

IFC Rail Phase 2 Final Report

WP4 – Mapping Diagrams Report

Report of mapping diagrams of IFC Rail. They describe how the IFC Rail conceptual model is mapped to IFC 4.3.

<i>Version:</i>	<i>2.0</i>
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1 Introduction

This document is built to report IFC Rail mapping diagrams, which explain how IFC Rail conceptual model is mapped to IFC 4.3. It is part of the official deliverables of IFC Rail project Phase 2, as shown in Figure 1 below. Please refer to the *IFC Rail Phase 2 Final Report: Executive Summary* for further details.

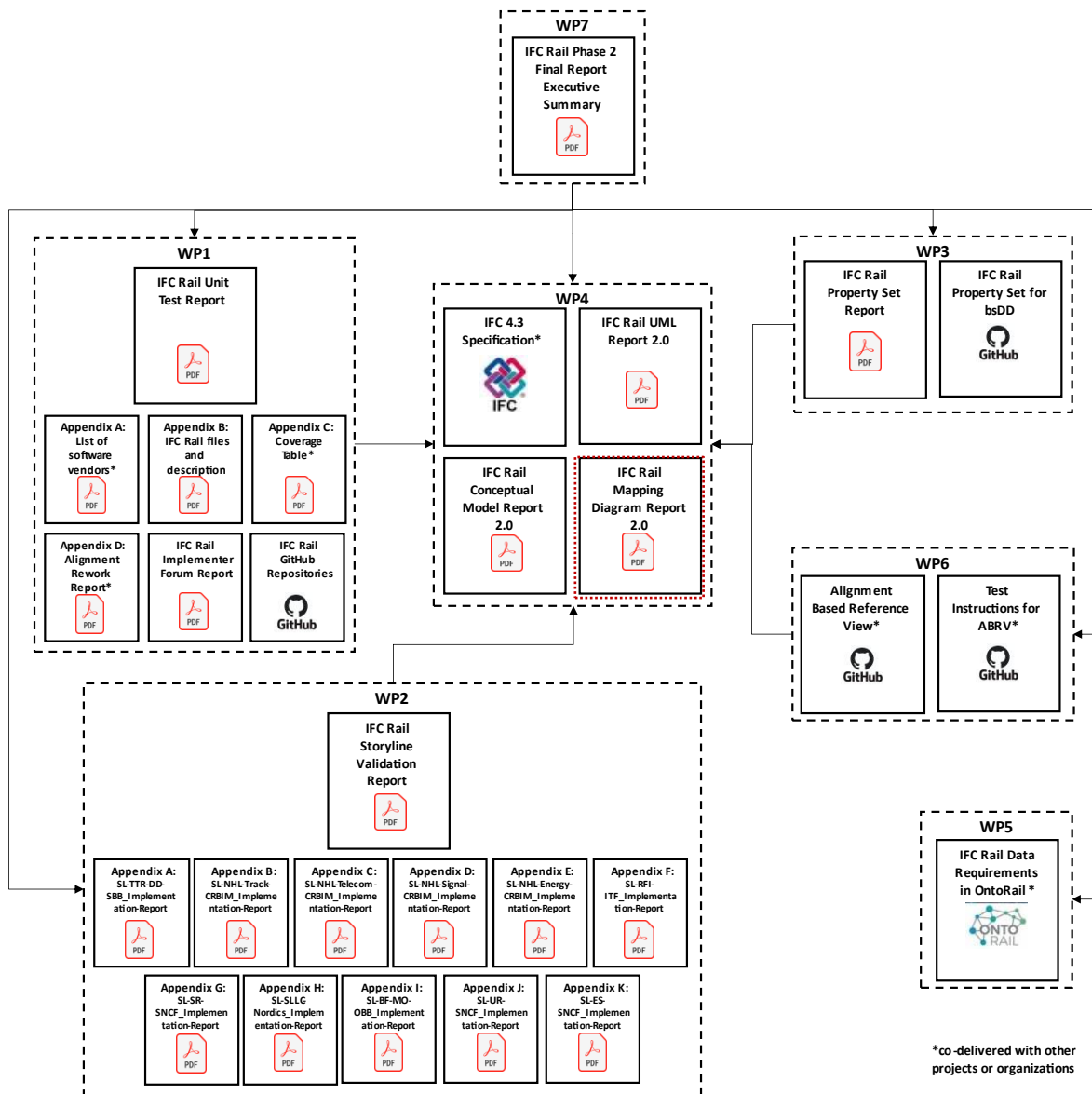


Figure 1 The position of this document in the structure of deliverables

This document is an updated version of the IFC Rail Mapping Diagram Report issued in IFC Rail project from 2018 to 2019. It contains all the new concepts proposed and updated by the IFC Rail project that are already integrated into IFC 4.3. The main purpose of the document is to report how concepts in IFC

Rail Conceptual Model are mapping to IFC 4.3. In order to comprehend this report, the IFC Rail UML Report and IFC Rail Concept Model Report are required as reference.

2 Package structure and convention

Inside the “IFC Rail” package, all the sub-packages related to the extended concepts by IFC Rail are placed. This document reports the content in the “IFC Rail - Mapping” package.

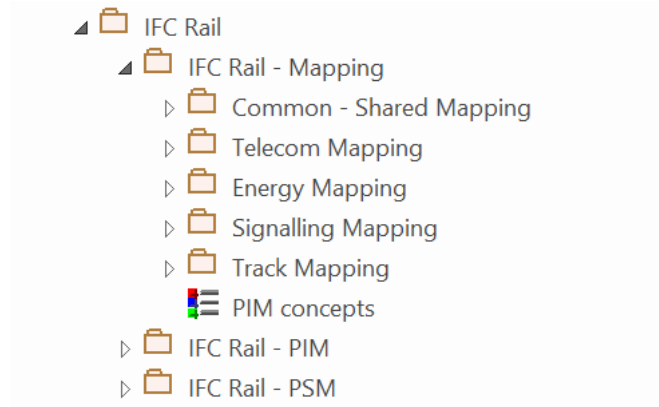


Figure 2 Structure of the IFC Rail package

According to the image above, the content of the “IFC Rail – Mapping” package is structured as follows:

- Each IFC Rail domain has one package
- Each domain package has sub-packages according to how “IFC Rail – PIM” package is structured.
- The IFC 4.3 Model elements are in an external package out of “IFC Rail”. All diagrams in “IFC Rail – Mapping” package only reference these elements.

3 Mapping Diagrams

3.1 Common - Shared Mapping

3.1.1 Alignment (IFC Mapping)

3.1.1.1 Alignment Curve - Mapping

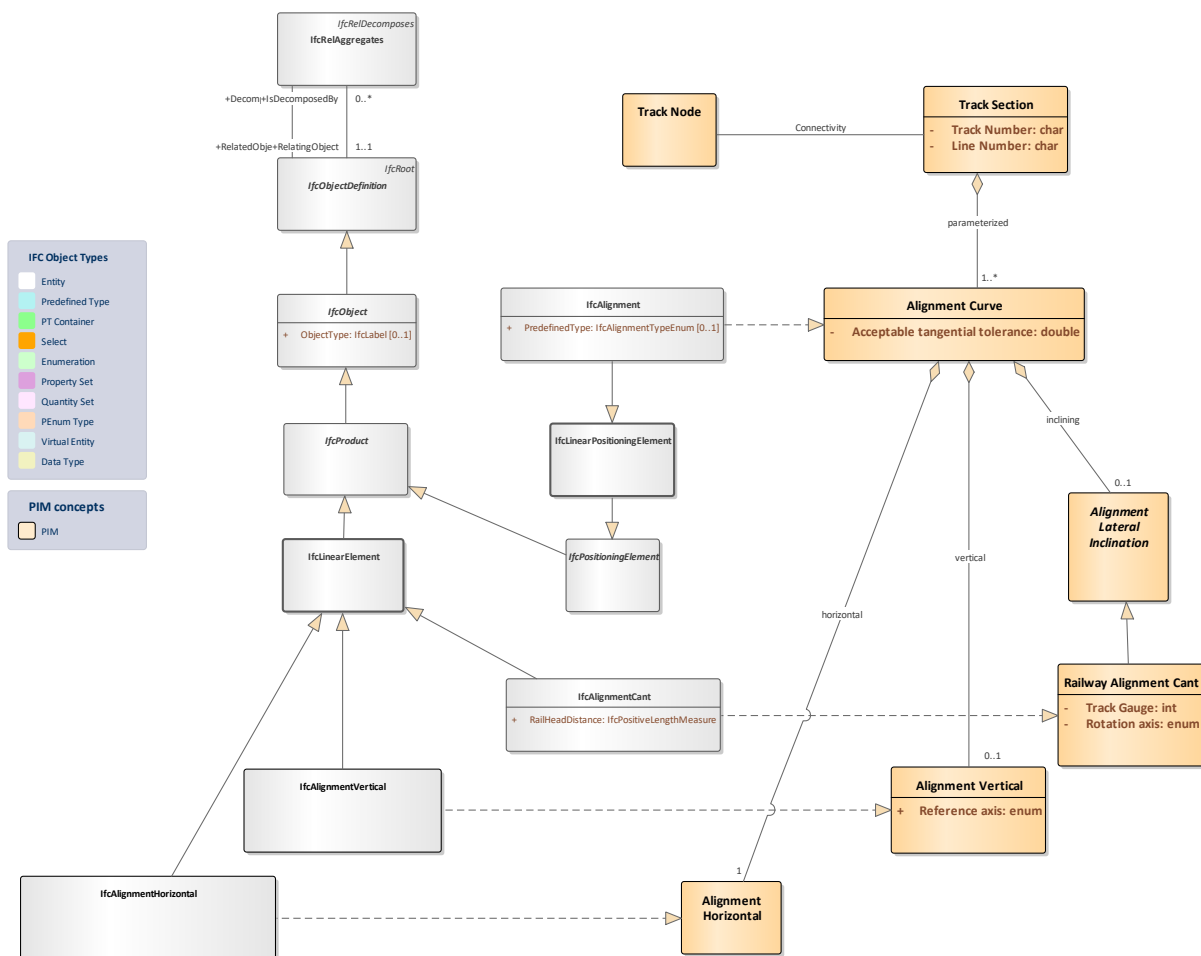
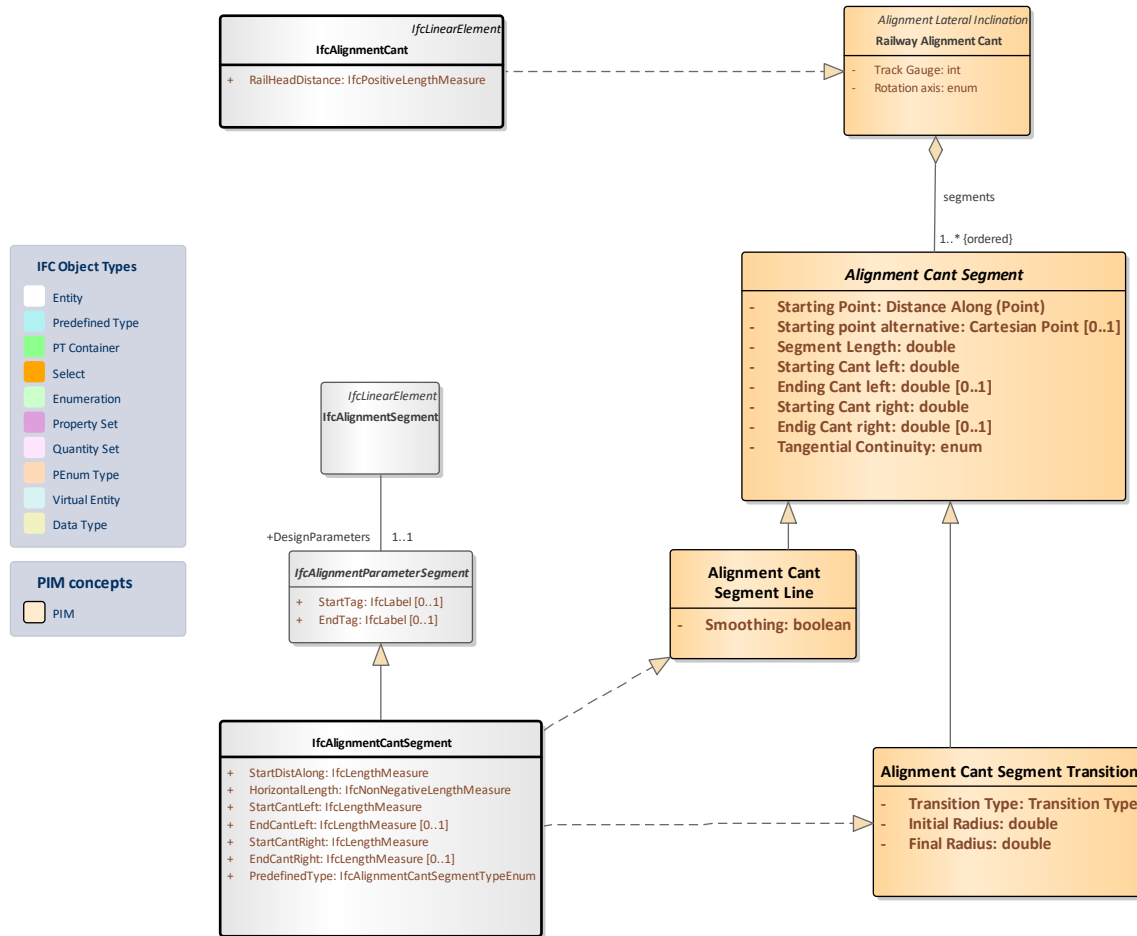


Table 1: Alignment Curve - Mapping

3.1.1.2 Cant Alignment - Mapping



3.1.1.3 Horizontal Alignment - Mapping

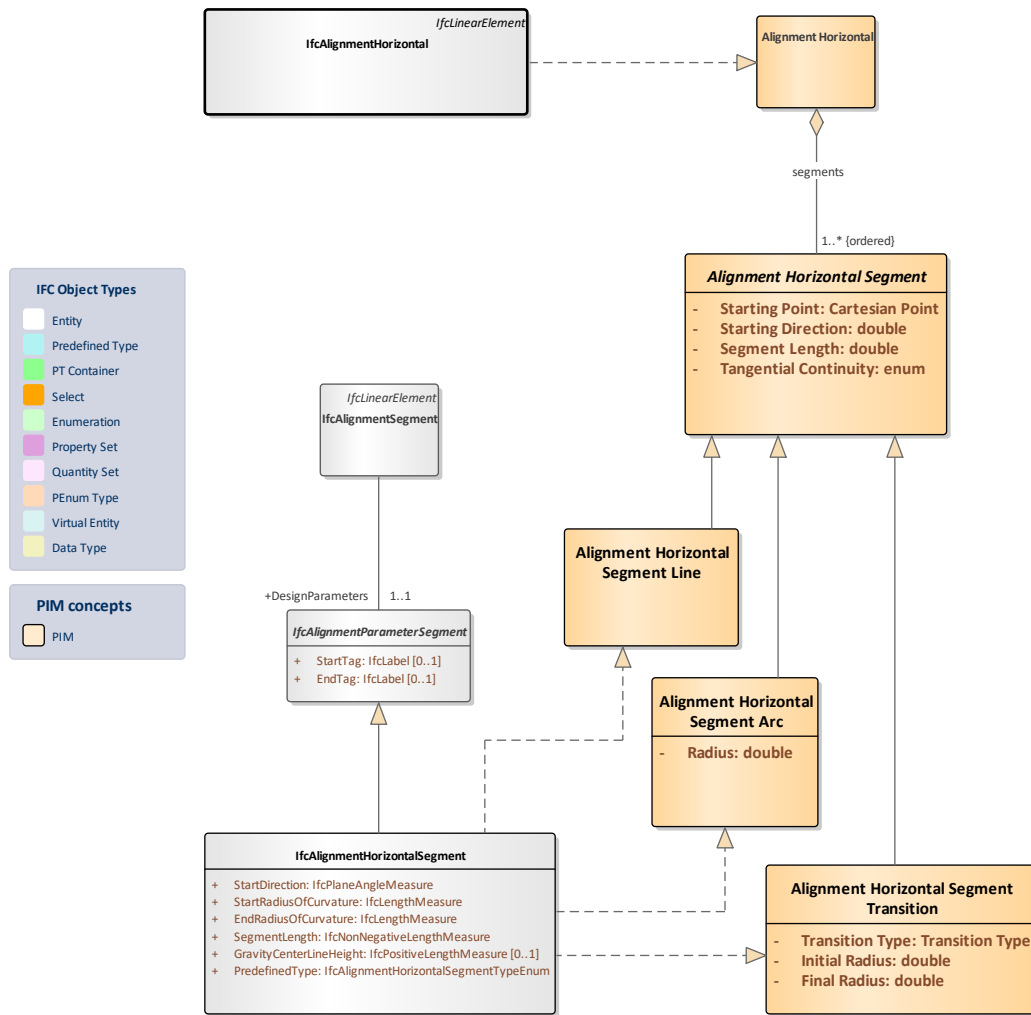


Table 3: Horizontal Alignment - Mapping

3.1.1.4 Vertical Alignment - Mapping

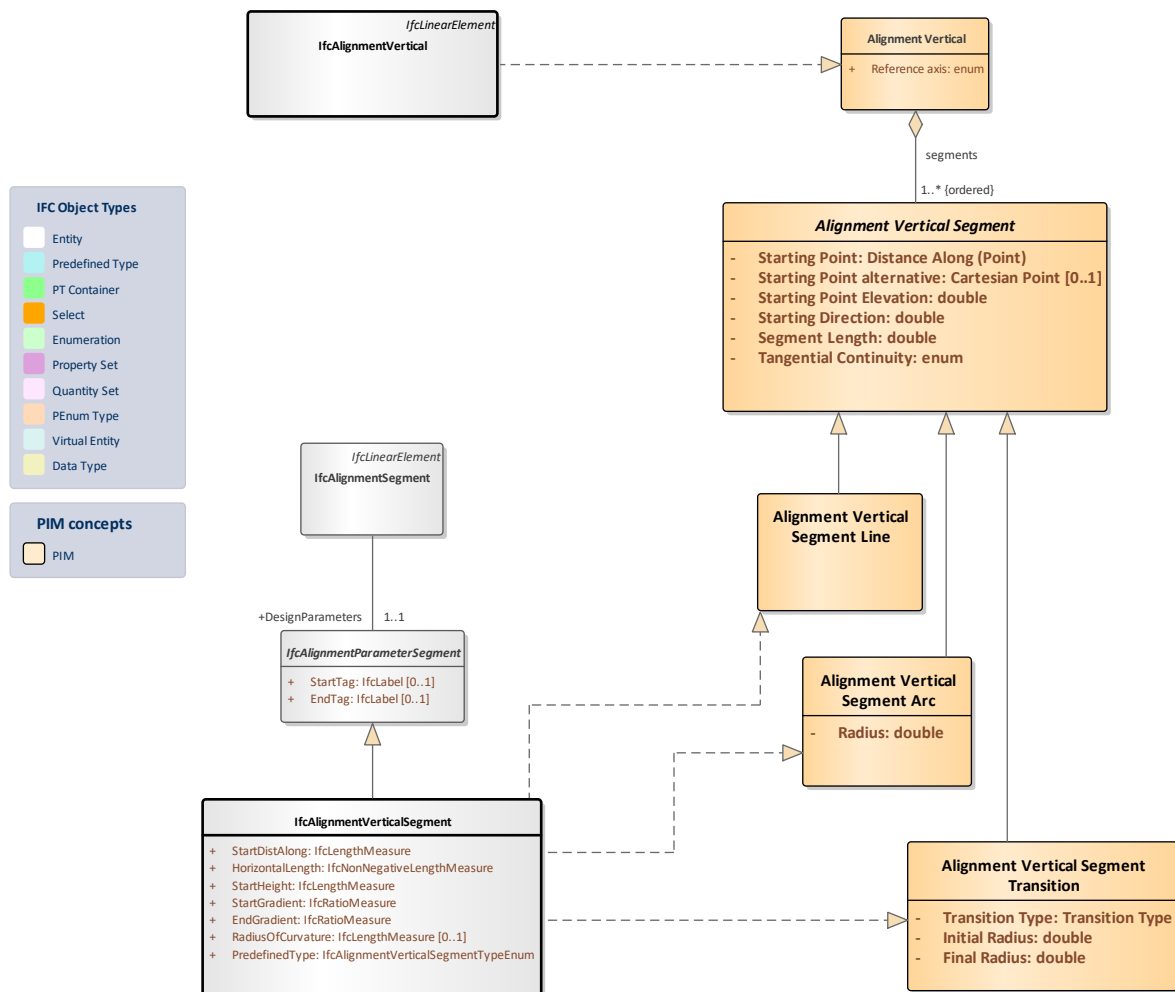


Table 4: Vertical Alignment - Mapping

3.1.2 Spatial (IFC Mapping)

3.1.2.1 Shared spatial structure - domain reserved volumes (mapping)

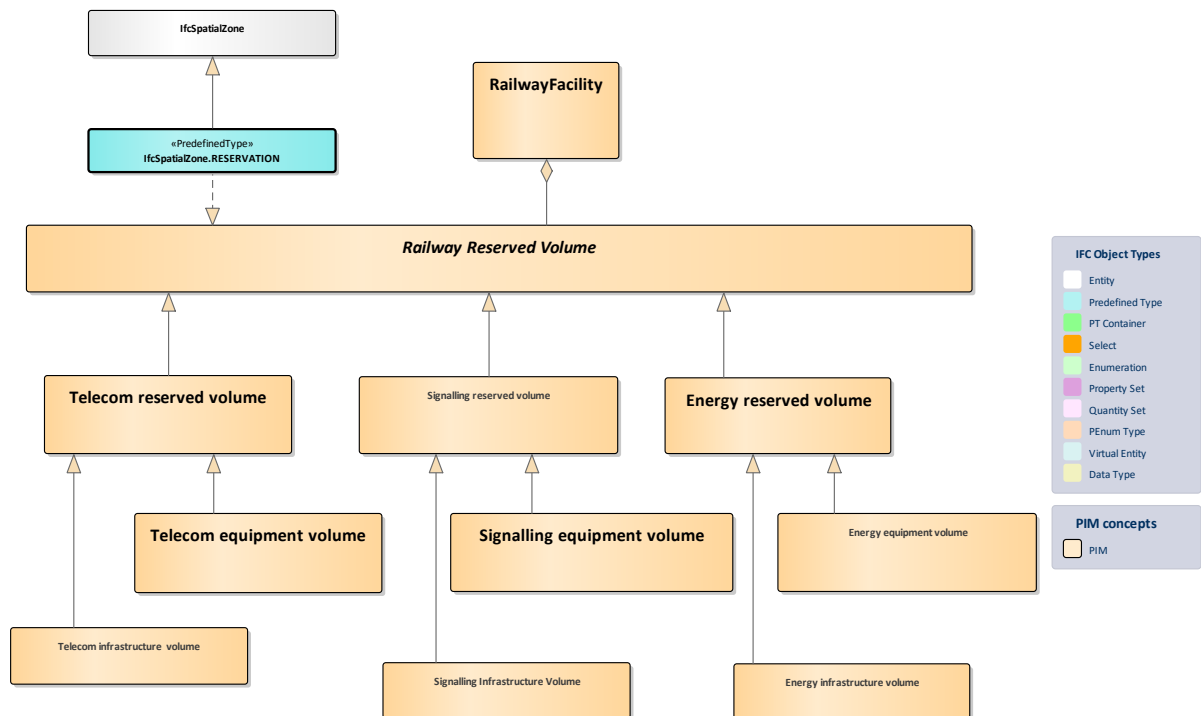


Table 5: Shared spatial structure - domain reserved volumes (mapping)

3.1.2.2 Shared spatial structure - overview (mapping)

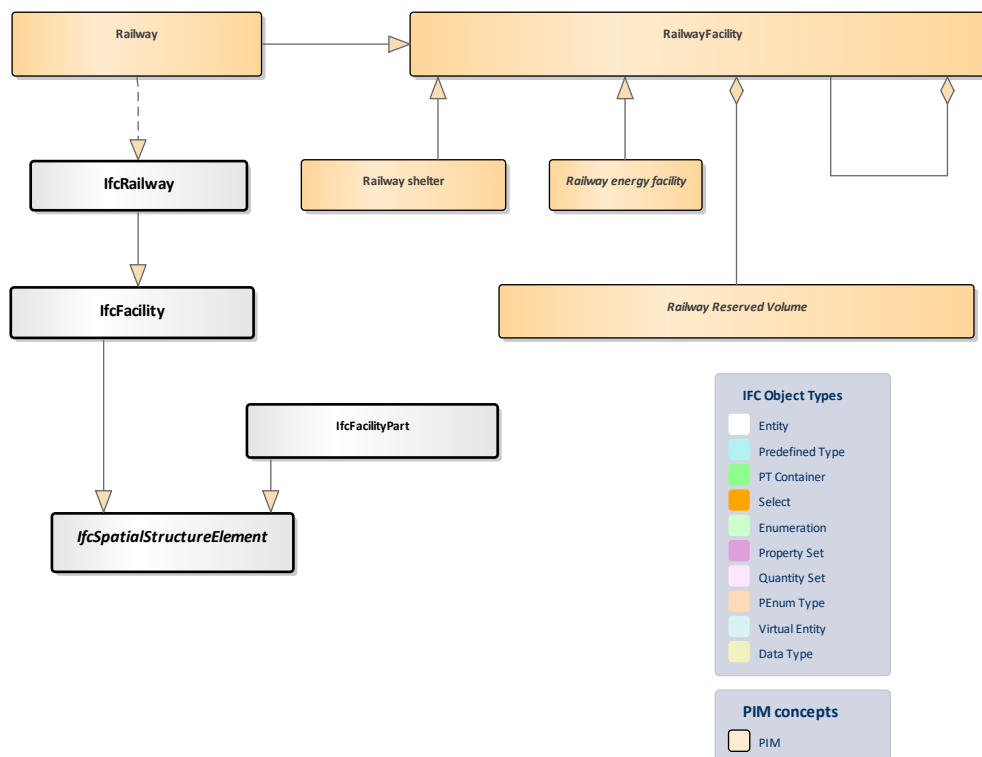


Table 6: Shared spatial structure - overview (mapping)

3.1.2.3 Shared spatial structure - railway (mapping)

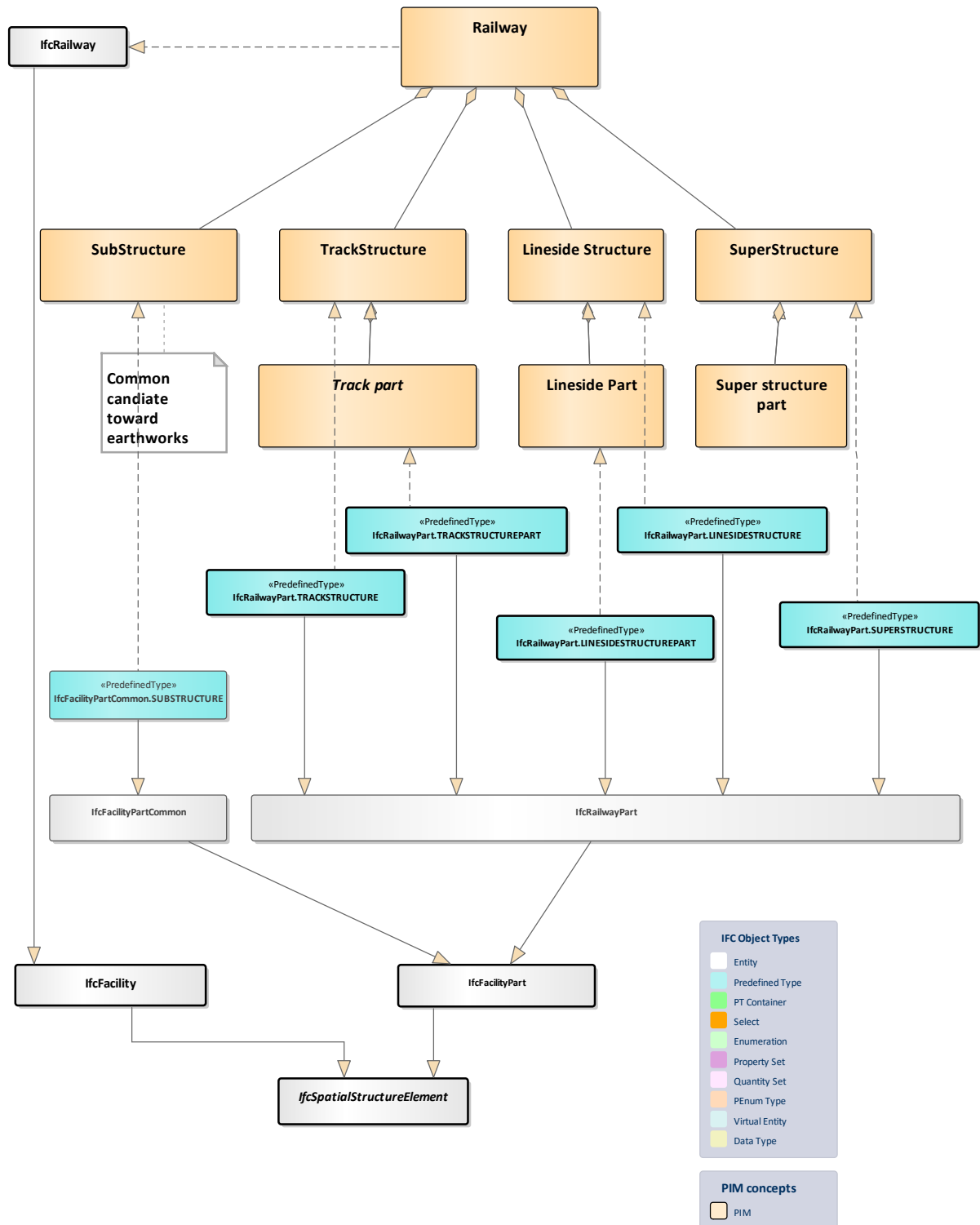


Table 7: Shared spatial structure - railway (mapping)

3.1.2.4 Track spatial structure (mapping)

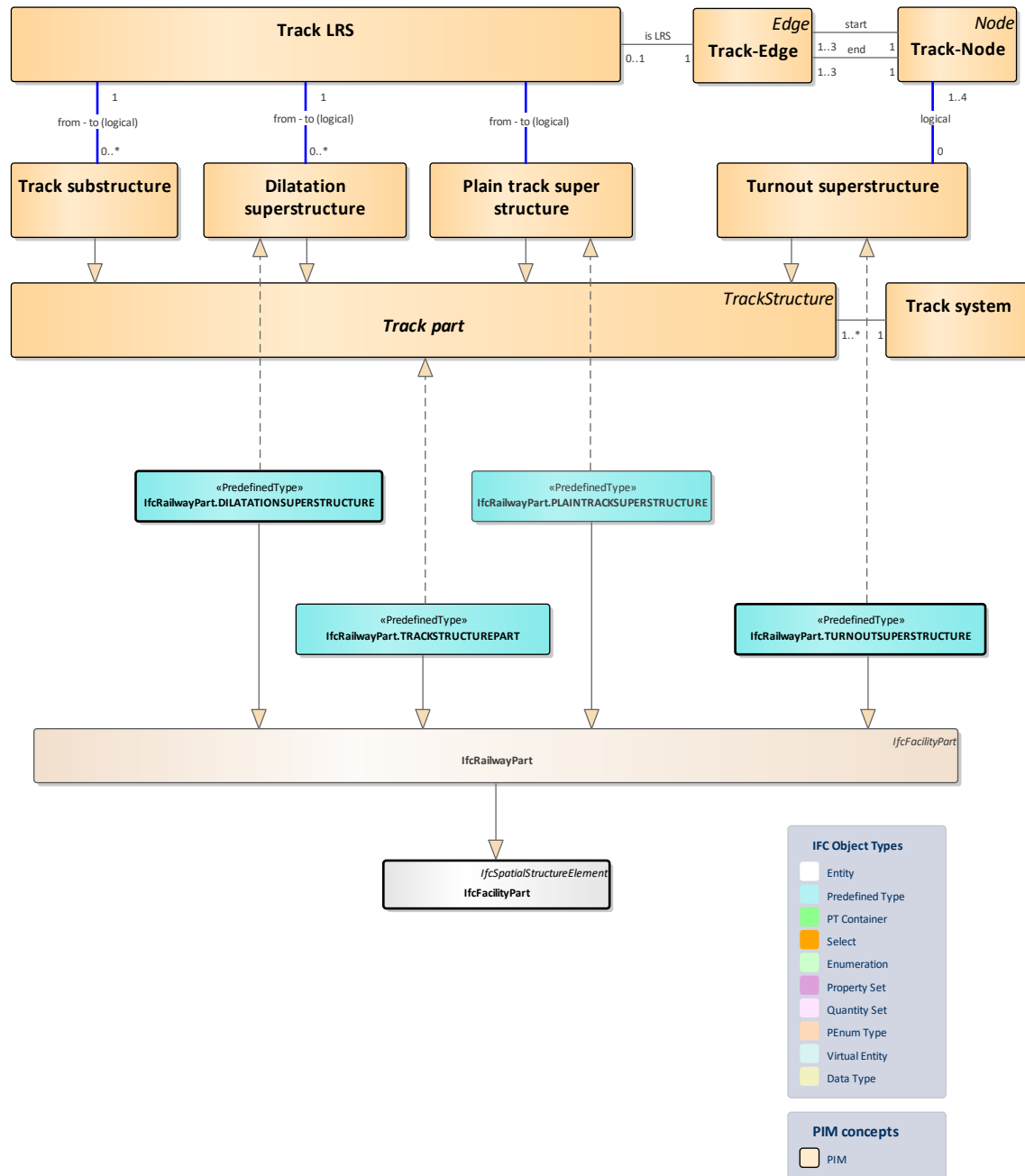


Table 8: Track spatial structure (mapping)

3.1.2.5 SS Legend

3.2 Telecom Mapping

3.2.1 Cabling & Cables (IFC Mapping)

3.2.1.1 Cables (mapping)

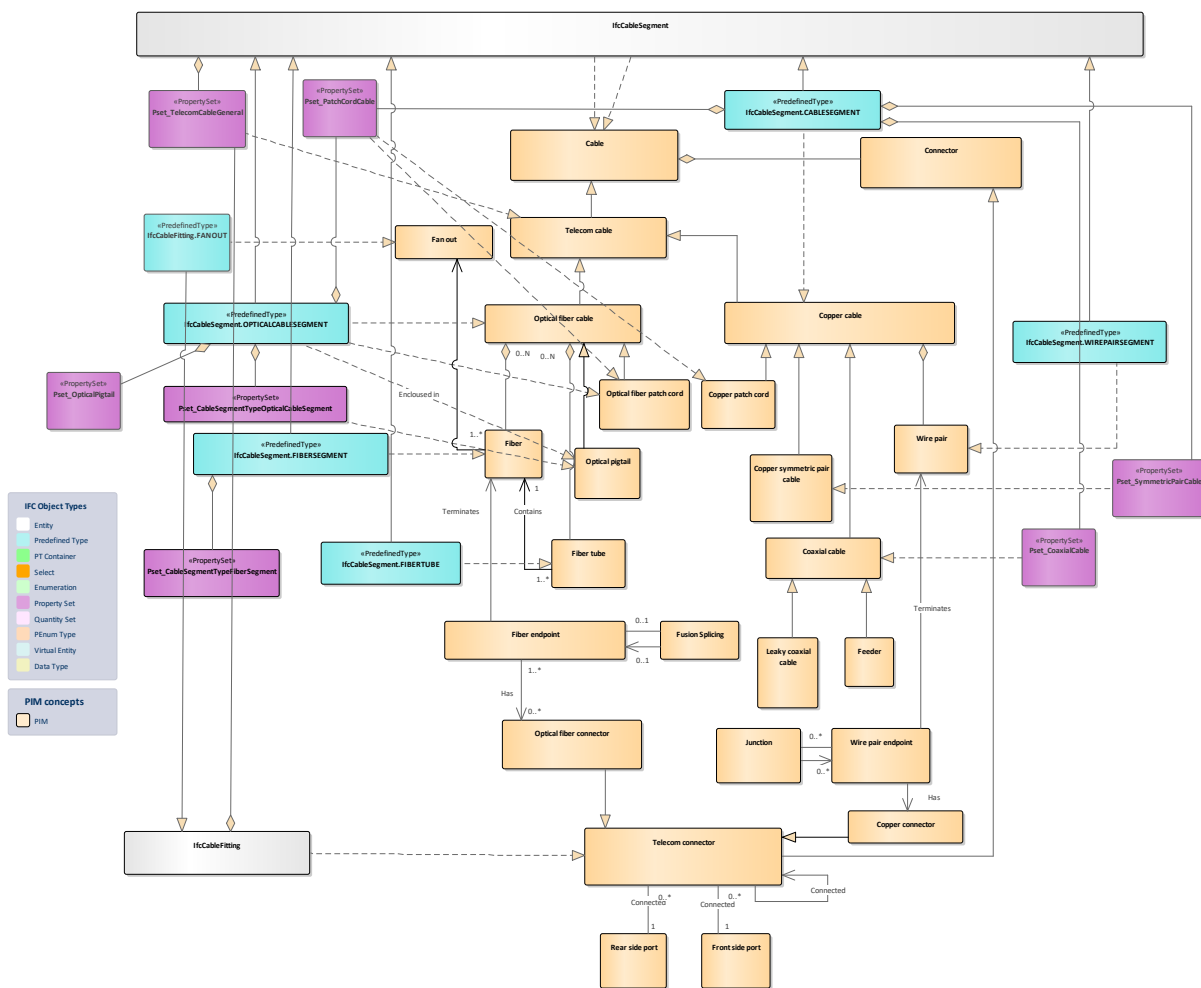


Table 9: Cables (mapping)

3.2.1.2 Cabling (mapping)

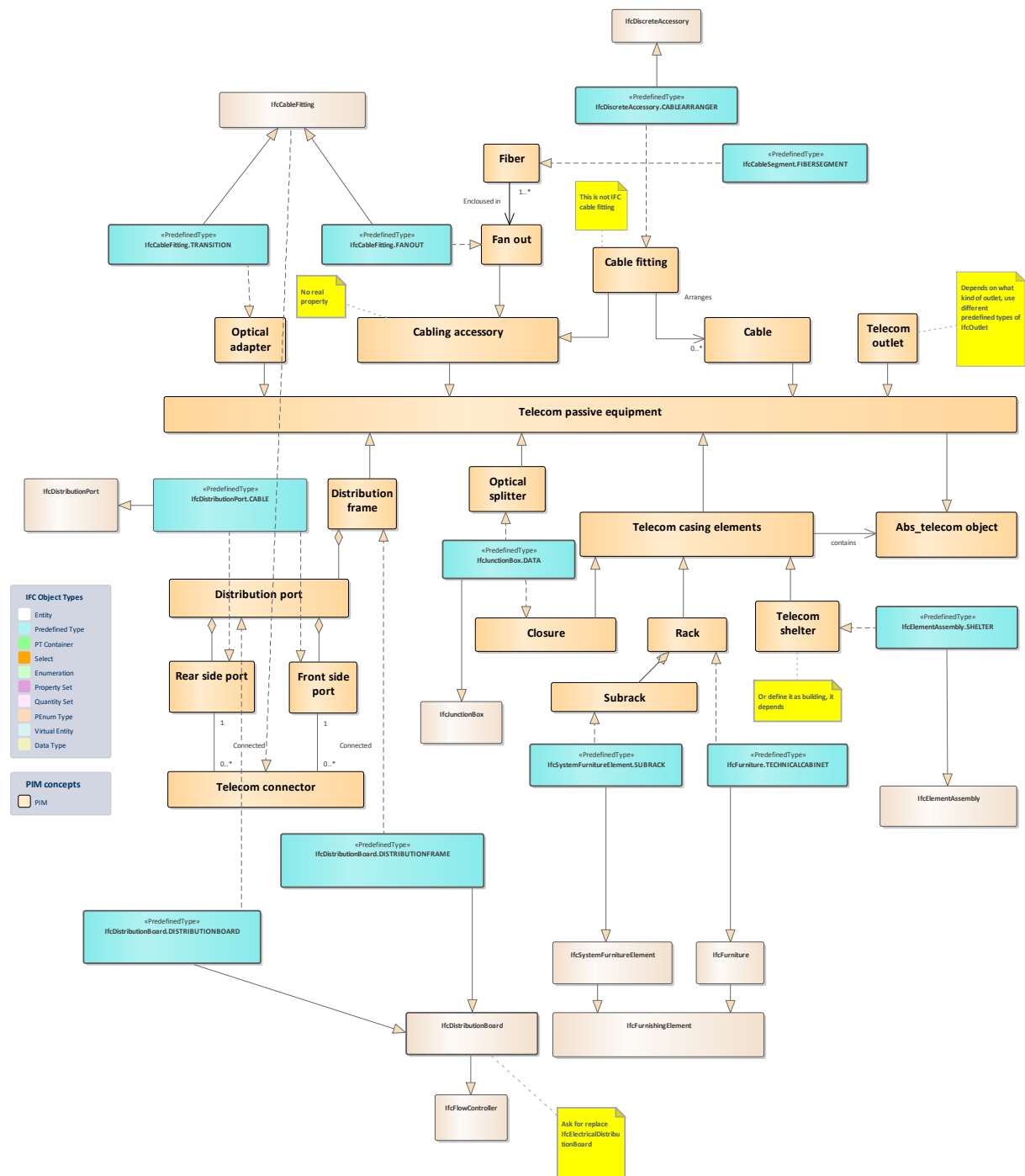


Table 10: Cabling (mapping)

3.2.2 Fixed telephony system (IFC Mapping)

3.2.2.1 Fixed telephony system (mapping)

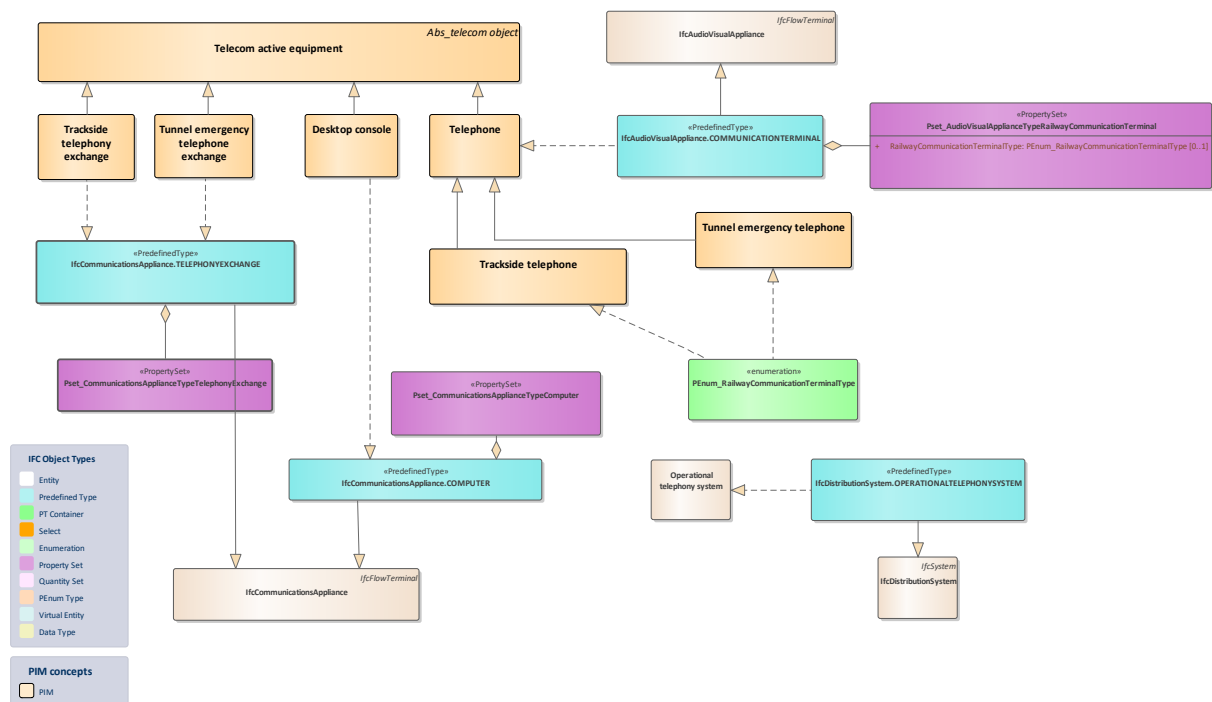


Table 11: Fixed telephony system (mapping)

3.2.3 Fixed transmission network (IFC Mapping)

3.2.3.1 Fixed transmission network (mapping)

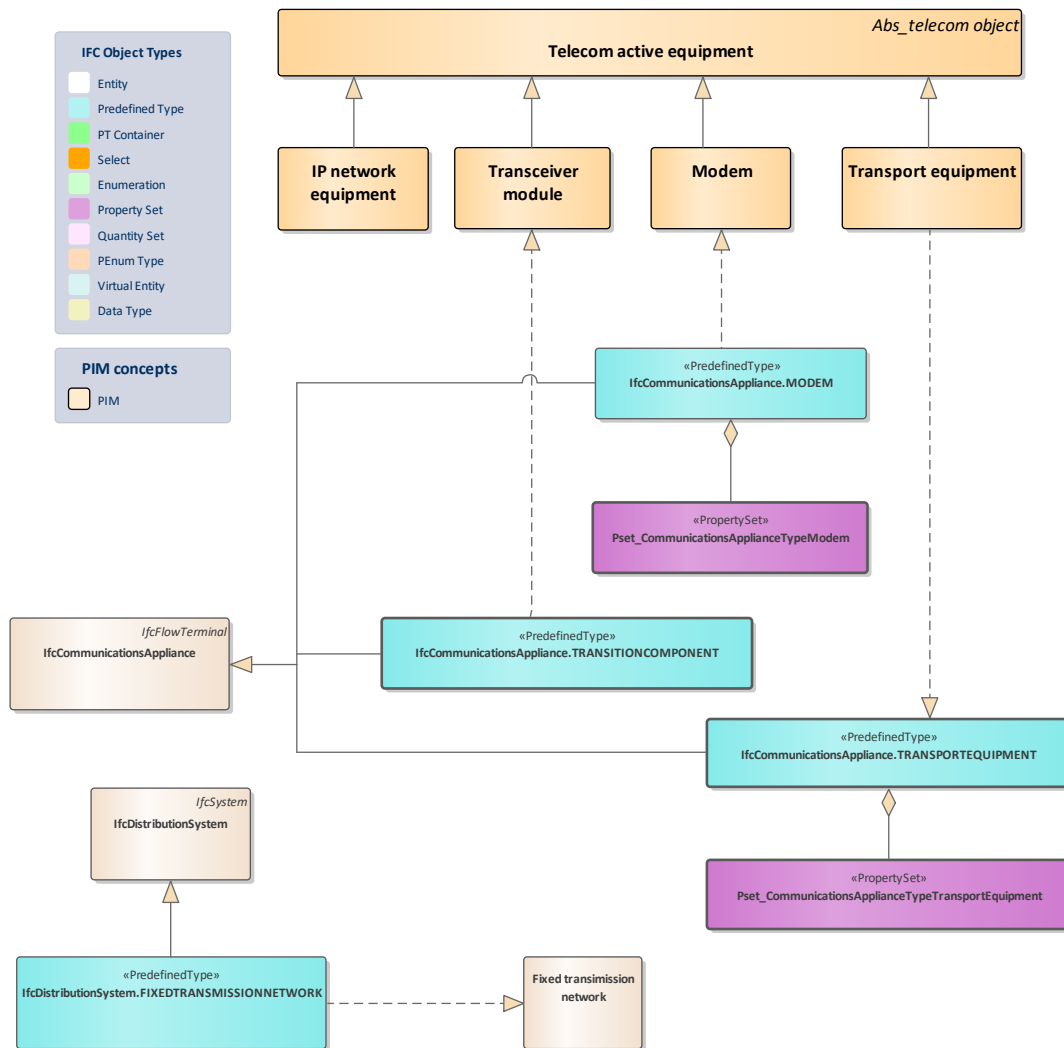


Table 12: Fixed transmission network (mapping)

3.2.4 Mobile network (GSMR - WiFi - LTE) (IFC Mapping)

3.2.4.1 Mobile network (GSMR - WiFi - LTE) (mapping added)

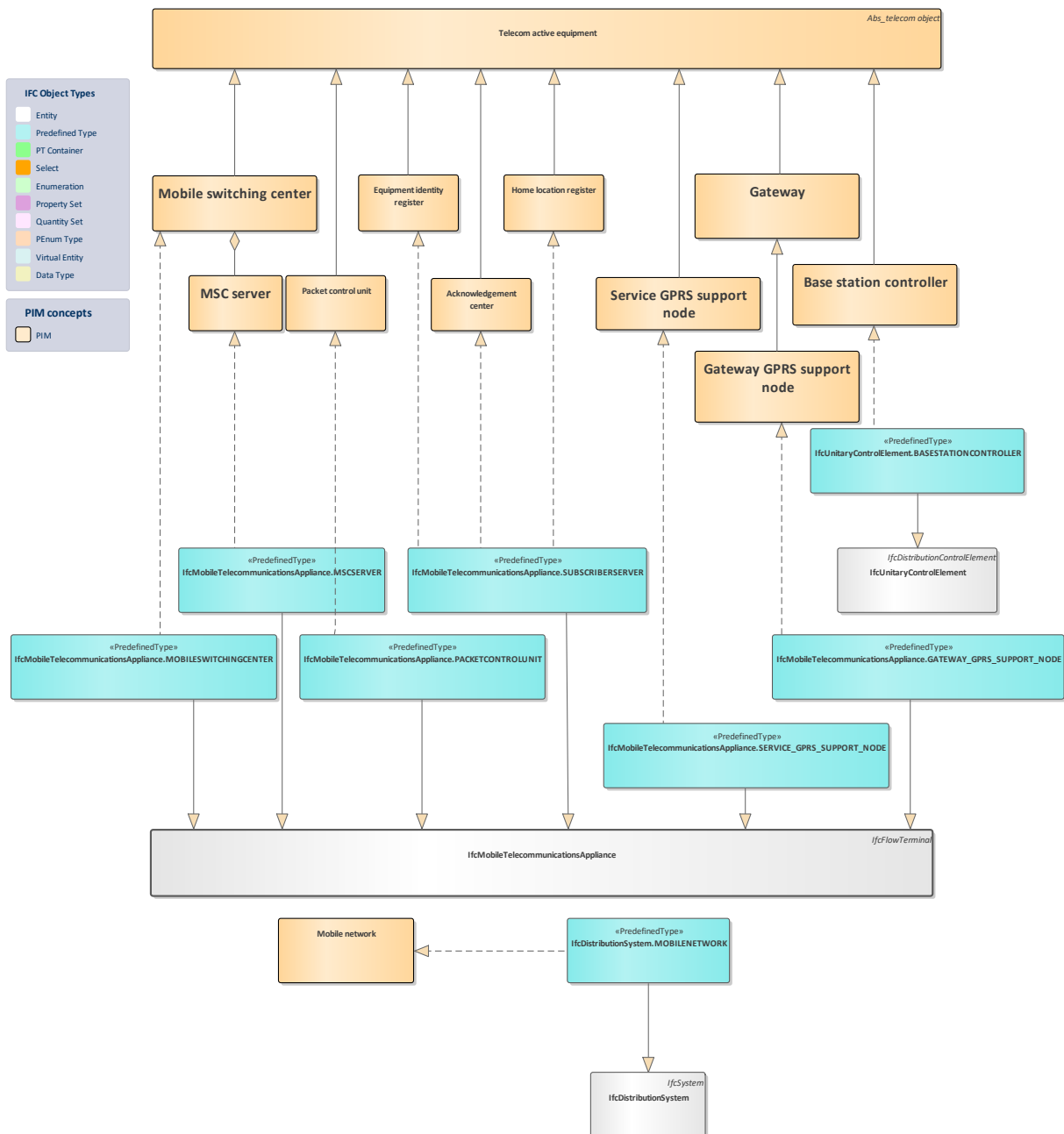


Table 13: Mobile network (GSMR - WiFi - LTE) (mapping added)

3.2.4.2 Mobile network (GSMR - WiFi - LTE) (mapping)

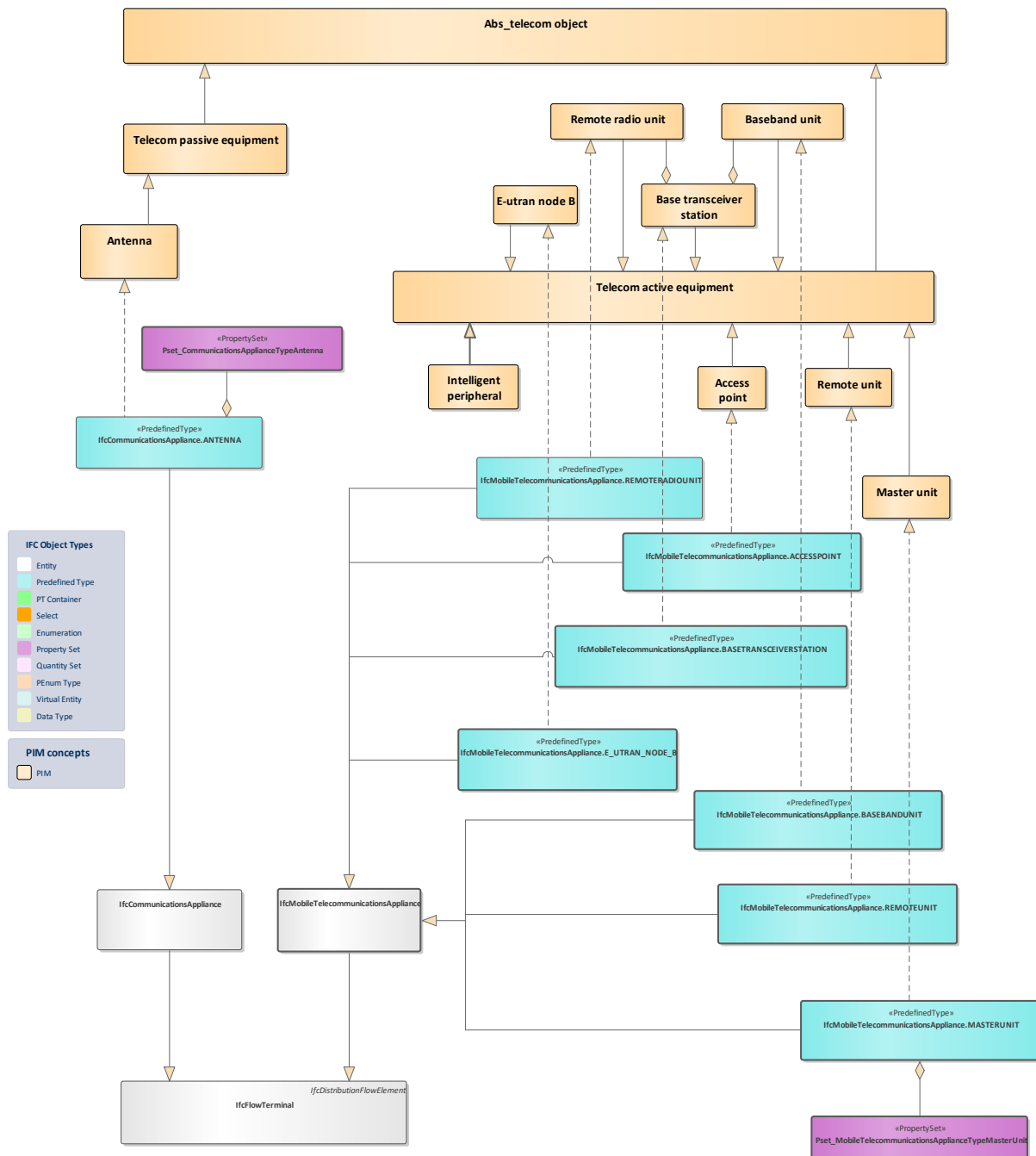


Table 14: Mobile network (GSMR - WiFi - LTE) (mapping)

3.2.5 Railway natural disaster and Foreign object intrusion monitoring system (IFC Mapping)

3.2.5.1 Railway natural disaster and Foreign object intrusion monitoring system (mapping)

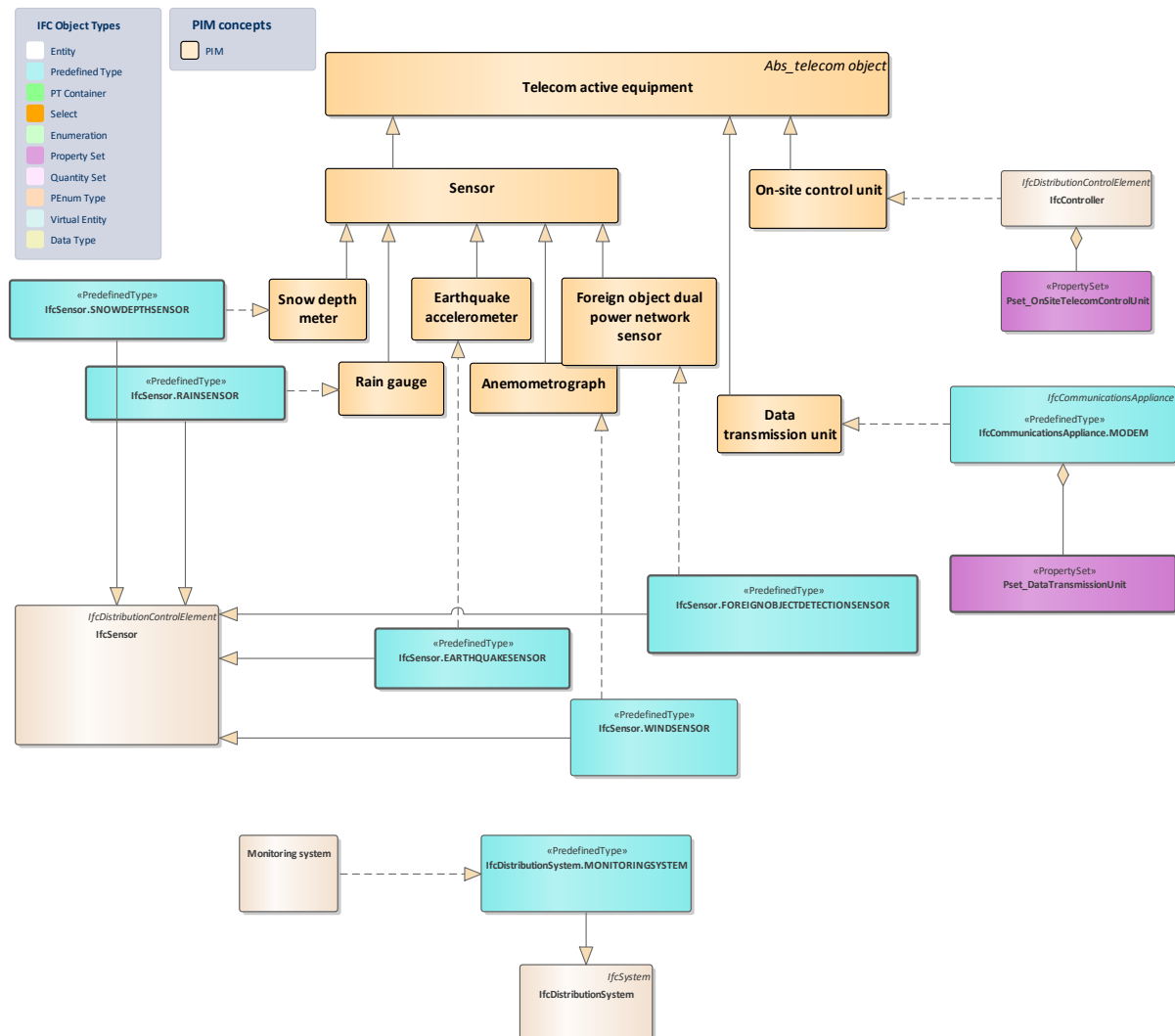


Table 15: Railway natural disaster and Foreign object intrusion monitoring system (mapping)

3.2.6 Support and laying infrastructure (IFC Mapping)

3.2.6.1 Support and laying infrastructure (mapping)

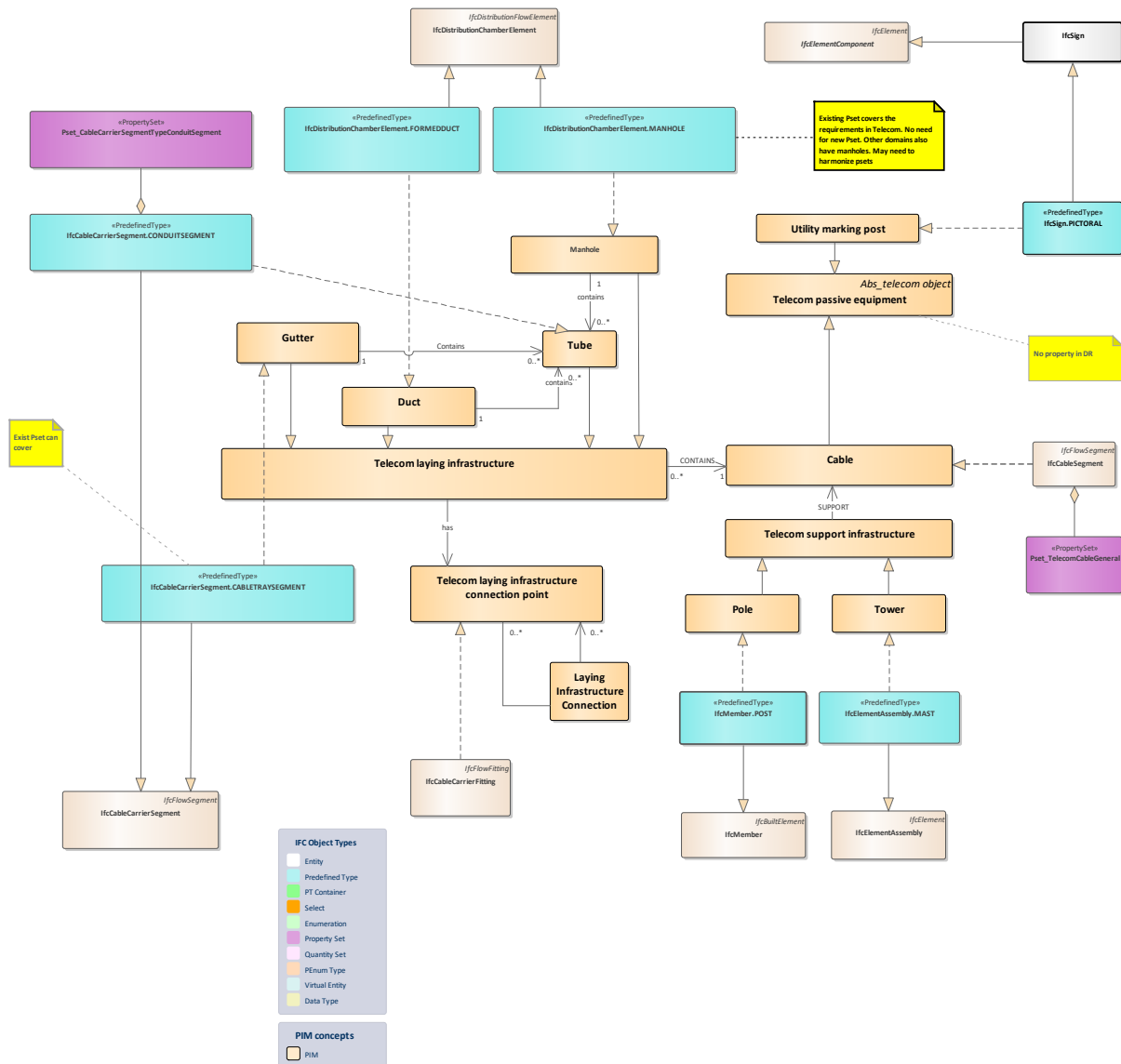


Table 16: Support and laying infrastructure (mapping)

3.2.7 Telecom interfaces (IFC Mapping)

3.2.7.1 Telecom interfaces (mapping)



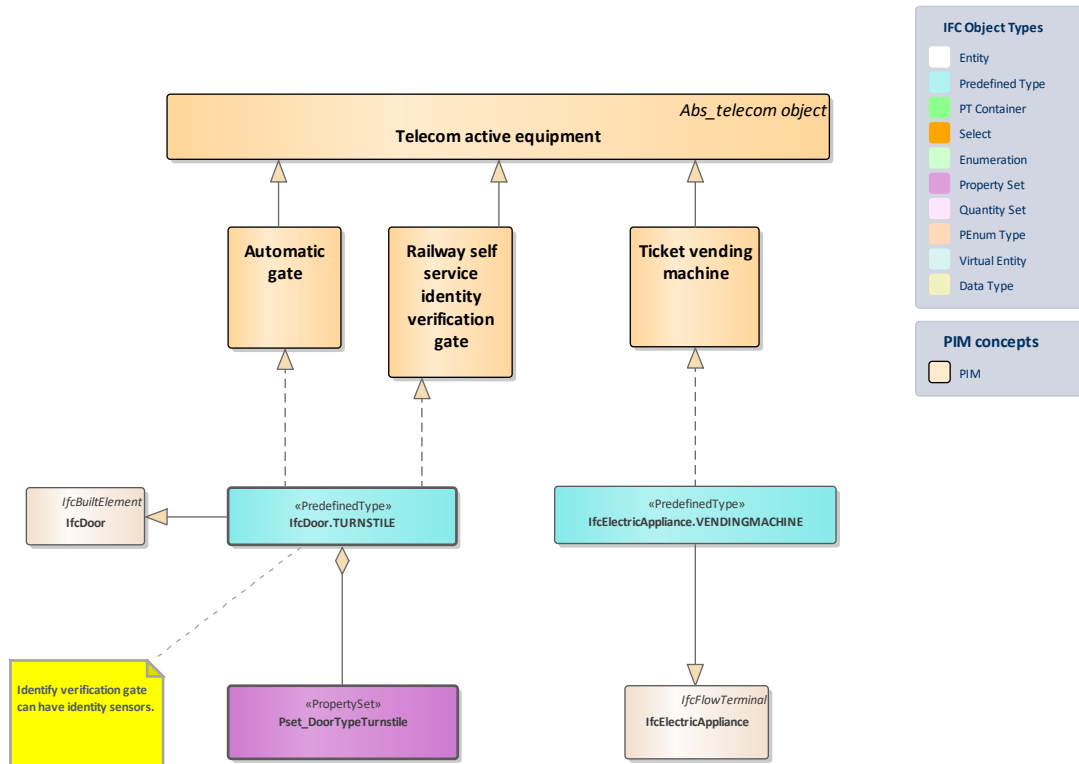


Table 18: Ticketing system (mapping)

3.2.9 Wired access network (IFC Mapping)

3.2.9.1 Wired access network (mapping)

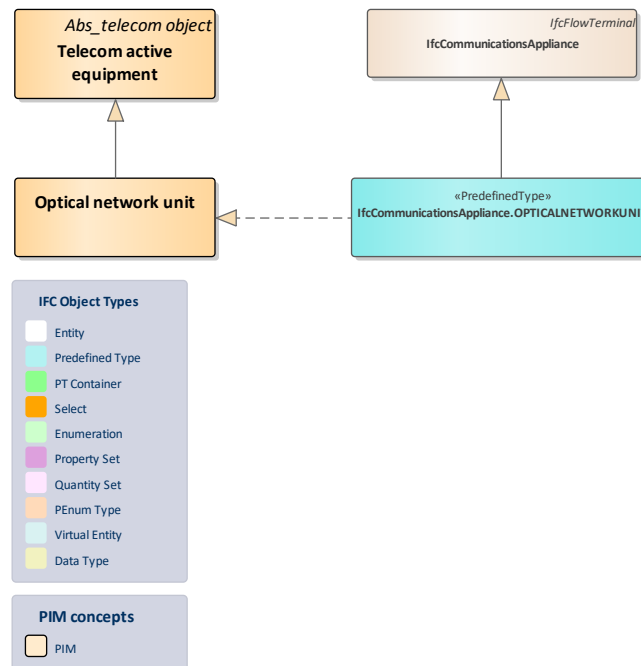


Table 19: Wired access network (mapping)

3.3 Energy Mapping

3.3.1 Auxiliary Services (IFC Candidate)

3.3.1.1 Auxiliary Services - Mapping

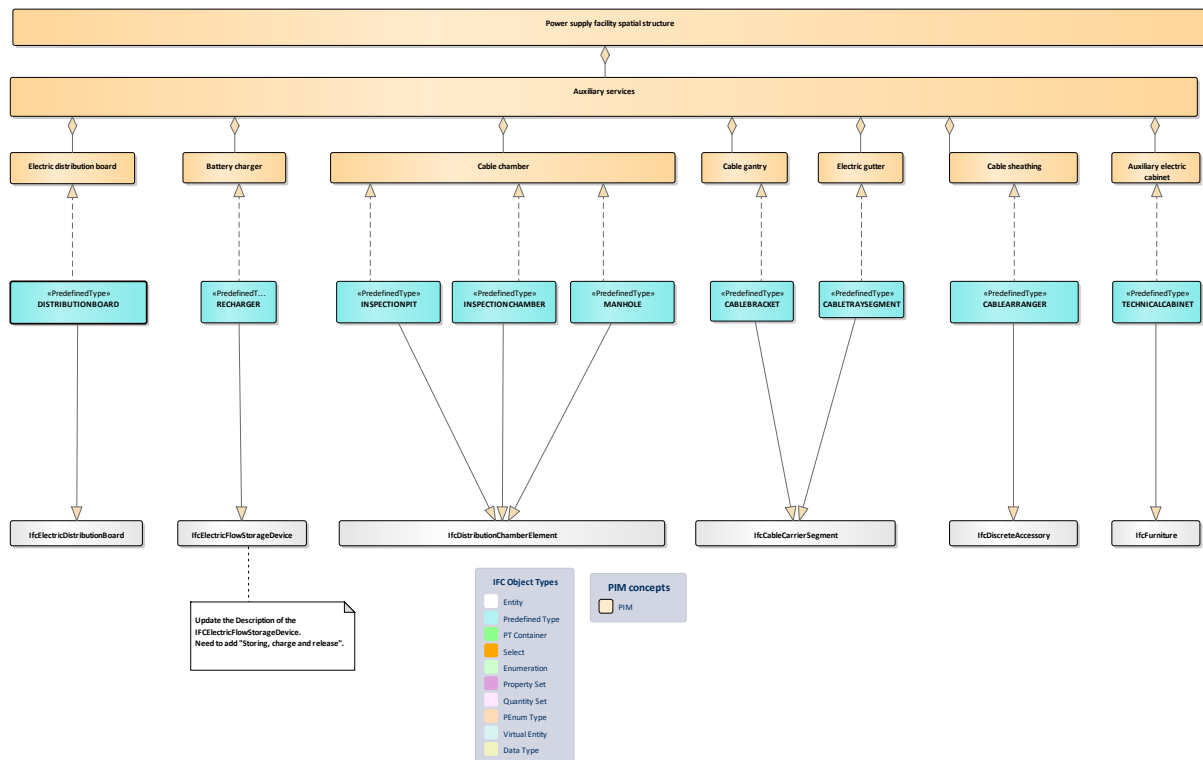
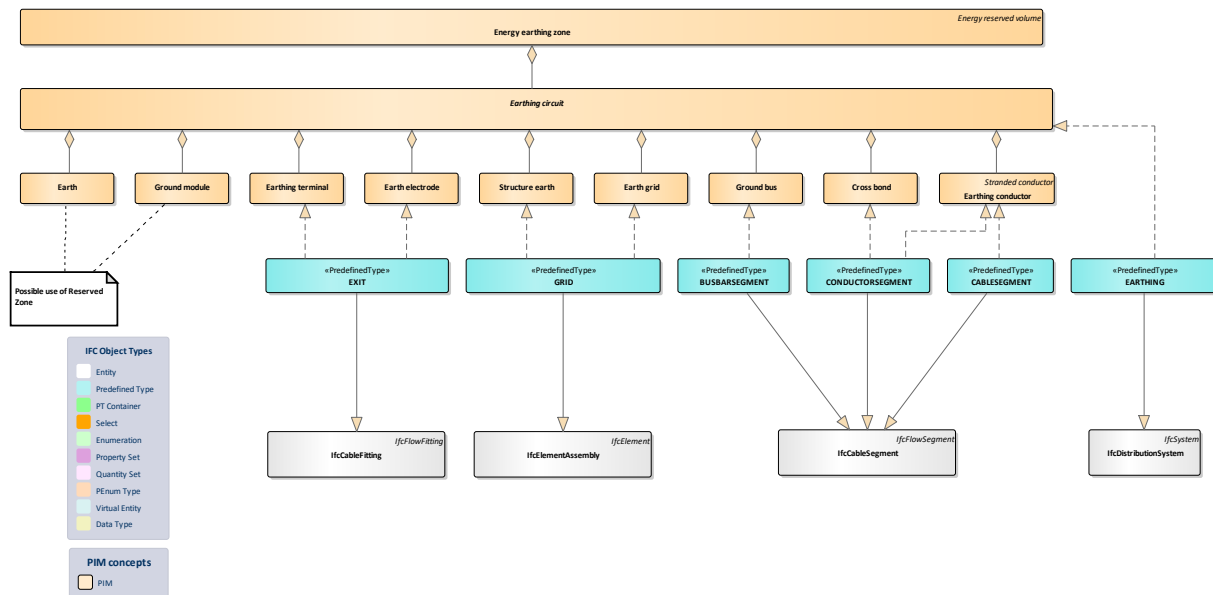


Table 20: Auxiliary Services - Mapping

3.3.2 Earthing Circuit (IFC Candidate)

3.3.2.1 Earthing Circuit - Mapping



Typical Earthing System

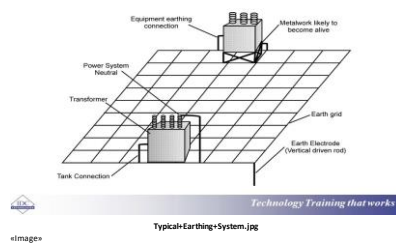


Table 21: Earthing Circuit – Mapping

3.3.3 Earthing Line (IFC Candidate)

3.3.3.1 Earthing Line - Mapping

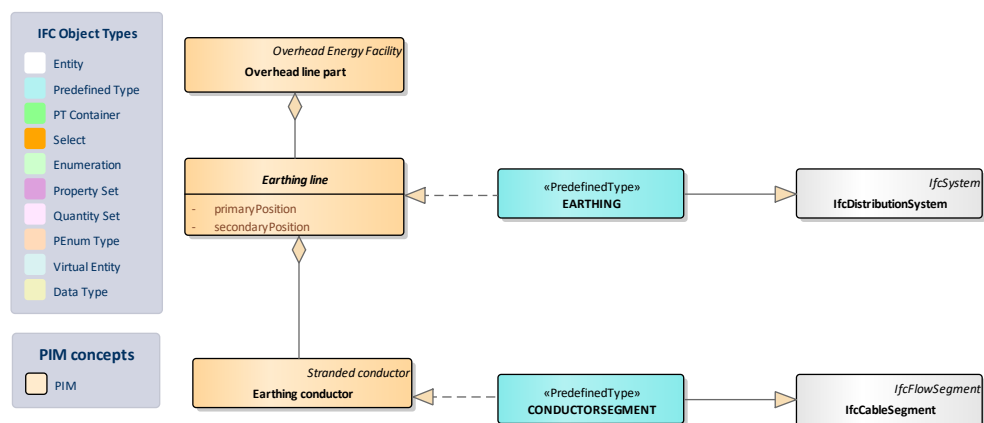


Table 22: Earthing Line - Mapping

3.3.4 Electric Power Converter (IFC Candidate)

3.3.4.1 Electric Power Converter - Mapping

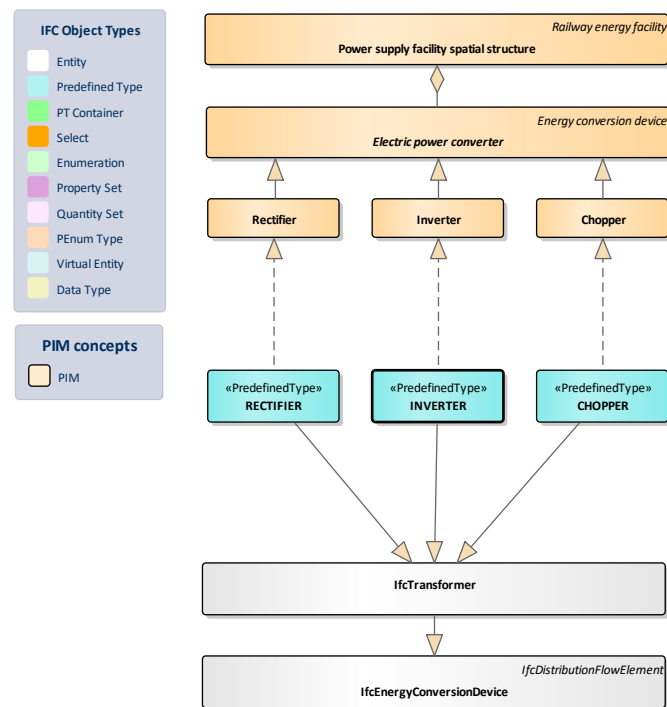


Table 23: Electric Power Converter - Mapping

3.3.5 Electric Storage (IFC Candidate)

3.3.5.1 Electric Storage - Mapping

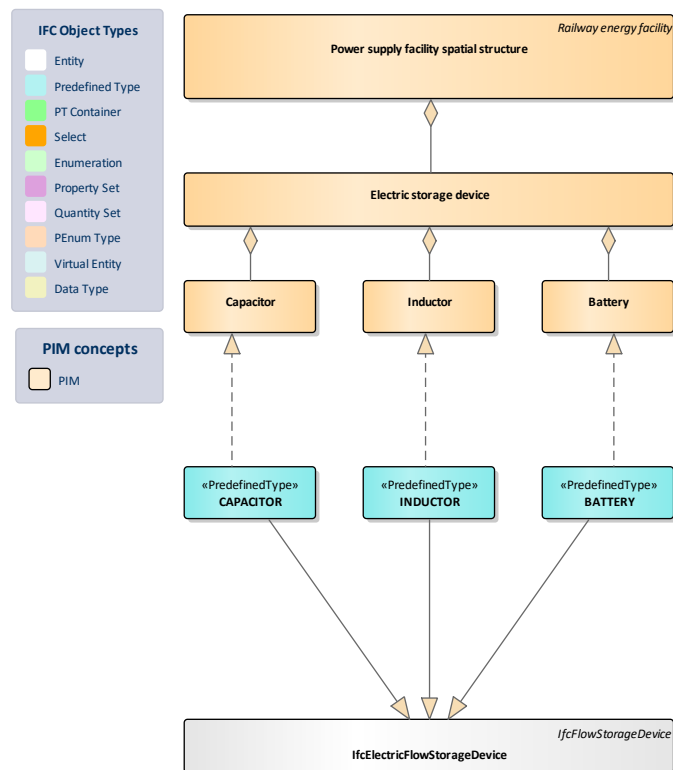


Table 24: Electric Storage - Mapping

3.3.6 Feeder Line (IFC Candidate)

3.3.6.1 Feeder Line - Mapping

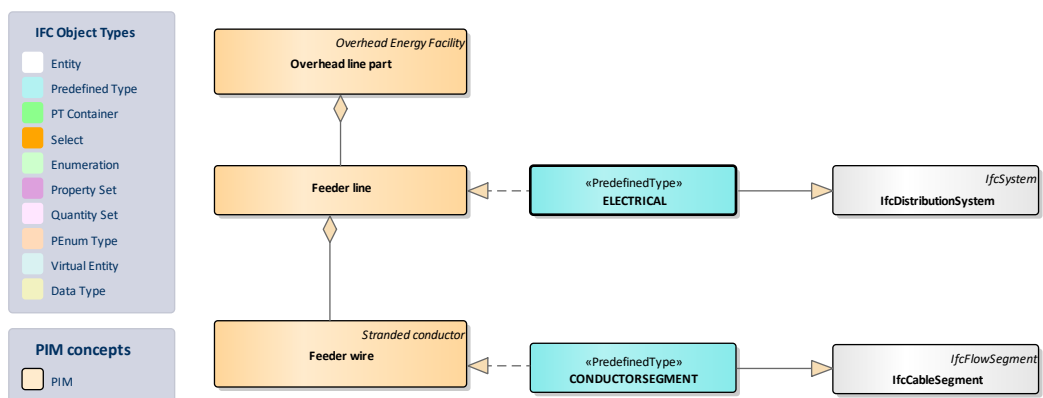


Table 25: Feeder Line - Mapping

3.3.7 Instrument Transformer (IFC Candidate) [OK2]

3.3.7.1 Instrument Transformer - Mapping

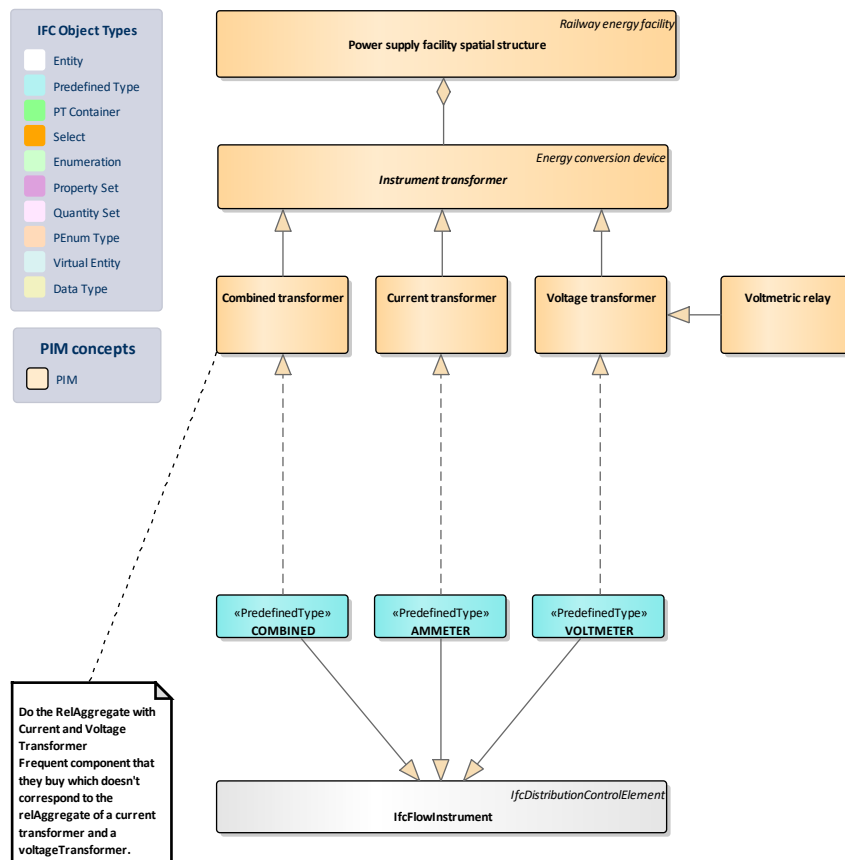


Table 26: Instrument Transformer - Mapping

3.3.8 Mooring (IFC Candidate)

3.3.8.1 Mooring - Mapping

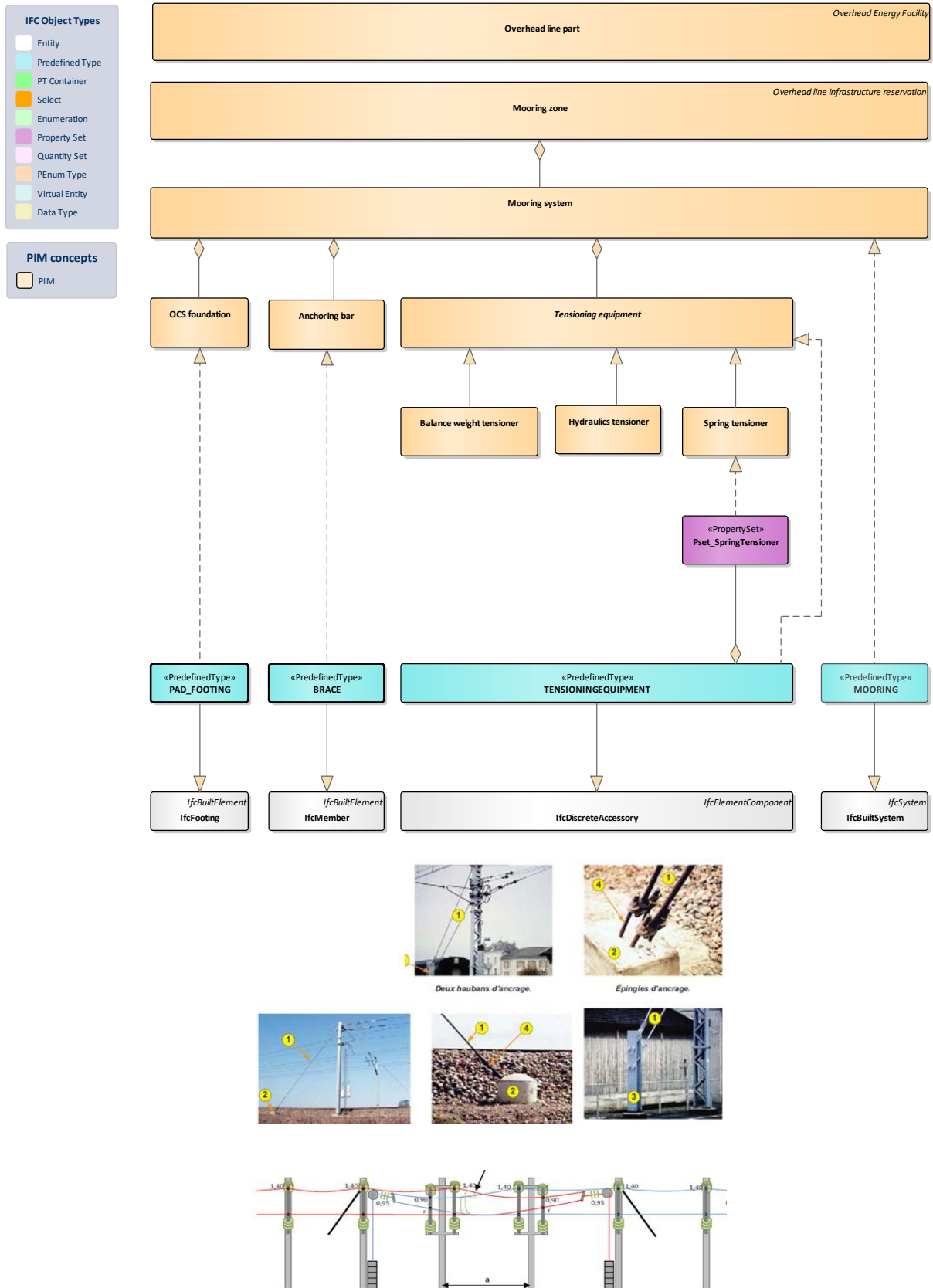


Table 27: Mooring - Mapping

3.3.9 Overhead Contact Line System (IFC Candidate)

3.3.9.1 *Overhead Contact Line System - Mapping*

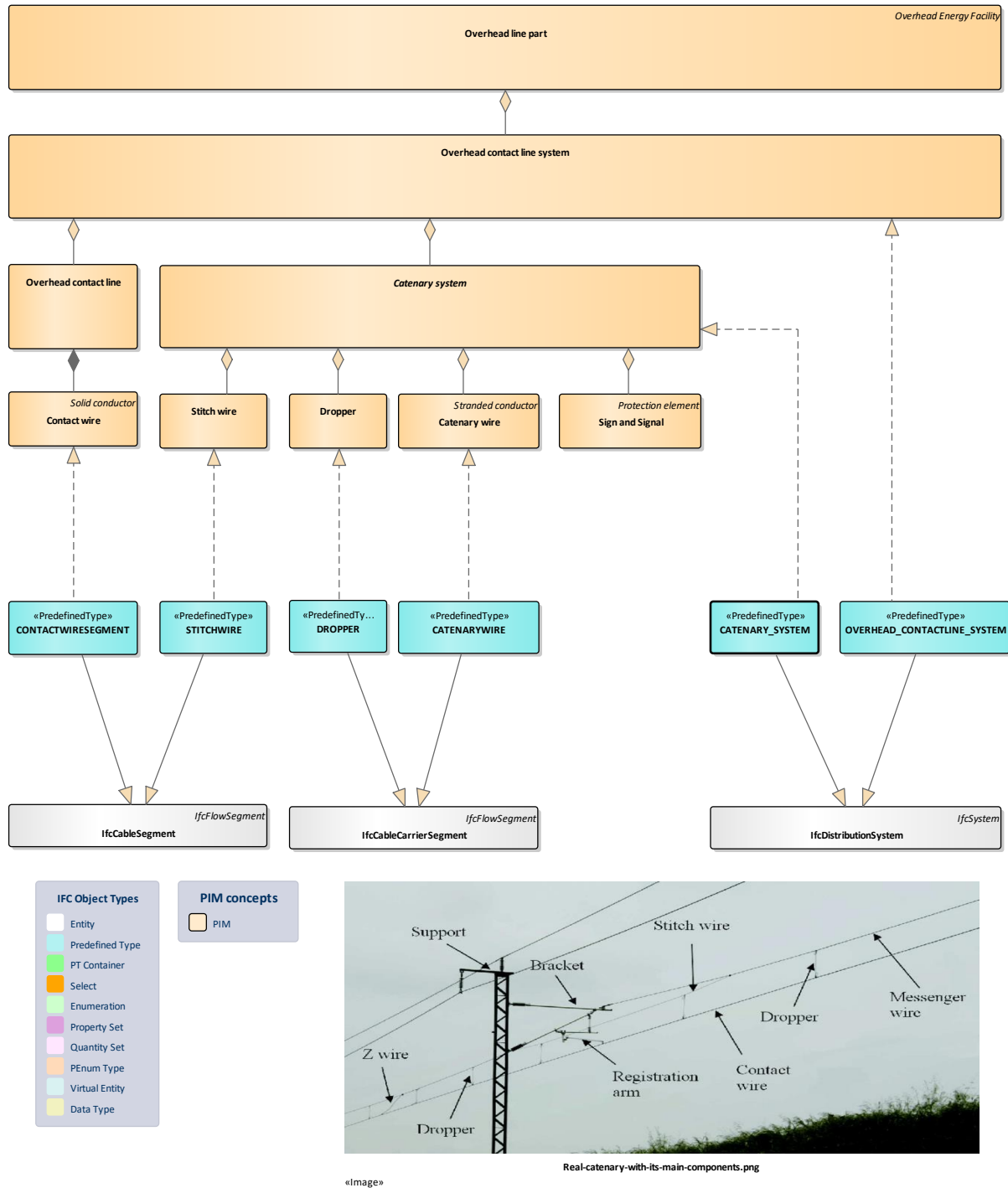


Table 28: Overhead Contact Line System - Mapping

3.3.10 OverHead Line Supporting (IFC Candidate)

3.3.10.1 OCS Support - Mapping

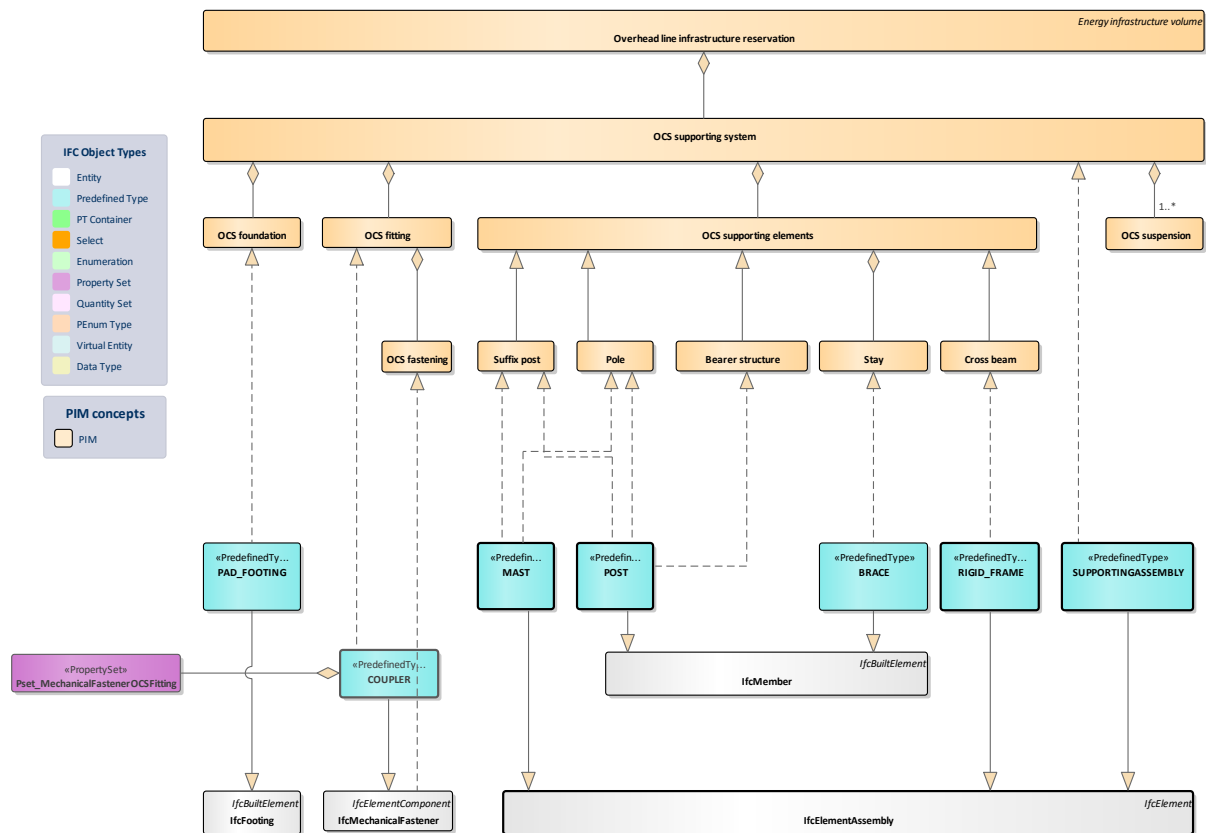


Table 29: OCS Support - Mapping

3.3.10.2 OCS Suspension - Mapping

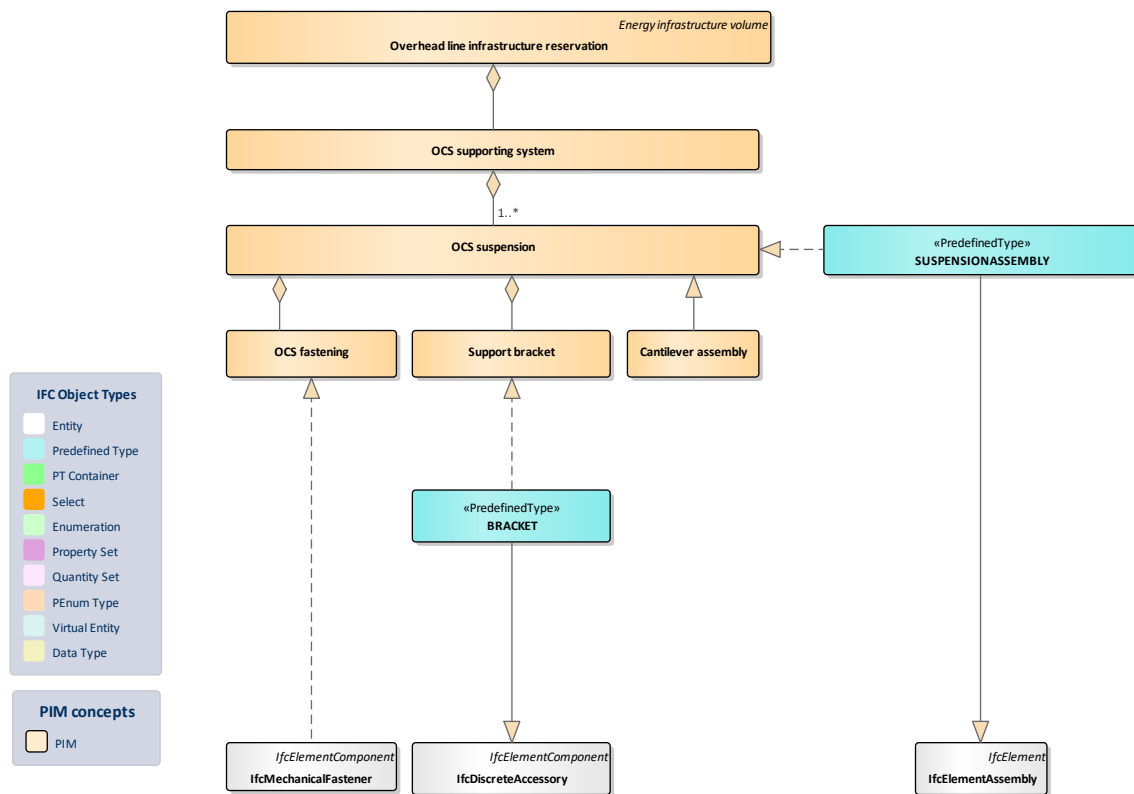


Table 30: OCS Suspension - Mapping

3.3.11 Power Transformer (IFC Candidate)

3.3.11.1 Power Transformer - Mapping

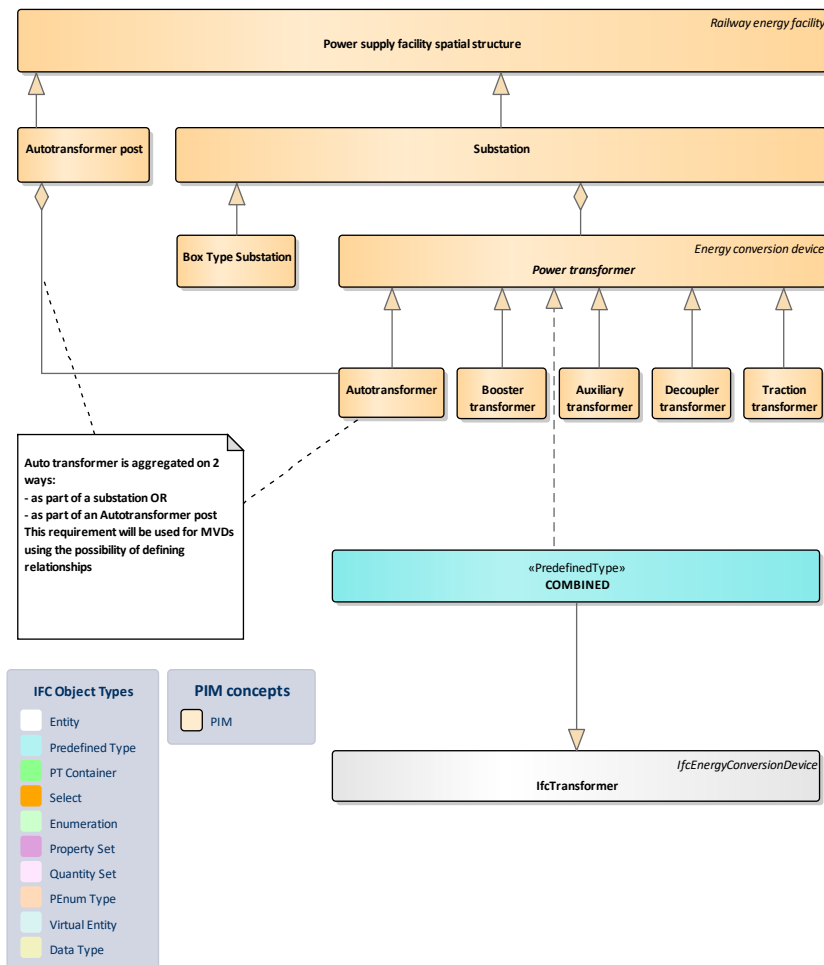


Table 31: Power Transformer - Mapping

3.3.12 Protecting Devices (IFC Candidate)

3.3.12.1 Protecting Devices - Mapping

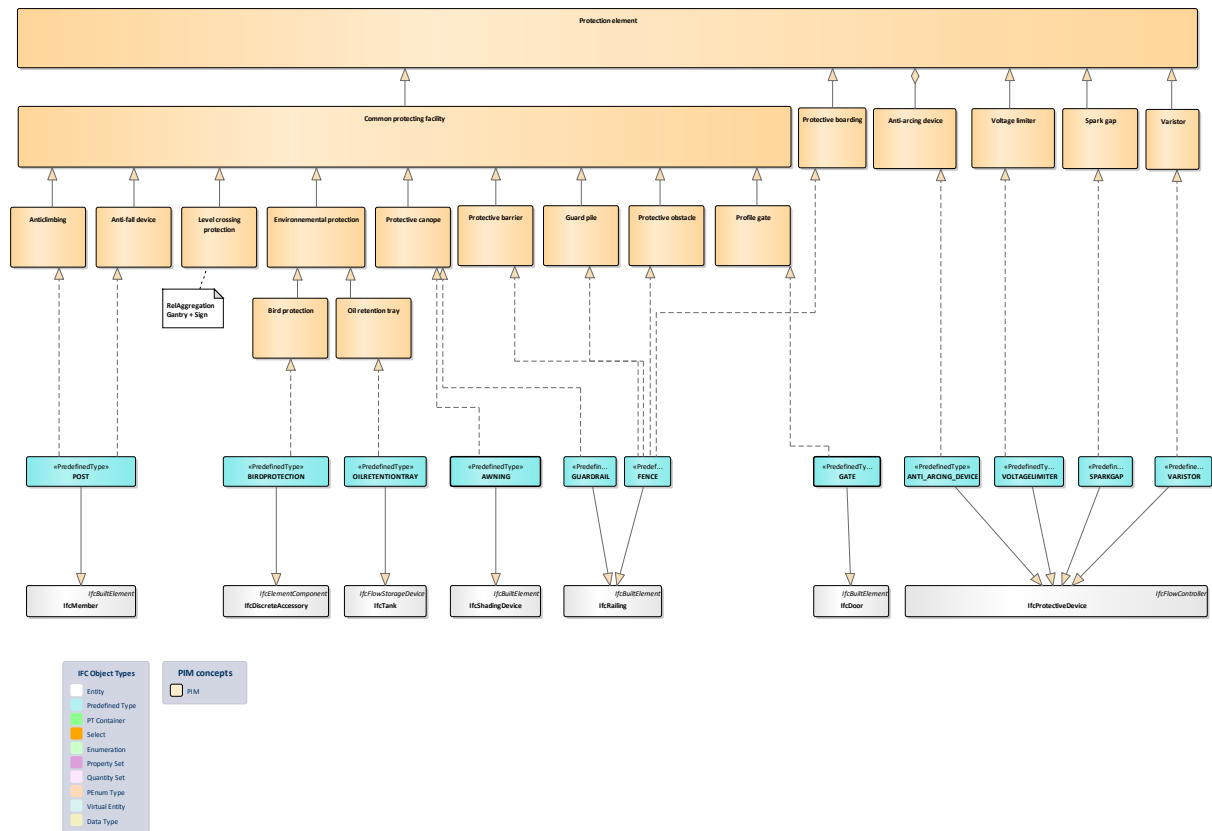


Table 32: Protecting Devices - Mapping

3.3.13 Regulating Devices (IFC Candidate)

3.3.13.1 Regulating Devices - Mapping

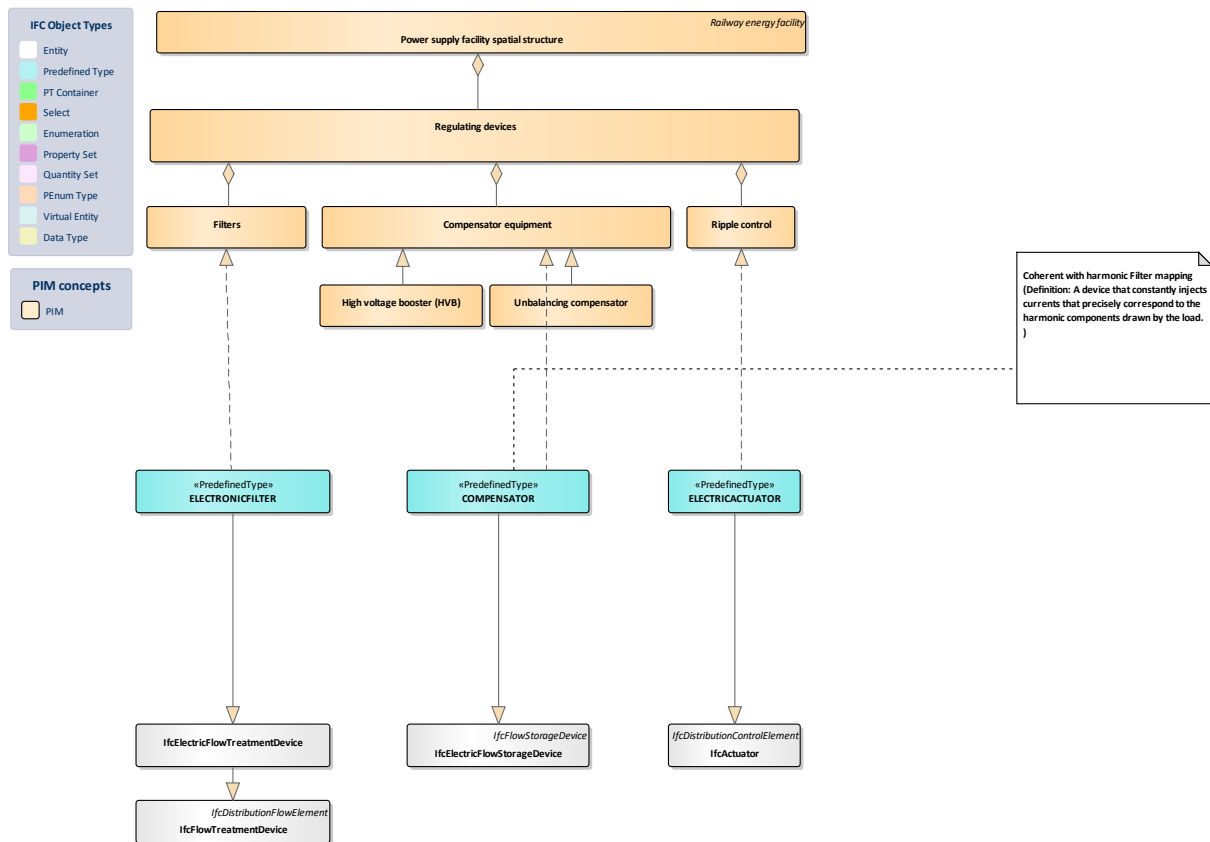


Table 33: Regulating Devices - Mapping

3.3.14 Return Circuit (IFC Candidate)

3.3.14.1 Return Circuit - Mapping

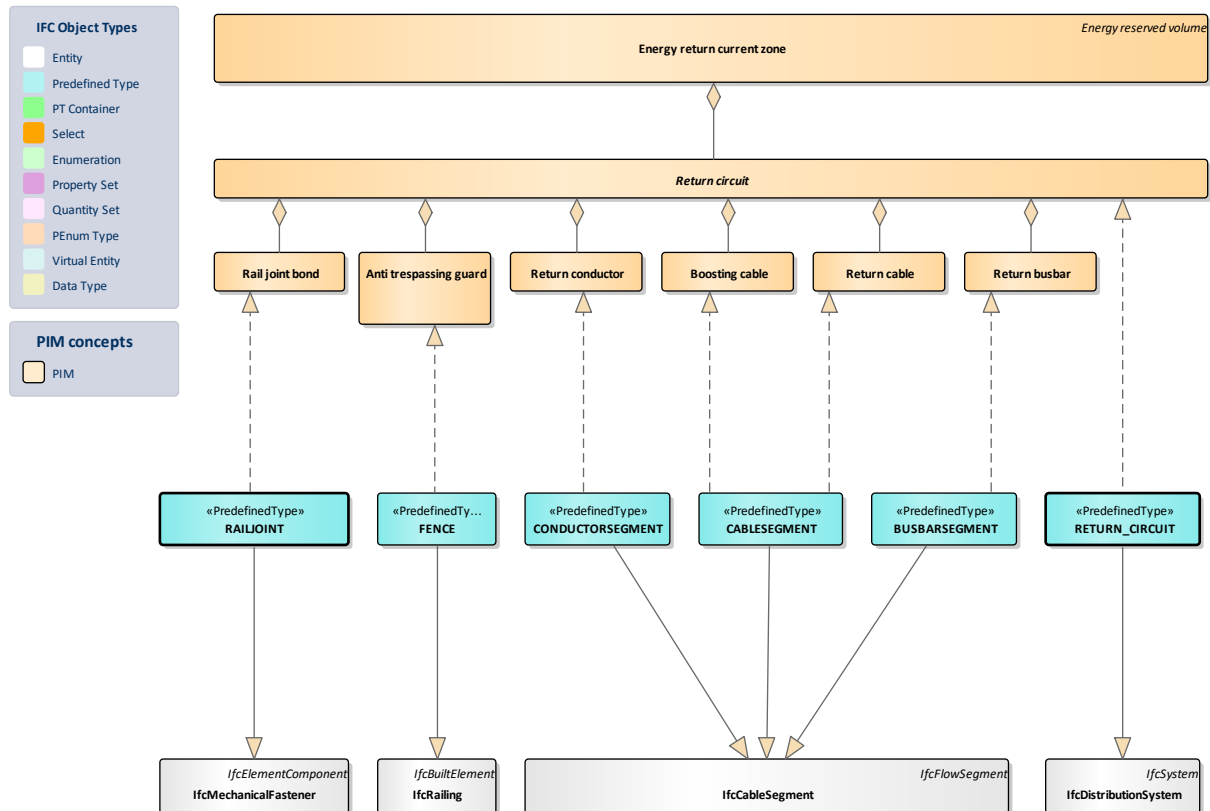


Table 34: Return Circuit - Mapping

3.3.15 Sectioning (IFC Candidate)

3.3.15.1 Sectioning - Mapping

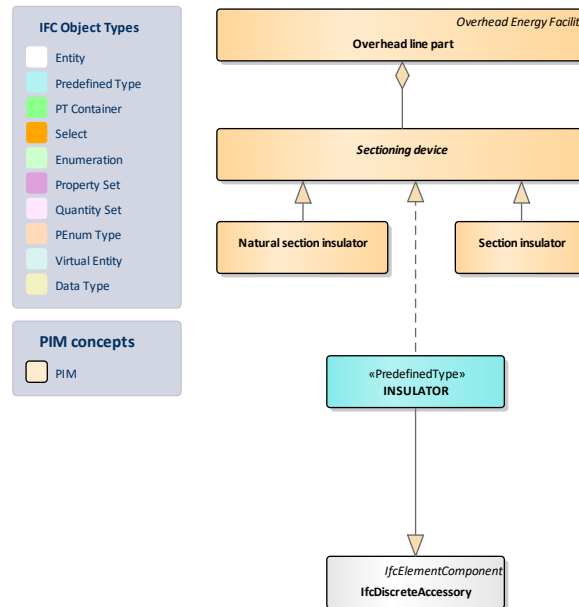


Table 35: Sectioning - Mapping

3.3.16 Shared (IFC Candidate)

3.3.16.1 Shared - Mapping

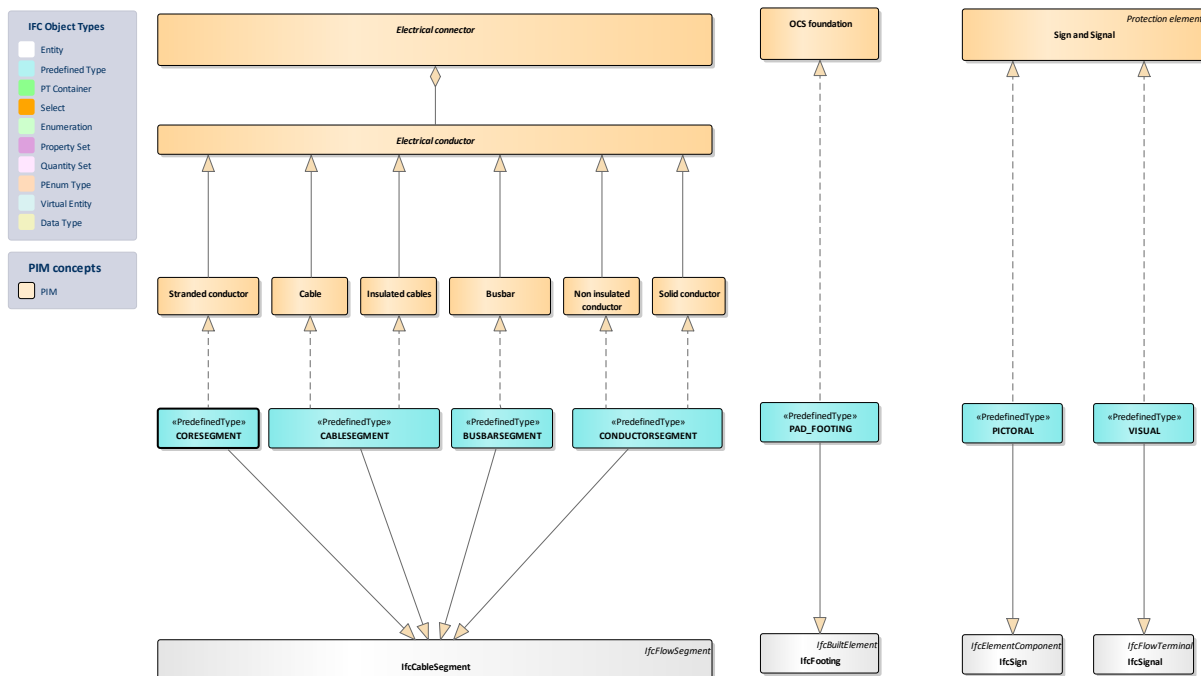


Table 36: Shared - Mapping

3.3.17 Substation Control Equipment and technical building (IFC Candidate)

3.3.17.1 SubstationControlEquipment - Mapping

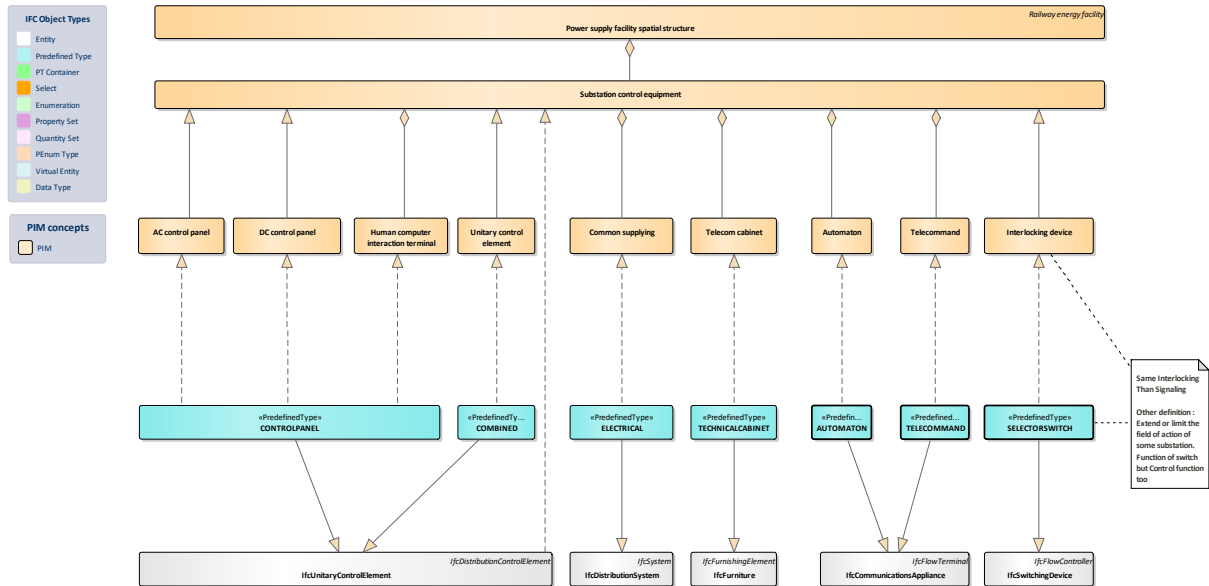


Table 37: SubstationControlEquipment - Mapping

3.3.18 Switch (IFC Candidate)

3.3.18.1 Switch - Mapping

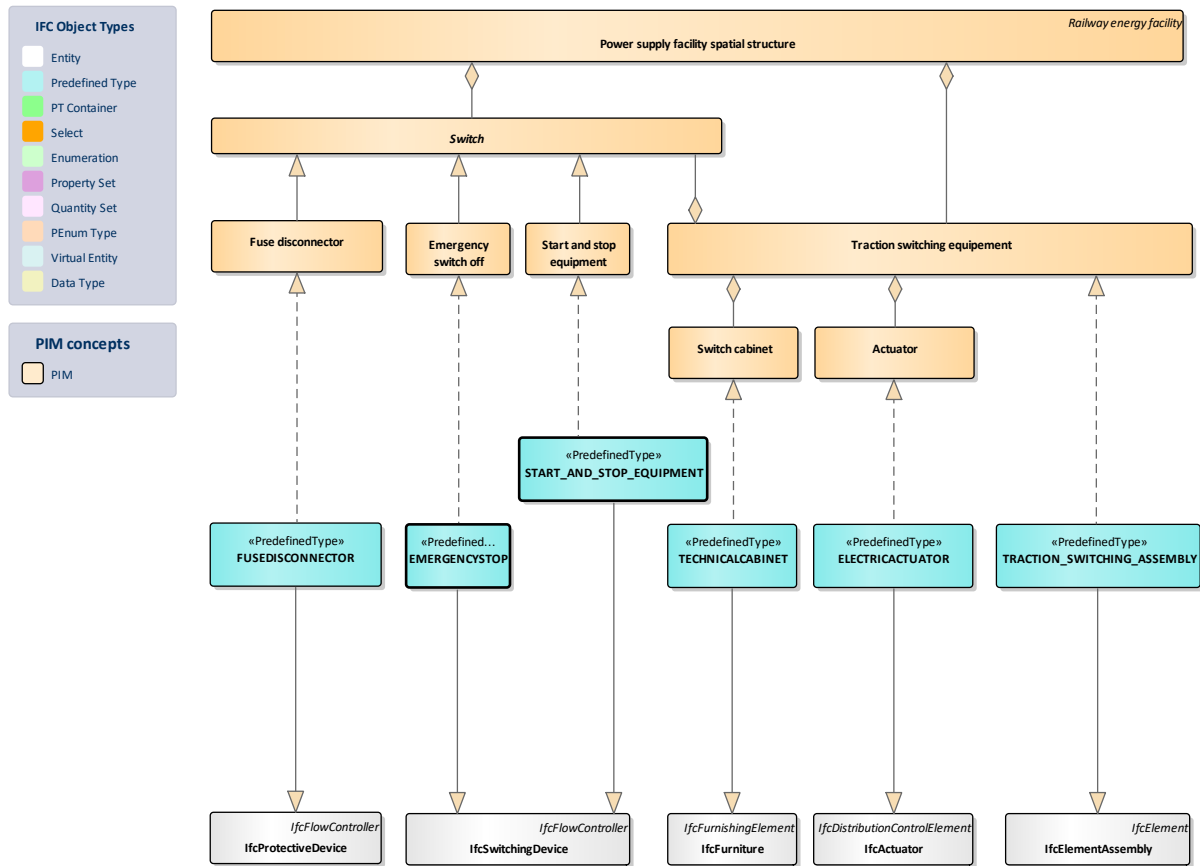


Table 38: Switch - Mapping

3.3.19 Underground Facilities (IFC Candidate)

3.3.19.1 Underground Facilities - Mapping

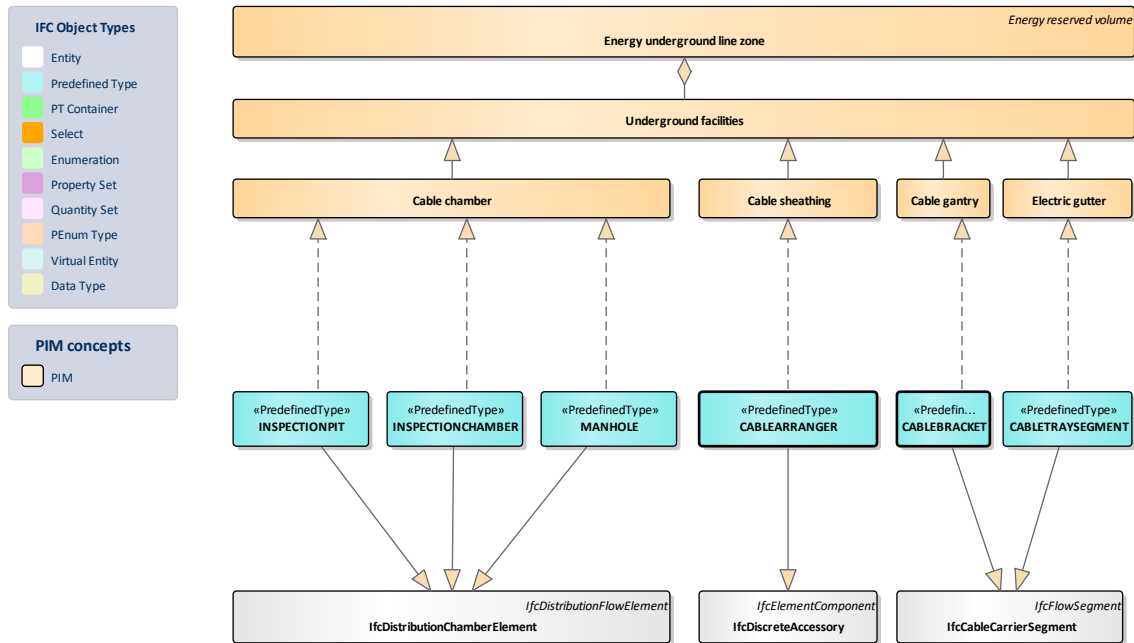


Table 39: Underground Facilities - Mapping

3.4 Signalling Mapping

3.4.1 Axle counting equipment (IFC Mapping)

3.4.1.1 Axle counting equipment (mapping)

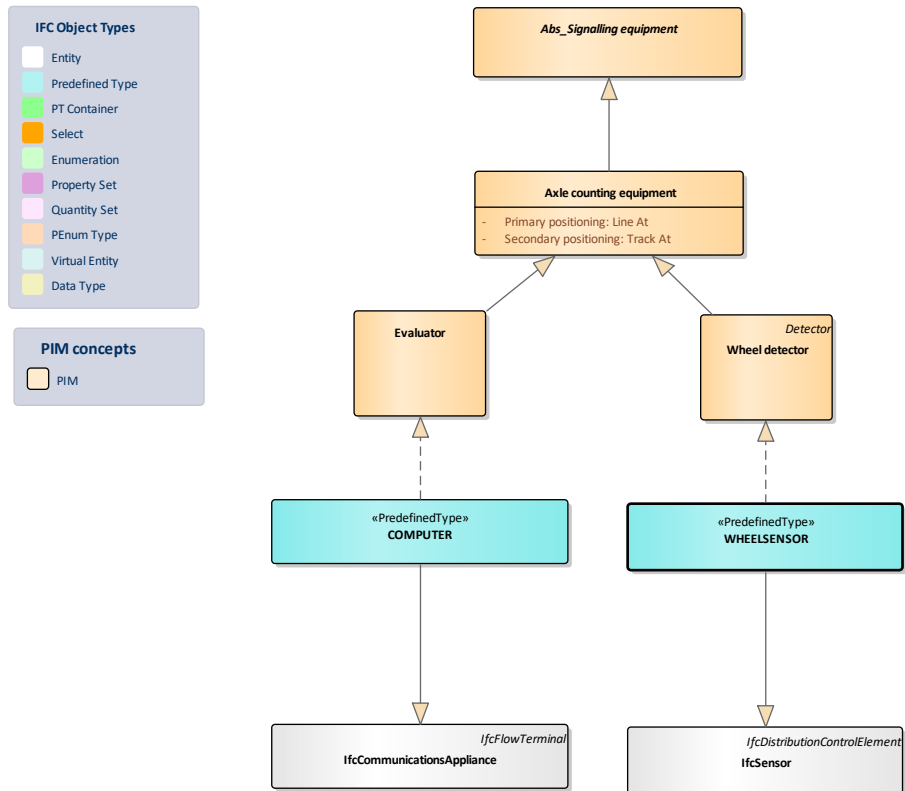


Table 40: Axle counting equipment (mapping)

3.4.2 Balise (IFC Mapping)

3.4.2.1 Balise (mapping)

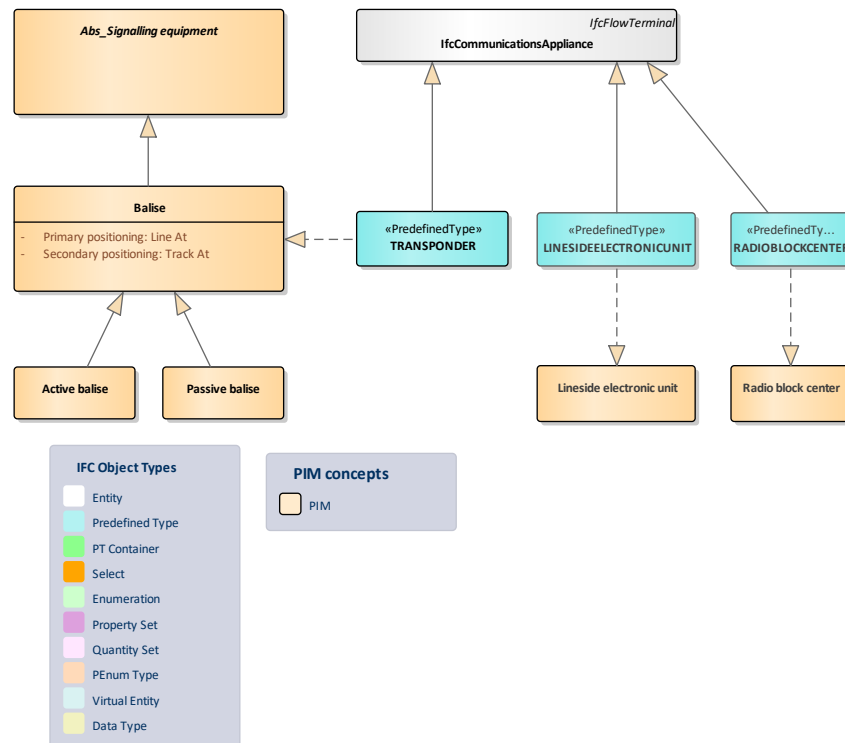


Table 41: Balise (mapping)

3.4.3 Cable and Wire (IFC Mapping)

3.4.3.1 Cable and Wire (mapping)

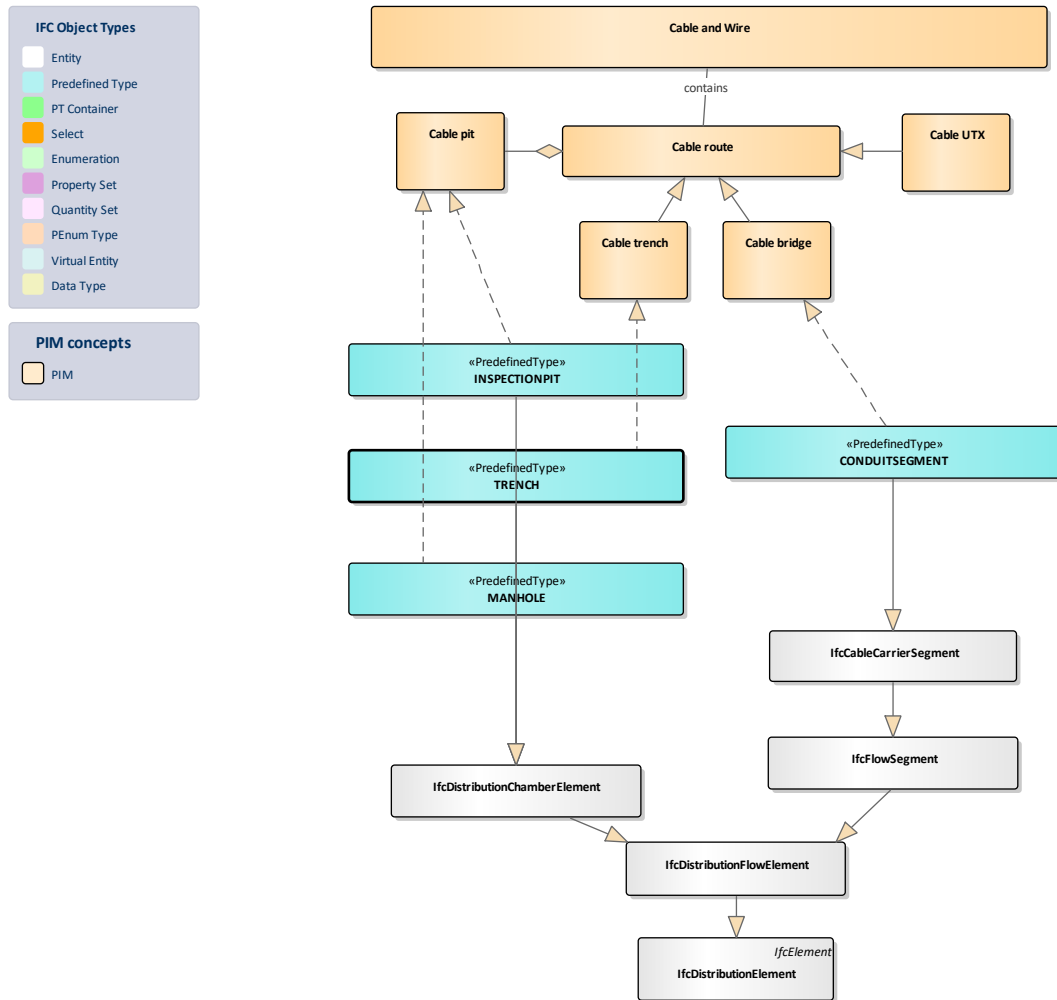


Table 42: Cable and Wire (mapping)

3.4.4 Detector types (IFC Mapping)

3.4.4.1 Detector types (mapping)

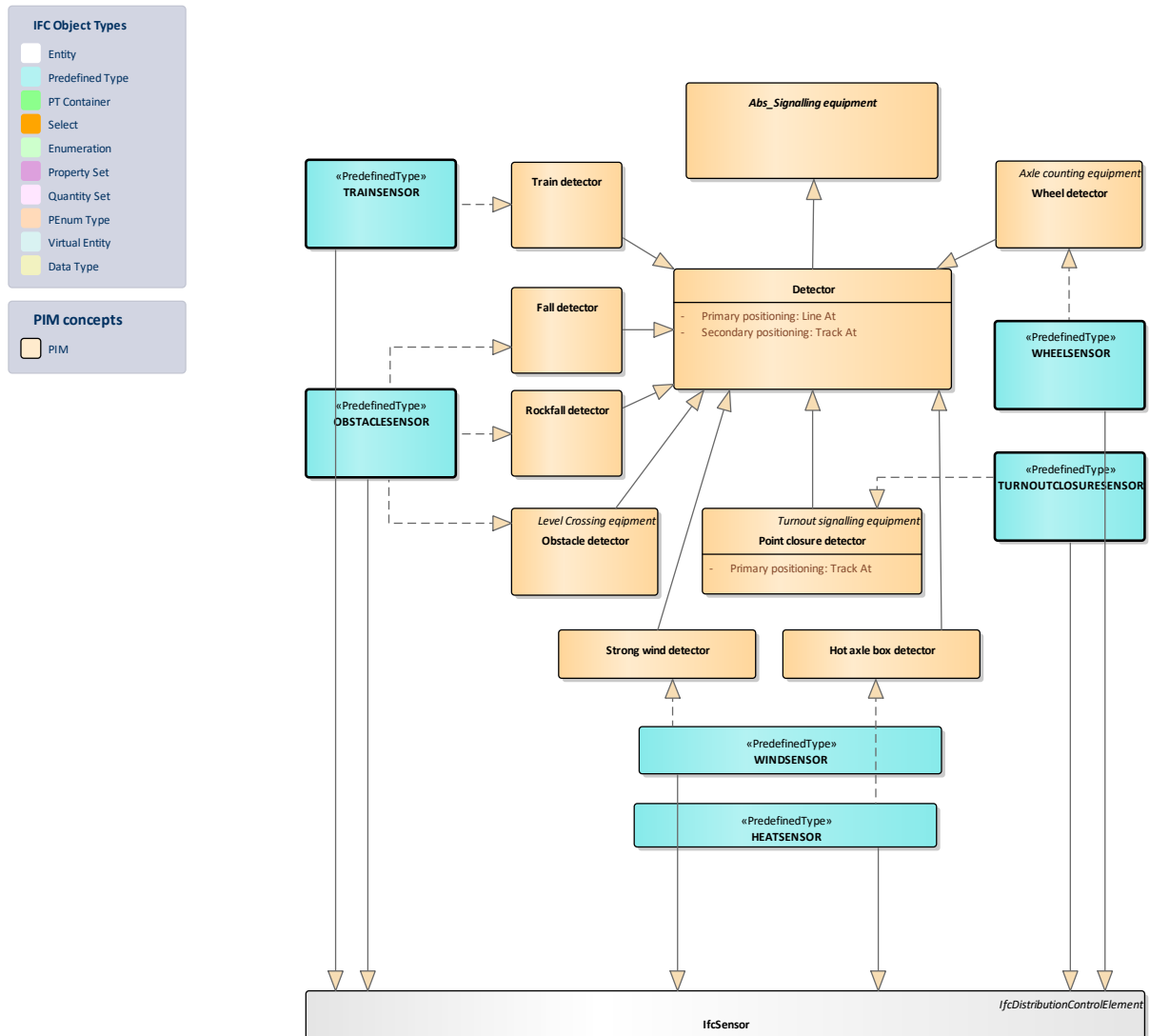


Table 43: Detector types (mapping)

3.4.5 Housing (IFC Mapping)

3.4.5.1 Housing + Trackside Battery (mapping)

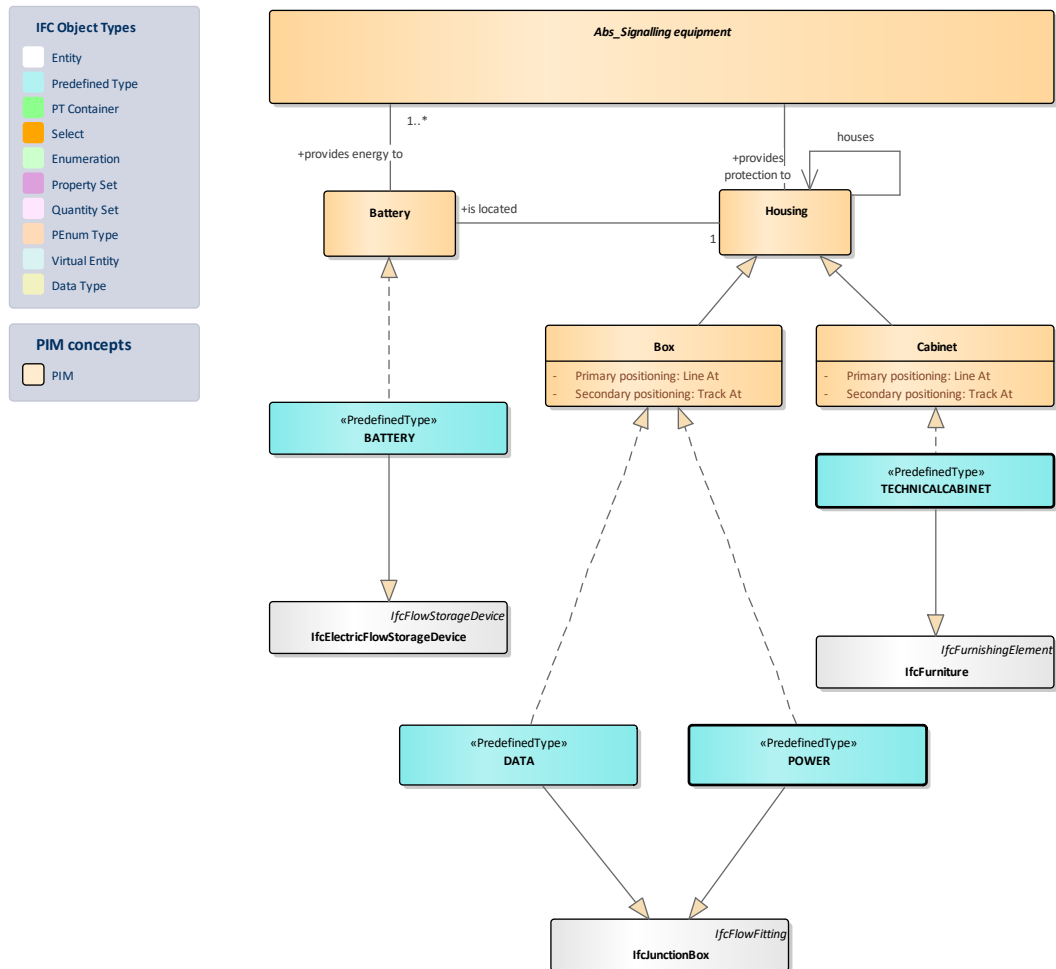


Table 44: Housing + Trackside Battery (mapping)

3.4.6 Level Crossing equipment (IFC Mapping)

3.4.6.1 Level Crossing equipment (mapping)

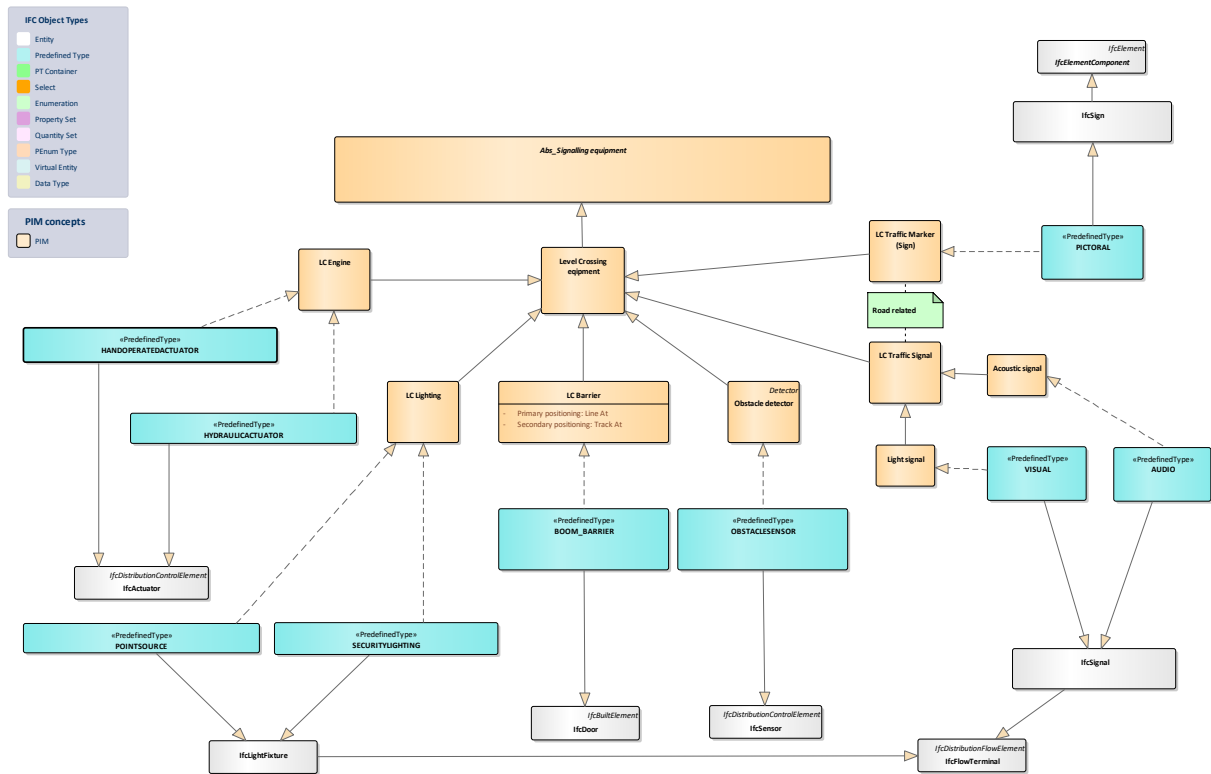


Table 45: Level Crossing equipment (mapping)

3.4.7 Local operation device (IFC Mapping)

3.4.7.1 Local operation device (mapping)

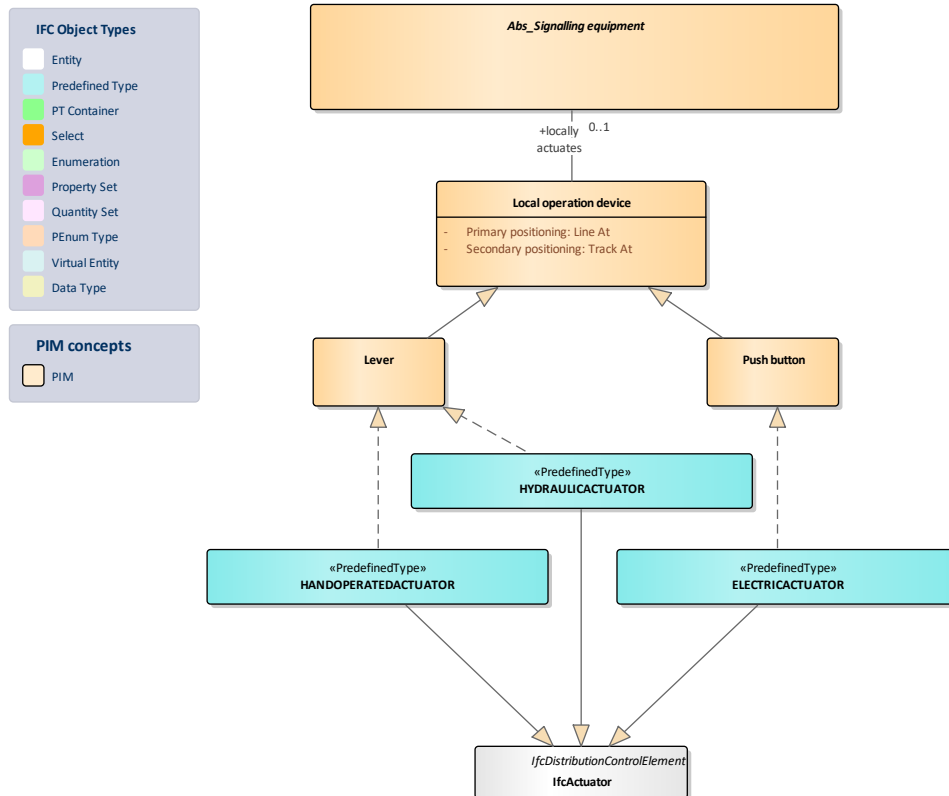


Table 46: Local operation device (mapping)

3.4.8 Lock (IFC Mapping)

3.4.8.1 Lock (mapping)

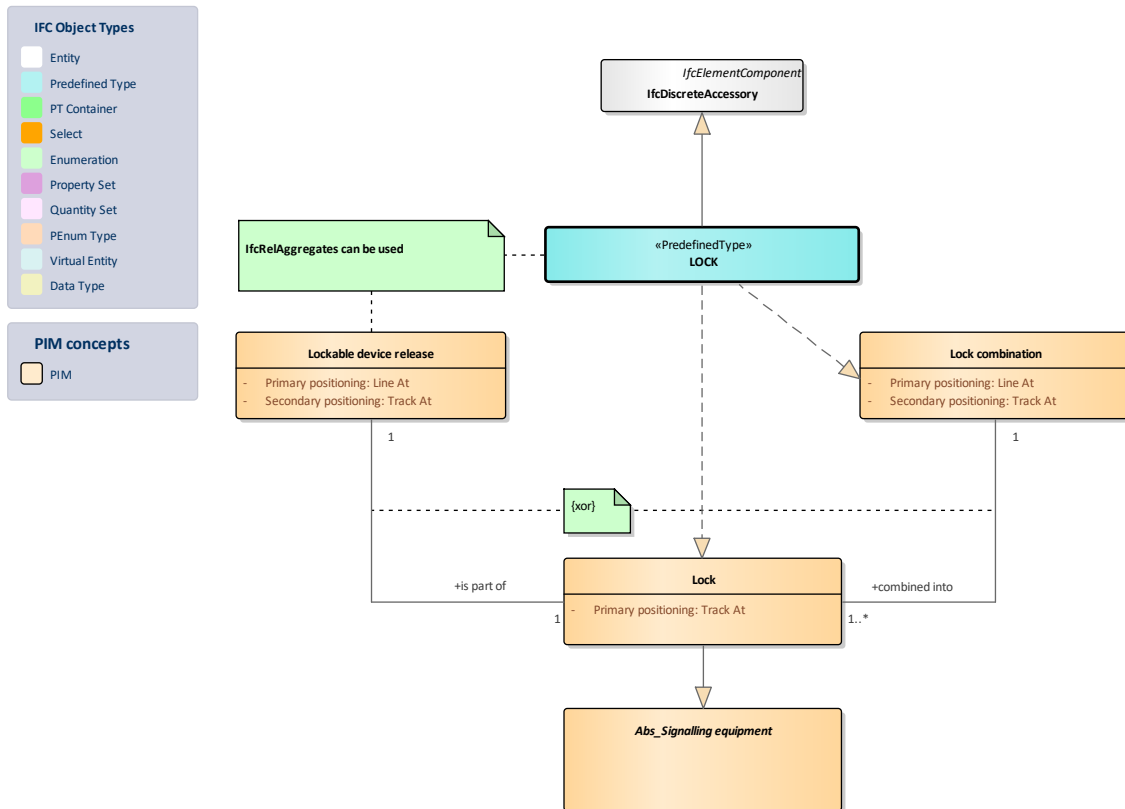
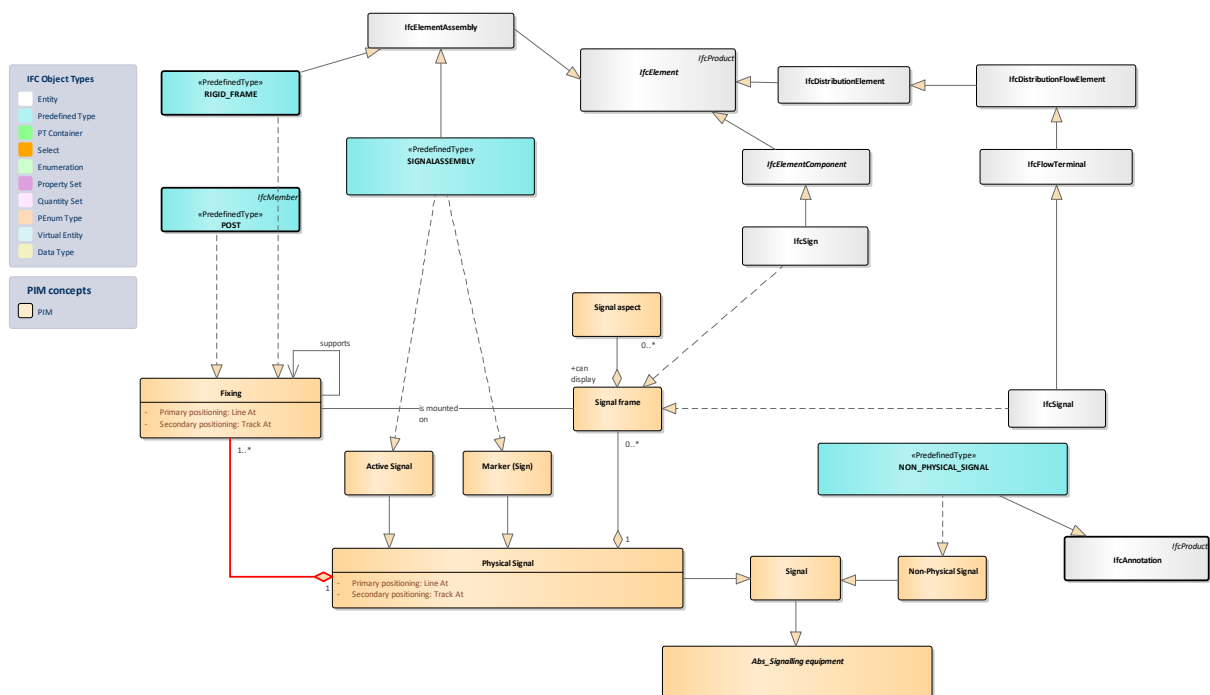


Table 47: Lock (mapping)

3.4.9 Signal (IFC Mapping)

3.4.9.1 Signal (mapping)



3.4.10 Track Circuit (IFC Mapping)

3.4.10.1 Track Circuit (mapping)

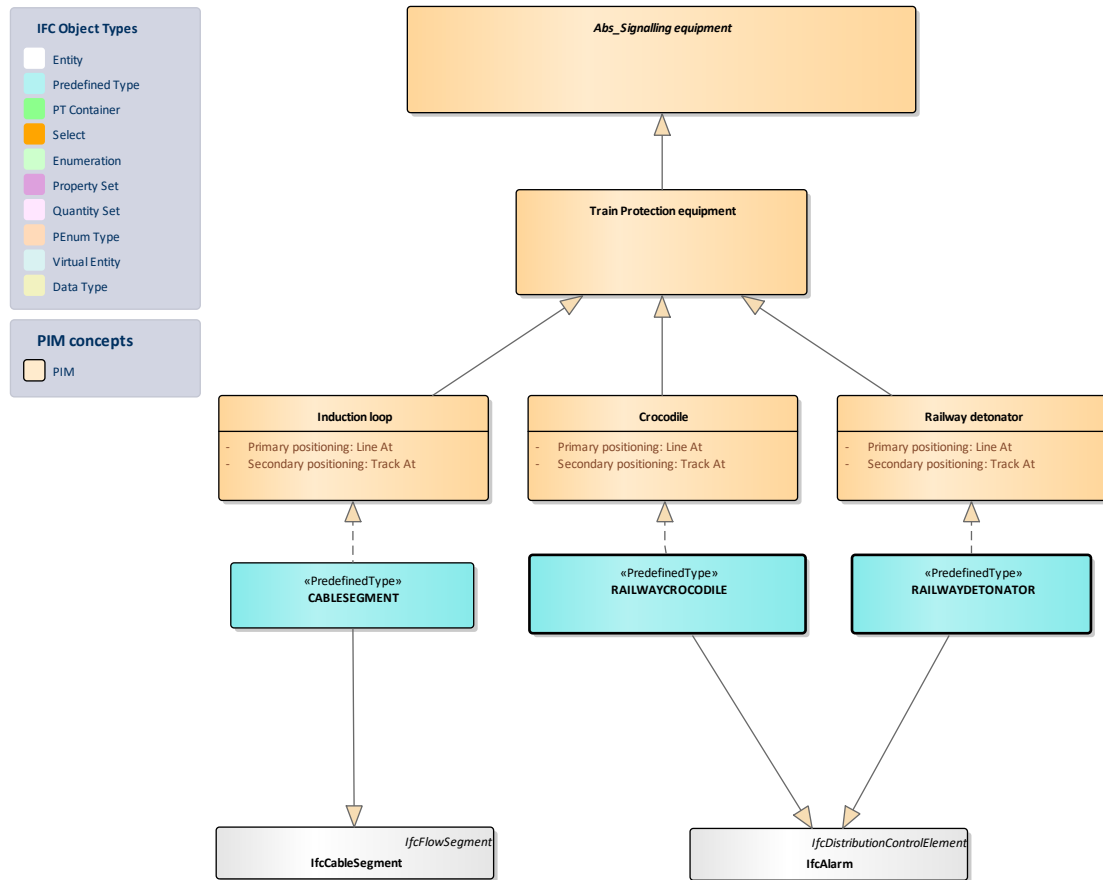


Table 50: Train protection equipment (mapping)

3.4.12 Turnout signalling equipment (IFC Mapping)

3.4.12.1 Turnout signalling equipment (mapping)

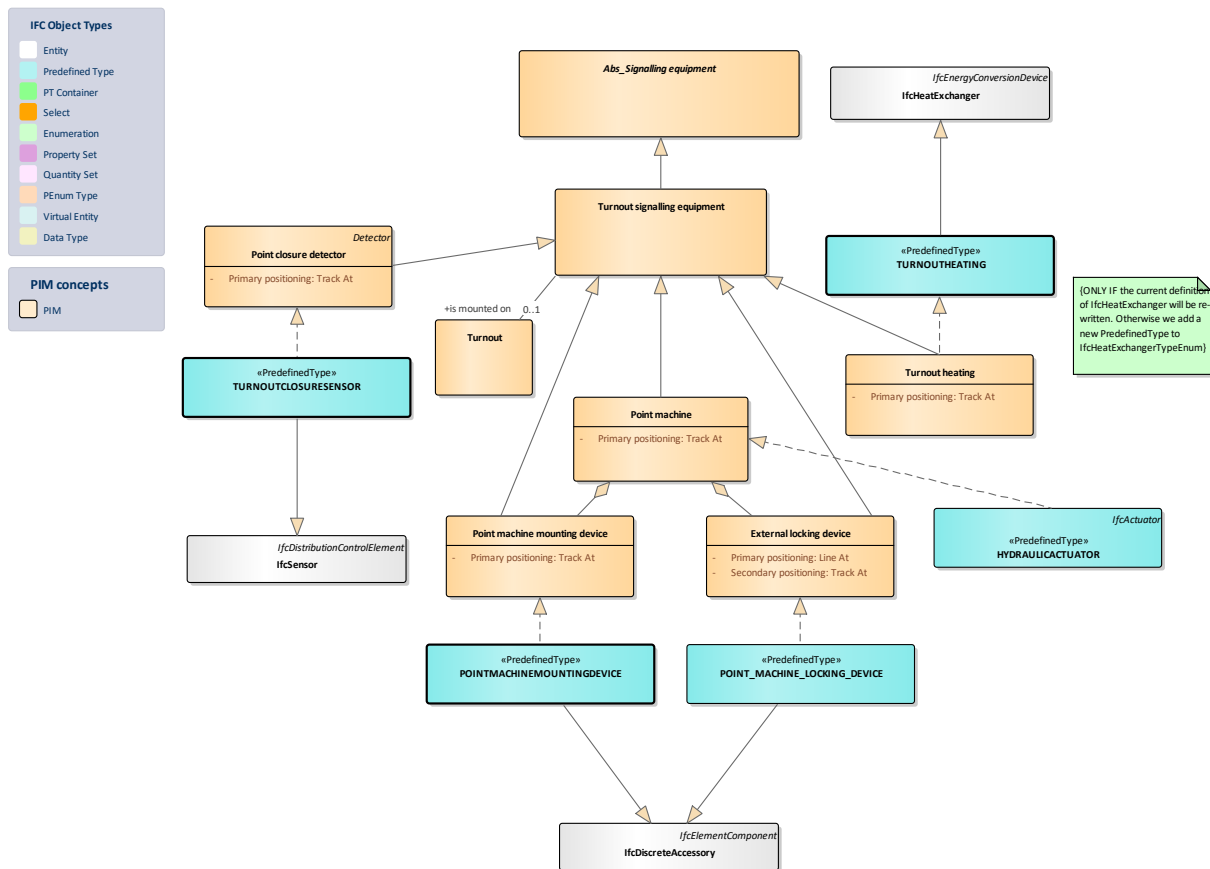


Table 51: Turnout signalling equipment (mapping)

3.4.13 Vehicle barring/breaking device (IFC Mapping)

3.4.13.1 Vehicle barring/breaking device (mapping)

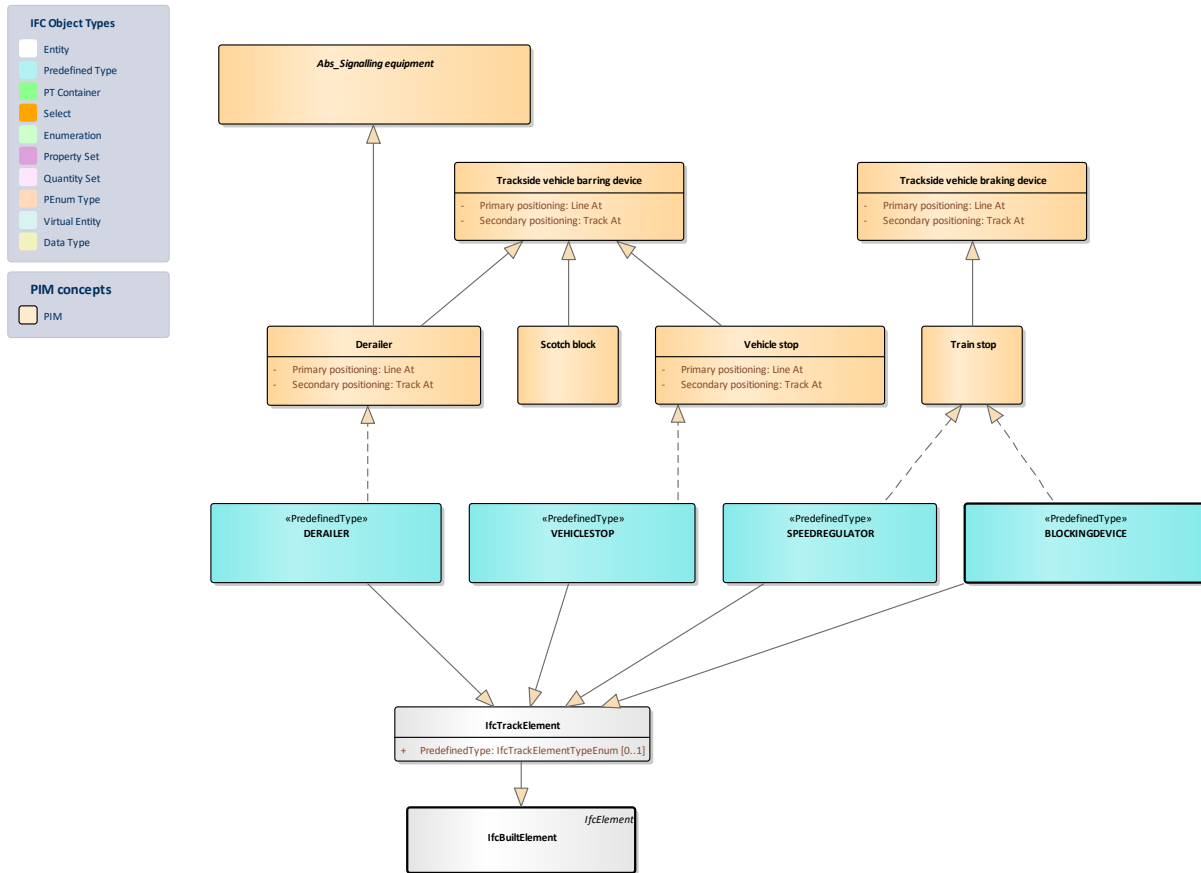


Table 52: Vehicle barring/breaking device (mapping)

3.5 Track Mapping

3.5.1 Track- and turnout panel (IFC Mapping)

3.5.1.1 Track panels (mapping)

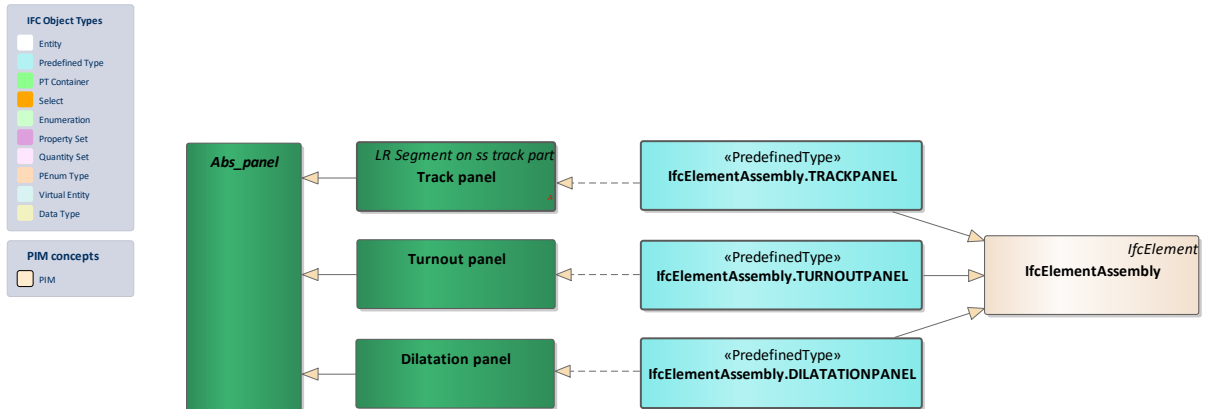


Table 53: Track panels (mapping)

3.5.2 Rail (IFC Mapping)

3.5.2.1 Track rail (mapping)

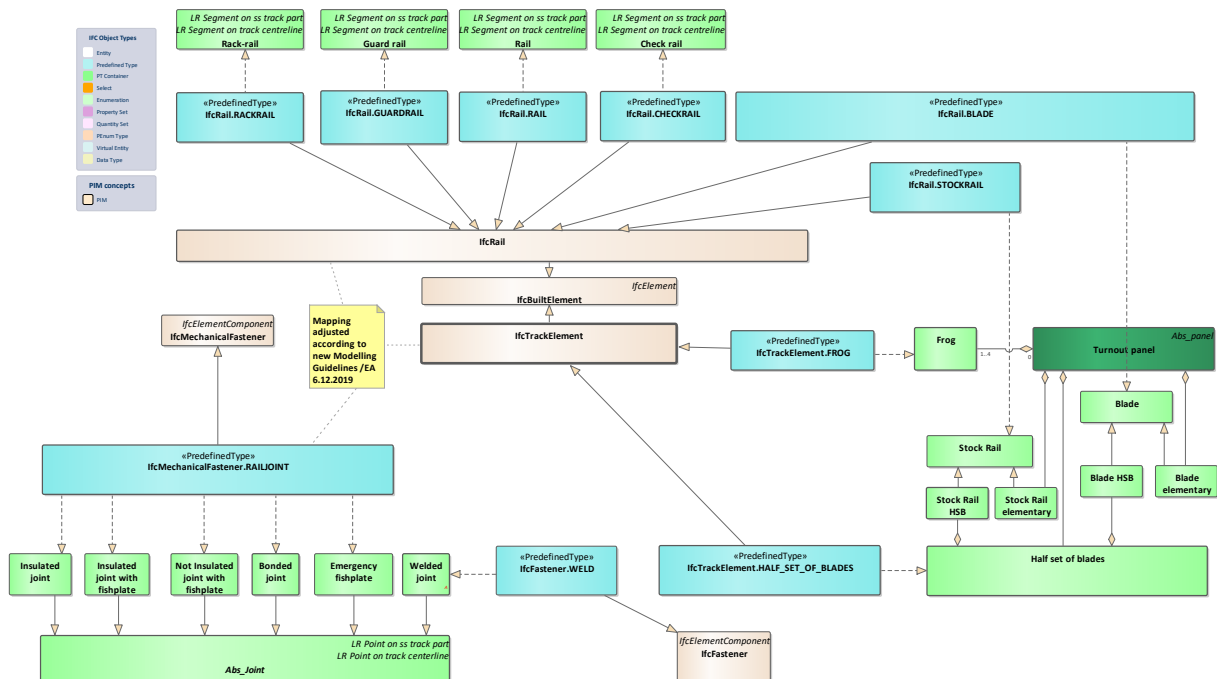


Table 54: Track rail (mapping)

3.5.3 Rail fastening (IFC Mapping)

3.5.3.1 Rail fastening (mapping)

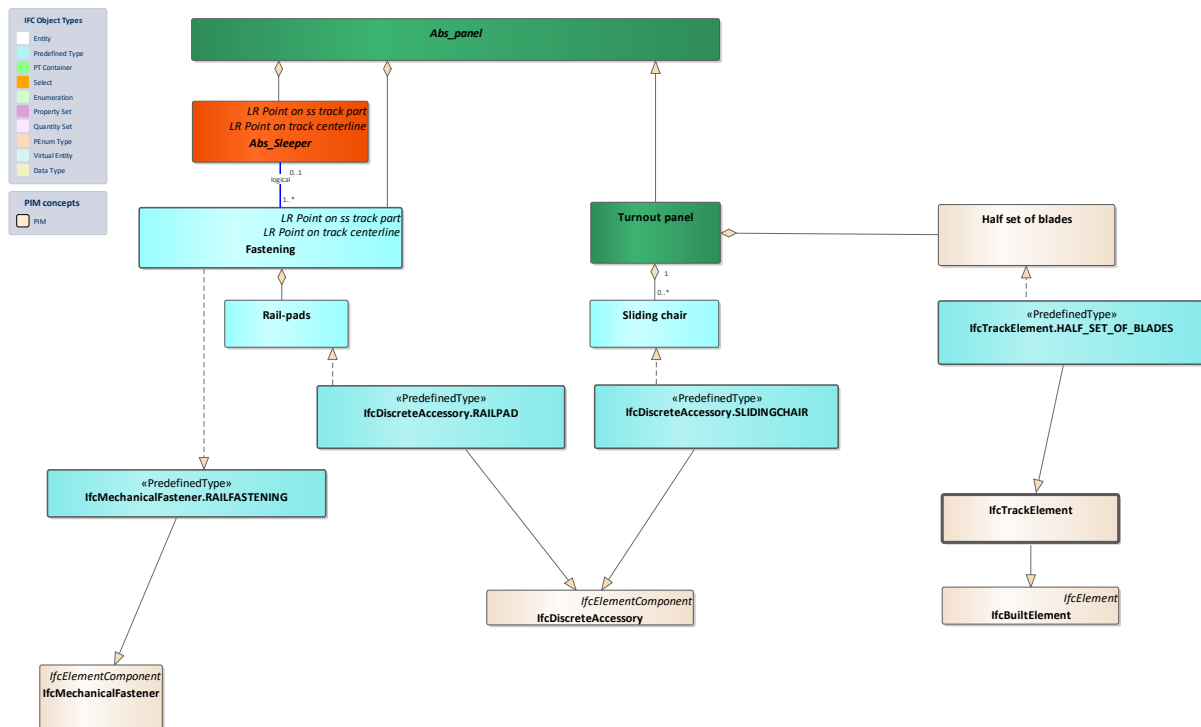


Table 55: Rail fastening (mapping)

3.5.4 Sleeper (IFC Mapping)

3.5.4.1 Sleeper (mapping)

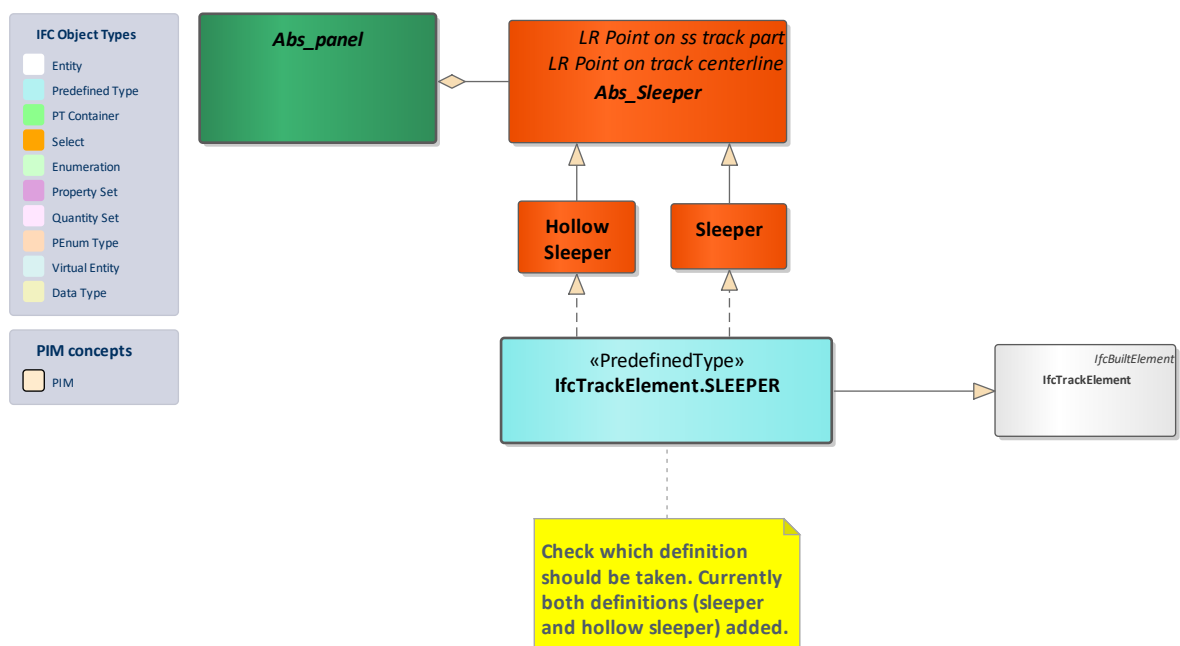


Table 56: Sleeper (mapping)

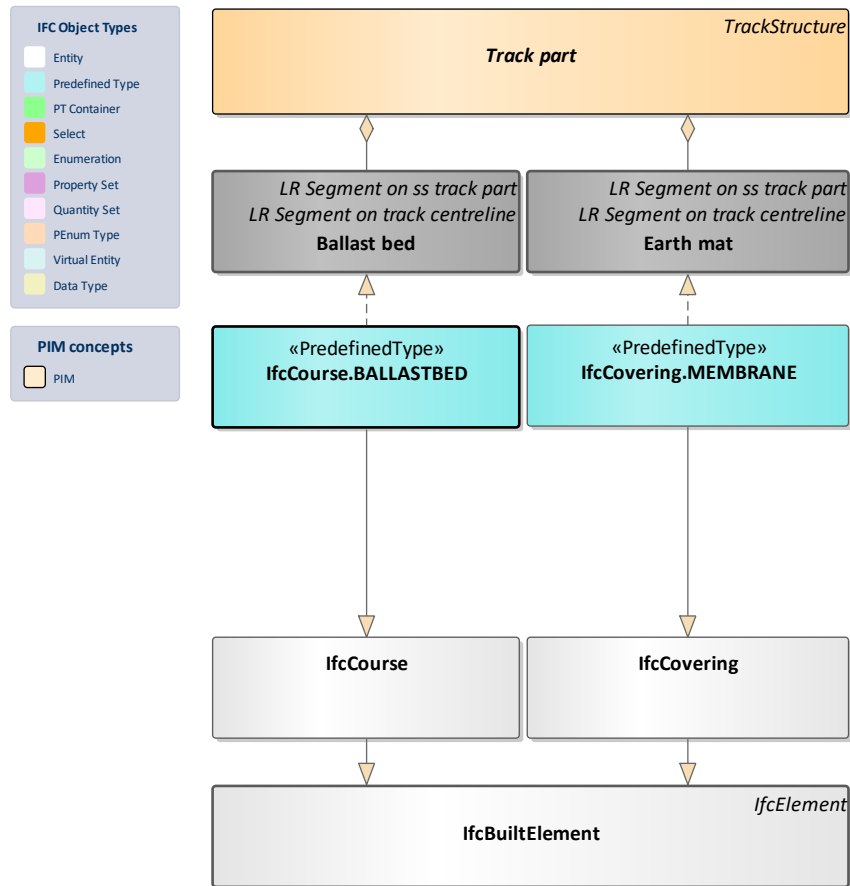


Table 58: Ballast (mapping)

3.5.7 Slab track (IFC Mapping)

3.5.7.1 Slab track (mapping)

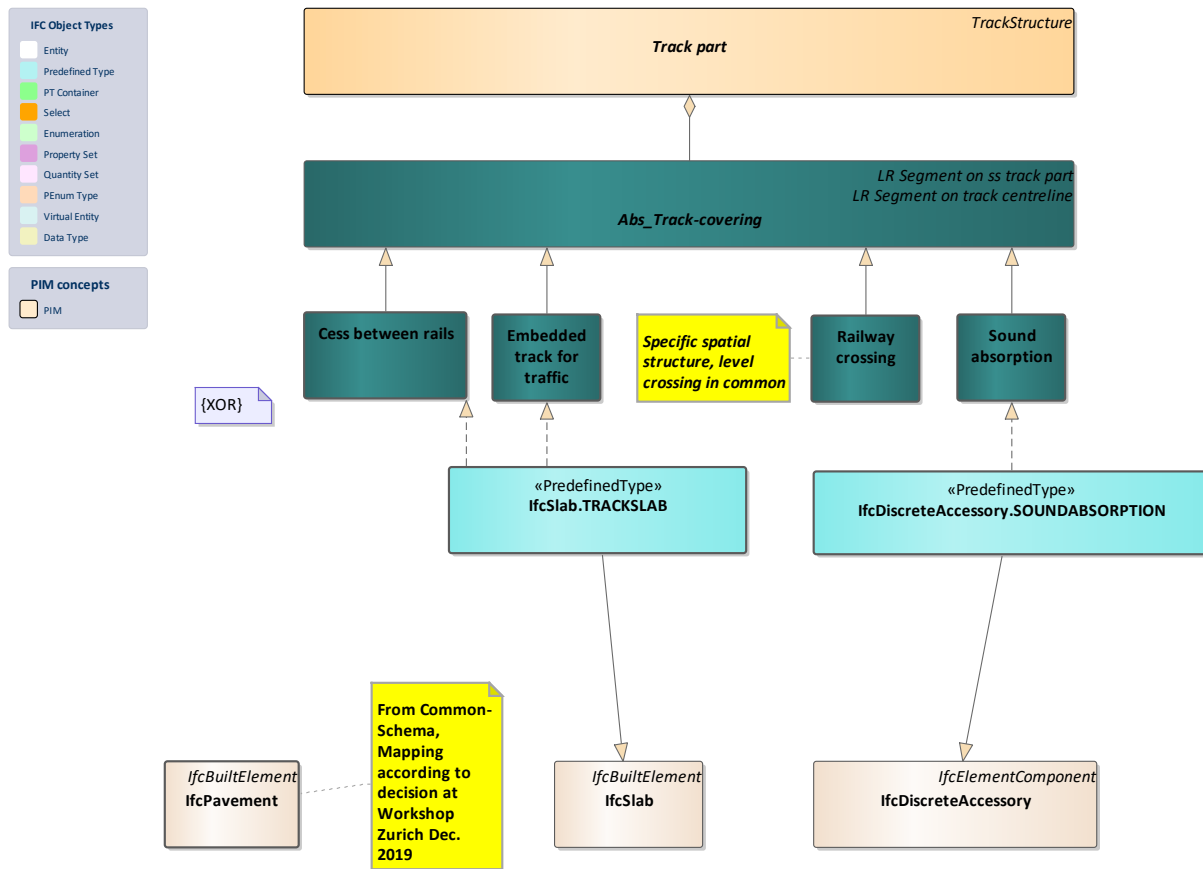


Table 60: Track coverage (mapping)

3.5.9 Track sidewalk (IFC Mapping)

3.5.9.1 Track sidewalk (mapping)

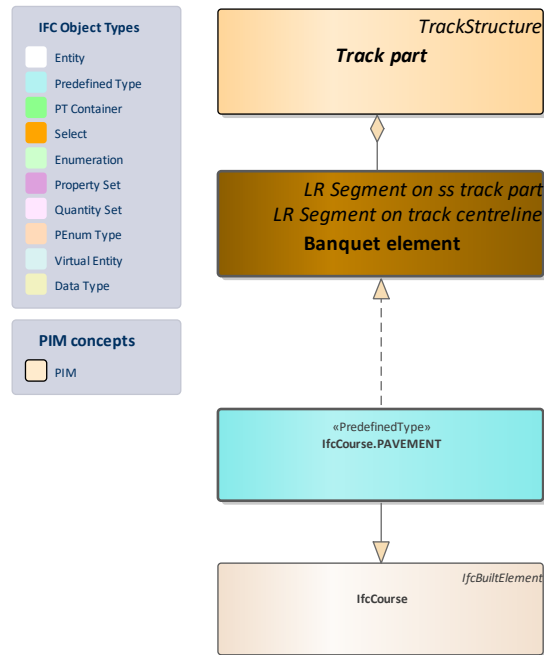


Table 61: Track sidewalk (mapping)

3.5.10 Track alignment stops (IFC Mapping)

3.5.10.1 Track alignment stops (mapping)

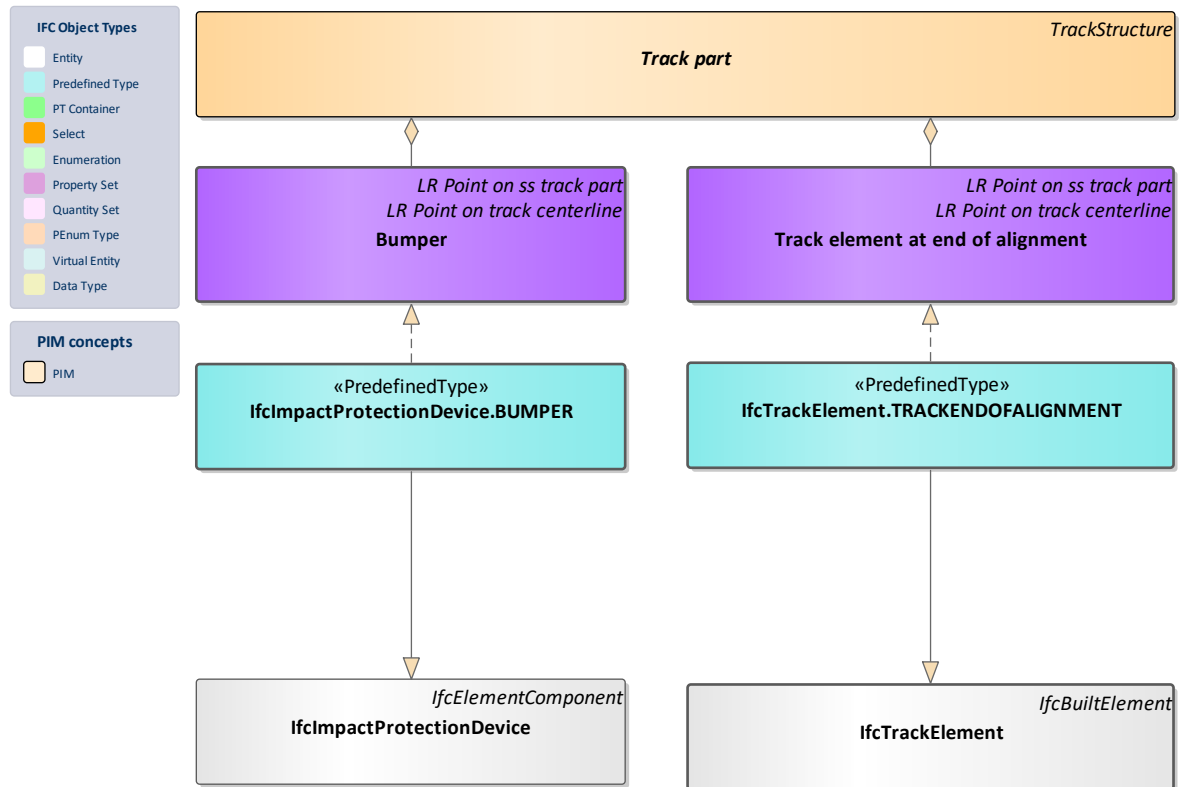


Table 62: Track alignment stops (mapping)

3.5.11 Survey (IFC Mapping)

3.5.11.1 Survey (mapping)

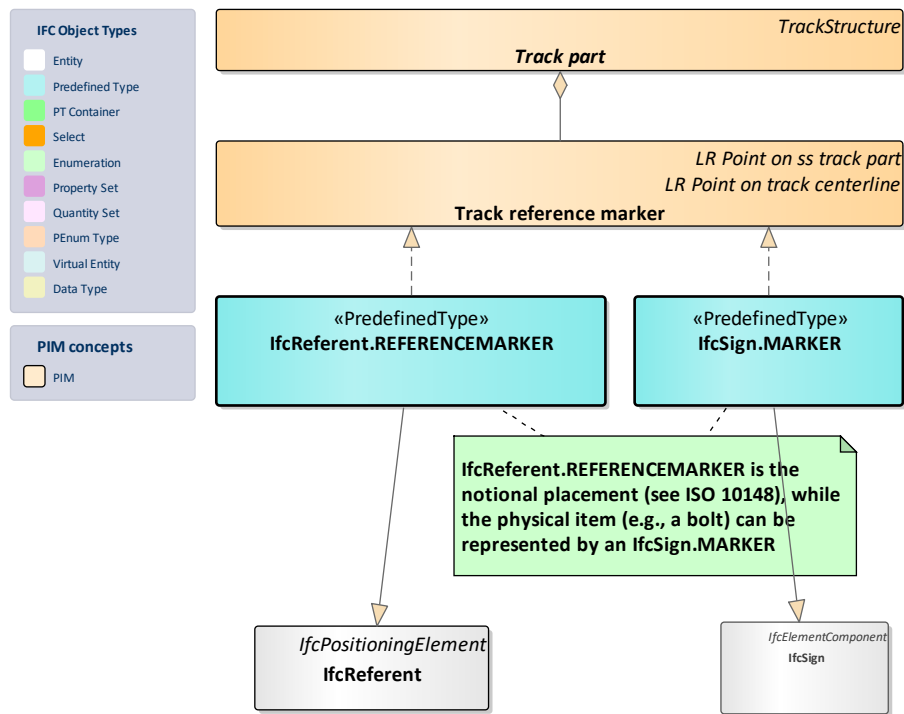


Table 63: Survey (mapping)

3.5.12 Other equipment (IFC Mapping)

3.5.12.1 Other equipment (mapping)

