLACE. These Zones share the name with the administrative area with which they are associated. Therefore, the Zone name is retrieved based on the ADMIN_PLACE_ID, and not based on the ZONE_ID.

A Zone is associated with an Admin Place via the RDF_PLACE_ZONE table.

A Zone is associated with a Postal Code via the RDF_ZONE_POSTAL table.

See *Section C.89, RDF_ZONE* for metadata information.

RDF_ZONE		
Column	Format	Contents
ZONE_ID	N(10)	Permanent identifier for the Zone.
ZONE_TYPE	CHAR(2)	Encoding of zone type.
ADMIN_PLACE_ID	N(10)	Permanent identifier of the related administrative area used to explicitly indicate that a Zone is related to an administrative area. Names for Zones having an ADMIN_PLACE_ID published should be retrieved via the ADMIN_PLACE_ID. NULLABLE
GOVERNMENT_CODE	N(10)	Official published government code. NULLABLE

RDF_ZONE Keys	
Primary key	ZONE_ID
Foreign keys	ADMIN_PLACE_ID → RDF_ADMIN_PLACE
Related Table	RDF_ADMIN_PLACE RDF_POSTAL_AREA RDF_FEATURE_NAME

12.3.145 RDF_ZONE_CENSUS

RDF_ZONE_CENSUS		
Column	Format	Contents
ZONE_ID	N(10)	Permanent identifier of a Zone to which the census data is applicable.
CENSUS_ID	N(10)	Unique ID published in RDF_CENSUS.CENSUS.ID

RDF_ZONE_CENSUS Keys	
Primary key	ZONE_ID, CENSUS_ID
Foreign keys	ZONE_ID → RDF_ZONE CENSUS_ID → RDF_CENSUS

12.3.146 RDF_ZONE_POSTAL

This table relates zones to postal areas. Each distinct combination of Zone and Postal Code results in an entry in RDF_ZONE_POSTAL.

RDF_ZONE_POSTAL		
Column	Format	Contents
ZONE_ID	N(10)	Permanent identifier of the zone.
POSTAL_AREA_ID	N(10)	Non-permanent identifier of the postal area.

RDF_ZONE_POSTAL Keys	
Primary key	ZONE_ID, POSTAL_AREA_ID
Foreign keys	POSTAL_AREA_ID → RDF_POSTAL_AREA ZONE_ID → RDF_ZONE
Related Table	RDF_POSTAL_AREA RDF_ZONE

12.4 Admin Extension Tables

This section describes the RDF admin extension tables.

12.4.1 ADM_CITY_POI_SUBREGION

This table relates Named Place POIs to subregions. See [Section 12.4.4, ADM_SUBREGION](#) for a description of the subregion concept. Typically, a POI is associated with only one subregion, but can be associated with multiple subregions if Vanity City attribution is published.

ADM_CITY_POI_SUBREGION		
Column	Format	Contents
POI_ID	N(10)	Permanent identifier of the Named Place POI.
ADMIN_SUBREGION_ID	N(10)	Non-permanent identifier that references the subregion.
VANITY_CITY	CHAR(1)	Denotes if the admin area represent a vanity city for the Named Place POI.

ADM_CITY_POI_SUBREGION Keys	
Primary key	POI_ID, ADMIN_SUBREGION_ID
Foreign keys	POI_ID → RDF_CITY_POI ADMIN_SUBREGION_ID → ADM_SUBREGION
Related Table	RDF_CITY_POI ADM_SUBREGION

12.4.2 ADM_LINK_SUBREGION

This table relates links to subregions. See [Section 12.4.4, ADM_SUBREGION](#) for a description of the subregion concept. A link has at most two entries in ADM_LINK_SUBREGION: one for the left side of the link and one for the right side of the link.

ADM_LINK_SUBREGION		
Column	Format	Contents
LINK_ID	N(10)	Permanent identifier that references the link.
ADMIN_SUBREGION_ID	N(10)	Non-permanent identifier that references the subregion.
SIDE	CHAR(1)	Side to which the admin coding applies. L = Left and R = Right

ADM_LINK_SUBREGION Keys	
Primary key	LINK_ID, SIDE
Foreign keys	LINK_ID → RDF_LINK ADMIN_SUBREGION_ID → ADM_SUBREGION
Related Table	RDF_LINK ADM_SUBREGION

12.4.3 ADM_POI_SUBREGION

This table relates POIs to subregions. See *Section 12.4.4, ADM_SUBREGION* for a description of the subregion concept. Typically, a POI is associated with only one subregion, however a POI can be associated with multiple subregions when Vanity City attribution is published.

ADM_POI_SUBREGION		
Column	Format	Contents
POI_ID	N(10)	Permanent identifier of the POI.
ADMIN_SUBREGION_ID	N(10)	Non-permanent identifier that references the subregion.
VANITY_CITY	CHAR(1)	Denotes if the admin area represent a vanity city for the POI.

ADM_POI_SUBREGION Keys	
Primary key	POI_ID, ADMIN_SUBREGION_ID
Foreign keys	POI_ID → RDF_POI ADMIN_SUBREGION_ID → ADM_SUBREGION

12.4.4 ADM_SUBREGION

A subregion identifies the smallest unit representing a distinct combination of administrative information, postal code, and zone(s). Each overlap of lowest level administrative area with postal code and/or zone(s) results in a new subregion. A link is associated with at most two subregions, one for each side.

ADM_SUBREGION		
Column	Format	Contents
ADMIN_SUBREGION_ID	N(10)	Non-permanent identifier for each distinct combination of Postal Area, Zone and Admin Place.

ADMIN_PLACE_ID	N(10)	Permanent identifier involved in Admin Subregion.
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ADM_SUBREGION Keys	
Primary key	ADMIN_SUBREGION_ID
Foreign keys	ADMIN_PLACE_ID → RDF_ADMIN_PLACE
Related Table	ADM_SUBREGION_DEF

12.4.5 ADM_SUBREGION_DEF

This table defines the regions (i.e., Zone, Postal Code or Postal Admin Area), that are involved in a subregion. A subregion can have 0 – M associated regions. When no postal codes or zones are present in the map, a subregion is only composed of pure administrative areas. Not all subregions have corresponding entries in ADM_SUBREGION_DEF.

ADM_SUBREGION_DEF		
Column	Format	Contents
ADMIN_SUBREGION_ID	N(10)	Non-permanent identifier for each distinct combination of Postal Area, Zone and Admin Place
REGION_ID	N(10)	Depending on REGION_TYPE represents one of the following: POSTAL_AREA_ID - non-permanent identifier ZONE_ID - permanent identifier ADMIN_PLACE_ID.
REGION_TYPE	CHAR(1)	P = postal Z = zone A = postal domains

ADM_SUBREGION_DEF Keys	
Primary key	ADMIN_SUBREGION_ID, REGION_ID
Foreign keys	ADMIN_SUBREGION_ID → ADM_SUBREGION
Related Table	ADM_SUBREGION

12.5 SDO Tables

The following list of tables identifies Oracle Spatial Data Objects (SDO) for the following map features:

- Nodes
- Links
- Polygonal geometry
 - Administrative Areas
 - Cartographic / Land Use
- POIs

All SDO geometry is defined in latitude, longitude using a WGS84 ellipsoid. This translates into an SRID = 8307 definition.

All geometry can be validated by using Oracle's SDO_VALIDATE functions. See Oracle's website for further information.

12.5.1 SDO_BUILDING

SDO_BUILDING		
Column	Format	Contents
BUILDING_ID	N(10)	Unique identifier for the Structure Footprint
BUILDING	SDO_GEOMETRY	Geometry (SDO) representation of the Structure Footprint

SDO_BUILDING Keys	
Primary key	BUILDING_ID
Foreign keys	None

12.5.2 SDO_FACE

SDO_FACE publishes the geometry object for a face. Each face results in an entry in SDO_FACE. The SDO objects are geometric primitives. One or more of these faces form the geometry of cartographic features in RDF_CARTO.

SDO_FACE		
Column	Format	Contents
FACE_ID	N(10)	Permanent identifier for the face

FACE	SDO_Geometry	Geometry (SDO) object for the face
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SDO_FACE Keys	
Primary Key	FACE_ID
Foreign Key	FACE_ID→RDF_FACE
Related Table	RDF_CARTO RDF_CARTO_FACE

12.5.3 SDO_LINK

SDO_LINK stores SDO representation for linear features (links), navigable and non-navigable, in the database.

SDO_LINK		
Column	Format	Contents
LINK_ID	N(10)	Permanent identifier for link
LINK	SDO_Geometry	Geometry (SDO) representation of link

SDO_LINK Keys	
Primary Key	LINK_ID
Foreign Key	LINK_ID→RDF_LINK.LINK_ID
Related Table	RDF_LINK RDF_LINK_Geometry

12.5.4 SDO_LOCATION

SDO_LOCATION stores the SDO representation for all POI locations in the database.

SDO_LOCATION		
Column	Format	Contents
LOCATION_ID	N(10)	Non-permanent identifier of the Location
LOCATION	SDO_Geometry	Geometry (SDO) representation of Location

SDO_LOCATION Keys

Primary Key	LOCATION_ID
Foreign Key	LOCATION_ID→RDF_LOCATION.LOCATION_ID
Related Table	RDF_LOCATION

12.5.5 SDO_NODE

SDO_NODE stores a SDO representation for all Nodes in the database; both nodes in the navigable and non-navigable network are included.

SDO_NODE		
Column	Format	Contents
NODE_ID	N(10)	Permanent identifier for Node
NODE	SDO_Geometry	Geometry (SDO) representation of Node

SDO_NODE Keys	
Primary Key	NODE_ID
Foreign Key	NODE_ID→RDF_NODE
Related Table	RDF_NODE

12.6 WKT Tables

Well-known Text (WKT) is a text interchange format for Geographic data sponsored by the Open Geospatial Consortium (OGC) which is used to transfer spatial data values between existing formats.

See the Open Geospatial Consortium's website for further information.

12.6.1 WKT_BUILDING

WKT_BUILDING		
Column	Format	Contents
BUILDING_ID	N(10)	Permanent identifier of the Structure Footprint
BUILDING	CLOB	WKT representation of the Structure Footprint

WKT_BUILDING Keys	
Primary key	BUILDING_ID
Foreign keys	None

12.6.2 WKT_FACE

WKT_FACE publishes the geometry object for a face. Each face results in an entry in WKT_FACE. The WKT objects are geometric primitives. One or more of these faces form the geometry of cartographic features in RDF_CARTO.

WKT_FACE		
Column	Format	Contents
FACE_ID	N(10)	Permanent identifier for the face.
FACE	CLOB	Geometry object for the face.

WKT_FACE Keys	
Primary Key	FACE_ID
Foreign Key	FACE_ID → RDF_FACE.FACE_ID
Related Table	RDF_CARTO RDF_CARTO_FACE

12.6.3 WKT_LINK

WKT_LINK stores WKT representation for linear features (links), navigable and non-navigable, in the database.

WKT_LINK		
Column	Format	Contents
LINK_ID	N(10)	Permanent identifier for link
LINK	CLOB	WKT representation of link.

WKT_LINK Keys	
Primary Key	LINK_ID
Foreign Key	LINK_ID → RDF_LINK.LINK_ID
Related Table	RDF_LINK WKT_FACE WKT_NODE WKT_LOCATION

12.6.4 WKT_LOCATION

WKT_LOCATION stores the WKT representation for all POI locations in the database.

WKT_LOCATION		
Column	Format	Contents
LOCATION_ID	N(10)	Unique identifier for Location
LOCATION	VARCHAR(100)	WKT representation of location.

WKT_LOCATION Keys	
Primary Key	LOCATION_ID
Foreign Key	LOCATION_ID → RDF_LOCATION.LOCATION_ID
Related Table	RDF_LOCATION WKT_FACE WKT_LINK WKT_NODE

12.6.5 WKT_NODE

WKT_NODE stores the WKT representation for all nodes in the database; both nodes in the navigable and non-navigable network are included.

WKT_NODE		
Column	Format	Contents
NODE_ID	N(10)	Permanent identifier of the node
NODE	VARCHAR(100)	WKT representation of node.

WKT_NODE Keys	
Primary Key	NODE_ID
Foreign Key	NODE_ID→RDF_NODE
Related Table	RDF_NODE WKT_FACE WKT_LINK WKT_LOCATION

12.7 Voice Tables

12.7.1 VCE_ASSO_NAME

VCE_ASSO_NAME		
Column	Format	Contents
NAME_ID	N(10)	Non-permanent identifier for the Association Name
PHONETIC_ID	N(10)	Unique identifier for the PHONETIC_ID associated to the Association Name.
PREFERRED	CHAR(1)	Indication if referenced PHONETIC_ID is preferred or non-preferred pronunciation.

VCE_ASSO_NAME Keys	
Primary key	NAME_ID, PHONETIC_ID
Foreign key	NAME_ID → RDF_ASSO_NAME.NAME_ID PHONETIC_ID → VCE_PHONETIC_TEXT.PHONETIC_ID

12.7.2 VCE_CHAIN_NAME

VCE_CHAIN_NAME		
Column	Format	Contents
CHAIN_ID	N(10)	Unique ID for the Chain
LANGUAGE_CODE	CHAR(3)	Language Code of the Chain Name
PHONETIC_ID	N(10)	Unique ID for the table VCE_PHONETIC_TEXT.
PREFERRED	CHAR(1)	Indicates if referenced Phonetic ID is preferred or non-preferred pronunciation.

VCE_CHAIN_NAME Keys	
Primary key	CHAIN_ID, LANGUAGE_CODE, PHONETIC_ID
Foreign key	CHAIN_ID + LANGUAGE_CODE → RDF_CHAIN_NAME PHONETIC_ID → VCE_PHONETIC_TEXT

12.7.3 VCE_CITY_POI_NAME

VCE_CITY_POI_NAME		
Column	Format	Contents
NAME_ID	N(10)	Permanent identifier of the Named Place POI name
PHONETIC_ID	N(10)	Unique ID for the table VCE_PHONETIC_TEXT.
PREFERRED	CHAR(1)	Indicates if referenced Phonetic ID is preferred or non-preferred spelling.

VCE_CITY_POI_NAME Keys	
Primary key	NAME_ID, PHONETIC_ID
Foreign key	NAME_ID → RDF_CITY_POI_NAME PHONETIC_ID → VCE_PHONETIC_TEXT

12.7.4 VCE_FEATURE_NAME

VCE_FEATURE_NAME		
Column	Format	Contents
NAME_ID	N(10)	Permanent identifier of the feature name
PHONETIC_ID	N(10)	Unique ID for the table VCE_PHONETIC_TEXT.
PREFERRED	CHAR(1)	Indicates if referenced Phonetic ID is preferred or non-preferred spelling.

VCE_FEATURE_NAME Keys	
Primary key	NAME_ID, PHONETIC_ID
Foreign key	NAME_ID → RDF_FEATURE_NAME PHONETIC_ID → VCE_PHONETIC_TEXT

12.7.5 VCE_FEATURE_POINT_NAME

VCE_FEATURE_POINT_NAME		
Column	Format	Contents

NAME_ID	N(10)	Permanent identifier for the Feature Point Name
PHONETIC_ID	N(10)	Unique identifier for the Phonetic ID associated to the Association Name. Foreign Key into VCE_PHONETIC_TEXT.
PREFERRED	CHAR(1)	Indication if referenced PHONETIC_ID is preferred or non-preferred spelling.

VCE_FEATURE_POINT_NAME Keys	
Primary key	NAME_ID, PHONETIC_ID
Foreign key	NAME_ID → RDF_FEATURE_POINT_NAME.NAME_ID PHONETIC_ID → VCE_PHONETIC_TEXT.PHONETIC_ID

12.7.6 VCE_GEO_OVERRIDE

This table contains cross-references between the Geographic location and the Phonetic Text Identifier.

VCE_GEO_OVERRIDE defines preferred pronunciations that are applicable to specific geographic areas (Admin Place ID) only. An example would be a Street Name that is pronounced differently in a specific city, resulting in a different preferred setting for a Phonetic String associated with the Plain Text for that street name.

VCE_GEO_OVERRIDE		
Column	Format	Contents
GEO_OVERRIDE_ID	N(10)	Unique identifier for VCE_GEO_OVERRIDE table.
PHONETIC_ID	N(10)	Unique Identifier for VCE_PHONETIC_TEXT table. Indicates the Phonetic Text for which regionally a different preferred pronunciation exists.
ADMIN_PLACE_ID	N(10)	ADMIN_PLACE_ID for which a different preferred Phonetic Text applies.
PREFERRED	CHAR(1)	Indicates that the Phonetic ID is the preferred spelling for in the specified Admin Place ID. Only value 'Y' is published in VCE_GEO_OVERRIDE.

VCE_GEO_OVERRIDE Keys	
Primary key	GEO_OVERRIDE_ID
Foreign keys	PHONETIC_ID → VCE_PHONETIC_TEXT.PHONETIC_ID ADMIN_PLACE_ID → RDF_ADMIN_PLACE.ADMIN_PLACE_ID ZONE_ID -> RDF_ZONE.ZONE_ID

12.7.7 VCE_LANGUAGE_CODE_MAP

This table contains cross-reference between phonetic pronunciations (PHONETIC_LANGUAGE_CODE) and the official language of the country (LANGUAGE_CODE).

VCE_LANGUAGE_CODE_MAP		
Column	Format	Contents
LANGUAGE_MAP_ID	N(10)	Unique Identifier for Plain Text
ISO_COUNTRY_CODE	CHAR(3)	ISO Country Code
LANGUAGE_CODE	CHAR(3)	Language Code of the country
PHONETIC_LANGUAGE_CODE	CHAR(3)	Phonetic Language Code ¹
GOVERNMENT_CODE	N(10)	Government Code

1. This field contains phonetic Language Codes for Voice Phonetic Transcription product. These are not Language Codes from ISO 630.2 or ISO 639.3, rather these are codes used for variations in pronunciation which correspond to country level Language Codes. While some of these codes are the same as the ISO codes, they are only representative of phonetic pronunciations.

VCE_LANGUAGE_CODE_MAP Keys	
Primary key	LANGUAGE_MAP_ID

12.7.8 VCE_META

See Section C.90, VCE_META for metadata information.

VCE_META		
Column	Format	Contents
ATTR_DESCRIPTION	VARCHAR(100)	Attribute Description, as published in RDF_META, to which a Phonetic ID is applicable. ATTR_DESCRIPTION contains the full string that is phonetically transcribed.
LANGUAGE_CODE	CHAR(3)	Language Code of the metadata.
PHONETIC_ID	N(10)	Unique identifier, not permanent identifier, for the table VCE_PHONETIC_TEXT
PREFERRED	CHAR(1)	Indicates if referenced Phonetic ID is preferred or non-preferred spelling.
TYPE	VARCHAR(50)	Indicates of the type of metadata in RDF_META to which the Phonetic ID is applicable.

VCE_META Keys	
Foreign key	PHONETIC_ID → VCE_PHONETIC_TEXT

12.7.9 VCE_META_PREPOSITION

VCE_META_PREPOSITION		
Column	Format	Contents
PREPOSITION_CODE	CHAR(10)	Unique identifier for the Preposition in RDF_META_PREPOSITION.
PHONETIC_ID	N(10)	Unique identifier for the PHONETIC_ID associated to the Association Name.
PREFERRED	CHAR(1)	Indication if referenced PHONETIC_ID is preferred or non-preferred pronunciation.

VCE_META_PREPOSITION Keys	
Primary key	PREPOSITION_CODE, PHONETIC_ID
Foreign key	PREPOSITION_CODE →RDF_META_PREPOSITION.PREPOSITION_CODE PHONETIC_ID → VCE_PHONETIC_TEXT.PHONETIC_ID

12.7.10 VCE_PHONETIC_TEXT

VCE_PHONETIC_TEXT		
Column	Format	Contents
PHONETIC_ID	N(10)	Unique identifier, not permanent identifier, for the table VCE_PHONETIC_TEXT.
PHONETIC_STRING	VARCHAR(250)	Phonetic representation of a string.
PHONETIC_LANGUAGE_CODE	CHAR(3)	Phonetic Language Code used to phonetically transcribe a string
TRANSCRIPTION_METHOD	CHAR(1)	Indicates the method in which names are phonetically transcribed

12.7.11 VCE_POI_NAME

VCE_POI_NAME		
Column	Format	Contents
NAME_ID	N(10)	Permanent identifier of the POI name
PHONETIC_ID	N(10)	Unique ID for the table VCE_PHONETIC_TEXT.
PREFERRED	CHAR(1)	Indicates if referenced Phonetic ID is preferred or non-preferred spelling.

VCE_POI_NAME Keys	
Primary key	NAME_ID, PHONETIC_ID
Foreign key	NAME_ID → RDF_POI_NAME PHONETIC_ID → VCE_PHONETIC_TEXT

12.7.12 VCE_ROAD_NAME

See *Section C.92, VCE_ROAD_NAME* for metadata information.

VCE_ROAD_NAME		
Column	Format	Contents
ROAD_NAME_ID	N(10)	Identifier of the road name
PHONETIC_ID	N(10)	Unique ID for the table VCE_PHONETIC_TEXT.
PREFERRED	CHAR(1)	Indicates if referenced Phonetic ID is preferred or non-preferred spelling.
TYPE	VARCHAR(50)	Indicates the name field in RDF_ROAD_NAME to which the Phonetic ID is applicable.

VCE_ROAD_NAME Keys	
Primary key	ROAD_NAME_ID, PHONETIC_ID
Foreign key	ROAD_NAME_ID → RDF_ROAD_NAME PHONETIC_ID → VCE_PHONETIC_TEXT

12.7.13 VCE_SIGN_DESTINATION

See *Section C.93, VCE_SIGN_DESTINATION* for metadata information.

VCE_SIGN_DESTINATION		
Column	Format	Contents
SIGN_ID	N(10)	Permanent identifier for a specific Sign.
DESTINATION_NUMBER	N(2)	Identifies a single destination for a given SIGN_ID.
PHONETIC_ID	N(10)	Unique ID for the table VCE_PHONETIC_TEXT.
PREFERRED	CHAR(1)	Indicates if referenced Phonetic ID is preferred or non-preferred spelling.
TYPE	VARCHAR(50)	Indicates of the name field in RDF_SIGN_DESTINATION to which the Phonetic ID is applicable.

VCE_SIGN_DESTINATION Keys	
Primary key	SIGN_ID, DESTINATION_NUMBER, PHONETIC_ID
Foreign key	SIGN_ID + DESTINATION_NUMBER → RDF_SIGN_DESTINATION PHONETIC_ID → VCE_PHONETIC_TEXT

12.7.14 VCE_SIGN_ELEMENT

VCE_SIGN_ELEMENT		
Column	Format	Contents
SIGN_ELEMENT_ID	N(10)	Unique ID for RDF_SIGN_ELEMENT
PHONETIC_ID	N(10)	Unique ID for the table VCE_PHONETIC_TEXT.
PREFERRED	CHAR(1)	Indicates if referenced Phonetic ID is preferred or non-preferred spelling.

VCE_SIGN_ELEMENT Keys	
Primary key	SIGN_ELEMENT_ID, PHONETIC_ID
Foreign key	SIGN_ELEMENT_ID → RDF_SIGN_ELEMENT PHONETIC_ID → VCE_PHONETIC_TEXT

12.7.15 VCE_STREET_TYPE

VCE_STREET_TYPE	
1 July 2017	RDF Reference Guide Schema Version 7.40 HERE PROPRIETARY & CONFIDENTIAL

Column	Format	Contents
STREET_TYPE_ID	N(10)	Unique ID for RDF_STREET_TYPE
PHONETIC_ID	N(10)	Unique ID for the table VCE_PHONETIC_TEXT.
PREFERRED	CHAR(1)	Indicates if referenced Phonetic ID is preferred or non-preferred spelling.

VCE_STREET_TYPE Keys	
Primary key	STREET_TYPE_ID, PHONETIC_ID
Foreign key	STREET_TYPE_ID → RDF_STREET_TYPE PHONETIC_ID → VCE_PHONETIC_TEXT

12.8 ADAS Tables

12.8.1 ADAS_LINK_STATUS

ADAS_LINK_STATUS		
Column	Format	Contents
LINK_ID	N(10)	Link ID
LINK_ACCURACY	N(1)	Specifies the positional, absolute height and slope accuracy of a link.

ADAS_LINK_STATUS Keys	
Primary Key	LINK_ID
Foreign Key	LINK_ID → ADAS_LINK_GEOMETRY.LINK_ID

12.8.2 ADAS_LINK_GEOMETRY

For Curvature, Heading, Absolute Height and Slope at Shape Points, the ADAS_LINK_GEOMETRY table is used.

ADAS Curvature – Slope represents a more detailed representation of the road geometry compared to regular geometry in the RDF product. The additional accuracy allows for different use-cases, mostly related to an ability to anticipate upcoming curves and steeper slopes in the road network.

The ADAS Curvature – Slope product is generated based on a spline representation of the road network, and published as attribution to discrete coordinate pairs of the road geometry. In other words a continuous curvature of the road geometry is published as a piece-wise curvature representation for sub-segments in the road network.

The ADAS Curvature – Slope product is an extension to the standard RDF product, and can be used in conjunction with the regular RDF product of the same release. The ADAS Curvature – Slope product may not be available at the same date as the regular RDF product, and can be uploaded after the initial RDF load.

The ADAS Curvature, Slope, and Absolute Height is a content which relates to Shape Points and Nodes of navigable links. The attribution is modelled in two dedicated ADAS tables.

The two ADAS tables are non-spatial, they represent tabular data only. The ADAS tables are provided as an Extension to the standard RDF deliverable, and can be uploaded as a post-process.

The Link IDs and Node IDs in the RDF ADAS tables reference back to Link IDs and Node IDs in the standard RDF product for the same region.

ADAS_LINK_GEOMETRY		
Column	Format	Contents
LINK_ID	N(10)	Link ID
SEQ_NUM	N(10)	0 for the reference node. 999999 for the non-reference node. 1+ for shape points in Reference towards Non-Reference order.
LAT	N(12)	Hi-Precision X Co-ordinate
LON	N(12)	Hi-Precision Y Co-ordinate
Z_COORD	N(12)	Hi-Precision Z Co-ordinate (=Absolute Height in centimetres). Optional. NULLABLE
VERTICAL_FLAG	CHAR(1)	Boolean field, which indicates if the Shape Point is added only to capture a change in vertical (height) profile of the road.
CURVATURE	N(10)	Curvature (1/Radius-of-Curvature x 10 ⁶). Optional. Node curvature is published in ADAS_NODE_CURVATURE. NULLABLE
HEADING	N(10)	The angle, in Decimal Degrees x 10 ³ , between North and the road direction. Optional. NULLABLE
SLOPE	N(10)	Slope, in Decimal Degrees x 10 ³ , indicating the angle of slope for the sub-segment coming into the Shape Point or Node. NULLABLE

ADAS_LINK_GEOMETRY Keys	
Primary Key	LINK_ID, SEQ_NUM

12.8.3 ADAS_LINK_BUAROAD

ADAS_LINK_BUAROAD		
Column	Format	Contents
LINK_ID	N(10)	Permanent identifier of the link

ADAS_LINK_BUAROAD		
Column	Format	Contents
BUA_ROAD	N(1)	Identifies a link inside the built up area of a given city or settlement as primarily identified by the Built-Up Area signs.
BUA_ROAD_VERIFIED	C(1)	Indicates if the link has been verified for Built Up Area Roads attribution as primarily identified by the Built-Up Area signs.

ADAS_LINK_BUAROAD Keys	
Primary key	LINK_ID
Foreign key	LINK_ID → RDF_NAV_LINK.LINK_ID

12.8.4 ADAS_NODE_CURVATURE

The ADAS Node Curvature (ADAS_NODE_CURVATURE) table contains Curvature data for paths through Nodes. For each path through a Node, as defined by a From Link and a To Link, a Curvature value with an associated Heading direction is coded. Since the Curvature – Heading information is dependent on the path through the Node (junction), a Node with multiple connected Links can have different Curvature – Heading values.

As RDF is published at continental level, the Curvature value is not published for Nodes located on continental borders. Therefore Nodes on the border between for example Western Europe and Eastern Europe RDF do not have Curvature value.

ADAS_NODE_CURVATURE		
Column	Format	Contents
NODE_ID	N(10)	Unique identifier for the Node.
FROM_LINK_ID	N(10)	Incoming Link ID for the Node.
TO_LINK_ID	N(10)	Outgoing Link ID for the Node.
CURVATURE	N(10)	Curvature (1/Radius-of-Curvature x 10 ⁶) at the Node, relative to the From Link ID and To Link ID path.
HEADING	N(10)	The angle, in Decimal Degrees x 10 ³ , between North and the road direction, at the Node, relative to From Link ID and To Link ID direction.

ADAS_NODE_CURVATURE Keys	
Primary Key	NODE_ID, FROM_LINK_ID, TO_LINK_ID

Foreign Key	NODE_ID → ADAS_NODE.NODE_ID
-------------	-----------------------------

Related Table: ADAS_LINK_GEOMETRY

12.9 Selection Clipper Tables

Use Selection Clipper only if you must limit the standard continental data deliveries.

12.9.1 SC_PRODUCT

A product can be a combination of one or more selections of administrative areas. There are predefined products and custom products, which can be defined in the SC_PRODUCT table.

A custom product definition can reuse the predefined selections and add its own custom selections.

SC_PRODUCT		
Column	Format	Contents
PRODUCT_ID	N(10)	Unique ID of the product
NAME	VARCHAR(80)	Unique short name of the product. This name is used to select a product in a client compiler (i.e. in the compiler configuration file).
DESCRIPTION	VARCHAR(250)	Textual description of the product. NULLABLE
CLIENT	VARCHAR(80)	Textual description of the product NULLABLE

SC_PRODUCT Keys	
Primary Key	PRODUCT_ID

12.9.2 SC_PRODUCT_CARTO

This table is used for inclusion of ocean cartographic features.

SC_PRODUCT_CARTO		
Column	Format	Contents
PRODUCT_ID	N(10)	Unique ID of the product. PRODUCT_ID is the link to the SC_PRODUCT table.
CARTO_ID	N(10)	Permanent identifier of the cartographic feature
CARTO_PVID	N(10)	Permanent ID for the cartographic feature. See RDF_META_FEATURE_PID.
FEATURE_TYPE	N(10)	Type of cartographic feature.

SC_PRODUCT_CARTO Keys	
Primary Key	PRODUCT_ID, CARTO_ID

12.9.3 SC_PRODUCT_EXCEPTION

This table allows you to add or delete exception links.

As a result of exception link handling, other features are added or deleted from the clipped product as well. For example, POIs and subregions along added exception links are included as well.

SC_PRODUCT_EXCEPTION		
Column	Format	Contents
PRODUCT_ID	N(10)	ID of the product that uses this selection. NULLABLE
ACTION	CHAR(1)	I = include a link in the clip that would not be included otherwise. E = exclude a link from the clip that would be included otherwise.
LINK_ID	N(10)	Permanent identifier of the link that is added or deleted.
PRODUCT_EXCEPTION_ID	N(10)	Unique ID of the exception.

SC_PRODUCT_EXCEPTION Keys	
Primary Key	PRODUCT_EXCEPTION_ID

12.9.4 SC_PRODUCT_SELECTION

This table models the many to many relation between products and selections.

SC_PRODUCT_SELECTION		
Column	Format	Contents
PRODUCT_ID	N(10)	ID of the product defined in SC_PRODUCT
SELECTION_ID	N(10)	ID of the selection defined in SC_SELECTION

SC_PRODUCT_SELECTION Keys	
Primary Key	PRODUCT_ID, SELECTION_ID

Foreign Key	PRODUCT_ID → SC_PRODUCT.PRODUCT_ID SELECTION_ID → SC_SELECTION.SELECTION_ID
-------------	--

12.9.5 SC_SELECTION

A selection region corresponds to exactly one country or Order-1/2/8 area. Built-ups and zones are not supported.

Products are made of one or more selection regions.

SC_SELECTION		
Column	Format	Contents
SELECTION_ID	N(10)	Unique id of the selection.
DESCRIPTION	VARCHAR(250)	Textual description of the selection. NULLABLE
ADMIN_PLACE_ID	N(10)	The permanent identifier of the admin place - a country or any Order-1/2/8 area. NULLABLE
ADMIN_PLACE_PVID	N(10)	The permanent identifier of the admin place - a country or any Order-1/2/8 area. NULLABLE
LONG_HAUL	CHAR(1)	N - include all features in the selection Y - include only features having the long-haul flag in the selection

SC_SELECTION Keys	
Primary Key	SELECTION_ID

12.9.6 SC_STATS_TABLE_ROW_COUNT

SC_STATS_TABLE_ROW_COUNT		
Column	Format	Contents
TABLE_NAME	VARCHAR(30)	Name of the specified table.
SOURCE_COUNT	N(10)	The number of rows for the table from the RDF product. NULLABLE
CLIENT_COUNT	N(10)	The number of rows for the tables from the customer installation. NULLABLE

DIFFERENCE	N(10)	The difference between SOURCE_COUNT and CLIENT_COUNT. A difference indicates that the load process did not complete successfully. NULLABLE
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Product Variations

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13.1 Entry Map

Entry map allows geocoding, and location look-up. Entry map contains high level road class geometry and Hamlet POIs.

Each Entry map country has its own Sub-Region code and Dataset ID. The countries are distributed as individual Database Coverage Areas (DCAs) and logically grouped in product suites.

- 1 Antarctica
- 2 South East Asia
- 3 Australia- New Zealand
- 4 Eastern Europe
- 5 Middle East - Africa
- 6 North America
- 7 Southern Asia
- 8 South America
- 9 Western Europe

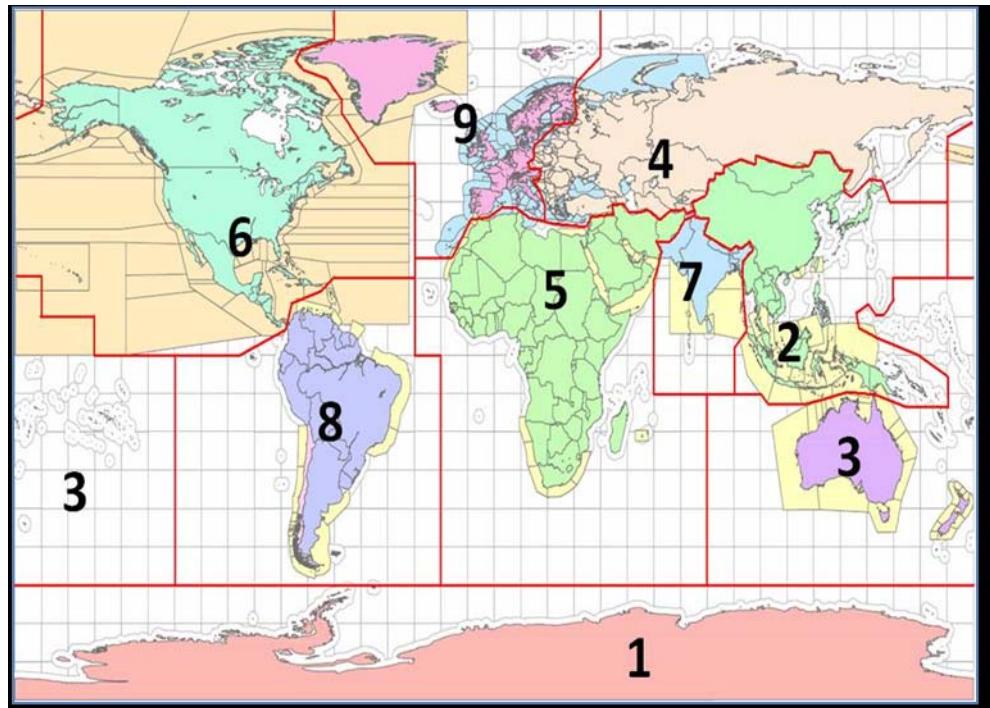


Figure 13-1

- Language**
- All names within this product are published with the *Language Code* = WEN (World English) and in Latin-1.
 - Local languages are not included for any feature.

- Road Network**
- A *Functional Class* = 1 - 3 network is implemented and connected.
Note: Dangles may be present. In some cases, there are isolated/floating geometry.
 - All names are set as *Name on Road Sign* = Y and *Explicable* = Y. Street Types are not parsed out. They are included as part of the Base Name.
 - The following default values are used:
 - ◆ *Divider* = N
 - ◆ All *Access Characteristics* = Y, except the higher speed roads where Pedestrians are not allowed access.

- ◆ *Direction of Travel* = B
 - ◆ *Paved* = Y
 - ◆ *Private* = N
 - ◆ *Detailed City* = N
 - ◆ *Multiply Digitised* = N
 - ◆ *Controlled Access* = N
 - ◆ *Private* = N; *Public Access* = Y; *Through Traffic* = Y
- *Speed Category* and *Lane Category* are populated based on a combination of attributes from the source.
- Administrative Boundaries**
- Worldwide coverage of country boundaries (*Feature Type* = 0907196) exists.
 - Country boundaries (*Feature Type* = 0907196) are represented as a linear feature and do not extend into the ocean.
 - For the disputed areas of West Bank and Gaza Strip, both are within the boundary of Israel.
 - Territories and dependencies are named with what they are known by, rather than by the countries owning them.
 - Levels 2 and 3 are copies of the country boundary.
- For example:
- Cambodia: Level 1 (*Feature Type* = 907196)
 - Cambodia: Level 2 (*Feature Type* = 900170)
 - Cambodia: Level 3 (*Feature Type* = 900101)
- Country Capitals**
- For each country, the capital city is represented as a *Built-Up Area*(9057).
 - Additional *Built-up Areas*(9057) exist for major cities.
 - *Cartographic Country Boundaries* (*Feature Type* = 908000) and *Cartographic State Boundaries* (*Feature Type* = 908001) are not included.
 - A *Named Place* POI is included for each capital. These are applied with *Capital Indicator* and *Population*.
 - Additionally, a *Hamlet* POI is included for major cities, and is also applied with *Population*.
- Administrative Coding**
- The countries have only Level 1 and Level 2 coding. Level 2 is a duplicate of Order 0 coding.
 - The administrative information for all the oceans will reflect Somalia administrative coding.
- Ocean representation**
- Coastal oceans, i.e., oceans extending up to 200 km out from the land, receive *Feature Type* = 0500116(ocean) and *Coverage Indicator* = E7. See dark blue in *Figure 13-2*.

- Filler oceans are represented as 10x10 degree blocks closing the gaps between the coastal oceans. Filler oceans receive the administrative coding of 1 of the Entry map countries in the suite and *Coverage Indicator* = O1. See light blue in *Figure 13-2*.
- Every block is represented as an ocean face (*Feature Type* = 0500116).
- Due to the edge matching between various map levels, the ocean representation changes to avoid overlaps between oceans and landmass/islands. This includes addition of holes and modification of polygons.
- Overlaps for oceans do not exist. Ocean Polygons are named. The following oceans are included:
 - ◆ Arabian Sea
 - ◆ Arctic Ocean
 - ◆ Baltic Sea
 - ◆ Bay Of Bengal
 - ◆ Black Sea
 - ◆ Caribbean Sea
 - ◆ Gulf Of Bothnia
 - ◆ Gulf Of Mexico
 - ◆ Indian Ocean
 - ◆ Kara Sea
 - ◆ Mediterranean Sea
 - ◆ North Atlantic Ocean
 - ◆ North Pacific Ocean
 - ◆ North Sea
 - ◆ South Atlantic Ocean
 - ◆ South Pacific Ocean
 - ◆ Southern Ocean
 - ◆ Tasman Sea

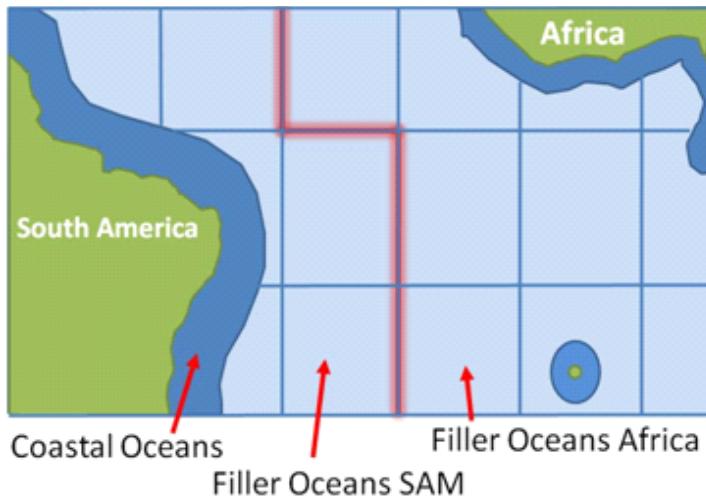


Figure 13-2

Lakes and Rivers	<ul style="list-style-type: none"> The following Feature Types are included for all hydrography: <ul style="list-style-type: none"> Feature Type = 0500412 (river) Feature Type = 0500421 (lake) All lake/river features are unnamed.
Islands	<ul style="list-style-type: none"> Major islands are represented as polygons (<i>Feature Type</i> = 0509999). The boundary name is the name of country.
Edge matching Connectivity between Here Map contents and Entry maps is guaranteed only within the map products same product suite and the same release quarter.	
Split along 180 degrees longitude	<p>The following countries are split due to limitation when products cross 180° longitude</p> <ul style="list-style-type: none"> Antarctica Fiji Kiribati
Country Borders	The same Link PVIDs and Node PVIDs are published in neighbouring Sub-Regions if applicable.
Coverage Indicator Values	<p>The following <i>Coverage Indicator</i> values are published for Entry map countries and oceans:</p> <ul style="list-style-type: none"> E7 - Entry map countries and coastal oceans O1 - Entry map filler oceans
Regional Differences	Differences in inclusion result from the use of local sources. For example, the source data used for Cyprus has more details than other Entry maps. To represent the border between North and South Cyprus, the United Nations neutral zone is published.

13.2 Intermediate Map

Intermediate Maps are a separate class of map data designed for customers who need fast time to market and desire HERE's service and support to introduce LBS and navigation applications in emerging markets.

Based on third-party source data deemed by HERE to be the highest quality available, Intermediate Maps do not adhere to the same specifications or required verification as the company's flagship product, the HERE Map Content. Inclusion and accuracy of geometry, attributes, and features is per the third-party source only. Translations of source data and coding assignments are derived base on automated rules and processing.

The following *Coverage Indicator* values define Intermediate Map functionality:

- I1 - Urban routing or point-to-point routing
- I2 - Search and display
- I3 - Display only

The table below contains the respective minimum inclusion for these *Coverage Indicator* values:

Attributes/Features/POIs	I1	I2	I3
Administrative Level 1 Coding	Y	Y	Y
Administrative Level 2 Coding	Y	Y	Y
Administrative Level 3 Coding	Y	Y	N
Administrative Level 4 Coding	Y	Y	N
Administrative Level 5 Coding	Y	N	N
Administrative Level 1 Boundary	Y	Y	Y
Administrative Level 2 Boundary	Y	Y	Y
Administrative Level 3 Boundary	Y	Y	N
Administrative Level 4 Boundary	Y	Y	N
Cartographic Country Boundary	Y	Y	Y
<i>Functional Class = 1 applied logically (without field verification)</i>	Y	Y	Y
<i>Functional Class = 2 applied logically (without field verification)</i>	Y	Y	Y
<i>Functional Class = 3 applied logically (without field verification)</i>	Y	Y	N
<i>Functional Class = 4 applied logically (without field verification)</i>	Y	Y	N
Full Coverage	Y	Y	N

Attributes/Features/POIs	I1	I2	I3
Cartographic Features	Y	Y	Y
In-Process Data	Y	Y	Y
<i>Coverage Indicator</i>	Y	Y	Y
Geometric Accuracy	Y	Y	Y
Floating Geometry	N	N	Y
Road Names	Y	Y	N
<i>Named Place</i> POI	Y	Optional	Optional
<i>Hamlet</i> POI	Y	Y	Y
<i>Hamlet</i> POI used to replace <i>Named Place</i> POI	N	Optional	Y
Address Ranges	Y	N	N
Edge Matching	Y	Y	Y
Competitive POIs	Y	Y	Y

- If *Coverage Indicator* = I1 or I2, then geometric accuracy is sufficiently accurate to be upgraded to a HERE Map Content in a future release.
- If *Coverage Indicator* = I3, then administrative names default to Country, State, County, City, Settlement as applicable.
- Any combination of the *Coverage Indicator* values can be published within one country. However, the same *Coverage Indicator* value is applied to an entire Administrative Area. The *Release Notes* contain the information on the *Coverage Indicator* values applied in the different Administrative Areas of a country.

13.3 Baseline and Feature Introduction Maps

13.3.1 Introduction

To meet the customer need for maps that are of high quality, fresh, and delivered at high frequencies, HERE adopted an optimised approach to collect, build and release map data. This is aimed for the following:

- Publish HERE Map data at a high frequency, known as Rapid Refresh
- Include large volumes of map updates in the Rapid Refresh products
- Offer an integrated Rapid Refresh portfolio where all content products are released frequently
- Stabilise the end-to-end chain to reduce the cycle time for customer to release products

This program is referred to as Baseline Map, which introduces several changes to the HERE product portfolio. These changes are described in this section.

13.3.2 Baseline Map

The Baseline Map products are standard HERE map data products in standard delivery formats coded against existing HERE data specifications. Baseline Map products have three specific characteristics:

- They have extended lifecycle, which implies that in the Baseline Map:
 - No new features are included.
 - Design of the data formats does not change
 - Terms and Conditions of using the data do not change.
- The data is offered at different frequencies:
 - Quarterly map products
 - Rapid Refresh products, released at high frequency
- Most Additional Content products are fully aligned.
 - Quarterly full alignment of all Additional Content products
 - Monthly full alignment of almost all Additional Content products

The Baseline Map products are specifically targeted for production.

Customers using Baseline Map products can compile successive deliveries of HERE Map data without the need to change compilation or application logic. The HERE Map data products do not change in design. Only coverage expansion is coded against the defined feature set.

13.3.3 Feature Introduction Map

Just like Baseline Map products, the Feature Introduction Map products comprise standard HERE Map data products in standard delivery formats. Feature Introduction Map products however have specific characteristics and thereby target primarily development purposes. These are the following:

- Have short lifecycle, which means:
 - New Features are added, where design of new features could be adjusted based on market feedback
 - Design of the data formats may change
- Data is delivered at Quarterly cycles only - no support for high frequent Rapid Refresh products
- Additional Content products are not aligned to Feature Introduction Map products - When Additional Content products change in design, the Feature Introduction Map may have Addition Content products for development purposes.

The Feature Introduction Map products are valid data products in standard delivery formats like RDF or GDF. However, the primary intended usage of these Feature Introduction Map products is not production. They are offered to facilitate development of new features and new applications. Secondly, they can be used to prepare for next year's Baseline Map products.

13.4 Off-Road Africa

Off-Road Africa consists of additional geometry with the following attribution:

Minor roads

- *Speed Category* = 7 (11-30 KPH / 6-20 MPH)
- *Paved* = Y
- *Four-Wheel Drive* = N
- Access Characteristics - Autos = Y, Buses = Y, Taxis = Y, Carpools = Y, Pedestrians = Y, Trucks = Y, Through Traffic = Y, Deliveries = Y, Emergency Vehicles = Y

Minor gravel roads

- *Speed Category* = 6 (31-50 KPH / 21-30 MPH) or 7 (11-30 KPH / 6-20 MPH)
- *Paved* = N
- *Four-Wheel Drive* = N
- Access Characteristics - Autos = Y, Buses = Y, Taxis = Y, Carpools = Y, Pedestrians = Y, Trucks = Y, Through Traffic = Y, Deliveries = Y, Emergency Vehicles = Y

Hiking/Mountain Biking Trail

- *Speed Category* = 8 (<11 KPH / <6 MPH)
- *Paved* = N
- *Four-Wheel Drive* = N
- Access Characteristics - Autos = N, Buses = N, Taxis = N, Carpools = N, Pedestrians = Y, Trucks = N, Through Traffic = N, Deliveries = N, Emergency Vehicles = N

Off-Road (Four Wheel Drive)

- *Speed Category* = 7 (11-30 KPH / 6-20 MPH) or 8 (<11 KPH / <6MPH)
- *Paved* = N
- *Four-Wheel Drive* = Y
- Access Characteristics - Autos = Y, Buses = Y, Taxis = Y, Carpools = Y, Pedestrians = Y, Trucks = Y, Through Traffic = N, Deliveries = Y, Emergency Vehicles = Y

Coverage Indicator = W0 is published on Off-Road Africa geometry in order to allow customers flexibility in developing applications with this data.

Off-Road Africa Rich Content POI XML can be linked to the additional geometry. The Off-Road Africa Rich Content POI XML not only provides POI information, but also additional important information for trip planning in Africa such as, detailed information about lodging, driveability of specific areas throughout the year, presence of water wells, and difficulty of 4x4 4 trails

13.5 XML Products

The following are examples of products that are available via XML files. Documentation for these files is delivered separately.

- Falk Maro Polo Interactive Travel Guide
- Fuel Types
- Lonely Planet Travel Guide
- Off-Road
- Parking Preview
- Safety Cameras
- Toll Cost
- Off-Road Africa
- Truck POIs

Refer to the HERE Product Catalog for the comprehensive list.

13.6 Miscellaneous Files

The following are examples of products delivered in other formats:

- Digital Terrain Model
- Enhanced Elevation Contours
- Census Boundaries
- HERE Traffic
- Voice Phonetic Transcriptions
- Postal Code Boundaries
- Postal Code Points

Refer to the HERE Product Catalog for the comprehensive list.

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Premium Content

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14.1 Premium Content

Each RDF delivery contains premium content that typically involves an additional charge for usage. The `RDF_META_PREMIUM_%` tables identify:

- content packages
- components of content packages
- means to suppress content packages

Use the `RDF_META_PREMIUM_%` tables to control premium content during the data compilation work for specific target products. All examples provided here are for illustrative purposes only. For details about what is premium content and the terms and conditions of its use in your specific case, contact your Account Executive.

Premium content within core schema

Most premium content is published in the core schema. To facilitate handling of premium content during compilation, `RDF_META_PREMIUM_%` tables explicitly identify premium content packages. See *Figure 14-1*.

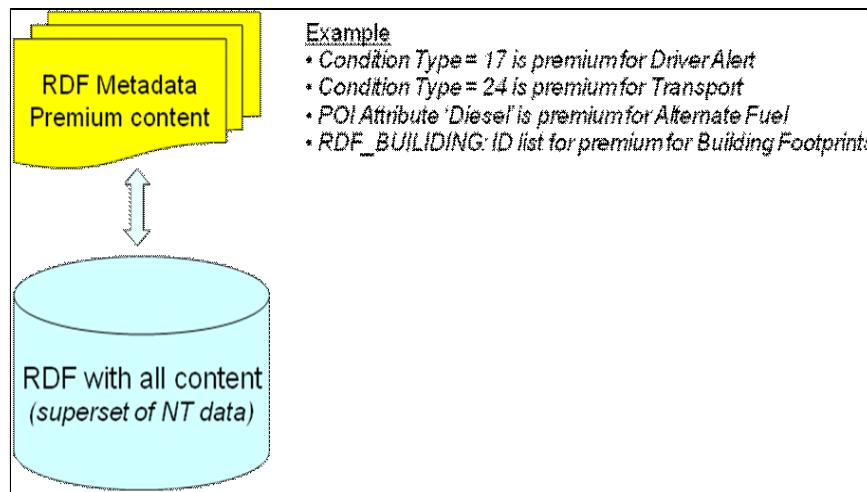


Figure 14-1

Use the `RDF_META_PREMIUM_%` tables when deciding to ignore premium content that is not applicable to specific targeted products. See *Figure 14-2* for an example customer compiler usage of premium content tables.

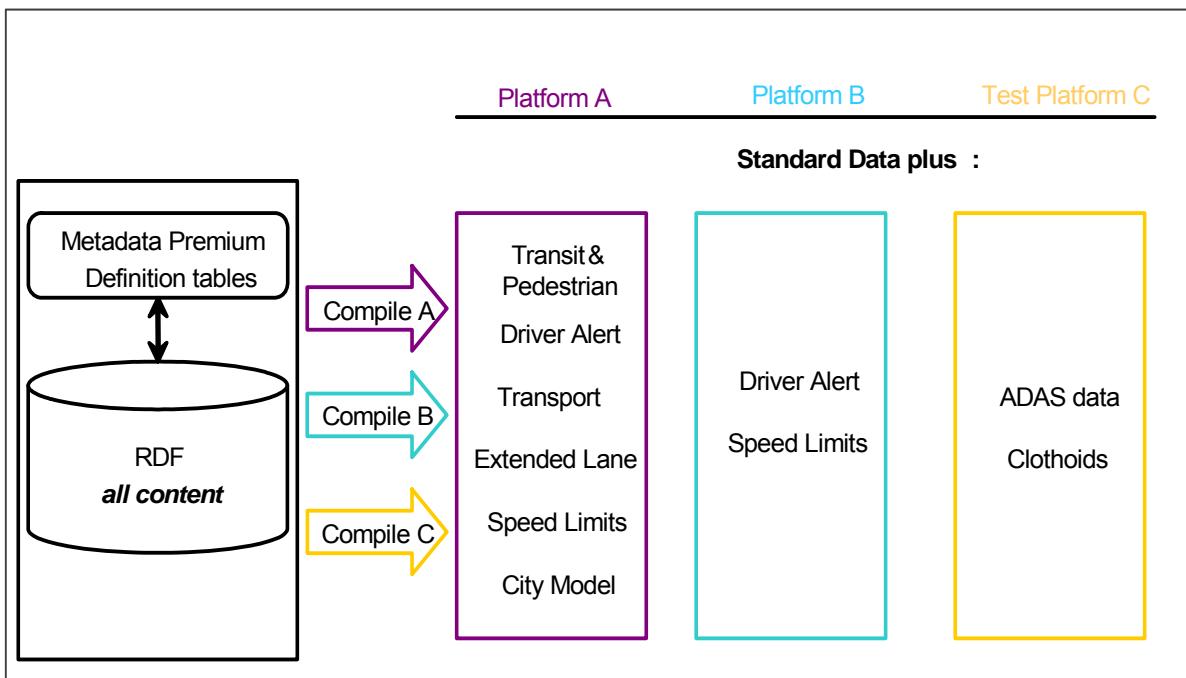


Figure 14-2

Premium content outside core schema

An Extension is a separate set of data files for specific content that does not reside in the core schema. Data provided as an Extension typically represents a discrete set of data, independent from the core schema. An Extension is provided as data files that load into tables outside the core RDF_% tables. The Extensions are separate from the core schema and allow for later upload. An Extension may be available at a later time than the core deliverable. As applicable, Extensions are identified as premium content. Therefore, specific premium content package definitions with corresponding rules are defined for Extensions.

The name of the data file indicates the table into which to load the Extension.

- Usually, the prefix in the Extension data file name relates to the specific premium content package.
- Some Extensions do not have a prefix identifying the type of content in the Extension.

For example, the Extension data file named VCE_PHONETIC_TEXT is:

- the prefix VCE indicates Voice Phonetic Transcription.
- VCE_PHONETIC_TEXT is the table in which to load the Extension data file

See *Figure 14-3* for schematic overview of this logic.

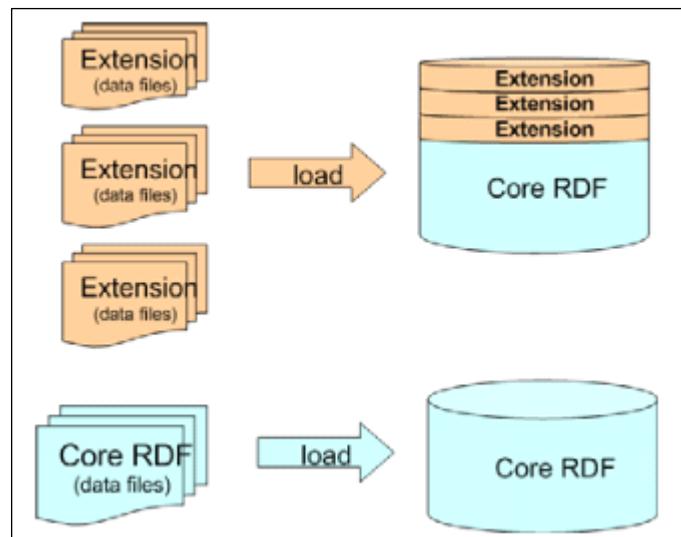


Figure 14-3

14.2 Premium Content Identification

See *Figure 14-4* for the tables that identify content packages and the data that is in a specific content package.

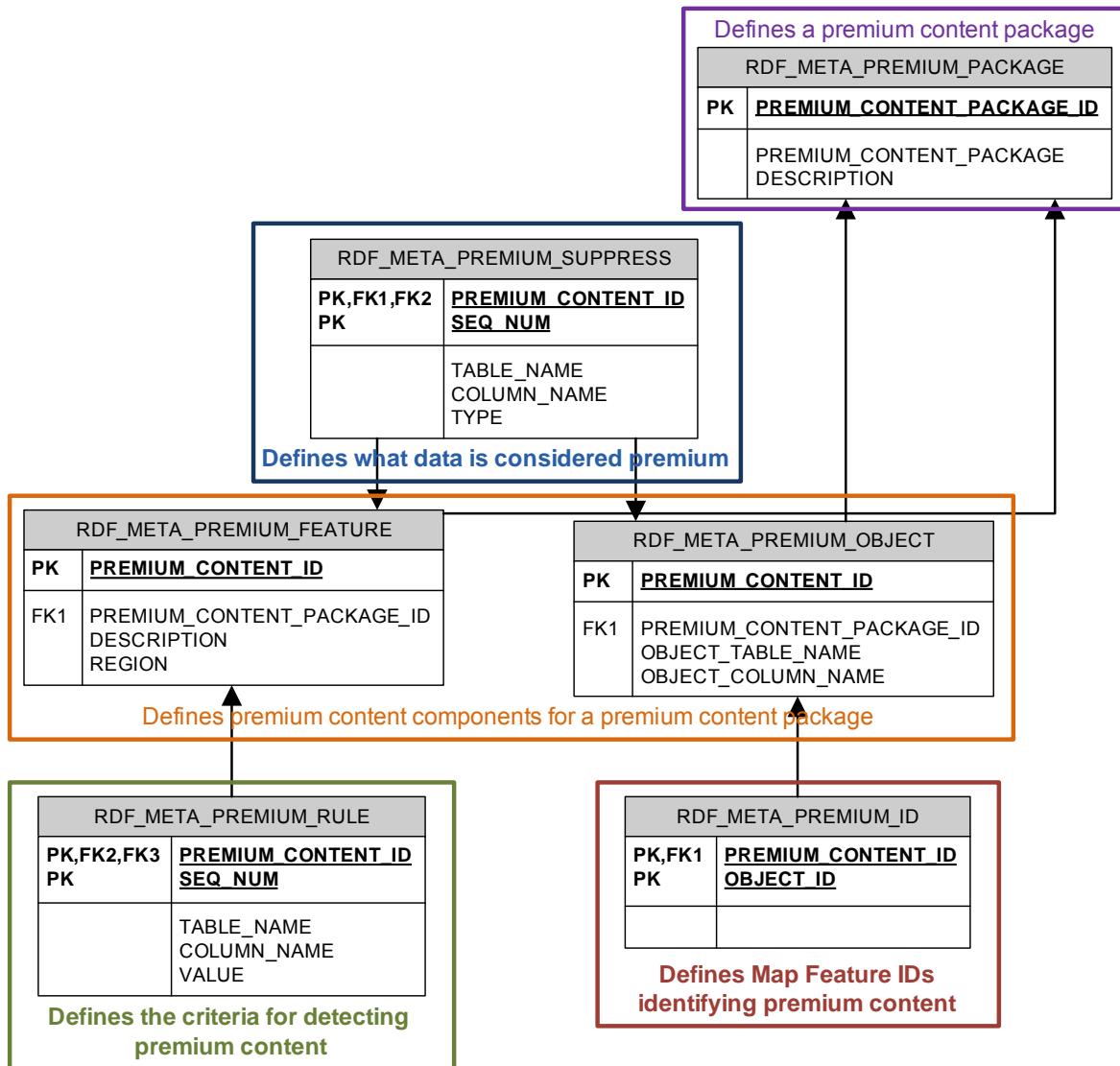


Figure 14-4

The PREMIUM_CONTENT_PACKAGE table defines a content package. Based on the Premium Content Package ID, obtain the content components for a specific content package.

Only the main features involved in a premium content package are identified. The functionally dependent features, attribute, and names are not explicitly identified as part of a premium content package. In terms of a tree structure, only the highest entry in the tree is identified as premium. All lower

level branches dependent on this higher level entry are also premium content and must be treated as part of the content package as well.

At customer compiler level this implies that the feature identified as premium is to be excluded from the selection. Also the features, attributes, and names dependent on the feature should be excluded from the compilation. In SQL terminology, an inner join is to be executed to also ignore the functionally dependent content of a suppressed feature. For examples, see *Section 14.9.1, Removal of Neighbourhood Zone*, *Section 14.9.2, Removal of Transport Access Restriction*, *Section 14.9.3, Removal of Structure Footprint*, *Section 14.9.4, Scenic Routes*

A premium content package can be identified by:

- Rule(s) only
- IDs only
- Rule(s) and IDs

14.2.1 Rule Identification

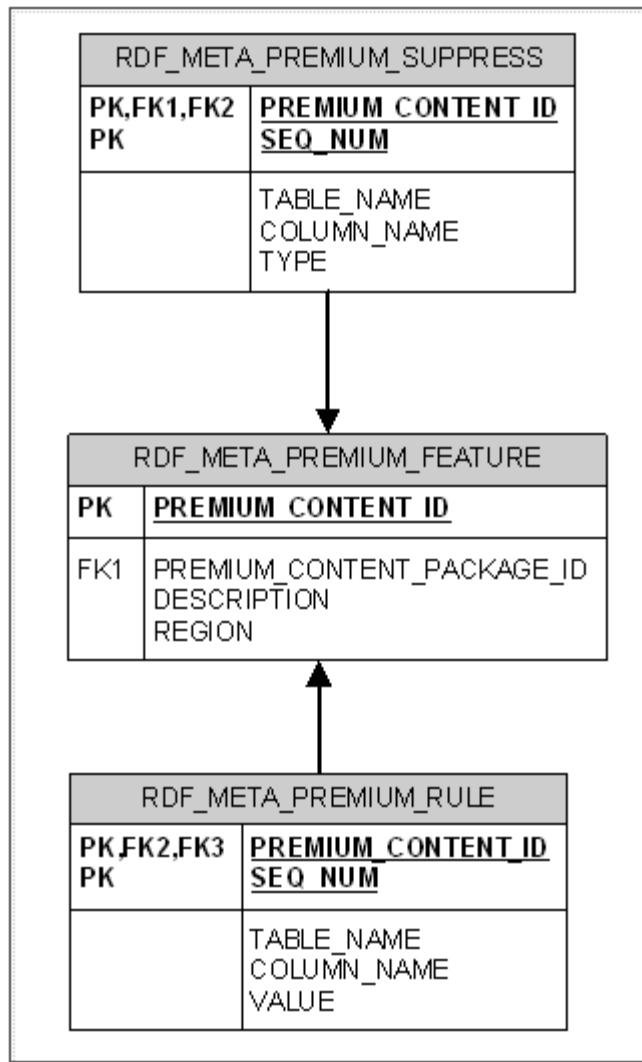


Figure 14-5

The premium content package is defined in `RDF_META_PREMIUM_PACKAGE`. A specific premium content package has a description and at least one related premium content component defined in `RDF_META_PREMIUM_FEATURE`.

Table `RDF_META_PREMIUM_FEATURE` defines the components of a specific premium content package. Each component is identified based on rules; for example, Feature Type, Category ID, Attribute Value, or Condition Type, which are defined in `RDF_META_PREMIUM_RULE`.

Rules allow retrieval of content based on these criteria (e.g., Condition Type = 23 in `RDF_CONDITION` is premium).

Multiple rules can define a premium content package component. The sequence of rules can be relevant; therefore, use the `SEQ_NUM` field to apply rules in the correct order.

If a component identified by a Premium Content ID does not have a corresponding rule in RDF_META_PREMIUM_FEATURE_RULE, then the definition of content suppressed in RDF_META_PREMIUM_SUPPRESS applies to all rows in the defined table.

For example, table RDF_ADDRESS_POINT is premium. The RDF_META_PREMIUM_FEATURE table defines an entry:

RDF_META_PREMIUM_FEATURE			
PREMIUM_CONTENT_ID	PREMIUM_CONTENT_PACKAGE_ID	DESCRIPTION	REGION
72	41	Point Address	WW

The RDF_META_PREMIUM_SUPPRESS has one entry:

RDF_META_PREMIUM_SUPPRESS			
PREMIUM_CONTENT_ID	TABLE_NAME	COLUMN_NAME	TYPE
72	RDF_ADDRESS_POINT		Rule

There is no entry in RDF_META_PREMIUM_RULE for the PREMIUM_CONTENT_ID = 72.

This indicates that RDF_ADDRESS_POINT is premium worldwide and all rows in RDF_ADDRESS_POINT are premium.

14.2.2 ID Identification

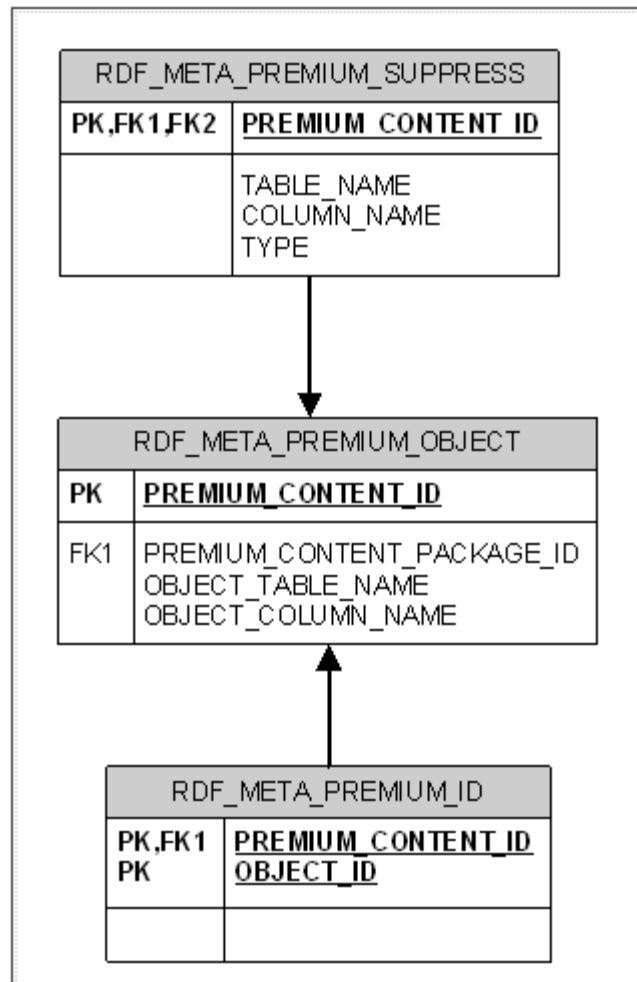


Figure 14-6

Map object IDs identify premium content features (e.g., the following Building IDs are premium).
IDs are used when rule(s) cannot be used or are too complex to define the premium content.

14.3 RDF_META_PREMIUM_PACKAGE

Table RDF_META_PREMIUM_PACKAGE defines premium content packages. A premium content package is a set of data which has an additional usage fee.

Each premium content package has one or more components defined in RDF_META_PREMIUM_FEATURE or RDF_META_PREMIUM_OBJECT.

14.3.1 Premium Content Package ID

Definition	Premium Content Package ID defines the unique identifier for a premium content package which groups all premium content components for one package.
Table	RDF_META_PREMIUM_PACKAGE
Column	PREMIUM_CONTENT_PACKAGE_ID
Specification	<ul style="list-style-type: none"> Based on the Premium Content Package ID customers can select all rules (RDF_META_PREMIUM_FEATURE) and/or IDs (RDF_META_PREMIUM_OBJECT) applicable to a specific premium content package.

14.3.2 Premium Content Package

Definition	Premium Content Package defines the name of the package that relates to specific set of premium content.
Table	RDF_META_PREMIUM_PACKAGE
Column	PREMIUM_CONTENT_PACKAGE
Specification	<ul style="list-style-type: none"> A Premium Content Package could be a combination of rules and IDs; therefore, both RDF_META_PREMIUM_FEATURE and RDF_META_PREMIUM_OBJECT must be considered when identifying content related to a premium content package. Premium Content Package is a string which stores the name of the content package.

14.3.3 Description

Definition	Description is a more detailed description of the premium content.
Table	RDF_META_PREMIUM_PACKAGE RDF_META_PREMIUM_FEATURE
Column	DESCRIPTION
Specification	<ul style="list-style-type: none"> RDF_META_PREMIUM_PACKAGE.DESCRIPTION describes a content package.

- RDF_META_PREMIUM_FEATURE.DESCRIPTION describes a component of a content package defined by a specific rule in RDF_META_PREMIUM_RULE (e.g., No Overtaking condition, Neighbourhood Zone).

14.4 RDF_META_PREMIUM_SUPPRESS

The RDF_META_PREMIUM_SUPPRESS table defines which data is premium for the premium content package components. RDF_META_PREMIUM_SUPPRESS does not indicate how to obtain the content from RDF, it only indicates which table and column is premium for a specific component. RDF_META_PREMIUM_RULE or RDF_META_PREMIUM_ID indicate the criteria that specify how to obtain the content from RDF.

One set of rules can trigger the suppression of multiple content pieces, as defined in RDF_META_PREMIUM_SUPPRESS. For example, if From Ref Speed Limit and To Ref Speed Limit is premium for specific Functional Class roads in Poland, then the following is published:

- one rule in RDF_META_PREMIUM_RULE: RDF_NAV_LINK.FUNCTIONAL_CLASS = 1, with REGION = POL.
- two corresponding suppression criteria in RDF_META_PREMIUM_SUPPRESS
 - RDF_NAV_LINK.FROM_REF_SPEED_LIMIT
 - RDF_NAV_LINK.TO_REF_SPEED_LIMIT

Based on the rule published in RDF_META_PREMIUM_RULE, multiple content pieces must be suppressed.

14.4.1 Table Name

Definition Table Name defines the table in which the premium content that is to be suppressed is stored.

Table RDF_META_PREMIUM_SUPPRESS

Column TABLE_NAME

- Specification**
- Table Name is a mandatory field.
 - If only Table Name is published (Column Name is empty), all data in the defined Table Name is premium.
 - If no rule is defined for the component Premium Content ID (i. e. if there is no entry in RDF_META_PREMIUM_RULE), the component relates to all rows of the table identified in RDF_META_PREMIUM_SUPPRESS.TABLE_NAME.
 - If the Premium Content ID is ID-based and has a set of corresponding Object ID in RDF_META_PREMIUM_ID, then the premium content defined in RDF_META_PREMIUM_SUPPRESS only relates to those IDs identified in RDF_META_PREMIUM_ID.

14.4.2 Column Name

Definition Column Name defines the column in the table in which the premium content that is to be suppressed is stored.

Table RDF_META_PREMIUM_SUPPRESS

Column COLUMN_NAME

- Specification**
- Column Name is an optional field. If premium content relates to the entire table, then COLUMN_NAME is empty.
 - The COLUMN_NAME relates to the defined TABLE_NAME.

14.5 RDF_META_PREMIUM_FEATURE

Table RDF_META_PREMIUM_FEATURE publishes components of a premium content package. One premium content package can have multiple components.

A premium content component can be applicable globally or regionally.

14.5.1 Premium Content ID

Definition Premium Content ID is a unique, non-permanent identifier for a specific component of a Premium Content Package.

Table RDF_META_PREMIUM_FEATURE

Column PREMIUM_CONTENT_ID

Specification

- Premium Content ID is a unique, non-permanent identifier across database releases.
- A Premium Content ID includes at least one rule and may have multiple associated rules. Rules applicable to a Premium Content ID are defined in table RDF_META_PREMIUM_RULE.

14.5.2 Region

Definition Region identifies the geographic area in which the content package may be premium.

Table RDF_META_PREMIUM_FEATURE

Column REGION

Specification

- Region is a mandatory attribute.
- If a rule applies to multiple regions, but not worldwide, multiple rows are published in RDF_META_PREMIUM_FEATURE. Each row defines one Region only.
- The Region is defined at the highest level possible. If content is premium for an entire continent (e.g., Europe), then only one Region = EU is published for the content package. If a content package is globally premium, then only one entry with Region = WW is published.
- A Premium Content Package may be only applicable to specific countries or only to specific continents.
- If content is premium at country level only, the ISO country code is published. For example:
DEU – Germany
FRA – France

USA – United States of America

- If content is premium at continental level only, the following values are published.
For example:
 - AF – Africa
 - APAC – Asia Pacific
 - EU – Europe
 - LAM – Latin America
 - ME – Middle East
 - NA – North America
- If content is premium globally, WW is published.
- Always check the Region when interpreting the premium content definition. For example, to interpret the premium content in relation to a European RDF dataset, check for each of the rules applicable to European coverage:
 - ◆ Region = WW
 - ◆ Region = EU
 - ◆ Region = ISO Country Code of each European country

14.6 RDF_META_PREMIUM_RULE

Table RDF_META_PREMIUM_RULE defines rules that identify premium content packages. One premium content package can be composed of one or more rules.

RDF_META_PREMIUM_RULE is used only by the rule-based identification of premium content.

If a premium content package component is based on a combination of rules, multiple entries in RDF_META_PREMIUM_RULE are published with the same PREMIUM_CONTENT_ID. These combined rules must be interpreted using an 'AND' syntax. For example: RDF_CONDITION.CONDITION_TYPE = 17 and RDF_CONDITION_DRIVER_ALERT.TRAFFIC_SIGN_TYPE = 16 is based on two rules with the same PREMIUM_CONTENT_ID.

14.6.1 Sequence Number

Definition Sequence Number defines the order in which the Rules for a specific Premium Content ID are to be applied.

Table RDF_META_PREMIUM_RULE

Column SEQ_NUM

Specification

- If a premium content package component consists of more than one rule, it is necessary to apply the rules in the correct order.
- Sequence Number defines the order in which to apply rules when suppressing a specific premium content package.

14.6.2 Table Name

Definition Table Name defines the table in which the component is stored.

Table RDF_META_PREMIUM_RULE

Column TABLE_NAME

Specification

- Table Name is a mandatory field.

14.6.3 Column Name

Definition Column Name defines the column in the Table Name in which the component is stored.

Table RDF_META_PREMIUM_RULE

Column COLUMN_NAME

- Specification**
- Column Name is a mandatory field. A rule for component suppression always is based on combination of Table Name, Column Name, and Value.
 - The Column Name relates to the defined Table Name.

14.6.4 Value

Definition Value defines the value published in the field identified by Column Name which identifies the component.

Table RDF_META_PREMIUM_RULE

Column VALUE

- Specification**
- Value is a mandatory field. A rule for component suppression always is based on combination of Table Name, Column Name, and Value.
 - Only one value is published in the Value field. If multiple Values apply to one premium content package, multiple RDF_META_PREMIUM_RULE entries are published, each with a different Premium Content ID value.
 - Value relates to the defined Column Name.

14.7 RDF_META_PREMIUM_OBJECT

Table RDF_META_PREMIUM_OBJECT defines the Table Name and Column Name

14.7.1 Premium Content ID

Definition Premium Content ID is a unique, non-permanent identifier for a specific component of a Premium Content Package.

Table RDF_META_PREMIUM_OBJECT

Column PREMIUM_CONTENT_ID

Specification

- Premium Content ID is a generated number, unique, but not permanent across database releases.
- A Premium Content ID defined in RDF_META_PREMIUM_OBJECT includes minimally one Object ID, but typically has many associated Object ID in RDF_META_PREMIUM_ID.

14.7.2 Table Name

Definition Table Name defines the table in which the Object identifiers that define premium content are stored.

Table RDF_META_PREMIUM_OBJECT

Column OBJECT_TABLE_NAME

Specification

- Table Name is a mandatory field.

14.7.3 Column Name

Definition Column Name defines the column related to the Table Name in which the Object identifies defining premium content are stored.

Table RDF_META_PREMIUM_OBJECT

Column OBJECT_COLUMN_NAME

Specification

- Column Name is a mandatory field.
- The Column Name relates to the defined Table Name.
- Column Name in RDF_META_PREMIUM_OBJECT publishes a column that stores an ID value. The actual Object ID is published in table RDF_META_PREMIUM_ID.

14.8 RDF_META_PREMIUM_ID

Table RDF_META_PREMIUM_ID identifies a list of IDs which are premium for the Premium Content Package defined in RDF_META_PREMIUM_OBJECT.

The OBJECT_ID in the RDF_META_PREMIUM_ID table relates to the Table Name and Column Name in RDF_META_PREMIUM_OBJECT.

14.8.1 Object ID

Definition Object ID stores the ID for map objects which are premium. One Premium Content Package can publish many associated Object IDs.,

Table RDF_META_PREMIUM_ID

Column OBJECT_ID

Specification • The Object ID refers to the Table Name and Column Name in RDF_META_PREMIUM_OBJECT. For example, a specific Premium Content ID defines Table Name = RDF_NAV_LINK and Column Name = LINK_ID. Object IDs for this example are Link ID values.

14.9 Examples

14.9.1 Removal of Neighbourhood Zone

The Neighbourhood Zone (RDF_ZONE.ZONE_TYPE = NB) is Transit and Pedestrian premium content. If not using Transit and Pedestrian content at compile time, ignore the following dependent content:

- Name of the Neighbourhood Zone
- Link – Zone attribution for the Neighbourhood Zone (RDF_LINK_ZONE)
- Zone – Postal (RDF_ZONE_POSTAL) and Zone – Admin (RDF_PLACE_ZONE) association
- Neighbourhood Zone in the Admin Subregion Definition (ADM_SUBREGION_DEF)

14.9.2 Removal of Transport Access Restriction

The *Transport Access Restriction* (RDF_CONDITION.CONDITION_TYPE = 23) is Trucks premium content. If not using Trucks product at compile time, ignore the following dependent content:

- NAV_STRAND_ID for the Transport Access Restriction (RDF_NAV_STRAND)
- Attributes for the Transport Access Restriction, as published in RDF_CONDITION_TRANSPORT
- Date – Time Modifiers applicable to the Transport Access Restriction

14.9.3 Removal of Structure Footprint

A list of Structure Footprints (RDF_BUILDING and RDF_CF entries) is identified as premium for the Structure Footprint package. If not using the Structure Footprint package at compile time, ignore the following dependent content:

- Attributes for the Structure Footprint or Grouped Structure
- Name for the Structure Footprint or Grouped Structure
- File Association (RDF_FEATURE_FILE) for the Grouped Structure
- Face and Face Link (RDF_FACE and RDF_FACE_LINK) associated with the Structured Footprint
- Links and Nodes that are only referenced by the Face of the Structured Footprint.
- POI association to Grouped Structure (RDF_POI_FEATURE)

14.9.4 Scenic Routes

The following content is in the Scenic Routes content package:

- Navigable link attribute SCENIC_ROUTE
- Names of Scenic Route links

RDF_META_PREMIUM_PACKAGE		
PREMIUM_CONTENT_PACKAGE_ID	PREMIUM_CONTENT_PACKAGE	DESCRIPTION
4	Scenic Route	Scenic Route

RDF_META_PREMIUM_FEATURE			
PREMIUM_CONTENT_ID	PREMIUM_CONTENT_PACKAGE	DESCRIPTION	REGION
4	59	Scenic Route Attribute	WW
4	60	Scenic Route Name	WW

RDF_META_PREMIUM_SUPPRESS				
PREMIUM_CONTENT_PACKAGE	SEQ_NUM	TABLE_NAME	COLUMN_NAME	TYPE
59	1	RDF_NAV_LINK_ATTRIBUTE	SCENIC_ROUTE	R
60	1	RDF_ROAD_NAME		R

The first entry in RDF_META_PREMIUM_SUPPRESS defines RDF_NAV_LINK_ATTRIBUTE.SCENIC_ROUTE as premium.

The second entry in RDF_META_PREMIUM_SUPPRESS defines that specific rows in RDF_ROAD_NAME are premium.

Criteria for component suppression are defined in RDF_META_PREMIUM_RULE:

RDF_META_PREMIUM_RULE				
PREMIUM_CONTENT_ID	SEQ_NUM	TABLE_NAME	COLUMN_NAME	VALUE
1	1	RDF_NAV_LINK_ATTRIBUTE	SCENIC_ROUTE	Y
2	1	RDF_ROAD_NAME	IS_SCENIC_NAME	Y

14.9.5 Extended Lanes & Lane Markings

The following content is in the Extended Lanes & Lane Markings content package:

- Lane Traversal conditions (Condition Type = 13) with corresponding attributes

- Lane Markings (RDF_LANE)

This content is premium for links of *Functional Class* = 3, 4, or 5 only, when not connecting to a junction where *Functional Class* 1 or 2 links also connect.

RDF_META_PREMIUM_PACKAGE		
PREMIUM_CONTENT_PACKAGE_ID	PREMIUM_CONTENT_PACKAGE	DESCRIPTION
17	Extended Lane	Extended Lane

RDF_META_PREMIUM_OBJECT			
PREMIUM_CONTENT_ID	PREMIUM_CONTENT_PACKAGE_ID	OBJECT_TABLE_NAME	OBJECT_COLUMN_NAME
170	17	RDF_LANE	LANE_ID
171	9	RDF_CONDITION	CONDITION_ID

RDF_META_PREMIUM_SUPPRESS				
PREMIUM_CONTENT_ID	SEQ_NUM	TABLE_NAME	COLUMN_NAME	TYPE
170	2	RDF_LANE	LANE_DIVIDER_MARKER	O
170	1	RDF_LANE	CENTER_DIVIDER_MARKER	O
170	3	RDF_LANE	DIRECTION_CATEGORY	O
171	1	RDF_CONDITION		O

The entries in RDF_META_PREMIUM_SUPPRESS for PREMIUM_CONTENT_ID = 170 define three columns in RDF_LANE as premium: LANE_DIVIDER_MARKER, CENTER_DIVIDER_MARKER, and DIRECTION_CATEGORY, for the RDF_LANE entries where LINK_ID is published for the PREMIUM_CONTENT_ID in RDF_META_PREMIUM_ID.

The entry for Premium Content ID = 171 defines entries in RDF_CONDITION as premium, where Condition ID is published for the PREMIUM_CONTENT_ID in RDF_META_PREMIUM_ID.

The Link IDs in the content package are published in OBJECT_ID, for example:

RDF_META_PREMIUM_ID	
PREMIUM_CONTENT_ID	OBJECT_ID
170	12394867
170	12394683
170	21857626

The Lane Traversal Condition IDs in the content package are published in OBJECT_ID, for example:

RDF_META_PREMIUM_ID	
PREMIUM_CONTENT_ID	OBJECT_ID
171	64727645
171	62756275
171	6673867

14.9.6 Trucks

The following content is in the Trucks content package:

- Transport Access Restriction (Condition Type = 23)
- Transport Restricted Driving Manoeuvre (Condition Type = 26)
- Transport Special Speed Situation (Condition Type = 25)
- Transport Preferred Route (Condition Type = 27)
- All Transport Attribution (table RDF_CONDITION_TRANSPORT)
- Various Traffic Signs specific to Transport (Condition Type = 17, with various Traffic Sign Type values)

RDF_META_PREMIUM_PACKAGE		
PREMIUM_CONTENT_PACKAGE_ID	PREMIUM_CONTENT_PACKAGE	DESCRIPTION
8	Transport	Transport

RDF_META_PREMIUM_FEATURE			
PREMIUM_CONTENT_ID	PREMIUM_CONTENT_PACKAGE_ID	DESCRIPTION	REGION
83	8	Transport Access Restriction condition	WW
87	8	Transport Restricted Driver Manoeuvre condition	WW
88	8	Transport Special Speed Situation condition	WW
86	8	Transport Preferred Route condition	WW
etcetera			
84	8	Truck Stop POI	WW
85	8	Weigh Station POI	WW

RDF_META_PREMIUM_SUPPRESS				
PREMIUM_CONTENT_ID	SEQ_NUM	TABLE_NAME	COLUMN_NAME	TYPE
83	1	RDF_CONDITION		R
87	1	RDF_CONDITION		R
88	1	RDF_CONDITION		R
86	1	RDF_CONDITION		R
Etcetera				
84	1	RDF_POI		R
85	1	RDF_POI		R

RDF_META_PREMIUM_SUPPRESS indicates that for the various premium content pieces the RDF_CONDITION entry is premium.

For Premium Content ID 84 and 84 the indication is that RDF_POI entries are premium.

RDF_META_PREMIUM_RULE				
PREMIUM_CONTENT_ID	SEQ_NUM	TABLE_NAME	COLUMN_NAME	VALUE
83	1	RDF_CONDITION	CONDITION_TYPE	23
87	1	RDF_CONDITION	CONDITION_TYPE	26
88	1	RDF_CONDITION	CONDITION_TYPE	25
86	1	RDF_CONDITION	CONDITION_TYPE	27
...				
84	1	RDF_POI	CAT_ID	9522
85	1	RDF_POI	CAT_ID	9710

14.9.7 Speed Limits

Speed Limits is premium for specific countries and for specific Functional Class links only; therefore, the rule-based identification is a combination of:

- Region
- Functional Class based link identification

RDF_META_PREMIUM_PACKAGE		
PREMIUM_CONTENT_PACKAGE_ID	PREMIUM_CONTENT_PACKAGE	DESCRIPTION
6	Speed Limits	Speed Limits

RDF_META_PREMIUM_FEATURE			
PREMIUM_CONTENT_ID	PREMIUM_CONTENT_PACKAGE_ID	DESCRIPTION	REGION
49	6	Functional Class 1 Speed Limits in Poland	POL
50	6	Functional Class 2 Speed Limits in Poland	POL
51	6	Functional Class 1 Speed Limits in Slovakia	SVK
52	6	Functional Class 2 Speed Limits in Slovakia	SVK
Etc.			

RDF_META_PREMIUM_SUPPRESS indicates the columns to be suppressed based on the Premium Content ID rule: FROM_REF_SPEED_LIMIT and TO_REF_SPEED_LIMIT.

RDF_META_PREMIUM_SUPPRESS				
PREMIUM_CONTENT_ID	SEQ_NUM	TABLE_NAME	COLUMN_NAME	TYPE
62	1	RDF_LANE	FROM_REF_SPEED_LIMIT	R
62	2	RDF_NAV_LINK	TO_REF_SPEED_LIMIT	R
63	1	RDF_NAV_LINK	FROM_REF_SPEED_LIMIT	R
63	2	RDF_NAV_LINK	TO_REF_SPEED_LIMIT	R

RDF_META_PREMIUM_RULE defines the links with *Functional Class* = 1 and 2 as a filter for premium content. Premium Content ID = 49 and 50 are for Poland; Premium Content ID = 51 and 52 are for Slovakia.

RDF_META_PREMIUM_RULE				
PREMIUM_CONTENT_ID	SEQ_NUM	TABLE_NAME	COLUMN_NAME	VALUE
49	1	RDF_NAV_LINK	FUNCTIONAL_CLASS	1
50	1	RDF_NAV_LINK	FUNCTIONAL_CLASS	2
51	1	RDF_NAV_LINK	FUNCTIONAL_CLASS	1
52	1	RDF_NAV_LINK	FUNCTIONAL_CLASS	2

14.9.8 Transit and Pedestrian

The following Pedestrian attribute set is in the Transit and Pedestrian content package:

- Pedestrian Preferred
- Stairs Traversal

- Virtual Connection

RDF_META_PREMIUM_PACKAGE		
PREMIUM_CONTENT_PACKAGE_ID	PREMIUM_CONTENT_PACKAGE	DESCRIPTION
13	Tap	Transit and Pedestrian

RDF_META_PREMIUM_FEATURE			
PREMIUM_CONTENT_ID	PREMIUM_CONTENT_PACKAGE_ID	DESCRIPTION	REGION
148	13	Pedestrian Preferred	WW
154	13	Stairs Traversal	WW
158	13	Virtual Connection	WW

RDF_META_PREMIUM_SUPPRESS				
PREMIUM_CONTENT_ID	SEQ_NUM	TABLE_NAME	COLUMN_NAME	TYPE
148	1	RDF_NAV_LINK	PEDESTRIAN_PREFERRED	R
154	1	RDF_NAV_LINK_ATTRIBUTE	STAIRS_TRAVERSAL	R
158	900	RDF_VIRTUAL_CONNECTION	(Null)	R

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Extended Navigation

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15.1 Introduction

Extended Navigation enables applications to provide navigation and guidance down to the last mile/kilometre. The product includes detailed intra-complex data, e.g., inside shopping malls, arenas, universities, etc. where unnamed roads and geometry are prevalent. User orientation is also improved through use of building shapes and assigned building unit numbers.

15.2 Inclusion

15.2.1 Road Geometry

The following geometry is required at each selected location:

- All access roads to POI location.
- All navigable connections internal to complex.
- Pedestrian walkways that exist in reality and where navigable geometry does not exist to actual entrance, e.g., Washington Monument.
- All driving lanes within parking lots that provide access to parking spaces, see highlighted links in *Figure 15-1*.



Figure 15-1

15.2.2 Cartographic Inclusion

All significant building footprints at the POI location are included.

15.2.3 Points of Interest

- Inclusion**
- POI categories for each targeted area can vary and may include the following:
 - ◆ Airport

- ◆ Amusement Park
- ◆ Business Facility
- ◆ Casino
- ◆ Convention Centre
- ◆ Golf Course
- ◆ Historical Monument
- ◆ Hospital
- ◆ Park/Recreation Area
- ◆ Railway Station
- ◆ Shopping Centre
- ◆ Sports Complex
- ◆ Tourist Attraction
- ◆ University
- ◆ Winery

- Specification**
- Each location has one main POI with the official name of the facility, placed at the main entrance.
 - Additional entrances are added at their actual locations for large features, e.g., Hospitals, Parks and Sports Complexes.
 - For Shopping Centres, the anchor store entrance locations are added at their actual location in addition to the main entrances to the Shopping Centre facility.
 - A POI can be included for a Parking Garage/House, if navigationally significant.

15.3 POI Attributes

15.3.1 Entrance Type

Definition	Identifies the type of entrance to a facility.
Table	RDF_POI
Value	POI_ATTR_TYPE = ENTRANCE_TYPE 1 - Preferred Entrance
Default Value	None
Related Attributes	None
Usage	<i>Entrance Type</i> can be used for destination selection and map display to identify preferred entrances to a POI.
Specification	<ul style="list-style-type: none"> • <i>Entrance Type</i> is published if a POI meets the following requirements: <ul style="list-style-type: none"> → POI participates in a physical Parent-Child relationship. ♦ Parent and Children have the same Facility Type, which can be any of the following: <ul style="list-style-type: none"> - Amusement Park - Animal Park - Casino - Exhibition or Conference Centre - Golf Course - Historical Monument - Hospital - Military Base (U.S. only) - Park/Recreation Area - Shopping Centre - Sports Complex - Tourist Attraction - University or College - Winery • Parent POIs are always published with <i>Entrance Type</i> = 1 (Preferred Entrance). See <i>Table 15-1</i>.

- Additional POIs are published *Entrance Type* = 1 (Preferred Entrance) in any of the following situations:
 - ◆ The entrances are predominant entrance to the facility, whether to the building of the facility, or to the parking area.
 - ◆ The entrances are located on the main road network that leads to the facility or to the parking area.

See *Figure 15-2* and *Table 15-1*.

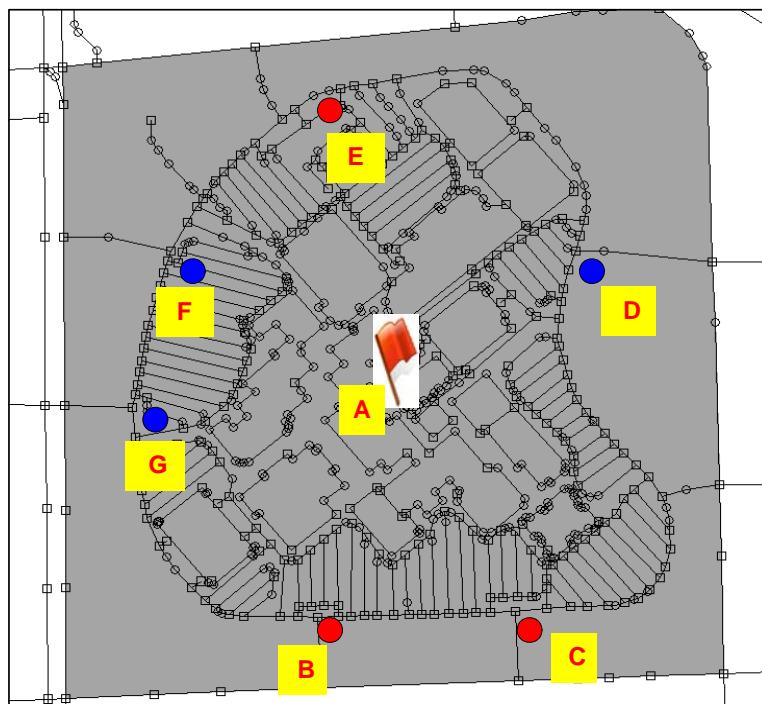


Figure 15-2

POI	Name ¹	Parent/ Child	Entrance Type
A	Oakbrook Center Mall Shopping	P	1
B	Oak Brook Center West Entrance	C	1
C	Oak Brook Center South Entrance	C	1
D	Oak Brook Center East Entrance	C	
E	Oak Brook Center North Entrance	C	1
F	Oakbrook Center Mall-North	C	
G	Oakbrook Center Mall-West	C	

1. Names in this example may not necessarily reflect reality.

Table 15-1

15.3.2 Parent/Child

- Specification**
- The main entrance POI is designated the Parent POI.
 - The Parent POI always receives *Entrance Type* = 1. If additional entrances are considered a major entrance; that entrance should receive *Entrance Type* = 1.
 - The Parent/Child relationship for the multiple entrances and any applicable Parking Garage/House is *Physical to the main* POI.
 - A Parent/Child relationship is applied for all POI locations when applicable, e.g., a Restaurant located within a Tourist Attraction would be represented as a child to the Tourist Attraction (Parent) POI.
 - For outlying building POIs within a Shopping Centre complex but not attached to the main shopping mall, a logical Parent/Child relationship is published.
- Naming**
- The official name should be applied for the main entrance, i.e., the Parent POI.
 - The name of possible additional entrances is the official name plus a location identifier.
 - Anchor stores located in Shopping Centres begin with the store's name followed by the location name, e.g., Macy's-Woodfield Mall.
 - Parking Lot and Parking Garages receive the official name. The Shopping Centre name or anchor stores name are not added. For example: the "Q Park" at the "Heuvel Gallery" that is a Shopping Centre, only "Q Park" is applied.
 - See *Table 15-2* for naming examples.

Main Entrance Name	Additional Entrance Name
Wrigley Field	Wrigley Field-North Entrance
	Wrigley Field-South Entrance
	Wrigley Field-East Entrance
Woodfield Mall	Woodfield Mall-North Door
	Woodfield Mall-South Door
AIIMS Hospital	AIIMS Hospital-Gate No. 4

Table 15-2

15.4 Link Attributes

15.4.1 Parking Lot Road (PARKING_LOT_ROAD)

Definition	Identifies a road which is a part of a parking lot.
Table	RDF_NAV_LINK_ATTRIBUTE
Values	Y - part of a parking lot N - not part of a parking lot
Usage	The <i>Parking Lot Road</i> attribute allows for unique cartographic representation of roads that are part of a parking lot. It can also be used to provide extended guidance.
Specification	<ul style="list-style-type: none"> • <i>Parking Lot Road</i> = Y is published on links with <i>Feature Type</i> 9999999 (Road Network). • <i>Parking Lot Road</i> = Y is published on links that meet the following criteria: <ul style="list-style-type: none"> ◆ <i>Functional Class</i> = 5 ◆ <i>Speed Category</i> = 8 ◆ <i>Lane Category</i> = 1 ◆ Access Characteristics: <i>Through Traffic</i> = N, <i>Auto</i> = Y, and <i>Pedestrian</i> = Y See red links in <i>Figure 15-3</i> for example. • <i>Parking Lot Road</i> = Y is not published for parking lot primary arteries that lead to and from the POI. See the blue links in <i>Figure 15-3</i>. • POIs are not published on links with <i>Parking Lot Road</i> = Y. • See <i>Section 4.4.42, Travel Direction (TRAVEL_DIRECTION/LANE_TRAVEL_DIRECTION)</i> for more information.



Figure 15-3

15.4.1.1 Parking Lot Road Example

Parking Lot Road Example	
NAV_STATE_ID	13
FROM_REF_SPEED_LIMIT	0
TO_REF_SPEED_LIMIT	0
FROM_REF_NUM_LANES	0
TO_REF_NUM_LANES	0
FUNCTIONAL_CLASS	5
SPEED_CATEGORY	8
LANE_CATEGORY	1
TRAVEL_DIRECTION	B
FRONTAGE	N
PAVED	N
PRIVATE	Y
RAMP	N

(Continued)

Parking Lot Road Example	
TOLLWAY	N
POI_ACCESS	N
CONTROLLED_ACCESS	N
BOAT_FERRY	N
RAIL_FERRY	N
MULTI_DIGITIZED	N
DIVIDER	L
DIVIDER_LEGAL	N
IN_PROCESS_DATA	N
AUTOMOBILES	Y
BUSES	N
TAXIS	N
CARPOOLS	N
PEDESTRIANS	Y
TRUCKS	N
THROUGH_TRAFFIC	N
DELIVERIES	N
EMERGENCY_VEHICLES	Y
INTERSECTION_CATEGORY	0
GRADE_CATEGORY	
SCENIC_ROUTE	N
PARKING_LOT_ROAD	Y

15.4.2 Other Link Attributes

- | | |
|----------------------|---|
| Specification | <ul style="list-style-type: none">• All internal geometry associated with each location receive Functional Class = 5.• Geometry added for parking lots receive the following:<ul style="list-style-type: none">→ Parking Lot Road = Y.→ POI Access Road = N.→ Speed Category = 7.→ Through Traffic = N. |
| Naming | <ul style="list-style-type: none">• Names are published as signed in reality.• All driving lanes within parking lots are unnamed. |

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Point & Micro Point Addresses

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16.1 Introduction

Point Address is address data for individual buildings. Micro Point Address is more detailed address data; for example, building, floor (level), and suite (unit).

16.2 Point Address

16.2.1 Data Components

Point Address represents individual buildings as point objects. The Point Addresses can be used in the following manner:

- Quality of destination selection based on Point Address
- Accurate display of addresses along a link, when at appropriate scale level
- Ability to associate auxiliary content to Point Address objects

RDF_ADDRESS_POINT and RDF_ADDRESS_POINT_TRANS, contain Point Address data. Point Address has the following components:

- Permanent identifier for each Point Address
- Distinct location per Point Address
- Street Name for Point Address
- Address representing the Point Address, with option for transliterated Address
- Side of Link indication
- Association of Point Address to Address Link ID
- Association of Point Address to Arrival Link ID
- Building Name for Point Address
- Display Location of Point Address
- Address Type
- Enhanced

Point Address data is typically combined with the Street Name – Address Range for the corresponding link. Furthermore, Point Address data has no Administrative, Postal, or Zone coding associated; this information can be retrieved from the Address Link (ROAD_LINK_ID) to which the Point Address is associated. Note however that the Point Address ‘address’ may be alphanumeric, whilst the Address Link’s address range is numeric.

16.2.2 Point Address

Definition *Point Address data is modelled as Address Point (ADDRESS_POINT_ID). Address Point (ADDRESS_POINT_ID) is published in the table RDF_ADDRESS_POINT.*

Table RDF_ADDRESS_POINT

Related Attributes *Street Name (through ROAD_LINK_ID)*
Address (ADDRESS)
Address Type (ADDRESS_TYPE)

Enhanced (ENHANCED)
Arrival Location (LAT and LON)
Display Location (DISPLAY_LAT and DISPLAY_LON)

Usage	<p><i>Point Address</i> can be used for enhanced address resolution with a more precise location compared to an address range based address resolution. Additionally, <i>Point Address</i> can be used for map display purposes.</p>
Specification	<ul style="list-style-type: none">• Each <i>Point Address</i> has a permanent identifier published in RDF_ADDRESS_POINT.ADDRESS_POINT_ID.• The <i>Point Address</i> feature can have two coordinate pairs: <i>Display Location</i> and <i>Arrival Location</i>.• <i>Point Address</i> coordinates are published in 0.00001 degree precision.• Unlike Point of Interest data, <i>Point Address</i> data do not have a Location_ID defined.• Geometry objects (SDO) are not published for <i>Point Addresses</i>. The LAT/LON fields in RDF_ADDRESS_POINT table can be used to generate spatial objects.

16.2.3 Point Address Attributes

16.2.3.1 Street Name (through ROAD_LINK_ID)

Definition	<p>The <i>Street Name</i> associated with the Point Address provides an addressable location in combination with the Address or Building Name; and therefore, is used primarily for destination selection.</p> <p>The <i>Street Name</i> is not directly published in RDF_ADDRESS_POINT; instead a ROAD_LINK_ID is referenced from RDF_ADDRESS_POINT. The <i>Street Name</i> is derived from the Road Link associated with the Point Address.</p>
Value	<p>ROAD_LINK_ID in RDF_ADDRESS_POINT</p> <p><i>Street Name</i> is derived through the ROAD_LINK_ID</p>
Cardinality	<p>1:1 (for ROAD_LINK_ID) - each Point Address has a ROAD_LINK_ID</p> <p>1:0:1 (for <i>Street Name</i>) - the Point Address can reference an unnamed ROAD_LINK_ID and therefore have no <i>Street Name</i></p>
Related Attributes	<p><i>Address</i> (ADDRESS)</p> <p><i>Building Name</i> (BUILDING_NAME)</p>
Specification	<ul style="list-style-type: none">• The <i>Street Name</i> is published in the RDF_ROAD_NAME table, with an associated Language Code, and can be derived based on ROAD_LINK_ID in RDF_ADDRESS_POINT. The <i>Street Name</i> is represented in the native language of the country.• The <i>Street Name</i> is transliterated for non-Latin-1 names in RDF_ROAD_NAME_TRANS.

- The ROAD_LINK_ID in RDF_ADDRESS_POINT is always populated, but a Point Address could reference a ROAD_LINK_ID which is unnamed. In countries where no *Street Name* concept is used, the Point Address does not have an associated *Street Name*. For these countries, typically Building Name is to be used for identifying the Point Address.
- Point Addresses generated from POI data (ENHANCED = N) that are located on unnamed Road Links reference an Unnamed ROAD_LINK_ID, and therefore have no *Street Name*.

16.2.3.2 Address (ADDRESS)

Definition	Address provides the house number that distinctly identifies the Point Address along the specified <i>Street Name</i> . Address provides an addressable location in combination with the <i>Street Name</i> .
Table	RDF_ADDRESS_POINT
Column	ADDRESS
Value	House number representing the Point Address
Cardinality	1:0:1
Related Attributes	<i>Address Type</i> (ADDRESS_TYPE) <i>Street Name</i> (through ROAD_LINK_ID)
Usage	Address should be used for destination selection or could be used for map display.
Specification	<ul style="list-style-type: none"> • The Address can be numeric or alphanumeric and can be up to 25 characters long. • The default Language Code of the country is associated with the Address. • An Address can be transliterated for countries using non-Latin-1 characters. Address transliteration is published in RDF_ADDRESS_POINT_TRANS. • The Address is optional and is empty for <i>Point Addresses</i> that are not identified by a house number. This happens for situations where: <ul style="list-style-type: none"> ◆ <i>Point Address</i> is identified only through a Building Name ◆ <i>Point Address</i> generated from an unaddressed POI. These <i>Point Addresses</i> are flagged Enhanced = N. • Each Address has an associated <i>Address Type</i>. • The <i>Address Type</i> for a <i>Point Address</i> is optional and is empty for <i>Point Addresses</i> without <i>Address</i>. • The address format of the <i>Address</i> for the <i>Point Address</i> can be different than the link's address range format.

16.2.3.3 Display Location (DISPLAY_LAT/LON)

Definition	<i>Display Location</i> represents the display location of the <i>Point Address</i> .
Table	RDF_ADDRESS_POINT
Column	DISPLAY_LAT DISPLAY_LON
Value	Coordinates of latitude and longitude in 0.00001 degree precision
Cardinality	1:0:1
Related Attributes	<i>Arrival Location</i> (LAT and LON in RDF_ADDRESS_POINT)
Usage	<i>Display Location</i> can be used to position the <i>Point Address</i> location accurately in the map
Specification	<ul style="list-style-type: none">• DISPLAY_LON defines the longitude of the display location for the <i>Point Address</i>• DISPLAY_LAT defines the latitude of the display location for the <i>Point Address</i>• <i>Display Location</i> is optional for a <i>Point Address</i>. If the <i>Point Address Arrival Location</i> is the same as the actual position of the address, <i>Display Location</i> is not published.• The <i>Display Location</i> coordinates have an offset from the road network.

16.2.3.4 Arrival Location (LAT/LON)

Definition	<i>Arrival Location</i> represents the drive-to location of the <i>Point Address</i> .
Table	RDF_ADDRESS_POINT
Column	LAT LON
Value	Coordinates of latitude and longitude in 0.00001 degree precision
Cardinality	1:1
Related Attributes	<i>Display Location</i> (DISPLAY_LAT and DISPLAY_LON in RDF_ADDRESS_POINT)
Usage	The <i>Arrival Location</i> is used for route calculation and routing guidance; it is the position on the road network to which one would like to be guided for arriving at the <i>Point Address</i> .
Specification	<ul style="list-style-type: none">• LON defines the longitude of the <i>Arrival Location</i> for the <i>Point Address</i>• LAT defines the latitude of the <i>Arrival Location</i> for the <i>Point Address</i>

- *Arrival Location(LAT/LON)* always is published for a *Point Address*.
- The *Arrival Location* is located on the link, with no offset

16.2.3.5 Building Name (BUILDING_NAME)

Definition *Building Name* is an attribute used to publish the name of the building that identifies the *Point Address*.

Table RDF_ADDRESS_POINT

Column BUILDING_NAME

Value The *Building Name* attribute publishes the Building Name in the native language of the country.

Cardinality 1:0:1

Related Attributes *Address*
Street Name (through ROAD_LINK_ID)

Usage *Building Name* can be used for destination selection. *Building Name* provides an addressable entity.

Specification

- *Building Name* can be published in addition to *Address*.
- The *Building Name* either in conjunction with the *Street Name* or administrative information provides an addressable feature.
- In bilingual areas, multiple *Building Name* values may be published for a single Point Address.
- If *Building Name* in the native language includes non-Latin-1 characters, a transliteration is published in RDF_ADDRESS_POINT_TRANS.BUILDING_NAME.

16.2.3.6 Address Type (ADDRESS_TYPE)

Definition *Address Type* identifies the type of the house number range assigned to the Point Address. *Address Type* is used in conjunction with *Street Name* (through ROAD_LINK_ID) and *Address* (ADDRESS) for destination selection. *Address Type* has a similar meaning as the *Address Type* coded at Road Link level for an address range.

Table RDF_ADDRESS_POINT

Column ADDRESS_TYPE

Values See Section C.2, RDF_ADDRESS_POINT.

Cardinality 1:0:1

Related Attributes	Address (ADDRESS)
Specification	<ul style="list-style-type: none">• <i>Address Type</i> = 1 (Base) is assigned to an Address structure that is most commonly used.• <i>Address Type</i> = 2 (City) is assigned to an Address assigned by the city government.• <i>Address Type</i> = 3 (Commercial) is assigned to an Address applicable to a commercial establishment.• <i>Address Type</i> = 4 (County) is assigned to an Address assigned by the county government.• <i>Address Type</i> = 6 (Old) is assigned to an Address representing an old address structure.

16.2.3.7 Enhanced (ENHANCED)

Definition	<i>Enhanced</i> identifies if the <i>Point Address</i> has been verified or if the <i>Point Address</i> has been generated automatically.
Table	RDF_ADDRESS_POINT
Column	ENHANCED
Values	See Section C.2, <i>RDF_ADDRESS_POINT</i> .
Cardinality	1:1
Specification	<ul style="list-style-type: none">• <i>Enhanced</i> = Y is published for <i>Point Addresses</i> from a trusted source and/or has been field verified. The majority of <i>Point Address</i> data is <i>Enhanced</i> = Y.• <i>Enhanced</i> = N is published only for <i>Point Addresses</i> generated from POI data.

16.2.3.8 Address Link (ROAD_LINK_ID)

Definition	<i>Address Link</i> is the addressable link for the <i>Point Address</i> .
Table	RDF_ADDRESS_POINT
Column	ROAD_LINK_ID
Value	The <i>Address Link</i> (ROAD_LINK_ID) publishes the Road Link associated with the <i>Point Address</i> .
Cardinality	1:1
Related Attributes	<i>Side</i> (SIDE) <i>Arrival Link</i> (ARRIVAL_LINK_ID) <i>Arrival Side</i> (ARRIVAL_SIDE)

Usage	<i>Address Link</i> allows retrieval of destination input related information; it enables the retrieval of <i>Street Name</i> , Administrative coding, Postal Code, and Zone applicable to the <i>Point Address</i>
Specification	<ul style="list-style-type: none"> • A <i>Point Address</i> always has an <i>Address Link</i> associated. • <i>Side</i> indicates which side of the <i>Address Link</i> is associated with the <i>Point Address</i>. • The <i>Address Link</i> can be unnamed. In these situations, the <i>Point Address</i> has no associated <i>Street Name</i>, but has corresponding Administrative, Postal, and Zone coding. • The <i>Address Link</i> is a foreign key into RDF_ROAD_LINK

16.2.3.9 Arrival Link (ARRIVAL_LINK_ID)

Definition	<i>Arrival Link</i> is the drive-to link for the <i>Point Address</i> . The <i>Arrival Link</i> is used for route calculation and route guidance; it represents the link where one would like to be guided to when selecting a specific <i>Point Address</i> .
Table	RDF_ADDRESS_POINT
Column	ARRIVAL_LINK_ID
Value	Arrival Link
Cardinality	1:1
Related Attributes	<i>Arrival Side</i> (ARRIVAL_SIDE) <i>Address Link</i> (ROAD_LINK_ID) <i>Side</i> (SIDE)
Specification	<ul style="list-style-type: none"> • An <i>Arrival Link</i> is published only if the drive-to location of a <i>Point Address</i> differs from the <i>Address Link</i>. • Arrival Side indicates on which side of the <i>Arrival Link</i> the <i>Point Address</i> is located. • The Administrative, Postal, and Zone coding associated with the <i>Arrival Link</i> is insignificant for the <i>Point Address</i>. Only the <i>Address Link</i> provides the addressable information for the <i>Point Address</i>. • The <i>Arrival Link</i> is a foreign key into RDF_LINK.

16.2.4 Point Address Example

Figure 16-1 illustrates the modelling used for Arrival Location.

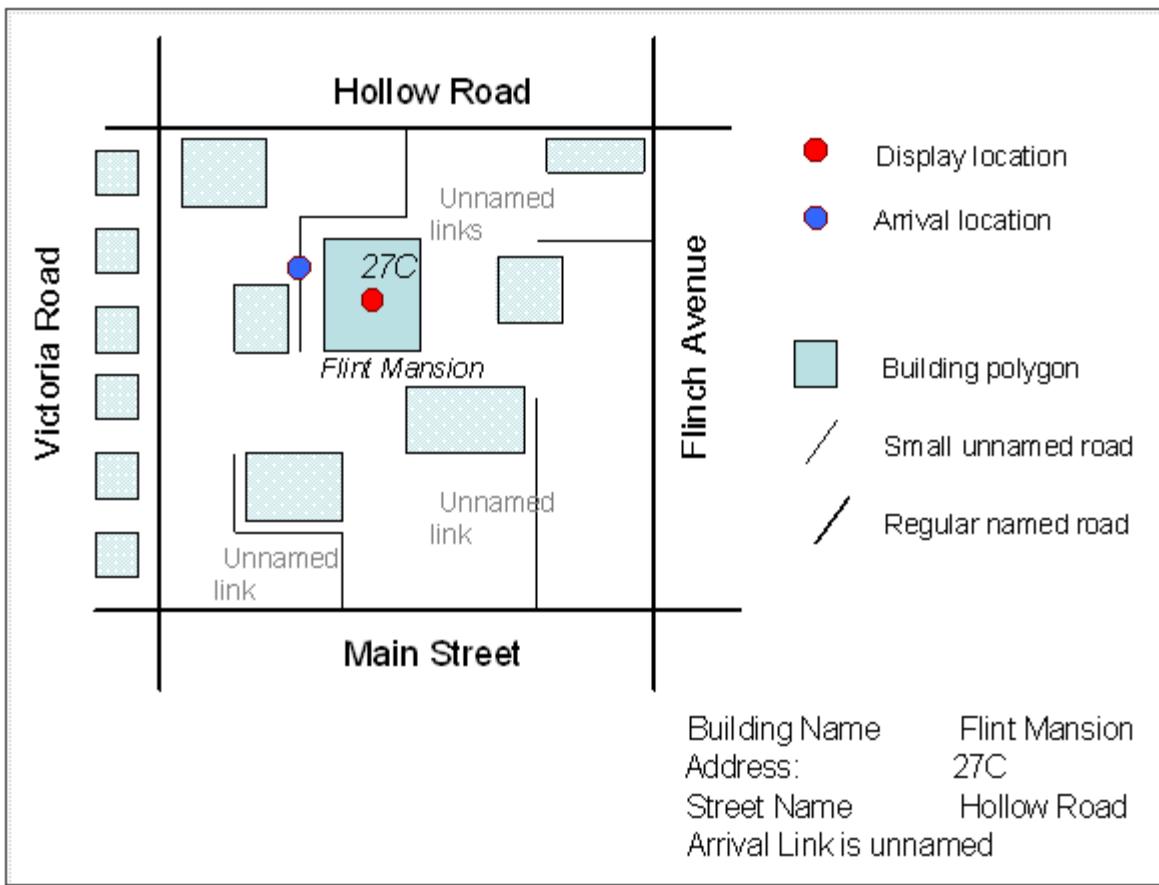


Figure 16-1

RDF_ADDRESS_POINT	
ADDRESS_POINT_ID	1325145
ROAD_LINK_ID	44524
SIDE	R
LANGUAGE_CODE	ENG
ADDRESS	27C
LAT	3358724
LON	-11901563
BUILDING_NAME	FLINT MANSION
ARRIVAL_LINK_ID	6571765

ARRIVAL_SIDE	R
DISPLAY_LAT	3358689
DISPLAY_LON	-11901578

16.3 Micro Point Address

16.3.1 Micro Point Address

Definition	<i>Micro Point Address</i> represents more details of addresses than what is at street level; for example, building, floor (level) and suite (unit).
Table	RDF_ADDRESS_MICROPOINT
Column	ADDRESS_MPOINT_ID
Related Table	RDF_ADDRESS_POINT
Related Attributes	<i>Building Name</i> (BUILDING_UNIT_NAME) <i>Level Name</i> (LEVEL_NAME) <i>Unit Name</i> (UNIT_NAME) <i>Arrival Location</i> (LAT and LON) <i>Display Location</i> (DISPLAY_LAT and DISPLAY_LON) Micro Point Address association to Link (ARRIVAL_LINK_ID and ARRIVAL_SIDE)
Usage	Micro Point Addresses can be used to enhance Point Address with greater address detail. Additionally, Micro Point Address can be used for map display purposes.
Specification	<ul style="list-style-type: none">Each Micro Point Address has a permanent identifier, ADDRESS_MPOINT_ID.The Micro Point Address feature can have two coordinate pairs: <i>Display Location</i> and <i>Arrival Location</i>.Micro Point Address coordinates are published in 0.00001 degree precision.RDF does not publish geometry objects (SDO) for a Micro Point Address. The LAT/LON fields in the RDF_ADDRESS_MICROPOINT table can be used to generate spatial objects.Each Micro Point Address is associated with a corresponding Point Address. Micro Point Address does not publish Street Name, Address, and Address Type as these are defined in the corresponding Point Address.

16.3.2 Attributes

16.3.2.1 Display Location (DISPLAY_LAT/LON)

Definition	<i>Display Location</i> represents the display location of the Micro Point Address.
Values	Coordinates of latitude and longitude in 0.00001 degree precision

Cardinality	1:0,1
Default Value	NULL
Table	RDF_ADDRESS_MICROPOINT
Column	DISPLAY_LAT DISPLAY_LON
Usage	<i>Display Location</i> can be used to position the Micro Point Address location accurately in the map.
Specification	<ul style="list-style-type: none"> • DISPLAY_LON defines the longitude of the <i>Display Location</i> for Micro Point Address. • DISPLAY_LAT defines the latitude of the <i>Display Location</i> for Micro Point Address. • The <i>Display Location</i> coordinates have an offset from the road network. • <i>Display Location</i> is optional for a Micro Point Address. The Micro Point Address <i>Arrival Location</i> is the same as the actual position of the address (i.e., <i>Arrival Location</i> = <i>Display Location</i>), the <i>Display location</i> attributes (DISPLAY_LAT and DISPLAY_LON) are not published.

16.3.2.2 Arrival Location (LAT/LON)

Definition	<i>Arrival Location</i> represents the drive-to location of the Micro Point Address.
Values	Coordinates of latitude and longitude in 0.00001 degree precision.
Cardinality	1:1
Default value	Not applicable
Table	RDF_ADDRESS_MICROPOINT
Column	LAT LON
Related Attributes	<i>Display Location</i> (DISPLAY_LAT and DISPLAY_LON in RDF_ADDRESS_MICROPOINT)
Usage	The <i>Arrival Location</i> is used for route calculation and routing guidance; it is the position on the road network to which one would like to be guided for arriving at the Micro Point Address.
Specification	<ul style="list-style-type: none"> • LON defines the longitude of the <i>Arrival Location</i> for Micro Point Address. • LAT defines the latitude of the <i>Arrival Location</i> for Micro Point Address. • <i>Arrival Location</i> always is published for a Micro Point Address. • <i>Arrival Location</i> is located on the link, with no offset.

16.3.2.3 Building Unit Name (BUILDING_UNIT_NAME)

Definition	<i>Building Unit Name</i> represents the name or number used to identify a building defining a Micro Point Address location.
Values	The <i>Building Unit Name</i> attribute publishes the <i>Building Unit Name</i> in the native language of the country.
Cardinality	1:0,1
Default Value	NULL
Table	RDF_ADDRESS_MICROPOINT
Column	BUILDING_UNIT_NAME
Related Attributes	<i>Micro Point Address</i> <i>Level Name</i> <i>Unit Name</i>
Usage	<i>Building Unit Name</i> is used to define a <i>Micro Point Address</i> .
Specification	<ul style="list-style-type: none">• <i>Building Unit Name</i> is published if a <i>Micro Point Address</i> represents a building that is in a building complex.• <i>Building Unit Name</i> defines a <i>Micro Point Address</i> when the buildings in a building complex are not assigned a unique street address and are represented by one Point Address. See <i>Figure 16-2</i>.• <i>Building Unit Name</i> publishes the name or number used to identify a specific building for addressing. If both a text name and a number exist for a building, only the name used for addressing purposes is published as BUILDING_UNIT_NAME. See <i>Figure 16-3</i>.

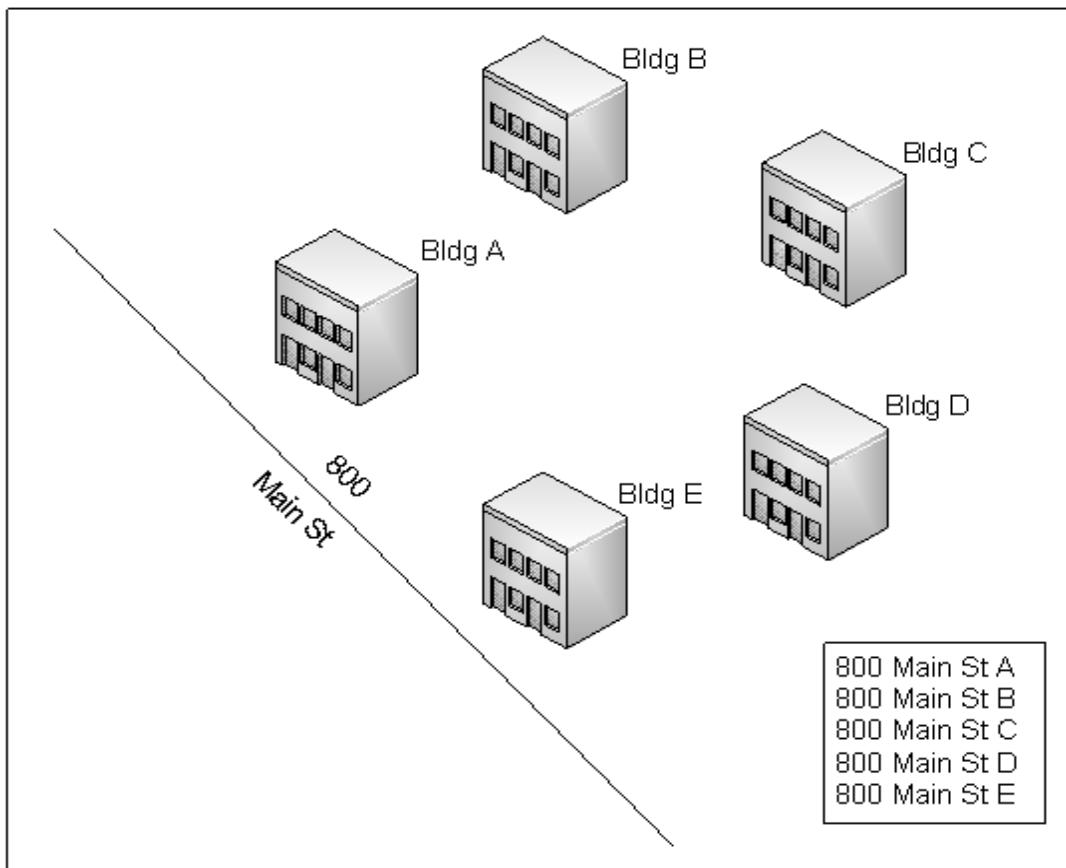


Figure 16-2

RDF_ADDRESS_POINT	
ADDRESS_POINT_ID	7777103
ADDRESS	800

RDF_ADDRESS_MICROPOINT					
ADDRESS_MPOINT_ID	77331122	22113377	11223344	66778899	33221177
ADDRESS_POINT_ID	7777103	7777103	7777103	7777103	7777103
LANGUAGE_CODE	ENG	ENG	ENG	ENG	ENG
LAT	-3423849	-3800662	-3815646	-3781362	-3772968
LON	14214746	14510204	14518533	14517922	14477532
BUILDING_UNIT_NAME	A	B	C	D	E
LEVEL_NAME	NULL	NULL	NULL	NULL	NULL

RDF_ADDRESS_MICROPOINT					
UNIT_NAME	NULL	NULL	NULL	NULL	NULL
ARRIVAL_LINK_ID	134468520	134337688	134367507	134270035	134228503
ARRIVAL_SIDE	R	R	R	R	R
DISPLAY_LAT	-3423863	-3800678	-3815649	-3781366	-3772971
DISPLAY_LON	14214763	14510211	14518552	14517942	14477549

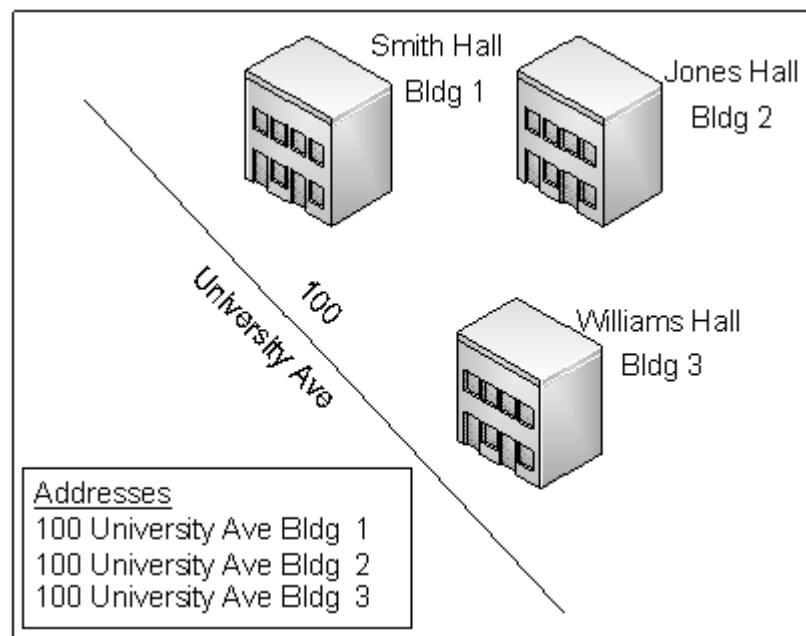


Figure 16-3

RDF_ADDRESS_POINT	
ADDRESS_POINT_ID	3333103
ADDRESS	100

RDF_ADDRESS_MICROPOINT			
ADDRESS_MPOINT_ID	47331122	72113377	21223344
ADDRESS_POINT_ID	3333103	3333103	3333103
LANGUAGE_CODE	ENG	ENG	ENG
LAT	-3423849	-3800662	-3815646
LON	14214746	14510204	14518533

RDF_ADDRESS_MICROPOINT			
BUILDING_UNIT_NAME	1	2	3
LEVEL_NAME	NULL	NULL	NULL
UNIT_NAME	NULL	NULL	NULL
ARRIVAL_LINK_ID	134468520	134337688	134367507
ARRIVAL_SIDE	R	R	R
DISPLAY_LAT	-3423863	-3800678	-3815649
DISPLAY_LON	14214763	14510211	14518552

16.3.2.4 Level Name (LEVEL_NAME)

Definition *Level Name* represents the name or number used to identify a level or floor defining a Micro Point Address location.

Table RDF_ADDRESS_MICROPOINT

Column LEVEL_NAME

Values The name of the level in the native language of the country.

Cardinality 1:0,1

Default Value NULL

Related Table RDF_ADDRESS_MPOINT_TRANS

Related Attributes *Micro Point Address*

Building Unit Name

Unit Name

Usage *Level Name* is used to define a *Micro Point Address*

Specification

- *Level Name* is published when a specific level or floor is used to define a *Micro Point Address*.
- *Level Name* defines a *Micro Point Address* when specific locations occur within a multi-level building.

16.3.2.5 Unit Name (UNIT_NAME)

Definition	Unit Name represents the name or number used to identify a unit (suite, flat, etc.) defining a <i>Micro Point Address</i> location.
Table	RDF_ADDRESS_MICROPOINT
Column	UNIT_NAME
Values	The Unit Name attribute publishes the Unit Name in the native language of the country.
Cardinality	1:0,1
Default value	NULL
Related Table	RDF_ADDRESS_MPOINT_TRANS
Related Attributes	<i>Micro Point Address</i> <i>Building Unit Name</i> <i>Level Name</i>
Usage	Unit Name is used to define a <i>Micro Point Address</i>
Specification	<ul style="list-style-type: none">• <i>Unit Name</i> is published when a specific unit is used to define a <i>Micro Point Address</i>.• <i>Unit Name</i> defines a <i>Micro Point Address</i> when specific locations occur within a multi-unit building.• If multiple units exists with buildings that are part of a multi-building complex, then UNIT_NAME and BUILDING_UNIT_NAME are published. See <i>Figure 16-4</i>.

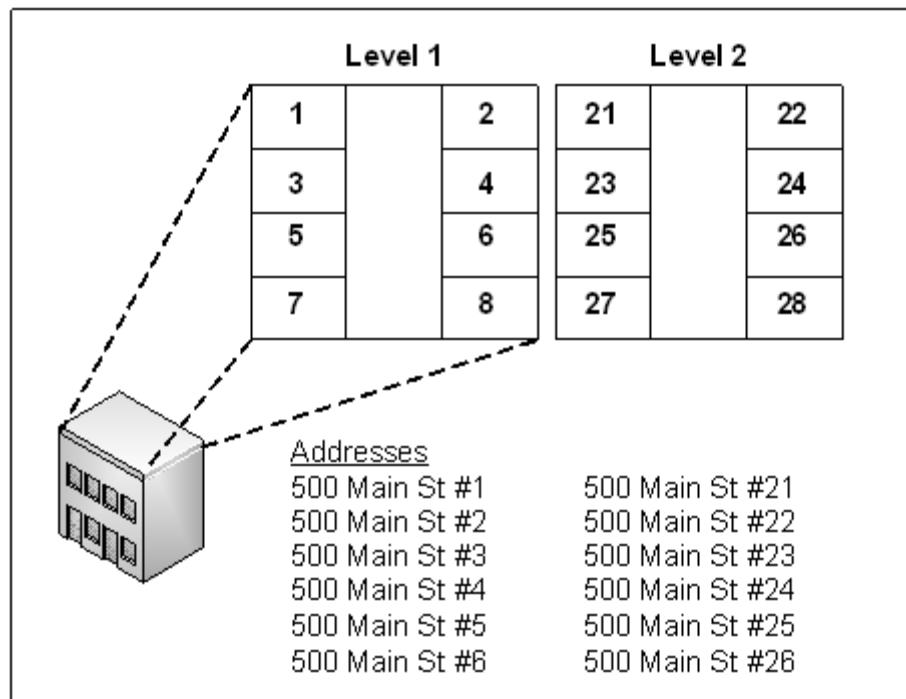


Figure 16-4

RDF_ADDRESS_POINT	
ADDRESS_POINT_ID	1111703
ADDRESS	500

RDF_ADDRESS_MICROPOINT						
ADDRESS_MPOINT_ID	47331122	72113377	21223344	87673245	38445619	34678871
ADDRESS_POINT_ID	1111703	1111703	1111703	1111703	1111703	1111703
LANGUAGE_CODE	ENG	ENG	ENG	ENG	ENG	ENG
LAT	-3423849	-3800662	-3815646			
LON	14214746	14510204	14518533			
BUILDING_UNIT_NAME	NULL	NULL	NULL	NULL	NULL	NULL
LEVEL_NAME	1	1	1	2	2	2
UNIT_NAME	1	2	3	21	22	23
ARRIVAL_LINK_ID	13446852 0	134337688	134367507	13446852 0	134337688	134367507
ARRIVAL_SIDE	R	R	R	R	R	R

RDF_ADDRESS_MICROPOINT						
DISPLAY_LAT	-3423863	-3800678	-3815649			
DISPLAY_LON	14214763	14510211	14518552			

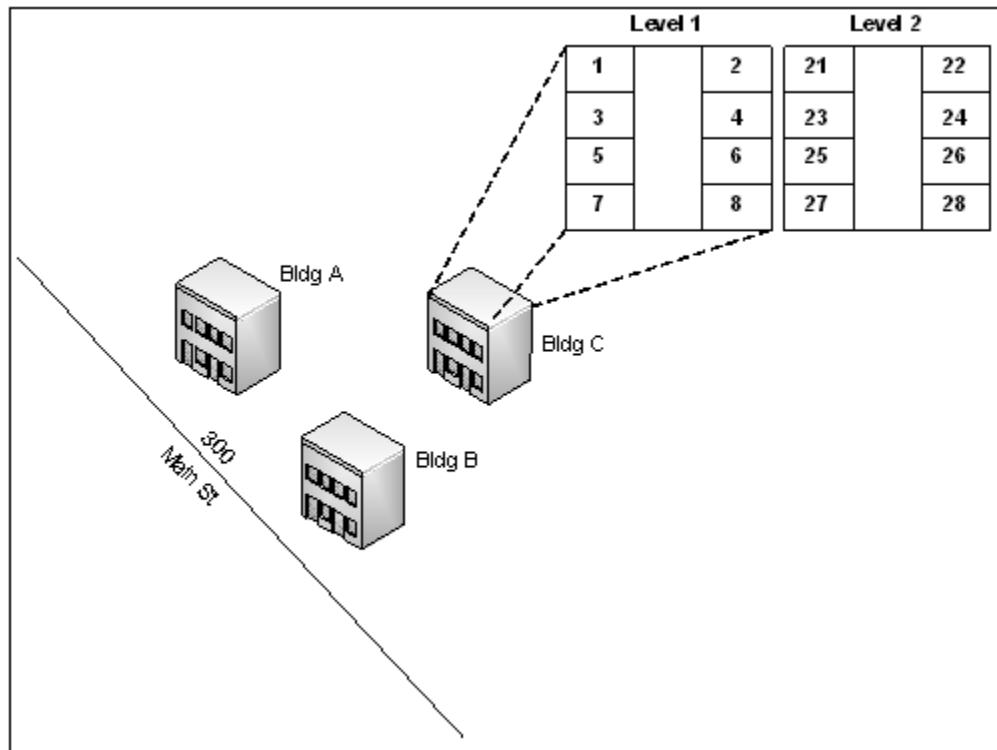


Figure 16-5

RDF_ADDRESS_POINT	
ADDRESS_POINT_ID	1211703
ADDRESS	300

RDF_ADDRESS_MICROPOINT						
ADDRESS_MPOINT_ID	47331122	72113377	21223344	87673245	38445619	34678871
ADDRESS_POINT_ID	1111703	1111703	1111703	1111703	1111703	1111703
LANGUAGE_CODE	ENG	ENG	ENG	ENG	ENG	ENG
LAT	-3423849	-3800662	-3815646			
LON	14214746	14510204	14518533			
BUILDING_UNIT_NAME	C	C	C	C	C	C

RDF_ADDRESS_MICROPOINT						
LEVEL_NAME	1	1	1	2	2	2
UNIT_NAME	1	2	3	21	22	23
ARRIVAL_LINK_ID	134468520	134337688	134367507	134468520	134337688	134367507
ARRIVAL_SIDE	R	R	R	R	R	R
DISPLAY_LAT	-3423863	-3800678	-3815649			
DISPLAY_LON	14214763	14510211	14518552			

16.3.2.6 Point Address Association (ADDRESS_POINT_ID)

Definition The permanent identifier of the Point Address that corresponds to the *Micro Point Address*.

Table RDF_ADDRESS_MICROPOINT

Column ADDRESS_POINT_ID

Values Permanent identifier for Point Address

Cardinality 1:1

Default value Not applicable

Related Table RDF_ADDRESS_POINT

Usage Point Address Association can be used to derive street level address information for a *Micro Point Address*.

Specification

- The *Micro Point Address* is always associated to one Point Address via ADDRESS_POINT_ID. Derive the following information for the *Micro Point Address* from the associated Point Address:
 - ◆ House Number (ADDRESS and ADDRESS_TYPE)
 - ◆ Address Link (ROAD_LINK_ID):
 - Street Name
 - Administrative Coding
 - Postal Code
 - Zones

16.3.2.7 Arrival Link (ARRIVAL_LINK_ID)

Definition *Arrival Link* is the drive-to link for a *Micro Point Address*.

Table RDF_ADDRESS_MICROPOINT

Column ARRIVAL_LINK_ID

Values Permanent identifier of the *Arrival Link*

Cardinality 1:1

Default value Not applicable

Related Attributes *Arrival Side* (ARRIVAL_SIDE)

Usage The *Arrival Link* is used for route calculation and route guidance; it represents the link where one would like to be guided to when selecting a specific *Micro Point Address*.

Specification

- A *Micro Point Address* always has an *Arrival Link* associated.
- *Arrival Side* (ARRIVAL_SIDE) indicates on which side of the *Arrival Link* the *Micro Point Address* is located.
- The Administrative, Postal, and Zone coding associated with the *Arrival Link* is insignificant for the *Micro Point Address*. Only the *Address Link* (ROAD_LINK_ID), via the *Point Address*, (ADDRESS_POINT_ID), provides the street level address information for the *Micro Point Address*.

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Disputed Territories

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17.1 Introduction

Generally, the map data for a particular country licensed to a customer under such customer's Data License Agreement identifies the boundaries and/or areas recognized by such country. Sometimes, however, disputes arise between or among adjacent countries with respect to the recognized boundaries and/or areas causing each country to recognize different boundaries and/claim different areas. The Disputed Territories Product allows customers to create multi-country products in light of these disputes.

The Disputed Territories Product is offered for countries that contain Disputed Territories and/or areas and enables customers to select the manner in which end-users view the map of a country which contains any Disputed Territories. Specifically, the Disputed Territories Product allows customers to create multi-country products that display the boundaries and/or areas recognized by the applicable countries involved in the dispute and/or the boundaries and/or areas recognized by the applicable international governmental agency (if any). See the release notes for any country contained in the Disputed Territories Product for the applicable international governmental agency that has established the internationally recognized boundary and/or area. Any reference to the boundary and/or area recognized by the applicable international governmental agency refers to the agency identified in release notes with respect to such country.

With the additional data in a Disputed Territories Product, customers can customize their products in order to address boundaries and/or areas that are in dispute:

- including / excluding disputed areas from specific country deliverables
- identifying disputed areas for map display purposes
- specialising administrative and naming required for disputed areas

This document only sets forth the various map compilation options available via the Disputed Territories Product. Customers are responsible for using the options in a manner that complies with the rules and regulations of the applicable country containing Disputed Territories and/or disputed areas. HERE expressly disclaims any liability with respect to the manner in which customers compile their map product, including, without limitation, any liability arising in connection with the failure to comply with the rules and regulations of the applicable country containing disputed boarders and/or disputed areas.

17.2 Disputed Territories Model

What is a disputed area?

A disputed area is an area that is claimed by different countries, following a dispute over the territorial boundaries. Disputed areas typically have an internationally recognized boundary and country-specific disputed boundaries.

What is added to the map data?

The Disputed Territories Product is available only for countries and/or areas that contain disputed boundaries and/or areas and includes the following attributes:

- Cartographic representation of internationally recognized boundaries and disputed boundaries
- Country-specific administrative coding for the disputed area
- Country-specific naming for select map features
- Multi-country view and country specific views of the disputed areas which allow customers to create products that identify the internationally recognized boundaries and/or the boundaries recognized by the applicable country

17.2.1 Administrative Boundaries

17.2.1.1 Disputed Country Boundary

Definition *Disputed Country Boundary* is a Feature Type for country boundaries that are under dispute.

Table RDF_CARTO

Column FEATURE_TYPE

Value See Section C.14, RDF_CARTO.

Related Attribute CLAIMED_BY

Related Table RDF_CARTO_LINK

Usage *Disputed Country Boundary* can be used for map display to render country boundaries in compliance with the country specific regulations in relation to disputed areas.

Specification

- *Disputed Country Boundary* is published only if a territorial area is under dispute.
- A link may be part of both a *Country Boundary(907196)* and a *Disputed Country Boundary*. In such situations then either the *Country Boundary(907196)* or the *Disputed Country Boundary(907197)* is to be used, depending on the type of product generated (Multi-country or Country view).
- *Disputed Country Boundary(907197)* can be used in conjunction with *Country Boundary(907196)* to form a closed country boundary. The *Country Boundary(907196)* links published with *Line Of Control = Y* in RDF_CARTO_LINK are to be excluded from the selection when generating Country specific views of country boundaries.

Handling of Disp. Country Boundary in Conjunction with Regular Country

Product Creation	Country(907196) Link with no Line of Control attribute	Country(907196) Link with Line of Control = Y	Disputed Country (907197)
Create Country product A (e.g., Figure 17-3)	Include with Named Place ID for A	Exclude	Include with Named Place ID for A
Create Country product B (e.g., Figure 17-4)	Include with Named Place ID for B	Exclude	Include, with Name Place ID for B
Create a Multi-country product showing disputed boundary	Include	Include	Include

Handling of Disp. Country Boundary in Conjunction with Regular Country (Continued)

Product Creation	Country(907196) Link with no Line of Control attribute	Country(907196) Link with Line of Control = Y	Disputed Country (907197)
Create a Multi-country product not showing disputed boundary (e.g., Figure 17-1)	Include	Include	Exclude

- *Disputed Country Boundary(907197)* is published with the *Claimed By* attribute to indicate to which country the *Disputed Country Boundary* applies.

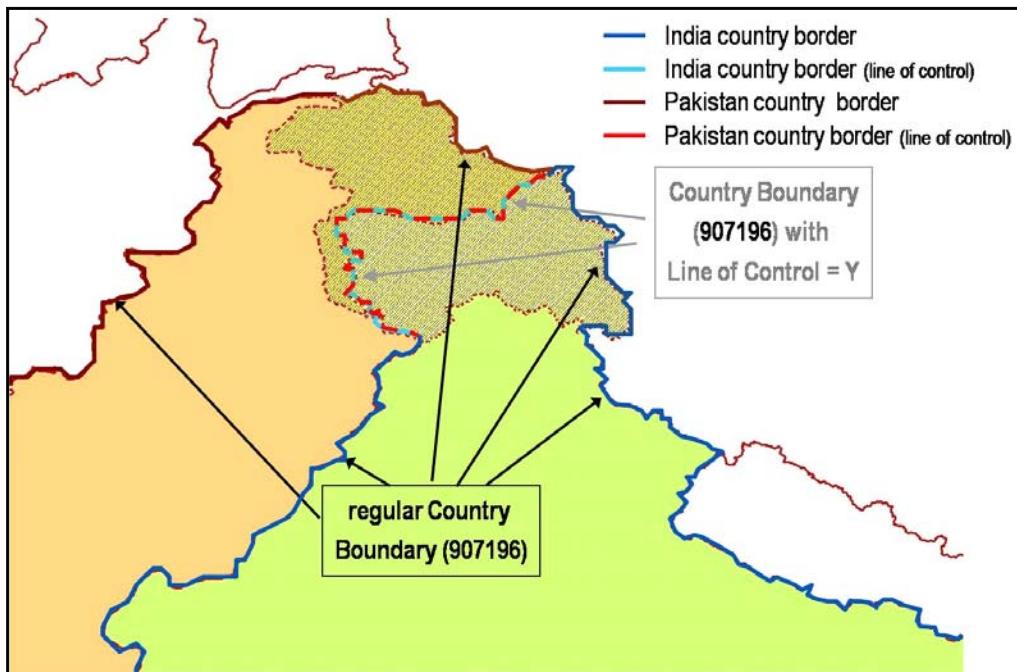


Figure 17-1

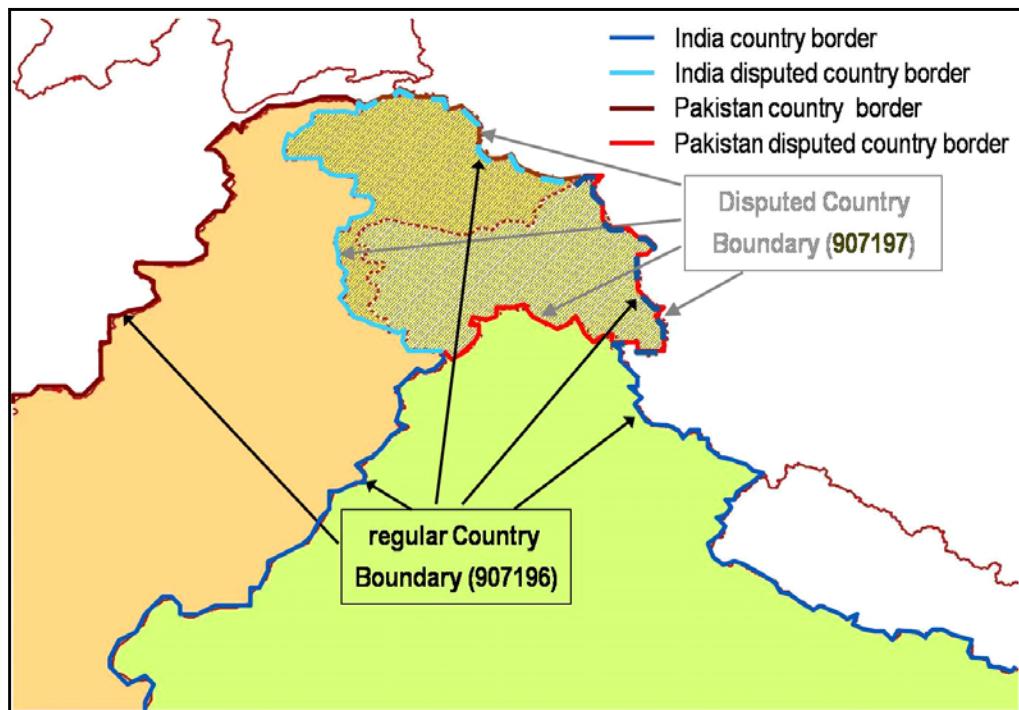


Figure 17-2

Figure 17-1 and Figure 17-2 outline the Country Boundary attribution for the disputed areas between Pakistan and India.

Figure 17-1 shows the Internationally recognised country boundaries for Pakistan and India, published as *Country Boundary(907196)*.

Figure 17-2 shows the country level views of the disputed areas between Pakistan and India, published as *Disputed Country Boundary(907197)*.

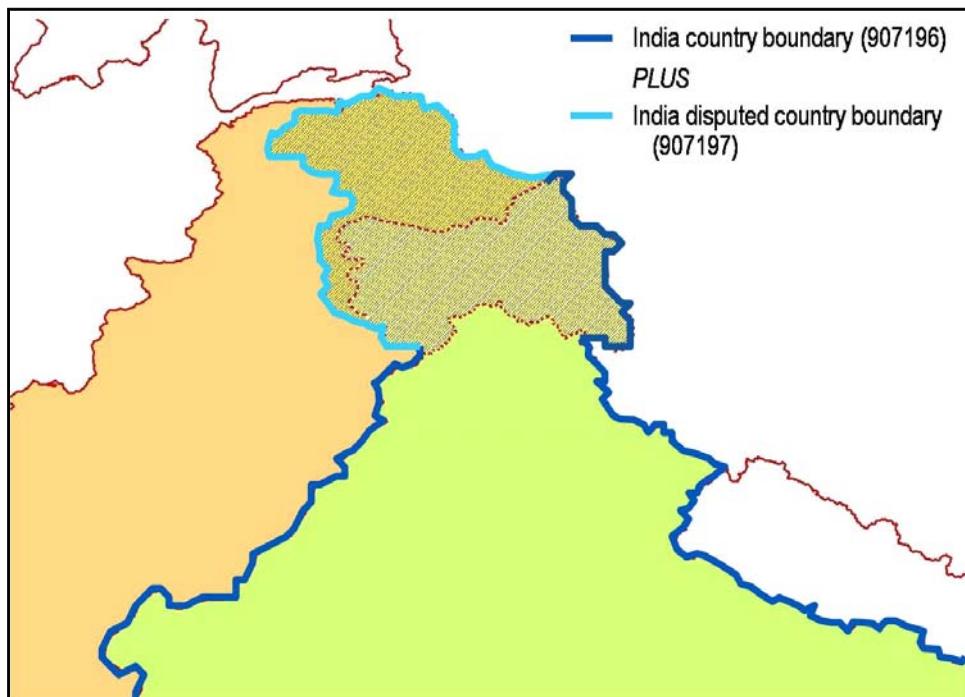


Figure 17-3

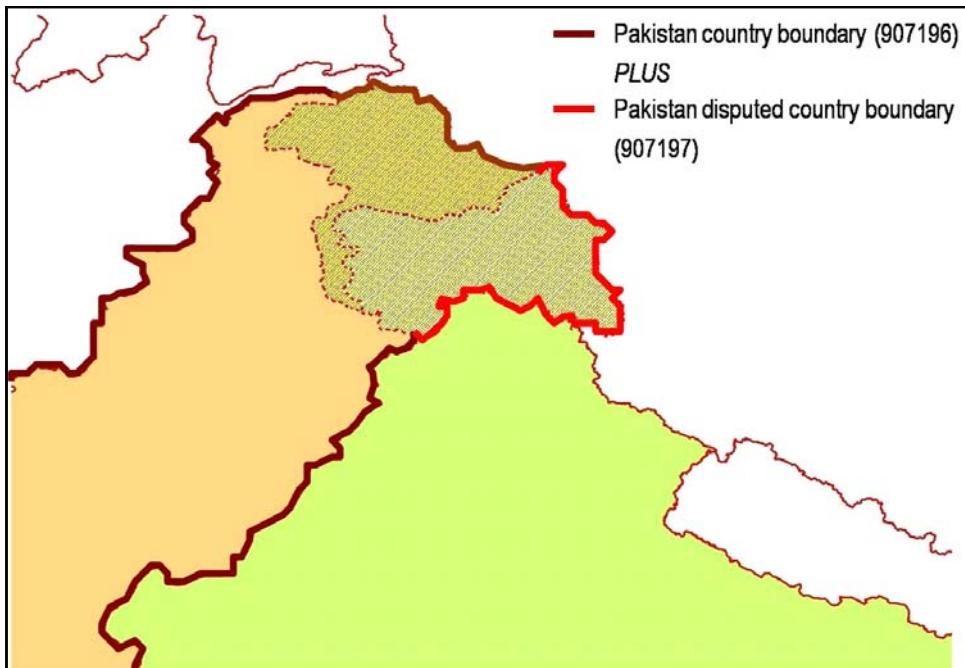


Figure 17-4

In Figure 17-3, the Country boundary view as seen by India is generated based on a combination of the links of the *Country Boundary*(907196) not published with *Line of Control - 'Y'* in *RDF_CARTO_LINK* named 'INDIA' and *Disputed Country Boundary*(907197) named 'INDIA'.

In *Figure 17-4*, the Country boundary view as seen by Pakistan is generated based on a combination of the links of the *Country Boundary*(907196) not published with *Line of Control - 'Y'* in *RDF_CARTO_LINK* named 'PAKISTAN' and *Disputed Country Boundary*(907197) named 'PAKISTAN'

17.2.1.2 Cartographic Disputed Country Boundary

Definition	The <i>Cartographic Disputed Country Boundary</i> is a cartographic feature that identifies disputed country boundaries on land between adjacent countries.
Table	<i>RDF_CARTO</i>
Value	See <i>Section C.14, RDF_CARTO</i> .
Related Attribute	<i>Claimed By</i>
Usage	<p>The <i>Cartographic Disputed Country Boundary</i> can be used to provide country boundary display in areas under dispute.</p> <p>Usage of <i>Cartographic Disputed Country Boundary</i> is similar to the <i>Disputed Country Boundary</i>(907197), where the <i>Cartographic Disputed Country Boundary</i> only provides the boundaries between countries on land.</p>
Specification	<ul style="list-style-type: none">• <i>Cartographic Disputed Country Boundary</i> features are only published on links that also have the <i>Disputed Country Boundary</i> cartographic feature (<i>Feature Type</i> = 907197) published, and are not shared with a major water feature (i.e. oceans, Great Lakes, etc.).• A <i>Cartographic Disputed Country Boundary</i> is published with the <i>Claimed By</i> attribute to indicate for which country a specific <i>Cartographic Disputed Country Boundary</i> is applicable.• The <i>Cartographic Disputed Country Boundary</i> is named only in the language of the country referenced by the <i>Claimed By</i> attribute.

17.2.1.3 Disputed State Boundary

Definition	<i>Disputed State Boundary</i> is a Feature Type for state boundaries that are under dispute.
Table	<i>RDF_CARTO</i>
Column	<i>FEATURE_TYPE</i>
Value	See <i>Section C.14, RDF_CARTO</i> .
Related Attribute	<i>CLAIMED_BY</i>
Related Table	<i>RDF_CARTO_LINK</i>

Usage	<i>Disputed State Boundary(909997)</i> can be used for map display to render state boundaries in compliance with the country specific regulations in relation to disputed areas.
Specification	<ul style="list-style-type: none"> • <i>Disputed State Boundary(909997)</i> is published only if a territorial area is under dispute. • A link may be part of both a <i>State Boundary(909996)</i> and a <i>Disputed State Boundary(909997)</i>. In such situations, either <i>State Boundary (909996)</i> or <i>Disputed State Boundary(909997)</i> is to be used, depending on the type of product generated (International or Country view). • <i>Disputed State Boundary(909997)</i> can be used with <i>State Boundary(909996)</i> to form a closed state boundary. <i>State Boundary(909996)</i> links published with <i>Line Of Control</i> = 'Y' in <i>RDF_CARTO_LINK</i> are to be excluded from the selection when generating Country specific views of state boundaries.

Handling of Disp. State Boundary in Conjunction with Regular State Boundary

Product Creation	State(909996) Link with no Line of Control attribute	State(909996) Link with Line of Control = Y	Disputed State (909997)
Create a country product containing State 'X'	Include with Named Place ID for 'X'	Exclude	Include with Named Place ID for 'X'
Create a country product containing state 'Z'	Include with Named Place ID for 'Z'	Exclude	Include with Name Place ID for 'Z'
Create a multi-country product showing disputed boundary	Include	Include	Include
Create a multi-country product not showing disputed boundary (<i>Figure 17-1</i>)	Include	Include	Exclude

- A *Disputed State Boundary(909997)* is published with the *Claimed By* attribute to indicate to which country the Disputed State Boundary applies.

17.2.1.4 Cartographic Disputed State Boundary

Definition	The <i>Cartographic Disputed State Boundary</i> is a cartographic feature that identifies disputed state boundaries on land between adjacent countries.
Table	<i>RDF_CARTO</i>
Value	See Section C.14, <i>RDF_CARTO</i> .
Related Attribute	<i>Claimed By</i>
Usage	The <i>Cartographic Disputed State Boundary</i> can be used to provide state boundary display in areas under dispute.

Usage of *Cartographic Disputed State Boundary*(908005) is similar to the Disputed State Boundary(909997), where the *Cartographic Disputed State Boundary* only provides the boundaries between states on land.

- Specification**
- *Cartographic Disputed State Boundary* is published on links that meet the following criteria:
 - ◆ No major water feature (i.e. oceans, Great Lakes, etc.) and
 - ◆ *Disputed State Boundary* (Feature Type = 909997) or
 - ◆ *County Boundary* (Feature Type = 900170) (if the country has 4 Administrative Levels and the lowest level is Settlement)
 - A *Cartographic Disputed State Boundary* is published with the *Claimed By* attribute to indicate for which country a specific *Cartographic Disputed State Boundary* is applicable.
 - The *Cartographic Disputed State Boundary* is named only in the language of the country referenced by the *Claimed By* attribute.

17.2.2 Attributes

17.2.2.1 Claimed By (CLAIMED_BY)

- Definition** *Claimed By* is an attribute that indicates which country claims a cartographic administrative polygon or linear administrative boundary in a disputed area.
- Value** ISO Country Code to indicate the country that claims a specific area or boundary under dispute.
For example: IND - India, PAK - Pakistan
- Table** RDF_CARTO_LINK
RDF_CARTO_FACE
RDF_CITY_POI
- Column** CLAIMED_BY
- Related Attributes** *Line of Control*
Controlled By
- Usage** *Claimed By* can be used for map display purposes to select the relevant administrative polygons and boundaries when generating a country-specific map for disputed areas.
- Specification**
- *Claimed By* is published in RDF_CARTO_LINK or RDF_CARTO_FACE for disputed areas. If an area is not disputed, then no *Claimed By* attribute is published for the cartographic feature.
 - Cartographic administrative features are duplicated when different countries claim the disputed area. This duplication enables explicit association to the

administrative area of the respective mother country. See *Figure 17-5* and *Figure 17-6*.

- *Claimed By* can be published for all administrative cartographic features within a disputed area. This concerns the following cartographic features:
 - ◆ Built-up Area (900156)
 - ◆ City (900101)
 - ◆ County (900170)
 - ◆ State Boundaries (909996)
 - ◆ Country Boundaries (907196)
 - ◆ Cartographic State Boundaries (908001)
 - ◆ Cartographic Country Boundaries (908000)
 - ◆ Disputed State Boundaries (909997)
 - ◆ Disputed Country Boundaries (907197)
 - ◆ Cartographic Disputed State Boundaries (908005)
 - ◆ Cartographic Disputed Country Boundaries (908004)
- *Claimed By* can be published for polygonal and linear cartographic features, and can be published for cartographic features at various levels in the administrative hierarchy.
- *Claimed By* can be published for a *Named Place POI* in a disputed area.
- For the creation of a Country Level product those cartographic administrative feature elements (Carto Link or Carto Face) published with the required country in the *Claimed By* attribute must be used (e.g., *Claimed By* = IND)
- For the creation of a multi-country product all cartographic administrative feature elements (Carto Link or Carto Face) not having a *Claimed By* attribute must be used.

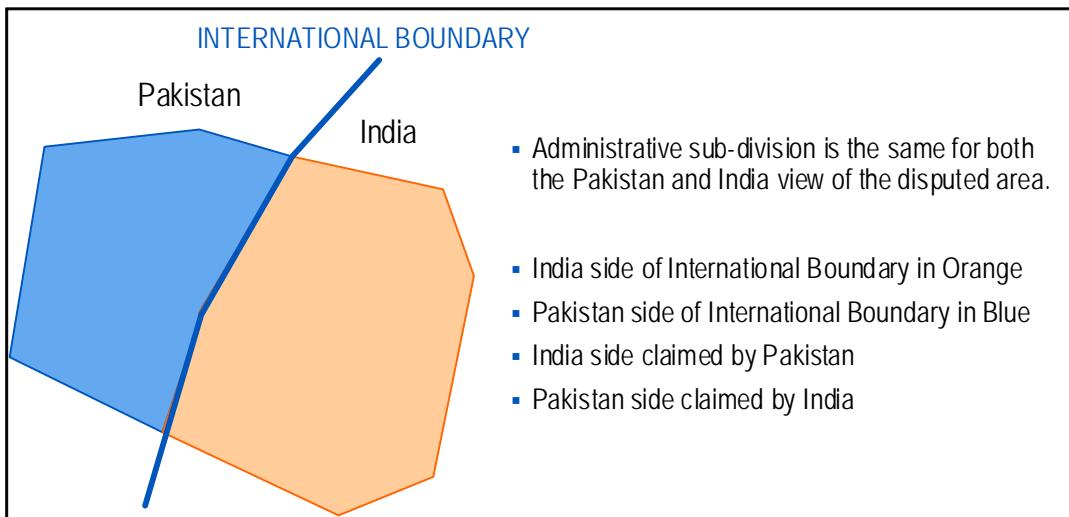


Figure 17-5

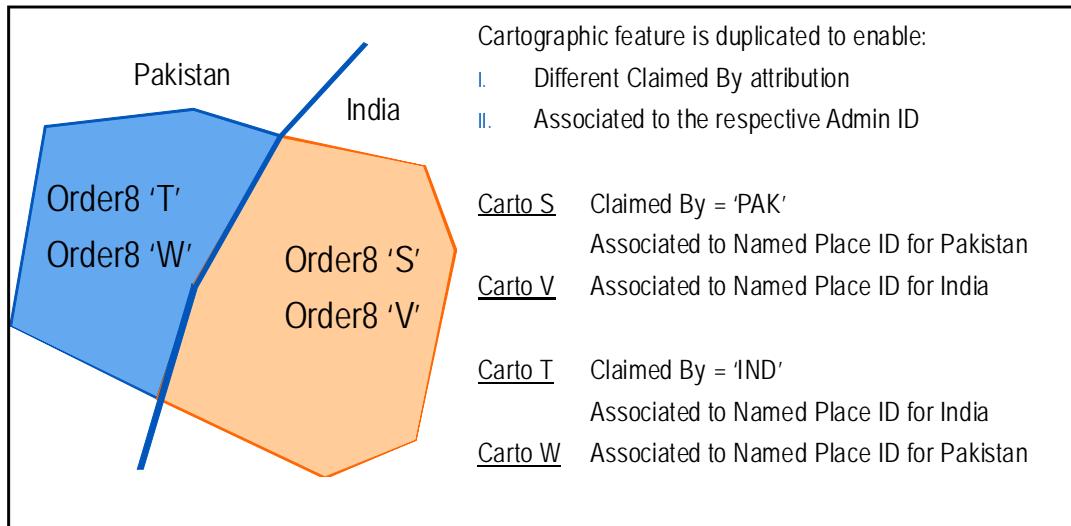


Figure 17-6

- When only a part of an administrative area is under dispute, the Cartographic feature and the Administrative Area is split into two pieces. The common RDF_CARTO.NAMED_PLACE_ID allows for grouping the two pieces. See *Figure 17-7* and *Figure 17-8*.
 - Either piece (A1 and A2 in *Figure 17-8*) results in an RDF_ADMIN_PLACE entry, both with the same name and same Government Code.
 - Either piece (A1 and A2 in *Figure 17-8*) results in an RDF_CARTO entry, which references the corresponding ADMIN_PLACE_ID of the administrative equivalent via the NAMED_PLACE_ID field.

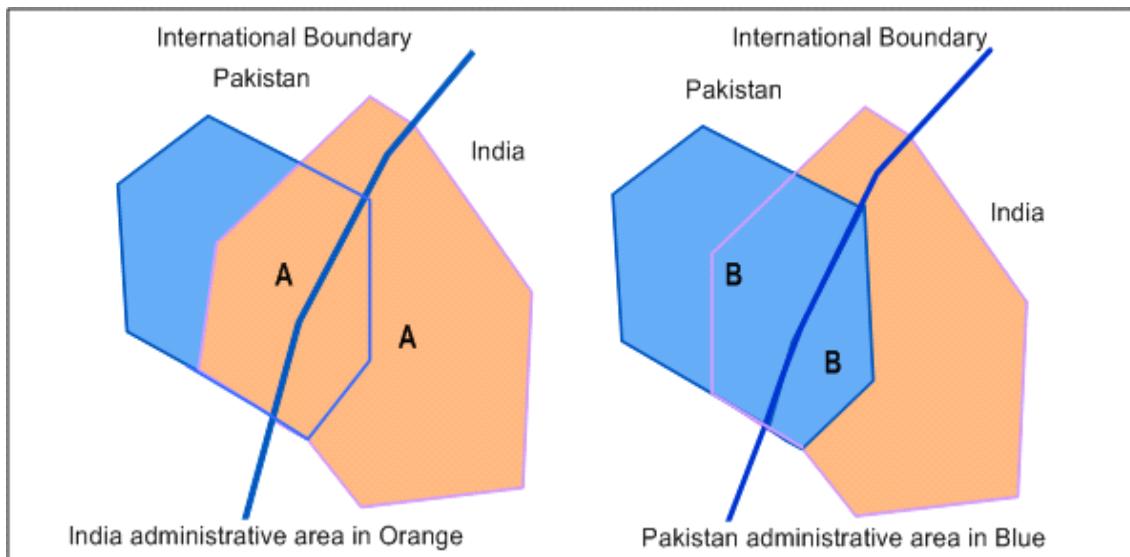


Figure 17-7

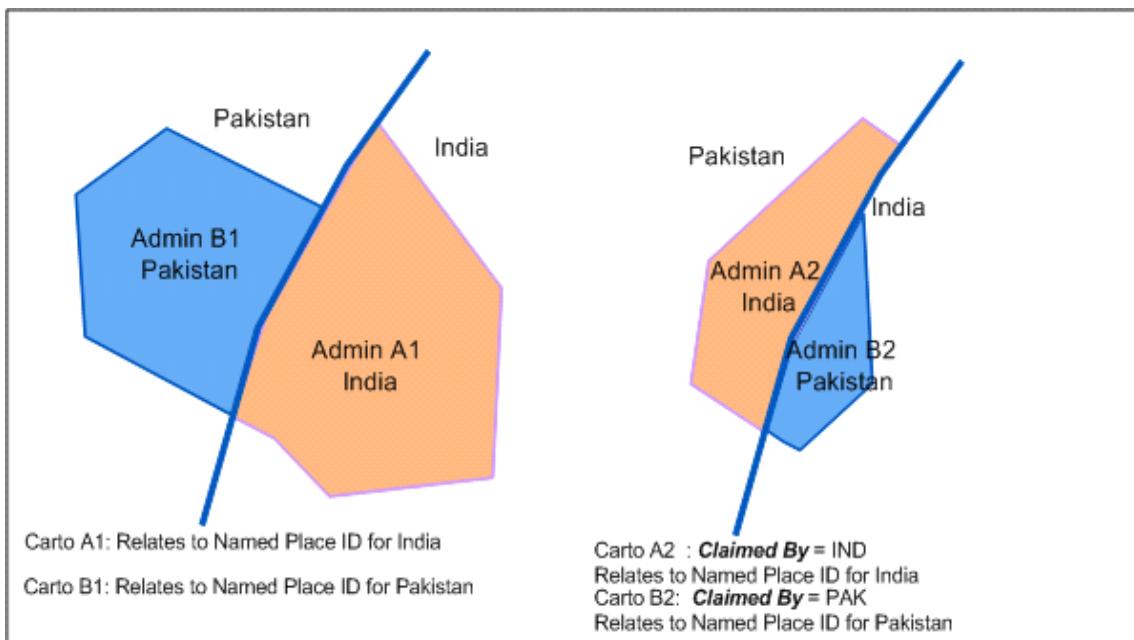


Figure 17-8

17.2.2.2 Controlled By (CONTROLLED_BY)

Definition	<i>Controlled By</i> indicates for cartographic features in disputed areas which country is, according to international agreements, in control of the area. <i>Controlled By</i> identifies cartographic features located in a Disputed Area and not claimed by another country.
Table	RDF_CARTO_LINK RDF_CARTO_FACE RDF_CITY_POI
Column	CONTROLLED_BY
Value	ISO Country Code to indicate the Country that controls a specific area or boundary under dispute. For example: IND - India, PAK - Pakistan
Usage	<i>Controlled By</i> can be used to remove cartographic features located in a disputed area when creating a country product.
Specification	<ul style="list-style-type: none"> • <i>Controlled By</i> can be published for all administrative cartographic features within a disputed area. This concerns the following cartographic features: <ul style="list-style-type: none"> ◆ Built-up Area (900156) ◆ City (900101) ◆ County (900170)

- ◆ State Boundaries (909996)
- ◆ Country Boundaries (907196)
- ◆ Cartographic State Boundaries (908001)
- ◆ Cartographic Country Boundaries (908000)
- *Controlled By* is published for the entire disputed area, on either side of the internationally accepted line of control.
- *Controlled By* can be published for a Named Place POI in a disputed area.
- Cartographic administrative features are duplicated when different countries claim the dispute area.
- A Link or Face part of a cartographic feature in a Disputed Area is either published with *Claimed By* or with *Controlled By*. *Claimed By* and *Controlled By* do not co-exist for a single Link or Face part of a cartographic feature.
- For the creation of a Country Level product those cartographic administrative feature elements (Carto Link or Carto Face) published with the required country in the *Claimed By* attribute must be used (e.g., *Claimed By* = IND), and those cartographic feature elements (Carto Link or Carto Face) published with *Controlled By* of the other claiming country (e.g., *Controlled By* = PAK) are to be ignored.
- For the creation of a multi-country product all cartographic administrative feature elements (Carto Link or Carto Face) published with the *Claimed By* attribute must be ignored.

17.2.2.3 Line of Control (LINE_OF_CONTROL)

Definition	The <i>Line of Control</i> attribute identifies specific links of an administrative linear cartographic feature that represent internationally accepted boundaries, but are located in an area under dispute. <i>Line of Control</i> is published for <i>Country Boundaries</i> (907196 and 908000) and for <i>State Boundaries</i> (909996 and 908001).
Table	RDF_CARTO_LINK
Column	LINE_OF_CONTROL
Value	Y - The link of the Country or State Boundary is an internationally accepted boundary in a disputed area N - The link of the Country or State Boundary represents a standard, non-disputed boundary NULL - <i>Line of Control</i> does not apply to the Cartographic Feature.
Usage	The <i>Line of Control</i> attribute can be used to remove those links from the administrative linear cartographic feature that represent internationally accepted boundaries in a disputed area. This removal of <i>Line of Control</i> links is necessary when creating a Country Product. <ul style="list-style-type: none">● For country boundaries

- ◆ The *Disputed Country Boundary*(907197) links can replace the *Line of Control - Y flagged Country Boundary*(909196) links to generate a country specific view of the country boundary.
- ◆ The *Cartographic Disputed Country Boundary*(908004) links can replace the *Line of Control - Y flagged Cartographic Country Boundary*(908000) links to generate a country specific view of the country boundary.
- For state boundaries
 - ◆ The *Disputed State Boundary*(909997) links can replace the *Line of Control - Y flagged State Boundary*(909996) links to generate a country specific view of the state boundary.
 - ◆ The *Cartographic Disputed State Boundary*(908005) links can replace the *Line of Control - Y flagged Cartographic State Boundary*(908001) links to generate a country specific view of the state boundary.

- Specification**
- A linear administrative boundary can consist of a collection of links with different *Line of Control* values. Those links of the linear administrative boundary that represent internationally accepted boundaries, but are located in an area under dispute, as published with *Line of Control = Y* in *RDF_CARTO_LINK*.
 - In the example of India - Pakistan the following two *Country Boundary*(907196) cartographic features (*RDF_CARTO*) are defined. Each *Country Boundary*(907196) feature is a collection of many links.
 - ◆ Cartographic feature for *Country Boundary*(907196) with Named Place ID for 'INDIA' which contains links flagged as *Line of Control = Y* and links flagged as *Line of Control = N*. *Line of Control* is published in *RDF_CARTO_LINK*.
 - ◆ Cartographic feature for *Country Boundary*(907196) with Named Place ID for 'PAKISTAN' which contains links flagged as *Line of Control = Y* and links flagged as *Line of Control = N*. *Line of Control* is published in *RDF_CARTO_LINK*.

This corresponds to the highlighted country boundaries in *Figure 17-1*, where the line of control highlight is based on *Line of Control = Y* in *RDF_CARTO_LINK*.

Similarly the following entries in *RDF_CARTO* are defined for the *Cartographic Country Boundary*(908000):

- ◆ Cartographic feature for *Cartographic Country Boundary*(908000) with Named Place ID for 'INDIA' which contains links flagged as *Line of Control = Y* and links flagged as *Line of Control = N*. *Line of Control* is published in *RDF_CARTO_LINK*.
- ◆ Cartographic feature for *Cartographic Country Boundary*(908000) with Named Place ID for 'PAKISTAN' which contains links flagged as *Line of Control = Y* and links flagged as *Line of Control = N*. *Line of Control* is published in *RDF_CARTO_LINK*.

If state boundaries cross the *Line of Control*, similar coding is also applied for *State Boundary*(909996) and *Cartographic State Boundary*(908001).

- A single link may be published as *Line of Control = Y* for one country, but *Line of Control = N* for another country. The *Line of Control* is not automatically the same for both countries sharing the linear administrative boundary. *Figure 17-9* provides an example of a linear boundary with different *Line of Control* setting depending on the country to which the boundary is associated.

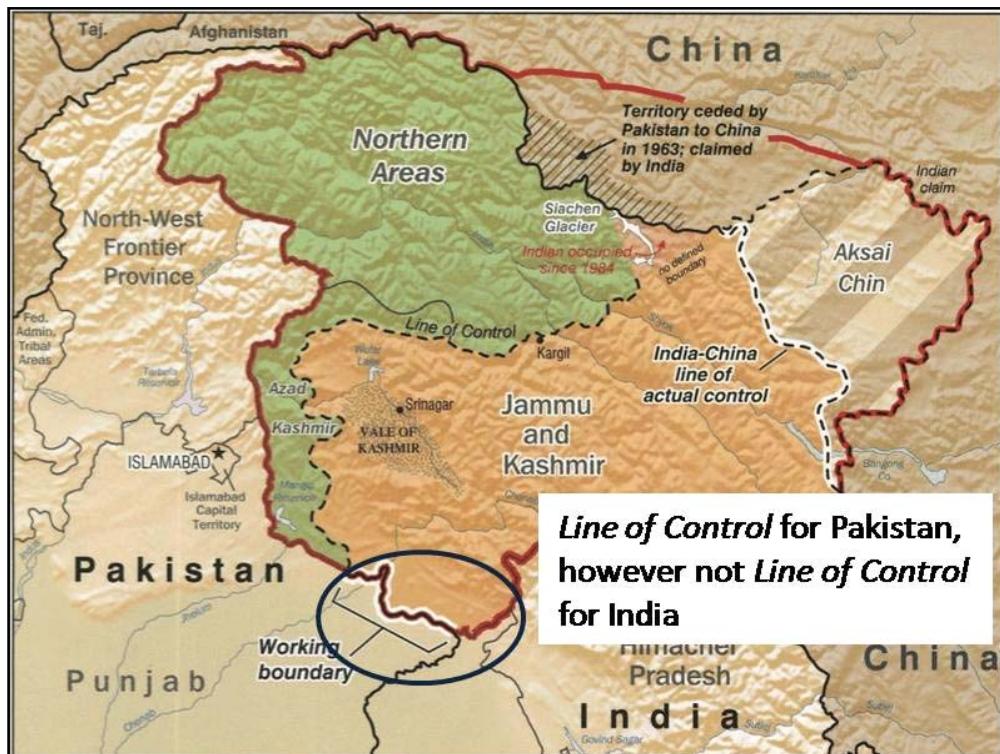


Figure 17-9

17.2.3 Administrative Coding and Disputed Area Zone

Definition A *Disputed Area Zone* is a *Zone Type* that associates an alternate administrative hierarchy to a link. The *Disputed Area Zone* is used only to relate a link to its alternate administrative hierarchy.

Standard administrative coding rules apply to disputed areas; however, for specific disputed areas it is possible that multiple administrative coding is published to comply with the administrative sub-division of each mother-country.

At compile time customers must decide on using a specific administrative hierarchy, depending on the product created.

Table	RDF_ZONE
Column	ZONE_TYPE
Value	Section C.89, RDF_ZONE
Usage	<i>Disputed Area Zone</i> has no application level use-case; it is only used to enable multiple administrative coding for a link.
Specification	<u>General</u>
	<ul style="list-style-type: none"> • Standard administrative areas coding is applied to disputed areas.

- Only for areas under dispute, multiple administrative coding is provided through the *Disputed Area Zone*.
- The internationally accepted administrative hierarchy is modelled through regular Link - Admin coding.
- Alternate administrative hierarchies, specific to countries involved in the disputed area, are modelled through the *Disputed Area Zone*.
- At compile time customers must decide on using a specific administrative hierarchy, depending on the product created. The Country Name of the administrative hierarchy should be used when deciding to publish a Country product with the disputed area view for that specific country. This means:
 - ◆ Use the Link - Admin coding when the Country corresponding to the Admin Place ID is the desired country or
 - ◆ Add the alternate administrative hierarchy as referenced by the Link - *Disputed Area Zone* coding, when the *Disputed Area Zone* references an Admin Place ID in the desired country.

Multiple Administrative Coding model - Disputed Area Zone

- *Figure 17-10* is a conceptual overview of associating multiple administrative subdivisions to a link.

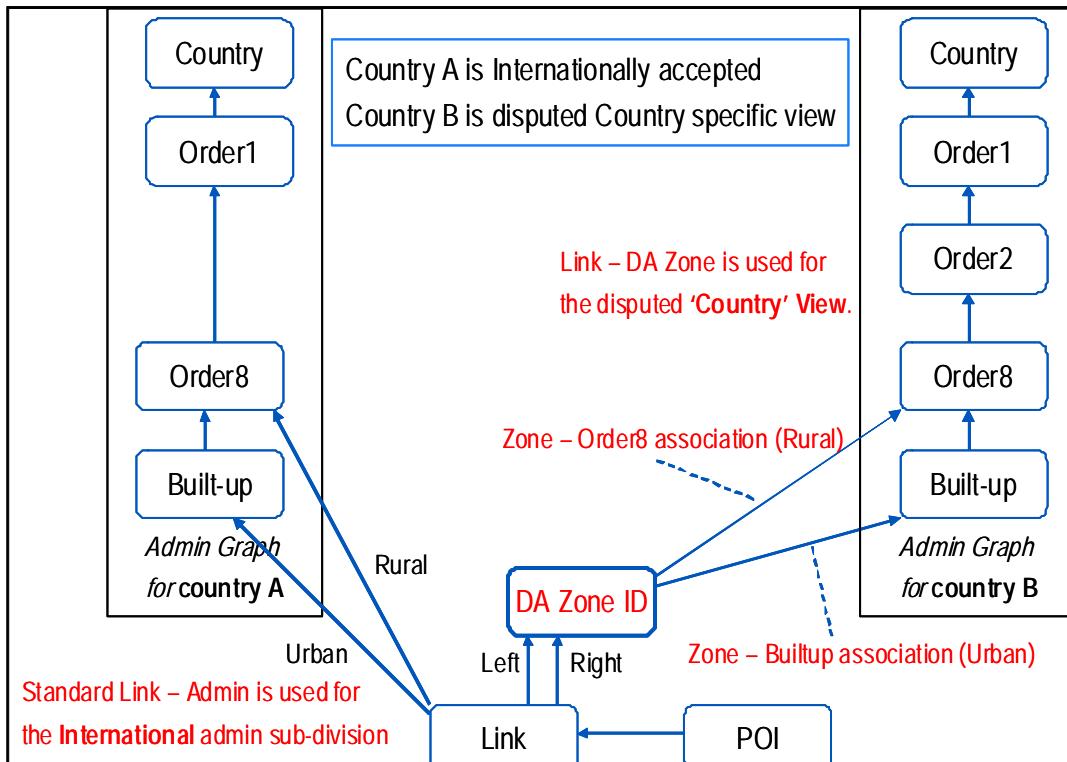


Figure 17-10

- The standard, full administrative hierarchy is defined for each country (i.e. two administrative hierarchies in this example):

- ◆ Country A ' OrderX ' Builtup
- ◆ Country B ' OrderX ' Builtup
- The regular Link - Admin coding is only published to the internationally accepted administrative sub-division of the area. Therefore only one administrative area is published to a specific Link - Side. Alternate administrative area coding is handled through the *Disputed Area Zone* concept.
- *Disputed Area Zone* supports a multiple administrative sub-division for one link. In *Figure 17-10*, this entity is referenced as DA Zone ID.
- The *Disputed Area Zone* is used to model a country specific view of the disputed area.
- Each administrative hierarchy needed for the disputed area results in a new *Disputed Area Zone*. In this example, one *Disputed Area Zone* is needed to model one alternate administrative hierarchy. See *Figure 17-10*.
- A *Disputed Area Zone* has no name associated, and must not be used for destination input purposes. It only serves as an entity to tie an alternate administrative hierarchy to a link.
- The *Disputed Area Zone* must only be used to retrieve the country specific administrative hierarchy for the targeted product. For example, if the product needs to offer an administrative structure applicable to Country 'B', only the *Disputed Area Zone* linkage (branch) to the administrative structure for Country 'B' is to be selected.
- Links are associated with the *Disputed Area Zone* through the regular Link - Zone coding (RDF_LINK_ZONE).
- The *Disputed Area Zone* is published in RDF_ZONE, and has a corresponding administrative area ID (RDF_ZONE.ADMIN_PLACE_ID). This administrative area ID reference provides the linkage between the *Disputed Area Zone* and the alternate administrative hierarchy.
- In the table below, three *Disputed Area Zones* are shown, each with their ADMIN_PLACE_ID reference. The ADMIN_PLACE_ID referenced in the RDF_ZONE represents the lowest admin level (either Builtup Area (3110) or Order8 Area (1119)) in the alternate administrative hierarchy.

ZONE_ID	ZONE_TYPE	ADMIN_PLACE_ID	GOVERNMENT_CODE
141727667	DA	136527174	0
141727476	DA	139525367	0
141727986	DA	139770901	0

- RDF_ADMIN_HIERARCHY publishes the standard hierarchy (Country ' Built-Up) for the defined administrative hierarchies. In the example of *Figure 17-10*, RDF_ADMIN_HIERARCHY entries are created for the various administrative level in Country A and Country B.

- The *Disputed Area Zone* is not part of the Admin Subregion. The Admin Subregion publishes an entry for either country hierarchy, with the optional related Zone(s) (excluding DA Zone) or Postal Code.
- No RDF_PLACE_ZONE entries are published for *Disputed Area Zones*.
- A *Disputed Area Zone* has no corresponding *Named Place* POI.

Example:

In *Figure 17-11*, two disputed administrative areas are defined:

- Pakistan has an administrative area X.
- India claims administrative area X
- India has an administrative area Y.
- Pakistan claims administrative area Y.

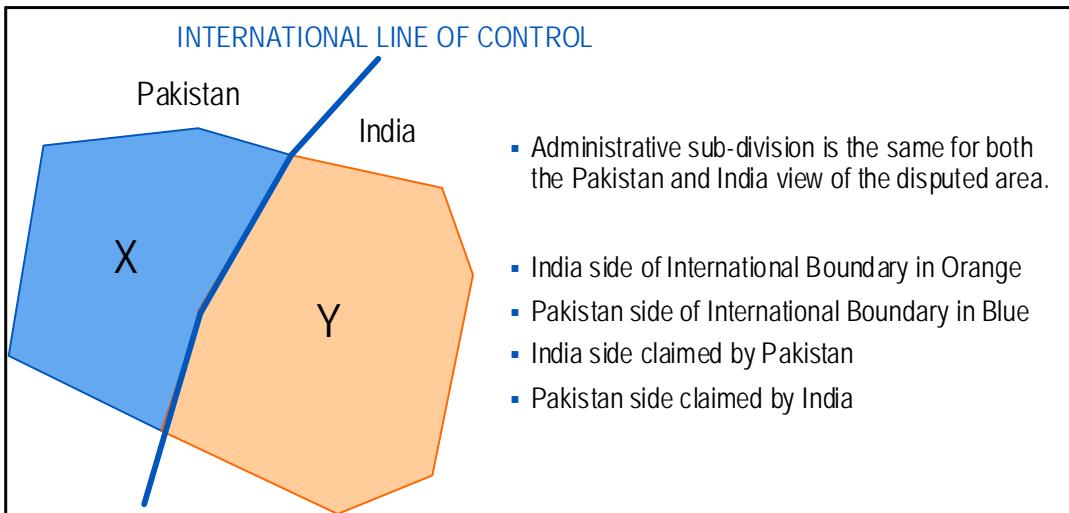


Figure 17-11

- In this example, the geographic unit Admin Area 'X' is used by both India and Pakistan. The administrative coding; however, is duplicated to associate Admin 'X' to the India and the Pakistan hierarchy.
- Admin 'X' - Pakistan is the standard Link - Admin coding for all links located inside Admin 'X', since this represents the Internationally accepted administrative hierarchy.
- All links inside Admin 'X' are also published with a *Disputed Area Zone* to model that 'X' is located in India. The *Disputed Area Zone* (Zone ID = 8899) is associated with Admin 'X' - India through Zone - Admin association (RDF_ZONE.ADMIN_PLACE_ID). See *Figure 17-12*.

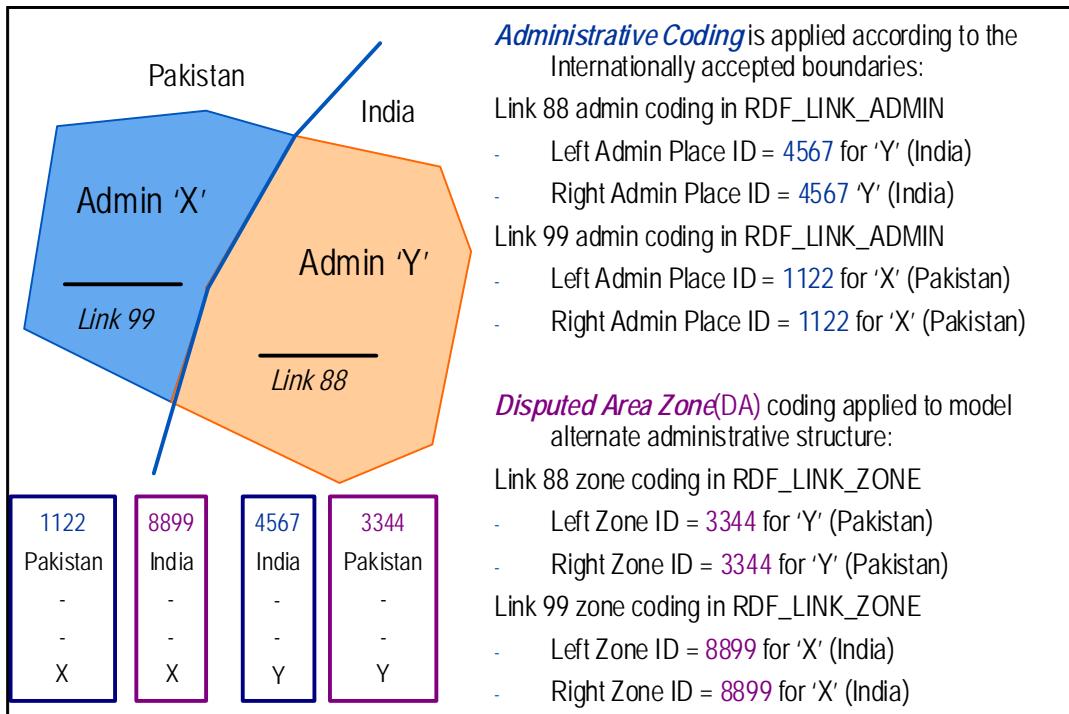


Figure 17-12

17.2.4 Named Place POI in Disputed Areas

Cities in disputed areas have a Named Place POI for each country that claims the area.

Usage	<p>Based on the <i>Claimed By</i> attribute the necessary Named Place POIs for the desired product can be obtained.</p> <p>Use the <i>Claimed By</i> attribute to select those Named Place POIs that are needed for a specific Country view of the area.</p> <p>Exclude those Named Place POIs published with the <i>Claimed By</i> attribute when generating an Internationally accepted view of the area.</p> <p>Use the <i>Controlled By</i> attribute published for the Named Place POI to remove Named Place POIs in a disputed area when creating a Country product.</p>
Specification	<ul style="list-style-type: none"> • The Named Place POI is named in the Language Code corresponding to the language of the <i>Claimed By</i> or <i>Controlled By</i> country. <ul style="list-style-type: none"> ◆ For example: a Named Place POI in a disputed area flagged with <i>Claimed By</i> - IND is only named with the Indian spelling of the Named POI. The Named Place POI flagged with <i>Claimed By</i> - PAK is only named with the Pakistan spelling of the Named Place POI. • The multiple occurrence of a Named Place POI for a city is only published within disputed areas. In a non-disputed area a city remains only published with one Named Place POI.

- The multiple occurrence of a Named Place POI is done to enable:
 - ◆ *Claimed By* and *Controlled By* attribution at individual Named Place POI level
 - ◆ association of the Named Place POI to the appropriate administrative hierarchy
- When creating a Country Product customers must select the appropriate Named Place POI for the product created. This selection is based on the *Claimed By* and *Controlled By* attribute associated with the Named Place POI.

17.2.5 Naming in Disputed Areas

Within disputed areas select features may be additionally included with the languages of the countries claiming the area.

Usage	<p>Based on the <i>Claimed By</i> and <i>Controlled By</i> attributes, the required map features with their appropriate spelling for the desired product can be obtained.</p> <p>The <i>Claimed By</i> attribute based selection pulls features with naming that complies with the Country view of the area.</p> <p>Features, with their names, published with the <i>Claimed By</i> attribute are to be ignored when generating a product that complies with the Internationally accepted view of the area.</p> <p>The <i>Controlled By</i> attribute can be used to remove features, with their names, when creating a Country view of the disputed area.</p>
Specification	<ul style="list-style-type: none">● The following features may have multiple occurrences, and each occurrence provides naming in the languages of the countries that claim a disputed area:<ul style="list-style-type: none">◆ Named Place POI◆ Administrative Areas◆ Cartographic Administrative Feature● Other map features follow standard naming rules, and are not translated in other country's languages. This means that naming is included as posted in reality, and in the language considered the default language of the area under dispute.● When creating a Country Product, customers must select the appropriate feature for the product created. This selection is based on the <i>Claimed By</i> and <i>Controlled By</i> attributes associated with the Cartographic administrative feature and to the Named Place POI. A cartographic administrative feature and Named Place POI is only named in the language corresponding to the country referenced by the <i>Claimed By</i> or <i>Controlled By</i> attribute.<ul style="list-style-type: none">◆ For example: a Named Place POI in a disputed area flagged with <i>Claimed By - IND</i> is only named with the Indian spelling of the Named POI. The Named Place POI flagged with <i>Claimed By - PAK</i> is only named with the Pakistan spelling of the Named Place POI.

17.3 Using a Disputed Territories Product

When generating products for a country that contains disputes boundaries and/or areas, customers must decide which market is targeted and design the compilation process in such a way that appropriate products are generated in accordance with the rules and regulations of applicable country.

This section provides a summary of the steps involved to create a product using the Disputed Territories Product. It, however, remains the customer's responsibility to ensure that its products which contain HERE data and content, including the Disputed Territories Product, are used by its end-users in the applicable country in a manner that complies with such country's applicable rules and regulations. HERE expressly disclaims any liability with respect to the manner in which the customer compiles its map product, including, without limitation, any liability arising in connection with the failure to comply with the rules and regulations of the applicable country.

17.3.1 Creating a Multi-country Product

To enable the generation of a product for the international market that complies with the internationally accepted view of the area, take the following actions:

- Standard Link - Admin coding can be used, as in a regular RDF deliverable. The Link - Admin coding complies with the internationally accepted administrative subdivision.
- Ignore the *Disputed Area Zone* coding.
- Use standard *Country Boundary*(907196); also include those links published in *RDF_CARTO_LINK* with *Line of Control - Y*.
- Ignore the *Disputed Country Boundaries* (907197) or *Disputed State Boundaries* (909997) if it is not desired to show disputed country boundaries in the multi-country product.
- When desired, use the *Cartographic Country Boundary*(908000) or *Cartographic State Boundary*(9080001) features, including those links published with *Line of Control - Y* in *RDF_CARTO_LINK*. Ignore the *Cartographic Disputed Country Boundary*(908004) and *Cartographic Disputed State Boundary*(908005).
- Select those Cartographic Administrative Features not attributed with the *Claimed By* attribute for the countries involved in the disputed area (e.g., exclude those flagged with *Claimed By - PAK* or *Claimed By - IND* for a multi-country product of India - Pakistan).
- Select those Named Place POIs not published with the *Claimed By* attribute for the countries involved in the disputed area.

17.3.2 Creating a Country Product

To enable the generation of a product for the market of one of the countries involved in the dispute that complies with such country's view of the area, take the following actions:

- Use existing Link - Admin coding where the Admin has a parent of the Country for which a product is to be generated. For example, when generating an India product only select the Link - Admin coding where the Admin Place ID is located inside Country India.

- Adopt the alternate administrative hierarchy as referenced by the *Disputed Area Zone* for those links that have Link - Admin coding different from the desired country. For example, Link - Admin coding relates to Country 'Pakistan'. When generating an India product, the Link - *Disputed Area Zone* is to be used, since Link - Admin relation relates to a different country than India. The Admin Place ID for the *Disputed Area Zone* associates the Links to the alternate administrative hierarchy.
- Ignore Link - Admin coding when the Admin Place ID is in another country than the desired Country Product.
- Ignore the links of the *Country Boundary*(907196) and *State Boundary*(909996) flagged with *Line of Control* - Y in RDF_CARTO_LINK. Include the Disputed Country Boundaries(907197) and *Disputed State Boundary*(909997) referencing the Named Place ID for the desired Country. Combine the Disputed Territories with the *Country Boundary*(907196) and *State Boundary*(909996) links that are not flagged with *Line of Control* - Y in RDF_CARTO_LINK.
- When desired, use the *Cartographic Disputed Country Boundary*(908004) or *Cartographic Disputed State Boundary*(908005) with the *Claimed By* attribute of the desired country, in combination with the links of the *Cartographic Country Boundary*(908000) or *Cartographic State Boundary*(908001) published with *Line of Control* = N.
- Select those Cartographic Administrative Features published with a *Claimed By* attribute of the desired country (e.g., when creating an India product, select Cartographic Administrative Features flagged with *Claimed By* - IND).
- Ignore the Cartographic Administrative Features published with a *Controlled By* attribute of other countries than the desired country (e.g., where creating an India product, ignore the Cartographic features flagged with *Controlled By* = 'PAK').
- Select those Named Place POIs published with a *Claimed By* attribute of the desired country (e.g., when creating an India product, select Named Place POIs flagged with *Claimed By* - IND).
- Ignore the Named Place POIs published with *Controlled By* attribute of countries other than the desired country (e.g., where creating an India product, ignore the Named Place POIs with *Controlled By* = 'PAK').

17.4 Examples

17.4.1 Dual Administrative Coding

The following example explains the dual administrative coding model for a fictive disputed area situation between India - Pakistan.

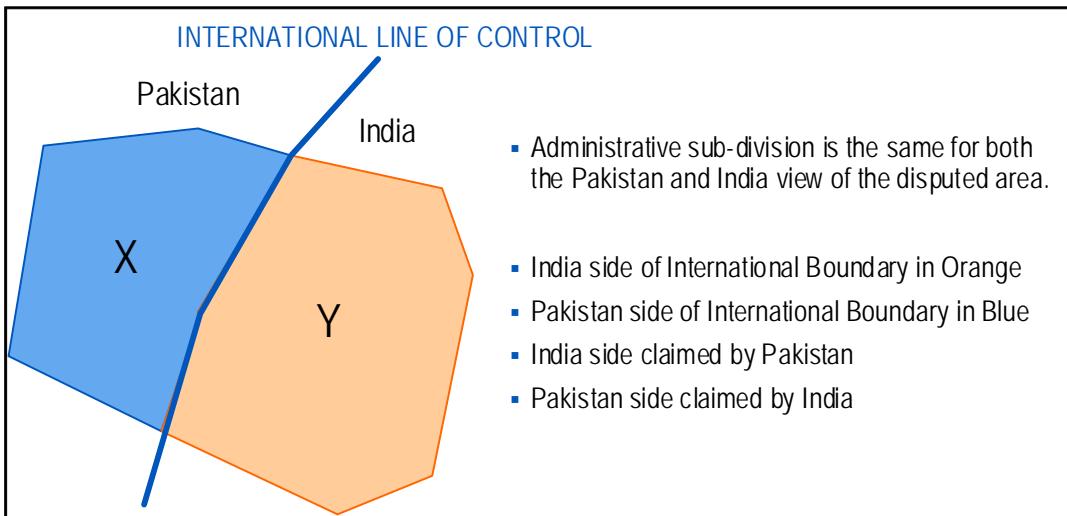


Figure 17-13

An RDF_ADMIN_PLACE entry is present for the Order8 'X' area in Pakistan.

In addition a RDF_ADMIN_PLACE entry is present for the Order8 'X' area in India.

The two Admin Places are defined to model that Order8 'X' is claimed by two countries.

RDF_ADMIN_PLACE		
ADMIN_PLACE_ID	789987	882658
ADMIN_TYPE	1119	1119
GOVERNMENT_CODE	56245	56245
ADMIN_LEVEL	5	5
TIME_ZONE	NULL	NULL
DST_ID	NULL	NULL

A link in the Order8 'X' area is only associated with the Order8 'X' in Pakistan. This Link - Admin coding is selected since Order8 'X' is internationally accepted to be in Pakistan.

RDF_LINK		
LINK_ID	14286726	14286726

RDF_LINK		
LEFT_ADMIN_PLACE_ID	789987	789987
RIGHT_ADMIN_PLACE_ID	789987	789987

The link is additionally published with a *Disputed Area Zone* (DA) for Order8 'X' in India.

An RDF_ZONE entry is defined for the DA Zone to reference the Admin Place ID for Order8 'X' in India. This *Disputed Area Zone* references the Order8 'X' in India (882658).

RDF_ZONE	
ZONE_ID	141727667
ZONE_TYPE	DA
ADMIN_PLACE_ID	882658
GOVERNMENT_CODE	NULL

The corresponding Link - Disputed Area Zone coding:

RDF_LINK_ZONE		
LINK_ID	14286726	14286726
ZONE_ID	141727667	141727667
SIDE	L	R

The Admin Graph is constructed for both Order8 'X' in Pakistan and Order8 'X' in India.

RDF_ADMIN_GRAPH		
CHILD_ID	789987	882658
PARENT_ID	3638672	3638799

The RDF_ADMIN_HIERARCHY shows two administrative sub-divisions, one for India and one for Pakistan.

RDF_ADMIN_HIERARCHY		
ADMIN_PLACE_ID	789987	882658
ADMIN_ORDER	4	4
ISO_COUNTRY_CODE	IND	PAK
COUNTRY_ID	323232	445655
ORDER1_ID	426378	65847
ORDER2_ID	3638672	3638799
ORDER8_ID	789987	882658

RDF_ADMIN_HIERARCHY		
BUILTUP_ID		
NUM_LINKS		

17.4.2 Disputed Polygonal Cartographic Administrative Boundary

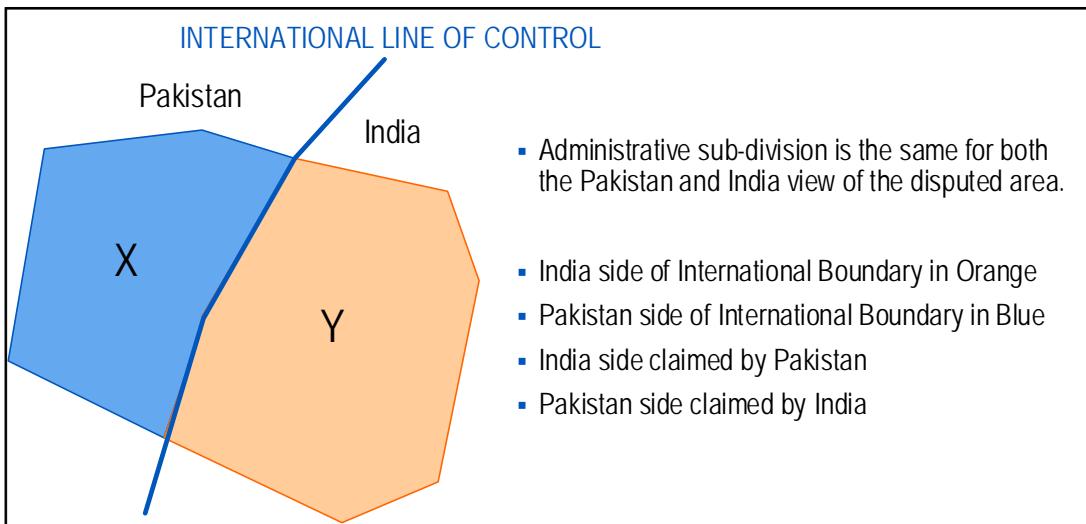


Figure 17-14

Four entries are generated in RDF_CARTO for the Order8:

- Carto for Order8 'X' belonging to Pakistan, with *Controlled By* attribute
- Carto for Order8 'X' belonging to India, with *Claimed By* attribute
- Carto for Order8 'Y' belonging to India, with *Controlled By* attribute
- Carto for Order8 'Y' belonging to Pakistan, with *Claimed By* attribute

CARTO_ID	FEATURE_TYPE	NAMED_PLACE_ID	NAMED_PLACE_TYPE
1283582735	900101	789987	A
1283582737	900101	789987	A
1283573500	900101	882658	A
1283573504	900101	882658	A

The first two rows define the cartographic feature for Order8 as seen by Pakistan.

The last two rows define the cartographic feature for Order8 as seen by India.

Note that the Named Place ID references the respectively the Order8 in Pakistan (789987) and Order8 in India (882658).

The RDF_CARTO_FACE table defines the faces involved in the four cartographic features, each published with either *Controlled By* or *Claimed By*:

CARTO_ID	FACE_ID	LONG_HAUL	COVERAGE_IN_INDICATOR	CLAIMED_BY	CONTROLLED_BY
1283582735	100683	N			PAK
1283582737	100700	N		PAK	
1283573500	100058	N			IND
1283573504	100296	N		IND	

This indicates that Order8 part 'Y' Cartographic Feature is claimed by Pakistan and controlled by India.

In addition, the Order8 part 'X' cartographic feature is claimed by India and controlled by Pakistan

17.4.3 Disputed Linear Cartographic Administrative Boundary

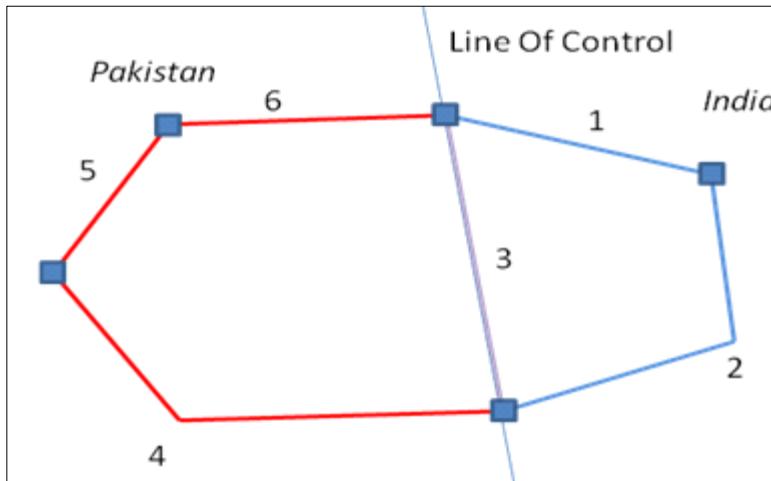


Figure 17-15

Figure 17-15 is a fictive, simplified, schematic example of a State (Province) boundary crossing a line of control between Pakistan and India. Links 4, 5, and 6 are located in Pakistan; Links 1 and 2 are located in India; Link 3 is the internationally accepted boundary (Line of Control).

Both Pakistan and India claim the entire State boundary.

Four cartographic features are created:

- *State Boundary(909996)* referencing Admin Place ID 444444 for the Pakistan State

- *Disputed State Boundary(909997)* referencing the Admin Place ID 444444 for Pakistan State
- *State Boundary(909996)* referencing Admin Place ID 77777 for the India State
- *Disputed State Boundary(909997)* referencing the Admin Place ID 77777 for India State

The coding is shown in the tables below.

RDF_CARTO:

CARTO_ID	FEATURE_TYPE	NAMED_PLACE_ID	NAMED_PLACE_TYPE
6000430	909996	444444	A
6000677	909997	444444	A
6000900	909996	77777	A
6000902	909997	77777	A

The Carto - Link list in RDF_CARTO_LINK, with Line of Control, *Claimed By* and *Controlled By* attribute:

CARTO_ID	LINK_ID	LONG_HAUL	COVERAGE_INDICATOR	LINE_OF_CONTROL	CLAIMED_BY	CONTROLLED_BY
6000430	3	Y		Y		PAK
6000430	4	Y		N		PAK
6000430	5	Y		N		PAK
6000430	6	Y		N		PAK
6000677	1	Y		N	PAK	
6000677	2	Y		N	PAK	
6000900	1	Y		N		IND
6009000	2	Y		N		IND
6009000	3	Y		Y		IND
6009002	4	Y		N	IND	
6009002	5	Y		N	IND	
6009002	6	Y		N	IND	

When only the standard *State Boundary(909996)* is used, an International View of the disputed area is shown, for example for Pakistan:

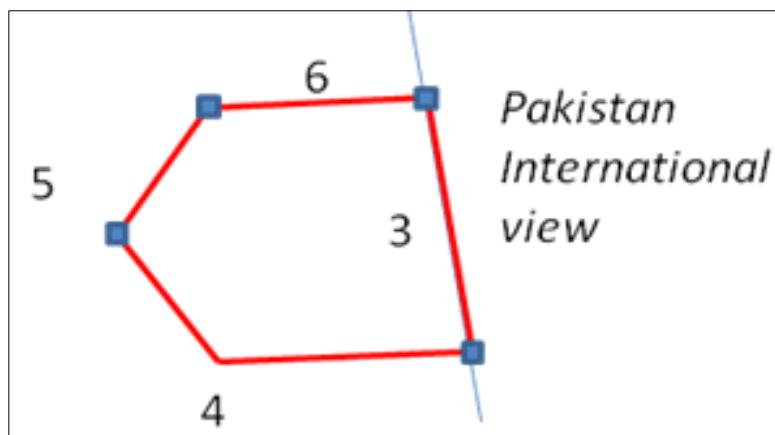


Figure 17-16

When both the standard State Boundary (909996) and the Disputed State Boundary (909997) are combined, a country-specific (disputed) view can be constructed. The Line of Control - Y links are to be removed.

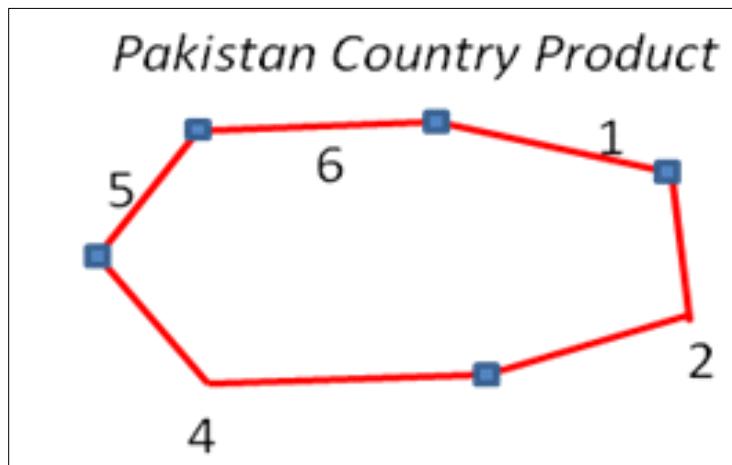


Figure 17-17

Natural Guidance

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18.1 Introduction

Natural Guidance is a turn-by-turn experience encompassing multiple attributes and relations which details the user's environment and context to more natural environmental and intuitive triggers.

Natural Guidance supports the ability for the end users to get route guidance instructions based on contextual elements surrounding decision points such as POIs, Cartographic Features (e.g., Woodland, Lake, Structure Footprints), and Traffic Signals & Stop Signs.

Natural Guidance associates all contextual elements that are relevant for guidance with the actual decision point. These associations are available to support route guidance when driving (or turning) over a Junction/Intersection, and also for guidance when passing an important contextual element.

Examples of Natural Guidance instructions are:

- Go past the park on your right, then turn left at Jefferson School on Aldon Street.
- Go through the traffic light and turn right before the Petrol Station.
- Continue your route passing the dome building on your right.

Generally, Natural Guidance consists of the following:

- *Feature Point Object/Guidance Point*
See Section 18.2, *Feature Point Object*.
- *Feature Association model*
See Section 18.3, *Feature Association Model*.
- *Importance Indicator* attributes
See Section 18.6.2, *Visibility (VISIBILITY)*, Section 18.6.3, *Seasonal Dependency (SEASONAL_DEPENDENCY)*, Section 18.6.4, *Relative Distance (RELATIVE_DISTANCE)*.
- *Calculated Importance* attribute
See Section 18.6.5, *Calculated Importance (CALC_IMPORTANCE)*.
- *Importance Indicator* attribute
See Section 18.7.7, *Importance Indicator (IMPORTANCE_IND)*.

There is a related phonetic transcription content. See Section 21.7, *Voice Phonetic Transcriptions for Natural Guidance*.

18.2 Feature Point Object

Definition	The <i>Feature Point Object</i> is a generic object that represents a map feature at or of a point on a link. For Natural Guidance, the <i>Feature Point Object</i> is called a <i>Guidance Point</i> ; Feature Point with Feature Type = GP (Guidance Point). A <i>Guidance Point</i> is part of the <i>Feature Association</i> and provides location related information.
	For passing guidance, the <i>Guidance Point</i> represents the location on a link (and side of link) where a feature is the most prominent.
	For junction guidance, the <i>Guidance Point</i> indicates a link (and side of link) that borders a particular feature.
Table	RDF FEATURE POINT
Related Table	RDF ASSO FEAT POINT
Specification	<ul style="list-style-type: none">• The Feature Point Object is published in table RDF_FEATURE_POINT.• The Feature Point's permanent ID is published in RDF_FEATURE_POINT.FP_ID.• A Feature Point in the context of Natural Guidance is part of the Association Relation and provides location related information. It has Feature Point Type = GP (Guidance Point). See Feature Association Model for a detailed description of the use of the Feature Point Object in combination with the Feature Association relation.

18.2.1 Feature Point ID (FP_ID)

Definition	Permanent ID for the Feature Point.
Table	RDF FEATURE POINT
Column	FP_ID
Cardinality	1:1

18.2.2 Link ID (LINK_ID)

Definition	Associated LINK_ID of the Feature Point.
Table	RDF FEATURE POINT
Column	LINK_ID
Cardinality	1:1
Specification	<ul style="list-style-type: none">• The link that is associated with the Feature Point.

- For Natural Guidance, the Link ID can differ from the Link ID that is published in the Feature Association. See also Feature Association Model.

18.2.3 Feature Point Type (FP_TYPE)

Definition	Feature Point Type
Table	RDF FEATURE POINT
Column	FP_TYPE
Value	See Section C.42, RDF_FEATURE_POINT.
Cardinality	1:1
Specification	<ul style="list-style-type: none">• The Feature Point Type defines the type of the Feature Point. For Natural Guidance, GP – Guidance Point is defined.

18.2.4 Side (SIDE)

Definition	SIDE indicates the side of the link the Feature Point is located.
Table	RDF FEATURE POINT
Column	SIDE
Cardinality	1:1
Usage	In the context of Natural Guidance, the Side of Link must be used to determine the location of the associated Feature relative to the current route when generating the Natural Guidance advice.
Specification	<ul style="list-style-type: none">• The side indicates the side of the link the Feature Point is referring. The side is relative from Reference Node. Valid values are:<ul style="list-style-type: none">◆ L – Left The Feature Point refers to the Left side of the link relative to the Reference Node.◆ R – Right The Feature Point refers to the Right side of the link relative to the Reference Node.◆ B – Both The Feature Point refers to both sides of the link. See <i>Figure 18-9</i>.

18.2.5 Latitude (LAT)

Definition	Latitude of the Feature Point in 0.00001 degree precision
-------------------	---

Table RDF_FEATURE_POINT

Column LAT

Cardinality 1:1

18.2.6 Longitude (LON)

Definition Longitude of the Feature Point in 0.00001 degree precision

Table RDF_FEATURE_POINT

Column LON

Cardinality 1:1

18.3 Feature Association Model

The *Feature Association* model defines an association/relation between two or more features of any type (POI, Link, Complex, Carto, and Feature Point). For Natural Guidance, the *Feature Association* model is used to associate the following features to a link:

- POIs
- Polygonal Features:
 - Structure Footprints (2D Building/Landmark footprints, Enhanced 2D footprints)
 - Grouped Structures
 - Carto Features
- Feature Points/Guidance Points

See *Section 12.2.2, Feature Association Model* for the entity relationship diagram.

Specification • The association members of the association in the context of Natural Guidance are according to the table below:

Association with	Association members
Bridges	1 Link 1 Feature Point
Carto Features	1 Carto 1 Link 1 Feature Point
Grouped Structures	1 Aggregated Feature 1 Link 1 Feature Point
POIs	1 POI 1 Link 1 Feature Point
Tunnels	1 Link 1 Feature Point

- The type of the *Feature Association* is indicated by the *Association Type* (RDF_ASSO.ASSO_TYPE).
- The *Feature Association* is published in the following situations:
 - ◆ *Feature Association* between a Feature and a link to support route guidance when passing the Feature. In this case, the *Association Type* = PG - Passing Guidance.

There is one *Feature Association* defined for each Feature that is relevant to the route guidance when driving the link. The *Importance Indicator* attributes or *Calculated Importance* must be used to select the Feature that is most relevant for route guidance.

- ◆ *Feature Association* between a Feature and a link to support route guidance when driving (or turning) over a Junction/ Complex Intersection. In this case, the *Association Type* = JG - Junction Guidance.

In the context of one manoeuvre over a Junction or Complex Intersection, the *Feature Associations* are defined for the link that is connected to the Junction or Complex Intersection prior to the specific manoeuvre over the Junction or Complex Intersection. For a Junction this is the link directly connected to the Junction. For the Complex Intersection this is the first external link.

There is one *Feature Association* defined for each Feature that is relevant to the route guidance via this link over the Junction/Complex Intersection.

Example:

If there are three Features at a Junction or Complex Intersection that are relevant for a manoeuvre over the Junction or Complex Intersection, three *Feature Associations* are published for every link connected to the Junction or Complex Intersection (in the direction of the Junction or Complex intersection). One for each Feature and link. The *Importance Indicator* attributes or *Calculated Importance* can be used to select only the Feature that is most relevant for route guidance in a specific situation.

The collection of associations between one Feature and the links connected to a single Junction or Complex Intersection, basically define the logical relation between the Feature and the Junction or Complex Intersection as a whole, taking the direction into account.

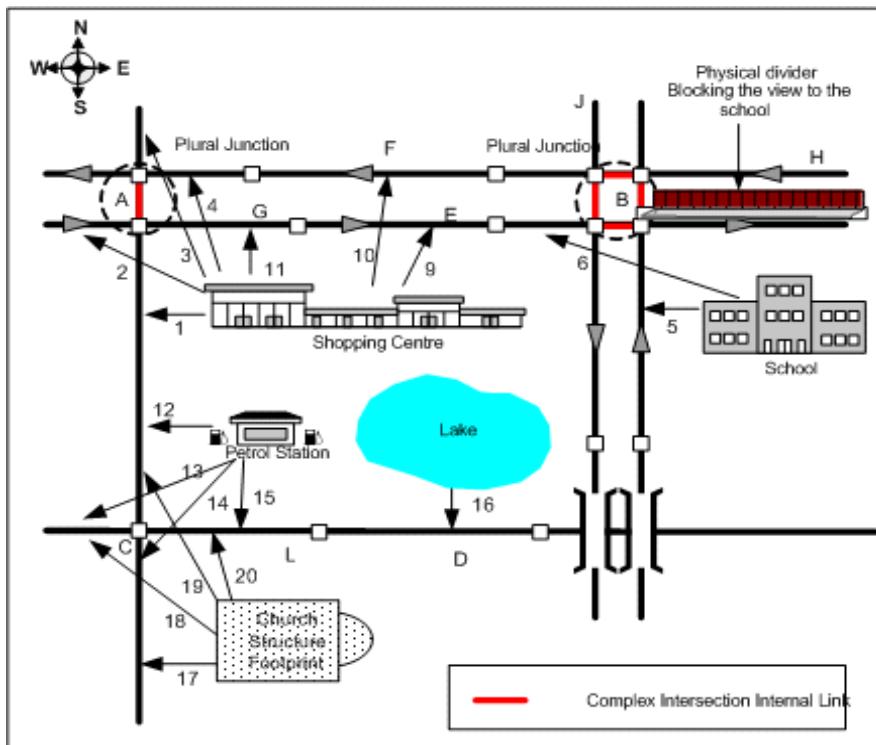


Figure 18-1

- *Figure 18-1* shows the different association types; Guidance Points are not shown in the figure however.
 - ◆ Associations 1, 2, 3 and 4 are published with *Association Type* = JG (Junction Guidance) to associate the ‘shopping center’ to all links connected to Complex Intersection A.
 - ◆ Associations 5 and 6 are published with *Association Type* = JG (Junction Guidance) to associate the ‘school’ to all links connected to Complex Intersection B. For Link H and J no association is published, as the view to the school is blocked by the high physical divider. See also *Section 18.6.2, Visibility (VISIBILITY)*.
 - ◆ Associations 12, 13, 14 and 15 are published with *Association Type* = JG (Junction Guidance) to associate the ‘petrol station’ to all links connected to Junction C.
 - ◆ Associations 17, 18, 19 and 20 are published with *Association Type* = JG (Junction Guidance) to associate the ‘Church Structure Footprint’ to all links connected to Junction C.
 - ◆ Associations 9 and 10 are published with *Association Type* = PG (Passing Guidance) to associate the ‘Shopping Centre’ to Links E and F.
 - ◆ Association 11 is published with *Association Type* = PG (Passing Guidance) to associate the ‘Shopping Centre’ to Link G.
 - ◆ Association 16 is published with *Association Type* = PG (Passing Guidance) to associate the ‘lake’ to Link D.
- *Feature Association* relations with *Association Type* = JG (Junction Guidance) are published for a Link only if:
 - ◆ The link is connected to the Junction or Complex Intersection where the Guidance is needed for.
 - ◆ *Travel Direction* is in the direction of the Junction or Complex Intersection, or the *Travel Direction* = ‘B’ (Open in both directions).
 - ◆ The Feature is visible when travelling over the link. See *Section 18.6.2, Visibility (VISIBILITY)*.
- *Feature Association* relations with *Association Type* = PG (Passing Guidance) are published for a link only if:
 - ◆ The Feature is visible when travelling over the link. See *Section 18.6.2, Visibility (VISIBILITY)*
- For Natural Guidance the *Feature Association* relation specifically identifies all Features related to a link that are relevant for route guidance. This implies that a *Feature Association* relation is published only if a Feature is relevant for any guidance advice at a Junction/Complex Intersection or along a link.
- For one link, all *Feature Association* relations with *Association Type* = JG (Junction Guidance) in the same direction must be looked at together to determine the Feature that is best suited to use in the Natural Guidance turning advice (highest *Importance Indicator* attributes or *Calculated Importance*).
 - ◆ In *Figure 18-1*, for any manoeuvre over Junction C, coming from the east, the Features that can be used for Natural Guidance are associated with Link L, that

is associations 15 and 20. Using the associations, the user finds the Petrol Station and the Church.

- For one link, all *Feature Association* relations with *Association Type* = PG (Passing Guidance) must be looked at to determine the Feature that is best suited to use in the Natural Guidance passing advice (highest *Importance Indicator* attributes or *Calculated Importance*).

18.4 Guidance Point Inclusion and Specification

Specification

- A *Guidance Point* is included in every association.
- A *Guidance Point* is a *Feature Point*. See Section 18.2, *Feature Point Object*.
- For Association Type = PG (Passing Guidance) the *Guidance Point* represents the location on a link (and side of link) where the associated feature is the most prominent.
- For Association Type = JG (Junction Guidance), the *Guidance Point* indicates a link (and side of link) that borders a particular feature. The following rules apply:
 - ◆ If the associated feature is located along the link that is part of the Association, the *Guidance Point* is located on the same link.
 - ◆ If the associated feature is not along the link that is part of the Association, the *Guidance Point* is located on the first link in clockwise direction that is along the associated feature and that is a navigable link.
 - ◆ The *Guidance Point* is not placed on links with INTERSECTION_CATEGORY = 1, 2, 3, or 4.
- The *Guidance Point* is placed anywhere on the first outgoing link from the Junction or Complex Intersection.
 - ◆ If the Feature Association is a bridge or tunnel and the Association Type = PG, the Guidance Point is always published on the bridge/tunnel or the intersection link. See *Figure 18-2*.

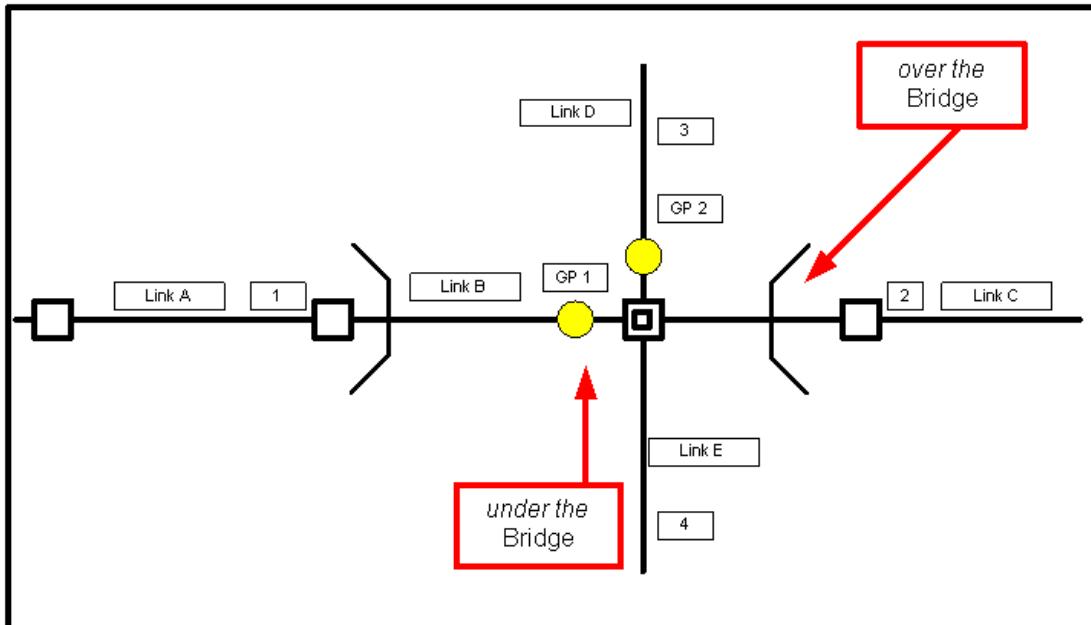


Figure 18-2

- In all cases the actual Lat/Lon of the *Guidance Point* is directly on the link.

- When a link is part of a multi-digitised road, the links in the other direction are not taken into account when checking if the associated feature is along the link.
- The *Guidance Point* location and side of link must be used to determine the location of the associated Feature relative to the current route when generating the Natural Guidance advice.
- The same *Guidance Point* may be used in different *Feature Associations*.

18.5 Guidance Point Examples

See Section 18.5.1, *Passing Guidance Examples*, Section 18.5.2, *Junction Guidance Examples (Single digitised)*, and Section 18.5.3, *Junction Guidance Examples (Multi-digitised)* for examples of the use and location of *Guidance Points*.

18.5.1 Passing Guidance Examples

In Figure 18-3, the lake and Hospital can be used for Natural Guidance with Link A:

- The lake is included in Association 1 (lake <-> Link A) that includes *Guidance Point A*,
- The Hospital is included in Association 2 (Hospital <-> Link A) that includes *Guidance Point B*.

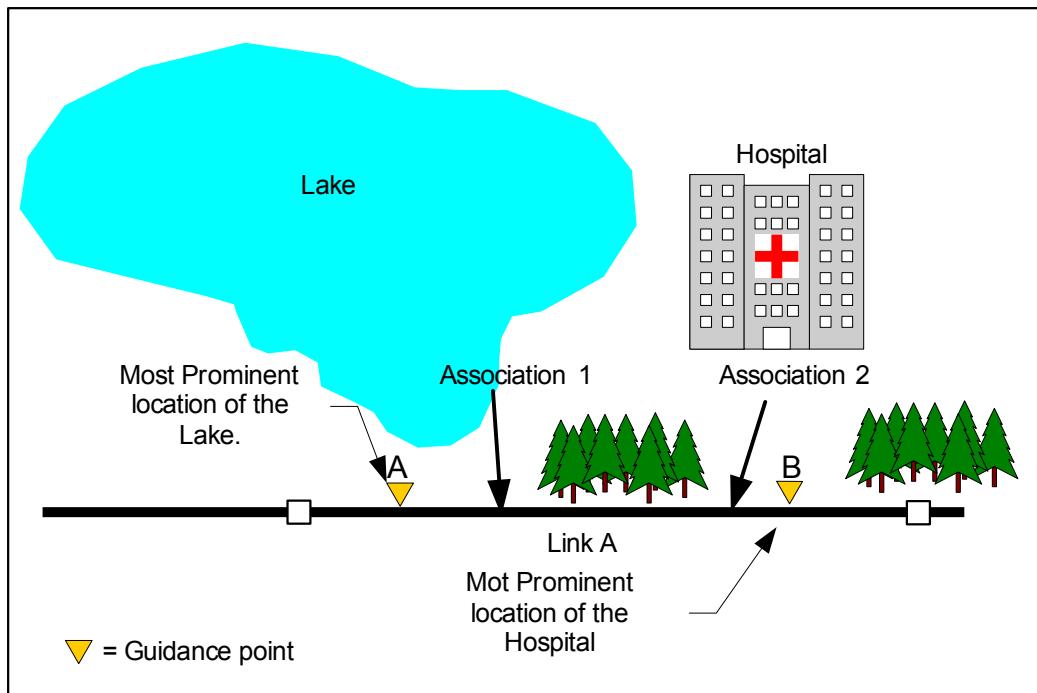


Figure 18-3

In Figure 18-4, a similar example is given for an association with a large lake.

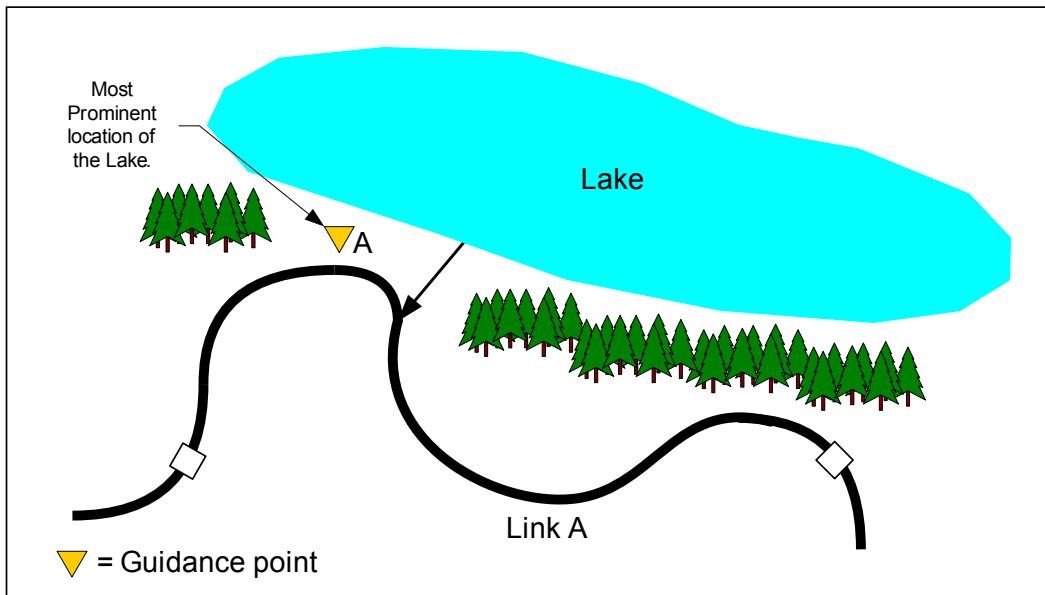


Figure 18-4

18.5.2 Junction Guidance Examples (Single digitised)

In *Figure 18-5*, the Petrol station is equally visible from all links. *Guidance Points for Feature Associations 1, 2, 3, and 4* are placed as follows:

- For *Feature Association 1* with associated Link A, the Feature is directly located at Link A. In this case, the *Guidance Point* is located at Link A (GP1).
- For *Feature Association 2* with associated Link B, the first link where the associated feature is directly located (in clockwise direction) is Link A, so the *Guidance Point* is located at Link A (GP1).
- For *Feature Association 3* with associated Link C, the first link where the associated feature is directly located (in clockwise direction) is Link A, so the *Guidance Point* is located at Link A (GP1).
- For *Feature Association 4* with associated Link D, the Feature is directly located at Link D. In this case, the *Guidance Point* is located at Link D (GP2).

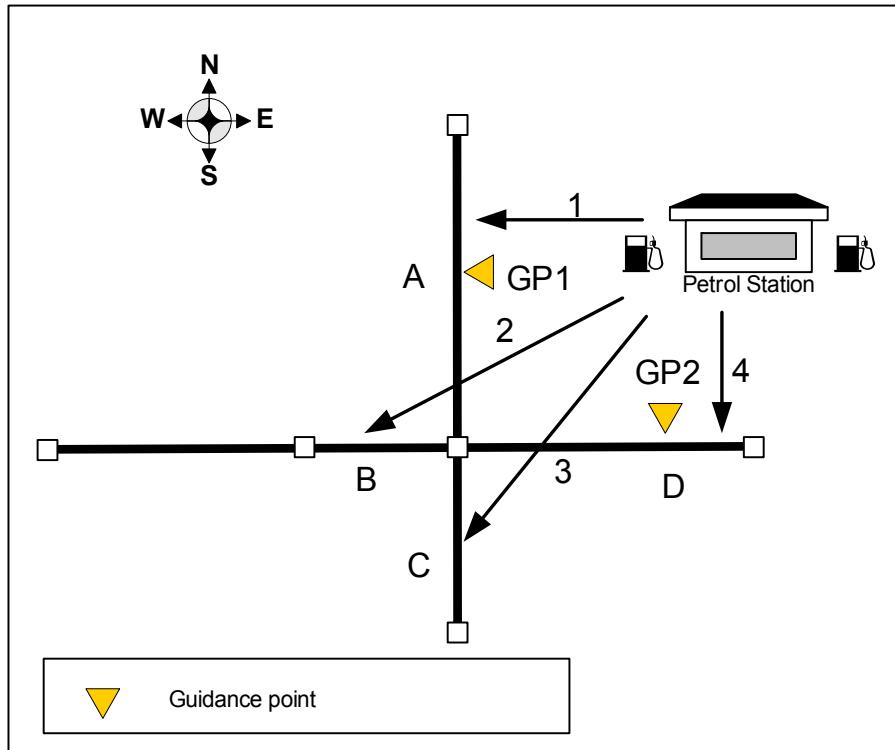


Figure 18-5

In Figure 18-6, the Petrol station is equally visible from all links. *Guidance Points for Feature Associations 1, 2, and 3* are placed as follows:

- For Feature Association 1 with associated Link A, the Feature is directly located at Link A. In this case, the *Guidance Point* is located at Link A (GP1).
- For Feature Association 2 with associated Link B, the first link where the associated feature is directly located (in clockwise direction) is Link A, so the *Guidance Point* is located at Link A (GP1).
- For Feature Association 3 with associated Link C, the first link where the associated feature is directly located (in clockwise direction) is Link A, so the *Guidance Point* is located at Link A (GP1).

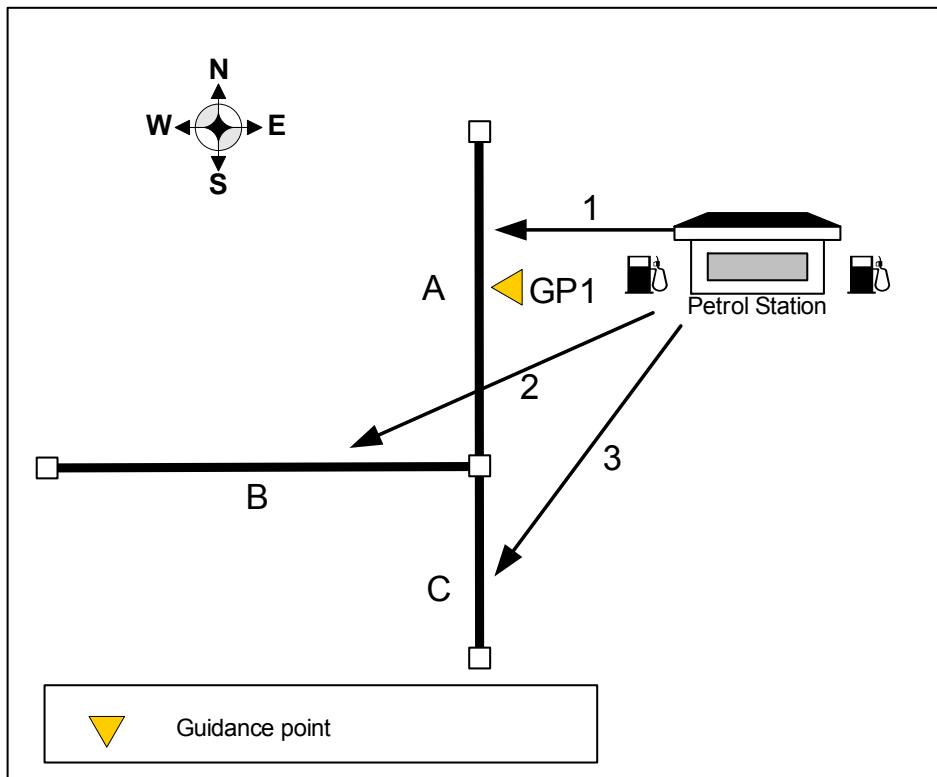


Figure 18-6

18.5.3 Junction Guidance Examples (Multi-digitised)

In Figure 18-7, the Petrol Station is equally visible from all links. *Guidance Points for Feature Associations 1, 2, 3, and 4* are placed as follows:

- For *Feature Association 1* with associated Link A, the Feature is directly located at Link A, (ignoring link B). In this case, the *Guidance Point* is located at Link A (GP3).
- For *Feature Association 2* with associated Link C, the Feature is directly located at Link C. In this case the *Guidance Point* is located at Link C (GP2).
- For *Feature Association 3* with associated Link D, the first link where the associated feature is directly located (in clockwise direction) is Link B, so the *Guidance Point* is located at Link B (GP1).
- For *Feature Association 4* with associated Link F, the first link where the associated feature is directly located (in clockwise direction, and can be driven to) is Link B, so the *Guidance Point* is located at Link B (GP1).

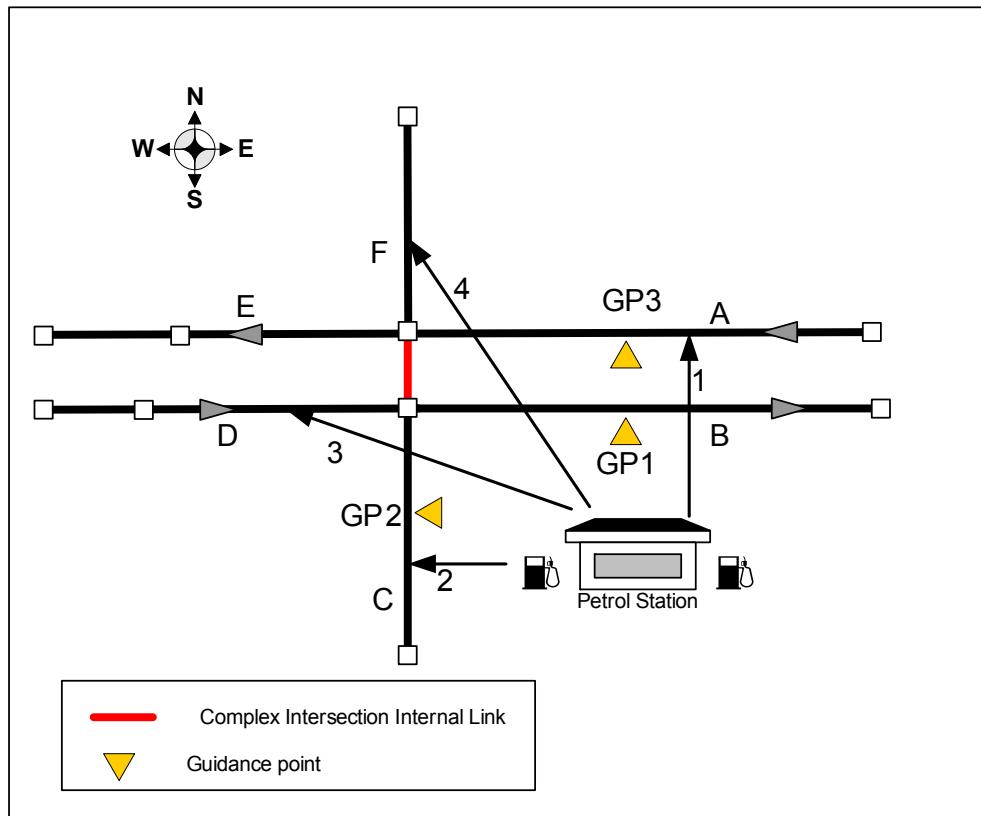


Figure 18-7

Figure 18-8 shows that the location of the *Guidance Points* is independent of the Drive to Location of the POI. The Drive to Location of the Church is as indicated. The location of the *Guidance Point* is:

- Feature Association 1 – GP1.
- Feature Association 2 – GP1.
- Feature Association 3 – GP1.
- Feature Association 4 – GP2

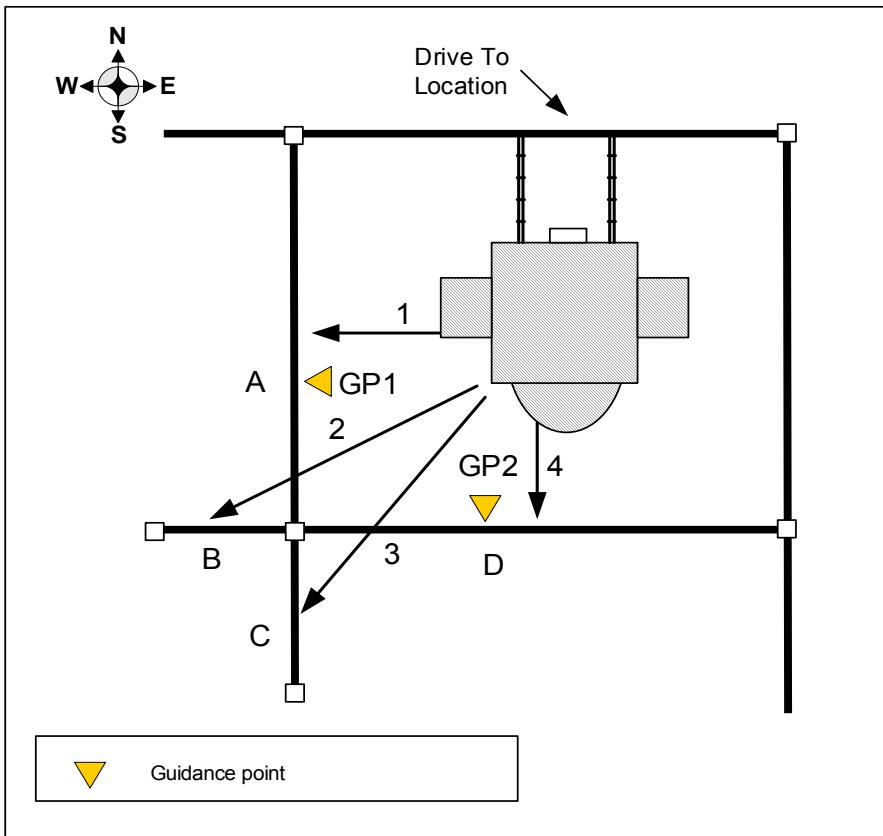


Figure 18-8

If a Polygonal Feature is located at both sides of the external link of an intersection, the location of the *Guidance Points* is published as *Side Of Link* = B (Both). For example in *Figure 18-9*, the lake is located on both sides of Link A. The Feature Associations use the following *Guidance Points*:

- *Feature Association 1 – GP1*
 - *Feature Association 2 – GP1*
 - *Feature Association 3 – GP2*
 - *Feature Association 4 – GP3*
- With
- GP1 – Link D, Side of Link = Right
 - GP2 – Link A, Side of Link = Both
 - GP3 – Link B, Side of Link = Right

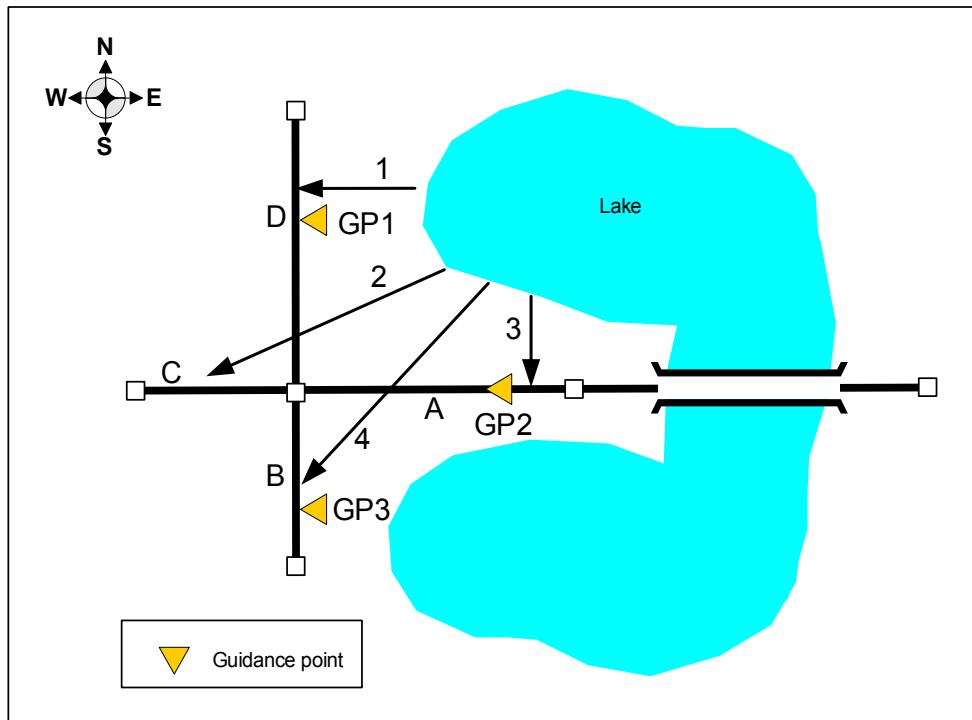


Figure 18-9

18.6 Natural Guidance Association (RDF_ASSO_NATURAL_GUIDANCE)

RDF_ASSO_NATURAL_GUIDANCE contains all attributes defined for the Natural Guidance association.

All attributes applicable for Natural Guidance are applicable over a specific stretch of road. For Junction Guidance, the attributes are applicable to the stretch of road between the Junction and minimal 25 metres distance of the Junction. See *Figure 18-10*. For Passing Guidance, the attributes are applicable to the stretch of road between 25 metres distance before the location of the Guidance Point and 25 metres after the location of the Guidance Point as a minimum. See *Figure 18-11*.

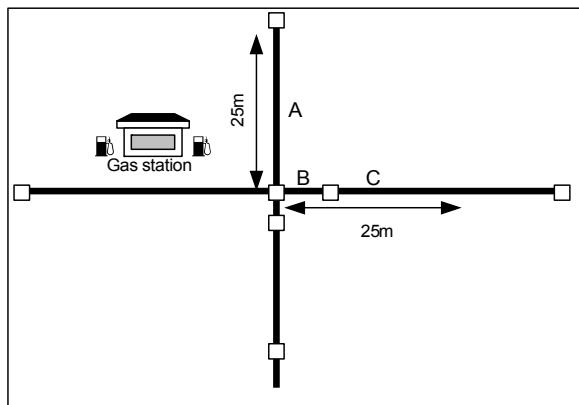


Figure 18-10

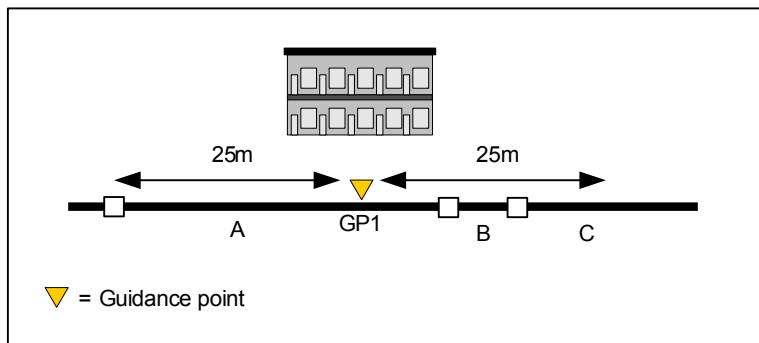


Figure 18-11

Related Tables

RDF_ASSO	RDF_ASSO_FEAT_POINT
RDF_ASSO_POI	RDF_DATE_TIME
RDF_ASSO_CF	RDF_ASSO_DT
RDF_ASSO_LINK	RDF_ASSO_GUIDANCE_OBJECT

RDF_ASSO_CARTO

RDF_GUIDANCE_OBJECT

18.6.1 Direction (DIRECTION)

Definition	<i>Direction</i> identifies the direction to which the Feature Association is applied.
Table	RDF_ASSO_NATURAL_GUIDANCE
Column	DIRECTION
Values	See Section C.10, RDF_ASSO_NATURAL_GUIDANCE.
Cardinality	1:1
Usage	<i>Direction</i> is used to determine the direction the Feature Association is to be used.
Specification	<ul style="list-style-type: none">• <i>Direction</i> is defined relative to the Reference Node.• <i>Direction</i> indicates the direction the Feature Association is applicable.<ul style="list-style-type: none">◆ For Association Type = PG (Passing Guidance) allowed values for <i>Direction</i> are:<ul style="list-style-type: none">— F – From Reference to Non-Reference Node The Feature Association is applicable travelling from Reference to Non-Reference Node— T – Negative direction, from Non-Reference to Reference Node The Feature Association is applicable travelling from Non-Reference to Reference Node— B – Both directions The Feature Association applicable in both directions.◆ For Association Type = JG (Junction Guidance) allowed values for <i>Direction</i> are:<ul style="list-style-type: none">— F – From Reference to Non-Reference Node. The Junction/Complex Intersection the Natural Guidance is defined for is located at the Non-Reference Node— T – Negative direction, from Non-Reference to Reference Node; The Junction/Complex Intersection the Natural Guidance is defined for is located at the Reference Node◆ The above rules imply:<ul style="list-style-type: none">— If the associated link has <i>Travel Direction</i> = F or T (From Reference Node, To Reference Node), the <i>Direction</i> always equals the direction as specified in <i>Travel Direction</i>.— If the associated link has <i>Travel Direction</i> = B (Both directions), the <i>Direction</i> is dependent on the direction the Feature Association applies (for Passing Guidance) or location of the Junction/Complex Intersection (for Junction Guidance).

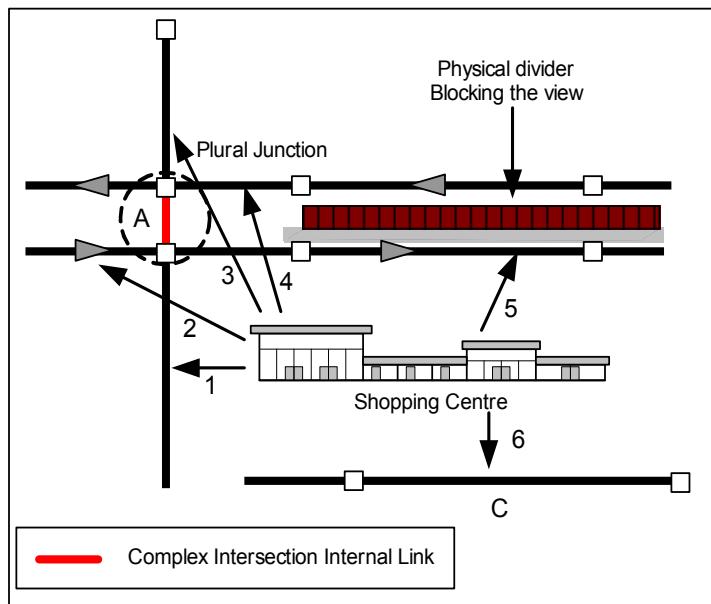


Figure 18-12

In Figure 18-12 the following Direction is published.

Association	Association Type	Direction
1	JG	F
2	JG	F
3	JG	T
4	JG	T
5	PG	F
6	PG	B

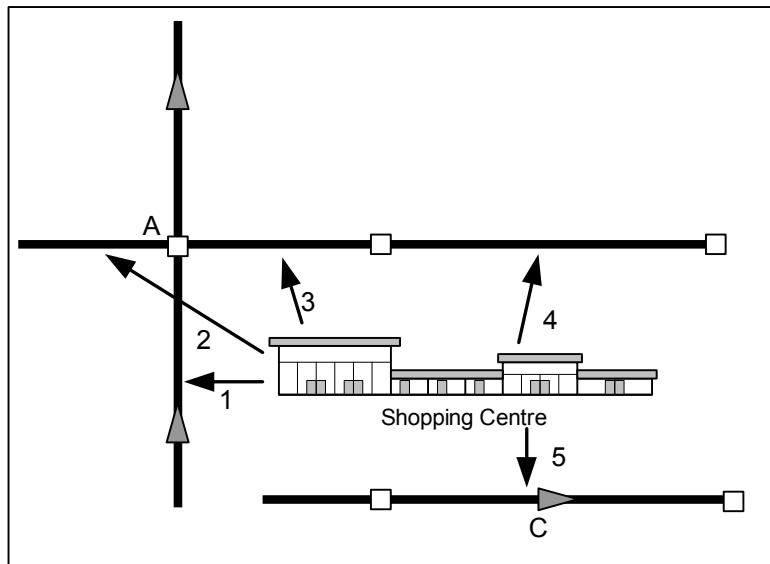


Figure 18-13

In Figure 18-13, the following *Direction* is published:

Association	Association Type	Direction
1	JG	F
2	JG	F
3	JG	T
4	PG	B
5	PG	F

18.6.2 Visibility (VISIBILITY)

Definition	<i>Visibility</i> defines the visibility of the <i>Feature</i> , from the direction of the associated link. <i>Visibility</i> is one of the <i>Importance Indicator</i> attributes that must be evaluated as a whole to classify the relevance of a feature to support route guidance.
Table	RDF_ASSO_NATURAL_GUIDANCE
Column	VISIBILITY
Value	See Section C.10, RDF_ASSO_NATURAL_GUIDANCE.
Cardinality	1:1
Related Attributes	<i>Relative Distance</i>

*Seasonal Dependency**Calculated Importance**Importance Indicator*

Usage *Visibility* can be used to determine the relevance of a *Feature* for route guidance at the associated Junction/Complex Intersection or link.

Specification

- A *Feature Association* is published for links only if one of the following is true:
 - ◆ the Feature is fully visible
 - ◆ the Feature is partially visible
 - ◆ the Feature is not visible but is relevant for guidance
 - ◆ the Feature is a bridge or tunnel
- In all other cases (not visible and irrelevant for guidance), a *Feature Association* is not published for a *Feature*.
- The *Feature* is clearly visible if the *Feature* is clearly visible from all parts of the link and it is clear what the *Feature* is. See *Figure 18-14* for an example of Junction Guidance for a clearly visible *Feature*. See *Figure 18-15* for an example of Passing Guidance for a clearly visible *Feature*.

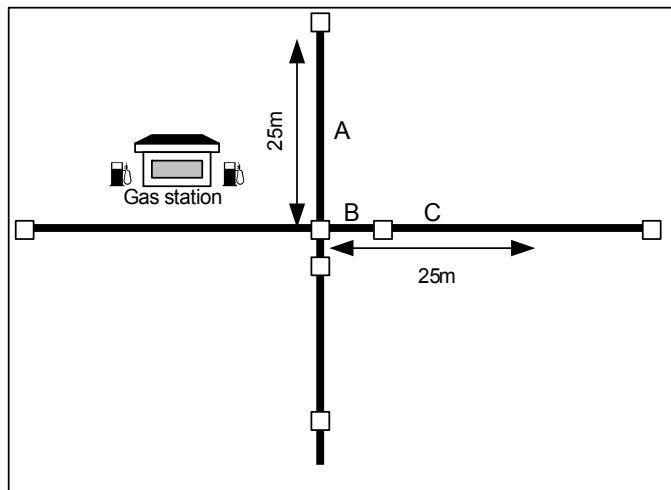


Figure 18-14

In *Figure 18-14*, for Link A the Gas Station is clearly visible (Visibility = 1) if the Gas Station is visible from all parts of Link A. For Link B, the Gas Station is clearly visible (Visibility = 1) if the Gas Station is visible from all parts of Link B and part of Link C.

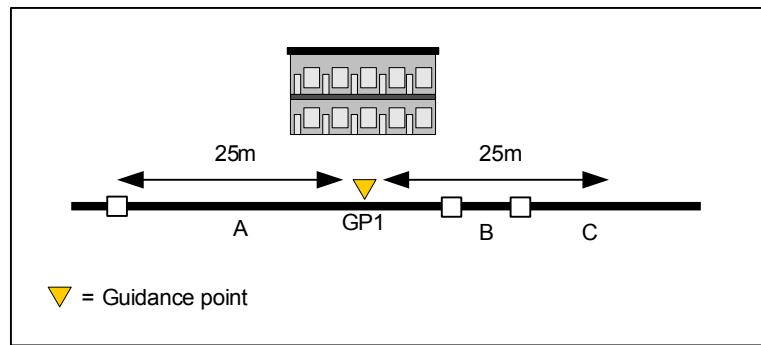


Figure 18-15

In *Figure 18-15*, for Link A the Hotel is clearly visible (Visibility = 1) if the Hotel is visible from all parts of Link A, Link B, and part of Link C.

- The *Feature* is partly visible, if one of the following is true:
 - ◆ something obstructs the view such as surrounding buildings, signs, or the angle of the Link to the *Feature*.
 - ◆ the *Feature* can be clearly seen along the Link, but it is not directly obvious what the *Feature* is; for example, if the big neon sign of a mall is approached from the side.
- The *Feature* is not visible but is relevant for guidance, if the *Feature* is not visible, but is well known locally; for example, a POI is underground like a transit stop, or the location of formerly prominent building like the World Trade Center.

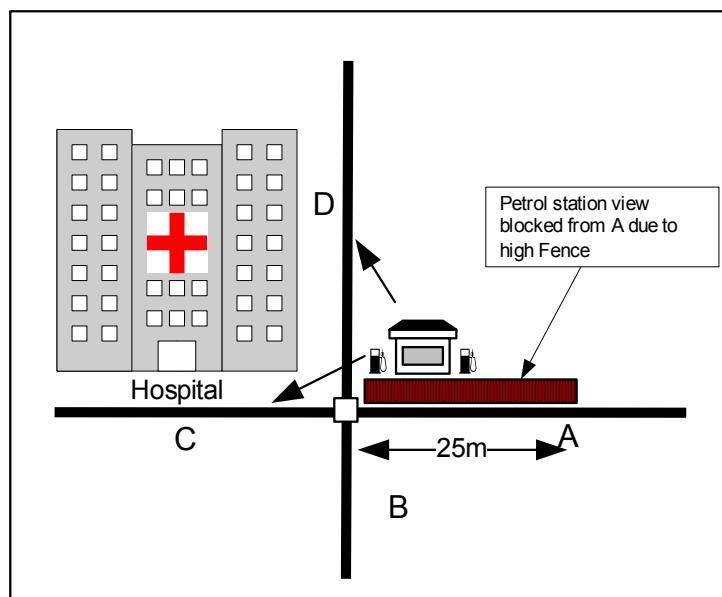


Figure 18-16

- In *Figure 18-16*, Feature Associations with Association Type = JG (Junction Guidance) are published for the Petrol station and the Links C and D where:

- ◆ Link C - *Visibility* = 2 (The Feature is partly visible) Due to the fact that the Hospital partly blocks the view towards the Petrol station.
- ◆ Link D - *Visibility* = 1 (The Feature is clearly visible).

18.6.3 Seasonal Dependency (SEASONAL_DEPENDENCY)

Definition	<i>Seasonal Dependency</i> indicates if the importance of a Feature is negatively affected during a specific time period. <i>Seasonal Dependency</i> defines the type of restriction. The actual time period is specified in RDF_DATE_TIME. <i>Seasonal Dependency</i> is one of the <i>Importance Indicator</i> attributes that must be evaluated as a whole to classify the relevance of a feature to support route guidance.
Table	RDF_ASSO_NATURAL_GUIDANCE
Column	SEASONAL_DEPENDENCY
Value	<i>Section C.10, RDF_ASSO_NATURAL_GUIDANCE</i>
Related Tables	RDF_DATE_TIME RDF_ASSO_DT
Related Attributes	<i>Visibility</i> <i>Relative Distance</i> <i>Calculated Importance</i> <i>Importance Indicator</i>
Cardinality	1:1
Usage	<i>Seasonal Dependency</i> can be used to determine the relevance of a <i>Feature</i> for route guidance related to the season of the year, limited to a certain time of year.
Specification	<ul style="list-style-type: none"> • <i>Seasonal Dependency</i> = Y is published only if the seasonal conditions have a limiting impact on the importance of a <i>Feature</i>. • If <i>Seasonal Dependency</i> = Y, the actual Time Period is mandatory and specified in RDF_DATE_TIME related to RDF_ASSO via RDF_ASSO_DT. For example, in Chicagoland <ul style="list-style-type: none"> ◆ In the summer the visibility of a building is less due to trees. In this case, <i>Seasonal Dependency</i> = Y and RDF_DATE_TIME indicates May – October (Summer). ◆ In the winter a swimming pool could be difficult to recognize as it is closed. In this case, <i>Seasonal Dependency</i> = Y and RDF_DATE_TIME indicates October – May (Winter). ◆ In winter every year, there is a big ice skating rink on the plaza. In the summer, it does not exist. In this case, <i>Seasonal Dependency</i> = Y and RDF_DATE_TIME indicates May – October (Summer)

- ◆ In winter a lake is frozen and covered with snow making it unrecognizable. In this case, *Seasonal Dependency* = Y and RDF_DATE_TIME indicates December – February (Mid-Winter)
- If there is no Seasonal Dependency defined for a *Feature* or it is not known, *Seasonal Dependency* = N and no RDF_DATE_TIME is published.

18.6.4 Relative Distance (RELATIVE_DISTANCE)

Definition	<p><i>Relative Distance</i> indicates the perceived distance between the feature and the guidance location.</p> <p><i>Relative Distance</i> is one of the <i>Importance Indicator</i> attributes that must be evaluated as a whole to classify the relevance of a feature to support route guidance.</p>
Table	RDF_ASSO_NATURAL_GUIDANCE
Column	RELATIVE_DISTANCE
Value	See Section C.10, <i>RDF_ASSO_NATURAL_GUIDANCE</i> .
Cardinality	1:1
Related Attributes	<i>Visibility</i> <i>Seasonal Dependency</i> <i>Calculated Importance</i> <i>Importance Indicator</i>
Usage	<p><i>Relative Distance</i> can be used to determine the relevance of a <i>Feature</i> for route guidance, and if needed to generate advice specific to the situation.</p>
Specification	<ul style="list-style-type: none">● <i>Relative Distance</i> is the perceived distance of the <i>Feature</i> to the guidance location. This basically means that it is an interpreted value that is depending on the local situation, visibility, and size of the <i>Feature</i>.● The values are:<ul style="list-style-type: none">◆ 0 - Not applicable◆ 1 - Close to the guidance location The <i>Feature</i> is considered relatively close to the guidance location.◆ 2 - Distant from guidance location. The <i>Feature</i> is considered relatively distant of the guidance location.
	<p>For example:</p> <ul style="list-style-type: none">◆ A large Cathedral located 100 metres from the link is considered ‘Close to the guidance location’◆ A small café located 20 metres from the link is considered ‘Distant from the guidance location’

- ◆ A large lake located 100 metres from the link is considered 'Close to the guidance location'
- The guidance location is either the location of the *Guidance Point* on the link (Passing Guidance) or the Junction/Complex Intersection (Junction Guidance).

18.6.5 Calculated Importance (CALC_IMPORTANCE)

Definition	<i>Calculated Importance</i> is a rating of the importance of a feature for route guidance. <i>Calculated Importance</i> classifies the relevance of a specific feature to support route guidance developed based on visibility from manoeuvre considering: angle (direction), seasonal elements, permanence, and distance.
Table	RDF_ASSO_NATURAL_GUIDANCE
Column	CALC_IMPORTANCE
Value	See Section C.10, RDF_ASSO_NATURAL_GUIDANCE.
Cardinality	1:1
Related Attributes	<p><i>Visibility</i></p> <p><i>Relative Distance</i></p> <p><i>Seasonal Dependency</i></p> <p><i>Importance Indicator</i></p>
Usage	<p><i>Calculated Importance</i> can be used to determine the relevance of a feature for route guidance. If multiple features are relevant for a manoeuvre, a feature can be selected with the highest <i>Calculated Importance</i>.</p> <p><i>Calculated Importance</i> is published for use by those customers that do not want to interpret the individual sub-attributes of the individual <i>Importance Indicator</i> attributes.</p>
Specification	<ul style="list-style-type: none"> • <i>Calculated Importance</i> is calculated based on the following <i>Importance Indicator</i> attributes: <ul style="list-style-type: none"> ◆ <i>Visibility</i> ◆ <i>Seasonal Dependency</i> ◆ <i>Relative Distance</i> ◆ <i>Feature Extent</i> ◆ <i>Permanence</i> • The higher the rating value, the more relevant the feature is for route guidance. • There is a possibility that regional preferences and the local situation influence the calculated value. The permanence of a feature is also used in the calculation of <i>Calculated Importance</i>; however, permanence is not a published attribute. • If multiple features have with the same <i>Calculated Importance</i> value, the user must select the one to be used for Natural Guidance.

18.6.6 Feature Extent (FEATURE_EXTENT)

Definition	The relative distance (i.e., distance of visibility) for a feature from the point where the feature becomes visible to the decision point represented by the Junction Guidance point or the Passing Guidance point.
Table	RDF_ASSO_NATURAL_GUIDANCE
Column	FEATURE_EXTENT
Value	See Section C.10, RDF_ASSO_NATURAL_GUIDANCE.
Cardinality	1:1
Related Attributes	<i>Importance Indicator</i> <i>Visibility</i> <i>Seasonal Dependency</i> <i>Validity Period</i> <i>Relative Distance</i> <i>Permanence</i> <i>Calculated Importance</i>
Usage	Feature Extent can be used to determine the extent of visibility of a feature from its actual location.
Specification	<ul style="list-style-type: none">• Feature Extent value is represented in meters.• Feature Extent value is represented in whole numbers, without decimal places• Feature Extent = 0 when a Natural Guidance Association involves a bridge or tunnel.

18.6.7 Permanence (PERMANENCE)

Definition	A level representing the probable permanence of a feature.
Table	RDF_ASSO_NATURAL_GUIDANCE
Column	PERMANENCE
Value	See Section C.10, RDF_ASSO_NATURAL_GUIDANCE.
Cardinality	1:1
Related Attributes	<i>Importance Indicator</i> <i>Visibility</i> <i>Seasonal Dependency</i>

Validity Period

Relative Distance

Calculated Importance

Feature Extent

Usage *Permanence* can be used to determine level of probable permanence.

Specification *Permanence* is applied with the corresponding likelihood of permanence as follows:

Permanence	Remarks
H	Likelihood of permanence is high.
M	Likelihood of permanence is average.
L	Likelihood of permanence is low.
N	Likelihood of permanence is not applicable.

18.7 RDF Guidance Object (RDF_GUIDANCE_OBJECT)

18.7.1 Object ID (OBJECT_ID)

Definition	The permanent identifier of an object that represents certain non-Core map features involved in a Natural Guidance Association.
Table	RDF_GUIDANCE_OBJECT
Column	OBJECT_ID
Values	See Section C.45, RDF_GUIDANCE_OBJECT.
Cardinality	1:1
Specification	<ul style="list-style-type: none">• <i>Object ID</i> may represent the following types of features:<ul style="list-style-type: none">◆ Unrepresented structures (e.g., statues, fountains)◆ Features that may have representation in a non-Core product (e.g., Extended Listings POIs) but are not represented in the Core Map• A name associated to the Object is represented in RDF_ASSO_NAMES.• An <i>Object ID</i> representing Sign Text publishes the sign text as the associated name in RDF_ASSO_NAMES.• <i>Object ID</i> is only used to identify a feature for Natural Guidance when there is no other representation available. For example, if a feature exists in the map as a Cartographic feature, then the association will include the Cartographic feature and no Guidance Feature will be added.

18.7.2 Category (CATEGORY)

Definition	A category describing the Guidance Object.
Table	RDF_GUIDANCE_OBJECT
Column	CATEGORY
Values	See Section C.45, RDF_GUIDANCE_OBJECT.
Cardinality	1:1
Usage	Category is used to provide a definition for the Guidance Object.
Specification	<ul style="list-style-type: none">• When Category = 99 is published, the following attributes are also published:<ul style="list-style-type: none">◆ EXT_CAT_ID

- ◆ EXT_CAT_NAME
- ◆ EXT_REF_TYPE

18.7.3 External Category ID (EXTERNAL_CAT_ID)

Definition	A reference to a category published in an external product or file.
Table	RDF_GUIDANCE_OBJECT
Column	EXT_CAT_ID
Values	Text
Cardinality	1:0,1
Default Value	NULL
Usage	<i>External Category ID</i> can be used to identify the category as defined in the external system
Specification	<ul style="list-style-type: none">• <i>External Category ID</i> corresponds to a category published external to RDF.• <i>External Category ID</i> may contain alphabetic characters and varies in size, depending on the source.

18.7.4 External Category Name (EXT_CAT_NAME)

Definition	A description for the external category.
Table	RDF_GUIDANCE_OBJECT
Column	EXT_CAT_NAME
Values	Text
Cardinality	1:0,1
Default Value	NULL
Usage	<i>External Reference Category Name</i> can be used to display the category description as defined in the external product or file.
Specification	<i>External Category Name</i> is a textual description of the object category and corresponds to the published description in the external product or file.

18.7.5 External Reference Type (EXT_REF_TYPE)

Definition	Identifies the type of product or file publishing the external object.
-------------------	--

Table	RDF_GUIDANCE_OBJECT
Column	EXT_REF_TYPE
Values	See Section C.45, RDF_GUIDANCE_OBJECT.
Cardinality	1:0,1
Default Value	NULL
Usage	<i>External Reference Type</i> can be used to identify the external categorisation system used.
Specification	<ul style="list-style-type: none"> • <i>External Reference Type</i> = 1 indicates the object categorization is from Places. Note: Currently, all external objects are published in Places, but additional object sources may be used in the future.

18.7.6 Association Type (ASSO_TYPE)

Definition	<i>Association Type</i> identifies the type of association between features in the <i>Feature Association</i> .
Table	RDF_ASSO
Column	ASSO_TYPE
Values	See Section C.9, RDF_ASSO.
Cardinality	1:1
Usage	<i>Association Type</i> defines the type of association.
Specification	<ul style="list-style-type: none"> • <i>Association Type</i> = PG (Passing Guidance) indicates that the <i>Feature Association</i> relation is in the context of a Natural Guidance advice when passing a feature.

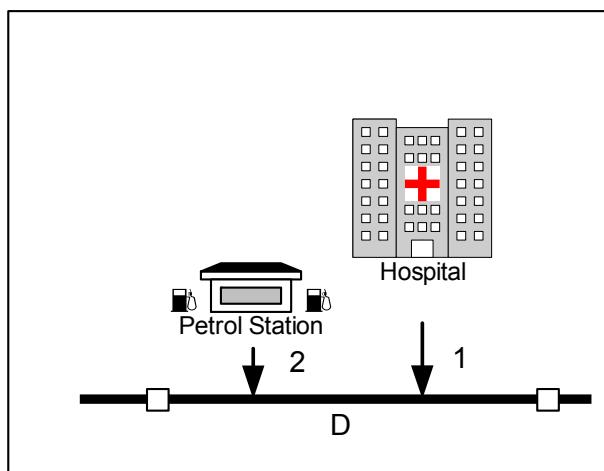


Figure 18-17

In Figure 18-17, if the *Importance Indicator* attributes or *Calculated Importance* indicate that the Hospital is the best option for Natural Guidance, the given ‘confirmation’ advice would be ‘follow the road passing the Hospital’. If the *Importance Indicator* attributes or *Calculated Importance* indicate that the Petrol Station is the best option for Natural Guidance, the given ‘confirmation’ advice would be ‘follow the road passing the Petrol Station’.

- Association Type = JG (Junction Guidance) indicates that the *Feature Association* relation is in the context of a Natural Guidance advice when driving (or turning) over a Junction/Complex Intersection.

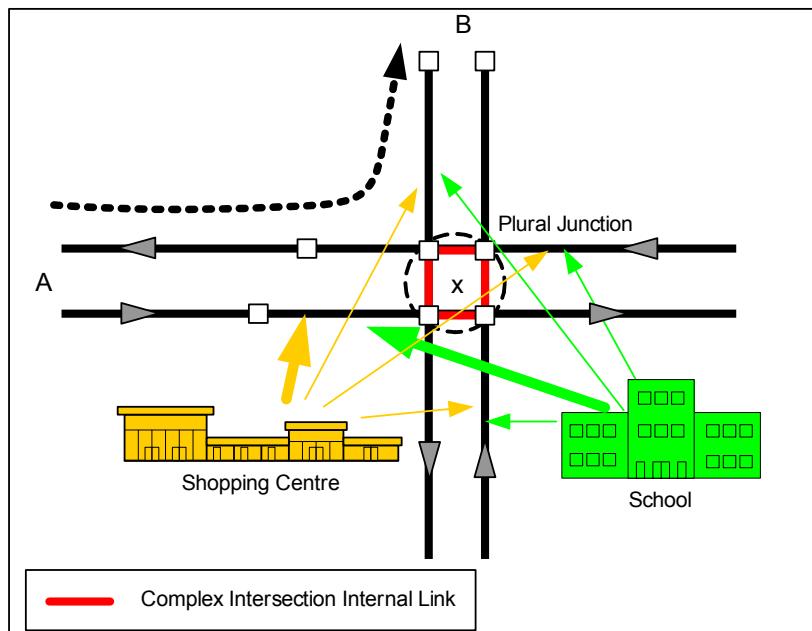


Figure 18-18

In Figure 18-18, when travelling from A to B (the dotted arrow) the relevant *Feature Association* relations belonging to Junction X are indicated with the thick yellow and green arrows. If the *Importance Indicator* attributes or *Calculated Importance* indicate that the Shopping Center is the best option for Natural Guidance, the given advice would be ‘Turn left directly after the Shopping Center’. If the *Importance Indicator* attributes or *Calculated Importance* indicate that the School is the best option for Natural Guidance the given advice would be ‘Turn left before the School’.

18.7.6.1 RDF_ASSO_CARTO

- Specification**
- All Polygonal Features in the *Feature Association* are referenced via table RDF_ASSO_CARTO except for the *Grouped Structures*. The *Grouped Structures* are modelled as complex features and are referenced via table RDF_ASSO_CF.
 - The *Feature Association* for Polygonal Features includes associations with the following feature types:

Building/Landmark Categories	Feature Type
Business/Commerce Building/Landmark	2005000
Convention/Exhibition Building/Landmark	2005050
Cultural Building/Landmark	2005100
Education Building/Landmark	2005150
Emergency Service Building/Landmark	2005200
Government Building/Landmark	2005250
Historical Building/Landmark	2005300
Medical Building/Landmark	2005350
Park/Leisure Building/Landmark	2005400
Parking Building/Landmark	2005850
Place of Worship	2005750
Residential Building/Landmark	2005450
Retail Building/Landmark	2005500
Sports Building/Landmark	2005550
Tourist Building/Landmark	2005600
Transportation Building/Landmark	2005650
Unclassified Building/Landmark	2005700

Cartographic Features	Feature Type
Airport	1900403
Amusement Park	2000460
Animal Park	2000461
Bay/Harbour	507116
Beach	509998
Canal/Water Channel	500414

Cartographic Features	Feature Type
Cemetery	2000420
Golf Course	2000123
Hospital	2000408
Industrial Complex	2000200
Lake	500421
Military Base	900108
Native American Reservation	900107
Ocean	500116
Park (City/County)	900150
Park (State)	900130
Park In Water	900140
Park/Monument (National)	900103
Parking Garage	1700216
Parking Lot	1700215
Railyard	9997007
River	500412
Seaport/Harbour	9997008
Shopping Centre	2000124
Sports Complex	2000457
University/College	2000403
Woodland	900202

- For Polygonal Features the addition of *Guidance Points* is essential to indicate the location where the Natural Guidance advice is most applicable. This is especially the case for large Polygonal Features and/or long links.

18.7.6.2 RDF_ASSO_CF

- Specification**
- All Polygonal Features in the *Feature Association* are referenced via table RDF_ASSO_CARTO except for the *Grouped Structures*. The *Grouped Structures* are modelled as complex features and are referenced via table RDF_ASSO_CF .

18.7.6.3 RDF_ASSO_NAME

Definition The Name of a Natural Guidance Feature may be extended to be a more natural description of the associated Feature, optionally including descriptive properties as shape, colour and building material.

Related Tables RDF_ASSO

RDF_ASSO_NAMES
RDF_ASSO_NAME_TRANS

Specification

- The name in RDF_ASSO_NAME.NAME can differ from the *Feature* name.
- When multiple names are published in different languages the user must select the correct name using the LANGUAGE_CODE.
- For every LANGUAGE_CODE, there is only one Base name (NAME_TYPE = B).
- The name can have one or more transliterations as specified in the RDF_ASSO_NAME_TRANS table.
- The Name can be up to 120 characters long.

18.7.6.4 RDF_ASSO NAMES

Related Tables RDF_ASSO

RDF_ASSO_NAME
RDF_ASSO_NAME_TRANS

Usage For Natural Guidance, the names must be interpreted as the preferred explication for the associated *Feature*.

Specification

- For Natural Guidance, NAME_TYPE = B (Base)
- Names with NAME_TYPE = B (Base) are the standard name of the Feature association. The name must be interpreted as the description that is best suited to be used for the associated feature when used in the Natural Guidance advice. The content is depending on the Feature Type; for example, the name could be one of the following:
 - ◆ the Feature Type name - "Petrol Station"
 - ◆ the Brand Name - "Shell"
 - ◆ Name that is locally more known - "Max Brothers Petrol Shop".
- The Name for Natural Guidance can also contain a more natural descriptive text that uses specific properties of the feature for better recognition such as building material, building colour, or shape.
 - ◆ Pink Square Building



◆ Dome Building



◆ Red Bridge



18.7.7 Importance Indicator (IMPORTANCE_IND)

Definition	The <i>Importance Indicator</i> is also published for Traffic Signals & Stop Signs. The current coding for Traffic Signals and Stop Signs is extended with <i>Importance Indicator</i> . This attribute has the same functional use as <i>Calculated Importance</i> defined for the <i>Feature Association</i> relation. <i>Importance Indicator</i> is a rating on the scale of 1 to 10 of the importance of a Traffic Signal or Stop Sign for route guidance. The higher the rating, the more relevant the Traffic Signal or Stop Sign is for route guidance.
Value	See Section C.27, <i>RDF_CONDITION_DRIVER_ALERT</i> .
Default value	None
Cardinality	1:0,1
Table	<i>RDF_CONDITION_DRIVER_ALERT</i>
Column	<i>IMPORTANCE_IND</i>
Related Tables	<i>RDF_CONDITION</i> <i>RDF_NAV_STRAND</i>
Related Attributes	<i>Visibility</i> <i>Relative Distance</i> <i>Seasonal Dependency</i> <i>Calculated Importance</i>
Usage	<i>Importance Indicator</i> for Traffic Signals & Stop Signs has the same functionality as the <i>Calculated Importance</i> for POIs and Polygonal Features as part of the <i>Feature Association</i> . By comparing <i>Importance Indicator</i> for Traffic Signals & Stop Signs and the <i>Calculated Importance</i> for all other Features that are relevant for Natural Guidance, the customer can choose the best feature to use as part of the Natural Guidance advice.
Specification	<ul style="list-style-type: none">Importance Indicator values are a range from 1-10; lower numbers signify low importance for guidance, higher numbers signify high importance for guidance.<i>Importance Indicator</i> for Traffic Signals & Stop Signs is published only for:<ul style="list-style-type: none">Traffic Signals: <i>CONDITION_TYPE</i> = 16Stop Signs: <i>CONDITION_TYPE</i> = 17 with <i>RDF_CONDITION_DRIVER_ALERT.TRAFFIC_SIGN_TYPE</i> = 20 (Stop Sign)The coding of Traffic Signals & Stop Signs is unchanged.<i>Importance Indicator</i> is published only for Traffic Signals & Stop Signs where they appear on the last external link of a Complex Junction/Intersection. This is the same link that is also used for the Feature Association Relations.

- *Importance Indicator* is not published for Traffic Signals & Stop Signs where they appear on a link with INTERSECTION_CATEGORY = 1, 2, or 3.
- *Importance Indicator* for Traffic Signals & Stop Signs is derived from internal attribution and country specific settings or can be manually defined depending on the local situation.

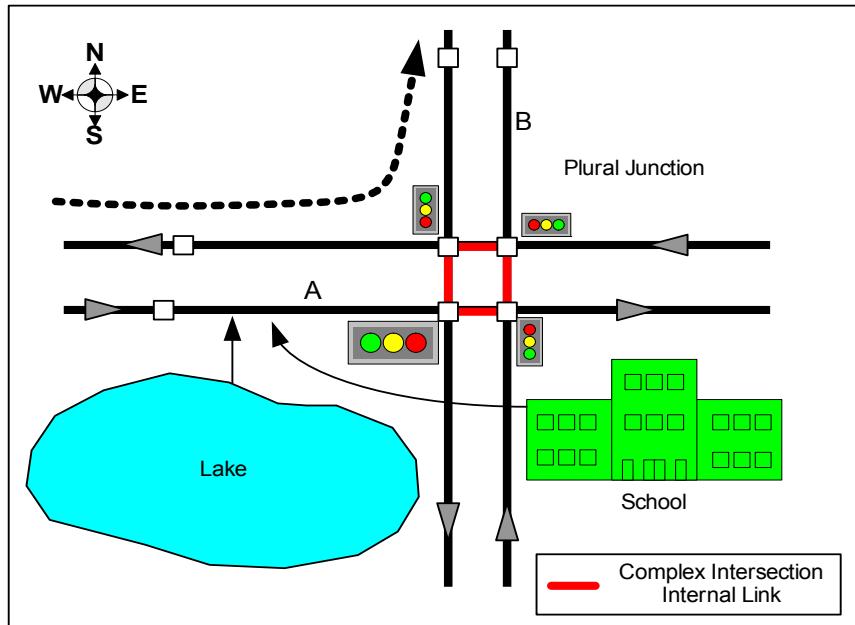


Figure 18-19

- *Importance Indicator* for Traffic Signals & Stop Signs can be used to determine the best feature to be used for Natural Guidance. In Figure 18-19, the route goes from link A to B (the dotted arrow). For the Natural Guidance at the intersection, all features and related *Importance Indicators* that can be used, are directly related to Link A (the last external link of the Junction/Complex Intersection) using the association relations with the lake and the school, and *Importance Indicator* of the traffic lights. Depending on the highest *Calculated Importance/Importance Indicator* the Natural Guidance advice could be one of the following:
 - ◆ “Turn Left at the lake”
 - ◆ “Turn Left at the school”
 - ◆ “Turn Left at the traffic lights”

18.7.8 Examples

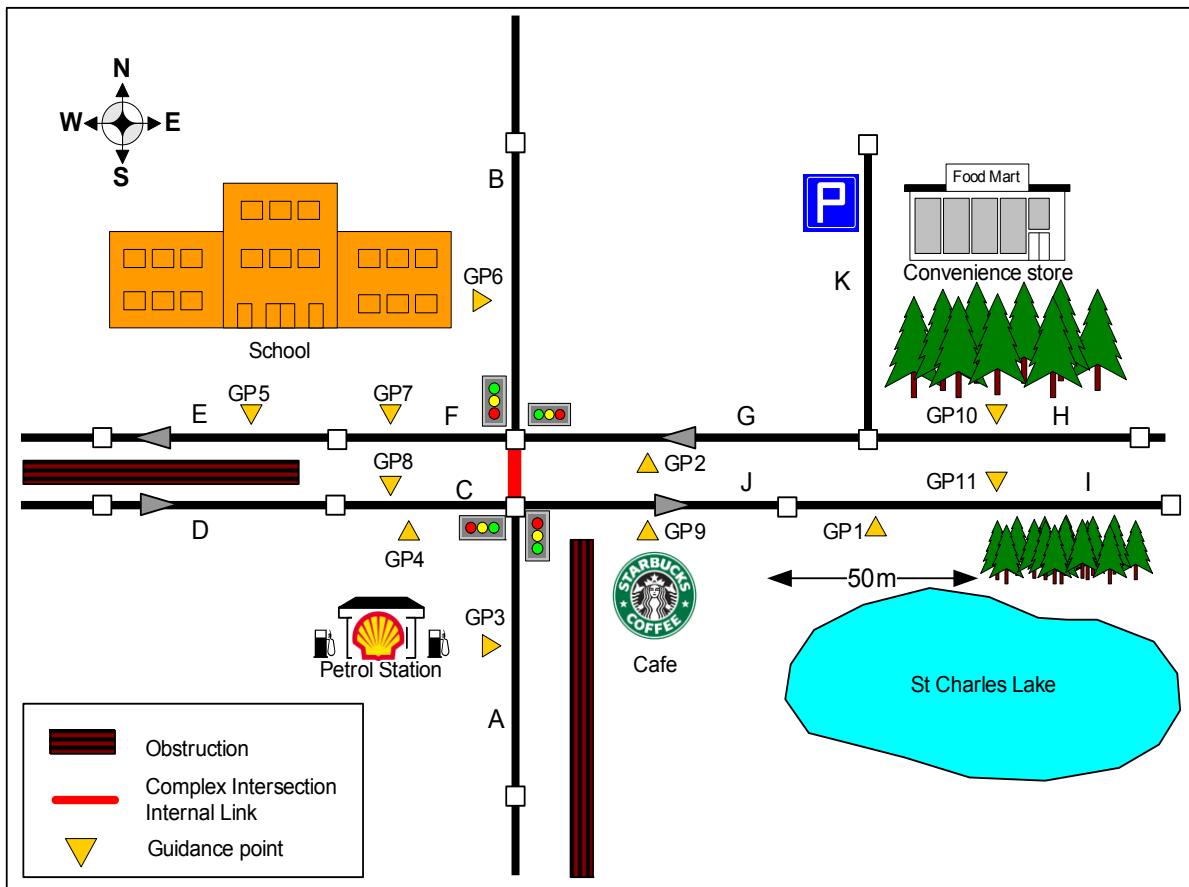


Figure 18-20

In Figure 18-20, the Guidance Points are drawn to clarify the location related to the link. The actual Location may differ to define the location of the associated feature; for example, the actual location of GP10 and GP11 could be at the entrance of the convenience store. Building material of the school is clear red brick, except at the right wall, as seen from links B and G.

The following Feature Association relations and attributes are published:

#	Feature	Associated Link	Association Type	Direction	Guidance Point	Name	Visibility	Relative Distance	Seasonal Dependency	Calculated Importance
1	School	G	JG	T	GP7	School	1	1	N	9
2	School	B	JG	T	GP6	School	1	1	N	9
3	School	C	JG	F	GP8	Red brick school	1	1	N	9
4	School	A	JG	F	GP7	Red brick school	1	1	N	9
5	School	E	PG	T	GP5	Red brick school	1	1	N	9
6	Petrol Station	G	JG	T	GP3	Shell	2	1	N	6
7	Petrol Station	C	JG	F	GP4	Shell	1	1	N	8
8	Petrol Station	A	JG	F	GP3	Shell	1	1	N	8
9	Petrol Station	B	JG	T	GP3	Shell	1	1	N	8
10	Coffee Shop	G	JG	T	GP2	Starbucks	1	1	N	8
11	Coffee Shop	B	JG	T	GP9	Starbucks	1	1	N	8
12	Coffee Shop	C	JG	F	GP9	Starbucks	2	1	N	6
13	Convenience Store	H	PG	T	GP10	Convenience Store	2	2	Y	3
14	Convenience Store	I	PG	F	GP11	Convenience Store	2	2	Y	3
15	Lake	I	PG	F	GP1	St Charles Lake	2	1	N	8

Table 18-1

In the above example a simplified algorithm determines the calculated importance. It demonstrates a possible algorithm:

Attribute	Value	Score
VISIBILITY	1 – The POI is clearly visible 2 – The POI is partly visible 3 – The POI is not visible but relevant for Guidance	4 2 0
SEASONAL_DEPENDENCY	N – No Seasonal Dependency Y – Seasonal Dependency applies	2 0
RELATIVE_DISTANCE	1 - Close to the guidance location 2 - Distant from guidance location	1 0
CALC_IMPORTANCE		SUM(Score) + specific score for the <i>Permanence</i> of the Feature.

Traffic lights for this country are defined as Importance Indicator = 6

The following table shows the preferred Feature for Natural Guidance:

#	From Link	Association Type	Feature	Calculated Importance
4	A	JG	School	9
2	B	JG	School	9
3	C	JG	School	9
1	G	JG	School	9
13	H	PG	Convenience Store	3
15	I	PG	Lake	8
5	E	PG	School	9

The following IDs are used for this example.

POI	ID
School	101
Petrol Station	102
Coffee Shop	103
Convenience Store	104
Guidance Point	
GP1	301

GP2	302
GP3	303
GP4	304
GP5	305
GP6	306
GP7	307
GP8	308
GP9	309
GP10	310
GP11	311
Link	
A	201
B	202
C	203
D	204
E	205
F	206
G	207
H	208
I	209
J	210
K	211
Cartography	ID
Lake	401

ASSO_ID values in the following tables correspond to the number shown in *Table 18-1*.

RDF_ASSO_LINK		RDF_ASSO_POI		RDF_ASSO_CARTO		RDF_ASSO_FEAT_POINT	
ASSO_ID	LINK_ID	ASSO_ID	POI_ID	ASSO_ID	CARTO_ID	ASSO_ID	FP_ID
1	207 (G)	1	101	15	401	1	307
2	202 (B)	2	101			2	306
3	203 (C)	3	101			3	308
4	201 (A)	4	101			4	307
5	205 (E)	5	101			5	306

6	207 (G)
7	203 (C)
8	201 (A)
9	202 (B)
10	207 (G)
11	202 (B)
12	203 (C)
13	208 (H)
14	209 (I)
15	209 (I)

6	102
7	102
8	102
9	102
10	103
11	103
12	103
13	104
14	104

6	303
7	304
8	303
9	303
10	302
11	309
12	309
13	310
14	311
15	301

RDF_FEATURE_POINT					
FP_ID	LINK_ID	FP_TYPE	LINK_SIDE	LAT	LON
301	209	GP	R	x	y
302	207	GP	R	x	y
303	201	GP	L	x	y
304	203	GP	R	x	y
305	205	GP	L	x	y
306	202	GP	L	x	y
307	206	GP	L	x	y
308	203	GP	L	x	y
309	210	GP	R	x	y
310	208	GP	L	x	y
311	209	GP	L	x	y

RDF_ASSO_NATURAL_GUIDANCE					
ASSO_ID	DIRECTION	CALC_IMPORTANCE	VISIBILITY	SEASONAL_DEPENDENCY	RELATIVE_DISTANCE
1	T	9	1	N	1
2	T	9	1	N	1
3	F	9	1	N	1
4	F	9	1	N	1
5	T	9	1	N	1
6	T	6	2	N	1
7	F	8	1	N	1
8	F	8	1	N	1
9	T	8	1	N	1
10	T	8	1	N	1
11	T	8	1	N	1
12	F	6	2	N	1
13	T	3	2	Y	2
14	F	3	2	Y	2
15	F	8	2	N	1

RDF_ASSO_DT	
ASSO_ID	DT_ID
13	1
14	1

RDF_DATE_TIME							
DT_ID	DATETIME_TYPE	FROM_END	EXCLUDE_DATE	START_DATE	END_DATE	START_TIME	END_TIME
1	H	N	N	00030000	00100000		

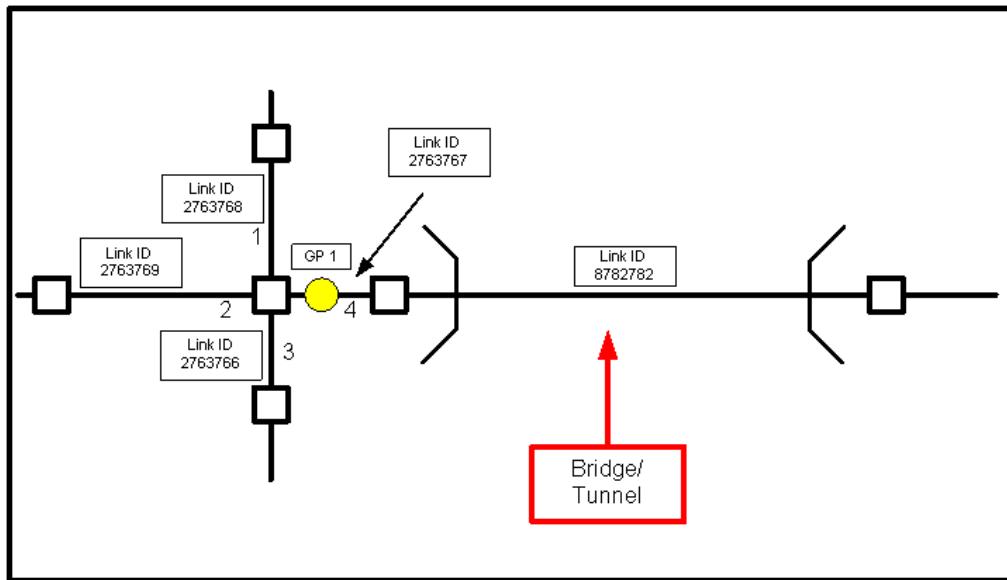
RDF_ASSO_NAMES			
ASSO_ID	NAME_ID	NAME_TYPE	IS_EXONYM
1	1	B	N
2	1	B	N
3	5	B	N
4	5	B	N
5	5	B	N
6	2	B	N
7	2	B	N
8	2	B	N
9	2	B	N
10	3	B	N
11	3	B	N
12	3	B	N
13	4	B	N
14	4	B	N
15	6	'B	N

RDF_ASSO_NAME		
NAME_ID	NAME	LANGUAGE_CODE
1	SCHOOL	ENG
2	SHELL	ENG
3	STARBUCKS	ENG
4	CONVENIENCE STORE	ENG
5	RED BRICK SCHOOL	ENG
6	ST CHARLES LAKE	ENG

RDF_CONDITION			
CONDITION_ID	NAV_STRAND_ID	CONDITION_TYPE	Remark
1	201	16	link A
2	202	16	link B
3	203	16	link C
4	207	16	link G

RDF_CONDITION_DRIVER_ALERT	
CONDITION_ID	IMPORTANCE_IND
1	6
2	6
3	6
4	6

18.7.8.1 Bridge/Tunnel Junction Guidance Example



Association	Member 1	Member 2
123456545	2763768	GP1
123456546	2763769	GP1
123456547	2763766	GP1
123456548	2763767	GP1

RDF_FEATURE_POINT					
FP_ID	LINK_ID	FP_TYPE	SIDE	LAT	LON
1232321	2763767	GP	B	-8273828	5366338

RDF_ASSO	
ASSO_ID	ASSO_TYPE
123456545	JG
123456546	JG
123456547	JG
123456548	JG

RDF_ASSO_NATURAL_GUIDANCE					
ASSO_ID	DIRECTION	VISIBILITY	SEASONAL_DEPENDENCY	RELATIVE_DISTANCE	CALCULATED_IMPORTANCE
123456545	T	0	N	0	8
123456546	F	0	N	0	8
123456547	F	0	N	0	8
123456548	T	0	N	0	8

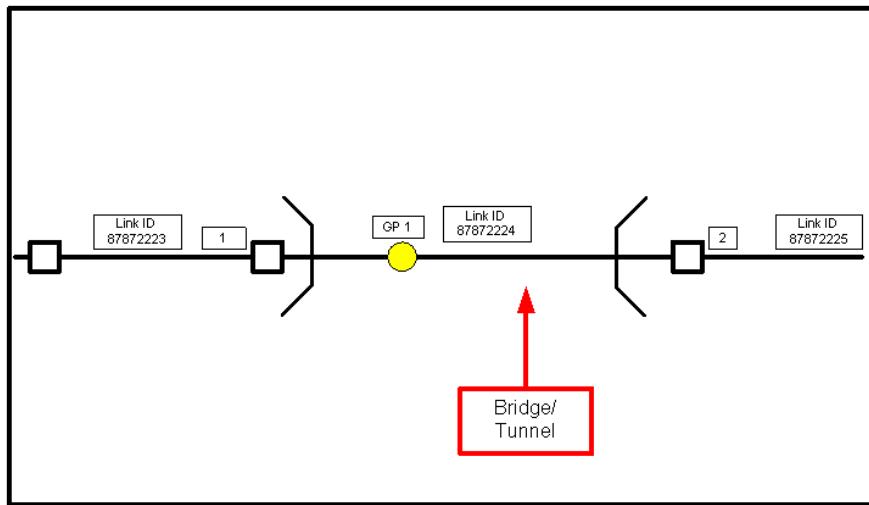
RDF_ASSO_NAMES			
NAME_ID	ASSO_ID	NAME_TYPE	IS_EXONYM
873874833	123456545	B	N
873874834	123456546	B	N
873874835	123456547	B	N
873874836	123456548	B	N

RDF_ASSO_NAME		
NAME_ID	LANGUAGE_CODE	NAME
873874833	ENG	The Bridge
873874834	ENG	The Bridge
873874835	ENG	The Bridge
873874836	ENG	The Bridge

RDF_ASSO_LINK	
ASSO_ID	LINK_ID
123456545	2763768
123456546	2763769
123456547	2763766
123456548	2763767

RDF_ASSO_FEAT_POINT	
ASSO_ID	FP_ID
123456545	1232321
123456546	1232321
123456547	1232321
123456548	1232321

18.7.8.2 Bridge/Tunnel Passing Guidance Example



Association	Member 1	Member 2
324234232	87872223	GP1
324234242	87872225	GP1

RDF_FEATURE_POINT					
FP_ID	LINK_ID	FP_TYPE	SIDE	LAT	LON
324234445	87872224	GP	B	-8273828	5366338

RDF_ASSO	
ASSO_ID	ASSO_TYPE
324234232	PG
324234242	PG

RDF_ASSO_NATURAL_GUIDANCE					
ASSO_ID	DIRECTION	VISIBILITY	SEASONAL_DEPENDENCY	RELATIVE_DISTANCE	CALCULATED_IMPORTANCE
324234232	F	0	N	0	8
324234242	T	0	N	0	8

RDF_ASSO_NAMES			
NAME_ID	ASSO_ID	NAME_TYPE	IS_EXONYM
873874833	324234232	B	N
873874834	324234242	B	N

RDF_ASSO_NAME		
NAME_ID	LANGUAGE_CODE	NAME
873874833	ENG	The Bridge
873874834	ENG	The Bridge

RDF_ASSO_LINK	
ASSO_ID	LINK_ID
123456545	87872223
123456546	87872225

RDF_ASSO_FEAT_POINT	
ASSO_ID	FP_ID

RDF_ASSO_FEAT_POINT	
123456545	324234445
123456546	324234445

18.7.8.3 Association Referencing an External POI

RDF_ASSO and RDF_ASSO_NATURAL_GUIDANCE

RDF_ASSO

ASSO_ID	ASSO_TYPE
444543555	JG

RDF_ASSO_NATURAL_GUIDANCE

ASSO_ID	444543555
ASSO_TYPE	JG
DIRECTION	T
VISIBILITY	1
SEASONAL_DEPENDENCY	N
RELATIVE_DISTANCE	1
CALC_IMPORTANCE	7
FEATURE_EXTENT	50
PERMANENCE	H

RDF_ASSO_GUIDANCE_OBJECT provides the objects that participates into the Natural Guidance Associations.

RDF_ASSO_GUIDANCE_OBJECT

ASSO_ID	OBJECT_ID
444543555	154654512

RDF_GUIDANCE_OBJECT: Provides coordinates of the referenced object as well as the category information. In case of Category ID = 99 objects, EXT_REF_ID publishes the unique identifier for the objects as included in the external product.

RDF_GUIDANCE_OBJECT

OBJECT_ID	154654512
OBJECT_TYPE	NG
LAT	4204093
LON	-8774793
CATEGORY	99
EXT_CAT_ID	1234567890
EXT_CAT_NAME	FARM
EXT_REF_TYPE	1

RDF_ASSO_NAMES: Publishes the name of the associations. This may match the POI name or be a generic name as below.

RDF_ASSO_NAMES

NAME_ID	232314344
ASSO_ID	444543555
NAME_TYPE	B
IS_EXONYM	N

RDF_ASSO_NAME: publishes the name of the association.

RDF_ASSO_NAME

NAME_ID	232314344
LANGUAGE_CODE	ENG
NAME	FARM

RDF_ASSO_FEATURE_POINT: Provides the Feature Point identifiers of all other Point Features (Route Guidance and Guidance Point) involved into the association.

RDF_ASSO_FEATURE_POINT

ASSO_ID	FP_ID
444543555	454656771

RDF_ASSO_FEATURE_POINT

ASSO_ID	FP_ID
444543555	454656772
444543555	454656773
444543555	454656774

RDF_FEATURE_POINT: Provides information of the feature points involved in the association.

RDF_FEATURE_POINT

FP_ID	FP_TYPE	SIDE	LAT	LON
454656771	GP	L	4204093	-8774432
454656772	RG	N	4204077	-8774345
454656773	RG	N	4204045	-8774733
454656774	RG	N	4204056	-8774722

RDF_FEATURE_POINT_PREP. Provides information preposition to be used with the Association Name.

RDF_FEATURE_POINT_PREP

FP_ID	PREPOSITION_CODE
454656772	ENGBAFTT
454656773	ENGBPSTT
454656774	ENGBAFTT

RDF_META_PREPOSITION. Provides the corresponding text to the preposition code.

RDF_META_PREPOSITION

PREPOSITION_CODE	ENGBAFTT	ENGBPSTT
PREPOSITION	After the	Past the
POSITION	2	2
LANGUAGE_CODE	ENG	ENG

18.7.8.4 Association Referencing a Guidance Object on the Map

RDF_ASSO and RDF_ASSO_NATURAL_GUIDANCE

RDF_ASSO

ASSO_ID	ASSO_TYPE
444543555	JG

RDF_ASSO_NATURAL_GUIDANCE

ASSO_ID	444543555
ASSO_TYPE	JG
DIRECTION	T
VISIBILITY	1
SEASONAL_DEPENDENCY	N
RELATIVE_DISTANCE	1
CALC_IMPORTANCE	7
FEATURE_EXTENT	50
PERMANENCE	H

RDF_ASSO_GUIDANCE_OBJECT: Provides the objects that participates into the Natural Guidance Associations.

RDF_ASSO_GUIDANCE_OBJECT

ASSO_ID	OBJECT_ID
444543555	154654512

RDF_GUIDANCE_OBJECT: Provides coordinates of the referenced object as well as the category information. In case of Category Type 1 objects, EXT_REF_ID does not publish any value.

RDF_GUIDANCE_OBJECT

OBJECT_ID	987355627
LAT	4204111
LON	-8934793

RDF_GUIDANCE_OBJECT

CATEGORY	4
EXT_CAT_ID	<NULL>
EXT_CAT_NAME	<NULL>
EXT_CAT_TYPE	<NULL>

RDF_ASSO_NAMES: Publishes the name of the associations. This may match I POI name or be a generic name as below.

RDF_ASSO_NAMES

NAME_ID	234454344
ASSO_ID	165366366
NAME_TYPE	B
IS_EXONYM	N

*RDF_ASSO_NAME**RDF_ASSO_NAME*

NAME_ID	234454344
LANGUAGE_CODE	ENG
NAME	PHONEBOOTH

RDF_ASSO_FEATURE_POINT: Provides the Feature Point identifiers of all other Point Features (Route Guidance and Guidance Point) involved in the association.

RDF_ASSO_FEATURE_POINT

ASSO_ID	FP_ID
165366366	454656831
165366366	454656832
165366366	454656833

RDF_FEATURE_POINT: Provides information of the feature points involved in the association.

RDF_FEATURE_POINT

FP_ID	454656831	454656832	454656833
-------	-----------	-----------	-----------

RDF_FEATURE_POINT (Continued)

FP_TYPE	GP	RG	RG
SIDE	L	N	N
LAT	4232093	4245077	4221045
LON	-9174432	-9174345	-9174733

RDF_FEATURE_POINT_PREP: Provides information preposition to be used with the Association Name.

RDF_FEATURE_POINT_PREP

FP_ID	PREPOSITION_CODE
454656832	ENGBPSTT
454656833	ENGBAFTT

RDF_META_PREPOSITION: Provides the corresponding text to the preposition code.

RDF_META_PREPOSITION

PREPOSITION_CODE	ENGBAFTT	ENGBPSTT
PREPOSITION	After the	Past the
POSITION	2	2
LANGUAGE_CODE	ENG	ENG

18.7.8.5 Association Referencing a Railway Crossing

RDF_ASSO and RDF_ASSO_NATURAL_GUIDANCE

RDF_ASSO

ASSO_ID	ASSO_TYPE
165368913	JG

RDF_ASSO_NATURAL_GUIDANCE

ASSO_ID	165368913
---------	-----------

RDF_ASSO_NATURAL_GUIDANCE

ASSO_TYPE	JG
DIRECTION	T
VISIBILITY	1
SEASONAL_DEPENDENCY	N
RELATIVE_DISTANCE	1
CALC_IMPORTANCE	7
FEATURE_EXTENT	50
PERMANENCE	H

RDF_ASSO_NAMES and RDF_ASSO_NAME

RDF_ASSO_NAMES Publishes the name of the associations.

RDF_ASSO_NAMES

NAME_ID	234454214
ASSO_ID	165368913
NAME_TYPE	B
IS_EXONYM	N

RDF_ASSO_NAME

NAME_ID	LANGUAGE_CODE	NAME
234454214	ENG	RAILWAY CROSSING

RDF_ASSO_FEATURE_POINT: Provides the Feature Point identifiers of all Point Features. In case of Railway Crossing, only Feature Point Type "RC" (Railway Crossing) and "RG" (Route Guidance) are published. The Railway Crossing Feature Type is to be interpreted as a Guidance Point Feature Type.

RDF_ASSO_FEATURE_POINT

ASSO_ID	FP_ID
165368913	454659710

RDF_ASSO_FEATURE_POINT

ASSO_ID	FP_ID
165368913	454659711
165368913	454659712
165368913	454659713

RDF_FEATURE_POINT: Provides information of the feature points involved in the association.

FP_ID	454659710	454659711	454659712	454659713
FP_TYPE	RC	GP	RG	RG
SIDE	L	L	N	N
LAT	4232095	4232093	4245077	4221045
LON	-9174432	-9174432	-9174345	-9174733

RDF_FEATURE_POINT_PREP: Provides information preposition to be used with the Association Name.

FP_ID	PREPOSITION_CODE
454659712	ENGBPSTT
454659713	ENGBAFTT

RDF_META_PREPOSITION: Provides the corresponding text to the preposition code.

RDF_META_PREPOSITION

PREPOSITION_CODE	PREPOSITION	POSITION	LANGUAGE_CODE
ENGBAFTT	After the	2	ENG
ENGBPSTT	Past the	2	ENG

18.7.8.6 Association Referencing a Sign

RDF_ASSO and RDF_ASSO_NATURAL_GUIDANCE

RDF_ASSO

ASSO_ID	ASSO_TYPE
165368444	JG

RDF_ASSO_NATURAL_GUIDANCE

ASSO_ID	165368444
ASSO_TYPE	JG
DIRECTION	T
VISIBILITY	1
SEASONAL_DEPENDENCY	N
RELATIVE_DISTANCE	1
CALC_IMPORTANCE	7
FEATURE_EXTENT	50
PERMANENCE	H

RDF_ASSO_NAMES: Publishes the name of the associations. The name published represents the text of the referenced sign.

RDF_ASSO_NAMES

NAME_ID	ASSO_ID	NAME_TYPE	IS_EXONYM
234454412	165368444	B	N

RDF_ASSO_NAME

NAME_ID	LANGUAGE_CODE	NAME
234454412	ENG	CITY CENTRE

Distance Markers

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19.8 Introduction

Distance Markers consists of a feature and attributes that support the following use cases:

- Assisting drivers in estimating their progress
- Providing location information in emergency and roadside assistance scenarios
- Assisting in highway maintenance and servicing

19.9 Distance Marker - Feature

Definition	Distance Markers are sequentially numbered markers placed along roads at regular intervals that serve as reference location signs.
Table	RDF_DISTANCE_MARKER, see <i>Section 12.3.69, RDF_DISTANCE_MARKER</i> for schema
Related Attributes	DISTANCE_VALUE DIRECTION_ON_SIGN DIRECTION UNIT_OF_MEASURE ENHANCED LAT/LON BASE_NAME through ROAD_NAME_ID
Usage	Distance Markers can be used for: <ul style="list-style-type: none"> • Route guidance (“2 miles to Mile Marker 75”) • Destination selection (ability to choose from a list of marker locations) • Location geo-referencing (geocode to marker locations)
Specification	<ul style="list-style-type: none"> • <i>Distance Marker</i> includes markers expressed in miles or kilometres. • <i>Distance Marker</i> is published only on <i>Functional Class</i> = 1 – 2 including Highway-to-Highway connector (RDF_NAV_LINK.CONTROLLED_ACCESS = 1 and RDF_NAV_LINK.RAMP = 1). <ul style="list-style-type: none"> Note: In select countries, Distance Marker is also applied on roads that received <i>Functional Class</i> = 3 – 4. • Distance Marker is generally not applied on ramps. • Distance Marker is published only on links with at least one route number or road name. <ul style="list-style-type: none"> ◆ A Distance Marker is associated with only one Route Number or Street Name if multiple names exist on the link. ◆ If routes overlap, Distance Marker sign continuity is established for only one of the routes. For example, if an Interstate route number and a Federal route number are on a road, only one is published. Generally, the Interstate route number is used in the US. ◆ Multiple Distance Markers are published if different Distance Marker values exist at the same sign location in reality. • Distance Markers are placed with a minimum accuracy of 15 metres. <ul style="list-style-type: none"> ◆ Distance markers that might not meet the accuracy above, are published with ENHANCED = N

- Distance Markers are included at an interval of 1 Mile/1 Kilometer.
 - ◆ Only integer Distance Markers are included. This may include alphanumeric mile markers.
 - ◆ Fractions of miles/kilometres are not included.
- On Multiply Digitised roads, a Distance Value per direction of travel is published.
- On bidirectional roads, a single Distance Marker for both directions of travel is published if the Distance Marker shield does not display route direction. See *Section Figure 19-21*, and *Table 17-1*.



Figure 19-21

- On bidirectional roads, a Distance Marker per travel direction is published if the Distance Marker shield displays a route direction and DIRECTION_ON_SIGN is published. See *Figure 19-22* and *Table 17-1*.



Figure 19-22

- On bidirectional roads, a Distance Marker per travel direction is also published if the relative distance of the distance marker shields for each travel direction are positioned in such a way that positional accuracy of 15 metres may not be granted.
- Summarizes the different attribute configuration based on the link travel direction and presence of Direction on Sign on the distance marker.

		Bidirectional Links	
Multiply Digitised Road		Direction on Sign Not Posted	Direction on Sign Posted
Number of Distance Marker	2^1	1	2^1
Direction On Sign	γ^2	N	γ^2
Direction	1 = Positive 2 = Negative (according to link travel direction)	3 = Both	1 = Positive 2 = Negative (according to link travel direction)

1. One per direction of travel if existing in reality
2. If posted in reality

Table 17-1

- Distance Marker numbering scheme is defined for every country. See the Country Profile document in the Customer Technical Reference Guide (CTRG) for Distance Marker numbering scheme information.

19.9.1 Distance Value (DISTANCE_VALUE)

Definition *Distance Value* represents the Distance Marker value.

Table RDF_DISTANCE_MARKER

Column DISTANCE_VALUE

Value Value representing the distance along the road.

Cardinality 1:1

Related Attributes *Base Name* (BASE_NAME through ROAD_NAME_ID)
Direction on Sign (DIRECTION_ON_SIGN)

Direction (DIRECTION)

Unit Of Measure (UNIT_OF_MEASURE)

Enhanced (ENHANCED)

Lat/Lon Coordinates (LAT/LON)

Usage *Distance Value* can be used for destination selection and location referencing.

Specification

- DISTANCE_VALUE is always associated with a ROAD_LINK_ID.
- DISTANCE_VALUE does not publish decimal values; for example, DISTANCE_VALUE = 11.00 is published as 11.

- If present on the distance marker shield, alphanumeric distance values are published; for example, a distance marker shield may display a distance as 109A.

19.9.2 Direction on Sign (DIRECTION_ON_SIGN)

Definition	DIRECTION_ON_SIGN indicates the official directional identifiers assigned to the Distance Marker.
Table	RDF_DISTANCE_MARKER
Column	DIRECTION_ON_SIGN
Value	See <i>Section C.38, RDF_DISTANCE_MARKER</i>
Cardinality	1:0
Related Attributes	DISTANCE_VALUE BASE_NAME through ROAD_NAME_ID
Usage	DIRECTION_ON_SIGN can be used for destination selection based on Distance Marker.
Specification	<ul style="list-style-type: none">• DIRECTION_ON_SIGN is published on bidirectional roads only if the Distance Marker shield indicates the route direction.• DIRECTION_ON_SIGN is published on single directional roads when present on the sign.• DIRECTION_ON_SIGN does not have a Language Code associated.<ul style="list-style-type: none">◆ English (ENG) route directions are published in Direction on Sign◆ Route directions for other languages are published in Direction on Sign metadata.

19.9.3 Direction (DIRECTION)

Definition	DIRECTION Identifies the applicable link direction of travel for the Distance Marker.
Table	RDF_DISTANCE_MARKER
Column	DIRECTION
Value	<i>Section C.38, RDF_DISTANCE_MARKER</i>
Cardinality	1: 1
Related Attributes	DISTANCE_VALUE DIRECTION_ON_SIGN

Usage	DIRECTION can be used for routing and guidance to determine the applicable direction of travel for the Distance Marker.
Specification	<ul style="list-style-type: none"> • If the Distance Marker applies to both direction of travel, then DIRECTION = 3 (Both Directions) is published. • DIRECTION is established using the Reference and Non-Reference node. • The Reference node is located at the “beginning” of a link. The Non-Reference node is located at the “end” of a link.

19.9.4 Unit Of Measure (UNIT_OF_MEASURE)

Definition	UNIT_OF_MEASURE identifies the unit of measure mostly used in that country to describe road and traffic conditions.
Table	RDF_DISTANCE_MARKER
Column	UNIT_OF_MEASURE
Value	See Section C.38, RDF_DISTANCE_MARKER
Cardinality	1:1
Related Attributes	DISTANCE_VALUE
Usage	This attribute can be used to determine Distance Marker unit of measure.
Specification	<ul style="list-style-type: none"> • UNIT_OF_MEASURE is always published base on the distance marker unit of measure.

19.9.5 Enhanced (ENHANCED)

Definition	ENHANCED indicates if a Distance Marker meets the positional accuracy requirements.
Table	RDF_DISTANCE_MARKER
Column	ENHANCED
Value	See Section C.38, RDF_DISTANCE_MARKER
Cardinality	1:1
Related Attributes	DISTANCE_VALUE LAT/LON
Usage	ENHANCED can be used to differentiate between interpolated and non-interpolated Distance Markers in order to determine the reliability of the Distance Marker location.

- Specification**
- If Distance Marker meets positional accuracy of 15 metres, then ENHANCED = Y is published.
 - If Distance Marker might not meet specified positional accuracy of 15 metres, then ENHANCED = N is published.
 - ENHANCED = N is published if a sign is not found in reality. If there is not a sign in reality, then the Distance Marker location on the link is calculated by interpolation with the closest Distance Markers that are published with ENHANCED = Y. For example, if the sign for mile marker 12Mi is not found posted along the road and mile marker 11 and 13 are published with ENHANCED = Y, then the Distance Marker location for mile marker 12Mi is calculated based on the position of the closest mile marker (11 or 13).

19.9.6 Lat/Lon Coordinates (LAT/LON)

Definition	LAT/LON represents the location of the Distance Marker on the link.
Table	RDF_DISTANCE_MARKER
Column	LAT LON
Value	Latitude and Longitude of the distance marker.
Cardinality	1:1
Related Attributes	DISTANCE_VALUE ENHANCED
Usage	LAT and LON coordinates can be used for route calculation, display, and guidance.
Specification	<ul style="list-style-type: none">• LAT and LON define the position of the Distance Marker along the link without any offset.• LAT and LON define the position of the Distance Marker in 0.00001 degree precision.• LAT and LON values are expressed as integer numbers in the following format: 45.12345 is published as 4512345

19.9.7 Distance Marker Example

RDF publishes the following for a distance marker on a link with multiple names. The distance marker shield shows the route number I-90 related to distance marker 30

RDF_DISTANCE_MARKER	
POINT_FEATURE_ID	225151322
ROAD_LINK_ID	197860784

DISTANCE_VALUE	30
DIRECTION_ON_SIGN	
DIRECTION	3
UNIT_OF_MEASURE	E
ENHANCED	Y
LAT	3358689
LON	-11901578

RDF_ROAD_LINK	
ROAD_LINK_ID	197860784
ROAD_NAME_ID	200212960
LEFT_ADDRESS_RANGE_ID	54
RIGHT_ADDRESS_RANGE_ID	85
ADDRESS_TYPE	1
IS_EXIT_NAME	N
EXPLICATABLE	Y
IS_JUNCTION_NAME	N
IS_NAME_ON_ROADSIGN	Y
IS_POSTAL_NAME	N
IS_STALE_NAME	N
IS_VANITY_NAME	N
IS_SCENIC_NAME	N

RDF_ROAD_NAME	
ROAD_NAME_ID	200212960
ROUTE_TYPE	3
ATTACHED_TO_BASE	N
PRECEDES_BASE	N
PREFIX	
STREET_TYPE	
SUFFIX	
BASE_NAME	I-90

LANGUAGE_CODE	ENG
IS_EXONYM	N
NAME_TYPE	B
DIRECTION_ON_SIGN	N
STREET_NAME	I-90 N

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Trucks

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20.1 Introduction

The following contents are specialized for the trucking industry:

Trucks

This content enables routing and guidance specific to large vehicles (trucks). It provides:

- Routes dedicated to specific truck types or to large vehicles
- Route guidance dedicated to large vehicles
- Warnings specific to large vehicles or trucks

Truck POIs, a rich content XML product, can be used with the Trucks content. For more information about Truck POIs, see the Customer Technical Reference Guide (CTRG).

Loading Dock Locations

Loading Dock Locations includes the location of loading docks, truck/delivery entrances, delivery parking, and associated geometry. Use Loading Dock Locations to provide:

- Destination selection of a dock, truck/delivery entrance, or loading zone as a destination
- Route guidance directly to a loading dock, loading zone, or truck/delivery entrance (or to a loading dock via a truck/delivery entrance from the main road)
- Display of loading dock, loading zone, and truck/delivery entrance locations

20.2 Access Characteristics

Definition	<i>Access Characteristics</i> are used to model accessibility of links or lanes to specific Vehicle Types.
Table	RDF_ACCESS
Column	AUTOMOBILES BUSES TAXIS CARPOOLS PEDESTRIANS TRUCKS THROUGH_TRAFFIC DELIVERIES EMERGENCY_VEHICLES
Cardinality	1:1
Related Attributes	<i>Travel Direction</i>
Related Tables	RDF_LANE RDF_CONDITION RDF_NAV_LINK
Usage	<p><i>Access Characteristics</i> can be used to restrict access to links or lanes for specific Vehicle Types (e.g., TRUCKS)</p> <p>Due to limited inclusion, routing on Functional Class = 5 should be avoided. Functional Class = 5 should only be used for routing if the current car position and/or final destination is on Functional Class = 5 link.</p>
Specification	<ul style="list-style-type: none"> • Links or lanes that are always closed to all trucks are published with TRUCKS = N and DELIVERIES = N. <ul style="list-style-type: none"> ◆ Links or lanes with the European or U.S. sign ‘forbidden for trucks’ are considered closed to all trucks and have <i>Access Characteristics</i> TRUCKS = N and DELIVERIES = N published. • Links or lanes for which a Transport Condition is published are published with TRUCKS = Y as <i>Access Characteristics</i> on the link. • Only if a weight restriction is explicitly signposted, TRUCKS = Y and DELIVERIES = Y is published for the link or lane. • In Europe, legal access restrictions exist indicating ‘forbidden for trucks’ with a supplemental sign indicating ‘except deliveries’, ‘except residents’, ‘except residents

and deliveries' or 'except public vehicles'. For these specific exceptions, the following is published for the link or lane:

- ◆ Except deliveries: TRUCKS = N and DELIVERIES = Y
- ◆ Except residents: TRUCKS = N and DELIVERIES = Y
- ◆ Except residents and deliveries: TRUCKS = N and DELIVERIES = Y
- ◆ Except public vehicles: TRUCKS = N and DELIVERIES = N

Note: If any of these exceptions is applicable only in one driving direction or additionally signposted with a weight restriction, then these are published as a Transport Access Restriction with attributes indicating the Direction Closure and/or Weight.

20.3 Traffic Sign (CONDITION_TYPE = 17)

Definition Traffic Sign is a condition indicating the location of a traffic sign, the type of sign, and the sign category. It also includes supplemental signs, if present, indicating the distance or other specific information.

Condition Type 17

Table RDF_CONDITION

Participants in Link
Condition Node

Related Attributes *Traffic Sign Type*
Traffic Sign Category
Supplemental Sign Duration
Supplemental Sign Pre-Warning
Traffic Sign Value
General Warning Sign Type

Usage The *Traffic Sign* condition can be used to provide visual driver alerts through signs and to generate specific driver alert messages.

Specification

- The *Traffic Sign* condition is published only where a physical sign exists in reality. As a result, additional Nodes can be included to accurately place the traffic sign.
- *Traffic Signs* are included with an accuracy of 50 metres. Where required, additional nodes are included to ensure positional accuracy.
- The *Traffic Sign* conditions are always published with a *Traffic Sign Type* attribute indicating the type of traffic sign.
- Date/Time information is not published for *Traffic Sign* conditions.
- The *Traffic Sign* is not vehicle dependent; and therefore, applies to all Vehicle Types and to Through Traffic.

20.3.1 Traffic Sign Type (TRAFFIC_SIGN_TYPE)

Definition	<i>Traffic Sign Type</i> identifies the type of warning sign.
Table	RDF_CONDITION_DRIVER_ALERT
Column	TRAFFIC_SIGN_TYPE
Value	See Section C.27, RDF_CONDITION_DRIVER_ALERT
Cardinality	1:1
Related Attributes	<i>Traffic Sign Category</i> <i>General Warning Sign Type</i> <i>Traffic Sign Value</i>
Related Condition	<i>Traffic Sign</i> (CONDITION_TYPE = 17)
Usage	<i>Traffic Sign Type</i> can be used to give specific driver alert messaging based on the sign type. <i>Traffic Sign Type</i> can also be used for appropriate display of the <i>Traffic Sign</i> .
Specification	<ul style="list-style-type: none">• Certain <i>Traffic Signs Types</i> do not have a corresponding sign in all countries.• The actual posted traffic sign for a given <i>Traffic Sign Type</i> can differ between countries.• The <i>Traffic Sign</i> condition (CONDITION_TYPE = 17) is published with attribute <i>Traffic Sign Type</i> equal to one of the following (see country-specific examples in the accompanying document, <i>Country Profiles: Signs, Signals, and Warnings</i>):<ul style="list-style-type: none">◆ <i>Traffic Sign Type</i> = 11 – Road Narrows is published if a sign exists indicating that a road is narrowing. This can be from both sides or from the left or right side only.◆ <i>Traffic Sign Type</i> = 12 – Sharp Curve Left is published if a sign exists indicating a sharp curve to the left.◆ <i>Traffic Sign Type</i> = 13 – Sharp Curve Right is published if a sign exists indicating a sharp curve to the right.◆ <i>Traffic Sign Type</i> = 14 – Winding Road starting Left is published if a sign exists indicating a winding road with the first curve starting to the left.◆ <i>Traffic Sign Type</i> = 15 – Winding Road starting Right is published if a sign exists indicating a winding road with the first curve starting to the right.◆ <i>Traffic Sign Type</i> = 18 – Steep Hill Upwards is published if a sign exists indicating a steep ascent.◆ <i>Traffic Sign Type</i> = 19 – Steep Hill Downwards is published if a sign exists indicating a steep descent.◆ <i>Traffic Sign Type</i> = 21 – Lateral Wind is published if a sign exists indicating possible strong cross wind.

- ♦ *Traffic Sign Type = 22 – General Warning Sign* is published if a sign exists indicating a general warning. General Warning Signs are always published with a corresponding *General Warning Sign Type* attribute defining the nature of the general warning.

- ♦ *Traffic Sign Type = 23 – Risk of Grounding* is published if a sign exists indicating a risk of grounding for large vehicles.

Note: Risk of Grounding can also be published as a General Warning Sign (Traffic Sign Type = 22) with General Warning Sign Type = 2 if supplemental signs exist in reality.

- ♦ *Traffic Sign Type = 24 – General Curve* is published if a sign exists indicating a curve warning, without an indication in which direction the curve is heading.

- ♦ *Traffic Sign Type = 26 – General Hill* is published if a sign exists indicating a hill warning, without an explicit indication for uphill or downhill travel.

Note: The appearance of the signs listed above can vary depending on the situation in reality. There are also differences in the appearance of signs between countries. Therefore a given Traffic Sign Type may have various corresponding real-world signs.

20.3.2 Traffic Sign Category (TRAFFIC_SIGN_CATEGORY)

Definition	<i>Traffic Sign Category</i> identifies the main sign category to which the sign belongs to.
Table	RDF_CONDITION_DRIVER_ALERT
Column	TRAFFIC_SIGN_CATEGORY
Value	See Section C.27, RDF_CONDITION_DRIVER_ALERT
Cardinality	1:1
Related Attributes	<i>Traffic Sign Type</i>
Related Condition	<i>Traffic Sign (CONDITION_TYPE = 17)</i>
Usage	<i>Traffic Sign Category</i> can be used to give specific informative messaging using the <i>Traffic Sign Category</i> .
Specification	The <i>Traffic Sign Condition</i> is published with attribute <i>Traffic Sign Category</i> equal to one of the following: <ul style="list-style-type: none"> • <i>Traffic Sign Category = 1 - Regulatory Sign</i>. The following <i>Traffic Sign Types</i> are regulatory signs: <ul style="list-style-type: none"> ♦ 53 - No Engine Brake ♦ 54 - End of No Engine Brake ♦ 55 - No Idling

- *Traffic Sign Category* = 2 - Informative Sign. The following *Traffic Sign Types* are informative signs:
 - ◆ 57 - Low Gear
 - ◆ 58 - End of Low Gear
- *Traffic Sign Category* = 3 – Warning Sign. The following *Traffic Sign Types* are warning signs:
 - ◆ 11 – Road Narrows
 - ◆ 12 – Sharp Curve Left
 - ◆ 13 – Sharp Curve Right
 - ◆ 14 – Winding Road starting Left
 - ◆ 15 – Winding Road starting Right
 - ◆ 18 – Steep Hill Upwards
 - ◆ 19 – Steep Hill Downwards
 - ◆ 21 – Lateral Wind
 - ◆ 22 – General Warning Sign
 - ◆ 23 – Risk of Grounding
 - ◆ 24 – General Curve
 - ◆ 26 – General Hill
 - ◆ 56 – Truck Rollover

20.3.3 Supplemental Sign Duration (SIGN_DURATION)

Definition	<i>Supplemental Sign Duration</i> indicates additional sign shields which are displayed below the <i>Traffic Sign</i> indicating the duration of the warning.
Table	RDF_CONDITION_DRIVER_ALERT
Column	SIGN_DURATION
Value	Identifier of text visible on the supplemental sign indicating duration
Cardinality	1:0,1,M
Related Table	RDF_CONDITION RDF_CONDITION_TEXT
Usage	<i>Supplemental Sign Duration</i> can be used for map display or to indicate the duration of the warning in the driver alert messaging.
Specification	<ul style="list-style-type: none">● Supplemental signs indicating the duration are typically showing the distance information with arrows on either side of the distance information. See <i>Figure 20-1</i>.

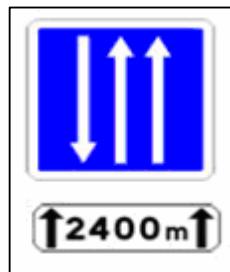


Figure 20-1

- The distance information is published with the measurement indication in RDF_CONDITION_TEXT.TEXT. The supplemental sign text for duration is published as spelled on the sign, excluding spaces. The example in *Figure 20-1* is published as 2400m.
- Each SIGN_DURATION has a corresponding Language Code in RDF_CONDITION_TEXT.LANGUAGE_CODE. Supplemental sign text for attribute SIGN_DURATION is UTF-8 encoded and can be published with any Language Code.
- Multiple SIGN_DURATION attributes are published for one Traffic Sign condition if the Sign Duration supplemental text is posted in more than one language.

20.3.4 Supplemental Sign Pre-Warning (SIGN_PREWARNING)

Definition	<i>Supplemental Sign Pre-warning (SIGN_PREWARNING) indicates additional sign shields which are displayed below the <i>Traffic Sign</i> indicating an upcoming warning or regulation. These signs are only included if no additional <i>Traffic Sign</i> exists at the actual start of the warning or regulation.</i>
Table	RDF_CONDITION_DRIVER_ALERT
Column	SIGN_PREWARNING
Value	Identifier of text visible on the supplemental sign indicating pre-warning
Cardinality	1:0, 1, M
Related Table	RDF_CONDITION RDF_CONDITION_TEXT
Usage	The <i>Supplemental Sign Pre-warning</i> can be used for map display or to indicate a pre-warning for an upcoming warning or regulation in driver alert messaging.
Specification	<ul style="list-style-type: none"> • Traffic Signs with supplemental signs indicating the distance to an upcoming warning or regulation are not included unless a <i>Traffic Sign</i> does not exist at the actual start of the warning. If no <i>Traffic Sign</i> exists at the actual start of the warning,

then the *Traffic Sign* with the supplemental sign indicating the distance to the upcoming warning or regulation is included. These types of supplemental signs are typically showing the distance information without the arrows on either side of the distance information. See *Figure 20-2*.



Figure 20-2

- The distance information is published with the measurement indication in `RDF_CONDITION_TEXT.TEXT`. The supplemental sign text for pre-warning is published as spelled on the sign, excluding spaces. The example in *Figure 20-2* is published as 400m.

20.3.5 General Warning Sign Type (`GEN_WARNING_SIGN_TYPE`)

Definition	<i>General Warning Sign Type</i> is used to specify the nature of a general warning sign (<i>Traffic Sign Type</i> = 22)
Table	<code>RDF_CONDITION_DRIVER_ALERT</code>
Column	<code>GEN_WARNING_SIGN_TYPE</code>
Value	See <i>Section C.27, RDF_CONDITION_DRIVER_ALERT</i>
Cardinality	1:0:1
Related Attributes	<i>Traffic Sign Type</i>
Related Condition	<i>Traffic Sign</i> (<code>CONDITION_TYPE</code> = 17)
Usage	<i>General Warning Sign Type</i> can be used to explicitly indicate the type of warning for a general warning sign.
Specification	<ul style="list-style-type: none">• All traffic signs of <i>Traffic Sign Type</i> = 22 – General Warning Sign are published with a General Warning Sign Type.

-
- *General Warning Sign Type* = 1 – Object Overhang is published if an overhang of any type is signposted on a supplemental sign in reality.
 - *General Warning Sign Type* = 2 – Risk of Grounding is published if the risk of grounding sign is signposted on a supplemental sign in reality.

20.3.6 Traffic Sign Value (TRAFFIC_SIGN_VALUE)

Definition	<i>Traffic Sign Value</i> provides values visible on the sign related to specific sign types.
Table	RDF_CONDITION_DRIVER_ALERT
Column	TRAFFIC_SIGN_VALUE
Value	The textual description of the value visible in the sign
Cardinality	1:0:1
Related Attributes	<i>Traffic Sign Type</i>
Related Condition	<i>Traffic Sign (Condition Type = 17)</i>
Usage	<i>Traffic Sign Value</i> can be used to display the traffic signs with the exact restriction or information as provided on the sign
Specification	<ul style="list-style-type: none"> • <i>Traffic Sign Value</i> can initially be published for the following <i>Traffic Sign Types</i>: <ul style="list-style-type: none"> ◆ 18 – Steep Hill Upwards ◆ 19 – Steep Hill Downwards • Incline values for <i>Traffic Sign Type</i> 18 – Steep Hill Upwards and 19 – Steep Hill Downwards have a unit of measure included when visible on the sign in reality (e.g., 9% on the sign post is published as <i>Traffic Sign Value</i> = '9%'). • <i>Transport Preferred Route</i> can apply to trucks of specific weights only. If signposted, the <i>Transport Preferred Route</i> is published with <i>Weight Dependent</i> information. • See <i>Figure 20-6</i> for transport preferred route sign examples.

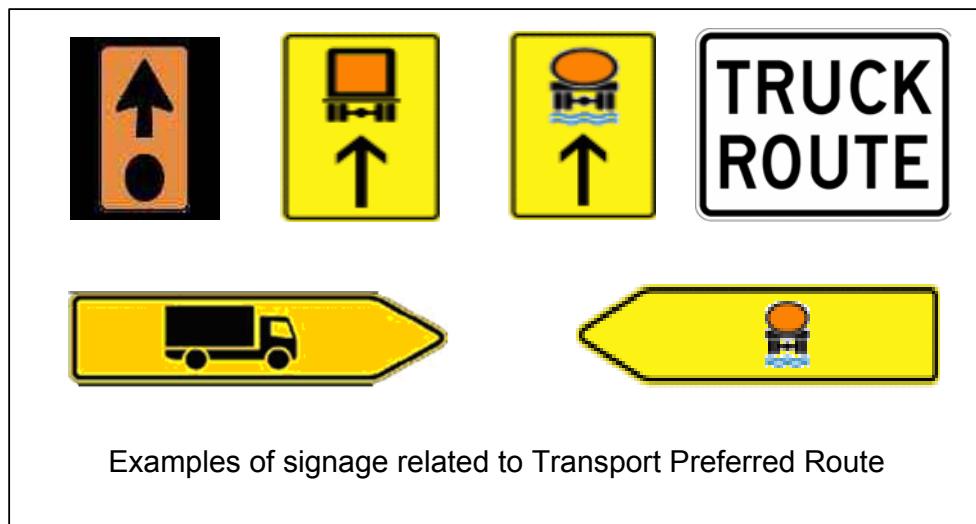


Figure 20-3

20.4 No Overtaking (CONDITION_TYPE = 19)

See Section 6.4.15, No Overtaking (CONDITION_TYPE = 19).

Related Attributes Weather Type

20.5 Transport Access Restriction (CONDITION_TYPE = 23)

Transport Access Restriction condition can be published for links or lanes to identify situations where specific vehicles (other than autos) cannot access a link or lane. *Transport Access Restriction* is modelled as a single link or lane Condition, with *Direction Closure* to indicate in which travel direction the restriction applies. *Transport Access Restriction* has corresponding link or lane Access Characteristics and optionally Date / Time Modifier information published. Specific attribution is published to define the access restrictions to truck usage or vehicle loads.

Condition Type 23

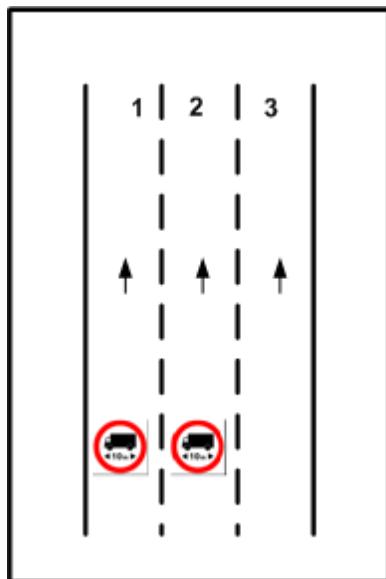
Participants in Link or Lane Condition

Table	RDF_CONDITION
Column	CONDITION_TYPE
Values	See Section C.23, RDF_CONDITION.
Related Attributes	<i>Direction Closure</i> (DIRECTION_CLOSURE) <i>Vehicle Types</i> (RDF_ACCESS) <i>Validity Period</i> (RDF_DATE_TIME) <i>Hazardous Material Type</i> (HAZARDOUS_MATERIAL_TYPE) <i>Trailer Type</i> (TRAILER_TYPE) <i>Height Restriction</i> (HEIGHT_RESTRICTION) <i>Weight Restriction</i> (WEIGHT_RESTRICTION) <i>Weight per Axle Restriction</i> (WEIGHT_PER_AXLE_RESTRICTION) <i>Length Restriction</i> (LENGTH_RESTRICTION) <i>Width Restriction</i> (WIDTH_RESTRICTION) <i>Physical Structure Type</i> (PHYSICAL_STRUCTURE_TYPE) <i>Time Override</i> (TIME_OVERRIDE) <i>Weather Type</i> (WEATHER_TYPE))
Related Table	RDF_LANE_NAV_STRAND
Usage	<i>Transport Access Restriction</i> can be used for route calculation to avoid links or lanes not accessible to trucks with a specific weight, a specific usage, or vehicles with specific loads. Due to limited inclusion, routing on Functional Class = 5 should be avoided. Functional Class = 5 should only be used for routing if the current car position and/or final destination is on that link.

- Specification**
- If RDF_CONDITION.CONDITION_TYPE = 23 and RDF_CONDITION.NAV_STRAND_ID is not NULL, the Transport Access Restriction is applicable to the link.
 - If RDF_CONDITION.CONDITION_TYPE = 23 and RDF_CONDITION.NAV_STRAND_ID is NULL, the Transport Access Restriction is applicable to a lane or subset of lanes on a link.
 - *Transport Access Restrictions* are published for the link or lane to which the restriction is applicable, not at the location where the restriction is signposted.
 - The *Transport Access Restriction* is published as a single link or lane Condition with the *Direction Closure* attribute to indicate the direction in which the link or lane is closed, and additional attributes if applicable.
 - *Transport Access Restriction* is published for situations where trucks do not have access to links or lanes due to legal restrictions.
 - *Transport Access Restriction* may also apply to other Vehicle Types. This is reflected in the Access Characteristics applicable to the *Transport Access Restriction*.
 - *Transport Access Restriction* of a lane overrides the link Access Characteristics; therefore, lane Access Characteristics are TRUCKS = Y and DELIVERIES = Y.
 - *Transport Access Restrictions* requiring a measurement value are published in the metric units (centimetres or metric tons).
 - *Transport Access Restrictions* can have related attribute(s) that restrict the access to trucks with specific characteristics (e.g., weight, load, usage etc.).
 - If combinations of Height, Weight, Weight per Axle, Width or Length apply to a link or lane, then multiple *Transport Access Restriction* conditions are published, each with their applicable attribution.
 - Physical restrictions due to overpasses and underpasses are published with a *Physical Structure Type* attribute. This attribute defines if the physical restriction is caused by a Tunnel or Bridge. See Section 20.5.2, *Physical Structure Type* (*PHYSICAL_STRUCTURE_TYPE*).
 - Date / Time specific restrictions are published for *Transport Access Restrictions* where appropriate.

Example

A three lane road is open in the positive driving direction. Trucks longer than 10 metres are not allowed on lane 1 or lane 2.



RDF_LANE	Lane 1	Lane 2	Lane 3
LANE_ID	5012012545	5012012546	5012012547
LINK_ID	204358512	204358512	204358512
LANE_NUMBER	1	2	3
LANE_TRAVEL_DIRECTION	F	F	F
LANE_TYPE	1	1	1
ACCESS_ID	983	983	983

RDF_ACCESS	
ACCESS_ID	983
AUTOMOBILES	Y
BUSES	Y
TAXIS	Y
CARPOOLS	Y
PEDESTRIANS	N
TRUCKS	Y
DELIVERIES	Y
EMERGENCY_VEHICLES	Y

RDF_ACCESS	
THROUGH_TRAFFIC	N
MOTORCYCLES	Y

RDF_CONDITION		
CONDITION_ID	126488899	126488900
CONDITION_TYPE	23	23
NAV_STRAND_ID		
ACCESS_ID	20	20

RDF_ACCESS	
ACCESS_ID	20
AUTOMOBILES	N
BUSES	N
TAXIS	N
CARPOOLS	N
PEDESTRIANS	N
TRUCKS	Y
DELIVERIES	Y
EMERGENCY_VEHICLES	N
THROUGH_TRAFFIC	N
MOTORCYCLES	N

RDF_CONDITION_TRANSPORT		
CONDITION_ID	126488899	126488900
LENGTH_RESTRICTION	10	10
DIRECTION_CLOSURE	2	2

RDF_LANE_NAV_STRAND		
LANE_NAV_STRAND	128591305	128591306
CONDITION_ID	126488899	126488900
SEQ_NUM	0	0

RDF_LANE_NAV_STRAND		
LANE_ID	5012012545	5012012546
NODE_ID	4546546545	4546546545

20.5.1 Direction Closure (DIRECTION_CLOSURE)

Definition	<i>Direction Closure</i> is an attribute to the <i>Transport Access Restriction</i> condition and defines the direction of the link or lane closed for vehicles with specific restrictions.
Table	RDF_CONDITION_TRANSPORT
Column	DIRECTION_CLOSURE
Value	See Section C.35, RDF_CONDITION_TRANSPORT
Cardinality	1:0:1
Related Condition	<i>Transport Access Restriction</i> (CONDITION_TYPE = 23) (Link or Lane)
Usage	<i>Direction Closure</i> can be used to close links or lanes in the specified direction, for trucks with a specific usage or vehicles with specific loads. <i>Direction Closure</i> is used only to close links or lanes for a specific direction, it is not used to 'open' links or lanes in a specific direction.
Specification	<ul style="list-style-type: none"> • <i>Direction Closure</i> indicates the closure of a link or lane in the specified direction for a specific usage. <i>Direction Closure</i> is using a different concept than BEARING, which is positive coding indicating the direction in which travel is allowed.

20.5.2 Physical Structure Type (PHYSICAL_STRUCTURE_TYPE)

Definition	<i>Physical Structure Type</i> is used to specify if a <i>Transport Access Restriction</i> is caused by an Overpass (Bridge) or Underpass (Tunnel) or any other type of structure like cables, pipelines etc.
Table	RDF_CONDITION_TRANSPORT
Column	PHYSICAL_STRUCTURE_TYPE
Value	See Section C.35, RDF_CONDITION_TRANSPORT
Cardinality	1:0:1
Related Attributes	<i>Weight Restriction</i> <i>Weight per Axle Restriction</i>

	<i>Height Restriction</i>
	<i>Length Restriction</i>
	<i>Width Restriction</i>
Related Condition	<i>Transport Access Restriction (CONDITION_TYPE = 23) (Link or Lane)</i>
Usage	<i>Physical Structure Type</i> can be used to refine the guidance in case of physical restrictions present on a link or lane.
Specification	<ul style="list-style-type: none">Physical restrictions related to overpasses and underpasses are published with <i>Physical Structure Type</i> = 1 – Bridge or 2 – Tunnel.<i>Arch Bridge</i> and <i>Arch Tunnel</i> is published only if the height restriction is different per link or lane. If the height restriction is the same per link or lane, then <i>Bridge</i> or <i>Tunnel</i> is published.<i>Physical Structure Type</i> = 5 – Other is published if a physical restriction is caused by pipelines, overhanging cliffs, buildings, or trolley /tram /railroad cables. <p>Note: If <i>Physical Structure Type</i> is not published for a <i>Transport Access Restriction</i> with weight, weight per axle, height, length or width specified, then it is unknown to which of the Physical Structure Types the restriction applies or the restriction is not related to a physical structure in reality.</p>

20.6 Transport Special Speed Situation (CONDITION_TYPE = 25)

Definition	<i>Transport Special Speed Situation</i> is a single link condition to model posted speed limits specific to trucks. Transport speed limits can be different per driving direction for one link.
Condition Type	25
Table	RDF_CONDITION
Column	CONDITION_TYPE
Value	<i>Transport Special Speed Situation</i> condition publishes the applicable <i>Transport Speed Limit</i> (km/hr), with optionally additional attributes that identify specifics situations when the transport speed limit is in effect.
Cardinality	1:0:1:M
Related Attributes	<i>Transport Speed Limit</i> (TRANSPORT_SPEED_LIMIT) <i>Direction</i> (DIRECTION) <i>Transport Speed Situation Type</i> (TRANSPORT_SPEED_TYPE) <i>Weight Dependent</i> (WEIGHT_DEPENDENT) <i>Weather Type</i> (WEATHER_TYPE) <i>Trailer Type</i> (TRAILER_TYPE) <i>Hazardous Material Type</i> (HAZARDOUS_MATERIAL_TYPE) <i>Time Override</i> (TIME_OVERRIDE) <i>Vehicle Type for the Condition</i> <i>Validity Period</i> (RDF_DATE_TIME)
Usage	<i>Transport Special Speed Situation</i> can be used to alert the truck driver for truck specific speed limits applicable to the link.
Specification	<ul style="list-style-type: none">The <i>Transport Special Speed Situation</i> is published as a single link condition in RDF_CONDITION, with a (direction dependent) <i>Transport Speed Limit</i> attribute and various attributes that define when the applicable speed limit is in effect.<i>Transport Special Speed Situation</i> is published for the link to which the truck specific speed limit applies.<i>Transport Special Speed Situation</i> can be different per driving direction. This is modelled through <i>Direction</i>.<i>Transport Special Speed Situations</i> are published only for situations where trucks specific speed limits are signposted.

- The *Transport Special Speed Situation* may also apply to other Vehicle Types. This is reflected in the ACCESS_ID published for the *Transport Special Speed Situation* condition. For the initial phase the *Transport Special Speed Situation* only applies to trucks.
- Date/Time is published for *Transport Special Speed Situation* conditions if the speed limit is date or time dependent.
- *Transport Special Speed Situations* can exist for specific types of Trucks only, or for specific weather conditions only. This is modelled through various sub-attributes for the *Transport Special Speed Situation*.
- *Time Override* is published if transport speed limits are only applicable from Dawn to Dusk or Dusk to Dawn (*Time Override* = 1 – Dawn to Dusk or 2 – Dusk to Dawn). This sub-attribute can be published with any type of *Transport Special Speed Situation*.

20.6.1 Transport Speed Limit (TRANSPORT_SPEED_LIMIT)

Definition	<i>Transport Speed Limit</i> is a <i>Transport Special Speed Situation</i> attribute and indicates the speed limit applicable to transport vehicles.
Table	RDF_CONDITION_TRANSPORT
Column	TRANSPORT_SPEED_LIMIT
Values	Speed limit in km/hr
Cardinality	1:1
Related Attributes	<i>Direction</i> <i>Hazardous Material Type</i> <i>Trailer Type</i> <i>Weight Dependent</i> <i>Weather Type</i> <i>Time Override</i>
Related Condition	<i>Transport Special Speed Situation</i> (Condition Type = 25)
Usage	The <i>Transport Speed Limit</i> can be used to alert the truck driver for truck specific speed limits applicable to the road.
Specification	<ul style="list-style-type: none"> • <i>Transport Speed Limit</i> is published in kilometre per hour (km/hr) globally. • <i>Transport Speed limit</i> applicable to a specific lane only is not included.

20.6.2 Transport Speed Limit Type (SPEED_LIMIT_TYPE)

Definition *Speed Limit Type* indicates if the Speed Limit is either Legal or Advisory.

Table RDF_CONDITION_TRANSPORT

Column SPEED_LIMIT_TYPE

Values See Section C.35, RDF_CONDITION_TRANSPORT

Default Value 1 - Legal

Cardinality 1:1

Specification Speed Limit Type always is published for Transport Special Speed Situation conditions.

Example

RDF_CONDITION	
CONDITION_ID	993275777
CONDITION_TYPE	25
ACCESS_ID	16

RDF_ACCESS	
ACCESS_ID	16
AUTOMOBILES	N
BUSES	N
TAXIS	N
CARPOOLS	N
PEDESTRIANS	N
TRUCKS	Y
DELIVERIES	N
EMERGENCY_VEHICLES	N
THROUGH_TRAFFIC	N
MOTORCYCLES	N

RDF_CONDITION_TRANSPORT	
CONDITION_ID	993275777
TRANSPORT_SPEED_LIMIT	80

RDF_CONDITION_TRANSPORT	
DIRECTION	1
SPEED_LIMIT_TYPE	2

20.6.3 Transport Speed Situation Type (TRANSPORT_SPEED_TYPE)

Definition	<i>Transport Speed Situation Type</i> indicates the type of transport speed limit. This includes special speed limits for trucks with hazardous goods, weather dependent transport speed limits etc.
Table	RDF_CONDITION_TRANSPORT
Column	TRANSPORT_SPEED_TYPE
Values	See Section C.35, RDF_CONDITION_TRANSPORT
Cardinality	1:1
Related Attributes	<p><i>Transport Speed Limit</i></p> <p><i>Direction</i></p> <p><i>Hazardous Material Type</i></p> <p><i>Trailer Type</i></p> <p><i>Weight Dependent</i></p> <p><i>Weather Type</i></p> <p><i>Time Override</i></p>
Related Condition	<i>Transport Special Speed Situation</i> (Condition Type = 25)
Usage	The <i>Transport Speed Situation Type</i> can be used to give specific speed limit warning messages based on the type of speed limit.
Specification	<ul style="list-style-type: none"> The <i>Transport Speed Situation Type</i> attribute can be published with sub-attributes equal to one of the following: <ul style="list-style-type: none"> ♦ <i>Transport Speed Situation Type</i> = 1 – Hazardous Material is published when the speed limit is only applicable to trucks carrying hazardous goods. Speed limits only applicable to hazardous goods are not included for the initial phase. A <i>Hazardous Material Type</i> attribute is published. ♦ <i>Transport Speed Situation Type</i> = 2 – Trailer is published when the speed limit is only applicable to trucks with a trailer of any type. Trailer specific speed limits are not included for the initial phase. A <i>Trailer Type</i> attribute is published.

- ◆ *Transport Speed Situation Type = 3* – Weight is published when the speed limit is only applicable to trucks of a specified weight. Weight specific speed limits are not included for the initial phase. A *Weight Dependent* attribute is published
- ◆ *Transport Speed Situation Type = 4* – Weather is published when the speed limit is only applicable to trucks during certain weather conditions like snow for example. Weather dependent speed limits are not included for the initial phase. A *Weather Type* attribute is published.
- The *Transport Speed Situation Types* is included going forward. Refer to the Transport Road Map for a detailed implementation plan per country.
- Absence of the *Transport Speed Situation Type* implies that the speed limit is a regular transport speed limit.

20.7 Transport Restricted Driving Manoeuvre (CONDITION_TYPE = 26)

Definition	The <i>Transport Restricted Driving Manoeuvre</i> condition is used to model turn restrictions applicable to trucks. Additional attributes can be used to further restrict the applicability of the turn restriction to specific truck types only.
Condition Type 26	
Table	RDF_CONDITION
Column	CONDITION_TYPE
Participants in Condition	Link Node Link(s)
Related Attributes	<i>Hazardous Material Type</i> <i>Trailer Type</i> <i>Height Restriction</i> <i>Weight Restriction</i> <i>Weight per Axle Restriction</i> <i>Length Restriction</i> <i>Width Restriction</i> <i>Validity Period (RDF_DATE_TIME)</i> <i>Vehicle Type</i> <i>Through Traffic</i> <i>Time Override</i> <i>Weather Type</i>
Related Condition	<i>Transport Access Restriction (CONDITION_TYPE = 23) (Link)</i>
Usage	<i>Transport Restricted Driving Manoeuvre</i> can be used to avoid illegal turns for all trucks or trucks with defined characteristics.
Specification	<ul style="list-style-type: none"> • <i>Transport Restricted Driving Manoeuvre</i> is published where signposted. They are published for situations where trucks are not allowed to turn onto roads due to legal restrictions. <p>Note: The <i>Transport Restricted Driving Manoeuvre</i> may also apply to other Vehicle Types. This is reflected in the ACCESS_ID published for the <i>Transport Restricted Driving Manoeuvre</i>.</p>

- If a sign indicates a compulsory driving manoeuvre for Trucks, the remaining links in the crossing are published with a *Transport Restricted Driving Manoeuvre*.
 - ◆ Signs may indicate the positive driving direction in a crossing for trucks. The implication of positive coding is that all non-indicated turns are not allowed at that crossing. In *Figure 20-4*, the sign indicates that trucks should traverse A → D or A → C through the crossing. A *Transport Restricted Driving Manoeuvre* is published from A → B.

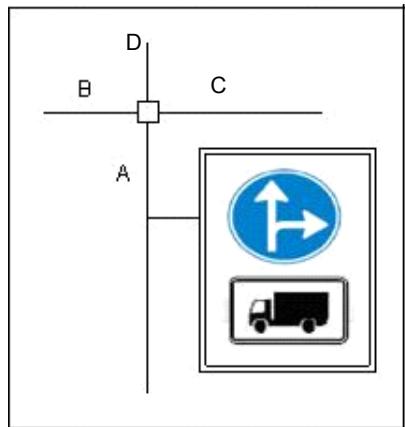


Figure 20-4

- In Europe, legal turn restrictions exist indicating ‘forbidden for trucks’ with a supplemental sign indicating ‘except deliveries’, ‘except residents’, ‘except residents and deliveries’, or ‘except public vehicles’. For these specific exceptions, the following is published for the origin and destination links:
 - ◆ Except deliveries: Trucks = Y and Deliveries = Y.
The *Transport Restricted Driving Manoeuvre* applies to Trucks only.
 - ◆ Except residents: Trucks = Y and Deliveries = Y.
The *Transport Restricted Driving Manoeuvre* applies to Trucks only.
 - ◆ Except residents and deliveries: Trucks = Y and Deliveries = Y.
The *Transport Restricted Driving Manoeuvre* applies to Trucks only.
 - ◆ Except public vehicles: Trucks = Y and Deliveries = Y.
The *Transport Restricted Driving Manoeuvre* applies to Trucks and Deliveries.
- Note:* *If any of these exceptions is signposted with a weight restriction or a trailer type, then the Transport Restricted Driving Manoeuvre is published with the Weight or Trailer Type attribute.*
- ◆ A *Transport Restricted Driving Manoeuvre* condition may have an associated Date Time Modifier.
 - ◆ See *Figure 20-5* for truck specific restricted driving manoeuvre sign examples.



Figure 20-5

20.8 Transport Preferred Route (CONDITION_TYPE = 27)

Definition *Transport Preferred Route* is a single-link condition that identifies links as part of a transport preferred route network. The transport preferred route network will not consist of a closed set of links for the initial phase.

Condition Type 27

Table RDF_CONDITION

Column CONDITION_TYPE

Values See Section C.23, RDF_CONDITION

Cardinality 1:0:1:M

Related Attributes Preferred Route Type (PREFERRED_ROUTE_TYPE)
Weight Dependent (WEIGHT_DEPENDENT)
Direction (DIRECTION)

Usage The *Transport Preferred Route* condition can be used to highlight links that are part of a transport preferred route. However it does not allow for route calculation for the initial phase due to the network not being closed.

Specification

- *Transport Preferred Route* a single link condition. However, it does not provide a closed network for the initial phase.
- For Europe, *Transport Preferred Route* conditions are published for preferred routes for all trucks and preferred routes for trucks with hazardous goods
- For the U.S., *Transport Preferred Route* conditions are published for the following government defined routes:
 - ◆ STAA: highway network as defined by the Surface Transportation Assistance Act
 - ◆ TD: state designated highway network for trucks
 - ◆ Hazardous Material Routes with various sub-types
- Absence of *Preferred Route Type* implies that the *Transport Preferred Route* applies to all trucks.
- Compulsory driving manoeuvre for trucks, as indicated on sign, are not published as *Trucks Preferred Route* conditions.
- The *Transport Preferred Route* applies to trucks only (TRUCKS =Y).
- Transport Preferred Routes can additionally be signposted with a weight indication. In that case the attribute *Weight Dependent* is published with the applicable weight indication.

- *Transport Preferred Route* can be direction dependent. *Direction* is used to model direction dependency.
- *Transport Preferred Route* can apply to trucks of specific weights only. If signposted, the *Transport Preferred Route* is published with *Weight Dependent* information.
- See *Figure 20-6* for transport preferred route sign examples.

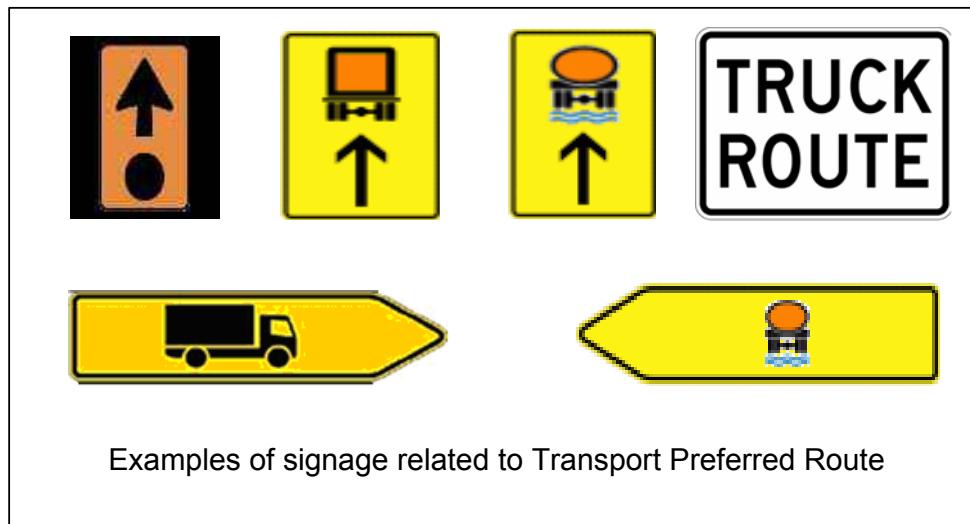


Figure 20-6

20.8.1 Transport Preferred Route Type (PREFERRED_ROUTE_TYPE)

Definition	<i>Transport Preferred Route Type</i> is an attribute of the <i>Transport Preferred Route</i> condition and defines the type of preferred route published.
Table	RDF_CONDITION_TRANSPORT
Column	PREFERRED_ROUTE_TYPE
Value	See <i>Section C.35, RDF_CONDITION_TRANSPORT</i>
Cardinality	1:0:1
Related Condition	<i>Transport Preferred Route</i> (CONDITION_TYPE = 27)
Usage	<i>Transport Preferred Route Type</i> can be used to refine the preferred route to specific trucks or trucks with specific goods. This allows for tuning the preferred route options to the qualifications of the applicable truck.

- Specification**
- *Transport Preferred Route Type* is always coded in combination with *Transport Preferred Route* attribute. However, *Transport Preferred Route* can exist without *Transport Preferred Route Type*. Such cases imply that the preferred route applies to all trucks.
 - When a link is part of different preferred routes, multiple segmented attribute sets (SATT) are coded. Each distinct *Preferred Route Type* and *Transport Preferred Route Type* combination results in a new attribute set.
Example: A road which allows both B-Doubles and B-Triples will have two Transport Preferred Route SATT sets published, one with Preferred Route Type = 17 (B-Double Route) and one with Preferred Route Type = 18 (B-Triple Route).
 - *Transport Preferred Route Type* = 1 - STAA is coded when the preferred route belongs to the highway network as defined by the Surface Transportation Assistance Act in the U.S.
 - *Transport Preferred Route Type* = 2 - TD is coded when the preferred route is part of a state designated highway network for trucks in the U.S.
 - The following designations apply to routes with specific designations for hazardous materials (Hazmats) in the U.S.:
 - ◆ *Transport Preferred Route Type* = 3 – NRHM: All National Repository of non-radioactive Hazardous Materials routes.
 - ◆ *Transport Preferred Route Type* = 4 – Class 1 hazardous materials (explosives) routes.
 - ◆ *Transport Preferred Route Type* = 5 – PIH: Preferred route for trucks transporting Poisonous Inhalation Hazard materials.
 - ◆ *Transport Preferred Route Type* = 6 – Preferred route for trucks transporting Medical Waste materials
 - ◆ *Transport Preferred Route Type* = 7 – Preferred route for trucks transporting Radioactive material
 - ◆ *Transport Preferred Route Type* = 9 – Local
 - *Transport Preferred Route Type* = 15 or 16 (Functional Class overrides) are initially only applied in Europe.
These values can be applied when a small section of *Functional Class* = 1 or 2 road is restricted to Trucks. This coding is only applied based on local knowledge.
Example:
The left part of the “Drechttunnel” in Netherlands is a *Functional Class* = 1 road and is restricted to Trucks. Trucks should take the right part of the tunnel which is *Functional Class* = 3 road. *Functional Class* = 3 roads are often not considered in route planning for long distance Transport routes. As a result, a new route is planned that is much longer and avoiding the “Drechttunnel” while Trucks are allowed to use the right part of this tunnel.
The Functional Road Class override indicates the preferred route for Trucks in these type of situations.
 - *Transport Preferred Route Type* = 17 (B-Double Route) is only applied for articulated vehicles with a second semi-trailer attached to the rear of the first semi-trailer by means of a turntable.

Single Semi-trailers and delivery vehicles that adhere to the same length, height and width restrictions are permitted to use B-Double routes.

The vehicle must adhere to the following specifications in order to traverse the B-Double Routes:

- ◆ Height equal or less than 4.3 metres
- ◆ Width equal or less than 2.5 metres
- ◆ Length equal or less than 26 metres

The classification includes two types of B-Double Routes:

- ◆ 19-23 metre B-Double Route, maximum weight = 50 tons
- ◆ 25 & 26-metre B-Double Route, maximum weight = 62.5 tons

Note: No permit is required to traverse the B-Double Route if the vehicle complies with the specification above. B-Double routes that are coded do not include Higher Mass Limit (HML) roads requiring a permit, and Road Trains.

- *Transport Preferred Route Type* = 18 (B-Triple Route) is only applied for articulated vehicles with a second and third semi-trailer attached to the rear of the first semi-trailer, by means of a turntable. Single semi-trailers and delivery vehicles that comply to the same length, height, and width restrictions are permitted to use B-Triple routes.

Note: The vehicle specifications differ per state and are specified on the regional transport websites.

- In case a posted sign for Height, Length, Weight or Width is present on a road that is part of a preferred route network, then multiple Transport Access Restrictions are published, one reflecting the legal restriction and one reflecting the posted restriction. Note that this is only true when the restriction values differ. One exception to this rule are *Height Restriction* values. Both legal and posted values are published, even if they are the same.

Note: The legal restrictions are predefined and can be distinguished from the posted restrictions based on its value. For Height Restrictions, the *Physical Structure Type* indicates the posted value.

20.9 General Sub-attributes

20.9.1 Direction (DIRECTION)

Definition	<i>Direction</i> is used for select single-link conditions and indicates the link direction for which a direction-dependent attribute is applicable. <i>Direction</i> is a sub-attribute to direction dependent condition coding.
Table	RDF_CONDITION_TRANSPORT
Column	DIRECTION
Value	See Section C.35, RDF_CONDITION_TRANSPORT
Default value	None
Cardinality	1:0:1
Related Attributes	<i>Transport Special Speed Situation</i> (Condition Type = 25) <i>Transport Preferred Route</i> (Condition Type = 27)
Usage	<i>Direction</i> can be used to retrieve the link direction for which a specific attribute is applicable.
Specification	<ul style="list-style-type: none">• <i>Direction</i> = 1 - Positive is published when the direction dependent attribute is applicable in the positive direction of the link (from reference node towards non-reference node)• <i>Direction</i> = 2 - Negative is published when the direction dependent attribute is applicable in the negative direction (from non-reference node towards reference node)• <i>Direction</i> = 3 – Both is published when the direction dependent attribute is applicable in both driving directions.

20.9.2 Hazardous Material Type (HAZARDOUS_MATERIAL_TYPE)

Definition	The <i>Hazardous Material Type</i> is a sub-attribute to the <i>Transport Access Restriction</i> or <i>Transport Restricted Driving Manoeuvre</i> condition and defines the type of hazardous good(s) for which a specific link or lane is closed.
Table	RDF_CONDITION_TRANSPORT
Column	HAZARDOUS_MATERIAL_TYPE
Value	See Section C.35, RDF_CONDITION_TRANSPORT

Cardinality	1:0:1
Related Condition	<p><i>Transport Access Restriction</i> (CONDITION_TYPE = 23) (Link or Lane)</p> <p><i>Transport Restricted Driving Manoeuvre</i> (CONDITION_TYPE = 26)</p>
Usage	<i>Hazardous Material Type</i> can be used to detail the Transport Access Restriction to vehicles with specific goods.
Specification	<ul style="list-style-type: none"> • <i>Hazardous Material Type</i> defines a restriction to a road for any vehicle carrying the specified hazardous material. Any vehicle carrying the material aligning with the specified Hazardous Material Type is legally not allowed to enter the road. • <i>Transport Access Restriction</i> or <i>Transport Restricted Driving Manoeuvre</i> condition for which <i>Hazardous Material Type</i> is published is applicable to all Vehicle Types allowed on the link or lane, except Emergency Vehicles. • Hazardous material restrictions are government regulations, and are not always posted on signs. The signs for hazardous material restrictions can be different per country. • If imposed by government regulations, <i>Hazardous Material Type</i> restrictions are published for situations where no sign posted restriction exists. • If no <i>Hazardous Material Type</i> is published for a <i>Transport Access Restriction</i> condition, then no hazardous goods restrictions exist for the link or lane.

20.9.3 Hazmat Permit Required (HAZMAT_PERMIT_REQUIRED)

Definition	<i>Hazmat Permit Required</i> applies in areas where the driver is required to have a HAZMAT Permit document to legally drive on the road with hazardous cargo. This requirement is typically not posted.
Table	RDF_CONDITION_TRANSPORT
Column	HAZMAT_PERMIT_REQUIRED
Values	Section C.35, RDF_CONDITION_TRANSPORT
Cardinality	1:0, 1
Related	<p><i>Transport Access Restriction</i> (CONDITION_TYPE = 23) (Link or Lane)</p> <p><i>Transport Restricted Driving Manoeuvre</i> (CONDITION_TYPE = 26)</p>
Specification	<ul style="list-style-type: none"> • If multiple Hazmat permits are required for driving a specific road, then multiple <i>Transport Access Restriction</i> or <i>Transport Restricted Driving Manoeuvre</i> conditions are published, one for each permit. • <i>Transport Access Restriction</i> or <i>Transport Restricted Driving Manoeuvre</i> conditions for which Hazmat Permit Required is published is applicable to all vehicles allowed on the link, except for Emergency Vehicles.

-
- There is no relation between roads that have a Hazmat restriction and roads that require a Hazmat permit.
 - Initially, *Hazmat Permit Required* is published in the U.S. only.

Example

RDF_CONDITION	
CONDITION_ID	603275811
CONDITION_TYPE	23
ACCESS_ID	16

RDF_ACCESS	
ACCESS_ID	16
AUTOMOBILES	N
BUSES	N
TAXIS	N
CARPOOLS	N
PEDESTRIANS	N
TRUCKS	Y
DELIVERIES	N
EMERGENCY_VEHICLES	N
THROUGH_TRAFFIC	N
MOTORCYCLES	N

RDF_CONDITION_TRANSPORT	
CONDITION_ID	603275811
DIRECTION_CLOSURE	1
HAZMAT_PERMIT_REQUIRED	5

20.9.4 KPRA Length (KPRA_LENGTH)

Definition	<i>KPRA Length</i> is used to model signs specifying the “Kingpin to Rear Axle” length. These signs have only been seen in North America.
Table	RDF_CONDITION_TRANSPORT
Column	KPRA_LENGTH
Values	Length in centimetres
Cardinality	1:0, 1
Related	<p><i>Transport Access Restriction</i> (CONDITION_TYPE = 23) (Link or Lane)</p> <p><i>Transport Restricted Driving Manoeuvre</i> (CONDITION_TYPE = 26)</p>
Specification	<ul style="list-style-type: none"> A <i>Transport Access Restriction</i> with <i>KPRA Length</i> applies to all Vehicle Types except Pedestrians.

Example

RDF_CONDITION	
CONDITION_ID	703275822
CONDITION_TYPE	23
ACCESS_ID	16
RDF_ACCESS	
ACCESS_ID	16
AUTOMOBILES	N
BUSES	N
TAXIS	N
CARPOOLS	N
PEDESTRIANS	N
TRUCKS	Y
DELIVERIES	N
EMERGENCY_VEHICLES	N
THROUGH_TRAFFIC	N
MOTORCYCLES	N

RDF_CONDITION_TRANSPORT	
CONDITION_ID	703275822
DIRECTION_CLOSURE	1
KPRA_LENGTH	360

20.9.5 Height Restriction (HEIGHT_RESTRICTION)

Definition	<i>Height Restriction</i> specifies the occurrence of a height restriction on a link or lane limiting access to vehicles exceeding a specific height.
Table	RDF_CONDITION_TRANSPORT
Column	HEIGHT_RESTRICTION
Value	<p><i>Height Restriction</i> is specified in metric units globally. This is related to the continental nature of RDF requiring a single unit of measure. Transformation from metric unit to local units of measure can be achieved through conversion.</p> <p>Unit of measure: Centimetres with precision zero.</p>
Cardinality	1:0:1
Related Attributes	<i>Physical Structure Type</i> <i>Weight Restriction</i> <i>Weight per Axle Restriction</i> <i>Length Restriction</i> <i>Width Restriction</i> <i>Related Condition</i> <i>Transport Access Restriction</i> (CONDITION_TYPE =23) (Link or Lane) <i>Transport Restricted Driving Manoeuvre</i> (CONDITION_TYPE = 26)
Usage	<i>Height Restriction</i> can be used to restrict access of vehicles to specific links or lanes based on the vehicle's height.
Specification	<ul style="list-style-type: none"> Height Restrictions posted at the location of a physical structure are published. The link or lane for which the height restriction is applicable has a <i>Transport Access Restriction</i> condition published with a <i>Physical Structure Type</i> attribute if a physical structure exists. To provide a numeric value allowing for computation, <i>Height Restrictions</i> are published in centimetres globally. The real world signs for height restrictions are generally in metres or feet / inch (see <i>Figure 20-7</i>). A <i>Transport Access Restriction</i> condition with <i>Height Restriction</i> applies to all Vehicle Types, except Pedestrians.

- If multiple height restrictions are present on the same sign, the lowest (most restrictive) *Height Restriction* is published.



Figure 20-7

20.9.6 Length Restriction (LENGTH_RESTRICTION)

Definition	<i>Length Restriction</i> specifies the occurrence of a length restriction on a link or lane limiting access to vehicles exceeding a specific length.
Table	RDF_CONDITION_TRANSPORT
Column	LENGTH_RESTRICTION
Value	<i>Length Restriction</i> is specified in metric units globally. This is related to the continental nature of RDF requiring a single unit of measure. Transformation from metric unit to local units of measure can be achieved through conversion. Unit of measure: Centimetres with precision zero.
Cardinality	1:0:1
Related Attributes	<i>Physical Structure Type</i> <i>Height Restriction</i> <i>Weight Restriction</i> <i>Weight per Axle Restriction</i> <i>Width Restriction</i> <i>Related Condition</i> <i>Transport Access Restriction (CONDITION_TYPE =23) (Link or Lane)</i> <i>Transport Restricted Driving Manoeuvre (CONDITION_TYPE = 26)</i>
Usage	<i>Length Restriction</i> can be used to restrict access of vehicles to specific links or lanes based on the vehicle's length.
Specification	<ul style="list-style-type: none"> • <i>Length Restrictions</i> posted at the location of a physical structure are applied. The link or lane for which the length restriction is applicable has a <i>Transport Access</i>

Restriction condition published with Physical Structure Type if a physical structure exists.

- To provide a numeric value allowing for computation, *Length Restrictions* are published in centimetres globally. The real world signs for length restrictions are generally in metres or feet / inch. See *Figure 20-8*.
- A *Transport Access Restriction* with *Length Restriction* applies to all Vehicle Types, except Pedestrians.

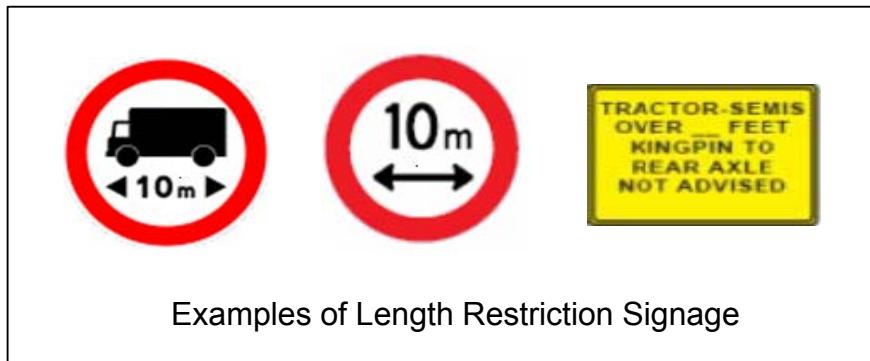


Figure 20-8

20.9.7 Number of Axles (NUMBER_OF_AXLES)

Definition *Number of Axles* is used to model signs specifying the number of axles that are restricted.

Table RDF_CONDITION_TRANSPORT

Column NUMBER_OF_AXLES

Values See *Section C.35, RDF_CONDITION_TRANSPORT*.

Cardinality 1:0, 1

Related *Transport Access Restriction* (CONDITION_TYPE = 23) (Link or Lane)

Transport Restricted Driving Manoeuvre (CONDITION_TYPE = 26)

Specification

- If the sign indicating the Number of Axles has an additional weight indicated, then attribute Weight Restriction is published with the Number of Axles attribute.
Note: Weight per Axle publishes the weight for One or more Axles

Example

RDF_CONDITION	
CONDITION_ID	703275891

RDF_CONDITION	
CONDITION_TYPE	23
ACCESS_ID	16

RDF_ACCESS	
ACCESS_ID	16
AUTOMOBILES	N
BUSES	N
TAXIS	N
CARPOOLS	N
PEDESTRIANS	N
TRUCKS	Y
DELIVERIES	N
EMERGENCY_VEHICLES	N
THROUGH_TRAFFIC	N
MOTORCYCLES	N

RDF_CONDITION_TRANSPORT	
CONDITION_ID	703275891
WEIGHT_RESTRICTION	4000
DIRECTION_CLOSURE	1
NUMBER_OF_AXLES	2

20.9.8 Trailer Type (TRAILER_TYPE)

- Definition** *Trailer Type* specifies the occurrence of a restriction on a link or lane related to Trucks with a specified number of Trailers.
- Table** RDF_CONDITION_TRANSPORT
- Column** TRAILER_TYPE
- Value** See Section C.35, RDF_CONDITION_TRANSPORT
- Cardinality** 1:0:1

Related Condition	<i>Transport Access Restriction (CONDITION_TYPE = 23) (Link or Lane)</i> <i>Transport Restricted Driving Manoeuvre (CONDITION_TYPE = 26)</i> <i>Transport Special Speed Situation (CONDITION_TYPE = 25)</i>
Usage	<i>Trailer Type</i> can be used to restrict access of vehicles to specific links or lanes based on number of trailers attached to a truck.
Specification	<ul style="list-style-type: none"> The <i>Trailer Type</i> restriction is published on the link or lane where the trailer limit is applicable rather than at the signposted location. <i>Trailer Type</i> published for a <i>Transport Restricted Driving Manoeuvre</i> is used to indicate that the manoeuvre is closed to vehicles with a specified number of trailers. If no <i>Trailer Type</i> is published for a link or lane, no posted trailer restrictions exist.

20.9.9 Weather Type (WEATHER_TYPE)

Definition	<i>Weather Type</i> provides applicable weather information related to one of the following conditions:
	<ul style="list-style-type: none"> <i>Transport Special Speed Situation (CONDITION_TYPE = 25)</i> <i>Transport Access Restriction (CONDITION_TYPE = 23) (Link or Lane)</i> <i>Transport Restricted Driving Manoeuvre (CONDITION_TYPE = 26)</i> <i>No Overtaking (CONDITION_TYPE = 19)</i>
Table	RDF_CONDITION_TRANSPORT RDF_CONDITION_DRIVER_ALERT (No Overtaking)
Column	WEATHER_TYPE
Value	See Section C.35, RDF_CONDITION_TRANSPORT
Default value	None
Cardinality	1:0,1
Related Attributes	<i>Transport Speed Situation Type</i> <i>Time Override</i>
Usage	<i>Weather Type</i> can be used to display or alert the driver of the weather information related to the condition. For example, if Weather Type is published for a Transport Special Speed Situation condition, then Weather Type can be used to display the truck specific speed limit or to alert the driver for truck specific speed limits on the road.
Specification	<ul style="list-style-type: none"> <i>Weather Type</i> is published when the transport speed limit is posted in combination with one of the following weather conditions: <ul style="list-style-type: none"> ◆ 1 – Rain

- ◆ 2 – Snow
- ◆ 3 – Fog
- For *Transport Special Speed Situation* conditions, *Weather Type* is published only in combination with *Transport Speed Situation Type* = 4 – Weather.

20.9.10 Weight Dependent (WEIGHT_DEPENDENT)

Definition	<i>Weight Dependent</i> is used for select single-link conditions and provides the weight related to specific Transport conditions. <i>Weight Dependent</i> is used as a sub-attribute to specific restrictions, and is not used to model weight restrictions on roads.
Table	RDF_CONDITION_TRANSPORT
Column	WEIGHT_DEPENDENT
Value	<i>Weight Dependent</i> is specified Kilograms (kg) with precision zero. One unit of metric tons is a 1000 kg.
Default value	None
Cardinality	1:0,1
Related Conditions	<i>Transport Special Speed Situation</i> (Condition Type = 25) <i>Transport Preferred Route</i> (Condition Type = 27)
Usage	<i>Weight Dependent</i> can be used to display the weight together with the transport condition for which a weight dependency exists.
Specification	<ul style="list-style-type: none"> • <i>Weight Dependent</i> is published when the transport restriction is posted in combination with a weight value. • For <i>Transport Special Speed Situation</i> conditions, <i>Weight Dependent</i> is only published in combination with <i>Transport Speed Situation Type</i> = 3 – Weight. • <i>Weight Dependent</i> is currently modelled for: <ul style="list-style-type: none"> ◆ <i>Transport Special Speed Situation</i> (Condition Type = 25) ◆ <i>Transport Preferred Route</i> (Condition Type = 27)

20.9.11 Weight per Axle Restriction (WEIGHT_PER_AXLE_RESTRICTION)

Definition	<i>Weight per Axle Restriction</i> specifies the occurrence of a weight per axle restriction on a link or lane limiting access to trucks where the weight per axle is exceeding a specific weight.
Table	RDF_CONDITION_TRANSPORT

Column	WEIGHT_PER_AXLE_RESTRICTION
Value	Weight per Axle Restriction is specified in metric units globally. This is related to the continental nature of RDF requiring a single unit of measure. Transformation from metric unit to local units of measure can be achieved through conversion. Unit of measure: Kilograms (kg) with precision zero. One unit of metric tons is a 1000 kg.
Cardinality	1:0:1
Related Attributes	<p><i>Physical Structure Type</i></p> <p><i>Height Restriction</i></p> <p><i>Weight Restriction</i></p> <p><i>Length Restriction</i></p> <p><i>Width Restriction</i></p>
Related Condition	<p><i>Transport Access Restriction</i> (CONDITION_TYPE = 23) (Link or Lane)</p> <p><i>Transport Restricted Driving Manoeuvre</i> (CONDITION_TYPE = 26)</p>
Usage	<i>Weight per Axle Restriction</i> can be used to restrict access of trucks to specific links or lanes based on the truck's weight per axle.
Specification	<ul style="list-style-type: none"> • <i>Weight per Axle Restrictions</i> posted at the location of a physical structure are applied. The link or lane for which the weight per axle restriction is applicable has a <i>Transport Access Restriction</i> condition published with a <i>Physical Structure Type</i> attribute if a physical structure exists at the link. • If a restriction for gross weight and a restriction for weight per axle are posted on the same sign, two <i>Transport Access Restriction</i> conditions are published, each with the appropriate attribute (<i>Weight</i> and <i>Weight per Axle</i>). • A <i>Transport Access Restriction</i> condition with <i>Weight per Axle</i> applies to all vehicles except Pedestrians. • See <i>Figure 20-9</i> for weight per axle sign examples.

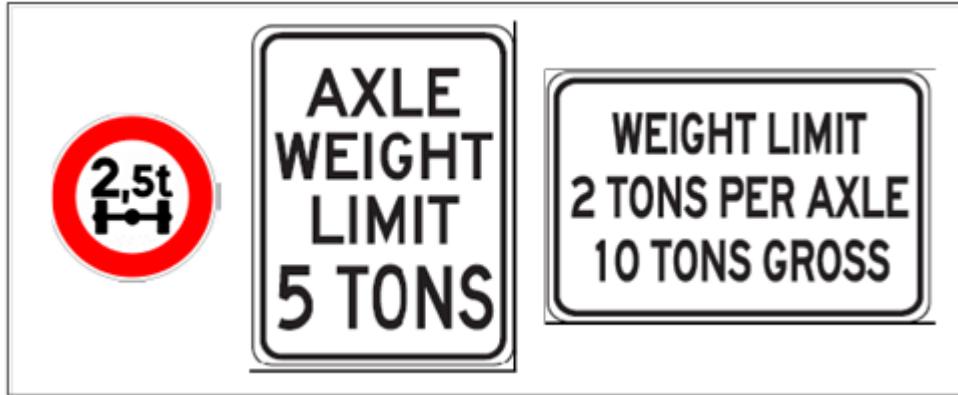


Figure 20-9

20.9.12 Weight Restriction (WEIGHT_RESTRICTION)

Definition	<i>Weight Restriction</i> specifies the occurrence of a total weight restriction on a link or lane limiting access to vehicles exceeding a specific total weight.
Table	RDF_CONDITION_TRANSPORT
Column	WEIGHT_RESTRICTION
Value	<i>Weight Restriction</i> is specified in metric units globally. This is related to the continental nature of RDF requiring a single unit of measure. Transformation from metric unit to local units of measure can be achieved through conversion. Unit of measure: Kilograms (kg) with precision zero. One unit of metric tons is a 1000 kg.
Cardinality	1:0:1
Related Attributes	<i>Physical Structure Type</i> <i>Weight per Axle Restriction</i> <i>Height Restriction</i> <i>Length Restriction</i> <i>Width Restriction</i> <i>Related Condition</i> <i>Transport Access Restriction</i> (CONDITION_TYPE = 23) (Link or Lane) <i>Transport Restricted Driving Manoeuvre</i> (CONDITION_TYPE = 26)
Usage	<i>Weight Restriction</i> can be used to restrict access of vehicles to specific links or lanes based on the vehicle's weight.
Specification	<ul style="list-style-type: none"> • <i>Weight Restrictions</i> posted at the location of a physical structure are published. The link or lane for which the weight restriction is applicable has a <i>Transport Access Restriction</i> condition published with a <i>Physical Structure Type</i> attribute if a physical structure exists at the link or lane. • If the <i>Weight Restriction</i> is only signposted per axle, the <i>Weight per Axle</i> attribute is published for the link or lane. In these cases, no <i>Weight Restriction</i> attribute is published. • The sign “No Trucks”, as in figure below, indicates for some European countries a restriction for trucks over 3.5 tons. This ‘default’ weight restriction of 3.5 tons is published as a <i>Transport Access Restriction</i> with a <i>Weight Restriction</i> only if explicitly signposted in reality. If no explicit weight restriction is signposted with the No Truck sign, then no <i>Transport Access Restriction</i> is published. • <i>Table 20-1</i> provides an overview of the signs for Weight Restrictions and the corresponding coding in Trucks content.

Sign Posted in Reality	Link/Lane Level Access Characteristics	Transport Access Restriction Attribution	Applicable Vehicle
	TRUCKS = N DELIVERIES = N	N/A	N/A
	TRUCKS = Y DELIVERIES = Y	Transport Access Restriction with corresponding Weight Restriction as signposted (3500)	TRUCKS = Y
	TRUCKS = Y DELIVERIES = Y	Transport Access Restriction with corresponding Weight Restriction as signposted (6500)	TRUCKS = Y
	TRUCKS = Y DELIVERIES = Y	Transport Access Restriction with corresponding Weight Restriction as signposted (5400)	All vehicles
 7.5t	TRUCKS = Y DELIVERIES = Y	Transport Access Restriction with corresponding Weight Restriction as signposted (7500)	TRUCKS = Y

Table 20-1

- If a restriction for gross weight and a restriction for weight per axle are posted on the same sign, two *Transport Access Restriction* conditions are published, each with the appropriate attribute (*Weight* and *Weight per Axle*), see *Figure 20-11*.



Figure 20-10

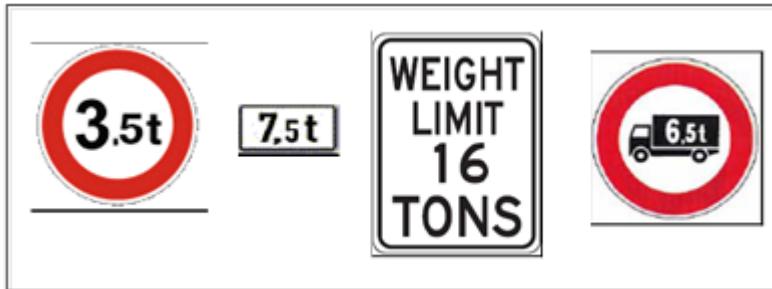


Figure 20-11

- See Figure 20-11 for Weight Restrictions sign examples. All signs are modelled as a *Transport Access Restriction* with a *Weight Restriction*.

20.9.13 Width Restriction (WIDTH_RESTRICTION)

Definition	<i>Width Restriction</i> specifies the occurrence of a width restriction on a link or lane limiting access to vehicles exceeding a specific width.
Table	RDF_CONDITION_TRANSPORT
Column	WIDTH_RESTRICTION
Value	<i>Width Restriction</i> is specified in metric units globally. This is related to the continental nature of RDF requiring a single unit of measure. Transformation from metric unit to local units of measure can be achieved through conversion. Unit of measure: Centimetres with precision zero.
Cardinality	1:0:1
Related Attributes	<i>Physical Structure Type</i> <i>Height Restriction</i> <i>Weight Restriction</i> <i>Weight per Axle Restriction</i> <i>Length Restriction</i> <i>Related Condition</i> <i>Transport Access Restriction</i> (CONDITION_TYPE = 23) (Link or Lane)

Transport Restricted Driving Manoeuvre (CONDITION_TYPE = 26)

Usage	<i>Width Restriction</i> can be used to restrict access of vehicles to specific links or lanes based on the vehicle's width.
Specification	<ul style="list-style-type: none">• <i>Width Restrictions</i> posted at the location of a physical structure are applied. The link or lane for which the width restriction is applicable has a <i>Transport Access Restriction</i> condition published with a <i>Physical Structure Type</i> attribute if a physical structure exists.• To provide a numeric value allowing for computation, <i>Width Restrictions</i> are published in centimetres globally. The real-world signs for width restrictions are generally in metres or feet / inch. See <i>Figure 20-12</i>.• A <i>Transport Access Restriction</i> with <i>Width Restriction</i> applies to all Vehicle Types, except Pedestrians.



Figure 20-12

20.10 Transport Verified (TRANSPORT_VERIFIED)

Definition *Transport Verified* indicates if the link has been verified for the attribution as defined in the Trucks product specification.

Table RDF_NAV_LINK_STATUS

Column TRANSPORT_VERIFIED

Values See Section C.56, RDF_NAV_LINK_STATUS.

Cardinality 1:1

Usage *Transport Verified* indicates if a link is compliant with the Trucks product specifications, and therefore, is an indicator if the link can be reliably used for transport routing.

- Specification**
- *Transport Verified* is published at road link level.
 - A link published with *Transport Verified* = Y does not necessarily have Transport specific attribution. A link with *Transport Verified* = Y but with no further transport restrictions, is reliable for transport routing. Such link however has no transport specific restrictions.
 - A link published with *Transport Verified* = N does not have Transport specific attribution published, but may have transport restrictions in reality. It has not been verified if such roads have transport specific restrictions.
 - The following table explains the coding of *Transport Verified*.

Transport Verified	Transport Restrictions Published	Meaning
Y	Y	Link is verified for Transport Restrictions. Transport Restrictions apply to this link.
Y	N	Link is verified for Transport Restrictions. Transport Restrictions do not apply to this link.
N	N	Link is not verified for transport restrictions. Transport restrictions may apply in reality to this link.

- Links published with *Transport Verified* = Y do not necessarily form a closed network. Full connectivity for links with *Transport Verified* = Y is not guaranteed.
- RDF_NAV_LINK_STATUS.TRANSPORT_VERIFIED is always published, also for RDF products not having transport content. *Transport Verified* only has meaning if used in combination with the Trucks product.

20.11 Truck Road Type (TRUCK_ROAD_TYPE)

This attribute is included in specific countries only. See the *Country Specific Rules* document.

20.12 Loading Dock Locations

20.12.1 Delivery Road (DELIVERY_ROAD)

Definition	<i>Delivery Road</i> identifies roads leading from a main path to the loading/unloading area for a business.
Table	RDF_NAV_LINK_ATTRIBUTE
Column	DELIVERY_ROAD
Values	See Section C.55, RDF_NAV_LINK_ATTRIBUTE
Cardinality	1:0,1
Default Value	NULL
Related Table	RDF_NAV_LINK_STATUS
Related Attributes	TRANSPORT_VERIFIED
Usage	Delivery Road can be used for route calculation, route guidance, and map display.
Specification	<ul style="list-style-type: none"> • <i>Delivery Road</i> = Y is published for links dedicated to the access of loading/unloading locations of business POIs. • <i>Delivery Road</i> = Y is not published for links that are part of the standard road network and provide access to loading/unloading areas. • If it is not known if the link is dedicated to the access of loading/unloading locations of business POIs, then either no entry is published for the link in RDF_NAV_LINK_ATTRIBUTE or RDF_NAV_LINK_ATTRIBUTE.DELIVERY_ROAD = NULL. • If a link is not dedicated to the access of loading/unloading locations of business POIs, then either no entry is published for the link in RDF_NAV_LINK_ATTRIBUTE or RDF_NAV_LINK_ATTRIBUTE.DELIVERY_ROAD = NULL. • Delivery Road geometry has the following standard attribution: <ul style="list-style-type: none"> ◆ <i>Speed Category</i> = 8 ◆ <i>Functional Class</i> = 5 ◆ <i>Through Traffic</i> = N ◆ <i>Trucks</i> = Y ◆ <i>Deliveries</i> = Y • Delivery Roads are unnamed. • Delivery Roads are published with TRANSPORT_VERIFIED = Y, as well as all links leading from the nearest truck route to the loading area.

- All other Trucks-specific attribution is published according to reality.

20.12.2 Points of Interests

See *Section 9.3.5, Loading Dock Locations in Chapter 9, Points of Interest.*

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Voice Phonetic Transcriptions

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21.1 Voice Phonetic Transcriptions Overview

Voice Phonetic Transcriptions for POIs, Transit and Pedestrian, and Natural Guidance are integrated in RDF. Each product is available as separate loader files that can be appended to the applicable VCE_% tables. Additionally, Voice Phonetic Transcriptions for Traffic includes phonetic transcriptions for traffic table locations and events. It is available as VIF/VAF. See the Customer Technical Reference Guide (CTRG) for the documentation.

The following phonetic information is supported:

- *Phonetic Text*
- *Phonetic Language Code*
- *Transcription Method*
- *Preferred*

Generally, phonetic transcriptions are published in VCE_PHONETIC_TEXT and associated with map feature names via the voice cross-reference tables.

See *Section 12.2.8, Voice Model* and *Section 12.2.3, POI Model* for the entity relationship diagrams for the phonetic transcription products.

Voice Phonetic Transcriptions

- Voice Phonetic Transcriptions include phonetic transcriptions for:
 - Street Names
 - POI Categories
 - Administrative Names (including Exonyms)
 - Zone Names
 - Metadata
 - Sign Text

Voice Phonetic Transcriptions for POIs

- Voice Phonetic Transcriptions for POIs include phonetic transcriptions for:
 - POI names (including exonyms for Named Place POIs and POIs of National Importance)

Voice Phonetic Transcriptions for Transit and Pedestrian

- Voice Phonetic Transcriptions for Transit and Pedestrian include phonetic transcriptions for the following:
 - POI names in the following POI categories:
 - Neighbourhood POI (9709)
 - Taxi Stand (9989)
 - Neighbourhood Zone
- Phonetic transcriptions are not provided with Geo-Qualifiers or Super Category information.

- Phonetic transcriptions are provided only in the native language(s) of the area where the feature is located.
- Phonetic transcriptions are not provided for POI Name synonyms and exonyms.
- Phonetic transcriptions for Transit and Pedestrian are published in the following tables:
 - VCE_POI_NAME
 - VCE_CITY_POI_NAME
 - VCE_FEATURE_NAME
 - VCE_PHONETIC_TEXT
 - VCE_LANGUAGE_CODE_MAP

Voice Phonetic Transcriptions for Natural Guidance

Voice Phonetic Transcriptions for Natural Guidance include phonetic transcriptions for:

- Natural Guidance Associations
- Direction dependent prepositions

21.2 Voice Phonetic Text Table (VCE_PHONETIC_TEXT)

Definition VCE_PHONETIC_TEXT publishes phonetic transcriptions with a corresponding phonetic *Language Code*.

Related Tables VCE_ROAD_NAME, VCE_FEATURE_NAME, VCE_POI_NAME, VCE_CITY_POI_NAME, VCE_SIGN_ELEMENT, VCE_SIGN_DESTINATION, VCE_CHAIN, VCE_STREET_TYPE, VCE_META, VCE_GEO_OVERRIDE

Usage VCE_PHONETIC_TEXT can be used to obtain the *Phonetic Text* for a specific map feature. The tables listed in Related Tables above explicitly link the *Phonetic Text* to a map feature.

Specification

- Only in those areas where phonetic transcriptions are available, the VCE_PHONETIC_TEXT table is published.

Phonetic ID The PHONETIC_ID is a unique identifier for the *Phonetic Text* published in VCE_PHONETIC_TEXT.

Table VCE_PHONETIC_TEXT

Column PHONETIC_ID

Values Unique numeric value

Cardinality M:N

One Name in the core Map can have many *Phonetic ID* associated.

One *Phonetic ID* can be associated to many names in the core Map.

Usage The *Phonetic ID* is used to associate a map feature name to *Phonetic Text*.

Specification

- The *Phonetic ID* is a non-permanent ID. This means that for the same *Phonetic Text* the *Phonetic ID* may change between releases.
- The *Phonetic ID* only acts as a key to associate the name of a map feature to *Phonetic Text*.

21.2.1 Phonetic Language Code (PHONETIC_LANGUAGE_CODE)

Definition	The Phonetic Language Code is the Language Code used to create phonetic transcriptions.
Table	VCE_PHONETIC_TEXT VCE_LANGUAGE_CODE_MAP
Column	PHONETIC_LANGUAGE_CODE
Values	See Section C.91, VCE_PHONETIC_TEXT
Cardinality	1:1
Usage	The <i>Phonetic Language Code</i> can be used to understand the language adopted when a name has been phonetically transcribed.
Specification	<ul style="list-style-type: none"> • One feature name <i>Language Code</i> may be associated with multiple <i>Phonetic Language Codes</i>. For example, the feature name <i>Language Code GER -German</i> is associated with the <i>Phonetic Language Codes SGR -Swiss German and BGR - Belgian German</i> because some words are pronounced differently even though the written language is the same. <ul style="list-style-type: none"> ◆ Use VCE_LANGUAGE_CODE_MAP to identify the preferred <i>Phonetic Language Code</i> in a country for a feature name. One feature name can be shared between countries and each country can have its own phonetic transcription. For example, STADTPARK is published in RDF_FEATURE_NAME with LANGUAGE_CODE = GER. The preferred <i>Phonetic Language Code</i> for STADTPARK is SGR if creating a Swiss phonetic transcription or BGR if creating a Belgian phonetic transcription. • Within a country, multiple <i>Language Codes</i> may be represented with a single <i>Phonetic Language Code</i>. For example, in Germany, there are US military bases that have an ENG <i>Language Code</i>. These are transcribed with phonetic language of GER. • In Italy, German names and English names are treated as if they were Italian names. So, even though a German name appears in Italy, the pronunciation is as if an Italian speaking person were saying the German word i.e., the name is not pronounced as if it were being said in German. • In Canada, the French names in the database are included in both CFR as if a French speaker is saying them and in ENG as if an English speaker is saying them. • The following table contains examples on how various phonetic languages correspond national and regional languages. <p>Note: OTH is not an actual Language Code. It stands for any other language.</p>

Examples of Phonetic Language Codes for Various Countries

Country	Map Language Code	Phonetic Language Code	Language Description
Argentina	SPA	ARS	Argentine Spanish
	SPA	ENG	American English
	OTH	ARS	Argentine Spanish
Bahrain	ARA	GFA	Gulf Arabic
	ENG	UKE	UK English
	OTH	GFA	Gulf Arabic
Belgium	DUT	FLM	Belgian Dutch (Flemish)
	FRE	BFR	Belgian French
	GER	BGR	Belgian German
	OTH	FLM	Belgian Dutch (Flemish)
Canada	FRE	ENG	American English
	FRE	CFR	Canadian French
	ENG	CFR	Canadian French
	ENG	ENG	American English
	ENG	NAS	North American Spanish
	OTH	ENG	American English
	OTH	CFR	Canadian French
France	FRE	FRE	French
	OTH	FRE	French
Germany	GER	GER	German
	OTH	GER	German
India	ENG	IDE	Indian (Hindi) English
	ENG	GJE	Gujarati English
	ENG	TME	Tamil English
	OTH	IDE	Indian (Hindi) English
Israel	HEB	HEB	Hebrew
	ARA	GFA	Gulf Arabic
	ENG	UKE	UK English
	RUS	RUS	Russian

Examples of Phonetic Language Codes for Various Countries (Continued)

Country	Map Language Code	Phonetic Language Code	Language Description
Spain	CAT	CAT	Catalan
	BAQ	BAQ	Basque
	CAT	SPA	Spanish
	BAQ	SPA	Spanish
	SPA	SPA	Spanish
	GLG	SPA	Spanish
	OTH	SPA	Spanish
Switzerland	FRE	SFR	Swiss French
	GER	SGR	Swiss German
	ITA	SIT	Swiss Italian
	OTH	SGR	Swiss German
Taiwan	CHT	TWN	Taiwanese Mandarin
	OTH	TWN	Taiwanese Mandarin
Thailand	THA	THE	Thai English
	THA	THA	Thai
	OTH	THA	Thai
United Kingdom	ENG	UKE	UK English
	ENG	IRE	Irish English
	OTH	UKE	UK English
United States	ENG	NAS	North American Spanish
	ENG	CFR	Canadian French
	ENG	ENG	American English
	OTH	ENG	American English
Any other countries	OTH	ENG	American English

Note:

21.2.2 Phonetic Text (PHONETIC_STRING)

Definition	<p><i>Phonetic Text</i> publishes the phonetic transcription of a name or other text. <i>Phonetic Text</i> is published using NT-SAMPA, which is a customisation of the standard SAMPA notation. For additional information about NT-SAMPA, see the Voice Phonetic Transcriptions Reference Guide.</p>
Table	VCE_PHONETIC_TEXT
Column	PHONETIC_STRING
Values	Textual representation in NT-SAMPA of a name
Cardinality	1:1
Usage	The <i>Phonetic Text</i> can be used for Text-to-Speech purposes or for Speech recognition.
Specification	<ul style="list-style-type: none">• The <i>Phonetic Text</i> represents a phonetic transcription of a name using NT-SAMPA.• The <i>Phonetic Text</i> can be used by many map features in the core map using a specific name. For example, a Named Place POI and an Admin Place can share the same <i>Phonetic Text</i>.• The <i>Phonetic Text</i> is associated with the name of a map feature through the applicable voice cross-reference table.• Commonly known alternate pronunciations are provided as additional phonetic transcriptions.<ul style="list-style-type: none">◆ If a POI in the core map includes a synonym, the POI synonym is transcribed. However, to represent commonly known alternate pronunciations for POI names, no additional synonyms are added to the core map. The phonetic representation for commonly known alternate pronunciations therefore references the official name of the POI. The commonly known alternate pronunciation is not added as an additional name to the POI.

21.2.3 Transcription Method (TRANSCRIPTION_METHOD)

Definition	The Transcription Method indicates the method in which names are phonetically transcribed.
Table	VCE_PHONETIC_TEXT
Column	TRANSCRIPTION_METHOD
Values	See Section C.91, VCE_PHONETIC_TEXT
Cardinality	1:1
Usage	The Transcription Method can be used as a quality indicator for the phonetic transcription association to a name.

- Specification**
- Transcription Method - M (Machine Generated NT-SAMPA) is used for phonetic transcriptions that are automatically generated through software.
 - Transcription Method - S (Human Generated NT-SAMPA) is used for phonetic transcriptions that are created by a dedicated, professional transcription service provider.
 - Phonetic transcriptions of TRANSCRIPTION_METHOD = M are of lower quality than phonetic transcriptions of TRANSCRIPTION_METHOD = S.
 - Machine generated phonetic transcriptions are used only temporarily. In a future release, it is expected to have the machine generated phonemes replaced with human transcribed or verified phonemes.
 - Machine generated phonetic transcriptions are used for only a small subset of the POI names. Only those POI names that did not get transcribed through a transcription service provider in a release are provided with machine generated phonetic transcriptions.

21.3 Voice Cross-Reference Tables

VCE_PHONETIC_TEXT provides distinct Phonetic Texts identified by a *Phonetic ID*. A feature name is associated with VCE_PHONETIC_TEXT through the voice cross-reference table applicable to the feature name. The voice cross-reference tables are:

- VCE_CHAIN_NAME
 - VCE_CHAIN_NAME provides the cross-reference between RDF_CHAIN_NAME and VCE_PHONETIC_TEXT. VCE_CHAIN_NAME provides a *Phonetic ID* for the name in RDF_CHAIN_NAME.NAME
- VCE_CITY_POI_NAME
 - VCE_CITY_POI_NAME provides the cross-reference between RDF_CITY_POI_NAME and VCE_PHONETIC_TEXT. VCE_CITY_POI_NAME provides a *Phonetic ID* for the name in RDF_CITY_POI_NAME.NAME
- VCE_FEATURE_NAME
 - VCE_FEATURE_NAME provides the cross-reference between RDF_FEATURE_NAME and VCE_PHONETIC_TEXT. VCE_FEATURE_NAME provides a *Phonetic ID* for the name in RDF_FEATURE_NAME.NAME
- VCE_META
 - VCE_META provides the cross-reference between RDF_META and VCE_PHONETIC_TEXT. VCE_META provides a *Phonetic ID* for the text in RDF_META.ATTR_DESCRIPTION
- VCE_POI_NAME
 - VCE_POI_NAME provides the cross-reference between RDF_POI_NAME and VCE_PHONETIC_TEXT. VCE_POI_NAME provides a *Phonetic ID* for the name in RDF_POI_NAME.NAME
- VCE_ROAD_NAME
 - VCE_ROAD_NAME provides the cross-reference between RDF_ROAD_NAME and VCE_PHONETIC_TEXT. VCE_ROAD_NAME provides a *Phonetic ID* for the Street Name (STREET_NAME) or Base Name (BASE_NAME) in RDF_ROAD_NAME.
- VCE_SIGN_DESTINATION
 - VCE_SIGN_DESTINATION provides the cross-reference between RDF_SIGN_DESTINATION and VCE_PHONETIC_TEXT. VCE_SIGN_DESTINATION provides a *Phonetic ID* for the exit or alternate exit number in RDF_SIGN_DESTINATION.EXIT_NUMBER or RDF_SIGN_DESTINATION.ALTERNATE_EXIT_NUMBER
- VCE_SIGN_ELEMENT
 - VCE_SIGN_ELEMENT provides the cross-reference between RDF_SIGN_ELEMENT and VCE_PHONETIC_TEXT. VCE_SIGN_ELEMENT provides a *Phonetic ID* for the text in RDF_SIGN_ELEMENT.TEXT
- VCE_STREET_TYPE

→ VCE_STREET_TYPE provides the cross-reference between RDF_STREET_TYPE and VCE_PHONETIC_TEXT. VCE_STREET_TYPE provides a *Phonetic ID* for the text in RDF_STREET_TYPE.OFFICIAL_STREET_TYPE

21.3.1 Preferred (PREFERRED)

Definition	<i>Preferred</i> identifies the recommended <i>Phonetic Text</i> for the name.
Table	VCE_ROAD_NAME, VCE_FEATURE_NAME, VCE_POI_NAME, VCE_CITY_POI_NAME, VCE_SIGN_ELEMENT, VCE_SIGN_DESTINATION, VCE_CHAIN, VCE_STREET_TYPE, VCE_META, VCE_GEO_OVERRIDE
Column	PREFERRED
Value	<p>Y - the <i>Phonetic Text</i> associated with the feature name is the preferred phonetic pronunciation</p> <p>N - the <i>Phonetic Text</i> associated with the feature name is not the preferred phonetic pronunciation</p>
Related Table	VCE_PHONETIC_TEXT
Cardinality	1:1
Usage	<i>Preferred</i> can be used to obtain the preferred phonetic pronunciation of a name.
Specification	<ul style="list-style-type: none"> • <i>Preferred</i> = Y is published for one <i>Phonetic Text</i> entry for a name for a particular <i>Phonetic Language Code</i>. • Only one <i>Phonetic Text</i> is identified as <i>Preferred</i> = Y for a name in a specific <i>Phonetic Language Code</i>. Therefore, one Road Name (e.g., HAUPTSTRASSE) can have multiple <i>Preferred</i> = Y <i>Phonetic Text</i> strings (e.g., SGR, GER, BGR), however for one <i>Phonetic Language Code</i> only one <i>Phonetic Text</i> is published with <i>Preferred</i> = Y.

21.3.2 Type (TYPE)

Definition	Type is used to indicate to which text or name a specific <i>Phonetic ID</i> applies.
Table	VCE_ROAD_NAME VCE_SIGN_DESTINATION VCE_META
Column	TYPE
Values	See Section C.90, VCE_META, Section C.92, VCE_ROAD_NAME, or Section C.93, VCE_SIGN_DESTINATION.
Related Tables	RDF_ROAD_NAME RDF_SIGN_DESTINATION

RDF_META

Cardinality 1:1

Usage *Type* should be used for select tables to understand for which name or text in the RDF_% table the *Phonetic ID* applies.

Specification • *Type* is published only in those VCE_% tables where the referenced RDF_% table has more than one field that can be phonetically transcribed.

21.4 Super Category Data

The Super Categories represent phonetic transcriptions for sub-parts of a name. Currently, the Super Categories are limited to Administrative Area names. The sub-part of the name indicated by the Super Category represents the significant, recognisable part of the name.

If the same word appears at the beginning of more than two admin place names, then a Super Category phonetic transcription is included. For example, Super Category phonetic transcription “NEUSTADT” is included for:

- NEUSTADT
- NEUSTADT AM KULM
- NEUSTADT AM MAIN
- NEUSTADT AN DER AISCH
- NEUSTADT AN DER AISCH-BADWINDSHEIM
- NEUSTADT AN DER WALDNAAB
- NEUSTADT BEI COBURG

For each country, a set of common words that qualify a place name are defined. For example, for Germany, this set includes:

- BAD
- NEU
- NORD
- OST
- SANKT
- SÜD
- WEST

These keywords are not considered when generating Super Category names. It is not necessary to create a Super Category if there is same Text when the key word(s) are removed. For example, a Super Category phonetic transcription “NAUHEIM” is not required to be linked to:

- BAD NAUHEIM
- NAUHEIM

The shortened name of an Administrative Area to which the Super Category relates is added as a new name to the Administrative Area; RDF_FEATURE_NAME entries are created for the shortened names represented by the Super Category.

RDF_FEATURE_NAMES.NAME_TYPE = K explicitly identifies names that are a Shortened Name for a specific Administrative Area and is related to Super Categories.

21.4.1 Shortened Name (NAME_TYPE = K)

Definition	<i>Shortened Name</i> (NAME_TYPE = K) represents the recognisable, shortened part of an administrative area name. It is usually the first word in the Administrative Area name if there are at least three area names that start with the same word.
Table	RDF_FEATURE_NAMES
Column	NAME_TYPE
Values	See Section C.41, RDF_FEATURE_NAMES
Related Table	VCE_FEATURE_NAME
Usage	<i>Shortened Name</i> (NAME_TYPE = K) can be used to distinguish a Shortened Name added to a specific Administrative Area for which a Super Category phonetic transcription is available. Associate the <i>Shortened Name</i> with the Super Category phonetic transcription.
Specification	<ul style="list-style-type: none">The <i>Shortened Name</i> of an Administrative Area to which Super Category phonetic transcription relates is added as a new name to the Administrative Area.An example of <i>Shortened Name</i> is 'FRANKFURT' for 'FRANKFURT AM MAIN' and 'FRANKFURT AN DER ODER'. The name 'FRANKFURT' is added as an alternate (shortened) name to the Admin Place ID in RDF_ADMIN_PLACE representing Frankfurt Am Main and Frankfurt an der Oder.See Section 21.4, <i>Super Category Data</i> for more information.

21.5 Geo Override

A Geo Override makes it possible to associate a geographic area with a specific preferred pronunciation of a name. The same name can have different preferred pronunciations in different geographic areas.

Geo Overrides are used in order to have different preferred pronunciations in different parts of a country. Here are some examples.

- “Rodeo Drive” in the U.S. has a default preferred pronunciation that sounds like ROHdee-oh. But in Beverly Hills, Los Angeles County, California, the Geo Override specifies a different preferred pronunciation for “Rodeo Drive” which sounds like roh-DAY-oh.
- “Bode Road” has a default pronunciation in which “Bode” rhymes with “road”. But in Chicago’s northwest suburbs, the Geo Override specifies a different preferred pronunciation in which “Bode” rhymes with “Jody”.
- “Monticello” has a default pronunciation in which the “c” sounds like “s”. But in Virginia, the Geo Override specifies a different preferred pronunciation in which the “c” sounds like “ch.” Therefore, Geo Overrides for “Monticello Street”, “Monticello Avenue”, “Monticello Lane”, etc., are published for Virginia. Note that a Geo Override is published for each of the preceding names because a Geo Override is associated with a name and not with individual words.

21.6 Phonetic Transcription Examples

21.6.1 Street Name

VCE_PHONETIC_TEXT			
PHONETIC_ID	PHONETIC_LANGUAGE_CODE	PHONETIC_STRING	TRANSCRIPTION_METHOD
345253	GER	"?a lErs %tOr f6 SO "se:	S
345254	GER	"?a l6s %tOr f6 SO "se:	S

VCE_ROAD_NAME			
ROAD_NAME_ID	PHONETIC_ID	PREFERRED	TYPE
179384283	345253	Y	Street Name
179384283	345254	N	Street Name

RDF_ROAD_NAME (only the relevant columns are shown)			
ROAD_NAME_ID	BASE_NAME	STREET_NAME	STREET_TYPE
179384283	ALLERSTORFER	ALLERSTORFER CHAUSSEE	CHAUSSEE

21.6.2 Street Name with Street Name Components

VCE_PHONETIC_TEXT			
PHONETIC_ID	PHONETIC_LANGUAGE_CODE	PHONETIC_STRING	TRANSCRIPTION_METHOD
6648175	ENG	"saUT p@ "rl mI t@ "rod	S
6648176	ENG	p@ *"rl mI t@r	S
77656778	ENG	**"rod	S
74626576	ENG	**"saUT	S

VCE_ROAD_NAME			
ROAD_NAME_ID	PHONETIC_ID	PREFERRED	TYPE
195997338	6648175	Y	Street Name
195997338	6648176	N	Base Name

VCE_STREET_TYPE		
STREET_TYPE_ID	PHONETIC_ID	PREFERRED
105313034	77656778	Y

VCE_META				
ATTR_DESCRIPTION	LANGUAGE_CODE	PHONETIC_ID	PREFERRED	TYPE
SOUTH	ENG	74626576	Y	Prefix

RDF_ROAD_NAME (only the relevant columns are shown)				
ROAD_NAME_ID	PREFIX	BASE_NAME	STREET_NAME	STREET_TYPE
195997338	S	PERIMETER	S PERIMETER RD	RD

21.6.3 Metadata Phonetic Transcription

Only a select set of POI Category phonetic transcriptions is listed in this example

VCE_PHONETIC_TEXT			
PHONETIC_ID	PHONETIC_LANGUAGE_CODE	PHONETIC_STRING	TRANSCRIPTION_METHOD
3326578	GER	rEs to: "ra~	S
3326579	GER	rEs to: "raN	S
3326580	GER	rEs taU "rant	S
3326581	NOR	r@ st} "rAN	S
3326582	NOR	r@ st} "rAnt	S
3326583	BFR	REs tO "Ra~	S
3326584	ITA	%ri sto "ran te	S

VCE_PHONETIC_TEXT			
PHONETIC_ID	PHONETIC_LANGUAGE_CODE	PHONETIC_STRING	TRANSCRIPTION_METHOD
3326585	SIT	%ri sto "ran te	S

VCE_META				
ATTR_DESCRIPTION	LANGUAGE_CODE	PHONETIC_ID	PREFERRED	TYPE
RESTAURANT	GER	3326578	Y	POI Category
RESTAURANT	GER	3326579	N	POI Category
RESTAURANT	GER	3326580	N	POI Category
RESTAURANT	NOR	3326581	Y	POI Category
RESTAURANT	NOR	3326582	N	POI Category
RESTAURANT	BFR	3326583	Y	POI Category
RISTORANTE	ITA	3326584	Y	POI Category
RISTORANTE	ITA	3326585	Y	POI Category

21.6.4 Geo Override Example

The following is a Street Name with a generally preferred pronunciation that varies by region.

BELMONT AVE is a Street Name with the following phonetic pronunciations modelled in VCE_PHONETIC_TEXT.

VCE_PHONETIC_TEXT			
PHONETIC_ID	PHONETIC_LANGUAGE_CODE	PHONETIC_STRING	TRANSCRIPTION_METHOD
2606616	ENG	bEl %mAnt * [v l]nu	S
5943728	ENG	"bEl mAnt * [v l]nu	S
6183646	ENG	*"bEl %mAnt	S

The generally preferred pronunciation for BELMONT AVE, bEl|%mAnt *|[v|l]nu, is modelled in VCE_ROAD_NAME.

VCE_ROAD_NAME			
ROAD_NAME_ID	PHONETIC_ID	PREFERRED	TYPE
36365581	2606616	Y	Street Name

VCE_ROAD_NAME			
ROAD_NAME_ID	PHONETIC_ID	PREFERRED	TYPE
36365581	5943728	N	Street Name
36365581	6183646	N	Street Name

Regionally, the preferred pronunciation varies. For example, in the state of Massachusetts (Admin Place ID = 21014299) the preferred pronunciation is "bEl|mAnt *{|v|nu. This regionally preferred pronunciation is modelled in VCE_GEO_OVERRIDE.

VCE_GEO_OVERRIDE			
GEO_OVERRIDE_ID	PHONETIC_ID	ADMIN_PLACE_ID	PREFERRED
553	5943728	21014299	Y

21.6.5 POI Name with Single Phonetic Transcription

VCE_PHONETIC_TEXT			
PHONETIC_ID	PHONETIC_LANGUAGE_CODE	PHONETIC_STRING	TRANSCRIPTION_METHOD
998888	FRE	myl "ze %dy "luvR	S
477788877	ENG	"Em "bi "ti "e * wVn d@r %l{nd	S

VCE_POI_NAME		
NAME_ID	PHONETIC_ID	PREFERRED
501087310	998888	Y
453762767	477788877	Y

RDF_POI_NAME		
NAME_ID	LANGUAGE_CODE	NAME
501087310	FRE	MUSÉE DU LOUVRE
453762767	ENG	MBTA-WONDERLAND

21.6.6 POI Name with Multiple Phonetic Transcriptions

This example shows a POI name with two transcriptions; the preferred phonetic transcription m@k|*"dA|n@ldz (McDonald's) and an alternate phonetic transcription "mll|ki *"diz (Mickey D's).

VCE_PHONETIC_TEXT			
PHONETIC_ID	PHONETIC_LANGUAGE_CODE	PHONETIC_STRING	TRANSCRIPTION_METHOD
8435619	ENG	m@k *"dA n@ldz	S
8435622	ENG	"mll ki *"diz	S

VCE_POI_NAME		
NAME_ID	PHONETIC_ID	PREFERRED
300001801	8435619	Y
300001801	8435622	N

RDF_POI_NAME		
NAME_ID	LANGUAGE_CODE	NAME
300001801	ENG	MCDONALD'S

21.6.7 POI Name with Machine Generated Transcription

VCE_PHONETIC_TEXT			
PHONETIC_ID	PHONETIC_LANGUAGE_CODE	PHONETIC_STRING	TRANSCRIPTION_METHOD
2608014	ENG	"bEn {nd "dZE riz "f{k t@ ri * "turz	M

VCE_POI_NAME		
NAME_ID	PHONETIC_ID	PREFERRED
301961027	2608014	Y

RDF_POI_NAME		
NAME_ID	LANGUAGE_CODE	NAME
301961027	ENG	BEN AND JERRY'S FACTORY TOURS

21.7 Voice Phonetic Transcriptions for Natural Guidance

21.7.1 Overview

Use Voice Phonetic Transcriptions for Natural Guidance with Natural Guidance to provide audible instructions based on commonly recognized elements at decision points. Voice Phonetic Transcriptions for Natural Guidance enables voice functionality for a turn-by-turn experience encompassing the user's environment and context to more natural, environmental, and intuitive guidance instructions.

The Name published for the Natural Guidance Association is phonetically transcribed and direction dependent prepositions are added. With this combination of the Name and the preposition, it is possible to provide linguistically correct, direction dependent voice guidance. The components of this content are as follows:

- *Route Guidance Point*
Route Guidance Points is a Feature Point that denotes the routing path to which an instruction is related.
- *Preposition Code attribution*
The *Preposition Code* attribute is a coded value which is described in the metadata, including its position in relation to the Junction Guidance Association Name or the Route Guidance Point Name.
- *Name for the Route Guidance Point*
The Name for the Route Guidance Point is published if the Name for the Junction Guidance Association is inadequate for linguistic reasons.
- *Phonetic transcription*
Phonetics for the Junction Guidance Association Name, the *Route Guidance Point Name*, and the *Preposition*.

21.7.2 Route Guidance Point

Definition	<i>Route Guidance Point</i> is a type of Feature Point that identifies a driving direction through a Junction to which a natural guidance instruction applies. The <i>Route Guidance Point</i> does not indicate the position where an instruction is provided to the end-user; it defines the path through the junction.
Table	RDF_FEATURE_POINT <i>Route Guidance Point</i> has FP_TYPE = RG (Route Guidance)
Related Attributes	<i>Preposition Code</i> <i>Name for Route Guidance Point</i>
Usage	The <i>Route Guidance Point</i> is used to indicate the path through the Junction. The <i>Route Guidance Point</i> with associated attributes is used to generate guidance instructions.

- Specifications**
- A *Route Guidance Point* is part of the Natural Guidance Association. A *Route Guidance Point* is unique to a specific association. *Route Guidance Point* features are not re-used between associations because the attribution to the *Route Guidance Point* is dependent on the manoeuvre (path) through the junction.
 - The *Route Guidance Point* is considered only when adopting Voice for Natural Guidance.

A *Route Guidance Point* is defined for each legally allowed manoeuvre for any vehicle type from an incoming link into the Junction. The incoming link for the manoeuvre is included in the Natural Guidance Association and published in RDF_ASSO_LINK.

Figure 21-2 shows *Route Guidance Point* features published at a junction for Junction Guidance. These points relate to guidance from the southernmost link, and relate to the Hospital POI as a guidance landmark.

For bridge and tunnel Feature Associations, a *Route Guidance Point* is defined for each legally allowed direction of travel and for any vehicle type and it is represented by the outgoing link after the feature (bridge or tunnel) in the Feature Association. See Figure 21-1.

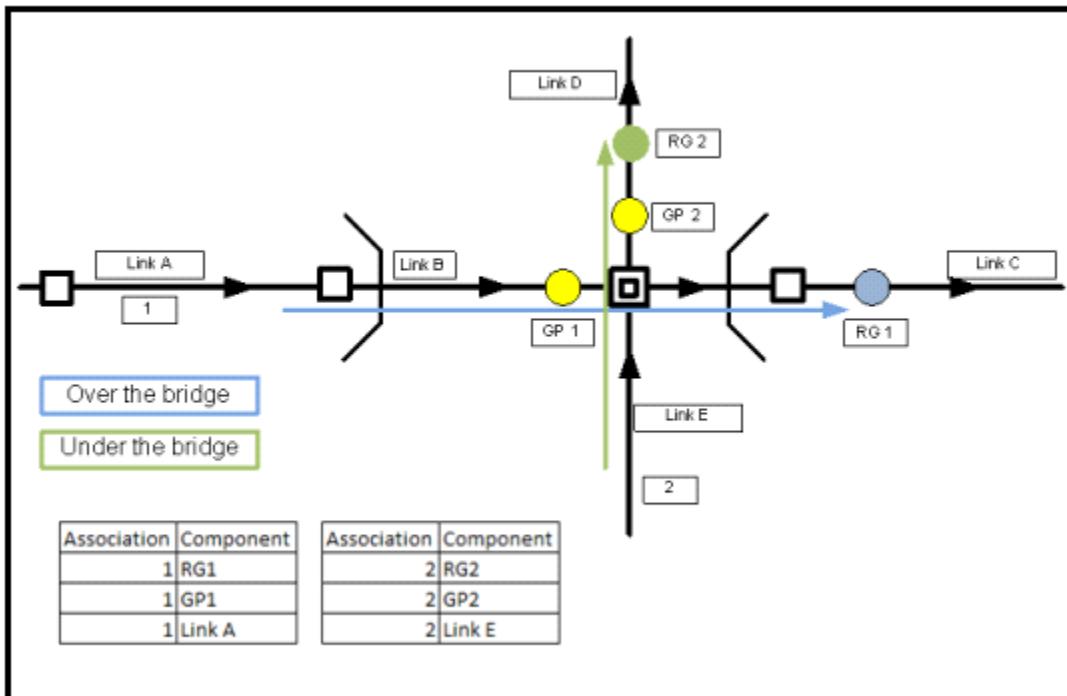


Figure 21-1

- Typically, a Natural Guidance Association is published with multiple *Route Guidance Point* features, one per legally allowed driving pattern through the Junction from the Incoming link as published in the Natural Guidance Association.

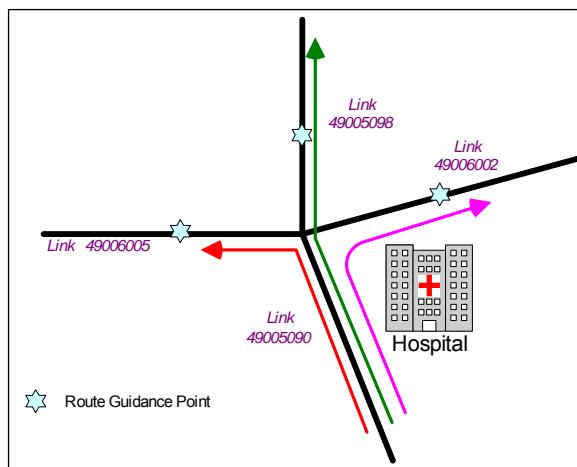


Figure 21-2

- A *Route Guidance Point* is not published if a turn is not allowed due to legal or physical restrictions (e.g., one-way link, turn restriction etc.). In *Figure 21-3*, the Straight On to link 49005098 is not allowed due to *Travel Direction*; therefore, no *Route Guidance Point* is published. In *Figure 21-4*, a Right Turn onto Link 49006002 is not allowed; therefore, no *Route Guidance Point* is published.

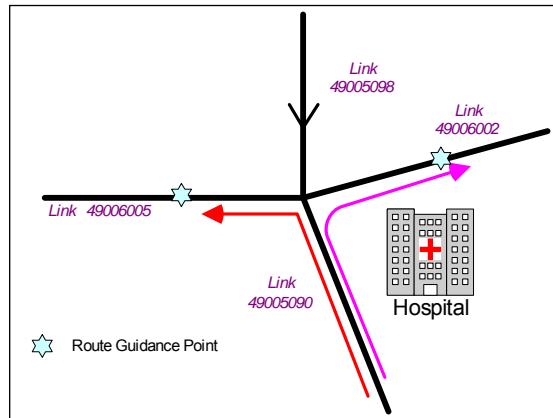


Figure 21-3

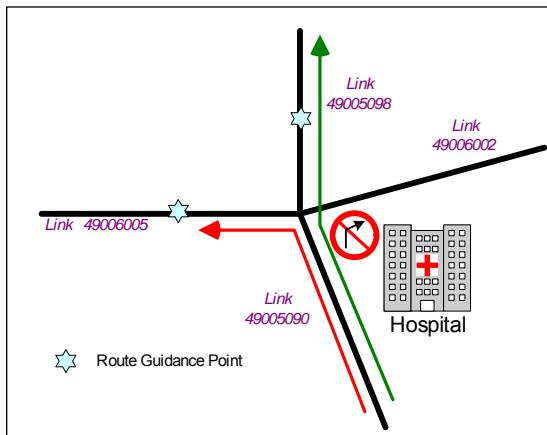


Figure 21-4

- Regular Link Access Characteristics must be taken into account when judging if guidance instructions for a specific manoeuvre are applicable. For example, a manoeuvre with which guidance instructions are associated may not be allowed for trucks. When computing a route for a truck the published guidance instruction will not be applicable to trucks, since trucks cannot make the specific manoeuvre.
- A *Route Guidance Point* is placed in the middle of the outgoing link for the manoeuvre through the Junction. The exact position along the link is irrelevant for the use-case, since the *Route Guidance Point* only indicates the outgoing link for the manoeuvre.
- The *Route Guidance Point* is not published on the following:
 - ◆ Links with INTERSECTION_CATEGORY = 1, 2, 3, or 4.
 - ◆ Links comprising a roundabout or Special Traffic Figure.
 - ◆ Links flagged as *Parking Lot Road* = Y.
 - ◆ Links with Pedestrian-only Access Characteristics.
- For complex intersections, such as multiple digitised roads crossing, the *Route Guidance Point* is published on the first outgoing link from the complex intersection. See *Figure 21-5* for a complex intersection and *Figure 21-6* for a roundabout.

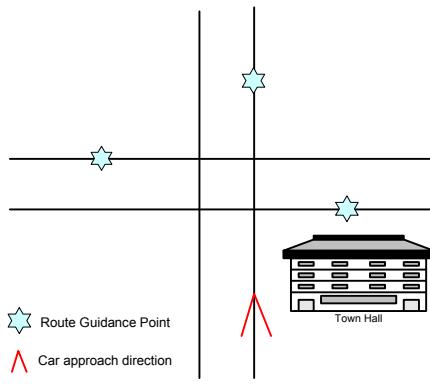


Figure 21-5

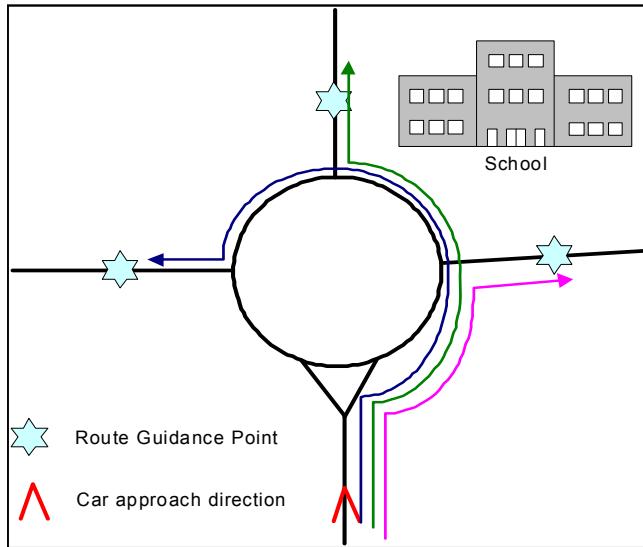


Figure 21-6

- A *Route Guidance Point* has no associated Side information, and therefore is published with Side = N - Neither.
- A *Route Guidance Point* is located on the link, with no offset from the link.
- The *Route Guidance Point* does not indicate the location where the instruction should be provided; it only indicates the path through the junction to which specific guidance applies.

21.7.3 Preposition Code (PREPOSITION_CODE)

Definition *Preposition Code* is an attribute of the *Route Guidance Point* and uniquely identifies a Preposition.

Table RDF_META_PREPOSITION

	RDF_FEATURE_POINT_PREP VCE_META_PREPOSITION
Column	PREPOSITION_CODE
Values	Coded value which provides reference into the preposition metadata. A coded value is defined for each distinct combination of: <ul style="list-style-type: none"> ◆ <i>Language Code</i> ◆ Preposition Text ◆ Preposition position in relation to name (i.e. Before / After) ◆ Article connecting the Preposition and Name
Cardinality	1:1:M (a <i>Route Guidance Point</i> can have multiple <i>Preposition Code</i> values associated)
Default value	Not applicable
Related Table	RDF_ASSO_NAME
Related Attributes	Name for Natural Guidance Association
Usage	<i>Preposition Code</i> only is a mechanism to tie the <i>Route Guidance Point</i> to its corresponding Preposition in RDF_META_PREPOSITION.
Specification	<ul style="list-style-type: none"> • Each <i>Route Guidance Point</i> has at least one associated <i>Preposition Code</i>. • A <i>Preposition Code</i> is language specific, and relates to the Name of the Natural Guidance Association with the same <i>Language Code</i>. • When a Natural Guidance Association has Name in different languages, a single <i>Route Guidance Point</i> has multiple <i>Preposition Code</i> attributes attached. Each <i>Preposition Code</i> is applicable to one <i>Language Code</i> only. • A <i>Route Guidance Point</i> will not have two <i>Preposition Code</i> values in the same language. • A <i>Preposition Code</i> is dependent on the <i>Language Code</i>, the Name, and the manoeuvre (path) through the Junction. • The <i>Preposition Code</i> is structured as AAABCCCC where: <ul style="list-style-type: none"> AAA: <i>Language Code</i> B: Position of the Preposition relative to Name CCCC: Coded abbreviation of the Preposition • The following <i>Preposition Code</i> values are examples of the structure. Actual <i>Preposition Code</i> values in the product may differ from these examples.

PREPOSITION_CODE	Preposition
ENGBBEF	Before the

PREPOSITION_CODE	Preposition
ENGBAT	At
ENGBATT	At the
ENGBAFT	After
ENGBAFTT	After the
GERBBEFR	Vor der
GERBAT	Bei
GERBATM	Beim
GERBATR	Bei der
ITABBEFA	Prima della
ITABBEFE	Prima dei
ITABBEFI	Prima di

21.7.4 Preposition (PREPOSITION)

Preposition is an attribute published for the *Route Guidance Point* and defines the language specific preposition required for generation of direction specific manoeuvre guidance through a junction.

Table	RDF_META_PREPOSITION
Column	PREPOSITION
Values	The <i>Preposition</i> , in the defined language, optionally including the article required to connect the preposition to the Name in a grammatically correct manner.
Examples:	BEFORE THE AFTER AT THE VOR DER PRIMA DELLA PRIMA DI BEIM NA DE
Cardinality	1:1 (i.e. one <i>Preposition Code</i> has one associated <i>Preposition</i>)
Related Table	RDF_ASSO_NAME for the Association Name VCE_META_PREPOSITION for Phonetics of <i>Preposition</i>

VCE_ASSO_NAME for Phonetics of Association Name

Related Attributes	Name for Natural Guidance Association <i>Position</i>
Usage	<i>Preposition</i> can be used in combination with Name to form a linguistically correct sentence for the manoeuvre guidance at a Junction.
Specification	<ul style="list-style-type: none"> • Each <i>Route Guidance Point</i> has at least one associated <i>Preposition</i>. • A <i>Preposition</i> is language-specific and relates to the Name of the Natural Guidance Association with the same language. • A <i>Preposition</i> is dependent on the <i>Language Code</i>, the Name, and the manoeuvre (path) through the Junction. • The <i>Preposition</i> optionally includes the article to generate correct instructions in combination with the Name. In many languages, a <i>Preposition</i> can have different spellings depending on the Name associated; for example, PRIMA (Italian equivalent of 'Before') and PRIMA DELLA, PRIMA DEI, PRIMA DI etc. • The <i>Preposition</i> is provided only in the language applicable to the region where the Junction is located. Currently, no exonyms are published for the <i>Preposition</i>. The implication is that the Voice for Natural Guidance functionality is available in the language of the locals, and not in the language of a foreign visitor.

21.7.5 Position (POSITION)

Definition	<i>Position</i> is a sub-attribute of the <i>Preposition</i> and defines the <i>Preposition</i> relative to the Name.
Table	RDF_META_PREPOSITION
Column	POSITION
Values	See Section C.53, RDF_META_PREPOSITION.
Cardinality	1:1
Related Attributes	<i>Preposition</i> <i>Name for Natural Guidance Association</i> <i>Name for the Route Guidance Point</i>
Usage	The <i>Position</i> is used to connect the Name to the <i>Preposition</i> to form a grammatically correct sentence.
Specification	<ul style="list-style-type: none"> • The <i>Preposition</i> is located before or after the Name. • The <i>Preposition</i> can be attached or unattached to the Name.

Preposition	Position	Combination of Preposition with Name
PRIMA	2	PRIMA DELL'HOTEL ANTONINO
VOR DER	2	VOR DER ALEXANDERBRÜCKE
AFTER THE	2	AFTER THE SHELL GAS STATION
DEVANT	2	DEVANT L'ÉGLISE ROUGE

21.7.6 Name for Route Guidance Point (NAME)

Definition	The <i>Name for the Route Guidance Point</i> defines the text associated with a specific manoeuvre through the junction, as identified by the Route Guidance Point with which the Name is associated.
Table	RDF_FEATURE_POINT_NAME
Column	NAME
Values	Textual description of the Name
Cardinality	1:0:1:M
Related Attributes	<p><i>Preposition</i></p> <p><i>Name of Junction Guidance Association</i></p>
Usage	The <i>Name for the Route Guidance Point</i> is used to form a grammatically correct guidance instruction when combined with the <i>Preposition</i> .
Specification	<ul style="list-style-type: none"> The Name published for the Junction Guidance Association (ASSO_TYPE = JG) is re-used for Voice for Natural Guidance, if possible. If it is not possible to re-use the Name published for the Junction Guidance Association, an alternate Name will be published. In the following situations, the Name for the Junction Guidance Association cannot be used for by Voice for Natural Guidance: <ul style="list-style-type: none"> The Name changes spelling when combined with a specific <i>Preposition</i>. This situation occurs with certain languages only. For example, in German: <ul style="list-style-type: none"> ROTE KIRCHE VOR DER ROTEN KIRCHE <p>The <i>Preposition</i> 'VOR DER' results in a change to the name content.</p> <p>For this situation, the Route Guidance Point is published with Name = ROTEN KIRCHE.</p> <ul style="list-style-type: none"> The Name and the <i>Preposition</i> are directly attached, which may invalidate the phonetic transcription of <i>Preposition</i>. For example: <ul style="list-style-type: none"> ÉGLISE ROUGE DEVANT L'ÉGLISE ROUGE

Providing phonetics for DEVANT L' could result in different pronunciation when combined with the Name (DEVANT L'EGLISE ROUGE).

In this example, the Route Guidance Point is published with Name = L'EGLISE ROUGE and the *Preposition* = DEVANT.

- ◆ The *Name of a Route Guidance Point* is published with NAME_TYPE = B (Base Name).
- ◆ The Name is published for the *Route Guidance Point* only if the Name published for the Junction Guidance Association is inadequate when combined with the required *Preposition*.
- ◆ Use either the Name of the Junction Guidance Association (ASSO_TYPE = JG) or the *Name of the Route Guidance Point* (FP_TYPE = RG).
- ◆ If *Route Guidance Point* is published with Name, then use this Name; otherwise, use Name from the Junction Guidance Association.
- ◆ The Name for the *Route Guidance Point* is published in the same language as the *Preposition*.
- ◆ The Name for the *Route Guidance Point* is published in RDF_FEATURE_POINT_NAME.NAME.

21.7.7 Using Voice Phonetic Transcriptions for Natural Guidance

Section 21.7.7.1, Junction Guidance and *Section 21.7.7.2, Traffic Light or Stop Sign Guidance* are general overviews about how to process Voice Phonetic Transcriptions for Natural Guidance data.

21.7.7.1 Junction Guidance

To generate natural instructions with corresponding phonetics, develop the following logic: Select the Natural Guidance Associations for the desired incoming link into the Junction (ASSO_TYPE = JG).

1. Obtain the Name for the Natural Guidance Association from RDF_ASSO_NAME.NAME with the corresponding *Language Code*.
2. Obtain the Phonetics for the Name from VCE_ASSO_NAME.
3. Select the *Route Guidance Points* for the Association from RDF_ASSO_FEAT_POINT, where the referenced Feature Point is of FP_TYPE = RG.
4. The link of the Association (RDF_ASSO_LINK) and the link of the *Route Guidance Point* (RDF_FEATURE_POINT) form a Path through the Junction to which a specific guidance instruction applies.
5. For each *Route Guidance Point* obtain the *Preposition* from RDF_FEATURE_POINT_PREP and RDF_META_PREPOSITION.
6. Check for a *Route Guidance Point* Name in RDF_FEATURE_POINT_NAME. If no *Route Guidance Point* Name is published in RDF_FEATURE_POINT_NAME, use the Association Name published in RDF_ASSO_NAME.
7. Obtain the phonetics for the *Preposition* from VCE_META_PREPOSITION.

8. Obtain the phonetics for the **Route Guidance Point** Name from VCE_FEATURE_POINT_NAME or the Association Name from VCE_ASSO_NAME.
9. Connect the Name to the **Preposition**, based on RDF_META_PREPOSITION.POSITION.
10. Connect the phonetic representation of the Name and the **Preposition** based on Position RDF_META_PREPOSITION.

The instructions in plain text (connection of Name and *Preposition*) or the phonetic transcription (connection of phonetic Name and *Preposition*) form natural instructions to present to the end-user when traversing the Junction through the Path of In link - Out link obtained in step 4.

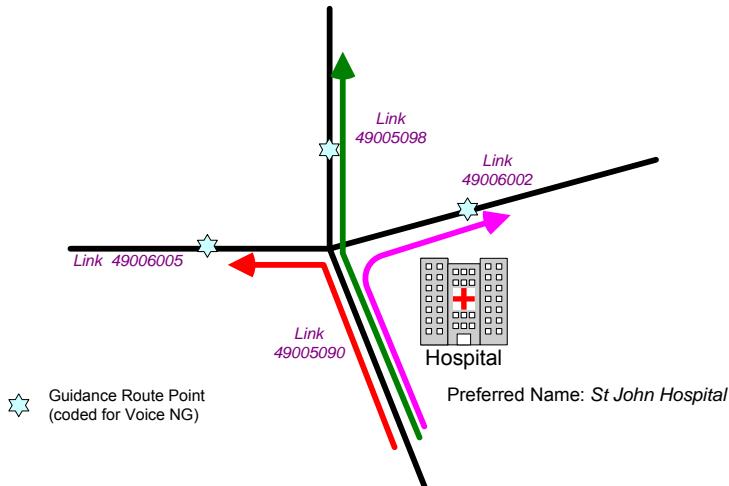


Figure 21-7

In Figure 21-7, the combination of Name (ST JOHN HOSPITAL) and the *Preposition* (AFTER) results in “AFTER ST JOHN HOSPITAL” for the path from Link 49005090 to Link 49006005. The phrase can be the plain text or its phonetic pronunciation in NT-SAMPA.

21.7.7.2 Traffic Light or Stop Sign Guidance

To generate natural instructions with corresponding phonetics, develop the following logic:

1. Select the Traffic Light conditions (CONDITION_TYPE = 16) and Stop Sign conditions (CONDITION_TYPE = 17, with TRAFFIC_SIGN_TYPE = 20) that are published with an Importance Indicator condition attribute.
2. These Traffic Lights and Stop Signs are eligible for Natural Guidance instructions.
3. Select the **Preposition** with the desired **Language Code** from RDF_META_PREPOSITION.PREPOSITION.
4. This Traffic Light / Stop Sign preposition selection can be based on the **Preposition Code** (i.e. AAATRAF or AAASTOP).
5. Obtain the Phonetic representation of the **Preposition** from VCE_META_PREPOSITION.

The text and phoneme selected in step 3 and 5 provide traffic light / stop sign instruction valid for the Natural Guidance at the applicable Junction referred to by the Traffic Light or Stop Sign condition.

21.7.7.3 Voice for Natural Guidance Examples

Simple Junction Guidance

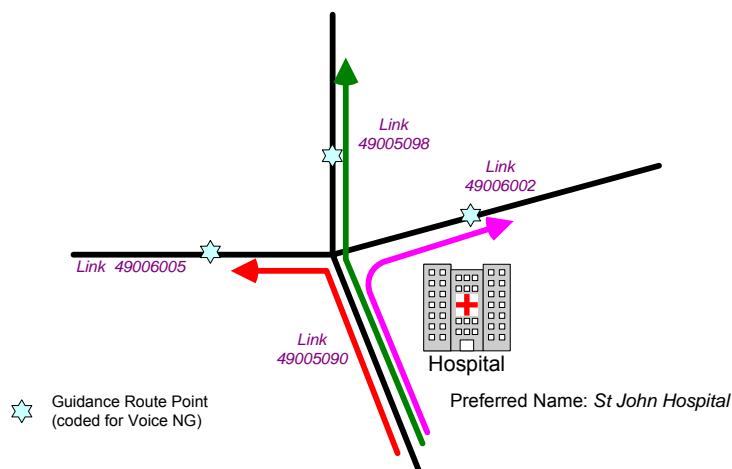


Figure 21-8

For this POI, Voice Phonetic Transcriptions for Natural Guidance generates the following content:

Preposition	Position	Name	Enabled instruction, to be generated
After	2	St John Hospital	After St John Hospital
After	2	St John Hospital	After St John Hospital
At	2	St John Hospital	At St John Hospital

The following data is published:

RDF_ASSO publishes a Junction Guidance Association:

RDF_ASSO	
ASSO_ID	ASSO_TYPE
11547155	JG

RDF_ASSO_NAME publishes the Name for the Junction Guidance Association:

RDF_ASSO_NAME		
NAME_ID	NAME	LANGUAGE_CODE
44628	ST JOHN HOSPITAL	ENG

RDF_ASSO_FEAT_POINT publishes the additional *Route Guidance Point* features for the existing Natural Guidance Association.

RDF_ASSO_FEAT_POINT	
ASSO_ID	FP_ID
11547155	77666
11547155	53685
11547155	53686
11547155	53687

FP_ID 77666 is the Feature Point for the Guidance Point (FP_TYPE = GP) as published for Natural Guidance. The other feature points, 53685, 53686, and 53687, are published for Voice for Natural Guidance to model the *Route Guidance Points* (FP_TYPE = RG).

A Feature Point is published for each *Route Guidance Point* (blue star in *Figure 21-8*).

RDF_FEATURE_POINT					
FP_ID	LINK_ID	FP_TYPE	SIDE	LAT	LON
53685	49006005	RG	N	4788928	-11845728
53686	49005098	RG	N	4788932	-11845726
53687	49006002	RG	N	4788929	-11845723

Each Feature Point has a corresponding *Preposition* published:

RDF_FEATURE_POINT_PREP	
FP_ID	PREPOSITION_CODE
53685	ENGBAFT
53686	ENGBAT
53687	ENGBAFT

The following entries in RDF_META_PREPOSITION are involved:

RDF_META_PREPOSITION			
PREPOSITION_CODE	PREPOSITION	POSITION	LANGUAGE_CODE
ENGBAFT	After	2	ENG
ENGBAT	At	2	ENG

For the phonetic transcriptions, the following entries are published:

VCE_ASSO_NAME		
NAME_ID	PHONETIC_ID	PREFERRED
44828	661756	Y

VCE_META_PREPOSITION		
PREPOSITION_CODE	PHONETIC_ID	PREFERRED
ENGBAFT	51889	Y
ENGBAT	54134	Y

VCE_PHONETIC_TEXT publishes the appropriate phonetic pronunciation for the Name and *Preposition*.

Junction Guidance with two POIs

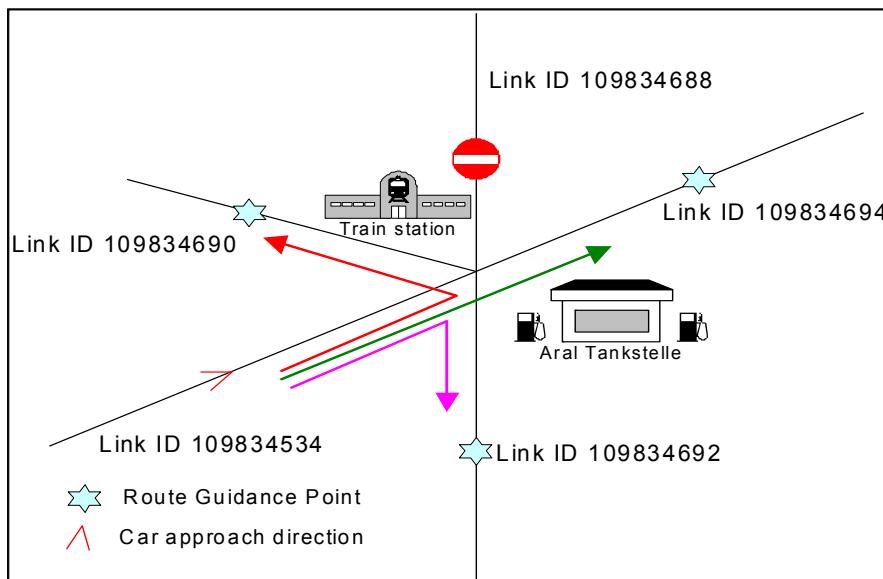


Figure 21-9

Figure 21-9 shows a 5-link crossing with two POIs identified as significant for Junction Guidance if approaching from Link 109834534.

No *Route Guidance Point* is published for Link 109834688 since traversal from Link 109834534 is restricted by a no entry sign.

For these two POIs, Voice Phonetic Transcriptions for Natural Guidance generates the following content (note that the German word for Train station is 'Bahnhof'):

Preposition	Position	Name	Enabled instruction, to be generated
Vor dem	2	Bahnhof	Vor dem Bahnhof
Beim	2	Bahnhof	Beim Bahnhof
Beim	2	Bahnhof	Beim Bahnhof
Vor der	2	Aral Tankstelle	Vor der Aral Tankstelle
Bei der	2	Aral Tankstelle	Bei der Aral Tankstelle
Bei der	2	Aral Tankstelle	Bei der Aral Tankstelle

The following data is published:

RDF_ASSO publishes a Junction Guidance Association for each POI:

RDF_ASSO_FEAT_POINT	
ASSO_ID	ASSO_TYPE
22233300	JG
22233311	JG

The Name for the Junction Guidance associations:

RDF_ASSO_NAME		
NAME_ID	NAME	LANGUAGE_CODE
63514	ARAL TANKSTELLE	GER
65135	BAHNHOF	GER

RDF_ASSO_FEAT_POINT publishes the additional *Route Guidance Point* features for the existing Natural Guidance Associations:

RDF_ASSO_FEAT_POINT	
ASSO_ID	FP_ID
22233300	99889
22233300	70089

RDF_ASSO_FEAT_POINT	
22233300	70090
22233300	70091
22233311	44444
22233311	70133
22233311	70134
22233311	70135

FP_ID 99889 and 44444 are the Feature Points for the Guidance Points (FP_TYPE = GP) as published for Natural Guidance. The other feature points, 70089, 70090, 70091, 70133, 70134, and 70135, are published for Voice for Natural Guidance to model the *Route Guidance Points* (FP_TYPE = RG).

Six Feature Points are published, two for each *Route Guidance Point* (blue stars in *Figure 21-9*), because each Feature Point has its own *Preposition* which depends on the Name.

RDF_FEATURE_POINT					
FP_ID	LINK_ID	FP_TYPE	SIDE	LAT	LON
70089	109834690	RG	N	5044524	731190
70090	109834694	RG	N	5044525	731197
70091	109834692	RG	N	5044522	731194
70133	109834690	RG	N	5044524	731190
70134	109834694	RG	N	5044525	731197
70135	109834692	RG	N	5044522	731194

Note that Feature Point 70089 has the same location as Feature Point 70133, and 70090 has the same location as 70134, and 70091 has the same location as 70135. The attribution for the Feature Points is differs; therefore, different FP_ID values are published.

Each Feature Point has a corresponding *Preposition* published:

RDF_FEATURE_POINT_PREP	
FP_ID	PREPOSITION_CODE
70089	GERBBEFD
70090	GERBATM
70091	GERBATM
70133	GERBBEFR
70134	GERBATR

RDF_FEATURE_POINT_PREP	
70135	GERBATR

The following entries in RDF_META_PREPOSITION are involved:

RDF_META_PREPOSITION			
PREPOSITION_CODE	PREPOSITION	POSITION	LANGUAGE_CODE
GERBBEFD	VOR DEM	2	GER
GERBATM	BEIM	2	GER
GERBBEFR	VOR DER	2	GER
GERBATR	BEI DER	2	GER

For the phonetic transcriptions, the following entries are published:

VCE_ASSO_NAME		
NAME_ID	PHONETIC_ID	PREFERRED
63514	79019	Y
65135	79800	Y

VCE_META_PREPOSITION		
PREPOSITION_CODE	PHONETIC_ID	PREFERRED
GERBBEFD	110498	Y
GERBATM	110499	Y
GERBBEFR	110500	Y
GERBATR	110501	Y

The VCE_PHONETIC_TEXT table publishes the appropriate phonetic pronunciation for the Name and Preposition.

The combination of the phonetic string for the *Preposition* and Name results in:

Preposition	Name	Text String	Phonetic String
%fo:6^ %de:m	"ba:n ho:f	VOR DEM BAHNHOF	%fo:6^ %de:m "ba:n ho:f
%balm	"ba:n ho:f	BEIM BAHNHOF	%balm "ba:n ho:f
%fo:6^ %dEr	?a "ra:l "taNk %StE l@	VOR DER ARAL TANKSTELLE	%fo:6^ %dEr ?a "ra:l "taNk %StE l@
%bal %dEr	?a "ra:l "taNk %StE l@	BEI DER ARAL TANKSTELLE	%bal %dEr ?a "ra:l "taNk %StE l@

Name for the Route Guidance Point

The following example shows a situation where the *Route Guidance Point* is published with a Name. Only the Name attribution published is detailed.

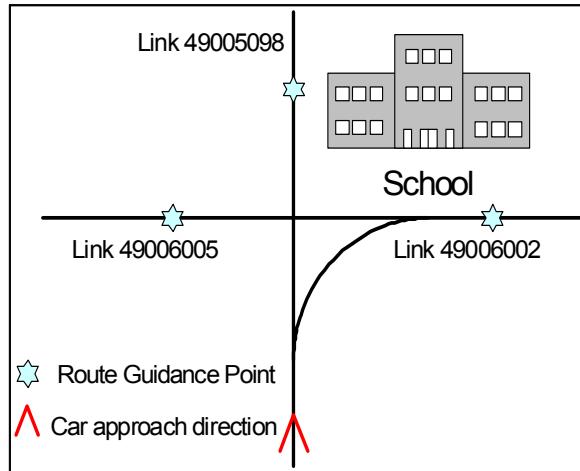


Figure 21-10

The following Guidance instructions need to be provided:

- DEVANT L' ÉCOLE for the Left Turn and Right Turn direction.
- À L' ÉCOLE for the Straight on direction.

The Name for the Junction Guidance Association (note that the French word for School is ÉCOLE):

RDF_ASSO_NAME		
NAME_ID	NAME	LANGUAGE_CODE
63767	ÉCOLE	FRE

A Feature Point is published for each *Route Guidance Point* (blue stars in Figure 21-10).

RDF_FEATURE_POINT					
FP_ID	LINK_ID	FP_TYPE	SIDE	LAT	LON
53685	49006005	RG	N	4788928	545728
53686	49005098	RG	N	4788932	545726
53687	49006002	RG	N	4788929	545723

Each Feature Point has a corresponding *Preposition* published:

RDF_FEATURE_POINT_PREP	
FP_ID	PREPOSITION_CODE

RDF_FEATURE_POINT_PREP	
53685	FREBBEF
53686	FREBAT
53687	FREBBEF

The following entries in RDF_META_PREPOSITION are involved:

RDF_META_PREPOSITION			
PREPOSITION_CODE	PREPOSITION	POSITION	LANGUAGE_CODE
FREBBEF	DEVANT	2	FRE
FREBAT	À	2	FRE

All three *Route Guidance Point* features are named with a Name (L' ÉCOLE), since the preposition and preferred name are directly attached (e.g., DEVANT L'ÉCOLE).

RDF_FEATURE_POINT_NAMES			
FP_ID	NAME_ID	NAME_TYPE	IS_EXONYM
53685	736	FRE	N
53686	736	FRE	N
53687	736	FRE	N

The Name is shared between multiple Route Guidance Points:

RDF_FEATURE_POINT_NAME		
NAME_ID	NAME	LANGUAGE_CODE
736	L'ÉCOLE	FRE

For the phonetic transcriptions, the following entries are published:

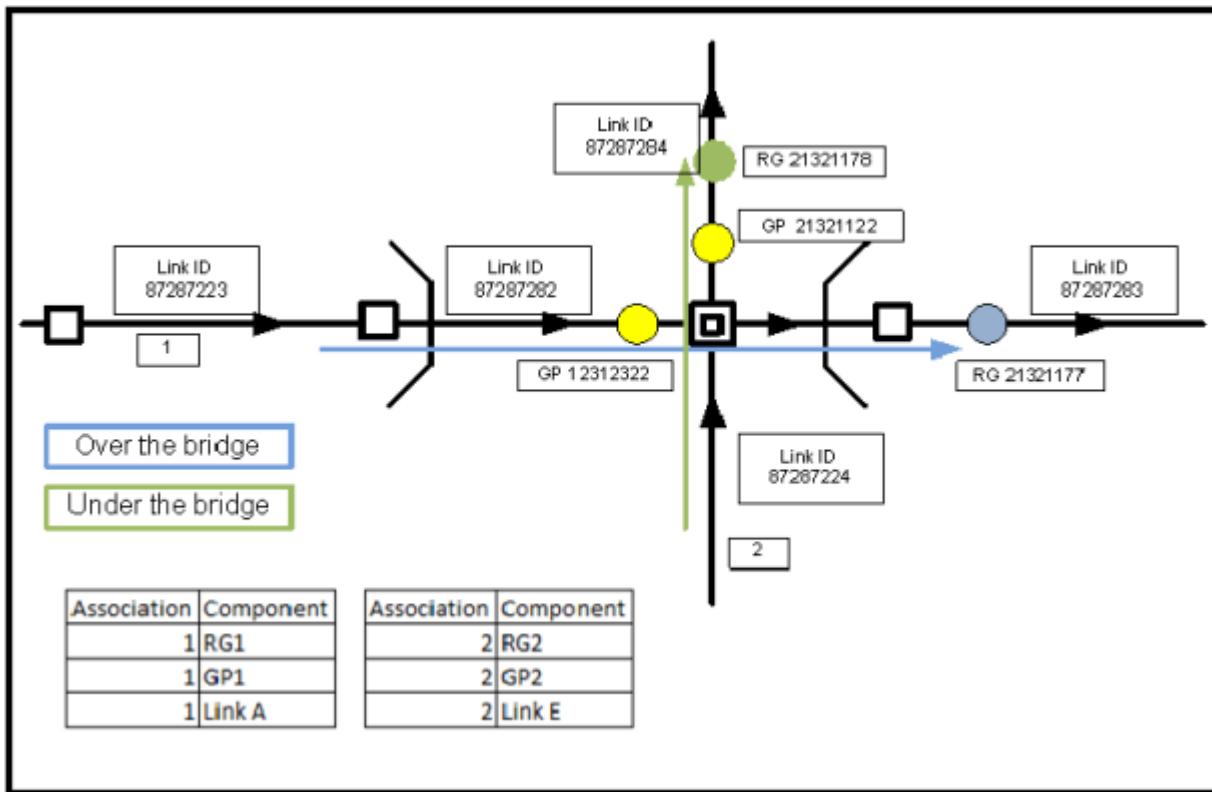
VCE_ASSO_NAME		
NAME_ID	PHONETIC_ID	PREFERRED
63767	661756	Y

VCE_FEATURE_POINT_NAME		
NAME_ID	PHONETIC_ID	PREFERRED
736	652244	Y

VCE_META_PREPOSITION		
PREPOSITION_CODE	PHONETIC_ID	PREFERRED
FREBBEF	51889	Y
FREBAT	54134	Y

The VCE_PHONETIC_TEXT table publishes the appropriate phonetic pronunciation for the Name and *Preposition*.

Passing Guidance



RDF_FEATURE_POINT					
FP_ID	LINK_ID	FP_TYPE	SIDE	LAT	LON
12312322	87287282	GP	B	-8273828	5366338
21321122	87287284	GP	B	-8273899	5366358
21321178	87287284	RG	B	-8273222	5366448
21321177	87287283	RG	B	-8273787	5366558

RDF_ASSO	
ASSO_ID	ASSO_TYPE
123456545	PG
123456546	PG

RDF_ASSO_NATURAL_GUIDANCE					
ASSO_ID	DIRECTION	VISIBILITY	SEASONAL_DEPENDENCY	RELATIVE_DISTANCE	CALCULATED_IMPORTANCE
123456545	F	0	N	0	8
123456546	T	0	N	0	8

RDF_ASSO_NAMES			
NAME_ID	ASSO_ID	NAME_TYPE	IS_EXONYM
873874833	123456545	B	N
873874834	123456546	B	N

RDF_ASSO_NAME		
NAME_ID	LANGUAGE_CODE	NAME
873874833	ENG	The Bridge
873874834	ENG	The Bridge

RDF_ASSO_LINK	
ASSO_ID	LINK_ID
123456545	87287223
123456546	87287224

RDF_ASSO_FEAT_POINT	
ASSO_ID	FP_ID
123456545	12312322
123456545	21321178
123456546	21321122
123456546	21321177

RDF_FEATURE_POINT_PREP	
FP_ID	PREPOSITION_CODE
21321178	ENGBOVER
21321177	ENGBUNDR

Enhanced Curvature, Enhanced Height and Slope

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22.1 Introduction

Link Accuracy (LINK_ACCURACY), *Absolute Height* (Z_COORD), *Slope* (SLOPE), *Curvature* (CURVATURE), and *Heading* (HEADING) data is published in these tables:

- ADAS_LINK_GEOMETRY
- ADAS_NODE_CURVATURE
- ADAS_LINK_STATUS

22.1.1 Link Accuracy (LINK_ACCURACY)

Definition	<i>Link Accuracy</i> indicates if the geometry associated with a link meets specific height, slope or positional accuracy.
Value	See <i>Section C.94.1, ADAS_LINK_STATUS</i>
Cardinality	1:0,1
Table	ADAS_LINK_STATUS
Related Attributes	<i>Vertical Flag</i> (VERTICAL_FLAG) <i>Slope</i> (SLOPE)
Usage	<i>Link Accuracy</i> can be used to determine whether ADAS functionalities may be enabled for a link.
Rules	<ul style="list-style-type: none">• <i>Link Accuracy</i> is dependent on the accuracy of the geometry, height and slope; and is applied according to <i>Table 22-1</i>.• <i>Link Accuracy</i> corresponds to the (obsolete) <i>Enhanced Geometry</i> as indicated in the same table below.

Link Accuracy	ADAS Compliant?			Enhanced Geometry (Obsolete)	
	Link Geometry	Absolute Height and Slope			
		2D	3D		
1	Y	N/A	N/A	y	
2	N	Y	N	N	
3	Y	Y	Y	Y	
4	N	N	N	N	
5	Y	N	N	Y	

Table 22-1

22.1.2 Absolute Height (Z_COORD)

Definition	<i>Absolute Height</i> gives the height of an X, Y, Z coordinate in centimetres (over reference ellipsoid).
Value	#####
Cardinality	1:0,1
Type	Signed Numeric
Table	ADAS_LINK_GEOMETRY
Related Attributes	<i>Vertical Flag</i> (VERTICAL_FLAG) <i>Slope</i> (SLOPE)
Usage	<i>Absolute Height</i> information can be used to: <ul style="list-style-type: none"> Enhance Map Display. Automatically adjust the transmission when going up or down the hill to optimise fuel consumption. Assist in avoiding an uncomfortable adjustment by the Adaptive Cruise Control (ACC) when descending a slope or uncomfortable acceleration when temporarily losing sight of a target vehicle. Headlight adjustment, e.g., when driving uphill and the end of the uphill is close, the headlights illuminate the sky instead of the road. Also, when driving downhill close to the end of the downhill then a driver cannot see anything on the street in front since the front-lights lighten only very little of the road. Assist in minimizing the wear of the brakes for heavy trucks, which can increase the life span of the standard brakes.

- Identify if pressurized loads are in danger due to changes in the altitude.

Note: The usage in most cases is based on *Slope* information.

Specification

- *Absolute Height* is published only for X, Y, Z coordinates for road links.
- Height is published in centimetres.
- *Absolute Height* is published as the Z Coordinate for every node and shape point X, Y, Z coordinate for a height-enabled road link. The Z Coordinate field is NULL in all other cases.
- X, Y, Z values are used generally to depict the curvature of a road link, however, X, Y, Z values may need to be added to a road link to accurately depict the *Absolute Height*.
- For example, a road link with no two-dimensional curvatures has X, Y, Z values added to depict the change in position because it crosses a valley. See *Figure 22-1*.

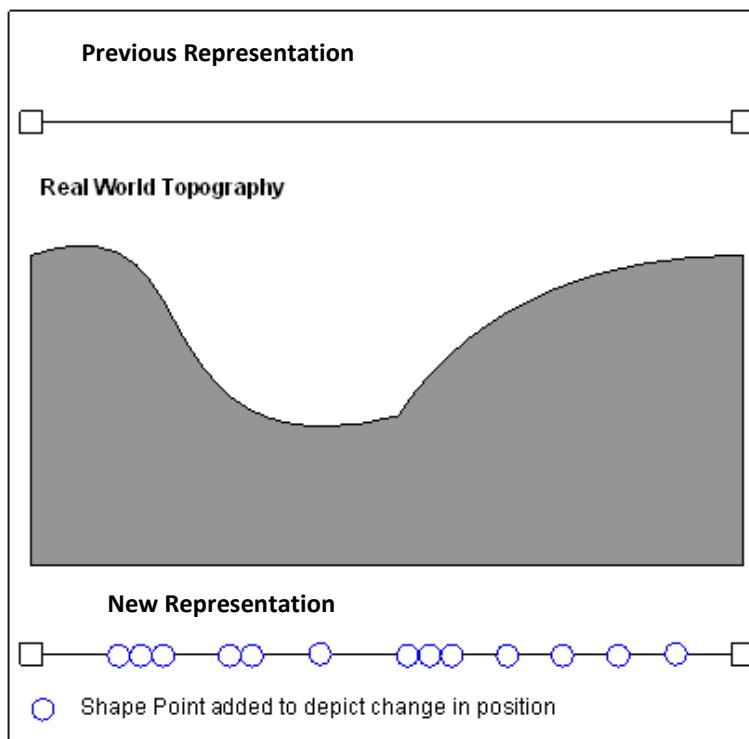


Figure 22-1

22.1.3 Curvature (CURVATURE)

Definition *Curvature* is an approximation of the road geometry by means of circles at road geometry points (Nodes or Shape Points).

A Node can have multiple curvature values applied.

A Shape Point has only one curvature value applied.

Curvature values are only published with respect to one travel direction. The curvature in reverse direction can be calculated by multiplication with -1.

Value	##### (Numeric value representing the curvature in metres -1×10^6). $(1/\text{Radius-of-Curvature} \times 10^6)$
Cardinality	1:0, 1, M for Nodes 1:0, 1 for Shape Points
Type	Signed Numeric
Table	ADAS_NODE_CURVATURE ADAS_LINK_GEOMETRY
Related Attributes	<i>Heading</i> (HEADING)
Usage	<p><i>Curvature</i> information can be used to:</p> <ul style="list-style-type: none"> • Warn driver of upcoming curve. • Adjust headlight aiming. • Assist with electronic stability control.
Specification	<ul style="list-style-type: none"> • <i>Curvature</i> is published only for X, Y, Z coordinates for road links or for X, Y, Z coordinates for Nodes (Junctions). • <i>Curvature</i>, if available, is published for all the shape points on a link. See <i>Figure 22-2</i>. • <i>Curvature</i> is published as the reciprocal of the curve radius in metres, times 1,000,000. Radius of curvature examples: <ul style="list-style-type: none"> ◆ ROC = 10m: <i>Curvature</i> = 100 000 ◆ ROC = -50m: <i>Curvature</i> = -20 000 ◆ ROC = 400m: <i>Curvature</i> = 2500 ◆ ROC = 1200m: <i>Curvature</i> = 833 • The range of values is limited within [-1000000, 1000000]. <ul style="list-style-type: none"> ◆ A value of zero (0) indicates straight. ◆ Negative values for shape points (not nodes) indicate right curves in direction of travel from the reference node. ◆ Positive values for shape points (not nodes) indicate left curves in direction of travel from the reference node. ◆ If curvature information is not available for any shape point of a link, then no corresponding entry for the link is published in the ADAS_LINK_GEOMETRY table. • The absolute value of a <i>Curvature</i> value at nodes is valid for both directions (from one link to another and vice versa). The signed value that is published here is the

value that is associated with the node between the FROM Link and the TO Link. If the FROM Link and the TO Link are reversed, then the sign value is reversed. The *Curvature* is published only once either as a positive value or a negative value.

- No corresponding entry for the node is published in the ADAS_NODE_CURVATURE table for the following situations:
 - ◆ If no *Curvature* data for a path through a node exists
 - ◆ For Nodes located on continental borders since RDF is published at continental level.
For example, Nodes on the border between Western Europe and Eastern Europe RDF do not have *Curvature* value.

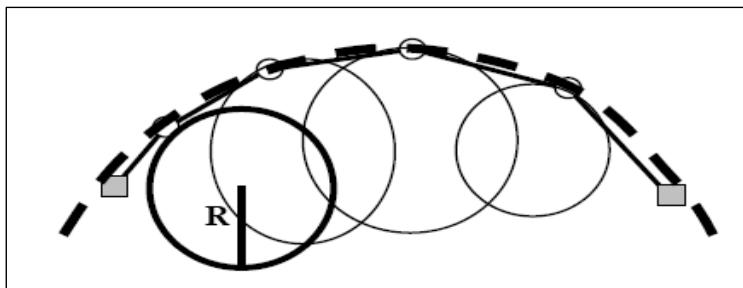


Figure 22-2

22.1.4 Heading (HEADING)

Definition *Heading* is the direction toward which a road is oriented.

Value #####
The angle, in Decimal Degrees $\times 10^3$, between North and the road direction.

Cardinality 1:0, 1, M for Nodes
1:0, 1 for Shape Points

Type Numeric

Table ADAS_NODE_CURVATURE
ADAS_LINK_GEOMETRY

Related Attributes *Curvature* (CURVATURE)

Usage *Heading* in conjunction with *Curvature* information can be used to:

- Warn driver of upcoming curve.
- Adjust headlight aiming.
- Assist with electronic stability control.

- Specification**
- *Heading* values range from 0 to 359999.
 - ◆ *Heading* = 0 indicates North
 - ◆ *Heading* = 90000 indicates East
 - ◆ *Heading* = 180000 indicates South
 - ◆ *Heading* = 270000 indicates West
 - If *Heading* information is not available for a particular point, then no corresponding entry is published.
 - *Heading* is published only for X, Y, Z coordinates for links as follows:
 - ◆ *Heading* for Nodes is published in ADAS_NODE_CURVATURE.
 - ◆ *Heading* for Shape Points is published in ADAS_LINK_GEOMETRY.

22.1.5 Slope (SLOPE)

Definition	<i>Slope</i> is the angle of slope at a Shape Point as traversed from Reference to Non-Reference node, or at a Node indicating the angle of slope from this Node toward the link indicated in ADAS_LINK_GEOMETRY, given in Decimal Degrees $\times 10^3$.
Value	##### The angle, in Decimal Degrees $\times 10^3$, between the Horizontal plane and the Slope Direction.
Cardinality	1:0, 1, M for Nodes 1:0, 1 for Shape Points
Type	Signed Numeric
Table	ADAS_LINK_GEOMETRY
Related Attributes	<i>Absolute Height (Z_COORD)</i> <i>Vertical Flag (VERTICAL_FLAG)</i>
Usage	<i>Slope</i> information can be used to: <ul style="list-style-type: none"> • Assist with electronic stability control. • Assist with transmission control. • Assist with adaptive cruise control. • Adjust headlight aiming.
Specification	<ul style="list-style-type: none"> • The <i>Slope</i> value is defined as follows: <ul style="list-style-type: none"> ◆ $-90000 < \text{SLOPE} \leq 90000$ ◆ <i>Slope</i> = 0 indicates Horizontal (Flat) ◆ <i>Slope</i> = 45000 indicates Upward slope

- ◆ *Slope* = -45000 indicates Downward slope
- *Slope* is published only for X, Y, Z coordinates for links.
- A link has either *Slope* values at each shape point or no *Slope* value at any shape point. It is not allowed that only a sub-set of the shape points in a link is coded with a *Slope* value. All shape points within a single link need to be coded with slope data.
- A link may have *Curvature – Heading* values, but no *Slope* value.
- When a link is coded with *Slope* values, it also publishes *Absolute Height*.

22.1.6 Vertical Flag (VERTICAL_FLAG)

Definition	<i>Vertical Flag</i> indicates whether or not a Shape Point is only included for <i>Absolute Height</i> (Z_COORD) (i.e. the Shape Point is not necessary for 2D shape).
Table	ADAS_LINK_GEOMETRY
Column	VERTICAL_FLAG
Value	N – Not Vertical Flag (i.e., existing Shape Point) Y – Vertical Flag
Cardinality	1:1
Related Attributes	<i>Absolute Height</i> (Z_COORD)
Usage	<i>Vertical Flag</i> is information supporting the decision which Shape Points may or may not be dropped during System Vendor compilation process.
Specification	See Section 22.1.1, <i>Link Accuracy</i> (LINK_ACCURACY).

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Pedestrian Content

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23.1 Introduction

Pedestrian content consists of key components distributed via RDF.

There is a related phonetic transcription product, Voice Phonetic Transcriptions for Transit and Pedestrian. See *Section 21.1, Voice Phonetic Transcriptions Overview*.

Pedestrian coverage includes all geometry and attribution required per navigable coverage area. The following are included:

Geometry

- All pedestrian geometry within parks.
- All pedestrian geometry within universities.
- Pedestrian geometry leading to the entrance of parks that require an entrance fee or parks that are private.
- All walkways within urban areas.
- Significant geometry between buildings.
- Walkways inside multiply digitised roads.
- Pedestrian crossings.
- Isolated pedestrian geometry when significant.

Cartographic Inclusion

- Neighbourhood Boundaries

POIs Included

- Neighbourhood
- Taxi Stand

23.2 Geometric Representation

23.2.1 Pedestrian Navigable Network

Generalisation Guidelines

- Pedestrian geometry is not generalised. All pedestrian geometry is digitised separately.

Walkways

Rules

- Walkways within parks, universities and urban areas are separately digitised. See *Figure 23-1*.



Figure 23-1

Pedestrian Crossing

Rules

- When a pedestrian crossing is a bridge or tunnel connection between pedestrian geometry (i.e., not a crosswalk between sidewalks), geometry is added to represent the pedestrian bridge or tunnel. See *Figure 23-2* and *Figure 23-3*.

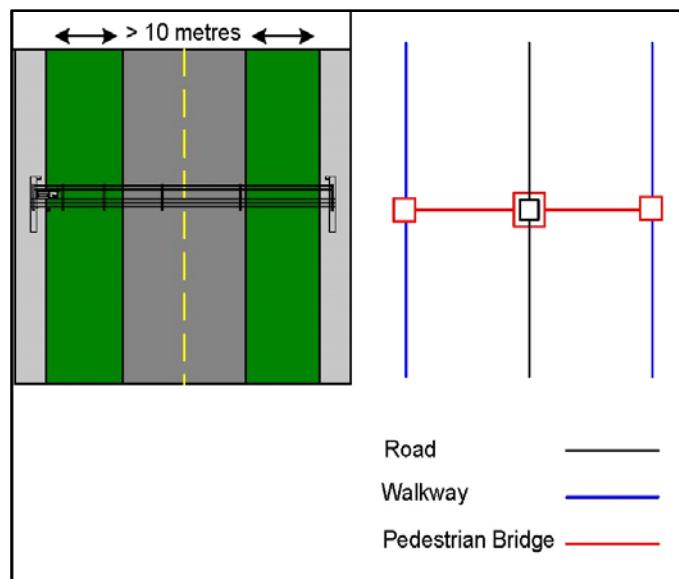


Figure 23-2



Figure 23-3

Walkways within Multiply Digitised Roads

Rules

- When walkways occur within multiply digitised roads, geometry is included. See *Figure 23-4* and *Figure 23-5*.
Note: This can be a parallel or a perpendicular path. The minimum distance rule of 10 metres for pedestrian crossings does not apply.



Figure 23-4



Figure 23-5

Walkways along Controlled Access Roads

Rules

- Walkways along controlled access roads are separately digitised.
Note: The minimum distance rule of 10 metres for pedestrian crossings does not apply.

Walkways Between Buildings or Within Complexes

Rules

- Explicitly marked walkways between buildings or in urban areas are separately digitised. See *Figure 23-6*.



Figure 23-6

Walkway Through Buildings

Rules

- Walkways passing through a *Building polygon* are separately digitised.
- Walkways passing through a *Grouped Structure* are represented by *Virtual Connection*.

23.2.2 Cartography - Neighbourhood

Rules

- Neighbourhood boundaries are applied as outline formation in relation to other *Feature Types*.
- When one neighbourhood is completely enclosed within another neighbourhood, the outer neighbourhood is applied as a full formation face. See *Figure 23-7*.

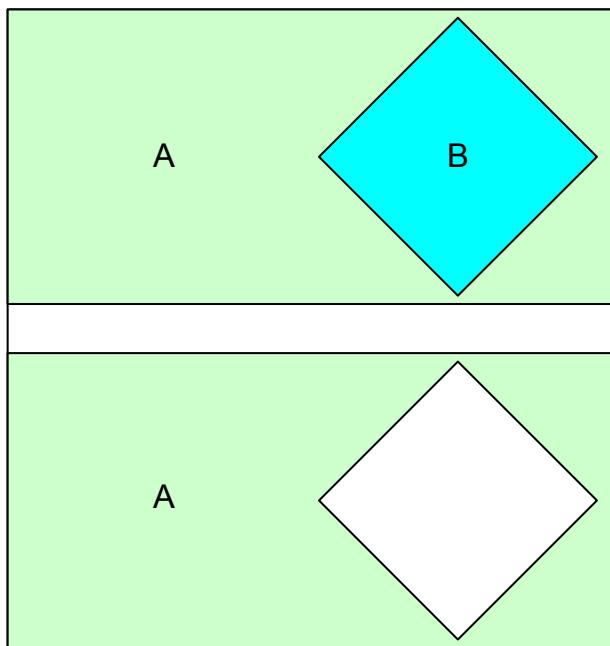


Figure 23-7

23.2.3 Pedestrian Preferred (PEDESTRIAN_PREFERRED)

Definition Identifies a road segment suitable for pedestrian navigation.

Table RDF_NAV_LINK

Column Name PEDESTRIAN_PREFERRED

Values Y = YES

N = NO

Null = Unknown

Cardinality 1:0,1

Default value Null

Related Table RDF_NAV_LINK_ATTRIBUTE

Related Attributes Stairs Traversal (STAIRS_TRAVERSAL)

Usage *Pedestrian Preferred* may be used for pedestrian route calculation.

- Specification**
- The *Pedestrian Preferred* (PEDESTRIAN_PREFERRED) attribute is an attribute that defines if geometry is verified and is suitable for pedestrian navigation. This is different from the Pedestrian access characteristic which is an indication if it is “legally” allowed to walk on a link.
 - When *Pedestrian Preferred* = Yes, then the link is verified as being suitable for pedestrians.
 - *Figure 23-8* describes the only valid combinations of *Pedestrian Preferred* (PEDESTRIAN_PREFERRED) attribute and pedestrian access characteristics (PEDESTRIANS).

Access Characteristics (Pedestrian)	Pedestrian Preferred	
	Value	Description
Y	Y	Suitable for pedestrian
Y	N	Not suitable for pedestrian
N	N	Not suitable for pedestrian
N	-	Unknown
Y	-	Unknown

Figure 23-8

23.2.4 Stairs Traversal (STAIRS_TRAVERSAL)

Definition Identifies whether stairs exists on a pedestrian suitable route.

Table Name RDF_NAV_LINK_ATTRIBUTE

Column Name STAIRS_TRAVERSAL

Values Y = YES
Null = NO or unknown

Cardinality 1:0,1

Default value Null

Related Table RDF_NAV_LINK_ATTRIBUTE

Related Attributes Stairs Traversal (STAIRS_TRAVERSAL)

Usage Stairs Traversal may be used for pedestrian route calculation in order to provide additional routing options.

- Specification**
- The *Stairs Traversal* (STAIRS_TRAVERSAL) attribute defines if there are stairs involved on a for pedestrians suitable links. This attribute will only be published with value 'Yes' when there is no way to avoid the stairs.
 - Table 23-1 on page 10 describes the only valid combinations of Stairs Traversal (STAIRS_TRAVERSAL) and *Pedestrian Preferred* (PEDESTRIAN_PREFERRED) attribute.

Pedestrian Preferred	Stairs Traversal
Y	Y
Y	N
N	N
Y	Unknown
Unknown	Unknown

Table 23-1

- Stairs Traversal* (STAIRS_TRAVERSAL) publishes N(=NO) when the number of steps is less than two.

23.2.5 Connection Type (CONNECTION_TYPE)

Definition Identifies whether stairs exists on a pedestrian suitable route.

Table Name RDF_VIRTUAL_CONNECTION

Column Name CONNECTION_TYPE

Values

- 1 = Level Street
- 2 = Extended Crossing
- 3 = Level Plaza
- 4 = Level Park
- 5 = Level Building
- 6 = Elevator
- 7 = Pedestrian Ramp
- 8 = Escalator
- 9 = Stairs

Cardinality 1:1

Default value None

Related Table RDF_NAV_LINK_ATTRIBUTE

Related Attributes	<i>Stairs Traversal (STAIRS_TRAVERSAL)</i> <i>Time Override (TIME_OVERRIDE)</i>
Usage	<i>Connection Type (CONNECTION_TYPE)</i> may be used for pedestrian route calculation in order to provide additional routing options.
Specification	<ul style="list-style-type: none">• One <i>Virtual Connection</i> per pair of nodes is allowed.• Only the less restrictive <i>Connection Type</i> is published for a given Virtual Connection, e.g., if both stairs and elevator are present, only elevator is published.

23.2.6 Stairs Traversal (STAIRS_TRAVERSAL)

Definition Identifies whether stairs exist on a virtual connection

Table Name RDF_VIRTUAL_CONNECTION

Column Name STAIRS_TRAVERSAL

Values Y = YES

N = NO

Null = Unknown

Cardinality 1:0,1

Default value Null

Related Table None

Related Attributes *Connection Type (CONNECTION_TYPE)*
Time Override (TIME_OVERRIDE)

Usage *Stairs Traversal* may be used for pedestrian route calculation in order to provide additional routing options.

Specification

- *Stairs Traversal (STAIRS_TRAVERSAL)* attribute defines if there are stairs involved on a virtual connection.
- *Stairs Traversal (STAIRS_TRAVERSAL)* = 1 (Yes) is only published in conjunction with the following Connection Type values:
 - ◆ 1- Level Street
 - ◆ 3 - Level Plaza
 - ◆ 4 - Level Park

23.2.7 Time Override (TIME_OVERRIDE)

See *Time Override (TIME_OVERRIDE)*.

23.3 Points of Interest

23.3.1 Taxi Stand

CAT_ID 9989

Definition A designated queuing, loading and unloading area for taxis usually in city centres, and buildings with high volume of pedestrians.

Table RDF_POI

Usage The *Taxi Stand* POI can be used for map display and multi-modal routing. The *Taxi Stand* can also be used for destination input.

Related Tables RDF_POI_NAME / RDF_POI_NAMES for the POI Name

RDF_POI_ADDRESS for the POI Address

RDF_LOCATION for the POI Location

RDF_POI_CHILDREN for Parent – Child associations

WKT_LOCATION

SDO_LOCATION

Inclusion

- All taxi stands officially designated by the local government are included.
- Additionally, taxi stands at well known places, for example, hotels, exhibition centres are included.

Naming *Taxi Stand* POI names are published based on the following:

- The official name is published.
- If an official name does not exist, then the name of a hotel, casino, shopping centre, public transportation system station, etc., where the taxi stand is located is published as the POI name.
- If neither an official name for the taxi stand nor a name of the area where the taxi stand is located, then the *Taxi Stand* POI is published unnamed.

Phone Number Not Included.

23.3.2 Neighbourhood

CAT_ID 9709

Definition A *Neighbourhood* POI is a centre point for a Neighbourhood Zone.

Table RDF_CITY_POI

Usage The *Neighbourhood* POI is used for map display and for destination selection.

Related Tables RDF_CITY_POI_NAMES / RDF_CITY_POI_NAME for the name of the Neighbourhood POI
RDF_LOCATION for the Location of the POI
WKT_LOCATION
SDO_LOCATION

Specification See Section 9.5.60, *Neighbourhood*.

23.4 Neighbourhood Feature

Definition The *Neighbourhood* is a polygonal cartographic feature that defines a localised community within a city.

Table RDF_CARTO

Column FEATURE_TYPE

Value See Section C.14, RDF_CARTO.

Usage *Neighbourhood* feature can be used for map display.

Related Tables RDF_CARTO_FACE / RDF_FACE for the Carto polygon
RDF_FEATURE_NAMES / RDF_FEATURE_NAME for the Carto name
WKT_FACE
SDO_FACE

Specification See Section 8.3.4.13, National Forest.

23.5 Neighbourhood Zone

Definition A *Neighbourhood Zone* is a *Zone Type* and is used to identify map features belonging to a specific neighbourhood within a city.

Table RDF_ZONE

Column ZONE_TYPE

Value See *Section C.89, RDF_ZONE*.

Usage *Neighbourhood Zones* identify local areas within a city and provide an alternate name to the city/settlement name for destination selection/input.

Related Tables RDF_LINK_ZONE to model Link – Zone association

RDF_FEATURE_NAMES / RDF_FEATURE_NAME for the Zone Name.

Specification See *Neighbourhood (Zone Type = NB)* under *Section 5.3.2.14, Zone Type (ZONE_TYPE)*.

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Naming Rules

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A.1 General Rules

UTF-8 encoded data conforms to the *Unicode Standard Normalization Form C (NFC)*. For a listing of published characters per Language Code, see the Customer Technical Reference Guide (CTRG). Note that characters not listed may be published in order to represent reality.

RDF is Unicode enabled and supports Transliteration. Transliteration as used in RDF is a combination of transliteration and transcription as defined in *Section A.1.5, Non-Latin-1 Names*. All tables are published in Unicode format. Transliterations are published in specific Transliteration tables, indicated by the _TRANS suffix (e.g., RDF_CITY_POI_NAME_TRANS is the transliteration table for Named Place POI names).

Oracle-dependent publishing of Unicode is designated as AL32UTF8.

RDF uses the UTF-8 Unicode Standard which is eight-bit UCS Transformation Format, byte ordered and identified by an optional byte-order mark. Unicode characters published in map data are compatible with versions 3.0 and higher of the Unicode standard. The Unicode Consortium maintains the Unicode standard. See <http://www.unicode.org> for more information.

A.1.1 Capitalisation (Mixed Casing)

Capitalisation of words depends on the language, the country, the name itself, and for some cases subjective. Generally, all languages that use Latin-1 characters are supported. In addition, names in WEN (World English), as used in Entry Map products are published observing capitalisation. Some HERE-supported languages, e.g., Arabic, Chinese, Hebrew, Thai, etc., do not have a concept of capitalisation.

For the applicable languages, general rules for capitalisation have been developed. However, many exceptions to such general rules exist. Specific map feature names (e.g., POI Names) are more complex to capture using standard capitalisation rules than other map features names (e.g., Street Names). Therefore, it is difficult to use standard quality metrics in relation to mixed case spelling of names. A spelling is not necessarily wrong when the capitalisation is not implemented correctly.

The following sections provide examples of mixed case rules HERE may observe. Other rules not mentioned in this specification exist and could be observed by HERE as well.

A.1.1.1 Articles and Prepositions

Articles and prepositions are all lower case when they appear in the middle of a string. Examples are contained in the table below. For specific languages however, when an article appears as the first word in a name, it starts with a capital letter.

Articles	Language Code	Names
de, du, la, le, aux, et	FRE	Rue de la Liberté
		Impasse du Guerrier
van, de, tot, der	DUT	Laan tot de Wetenschap
		Arthur van Daelestraat

Articles	Language Code	Names
della, de, di, del, la	ITA	Piazza del Centro
		Piazzetta de la Posta
in, den, von, mit, dem, nach, über	GER	In den Stickelwiesen
		Marie-von-der-Decken-Strasse

A.1.1.2 Titles of Persons

Various titles of persons exist in feature names, e.g., Doctor, Professor, Engineer, Saint, etc. Such titles are frequently abbreviated differently per Language Code. Examples are contained in the table below:

Language Code	Names
DUT	Prof. Kohnstammstraat
TUR	Prof. Hulusi Behçet Caddesi
GER	Dr.-Winklhofer-Strasse
ITA	Piazza Mons. Prof. Cesare Gaffuri
ENG	St. Mary

A.1.1.3 Abbreviations

Names can include abbreviations of various types. Abbreviations follow standard capitalisation rules, e.g., ISO, ASCII, U.S.A., etc. Abbreviations of single letters separated by dots are all uppercase. Examples are contained in the table below:

Language Code	Names
ITA	Strada Statale S.S. 26
FRE	Rue de l'U.S.S.R.
FRE	Rue du 372ème R.A.L.V.F.
RUM	C.E.T. Grozavesti
ITA	Strada Provinciale Cerro al Volt. Rocchetta al Volt.

A.1.1.4 Roman Numerals

Names in Europe regularly include roman numerals, like V, X, MC, III, etc. Such roman numerals are all upper case. Examples are contained in the table below:

Language Code	Mixed Case Names
ITA	Piazza XV Luglio
ITA	Via Parco XXVIII Maggio
SCR	Kozari Put I Odvojak XVI
FRE	Parc du XXVième Centenaire
SPA	Calle Siglo XIX

A.1.1.5 Ordinal Numbers

Ordinal numbers have an ordinal indicator, which is a sign/symbol adjacent to a numeral denoting that it is an ordinal number, rather than a cardinal number. Ordinal numbers are pronounced differently from cardinal numbers. For example, in the English language, the ordinal indicator of “st” following a number indicates that the “1” in the name “1st Street” is an ordinal number, which would be pronounced as “First”. Ordinal indicator signs/symbols vary by language.

HERE represents ordinal indicators as follows:

- Ordinal indicators are published as lowercase letters regardless of the casing in the official name, e.g., Spanish ordinal indicators of 1^a and 1^A are published as “1a”.
- A space is applied following an ordinal indicator to separate it from the rest of the name. For example, a name on a street sign, which in reality shows “Calle 1^aA”, is published as “Calle 1a A”.

A.1.1.6 Language Specific Exceptions

Some languages have specific exceptions to the general mixed case convention. HERE models exceptions for various languages. Several examples are provided below:

- | | |
|------------------|--|
| Dutch Examples | A word starting with 'ij' is properly spelled as 'IJ': <ul style="list-style-type: none">• The city, 'IJMUIDEN' is spelled as 'IJmuiden'.• The river 'IJssel' is spelled as 'Ijssel'. A word starting with 'S' is properly spelled as 's' and the second letter is capitalised. <ul style="list-style-type: none">• 'S-HERTOGENBOSCH is spelled as 's-Hertogenbosch.• 'S-HEERENLANDE is spelled as 's-Heerenlande. |
| English Examples | Words starting with MAC or MC usually observe different capitalisation convention: <ul style="list-style-type: none">• MCMURPHY is spelled as McMurphy.• McDONALD is spelled as McDonald. |

Other language specific exceptions exist are also considered in the mixed case representation of names.

A.1.1.7 Miscellaneous Exceptions

Specific names in the HERE Map Content do not observe mixed case spelling since these names are written in upper case in reality. Examples include:

- Exit Numbers
- POI Names including Brand Names which observe their own casing styles (e.g., YAHOO!, IBM, BP, TMobile, etc.)
- Abbreviations of Administrative Areas (e.g., CA for California, IL for Illinois, etc.)
- Airport Codes (e.g., AMS, LAX, ORD, MNL, etc.)

A.1.2 Language Code

- Each name receives a *Language Code*. Regardless of the origin of a base name, only languages defined as official for a given administrative area are valid in that area. For example, in the U.S. only language type ENG is official even for names like "El Camino Real" or "San Jose" which are of Spanish origin.
- For languages containing non-Latin-1 characters (e.g., Russian, Greek, etc.), names are transliterated and are published in the Trans Name Records. These names are also supported by the delivery of an accompanying External "look-aside" file. See *Section A.1.5, Non-Latin-1 Names* for details.
- In administrative areas with multiple official languages, multiple features may be published, each with one *Official Name* if the names are different in each language. For example, if French and English are both official languages, "Avenue Main Avenue" is represented as two features; "Avenue Main" (FRE) and "Main Avenue" (ENG).

If the feature has only one name in reality, the *Official Name* is published with the correct Language Code according to reality. This may be any of the official languages as defined for that administrative area.

- A Language Code does not necessarily represent a world recognised language. Language Codes contained in HERE's Map Content have various definitions. These are described as follows:
 - For the Map Language Codes, HERE uses the three character standard code defined by MARC. HERE uses the MARC standard as defined by MARC at the time of inclusion into the map products. For example, when HERE introduced a map product for Serbia, the official MARC Language Code was "SRB." After the political reorganization of the Balkans at the end of the 20th century the MARC standard for Serbian was changed to "SRP." HERE data does not reflect changes to MARC Language Codes after the initial HERE product is made available.
 - Some HERE Map Content products are delivered with the Language Code "WEN" (World English). World English is not a language and therefore, not MARC Language Code standard. "WEN" is a construct created by HERE that is used as a unique Language Code for Entry Maps and Intermediate Maps products. Source data for these products is often acquired in multiple languages. Using the "WEN" Language Code for these products allows HERE to deliver the data in only one Language Code.
 - Phonetic Language Codes, Transcribed Language Codes, and Transliteration Types are all defined by HERE as no MARC standards are available for these specific types of HERE data.

Note: Many Map Language Codes, such as French (FRE), Spanish (SPA), Dutch (DUT), etc. are also used in the Voice Phonetic Transcription product as Phonetic Language codes.

A.1.3 Bilingual Areas

HERE considers a country or administrative area bilingual when both of the following apply:

- More than one language is defined as an *Official Language*.
- Of the *Official Languages*, more than one is modelled by HERE.

Bilingualism is defined at any particular administrative level (from country to settlement). The Country Profile document contains a complete listing of bilingual administrative areas for each country. Different levels of bilingualism (Level 1 through 4) exist. These are also listed in the same document for all bilingual administrative areas.

These are defined in the following sections.

A.1.3.1 Level 1 Bilingual Area

This is an administrative area that has more than one *Official Language* (that is modelled by HERE), and more than one of these can be defined as a Regional Primary language (e.g., Brussels in Belgium, where both Dutch and French are the *Official Languages*). These areas are usually officially recognised by the government as bilingual.

Multiple Names

Two *Official Names* are published if different names exist for each official language. Additional names in a different language than the official languages are published as *Alternate Name*. See *Table A-1* as an example for the city of Brussels (Belgium).

Name	Language Code	Type
Brussel	DUT	<i>Official Name</i>
Bruxelles	FRE	<i>Official Name</i>
Bruselas	SPA	<i>Alternate Name</i>
Brussels	UKE	<i>Alternate Name</i>
Bruxelas	POR	<i>Alternate Name</i>
Bryssel	SWE	<i>Alternate Name</i>
Bryssel	FIN	<i>Alternate Name</i>
Brüssel	GER	<i>Alternate Name</i>

Table A-1

Single Name

One *Official Name* with the default *Language Code* is published if one name exists, which is the same in both Official Languages.

A.1.3.2 Level 2 Bilingual Area

This is an administrative area that has more than one *Official Languages* (that is modelled by HERE), but only one regional primary language (e.g., Wales).

Multiple Names

The name in the regional primary language is published as the *Official Name* if different names exist in each Official Language. Names in a language different from the regional primary language are published as *Alternate Names*. For example, the city of Helsinki (Finland) would have “Helsinki” as the *Official Name* with the FIN *Language Code*. “Helsingfors” (SWE) is published as an *Alternate Name*.

Single Name

- The name in the regional primary language is published as the *Official Name* if one name exists that is the same in both Official Languages.
- The name with the corresponding *Language Code* is published as the *Official Name* if one administrative name exists in a language that is defined in the *Country Profile Document* as official, but is clearly not the regional primary language. For example, the regional primary language in Wales is English (ENG). A Welsh administrative name in Wales is published with the WEL *Language Code*.
- Exonyms (i.e., names in Foreign Languages) when they exist are published as *Alternate Names*. For example, “Helsínquia” (POR) would be published as an *Alternate Name*.

A.1.3.3 Level 3 Bilingual Area

This is an administrative area that has more than one *Official Language* (that is modelled by HERE), but no regional primary language (e.g., Luxembourg).

Multiple Names

- The name in the Default Language is published as the *Official Name* if different names exist for each Official Language. Names in a language different from the Regional Primary language are published as *Alternate Names*. For example, at the country level, “Luxembourg” would be the *Official Name* with the FRE *Language Code*. “Luxemburg” (GER) would be published as an *Alternate Name*.
- Exonyms (i.e., names in Foreign Languages) when they exist are published as *Alternate Names*. For example, “Lussemburgo” (ITA) would be published as an *Alternate Name*.

Single Names

- The name with the Default Language Code is published as the *Official Name* if one administrative name exists that is the same in both Official Languages.
- The name with the corresponding *Language Code* is published as the *Official Name* if one administrative name exists in a language that is defined in the *Country Profile Document* as official.
- Exonyms (i.e., names in Foreign Languages), when they exist, are published as *Alternate Names*.

A.1.3.4 Level 4 Bilingual Area

This is an administrative area that has one Official Language (so is not technically bilingual), but this is not the same as the Default Language. For example, (Bezirk) Bernina in Switzerland has ITA as the only Official Language, while the Default Language for Switzerland is GER.

Single Name

- The name in the regional primary Language Code is published as the *Official Name*. For example, Neuchâtel (Switzerland) is published with the FRE *Language Code*.
- Exonyms (i.e., names in Foreign Languages) when they exist are published as *Alternate Names*.

A.1.4 Exonyms and Transliterations

Exonyms/Transliterations define the name of any feature in any language that is different from the default language specified for the Feature (Transliterations are defined for non-Latin-1 languages):

- Exonym is a name of a feature in any language that is different from the Default Language specified.
- Transliteration is a Latin-1 representation of a name in a non-Latin-1 character set. See *Section A.1.5, Non-Latin-1 Names* for more information

Exonyms and Transliterations are published for Administrative Areas/Zones, Cartographic Features, and Metadata according to the table below. Exonym is still published even when the spelling of the feature is the same in a different language.

Exonym Inclusion for Administrative/Cartographic Features and POIs

Feature Name	Languages Included						
	Global	Regional					
		APAC	Africa	Europe	N. America	Mid. East	S. America
Administrative Area Names (Administrative Level 1-5) (Administrative Level 0 - 4)	X ¹						
Country Capitals for Administrative Level 0 (i.e., <i>Named Place POI</i> with <i>Capital Indicator</i> = Y)	X ¹						
Cartographic Feature: Ocean	X ¹						
Cartographic Feature: Island				X ²			
Cartographic Feature: Select categories		X ³				X ⁴	
POI Attributes: <i>Restaurant Type</i> , <i>Food Type</i> , <i>Regional Food Type</i> POI Attributes: <i>Restaurant Type</i> , <i>Cuisine ID</i> , <i>Regional Cuisine ID</i>	X ⁵						
<i>Named Place POIs</i> with <i>Capital Indicator</i> =Y	X ⁵			X ⁵	X ⁶		

Exonym Inclusion for Administrative/Cartographic Features and POIs (Continued)

Feature Name	Languages Included						
	Global	Regional					
		APAC	Africa	Europe	N. America	Mid. East	S. America
Nationally important POIs	X ⁷						

1. Language inclusion can vary by country/feature but generally include the following: ARA, BUL, CHT, CZE, DAN, DUT, ENG, EST, FIN, FRE, GER, HIN, HUN, ICE, IND, ITA, JPN, KOR, LIT, NOR, POL, POR, RUM, RUS, SCR, SLO, SPA, SWE, THA, TUR, and UKR. In addition, the corresponding transliteration language is added if applicable.
2. Currently included only in Greece: TUR
3. Currently included only in India: HIN
4. Currently included only in Israel and Palestine: ENG (for features that include that may not be limited to the following: Airport, Amusement/Animal Park, Cemetery, Hospital, Industrial Complex, Lake, Park(City/County/State), Park/Monument(National), River, Shopping Centre, Sports Complex, and University/College).
5. Language inclusion can vary by region but generally include the following: CZE, DAN, DUT, ENG, FIN, FRE, GER, GRE, HUN, ITA, NOR, POL, POR, RUS, SLO, SPA, and SWE.
6. Language inclusion can vary by country but generally include the following: ENG, FRE, and SPA.
7. Language inclusion can vary by region but generally include the following as minimum: DUT, FRE, GER, ITA, and SPA.

Table A-2

A.1.5 Non-Latin-1 Names

- In countries where names contain non-Latin-1 characters (e.g., Russia, Greece, etc.), additional names may be published for a feature. These are the following:
 - Transliteration, which has a “transliterated” Language Code (e.g., RUX for Russian Translated) is published in the appropriate table for transliterated names (e.g., RDF_POI_NAME_TRANS, RDF_ROAD_NAME_TRANS, RDF_FEATURE_NAME_TRANS, RDF_SIGN_ELEMENT_TRANS, etc.).
 - Transcription, which has a “transcribed” Language Code (e.g., SCT for Serbian Transcribed) represents an alternative Latin-1 representation and is published in the appropriate table for “native” names (e.g., RDF_POI_NAME, RDF_ROAD_NAME, RDF_FEATURE_NAME, etc.)
- For languages where phonetic transcription is available (e.g., Spanish, French), names are transcribed into phonemes and are published in the Voice Tables. See *Section 12.7, Voice Tables*:
Note: Transcription Records for these names are also supported by the delivery of external lookaside voice files. See the document: HERE Voice Reference Guide.

Transliteration

Transliteration means Latin-1 representation of a name in a non-Latin-1 character set. It is defined to enable Latin-1 keyboard entry for non-Latin-1 names. Each non-Latin-1 Character set requires a transliteration. Therefore, when a non-Latin-1 language is used for a country, a corresponding Transliteration Type is defined.

Transcription

Transcription also means to represent (letters or words) using corresponding characters from a different alphabet, that most closely represent the pronunciation in the original language. In HERE data, transcription is used to refer to names that appear in reality in Latin-1 characters in countries that use a different character set by default (e.g., Mc Donalds, Shell, Pizza Hut, etc.).

Note: In the context of voice representation, where Transcription means the phonetic representation of a name string, Transcriptions can also exist for non-Latin languages where Voice content is supported. See *Chapter 21, Voice Phonetic Transcriptions*.

The *Transliteration Type* indicates a HERE-generated Latin-1 representation (whether Transliteration or Transcription) of a word in a language that does not use Latin-1 characters.

Rules

- Each name with a MARC Language Code that contains Unicode characters always have a corresponding transliteration with a HERE *Transliteration Type*. For example, all names with the *Language Code* RUS also have a name with the *Transliteration Type* RUX.
- In Europe, names with *Transliteration Types* are generated by HERE.
- In some Asian countries, the names with *Transliteration Type* (e.g., VIE, THE, etc.) represent either a translation or transliteration. Unlike countries in Europe where HERE generates the Transliteration, Transliterated names are based on ground truth, i.e., as sign posted. As a result, a native non-Latin-1 Name can have more than one associated transliteration name: a translation and a transliteration, or various transliterations.

Note: In Arabic countries, translations are simply added as second names. See *Section A.1.5.2, Translations for Multilingual Countries*.

- See the *Country Specific Rules* document for the transliteration of various non-Latin-1 languages.

A.1.5.1 Transliteration and Transcription Languages

Examples of countries with languages that have corresponding transliterations (and in some cases, additional transcriptions) are contained in *Figure A-3*. See the accompanying *Country Profiles* for the complete list.

Country	Official Language	Transliteration Language		Transcription Language	
		Code	Description	Code	Description
Croatia	SCR	SRX	Croatian Transliterated	N/A	
Greece	GRE	GRX	Greek Transliterated	GRT	Greek Transcribed

Table A-3

A.1.5.2 Translations for Multilingual Countries

For countries defined by HERE as multilingual (see the *Country Profiles: Regional Bilingual/Multilingual Information* for listing), translations either in English or French are also published. These translations for various feature names are published in the Name field of the main table for a feature (e.g., RDF_POI_NAME, RDF_ROAD_NAME, RDF_FEATURE_NAME, etc.).

In addition to features names, translations are also published for the following:

- *Actual Address* (ACTUAL_ADDRESS)
- *Full House Number* (FULL_HOUSE_NUMBER)
- *Guidance Association Name* (NAME)
- *Exit Number* (EXIT_NUMBER and ALT_EXIT_NUMBER)

A.1.6 Abbreviations

- Abbreviations are not used unless the name entry exceeds 35 characters. When this occurs words are abbreviated backward, from the last word in the entry. Only the number of words necessary to fit the Base Name entry into the field are abbreviated.
- Spaces are not used between acronyms e.g., “IBM Blvd” not “I B M Blvd”.

A.1.7 Punctuation

- Punctuation (e.g., apostrophes, hyphens, etc.) is included if indicated in the source material. The following characters are valid: ~ ! @ # \$ % ^ & * () _ + | ` ^ - = \ { } [] ; : ' " , . < > ?

- Base names do not begin with a “-”. If the street type creates a *Base Name* which begins with a dash, then the whole name is put into the base name and no *Street Type* is applied. Example: “Plein-Zuid” and “Platz-der-Deutschen-Einheit”

A.2 Naming Rules for Specific Features

A.2.1 Administrative Features

Feature Code 1111, 1112, 1113, 1119, 3110
(ADMIN_TYPE)

- Rules** [Administrative Features](#)
- See *Section 5.2, Representation of Specific Areas* for specific rules.
- [Administrative Boundaries on a Coastline](#)
- The names of all the administrative levels present on the coastline are applied. For example, the coastline of the Mediterranean Sea in France near Marseille includes the following names: France (Country), Provence-Alpes-Côtes d'Azur (Région), Bouches-du-Rhône (Département), Marseille (Commune), Mer Méditerranée (Ocean/Coastline). In the U.S., the corresponding Country, State, County, City and Water Feature names would be included.
 - When there is a bay along the coastline, the administrative names along the bay/ocean boundary are applied.
 - The name of the ocean/sea in the national language of the country to which it belongs is applied.
 - The names of all administrative levels and the corresponding feature types are applied for islands located within ocean polygons.

A.2.2 Cartographic Country Boundary Feature

Feature Type 908000

Rules See *Section 8.3.1.3, Cartographic Country Boundary*.

A.2.3 Cartographic State/Province Boundary Feature

Feature Type 908001

Rules See *Section 8.3.1.4, Cartographic State/Province Boundary*.

A.2.4 Bridges and Tunnels

- Rules**
- If a bridge or tunnel is named, the name is applied to each link flagged as either bridge or tunnel.
 - Names for railroad bridges/tunnels are not included.

- When the road associated with a bridge or tunnel continues with the same name or Route Number after the entity, that road name or route number is assigned to the links that received either bridge or tunnel. If the name changes after the entity, only the bridge name is applied to those links. Bridge and tunnel names receive *Explicable* = Y.

A.2.5 Building/Landmark Outlines

Feature Types See *Table for Building/Landmark Features* in Section 8.3.2, *Building/Landmark Features*.

Rules

- The name of the Building/Landmark outline is identical to the corresponding POI name. See Section 9.4.5, *Land Cover or Administrative Area vs. POI Inclusion*.
- All Building/Landmark outlines within a cluster have the same name.
Note: A cluster is defined as a group of adjacent Building/Landmark outlines that together represent a single entity. For example, a hospital complex may have several separate buildings that together represent the hospital.
- Unclassified Building/Landmark features (Feature Type 2005700) do not have a name, i.e., they are unnamed.
- See Section 8.3.7.5, *Official Name/Alternate Name (NAME_TYPE)* for descriptions and rules for these Feature Types.

A.2.6 Calamity Prone Areas

Rules

Names are included based on government sources if available for the following Features

- Hurricane Prone Area
- Flood Prone Area
- Tsunami Prone Area

A.2.7 Express, High Occupancy Vehicle (HOV) or Bus Lanes

Rules

- When Express, HOV or Bus lanes are digitised separately from the main links of a controlled access road, the appropriate local term ("EXPRESS", "HOV", "BUS") is included in the Feature Name for each link to differentiate these lanes from the main part of the roadway.
- "Ln" is applied in the Street Type field. For example:

Feature Name	Kennedy Express	I-10 HOV	I-94 BUS
Street Type	Ln	Ln	Ln
Route Type	N/A	N/A	N/A

A.2.8 Ferry Connections

- Rules**
- When a boat or rail ferry is named, the name is applied to each Ferry Element that comprises the route.
 - When the route itself has no name, the name of the ports connecting the two ends of the ferry route (e.g., Vlissingen-Breskens), or an E-route number when the ferry connects two countries, is applied.

A.2.9 Frontage Roads

- Rules**
- When the name of the frontage road is supplied by source material, that name is applied to the road.
 - Route names applied to frontage roads have no *Route Type* information unless there are posted route type signs. Additionally, if no *Name Route Type* is applied to a highway name on the frontage road, then any directional in the name (N, S, E, W) is applied as a Suffix instead of a *Route Direction*.

North America

- When the name of the frontage road cannot be determined from the source material, all the names and route numbers assigned to the associated main road are applied to the frontage road, as shown in *Figure A-1*.

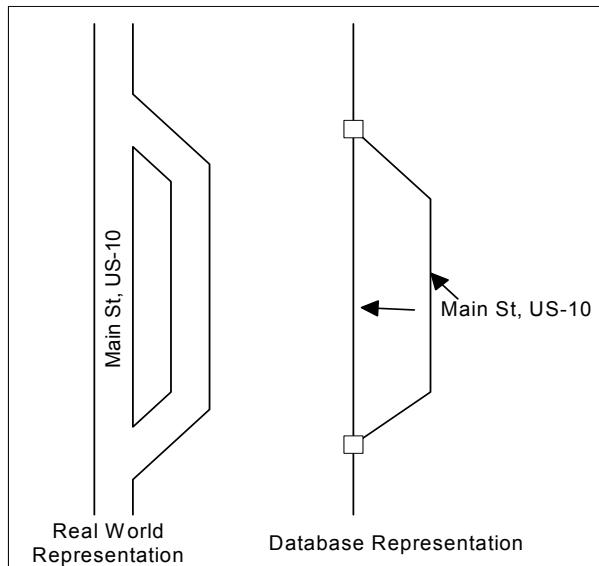


Figure A-1

Europe

- Route numbers are generally not assigned to frontage roads.

- When the name of the frontage road cannot be determined from the source material, only the non-route road name assigned to the associated main road is applied to the frontage road, as shown in *Figure A-2*.

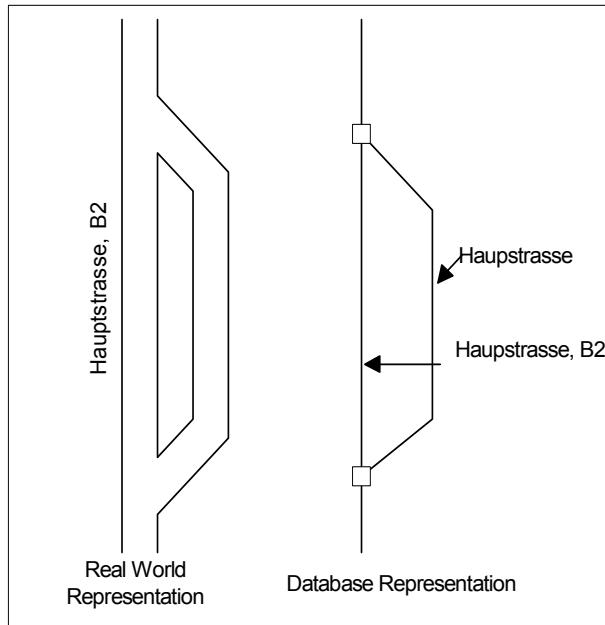


Figure A-2

A.2.10 Hospital

Feature Type 2000408

Rules The geometry within a hospital complex is unnamed, unless named in reality.

A.2.11 Industrial/Business Area

Feature Type 2000200

Rules Naming for Industrial/Business areas can vary from country to country.

A.2.12 Intersection Internal Links

Rules

- If the name of a road is the same on both sides of an intersection internal link, that road name is applied to the intersection internal link, as shown in *Figure A-3*.

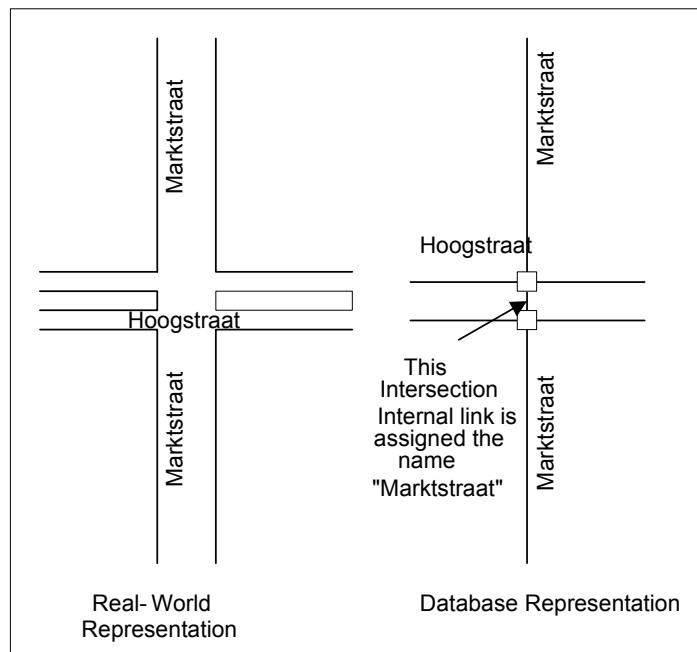


Figure A-3

- If, however, the name of the road is different on both sides of the intersection, as illustrated in *Figure A-4*, the intersection internal link remains valid unnamed.

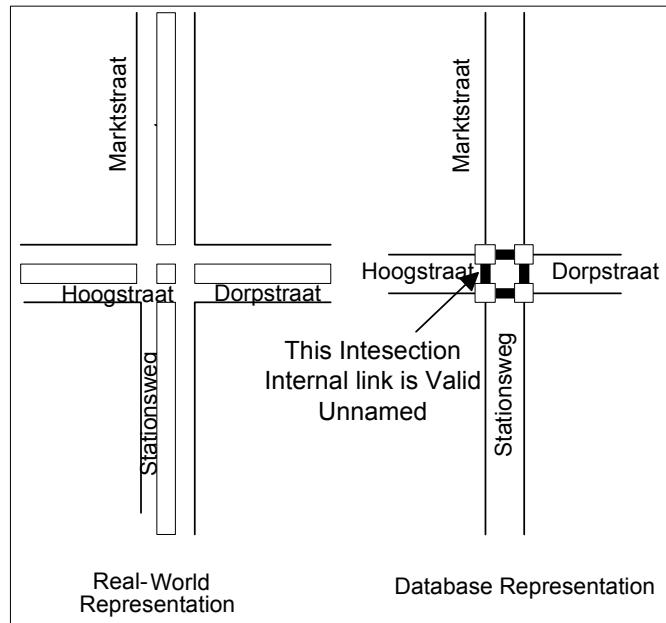


Figure A-4

- Figure A-5 provides examples of how names are applied to intersection internal links. Examples 2 and 4 are valid unnamed because of the change in the name receiving *Official Name*.

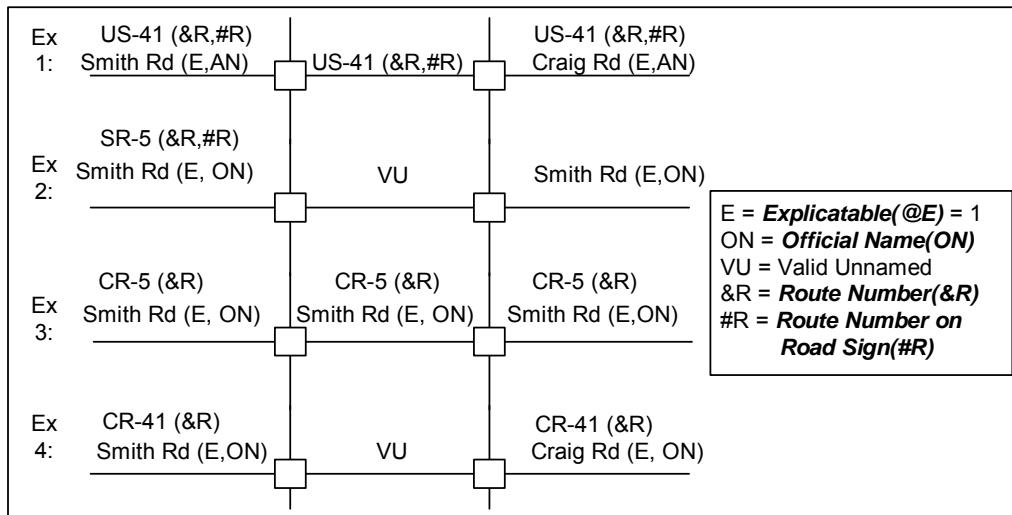


Figure A-5

A.2.13 Junction

Rules

- A junction between two or more roads not crossing at grade may be named. A junction generally consists of ramps and intersection internal links. These links receive the name of the junction with attributes *Junction Name* = Y and *Explicable* = Y. The name is published as *Official Name* with *Route Number on Road Sign* = Y if the path name is a route number. See Figure A-6.
- Highway-to-Highway connectors also receive the junction name, regardless of ramp coding, as long as they are part of the junction.

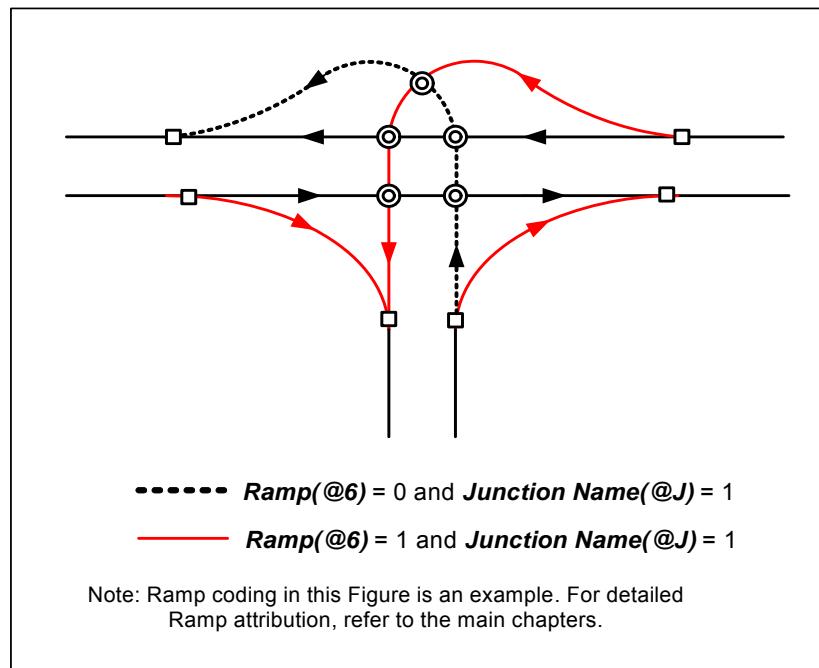


Figure A-6

A.2.14 Manoeuvre

Rules

- When a road ends with two splitters, the links of the splitters are named.
- If a road were to have one turn lane that link is valid unnamed. See *Figure A-7*.

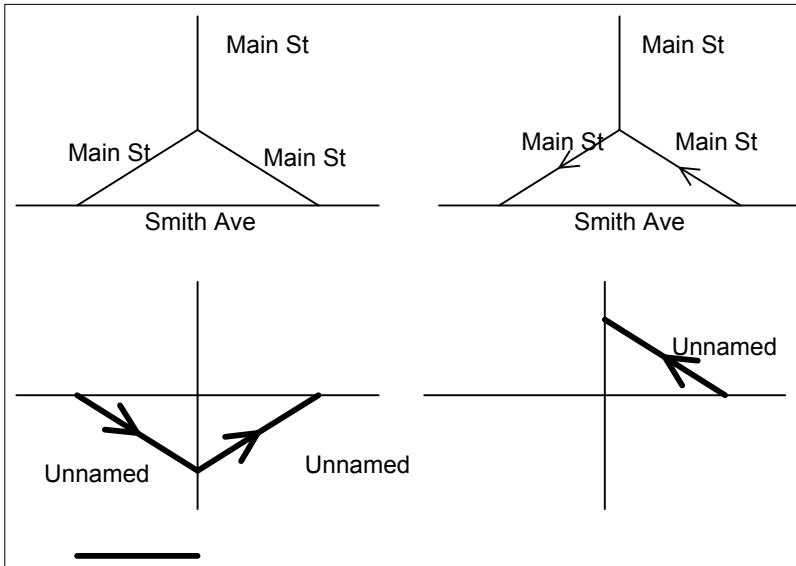


Figure A-7

A.2.15 Mountain Passes

Rules In Europe only, the names of mountain passes are entered on short links of about 200 metres/656 feet, with the middle of the link at the location of the pass on the map.

A.2.16 Oceans

Feature Type 0500116

Rules

- The ocean polygon receives the ocean name in the corresponding country's language. For the Pacific Ocean off the coast of California, the name would be "Pacific Ocean" with ENG as the *Language Code*.
- If there is a nearby country, the ocean polygon geometry coincides with that country's land mass. However, the nearby administrative names are not added to the ocean's edges.

A.2.17 Park in Water

Feature Type 0900140

Rules The name of the Park in Water face matches the name of the park on land if they represent the same park. See *Section 8.3.4.15, Park* for more details.

A.2.18 Ramps

Rules

- Ramps are named with the Exit Number and/or the Junction Name from a posted sign. If neither an Exit Number nor a Junction Name exists, the ramp is valid unnamed.
- When a route number continues over the Highway-to-Highway Connector the route number is applied to the Highway-to-Highway Connector links and the *Name Route Type* is set. See *Figure A-8*.

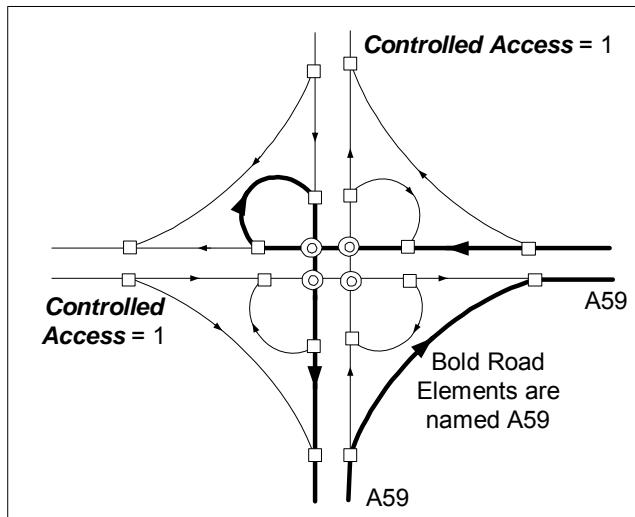


Figure A-8

A.2.19 Rest Areas

- Rules**
- Rest Area roads are unnamed. Even if the Rest Area has a name (i.e., Lincoln Oasis), the links are Unnamed.

A.2.20 Roads within Airports

- Rules**
- Posted street names within an airport are included as *Official Names* with *Explicatable* = Y.
 - If no posted street names exist, the links are unnamed.

A.2.21 Roads within Complex POIs in the U.S.

- Rules**
- Names are applied to roads within complex POIs (e.g., Universities, Shopping Centres, etc.) as posted on street signs. If signs do not exist in reality, the roads are unnamed.

Universities or Colleges

- Roads within campuses are also named when names are listed in the postal file.
- When postal names are associated to academic building or residence hall names, rather than street names, the names are applied as follows:
 - When the postal file name is one of multiple names on a link, *Postal Name* = Y is applied to the postal name. All other name status are set to "N".

- When the postal file name is the only name on the link, the following are applied: *Explicatable* = Y, *Official Name (Name Type* = B), *Vanity Name* = Y, and *Postal Name* = N.

Shopping Centres

- If the shopping mall name exists on a street sign for the main entrance road, this is applied as *Vanity Name* to the entrance link.
- All driving lanes within parking lots are unnamed.

A.2.22 Roads within Residential Complex

Feature Type 9999999

- | | |
|--------------|---|
| Rules | <ul style="list-style-type: none">• Official street names within an apartment, town house, or mobile home complex are applied. In this case, the name of the apartment or mobile home complex is not added as an additional name.• If no street names exist, the name of the apartment, town house, or mobile home complex is applied (e.g., El Dorado Mobile Home Park, Willowbend Apartments, etc.). These names are applied with <i>Vanity Name</i> = Y, <i>Explicatable</i> = Y, and <i>Name on Road Sign</i> = Y and are Valid Unaddressed. |
|--------------|---|

A.2.23 Roundabouts and Special Traffic Figures

- | | |
|--------------|---|
| Rules | <ul style="list-style-type: none">• If a Roundabout or a Special Traffic Figure is named, that name is applied to each link that comprises the Roundabout or Special Traffic Figure, as shown in <i>Figure A-9</i>, otherwise the links are coded as unnamed.• The names or route numbers of the streets that connect to the Roundabout or Special Traffic Figure are not included except when necessary for addressing. |
|--------------|---|

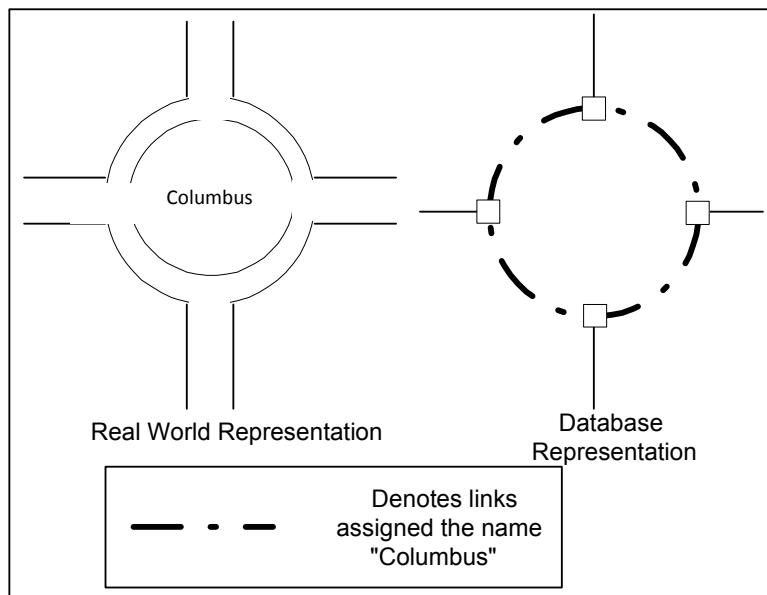


Figure A-9

A.2.24 Route Numbers

- Rules**
- The appropriate Route Number is applied for each numeric or alphanumeric route. See *Section 4.3.16, Route Number on Road Sign (IS_NAME_ON_ROADSIGN)*.

A.2.25 POI Access Roads

- Rules**
- POI access roads are generally unnamed.

A.2.26 Supplemental Geometry

- Rules**
- Supplemental geometry is named per reality.
 - Trail names can be based on the name of the Trailhead POI.
- Note: For valid unnamed supplemental geometry, no ROAD_NAME_ID is published in the RDF_ROAD_LINK table.

A.2.27 Turn Lanes and U-Turn Lanes

- Rules**
- A name is not assigned to turn lanes or U-turn lanes, as shown in *Figure A-10* and *Figure A-11*. The only exception is when there are addresses present.

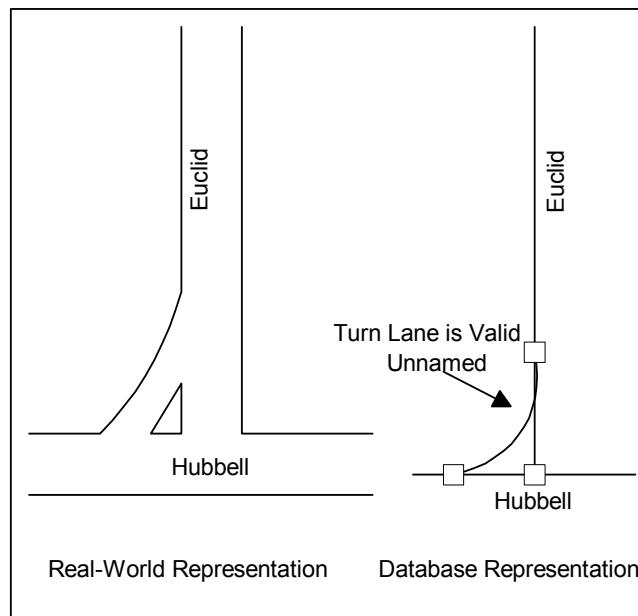


Figure A-10

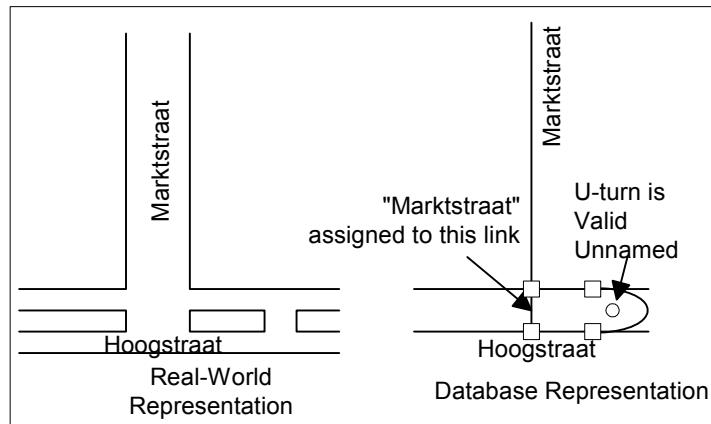


Figure A-11

A.2.28 Undefined Traffic Squares

Rules

- If an Undefined Traffic Square (UTS) is named, that name is applied to each link within the UTS and the UTS face, as shown in *Figure A-12*. If the Undefined Traffic Square is unnamed, no name is applied to each link within the UTS and the UTS face.

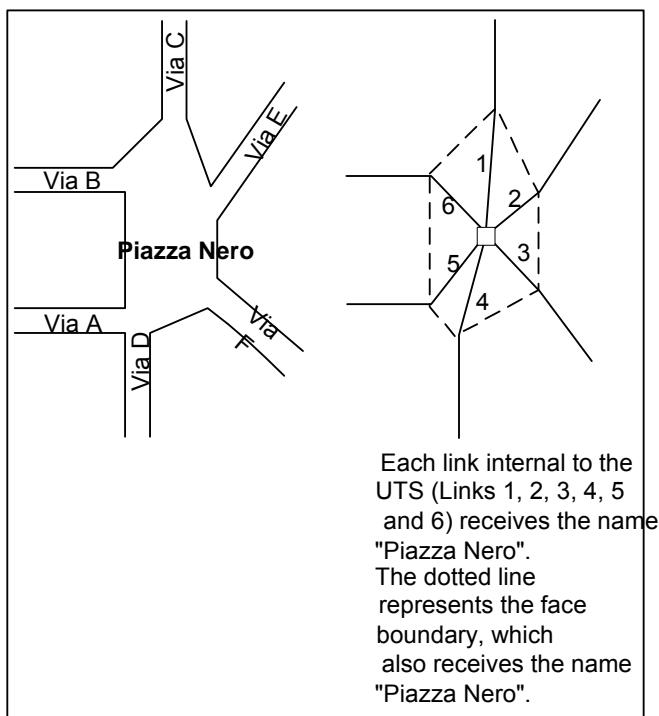


Figure A-12

A.2.29 Unnamed Roads Added for Connectivity

Rules

- If it is determined from all source material that the link is not named, the link remains unnamed in the database.
- A name is applied for an unnamed connector road leading to named roads within apartment complexes, etc., based on the name of the apartment complex or other relevant signs.
- If unnamed road(s) connect a named road to an entrance ramp, no name is created for the unnamed road(s). In France, name information found on “Lieux-dits” is not included.

Appendix B RDS-TMC

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B.1 Introduction

The inclusion of *RDS-TMC* codes in the HERE extracts allows applications to receive traffic messages and communicate this information to the driver. RDS is an acronym for Radio Data System. This system broadcasts traffic information about specific locations along a road. TMC is the acronym for Traffic Message Channel. This is the radio channel that transmits the digital traffic messages.

HERE provides different types of traffic tables: Government Tables, Third Party Tables, and HERE Tables. Each table uses either the European or the North American style of coding. See *Table B-1*.

Type	Source	Style	Country Example
Government	Official	European	Europe Singapore South Africa Thailand
Third Party	Third Party	North American	Australia
HERE	HERE	North American	U.S Canada Mexico Puerto Rico Brazil New Zealand Russia Portugal

Table B-1

The database includes RDS-TMC Problem Locations, known as PLOCs. A PLOC is a pre-defined location along a road that receives its own unique code - an *RDS-TMC* code.

The *RDS-TMC* table typically contains a number of columns, as shown in *Table B-2*. They may vary for each country, but HERE extracts the relevant information required for correct coding. Codes are typically divided into main types, such as P1 (Junctions), P2 (Intermediate points), P3 (Landmarks), etc., where 'P' refers to the Point Location. Within each type there are further sub-types such as P1.3 (motorway junction), P1.4 (motorway exit), etc. The sub-type information can help to determine the exact position of the PLOC. For example, P3.4 = Rest Area so the PLOC's location is a rest area.

For all figures in this appendix, see *Figure B-1* for the legend:

Note: The RDS-TMC codes in the figures of this appendix are abbreviated. Only the Directional Indicator and Location ID are given.	
--	Links between PLOCs. These links receive the code of the next PLOC preceded by a "+" if they are on the positive side of the road and a "-" if they are on the negative side.
—	Links inside the PLOC. These links receive the code of the next PLOC preceded by a "P" if they are on the positive side of the road and a "N" if they are on the negative side.
PLOC	Problem Location number based on the country RDS-TMC table.

Figure B-1

Location Code	Type	Road-Number	Road Name	First Name	Second Name	Negative Offset	Positive Offset
02099	P1.0	M20	Junction 1	A38/ Red Interchange	A Road	<blank>	2100
02100	P1.0	M20	Junction 2 (Eastbound)	Circle Hill	B Road/C road	2099	2101
02101	P1.0	M20	Junction 2	Chester	D Road/F Road	2100	2102
02102	P1.0	M20	Junction 3	Z Motorway Interchange	Z Motorway	2101	2103
02103	P1.0	M20	Junction 4	WestVille	G Road	2102	2104
02104	P1.0	M20	Junction 5	City D (West)	K Road	2103	2105
02105	P1.0	M20	Junction 6	City D (Central)	L Street	2104	2106
02106	P1.0	M20	Junction 7	City D	N Road	2105	2107
02107	P1.0	M20	Junction 8	City D (East)	N Road/City D	2106	2108
02108	P1.0	M20	Junction 9	City C (West)	O Road	2107	2109
02109	P1.0	M20	Junction 10	City C (East)	S Street/T Street/X Street	2108	2110

Table B-2

This section describes how to apply RDS-TMC codes to navigable features. The information provided in this section includes:

- *RDS-TMC*
- *Inclusion of Problem Locations*
- *Linear Location*
- *Point Location*
- *Internal Codes on Multiply Digitised Roads*
- *Placement of Codes on Bidirectional Roads*
- *Point Locations at the Start or End of a Linear Location*
- *Placement of Internal Codes in Complex Situations*
- *Placement of External Codes in Complex Situations*
- *Placement of Internal Codes for Specific Features*
- *Placement of Internal Codes - Not Part of a Path*
- *RDS-TMC for POIs*
- *TMC Areas - Europe*
- *Traffic Location Table Specification - HERE Tables*

B.2 RDS-TMC

Definition This attribute indicates that an RDS-TMC (Radio Data System - Traffic Message Channel) code has been applied to identify a specific location or section of the road network for traffic messaging purposes (applicable only to countries with RDS-TMC in place).

For European databases, this attribute identifies an RDS-TMC location as defined by a public body responsible for creating the RDS-TMC table.

For North American databases, this attribute identifies a HERE Traffic Location. The traffic coding and traffic location table for North America is designed to be consistent with the RDS-TMC protocol used in Europe.

The attribute is published in the format: **ABCCDEEEEE**, where:

A - the Direction of Road

B - the EBU Country Code

CC - Location Table number

D - RDS direction, where:

+ is in the positive direction and external to the Problem Location

- is in the negative direction and external to the Problem Location

P is in the positive direction and internal to the Problem Location

N is in the negative direction and internal to the Problem Location

EEEEEE is the five digit Location Code. This has leading zeros if necessary.

- Internal to a location indicates the links that are within the actual Problem Location(PLOC). External to a location indicates the links that are located between the PLOCs. See *Table B-2*.
- Every Linear Location starts and ends with an internal code.
- On motorways, all Problem Locations (PLOCs) must have both a positive and a negative internal code.
- The direction of the Linear Location (positive or negative) is not coded against the direction of traffic flow.
- In certain circumstances, codes are applied to ramps and high speed connector links. See *Figure B-16* and *Figure B-22*.
- International border crossings usually receive a location code.
- Overlapping PLOCs can exist. In this case links may have multiple internal and external codes.
- On motorways (*Controlled Access = Y*), all PLOCs have a positive and a negative internal code which are denoted by "P" and "N" respectively in the *RDS-TMC* attribute.
- On non-motorways (*Controlled Access = N*), PLOCs are applied in the following situations when they exist in the *RDS-TMC* table:
 - At locations with existing "intersection" geometry such as a *Roundabout*, links with *Intersection Internal*, or *Manoeuvre*, internal codes are added. See *Figure B-13, diagram 1*.

Note: Nodes are not added to place internal codes on non-motorways, when there is no intersection geometry present (in most cases, this applies to single-node intersections)

between two singly digitised roads and intersections between a singly digitised road and a multiply digitised road). See *Figure B-13, diagram 2*.

- At river crossings and lakes (if polygon exists).
- At crossings with ramps.
- TMC codes are added not only to Road Network features, but also to Cartographic Administrative features and POIs.

For all figures below, the following legend is used:

Note: The <i>RDS-TMC</i> codes in the figures below are abbreviated. Only the Directional Indicator and Location ID are given.	
--	Links between PLOCs. These links receive the code of the next PLOC preceded by a "+" if they are on the positive side of the road and a "-" if they are on the negative side.
—	Links inside the PLOC. These links receive the code of the next PLOC preceded by a "P" if they are on the positive side of the road and a "N" if they are on the negative side.
PLOC	Problem Location number based on the country RDS-TMC table.

Figure B-2 shows examples of internal and external codes.

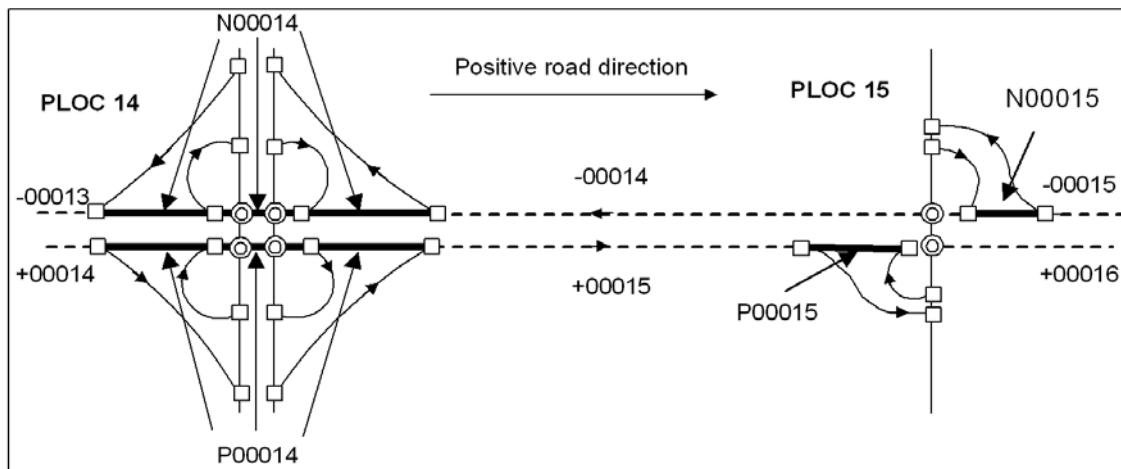


Figure B-2

B.3 Inclusion of Problem Locations

Tables	HERE Tables Third Party
Rules	<p>Problem Locations exist along a linear path at least every 16 kilometres/10 miles at the following features:</p> <ul style="list-style-type: none"> • <i>Functional Class</i> = 1 - 3 roads • Specified <i>Functional Class</i> = 4 roads <ul style="list-style-type: none"> ◆ Problem Locations at <i>Functional Class</i> = 4 roads that are more than 1.6 kilometres/1 mile from any other Problem Location are included. • Specified <i>Functional Class</i> = 5 roads <ul style="list-style-type: none"> → Problem Locations at <i>Functional Class</i> = 5 roads if existing locations are more than 3.2 kilometres/2 miles apart are included. These are at least 600m from another Problem Location. • Named Tunnels and Bridges (in some cases there may be multiple Problem Locations for a single tunnel or bridge) • Toll Booths (except Toll booths on exit ramps) • Named Rest Areas • The beginning and end of all non-linked Linear Locations • Administrative Boundaries (Level 1 & 2) • End of Table Boundaries • All Ramp interchanges <i>Functional Class</i> = 1 to 5 on roads with <i>Controlled Access</i> = Y • Connections with express, reversible, and carpool roads on roads with <i>Controlled Access</i> = Y • Additional locations are included as necessary in cases where points are greater than 16 kilometres/10 miles apart and there are no other locations that meet the inclusion criteria. They are unambiguous, and may include: <ul style="list-style-type: none"> ◆ Railroads ◆ Rivers ◆ <i>Functional Class</i> = 5 roads

B.4 Linear Location

Tables	HERE Tables Third Party
Definition	A Linear Location is a path of consecutive links along a road whose RDS-TMC codes correspond to a named road such as I-35. The extent of a Linear Location is defined in the Traffic Table.
	A typical Linear Location consists of consecutive links where the locally known name may be a Route Number or a local name and this name remains consistent. Note: The Direction of Road, EBU Country Code, and Location Table Number are not included in the examples. Refer to the chapter on naming rules for description of the RDS-TMC code.

B.4.1 Extent of Linear Location

- | | |
|--------------|---|
| Rules | <ul style="list-style-type: none">• A new Linear Location is created when crossing a Table Boundary.• A Linear Location has exactly one starting point and one ending point.• When more than one Linear Location is defined for a specific road and there is a gap between the end of one Linear Location and the start of another (with no other coding in between), the gap between the locations receives coding by one of the following methods:<ul style="list-style-type: none">→ One of the Linear Locations is intended to fill the gap. Two Linear Locations are linked if there is a common base name by creating an internal code where the two locations meet.→ If the base names are exactly the same, two Linear Locations are made into one Linear Location and points are added to fill the gap if necessary.→ If the base names are not the same and it is not possible to link the Linear Locations, the Linear Locations are bookended by ending one Linear Location with an internal code and beginning the next Linear Location with an internal code.• The prefix or suffix of the road name may change along a Linear Location as long as the base name remains the same.• Linear Locations may be coded against the direction of travel.<ul style="list-style-type: none">→ If all or part of a Linear Location is one-way, the one-way links have both the positive and negative RDS codes applied to the Location.→ Linear Locations may exist on two separate roads (not multiply-digitised) when they share a common name, such as a route name, making them a single Linear Location rather than separate Linear Locations. See <i>Figure B-3</i> |
|--------------|---|

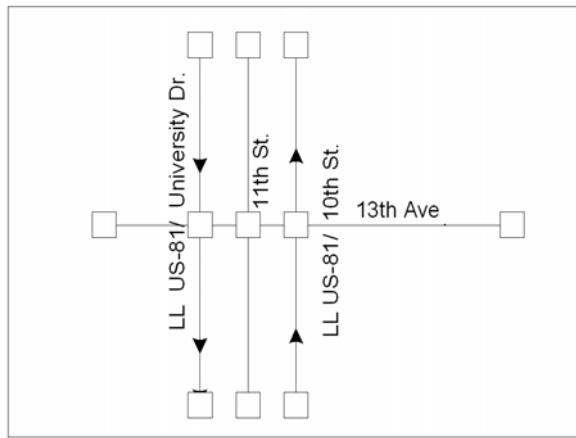


Figure B-3

- ◆ Linear Locations may overlap.

B.4.1.1 Ring Roads

Rules

- For roads that form a loop around a metropolitan area, the extent of the Linear Location depends on the presence of sign direction.
- If sign direction changes on each side of the loop, four separate linked Linear Locations are created. See *Figure B-4* and *Figure B-5*.
- The preferred direction for Linear Locations on Ring Roads is clockwise.
- If the sign direction does not change or the road is generally referred to as one road, the road is coded as one Linear Location. In this case, the start point is also the end point and the first and last points should be linked.

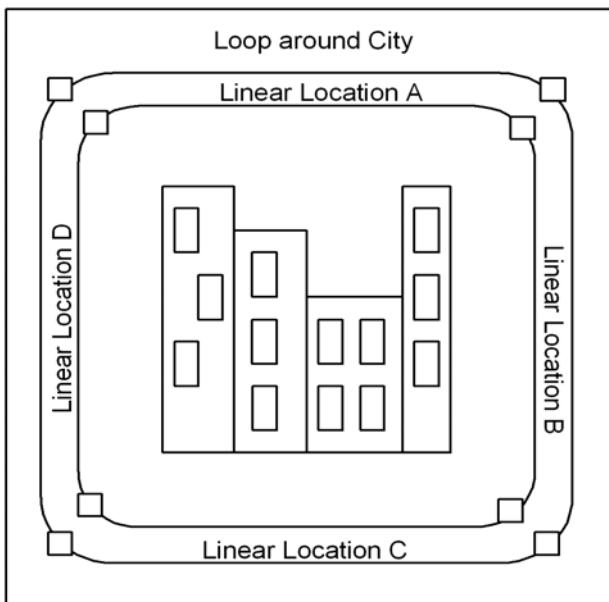


Figure B-4

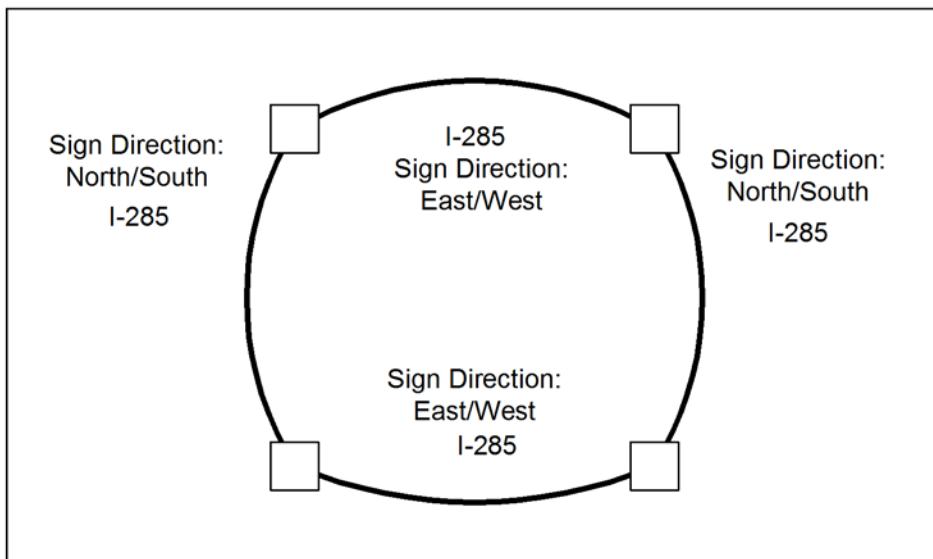


Figure B-5

B.4.1.2 Adjacent Linear Locations

Rules

- When two Linear Locations meet at an intersection, the first Linear Location is coded to the middle of the intersection and the second Linear Location is coded from the middle of the intersection.

B.4.1.3 Overlapping Linear Locations

Rules

- Linear Locations may overlap for a distance of 16 kilometres/10 miles or less.
- When two or more Linear Locations overlap for a distance of greater than 16 kilometres/10 miles, all except one of the Linear Locations end at the points where the overlap begins and ends.

B.4.1.4 Linking of Linear Locations

Definition

- Linking exists when two Linear Locations, sharing a common base name, are connected with a single internal code, rather than having an internal code for the end of one Linear Location and the beginning of the other Linear Location.
- Rules
- Linking of Linear Locations and their respective Point Locations is required when one or more of the base names of the Linear Locations are the same and the road continues.
- Linear Locations with the same name that meet, but have opposing positive directions are not be linked.

- Linear Locations and Point Locations are not linked when the base names of the Linear Locations are different.

B.5 Point Location

Tables	HERE Tables
Definition	A Point Location is a pre-defined location along a road that is assigned a unique RDS-TMC code. The code is used as a reference for the location in traffic messages.
Rules	<ul style="list-style-type: none">• Every non-linked Linear Location starts and ends with an internal code. Nodes are added to place the internal code if necessary. Linked Linear Locations may have one internal code where they meet, rather than an internal code for each Linear Location.• On <i>Controlled Access = Y</i> roads, Point Locations have both a positive and negative internal code which are denoted by “P” and “N”, respectively in the RDS-TMC code. Nodes are added if necessary to place the internal codes.• On <i>Controlled Access = N</i> roads, Point Locations have both a positive and negative internal code denoted by “P” and “N” in the following situations:<ul style="list-style-type: none">→ At locations with existing intersection geometry such as a <i>Roundabout</i>, links with <i>Intersection Internal</i>, <i>Manoeuvre</i>, etc. <p>Note: Nodes are not added to place internal codes on <i>Controlled Access = N</i> roads when there is no intersection geometry present (in most cases, this applies to single-node intersections between two singly digitised roads and intersections between a singly digitised road and a multiply digitised road).</p> <ul style="list-style-type: none">• Only RDS codes from a single Linear Location are applied to a links except in cases of overlapping Linear Locations.• Internal codes for two different Point Locations cannot share the same nodes. External codes exist between the internal codes of each Point Location. The only exception is when the beginning internal code of one Linear Location and the ending internal code of the other Linear Location touch because the Linear Locations are adjacent.

B.6 Internal Codes on Multiply Digitised Roads

Tables

All Traffic Tables.

Note: This entire section applied to all traffic tables.

B.6.1 Multiply Digitised Road with Ramps on Both Sides

Rules

- Internal RDS-TMC codes are located between the entrance and exit ramps on each side of the multiply-digitised road, as shown in *Figure B-6* and *Figure B-7*.

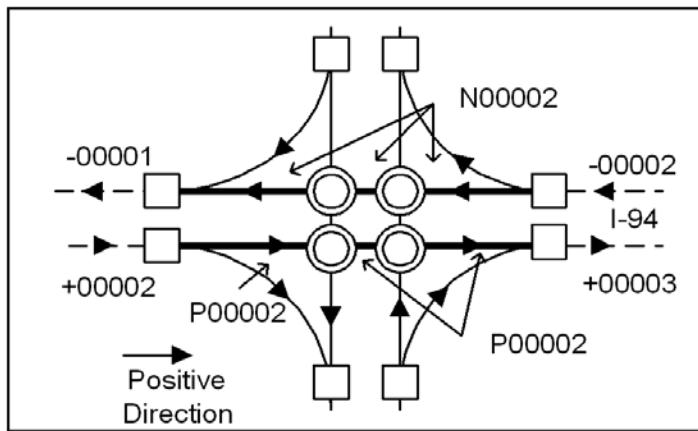


Figure B-6

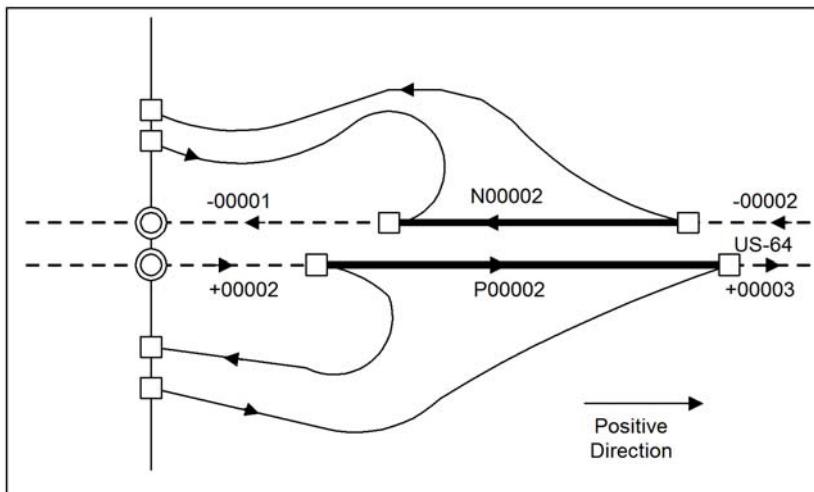


Figure B-7

B.6.2 Multiply Digitised Road with only One Ramp

Rules

- Internal RDS-TMC codes are located between the ‘exit’ and ‘entrance’ ramps. In cases where only one exit or one entrance ramp exists, the following is applied:
 - Only an exit ramp: Internal code is placed after the exit ramp
 - Only an entrance ramp: Internal code is placed *before* the entrance ramp. See *Figure B-8*.

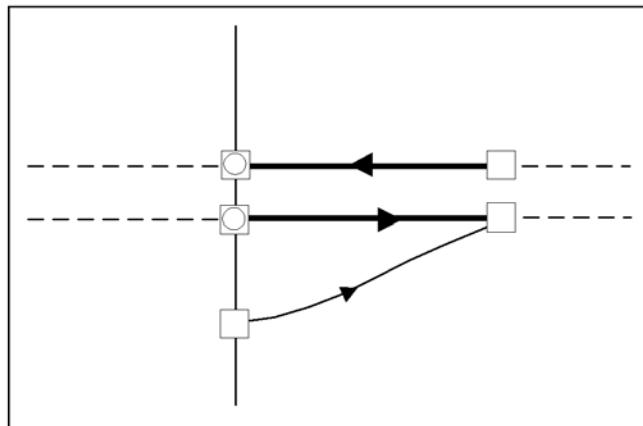


Figure B-8

B.6.3 Multiply Digitised Road with only One Ramp on Either Side

Rules

- The internal code is located between the start of the ramp and the logical “end” point of the Point Location. Nodes are added to limit the extent of the Point Location if necessary. The internal code generally ends at the crossing road. See *Figure B-9*.

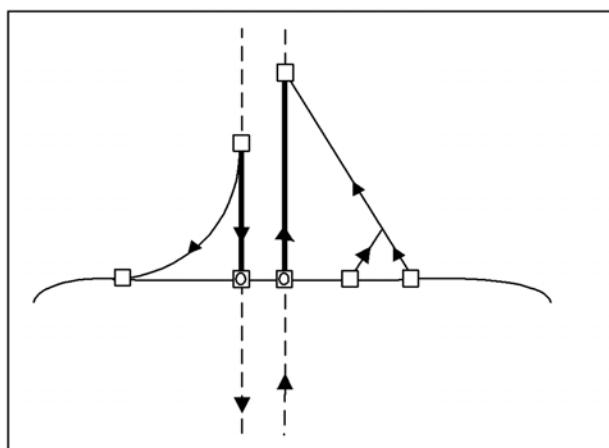


Figure B-9

B.6.4 Multiply Digitised Road with Three Ramps

Rules

- In cases where two ramps exist on one side of the road, and the other side has one ramp (exit or entrance), the extent of the Point Location on the side with the single ramp is limited as shown in *Figure B-10*.

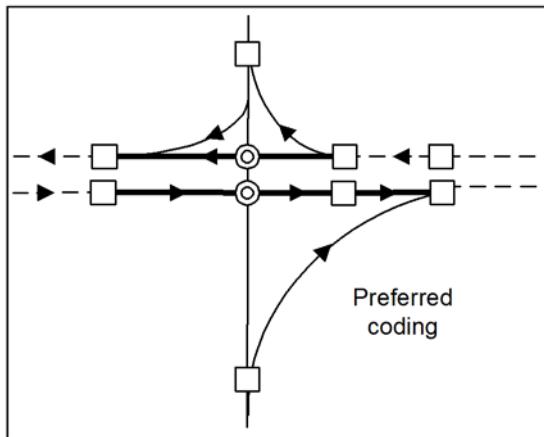


Figure B-10

- Although the coding in *Figure B-11* is not incorrect, the coding in *Figure B-10* is the preferred way of coding these situations. This coding better reflects the actual Point Location.

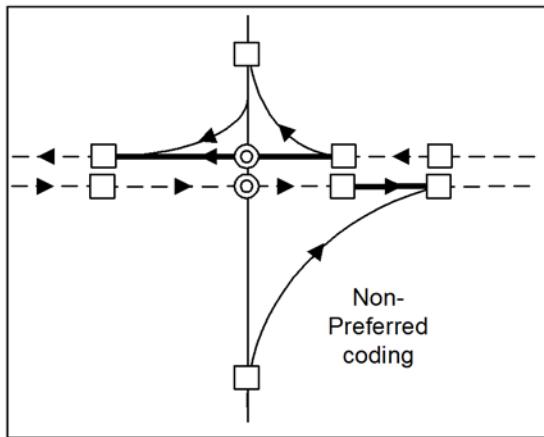


Figure B-11

B.6.5 Multiply Digitised Roads with Intersection Internals

Rules

- Internal codes are applied to links which are internal to the intersection. In this case apply the internal codes on the links that are *Intersection Internal = Y*. See *Figure B-12*.

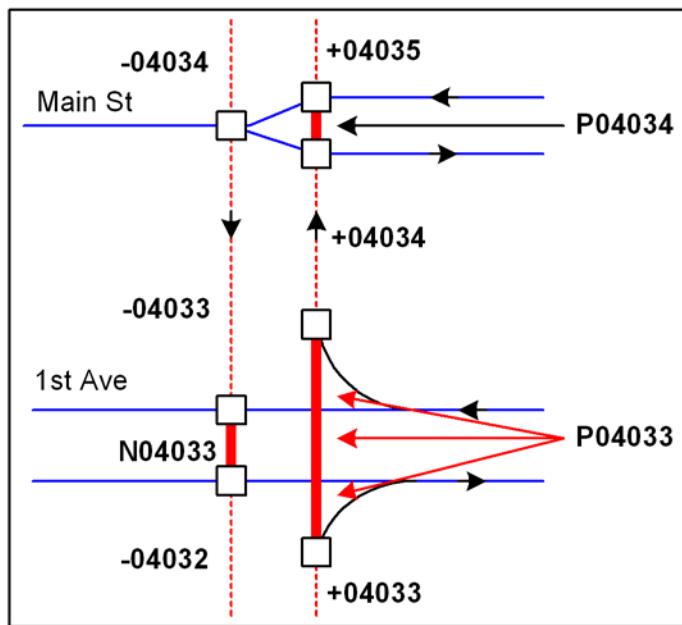


Figure B-12

Note: N04034 is not included in the database.

B.7 Placement of Codes on Bidirectional Roads

Tables All Traffic Tables.

B.7.1 Intersections on Bidirectional Roads

Rules

- *Figure B-13 shows how to add internal codes on bidirectional roads.*
 - Nodes are not added in order to include internal codes when intersection geometry does not exist. See *Figure B-13, diagram 2.*

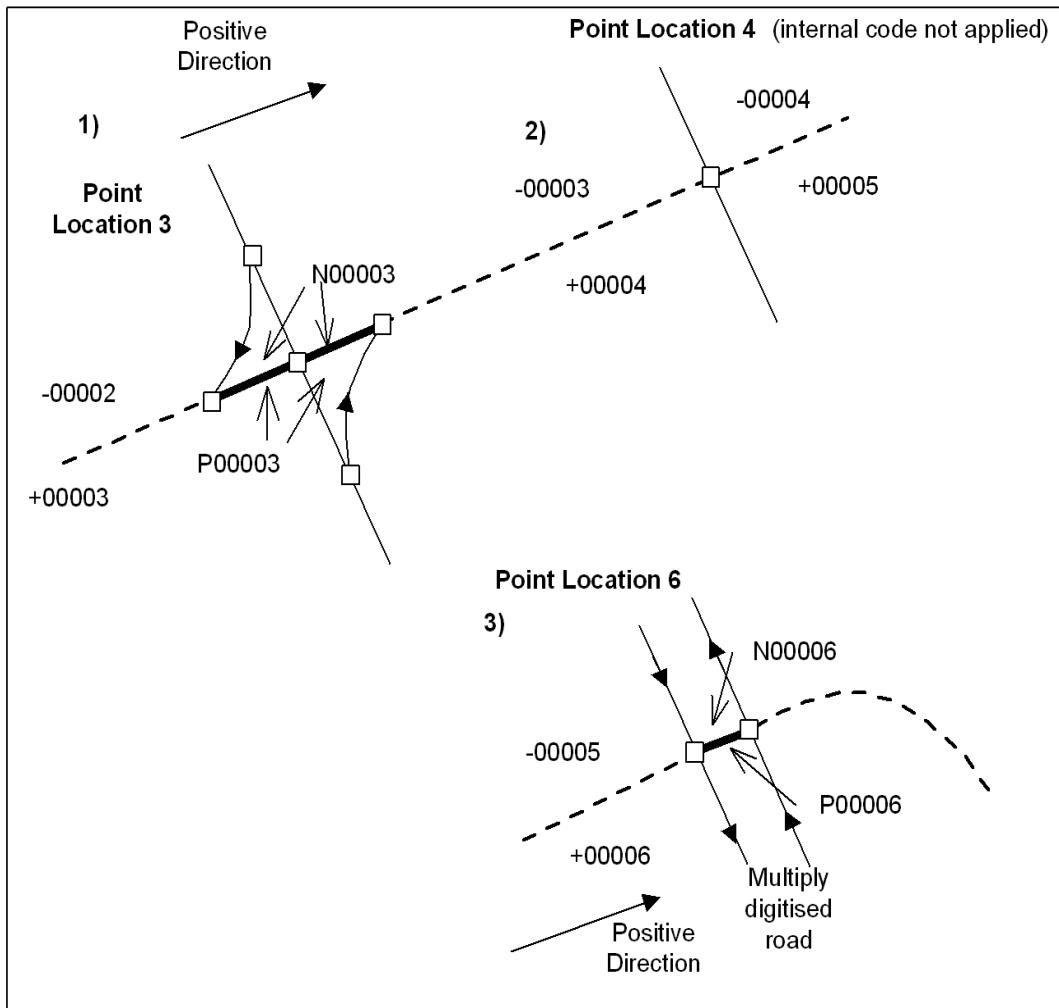


Figure B-13

B.7.2 Intersection with Two Roads as Problem Location

Rules

- When the Linear Location is offset at an intersection, the internals are placed on the link between the offset roads. See *Figure B-14* where “Main Road” is the Problem Location.

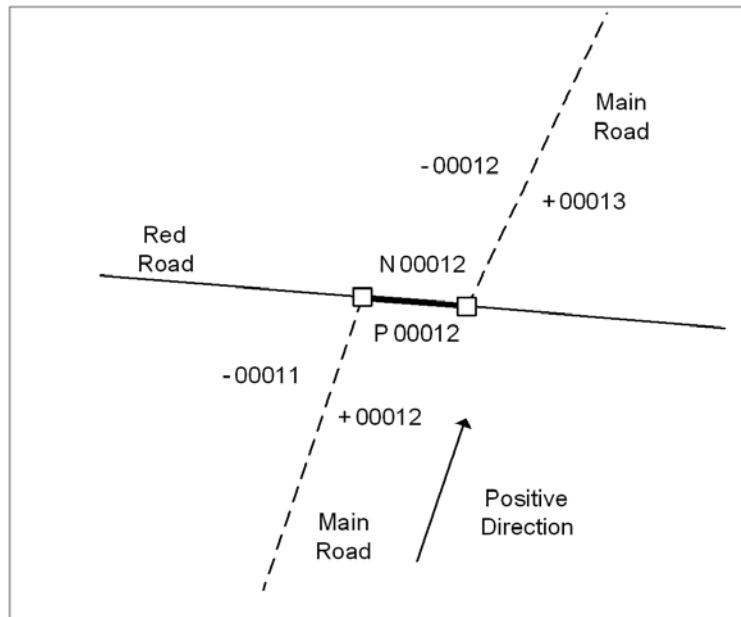


Figure B-14

- If the offset is greater than 300 metres or there are intervening roads between the offset roads of the Linear Location, two Problem Locations are applied, one at each intersection with the crossing road. See *Figure B-15*.

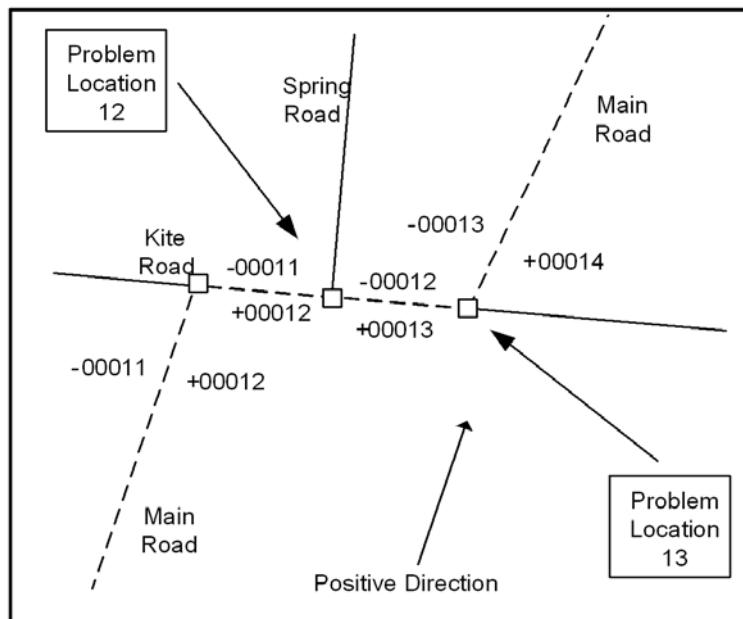


Figure B-15

B.7.3 Bidirectional Roads with Ramps on Both Sides

Rules

- Internal codes are added on all the links between the outer ramp links of the junction. See *Figure B-16*.

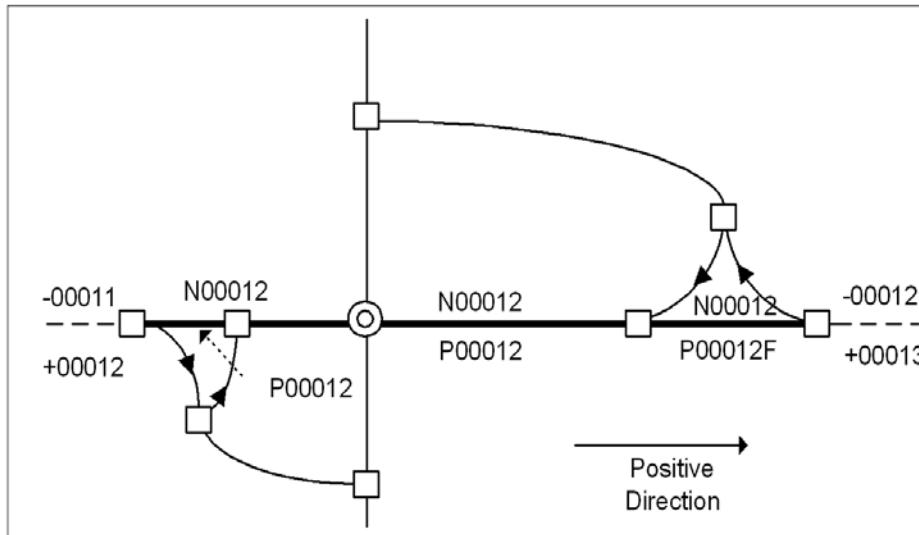


Figure B-16

- When two ramps are present and do not meet at the same node, the internal code is located between the two ramps. See *Figure B-17*.

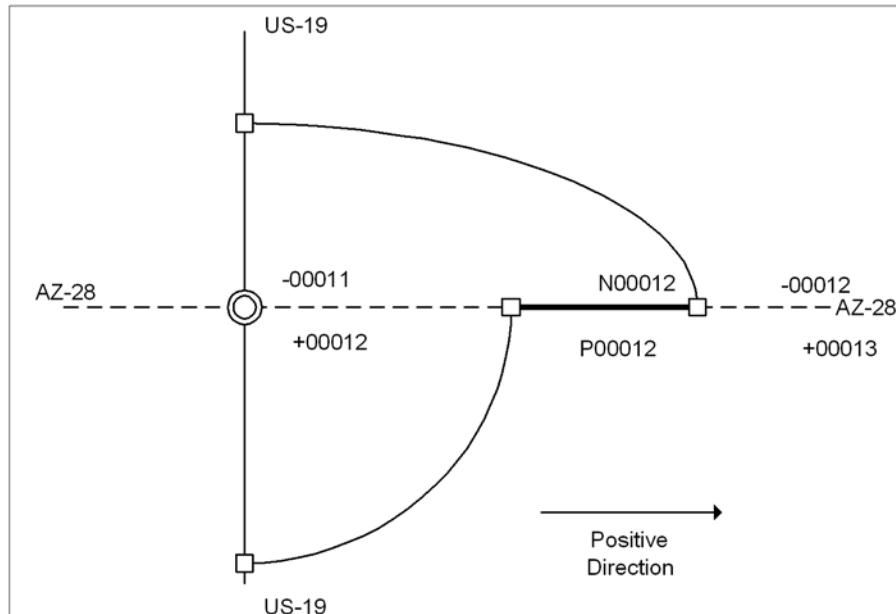


Figure B-17

B.8 Point Locations at the Start or End of a Linear Location

Tables All Traffic Tables.

B.8.1 At the Start/End of a Multiply Digitised Road

- Rules**
- If the start or end of the RDS-TMC path is a multiply digitised road and the road geometry does not continue, the internal codes are applied as shown in *Figure B-18*. A node is added if there are no existing nodes available within 50 metres.

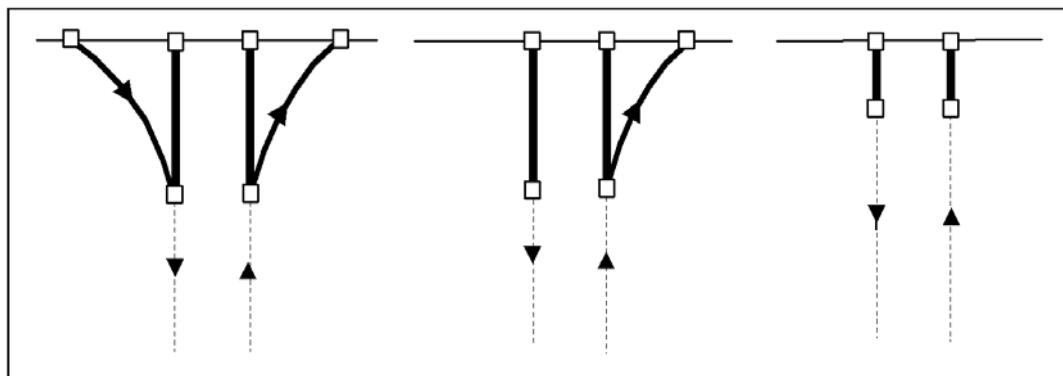


Figure B-18

B.8.2 At the Start/End of a Singly Digitised Road

- Rules**
- If the start or end of the RDS-TMC path is a singly digitised road and the road geometry does not continue, the internal codes are applied as shown in *Figure B-19*. A node is added if there are no existing nodes available within 50 metres.

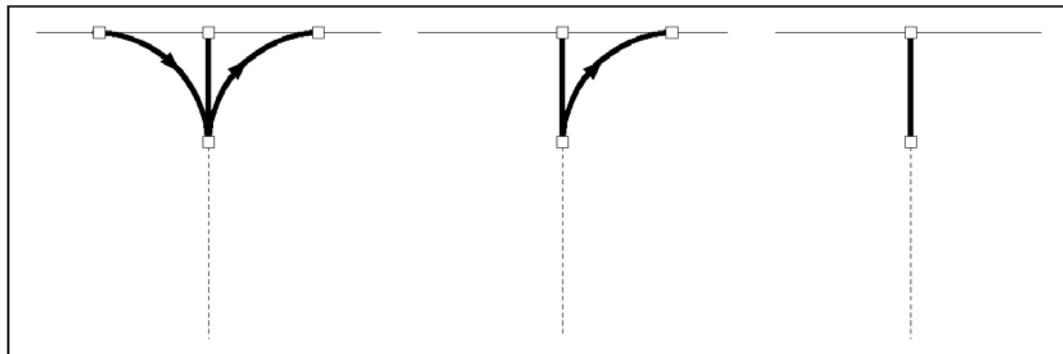


Figure B-19

B.8.3 At the Start/End of a Roundabout

Rules

- In cases where a roundabout is the start or end of the RDS-TMC path, the roundabout is split in half by dropping a node. The positive internal is applied on one side of the roundabout and the negative internal on the other side, depending on the positive direction of the Linear Location. See *Figure B-20, diagram A*. In cases where an existing node can be used, this node is reused to split the roundabout. See *Figure B-20, diagram B*.

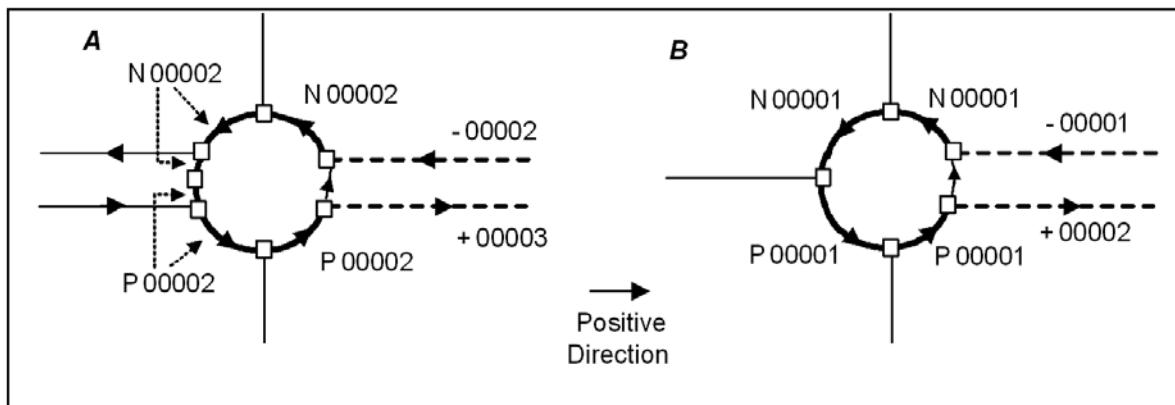


Figure B-20

B.8.4 At the Start/End of a Special Traffic Figure

Rules

- When a Special Traffic Figure is the start or end of an RDS-TMC path, both the positive and negative internal codes are applied on the inner link of the Special Traffic Figure. See *Figure B-21*.

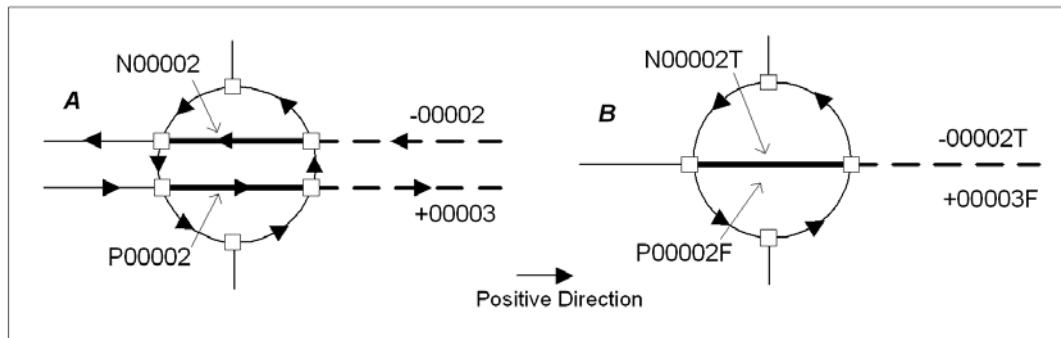


Figure B-21

B.8.5 At the Start/End of a Junction

Rules

- Internal codes are not applied to ramps when the Point Location is the start or end of the RDS-TMC path and the road geometry continues. See *Figure B-22*.

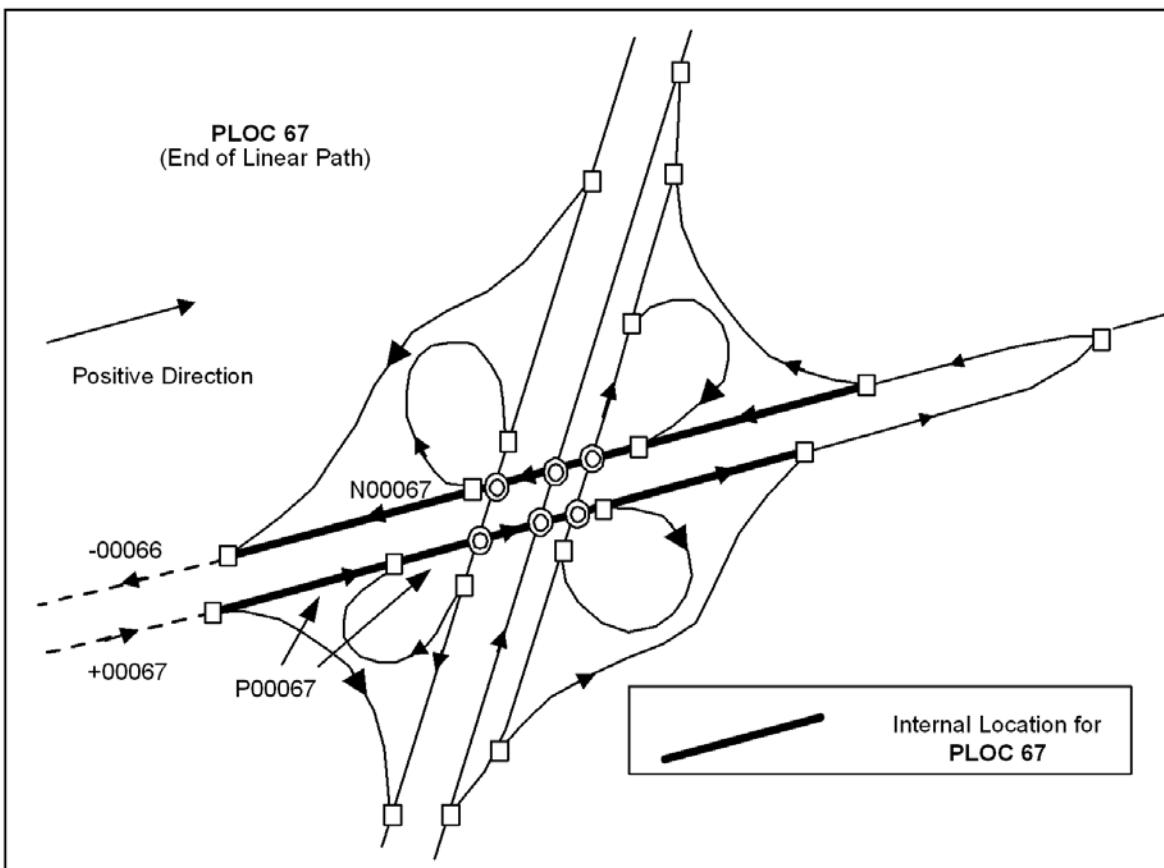


Figure B-22

- Internal codes are applied only to the inner ramp or highway-to-highway connector links if a TMC path ends at a junction. See *Figure B-23* and *Figure B-24*.

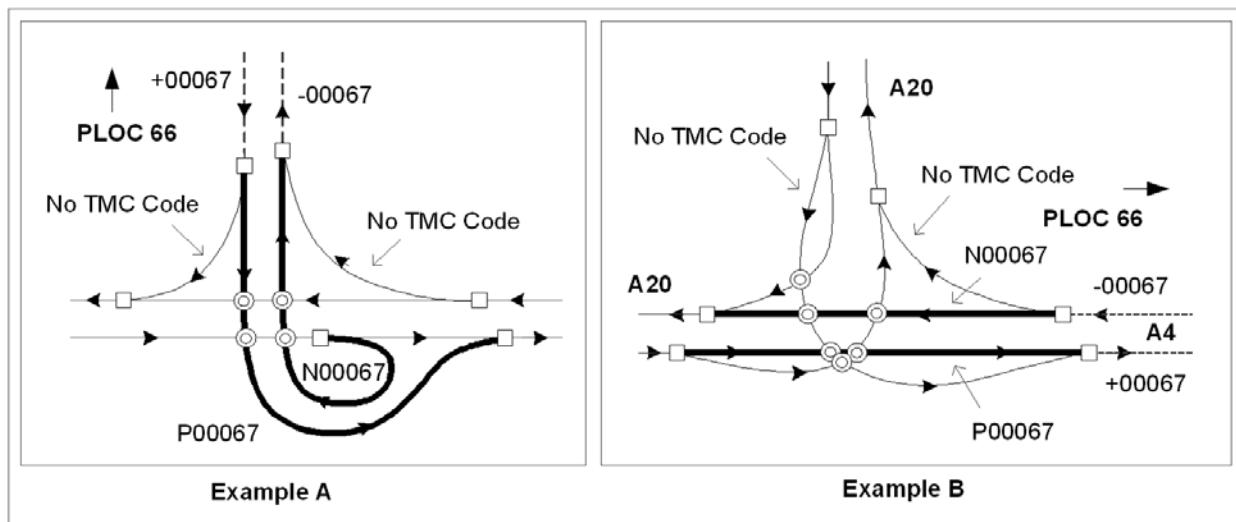


Figure B-23

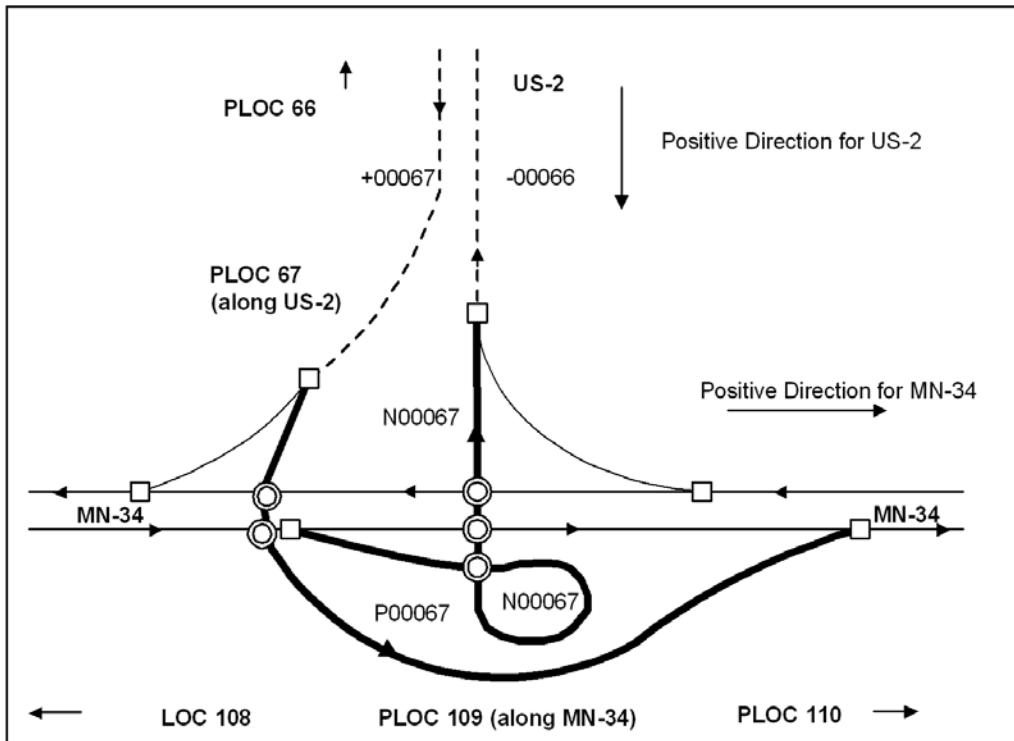


Figure B-24

- P1.0 internal codes are applied to a short link prior to the junction if the TMC path ends at a junction and the ramp link(s) have P4.0 Link Road Points identified. See *Figure B-25* and *Figure B-26*.

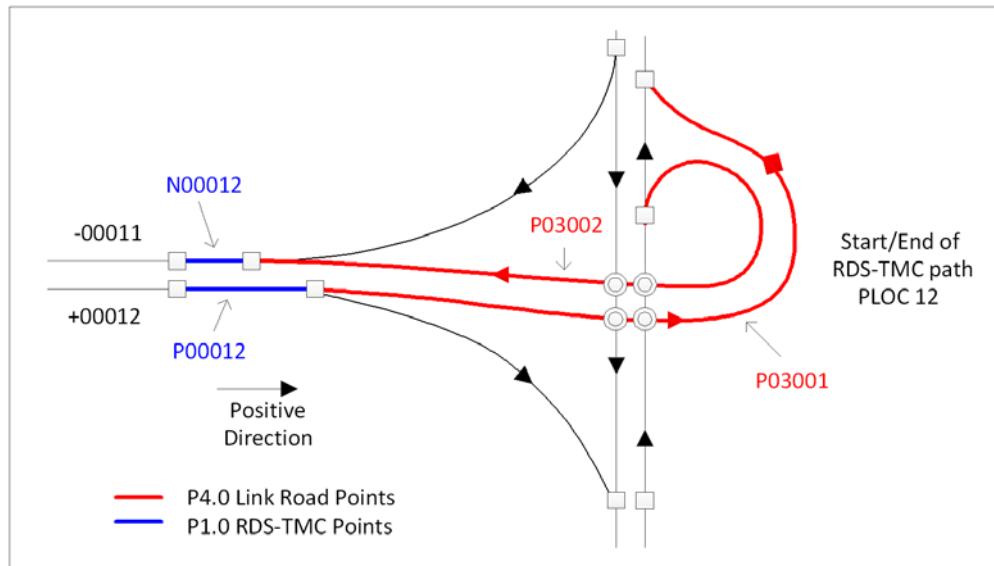


Figure B-25

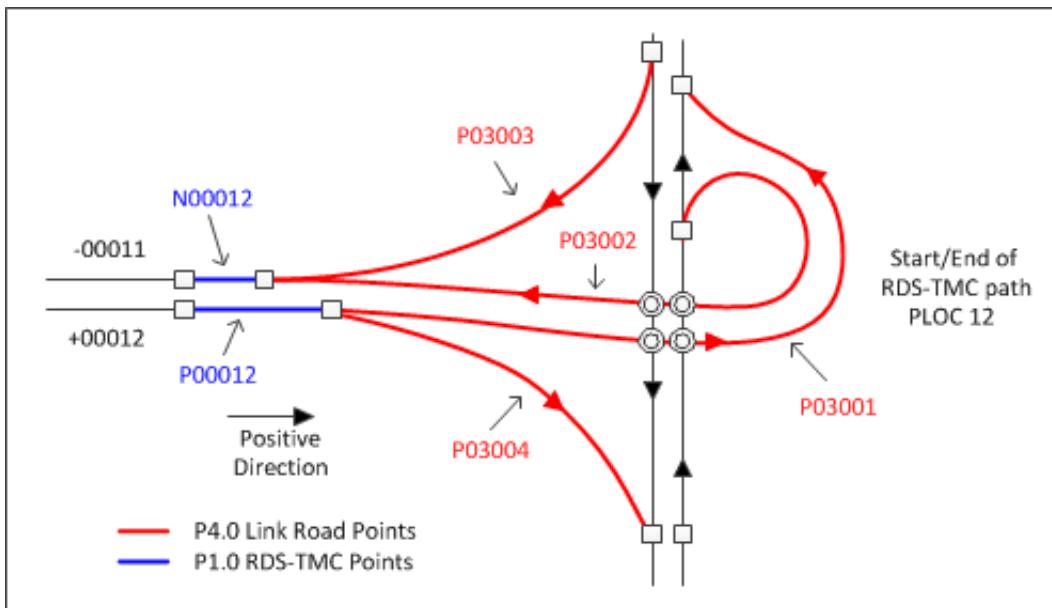


Figure B-26

B.8.6 End of RDS-TMC Path on a Multiply Digitised Road where Road Geometry Continues

Rules

- Problem Location 67 is the last code along CA-10. Internals are coded as indicated in Figure B-27. The ramps are not coded in this situation.

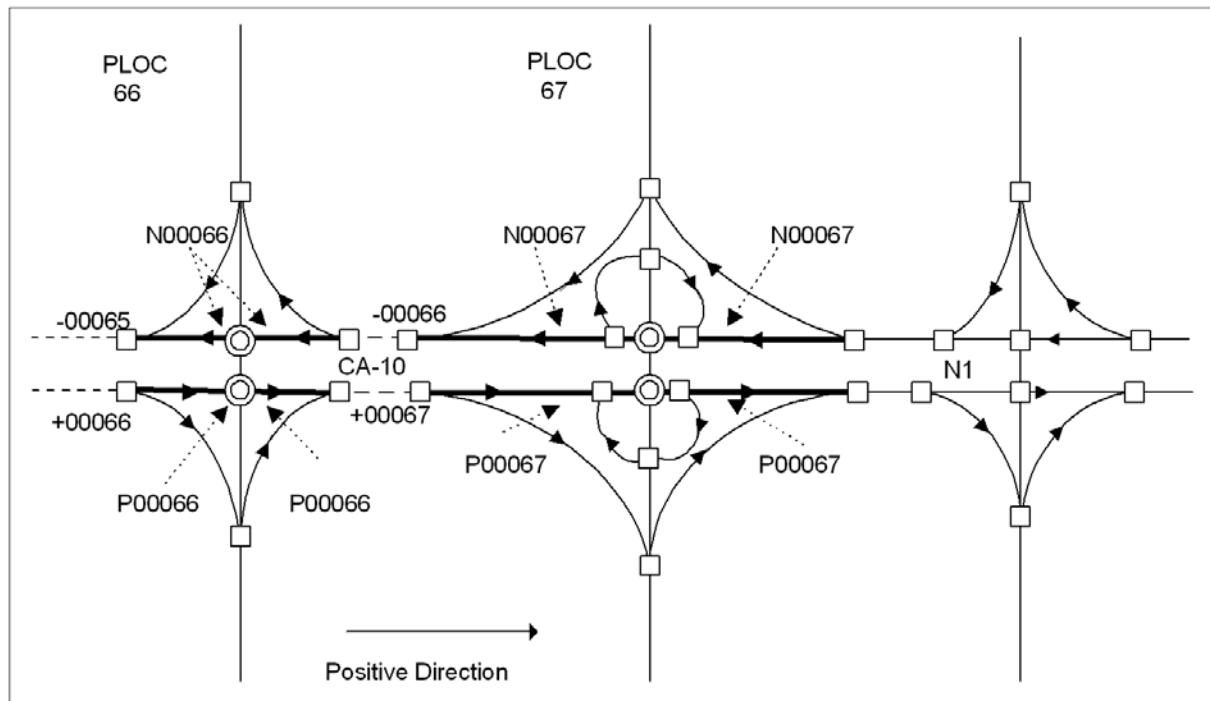


Figure B-27

B.8.7 End of Linear Location on a Singly Digitised Road where Road Geometry Continues

Rules

- Problem Location 87 is the last code along US-12. Internals are coded as indicated in Figure B-28. The ramps are not coded in this situation.

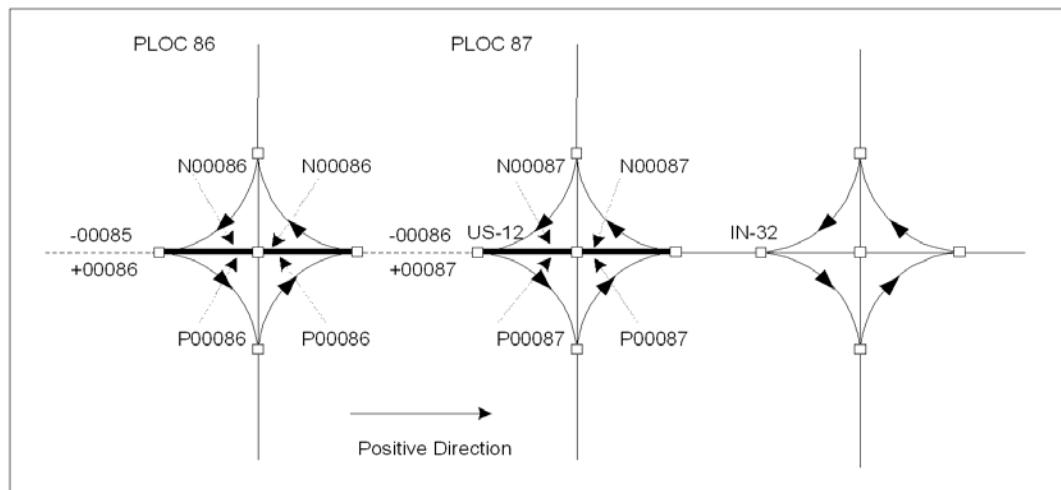


Figure B-28

B.9 Placement of Internal Codes in Complex Situations

Tables All Traffic Tables

B.9.1 Problem Location within One-way Systems

In *Figure B-29*, PLOC 17 is not coded in the negative direction since no intersection geometry is present.

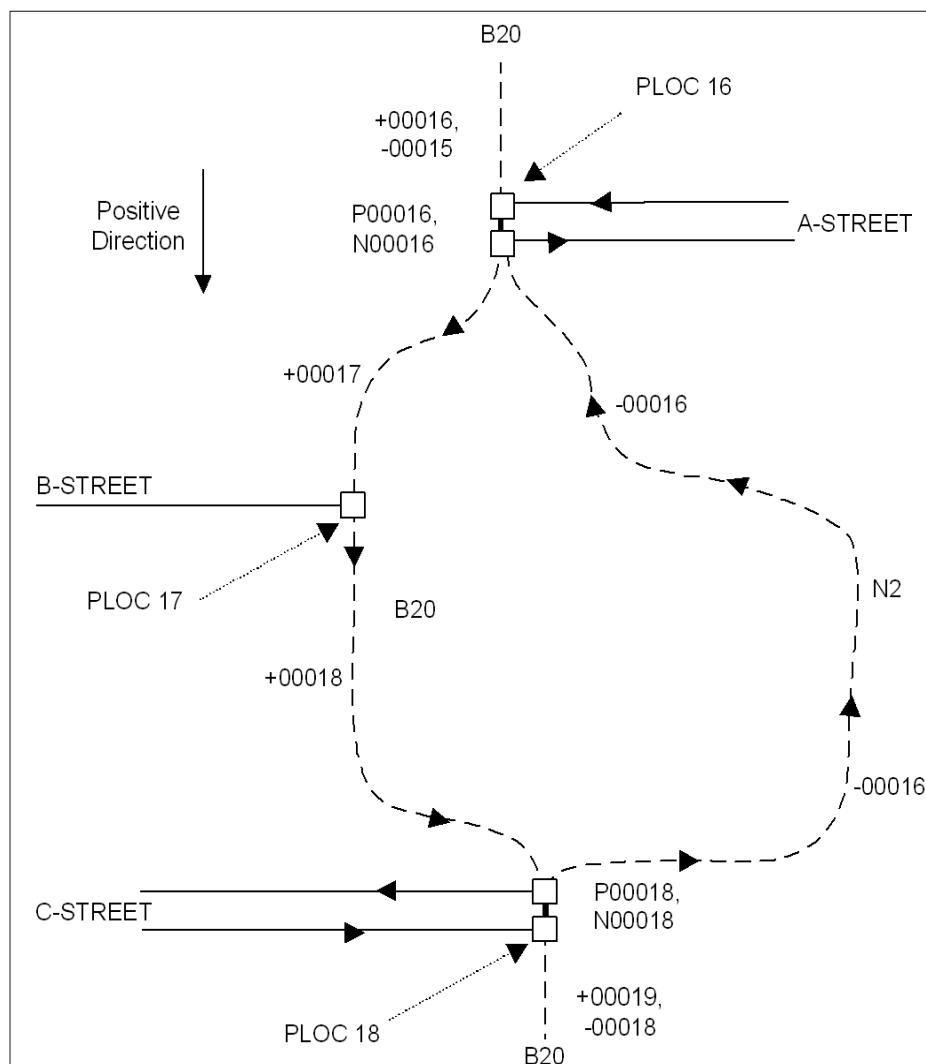


Figure B-29

B.9.2 Touching Problem Locations

Rules:

- Internal and external codes are applied as shown in [Figure B-30](#) if PLOCs are touching.

Note: This example is only applicable for Government Tables, i.e., Europe.

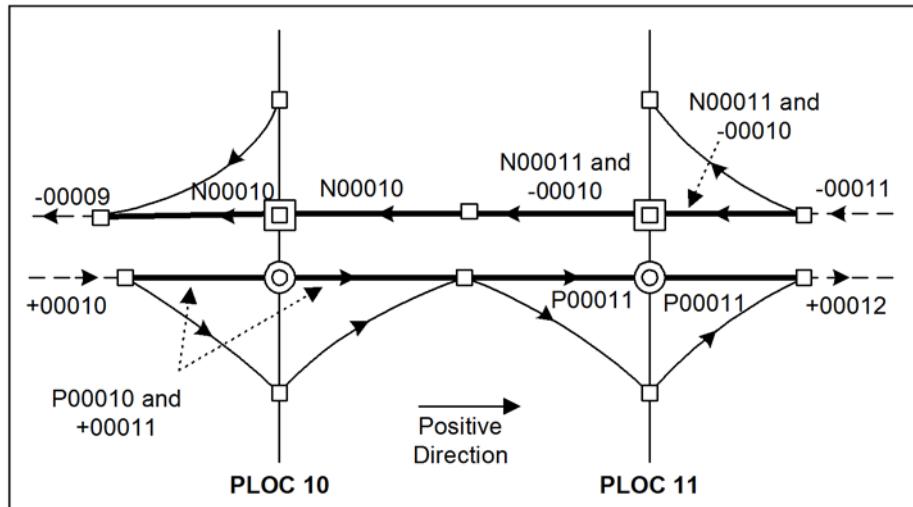


Figure B-30

B.9.3 Problem Location Within Another Problem Location

Rules:

- Internal and external codes are applied as in [Figure B-31](#) if a PLOC is located within another PLOC.

Note: This example is only applicable for Government Tables, i.e., Europe.

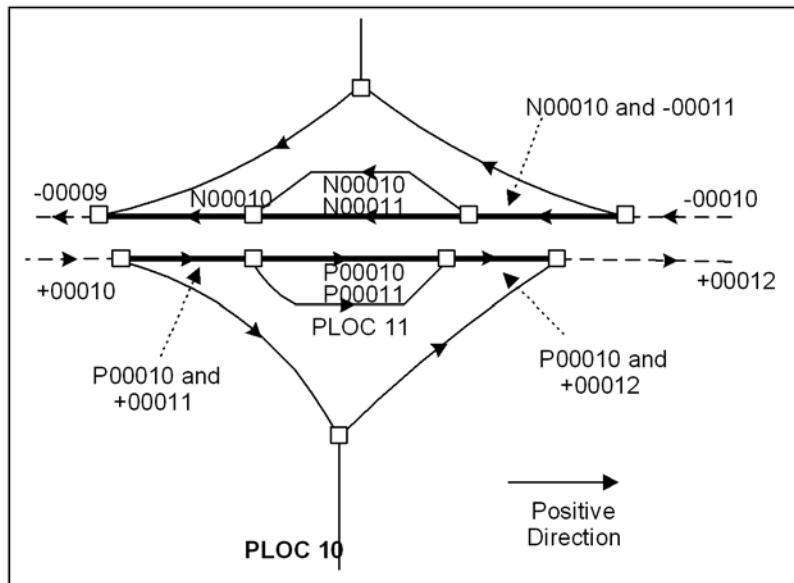


Figure B-31

B.9.4 Overlapping Problem Locations

Rules:

- Internal and external codes are applied as shown in [Figure B-32](#) and [Figure B-33](#) if PLOCs are overlapping.

Note: This example is only applicable for Government Tables, i.e., Europe.

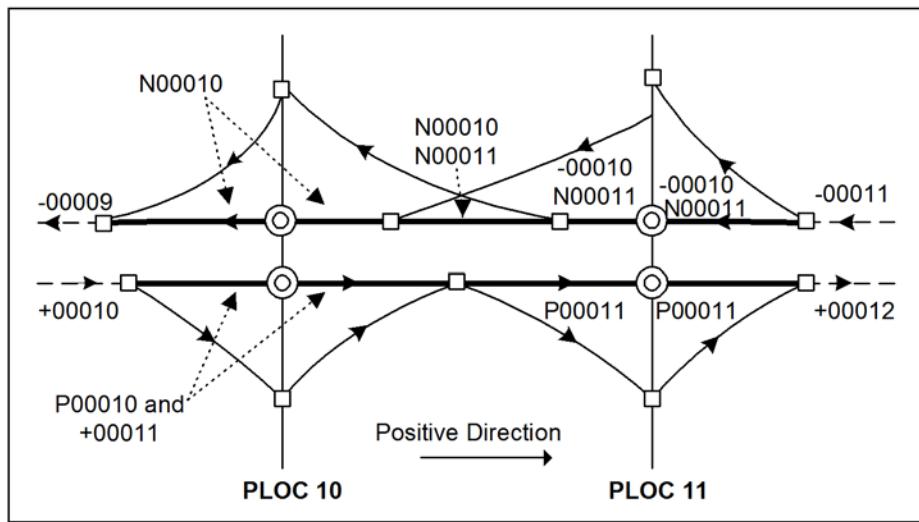


Figure B-32

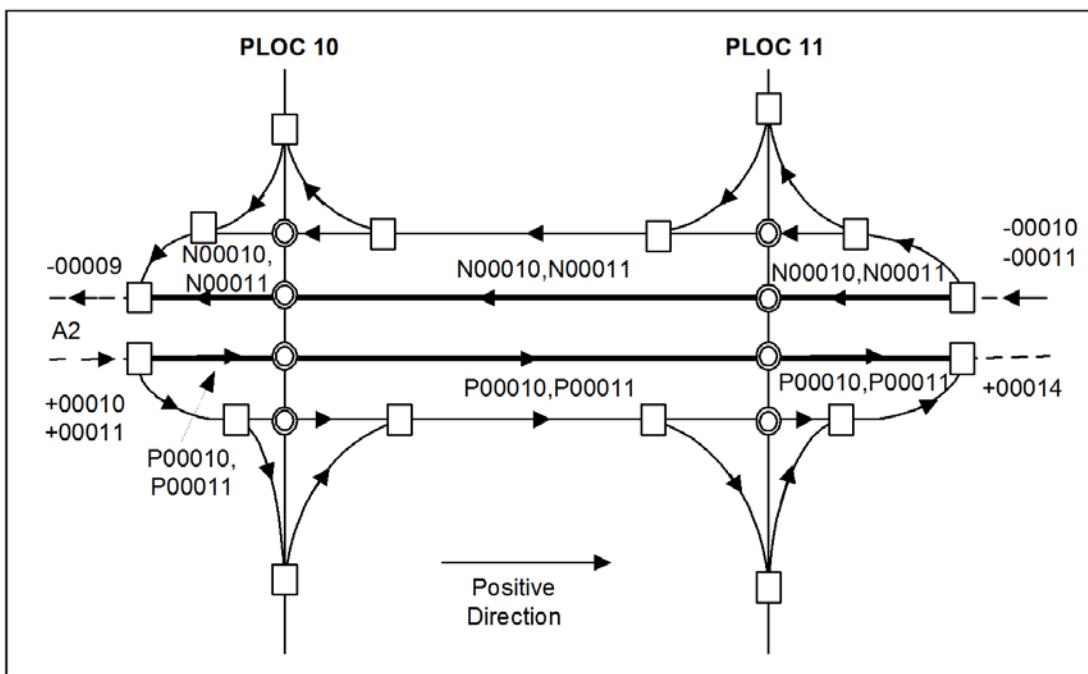


Figure B-33

B.9.5 Internal Codes when Linear Location Turns

Rules

- *Figure B-34 shows the I-76 turning instead of going straight through the junction. The internal codes are applied to the road and ramp links that are part of the RDS-TMC path (i.e., I-76).*

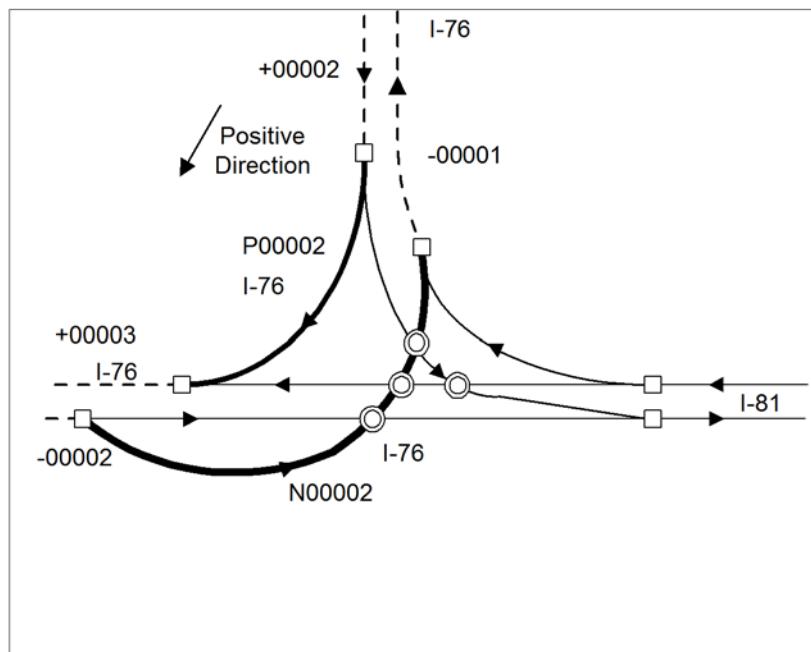


Figure B-34

- The RDS-TMC path follows the path that is driven. *Figure B-35* shows US-56 turning instead of going straight through the intersection. Internal codes are placed on the turn lane because that is the driving path the car would follow.

B.9.6 PLOC at Intersection

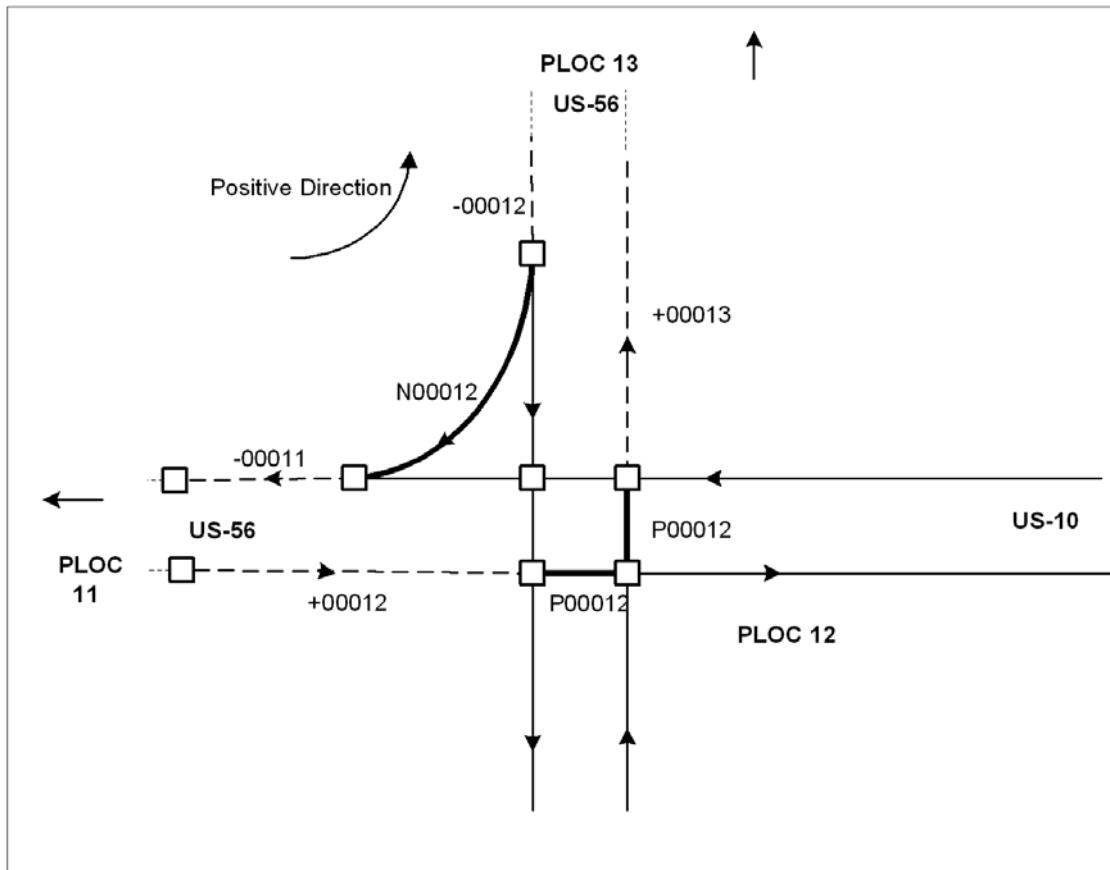


Figure B-35

- The RDS-TMC path follows the path that is driven. Internal and external codes are applied as in *Figure B-36* and *Figure B-37* when the RDS-TMC path continues over ramps.

B.9.7 When RDS-TMC Path Turns

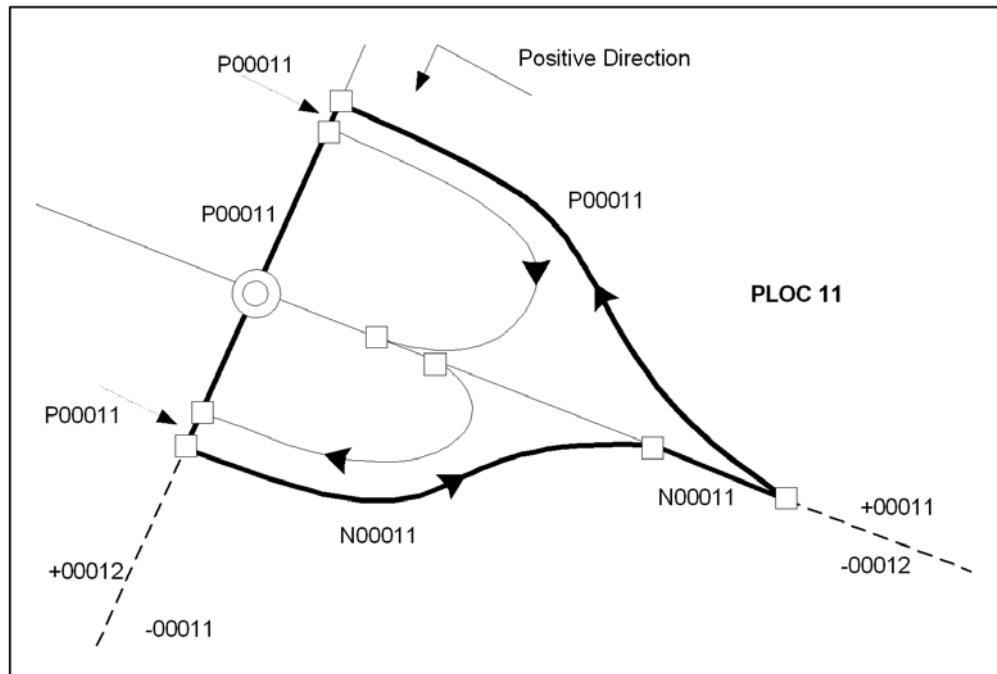


Figure B-36

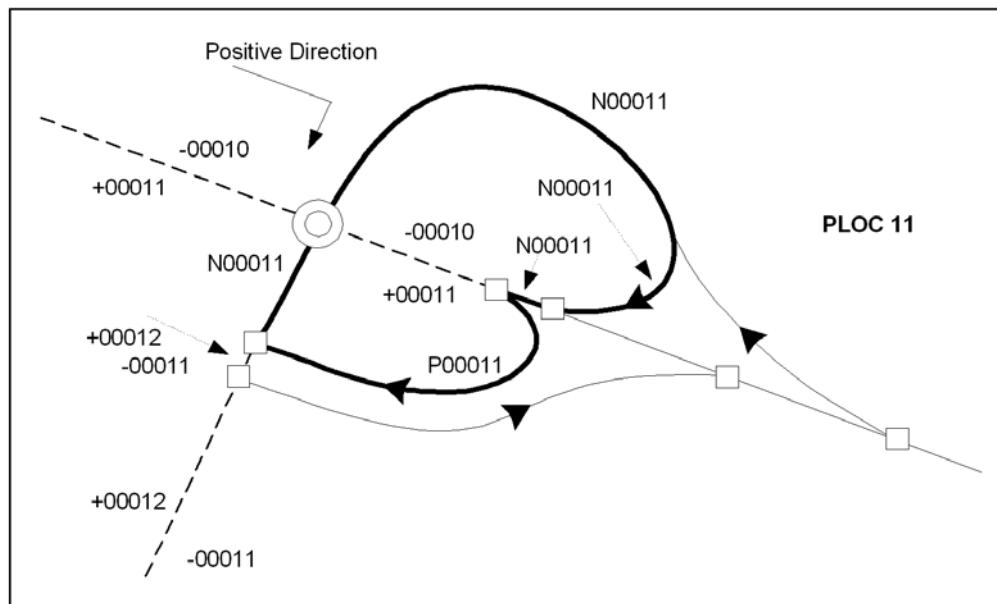


Figure B-37

B.9.8 Crossing at Grade with One Turn Lane

Rules

- Only one internal code is applied when a multiply digitised road is crossing at grade and only one turn lane exists. If additional nodes exist on the opposing side of the multiply digitised road (due to CRF or attribute coding change), an internal code on the opposite side is not included. See *Figure B-38*.

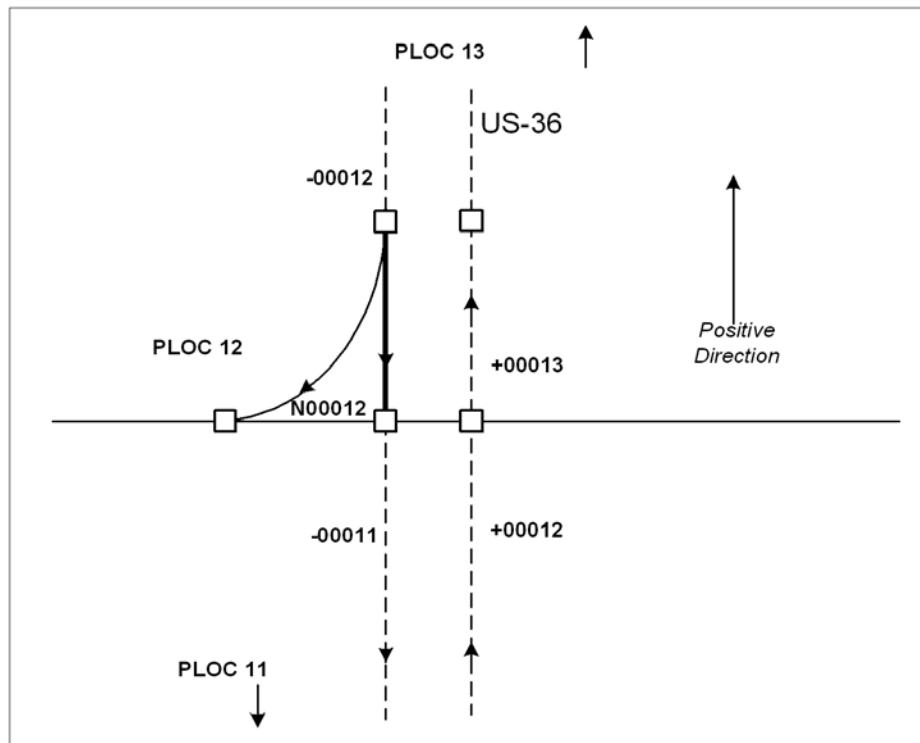


Figure B-38

B.10 Placement of External Codes in Complex Situations

Tables All Traffic Tables.

B.10.1 No Problem Location at Intersection

- Rules**
- The RDS-TMC codes follows the path that is driven. *Figure B-39* below shows KS-36 turning instead of going straight through the intersection.

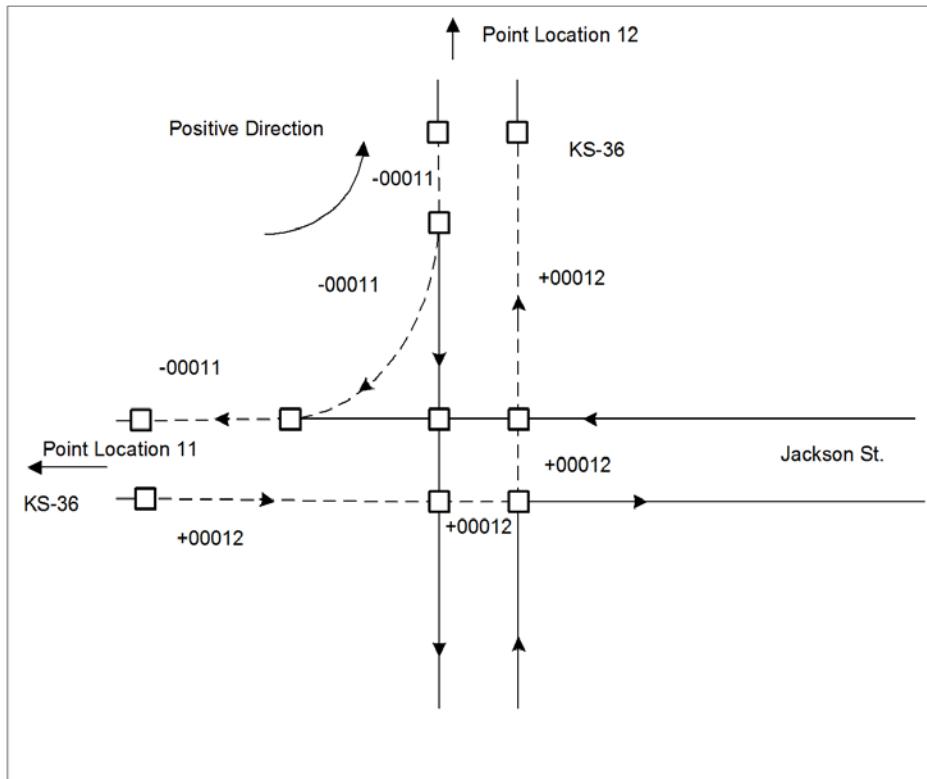


Figure B-39

B.10.2 RDS-TMC Path in Only One Direction

- Rules**
- In some cases, a certain route number is applied in one direction (one-way) only for a certain stretch of road. In these cases, the RDS-TMC path still needs a positive and a negative external. Since only one direction is defined for applying the external, the corresponding external needs is applied to the logical route, reflecting the other direction of the RDS-TMC path. See *Figure B-40*.

Note: This example is only applicable for Government Tables, i.e., European tables.

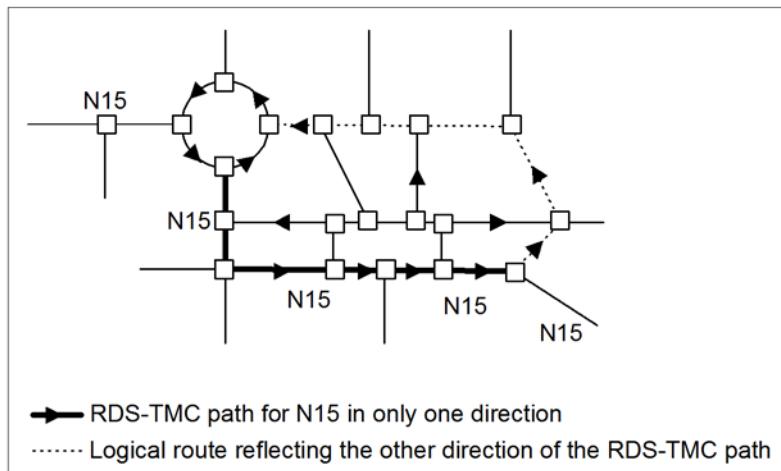


Figure B-40

B.11 Placement of Internal Codes for Specific Features

Applicable Tables All Traffic Tables.

B.11.1 Bridge/Tunnel/Ferry Route

Rules

- Internal codes are applied to bridges, tunnels and ferry routes on all links that have *Bridge* = Y, *Tunnel* = Y, or *Ferry* = Y, as shown in *Figure B-41*. When a bridge, tunnel or ferry is longer than 1/2 mile (800 metres), one Point Location is coded at each end of the feature. See *Figure B-42*.
- If the ends of a bridge, tunnel, or ferry are commonly referred to independently in traffic reports, such as “North Tower of Spencer Bridge” or “South Tower of Spencer Bridge,” two Point Locations may have been added.
- Multiple Point Locations may be required if the midpoint of a bridge, tunnel, or ferry is also referred to during traffic reports.

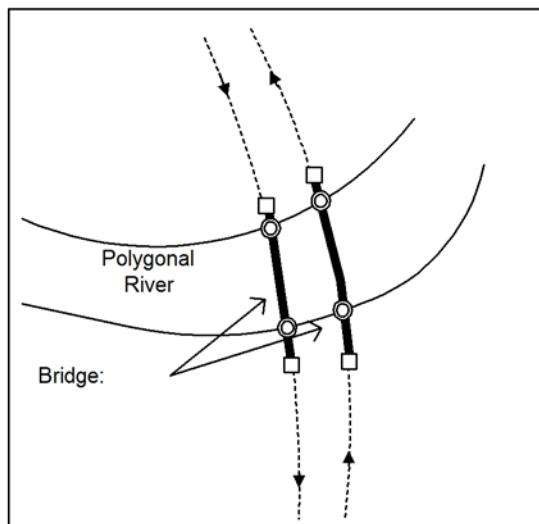


Figure B-41

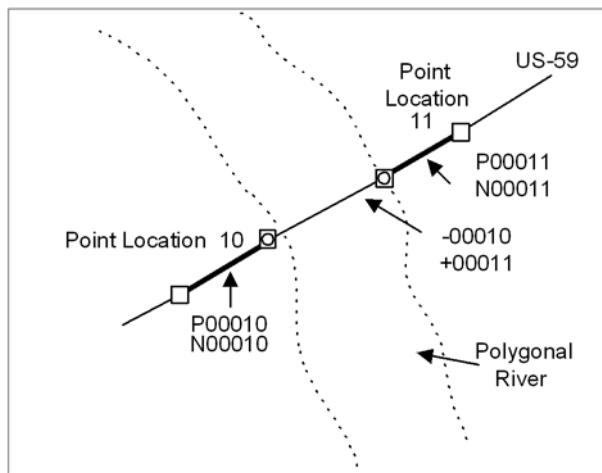


Figure B-42

B.11.2 HOV Lanes

Rules

- For HOV roads that are Linear Paths, Point Locations are included which correspond to the main road, even if the Point Location is not accessible via the HOV lane. See *Figure B-43*.

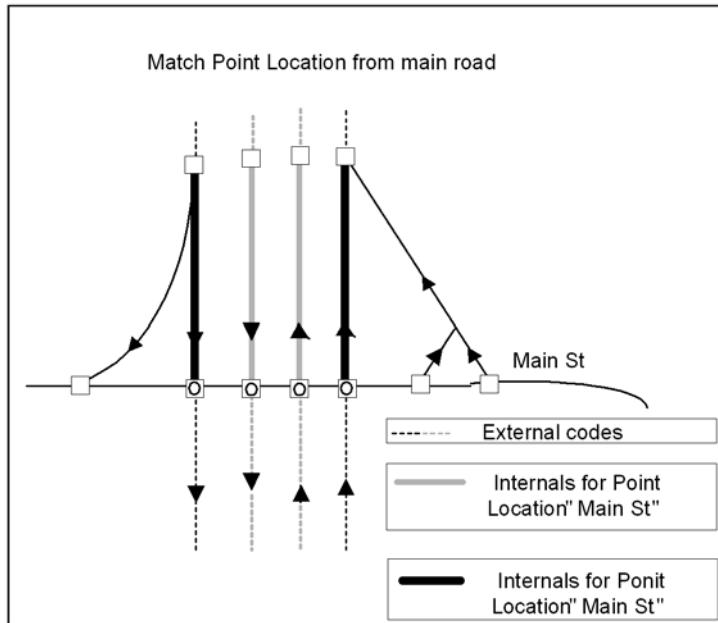


Figure B-43

B.11.3 Parallel Ramps along Multiply Digitised Roads

Rules

- When parallel ramps exist along a multiply digitised road and several Point Locations exist within the extent of the parallel ramps, nodes are dropped to apply internal codes for the Point Locations. See *Figure B-44*.

Note: This example is applicable to HERE tables only.

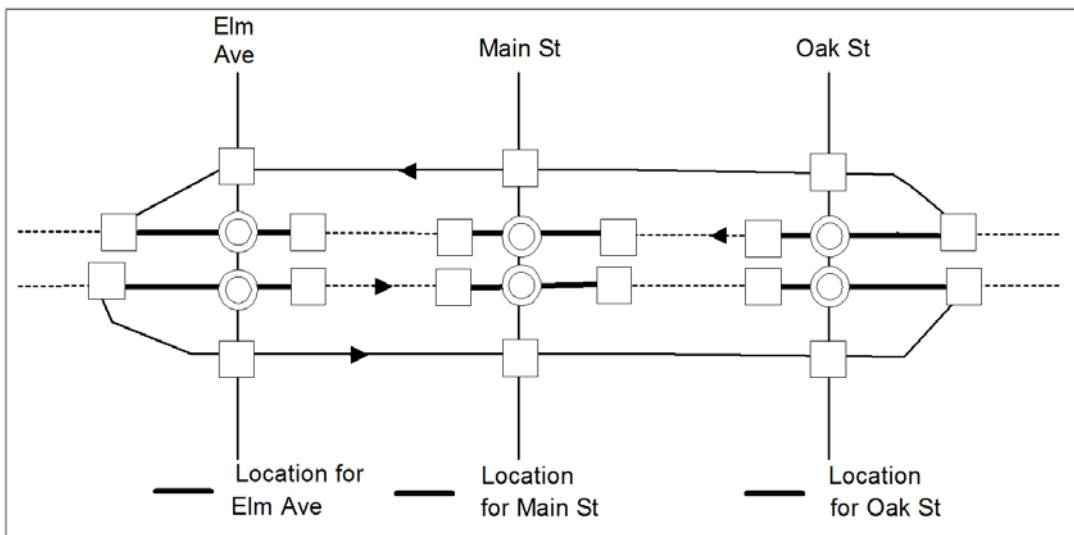


Figure B-44

B.11.4 Rest Area

Rules

- Internal codes are applied to named rest areas as shown in *Figure B-45* and *Figure B-46*.
- If a Point Location exists for a rest area along only one side of a multiply digitised road, opposing nodes are created on the opposite side of the road and the appropriate internal code is applied to those links, as shown in *Figure B-45*.

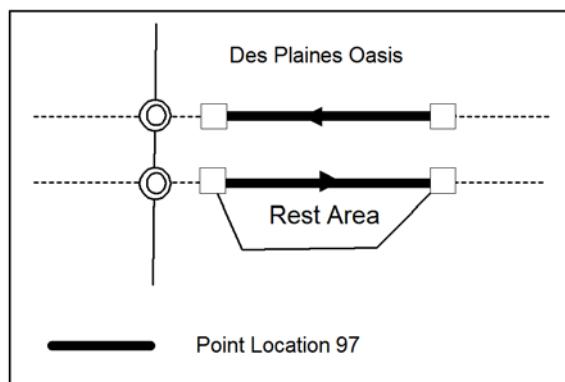


Figure B-45

- If the rest area exists on both sides of the multiply digitised road, the internal codes are placed on the links interior to the rest area on each side. See *Figure B-46*.

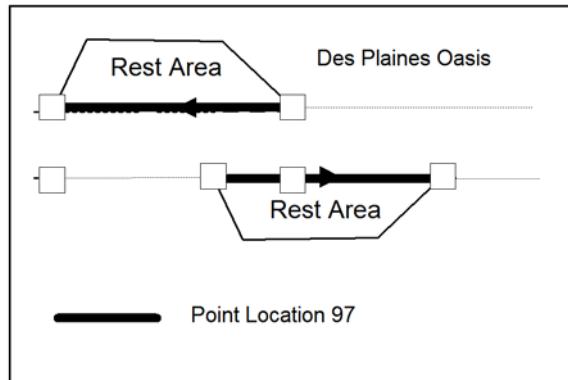


Figure B-46

B.11.5 Roundabout

Rules

- Only the positive and negative internal codes are coded along the 'outside' links of the roundabout. See *Figure B-47*.

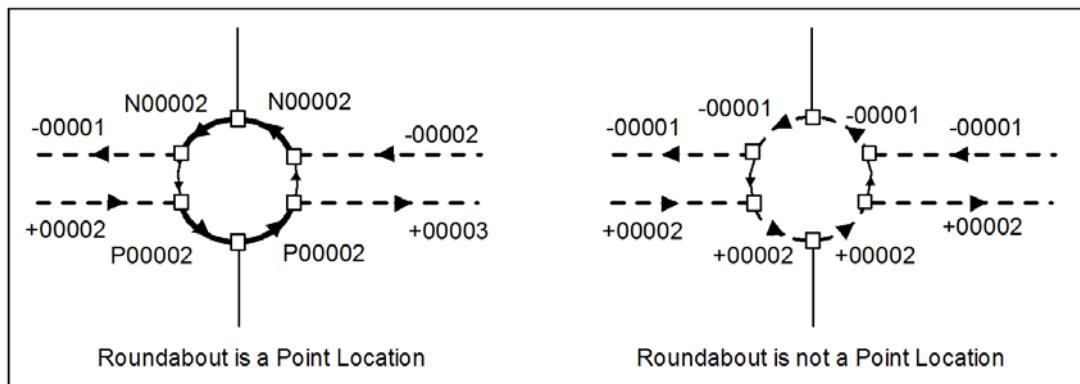


Figure B-47

- In *Figure B-48* the roundabout is a Point Location and the Linear Path continues from the south to the north-east. The positive and negative internal codes are applied to the roundabout following the driving path. The internal codes are applied to the ramps.

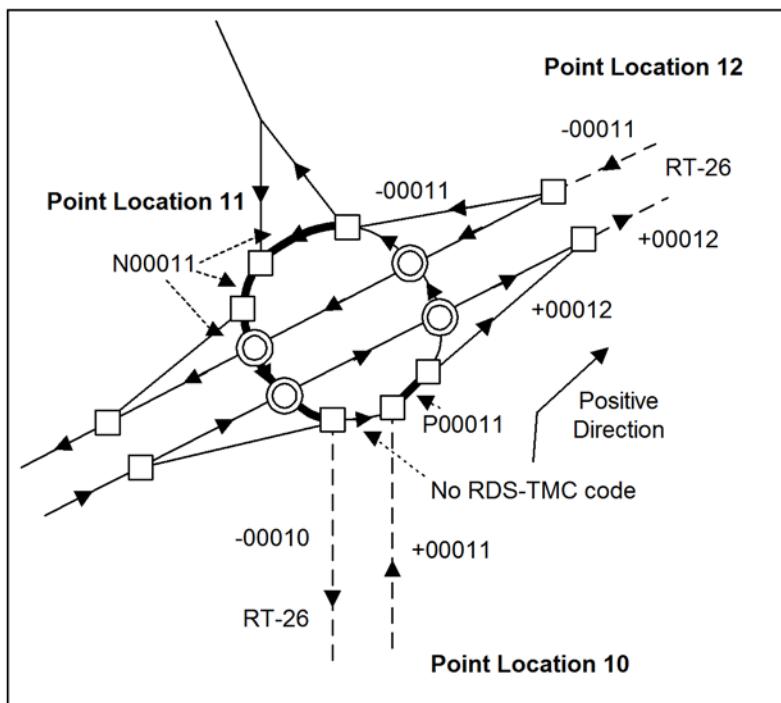


Figure B-48

B.11.6 Toll Booth

Rules

- Internal codes are applied to Toll Booth areas as shown in *Figure B-49*.

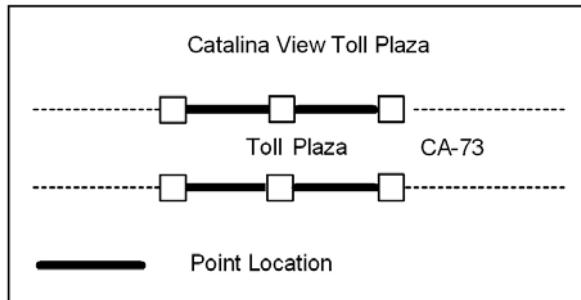


Figure B-49

B.11.7 Linear Location Changing Name

Rule

Adjacent Point Locations cannot share the same nodes. The only exceptions are:

- the beginning and end of different Linear Locations, and
- a circular Linear Location.

These exceptions have touching Point Locations. See *Figure B-50* and *Figure B-51*. The two shades for the bold lines indicate that the Point Location for 1st St is split due to the start of a new road.

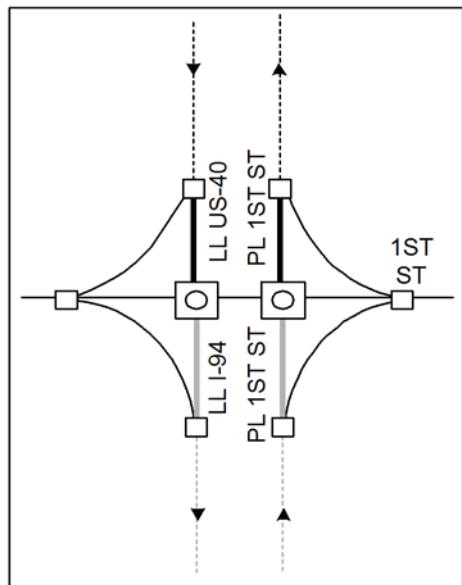


Figure B-50

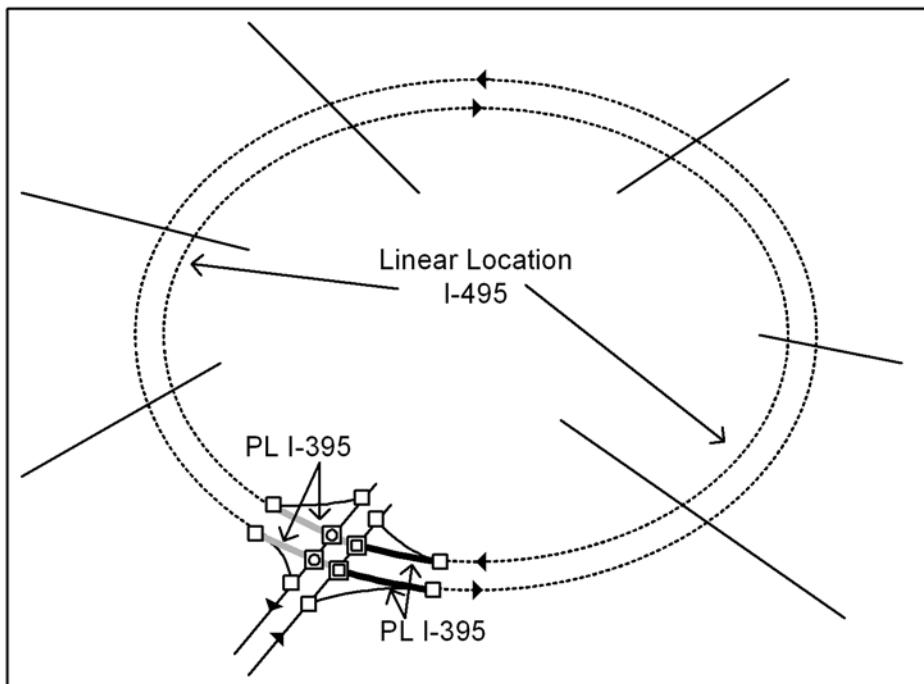


Figure B-51

B.11.8 Administrative Boundary on a Multiply Digitised Road

Rules

- Country (Administrative Level 1), state and province (Administrative Level 2) boundaries are included as Point Locations.
- When the Linear Location is Controlled Access = 1, nodes are added to place internal codes. See *Figure B-52* thru *Figure B-54*.

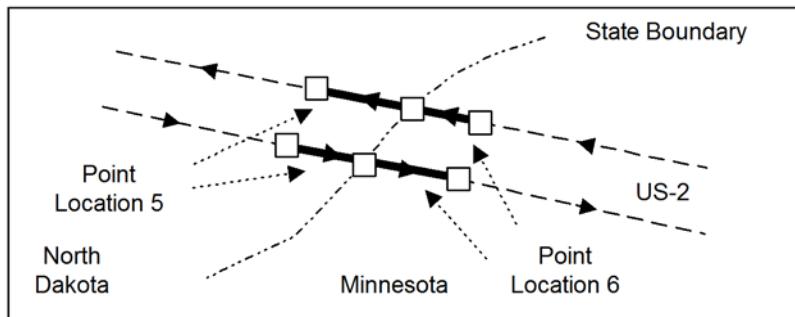


Figure B-52

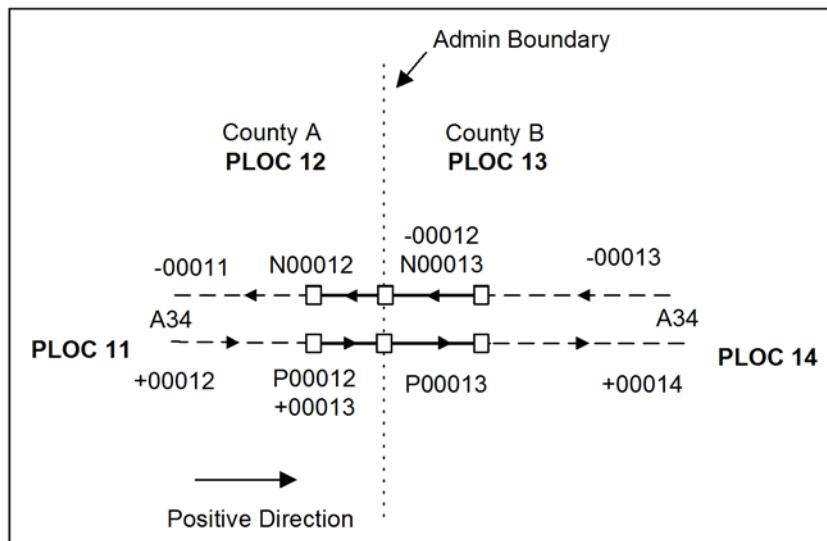


Figure B-53

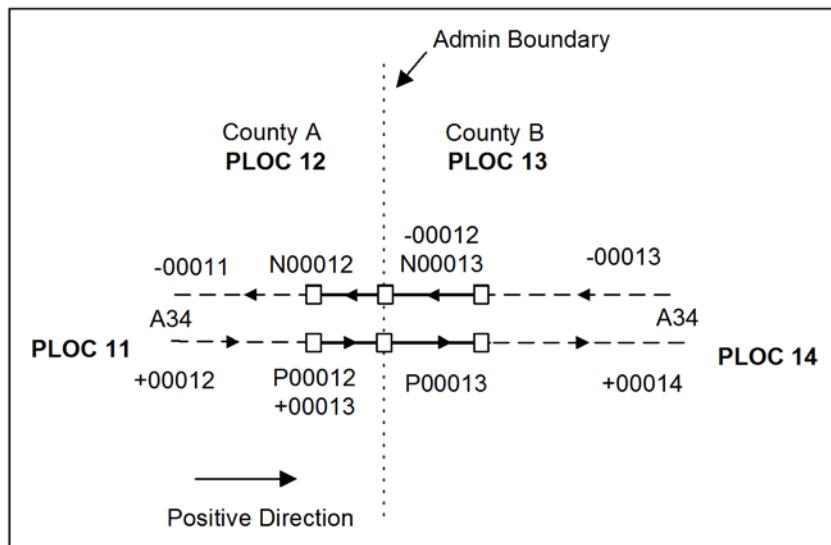


Figure B-54

B.11.9 Administrative Boundary on a Bidirectional Road

Where an Administrative Boundary crosses a bidirectional road, only external codes are applied. See *Figure B-55*.

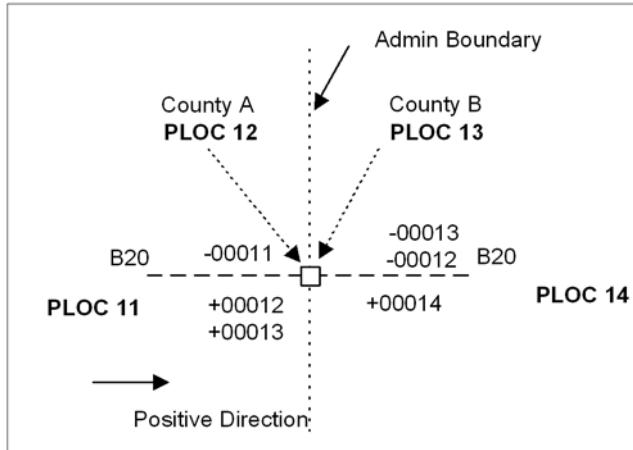


Figure B-55

B.11.10 Road Crossing Linear River

Where a singly digitised road crosses a singly digitised river, internal codes are not required. If the nodes exist internals are applied. See *Figure B-56*.

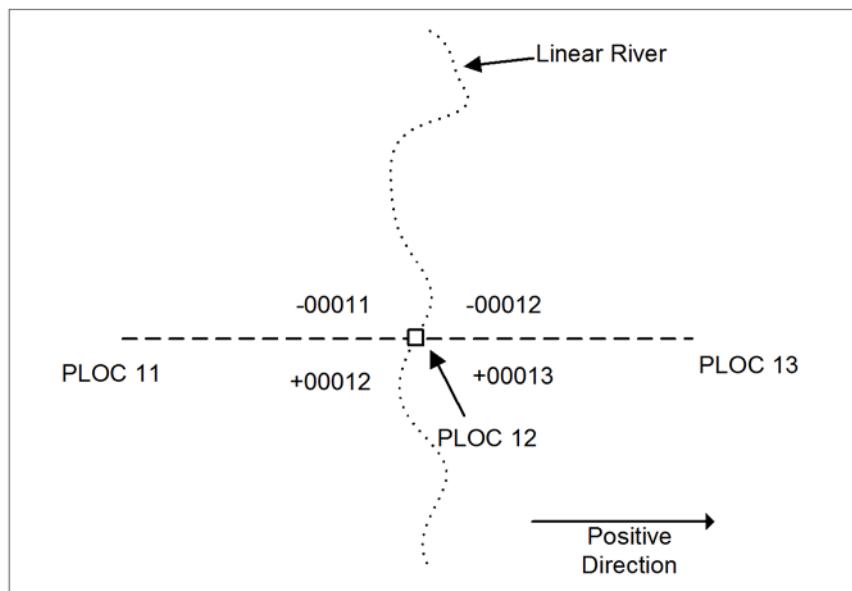


Figure B-56

B.11.11 Road Crossing Polygonal River

Where a road (multi-dig or bidirectional) crosses a polygonal river (or lake) internal codes are placed on the small link as indicated in *Figure B-57*.

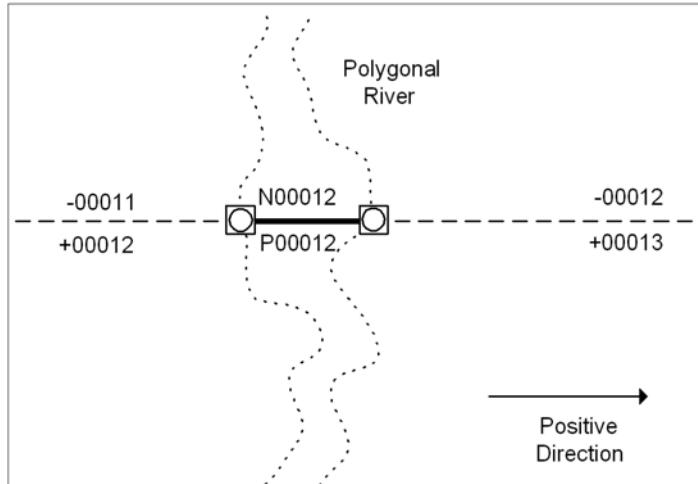


Figure B-57

B.11.12 Ferry Routes

Ferry Connections are treated the same as links, both internal and external codes are applied to them. The internal codes are placed on the link(s) crossing the water feature. See *Figure B-58*.

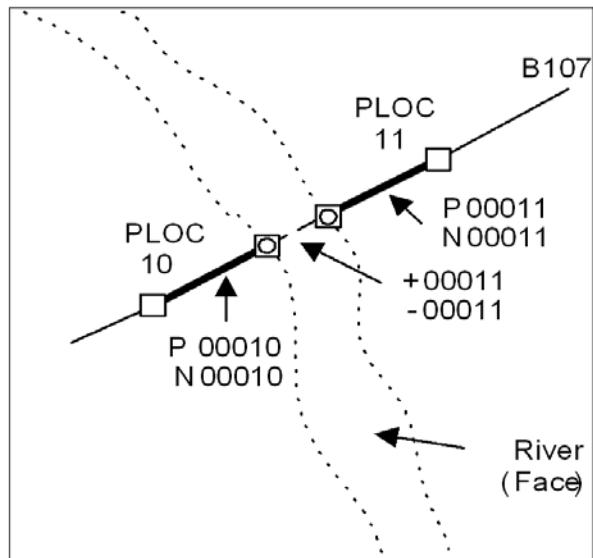


Figure B-58

In *Figure B-59*, the internal codes are applied to the link crossing the polygonal river, as there is only one PLOC.

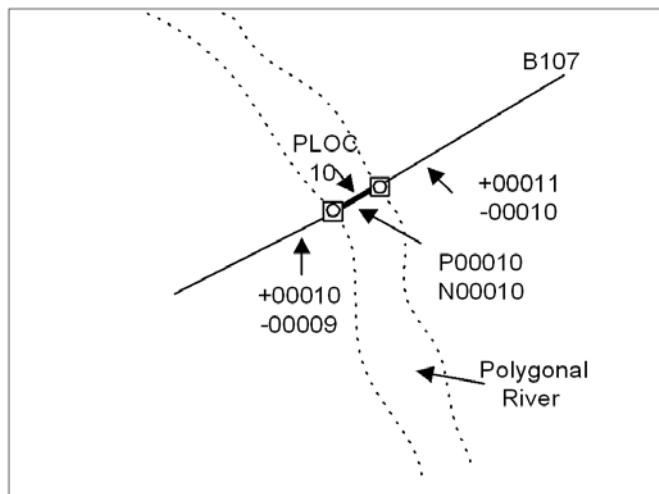


Figure B-59

B.11.13 Built Up Area

In *Figure B-60*, the Built-up Area is the problem location. Internal codes are applied to the extent of the Built-up Area boundary.

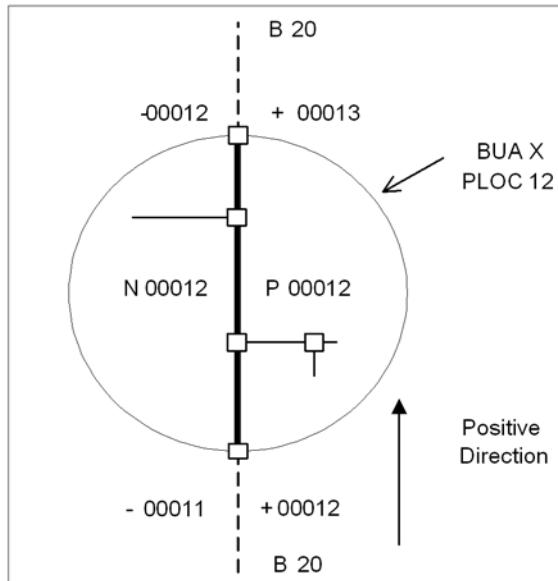


Figure B-60

In *Figure B-61*, the Linear Location is the B-20. The RDS-TMC table refers to BUA Best as the PLOC, since it is clear that there is only one junction (Green Road) that leads to the BUA Best. The internals are applied only to this junction.

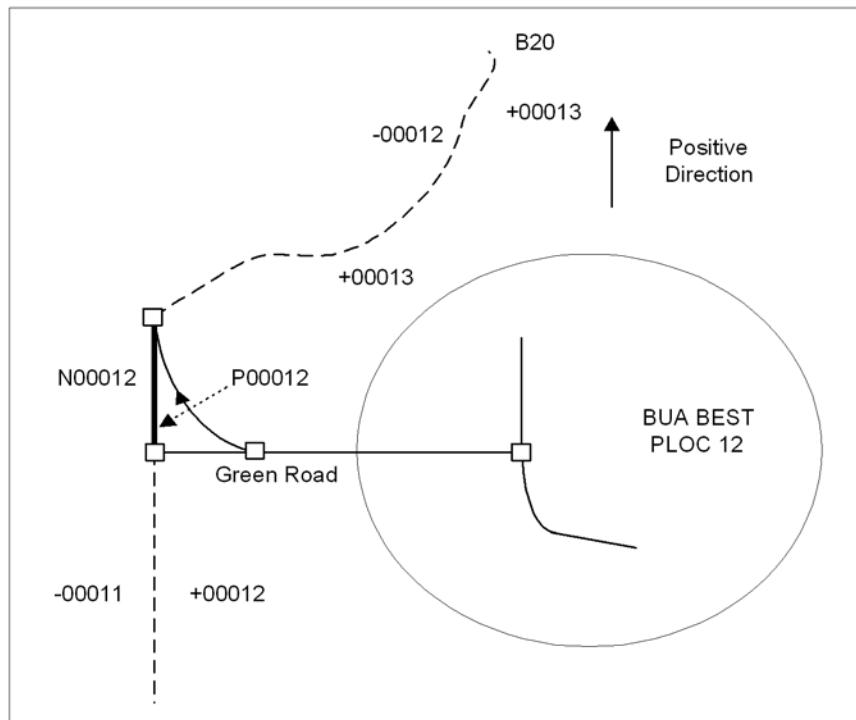


Figure B-61

In *Figure B-62*, the B20 is the Linear Location and the RDS-TMC table refers to Built-up Area X as the PLOC. Since the B20 is not running through the Built-up Area, the internals are applied between the first and last intersection of the B20 leading to the Built-up Area. The same rule applies if one intersection is referred to in the RDS table.

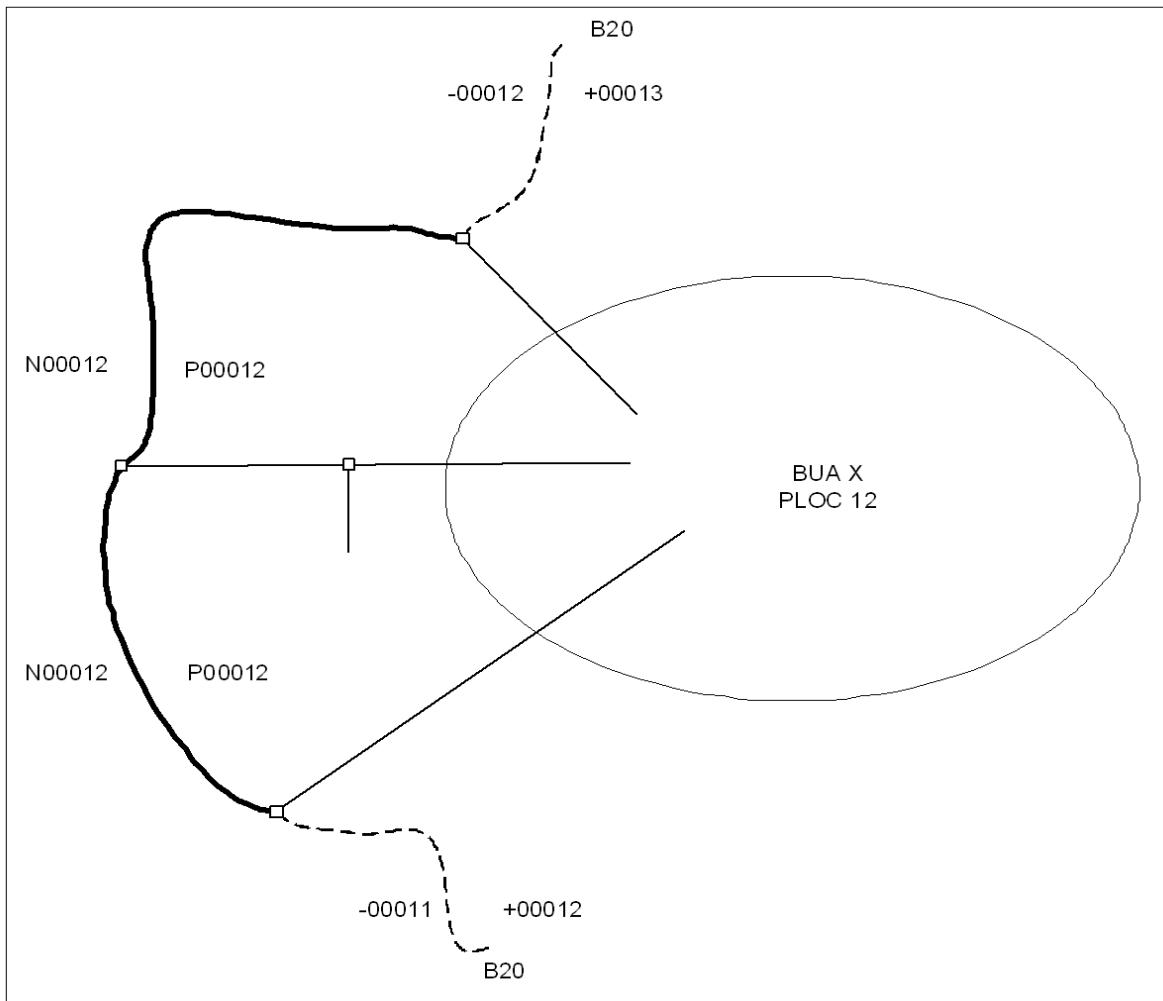


Figure B-62

In Figure B-63, the Linear Location is the B-20. The RDS-TMC table refers to the BUA as the PLOC. The internals are coded between the first and last junction leading to the BUA.

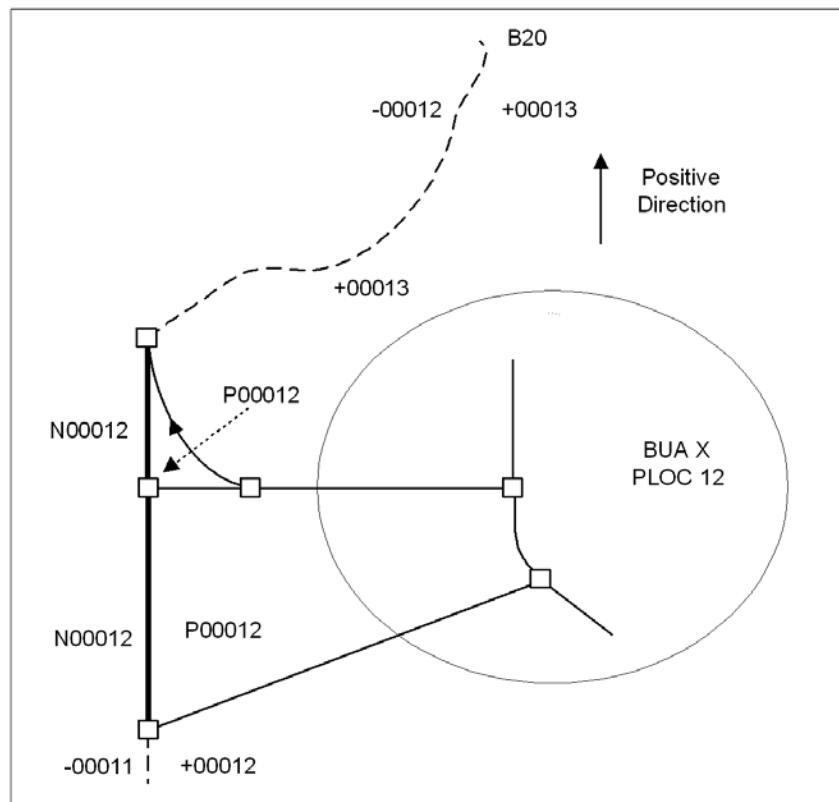


Figure B-63

B.11.14 Point Locations at Table Boundaries

Rules

- When a Traffic Table border intersects a Point Location, there is a Point Location on each side of the border. See *Figure B-64*.
- Note: Because each Linear Location must end at a Table border, each Point Location has its own internal code.

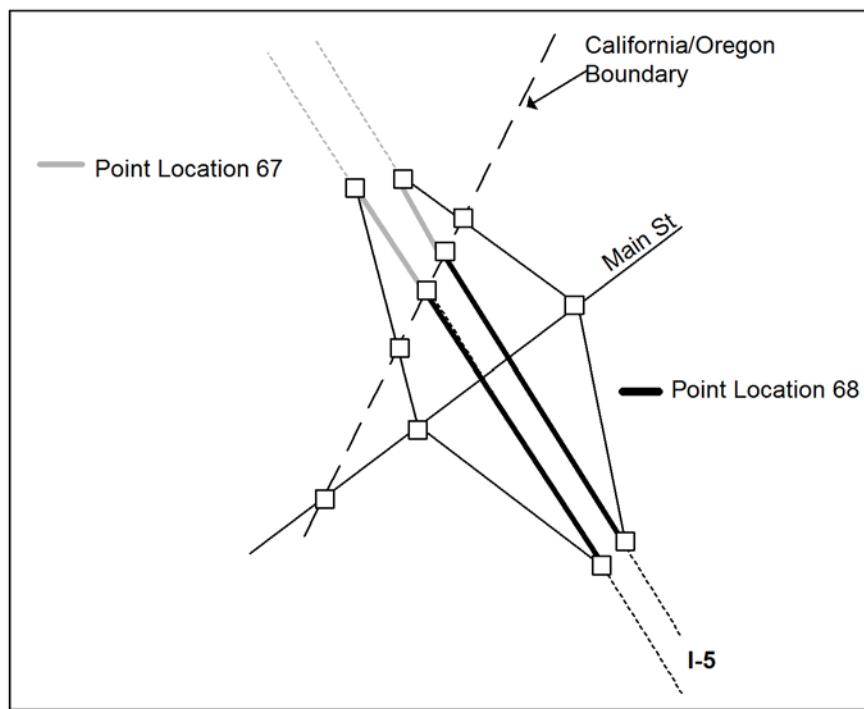


Figure B-64

B.11.15 Point Location along Controlled Access = N

Rules

- Point Locations are included along the Linear Location for:
 - ◆ Functional Class = 1 - 3 cross streets
 - ◆ Functional Class = 4 crossings are included as Point Locations if there is no another Point Location within a mile
 - ◆ Point Locations may also be included at any other significant street-crossing or landmark, including railroads, rivers, and roads that cross but are not necessarily connected at grade to the Linear Feature.
- The placement of the Point Location along a *Controlled Access = N* Linear Location, follows the above mentioned rules if the situation applies.
- A Point Location may not have a corresponding link to place an internal RDS-TMC code. The Point Location is included in the Traffic Location Table. See *Figure B-65* through *Figure B-68*.
- If the Linear Location has the *Direction of Travel = T* or *F* and *Multiply Digitised = N*, both the positive and negative RDS-TMC codes exist at the Point Location. The external locations also have both positive and negative RDS-TMC codes.

B.11.16 Intersecting Multiply Digitised Road

Rule

- The Point Location is applied to *Intersection Internal* links. See *Figure B-65*.

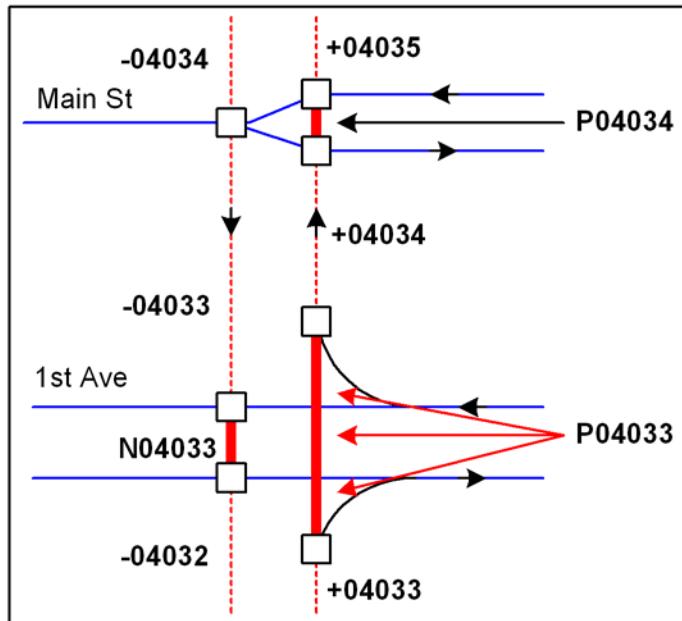


Figure B-65

B.11.17 Linear Location & Multiply Digitised

Rule

- The Linear Location link may have *Multiply Digitised* = N and/or *Multiply Digitised* = Y. See *Figure B-66*.

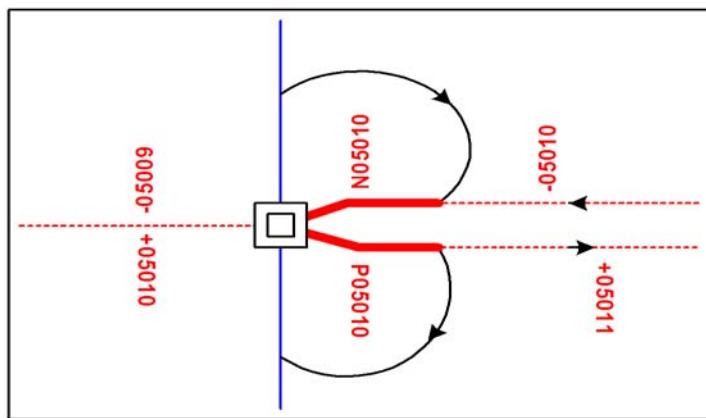


Figure B-66

B.11.18 External Only Point Locations

Rule

- Figure B-67 shows a section of a Linear Location which only has External Point Locations. However, the Point Locations are still represented on the traffic table.

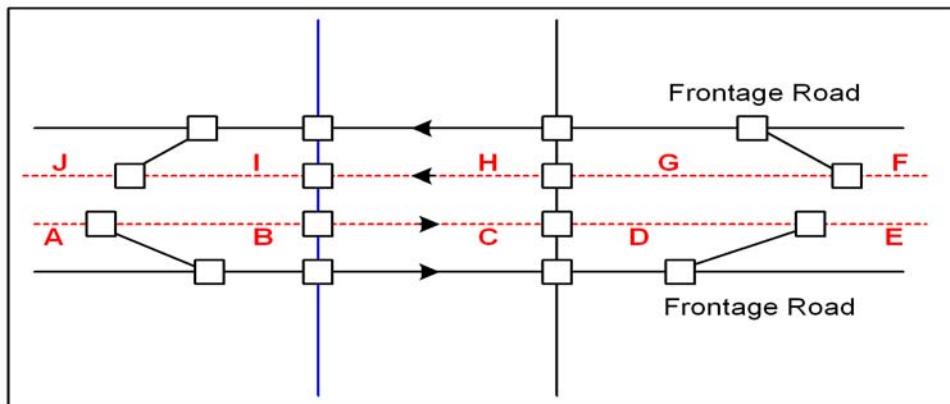


Figure B-67

Point Location ID	Link
-07392	I, J
-07393	F, G, H
+07393	A, B
+07394	C, D, E

Table B-3

B.11.18.1 Point Location IDs

- Point Location IDs are unique to each individual Traffic Table. However, the same Point Location ID may exist between Traffic Tables.
- Point Location IDs are permanent IDs and are not reused if the Point Location no longer exists.
- When a new Point Location is inserted between two existing Point Locations, the next available ID is used. Point Locations along a Linear Location are not renumbered to accommodate the new Point Location.

Point Location ID	Link
+08944 -08943	1
+08944 -08943	2
+08944 -08943	3
P08943 N08943	4
+08943 -08942	5
+08942 -08941	6
P08941 N08941	7
P08941 N08941	8
+08941 -08940	9
+08941 -08940	10
+08941 -08940	11
N08940 P08940	12
N08940 P08940	13
No Coding	14

Table B-4

B.11.18.2 Entire Linear Location

Figure B-68 shows an entire Linear Location with the corresponding RDS-TMC coding.

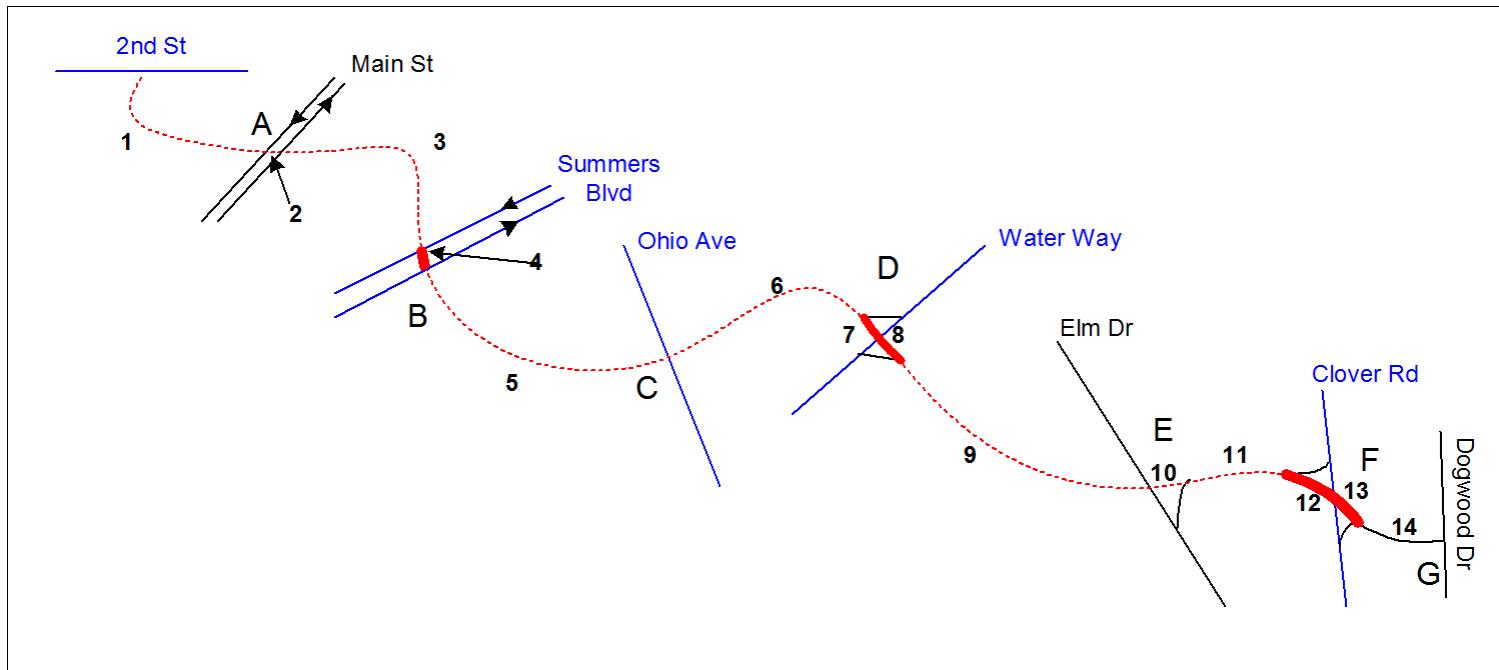


Figure B-68

B.12 Placement of Internal Codes - Not Part of a Path

Tables All Traffic Tables.

B.12.1 RDS-TMC Link Road

Definition A Link Road is a uni-directional connection between two different motorways. A Link Road Point is a point referring to a link road.

Coding L7.0 - Link Road

P4.0 - Link Road Point

- Rules**
- *Link Road Points* only consist of a Positive Internal Code. Negative Internal, Positive External, and Negative External codes do not exist.
 - The Positive Internal code for a *Link Road Point* are added to the already existing RDS-TMC codes.
 - Positive Internal codes for a *Link Road Point* are not part of a chain and therefore, the negative and positive offsets do not exist.
 - See *Figure B-69* for a reality example with all Link Road Points. See *Figure B-70* for the coding representation in the database.

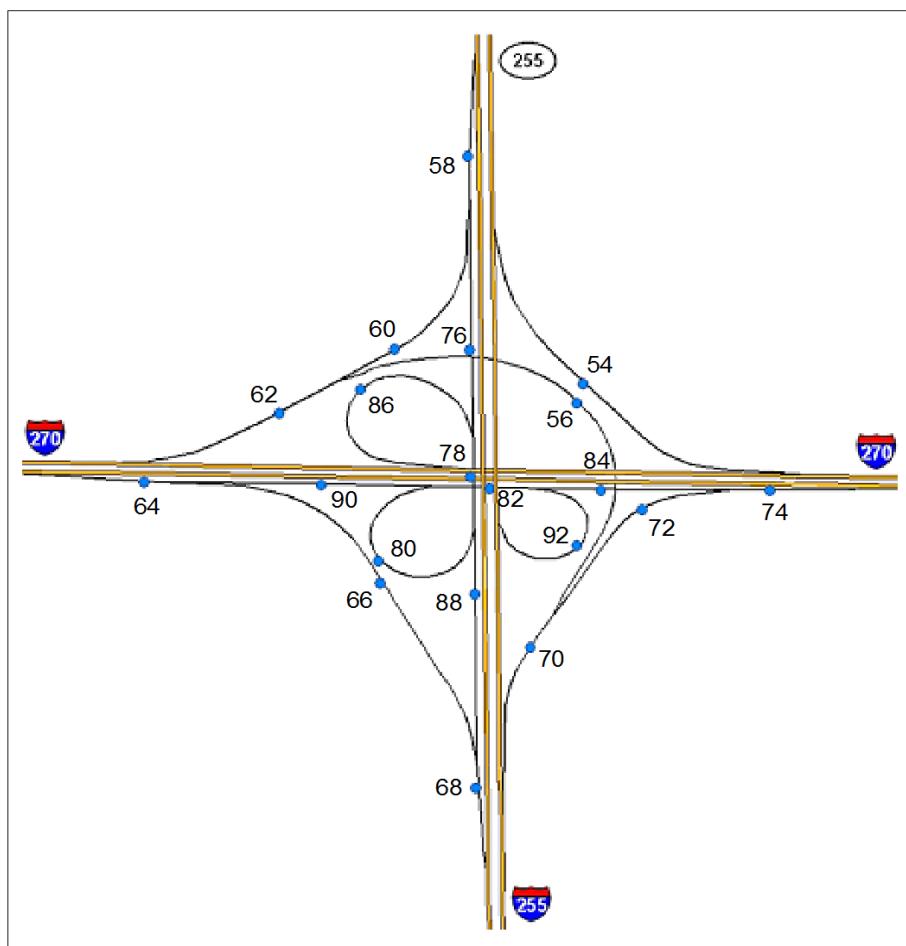


Figure B-69

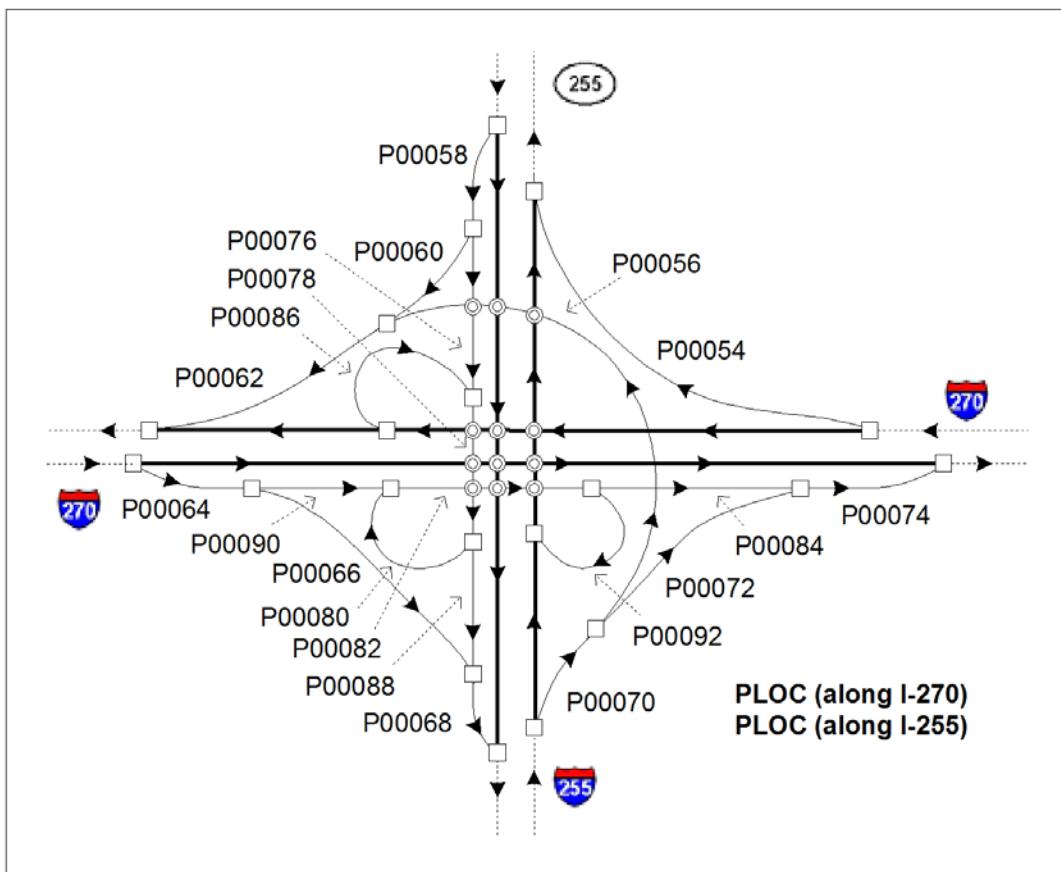


Figure B-70

B.13 RDS-TMC for POIs

B.13.1 Parking Lot/Garage POIs

Values	P5.1 - Parking Garage Underground P5.2 - Parking Lot P5.3 - Parking Garage P5.4 - Carpool Point P5.5 - Park and Ride P5.6 - Parking on Rest Area P5.7 - Parking to Camp P5.8 - Motorway Service Area
Rules	<ul style="list-style-type: none"> • An entrance link is required for Parking Lots and Parking Garages with Point locations. Note: Additional links are not added for exits. • The entrance links are coded with the following: <ul style="list-style-type: none"> → Valid Unnamed → <i>Direction of Travel</i> =B → <i>Speed Category</i> = 7 → <i>Functional Class</i> =5) → <i>POI Access</i> = Y → Access characteristics and Conditions (e.g., Access Restrictions) are the same as those of the road it connects to. → With a <i>Parking Lot</i> or <i>Parking Garage</i> POI • Point locations referring to <i>Parking Lot</i> and <i>Parking Garages</i> are: <ul style="list-style-type: none"> → Added with Positive Internal codes only (e.g., RDS1755381T and RDS1755381F). → Not part of a RDS-TMC chain • The Internal codes are added on the entrance link and not on the main road. • When multiple entrances exist on different streets, all entrances require an entrance link, Positive Internal codes, and a <i>Parking Lot/Parking Garage</i> POI. The same Internal codes are used for all entrances. See <i>Figure B-71</i>, Example A. • When multiple entrances exist on the same street, only one entrance link is added. See <i>Figure B-71</i>, Example B. • The <i>Parking Lot</i> or <i>Parking Garage</i> POI is moved to the entrance link. New POIs are added for possible additional entrances. See <i>Figure B-71</i>.

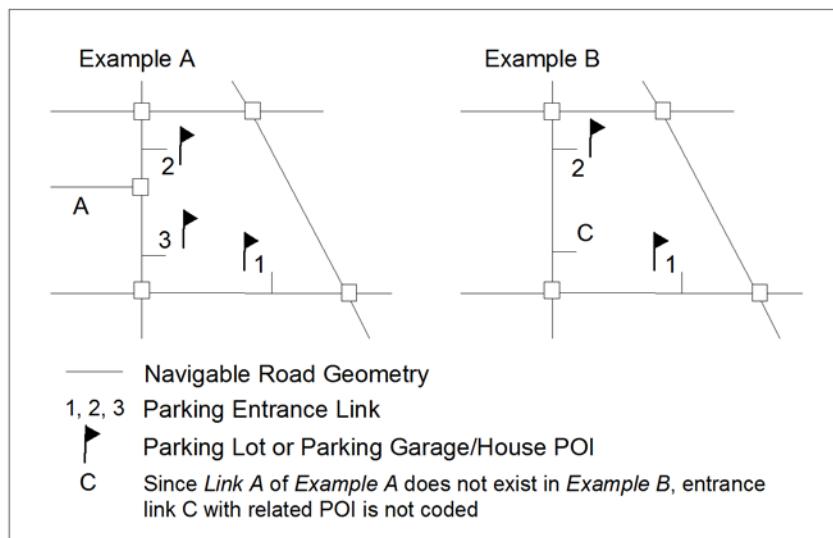


Figure B-71

- The entrance attached to the highest *Functional Class* road is chosen as the Parent POI. A *Physical Parent/Child* relationship are added between all the other entrance POIs.
- Note: If all entrances are attached to roads with the same *Functional Class*, any entrance can be chosen as the Parent POI.

B.13.2 RDS-TMC for Other Categories

Value P6.0

- Rules**
- Included: Only in Germany until further notice.
 - PLOCs for POIs are not part of any RDS-TMC chain and therefore, consist of Positive Internal Code(s) only. Positive External, Negative Internal, and Negative External codes do not exist.
 - The RDS-TMC table can contain PLOCs for the facilities listed in [Table B-5](#).

Facility	
Airport	Retail Park
Bridge	Square
Exhibition/Convention Centre	Stadium
Fair ¹	Station

Facility	
Ferry	Theme Park
Harbour ¹	Tourist Attraction
Place Name ¹	Tunnel

1. Modelled but not yet populated.

Table B-5

- When the PLOC is located on a bidirectional link, both the To and From Positive Internal Codes are added, e.g., RDS01P17553T and RDS01P17553F. See Example 1 in [Figure B-72](#) for an example.
 - When the PLOC is located on a one-way link, the Positive Internal Code without To and From information are added, e.g., RDS01P17553.
- Note: The Positive Internal Code are not coded against the Direction of Travel.
- See below for detailed specifications on where the PLOC is added for each facility type.

Airport

Rules

- The Positive Internal Code(s) is/are located on the same link as the *Airport* POI. See [Figure B-72](#).

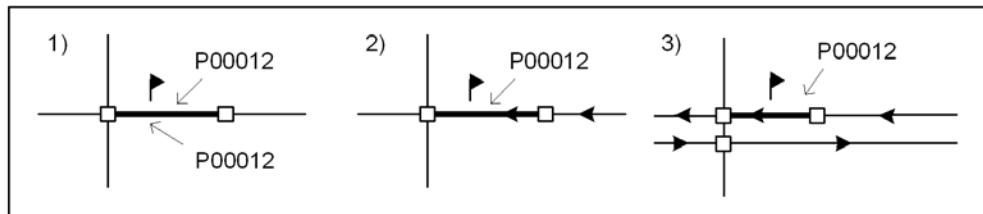


Figure B-72

- If the Airport has multiple entrances, the Positive Internal Code(s) is/are added for all entrances that have an *Airport* POI. See [Figure B-73](#).
- Note: Additional *Airport* POIs are not added.

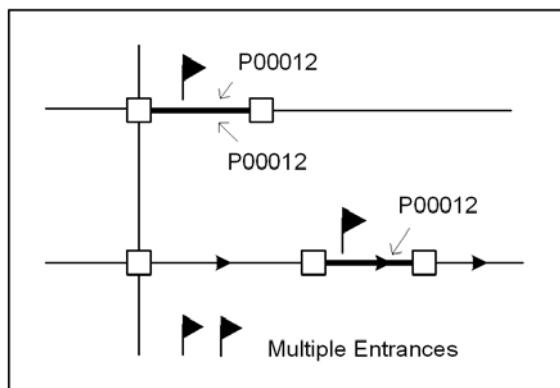


Figure B-73

Bridge**Rules**

- The Positive Internal Code(s) is/are added on all links coded with *Bridge* = Y.
- A link is created for PLOCs of bridges smaller than 200 metres. Nodes are added where needed. The Positive Internal Code(s) is/are added as indicated in *Figure B-74*.

Note: The *Bridge* attribute is published for these links.

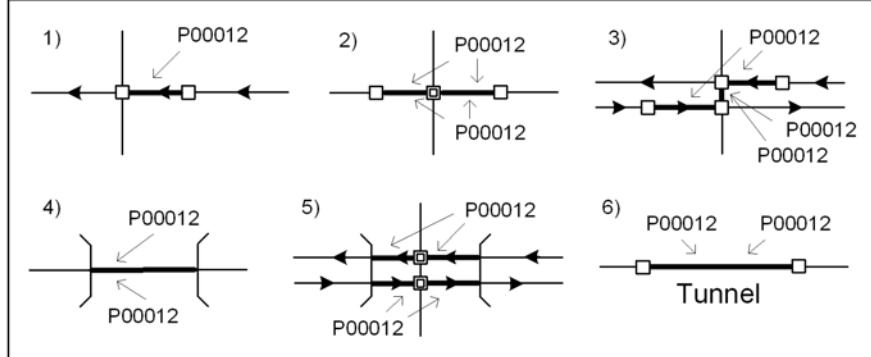


Figure B-74

Exhibition/Convention Centre**Rules**

- The Positive Internal Code(s) is/are located on the same link as the *Convention/Exhibition Centre* POI. See *Figure B-72*.
- If the Convention/Exhibition centre has multiple entrances, the Positive Internal Code(s) are added for all entrances that have a *Convention/Exhibition Centre* POI. See *Figure B-73*.

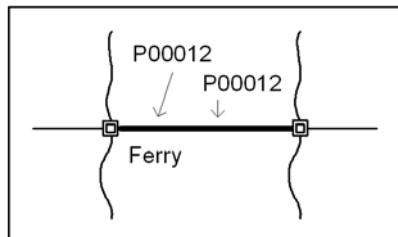
Note: Additional *Convention/Exhibition Centre* POIs are not added.

Fair

- Rules**
- Positive Internal Code(s) for Fair are not coded.

Ferry

- Rules**
- The Positive Internal Codes are added on links with *Boat Ferry* = Y. See [Figure B-75](#).

*Figure B-75*

- The PLOCs for Ferries are only defined for small National ferries.

Harbour

- Rules**
- Until further notice, Positive Internal Code(s) for Harbours are not coded.

Named Place

- Rules**
- Until further notice, Positive Internal Code(s) for Named Places are not coded.

Retail Park

- Rules**
- The Positive Internal Code(s) for Retail Park are located on the same link as the *Shopping Centre* POI(s). See [Figure B-72](#).
 - If the Shopping Centre has multiple entrances, the Positive Internal Code(s) are added for all entrances that have a Shopping POI. See [Figure B-73](#).

Note: Additional *Shopping* POIs are not added.

Square**Rules**

- All links around or inside a Square is coded with the Positive Internal Code(s). See [Figure B-76](#).

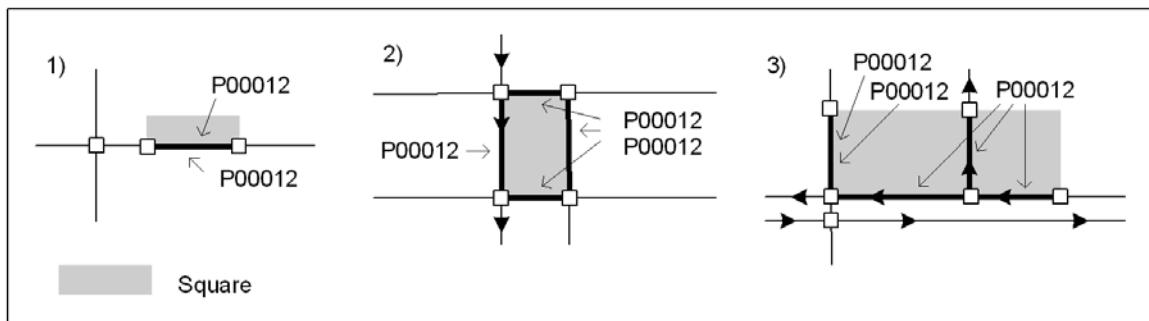


Figure B-76

Stadium**Rules**

- The Positive Internal Code(s) for Stadium are coded on the same link as the *Sports Centre* or *Sports Complex* POI. See [Figure B-72](#).
- An entrance link is not added.

Station**Rules**

- The Positive Internal Code(s) for Station are added on the same link as the *Train Station* POI. See [Figure B-72](#).

Theme Park**Rules**

- The Positive Internal Code(s) are located on the same link as the *Amusement Park* POI. See [Figure B-72](#).
- If the Amusement Park has multiple entrances, the Positive Internal Code are added for all entrances that have an *Amusement Park* POI. See [Figure B-73](#).
Note: Additional *Amusement Park* POIs are not added.

Tourist Attraction**Rules**

- The Positive Internal Code(s) for Tourist Attraction are added on the same link as the *Tourist Attraction* POI. See [Figure B-72](#).

Tunnel**Rules**

- The Positive Internal Code for Tunnel is added on all links coded with *Tunnel* = Y. See *Figure B-74*.
- A link is created for PLOCs of tunnels smaller than 200 metres. Nodes are added where needed. The Positive Internal Code(s) are added as indicated in *Figure B-74*.
Note: The *Tunnel* = Y attribute is added to these links.

B.14 Traffic Location Table Specification - HERE Tables

This section describes the Traffic Location Table specification. Below are general specifications for the table:

- The Traffic Location Table is assigned a two digit ID from the range 1-63. The geographic area covered by a particular table is determined by HERE, with input from customers and traffic information providers.
- The combination of the European Broadcasting Union (EBU) country code, the location table ID and the location ID uniquely identifies a traffic location.
- The Traffic Location Table information of Negative and Positive Offset determines the order of the Location IDs. The numeric sequencing of the IDs cannot be used to determine the order. By using the Negative and Positive Offset information, the positive direction of the Linear Location can be determined.
- The table is designed to allow a traffic provider to map traffic information from the real world to the HERE Traffic Location IDs.
- The Traffic Location Table has a header row labelled 00. This includes the creation date in the format YYYYMMDD (e.g., 200060201) and the version number of the table in the format VYYYY.X.yy (e.g., V2006.2.00). See *Table B-9* for an example of a header. The version number is incremented when a new table is released. The frequency of update is determined by HERE, with input from customers and traffic information providers. When a table is published for the first time, it receives v1.00. As the table is expanded with new areas of coverage, the minor number (yy) will be incremented. The original location codes from v1.0 are not changed in these later versions. When changes are made to previously published traffic coverage (for example a new highway crossing is built), the major version number (X) will be incremented.
- The Traffic Location Table has a terminating row labelled as 99.
- The table is delivered in Microsoft Excel and Exchange formats. The lengths described in the table layout below are intended to describe maximum lengths.

The following page describes the layout of the table. See *Table B-3* for example.

Table ID This is the ID of the table. The values for table IDs must be within the range of 1-63.

Length: 2, Type: Numeric

Location Code This column contains the code of the particular location. The values for locations must be within the range of 1-63487.

Length: 5, Type: Numeric

Location Type This column contains the type of the location. Each location is described by a code, which is composed of:

- a character (A, L or P), indicating the location category (area, linear or point)
- a number indicating the type
- a dot
- a number indicating a subtype

Example: P1.1 - motorway intersection (P = point, P1 = junction)

For types for which not a subtype is defined, the subtype code 0 (zero) has to be used to define the type as a subtype.

Example: A3.0 - country

Area

Area defines the coverage of a service area (e.g., county, State, etc.). Area Locations follow a hierarchical order. This facilitates sorting and selection of information and in defining specific service areas. The different Traffic Area types are listed in *Table B-6*.

Code	Definition	Examples
A1.0	Continent	North America
A3.0	Country	Country (USA, Canada, Puerto Rico, Mexico)
A7.0	Administrative area which belongs to the first level administrative subdivision of a Country, but which may not be the smallest unit in that country.	State, Province
A8.0	Administrative area which belongs to the second level administrative subdivision of a Country, but which may not be the smallest unit in that country.	County, Municipality/County in Canada: for Alberta, Manitoba, and Saskatchewan)
A12.0	Broadcast Service Area	Las Vegas, Los Angeles, Orange County, San Diego, etc.

Table B-6

Linear

A road is described by its general direction within the entire country. For example, I-80 is an East/West road that extends from the George Washington Bridge in NJ to San Francisco. This data is reflected in the *Direction on Sign* attribute.

The Linear Locations are defined based on the rules in *Section B.3, Inclusion of Problem Locations*, and additionally, a Linear Location breaks when it crosses a defined Area.

The information in columns First Name and Second Name references the general direction of the road. For example, where the I-5 starts at the border with Mexico, the First Name is "Southbound" and the Second Name is "Northbound". In some cases, the compass direction is not relevant for a road. For example, I-695 in Washington DC forms a loop that is identified with Inner Loop and Outer Loop. In this case, the compass direction is not used for the First Name and Second Name; instead, a reference to the direction of travel within the loop is used. In this case, clockwise travel is referenced as "Inner Loop" and counter-clockwise travel is referenced as "Outer Loop".

Types of Linear Locations examples are listed in *Table B-7*. Each of these are defined in the CEN standard as "Road".

Code	Subtype	Definition
L1.1	Interstate roadways	
L1.2	US roadways	
L1.3	State roadways	
L1.4	Other roads	
L3	N/A	Functional Class = 1 Segment; Higher level subdivision of a road/ring road/vehicular link, which is defined in terms of the location that it joins.
L7.0	Link Road	A Link Road is a uni-directional connection between two different motorways.

Table B-7

Point

A Point Location defines a location on a *Controlled Access* motorway at a ramp intersection, a bridge/tunnel, a toll booth, a rest area, a Country or State/Province boundary, an Express/Reversible/Carpool Roads, the beginning/end of the motorway, or other included locations. Locations that do not meet the specifications (see *Section B.6, Internal Codes on Multiply Digitised Roads*) are included when they are important for traffic messages. These additional locations are determined by HERE, with input from customers and traffic information providers. A Point Location may also define a location along a *Controlled Access = N* motorway at a *Functional Class = 1 - 4* cross street (may be a ramp intersection), a bridge/tunnel, a toll booth, a rest area, a Country or State/Province boundary, or the beginning/end of the Linear Location.

Point Locations include, but not limited to the examples contained in *Figure B-8*.

Code	Subtype	
	HERE	Third Party / TMC Forum
	Types P1 is point on a road or ring road where other road(s) and/or ring road(s) connect.	
P1	N/A	Junction
P1.1	Motorway Intersection	
P1.2	N/A	Motorway Triangle
P1.3	Motorway Junction	
P1.4	N/A	Motorway Exit
P1.5	N/A	Motorway Entrance
P1.6	N/A	Flyover
P1.7	N/A	Underpass
P1.8	N/A	Roundabout
P1.9	N/A	Gyratory
P1.10	N/A	Traffic Lights
P1.11	Crossroads	
P1.12	N/A	T-junction
P1.13	Intermediate Node	
P1.13	N/A	Motel
P1.14	N/A	Freeway Intersection
P2	N/A	Intermeditate Point
P2.1	N/A	Distance Marker
P2.2	N/A	Traffic Monitoring Station
	Types P3 and P4 are Points of interest (not limited to HERE categories) in traffic and travel messages.	
P3.0	N/A	Other Landmark Point
P3.1	Tunnel	
P3.13	N/A	Motel
P3.14	Border/Frontier	
P3.15	N/A	Customs Post
P3.16	Toll Plaza	
P3.17	N/A	Ferry Terminal

Code	Subtype	
	HERE	Third Party / TMC Forum
P3.18	N/A	Harbour
P3.19	N/A	Square
P3.2	Bridge	
P3.20	N/A	Fair
P3.21	N/A	Garage
P3.22	N/A	Underground Garage
P3.23	N/A	Retail Park
P3.24	Theme Park	
P3.25	Tourist Attraction	
P3.26	N/A	University
P3.27	Airport	
P3.28	N/A	Station
P3.29	Hospital	
P3.3	Service Area	
P3.30	N/A	Church
P3.31	N/A	Stadium
P3.32	N/A	Palace
P3.33	N/A	Castle
P3.34	N/A	Town Hall
P3.35	Exhibition/Convention Center	
P3.36	N/A	Communities
P3.37	Place Name	
P3.38	N/A	Dam
P3.39	N/A	Dike
P3.4	Rest Area	
P3.40	N/A	Aqueduct
P3.41	N/A	Lock
P3.42	N/A	Mountain Crossing/Pass
P3.43	N/A	Railroad Crosssing
P3.44	N/A	Ford

Code	Subtype	
	HERE	Third Party / TMC Forum
P3.45	N/A	Ferry
P3.46	N/A	Industrial Area
P3.47	N/A	Viaduct
P3.5	N/A	View Point
P3.6	N/A	Carpool Point
P3.7	N/A	Park and Ride Site
P4.0		Link Road Point
P5.0	N/A	Parking POI
P5.1	N/A	Underground Parking Garage
P5.2	N/A	Car Park
P5.3	N/A	Parking Garage
P5.4	N/A	Carpool Point
P5.5	N/A	Park and Ride Side
P5.6	N/A	Rest Area Parking
P5.7	N/A	Camp Ground

Table B-8

Length: 5, Type: Numeric

Road Number This column contains the Road Number. When a linear has both a route number and local name, the route number is placed in the Road Number column and the local name in the Road Name column. Thus the linear has both a Road Number and a Road Name.

Road Number is meaningless for Area Locations, and for Ramps (P4.0) so it is not populated.

Length: 35, Type: Alphanumeric

Road Name This column contains the Road Name. When a linear has both a route number and local name, the route number is placed in the Road Number column and the local name in the Road Name column. Thus the linear has both a Road Number and a Road Name.

Road Name is meaningless for Area Locations, and for Ramps (P4.0) so it is not populated.

Length: 35, Type: Alphanumeric

First Name This column is populated in the following manner:

- For Area Locations, the First Name is the name of the area.
- For Linear Locations, the First Name is the direction of travel towards the negative end.

Specific cases are populated as follows:

- In cases where the compass direction is not useful, the typically used reference to the direction of travel towards the negative end is used.
- For the L7 record, the First Name is the “from” highway and direction. If a ramp originates from multiple highways, both names, separated by “/”, are included.
- For Point Locations, the First Name is the location name (e.g., junction name, bridge name, etc.).
For P4.0 records, the First Name is the Exit Number off the “from” highway. It is left blank if there is no known Exit Number,

Length: 35, Type: Alphanumeric

Second Name This column is populated in the following manner:

- For Linear Locations, the Second Name is the direction of travel towards the positive end.

Specific cases are populated as follows:

- In cases where the compass direction is not useful, the typically used reference to the direction of travel towards the positive end is used.
- For L7 records, the destination of the ramp is used. If the ramp can branch into both directions, the name of the highway without any directionality is used (such as 19213 in *Table B-10*). In the example, code 19215 only goes East, so the second name for that Linear Location includes the directionality (Hwy 91 Eastbound).
- For P4.0 records, the Second Name is left unpopulated.

Length: 35, Type: Alphanumeric

Area Reference This column contains the Area ID referenced by the particular location.

Note: This Area ID refers to the ID in the Location Table. It does not correspond to a permanent Area ID or to any ID in the SIF.

The column is populated in the following manner:

- An Area Location is always referenced to the next higher Area Location in the hierarchy.
Refer to *Table B-9* for example. Note that sample Locations Codes are coloured to depict relationships.

In the table, Nevada and California are both upward referenced to the United States. This is indicated by the Location Code of the U.S., which is 6001(blue font) being entered in the Area Reference column. Subsequently, U.S. is also upward referenced to North America, as indicated by N.A.'s Location Code 6000 (green font) being entered in the Area Reference column. The same concept applies to Los Angeles, which is upward referenced to California (red font).

- For Linear and Point Locations, the Area Reference is the ID of the area where the Linear Location or Point Location exists.

Length: 5, Type: Numeric

Linear Reference

- This column contains the Linear Location ID for the corresponding Point Location. This column is not populated for Area Locations since it is meaningless. Linear Locations of lower levels can have a Linear Reference. As illustrated in *Table B-9*, two Location Codes on L3 are both upward referenced to L1.3. This is indicated by L3's Location Code in the Linear Reference column.
 - Point Locations always have both Area and Linear Location References.
 - For Linear and Point Locations, the Linear Reference is the ID of the upper Linear Location where a Linear Location or a Point Location exists.
- Two P4.0 records can not have the same L7 Record.

Length: 5, Type: Numeric

Negative Offset This column contains the Location ID of the Previous Location.

This column is populated in the following manner:

- For Area Locations, this column is not populated because the data is meaningless for this type of location.
- For Point Locations, the Negative Offset is the ID of the previous Point Location. In the case where the Point Location is the first of a Linear Location where there is no previous Linear Location, this is not populated.
For P4.0, this column is not populated.
- For Linear Locations, the Negative Offset is the ID of the previous Linear Location. This is published when the last Location ID of one Linear Feature matches the first Location ID of another Linear Feature.

Note: Linear Features are not linked using Positive Offset and Negative Offset when their directions oppose one another. In some cases, the same Linear Feature has been added with opposite positive directions. For example, this can be the result of the Linear Feature originally belonging to two different Area Features. In this case, one of the original Linear Features is extended to meet the other and ends with an internal code.

For L7, this column is not populated.

Length: 5, Type: Numeric

Positive Offset This column contains the Location ID of the Next Location.

This column is populated in the following manner:

- For Area Locations, this column is not populated because the data is meaningless for this type of location.
- For Point Locations, the Positive Offset is the ID of the next Point Location. In the case where the Point Location is the last of a Linear Location where there is no next Linear Location, this is not populated.
For P4.0, this column is not populated.
- For Linear Locations, the Positive Offset is the ID of the next Linear Location. This is published when the last Location ID of one Linear Feature matches the first Location ID of another Linear Feature.

Note: Linear Features are not linked using Positive Offset and Negative Offset when their directions oppose one another. In some cases, the same Linear Feature has been added with opposite positive directions. For example, this can be the result of the Linear Feature originally belonging to two different Area Features. In this case, one of the original Linear Features is extended to meet the other and ends with an internal code.

For L7, this column is not populated.

Length: 5, Type: Numeric

Latitude

This column contains the latitude for some point within a Point Location. The latitude is published in WGS 84, which is the functional equivalent to NAD 83 based on HERE only storing the value to five decimal places.

This column is not populated for Linear or Area Locations.

Length: 9, Type: Signed numeric (when the value is positive, sign is not published)

Longitude

This column contains the longitude for some point within a Point Location. The longitude is published in WGS 84, which is the functional equivalent to NAD 83 based on HERE only storing the value to five decimal places.

This column is not populated for Linear or Area Locations.

Length: 9, Type: Signed numeric (when the value is positive, sign is not published)

B.14.1 Highway to Highway Ramps

The North American Traffic Code Alliance adopted the EU standard with some differences in the use of the name fields in both the Point and Linear locations. Each ramp segment stands alone and has its own location code with no references to a positive or negative offset. The Alliance implemented the positive directions of the codes only. Negative location codes are not used for ramp implementations. As the TMC standard specifies, for every ramp Point Location(P4.0), there is one linear Location (L7). There is a positive location code at every decision point along the ramp network. This implementation results in small ramp sections without location codes; therefore, it is not an error to have "gaps" in the location coding of a given ramp network.

Figure B-77 shows the 605/91 interchange in Los Angeles. While it is usually possible to identify each location on the ramp structure from the table, a picture of the intersection identifying the location of all of the point codes is also delivered. This is to eliminate any confusion. Referring to the exit from 91 West, the initial part of the ramp is code 19220. This code ends at the split to go either north or south on 605. The ramp going north is code 19222 and the ramp going south is 19224. The 19224 splits again because of the merging ramp from 605 South. The next ramp section is identified by code 19230. There is no coding on the ramp section from 605 South heading towards code 19230.

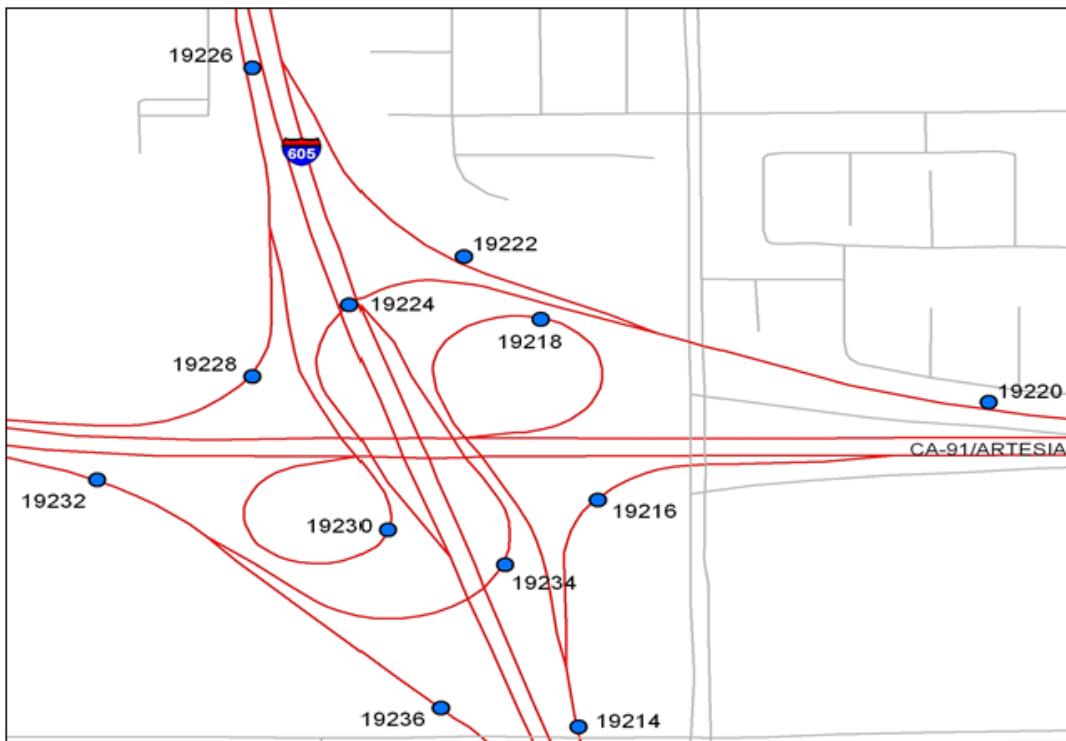


Figure B-77

B.14.2 Examples

B.14.2.1 Typical Traffic Location Table

Table Number	Location Code	(sub) Type	Road Number	Road Name	First Name	Second Name	Area Reference	Linear Reference	Negative Offset	Positive Offset	Latitude	Longitude
00 Location Table 20060216 V2006.2												
06	60000	A1.0			NORTH AMERICA							
06	60001	A3.0			UNITED STATES		60000					
06	60011	A7.0			CALIFORNIA		60001					
06	60012	A7.0			NEVADA		60001					
06	60100	A8.0			IMPERIAL		60011					
06	60101	A8.0			CLARK		60012					
06	00005	A12.0			IMPERIAL COUNTY - CA		60011					
06	00006	A12.0			LAS VEGAS		60012					
06	00007	A12.0			LOS ANGELES		60011					
06	00008	A12.0			ORANGE COUNTY		60011					
06	00010	A12.0			SAN DIEGO							
06	00151	L1.3	CA-91	HOV LN RAMP	EAST-BOUND	WEST-BOUND	60001					
06	00200	L1.4		MAC-ARTHUR BLVD								

Table Number	Location Code	(sub) Type	Road Number	Road Name	First Name	Second Name	Area Reference	Linear Reference	Negative Offset	Positive Offset	Latitude	Longitude
06	03019	L1.1	I-5		SOUTH-BOUND	NORT-BOUND	60001					
06	00066	L1.3	CA-134		EAST-BOUND	WEST-BOUND	60001					
06	03010	L1.3	CA-71		SOUTH-BOUND	NORTH-BOUND	60001					
06	00065	L1.3	CA-170		SOUTH-BOUND	NORTH-BOUND	60001			00089		
06	00089	L3.0	CA-71		SOUTH-BOUND	NORTH-BOUND	60001	03010		00088		
06	00088	L3.0	CA-71		SOUTH-BOUND	NORTH-BOUND	60001	03010	00089			
06	00111	L3.0	I-5		SOUTH-BOUND	NORTH-BOUND	60001	03019		00112		
...												
06	00114	L3.0	CA-15		SOUTH-BOUND	NORTH-BOUND	03003	00131				
06	00131	L3.0	CA-15		SOUTH-BOUND	NORTH-BOUND	03003	00114				
...												
06	04965	P3.14	I-5		US/MEXICO BORDER		00010	00111		04966	32.5424	-117.02959
06	04966	P1.3	I-5		CAMINO DE LA PLAZA		00010	00111	04965	04967	32.54435	-117.03224
06	04967	P1.1	I-5		I-805		00010	00111	04966	04968	32.54581	-117.0344
...												

Table Number	Location Code	(sub) Type	Road Number	Road Name	First Name	Second Name	Area Reference	Linear Reference	Negative Offset	Positive Offset	Latitude	Longitude
06	05529	P1.11	CA-15		I-5		00010	00114		05530	32.68819	-117.11484
06	05530	P1.11	CA-15		MAIN ST		00010	00114	05529	05531	32.69468	-117.12063
...												
06	06001	P1.11	CA-91	WEST HOV LN RAMP	STATE COLLEGE BLVD		00007	00200		06002	33.99160	-118.27404
...												
99												

Table B-9

B.14.2.2 Traffic Table with Ramps

										INTERSECTREF
										LONG
										LAT
										NEGOFF
										POSOFF
										LINEARID
										AREA
										SECONDNAME
										FIRSTNAME
										ROADNAME
										ROADNUMBER
										TYPE
										TABLE
										LOCB
06	4586	P1	I 605	HWY 91/ARTESIA FWY		7	107	4585	4587	33.8714 -118.1006
06	4907	P1	I 605	HWY 91		7	85	4906	4908	33.8765 -118.1073
06	19213	L7	I 605 NORTHBOUND	HWY 91		7				
06	19214	P4	EXIT 7A			7	19213			33.87267 -118.10078
06	19215	L7	I 605 NORTHBOUND	HWY 91 EASTBOUND		7				
06	19216	P4				7	19215			33.87581 -118.10061
06	19217	L7	I 605 NORTHBOUND	HWY 91 WESTBOUND		7				
06	19218	P4				7	19217			33.87717 -118.10224
06	19219	L7	HWY 91 WESTBOUND	I 605		7				
06	19220	P4	EXIT 17B			7	19219			33.8769 -118.0974
06	19221	L7	HWY 91 WESTBOUND	I 605 NORTHBOUND		7				
06	19222	P4				7	19221			33.87864 -118.10223
06	19223	L7	HWY 91 WESTBOUND	I 605 SOUTHBBOUND		7				
06	19224	P4				7	19223			33.87782 -118.10325
06	19225	L7	I 605 SOUTHBBOUND	HWY 91		7				
06	19226	P4	EXIT 7A			7	19225			33.88077 -118.10403
06	19227	L7	I 605 SOUTHBBOUND	HWY 91 WESTBOUND		7				
06	19228	P4				7	19227			33.87723 -118.10405
06	19229	L7	I 605 SOUTHBBOUND	HWY 91 EASTBOUND		7				
06	19230	P4				7	19229			33.87657 -118.10318
06	19231	L7	HWY 91 EASTBOUND	I 605		7				
06	19232	P4	EXIT 17			7	19231			33.87589 -118.10551
06	19233	L7	HWY 91 EASTBOUND	I 605 NORTHBOUND		7				
06	19234	P4				7	19233			33.87559 -118.10162
06	19235	L7	HWY 91 EASTBOUND	I 605 SOUTHBBOUND		7				
06	19236	P4				7	19235			33.87307 -118.10195

Table B-10

B.15 TMC Areas - Europe

Note: This content is no longer maintained.

Definition TMC Areas represent a set of attributes that can be used to display traffic messages for different Area categories on the map. Additionally, TMC Areas can be used to provide traffic message information in route calculation and during route guidance. See [Table B-11](#) for the RDS-TMC structure for TMC Areas.

Note: TMC codes were only added to Road Network features, but can now also be added to Cartographic Administrative features and Points of Interest as well.

Inclusion Western Europe

Note: Eastern European tables, when updated, follow the following rules:

Value The attribute value for TMC Area Code is published in the format: ABBCCCC, where:

Segment	Description
A	the one character EBU Country Code.
BB	the two digit Location Table Number
CCCCC	the five digit Location Code. This has leading zeros if necessary.

Table B-11

- Rules**
- *TMC Area Codes* for water and fuzzy areas are added to the corresponding polygonal features only.
 - When navigable links share the same links as the polygon which receives the *TMC Area Code*, the *TMC Area Code* is only added to the polygonal feature.
 - *TMC Area Codes* are not added for the following sub types:
 - ◆ A6.2 - Metropolitan Area
 - ◆ A6.5 - Meteorological Area
 - ◆ A6.6 - Carpool Area
 - ◆ A6.7 - Park and Ride Site
 - ◆ A6.8 - Car Park Area
 - Every *TMC Area Code* receives a RDS-TMC code. Multiple RDS-TMC codes are added when a feature has more than one *TMC Area Code* assigned.
 - When a *TMC Area Code* is assigned to a linear administrative feature, e.g., Country or State feature, the *TMC Area Code* is added to the Administrative boundary of all County features, *Feature Type(0900170)* that make up the Country or State area.

- See *Table B-12* for an explanation of the TMC Area Types:

TMC Area Type	Name of TMC Area Type	Description
A3.0	Country	Reflects Country feature
A5.0	Water Area	Reflects water areas
A5.1	Sea	Reflects oceans
A5.2	Lake	Reflects lakes
A6.0	Fuzzy Area	Reflects areas other than admin and water
A6.1	Tourist Area	Reflects area with tourist character
A6.3	Industrial Area	Reflects industrial areas
A6.4	Traffic Area	Reflects complex traffic areas involving two or more junctions and/or intersections
A7.0	Order 1 Area	Reflects State or County feature
A8.0	Order 2 Area	Reflects State or County feature
A9.0	Order 3 Area	Reflects State or County feature
A9.1	Rural County	Reflects Rural or County feature
A9.2	Urban County	Reflects Urban or County feature
A10.0	Order 4 Area	Reflects City or Built-up Area feature
A11.0	Order 5 Area	Reflects Built-up Area feature
A12.0	Application Region	Reflects a specific region in a country

Table B-12

B.15.1 Examples

- A TMC Area Code with Type A3.0 is assigned to Germany. Since country is a linear feature, the TMC Area Code is added to the first polygonal feature below the country. For Germany, this means the TMC Area Code is added to all Kreis polygons that make up the country. See [Figure B-78](#).

A	B	C	D	E	F	G	H	I	J	K	L
CC	CID	VERSION NR	TABLE	LOCATION CODE	(SUB)TYPE	ROAD NUMBER	ROAD NAME	JUNCTION	FIRST NAME	SECOND	AREA REFERENCE
D	58	8.0	1	1	A3.0				Deutschland		34196

Figure B-78

Example 1

- A TMC Area Code with Sub Type A5.2 is assigned to Ammersee. The TMC Area Code should be added to the polygonal feature. See [Figure B-79](#).

A	B	C	D	E	F	G	H	I	J	K	L
CC	CID	VERSION NR	TABLE	LOCATION CODE	(SUB)TYPE	ROAD NUMBER	ROAD NAME	JUNCTION	FIRST NAME	SECOND	AREA REFERENCE
D	58	8.0	1	35100	A5.2				Ammersee		00501

Figure B-79

Example 2

- A TMC Area Code with Sub Type A6.4 is assigned to Charlottenplatz (square name). Square names are added as street names and not as cartographic features; therefore, the TMC Area Code cannot be added. See [Figure B-80](#).

A	B	C	D	E	F	G	H	I	J	K	L
CC	CID	VERSION NR	TABLE	LOCATION CODE	(SUB)TYPE	ROAD NUMBER	ROAD NAME	JUNCTION	FIRST NAME	SECOND	AREA REFERENCE
D	58	8.0	1	26335	A6.4				Charlottenplatz		00675

Figure B-80

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Attribute Values

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C.1 Introduction

The following metadata is an example of the metadata shipped with the database. Generate a list of the actual metadata for the database using SQL commands.

C.2 RDF_ADDRESS_POINT

See *Section 12.3.4, RDF_ADDRESS_POINT* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
ADDRESS_TYPE	1	Base
	2	City
	3	Commercial
	4	County
	6	Old
LANGUAGE_CODE	See values under <i>Section C.2.1, Language Code</i> .	
ARRIVAL_SIDE	L	Left side
	N	Not applicable
	R	Right side
ENHANCED	N	Point Address is generated from POI data
	Y	Point Address is from a trusted source and/or has been field verified

C.2.1 Language Code

Value	Attribute Description
ALB	ALBANIAN
AMT	ARMENIAN TRANSCRIBED
ARA	ARABIC
ARM	ARMENIAN
ARX	ARMENIAN TRANSLITERATED
ASM	ASSAMESE
ASX	ASSAMESE TRANSLITERATED
AZE	AZERBAIJAN
IND	BAHASA INDONESIA
BAQ	BASQUE
BEL	BELARUSIAN
BEX	BELARUSIAN TRANSLITERATED
BEN	BENGALI

Value	Attribute Description
BGX	BENGALI TRANSLITERATED
BOS	BOSNIAN
BOX	BOSNIAN TRANSLITERATED
BUL	BULGARIAN
BUT	BULGARIAN TRANSCRIBED
BUX	BULGARIAN TRANSLITERATED
CAT	CATALAN
CHI	CHINESE (MODERN)
CHT	CHINESE (TRADITIONAL)
SCR	CROATIAN
SRX	CROATIAN TRANSLITERATED
CZE	CZECH
CZX	CZECH TRANSLITERATED
DAN	DANISH
DUT	DUTCH
ENG	ENGLISH
EST	ESTONIAN
ESX	ESTONIAN TRANSLITERATED
FIN	FINNISH
FAO	FAROESE
FRE	FRENCH
GLG	GALICIAN
GEO	GEORGIAN
GET	GEORGIAN TRANSCRIBED
GEX	GEORGIAN TRANSLITERATED
GER	GERMAN
GRE	GREEK
GRT	GREEK TRANSCRIBED
GRX	GREEK TRANSLITERATED
GRN	GUARANI
GUJ	GUJARATI
GJX	GUJARATI TRANSLITERATED
HEB	HEBREW
HEX	HEBREW TRANSLITERATED
HIN	HINDI

Value	Attribute Description
HIX	HINDI TRANSLITERATED
HUN	HUNGARIAN
HUX	HUNGARIAN TRANSLITERATED
ITA	ITALIAN
KAN	KANNADA
KAX	KANNADA TRANSLITERATED
KAZ	KAZAKH
KIR	KYRGYZ
KIT	KYRGYZ TRANSCRIBED
KIX	KYRGYZ TRANSLITERATED
KOR	KOREAN
KOX	KOREAN TRANSLITERATED
LAV	LATVIAN
LAX	LATVIAN TRANSLITERATED
LIT	LITHUANIAN
LIX	LITHUANIAN TRANSLITERATED
MAC	MACEDONIAN
MAT	MACEDONIAN TRANSCRIBED
MAX	MACEDONIAN TRANSLITERATED
MAL	MALAYALAM
MYX	MALAYALAM TRANSLITERATED
MAY	MALAYSIAN
MLT	MALTESE
MLX	MALTESE TRANSLITERATED
MAR	MARATHI
MRX	MARATHI TRANSLITERATED
MOL	MOLDOVAN
MOX	MOLDOVAN TRANSLITERATED
MON	MONGOLIAN
MGX	MONGOLIAN TRANSLITERATED
MNE	MONTENEGRIN
MNX	MONTENEGRIN TRANSLITERATED
NOR	NORWEGIAN
ORI	ORIYA
ORX	ORIYA TRANSLITERATED

Value	Attribute Description
PAN	PANJABI
PNX	PANJABI TRANSLITERATED
PYN	PINYIN
POL	POLISH
POX	POLISH TRANSLITERATED
POR	PORTUGUESE
RUM	ROMANIAN
RMX	ROMANIAN TRANSLITERATED
RUS	RUSSIAN
RST	RUSSIAN TRANSCRIBED
RUX	RUSSIAN TRANSLITERATED
SRB	SERBIAN
SCT	SERBIAN TRANSCRIBED
SCX	SERBIAN TRANSLITERATED
SLO	SLOVAK
SLX	SLOVAK TRANSLITERATED
SLV	SLOVENIAN
SIX	SLOVENIAN TRANSLITERATED
SPA	SPANISH
SWE	SWEDISH
TAM	TAMIL
TMX	TAMIL TRANSLITERATED
TEL	TELUGU
TLX	TELUGU TRANSLITERATED
THA	THAI
TUR	TURKISH
TKT	TURKISH TRANSCRIBED
TUX	TURKISH TRANSLITERATED
UKR	UKRAINIAN
UKT	UKRAINIAN TRANSCRIBED
UKX	UKRAINIAN TRANSLITERATED
UZB	Uzbek
VIE	VIETNAMESE
WEL	WELSH

C.3 RDF_ADDRESS_RANGE

See *Section 12.3.6, RDF_ADDRESS_RANGE* for schema information

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
FORMAT	\$	Unaddressed
	A	Alphanumeric-N
	B	Block
	C	Alphanumeric-1
	D	Slash
	E	Alphanumeric-E
	H	Hyphenated
	I	Alphanumeric-NW
	J	Alphanumeric-NE
	K	Alphanumeric-SW
	L	Alphanumeric-SE
	N	Numeric format.
	O	Alphanumeric-ES
	P	Alphanumeric-EN
	Q	Alphanumeric-WS
	R	Alphanumeric-WN
	S	Alphanumeric-S
	W	Alphanumeric-W
	X	Alphanumeric Slash
	Z	Leading zero
	1	Alphahyphenated 5
	3	Alphanumeric 3
	4	Numeric Alpha
	5	Double Slash
	6	Triple Slash
	7	Kilometer Marker

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
FORMAT (cont'n)	8	Numeric Slash Alpha
	9	Slash Numeric Alpha
	AA	Numeric Slash Alpha Numeric
	AB	Alphanumeric Double Slash
SCHEME	E	Even
	M	Mixed
	O	Odd
ADDRESS_LEVEL	A	Actual Address range
	L	Logical Address range

C.4 RDF_ADMIN_ATTRIBUTE

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
ADMIN_WIDE_REGULATIONS	1	U-turns are restricted at every intersection unless posted

C.5 RDF_ADMIN_DST

The RDF_ADMIN_DST table contains the following columns indicating the start or end of Daylight Saving Time (DST).

- DST_END_DAY The day of the month on which DST ends.
- DST_END_MONTH The name of the month on which DST ends.
- DST_END_WEEKDAY The weekday on which DST ends.
- DST_START_DAY The day of the month on which DST starts.
- DST_START_MONTH The name of the month on which DST starts.
- DST_START_WEEKDAY The weekday on which DST starts.

The table below contains the valid attribute values for the DST information. See *Section 12.3.9, RDF_ADMIN_DST* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
DST_END_DAY	1	DST - Ends on Day 1 of the month.
	2	DST - Ends on Day 2 of the month.
	3	DST - Ends on Day 3 of the month.
	4	DST - Ends on Day 4 of the month.
	5	DST - Ends on Day 5 of the month.
	6	DST - Ends on Day 6 of the month.
	7	DST - Ends on Day 7 of the month.
	8	DST - Ends on Day 8 of the month.
	9	DST - Ends on Day 9 of the month.
	10	DST - Ends on Day 10 of the month.
	11	DST - Ends on Day 11 of the month.
	12	DST - Ends on Day 12 of the month.
	13	DST - Ends on Day 13 of the month.
	14	DST - Ends on Day 14 of the month.
	15	DST - Ends on Day 15 of the month.
	16	DST - Ends on Day 16 of the month.
	17	DST - Ends on Day 17 of the month.
	18	DST - Ends on Day 18 of the month.
	19	DST - Ends on Day 19 of the month.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
DST_END_DAY (continuation)	20	DST - Ends on Day 20 of the month.
	21	DST - Ends on Day 21 of the month.
	22	DST - Ends on Day 22 of the month.
	23	DST - Ends on Day 23 of the month.
	24	DST - Ends on Day 24 of the month.
	25	DST - Ends on Day 25 of the month.
	26	DST - Ends on Day 26 of the month.
	27	DST - Ends on Day 27 of the month.
	28	DST - Ends on Day 28 of the month.
	29	DST - Ends on Day 29 of the month.
	30	DST - Ends on Day 30 of the month.
	31	DST - Ends on Day 31 of the month.
	41	DST - Ends on FIRST Day
	42	DST - Ends on SECOND Day
	43	DST - Ends on THIRD Day
	44	DST - Ends on FOURTH Day
	45	DST - Ends on FIFTH Day
	46	DST - Ends on LAST Day
DST_END_MONTH	1	DST - Ends on Month = JANUARY
	10	DST - Ends on Month = OCTOBER
	11	DST - Ends on Month = NOVEMBER
	12	DST - Ends on Month = DECEMBER
	2	DST - Ends on Month = FEBRUARY
	3	DST - Ends on Month = MARCH
	4	DST - Ends on Month = APRIL
	5	DST - Ends on Month = MAY
	6	DST - Ends on Month = JUNE
	7	DST - Ends on Month = JULY
	8	DST - Ends on Month = AUGUST
	9	DST - Ends on Month = SEPTEMBER

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
DST_END_WEEKDAY	1	DST - Ends on Weekday = SUNDAY
	2	DST - Ends on Weekday = MONDAY
	3	DST - Ends on Weekday = TUESDAY
	4	DST - Ends on Weekday = WEDNESDAY
	5	DST - Ends on Weekday = THURSDAY
	6	DST - Ends on Weekday = FRIDAY
	7	DST - Ends on Weekday = SATURDAY
	8	DST - Ends on - DAY OF MONTH
DST_START_DAY	1	DST Starts on - DAY 1 OF MONTH
	10	DST Starts on - DAY 10 OF MONTH
	11	DST Starts on - DAY 11 OF MONTH
	12	DST Starts on - DAY 12 OF MONTH
	13	DST Starts on - DAY 13 OF MONTH
	14	DST Starts on - DAY 14 OF MONTH
	15	DST Starts on - DAY 15 OF MONTH
	16	DST Starts on - DAY 16 OF MONTH
	17	DST Starts on - DAY 17 OF MONTH
	18	DST Starts on - DAY 18 OF MONTH
	19	DST Starts on - DAY 19 OF MONTH
	2	DST Starts on - DAY 2 OF MONTH
	20	DST Starts on - DAY 20 OF MONTH
	21	DST Starts on - DAY 21 OF MONTH
	22	DST Starts on - DAY 22 OF MONTH
	23	DST Starts on - DAY 23 OF MONTH
	24	DST Starts on - DAY 24 OF MONTH
	25	DST Starts on - DAY 25 OF MONTH
	26	DST Starts on - DAY 26 OF MONTH
	27	DST Starts on - DAY 27 OF MONTH
	28	DST Starts on - DAY 28 OF MONTH
	29	DST Starts on - DAY 29 OF MONTH

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
DST_START_DAY (continuation)	3	DST Starts on - DAY 3 OF MONTH
	30	DST Starts on - DAY 30 OF MONTH
	31	DST Starts on - DAY 31 OF MONTH
	4	DST Starts on - DAY 4 OF MONTH
	41	DST Starts on - FIRST
	42	DST Starts on - SECOND
	43	DST Starts on - THIRD
	44	DST Starts on - FOURTH
	45	DST Starts on - FIFTH
	46	DST Starts on - LAST
	5	DST Starts on - DAY 5 OF MONTH
	6	DST Starts on - DAY 6 OF MONTH
	7	DST Starts on - DAY 7 OF MONTH
	8	DST Starts on - DAY 8 OF MONTH
	9	DST Starts on - DAY 9 OF MONTH
DST_START_MONTH	1	DST - Starts on Month = JANUARY
	10	DST - Starts on Month = OCTOBER
	11	DST - Starts on Month = NOVEMBER
	12	DST - Starts on Month = DECEMBER
	2	DST - Starts on Month = FEBRUARY
	3	DST - Starts on Month = MARCH
	4	DST - Starts on Month = APRIL
	5	DST - Starts on Month = MAY
	6	DST - Starts on Month = JUNE
	7	DST - Starts on Month = JULY
	8	DST - Starts on Month = AUGUST
	9	DST - Starts on Month = SEPTEMBER

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
DST_START_WEEKDAY	1	DST - Starts on Weekday = SUNDAY
	2	DST - Starts on Weekday = MONDAY
	3	DST - Starts on Weekday = TUESDAY
	4	DST - Starts on Weekday = WEDNESDAY
	5	DST - Starts on Weekday = THURSDAY
	6	DST - Starts on Weekday = FRIDAY
	7	DST - Starts on Weekday = SATURDAY
	8	DST - Starts on Weekday = DAY OF MONTH

C.6 RDF_ADMIN_HIERARCHY

See Section 12.3.11, *RDF_ADMIN_HIERARCHY* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
ADMIN_ORDER	0	1111 (Country)
	1	1112 (Order1)
	2	1113 (Order2)
	8	1119 (Order8)
	9	3110 (Built-up)
ISO_COUNTRY_CODE Note: These are examples. See the <i>Country Profiles</i> document for complete list.	AFG	Afghanistan
	CAN	Canada
	EGY	Egypt
	LVA	Latvia

C.7 RDF_ADMIN_PLACE

See *Section 12.3.12, RDF_ADMIN_PLACE* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
ADMIN_TYPE	1111	COUNTRY
	1112	ORDER-1
	1113	ORDER-2
	1119	ORDER-8
	3110	BUILT-UP AREA

C.8 RDF_ANNOTATION

The RDF_ANNOTATION table includes the ANNOTATION_TYPE column, which contains valid attribute values for all the published annotation types.

See *Section 12.3.13, RDF_ANNOTATION* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
ANNOTATION_TYPE	2100	FERRY
	2101	HARBOR
	2102	AIRPORT
	2103	TOLL STATION
	2104	SA
	2105	PA
	2106	IC
	2107	PARKING LOT
	2108	STAR HOTEL
	2109	HOT SPRING
	2110	PARK
	2111	RAMPART
	2112	ZOO
	2113	ARBORETUM, GARDEN
	2114	HISTORIC SITE
	2115	Lighthouse
	2116	GYMNASIUM (PHYSICAL CENTER)
	2117	SKI RESORT
	2118	CAMP
	2119	BATHING BEACH
	2120	AMUSEMENT PARK
	2121	GOLF COURSE
	2122	RACE TRACK
	2123	WUSHU GYM
	2124	TAOIST TEMPLE

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
ANNOTATION_TYPE (continuation)	2125	FANE
	2126	CHURCH
	2127	CEMETERY
	2128	SHOPPING CENTER, DEPARTMENT STORE
	2129	SUPERMARKET
	2130	ELECTRIC POWER
	2131	TELECOM
	2132	NEWS AGENCY, NEWSPAPER OFFICE, PUBLISHING HOUSE
	2133	TV STATION
	2134	BROADCASTING STATION
	2135	POLICE STATION
	2136	FIRE DEPARTMENT
	2137	POST OFFICE
	2138	BANK
	2139	COURT
	2140	NATIONAL DEPARTMENT (MINISTRIES AND COMMISSIONS)
	2141	GOVERNMENT OFFICE
	2142	SCHOOL (ALL SCHOOLS)
	2143	PROVINCE (MUNICIPALITY)
	2144	HOSPITAL
	2145	CITY
	2146	COUNTRY GOVERNMENT
	2147	MOUNTAIN (HILL)
	2148	DISTRICT NAME, RESIDENTIAL AREA
	2149	RAILWAY STATION
	2150	OTHERS
	2151	BRIDGE/TUNNELS/GARDENS/CITY/ROAD/RAILWAY NAME, NATURAL SITES, PLACE NAME
	2152	SUBWAY
	2153	THEATRE (CINEMA)

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
ANNOTATION_TYPE (continuation)	2154	ENTERPRISE, COMPANY, FACTORY
	2155	HIGH-RISE BUILDING
	2156	TOYOTA SERVICE DEALERSHIP
	2245	Interchange (IC)
	2246	Junction (JC)
LABEL_DISPLAY_CLASS	1	Display Level 1
	2	Display Level 2
	3	Display Level 3
	4	Display Level 4
	5	Display Level 5
	6	Display Level 6

C.9 RDF_ASSO

See Section 12.3.15, *RDF_ASSO* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
ASSO_TYPE	PG	PASSING GUIDANCE
	JG	JUNCTION GUIDANCE

C.10 RDF_ASSO_NATURAL_GUIDANCE

See Section 12.3.26, *RDF_ASSO_NATURAL_GUIDANCE* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
DIRECTION	B	Both Directions
	F	Positive Direction From Reference To Non-reference Node
	T	Negative Direction From Non-reference To Reference Node
VISIBILITY	0	Not Applicable
	1	Clearly Visible
	2	Partly Visible
	3	Not Visible But Relevant For Guidance
SEASONAL_DEPENDENCY	Y	Seasonal Dependency Applies
	N	No Seasonal Dependency
RELATIVE_DISTANCE	0	Not Applicable
	1	Close To Guidance Point
	2	Distant From Guidance Point
CALC_IMPORTANCE	1 -10	Calculated Importance

C.11 RDF_AREA_TMC

Note: This content is no longer maintained.

See *Section 12.3.14, RDF_AREA_TMC* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
OWNER	AD	Admin Place (RDF_ADMIN_PLACE)
	CO	Carto (RDF_CARTO)
	ZN	Zone (RDF_ZONE)

C.12 RDF_BUILDING

See Section 12.3.28, *RDF_BUILDING* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
FEATURE_TYPE	2005999	ENHANCED BUILDINGS/LANDMARKS

C.13 RDF_BUILDING_ENH_FEATURE

See Section 12.3.29, *RDF_BUILDING_ENH_FEATURE* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
FEATURE_TYPE	See Section C.13.1, Feature Type - High vs. Low Level Values for Building/Landmarks.	
MAIN_FEAT_TYPE	N	Is not a main feature type
	Y	Is a main feature type

C.13.1 Feature Type - High vs. Low Level Values for Building/Landmarks

Building/Landmark Features (Sorted by Feature Type)

Feature Description (High Level)	Feature Type Code (High Level)	Feature Description (Low Level)	Feature Type Code
Business/Commerce	2005000	Bank	2005001
		Business Facility	2005002
		Hotel or Motel	2005003
		Rental Car Agency	2005004
		Automobile Dealership	2005005
		Auto Service & Maintenance	2005006
		Petrol Station	2005007
Convention/Exhibition Centre	2005050	N/A	2005050
Cultural	2005100	Library	2005101
		Museum	2005102
		Theatre	2005103
		Civic/Community Centre	2005104
Education	2005150	University or College	2005151
		School	2005152
Emergency Service	2005200	Police Station	2005201

Building/Landmark Features (Sorted by Feature Type) (Continued)

Feature Description (High Level)	Feature Type Code (High Level)	Feature Description (Low Level)	Feature Type Code
Government	2005250	Embassy	2005251
		Post Office	2005252
		City Hall	2005253
		Court House	2005254
		Government Office	2005255
		County Council	2005256
Historical	2005300	Historical Monument	2005301
Medical	2005350	Hospital/Polyclinic	2005351
		Medical Service	2005352
Park/Leisure	2005400	Bar or Pub	2005401
		Bowling Centre	2005402
		Casino	2005403
		Cinema	2005404
		Nightlife	2005405
		Winery	2005406
		Amusement Park	2005407
		Golf Course	2005408
		Ice Skating Rink	2005409
		Marina	2005410
		Park/Recreation Area	2005411
		Public Sports Airport	2005412
		Ski Resort	2005413
Residential	2005450	Residential Area/Building	2005451
		Housing Building/Landmark ¹	2005452
		Apartment Building/Landmark ¹	2005453

Building/Landmark Features (Sorted by Feature Type) (Continued)

Feature Description (High Level)	Feature Type Code (High Level)	Feature Description (Low Level)	Feature Type Code
Retail	2005500	Pharmacy	2005501
		Restaurant	2005502
		Bookstore	2005503
		Clothing Store	2005504
		Consumer Electronics Store	2005505
		Convenience Store	2005506
		Department Store	2005507
		Grocery Store	2005508
		Home Improvement & Hardware Store	2005509
		Home Specialty Store	2005510
		Office Supply & Services Store	2005511
		Shopping Centre	2005512
Sports	2005550	Specialty Store	2005513
		Sporting Goods Store	2005514
Tourist	2005600	Sports Centre	2005551
		Sports Activity	2005552
		Tourist Attraction	2005601
Transportation	2005650	Tourist Office	2005602
		Bridge	2005603
		Airport	2005651
		Bus Station	2005652
		Commuter Rail Station	2005653
		Ferry Terminal	2005654
		Railway Station	2005655
Unclassified	2005700	Transportation Service	2005656
		Toll Structure Building/Landmark	2005657
Unclassified	2005700	N/A	2005700

Building/Landmark Features (Sorted by Feature Type) (Continued)

Feature Description (High Level)	Feature Type Code (High Level)	Feature Description (Low Level)	Feature Type Code
Place of Worship	2005750	Church	2005751
		Mosque	2005752
		Temple	2005753
		Synagogue	2005754
		Ashram	2005755
		Gurdwara	2005756
Industrial	2005800	Factory	2005801
Parking	2005850	N/A	2005850
Miscellaneous	2005900	Skyway ²	2005901
Enhanced Building/ Landmark ³	N/A	N/A	2005999

1. Published only in South Korea.
2. Only the metadata for this feature is published in core extracts. This feature is published as part of 3D City Model.
3. "Placeholder" value published in RDF_BUILDING.FEATURE_TYPE.

C.14 RDF_CARTO

See *Section 12.3.31, RDF_CARTO* for schema information.

See *Chapter 8, Cartographic Representation* for specification information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
FEATURE_TYPE	See <i>Section C.14.1, Feature Type Values</i> .	
NAMED_PLACE_TYPE	A	Admin Named Place
	Z	Zone Named Place
DISPLAY_CLASS	1	First Class
	2	Second Class
	3	Third Class
	4	Fourth Class
	5	Fifth Class
	6	Sixth Class
	7	Seventh Class
	8	Eighth Class (Default Value)
POLYGON_RESTRICTION	1	Trucks only
	2	Autos only
	3	Autos and Trucks
SEVERITY_RATING	1-10	A classification of hurricane intensity used to display Hurricane Prone Areas in different colours.
EXPANDED_INCLUSION	1	Meets expanded inclusion

C.14.1 Feature Type Values

Features (by Code)

FEATURE Code	Description
500116	Ocean
500412	River
500413	Intermittent River
500414	Canal/Water Channel

Features (by Code) (Continued)

FEATURE Code	Description
500421	Lake
507116	Bay/Harbour
509997	Glacier
509998	Beach
509999	Island
600101	Hurricane Prone Area
600102	Flood Prone Area
600103	Tsunami Prone Area
900101	City
900103	Park/monument (National)
900107	Native American Reservation
900108	Military Base
900130	Park (State)
900140	Park in Water
900150	Park (City/County)
900151	Allotment
900152	National Forest
900156	Built Up Area
900158	Pedestrian Zone
900159	Undefined Traffic Area
900160	Apartment Complex
900170	County
900202	Woodland
907196	Country
907197 ¹	Disputed Country
908000	Cartographic Country Boundary
908001	Cartographic State/province Boundary
908002	Neighbourhood Boundary
908003	Cartographic Settlement Boundary
908004 ³	Cartographic Disputed Country Boundary

Features (by Code) (Continued)

FEATURE Code	Description
908005 ³	Cartographic Disputed State Boundary
909996	State
909997 ³	Disputed State Boundary
1700215	Parking Lot
1700216	Parking Garage
1800201 ¹	Railroad ¹
1800202 ²	Subway Line
1800203 ¹	Light Rail
1900403	Airport
1907403	Aircraft Roads
2000123	Golf Course
2000124	Shopping Centre
2000200	Industrial Complex
2000403	University/College
2000408	Hospital
2000420	Cemetery
2000461	Animal Park
2000457	Sports Complex
2000460	Amusement Park
2005000	Business/Commerce Building/Landmark
2005001	Bank Building/Landmark
2005002	Business Facility Building/Landmark
2005003	Hotel or Motel Building/Landmark
2005004	Rental Car AgencyBuilding/Landmark
2005005	Automobile Dealership Building/Landmark
2005006	Auto Service & Maintenance Building/Landmark
2005007	Petrol Station Building/Landmark
2005050	Convention/Exhibition Centre Building/Landmark
2005100	Cultural Building/Landmark
2005101	Library Building/Landmark

Features (by Code) (Continued)

FEATURE Code	Description
2005102	Museum Building/Landmark
2005103	Theatre Building/Landmark
2005104	Civic/Community Centre Building/Landmark
2005150	Education Building/Landmark
2005151	University or College Building/Landmark
2005152	School Building/Landmark
2005200	Emergency Service Building/Landmark
2005201	Police Station Building/Landmark
2005250	Government Building/Landmark
2005251	Embassy Building/Landmark
2005252	Post Office Building/Landmark
2005253	City Hall Building/Landmark
2005254	Court House Building/Landmark
2005255	Government Office Building/Landmark
2005256	County Council Building/Landmark
2005300	Historical Building/Landmark
2005301	Historical Monument Building/Landmark
2005350	Medical Building/Landmark
2005351	Hospital/Polyclinic Building/Landmark
2005352	Medical Service Building/Landmark
2005400	Park/Leisure Building/Landmark
2005401	Bar or Pub Building/Landmark
2005402	Bowling Centre Building/Landmark
2005403	Casino Building/Landmark
2005404	Cinema Building/Landmark
2005405	Nightlife Building/Landmark
2005406	Winery Building/Landmark
2005407	Amusement Park Building/Landmark
2005408	Golf Course Building/Landmark
2005409	Ice Skating Rink Building/Landmark

Features (by Code) (Continued)

FEATURE Code	Description
2005410	Marina Building/Landmark
2005411	Park/Recreation AreaBuilding/Landmark
2005412	Public Sports Airport Building/Landmark
2005413	Ski Resort Building/Landmark
2005450	Residential Building/Landmark
2005451	Residential Area/building/Landmark
2005452	Housing Building/Landmark
2005453	Apartment Building/Landmark
2005500	Retail Building/Landmark
2005501	Pharmacy Building/Landmark
2005502	Restaurant Building/Landmark
2005503	Bookstore Building/Landmark
2005504	Clothing Store Building/Landmark
2005505	Consumer Electronics Store Building/Landmark
2005506	Convenience Store Building/Landmark
2005507	Department Store Building/Landmark
2005508	Grocery Store Building/Landmark
2005509	Home Improvement & Hardware Store Building/Landmark
2005510	Home Specialty Store Building/Landmark
2005511	Office Supply & Services Store Building/Landmark
2005512	Shopping Centre Building/Landmark
2005513	Specialty Store Building/Landmark
2005514	Sporting Goods Store Building/Landmark
2005550	Sports Building/Landmark
2005551	Sports Centre Building/Landmark
2005552	Sports Activity Building/Landmark
2005600	Tourist Building/Landmark
2005601	Tourist Attraction Building/Landmark
2005602	Tourist Office Building/Landmark
2005603	Bridge/Landmark

Features (by Code) (Continued)

FEATURE Code	Description
2005650	Transportation Building/Landmark
2005651	Airport Building/Landmark
2005652	Bus Station Building/Landmark
2005653	Commuter Rail Station Building/Landmark
2005654	Ferry Terminal Building/Landmark
2005655	Railway Station Building/Landmark
2005656	Transportation Service Building/Landmark
2005657	Toll Structure Building/Landmark
2005700	Unclassified Building Landmark
2005750	Place of Worship Building/Landmark
2005751	Church Building/Landmark
2005752	Mosque Building/Landmark
2005753	Temple Building/Landmark
2005754	Synagogue Building/Landmark
2005755	Ashram Building/Landmark
2005756	Gurdwara Building/Landmark
2005800	Industrial Building/Landmark
2005801	Factory Building/Landmark
2005850	Parking Building/Landmark
2005900	Miscellaneous Building/Landmark
2005901 ³	Skyway Building/Landmark
2005999	Enhanced Building/Landmark ⁴
9992000	RDS-TMC
9997004	Congestion Zone ⁵
9997007	Railyard
9997008	Seaport/Harbour
9997010	Environmental Zone
9997021	Water Boundary
9999999	Road Network

1. Only the metadata for this Feature Type is published in core extracts. This Feature Code is published only in conjunction with Disputed Territories.

Attribute Values

2. Published only in South Korea.
3. Only the metadata for this Feature Type is published in core extracts; published in 3D City Model.
4. "Placeholder" value published in RDF_CARTO.FEATURE_TYPE.
5. This Feature Code is published only for select cities.

C.15 RDF_CARTO_FACE

See Section 12.3.32, *RDF_CARTO_FACE* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CONTROLLED_BY	ISO Code	The ISO code of the controlling area
CLAIMED_BY	ISO Code	The ISO code of the claiming area
LONG_HAUL	Y	Feature is part of Long Haul network.
	N	Feature is not a part of Long Haul network.
COVERAGE_INDICATOR	See Section C.15.1, <i>Coverage Indicator Values</i> .	

C.15.1 Coverage Indicator Values

Attribute Value	Attribute Description	Specification
B6	Base - Urban Routing/ Point2Point	DETAILED_CITY = N IN_PROCESS_DATA = Y
B8	Base - Search and Display	
B9	Base - Display only	
E7 ¹	Entry Map FC = 1-3 Non- Nav	DETAILED_CITY = N IN_PROCESS_DATA = N
I1	Intermediate Map - Urban or Point2Point routing	FUNCTIONAL_CLASS = 1-4 included IN_PROCESS_DATA = Y
I2	Intermediate Map - Search and display	
I3	Intermediate Map - Display only	FUNCTIONAL_CLASS = 1-2 included IN_PROCESS_DATA = Y
N0	Prime	FUNCTIONAL_CLASS = 1-5 verified DETAILED_CITY = Y IN_PROCESS_DATA = N FULL_GEOMETRY = Y

Attribute Value	Attribute Description	Specification
N1	Complete	FUNCTIONAL_CLASS = 1-5 included ² FUNCTIONAL_CLASS = 1-4 verified DETAILED_CITY = N IN_PROCESS_DATA = N if FUNCTIONAL_CLASS = 1-4 IN_PROCESS_DATA = Y if FUNCTIONAL_CLASS = 5 FULL_GEOMETRY = N
N2	Network	FUNCTIONAL_CLASS = 1-5 included ³ FUNCTIONAL_CLASS = 1-4 verified DETAILED_CITY = N IN_PROCESS_DATA = N if FUNCTIONAL_CLASS = 1-4 IN_PROCESS_DATA = Y if FUNCTIONAL_CLASS = 5 FULL_GEOMETRY = N
N4	City-to-City	FUNCTIONAL_CLASS = 1-2 verified DETAILED_CITY = N IN_PROCESS_DATA = N if FUNCTIONAL_CLASS = 1-2 FULL_GEOMETRY = N
O1 ¹	Global Ocean Layer	
W0	Tracks4Africa	

1. Published in Entry Map data and in HERE Map Content .
2. All FUNCTIONAL_CLASS = 5 roads are included.
3. Some but not all FUNCTIONAL_CLASS = 5 roads are included.

C.16 RDF_CARTO_LINK

See *Section 12.3.33, RDF_CARTO_LINK* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CONTROLLED_BY	ISO Code	The ISO code of the controlling area
CLAIMED_BY	ISO Code	The ISO code of the claiming area
EXPANDED_INCLUSION	1	Meets expanded inclusion
COVERAGE_INDICATOR	See values under <i>Section C.15.1, Coverage Indicator Values</i> .	

C.17 RDF_CENSUS

See Section 12.3.34, *RDF_CENSUS* for schema information

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CENSUS_TYPE	1	Census Code
	2	Census Class Code
	3	GNIS Feature ID
	4	CBSA Metropolitan Statistical Area
	5	CBSA Micropolitan Statistical Area
	6	NECTA Metropolitan Statistical Area
	7	NECTA Micropolitan Statistical Area
	8	Metropolitan Division
	9	NECTA Division

C.18 RDF_CF

See Section 12.3.35, *RDF_CF* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CF_TYPE	G	GROUPED STRUCTURE
	I	INTERSECTION
	J	3D JUNCTION OBJECT MOTORWAY
	O	OBJECT
	R	ROAD

C.19 RDF_CITY_POI

See *Section 12.3.45, RDF_CITY_POI* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CAT_ID	4444	NAMED PLACE
	9709	NEIGHBOURHOOD ¹
	9998	HAMLET
NAMED_PLACE_TYPE	A	ADMIN NAMED PLACE
	Z	ZONE NAMED PLACE
CLAIMED_BY	ISO code	The ISO code of the claiming area. See values under: <i>Section C.6, RDF_ADMIN_HIERARCHY</i>
CONTROLLED_BY	ISO code	The ISO code of the controlling area. See values under: <i>Section C.6, RDF_ADMIN_HIERARCHY</i>
LANGUAGE_CODE	See values under <i>Section C.2.1, Language Code</i> .	

1. This POI is part of HERE Transit and Pedestrian.

C.20 RDF_CITY_POI_NAME

See *Section 12.3.46, RDF_CITY_POI_NAME* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
LANGUAGE_CODE	See <i>Section C.2.1, Language Code</i> .	

C.21 RDF_CITY_POI_NAME_TRANS

See *Section 12.3.47, RDF_CITY_POI_NAME_TRANS* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
TRANSLITERATION_TYPE	For values, see <i>Section C.40, RDF_FEATURE_NAME_TRANS</i> .	

C.22 RDF_CITY_POI_NAMES

See *Section 12.3.48, RDF_CITY_POI_NAMES* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
NAME_TYPE	B	BASE NAME
	E	EXONYM
	S	SYNONYM

C.23 RDF_CONDITION

See Section 12.3.49, *RDF_CONDITION* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CONDITION_TYPE	1	TOLL STRUCTURE
	3	CONSTRUCTION STATUS CLOSED
	4	GATES
	5	LANE DIRECTION OF TRAVEL
	7	RESTRICTED DRIVING MANOEUVRE
	8	ACCESS RESTRICTION
	9	SPECIAL EXPLICATION
	10	SPECIAL SPEED SITUATION
	11	VARIABLE SPEED SIGN
	12	USAGE FEE REQUIRED
	13	LANE TRAVERSAL
	14	THROUGH ROUTE
	16	TRAFFIC SIGNAL
	17	TRAFFIC SIGN
	18	RAILWAY CROSSING
	19	NO OVERTAKING
	20	JUNCTION VIEW
	21	PROTECTED OVERTAKING
	22	EVACUATION ROUTE
	23	TRANSPORT ACCESS RESTRICTION
	25	TRANSPORT SPECIAL SPEED SITUATION
	26	TRANSPORT RESTRICTED DRIVING MANOEUVRE
	27	TRANSPORT PREFERRED ROUTE
	31	PARKING INFORMATION
	34	ENVIRONMENTAL ZONE
	38	BLACKSPOT
	39	PERMITTED DRIVING MANOEUVRE

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CONDITION_TYPE (cont'n)	40	VARIABLE SPEED LIMIT APPLICABLE
	41	SHORT CONSTRUCTION WARNING

C.24 RDF_CONDITION_ACCESS

See *Section 12.3.50, RDF_CONDITION_ACCESS* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
TIME_OVERRIDE	1	DAWN TO DUSK
	2	DUSK TO DAWN
DEPENDENT_ACCESS_TYPE	1	VARIABLE

C.25 RDF_CONDITION_BLACKSPOT

See *Section 12.3.51, RDF_CONDITION_BLACKSPOT* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
BLACKSPOT_SOURCE	1	POSTED
	2	SOURCED

C.26 RDF_CONDITION_DIRECTION_TRAVEL

See *Section 12.3.52, RDF_CONDITION_DIRECTION_TRAVEL* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
BEARING	1	From Reference Node
	2	To Reference Node
	3	Both Directions
DEPENDENT_ACCESS_TYPE	1	Variable

C.27 RDF_CONDITION_DRIVER_ALERT

See Section 12.3.54, *RDF_CONDITION_DRIVER_ALERT* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
DIRECTION	1	POSITIVE DIRECTION
	2	NEGATIVE DIRECTION
	3	BOTH DIRECTIONS
	4	UNKNOWN
GEN_WARNING_SIGN_TYPE	1	OBJECT OVERHANG
	2	RISK OF GROUNDING
	3	ANIMAL CROSSING
	4	ACCIDENT HAZARD
RAILWAY_CROSSING_TYPE	1	PROTECTED
	2	UNPROTECTED
SIGNAL_SIGN_LOCATION	1	RIGHT
	2	LEFT
	3	OVERHEAD
TRAFFIC_SIGN_CATEGORY	1	REGULATORY SIGN
	2	INFORMATIVE SIGN
	3	WARNING SIGN
TRAFFIC_SIGN_SUBCATEGORY	1	PRIORITY SIGN
TRAFFIC_SIGN_TYPE	1	Start of No Overtaking
	2	End of No Overtaking
	3	Protected Overtaking-Extra Lane
	4	Protected Overtaking-Extra Lane (Right Side)
	5	Protected Overtaking-Extra Lane (Left Side)
	6	Lane Merge Right
	7	Lane Merge Left
	8	Lane Merge Center
	9	Railway Crossing Protected

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
TRAFFIC_SIGN_TYPE (continuation)	10	Railway Crossing Unprotected
	11	Road Narrows
	12	Sharp Curve Left
	13	Sharp Curve Right
	14	Winding Road starting Left
	15	Winding Road starting Right
	16	Start of No Overtaking Trucks
	17	End of No Overtaking Trucks
	18	Steep Hill Upwards
	19	Steep Hill Downwards
	20	Stop Sign
	21	Lateral Wind
	22	General Warning Sign
	23	Risk of Grounding
	24	General Curve
	25	End of all restrictions
	26	General Hill
	27	Animal Crossing
	28	Icy Conditions
	29	Slippery Road
	30	Falling Rocks
	31	School Zone
	32	Tramway Crossing
	33	Congestion Hazard
	34	Accident Hazard
	35	Priority over oncoming traffic
	36	Yield to oncoming traffic
	37	Crossing with Priority from the Right
	41	Pedestrian Crossing
	42	Yield
	53	No Engine Brake

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
TRAFFIC_SIGN_TYPE (continuation)	54	End of No Engine Brake
	55	No Idling
	56	Truck Rollover
	57	Low Gear
	58	End of Low Gear
	59	Bicycle Crossing
	60	Yield to Bicycles
IMPORTANCE_IND	1 - 10	Importance Indicator
WEATHER_TYPE	1	Rain
	2	Snow
	3	Fog

C.28 RDF_CONDITION_EVACUATION

See Section 12.3.57, *RDF_CONDITION_EVACUATION* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
EVACUATION_BEARING	1	From Reference Node
	2	To Reference Node
	3	Both Directions Bearing
	4	Closed in Both Directions
EVENT_TYPE	1	Hurricane
	2	Floods and Tsunami
	3	Nuclear incidents
	4	Terrorist incidents
	5	Earthquakes
	6	Snow Advisories
	7	Wildfires
	8	Volcanic Eruptions
EVENT_CODE	1	Alligator Alley Northbound
	2	Alligator Alley Southbound

C.29 RDF_CONDITION_GATE

See Section 12.3.58, *RDF_CONDITION_GATE* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
GATE_TYPE	1	KEY ACCESS
	2	PERMISSION REQUIRED
	3	EMERGENCY VEHICLE ACCESS

C.30 RDF_CONDITION_HOV

See Section 12.3.59, *RDF_CONDITION_HOV* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
HYBRID_CAR	N	Hybrid is not considered as a carpool.
	Y	Hybrid is considered as a carpool.
MOTORCYCLE	N	Not considered carpool
	Y	Considered carpool
ALTERNATE_FUEL_CARPOOL	N	Vehicles running on Alternate Fuel are not considered as Carpool
	Y	Vehicles running on Alternate Fuel are considered as Carpool
FEE_PAY_CARPOOL	N	The HOV lane cannot be used by vehicles accepting additional fees for HOV Lane usage
	Y	The HOV lane can be used by vehicles accepting additional fees for HOV Lane usage
MIN_PASSENGERS	1	Minimum number of passengers is 1.
	2	Minimum number of passengers is 2.
	3	Minimum number of passengers is 3.
	4	Minimum number of passengers is 4.
	5	Minimum number of passengers is 5.
	6	Minimum number of passengers is 6.
	7	Minimum number of passengers is 7.
	8	Minimum number of passengers is 8.
	9	Minimum number of passengers is 9.
	10	Minimum number of passengers is 10.

C.31 RDF_CONDITION_PARKING

See Section 12.3.60, *RDF_CONDITION_PARKING* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
PARKING_TYPE	1	NO PARKING
	2	FREE
	4	PERMIT
	5	PAID
PARKING_SIDE_OF_STREET	1	LEFT
	2	RIGHT
	3	BOTH
	4	UNKNOWN
PARKING_RESTRICTION	1	RESTRICTION PRESENT
	2	NO RESTRICTION
	3	UNKNOWN

C.32 RDF_CONDITION_RDM

See Section 12.3.60, *RDF_CONDITION_PARKING* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
RDM_TYPE	1	Legal Restricted Driving manoeuvre (RDM is legally not allowed).
	2	Physical Restricted Driving manoeuvre (RDM is physically not possible)
	3	Logical Restricted Driving manoeuvre (RDM is logically not allowed)
PDM_TYPE	1	Legal
TIME_OVERRIDE	1	DAWN TO DUSK
	2	DUSK TO DAWN

C.33 RDF_CONDITION_SPEED

See Section 12.3.62, *RDF_CONDITION_SPEED* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
SPECIAL_SPEED_LIMIT		Special Speed Limit defined in km/h is used with DEPENDENT_SPEED_TYPE or SPECIAL_SPEED_TYPE.
SPECIAL_SPEED_TYPE	1	Advisory speed
	2	Dependent speed type
	3	Speed bumps present
DEPENDENT_SPEED_TYPE	1	SCHOOL
	2	RAIN
	3	SNOW
	4	TIME DEPENDENT
	5	APPROXIMATE SEASONAL TIME
	6	LANE DEPENDENT
	7	FOG
VARIABLE_SPEED_SIGN_LOCATION	1	LEFT
	2	RIGHT
	3	OVERHEAD
TIME_OVERRIDE	1	DAWN TO DUSK
	2	DUSK TO DAWN
VSS_ID		Unique identifier for the Variable Speed Sign ID. Used to associate the Variable Speed Applicable condition to the Variable Speed Sign condition.
DIRECTION	1	Positive Direction (from Ref Node towards Non-Ref Node)
	2	Negative Direction (from Non-Ref Node towards Ref Node)

C.34 RDF_CONDITION_TOLL

See Section 12.3.64, *RDF_CONDITION_TOLL* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
TOLL_FEATURE_TYPE	1	Toll Road
	2	Bridge
	3	Tunnel
	4	Park
	5	Mountain Pass
	6	Scenic Route
	7	Vignette Road
	8	Toll Zone
TOLL_SYSTEM_TYPE	N(10)	Query RDF_META for specific descriptions

C.35 RDF_CONDITION_TRANSPORT

See Section 12.3.65, *RDF_CONDITION_TRANSPORT* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
DIRECTION_CLOSURE	1	CLOSED IN BOTH DIRECTIONS
	2	CLOSED IN POSITIVE DIRECTION (FROM REFERENCE NODE)
	3	CLOSED IN NEGATIVE DIRECTION (TOWARDS REFERENCE NODE)
HAZARDOUS_MATERIAL_TYPE	1	EXPLOSIVES
	2	GAS
	3	FLAMMABLE
	4	FLAMMABLE SOLID/COMBUSTIBLE
	5	ORGANIC
	6	POISON
	7	RADIOACTIVE
	8	CORROSIVE
	9	OTHER
	20	ANY HAZARDOUS MATERIAL
	21	POISONOUS INHALATION HAZARD (PIH)
	22	GOODS HARMFUL FOR WATER
	23	EXPLOSIVE AND FLAMMABLE
	24	TUNNEL CATEGORY B
TRAILER_TYPE	28	TUNNEL CATEGORY C
	32	TUNNEL CATEGORY D
	34	TUNNEL CATEGORY E
	1	TRUCK WITH ONE OR MORE TRAILERS
	2	TRUCK WITH TWO OR MORE TRAILERS
	3	TRUCK WITH THREE OR MORE TRAILERS
	4	SEMI OR TRACTOR WITH 1 OR MORE TRAILERS

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
PHYSICAL_STRUCTURE_TYPE	1	BRIDGE (OVERPASS)
	2	TUNNEL (UNDERPASS)
	3	ARCH BRIDGE
	4	ARCH TUNNEL
	5	OTHER
TRANSPORT_SPEED_TYPE	1	HAZARDOUS MATERIAL
	2	TRAILER
	3	WEIGHT
	4	WEATHER
DIRECTION	1	POSITIVE DIRECTION
	2	NEGATIVE DIRECTION
	3	BOTH DIRECTIONS
WEATHER_TYPE	1	RAIN
	2	SNOW
	3	FOG
PREFERRED_ROUTE_TYPE	1	STAA
	2	TD
	3	NRHM (NAT'L REPOS NON RADIOACTV HAZMATS)
	4	CLASS 1 HAZARDOUS MATERIALS (EXPLOSIVES)
	5	PIH (POISONOUS INHALATION HAZMATS)
	6	MEDICAL WASTE MATERIAL
	7	RADIOACTIVE MATERIAL
	8	GENERAL HAZARDOUS GOODS
	9	LOCAL
	15	FUNCTIONAL CLASS 1 OVERRIDE
	16	FUNCTIONAL CLASS 2 OVERRIDE
	17	B-DOUBLE ROUTE

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
HAZMAT_PERMIT_REQUIRED	1	Explosives Permit
	2	Gas Permit
	3	Flammable Permit
	4	Flammable Solid/Combustible Permit
	5	Organic Permit
	6	Poison Permit
	7	Radioactive Permit
	8	Corrosive Permit
	9	Any Hazardous Material Permit
	10	Poisonous Inhalation Hazard (PIH) Permit
NUMBER_OF_AXLES	1	Two or more axles
	2	Three or more axles
	3	Four or more axles
	4	Five or more axles
	5	Six or more axles
	6	Single axle
	7	Tandem axle
SPEED_LIMIT_TYPE	1	LEGAL
	2	ADVISORY

C.36 RDF_COUNTRY

See *Section 12.3.66, RDF_COUNTRY* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CURRENCY_TYPE Note: These are examples. Refer to the <i>Country Profiles</i> document for the complete list.	AED	UNITED ARAB EMIRATES DIRHAM
	EUR	EURO
	RUB	RUSSIAN RUBLES
	USD	US DOLLAR
DRIVING_SIDE	L	LEFT SIDE DRIVING
	R	RIGHT SIDE DRIVING
HOUSE_NUMBER_FORMAT	A	HOUSE NUMBER IS AFTER THE STREET NAME
	B	HOUSE NUMBER IS BEFORE THE STREET NAME
ISO_COUNTRY_CODE	See values under <i>Section C.6, RDF_ADMIN_HIERARCHY</i> .	
LANGUAGE_CODE	For values, see <i>Section C.2.1, Language Code</i> .	
SPEED_LIMIT_UNIT	K	KILOMETRES PER HOUR
	M	MILES PER HOUR
UNIT_OF_MEASURE	E	ENGLISH
	M	METRIC
TOLL_SYSTEM_TYPE	N(10)	query RDF_META for specific descriptions

C.37 RDF_DATE_TIME

See Section 12.3.68, *RDF_DATE_TIME* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
DATETIME_TYPE	1	DAY OF WEEK
	2	EXTERNAL
	A	DATE RANGES
	C	DAY OF MONTH
	D	DAY OF WEEK OF MONTH
	E	DAY OF WEEK OF YEAR
	F	WEEK OF MONTH
	H	MONTH OF YEAR
	I	DAY OF MONTH OF YEAR
FROM_END	N	NOT FROM END
	Y	FROM END
EXCLUDE_DATE	N	NOT AN EXCLUDE DATE
	Y	EXCLUDE DATE

C.37.1 Valid Start and End Date Values

DATETIME_TYPE	DATETIME_TYPE Description	Value Example	Description
A	Date Ranges	YYYYMMDD 20020524	YYYY is the year MM is the month DD is the day Example: 24 May 2002
C	Day of Month	DDDD0000 00260000	DDDD is a value in the range 0001-0031 Example: 26 th day of Month
D	Day of Week of Month	DDDDWWWW 00010004	DDDD is a value in the range 0001-0007 Where 0001 is Sunday, 0002 is Monday, etc. WWWW is a value in the range 0001-0005 Example: The 4th Sunday of the month.
E	Day of Week of Year	DDDDWWWW 00060023	DDDD is a value in the range 0001-0007 Where 0001 is Sunday, 0002 is Monday, etc. WWWW is a value in the range 0001-0052 Example: Friday in Week 23.

DATETIME_TYPE	DATETIME_TYPE Description	Value Example	Description
F	Week of Month	WWWW0000 00030000	WWWW is a value in the range 0001-0005 Example: 3 rd week of the month
H	Month of Year	MMMM0000 00080000	MMMM is a value in the range 0001-0012 Example: 8 th Month (August) of the year.
I	Day of Month of Year	DDDDMMMM 00070007	DDDD is a value in the range 0001-0031 MMMM is a value in the range 0001-0012 Example: 7 th of July
1	Daymask	XXXXXX XXXX	Each X is a Boolean flag starting with Sunday Example: Monday - Friday The first and seventh positions are blank (space character) which indicates the Date Time condition is false for Sunday and Saturday. X is published in the second through sixth positions which indicates the Date Time condition is true Monday - Friday.
2	External	Easter	Easter is the only external date defined. Easter is only published for European databases.

C.38 RDF_DISTANCE_MARKER

See *Section 12.3.69, RDF_DISTANCE_MARKER* for schema information.

COMPLEX FEATURE TYPE	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
DIRECTION	1	POSITIVE DIRECTION
	2	NEGATIVE DIRECTION
	3	BOTH DIRECTIONS
ENHANCED	N	Distance Marker might not meet positional accuracy of 15 metres
	Y	Distance Marker meets positional accuracy of 15 metres
UNIT_OF_MEASURE	E	English (miles)
	M	Metric (kilometres)
DIRECTION_ON_SIGN	E	EAST
	N	NORTH
	S	SOUTH
	W	WEST

C.39 RDF_FEATURE_NAME

The RDF_FEATURE_NAME table includes the following columns:

LANGUAGE_CODEISO-639 3-character language name abbreviation.

See *Section 12.3.72, RDF_FEATURE_NAME* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
LANGUAGE_CODE	See <i>Section C.2.1, Language Code</i>	

C.40 RDF_FEATURE_NAME_TRANS

See *Section 12.3.73, RDF_FEATURE_NAME_TRANS* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
TRANSLITERATION_TYPE	BEX	BELARUSIAN TRANSLITERATED
	BGX	BENGALI TRANSLITERATED
	BOX	BOSNIAN TRANSLITERATED
	BUX	BULGARIAN TRANSLITERATED
	CZX	CZECH TRANSLITERATED
	ENG	ENGLISH
	ESX	ESTONIAN TRANSLITERATED
	GEX	GEORGIAN TRANSLITERATED
	GRX	GREEK TRANSLITERATED
	HEX	HEBREW TRANSLITERATED
	HIX	HINDI TRANSLITERATION
	HUX	HUNGARIAN TRANSLITERATED
	GJX	GUJARATI TRANSLITERATED
	JPX	JAPANESE TRANSLITERATION
	HIX	HINDI TRANSLITERATED
	KOX	KOREAN TRANSLITERATION
	LAX	LATVIAN TRANSLITERATED
	LIX	LITHUANIAN TRANSLITERATED
	MRX	MARATHI TRANSLITERATED
	MAX	MACEDONIAN TRANSLITERATED
	MNX	MONTENEGRIN TRANSLITERATED
	MOX	MOLDOVAN TRANSLITERATED
	POX	POLISH TRANSLITERATED
	PYN	PINYIN
	RMX	ROMANIAN TRANSLITERATED
	RUX	RUSSIAN TRANSLITERATED
	SCX	SERBIAN TRANSLITERATED
	SIX	SLOVENIAN TRANSLITERATED
	SLX	SLOVAK TRANSLITERATED
	SRX	CROATIAN TRANSLITERATED

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
TRANSLITERATION_TYPE (CONT'N)	TMX	TAMIL TRANSLITERATED
	TUX	TURKISH TRANSLITERATED
	UKX	UKRAINIAN TRANSLITERATED
	VIX	VIETNAMESE TRANSLITERATED

C.41 RDF_FEATURE_NAMES

See Section 12.3.74, *RDF_FEATURE_NAMES* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
NAME_TYPE		NOT APPLICABLE
	A	ABBREVIATION
	B	BASE NAME
	E	EXONYM
	F	ADDITIONAL EXONYM
	K	SHORTENED NAME
	S	SYNONYM
OWNER	A	ADMIN PLACE
	B	BUILDING
	C	CARTO
	L	LABEL POINT
	V	COMPLEX
	Z	ZONE

C.42 RDF_FEATURE_POINT

See Section 12.3.75, *RDF_FEATURE_POINT* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
FP_TYPE	GP	Guidance Point
	RC	Railway Crossing
	RG	Route Guidance Point
SIDE	B	Both sides
	L	Left side
	N	Not applicable
	R	Right side

C.43 RDF_FILE

This table publishes the File associated with a specific map feature. The file can be referenced via FILE_NAME, as published as an external repository or to be published as a binary object (blob) inside the RDF database.

See *Section 12.3.79, RDF_FILE* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
FILE_TYPE	1	2D PATTERN
	2	2D ARROW
	3	3D PATTERN
	4	3D ARROW
	5	LANDMARK ICON
	6	ICON ALPHA CHANNEL BITMAP
	7	SIGN WAVE FILE
	8	ROAD NAME WAVE FILE
	9	POI CATEGORY ICON
	10	ANNOTATION CATEGORY ICON LOW RES
	11	3D LANDMARK MODEL STANDARD
	12	3D LANDMARK MODEL LIGHT
	13	HEG PATTERN
	14	HEG ARROW
	18	ANNOTATION CATEGORY ICON HI RES
	19	POI CATEGORY ICON HI RES
	20	POI CATEGORY ICON LOW RES
	21	POI ICON HI RES
	22	POI ICON MED RES
	23	POI ICON LOW RES
	24	LANDMARK ICON LOW RES
	25	SIGN AS REAL
	27	COLLADA FILE - LOW LEVEL OF DETAIL
	28	COLLADA FILE - MEDIUM LEVEL OF DETAIL
	29	COLLADA FILE - HIGH LEVEL OF DETAIL

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
FILE_TYPE (continuation)	30	LANDMARK ICON MED RES
	31	2D LOW RES VIEW (KOREA)
	32	2D HIGH RES VIEW (KOREA)
	33	3D VIEW (KOREA)
	34	2D JUNCTION VIEW
	35	EXTENDED NAVIGATION GUIDE MAPS
	38	BUILDING TEXTURE PATTERN
	39	TOLL STRUCTURE VIEW
ATTACHMENT_TYPE	3DS	3D STUDIO FILE FORMAT
	BMP	BITMAP FILE FORMAT
	DAE	DIGITAL ASSET EXCHANGE
	GIF	GIF FILE FORMAT
	JPG	JPEG FILE FORMAT
	MTL	MATERIAL PROPERTIES FILE FORMAT
	OBJ	APPLICATION WAVEFRONT
	PNG	PNG FILE FORMAT
	SVG	SVG FILE FORMAT
	TGA	TARGA FILE FORMAT
	WAV	WAV FILE FORMAT
	WRL	VRML FILE FORMAT

C.44 RDF_FILE_FEATURE

See Section 12.3.80, *RDF_FILE_FEATURE* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
OWNER	C	Carto
	L	Annotation Label
	O	Condition
	P	POI
	R	Road Name
	S	Sign Element
	V	Complex

C.45 RDF_GUIDANCE_OBJECT

See Section 12.3.81, *RDF_GUIDANCE_OBJECT* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CATEGORY	1	Billboard
	2	Statue/Sculpture
	3	Fountain
	4	Phonebooth
	5	Mail box
	6	Newspaper stand
	7	Sign text
	99	External Reference
EXT_REF_TYPE	1	Places

C.46 RDF_LANE

See Section 12.3.82, *RDF_LANE* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CENTER_DIVIDER_MARKER	1	Long Dashed Line
	2	Double Solid Line
	3	Single Solid Line
	4	Double Line; combination of inner single solid line and outer dashed line
	5	Double Line; combination of inner dashed line and outer single solid line.
	6	Short Dashed Line
	7	Shaded Area Marking
	8	Dashed Blocks
	9	Physical Divider <3 m wide
	10	Double Dashed Lines
	11	No Divider Marker
	12	Crossing Alert
DIRECTION_CATEGORY	0	No direction Indicated
	1	Straight
	2	Between Straight and Right
	4	Right
	8	Between Right and Backward
	16	U-turn Left
	32	Between Left and Backward
	64	Left
	128	Between Straight and Left
	256	Merge into Right Lane (lane ends)
	512	Merge into Left Lane (lane ends)

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
DIRECTION_CATEGORY (continuation)	1024	Merging Lanes (no priority)
	2048	U-turn Right
	4096	Second Right
	8192	Second Left
LANE_DIVIDER_MARKER	1	Long Dashed Line
	2	Double Solid Line
	3	Single Solid Line
	4	Double Line; combination of inner single solid line and outer dashed line
	5	Double Line; combination of inner dashed line and outer single solid line.
	6	Short Dashed Line
	7	Shaded Area Marking
	8	Dashed Blocks
	9	Physical Divider <3 m wide
	10	Double Dashed Lines
	11	No Divider Marker
	12	Crossing Alert
LANE_FORMING_ENDING	1	Lane Forming
	2	Lane Ending
	3	Lane Forming Ending

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
LANE_TYPE	1	Regular
	2	HOV
	4	Reversible
	6	HOV + Reversible
	8	Express
	10	HOV + Express
	12	Reversible + Express
	14	HOV + Reversible + Express
	16	Acceleration
	18	HOV + Acceleration
	20	Reversible + Acceleration
	22	HOV + Reversible + Acceleration
	24	Express + Acceleration
	32	Deceleration
	34	HOV + Deceleration
	36	Reversible + Deceleration
LANE_TYPE (continuation)	38	HOV + Reversible + Deceleration
	40	Express + Deceleration
	64	Auxiliary Lane
	128	Slow
	256	Passing
	512	Shoulder
	1024	Regulated Access
	2048	Turn
	4096	Centre Turn
	8192	Truck Parking
	16384	Parking Lane
	32768	Variable Driving Lane
	65536	Bicycle Lane

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
LANE_TRAVEL_DIRECTION	B	Both Directions
	F	From Reference Node
	T	To Reference Node
	N	None
TRANSITION_AREA	Y	Is a Transition Area
LANE_CROSSING_RESTRICTION	1	Left Side
	2	Right Side
	3	Both Sides

C.47 RDF_LINK

See *Section 12.3.85, RDF_LINK* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
BRIDGE	Y	Is a bridge
	N	Is not a bridge
TUNNEL	Y	Is a tunnel
	N	Not a tunnel
MAP_EDGE_LINK	L	Left side of the link
	R	Right side of the link

C.48 RDF_LINK_TMC

See *Section 12.3.87, RDF_LINK_TMC* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
TMC_PATH_DIRECTION	+	Positive direction external to point location
	-	Negative direction external to point location
	N	Negative direction internal to point location
	P	Positive direction internal to point location
ROAD_DIRECTION	F	From Reference Node
	T	To Reference Node

C.49 RDF_LINK_TPEG

See *Section 12.3.88, RDF_LINK_TPEG* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
POS_TPEG_ID	#####	TPEG ID in the positive direction.
NEG_TPEG_ID	#####	TPEG ID in the negative direction.

C.50 RDF_LINK_ZONE

See *Section 12.3.89, RDF_LINK_ZONE* for schema information.

COLUMN_NAME	ATTRIBUTE	ATTR_DESCRIPTION
SIDE	B	Link Side = Both Sides
	L	Link Side = Left Side
	R	Link Side = Right Side

C.51 RDF_LOCATION

See *Section 12.3.90, RDF_LOCATION* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
SIDE	L	POI side = LEFT SIDE
	N	POI side = NOT APPLICABLE
	R	POI side = RIGHT SIDE
PERCENT_FROM_REF	-1	Percentage distance is unavailable for the POI
	0 to 100	Percentage distance from the From Node of the link to the location of the POI
HOUSE_NUMBER_FORMAT	Same values as FORMAT in RDF_ADDRESS_RANGE. See <i>Section C.3, RDF_ADDRESS_RANGE</i> .	
LOCATION_TYPE	1	Logical (entrance) location of the POI.
	2	Physical location of the POI.
	3	Hybrid location containing parts of both physical and logical locations.

C.52 RDF_META

See *Section 12.3.91, RDF_META* for schema information.

COLUMN_NAME	ATTRIBUTE	ATTR_DESCRIPTION
ATTRIBUTE_TYPE	C	Character
	N	Numeric

C.53 RDF_META_PREPOSITION

See *Section 12.3.98, RDF_META_PREPOSITION* for schema information.

COLUMN_NAME	ATTRIBUTE	ATTR_DESCRIPTION
POSITION	1	Before Attached
	2	Before Unattached
	3	After Attached
	4	After Unattached

C.54 RDF_NAV_LINK

See *Section 12.3.100, RDF_NAV_LINK* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
COVERAGE_INDICATOR	See values under <i>Section C.15.1, Coverage Indicator Values</i> .	
INTERSECTION_CATEGORY	1	Intersection Internal
	2	Manoeuvre
	3	Indescribable
	4	Roundabout
	5	Undefined Traffic Area
	6	Special Traffic Figure
ISO_COUNTRY_CODE	See values under <i>Section C.6, RDF_ADMIN_HIERARCHY</i> .	
LANE_CATEGORY	1	One Lane
	2	Two or Three Lanes
	3	Four or More Lanes
SPEED_CATEGORY	1	>130 km/h
	2	101-130 km/h
	3	91-100 km/h
	4	71-90 km/h
	5	51-70 km/h
	6	31-50 km/h
	7	11-30 km/h
	8	<11 km/h
FUNCTIONAL_CLASS	1	Level 1
	2	Level 2
	3	Level 3
	4	Level 4
	5	Level 5
TRAVEL_DIRECTION	B	Both Directions
	F	From Reference Node
	T	To Reference Node

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
FRONTAGE	Y	The link is a frontage road.
	N	The link is not a frontage road.
PAVED	Y	The link is paved.
	N	The link is not paved.
PRIVATE	Y	The link is a private road.
	N	The link is not a private road.
RAMP	Y	The link is a ramp.
	N	The link is not a ramp.
TOLLWAY	Y	The link is a tollway.
	N	The link is not a tollway.
POI_ACCESS	Y	The link is a POI access road.
	N	The link is not a POI access road.
CONTROLLED_ACCESS	Y	The link is a controlled access road.
	N	The link is not a controlled access road.
BOAT_FERRY	Y	The link is a boat ferry.
	N	The link is not a boat ferry.
RAIL_FERRY	Y	The link is a rail ferry.
	N	The link is not a rail ferry.
MULTI_DIGITIZED	Y	The link is part of a digitised road.
	N	The link is not part of a digitised road.
DIVIDER	1	Reference node and link are divided.
	2	Non-reference node and link are divided.
	A	Both nodes and link are divided.
	L	Only the link is divided.
	N	No divider.
DIVIDER_LEGAL	Y	A legal divider is separating opposing driving directions.
	N	A physical divider is separating opposing driving directions. DIVIDER_LEGAL = N only has meaning when DIVIDER is not N.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
LOW_MOBILITY	1	Driving condition is low mobility
	2	Driving condition is not low mobility
	3	Driving condition is not known
PUBLIC_ACCESS	N	Link does not allow public access
	Y	Link allows public access
SPEED_LIMIT_SOURCE	1	Posted
	2	Derived
GRADE_CATEGORY	NULL	Not Collected
	1	Up
	2	Level
	3	Down
CONFIDENCE_LEVEL_RATING	1	High
	2	Medium
	3	Low
PEDESTRIAN_PREFERRED	Y	Yes
	N	No
LIMITED_ACCESS_ROAD	Y	Limited Access Road
	N	Not Limited Access Road
ROAD_CLASS	1	Road Class 1
	2	Road Class 2
	3	Road Class 3
	4	Road Class 4
	5	Road Class 5
	6	Road Class 6
	7	Road Class 7
	8	Road Class 8
	9	Road Class 9
	10	Road Class 10
	11	Road Class 11
	12	Road Class 12

Note: Values and definitions are region or country-specific and may not be currently used.

Attribute Values

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
OVERPASS_UNDERPASS	1	Overpass
	2	Underpass

C.55 RDF_NAV_LINK_ATTRIBUTE

See *Section 12.3.101, RDF_NAV_LINK_ATTRIBUTE* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
FOUR_WHEEL_DRIVE	Y	The link is a road only suitable for vehicles with four-wheel drive.
SCENIC_ROUTE	Y	Link is scenic route
PARKING_LOT_ROAD	Y	Link is part of a parking lot
PRIORITY_ROAD	Y	Link has priority over the traffic on the incoming roads.
CARPOOL_ROAD	Y	Link is carpool road
REVERSIBLE	Y	Link is reversible
EXPRESS_LANE	Y	Link is express lane
TRANSITION_AREA	Y	Link is a transition area

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
SUPPLEMENTAL_GEO_BITSET	1	Race Track
	2	Undetermined Geometry Type ¹
	4	Driveway
	8	Alley
	16	Bicycle Path
	32	Walking Path
	64	Private Road for Service Vehicle
	128	Mountain Bike Trail
	256	Hiking Trail
	512	Cross Country Ski Trail
	1024	Golf Course Trail
	2048	Ski Run
	4096	Ski Lift
	8192	Running Track
	16384	BMX Track
	32768	Horse Trail
EXPANDED_INCLUSION	65536	Outdoor Activity Road
	131072	Outdoor Activity Access
DELIVERY_ROAD	262144	Oil Field Road
	1	Meets expanded inclusion
	2	Supplemental only
DELIVERY_ROAD	Y	Link is a Delivery Road
STAIRS_TRAVERSAL	Y	Stairs exist on a pedestrian suitable route

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
SURFACE_TYPE	1	ASPHALT
	2	CHIPSEAL
	3	CONCRETE
	4	GRAVEL
	5	DIRT
	6	SAND
	7	BRICK
	8	ROCK
	9	OTHER
BICYCLE_ACCESS	Y	Link is designated for bicycle traversal.
BICYCLE_PROTECTION_TYPE	1	GENERIC LANE
	2	PROTECTED LANE
	3	SHARROW LANE
	4	UNKNOWN BICYCLE LANE TYPE
BICYCLE_TRAVEL_DIR_OVERRIDE	B	BOTH DIRECTIONS
	F	FROM REFERENCE NODE
	T	TO REFERENCE NODE
GENERALISED_BICYCLE_PATH	L	LEFT
	R	RIGHT
	B	BOTH
TRUCK_ROAD_TYPE	1	ET4
	2	ET2
	3	A4
	4	A2
	5	B4
	6	B2
	7	C
	8	D

1. Further defined as one or more of the following values in Here Outdoor Plug In extract: 128 – Mountain Bike Trail, 256 – Hiking Trail, 512 – Cross Country Ski Trail, 2048 –Ski Run, 40.96 –Ski Lift, 8192 –Running Track, 16384 –BMX Track, 32768 –Horse Trail, and 65536 –Outdoor Activity Road.

C.56 RDF_NAV_LINK_STATUS

See Section 12.3.102, *RDF_NAV_LINK_STATUS* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
DETAILED_CITY	Y	Link is located within an identified Prime area.
	N	Link is not located within an identified Prime area.
ENHANCED_GEOMETRY ¹	Y	The geometry link has a greater positional accuracy of +/- 5 metres.
	N	The geometry link does not have a greater positional accuracy of +/- 5 metres.
IN_PROCESS_DATA	Y	The link is in-process data.
	N	The link is not in-process data.
URBAN	Y	Link is urban.
	N	Link is not urban.
IS_ALIGNED	Y	Link is aligned to a product boundary.
	N	Link is not aligned to a product boundary.
FULL_GEOMETRY ²	Y	Link has the complete geometry of the road network surrounding it.
	N	Link does not have the complete geometry of the road network surrounding it.
LONG_HAUL	Y	Indication that the link is included in a Long-Haul product.
	N	Indication that the link is not included in a Long-Haul product (default)
STUB_LINK	Y	The link is a stub link
	N	The link is not a stub link
TRANSPORT_VERIFIED	Y	Link is validated to be compliant with the Trucks specifications; and therefore, enables transport routing
	N	Link is not validated to be compliant with the Truck specifications and does not allow for reliable transport routing

1. Made obsolete in 2015-Q3 (Schema Version 7.05) through the introduction of LINK_ACCURACY in ADAS_LINK_STATUS table. See *Section C.94.1, ADAS_LINK_STATUS*.
2. FULL_GEOMETRY is published for navigable links only.

C.57 RDF_POI

See Section 12.3.108, *RDF_POI* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CAT_ID	2084	Winery
	3578	ATM
	4013	Train Station
	4100	Commuter Rail Station
	4170	Bus Station
	4482	Ferry Terminal
	4493	Marina
	4580	Public Sports Airport
	4581	Airport
	5000	Business Facility
	5400	Grocery Store
	5511	Auto Dealerships
	5512	Auto Dealership-Used Cars
	5540	Petrol/Gasoline Station
	5571	Motorcycle Dealership
	5800	Restaurant
	5813	Nightlife
	5999	Historical Monument
	6000	Bank
	6512	Shopping
	7011	Hotel
	7012	Ski Resort
	7013	Other Accommodation
	7014	Ski Lift
	7389	Tourist Information
	7510	Rental Car Agency

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CAT_ID (continuation) Note: Categories 9051 thru 9057 are published only in the metadata. They are contained in the Outdoors product.	7520	Parking Lot
	7521	Parking Garage/House
	7522	Park & Ride
	7538	Auto Service & Maintenance
	7832	Cinema
	7897	Rest Area
	7929	Performing Arts
	7933	Bowling Centre
	7940	Sports Complex
	7947	Park/Recreation Area
	7985	Casino
	7990	Convention/Exhibition Centre
	7992	Golf Course
	7994	Civic/Community Centre
	7996	Amusement Park
	7997	Sports Centre
	7998	Ice Skating Rink
	7999	Tourist Attraction
	8060	Hospital
	8200	Higher Education
	8211	School
	8231	Library
	8410	Museum
	8699	Automobile Club
	9050	Bicycle Sharing Location
	9051	Bicycle Parking
	9052	Trailhead
	9053	Outdoor Service
	9054	Ranger Station
	9055	Running Track
	9056	Campsite

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CAT_ID (continuation)	9057	BMX Track
	9059	Bicycle Service
	9121	City Hall
	9211	Court House
	9221	Police Station
	9517	Campground
	9525	Government Office
	9527	Fire Department
	9530	Post Office
	9532	Bar or Pub
	9535	Convenience Store
	9536	Specialty Food Store
	9537	Clothing Store
	9522	Truck Stop/Plaza
	9545	Department Store
	9560	Home Specialty Store
	9565	Pharmacy
	9567	Specialty Store
	9568	Sporting Good Store
	9572	Race Track
	9573	Golf Practice Range
	9583	Medical Service
	9589	Public Restroom
	9591	Cemetery
	9592	Highway Exit
	9593	Transportation Service
	9595	Repair Services
	9596	Training Centre/Institute
	9710	Weigh Station
	9714	Cargo Centre
	9715	Military Base

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CAT_ID (continuation)	9717	Tollbooth
	9718	Animal Park
	9719	Truck Dealership
	9720	Truck Parking
	9722	Delivery Entrance
	9723	Dock
	9724	Loading Zone
	9730	Named Intersection
	9986	Home Improvement & Hardware Store
	9987	Consumer Electronics Store
	9988	Office Supply and Service Store
	9989	Taxi Stand
	9991	Industrial Zone
	9992	Place of Worship
	9993	Embassy
	9994	County Council
	9995	Bookstore
	9996	Coffee Shop
	9999	Border Crossing
PRIVATE_ACCESS	Y	Privately owned
	N	Not privately owned
ENTRANCE_TYPE	1	PREFERRED ENTRANCE

C.58 RDF_POI_ADDRESS

See *Section 12.3.109, RDF_POI_ADDRESS* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
LANGUAGE_CODE	See values under <i>Section C.2, RDF_ADDRESS_POINT</i> .	
FULL_HOUSE_NUMBER_LANG_CODE	See values under <i>Section C.39, RDF_FEATURE_NAME</i> .	
ISO_COUNTRY_CODE	See values under <i>Section C.6, RDF_ADMIN_HIERARCHY</i> .	

C.59 RDF_POI_ADDRESS_TRANS

See *Section 12.3.110, RDF_POI_ADDRESS_TRANS* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
FULL_HOUSE_NUMBER_TRANS_TYPE	See values under: <i>Section C.40, RDF_FEATURE_NAME_TRANS</i>	

C.60 RDF_POI_ASSOCIATION

See Section 12.3.112, *RDF_POI_ASSOCIATION* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
ASSOCIATION_TYPE	1	Identity
	2	Location

C.61 RDF_POI_PETROL_STATION

See Section 12.3.121, *RDF_POI_PETROL_STATION* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
DIESEL	N	Diesel Not Sold
	Y	Diesel Sold
HOUR_24_INDICATOR	N	Not open 24 hours
	Y	Open 24 Hours

C.62 RDF_POI_AIRPORT

See Section 12.3.111, *RDF_POI_AIRPORT* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
AIRPORT_TYPE	0	MAIN ENTRANCE
	1	TERMINAL

C.63 RDF_POI_BICYCLE

See Section 12.3.111, *RDF_POI_AIRPORT* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
BICYCLE_SERVICE	1	Air Station
	2	Bicycle Vending Machine

C.64 RDF_POI_PLACE_OF_WORSHIP

See Section 12.3.122, *RDF_POI_PLACE_OF_WORSHIP* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
BUILDING_TYPE	1	MOSQUE
	2	CHURCH
	3	TEMPLE
	4	SYNAGOGUE
	5	ASHRAM
	6	OTHER
	7	GURDWARA

C.65 RDF_POI_REST_AREA

See Section 12.3.123, *RDF_POI_REST_AREA* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
REST_AREA_TYPE	1	COMPLETE REST AREA
	2	PARKING AND REST ROOM ONLY
	3	PARKING ONLY
	4	MOTORWAY SERVICE AREA
	5	SCENIC OVERLOOK

C.66 RDF_POI_SUBCATEGORY

See *Section 9.7.27, Subcategory (SUBCATEGORY)* for attribute specification.

See *Section 12.3.125, RDF_POI_SUBCATEGORY* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
SUBCATEGORY	1	Car Wash
	2	Auto Parts
	3	Car Repair
	4	Truck Repair
	5	Tire Repair
	6	Emission Testing
	7	Fitness & Health Club
	8	Racket Ball Court
	9	Shooting Range
	10	Indoor Ski
	11	Soccer Club
	12	Squash
	13	Swimming Pool
	14	Tennis Court
	15	Indoor Sports
	16	Hockey
	17	Hotel
	18	Motel
	19	Guest House
	20	Hostel
	21	Holiday Park
	22	Bed & Breakfast
	23	Family/General Practice
	24	Dentist
	25	Clinic/Medical Centre
	26	Nursing Home
	27	Psychiatric Institute
	28	Underground Train/Subway
	29	Commuter Train
	30	Pharmacy
	31	Drugstore

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
SUBCATEGORY (continuation)	32	Cemetery
	33	Crematorium
	34	Bar/Pub/Stube/ Biergarten
	35	Disco
	36	Night Club
	37	Dancing
	38	Karaoke
	39	Live Entertainment/Music/Cabaret
	40	Billiards/Pool Hall
	41	Video/Arcade/Gaming Room
	42	Jazz Club
	43	Beach Club
	44	Pet Supply
	45	Warehouse/Wholesale
	46	Food/Beverage
	47	Men's Apparel
	48	Women's Apparel
	49	Children's Apparel
	50	Shoes / Footwear
	51	Short-time Motel
	52	Seaport/Harbour
	53	Railyard
	54	Airport Cargo
	55	Zoo
	56	Wild Animal Park
	57	Wildlife Refuge
	58	Aquarium
	59	Garden
	60	Beach
	61	Sports Field
	62	Boat Ferry

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
SUBCATEGORY (continuation)	63	Rail Ferry
	64	Van Repair
	65	Gallery
	66	Science
	67	Children's
	68	History
	69	Art
	70	Mobile Retailer
	71	Mobile Service Center
	72	Basketball
	73	Badminton
	74	Cellphone Parking Lot
	75	Rugby
	76	Diving Centre
	77	Power Equipment Dealer
	78	Trailhead
	81	Pediatrician
	82	Bakery
	83	Butcher
	84	Dairy Goods
	85	Sweets Shop
	86	Pre-school
	92	Blood Bank
	93	Outdoor Market
	94	Indoor Market
	95	Walking Path
	96	Bicycle Path
	97	Off Road
	98	Bicycle Trail
	99	Hiking Trail
	100	Tsunami

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
SUBCATEGORY (continuation)	101	Fire
	102	Earthquake
	103	Volcanic Eruption
	104	Flood
	106	Hunting/Fishing Shop
	107	Running/Walking Shop
	108	Skate Shop
	109	Ski Shop
	110	Snowboard Shop
	111	Surf Shop
	112	Bicycle Shop
	113	BMX Shop
	114	Camping/Hiking Shop
	115	Canoe/Kayak Shop
	116	Cross Country Ski Shop
	117	Tack Shop
	1026	Non-Star Hotel
	1027	5 Star
	1028	4 Star
	1029	3 Star
	1030	1-2 Star
	1035	Fishing
	1091	Ping Pong
	1092	Sauna
	1093	Condo
	1094	Home Lodging
	1097	Funeral Hall
	1098	Cinerarium
	1099	LPG only
	1102	Cross Country Ski Trail
	1107	Horse Trail

C.67 RDF_POI_CHAINS

See Section 12.3.113, *RDF_POI_BICYCLE* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CHAIN_TYPE	1	CHAIN ID
	2	FAMILY CHAIN ID

C.68 RDF_POI_CHILDREN

See *Section 12.3.115, RDF_POI_CHILDREN* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
ASSOCIATION_TYPE	L	POI association = LOGICAL RELATION
	P	POI association = PHYSICAL RELATION

C.69 RDF_POI_CONTACT_INFORMATION

See Section 12.3.116, *RDF_POI_CONTACT_INFORMATION* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CONTACT_TYPE	1	PHONE NUMBER
	2	TOLL FREE PHONE NUMBER
	3	URL or WEB ADDRESS
	4	EMAIL ADDRESS
	5	MOBILE PHONE NUMBER
CONTACT	Information dependent on the Contact Type.	
PREFERRED	N	Non-preferred communication method
	Y	Preferred communication method
PHONE_AREA_CODE	The Telephone Number's Area Code.	
PHONE_LOCAL_NUMBER	The Telephone Number's Local Number.	
Added E164_PHONE_NUMBER		

C.70 RDF_POI_RESTAURANT

See *Section 12.3.124, RDF_POI_RESTAURANT* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CUISINE_ID	See values under: <i>Section C.70.1, Cuisine Type (CUISINE_ID) Values</i>	
REGIONAL_CUISINE_ID	1	SZECHUAN
	2	CANTONESE
	3	TANDOORI
	4	PUNJABI
	5	YUCATECA
	6	OAXAQUEÑA
	7	VERACRUZANA
	8	POBLANA
	9	BAIANA
	10	CAPIXABA
	11	MINEIRA
	12	RAJASTHANI
	13	MUGHLAI

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
REGIONAL_CUISINE_ID (continuation)	14	BENGALI
	15	GOAN
	16	JAIN
	17	KONKANI
	18	GUJARATI
	19	PARSI
	20	SOUTH INDIAN
	21	MAHARASHTRIAN
	22	NORTH INDIAN
	23	MALVANI
	24	HYDERABADI
	25	ALSACIEN
	26	AUVERGNATE
	27	BASQUE
	28	CORSE
	29	LYONNAISE
	30	PROVENÇALE
	31	SUD-OUEST
	32	BAKERY
RESTAURANT_TYPE	1	FAST FOOD
	2	CASUAL DINING
	3	FINE DINING
	4	TAKE-OUT & DELIVERY ONLY
	5	FOOD MARKET/STALL
	6	TAQUERIA
	7	DELI
	8	CAFETERIA
	9	BISTRO

C.70.1 Cuisine Type (CUISE_ID) Values

Attribute Value	Attribute Description	Attribute Value	Attribute Description
1	American Food	53	International Food
2	Californian Food	54	Bohemian Food
3	Chinese Food	55	Balkan Food
4	Continental Food	56	Finnish Food
5	French Food	57	Australian Food
6	German Food	58	Pizza
7	Greek Food	59	Punjabi
8	Indian Food	60	Rajasthani
9	Italian Food	61	Moghrai
10	Japanese Food	62	Bengali
11	Mexican Food	63	Goan
12	Other	64	Jain
13	Seafood	65	Konkani
14	Thai Food	66	Gujarati
15	Vegetarian Food	67	Parsi
16	Vietnamese Food	68	South Indian
18	Austrian Food	69	Maharashtrian
19	Barbecue/Southern	70	North Indian
20	Belgian Food	71	Malvani
21	Bistro ¹	72	Hyderabadi
22	Brewpub	73	Snacks & Beverages
23	British Isles Food	74	Breakfast
24	Cajun/Caribbean Food	75	Chicken
25	Dutch Food	76	Ice Cream
26	East European Food	77	Tapas
27	Fast Food ¹	78	Irish Food
28	Grill	79	Caribbean Food
29	Hawaiian/Polynesian Food	80	Malaysian Food

Attribute Value	Attribute Description	Attribute Value	Attribute Description
30	Hungarian Food	81	Moroccan Food
31	Indonesian/Malaysian Food	82	Fusion
32	Jewish/Kosher Food	83	Brazilian Food
33	Korean Food	84	Creole Food
34	Latin American Food	85	Burgers
35	Maltese Food	86	Creperie
36	Middle Eastern Food	87	Pastries
37	Filipino Food	88	Sushi
38	Polish Food	89	Vegan Food
39	Portuguese Food	91	Cajun Food
40	Russian Food	92	Indonesian Food
41	Sandwich	93	Fondue
42	Scandinavian Food	95	Argentinean Food
43	South American Food	96	Chilean Food
44	Southeast Asian Food	97	Azerbaijan Food
45	South-western Food	98	Baltic Food
46	Surinamese Food	99	Belorussian Food
47	Spanish Food	100	Caucasian Food
48	Steak House	101	Ukrainian Food
49	Swiss Food	102	Venezuelan Food
50	Turkish Food	103	Bruneian Food
51	African Food	104	Pakistani Food
52	Canadian Food		

1. Not published in Canada, EMEA, Mexico, Puerto Rico, the United States, and the U.S. Virgin Islands.

C.71 RDF_POI_FEATURE

See Section 12.3.117, *RDF_POI_FEATURE* for schema information

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
PREFERRED	Y	PREFERRED POI FEATURE
OWNER	C	CARTO FEATURE
	V	COMPLEX FEATURE
ASSOCIATION_TYPE	P	PHYSICAL RELATION
	L	LOGICAL RELATION (logically the POI and Feature are considered to be associated)
	1	LOGICAL LOCATION
	2	PHYSICAL LOCATION

C.72 RDF_POI_NAME

See *Section 12.3.118, RDF_POI_NAME* for schema information

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
LANGUAGE_CODE	See values in <i>Section C.2.1, Language Code</i>	

C.73 RDF_POI_NAME_TRANS

See *Section 12.3.119, RDF_POI_NAME_TRANS* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
TRANSLITERATION_TYPE	See values under: <i>Section C.40, RDF_FEATURE_NAME_TRANS</i>	

C.74 RDF_POI_NAMES

See Section 12.3.120, *RDF_POI_NAMES* for schema information

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
NAME_TYPE	B	BASE NAME
	E	EXONYM
	S	SYNONYM

C.75 RDF_POSTAL_CODE_MIDPOINT

See *Section 12.3.128, RDF_POSTAL_CODE_MIDPOINT* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
FULL_POSTAL_CODE	Full string for the Postal Code.	
LAT	The Latitude for the position of the Postal Code Point.	
LON	The Longitude for the position of the Postal Code Point.	
GEO_LEVEL	1	
	2	
	3	
	4	
	5	
	6	
	7	REVERSED WITHOUT STREET NAME
	8	MEDIAN
	9	REVERSED WITH STREET NAME
ISO_COUNTRY_CODE	See values under <i>Section C.6, RDF_ADMIN_HIERARCHY</i> .	

C.76 RDF_ROAD_LINK

See Section 12.3.129, *RDF_ROAD_LINK* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
ADDRESS_TYPE	1	BASE
	2	CITY
	3	COMMERCIAL
	4	COUNTY
	6	OLD
	7	UNKNOWN
	8	ACTUAL
	9	ALTERNATE BASE
IS_EXIT_NAME	Y	EXIT NAME
	N	NOT AN EXIT NAME
EXPLICATIBLE	Y	EXPLICATIBLE
	N	NOT EXPLICATIBLE
IS_JUNCTION_NAME	Y	JUNCTION NAME
	N	NOT A JUNCTION NAME
IS_NAME_ON_ROADSIGN	Y	NAME IS ON ROAD SIGN
	N	NAME IS NOT ON ROAD SIGN
IS_SCENIC_NAME	Y	SCENIC NAME
	N	NOT A SCENIC NAME
IS_POSTAL_NAME	Y	POSTAL NAME
	N	NOT A POSTAL NAME
IS_STALE_NAME	Y	STALE NAME
	N	NOT A STALE NAME
IS_VANITY_NAME	Y	VANITY NAME
	N	NOT A VANITY NAME
IS_INTERSECTION_NAME	Y	INTERSECTION NAME
	N	NOT AN INTERSECTION NAME

Attribute Values

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
IS_OVERPASS_NAME	Y	OVERPASS NAME
	N	NOT AN OVERPASS NAME
IS_UNDERPASS_NAME	Y	UNDERPASS_NAME
	N	NOT AN UNDERPASS_NAME
IS_BRIDGE_NAME	Y	BRIDGE_NAME
	N	NOT A BRIDGE_NAME
IS_TUNNEL_NAME	Y	TUNNEL_NAME
	N	NOT A TUNNEL_NAME
IS_BICYCLE_ROUTE_NAME	Y	IS BICYCLE ROUTE NAME
	N	IS NOT A BICYCLE ROUTE NAME

C.77 RDF_ROAD_NAME

See *Section 12.3.130, RDF_ROAD_NAME* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
DIRECTION_ON_SIGN	E	East
	N	North
	O	Ouest/Oeste
	S	South
	W	West
LANGUAGE_CODE	See values under: <i>Section C.2, RDF_ADDRESS_POINT</i> .	
		PREFIX/SUFFIX = SPACES
	E	EAST
	N	NORTH
	NE	NORTHEAST
	NW	NORTHWEST
	S	SOUTH
	SE	SOUTHEAST
	SW	SOUTHWEST
	W	WEST
ROUTE_TYPE	1	LEVEL 1 ROAD
	2	LEVEL 2 ROAD
	3	LEVEL 3 ROAD
	4	LEVEL 4 ROAD
	5	LEVEL 5 ROAD
	6	LEVEL 6 ROAD

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
SUFFIX		PREFIX/SUFFIX = SPACES
	E	EAST
	N	NORTH
	NE	NORTHEAST
	NW	NORTHWEST
	S	SOUTH
	SE	SOUTHEAST
	SW	SOUTHWEST
	W	WEST
NAME_TYPE	B	BASE NAME

C.78 RDF_ROAD_NAME_TRANS

See *Section 12.3.131, RDF_ROAD_NAME_TRANS* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
TRANSLITERATION_TYPE	See values under: <i>Section C.40, RDF_FEATURE_NAME_TRANS</i> .	

C.79 RDF_SIGN_DESTINATION

See *Section 12.3.132, RDF_SIGN_DESTINATION* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
STRAIGHT_ON_SIGN	Y	Sign is a Straight-on-Sign.
	N	Sign is not a Straight-on-Sign.

C.80 RDF_SIGN_DESTINATION_TRANS

See *Section 12.3.133, RDF_SIGN_DESTINATION_TRANS* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
TRANSLITERATION_TYPE	See values under: <i>Section C.40, RDF_FEATURE_NAME_TRANS</i> .	

C.81 RDF_SIGN_ELEMENT

See *Section 12.3.134, RDF_SIGN_ELEMENT* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
DIRECTION_CODE		NOT APPLICABLE
	E	EAST
	N	NORTH
	S	SOUTH
	W	WEST
ENTRY_TYPE	B	BRANCH TO A STREET
	T	TOWARDS AN EVENTUAL DESTINATION LINK
LANGUAGE_CODE	See values under <i>Section C.2, RDF_ADDRESS_POINT</i>	
TEXT_TYPE	T	Sign Text
	R	Sign Route ID

C.82 RDF_SIGN_ELEMENT_TRANS

See *Section 12.3.135, RDF_SIGN_ELEMENT_TRANS* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
TRANSLITERATION_TYPE	See values under: <i>Section C.40, RDF_FEATURE_NAME_TRANS</i>	

C.83 RDF_STATS_TABLE_ROW_COUNT

See Section 12.3.137, *RDF_STATS_TABLE_ROW_COUNT* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
GROUP_TYPE	ADAS	Advanced Driver Assistance Systems Geometry
	ADM	Admin Extension
	MIDPOINT	Postal Code Midpoint
	PA	Point Address
	RDF	Core
	SC	Selection Clipper
	SDO	Spatial Data Option Geometry
	TR	HERE Traffic
	TRK	Trucks
	VCE	Voice Phonetic Transcriptions
	WKT	Well-known Text Geometry

C.84 RDF_STREET_TYPE

See *Section 12.3.138, RDF_STREET_TYPE* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
LANGUAGE_CODE	See values under <i>Section C.2, RDF_ADDRESS_POINT</i> .	
OFFICIAL_STREET_TYPE	Refer to the co-delivered Common Street Type Abbreviations document for information.	
FULL_SPELLING	Refer to the co-delivered Common Street Type Abbreviations document for information.	

C.85 RDF_STREET_ABBREVIATION

See Section 12.3.139, *RDF_STREET_TYPE_ABBREVIATION* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
REGION	Examples: Europe, MEA, etc.	
COUNTRY	Refer to the co-delivered <i>Common Street Type Abbreviations</i> document for information.	
LANGUAGE_CODE		
STREET_TYPE		
PRECEDES_BASE	Y	Preceding base name.
	N	Following the base name
ATTACHED_TO_BASE	Y	Attached to the base name.
	N	Unattached to the base name.
ABBREVIATION	Refer to the co-delivered <i>Common Street Type Abbreviations</i> document for information.	
ABBREVIATION_ADD1		
ABBREVIATION_ADD2		
TRANSLITERATION_TYPE		
STREET_TYPE_TRANS		
ABBREVIATION_TRANS		
ABBREVIATION_ADD_TRANS		

C.86 RDF_STREET_TYPE_USAGE

See Section 12.3.140, *RDF_STREET_TYPE_USAGE* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
SYNTAX		Not used.
	F	Street type follows base name.
	P	Street type precedes base name.
ATTACH	A	Attached.
	E	Either attached or unattached
	U	Unattached.
	X	Attached but only for abbreviations

C.87 RDF_TIME_DOMAIN

See *Appendix D, Time Domain* for the specification.

See *Section 12.3.141, RDF_TIME_DOMAIN* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
OWNER	A	Admin
	B	Association
	O	Condition

C.88 RDF_VIRTUAL_CONNECTION

See *Section 12.3.143, RDF_VIRTUAL_CONNECTION* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
CONNECTION_TYPE	1	Level Street
	2	Extended Crossing
	3	Level Plaza
	4	Level Park
	5	Level Building
	6	Elevator
	7	Pedestrian Ramp
	8	Escalator
	9	Stairs
TIME_OVERRIDE	1	Dawn to dusk
	2	Dusk to dawn

C.89 RDF_ZONE

See Section 12.3.144, *RDF_ZONE* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
ZONE_TYPE	DA	Disputed Area Zone
	GC	Greater City Zone
	KA	Replaces Admin
	KD	Does Not Replace Admin
	NB	Neighbourhood Zone
	PA	Postal Area Zone
	TA ¹	TMC Area Zone

1. This content is no longer maintained.

C.90 VCE_META

See *Section 12.7.8, VCE_META* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
TYPE	PREFIX	
	SUFFIX	
	CUISINE_ID	
	DIRECTION_ON_SIGN	
	CAT_ID	
LANGUAGE_CODE	See values under <i>Section C.2, RDF_ADDRESS_POINT</i> .	

C.91 VCE_PHONETIC_TEXT

See *Section 12.7.10, VCE_PHONETIC_TEXT* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
TRANSCRIPTION_METHOD	M	Machine Generated NT-SAMPA
	S	Human Generated NT-SAMPA
PHONETIC_LANGUAGE_CODE	See values in <i>Section C.91.1, Phonetic Language Code</i> .	

C.91.1 Phonetic Language Code

Phonetic Language Code	Description
APS	Altiplano Spanish
ARS	Argentine Spanish
ASP ¹	American Spanish
AUE	Australian English
BAQ	Basque
BFR	Belgian French
BGR	Belgian German
BRA	Brazilian Portuguese
CAT	Catalan
CFR	Canadian French
CLS	Chilean Spanish
CZE	Czech
DAN	Danish
DUT	Dutch
ENG	English
FIN	Finnish
FLM	Belgian Dutch
FRE	French
FSW	Finland Swedish
GCS	Gran Colombia Spanish

Phonetic Language Code	Description
GER	German
GFA	Gulf Arabic
GJE	Gujarati English
GLG	Galician
GRE	Greek
HEB	Hebrew
HUN	Hungarian
IDE	Indian English
IND	Bahasa Indonesia
IRE	Irish English
ITA	Italian
LFR	Luxembourg French
LGR	Luxembourg German
LIE	Liechtenstein German
MAY	Bahasa Malaysia
NAS	North American Spanish
NOR	Norwegian
NZE	New Zealand English
POL	Polish
POR	Portuguese
PYC	Pin Yin Cantonese
PYM	Pin Yin Mandarin + Tone
PYT	Pin Yin Cantonese + Tone
RUS	Russian
SAE	South African English
SEN	Singapore English
SFR	Swiss French
SGR	Swiss German
SIT	Swiss Italian
SLO	Slovak
SPA	Spanish

Phonetic Language Code	Description
SWE	Swedish
THA	Thai
THE	Thai English
TME	Tamil English
TWN	Taiwanese Mandarin
TUR	Turkish
UKE	UK English
UKR	Ukrainian

1. This Phonetic Language Code is retired.

C.92 VCE_ROAD_NAME

See Section 12.7.11, *VCE_POI_NAME* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
TYPE	STREET_NAME	
	BASE_NAME	

C.93 VCE_SIGN_DESTINATION

See *Section 12.7.13, VCE_SIGN_DESTINATION* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
TYPE	EXIT_NUMBER	
	ALT_EXIT_NUMBER	

C.94 ADAS Tables

C.94.1 ADAS_LINK_STATUS

See *Section 12.8.1, ADAS_LINK_STATUS* for schema information.

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
LINK_ACCURACY	1	Link accuracy 1: meets ADAS accuracy specifications but the absolute height and slope information is not available on this link.
	2	Link accuracy 2: only the 3D attributes of a link (absolute height and slope) meet ADAS compliant accuracy, but the geometry associated with the link (2D) do not meet the ADAS compliant accuracy
	3	Link accuracy 3: the geometry associated with a link as well as the 3D attributes of a link (absolute height and slope) meet ADAS compliant accuracy.
	4	Link accuracy 4: the 3D attributes of a link (absolute height and slope) does not meet ADAS compliant accuracy, and also the geometry associated with the link (2D) do not meet the ADAS compliant accuracy.
	5	Link accuracy 5: the geometry associated with a link meets ADAS accuracy specifications but the absolute height and slope information do not meet the ADAS compliant accuracy.

C.94.2 ADAS_LINK_BUAROAD

See *Section 12.8.3, ADAS_LINK_BUAROAD* for schema information.

Attribute Values

COLUMN	ATTRIBUTE VALUE	ATTRIBUTE DESCRIPTION
BUA_ROAD	1	BUA Road
	2	BUA Road (positive direction of travel)
	3	BUA Road (negative direction of travel)
	4	Not a BUA Road
BUA_ROAD_VERIFIED	N	Not verified
	Y	Verified

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Time Domain

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D.1 Time Domain

A basic Time Domain is the combination of a Starting Date and a Time Duration with the following notation:

[(Starting Date) {Time duration}].

For example, [(M5d1){d1}] means:

- Starting Date: any year, month 5 (May), day 1st, at 0:00 a.m.
- Duration: 1 complete day (i.e., 24 hours or 1440 minutes).

D.1.1 Starting Date Syntax

Starting Dates are defined by means of a set of graphical symbols allowing the description of years, months, weeks, days, and so on down to the smallest time unit, which is the second. The symbols have to be organized in a sequential order starting with the longest time unit. The following table lists all valid time unit types, their notations and valid values.

Type	Notation	Value Domain	Description
Year	ynnnn	nnnn=0...9999	Defines a particular year. For example, (y1991) means the year 1991. When no more information is given, (y1991) means 1 January 1991 at 0:00:00 a.m.
Month	Mnn	nn=1...12	Defines a particular month within a particular year, or any year when no "y" information is given. The domain runs from 1 to 12, meaning January and December respectively. (M5) means every 1 May at 0:00:00 a.m., whatever the year may be.
Week	wnn	nn=1...53	Defines a week within a previously defined year, or any year when no "y" information is given. The domain runs from 1 to 53 indicating week number 1 and week number 53 respectively.
Day	dnn	nn=1...28/29/30/ 31	Defines a particular day within a particular month if previously defined with the "M" format. When no month information is given, (dnn) means the nnth day in any month. For example, (...d14) means the fourteenth day in the previously defined month (if any), in the previously defined year (if any) at 0:00:00 a.m. The domain runs from 1 to 28, 29, 30 or 31, depending on the month,
	tn	n=1...7	Defines a particular weekday in a previously (if any) defined week. Domain of values is the following: 1:Sunday, 2:Monday, 3:Tuesday, 4:Wednesday, 5:Thursday, 6:Friday, 7:Saturday. For example, (M5t2) means each Monday in the fifth month (May) of any year, at 0:00:00 a.m.

Type	Notation	Value Domain	Description
	fxn	x=1...5	Defines a particular weekday in a previously (if any) defined month, with the following rules: n is used as in the "t" format with the same domain of values, 1:Sunday up to 7:Saturday. For "x" one of the following values has to be substituted: 1:first, 2:second, 3:third, 4:fourth, 5:fifth. For example: (...f12) means the first Monday at 0:00:00 a.m.
	lxn	x=1-5	Defines a particular weekday in a previously (if any) defined month, with the following rules: n is used as for the "t" format with the same domain of values, 1:Sunday up to 7:Saturday. x has to be chosen from the following set: 1:first, 2:second, 3:third, 4:fourth, 5:fifth. Values are given in reverse order starting from the end of the month and have the meaning: 1=last, 2=last but one, 3=last but two, etc. For example, (...l12) means the last Monday at 0:00:00 a.m.
Hour	hnn	nn=0...23	Defines a particular hour within a particular day (if previously defined). When no day is specified, it means that every day is valid. The domain runs from 0 to 23. For example, (d12h6) means every twelfth day of a month at 6:00:00 a.m.
Minute	mnn	nn=0-59	Defines a particular minute within a particular hour (if previously defined). When no hour is defined, it means that any hour is valid. The domain runs from 0 to 59. For example, (d12h6m30) means every twelfth day of a month at 6:30:00 a.m.
Second	snn	nn=1...59	Defines a particular second within a particular minute (if previously defined). When no minute is specified, it means that any minute is valid. Nn domain is from 0 to 59. For example, (d12h6m30s52) means every twelfth day of a month at 6:30:52 a.m.

D.1.1.1 Valid Formats and Default Values

Starting Dates which are composed of several time units (e.g., 14 November 1991) are defined by placing the symbols sequentially in a hierarchical order. However, some constraints have to be taken into account. The combination possibilities are limited.

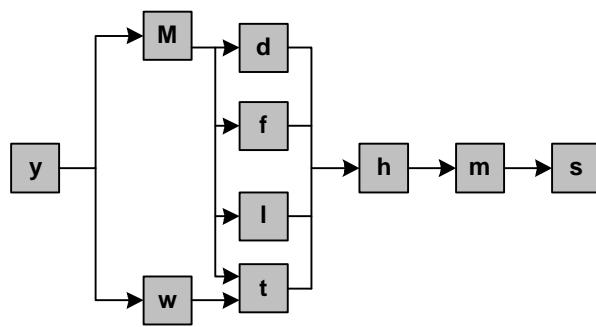


Figure D-1: Valid Symbol Combinations

If not all time type codes of a format combination are used (e.g., only a week and an hour are specified), default values are adopted for the undefined time units.

D.1.1.2 General Rule for Default Values

To find the default value for a particular time unit that is undefined in a Starting Date sequence, a distinction has to be made whether the missing time type code is a “final” one or not.

“Final” time type codes

For all time type codes that are missing at the end of a sequence, the default value is the lowest possible value (i.e., M1, w1, d1, h0, m0, s0). If no “Day” is specified (i.e., none of the “d,t,f,l” formats are used) within a defined year and/or month, the default time code and the default value is d1.

“Other” time type codes

If time type codes are missing at the beginning of a sequence or between defined time units, this means that all values of the missing time code are valid.

Examples: Examples for default values of undefined time units:

- (y1994t1): year 1994, any month/any week, each Sunday (t1), time 00:00:00 a.m.
- (w9h11m30): ninth week of any year, any day in this week, 11:30 a.m., 0 seconds
- (M4): any year, 1 April, time 00:00:00 a.m.
- (M4m33): any year, April, any day of April, any hour at 33 minutes and 0 seconds

D.2 Time Interval Syntax

The syntax specified in this section enables the description of intervals by means of a set of symbols representing the time interval units: year, month, week, day, hour, minute and second. Attached to a starting date, the interval constitutes a basic Time Domain. Without a starting date, it just indicates a duration.

The symbol is composed of an interval type code which indicates a particular time interval unit (e.g., y for year), and up to 2 digits, which are designated for the time interval values. If the very first time type code is preceded by a minus sign, it means that the duration is counted in the reverse order. The following table lists time interval unit types, their notation, valid values and substitutions.

Type	Notation	Value Domain nn=	Substitutions	Description
Year	ynn	1...99		Defines a duration of nn years. For example, [(y1991M11d14h5m30s19){y1}] means from 14 November 1991, 5:30:19 a.m. to 14 November 1992, 5:30:19 a.m. If there is no identical calendar date in the year in question, which occurs only for 29 February, “plus 1 year” leads to 28 February of the following year. Notice that {y1} = {M12}.
Month	Mnn	1...99	{M12} = {y1}	Defines a duration of nn months. For example, [(y1991M11d14h5m30s19){M3}] means from 14 November 1991, 5:31:19 a.m. to 14 February 1992, 5:30:19 a.m.
Week	wnn	1...99		Defines a duration of nn weeks, i.e., nn*7 days. For example, [(y1991M11d14h5m30s19){w2}] means from 14 November 1991 at 5:30:19 a.m. to 28 November 1991, 5:30:19 a.m. Notice that {w1} = {d7}.
Day	dnn	1...99	{d7} = {w1}	Defines a duration of nn days, i.e., nn*24 hours. For example, [(y1991M11d14h5m30s19){d2}] means from 14 November 1991 at 5:30:19 a.m. to 16 November 1991, 5:30:19 a.m. Notice that {d1} = {h24}.
Hour	hnn	1...99	{h24} = {d1}	Defines a duration of nn hours, i.e., nn*60 minutes. For example, [(y1991M11d14h5m30s19){h10}] means from 14 November 1991, 5:30:19 a.m. to 14 November 1991 at 3:30:19 p.m. Notice that {h1} = {m60}.
Minute	mnn	1...99	{m60} = {h1}	Defines a duration of nn minutes, i.e., nn*60 seconds. For example, [(y1991M11d14h5m30s19){m11}] means from 14 November 1991 at 5:30:19 a.m. to 14 November 1991 at 5:41:19 a.m. Notice that {m1} = {s60}.

Type	Notation	Value Domain nn=	Substitutions	Description
Second	snn	1...99	{s60} = {m1}	Defines a duration of nn seconds. For example, [(y1991M11d14h5m30s19){s21}] means from 14 November 1991 at 5:30:19 a.m. to 14 November 1991 at 5:30:40 a.m. Notice that {m1} = {s60}.

D.2.1 Valid Formats and Default Values

D.2.1.1 Combination of Periods

Time periods which are composed of several time interval units are represented by listing the individual symbols sequentially in hierarchical order:

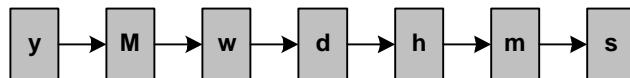


Figure D-2: Time Periods with Multiple Time Interval Units

The total time duration of a particular combination of symbols is the sum of all single time intervals. For example, {y2M1w2} means a period of 2 years, 1 month, and 2 weeks.

- A+B (OR)
- A*B (AND)
- A-B (A AND NOT B)
- A*(B+C) = (A*B)+(A*C)

Default Values

The default value for each missing time value type in a sequence of basic time intervals is 0 (zero).

D.3 Time Domain Examples

Example 1: "From 9 a.m. to 1 p.m. every day"

Starting date is any year, any month, any day, at 9:00:00 a.m.
(h9)

Duration is 4 hours.
{h4}

The complete expression becomes: [(h9){h4}]

Example 2: "From 19:30 to 22:00 every Friday in March"

Starting date is any year, March, any Friday at 7:30 p.m.
(M3t6h19m30)

Duration is 2 hours and 30 minutes.
{h2m30}

The complete expression becomes: [(M3t6h19m30){h2m30}]

Example 3: "Last 5 minutes before New Year 1992"

Starting date is 1 January 1992 at 0:00:00 a.m.
(y1992) implies 1 January at 0:00:00 a.m.

Duration is minus 5 minutes.
{-m5}

The complete expression becomes: [(y1992){-m5}]

D.4 Time Domain Combinations

D.4.1 General aspects

Since Time Domains can be considered as a set of the smallest time unit described here, the second, Time Domains may also be combined with set operations, such as:

- Union of sets notation: +
- Intersection of sets notation: *
- Subtraction of sets notation: -

Example

A shop is assumed to be “open to all users”: From 9:00 a.m. to 12:00 a.m. plus from 13:30 to 19:00 each day from Monday to Saturday, except each 1 May, last Tuesday of January for inventory reasons, and during August (holidays).

The way to code this is to attach the attribute “opening period” to the feature “shopping centre”. The opening period refers by means of a Time Domain ID to a corresponding Time Domain Record that contains all opening information.

Because of De Morgan's theorem, $A * (B + C) = (A * B) + (A * C)$, there are many different symbol combinations to represent the same complex Time Domain.

The example described above can be solved by the following combination of basic Time Domains.

“From 9:00 a.m. to 12:00 a.m.” is: $[(h9)\{h3\}]$

“From 13:30 to 19:00” is: $[(h13m30)\{h5m30\}]$

“From 9:00 a.m. to 12:00 a.m. and From 13:30 to 19:00” becomes:

$[(h9)\{h3\}] + [(h13m30)\{h5m30\}]$

Since this is valid only from Monday to Saturday, an intersection operation is required with the Time Domain “Any week from Monday to Saturday”, represented by:

$[(t2)\{d6\}]$

The expression now becomes:

$[[[(h9)\{h3\}] + [(h13m30)\{h5m30\}]] * [(t2)\{d6\}]]$

The restrictions are represented as follows:

“1 May every year”, which is represented as $[(M5d1)\{d1\}]$

“last Tuesday of January” which is represented as $[(M1l13)\{d1\}]$

“All days during August” which is represented as $[(M8)\{M1\}]$

The final expression then becomes:

[[[(h9){h3}] + [(h13m30){h5m30}]] * [(t2){d6}]]
-[{(M5d1){d1}}]
-[{(M1l13){d1}}]
-[{(M8){M1}}]

D.5 Daylight Saving Date/Time Representation in RDF

Daylight Saving Date/Time is represented by a single RDF time domain record in the following cases:

- the start date and end date are in the format of Day of the Month
- the start date or end date is not the last day of February
- the duration can be calculated without counting number of days of February

This is described in Example 1. Other cases are described in Examples 2-5.

Example 1: RDF start date or end date is in the format of a Day of the Month

From 10 February at 2 a.m. to 20 September at 2 a.m.

Starting date is any year, 10 February, at 2 a.m.
(M2d10h2)

Duration is 7 months
{M7d10}

So that the complete expression becomes:
[(M2d10h2){M7d10}]

Example 2: RDF start date or end date is in the format of Weekday

Note: RDF uses two sets of time domain. One set of time domain represents the period starting from the Daylight Savings Start Date/Time. The other set represents the period before the Daylight Savings End Date/Time, and then uses intersection operation to represent the exact daylight saving period.

From the last Sunday of February at 2 a.m. to the third Friday of September at 2 a.m.

Set 1: Eight months starting from the last Sunday of February at 2 a.m.

RDF starting date is any year, last Sunday of February at 2 a.m.
(M2l11h2)

Duration is 8 months
{M8}

So that the complete expression becomes:
[(M2l11h2){M8}]

Set 2: Eight months before the third Friday of September at 2 a.m.

RDF starting date is any year, third Friday of September at 2 a.m.
(M9f36h2)

Duration is minus 8 months
{-M8}

So that the complete expression becomes:
[(M9f36h2){-M8}]

The complete expression from the last Sunday of February at 2 a.m. to the third Friday of September at 2 a.m. is:
 $[(M2l11h2)\{M8\}^*[(M9f36h2)\{-M8\}]]$

Example 3: From the second Sunday of October at 2 a.m. to the last day of April at 2 a.m.

Set 1: Seven months starting from the second Sunday of October at 2 a.m.

RDF starting date is any year, the second Sunday of October, at 2 a.m.
 $(M10f21h2)$

Duration is 7 months
 $\{M7\}$

So that the complete expression becomes:
 $[(M10f21h2)\{M7\}]$

Set 2: Seven months before the last day of April at 2 a.m.

RDF starting date is any year, last day of April, at 2 a.m.
 $(M4d30h2)$

Duration is minus 7 months
 $\{-M7\}$

So that the complete expression becomes:
 $[(M4d30h2)\{-M7\}]$

The complete expression From the second Sunday of October at 2 a.m. to the last day of April at 2 a.m. is:

$[(M10f21h2)\{M7\}^*[(M4d1h2)\{-M7\}]]$

Start date is the last day of February

Note: RDF uses Union operation to union two sets of time domains. One set of time domain represents the period starting from March 1. The other set represents the day before March 1.

Example 4: From the last day of February at 2 a.m. to 5 May at 10 p.m.

Set 1: From the 1 March at 2 a.m. to May 5 at 10 p.m.

RDF starting date is any year, 1 March, at 2 a.m.
 $(M3d1h2)$

Duration is 2 months, 4 days, and 20 hours
 $\{M2d4h20\}$

So that the complete expression becomes:
 $[(M3d1h2)\{M2d4h20\}]$

Set 2: Last day before 1 March at 2 a.m.

RDF starting date is any year, 1 March, at 2 a.m.
 $(M3d1h2)$

Duration is minus 1 day
 $\{-d1\}$

So that the complete expression becomes:
[(M3d1h2){-d1}]

The complete expression From the last day of February at 2 a.m. to 5 May at 10 p.m. is:

[[((M3d1h2){M2d4h20})+ ((M3d1h2){-d1})]]

Example 5: End date is the last day of February

Note: RDF uses two sets of time domains. One set of time domain represents the end date is March 1. The other set represents the day of March 1. Then uses the subtraction operation to exclude the day of March 1.

From October 1 at 8 a.m. to the last day of February 8 a.m.

Set 1: From the 1 October at 8 a.m. to 1 March at 8 a.m.

RDF starting date is any year, 1 October, at 8 a.m.
(M10d1h8)

Duration is 5 months
{M5}

So that the complete expression becomes:
[(M10d1h8){M5}]

Set 2: Last day before 1 March at 8 a.m.

RDF starting date is any year, 1 March, at 8 a.m.
(M3d1h8)

Duration is minus 1 day
{-d1}

So that the complete expression becomes:
[(M3d1h8){-d1}]

The complete expression From 1 October at 8 a.m. to the last day of the February at 8 a.m. is:

[[((M10d1h8){M5})-((M3d1h8){-d1})]]

Example 6: The duration depending on the number of days in February

Note: RDF uses two sets of Time domains to make the generic time domain for all years. One set of time domain represents the duration by number of month and the other set represents the extra days included in the first set, then uses a subtraction operation to exclude the extra days.

From 10 October at 8 a.m. to 1 March at 8 a.m.

Set 1: From 10 October at 8 a.m. to 10 March at 8 a.m.

RDF starting date is any year, 10 October, at 8 a.m.
(M10d10h8)

Duration is 5 months
{M5}

So that the complete expression becomes:
[(M10d10h8){M5}]

Set 2: Nine days before 10 March at 8 a.m.

RDF starting date is any year, 10 March, at 8 a.m.
(M3d10h8)

Duration is minus 9 day
{-d9}

So that the complete expression becomes:
[(M3d10h8){-d9}]

The complete expression From 10 October at 8 a.m. to 1 March at 8 a.m. is:
[[{(M10d10h8){M5}}]-[{(M3d10h8){-d9}}]]

Permanent IDs

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E.1 Overview

This chapter contains information on permanent identifiers in the extracts. The specific areas covered include the following:

- Entities that have permanent IDs
- Numeric range of permanent IDs
- Rules for permanent IDs

E.2 Entities with Permanent IDs

Generally, the following Map Objects and entities have permanent IDs in the HERE Map products:

- Node
- Link
- Lane
- Face
- Point Features
- Administrative Areas (for Zones, Built-up Areas, Districts, and Administrative Areas)
- Complex Features (this includes Complex Administrative Area Features as well as Complex Intersections and Complex Roads)
- Sign Information
- Feature Names (e.g., road and ferry names)
- POI Chain Names
- Conditions

Permanent IDs are globally unique within a specific Object, e.g., a Link ID occurs once globally. However the same Permanent ID can be used among different Object types (e.g., Node, Link, condition, etc.).

The following are examples of permanent IDs in the RDF:

- Address Point ID
- Admin Place ID
- Association ID
- Building ID
- Carto ID
- Complex Feature ID
- Condition ID
- Country ID (which is one of the Admin Place IDs)
- Face ID
- Feature Point ID
- Lane ID
- Lane Nav Strand ID
- Link ID
- Name ID (with some exceptions)

- Nav Strand ID
- Node ID
- POI ID
- Road Link ID
- Sign ID
- Zone ID

E.3 Entities with Non Permanent IDs

The following, which are generated during product creation, are examples of non permanent IDs in the RDF:

- Address Range ID
- Admin Subregion ID
- Date Time ID
- Divider ID
- File ID
- Location ID
- Nav Strand ID
- Postal Area ID
- Road Name ID
- Sign Element ID
- Name IDs in RDF_FEATURE_NAME (e.g., IDs for Neighborhood Zones and for Super Category names)
- Road Link ID (IDs representing Actual Address Range road links)

E.4 Numeric Range of Permanent IDs

Map object IDs (PVIDs) in the extracts use 32-bit integer values to fit in a N(10) scheme.

Note: Exception to N(10) scheme can exist. For example, Lane ID is N(12) in length.

The entire range is divided as follows:

Range	Designation
0000000001 - 0016777215	Non-permanent IDs
0016777216 - 2147483647	Permanent IDs

The range dedicated to permanent IDs are used for any entity.

The range dedicated to non permanent IDs are used in rare situations where an update is made in a copy of the database instead of in the live database itself and this update results in a new ID. This new ID in the database copy would be in the non-permanent range. The update would also be applied into the live database and this update would receive a permanent ID available in the next scheduled release. A cross-reference is not provided between non-permanent IDs and the eventual permanent ID from the live database.

E.5 Rules for Permanent IDs

Creation of new permanent IDs follow some rules. These are contained in the table below:

Rule	Entities Affected
When a link is split, the original permanent ID is discarded and two new permanent IDs are created. The discarded ID is never used again. The existing Node IDs remain unchanged.	Link Linear Features - Road link - Ferry Connection - Administrative boundaries (e.g., City Boundary(9055), County Boundary (9056) and Built-Up Area Boundary (9057)) - Railway - Waterway
When two links are merged, one new permanent ID is created. The two old IDs are discarded and never used again. The remaining Node IDs stay the same.	Node
When a Node is moved, but the topology of the connected links and Nodes is unchanged, then the permanent ID is unchanged.	Point Feature (Service)
When a POI is moved from one link to another, then the permanent ID is unchanged. However, if a POI is deleted and later added again, the permanent ID will change.	Chain Name
When a POI Chain Name is changed, then the Chain Name PID is unchanged.	Chain Name
When two POI Chain Names are merged, then a new PID is created. For example, Daimler and Chrysler became DaimlerChrysler.	Chain Name

Table E-1

Lane Model

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F.1 Introduction

Lane Model provides more detailed lane specific attribute coding. It allows specifying attributes at lane level such as lane access characteristics, to identify lane with specific usages and publish lane specific restrictions.

F.2 Lane Information Processing

When compiling RDF, attention must be paid to the order in which the information is provided since each step overrides the one preceding. The logics can be summarised as follows:

Link:

1. Link base direction of travel and access characteristics
2. Link condition (DOTs and Access Characteristics)

Lane:

1. Lane base direction of travel and access characteristics
2. Lane condition (DOTs and Access Characteristics)

F.2.1 Processing Logics

Link information is processed first:

Step	Table	Description	Related Table
1	RDF_NAV_LINK	Provides direction of travel and access characteristics	RDF_ACCESS
2	RDF_CONDITION	Use the Link DOT and Access Characteristics	RDF_NAV_STRAND

Lane information is processed second:

Step	Table	Description	Related Table
1	RDF_LANE	Use the Lane Direction of Travel and Access Characteristics	None
2	RDF_CONDITION	Use the Lane DOT and Access Characteristics	RDF_LANE_NAV_STRAND

There are two exceptions for this process. These are:

- Reversible Roads, identifiable when RDF_LINK_ATTRIBUTE.REVERSIBLE = Y
- Specialised lane, identifiable as those lanes for which the Access ID of the link is greater than the Access ID specified by the *Lane Traversal* condition.

F.2.1.1 Reversible and Reversible HOV Roads

In case of reversible and reversible HOV roads (RDF_LINK_ATTRIBUTE.REVERSIBLE = Y), the lane direction of travel and access characteristics is ignored and the process becomes:

Step	Table	Description	Related Table
1	RDF_NAV_LINK	Provides direction of travel and access characteristics	RDF_ACCESS RDF_NAV_LINK_ATTRIBUTE
2	RDF_CONDITION	Use the Link DOT and Access Characteristics	RDF_NAV_STRAND
3	RDF_LANE	Ignore the Lane Direction of Travel and Access Characteristics	None
4	RDF_CONDITION	Use the Lane DOT and Access Characteristics	RDF_LANE_NAV_STRAND

F.2.1.2 Specialised Lanes

In case of specialised lanes, the process should not consider the Lane Access Characteristics and should instead use the Access Characteristics of the *Lane Traversal* condition.

Link information is processed first:

Step	Table	Description	Related Table
1	RDF_NAV_LINK	Provides direction of travel and access characteristics	RDF_ACCESS RDF_NAV_LINK_ATTRIBUTE
2	RDF_CONDITION	Link DOT and Access Characteristics	RDF_NAV_STRAND

Lane information is processed second:

Step	Table	Description	Related Table
1	RDF_LANE	Use the Lane Direction of Travel and Access Characteristics	None

Step	Table	Description	Related Table
2	RDF_CONDITION CONDITION_TYPE = 13	If <i>Lane Traversal</i> condition exists having the lane as source lane, override the Access Characteristics at step 1 with the access characteristics of the Lane Traversal condition.	RDF_LANE_NAV_STRAND RDF_ACCESS
3	RDF_CONDITION	Lane DOT and Access Characteristics	RDF_LANE_NAV_STRAND

F.3 Examples

F.3.1 Four-Lane Road (Non Reversible)

Link Processing:

1. Link base direction of travel and access characteristics:

Link ID 799407994 has four lanes in the negative direction of travel and four physical lanes in total.

LINK_ID	799407994
...	...
ACCESS_ID	1023
...	...
TRAVEL_DIRECTION	T
...	...
FROM_REF_NUM_LANES	(NULL)
TO_REF_NUM_LANES	4
PHYSICAL_NUM_LANES	4
...	...

The access characteristics in RDF_ACCESS table allow traffic to all vehicles.

ACCESS_ID	1023
AUTOMOBILES	Y
BUSES	Y
TAXIS	Y
CARPOOLS	Y
PEDESTRIANS	Y
TRUCKS	Y
DELIVERIES	Y
EMERGENCY_VEHICLES	Y
THROUGH_TRAFFIC	Y
MOTORCYCLES	Y

2. Link Conditions

No condition is applied at link level.

Lane Processing:

1. Lane base direction of travel and access characteristics is processed.

Lanes 1 through 4 are open to traffic in the negative direction of travel and allow traffic to all vehicles.

LANE_ID	21592940	21592939	21592938	21592937
LINK_ID	799407994	799407994	799407994	799407994
LANE_NUMBER	1	2	3	4
LANE_TRAVEL_DIRECTION	T	T	T	T
LANE_TYPE	1	1	1	1
ACCESS_ID	1023	1023	1023	1023
...				

ACCESS_ID	1023
AUTOMOBILES	Y
BUSES	Y
TAXIS	Y
CARPOOLS	Y
PEDESTRIANS	Y
TRUCKS	Y
DELIVERIES	Y
EMERGENCY_VEHICLES	Y
THROUGH_TRAFFIC	Y
MOTORCYCLES	Y

2. Lane conditions

No condition is applied at lane level.

Note: Lane information is processed after the link information is processed. In this situation, the Lane DOT and Access Characteristics, although overriding those of the link, do not change its basic setting.

F.3.2 Non Separately Digitised HOV Lane (Non Reversible)

Link Processing:

1. Link base direction of travel and access characteristics:

Link ID 883644879 has four lanes in the negative direction of travel and four physical lanes in total.

LINK_ID	883644879
...	...
ACCESS_ID	993
...	...
TRAVEL_DIRECTION	T
...	...
FROM_REF_NUM_LANES	(NULL)
TO_REF_NUM_LANES	4
PHYSICAL_NUM_LANES	4
...	...

The access characteristics in RDF_ACCESS table allow traffic to all vehicles.

ACCESS_ID	993
AUTOMOBILES	Y
BUSES	Y
TAXIS	Y
CARPOOLS	Y
PEDESTRIANS	Y
TRUCKS	N
DELIVERIES	Y
EMERGENCY_VEHICLES	Y
THROUGH_TRAFFIC	N
MOTORCYCLES	Y

2. Link conditions

No condition is applied at link level.

Lane Processing:

1. Lane base direction of travel and access characteristics is processed.

Lanes 1 through 4 are open to traffic in the negative direction of travel and allow traffic to all vehicles.

LANE_ID	23472281	23472283	23472285	23472287
LINK_ID	799407994	799407994	799407994	799407994
LANE_NUMBER	1	2	3	4
LANE_TRAVEL_DIRECTION	T	T	T	T
LANE_TYPE	1	1	1	2
ACCESS_ID	993	993	993	991
...				

ACCESS_ID	993
AUTOMOBILES	Y
BUSES	Y
TAXIS	Y
CARPOOLS	Y
PEDESTRIANS	Y
TRUCKS	N
DELIVERIES	Y
EMERGENCY_VEHICLE_S	Y
THROUGH_TRAFFIC	N
MOTORCYCLES	Y

2. Lane conditions are processed.

On Lane 4, an HOV Access Restriction condition (Condition Type 8) prohibits traffic at all times to all traffic except buses, pedestrians, EV and motorcycles.

LANE_NAV_STRAND_ID	23038250
SEQ_NUM	0
CONDITION_ID	700296297
LANE_ID	23472287
NODE_ID	<NULL>

CONDITION_ID	700296297
CONDITION_TYPE	8
NAV_STRAND_I	<NULL>
ACCESS_ID	668
ACCESS_ID	991
AUTOMOBILES	Y
BUSES	N
TAXIS	Y
CARPOOLS	N
PEDESTRIANS	N
TRUCKS	Y
DELIVERIES	Y
EMERGENCY_VEHICLE_S	N
THROUGH_TRAFFIC	Y
MOTORCYCLES	N

Note: Lane information is processed after the link information is processed. In this situation, the Lane DOT and access characteristics for Lane 4 override the basic link setting and identify the lane as an HOV lane.

F.3.3 Specialised Lane (Non Reversible)

Specialised lanes are lanes that are dedicated to some specific vehicles, e.g., bus lane, usually dedicated to buses, taxis and emergency vehicles, or motorcycles. These roads are typically represented as follows:

- The link is one way.
- *Direction of Travel* condition published at link level only specifies that the link is bidirectional for some vehicle types.

Link Processing:

1. Link base direction of travel and access characteristics

Link ID 833583704 has two lanes in the negative direction of travel and three physical lanes in total.

LINK_ID	833583704
...	...
ACCESS_ID	1023
...	...

TRAVEL_DIRECTION	T
...	...
FROM_REF_NUM_LANES	(NULL)
TO_REF_NUM_LANES	2
PHYSICAL_NUM_LANES	3
...	...

The access characteristics in RDF_ACCESS table allow traffic to all vehicles.

ACCESS_ID	1023
AUTOMOBILES	Y
BUSES	Y
TAXIS	Y
CARPOOLS	Y
PEDESTRIANS	Y
TRUCKS	Y
DELIVERIES	Y
EMERGENCY_VEHICLES	Y
THROUGH_TRAFFIC	Y
MOTORCYCLES	Y

2. Link conditions

A *Direction of Travel* condition applies to the link allowing access in both directions to Buses, Taxis and Emergency Vehicles.

Lane Processing:

1. Lane base direction of travel and Access Characteristics is processed.

Lanes 1 and 2 are open to traffic in the negative direction of travel; Lane 3 is open to traffic in the positive direction of travel.

LANE_ID	21813925	21813923	21951187
LINK_ID	833583704	833583704	833583704
LANE_NUMBER	1	2	3
LANE_TRAVEL_DIRECTION	T	T	F
LANE_TYPE	1	1	1

ACCESS_ID	1023	1023	1023
...			
ACCESS_ID			1023
AUTOMOBILES			Y
BUSES			Y
TAXIS			Y
CARPOOLS			Y
PEDESTRIANS			Y
TRUCKS			Y
DELIVERIES			Y
EMERGENCY_VEHICLES			Y
THROUGH_TRAFFIC			Y
MOTORCYCLES			Y

2. The *Lane Traversal* conditions (Condition Type 13) are used to override the Access Characteristics of Lane 3.

LANE_NAV_STRAND_ID	21797315	21797315	21797316	21797316	21946631	21946631
SEQ_NUM	0	1	0	1	0	1
CONDITION_ID	718035375	718035375	718035375	718035376	718750506	718750506
LANE_ID	21813925	21813926	21813923	21813927	21951187	21951188
NODE_ID	54028664 2	<NULL>	540286642	<NULL>	88666474 8	<NULL>
CONDITION_ID						
CONDITION_TYPE						
NAV_STRAND_ID						
ACCESS_ID						

The access characteristics for Lane 3 only allow traffic to buses, taxis and emergency vehicles.

ACCESS_ID	386	1023
AUTOMOBILES	N	Y
BUSES	Y	Y
TAXIS	Y	Y
CARPOOLS	N	Y

PEDESTRIANS	N	Y
TRUCKS	N	Y
DELIVERIES	N	Y
EMERGENCY_VEHICLES	Y	Y
THROUGH_TRAFFIC	N	Y
MOTORCYCLES	N	Y

3. Lane conditions

No condition is applied at lane level.

Note: Lane information is processed after the link information is processed. The Access Characteristics applicable to the *Lane Traversal* condition applied on Lane 3 overrides the Lane Access Characteristics since these are greater than the first. Lane 3 is therefore a one way (From Ref Node) and Lane 1 and 2 are one way in the opposite direction (To Ref Node).

F.3.4 Separately Digitised Reversible HOV Road

This type of road is usually represented as follows:

- The link is one way.
- *Direction of Travel* condition published at link level only specifies the direction of travel in given days/time of the day.
- *Access Characteristics* condition published at Link level only specify closure of the link in given days/time of the day.
- HOV Condition published at Link level specify closure of the link in given days/time of day with exception for HOV vehicles.
- The HOV Condition mentioned in the preceding bullet is replicated at lane level.

1. Link base direction of travel and access characteristics are taken from RDF_NAV_LINK and RDF_ACCESS table.

Link ID 895281600 has two lanes in the negative direction of travel and two physical lanes in total.

LINK_ID	895281574
...	...
ACCESS_ID	991
...	...
TRAVEL_DIRECTION	B
...	...
TRAVEL_DIRECTION	B
...	...

TO_REF_NUM_LANES2	2
PHYSICAL_NUM_LANES	2
...	...

The access characteristics in RDF_ACCESS table allow traffic to all vehicles.

ACCESS_ID	991
AUTOMOBILES	Y
BUSES	Y
TAXIS	Y
CARPOOLS	Y
PEDESTRIANS	N
TRUCKS	Y
DELIVERIES	Y
EMERGENCY_VEHICLES	Y
THROUGH_TRAFFIC	Y
MOTORCYCLES	Y

Based on RDF_NAV_LINK_ATTRIBUTE table, the link is an HOV reversible link.

LINK_ID	895281574
...	...
CARPOOL	Y
REVERSIBLE	Y
.....	

2. Two Direction of Travel conditions (Condition Type 5), one Access Restriction condition (Condition Type 8) and a Usage Fee condition (Condition Type 12) are present on the link.

CONDITION_ID	726051124	726051128	726051125	726051126
CONDITION_TYPE	5	5	8	12
NAV_STRAND_ID	8037040	11338020	8037042	8435434
ACCESS_ID	991	991	991	991

The DOT conditions provide the travel direction at specific time of the day/day of week. The access restriction provides information regarding the closure of the link. All conditions apply to all vehicle types.

The access characteristics in RDF_ACCESS table allow traffic to all vehicles.

3. Lane base direction of travel and access characteristics.

Lane travel direction in RDF_LANE and access characteristics in RDF_ACCESS are skipped because the link is a reversible link.

LANE_ID	23794097	23794098
LINK_ID	895281574	895281574
LANE_NUMBER	1	2
LANE_TRAVEL_DIRECTION	B	B
LANE_TYPE	1	1
ACCESS_ID	991	991
...		

The access characteristics in RDF_ACCESS table allow traffic to all vehicles.

ACCESS_ID	991
AUTOMOBILES	Y
BUSES	Y
TAXIS	Y
CARPOOLS	Y
PEDESTRIANS	N
TRUCKS	Y
DELIVERIES	Y
EMERGENCY_VEHICLES	Y
THROUGH_TRAFFIC	Y
MOTORCYCLES	Y

4. Lane HOV Access Restriction (Condition Type 8 are found that apply to both lanes.

The RDF_CONDITION and RDF_CONDITION_HOV tables specify the usage of the lane for HOV vehicles only.

CONDITION_ID	726051123	726051127
CONDITION_TYPE	8	8
NAV_STRAND_ID	<NULL>	<NULL>
ACCESS_ID	668	668

RDF_CONDITION_HOV

CONDITION_ID	726051123	726051127
MIN_PASSENGERS	2	2
HYBRID_CAR	N	N
MOTORCYCLE	Y	Y
ALTERNATE_FUEL_CARPPOOL	N	N
FEE_PAY_CARPPOOL	Y	Y

RDF_ACCESS

ACCESS_ID	668
AUTOMOBILES	Y
BUSES	N
TAXIS	Y
CARPOOLS	N
PEDESTRIANS	N
TRUCKS	Y
DELIVERIES	Y
EMERGENCY_VEHICLES	N
THROUGH_TRAFFIC	Y
MOTORCYCLES	N

Lane information is processed as a continuation of the Link information processed. The conditions on the lane are therefore overriding the overall Link/Lane setting. The lane is closed except HOV, Mon-Fri 5.45-11am & Midnight to 7pm & Sat-Sun all day. The Lanes are also open in negative direction to all but pedestrians Mon-Fri 5.45-11am and Open in positive direction to all but pedestrians Mon-Fri 12-7pm & Sat/Sun all day.

F.3.5 Bidirectional Road with Bicycle and Part-time Parking Lanes

Lanes 1 and 6 are drivable parking lanes Monday through Friday from 8:30 A.M. to 03:00 P.M. Access ID='719': Applicable to Automobiles, Taxis, Carpools, Deliveries, Emergency Vehicles, Through Traffic, and Motorcycles

Lane Numbers 2 and 5 are bicycle lanes.

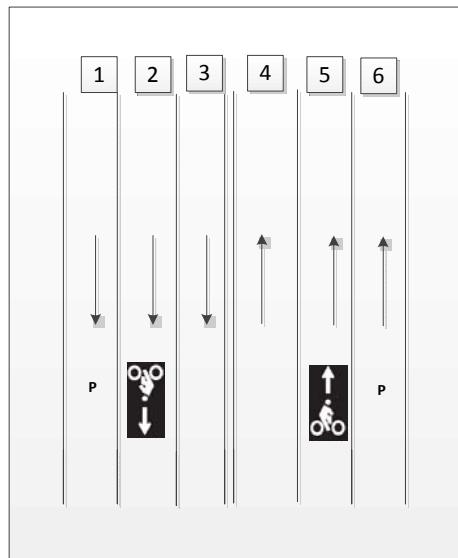


Figure F-1

The above lane configuration would be represented as follows:

RDF_LANE

LANE_ID	5012012544	5012012545	5012012546	5012012547	5012012548	5012012549
LINK_ID	364033408	364033408	364033408	364033408	364033408	364033408
LANE_NUMBER	1	2	3	4	5	6
LANE_TRAVEL_DIRECTION	T	T	T	F	F	F
LANE_TYPE	16384	65536	1	1	65536	16384
ACCESS_ID	719	0	1023	1023	0	719
AUTOMOBILES	Y	N	Y	Y	N	Y
BUSES	N	N	Y	Y	N	N
TAXIS	Y	N	Y	Y	N	Y
CARPOOLS	Y	N	Y	Y	N	Y
PEDESTRIANS	N	N	Y	Y	N	N
TRUCKS	N	N	Y	Y	N	N
DELIVERIES	Y	N	Y	Y	N	Y
EMERGENCY_VEHICLES	Y	N	Y	Y	N	Y
THROUGH_TRAFFIC	Y	N	Y	Y	N	Y
MOTORCYCLES	Y	N	Y	Y	N	Y

RDF_LANE (Continued)

LANE_DIVIDER_MARKER	3	3	(NULL)	3	3	(NULL)
CENTER_DIVIDER_MARKER	(NULL)	(NULL)	2	(NULL)	(NULL)	(NULL)
DIRECTION_CATEGORY	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
TRANSITION_AREA	N	N	N	N	N	N
LANE_FORMING_ENDING	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
FROM_SPEED_LIMIT	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
TO_SPEED_LIMIT	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
HEIGHT_RESTRICTION	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
WIDTH1	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
LANE_CROSSING_RESTRICTION	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)

RDF_CONDITION

LANE_ID	5012012544	5012012549
LINK_ID	364033408	364033408
CONDITION_ID	18287667	18287668
CONDITION_TYPE	8	8
NAV_STRAND_ID	(NULL)	(NULL)
ACCESS_ID	719	719

RDF_LANE_NAV_STRAND

LANE_NAVSTRAND_ID	123456789	234567891
CONDITION_ID	18287667	18287668
LANE_ID	5012012544	5012012549
SEQ_NUM	0	0
NODE_ID	(NULL)	(NULL)

RDF_CONDITION_DT

CONDITION_ID	18287667	18287667	18287668	18287668
DT_ID	523114825	523114826	523114825	523114826
SEQ_NUM	0	0	0	0

RDF_DATE_TIME

DT_ID	523114825	523114826
DATETIME_TYPE	1	1
FROM_END	N	N
EXCLUDE_DATE	N	N
START_DATE	XXXXX	XXXXX
END_DATE	(NULL)	(NULL)
START_TIME	1500	0
END_TIME	0	830

Lane Traversal condition (ConditionType=13) having ID 4033624 connects Lane 3 of road link 364033408 to Lane 1 of road link 374088491.

Lane Traversal condition (Condition_Type=13) having ID 4033625 connects Lane 4 of road link 364033408 to Lane 6 of road link 374088491.

RDF_CONDITION

CONDITION_ID	4033624	4033625
CONDITION_TYPE	13	13
NAV_STRAND_ID	(NULL)	(NULL)
ACCESS_ID	1023	1023

RDF_LANE_NAV_STRAND

LANE_NAVSTRAND_ID	123456789	234567891	3456789012	4567890123
CONDITION_ID	4033624	4033624	4033625	4033625
LANE_ID	5012012546	281	5012012547	286
SEQ_NUM	0	1	0	1
NODE_ID	12	(NULL)	23	(NULL)

Lane Records for road link 374088491 are as follows:

RDF_LANE

LANE_ID	281	282	283	284	285	286
LINK_ID	374088491	374088491	374088491	374088491	374088491	374088491
LANE_NUMBER	1	2	3	4	5	6
LANE_TRAVEL_DIRECTION	T	T	T	F	F	F
LANE_TYPE	16384	65536	1	1	65536	16384
ACCESS_ID	719	0	1023	1023	0	719
AUTOMOBILES	Y	N	Y	Y	N	Y
BUSES	N	N	Y	Y	N	N
TAXIS	Y	N	Y	Y	N	Y
CARPOOLS	Y	N	Y	Y	N	Y
PEDESTRIANS	N	N	Y	Y	N	N
TRUCKS	N	N	Y	Y	N	N
DELIVERIES	Y	N	Y	Y	N	Y
EMERGENCY_VEHICLES	Y	N	Y	Y	N	Y
THROUGH_TRAFFIC	Y	N	Y	Y	N	Y
MOTORCYCLES	Y	N	Y	Y	N	Y
LANE_DIVIDER_MARKER	3	3	(NULL)	3	3	(NULL)
CENTER_DIVIDER_MARKER	(NULL)	(NULL)	2	(NULL)	(NULL)	(NULL)
DIRECTION_CATEGORY	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
TRANSITION_AREA	N	N	N	N	N	N
LANE_FORMING_ENDING	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
FROM_SPEED_LIMIT	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
TO_SPEED_LIMIT	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
HEIGHT_RESTRICTION	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
WIDTH ¹	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
LANE_CROSSING_RESTRICTION	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)

1. Standard Width information for lanes is provided in the *HERE Country Profile* documentation.

Information Processing

The Link matrices begin with the link closed to all access characteristics.

Vehicle Type/Through Traffic	Travel Direction
Auto	N
Bus	N
Taxi	N
HOV	N
Pedestrian	N
Motorcycle	N
Trucks	N
Delivery	N
Emergency Vehicle	N
Through Traffic	N

Link 364033408 is bidirectional for all access characteristics.

Vehicle Type/Through Traffic	Travel Direction
Auto	B
Bus	B
Taxi	B
HOV	B
Pedestrian	B
Motorcycle	B
Trucks	B
Delivery	B
Emergency Vehicle	B
Through Traffic	B

The Lane Element matrices for Lane 1 with Lane ID 5012012544 (Parking Lane) begin with the Lane closed for all access characteristics. This is the same for all first matrices for processing any link or lane element information.

The lane's basic access characteristics set the lane open in the negative direction for Automobiles, Taxis, Carpools, Motorcycles, Deliveries, Emergency Vehicles and Through Traffic.

Vehicle Type/Through Traffic	Travel Direction
Auto	T
Bus	N
Taxi	T
HOV	T
Pedestrian	N
Motorcycle	N
Trucks	T
Delivery	T
Emergency Vehicle	T
Through Traffic	T

The Access Restriction condition (Condition ID 18287667) closes the lane to Automobiles, Taxis, Carpools, Motorcycles, Deliveries, Emergency Vehicles and Through Traffic at specific times.

Vehicle Type/Through Traffic	Mon-Fri 8:30 AM - 03:00 PM
Auto	N
Bus	N
Taxi	N
HOV	N
Pedestrian	N
Motorcycle	N
Trucks	N
Delivery	N
Emergency Vehicle	N
Through Traffic	N

The Lane Element matrices for Lane 2 with Lane ID 5012012545 (Bicycle Lane) begin with the lane closed to all access characteristics. This is the same for all first matrices for processing any link or lane element information.

The lane's basic access characteristics is ACCESS_ID = '0', the lane is closed in both directions for all

access characteristics. The Lane Travel Direction is open in the negative direction only for bicycles (*Lane Type* = 131072 (Bicycle Lane)) since the Access ID = '0'.

Vehicle Type/Through Traffic	Travel Direction
Auto	N
Bus	N
Taxi	N
HOV	N
Pedestrian	N
Motorcycle	N
Trucks	N
Delivery	N
Emergency Vehicle	N
Through Traffic	N

The Lane Element matrices for Lane 3 with Lane ID 5012012546 (Regular Lane) begin with the Lane closed to all access characteristics. This is the same for all first matrices for processing any link or lane element information.

The lane's basic access characteristics is ACCESS_ID = '1023', the lane is open in the negative direction for all access characteristics.

Vehicle Type/Through Traffic	Travel Direction
Auto	T
Bus	T
Taxi	T
HOV	T
Pedestrian	T
Motorcycle	T
Trucks	T
Delivery	T
Emergency Vehicle	T
Through Traffic	T

The Lane Element matrices for Lane 4 with Lane ID 5012012547 (Regular Lane) begin with the lane closed to all access characteristics. This is the same for all first matrices for processing any link or lane element information.

The Lane's basic access characteristics is ACCESS_ID = '1023', the lane is open in the positive direction for all access characteristics.

Vehicle Type/Through Traffic	Travel Direction
Auto	F
Bus	F
Taxi	F
HOV	F
Pedestrian	F
Motorcycle	F
Trucks	F
Delivery	F
Emergency Vehicle	F
Through Traffic	F

The Lane Element matrices for Lane 5 with Lane ID 5012012548 (Bicycle Lane) begin with the Lane closed to all access characteristics. This is the same for all first matrices for processing any link or lane element information.

The lane's basic access characteristics is ACCESS_ID = '0', the lane is closed in both directions for all access characteristics. The Lane Travel Direction is open in the positive direction only for bicycles (Lane Type = 131072 (Bicycle Lane)) since the Access ID = '0'.

Vehicle Type/Through Traffic	Travel Direction
Auto	N
Bus	N
Taxi	N
HOV	N
Pedestrian	N
Motorcycle	N
Trucks	N
Delivery	N

Vehicle Type/Through Traffic	Travel Direction
Emergency Vehicle	N
Through Traffic	N

The Lane Element matrices for Lane 6 with Lane ID 5012012549 (Parking Lane) begin with the Lane closed to all access characteristics. This is the same for all first matrices for processing any link or lane element information.

The Lane's basic access characteristics set the lane open in the positive direction for Automobiles, Taxis, Carpools, Motorcycles, Deliveries, Emergency Vehicles and Through Traffic.

Vehicle Type/Through Traffic	Travel Direction
Auto	F
Bus	N
Taxi	F
HOV	F
Pedestrian	N
Motorcycle	N
Trucks	F
Delivery	F
Emergency Vehicle	F
Through Traffic	F

The Access Restriction condition (Condition ID 18287667) closes the lane to Automobiles, Taxis, Carpools, Motorcycles, Deliveries, Emergency Vehicles and Through Traffic at specific times.

Vehicle Type/Through Traffic	Travel Direction
Auto	N
Bus	N
Taxi	N
HOV	N
Pedestrian	N
Motorcycle	N
Trucks	N

Vehicle Type/Through Traffic	Travel Direction
Delivery	N
Emergency Vehicle	N
Through Traffic	N

F.3.6 Acceleration Lane

Lane 3 is an acceleration lane onto a one-way surface street (see *Figure F-2*)

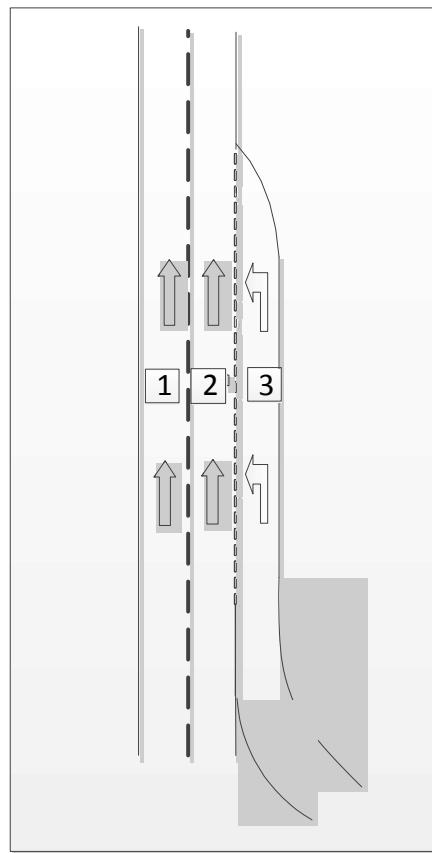


Figure F-2

The above lane configuration would be represented as follows:

RDF_LANE

LANE_ID	5012012521	5012012522	5012012523
LINK_ID	123456789	123456789	123456789
LANE_NUMBER	1	2	3

RDF_LANE (Continued)

LANE_TRAVEL_DIRECTION	T	T	T
LANE_TYPE	1	1	16
ACCESS_ID	1023	1023	1023
AUTOMOBILES	Y	Y	Y
BUSES	Y	Y	Y
TAXIS	Y	Y	Y
CARPOOLS	Y	Y	Y
PEDESTRIANS	Y	Y	Y
TRUCKS	Y	Y	Y
DELIVERIES	Y	Y	Y
EMERGENCY_VEHICLES	Y	Y	Y
THROUGH_TRAFFIC	Y	Y	Y
MOTORCYCLES	Y	Y	Y
LANE_DIVIDER_MARKER	1	6	(NULL)
CENTER_DIVIDER_MARKER	(NULL)	(NULL)	(NULL)
DIRECTION_CATEGORY	1	1	128
TRANSITION_AREA	N	N	N
LANE_FORMING_ENDING	(NULL)	(NULL)	3
FROM_SPEED_LIMIT	(NULL)	(NULL)	(NULL)
TO_SPEED_LIMIT	(NULL)	(NULL)	(NULL)
HEIGHT_RESTRICTION	(NULL)	(NULL)	(NULL)
WIDTH	(NULL)	(NULL)	(NULL)
LANE_CROSSING_RESTRICTIO N	(NULL)	(NULL)	(NULL)

F.3.7 Shoulder Lane

Lane 1 of Link ID 345678901 and lane 3 of Link ID 345678902 are shoulder lanes. Lane 1 of Link ID 345678901 is designated as a part-time driving lane, but times are not specified. Lane 3 of Link ID 345678902 is designated as a part-time driving lane (Mon - Fri, 6:30 A.M.- 9:30 A.M.)

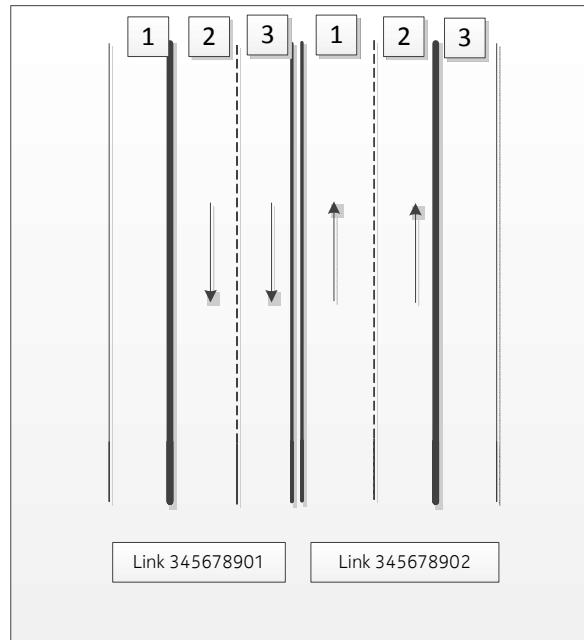


Figure F-3

The above lane configuration would be represented as follows:

RDF_LANE

LANE_ID	5012012514	5012012515	5012012516	5012012517	5012012518	5012012519
LINK_ID	345678901	345678901	345678901	345678902	345678902	345678902
LANE_NUMBER	1	2	3	1	2	3
LANE_TRAVEL_DIRECTION	T	T	T	F	F	F
LANE_TYPE	512	1	1	1	1	512
ACCESS_ID	991	991	991	991	991	991
AUTOMOBILES	Y	Y	Y	Y	Y	Y
BUSES	Y	Y	Y	Y	Y	Y
TAXIS	Y	Y	Y	Y	Y	Y
CARPOOLS	Y	Y	Y	Y	Y	Y
PEDESTRIANS	N	N	N	N	N	N
TRUCKS	Y	Y	Y	Y	Y	Y
DELIVERIES	Y	Y	Y	Y	Y	Y
EMERGENCY_VEHICLES	Y	Y	Y	Y	Y	Y
THROUGH_TRAFFIC	Y	Y	Y	Y	Y	Y

RDF_LANE (Continued)

MOTORCYCLES	Y	Y	Y	Y	Y	Y
LANE_DIVIDER_MARKER	3	1	(NULL)	1	3	(NULL)
CENTER_DIVIDER_MARKER	(NULL)	(NULL)	2	(NULL)	(NULL)	(NULL)
DIRECTION_CATEGORY	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
TRANSITION_AREA	N	N	N	N	N	N
LANE_FORMING_ENDING	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
FROM_SPEED_LIMIT	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
TO_SPEED_LIMIT	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
HEIGHT_RESTRICTION	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
WIDTH ¹	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
LANE_CROSSING_RESTRICTION	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)

1. Standard Width information for lanes is provided in the *HERE Country Profile* documentation.

RDF_CONDITION

LANE_ID	5012012514
LINK_ID	345678901
CONDITION_ID	18287655
CONDITION_TYPE	8
NAV_STRAND_ID	(NULL)
ACCESS_ID	991

RDF_LANE_NAV_STRAND

LANE_NAVSTRAND_ID	123456789
CONDITION_ID	18287655
LANE_ID	5012012514
SEQ_NUM	0
NODE_ID	(NULL)

RDF_CONDITION_ACCESS

CONDITION_ID	18287655
SEASONAL_CLOSURE	(NULL)

RDF_CONDITION_ACCESS (Continued)

TIME_OVERRIDE	(NULL)
DEPENDENT_ACCESS_TYPE	1

RDF_CONDITION

LANE_ID	5012012519
LINK_ID	345678902
CONDITION_ID	18287656
CONDITION_TYPE	8
NAV_STRAND_ID	(NULL)
ACCESS_ID	991
RDF_LANE_NAV_STRAND	
LANE_NAVSTRAND_ID	123456789
CONDITION_ID	18287656
LANE_ID	5012012519
SEQ_NUM	0
NODE_ID	(NULL)

RDF_CONDITION_DT

CONDITION_ID	18287656	18287656
DT_ID	523114827	523114828
SEQ_NUM	0	0

RDF_DATE_TIME

DT_ID	523114827	523114828
DATETIME_TYPE	1	1
FROM_END	N	N
EXCLUDE_DATE	N	N
START_DATE	XXXXX	XXXXX
END_DATE	(NULL)	(NULL)
START_TIME	930	0
END_TIME	0	630

Road Link and Lane Information Processing

The Link matrices begin with the link closed to all access characteristics.

Vehicle Type/Through Traffic	Travel Direction
Auto	N
Bus	N
Taxi	N
HOV	N
Pedestrian	N
Motorcycle	N
Trucks	N
Delivery	N
Emergency Vehicle	N
Through Traffic	N

Link 345678901 is open in the negative direction for all access characteristics except Pedestrians (ACCESS_ID = '991').

Vehicle Type/Through Traffic	Travel Direction
Auto	T
Bus	T
Taxi	T
HOV	T
Pedestrian	N
Motorcycle	T
Trucks	T
Delivery	T
Emergency Vehicle	T
Through Traffic	T

The Lane Element matrices for Lane 1 with Lane ID 5012012514 (Shoulder Lane) begins with the Lane closed to all access characteristics. This is the same for all first matrices for processing any link or lane element information.

The Lanes' basic access characteristics are ACCESS_ID = '991', the lanes are open in the negative direction to all access characteristics except Pedestrians.

Vehicle Type/Through Traffic	Travel Direction
Auto	T
Bus	T
Taxi	T
HOV	T
Pedestrian	N
Motorcycle	T
Trucks	T
Delivery	T
Emergency Vehicle	T
Through Traffic	T

The condition access restriction of Condition ID 18287655 closes the lane to all access characteristics but times are not known (DEPENDENT_ACCESS_TYPE=1)

Vehicle Type/Through Traffic	Travel Direction
Auto	N
Bus	N
Taxi	N
HOV	N
Pedestrian	N
Motorcycle	N
Trucks	N
Delivery	N
Emergency Vehicle	N
Through Traffic	N

The Lane Element matrices for Lanes 2 and 3 with Lane IDs 5012012515 and 5012012516 (Regular Lanes) begin with the Lanes closed to all access characteristics. This is the same for all first matrices for processing any link or lane element information.

The Lanes' basic access characteristics are ACCESS_ID = '991', the lanes are open in the negative direction to all access characteristics except Pedestrians.

Vehicle Type/Through Traffic	Travel Direction
Auto	T
Bus	F
Taxi	F
HOV	F
Pedestrian	N
Motorcycle	F
Trucks	F
Delivery	F
Emergency Vehicle	F
Through Traffic	F

The Link matrices for Link ID 345678902 begin with the link closed to all access characteristics. This is the same for all first matrices for processing any link or lane element information.

Link 345678902 is open in the positive direction for all access characteristics except Pedestrians (ACCESS_ID = '991').

Vehicle Type/Through Traffic	Travel Direction
Auto	F
Bus	F
Taxi	F
HOV	N
Pedestrian	F
Motorcycle	F
Trucks	F
Delivery	F
Emergency Vehicle	F
Through Traffic	F

The Lane Element matrices for Lanes 1 and 2 with Lane IDs 5012012517 and 5012012518 (Regular Lanes) begin with the Lanes closed to all access characteristics. This is the same for all first matrices for processing any link or lane element information.

The Lanes' basic access characteristics are ACCESS_ID = '991', the lanes are open in the positive direction to all access characteristics except Pedestrians.

Vehicle Type/Through Traffic	Travel Direction
Auto	F
Bus	F
Taxi	F
HOV	N
Pedestrian	F
Motorcycle	F
Trucks	F
Delivery	F
Emergency Vehicle	F
Through Traffic	F

The Lane Element matrix for Lane 3 with Lane ID 5012012519 (Shoulder Lane) begin with the lane closed to all access characteristics. This is the same for all first matrices for processing any link or lane element information.

The Lanes' basic access characteristics are ACCESS_ID = '991', the lanes are open in the positive direction to all access characteristics except Pedestrians.

Vehicle Type/Through Traffic	Travel Direction
Auto	T
Bus	T
Taxi	T
HOV	N
Pedestrian	T
Motorcycle	T
Trucks	T
Delivery	T
Emergency Vehicle	T
Through Traffic	T

The condition access restriction of Condition ID 18287656 closes the lane to all access characteristics except Pedestrians at specific times.

Vehicle Type/Through Traffic	Travel Direction
Auto	N
Bus	N
Taxi	N
HOV	N
Pedestrian	N
Motorcycle	N
Trucks	N
Delivery	N
Emergency Vehicle	N
Through Traffic	N

F.3.8 Variable Driving Lane

Lane 3 is a variable driving lane (buses and trucks and pedestrians are not allowed).

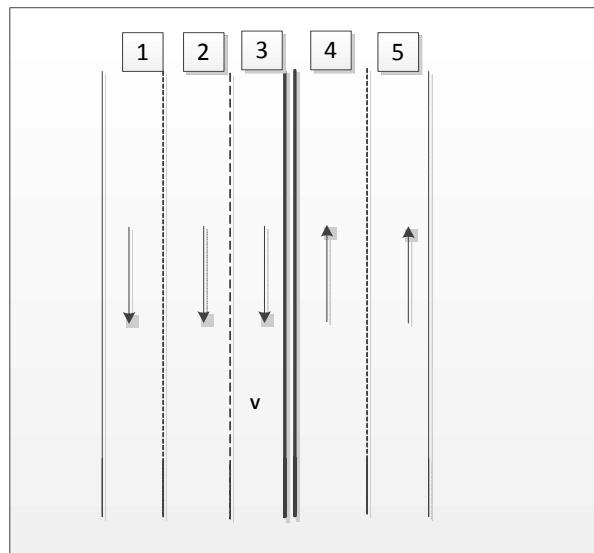


Figure F-4

The lane configuration described above would be represented as follows:

RDF_LANE

LANE_ID	5012012561	5012012562	5012012563	5012012564	5012012565
LINK_ID	456789012	456789012	456789012	456789012	456789012
LANE_NUMBER	1	2	3	4	5
LANE_TRAVEL_DIRECTION	T	T	T	F	F
LANE_TYPE	1	1	32768	1	1
ACCESS_ID	1023	1023	719	1023	1023
AUTOMOBILES	Y	Y	Y	Y	Y
BUSES	Y	Y	N	Y	Y
TAXIS	Y	Y	Y	Y	Y
CARPOOLS	Y	Y	Y	Y	Y
PEDESTRIANS	Y	Y	N	Y	Y
TRUCKS	Y	Y	N	Y	Y
DELIVERIES	Y	Y	Y	Y	Y
EMERGENCY_VEHICLES	Y	Y	Y	Y	Y
THROUGH_TRAFFIC	Y	Y	Y	Y	Y
MOTORCYCLES	Y	Y	Y	Y	Y
LANE_DIVIDER_MARKER	6	1	(NULL)	6	(NULL)
CENTER_DIVIDER_MARKER	(NULL)	(NULL)	2	(NULL)	(NULL)
DIRECTION_CATEGORY	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
TRANSITION_AREA	N	N	N	N	N
LANE_FORMING_ENDING	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
FROM_SPEED_LIMIT	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
TO_SPEED_LIMIT	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
HEIGHT_RESTRICTION	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
WIDTH1	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)
LANE_CROSSING_RESTRICTION	(NULL)	(NULL)	(NULL)	(NULL)	(NULL)

RDF_CONDITION

LANE_ID	5012012563
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RDF_CONDITION

LINK_ID	456789012
CONDITION_ID	18287675
CONDITION_TYPE	8
NAV_STRAND_ID	(NULL)
ACCESS_ID	719

RDF_LANE_NAV_STRAND

LANE_NAVSTRAND_ID	123456789
CONDITION_ID	18287675
LANE_ID	5012012563
SEQ_NUM	0
NODE_ID	(NULL)

RDF_CONDITION_ACCESS

CONDITION_ID	18287675
SEASONAL_CLOSURE	(NULL)
TIME_OVERRIDE	(NULL)
DEPENDENT_ACCESS_TYPE	1

Road Link and Lane Information Processing

The Link matrices begin with the link closed to all access characteristics.

Vehicle Type/Through Traffic	Travel Direction
Auto	N
Bus	N
Taxi	N
HOV	N
Pedestrian	N
Motorcycle	N
Trucks	N
Delivery	N
Emergency Vehicle	N

Vehicle Type/Through Traffic	Travel Direction
Through Traffic	N

Link 456789012 is bidirectional for all access characteristics.

Vehicle Type/Through Traffic	Travel Direction
Auto	B
Bus	B
Taxi	B
HOV	B
Pedestrian	B
Motorcycle	B
Trucks	B
Delivery	B
Emergency Vehicle	B
Through Traffic	B

The Lane Element matrices for Lanes 1 and 2 with Lane IDs 5012012561 and 5012012562 (Regular Lanes) begin with the Lanes closed to all access characteristics. This is the same for all first matrices for processing any link or lane element information.

The Lanes' basic access characteristics are ACCESS_ID = '1023', the lanes are open in the negative direction to all access characteristics.

Vehicle Type/Through Traffic	Travel Direction
Auto	T
Bus	T
Taxi	T
HOV	T
Pedestrian	T
Motorcycle	T
Trucks	T
Delivery	T

Vehicle Type/Through Traffic	Travel Direction
Emergency Vehicle	T
Through Traffic	T

The Lane Element matrices for Lane 3 with Lane ID 5012012563 (Variable Driving Lane) begin with the Lane closed to all access characteristics. This is the same for all first matrices for processing any link or lane element information.

Vehicle Type/Through Traffic	Travel Direction
Auto	T
Bus	N
Taxi	T
HOV	T
Pedestrian	N
Motorcycle	N
Trucks	T
Delivery	T
Emergency Vehicle	T
Through Traffic	T

The condition access restriction of Condition ID 18287675 closes the lane to all access characteristics but times are not known (DEPENDENT_ACCESS_TYPE=1)

Vehicle Type/Through Traffic	Travel Direction
Auto	N
Bus	N
Taxi	N
HOV	N
Pedestrian	N
Motorcycle	N
Trucks	N
Delivery	N

Vehicle Type/Through Traffic	Travel Direction
Emergency Vehicle	N
Through Traffic	N

The Lane Element matrices for Lane 4 and 5 with Lane IDs 5012012564 and 5012012565 (Regular Lanes) begin with the Lanes closed to all access characteristics. This is the same for all first matrices for processing any link or lane element information.

The Lanes' basic access characteristics are ACCESS_ID = '1023', the lanes are open in the positive direction to all access characteristics.

Vehicle Type/Through Traffic	Travel Direction
Auto	F
Bus	F
Taxi	F
HOV	F
Pedestrian	F
Motorcycle	F
Trucks	F
Delivery	F
Emergency Vehicle	F
Through Traffic	F

Revision History

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RH.1 Changes Made for Q4-2012

Version	Date	Page #	Description
12.04	01-10-12	4-4	Updated specifications for Separate Digitisation
12.04	01-10-12	4-42	Updated Route Types for the following: Bulgaria, Canada, China, Israel, Kosovo, Latvia, Former Yugoslav Rep of Macedonia, Portugal, Saudi Arabia, South Korea, Taiwan, Turkey, and Ukraine. Added Kenya & Mozambique.
12.04	01-10-12	5-24	Added Kenya & Mozambique.
12.04	01-10-12	6-11	Added: Toll Structure vs. Usage Fee Required
12.04	01-10-12	7-17	Added Kenya & Mozambique.
12.04	01-10-12	8-10 thru 14	Added Kenya & Mozambique.
12.04	01-10-12	8-64	Added Shopping Centre to table for Expanded Inclusion.
12.04	01-10-12	9-38	Added Kenya & Mozambique.
12.04	01-10-12	9-53 thru 54	Added Kenya & Mozambique.
12.04	01-10-12	10-2	Updated ERD Geometry Model: added VIRTUAL_CONNECTION
12.04	01-10-12	10-5	Updated ERD for Road Attributing Model: added PEDESTRIAN_PREFERRED and STAIR_TRAVERSAL
12.04	01-10-12	10-67	Corrected EBU_COUNTRY_CODE from CHAR(5) to CHAR(1)
12.04	01-10-12	10-74	Updated table RDF_NAV_LINK table: added PEDESTRIAN_PREFERRED
12.04	01-10-12	10-75	Added STAIR_TRAVERSAL to Table: RDF_NAV_LINK_ATTRIBUTE
12.04	01-10-12	10-97	Added Table: RDF_VIRTUAL_CONNECTION
12.04	01-10-12	19-20	Added section for Transit and Pedestrian.
12.04	01-10-12	22-1 thru 8	Updated product name to Transit & Pedestrian; added the following sections: Pedestrian Preferred, Stair Traversal, Connection Type, and Time Override.
12.04	01-10-12	23-91	Updated RDF_NAV_LINK Table: added PEDESTRIAN_PREFERRED
12.04	01-10-12	23-151	Added Table: RDF_VIRTUAL_CONNECTION

RH.2 Changes Made for Q1-2013

Version	Date	Page #	Description
13.01	01-01-13	2-6, 19	Added Limited Access Road to inclusion list.
13.01	01-01-13	4-18	Updated table: added Address Format 1 for the Philippines.
13.01	01-01-13	4-50	Updated table: updated Route Type for Portugal; added SCT representation for Serbia.
13.01	01-01-13	4-60	Updated specifications for Speed Category on Ramps.
13.01	01-01-13	4-63	Added Limited Access Road as related attribute to Controlled Access.
13.01	01-01-13	4-66 thru 67	Added section for Limited Access Road.
13.01	01-01-13	5-8	Updated Saudi Arabia.
13.01	01-01-13	5-10	Added Brunei to table.
13.01	01-01-13	5-17 thru 18	Simplified Exonym inclusion table.
13.01	01-01-13	7-20	Updated sectioning level for West Bank.
13.01	01-01-13	8-10	Updated rules for beach polygons.
13.01	01-01-13	8-21	Updated level 1 and 2 descriptions for West Bank.
13.01	01-01-13	8-37	Removed: All polygons are unnamed.
13.01	01-01-13	8-43	Simplified Exonym inclusion table.
13.01	01-01-13	9-55	Updated Capital Indicator inclusion for Saudi Arabia.
13.01	01-01-13	10-5	Updated Road Attributing Model: added Limited Access Road to RDF_NAV_LINK table.
13.01	01-01-13	10-73	Added Limited Access Road to RDF_NAV_LINK table.
13.01	01-01-13	10-123	Added to the ADAS_LINK_GEOMETRY: "Because of the addition of vertical shape points in the ADAS products, to enable Absolute Height coding, the number of shape points per link may exceed the maximum amount of shape points for regular products (490 shape points per link). Therefore a link in ADAS_LINK_GEOMETRY may have more than 490 Shape Points."
13.01	01-01-13	11-8	Updated characters for MOL and RUM languages.
13.01	01-01-13	11-19	Updated Floating Geometry to Y (allowed) for I3.
13.01	01-01-13	11-20 thru 21	Added Georgia, Senegal, Mali, Niger, and Tunisia to table.
13.01	01-01-13	16-1	Updated inclusion for Distance Markers.

Revision History

Version	Date	Page #	Description
13.01	01-01-13	18-5 thru 8	Added Jordan, Lebanon, Malta, Panama and Ukraine.
13.01	01-01-13	18-21	Updated rules for the placement of Route Guidance Points.
13.01	01-01-13	22-2	Updated bullet 2 of rules for Pedestrian Preferred.
13.01	01-01-13	23-93	Added Limited Access Road to table.

RH.3 Changes Made for Q2-2013

Version	Date	Page #	Description
13.02	01-04-13	2-19, 28, 40	Added Taiwan to Diesel inclusion
13.02	01-04-13	3-3	Added maximum length for link:10km/602 miles
13.02	01-04-13	4-121	Updated rules for Speed Categories on ramps.
13.02	01-04-13	6-130	Updated Junction View inclusion: A Junction View Image is included for all the junctions that are within 250 metres.
13.02	01-04-13	9-4 thru 20	Added the following sections: General Rules, Placement of POIs, Naming of Complex POIs, and Land Cover or Administrative Area vs. POI Inclusion.
13.02	01-04-13	9-20	Updated inclusion for Airports.
13.02	01-04-13	9-32	Updated inclusion for Ferry Terminals.
13.02	01-04-13	9-48	Updated inclusion for Rest Area POI.
13.02	01-04-13	9-49	Updated inclusion for Shopping POI.
13.02	01-04-13	9-53	Added section for Taxi Stand.
13.02	01-04-13	9-60 thru 68	Updated Actual Address Format for Russia and Thailand.
13.02	01-04-13	9-77 thru 80	Updated Capital Indicator for Taiwan.
13.02	01-04-13	Ch 10	Removed ERD for Selection Clipper Configuration Model. Removed section for Selection Clipper Tables.
13.02	01-04-13	11-6	Added a Note to clarify 1:M relationship between a native name and its transliterations.
13.02	01-04-13	12-22 thru 27	Updated tables. Removed examples for Parking Lot Road; Parking Lot Road is no longer a premium content. Updated description for PREMIUM_CONTENT_PACKAGE: TaP
13.02	01-04-13	Appx-A	Added Appendix A: Naming Rules.
13.02	01-04-13	B-60	Removed Values from Hazardous Material Type attribute: 25, 26, 27, 29, 30, 31, 33.

RH.4 Changes Made for Q3-2013

Version	Date	Page #	Description
13.03	01-07-13		Formatted document to HERE style.
13.03	01-07-13	2-12	Added Variable Speed Applicable condition to list.
13.03	01-07-13	4-70	Updated specifications for Carpool to account for new rules for HOT and ETL lanes.
13.03	01-07-13	4-81	Updated specifications for Express to account for new rules for HOT and ETL lanes.
13.03	01-07-13	6-66	Added section for Variable Speed Sign ID.
13.03	01-07-13	6-70	Updated specifications for Usage Fee Required to account for new rules for HOT and ETL lanes.
13.03	01-07-13	8-52	Added Island and lake to table for Expanded Inclusion table.
13.03	01-07-13	10-8	Updated ERD for Road Attribution: added VSS_ID and DIRECTION to RDF_CONDITION_SPEED table.
13.03	01-07-13	10-18	Resupplied section for Selection Clipper Tables. Note: The Selection Clipper software has been discontinued, but RDF continues to publish Metadata tables for Selective Clipper: SC_PRODUCT, SC_PRODUCT_SELECTION, SC_PRODUCT_CARTO, SC_SELECTION, SC_PRODUCT_EXCEPTION and SC_STATS_TABLE_ROW_COUNT.
13.03	01-07-13	10-31	Updated RDF_ANNOTATION table: ADMIN_PLACE_ID to Nullable.
13.03	01-07-13	10-60	Added VSS_ID and DIRECTION to RDF_CONDITION_SPEED table.
13.03	01-07-13	10-154 thru 156	Resupplied Selection Clipper Tables. Note: The Selection Clipper software has been discontinued, but RDF continues to publish Metadata tables for Selective Clipper: SC_PRODUCT, SC_PRODUCT_SELECTION, SC_PRODUCT_CARTO, SC_SELECTION, SC_PRODUCT_EXCEPTION and SC_STATS_TABLE_ROW_COUNT.
13.03	01-07-13	B-46	Added Variable Speed Applicable condition.
13.03	01-07-13	B-58	Added VSS_ID and DIRECTION to RDF_CONDITION_SPEED table.

RH.5 Changes Made for Q4-2013

Version	Date	Page #	Description
13.04	01-10-13	B-58	Changed references to Sign-as-Real to 2D Signs.
13.04	01-10-13		Updated the following country names: Guadeloupe-France to Guadeloupe Guyane-France to French Guiana Martinique-France to Martinique Réunion-France to Réunion Saint-Barthélemy-France to Saint Barthélemy
13.04	01-10-13	2-8,10	Updated inclusion for Scenic Route Name and Scenic Route; removed from non-Prime inclusion levels.
13.04	01-10-13	2-42	Updated cartographic inclusion list for City-to-City.
13.04	01-10-13	4	Improved organisation.
13.04	01-10-13	4-11 thru 12	Updated section for roundabouts; added details to Turbo Roundabout representation.
13.04	01-10-13	4-47 thru 62	Updated Route Type values for the following: Moldova, Morocco, and U.A.E. Added Tunisia.
13.04	01-10-13	4-80 thru 90	Supplied section for Intersection Category.
13.04	01-10-13	4-103	Supplied section for Multiply Digitised.
13.04	01-10-13	4-135	Supplied specifications for Speed Limit on Highway-to-Highway connectors.
13.04	01-10-13	4-146	Update inclusion for "Center Turn Lanes" from 50 to 20 metres.
13.04	01-10-13	4-175 thru 188	Added section: Lane Information Processing
13.04	01-10-13	5-11	Added Tunisia to table.
13.04	01-10-13	5-13 thru 17	Added Argentina to KD inclusion; added Tunisia to table.
13.04	01-10-13	5-35 thru 36	Added Hindi name to India. Added Tunisia to table.
13.04	01-10-13	6-5 thru 9	Improved organisation; updated sign inclusion.
13.04	01-10-13	6-20	Updated specification for Toll Structure to account for the publication of applicable Access characteristics.
13.04	01-10-13	6-62	Updated specification for Special Explication.
13.04	01-10-13	6-93	Updated inclusion for Traffic Signal.

Revision History

Version	Date	Page #	Description
13.04	01-10-13	6-80 thru 82	Supplied inclusion for Extended Lane content.
13.04	01-10-13	6-125	Updated specification for No Overtaking.
13.04	01-10-13	7-22	Added Tunisia to table.
13.04	01-10-13	8-11 thru 22	Updated Administrative structure for Hungary. Added Tunisia to table.
13.04	01-10-13	8-34 thru 35	Added section: Display Class
13.04	01-10-13	9-18	Added section for Off-road POIs.
13.04	01-10-13	9-30	Updated inclusion for Ferry Terminal POIs.
13.04	01-10-13	9-35	Added exclusion list for Hospital and Hotel POIs.
13.04	01-10-13	9-37	Updated Phone Number inclusion for Motorcycle Dealership POIs: Included, if available.
13.04	01-10-13	9-43	Updated inclusion for Rent a Car Facility POIs.
13.04	01-10-13	9-46	Updated inclusion and naming for Ski Lift POIs.
13.04	01-10-13	9-47	Updated inclusion and naming for Ski Resort POIs.
13.04	01-10-13	9-51	Updated inclusion for Weigh Stations.
13.04	01-10-13	9-55 thru 59	Updated Actual Address for Andorra. Added Tunisia to table.
13.04	01-10-13	9-71	Re-ordered sections. Updated specification for Display Location to account for POIs.
13.04	01-10-13	9-82 thru 86	Updated Order-2 Capital Indicator for Hungary to: Járás Added Tunisia to table.
13.04	01-10-13	9-90	Updated specification for Telephone Number.
13.04	01-10-13	9-96 thru 97	Updated specification for National Importance.
13.04	01-10-13	9-125	Updated Parent-Child coding rules between Airport terminal and designated garages.
13.04	01-10-13	Ch 10	Created File Association chapter.
13.04	01-10-13	11-16	Updated ERD for File Association Model.
13.04	01-10-13	11-18	Updated ERD for ADAS Model.
13.04	01-10-13	11-108	Updated table: RDF_POSTAL_CODE_MIDPOINT
13.04	01-10-13	11-152	Removed section for ADAS_NODE. Updated table for ADAS_NODE_CURVATURE
13.04	01-10-13	11-153	Removed section for ADAS_NODE_SLOPE.

Version	Date	Page #	Description
13.04	01-10-13	12-21	Added the followingh to table: Bonaire, Saba, and Sint Eustatius.
13.04	01-10-13	12-55	Added Tunisia to table.
13.04	01-10-13	15-10	Updated rule for Building Name: Building Name can be published in addition to Address.
13.04	01-10-13	19-38 thru 39	Added unaccounted values for Transport Preferred Route Type.
13.04	01-10-13	20-3	Updated inclusion for Voice Phonetic Transcriptions and Voice Phonetic Transcriptions for POI to include the following: Named Place POIs, POIs of National Importance, and Admin Levels 1& 2.
13.04	01-10-13	20-18	Removed from Shortened Name specification: "The phonetic transcriptions of Super Categories are published as alternate, non-preferred transcription in VCE_FEATURE_NAME for the applicable Administrative Area."
13.04	01-10-13	A-14	Added Tunisia to table.
13.04	01-10-13	A-21	Updated transliteration table for RUX.
13.04	01-10-13	B-117	Updated table: RDF_POSTAL_CODE_MIDPOINT

RH.6 Changes Made for Q1-2014

Version	Date	Page #	Description
14.01	01-01-14		Changed country name from West Bank to Palestine. Changed field name from STAIR_TRAVERSAL to STAIRS_TRAVERSAL.
14.01	01-01-14	3-3	Added note: Links representing ferry connection are exceptions.
14.01	01-01-14	4-11	Updated section for Roundabout.
14.01	01-01-14	4-18 thru 20	Updated section for Address Format. Added Address Formats 8, 9, AA, AB
14.01	01-01-14	4-32 thru 36	Added sections for the following: Bridge Name, Intersection Name, and Bridge Name.
14.01	01-01-14	4-53	Added Paraguay to table for Route Types.
14.01	01-01-14	4-66 thru 67	Added sections for the following: Overpass Name and Underpass Name.
14.01	01-01-14	4-88	Added Note: For South Korea, DIVIDER_LEGAL = N is not applied.
14.01	01-01-14	4-121	Added to specifications for Multiply Disgitised.
14.01	01-01-14	4-123	Added section for Overpass/Underpass.
14.01	01-01-14	4-124	Updated Usage for Physical Number of Lanes.
14.01	01-01-14	4-136	Updated rules for Reversible.
14.01	01-01-14	4-136	Added section for Road Class.
14.01	01-01-14	4-147	Updated rules for Lane Type.
14.01	01-01-14	4-196 thru 197	Added sections for Positive and Negative TPEG IDs.
14.01	01-01-14	Ch 5	Removed references to XTDP_POI_CONTACT_INFORMATION as related tables.
14.01	01-01-14	5-8	Added Paraguay to table.
14.01	01-01-14	5-11	Updated Postal Codes for Netherlands.
14.01	01-01-14	5-25	Updated usage/specification for Admin Wide Regulations to delimit applicability only to intersections.
14.01	01-01-14	5-27	Added Russian to names for Belarus. Added Paraguay to table.
14.01	01-01-14	5-36	Supplied rules for Neighbourhood and other Zones.
14.01	01-01-14	6-4	Added Note: For South Korea, all posted signs where they exist in reality are included.
14.01	01-01-14	6-11	Added Note: For South Korea, ENTRY_TYPE = T is applied to all sign text.

Version	Date	Page #	Description
14.01	01-01-14	6-44	Added Note: For South Korea, RDM Type = 1(legal) is applied for all Restricted Driving Manoeuvre conditions regardless of the actual type of restriction.
14.01	01-01-14	7-21	Added Paraguay to table. Updated information for Taiwan.
14.01	01-01-14	8-18 thru 22	Added Paraguay to table; updated level 3 decription for Vietnam.Updated information for Taiwan.
14.01	01-01-14	8-32	Added the following: Apartment Building/Landmark Housing Building/Landmark
14.01	01-01-14	8-47	Updated Colonia to Cartographic Settlement Boundary specifications.
14.01	01-01-14	8-48	Moved Neighbourhood from "Transit and Pedestrian" content.
14.01	01-01-14	9-31	Updated specifications for Ferry Terminal.
14.01	01-01-14	8-52	Added Complete to Island and lake Inclusion.
14.01	01-01-14	9	Removed section for Contact ID, Preferred Contact, Alternate Number, and Phone Number. Removed references to XTDP_POI_CONTACT_INFORMATION from the following: Contact Type, Contact, Phone Are Code, and Phone Local Number.
14.01	01-01-14	9-11	Added section for Named Places.
14.01	01-01-14	9-25, 27	Updatred inclusion for Business facility, Cinema.
14.01	01-01-14	9-31,39	Added section for Fire Department; moved Neighbourhood from Transit and Pedestrian.
14.01	01-01-14	9-32	Updated inclusion for Grocery Store.
14.01	01-01-14	9-34, 37	Updated inclusion for Highway Exit, Military Base.
14.01	01-01-14	9-44	Added section for Race Track.
14.01	01-01-14	9-49	Added section for Specialty Food Store.
14.01	01-01-14	9-37,48	Updated inclusion for Military Base, Named Intersection, Specialty Store.
14.01	01-01-14	9-56	Added Note: For South Korea, Actual Address is published for all POI categories.
14.01	01-01-14	9-64, 86	Added Paraguay and South Korea to table.Updated information for Taiwan.
14.01	01-01-14	9-74	Added Note: For South Korea, Display Location coordinates are included for all POI categories (except for Named Place).
14.01	01-01-14	11	Removed Extended POI Model (XTDP prefixed tables), RDF_COUNTRY_ROAD_SIGN, RDF_COUNTRY_PROFILE, RDF_POI_SUPPLIER. Removed Traffic Tables.
14.01	01-01-14	11-5	Updated Geometry Model.
14.01	01-01-14	11-7	Updated POI Model.
14.01	01-01-14	11-8	Updated Road Attribution Model; added RDF_LINK_TPEG, updated RDF_ROAD_LINK.

Revision History

Version	Date	Page #	Description
14.01	01-01-14	11-11	Updated Metadata Model: removed RDF_COUNTRY_ROAD_SIGN and RDF_COUNTRY_PROFILE tables.
14.01	01-01-14	11-13	Updated Point Address Model.
14.01	01-01-14	11-14	Removed SUPPLIER_ID from File Association Model.
14.01	01-01-14	11-15	Updated Data Integrity Statistics Model.
14.01	01-01-14	11-16	Updated ADAS Model.
14.01	01-01-14	11-17	Updated Administrative Extension Model.
14.01	01-01-14	11-80	Updated Foreign Key for RDF_LINK_TMC: updated to reference RDF_NAV_LINK.LINK_ID. Added RDF_LINK_TPEG.
14.01	01-01-14	11-90	Added the following to RDF_NAV_LINK Table: ROAD_CLASS and OVERPASS_UNDERPASS
14.01	01-01-14	11-95	Removed SUPPLIER_ID from RDF_POI.
14.01	01-01-14	11-105	Removed Foreign key from RDF_POI_SUBCATEGORY.
14.01	01-01-14	11-107	Added the following to RDF_ROAD_LINK Table IS_INTERSECTION_NAME IS_OVERPASS_NAME IS_UNDERPASS_NAME IS_BRIDGE_NAME IS_TUNNEL_NAME
14.01	01-01-14	B-7	Added Address Formats 8, 9, AA, AB
14.01	01-01-14	B-31, 33	Added the following: 005452, 2005453, and 900160
14.01	01-01-14	B-76	Added 38=BUILDING TEXTURE PATTERN to File Type.
14.01	01-01-14	B-82	Added RDF_LINK_TPEG.
14.01	01-01-14	B-89	Added the following to RDF_NAV_LINK Table: ROAD_CLASS and OVERPASS_UNDERPASS
14.01	01-01-14	B-93	Added Fire Department, Race Track, and Specialty Food Store.
14.01	01-01-14	B-105	Added South Korea specific subcategories to Cemetery, Hotel, Petrol Station, and Sports Centre.
14.01	01-01-14	B-119	Added the following to RDF_ROAD_LINK Table IS_INTERSECTION_NAME IS_OVERPASS_NAME IS_UNDERPASS_NAME IS_BRIDGE_NAME IS_TUNNEL_NAME

RH.7 Changes Made for Q2-2014

Version	Date	Page #	Description
14.02	01-04-14		Updated country name: Slovak Republic to Slovakia. Updated Admin Level 3 description for Thailand: Amphur to Amphoe
14.02	01-04-14	Ch 2	Updated lists according to HERE's D&A10.3 Added South Korea-specific attributes. Added Note to non-Prime cartographic inclusion list: Other features (similar to Prime inclusion) can be included when deemed significant for a particular country.
14.02	01-04-14	4-40 thru 41	Updated specifications for Route Number to account for new rules for the US.
14.02	01-04-14	4-44	Removed from Route Type exclusion: Separately digitised controlled access roads such as HOV or reversible lanes.
14.02	01-04-14	4-51	Updated (Route Type) language for Kazakhstan.
14.02	01-04-14	4-80 thru 85	Added sections for Built Up Area Road and Built Up Area Road Verified.
14.02	01-04-14	4-120 thru 129	Supplied specification for Lanes From/To.
14.02	01-04-14	4-150	Updated specification for Road Class.
14.02	01-04-14	4-153	Removed: Speed Limit is included for road networks with Enhanced Geometry = 1. However, a Speed Limit value can exist on road networks with Enhanced Geometry = 0.
14.02	01-04-14	4-157	Updated usage for Tollway.
14.02	01-04-14	4-158	Updated specifications for Travel Direction to account for Parking Lot Roads.
14.02	01-04-14	4-172 thru 178	Updated inclusion for Lane Markings: Center Divider Marker, Lane Divider Marker, Direction Category.
14.02	01-04-14	5-23	Removed bullet: "If the name exceeds 10 characters, the name is truncated." from Rules for Administrative Level Description.
14.02	01-04-14	5-28	Updated Country Name for Kazakhstan.
14.02	01-04-14	6-10 thru 11	Updated specifications for Sign Text Type.
14.02	01-04-14	6-73	Updated rules for lane-level attribution for Usage Fee Required.
14.02	01-04-14	6-93	Updated rules for Traffic Signal.
14.02	01-04-14	9-37	Updated inclusion for Medical Services.
14.02	01-04-14	9-43	Updated naming for Place of Worship.
14.02	01-04-14	9-57, 61	Added RUX and RUX formats to Belarus; updated Kazakhstan.

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Version	Date	Page #	Description
14.02	01-04-14	9-68	Updated Specification for parsed Actual Address.
14.02	01-04-14	9-102	Updated Note for Population to account for South Africa.
14.02	01-04-14	9-104 thru 111	Removed Subcategory country inclusion from table.
14.02	01-04-14	Ch10	Added chapter for Annotation.
14.02	01-04-14	11-4	Updated File Type.
14.02	01-04-14	12-8	Updated RDF_STREET_TYPE_ABBREVIATION.
14.02	01-04-14	12-16	Added ADAS_LINK_BUAROAD table.
14.02	01-04-14	12-115	Updated RDF_STREET_TYPE_ABBREVIATION table.
14.02	01-04-14	12-138	Added section for ADAS_LINK_BUAROAD.
14.02	01-04-14	13-3 thru 5	Supplied additional specifications to Entry Map.
14.02	01-04-14	15-4	Added Business Facility to list of POI locations that can be included in Extended Navigation content.
14.02	01-04-14	15-10	Added cross-reference to Travel Direction.
14.02	01-04-14	A-12 thru 26	Moved Non-Latin Names from Product Variations Chapter. Updated Transliteration table for KAZ.
14.02	01-04-14	B-26	Updated table for RDF_ANNOTATION.
14.02	01-04-14	B-65	Removed Latvian Lats from table.
14.02	01-04-14	B-141	Added table for ADAS_LINK_BUAROAD.

RH.8 Changes Made for Q3-2014

Version	Date	Page #	Description
14.03	01-07-14	2-7,20	Added Grade Category and Dependent Access Type to list.
14.03	01-07-14	Ch 4	Removed Route Type table. It is now centrally located in the Country Profiles document. Removed sections for Parking Availability and Parking Restriction.
14.03	01-07-14	4-65 thru 68	Added sections for Bicycling attributes.
14.03	01-07-14	4-70	Supplied specification for Built Up Area Road = 4.
14.03	01-07-14	4-92	Added section for Grade Category.
14.03	01-07-14	4-147 thru 148	Updated Supplemental Geometry Bitset to account for hiking/bicycling content.
14.03	01-07-14	5-9	Added Mayotte to table for Postal Code formats.
14.03	01-07-14	5-29	Added Mayotte to table for Official Names.
14.03	01-07-14	6-20	Added note to account for South Korea-specific representation.
14.03	01-07-14	6-48	Added Dependent Access Type to list of related attributes for Access Restriction.
14.03	01-07-14	6-63	Added section for Dependent Access Type.
14.03	01-07-14	7-21	Added Mayotte to table for Spanning levels; updated Taiwan.
14.03	01-07-14	8-15	Added Mayotte to table for Administrative Area Boundaries.
14.03	01-07-14	8-48	Updated section for zone
14.03	01-07-14	9-24	Added sections for Bicycle Sharing Location and Bicycle Parking.
14.03	01-07-14	9-28	Updated definition for Convenience Store.
14.03	01-07-14	9-63	Added Mayotte to table for Actual Address formats.
14.03	01-07-14	9-52	Added section for Trailhead.
14.03	01-07-14	9-86	Added Mayotte to table for Capital Indicators.
14.03	01-07-14	9-112	Added Trailhead to table for Subcategories.
14.03	01-07-14	9-125	Removed example: An Automobile Dealership is a parent to a Vehicle Repair Facility and a child of an Industrial Zone. Updated examples for Automobile Dealership with Motorcycle Dealership, and Industrial Zone.
14.03	01-07-14	11-5	Added references to Toll Structure View.
14.03	01-07-14	11-12	Added section for Toll Structure View.

Revision History

Version	Date	Page #	Description
14.03	01-07-14	11-14	Added references to Toll Structure View.
14.03	01-07-14	Ch 12	Removed section for RDF_CONDITION_PARKING. Removed “permanent” from ROAD_LINK_ID definition.
14.03	01-07-14	12-8	Updated ERD for Road Attributing model: updated RDF_NAV_LINK_ATTRIBUTE table: added bicycle attributes, removed PARKING-AVAILABILITY: removed RDF_CONDITION_PARKING table.
14.03	01-07-14	12-51	Added DEPENDENT_ACCESS_TYPE to table.
14.03	01-07-14	12-90	Removed Parking Availability from RDF_NAV_LINK_ATTRIBUTE table.
14.03	01-07-14	12-114	Updated RDF_VERSION_INFO.
14.03	01-07-14	A-10	Updated Exonym inclusion table: Cartographic Feature Names are included in more countries.
14.03	01-07-14	A-37	Added section for Supplemental Geometry.
14.03	01-07-14	Appx B	Removed section for RDF_CONDITION_PARKING.
14.03	01-07-14	B-46	Removed Parking Restriction from RDF_CONDITION table.
14.03	01-07-14	B-47	Added DEPENDENT_ACCESS_TYPE to RDF_CONDITION_ACCESS table.
14.03	01-07-14	B-76	Added File Type=39(Toll Structure View).
14.03	01-07-14	B-80	Updated ‘Drivable Shoulder’ to ‘Shoulder’; added the following Lane Type values: 16384 – PARKING LANE 32768 – VARIABLE DRIVING LANE 65536 – BICYCLE LANE
14.03	01-07-14	B-90	Removed Parking Availability from RDF_NAV_LINK_ATTRIBUTE table. Added the following: SURFACE_TYPE BICYCLE_ACCESS BICYCLE_PROTECTION_TYPE BICYCLE_TRAVEL_DIR_OVERRIDE
14.03	01-07-14	B-93	Added the following POIs: Bicycle Sharing Location, Bicycle Parking, and Trailhead.
14.03	01-07-14	B-106	Added the following: Bicycle Path Off Road Bicycle Trail Hiking Trail
14.03	01-07-14	Appx D	Added Appendix D to contain CLM examples.
14.03	01-07-14	D-18 thru 42	Added examples for road configurations involving the following Lane Types:

RH.9 Changes Made for Q4-2014

Version	Date	Page #	Description
14.04	01-10-14		Removed China-related information.
14.04	01-10-14	2-9	Added Parking Information to list.
14.04	01-10-14	2-12,13, 26	Added footnote to Shopping Centre, Island, and Lake to account for Expanded Inclusion. Updated inclusion for Diesel attribute.
14.04	01-10-14	4-19	Removed table for Address Format Examples for Specific Locations in N.A. This info is contained in the Country Profiles: Address Format Descriptions document.
14.04	01-10-14	4-28	Updated section for Official Name/Alternate Name (IS_NAME_ON_ROADSIGN) to account for translations in Arabic countries.
14.04	01-10-14	4-62	Updated specifications for Bicycle Access.
14.04	01-10-14	4-90	Added Taiwan-specific rules to specification for Grade Category; removed that of South Korea.
14.04	01-10-14	4-144 thru 145	Updated section for Supplemental Geometry Bitset to account for Outdoor content.
14.04	01-10-14	4-108	Corrected bullet: Lanes exclusively used for overtaking (see Figure 4-68), and temporary lanes such as “passing lanes” (see Figure 4-69) when these are shorter than 400 metres.
14.04	01-10-14	5-7 thru 10, 13 thru 16, 26 thru 31	Added Cyprus and Zimbabwe to table.
14.04	01-10-14	5-27	Updated translated Language Code for Arabic countries to ENG.
14.04	01-10-14	6-93	Updated specification for Traffic Signal to account for APAC inclusion.
14.04	01-10-14	6-143 thru 146	Added section for Parking Information.
14.04	01-10-14	7-21 thru 23	Added Cyprus and Zimbabwe to table.
14.04	01-10-14	8-4	Updated section for Naming of Cartographic Features.
14.04	01-10-14	8-9,24	Added Cyprus and Zimbabwe to table.
14.04	01-10-14	8-32	Added Gurdwara to table.
14.04	01-10-14	8-48	Updated obsolete Island inclusion.
14.04	01-10-14	8-52	Updated Expanded Inclusion table.

Revision History

Version	Date	Page #	Description
14.04	01-10-14	8-60	Simplified railway inclusion.
14.04	01-10-14	9-65	Updated translated Language Code for Arabic countries to ENG.
14.04	01-10-14	9-11	Moved section for Golf Course.
14.04	01-10-14	9-32	Simplified inclusion for Embassy.
14.04	01-10-14	9-60,68	Added Cyprus and Zimbabwe to table.
14.04	01-10-14	9-87,90	Added Cyprus and Zimbabwe to table.
14.04	01-10-14	9-112	Added Walking Path to Subcategory table.
14.04	01-10-14	9-127	Removed obsolete example for Parent-Child coding on University or College POIs.
14.04	01-10-14	12-5	Updated Geometry Model: RDF_LOCATION table.
14.04	01-10-14	12-7	Updated POI Model: RDF_POI_ADDRESS table.
14.04	01-10-14	12-8	Updated Road Attributing Model: added RDF_CONDITION_PARKING table.
14.04	01-10-14	12-57	Added section for RDF_CONDITION_PARKING.
14.04	01-10-14	12-81	Removed ROAD_LINK_ID from RDF_LOCATION table
14.04	01-10-14	12-84	Updated RDF Meta Premium Object.
14.04	01-10-14	12-96	Updated LANGUAGE_CODE for RDF_POI_ADDRESS. Removed FULL_HOUSE_NUMBER_LANG_CODE from RDF_POI_ADDRESS. Updated Primary Keys for RDF_POI_ADDRESS.
14.04	01-10-14	12-97	Removed from RDF_POI_ADDRESS_TRANS; updated remarks for TRANSLITERATION_TYPE.
14.04	01-10-14	12-106	Updated description for RDF_ROAD_NAME.
14.04	01-10-14	13-10 thru 16	Added the following: Comoros, Djibouti, Eritrea, Fiji, Gambia, Liberia, Madagascar, Sierra Leone, and Somalia.
14.04	01-10-14	20-38 thru 39	Updated section for Transport Preferred Route; added value 18 - B-Triple Route.
14.04	01-10-14	A-12 thru 14	Updated section for Non-Latin Names. Removed countries with ARA-ENG/FRE languages from table. Added Indian regional languages: BEN, MRX, GJX, and TMX
14.04	01-10-14	A-20 thru 22	Added Indian regional languages: BEN, MRX, GJX, and TMX
14.04	01-10-14	A-32	Added section for Translations (Arabic Specific).
14.04	01-10-14	B-4	Accounted for India's regional languages: TAM, BEN, GUJ, and MAR.
14.04	01-10-14	B-15, 64	Simplified listing for ISO Code. Provided reference to Country Profiles Document.
14.04	01-10-14	B-27	Added Gurdwara to table.

Version	Date	Page #	Description
14.04	01-10-14	B-41	Added PARKING INFORMATION to table.
14.04	01-10-14	B-50	Added section for RDF_CONDITION_PARKING.
14.04	01-10-14	B-57	Simplified listing for Currency Code. Provided reference to Country Profiles Document.
14.04	01-10-14	B-71	Added value N - None to LANE_TRAVEL_DIRECTION.
14.04	01-10-14	B-81	Footnoted SUPPLEMENTAL_GEO_BITSET = 2 to refer to HERE Outdoor Plug-in definitions.
14.04	01-10-14	B-86	Accounted for Outdoor POI categories.
14.04	01-10-14	B-93	Added GURDWARA to values for Building Type.

RH.10 Changes Made for Q1-2015

Version	Date	Page #	Description
15.01	01-01-15		Added Appendix B-RDS TMC; incremented appendix numbers for the subsequent appendices.
15.01	01-01-15	2-9	Added Short Construction Warning to list.
15.01	01-01-15	3-8 thru 14	Supplied sections for the following: Aligned Z Level Matching Links and Nodes between Databases Map Edge Link.
15.01	01-01-15	4-34	Updated section for Scenic Route Name.
15.01	01-01-15	4-147 thru 149	Updated specifications for the following Lane Types: Acceleration Lane, Deceleration Lane, and Auxiliary Lane.
15.01	01-01-15	4-184 thru 187	Added section for Attribution for Specific Locations/Contents.
15.01	01-01-15	5-7	Replaced duplicate table for Postal Code information with a reference to the central location: Country Profiles document.
15.01	01-01-15	5-22 thru 24	Enhanced sections for naming; added section for Additional Exonym.
15.01	01-01-15	Ch 6	Removed obsolete section: Lane Conditions
15.01	01-01-15	6-31	Updates specifications for Gate condition: Allowing Gate coded in addition to Access Restriction.
15.01	01-01-15	6-80	Updated exclusion bullet for Lane Traversal: To or from any lane that is not wide enough for an automobile, except motorcycle only lanes.
15.01	01-01-15	6-162 thru 167	Created section for Road Construction information; added new section for Short Construction Warning.
15.01	01-01-15	8-5	Replaced duplicate table for Administrative Levels with a reference to the central location: Country Profiles document.
15.01	01-01-15	9-11	Updated section for Golf Course.
15.01	01-01-15	9-39	Added section for Meeting Point.
15.01	01-01-15	9-71	Updated definition and rule for Language Code: Language Code (in RDF_POI_ADDRESS) is applicable only to Actual Address field.
15.01	01-01-15	9-108	Added Subcategory values for Meeting Point.
15.01	01-01-15	Ch 12	Changed description for ROAD_NAME_ID (from: Permanent identifier of the road name) to: Identifier of the road name.
15.01	01-01-15	12-5, 8	Added MAP_EDGE_LINK to RDF_LINK in Geometry Model and Road Attributing Model, respectively.

Version	Date	Page #	Description
15.01	01-01-15	12-13	Updated ERD for Point Address.
15.01	01-01-15	12-21	Updated foreign key for RDF_ADDRESS_MICROPOINT.
15.01	01-01-15	12-24	Updated RDF_ADDRESS_POINT_TRANS table, included LANGUAGE_CODE as Primary key. Updated formats for ADDRESS and BUILDING_NAME to Char(150) and Char(300), resp. Updated RDF_ADDRESS_POINT_TRANS table, included LANGUAGE_CODE as Primary and Foreign key.
15.01	01-01-15	12-79	Added MAP_EDGE_LINK to RDF_LINK.
15.01	01-01-15	12-96	Added information for POI-Street Name Association for RDF_POI_ADDRESS.
15.01	01-01-15	12-97	Updated definition for Language Code in RDF_POI_ADDRESS table: The Language Code of ACTUAL_ADDRESS.
15.01	01-01-15	12-101	Added information for POI-Street Name Association for RDF_POI_NAME.
15.01	01-01-15	13-8	Updated Coverage Indicator specifications for Intermediate Map.
15.01	01-01-15	13-10	Replaced duplicate table for Administrative Levels with a reference to the central location: Country Profiles document.
15.01	01-01-15	C-29	Removed 900300- Elevation and 2500003-Landmark Point
15.01	01-01-15	C-40	Added Value 41(SHORT CONSTRUCTION WARNING) to CONDITION_TYPE.
15.01	01-01-15	C-64	Added value F (ADDITIONAL EXONYM) to NAME_TYPE.
15.01	01-01-15	C-72	Added a section for RDF_LINK.

RH.11 Changes Made for Q2-2015

Version	Date	Page #	Description
15.02	01-04-15	2-11,13, 25, 33	Added Allotment and National Forest to list to applicable Inclusion levels.
15.02	01-04-15	4-35	Removed obsolete rule from Scenic Route (SCENIC_ROUTE): Scenic Route is applied to links allowing Automobiles and Through Traffic.
15.02	01-04-15	4-137	Accounted for Low Mobility coding for Supplemental Geometry Bitset. Updated references to Bicycle Trail to Mountain Bike Trail.
15.02	01-04-15	4-171	Updated specifications for Height Restriction.
15.02	01-04-15	4-180	Updated specification for Bicycle Access.
15.02	01-04-15	4-182, 184	Added sections for Bicycle Route Name and Generalised Bicycle Path.
15.02	01-04-15	4-186- 187	Added Section for Traffic Sign Type.
15.02	01-04-15	6-14	Updated section for Alternate Exit Number.
15.02	01-04-15	6-81	Removed from exclusion of Lane Traversal coding: To or from part-time parking lanes, unless they are HOV lanes.
15.02	01-04-15	6-110	Added Traffic Sign Type values 59 and 60 to table. Accounted for Yield to Bicycles under Traffic Sign Subcategory.
15.02	01-04-15	8-28,30	Added section for Allotment and National Forest.
15.02	01-04-15	8-34	Added Allotment and National Forest.
15.02	01-04-15	9-13	Updated rules for POI Naming; added subheading for POI-Street Name Association.
15.02	01-04-15	9-26	Added section for Bicycle Service.
15.02	01-04-15	9-32	Updated section for Ferry Terminals.
15.02	01-04-15	9-43	Updated rules for Park/Recreation Area.
15.02	01-04-15	9-70	Updated specifications for Actual Address - Components: removed exclusion non-Latin 1 languages.
15.02	01-04-15	9-80	Updated specifications for Association Type: removed obsolete rules for POIs in bilingual areas.
15.02	01-04-15	9-85	Added section for Bicycle Service.
15.02	01-04-15	9-104	Added subcategories for Sporting Goods Store.
15.02	01-04-15	12-7	Updated table for RDF_POI_ADDRESS_TRANS. Added table for RDF_POI_BICYCLE.
15.02	01-04-15	12-92	Updated RDF_NAV_LINK_ATTRIBUTE to table.

Version	Date	Page #	Description
15.02	01-04-15	12-98	Updated table for RDF_POI_ADDRESS_TRANS.
15.02	01-04-15	12-101	Added table for RDF_POI_BICYCLE.
15.02	01-04-15	12-108	Added IS_BICYCLE_ROUTE_NAME to table.
15.02	01-04-15	13-9	Added section for Baseline and Feature Introduction Maps.
15.02	01-04-15	C-28	Added Allotment and National Forest to table.
15.02	01-04-15	C-46	Added Traffic Sign Type values 59 and 60 to table.
15.02	01-04-15	C-82-83	Updated references to Bicycle Trail to Mountain Bike Trail. Added GENERALISED_BICYCLE_PATH to table.
15.02	01-04-15	C-93	Added table for RDF_POI_BICYCLE.
15.02	01-04-15	C-99	Added subcategories for Sporting Goods Store.
15.02	01-04-15	C-113	Added IS_BICYCLE_ROUTE_NAME to table.

RH.12 Changes Made for Q3-2013

Version	Date	Page #	Description
15.03	01-07-15	2-4	Updated Ferry Link inclusion; removed remark (for automobiles and driver).
15.03	01-07-15	2-7,21	Removed ENHANCED_GEOMETRY.
15.03	01-07-15	4-12	Accounted for Special Traffic Figure.
15.03	01-07-15	4-51	Added subheading: Ferry Link and Road Network on Islands
15.03	01-07-15	4-71	Supplied section for Detailed City.
15.03	01-07-15	4-85 thru 100	Supplied section for In-Process Data. Supplied usage and specifications for Roundabout, Special Traffic Figure and Undefined Traffic Area.
15.03	01-07-15	4-124	Supplied section for Paved.
15.03	01-07-15	4-127	Supplied section for POI Access Road.
15.03	01-07-15	4-146	Added note to Tollway: Tollway and Usage Fee Required values do not necessarily match. A road can be flagged as Tollway without receiving Usage Fee Required condition.
15.03	01-07-15	4-192	Added Park & Ride to table.
15.03	01-07-15	5-26 thru 27	Updated Official Names for Hongkong and China.
15.03	01-07-15	6-70	Added note to Usage Fee Required: Usage Fee Required and Tollway values do not necessarily match. A road can be flagged as Tollway without receiving Usage Fee Required condition.
15.03	01-07-15	6-97	Replaced table for Traffic Signs examples with a reference to Country Profiles: Signs, Signals, and Warnings.
15.03	01-07-15	6-158	Updated specifications for Construction Status Closed: indicates that the links are closed to public use for at least three months after the database release date.
15.03	01-07-15	7-20	Updated Spanning Level for Indonesia, Kenya, and South Korea.
15.03	01-07-15	9-9	Added Museum and School to Extended Navigation inclusion.
15.03	01-07-15	9-35	Updated definition for Grocery Store.
15.03	01-07-15	9-90	Updated Capital Indicator for Indonesia.
15.03	01-07-15	9-114	Added Cross Country Ski Shop, Tack Shop, Cross Country Ski Trail, and Horse Trail to table.
15.03	01-07-15	12-8	Updated ERD for Road Attributing Model: removed ENHANCED_GEOMETRY from RDF_NAV_LINK_STATUS.
15.03	01-07-15	12-16	Updated ERD for ADAS Model: added ADAS_LINK_STATUS.

Version	Date	Page #	Description
15.03	01-07-15	12-93	Removed ENHANCED_GEOMETRY from RDF_NAV_LINK_STATUS.
15.03	01-07-15	20-7	Replaced table for Traffic Sign examples with a reference to the document: Country Profiles: Signs, Signals, and Warnings
15.03	01-07-15	22-3	Updated Enhanced Curvature, Enhanced Height and Slope.
15.03	01-07-15	C-84	Footnoted ENHANCED_GEOMETRY: Made obsolete in 2015-Q3 (Schema Version 7.05) through the introduction of LINK_ACCURACY in ADAS_LINK_STATUS table.
15.03	01-07-15	C-100	Added Cross Country Ski Shop, Tack Shop, Cross Country Ski Trail, and Horse Trail to table.
15.03	01-07-15	C-135	Added section for ADAS_LINK_STATUS.

RH.13 Changes Made for Q4-2015

Version	Date	Page #	Description
15.04	01-10-15	3-12	Added RDF_LINK_GEOMETRY to list of relates tables for Z Level.
15.04	01-10-15	4-6	Updated distance between centrelines from 12 to 7 metres.
15.04	01-10-15	4-40	Simplified rules for Route Type.
15.04	01-10-15	4-44	Supplied non-Latin Street Types.
15.04	01-10-15	4-58,59	Supplied section for Bridge or Tunnel, Boat Ferry or Rail Ferry.
15.04	01-10-15	4-77	Supplied section for Expanded Inclusion.
15.04	01-10-15	4-79	Supplied section for Frontage.
15.04	01-10-15	4-86	Added South Korea to Grade Category.
15.04	01-10-15	4-99 thru 101	Updates specifications for Intersection Category = 3 (Indescribable).
15.04	01-10-15	4-102	Updated rule for roundabout coding: from 2 to 3 or more arms.
15.04	01-10-15	4-140 thru 143	Supplied sections for Private and Ramp.
15.04	01-10-15	4-147	Corrected rule for Speed Limit: Speed Limit is published in kilometres per hour (even for countries where miles per hour is used) to maintain consistency in calculations used with complex internal algorithms. The conversion from kilometres per hour (K) to miles per hour (M) is: M = 0.6213*K
15.04	01-10-15	4-152	Supplied sub-section for Oil Field Road.
15.04	01-10-15	4-157	Supplied section for Urban.
15.04	01-10-15	4-168	Updated definition for Turn Lane: Turn Lane is a dedicated lane that is used for making a turn in order not to disrupt ongoing traffic.
15.04	01-10-15	5-3thru 9	Improved rules for various Admin features.
15.04	01-10-15	6-90	Updated specifications for Through Route: The Access Characteristics of Through Route condition is flagged on all Vehicle Types (i.e., published as Y in the RDF_ACCESS table).
15.04	01-10-15	8-6	Improved rules for Country feature.
15.04	01-10-15	8-31	Simplified inclusion rules for Parks.
15.04	01-10-15	8-38	Supplied section for Park in Water.
15.04	01-10-15	9-22	Updated inclusion for Airports.
15.04	01-10-15	9-57	Supplied section for Truck Parking.
15.04	01-10-15	20-35	Removed obsolete table for Preferred Route Type inclusion.

Version	Date	Page #	Description
15.04	01-10-15	A-20 thru 29	Updated Transliteration Table: added the rest of Indian regional languages.
15.04	01-10-15	C-7	Updated table for Language Codes: added Mongolian and the rest of Indian regional languages.
15.04	01-10-15	C-82	Added values for Supplemental Geometry Bitset specific to Outdoor Plug-in. Added Oil Field Road.

RH.14 Changes Made for Q1-2016

Version	Date	Page #	Description
16.01	01-01-16	General	Replaced country specific rules (mainly south Korea-specific) and notes with a reference to the Country Specific Rules. Added Zambia to various country tables.
16.01	01-01-16	General	Accounted for the accompanying Country Specific Rules.
16.01	01-01-16	5-3	A Country Feature is also coded for external territories (i.e., areas that are controlled by, but are not part of another country).
16.01	01-01-16	6-81	Added: For each included intersection, Lane Traversal conditions are published on all links of the complete intersection and in all valid, including conditional directions of travel.
16.01	01-01-16	8-36	Removed Park in Water from table.
16.01	01-01-16	Ch. 9	Added reference to Country Specific Rules for Korea-specific POI categories.
16.01	01-01-16	9-14	Updated POI to Street Name Association.
16.01	01-01-16	9-24	Simplified Section for Automobile Dealership.
16.01	01-01-16	9-35	Simplified section for Hamlets; added reference to the Country Specific Rules.
16.01	01-01-16	9-36	Simplified section for Highway Exit.
16.01	01-01-16	9-48	Simplified section for Race Track.
16.01	01-01-16	9-49	Simplified section for Restaurant.
16.01	01-01-16	9-52	Simplified section for Specialty Food Store; added reference to the Country Specific Rules.
16.01	01-01-16	9-58	Added reference to the Country Specific Rules for Actual Address-Full
16.01	01-01-16	9-73	Added reference to the Country Specific Rules for Actual Address-Parsed.
16.01	01-01-16	9-93	Simplified section for Population.
16.01	01-01-16	12-8	Added TRUCK_ROAD_TYPE to RDF_NAV_LINK_ATTRIBUTE.
16.01	01-01-16	12-9	Added RDF_ASSO_GUIDANCE_OBJECT and RDF_ASSO_GUIDANCE_OBJECT to Feature Association ERD.
16.01	01-01-16	12-34	Added RDF_ASSO_GUIDANCE_OBJECT table.
16.01	01-01-16	12-38	Added FEATURE and PERMANENCE to RDF_ASSO_NATURAL_GUIDANCE.
16.01	01-01-16	12-75	Added RDF_GUIDANCE_OBJECT table.
16.01	01-01-16	12-92	Added TRUCK_ROAD_TYPE to table.

Version	Date	Page #	Description
16.01	01-01-16	12-133	Removed from VCE_GEO_OVERRIDE: This table is only populated for the North America database.
16.01	01-01-16	18-20	Added RDF_GUIDANCE_OBJECT and RDF_ASSO_GUIDANCE_OBJECT to list of related tables.
16.01	01-01-16	18-29 thru 30	Added sections for FEATURE and PERMANENCE.
16.01	01-01-16	18-32 thru 34	Added sections for attributes in the RDF_GUIDANCE_OBJECT table.
16.01	01-01-16	Appx A	Replaced Transliteration table with a reference to the Country Specific Rules.
16.01	01-01-16	A-15	Updated section for Translation.
16.01	01-01-16	C-5	Added the Languages for the following countries: Armenia, Faroe Islands, and Kyrgyzstan.
16.01	01-01-16	C-73	Added section for RDF_GUIDANCE_OBJECT.
16.01	01-01-16	C-88	Added TRUCK_ROAD_TYPE to table.

RH.15 Changes Made for Q2-2016

Version	Date	Page #	Description
16.02	01-04-16		Removed Note from contents introduced in the earlier FIM versions: Content is available in the current version of the Feature Introduction Map and succeeding versions of the Baseline Map.
16.02	01-04-16	4-139 thru 142	Updated rules for Speed Category.
16.02	01-04-16	4-143 thru 149	Updated rules for Speed Limit.
16.02	01-04-16	4-155	Enhanced rules for Transition Area.
16.02	01-04-16	4-168	Updated figure for lane turn to better reflect definition.
16.02	01-04-16	4-205	Updated the entry for Unsafe Areas.
16.02	01-04-16	6-92	Simplified rules for Traffic Signal.
16.02	01-04-16	6-170	Centralised section for Time Override.
16.02	01-04-16	7-20	Updated sectioning level for USVI.
16.02	01-04-16	9-25	Supplied section for Bar or Pub.
16.02	01-04-16	9-95	Simplified rules for Private.
16.02	01-04-16	18-54 thru 62	Supplied additional examples.
16.02	01-04-16	22-8	Added to situations where no Curvature Values is published: For Nodes located on continental borders since RDF is published at continental level.
16.02	01-04-16	24-4 thru 7	Supplied section for Geometric Representation.
16.02	01-04-16	Appx B	Removed obsolete examples for North American Location table.
16.02	01-04-16	B-25 thru 26	Updated rule for Split Road Links at Beginning/End of Linear under section for End of RDS-TMC Path with Highway-to-Highway Connectors. Removed section for End of RDS-TMC Path on a Multiply Digitised Road where Road Geometry Ends.
16.02	01-04-16	C-93	Supplied Bar or Pub.
16.02	01-04-16	C-135	Removed note for Neighbourhood Zone that indicates it is only contained in Pedestrian content and premium.

RH.16 Changes Made for Q3-2016

Version	Date	Page #	Description
16.03	01-07-16	4-66	Updated rules for Controlled Access.
16.03	01-07-16	4-91	Updated Figure 4-52 to reflect coding of Internal Intersection
16.03	01-07-16	4-116	Updated definition for Limited Access Road to: separately digitised, high speed roads where traffic is controlled via ramps.
16.03	01-07-16	6-64	Updated specifications for Special Speed Limit.
16.03	01-07-16	6-30	Updated definition for Commuter Rail Station POI.
16.03	01-07-16	Ch 9	Updated inclusion for the following: Residential Area/Building, Repair Service and Training Centre.
16.03	01-07-16	9-12	Added section for Rest Area.
16.03	01-07-16	9-36	Updated definition for Hamlet.
16.03	01-07-16	9-68	Updated section for Display Location to account for named places.
16.03	01-07-16	12-7	Updated POI model: added DISPLAY_LAT/LON to RDF_CITY_POI table.
16.03	01-07-16	12-49	Updated POI model: added DISPLAY_LAT/LON to RDF_CITY_POI table.
16.03	01-07-16	12-140	Added to ADAS_NODE_CURVATURE: As RDF is published at continental level, the Curvature value is not published for Nodes located on continental borders. Therefore Nodes on the border between for example Western Europe and Eastern Europe RDF do not have Curvature value.
16.03	01-07-16	18-29	Updated rules for Calculated Importance to account for Feature Extent and Permanence.
16.03	01-07-16	B-23 thru 26	Updated section for At the Start/End of a Junction.

RH.17 Changes Made for Q4-2016

Version	Date	Page #	Description
16.04	01-10-16	4-119	Added note to Limited Access: In the rest of the world, Limited Access is the same as Controlled Access.
16.04	01-10-16	6-6	Removed note from Inclusion Guidelines: If multiple signs with unique information pertaining to the decision point exist within 100 metres of each other, the information observed on the signs may be coded as a single sign entry.
16.04	01-10-16	6-61	Update rule to read: The driver perceives a controlled access road as splitting into two or more controlled access roads.
16.04	01-10-16	6-92	Updated sections for Traffic Signal and Signal/Sign Location.
16.04	01-10-16	7-19	Supplied supported alternate Spanning Level for Australia, Argentina, and Canada.
16.04	01-10-16	9-61 thru 65	Updated sections for Addressing to better represent non-latin support of Actual address.
16.04	01-10-16	9-28	Updated section for Border Crossing.
16.04	01-10-16	12-5 thru 20	Updated ERDs with new Visio version; removed individual entity cross-references to table descriptions.
16.04	01-10-16	12-99	Updated format for ACTUAL_HOUSE_NUMBER and ACTUAL_POSTAL_CODE to VARCHAR(15).
16.04	01-10-16	A-13	Replaced table for Transliteration Languages with a reference to the Country Profiles document.
16.04	01-10-16	C-86	Added values to Road Class.
16.04	01-10-16	Appx E	Supplied Appendix for Permanent IDs.

RH.18 Changes Made for Q1-2017

Version	Date	Page #	Description
17.01	01-01-17		Removed chapter for Basic Height; removed chapter and references to RDF_LINK_HEIGHT table in the entire document.
17.01	01-01-17	Ch 2	Simplified listings for inclusion.
17.01	01-01-17	2-7,19	Added Dependent Access Type to list.
17.01	01-01-17	4-100	Added DEPENDENT_ACCESS_TYPE to list of related attributes to Lane Category.
17.01	01-01-17	5-10	Added section for Uninhabited Islands.
17.01	01-01-17	6-34 thru 45	Updated section for Direction of Travel to account for Dependent Access Type.
17.01	01-01-17	6-64 thru 65	Added Reversible Lane to Lane Types that can receive Dependent Access Type. Updated section to account for Direction of Travel condition.
17.01	01-01-17	7-18	Replaced table for Slice Level per Country with a reference to the Country Profile document.
17.01	01-01-17	8-29	Added section for Water Boundary.
17.01	01-01-17	9-4	Added: POIs are published generally only for facilities that are accessible by the general public or by membership.
17.01	01-01-17	9-47	Added Note to Parking Garage: Multiple POIs may be published for a single facility when multiple entrances exist on different streets.
17.01	01-01-17	9-79	Replaced table for Capital Indicator per Country with a reference to the Country Profile document.
17.01	01-01-17	9-86	Added section for E164 Phone Number.
17.01	01-01-17	12-7	Added E164_PHONE_NUMBER to RDF_POI_CONTACT_INFORMATION.
17.01	01-01-17	12-8	Added DEPENDENT_ACCESS_TYPE to RDF_CONDITION_DIRECTION_TRAVEL table.
17.01	01-01-17	12-50	Added LANGUAGE_CODE to RDF_CITY_POI table.
17.01	01-01-17	12-54	Added DEPENDENT_ACCESS_TYPE to RDF_CONDITION_DIRECTION_TRAVEL table.
17.01	01-01-17	12-76	Added footnote to FILE_NAME and FILE_OBJECT to RDF_FILE table: A FILE_NAME may not necessarily have a corresponding FILE_OBJECT. For example, a file name generated by the application of a Junction View condition may not always have a corresponding file attachment.
17.01	01-01-17	12-104	Added E164_PHONE_NUMBER to RDF_POI_CONTACT_INFORMATION.
17.01	01-01-17	22-3	Enhanced Rules for Link Accuracy.

Revision History

Version	Date	Page #	Description
17.01	01-01-17	22-8	Added to Heading section: If Heading information is not available for a particular point, then no corresponding entry is published.
17.01	01-01-17	C-40	Added LANGUAGE_CODE to RDF_CITY_POI table.
17.01	01-01-17	C-47	Added DEPENDENT_ACCESS_TYPE to RDF_CONDITION_DIRECTION_TRAVEL table.
17.01	01-01-17	C-110	Added E164_PHONE_NUMBER to RDF_POI_CONTACT_INFORMATION.

RH.19 Changes Made for Q2-2017

Version	Date	Page #	Description
17.02	01-04-17		Updated release quarter, retained Schema Version.
17.02	01-04-17		Reformatted document to new HERE format. Note: Conditions/attributes and Features names are now only Italicised from being boldfaced and Italicised.
17.02	01-04-17	4-56	Corrected published values for BUA Road Example 2.
17.02	01-04-17	4-60	Updated rules for Controlled Access to account for spurs.
17.02	01-04-17	5-25, 26	Added note, "This content is no longer maintained." to the following headings Zone Type=TA TMC Areas
17.02	01-04-17	5-31	Added note to section TMC Area Zone (TA Zone): This content is no longer maintained.
17.02	01-04-17	6-153	Added rule for Short Construction Warning: When a road is closed for construction for three months or less
17.02	01-04-17	8-31	Added note under Expanded Inclusion: Features that exceed the standard size requirement do not receive <i>Expanded Inclusion</i> . However, features that are flagged as <i>Expanded Inclusion</i> at a lower <i>Coverage Indicator</i> level retain the <i>Expanded Inclusion</i> flag when the <i>Coverage Indicator</i> gets upgraded to a higher level where the <i>Standard Inclusion</i> size overlaps with that of the <i>Expanded Inclusion</i> . For example, if a lake feature flagged with <i>Expanded Inclusion</i> in Canada has a <i>Coverage Indicator</i> value of N4 and is upgraded to N0, it maintains the <i>Expanded Inclusion</i> flag regardless of meeting standard inclusion size for Coverage Indicator value = N0.
17.02	01-04-17	9-28	Updated definition and inclusion for Bookstore.
17.02	01-04-17	9-42	Updated inclusion for Library.
17.02	01-04-17	12-32	Added note to section RDF_AREA_TMC: This content is no longer maintained.
17.02	01-04-17	12-119	Replaced "If TEXT_TYPE is Route, value is "-" with "If TEXT_TYPE is Text (T), then DIRECTION_CODE is NULL." in the description for DIRECTION_CODE.
17.02	01-04-17	21-7	Simplified table for examples of Phonetic Language codes for various countries.
17.02	01-04-17	B-80	Added note to section TMC Areas - Europe: This content is no longer maintained.
17.02	01-04-17	C-23	Added note to section RDF_AREA_TMC: This content is no longer maintained.

RH.20 Changes Made for Q3-2017

Version	Date	Page #	Description
			No schema update; incremented version number to 7.40
17.03	01-07-17	4-134	Added Note to Speed Limit on Ramps (Non-Highway-to-Highway Connectors)
17.03	01-07-17	6-4 thru 8	Updated section for Sign Inclusion.
17.03	01-07-17	9-77	Enhanced section for Brand Name.
17.03	01-07-17	9-79	Enhanced section for Chain ID.
17.03	01-07-17	C-90	Updated value for Grade Category, from 0 to NULL.

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