Timetable Redesign:

Capacity model 2027 Netherlands

By	ProRail Capacity Management
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1 Introduction

After 2025 and 2026, timetable year 2027 is the third year in which TTR (Timetable Redesign) will be partially implemented. ProRail has agreed to actively participate in TTR together with a number of other European infrastructure managers. The experiences gained during the development of the Capacity Model for the 2026 timetable, the feedback after publication and the evaluation are input for the Capacity Model for the 2027 timetable.

Because the Capacity Model is still relatively new, in this document we provide more information about the Capacity Model for 2027. The Capacity Model itself is in ECMT, the European Capacity Management Tool. This document refers to the Capacity Model in ECMT.

TTR stands for redesign of the capacity allocation process. The aim of this is to achieve a harmonized timetable at European level and a uniform working method for requesting and allocating capacity. So that international train paths connect, temporary capacity restrictions are coordinated, and information about infrastructure changes is shared with each other in a timely manner. The aim is also to allocate capacity to international passenger trains earlier, so that ticket sales can start earlier and railway undertakings for passenger transport can compete with aviation. For freight railway undertakings, the goal is to keep sufficient capacity and high-quality international train paths available until the moment of operation.

The Capacity Strategy 2027 forms the input for the Capacity Model 2027. In addition, railway undertakings could indicate which train paths are desired for 2027 by means of CNAs (Capacity Needs Announcements) and they could indicate desired product steps to ProRail. The CNA process for 2027 was still a pilot. ProRail has also made an estimate of the traffic requirement for freight trains based on historical data and forecasts. ProRail has processed this information into a Capacity Model in which it is indicated for each hour of the day how many train paths are available for which transport segment. The Capacity Model is then the input for the Capacity Supply.

Because the Capacity Model for 2027 is the third to be created, a limited scope was chosen in consultation with other Infrastructure Managers and RailNetEurope (RNE). This means that the geographical scope is the same as the scope used for the Capacity Strategy 2028. Only a few temporary capacity restrictions (TCRs) has been added.

The Capacity Model is not yet binding, but it does provide information about the intended capacity for timetable 2027, so that railway undertakings can use it to develop traffic products.

We welcome feedback from users on the Capacity Model 2027, the process surrounding the Capacity Model and the added value of the Capacity Model. Feedback can be submitted by email to TTR@prorail.nl.

2 Process and scope TTR Capacity Model

2.1 Capacity Model within the TTR-process

Timetable Redesign starts with the Capacity Strategy 5 years before the start of the timetable. This phase lasts 2 years, after which the Capacity Model phase starts. The Capacity Model phase runs from 3 years to 1.5 years before the start of the timetable. Both the Capacity Strategy and the Capacity Model fall within the current period of the Medium Term Process (MLT) with which ProRail works.

The TTR phase of Capacity Planning and Supply starts 1.5 years before the start of the timetable. At ProRail, this is the current phase of preparation of the annual timetable. The timetable preparation phase is followed by the annual timetable phase as we currently know it at ProRail 11 months before the start of the timetable.

Figure 1 indicates the different phases of TTR. The TTR process description[1] contains more information about the content of each planning phase.

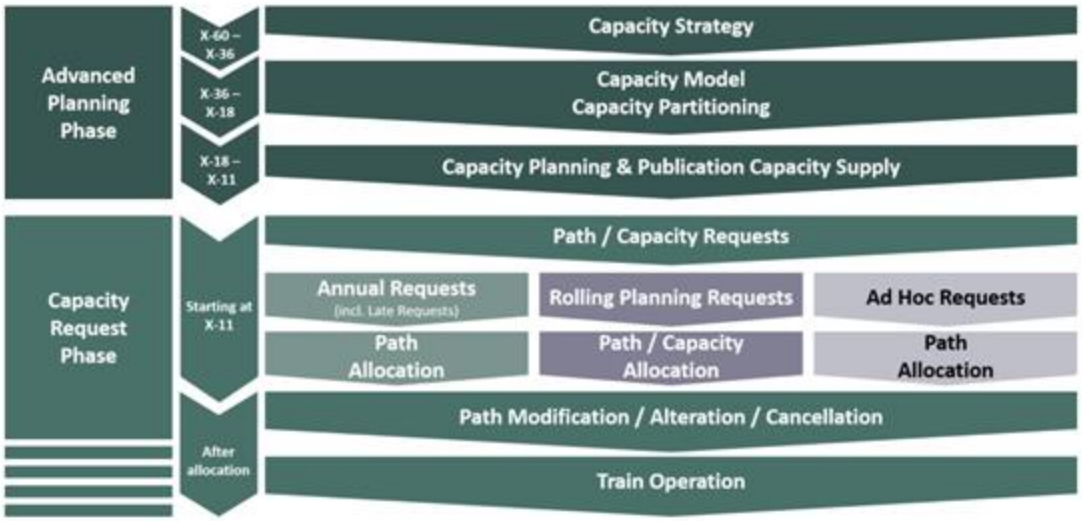

Figure 1: Scheme of TTR phases

[1] *Description of the Timetabling and Capacity Redesign Process, version 4.0;* *https://rne.eu/wp-content/uploads/Long_Description_of_the_TTR_process_V4.0_2024-12-10.pdf*

2.2 Planning for Capacity Model 2027

Table 1 shows the planning for the 2027 Capacity Model[2].

Table 1: Planning of Capacity Model 2027

Timeline (in months)	Timeline	Milestone / activity
X-36	December 2023	Start Capacity Model
X-26	October 2024	Infrastructure managers invite applicants to submit CNAs (pilot)
X-24	December 2024	Deadline to submit the CNAs
X-22,5	February 2025	Applicants who submitted CNAs are notified about the result of the analysis of the infrastructure managers
X-21	March 2025	Deadline to publish draft Capacity Model, accessible for applicants
X-18	June 2025	Deadline to publish final Capacity Model

Due to IT-related issues, ProRail was unable to publish the draft Capacity Model in March 2025. The draft Capacity Model was published in May. The final version was published as planned in June.

2.3 Scope Capacity Model

2.3.1 Adjusted scope for timetable 2027

Capacity model 2027 does not yet include the full scope, but again includes more than previous capacity models. This means that the geographical scope is extended to the whole country, see section 2.3.4, and all types of traffic have been published.

The Capacity Model is made for 365 days. During recurring TCRs, no capacity for traffic has been published. One cluster of engineering works has been incorporated in the Capacity Model, around Tilburg between April 19 and May 13 2027.

The IT to transform train paths from the national planning system to ECMT is still under development, so ProRail cannot guarantee that all published information is correct. We will use the next period to update our tooling. Questions about the published information can be submitted to TTR@prorail.nl.

In the coming years, ProRail foresees the following steps for expanding the scope:

- Capacity model 2028:
    - Expansion of the number of (very) large TCRs including alternative traffic planning and conflict signaling with weekly maintenance windows,
    - Addition of more non-recurring trains based on the Capacity Supply 2027,
    - To be determined; Non-weekly maintenance windows (biweekly and/or four-weekly TCRs).

[2] *A more detailed description of the process for the Capacity Model is given in the handbook: https://rne.eu/wp-content/uploads/HB_Capacity_Model_3.0.pdf*

- Capacity model 2029:
    - Full scope; 365 day planning including all (very) large TCRs for the entire network.
- Capacity model 2030:
    - Full scope; First binding capacity model.

To be able to reach these milestones, additional IT is necessary. This development has been started.

2.3.2 CNA pilot 2027

To test the process of submitting Capacity Needs Announcements (CNAs), the CNA process was carried out in the form of a pilot for the Capacity Model 2027. Applicants were asked to submit CNAs via ECMT. CNAs are requests for new or changed train paths. The aim is for infrastructure managers to know what the market needs and so that infrastructure managers can include these new or changed train paths in the Capacity Model if possible.

A number of applicants have submitted CNAs through ECMT. Infrastructure managers have not been able to process these CNAs because the support in ECMT is still insufficient. The relevant carriers have now received notice of this via ECMT.
The fact that the entire CNA process has not yet been successful shows that it is useful to conduct a pilot so that it becomes clear where improvements are needed.

2.3.3 Time scope

Timetable 2027 starts Sunday December 13, 2026 and ends Saturday December 11, 2027.

2.3.4 Geographic scope

For the 2027 Capacity Model, the scope corresponds to the scope of the 2028 Capacity Strategy. In comparison to the Capacity Strategy 2028, some domestic corridors have been added. Figure 2 shows the geographical scope for the 2027 Capacity Model within the Netherlands.

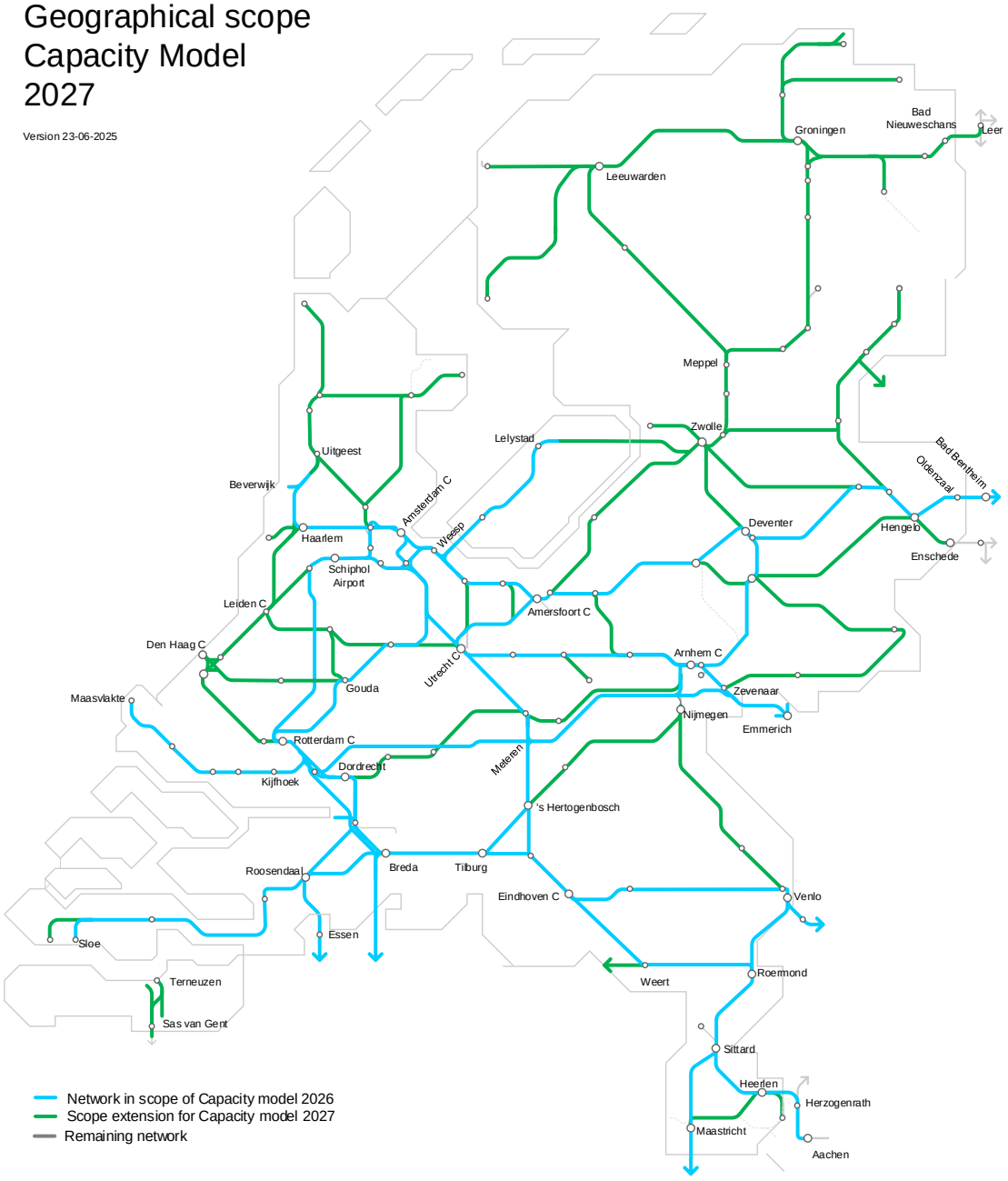

Figure 2: Geographical scope Capacity Model 2027 Netherlands

3 ECMT: European Capacity Management Tool

3.1 What is ECMT?

The European Capacity Management Tool is an application in which all Infrastructure Managers within Europe publish the Capacity Model. And later the Capacity Supply will also be published in ECMT. This application is under development at RNE. Infrastructure managers and railway undertakings draw up the specifications so that the software increasingly better meets the needs.

3.2 Accessing ECMT

ECMT can be reached via https://ecmt-online.rne.eu/. You need an account to view the Capacity Model. This can be requested on the home page via the link above.

3.3 Explanation of the use of ECMT for Capacity Model 2027

After you have logged in, you can view the Capacity model by clicking on 'ECMT Tabfolder' at the top of the screen. There are three different views:

- Segment overview: Displays the available capacity between two adjacent timetable points;
- Line overview: Displays the available capacity per segment over a specified route;
- Network overview: Shows for an entire network where capacity is still available and where the network is full.

Further explanation about the use of ECMT and how to obtain the above overviews can be found in the appendix, section 5.2. More information is also available in the ‘Help’ function in ECMT.

3.4 ECMT status and developments

ECMT is still under development. This means that not all required functionality has yet been developed and is in production. In addition, the functionality that is ready may not work properly. If there are imperfections in ECMT, or if there are specific wishes for improvement, these can be reported in the consultation of the ECMT advisory group (ECMT AG + CCB) or by e-mail to support.ecmt@rne.eu.

3.5 Fusion

The development team of ECMT is also working on the “Fusion” project. This project aims to integrate the functionality of the TCR-tool and ECMT, and to update these.

The development of this platform has started in February 2025, and aims to offer a system that is able to combine engineering works (TCRs) and traffic capacity management (ECMT) in an efficient and user-friendly way.

Following the current planning, “Fusion” will be live in July 2026. Afterwards, data will be migrated from ECMT and TTR-tool to “Fusion”.

4 Capacity Model 2027

4.1 Input from traffic flows for the Capacity Model

Input for the Capacity Model 2027 comes from:

- Annual timetable 2025;
- Timetable developments for 2026 as known in Preparation Annual Timetable
- Intended product steps as known in Medium-term process (MLT process):
  - Intended developments (product steps) for both passenger and freight traffic
  - Realization data and forecasts for numbers of freight trains
- TTR Capacity Strategy 2027[3]
  - Available infrastructure
  - Intended traffic flows
  - Major TCRs
- Major and High TCRs from the X-24 publication
- Capacity Needs Announcements (CNAs)
  - Via ECMT, railway undertakings can submit desired train paths via CNAs
  - The CNA process is still a pilot for 2027

4.2 Traffic flows Capacity Model 2027

The Capacity Model 2027 contains all structural train paths for 2027. Non-structural trainpaths are not yet added. All train paths that are included in the Capacity Model 2027 are shown in appendix C. This file is available in a higher resolution via TTR@prorail.nl.

4.3 Harmonization with infrastructure managers from neighbouring countries

At the border crossings, ProRail coordinates the Capacity Model with the infrastructure manager of the neighboring countries. For this version of the Capacity Model 2027, consultations have taken place with DB InfraGo for the border crossings between the Netherlands and Germany and with Infrabel for the border crossings between the Netherlands and Belgium.

The Capacity Model on the border route segments has been harmonized as far as possible. There may be differences on the border between the Netherlands and Germany, because DB InfraGo has based the Capacity Model on the train numbers between 6:00 AM and 10:00 PM, and does not take the night into account. Differences with Infrabel may occur from rounding of planned times.

4.4 TCRs for the Capacity Model

The Capacity Model 2027 includes for the first time, but with limited scope, capacity restrictions. Major and high TCRs because of engineering work have been published for the first time in December 2024 on the “Logistiek Portaal”: Publicatie Capaciteitsbeperkingen 2026 en 2027 van 12-12-2024.

One cluster (CL1132) of TCRs from the X-24 publication has been incorporated in the Capacity Model 2027. This cluster consists of works around Tilburg between April 19 and May 10, 2027.

[3] *See TimeTable Redesign | ProRail*

Three additional traffic variants have been made, taking into account the differences in the restrictions, weekday vs weekend day and rush hour vs off-peak hour.

In addition, all weekly maintenance windows have been added in the Capacity Model 2027. Non-weekly maintenance windows are not in scope for this Capacity Model. Where needed, maintenance windows have been adjusted to the TCR in Tilburg.

More traffic variants will be added in the Capacity Model in the upcoming years. These variants will provide insights in the possibilities for train traffic around TCRs and the effects on maintenance windows.

4.5 Status and limitations of the 2027 Capacity Model

The Capacity Model 2027 is non-binding because the legal basis has yet to be established. Therefore, the Capacity Model for 2027 is informative.

Due to limitations in the technical infrastructure[4], there may be a restriction on the use of train paths on certain routes. This means that on some routes not all train paths can actually be used by trains. The reason that the train paths are included is that ProRail cannot foresee at which times of the day train paths are required.

4.6 Differences between draft and final Capacity Model 2027

There are no changes in the published number of train paths between the draft and final Capacity Model. However, border times have been changed at Roosendaal Grens during this period, effectively to offer more capacity for freight trains.

[4] *This refers to infrastructure in the technical fields of rail embankments, civil structures, traction and energy supply, level crossings, train detection, environment (noise)*

5 Appendices

5.1 Appendix A: List of abbreviations

AG: Advisory Group
CCB: Change Control Board
CMO: Capacity Model Object
CNA: Capacity Needs Announcements
ECMT: European Capacity Management Tool
ICL: Intended Capacity Line
MLT: Medium term (MLT: Middellange termijn)
PLC: Primary Location Codes
RNE: Railnet Europe
TCR: Temporary Capacity Restriction
TTR: Timetable Redesign

5.2 Appendix B: Further explanation of the use of ECMT

5.2.1 Segment overview

The available capacity between two adjacent primary location codes (PLCs) is available in the segment overview. To view the intended capacity for a specific day for timetable 2027 at a certain location, the procedure is as follows:

- Enter the desired PLCs in the 'From location' and 'To location' fields. One or more waypoints can be entered via the input field 'Waypoints'.
- Select 2027 at 'Timetable period'
- Enter the desired date in “Exact day”
- If desired, other fields can be filled.
- Click on 'Search'

Figure 3 shows the result for the Eijsden – Eijsden border segment for a specific day (January 11, 2027) in the 2027 timetable.

Each block is a CMO (Capacity Model Object), an available train path for a certain category. The colour of the CMO indicates the train type and the letters in the CMO indicate the product type, see also the legend below the graph. The horizontal axis shows hours 0 to hour 23, the vertical axis shows the number of CMOs per hour.

Clicking on a CMO will reveal further information about that CMO, including:

- The validity
- The route
- The intended planning times
- Tonnage (by clicking on 'More values' at the route)
- Length (by clicking on 'More values' at the route)
- Timetable speed (by clicking on 'More values' at the route)

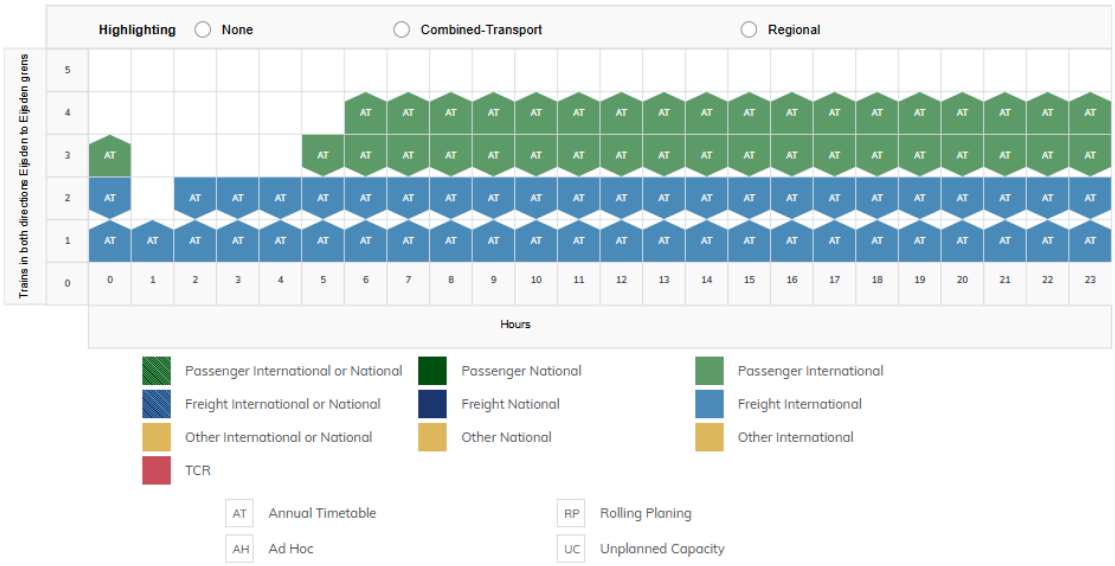

Figure 3: ECMT segment overview Eijsden – Eijsden grens for a specific day (January 11, 2027)

5.2.2 Intended Capacity Line

The Intended Capacity Line (ICL) is also shown in the segment overview. This line indicates the maximum number of CMOs per hour. If there is a gap between the sum of the CMOs and the ICL in a given hour, this means that there is 'free capacity space' in that hour.

For the 2027 capacity model, both national and international train paths are in scope. We're developing the ICL to cover all train paths, but this development has not yet finished. That's why we have not published the ICL for the Capacity Model 2027.

In most cases, the ICL will equal the total amount of CMO's. It's not possible to add trains because the maximum capacity has been reached on the infrastructure that is planned for timetable 2027.

5.2.3 Line overview

The available capacity for a route is visible in the line overview. The procedure to view a line overview for a specific route is similar to the segment overview. For the line overview you can specify locations that are further apart. It is important to specify the correct via PLCs, because ECMT searches for the short route in terms of distance between the specified PLCs.

Figure 4 shows the result for the Sittard – Eijsden Grens route for a specific day (January 11, 2027) in the 2027 timetable. The route is shown on the horizontal axis, with all PLCs on that route at the top. The hours of the day are shown on the vertical axis, in this example hour 0 is visible at the top and hour 9 at the bottom. The CMOs are represented by blocks/bars, where each block/bar indicates in which hour the CMO is on which part of the trajectory.

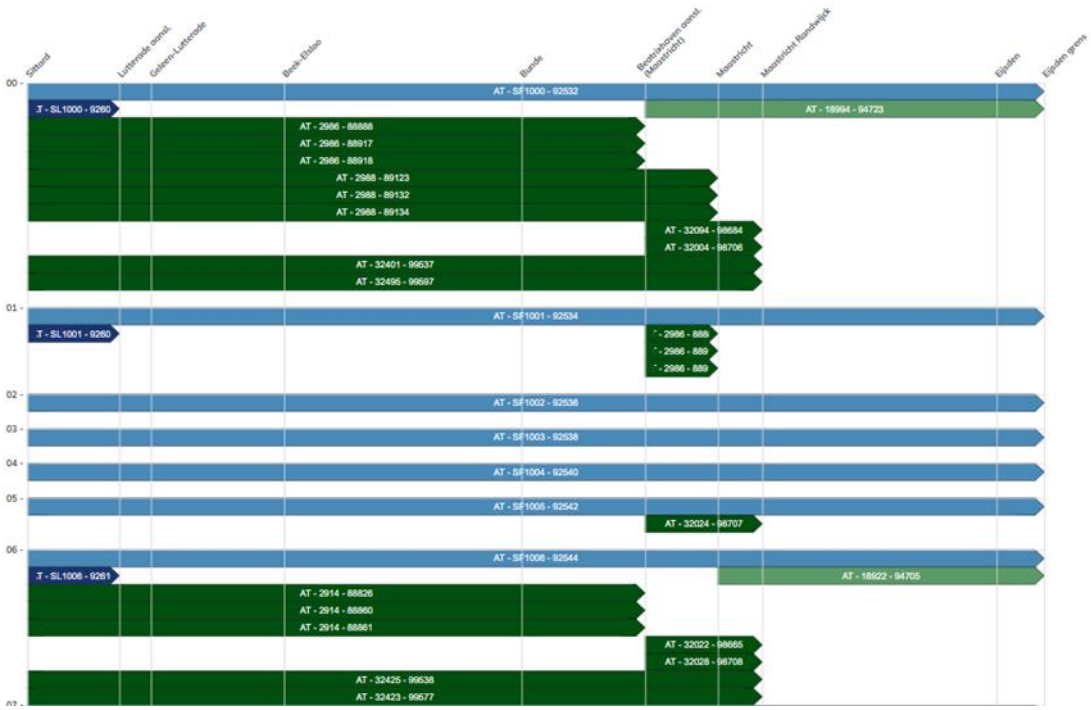

Figure 4: ECMT Line overview Sittard – Eijsden grens from hours 0 to 7

5.2.4 Network overview

The available capacity for a network can be viewed via the network overview. The method to view a network overview is to enter the desired day and hour and click on 'Search'.

It is not possible to generate a network overview for Capacity Model 2027 because of the lack of the Intended Capacity Line (see 5.2.2). Therefore, Figure 5 shows the network overview of a standard day in timetable year 2026.

In the map, the colour indicates whether there is still capacity available or whether the network is full. See the legend at the bottom of the map. The ICL is used as maximum capacity and ECMT compares the number of CMOs per segment with the ICL.

Figure 5: ECMT Network overview for Capacity Model 2026

5.3 Appendix C: Traffic flows for the Capacity Model 2027

Traffic flows Capacity Model 2027

23 June 2025

Traffic flows as included in the 2027 capacity model.
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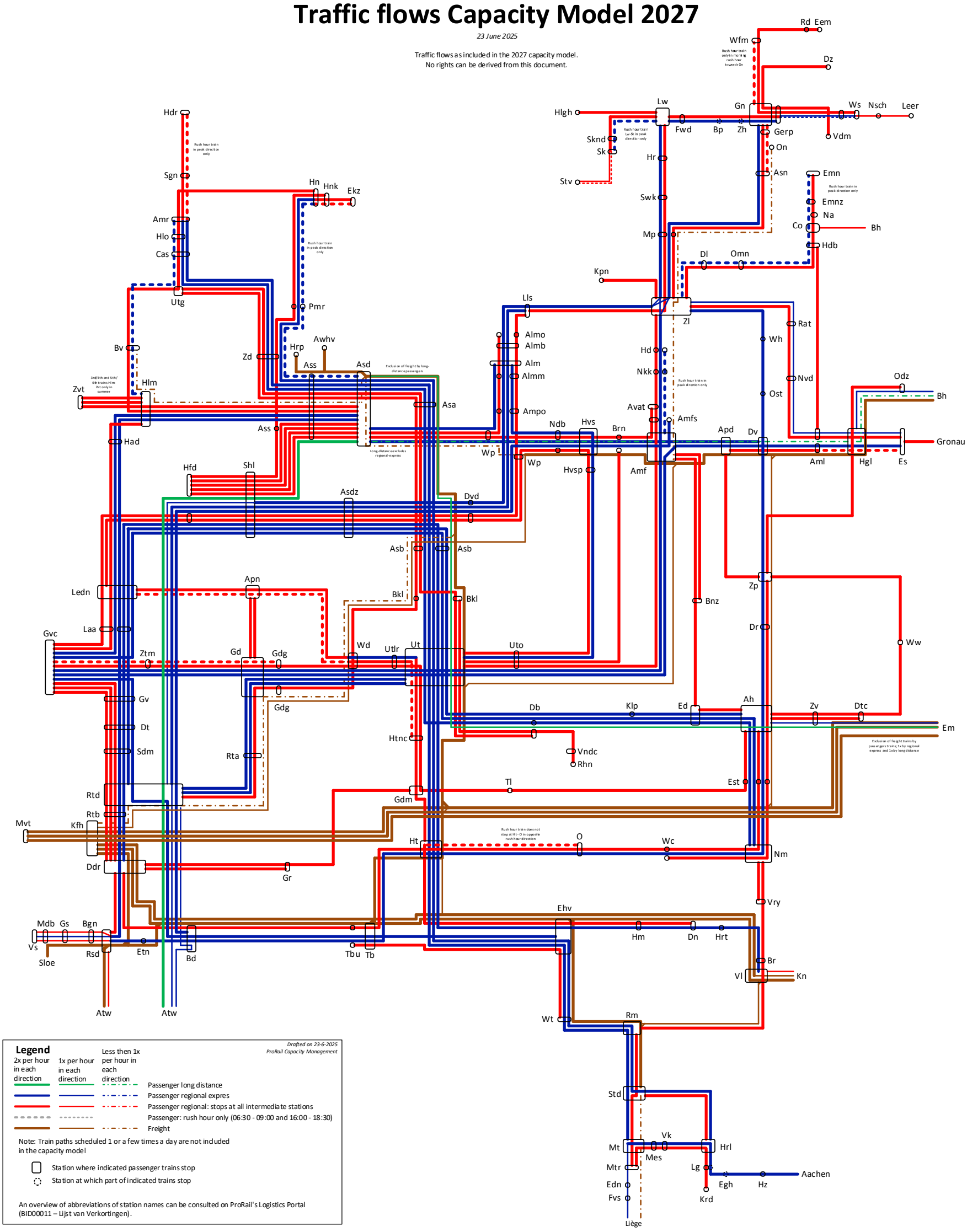

Legend

2x per hour in each direction	1x per hour in each direction	Less then 1x per hour in each direction	
			Passenger long distance
			Passenger regional expres
			Passenger regional: stops at all intermediate stations
			Passenger: rush hour only (06:30 - 09:00 and 16:00 - 18:30)
			Freight

Note: Train paths scheduled 1 or a few times a day are not included in the capacity model

Station where indicated passenger trains stop

Station at which part of indicated trains stop

An overview of abbreviations of station names can be consulted on ProRail's Logistics Portal (BID00011 – Lijst van Verkortingen).

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ProRail Capacity Management