

1 Use Case 3: Exchange of alignment and major road/railway parameters

1.1 Purpose

Importing major alignments from Road and railway design system is needed to provide the basis for creating the tunnel model. In most cases, the tunnel geometry is created by sweeping the tunnel profile along the tunnel axis. The tunnel axis is derived from the underlying roadway / railway alignment, the provided cant / super-elevation information and spatial requirements defined by the clearance and the installation spaces. The tunnel axis is usually described as an independent alignment.

The exchange scenario to be supported is:

- From Roadway/railway design software to Tunnel design software
- From Tunnel design software to downstream applications (e.g. tunnel axis required for machine steering software)

1.2 Requirements for IFC-Tunnel:

In general, the tunnel model follows the major geometry for the road or railway. Depending on the cross section geometry, separate tunnel alignments may be needed, e.g. asymmetric tunnels, cross passages, widening and access tunnels.

Geometry: Follows the functionality provided by road/railway extension. Of particular importance is the proper definition of railway/roadway width, cant/superelevation and clearance. For tunnels and shafts with high slope, there is a need to use 3D-profiles and 3D-sections (as described in IFC Alignment and IFC Rail).

Semantics: No specific requirements.