# Capacity Strategy for timetable 2025 Netherlands


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# 1 Introduction

The Capacity Strategy is the starting point of the advanced capacity planning phase of the TTR process and thus sets the foundation for the following steps such as Capacity Model and Capacity Supply. Figure 1 gives an overview of the TTR process.

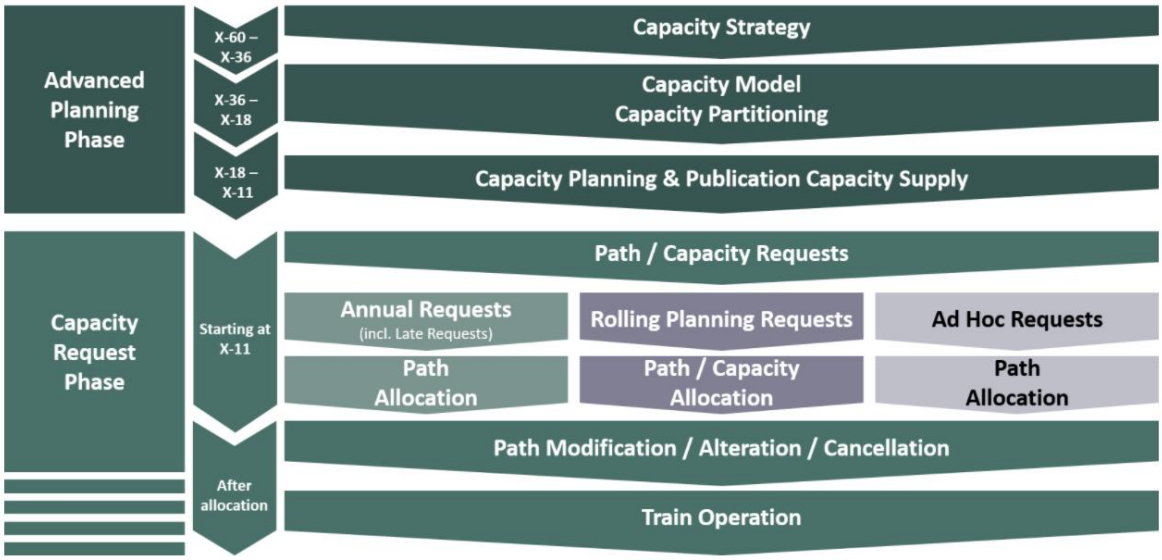



*Figure 1: Scheme of the TTR process*

Each Infrastructure Manager (IM) is expected to publish its Capacity Strategy for Timetable 2025. The preparation of the Capacity Strategy for 2025 started later than planned. Therefore the publication is also delayed, and will be published at X-30 months (June 2022) instead of X-36 months.

The capacity strategy addresses the following:

- The available infrastructure for timetable 2025
- Principles for design and programming of temporary capacity restrictions
- Expected traffic developments and capacity at border crossings

These points are discussed and agreed between the participating countries. This is recorded in this document, which is subsequently published. This document is non-binding.

# 2 Participants and scope

## 2.1 Participating Infrastructure Managers

This Minimum Viable Product (MVP) has been set up to jointly assess and test all questions related to the implementation of the first TTR Capacity Strategy within a group of TTR first wave implementers consisting of:

- ProRail
- InfraBel
- ACF (observatory)
- DB Netz
- TTR@CH (SBB Infra, BLS Infra & Schweizerische Trassenvergabestelle)
- ÖBB Infra
- RFI

In this context the MVP targets Capacity Strategies among the participants that are harmonized in their structures and to the extent possible in their contents. Beyond the TTR goal of international consistency the benefit of this approach is to offer the customer an integrated view that matches their international traffic flows. It also serves as a platform for exchange between the participating IMs and as a source for lessons learnt for the creation of subsequent Capacity Strategies and TTR planning instruments such as the Capacity Model.

## 2.2 Scope Capacity Strategy for MVP

The scope of the MVP Capacity Strategy 2025 will be focused on the lines with international relevance in the networks of the participating IMs and the respective main border crossings between these IMs. Below table provides the selected border crossings:

| | ProRail | InfraBel | DB Netz | TTR@CH | RFI | ACF | ÖBB Infra |
|---|---|---|---|---|---|---|---|
| **ProRail** | | Roosendaal–Essen; Meer/ Hazeldonk (HSL), Maastricht/ Visé | Venlo, Emmerich, Bad Bentheim | | | | |
| **InfraBel** | Roosendaal–Essen; Meer/ Hazeldonk (HSL), Maastricht/ Visé | | Aachen/ Montzen | | | Aubange/Rodange, Kleinbettingen/ Sterpenich, Gouvy/ Troisvierges | |
| **DB Netz** | Venlo, Emmerich, Bad Bentheim | Aachen/ Montzen | | Basel, | | | Kiefersfelden /Kufstein, Freilassing/ Salzburg, Passau/ Schärding |
| **TTR@CH** | | | Basel, | | Luino, Domodossola , Chiasso | | |
| **RFI** | | | | Luino, Domodossola , Chiasso | | | Brennero-Verona, Tarvisio - Trieste |
| **ACF** | | Aubange/ Rodange, Kleinbettingen/ Sterpenich, Gouvy/ Troisvierges | | | | | |
| **ÖBB Infra** | | | Kiefersfelden /Kufstein, Freilassing/Salzburg, Passau/ Schärding | | Brennero-Verona, Tarvisio - Trieste | | |

The routes of the participating MVP countries that fall within the scope of the capacity strategy for 2025 are included in the map below:

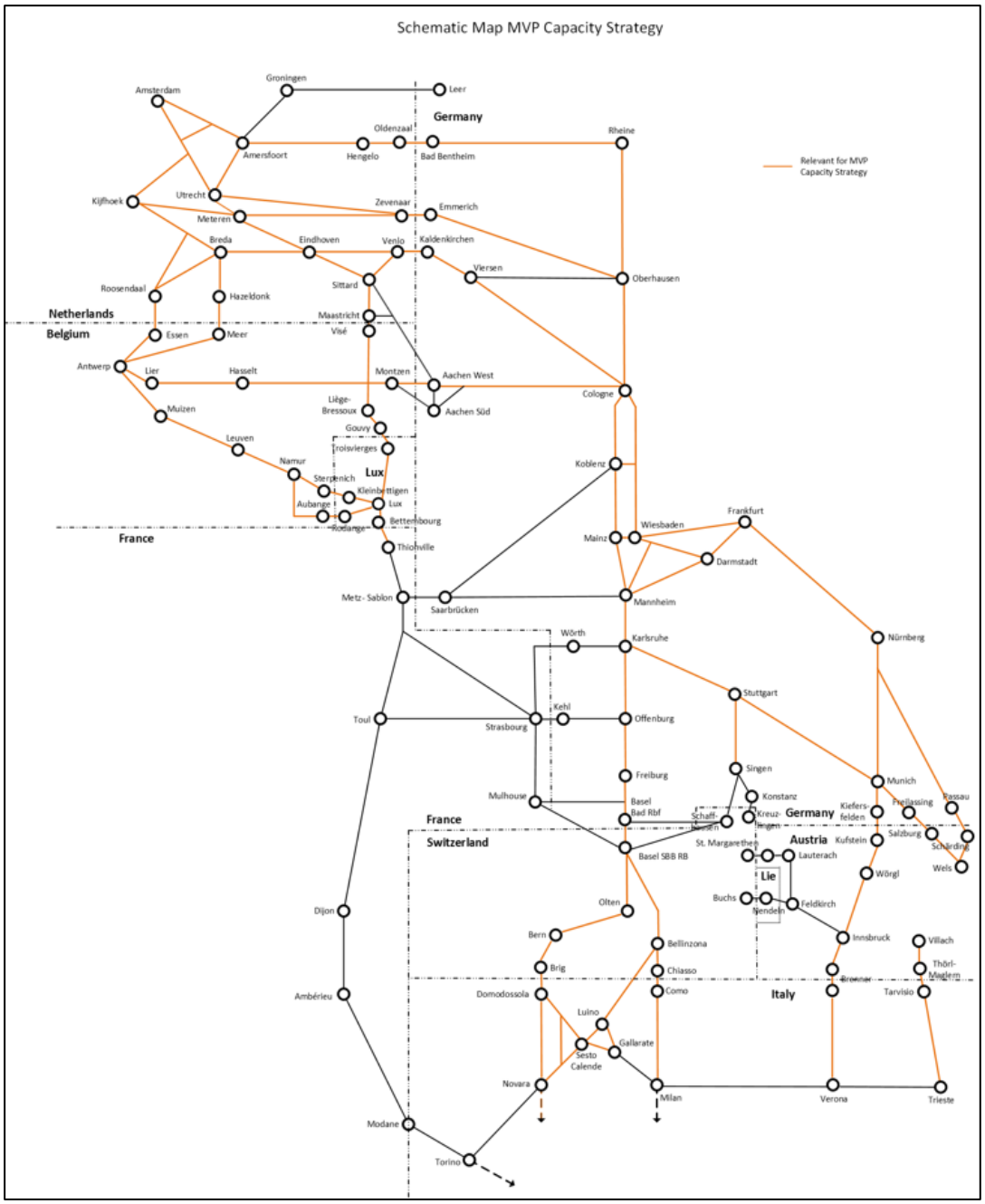



*Figure 2: Scope Capacity Strategy for MVP*

### 2.2.1 Geographic Scope Netherlands

Figure 3 shows the geographic scope for the Capacity Strategy timetable 2025 for the Netherlands. Within the Netherlands, ProRail will further expand the scope for capacity strategy in the coming years, so that the entire network will be included in the capacity strategy within a few years.

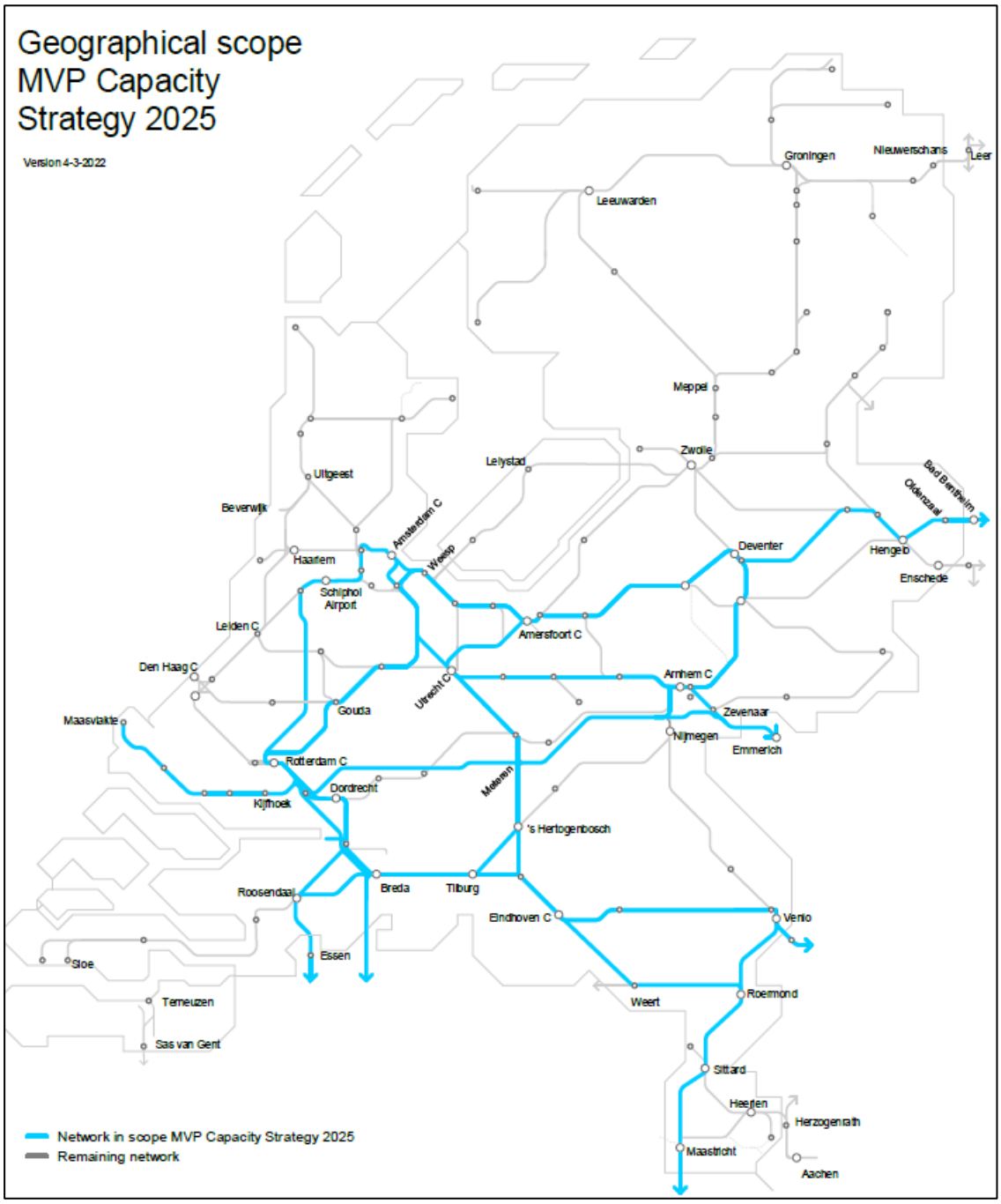



*Figure 3: Networkmap Netherlands with MVP-scope*

# 3 Expected Capacity of the Infrastructure

## 3.1 Available Capacity

The available capacity chapter aims to provide an overview on any significant positive or negative changes to the available capacity in the respective timetable year. This is usually triggered by the finalization of infrastructure projects as well as modernization projects. The projects listed in this chapter have been selected by ProRail according to the following common principles:

- The projects have a permanent impact on the available capacity. Projects with temporary impact are subject to the TCR chapter (see chapter 0).
- The list below contains such projects that will be finalized in the second half of timetable year 2022 until the end of timetable year 2025.
- The selection of the infrastructure projects in the list below is based on criteria such as size and location of the project.

The infrastructure projects listed in section 3.1.1 provides additional capacity. Projects listed in section 3.1.2 provides reduces capacity. Some infrastructure projects will provide both additional and reduced capacity, and therefore are listed in both sections.

### 3.1.1 Additional available capacity

Table 1 below shows the additional capacity within the geographical scope until 2025.

*Table 1: List of infrastructure projects with additional capacity effects in the Netherlands up to TT2025*

| Network segment / location | Description | Effect | Impact on capacity as of | Remark (e.g. to indicate status) |
|---|---|---|---|---|
| **Almelo** | Electrification platform track 3 | Electric trains can change direction at all platform tracks | 08/2022 | Definitive |
| **Deventer** | Adjustments layout | Shorter running and headway times | 10/2022 | Definitive |
| **Ede-Wageningen** | Adjustments layout and extra platform track | Changing direction from middle platform tracks, fewer dependencies | 09/2022 | Definitive |
| **Apeldoorn** | Adjustments layout and extra platform track | Shorter running times and fewer dependencies | 07/2023 | Definitive |
| **Tilburg** | Adjustments layout and extra platform track | Higher platform capacity and shorter headway times | 09/2023 | Definitive |
| **Gilze-Rijen** | Remove switches, adjustments to free track | Less possibilities for traffic control, shorter headway times | 09/2023 | Definitive |

| | | | | |
|---|---|---|---|---|
| **Oudewater** | Remove sidetracks and switches, adjustments to signalling | Less possibilities for traffic control, shorter headway times | 11/2023 | Definitive |
| **Oldenzaal border - Hengelo** | Higher maximum speed, short term adjustments layout Oldenzaal | Shorter running times | 2023/2024 | Risky (in study) |
| **Amersfoort Centraal** | Adjustments layout | Shorter running times | 09/2024 | Definitive |
| **Rotterdam Centraal** | Adjustments layout and longer platform tracks | Shorter running and headway times, more platform tracks for long trains. | 10/2024 | Definitive |
| **Kijfhoek** | Renewal of hump yard, possibly with adjustments layout | Depends on adjustments | 2024 | Likely |
| **Venlo** | Adjustments layout and longer platform tracks | Stopping with longer trains possible | 2024/2025 | Risky |
| **Tilburg Industrie** | Extend arrival and departure track | Longer freight trains | 2024 | Risky |
| **Valburg** | New container terminal | New origin and destination for freight trains | 2024/2025 | Likely |
| **Eindhoven** | Adjustments layout east side | Shorter running times and fewer dependencies | 2024/2025 | Likely |
| **Moerdijk** | 2 arrival and departure tracks for 740m-trains | 740m-freight trains from to Moerdijk | 2025 | Likely |
| **Europoort** | Electrification of 2 arrival and departure tracks | 740m-freight trains from to Europoort | 2025 | Likely |

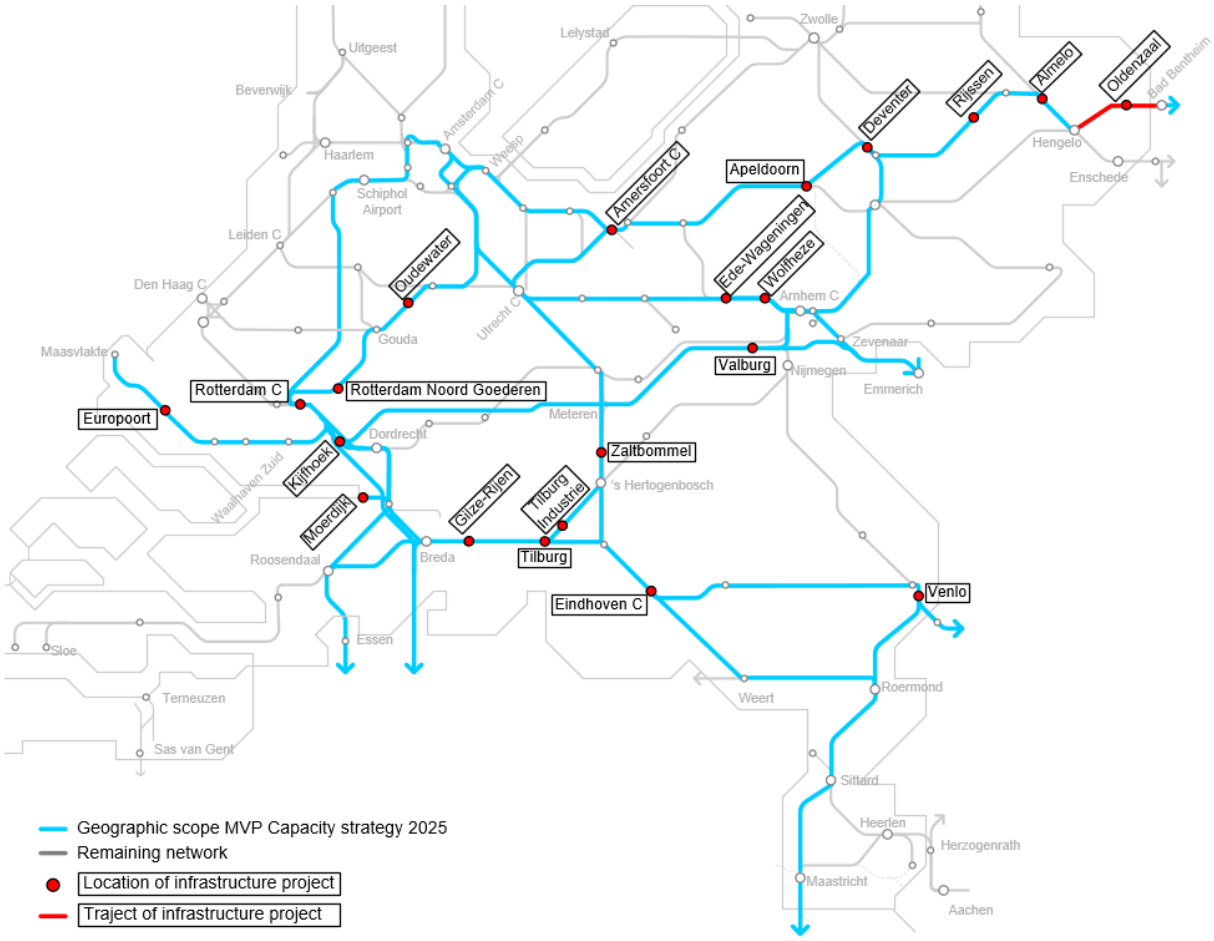



*Figure 4: Locations with infrastructure project with capacity impact*

### 3.1.2 Reduced Available Capacity

Table 2 below shows the reduces capacity within the geographical scope until 2025. Projects Gilze-Rijen and Oudewater will have both additional and reduced capacity.

*Table 2: List of infrastructure projects with reduced capacity effects in the Netherlands up to TT2025*

| Network segment / location | Description | Effect | Impact on capacity as of | Remark (e.g. to indicate status) |
|---|---|---|---|---|
| **Gilze-Rijen** | Remove switches, adjustments to free track | Less possibilities for traffic control, shorter headway times | 09/2023 | Definitive |
| **Oudewater** | Remove sidetracks and switches, adjustments to signalling | Less possibilities for traffic control, shorter headway times | 11/2023 | Definitive |
| **Zaltbommel** | Remove sidetracks and switches Oud-Zaltbommel | Less possibilities for traffic control | 2024 | Definitive |

| | | | | |
|---|---|---|---|---|
| **Wolfheze** | Remove middle track and switches | Less possibilities for traffic control | 2025 | Likely |
| **Rijssen** | Remove sidetrack | Less possibilities for traffic control | 2025 | Likely |

# 4 Temporary Capacity Restrictions

## 4.1 Principles for TCR Design and Planning

### 4.1.1 General

- ProRail plans its works on and near the tracks in Temporary Capacity Restrictions (TCRs), making a distinction between Periodical TCRs (also: Weekly TCRs or Maintenance Windows) and Regular TCRs (or just TCRs). In addition, ProRail plans measuring and inspection trains.
- Periodical TCRs are (usually) weekly recurring TCRs and are planned supply-driven and later filled with concrete work. Regular TCRs are tailor-made based on known activities.
- This chapter describes the principles for the design and planning of the above-mentioned types of TCRs.
- The principles below are based on the working method for the 2023 timetable year. Known trends and developments that are important for the design and planning of TCRs are added.
- The so called “Corridor Book” contains a more detailed elaboration of many of the planning rules for regular TCRs mentioned in this chapter. The Corridor Book is published by ProRail annually around X-19 months. ProRail is investigating whether moment for publication is necessary in the context of TTR.
- Indicators with target values may apply to some of the principles. These are not included in this chapter and can be published later.
- Principles may conflict with each other. ProRail aims to make an optimal choice for each situation, taking into account the interests of all stakeholders. This is part of the consultation process.
- Conflicts between Periodical TCRs, Regular TCRs and measuring and inspection trains with other trains are solved following various procedures and at different moments in the process. As a result of TTR, the procedures may be revised.

### 4.1.2 International coordination

- There is coordination with neighboring countries in accordance with the deadlines stated in “Annex VII” (EU2012/34) on the planning of TCRs with the aim of:
    - Planning works on the same track section simultaneously on both sides of a border point (clustering / synchronizing) as much as possible
    - Keeping deviation routes via other border points free of TCRs on both sides of the border, or to ensure that sufficient capacity remains for the traffic to be diverted.
- Additional international coordination takes place regarding the (alternative) timetable during the TCR.

## 4.2 Maintenance Windows

### 4.2.1 Design

- Maintenance Windows are allocated on all track sections in the Netherlands and facilitate TCRs for short-cycle maintenance as well as other minor TCRs.
- In the Maintenance Windows, works can be planned without further consultation of RUs or coordination with neighboring IMs, both before and after the X-4 publication, provided that the works fit within a Maintenance Window in terms of duration, space and conditions.
- The number of Maintenance Windows at a certain location depends on the historical and/or expected need for maintenance and projects. Also, additional Maintenance Windows can be planned on connecting track sections of the Maintenance Windows

if no more traffic is possible there. In most locations, several Maintenance Windows are planned per week.

- Maintenance Windows are planned throughout the network in such a way that (deviation) routes remain available on all days of traffic demand between the main origin and destination locations of freight trains and night trains, including border crossings with / locations in Germany and Belgium.
- Maintenance Windows are spread as much as possible over all nights of the week and are basically planned when there is as little traffic as possible.
- Each Maintenance Window lasts at least 4 hours.
- Each Maintenance Window is repetitive on a weekly basis, except:
    - at locations where this is not possible due to traffic needs and the absence of diversion routes;
    - if the demand for Maintenance Windows is so low that a bi-weekly or four-weekly schedule is also sufficient for performing works and reducing ad hoc impact to traffic as a result of ad hoc TCRs;
    - if works require a TCR larger than the periodically scheduled windows, these are planned on a fixed date by means of a Low Frequency Maintenance Window or a Maintenance Window with Additional Conditions.
- Maintenance Windows are designed on single-track and double-track sections so that work can be done safely. This often results in a total closure of a single-track or double-track section. Exceptions are made in order to keep large maintenance and service facilities accessible.
- When changes are made to the infrastructure, the Maintenance Windows are redesigned. Maintainability is taken into account in the redesign of the infrastructure.
- If there are any Maintenance Windows on a deviation route due to another TCR that has been planned earlier than the Maintenance Window, the Maintenance Windows will be cancelled. In the ad hoc phase, the cancellation of Maintenance Windows must be explicitly agreed.
- Non activated Maintenance Windows will be cancelled 12 days in advance. Exceptions apply. This term may be harmonized at European level in the context of TTR.

### 4.2.2 Solving conflicts between Maintenance Windows and train paths

- When planning the Maintenance Windows simultaneously with the 7*24 hour timetable of traffic (BasisDagen), conflicts between the Maintenance Windows and trains are being solved.
- As a result of TTR, this procedure may be revised.

## 4.3 Regular TCRs

In this paragraph, “Regular TCRs” are referred to as “TCRs”.

### 4.3.1 Design

#### 4.3.1.1 (Non) closure of track sections and clustering of TCRs

- The size of a TCR, both in terms of duration and space, does not exceed the size needed for the safe execution of the planned works. This takes into account a safety zone and a time buffer. In addition, tracks where as a result of the works no further train traffic is possible will be included in the possession.
- Works are planned in total closures on single-track and double-track sections. As many activities as possible from different projects are executed simultaneously (clustering).
- On multi-track sections and transport nodes (yards), the principle is to plan no total closures. When designing a TCR and clustering with other projects, a trade-off is

always made between more impact during a shorter period of time or a solution with less impact for during a longer time. The trade-off is made on total impact and costs.
- On all track sections, the maximum size (distance) of a TCR does not exceed pre-defined “sub-corridor” for reasons of quality of alternative passenger transport, unless this is technically not possible otherwise.
- Depending on the results of the “Single-track working on double-track sections” study, this way of planning TCRs may be applied in the future. Safety, technical possibilities and sufficient residual capacity are the most important aspects that are taken into account.

#### 4.3.1.2 Duration and time setting of a TCR

- The duration of a TCR is depending on the planned works (no longer than necessary), taking into account a time buffer to prevent exceeding the planning.
- Major work is in principle divided into TCRs with a duration of two days, which are planned during weekends to limit the impact on traffic. Customization applies to route sections with freight traffic without deviation routes.
- TCRs last longer than weekends if technically necessary.
- TCRs can be extended to several days if this is efficient (for the RU and/or for the contractor) or to avoid many weekends with impact on traffic.
- The duration of a TCR is typically chosen between the end of the passenger service in the evening and the start of the passenger service in the morning, taking into account the interests of freight traffic.
- The exact starting and ending times of a TCR is set 23 weeks in advance. The time setting of the TCR is optimized for the train service as much as possible, while the duration of the TCR remains unchanged.

#### 4.3.1.3 Time of execution and distribution of TCRs

- The planning of TCRs takes into account:
    - The availability of deviation capacity (one or more deviation routes)
    - Works on border route sections / deviation routes abroad (in coordination with neighboring IMs, including the Aachen-Montzen border section between Belgium and Germany)
    - Major public events
    - Accessibility of large maintenance facilities for rolling stock
    - Accessibility of service facilities
    - Accessibility of terminals and shipping companies
    - Road works and local railway works
        - causing extra train passengers
        - needed for alternative transport (“buses”)
        - accessibility for local traffic and emergency services (availability of level crossings)
    - Avoiding peak deployment of scarce resources from contractors (mechanics), suppliers of switches and software suppliers
    - Minimum intervals between TCRs of the same project due to their construction planning
    - Avoiding simultaneous impact on multiple sides of a transport node
    - Avoiding simultaneous impact in several sections of a main passenger flow
    - Spreading the impact over time for passengers on the level of track sections and main passenger flows
    - Minimum intervals between software changes at Rail Traffic Control Centers
    - Impact on traffic (see below)
- TCRs are usually planned during weekends, public holidays and holiday periods.

- Because of the feasible planning of TCRs for contractors and the economically responsible deployment of resources, ProRail is committed to more equally spread of works throughout the year and over the days of the week. To this end, in the future, more times than before, TCRs will be planned outside weekends and holiday periods. When choosing which activities to be done outside weekends and holiday periods, impact for passengers, costs for freight RUs, feasibility of the alternative transport, the use of critical resources and a spread of the extra impact across RUs and regions are the most important factors.

#### 4.3.1.4 Impact of TCRs

- In determining the number, duration and execution time of IOs, in addition to the aspects mentioned in the previous paragraphs, an impact indicator is taken into account.
- The impact is expressed in ERM (Extra Passenger Minutes) based on (weighted) extra travel time of travelers as a result of deviation or alternative transport.
- An impact indicator for freight transport is under development (EGU, Extra Goods Hours).
- As a result of the foreseen increase in the amount of works by ProRail, an increase in the impact must be expected. The basic principle is that the impact increases less than the increase of turnover (“Less more impact”).

#### 4.3.1.5 TCR distribution over the years

- ProRail aims to spread the amount of works and TCRs evenly over the years with a view to impact for all traffic, travelers and available contractor capacity.
- ProRail is optimizing the work packages per track section ('sub-corridor') for several years, taking into account traffic impact.

#### 4.3.1.6 Minor TCRs

- Minor works, including preparation works and post-processing works for projects, grinding, inspections and repairs, are planned in a Maintenance Window.
- If technically necessary or economically justified, longer TCRs are used (up to approx. 9 hours). These TCRs are planned in the night of a scheduled Maintenance Window and during the evening before.

### 4.3.2 Solving conflicts between Regular TCRs and train paths

- The path alteration process (in the planning systems) as a result of TCRs is done after the (annual) path allocation process.
- Standard traffic handling rules are leading in this. These are part of the annual timetable publication. If no standards apply, a customized solution can be developed, also as a part of the annual timetable.
- Adjustments to annual timetable trains as a result of TCRs prevail to trains requested ad hoc.
- This procedure will change as a result of TTR. The effective year of the change has yet to be determined.

## 4.4 Measuring and Inspection trains

### 4.4.1 Design

- These activities are planned as a train (so not as a TCR) and where possible planned during day time, if necessary with track adjustments and/or limited timetable adjustments for other trains.
- At locations where the measurements cannot be performed during the day, these trains are scheduled during the night. In view of the distances traveled by the measurement trains, no distinction is made at night between track sections with and

without a planned maintenance window. In some cases, maintenance windows are canceled.
- Measuring and inspection journeys can use goods paths.
- Measuring and inspection trains are planned in the Donna planning system with so called “periode codes”. Depending on the type of train, this is planned in the annual timetable or during the ad hoc phase.
- The repair of identified defects takes place as much as possible in planned Maintenance Windows. If that’s not possible, an additional TCR is planned on an ad hoc basis.
- If permitted by the characteristics of the measuring and data processing, specific Maintenance Windows are being reserved in the advance planning for repair activities and manual measurements.

## 4.5 Alternative principles during the 80-weeks TCR at Emmerich-Oberhausen

### 4.5.1 General

- ProRail is taking into account an 80-weeks TCR, with alternating single-track availability and total closure for international train traffic, for the construction of a third track between Emmerich and Oberhausen by DB Netz from the beginning of November 2024 to the end of May 2026.

### 4.5.2 Regarding regular TCRs on deviation routes in the Netherlands

- During the 80-weeks TCR, ProRail will only plan works on the deviation routes that are reasonably necessary during that period or that do not cause extra impact; ProRail will reschedule as much work as possible to the periods before and after the 80-weeks TCR (before November 2024 and after May 2026).
- During the above-mentioned period, ProRail will plan TCRs with a maximum duration of one weekend on the deviation routes from Kijfhoek to Venlo, from Kijfhoek to Bad Bentheim and several other routes within the network.
- ProRail will publish an adapted version of the Corridor Book for the period of the 80-weeks TCR. The basic principle is that, given the construction needs of DB Netz and the necessary projects by ProRail, as much traffic as possible will be facilitated. This is expected to be less than under 'normal' circumstances.

### 4.5.3 Regarding Maintenance Windows in the Netherlands

- ProRail expects an additional need for maintenance on deviation routes because of heavier use during the 80-weeks TCR at Emmerich-Oberhausen.
- ProRail plans as much maintenance as possible in scheduled maintenance windows. At the same time, ProRail schedules as few maintenance windows as reasonably possible to leave remaining capacity for traffic. This is a precarious balance during the 80-weeks TCR. At times the capacity for traffic may be less than in the normal situation.
- ProRail strives to make traffic possible between the Netherlands and Germany during all nights, except during the Sat/Sun night, via at least one of the border crossings Venlo, Emmerich or Bad Bentheim.

## 4.6 Selection of Major Impact TCRs

### 4.6.1 In the Netherlands

| Network segment | Purpose | Impact | Duration | Start TCR |
|---|---|---|---|---|
| **Amsterdam C. – Weesp / Bijlmer / Sloterdijk** | Increased capacity and transfer capacity at and around Amsterdam C. | 8 out of 10 platform tracks available at Amsterdam C.; during 3 weeks per year 6 out of 10 platform tracks available. | Several years | Late 2023-April 2028 |
| **'s-Hertogenbosch – Boxtel / Tilburg** | Increased capacity; freight trains Kijfhoek – Eindhoven via 's-Hertogenbosch instead of Breda - Tilburg | Prolonged speed restriction (80km/h) between 's-Hertogenbosch en Vught Aansluiting | Several years | May 2025 |

*Figure 5: List of Crucial Major Impact TCRs with temporary capacity impacts in TT20xx*

# 5 Traffic Planning and Flows

Base of the traffic flows for timetable 2025 is timetable 2022, including the intended developments for both passenger and freight traffic in the MVP-scope. For passenger traffic we take into account the intended developments as known in the mid-long term process (MLT-process). For freight traffic we take into account the forecasts for traffic growth, which results in a number of freight paths per hour or per day for each OD-relation.

## 5.1 Traffic Planning Principles

In the Capacity Strategy we assume the number of trains per category that can run per hour. The following categories are used for this:

- Freight trains
- Passenger trains, subdivided into:
    - High speed
    - Long distance
    - Regional

The number of trains per category is indicated for the busiest hour, usually the morning rush hour. If there are trains from the above categories that run less than once an hour, it will be indicated how this will be dealt with.

For freight traffic, we only include the train numbers for commercial freight trains in this TTR phase. This does not include individual locomotives and trains of transporting contractors. Furthermore, freight trains in the special transport category (e.g. out of gauge) will not take into account in this phase.

## 5.2 Traffic flows passenger trains

Intended timetable changes 2023:

- Domestic trains highspeed line Schiphol – Rotterdam – Breda 200 km/h instead of 160 km/h

Intended mid-long term timetable changes 2024:

- Second train per hour Maastricht Randwijck – Visé
- Acceleration IC-Berlin with temporary measures

Intended mid-long term timetable changes 2025:

- High-frequency sprinter service Hoofddorp – Amsterdam Central (8x/hour)
- Connecting HSL-trains via Amsterdam South in the direction of Amersfoort / Enschede / Leeuwarden / Groningen
- Frequency intercity trains doubles from 2 to 4 per hour between Breda and Eindhoven

## 5.3 Traffic flows freight trains

For freight traffic timetable 2025, the pattern-based freight paths for timetable 2023 are the starting point. For 2025, we take into account the forecasts for the numbers of freight trains, using the high growth scenario for 2025. Table 3 shows the forecasts for the border track

sections for 2025, including a comparison with the train numbers from the realization of 2021. Appendix C shows the forecast for 2025 for all track sections in the Netherlands.

*Table 3: Freight train forecasts according to RPGV_2030 High (train numbers per average working day in both directions combined)*

| Number of freight trains per day (both directions, rounded to fives) | Realization 2021[1] | Forecast 2025[2] |
|---|---|---|
| Zevenaar (NL) – Emmerich (D) | 105 | 110 |
| Venlo (NL) – Kaldenkirchen (D) | 65 | 70 |
| Oldenzaal (NL) – Bad Bentheim (D) | 30 | 55 |
| Roosendaal (NL) – Essen (BE) | 35 | 55 |
| Eijsden (NL) – Visé (BE) | 5 | 10 |

The basic principle is that a maximum of 75% of the available capacity for freight trains may be used, so that rail freight operators have some flexibility. A freight path that is available 24 hours a day in each direction offers capacity for up to 18 commercial freight trains in each direction, so 36 freight trains in both directions combined. This number is lower when freight paths from different directions converge.

Table 4 shows the minimum number of freight paths required in normal operation on the border track sections within the MVP scope. The current (from timetable 2022) numbers of freight paths per border track section offer sufficient capacity during normal operation, so we use the current numbers for 2025.

*Table 4: Minimum number of freight path required for TT2025*

| Minimum number of freight paths per hour in both directions | Timetable 2025 |
|---|---|
| Zevenaar (NL) – Emmerich (D) | 4 |
| Venlo (NL) – Kaldenkirchen (D) | 3 |
| Oldenzaal (NL) – Bad Bentheim (D) | 2 |
| Roosendaal (NL) – Essen (BE) | 2,5 |
| Eijsden (NL) – Visé (BE) | 1 |

In addition to the required capacity for freight trains, translated into the number of freight paths per border crossing, there are also other developments for freight trains. These are mentioned below.

Intended mid-long term changes for freight trains for 2025:

- Freight trains from/to new containerterminal in Valburg

[1] *Realization based on the 95% percentile rounded to fives. Source: Annual report on rail freight traffic in the Netherlands 2021, February 2022, www.prorail.nl*

[2] *RPGV2021_2025H-M_LO20*

- Longer freight trains to/from Moerdijk, after Moerdijk has been made suitable for 740m trains. Train length is determined now to any restrictions on hinterland connections.
- Freight trains of 740m from/to Europoort, after 2 tracks have been electrified at Europoort. Train length is determined now to any restrictions on hinterland connections.
- Longer freight trains at Tilburg Industrie possible, after the track has been made suitable for trains of 660m. Train length is determined now to any restrictions on hinterland connections.

## 5.4 International traffic flows

The intended product steps for passenger traffic and the forecasts for the numbers of freight trains will lead to the required capacity on the border track sections for 2025.

In table 6 and table 7 the available capacity is shown for the border crossings with Germany and Belgium, respectively. These train numbers are given for different train types that are listed in Table 5.

*Table 5: Legend number and type of train paths*

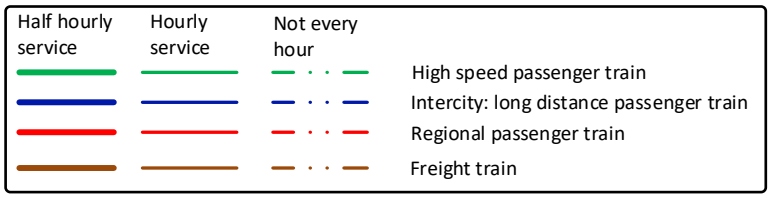
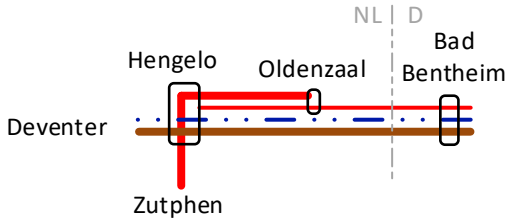
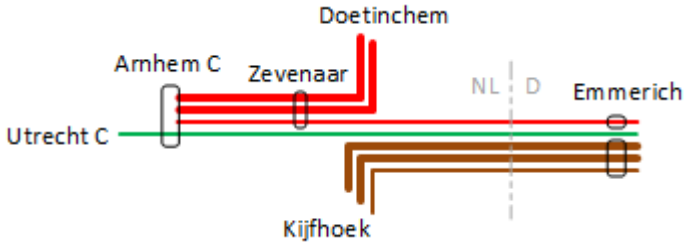
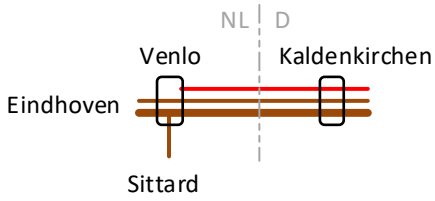
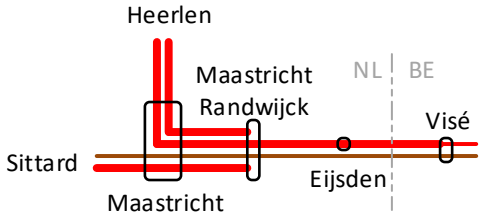
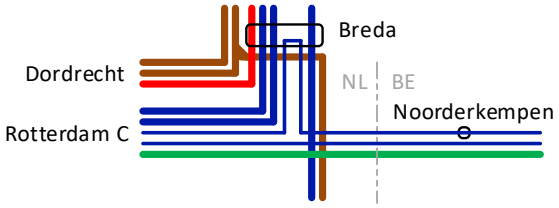
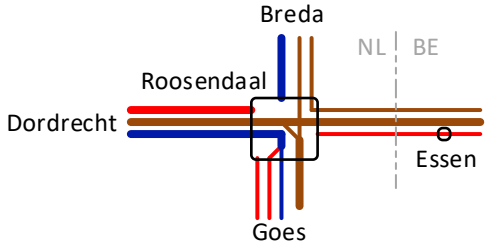


*Table 6: Capacity 2025 border crossings Netherlands-Germany under normal circumstances*

| **Border crossings Netherlands – Germany** | **Train paths per hour** | | |
|---|---|---|---|
| | Long distance passenger | Passengers regional | Freight trains |
| Oldenzaal (NL) – Bad Bentheim (D)<br>  | 0,5 | 1 | 2 |
| Zevenaar (NL) – Emmerich (D)<br>  | 1 | 1 | 5 D → NL<br>4 NL → D[3] |
| | Number of paths are for normal operation. Because of works at German side of this border, the capacity in 2025 is limited. | | |
| Venlo (NL) – Kaldenkirchen (D)<br>  | 0 | 1 | 3 |

[3] *Number of freight trains in direction NL --> D is lower than the opposite direction because of exclusion with regional passenger trains.*

*Table 7: Capacity 2025 border crossings Netherlands - Belgium*

| **Border crossings Netherlands - Belgium** | **Train paths per hour** | | |
|---|---|---|---|
| | Long distance passenger | Passengers regional | Freight trains |
| Eijsden (NL) – Visé (BE)<br>  | 0 | 2 | 1 |
| HSL Hazeldonk (NL) – Meer (BE)<br>  | 2x high speed (300 km/u)<br>2x longdistance (200 km/u) | 0 | 0 |
| Roosendaal (NL) – Essen (BE)<br>  | 0 | 1 | 3 BE → NL<br>2 NL → BE |

The available capacity at the border crossings mentioned in the above tables is part of the line model that is possible for the 2025 timetable. This linearization model is shown in Figure 4.

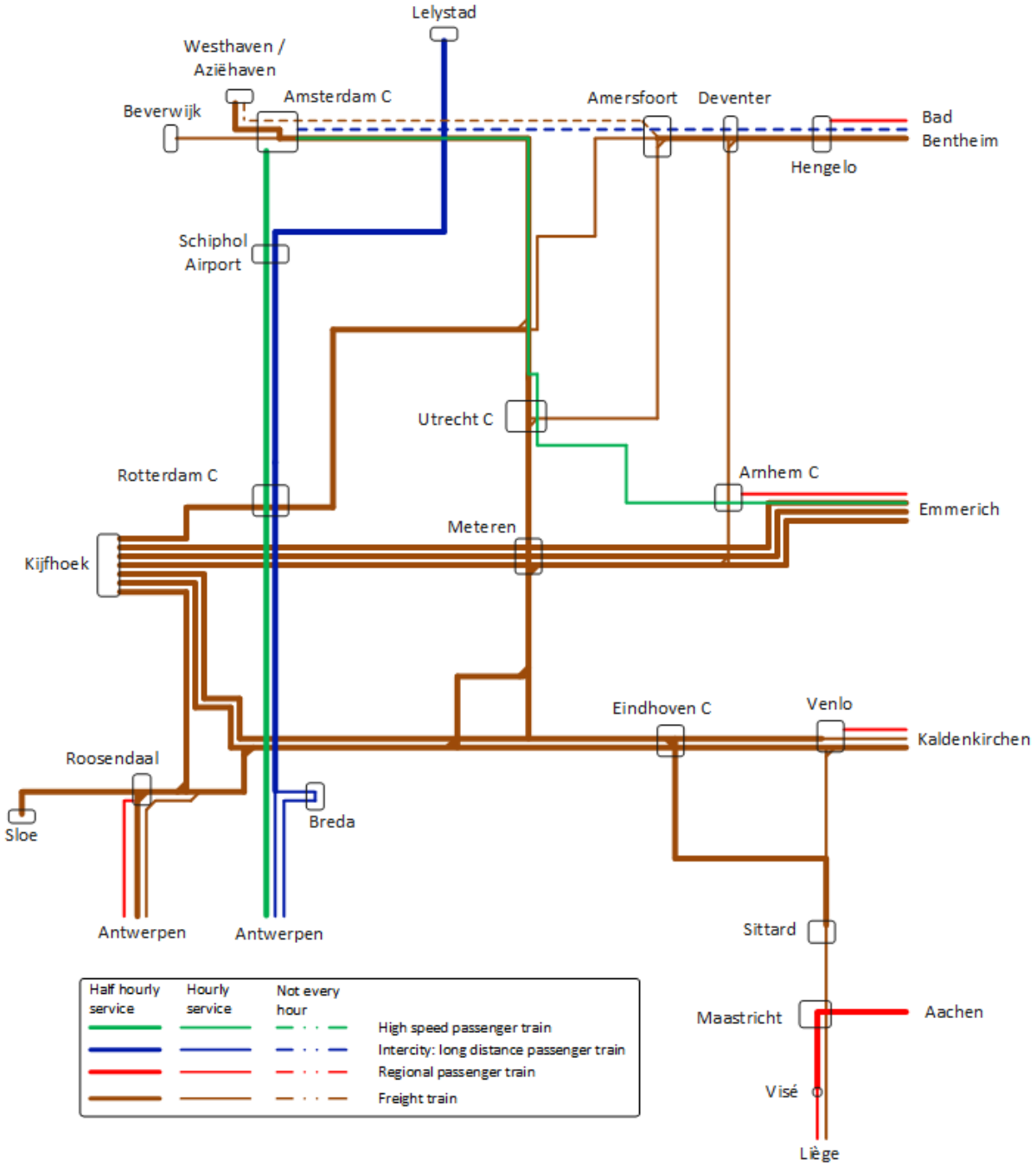



*Figure 6: Possible line model 2025 international train paths via border crossings in scope MVP*

## 5.5 Impact of work abroad on traffic flows

DB Netz expects work on the Emmerich – Oberhausen section to be carried out throughout the year in 2025. 2025 is in the middle of the 80-week period DB Netz have planned for the construction of a third track between the border and Oberhausen. The capacity of border crossing Zevenaar – Emmerich will therefore be lower throughout the year if work continues as planned due to single-track closure and total closure.

During weeks of single-track closure, both long-distance passenger trains and regional passenger trains can continue to run via Zevenaar – Emmerich. A maximum of 80 freight

trains per day applies to freight traffic, in both directions combined. This means a shortage of 30 freight trains on the Zevenaar – Emmerich border, given the forecasts for 2025 (see Table 3). These freight trains can be diverted via the border crossings Venlo – Kaldenkirchen and Oldenzaal – Bad Bentheim, because there is still sufficient residual capacity there. Venlo is the best alternative for most freight trains if Zevenaar-Emmerich offers insufficient capacity. That is why the basic principle is that most freight trains are diverted via Venlo and a smaller part via Oldenzaal. Table 8 shows the numbers at diversion operations due to a partial closure of border crossing Zevenaar - Emmerich.

During weeks with total closure of Zevenaar - Emmerich, regional passenger trains at Zevenaar – Emmerich will be cancelled and long-distance international passenger trains will be diverted via Venlo. Part of the freight trains can be diverted via the border crossings Venlo – Kaldenkirchen and Oldenzaal – Bad Bentheim. But the capacity of the border crossing Venlo – Kaldenkirchen is limited and must also handle diverted long distance passenger trains next to diverted freight trains. Border crossing Oldenzaal – Bad Bentheim is not a good alternative for many freight trains and has also a maximum capacity. This means that without additional measures there is no capacity for 70-75 freight trains per day at the border crossings with Germany in the high growth scenario. To limit the capacity shortage, ProRail will advise the Ministry of Transport on measures.

*Table 8: Number of freight trains for different scenarios of closure of border crossing Zevenaar – Emmerich*

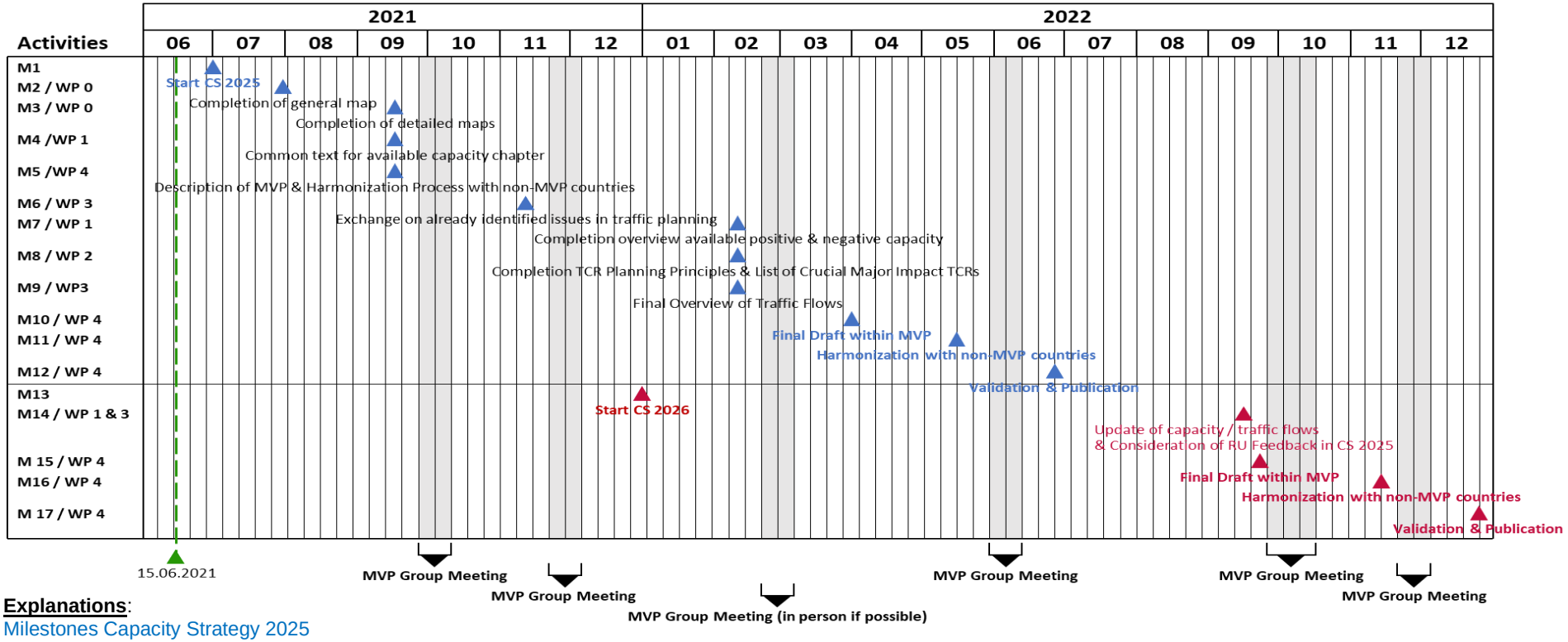
| **Number of freight trains per working day for both directions, rounded in fives** | **Forecast 2025[4]**<br>**Normal operation** | **Single track closure** | **Total closure** |
|---|---|---|---|
| Zevenaar (NL) – Emmerich (D) | 110 | 80 | 0 |
| Venlo (NL) – Kaldenkirchen (D) | 70 | 95 | 95 |
| Oldenzaal (NL) – Bad Bentheim (D) | 55 | 60 | 70 |
| Total number of freight trains NL-D | 235 | 235 | 165 |
| **Shortage** | | **0** | **70-75*** |

* *not exactly because of rounding to fives*

*4 The Reference Forecast Freight Transport (RPGV2021_2030H-M_LO20) has been prepared for the Integrated Mobility Analysis (IMA) that will be published in 2021.*

# 6 Milestones

The following milestone plan for phase 3 (Capacity Strategy creation phase) of the MVP has been set up:




**Explanations**:
Milestones Capacity Strategy 2025
Milestones Capacity Strategy 2026
Milestone valid for Capacity Strategy 2025 & 2026

*Figure 7: Milestone Planning Phase 3 MVP Capacity Strategy*