



Capacity Strategy TT 2028

Administration des Chemins de Fer

Société Nationale des Chemins de fer Luxembourgeois

Version 1.0

12.12.2024



Revision of the document

Version	Date	Author	Modifications
0.1	10/10/2024	Kevin PYREK	Input CFL (chapter 1 and 2)
0.2	11/10/2024	Gilles KOLBER	Input DB InfraGo, SNCF-R and Infrabel
0.3	17/10/2024	Gilles KOLBER	Text adaptation
0.4	21/10/2024	Gilles KOLBER	Input ACF
0.5	29/10/2024	Kevin PYREK	Map and table in chapter 2.2
0.6	29/10/2024	Kevin PYREK	Map in chapter 0.2
0.7	31/10/2024	Gilles KOLBER	Synchronization 3.2 Traffic Flows with neighbor IMs
0.8	12/11/2024	Kevin PYREK	Actualization 3.2 Traffic Flows
0.9	27/11/2024	Gilles KOLBER	Actualization 3.2 Traffic Flows
1.0	12/12/2024	Gilles KOLBER	Transmission by ACF

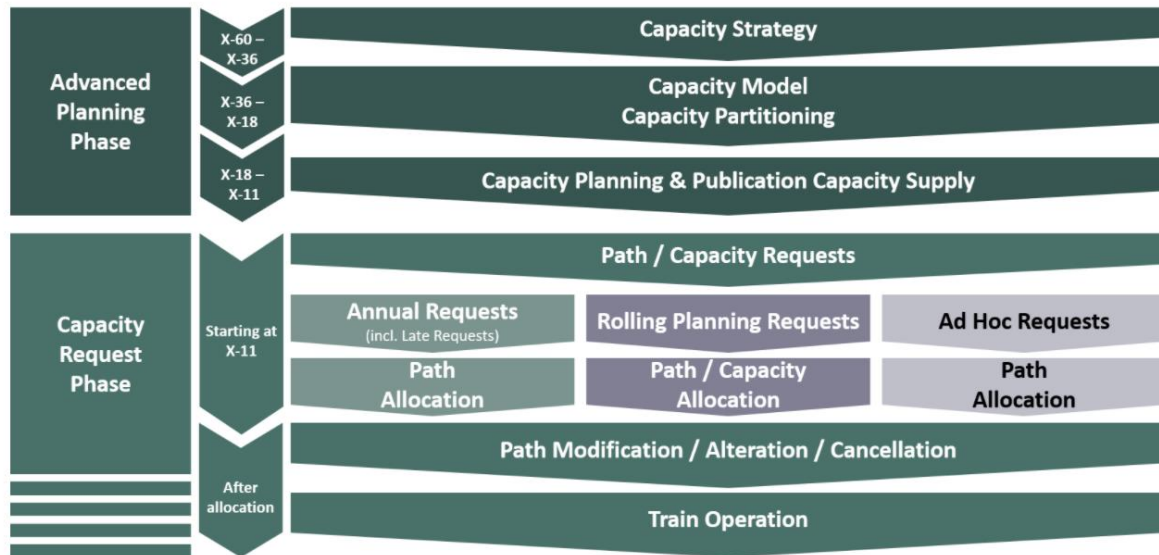


Content

Revision of the document	2
0 Introduction	4
0.1 Contact details	5
0.2 Geographical Scope	5
0.3 List of involved IMs	6
0.4 List of service facilities.....	6
1 Expected Capacity of Infrastructure in TT 2028	7
1.1 Additional Available Capacity.....	7
1.2 Reduced Available Capacity	7
2 Temporary Capacity Restrictions	8
2.1 Principles for TCR Planning	8
2.1.1 Clustering of TCRs to minimize the gravity of impact and duration	8
2.1.2 Description of connected areas where TCRs due to shortage of capacity shall not be planned simultaneously	8
2.1.3 Description of the periods when TCRs will be executed if their nature makes it possible (nights, weekends)	11
2.1.4 Description of the periods when regular TCR windows will be planned (nights, weekends)	11
2.1.5 Description of what the TCR allocation process will look like, how the coordination and consultation will be ensured	11
2.1.6 International coordination.....	12
2.1.7 Description of currently existing (national, bi-, trilateral) escalation process(es) in case of disagreement of the involved stakeholders.....	12
2.2. Pre-Announcement of Major Impact TCRs.....	13
3 Traffic Planning Principles and Traffic Flows	15
3.1 Traffic Planning Principles	15
3.2 Traffic Flows	15
4 Validation	17
Annexe 1: Information on market involvement and opinion gathering	18
Annexe 2: Outlook to the upcoming TT years	18

0 Introduction

An essential scope of the TTR process is the advanced planning based on the Capacity Strategy. It consists of collecting knowledge of the available capacity and combining it with the general capacity needs in order to optimize the use of the available infrastructure. Infrastructure Managers and Allocation Bodies (hereafter IMs), in consultation with the involved stakeholders, shall prepare a Capacity Strategy, based on the capacity planning and allocation concept.



As illustrated in Figure 1, the first phase of the Capacity Strategy starts at X-60 (5 years) prior to timetable-change and must be completed by X-36 (3 years). During this phase, the IM should define all connected geographical areas, including those of neighbouring networks, as well as the associated service facilities and terminals. In the second phase, each strategy which might have an impact on other IMs must be harmonized and validated with the concerned IMs between X-54 and X-36.

Finally, TTR expects each Infrastructure Manager (IM) to publish a Capacity Strategy 3 years prior to timetable-change (X-36). Every Capacity Strategy is validated by the IM and/or the AB itself. The general aim of the Capacity Strategy is to provide an indication of the key values of capacity planning, i.e. on changes in the availability of the infrastructure, Temporary Capacity Restrictions (TCRs or “negative capacity”) as well as on commercial capacity (“positive capacity”) for a given timetable.

The Capacity Strategy 2028 is nationally published, and includes four chapters:

- Description of the geographic area
- Expected capacity of infrastructure in TT2028
- Expected Temporary Capacity Restrictions (TCRs) with major impact
- Expected traffic flows, whereby the values displayed apply for Timetable 2028 to relevant border points within the geographical scope.

The present document meets the requirement of RNE’s Capacity Strategy Handbook, version 3.0. It builds on the Capacity Strategy 2027, which was published as a common document with other IMs (see above). The intended audience of the Capacity Strategy includes all applicants and end-customers, as well as all other stakeholders of rail capacity planning and allocation.



0.1 Contact details

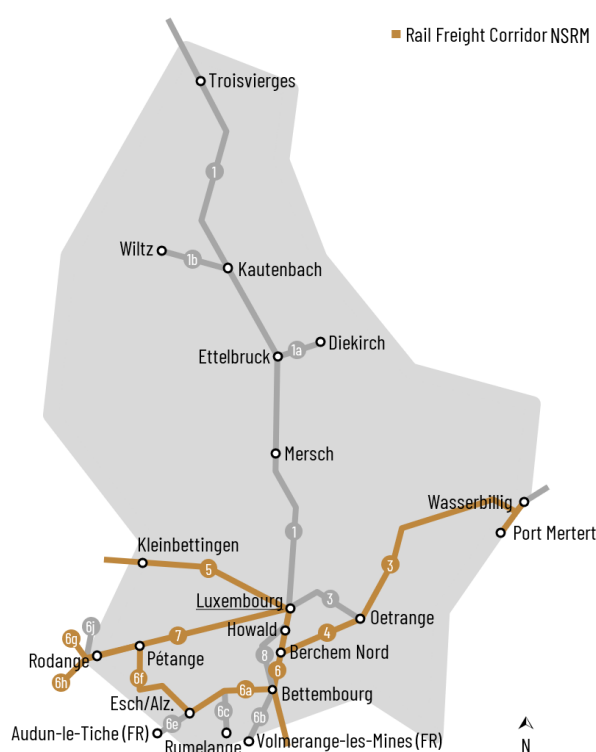
Administration des Chemins de Fer (ACF)

Name	Function	Number & email address
PELTE Kathleen	Chief of EU Project Division	+352 26 19 12 21 kathleen.pelte@acf.etat.lu
KOLBER Gilles	EU Project Manager	+352 26 19 12 53 gilles.kolber@acf.etat.lu
KASS Laurent	Chief of Paths Allocation Division, OSS-Manager	+352 26 19 12 23 laurent.kass@acf.etat.lu
NEUENS Marc	Responsible for passenger traffic	+352 26 19 12 52 marc.neuens@acf.etat.lu
BROY Olivier	TCR Manager, Project Manager	+352 26 19 12 41 olivier.broy@acf.etat.lu
OSWALD Kelly	Timetable Manager, Project Manager	+352 26 19 12 46 kelly.oswald@acf.etat.lu
BABO Vera	Project Manager	+352 26 19 12 24 vera.babo@acf.etat.lu
WOHL Mike	Invoice-Manager, Responsible for freight traffic	+352 26 19 12 22 mike.wohl@acf.etat.lu
DE CONTI Sabrina	Invoice-Manager, administrative tasks	+352 26 19 12 37 sabrina.deconti@acf.etat.lu

Société nationale de chemins de fer (CFL)

Name	Function	Number & email address
FORSTER Pol	TCR-Manager	+352 2489 4507 pol.forster@cfl.lu
PYREK Kevin	TTR-Consultant Responsable CS	+352 2489 7483 kevin.pyrek@cfl.lu

0.2 Geographical Scope





0.3 List of involved IMs

In Luxembourg exists only one infrastructure manager.

	Société Nationale des Chemins de fer Luxembourgeois Direction Gestion Infrastructure B.P. 1803 L-1018 Luxembourg
--	---

0.4 List of service facilities

Terminal Bettembourg

	CFL-TERMINALS s.a. Terminal Intermodal Z.A.E. Wolser E L-3437 Dudelange
Tél.	+352 4996 0108
E-mail	access@cfl-terminals.lu info@cfl-terminals.lu

Port de Mertert (Mertert Port)

	Société du Port de Mertert S.A. Direction du Port L-6688 Mertert
Tél.	+352 74 04 64
Fax	+352 74 04 64 30
E-mail	info@portmertert.lu

Centre de remisage et maintenance Luxembourg (Storage and maintenance facilities)

	Société Nationale des Chemins de fer Luxembourgeois Direction Gestion Infrastructure B.P. 1803 L-1018 Luxembourg
--	---



1 Expected Capacity of Infrastructure in TT 2028

1.1 Additional Available Capacity

The list shall follow the below structure and could for example contain the below information:

Network segment	Description	Effect	Rough quantifications of the effect	Impact on capacity as of
Luxembourg – Bettembourg	New line Luxembourg – Bettembourg New platforms in Howald Reorganization tracks in Luxembourg, Howald and Bettembourg	Separate lines for traffic to France and national	Doubling of capacity between Luxembourg and Bettembourg	From 2027
Luxembourg – Ettelbruck	New Blocks	Additional capacity	Timetable stabilization Capacity augmentation of 5-30% (depending on timetable construction)	Intended 2025 – 2027

1.2 Reduced Available Capacity

Network Segment	Description	Effect	Rough quantifications of the effect	Impact on capacity as of
-	-	-	-	-



2 Temporary Capacity Restrictions

2.1 Principles for TCR Planning

In Luxembourg, 4 kinds of TCRs can be distinguished:

- **Total closures:** all tracks of a line or a station are continuously closed during a defined time;
- **Partial closures:** one or more tracks of a line or a station are closed continuously during a defined time. At least one track remains open.
- **Recurring closures:** all, one or more tracks of a line or a station are closed in a defined time window during a defined time.
- **Small impact closures:** short total or partial closures that are programmed mainly in periods outside of regular train traffic.

The request should be introduced by the IM and validated by the ACF, namely the Luxembourgish Allocation Body. Considering introduced TCRs, trains are cancelled or re-routed in the real timetable, but not considered in the planned timetable, yearly published by the ACF.

2.1.1 Clustering of TCRs to minimize the gravity of impact and duration

TCR clustering is a common practice to minimize gravity and duration of impact, but also to reduce the involved resources. Most of the time, the IM coordinates large impact TCRs due to renewal¹ or investment² projects in advance to combine them on single TCRs. Furthermore, those TCRs are used as well to organize (small)³ maintenance works⁴ if possible. Moreover, TCRs are coordinated with external actors (for example highway infrastructure authority, tram operator) to minimize the national traffic impacts. The clustering starts at X-37, directly by creation of TCRs.

2.1.2 Description of connected areas where TCRs due to shortage of capacity shall not be planned simultaneously

In Luxembourg, no alternative routes are predefined in case of TCRs. Alternative routes have to be tailor-made and international coordination (DB InfraGO, SNCF Réseau and Infrabel) has to be done in order to ensure the access to:

- Rail Freight Corridor NSRM
- Industrial Railway Network « Réseau Tertiaire »
- Private branches to be as less impacted as possible
- Port Mertert
- Terminal Bettembourg

However, the simultaneous closure of certain segments can lead to conflicts. Therefore, the following principles are considered, if possible:

¹ Renewal projects: a.o. track renewal on several km, catenary, bridge, platform renewal

² Investment projects: political and strategical projects, a.o. new line, track adaptation, station track reorganisation, construction of new platforms

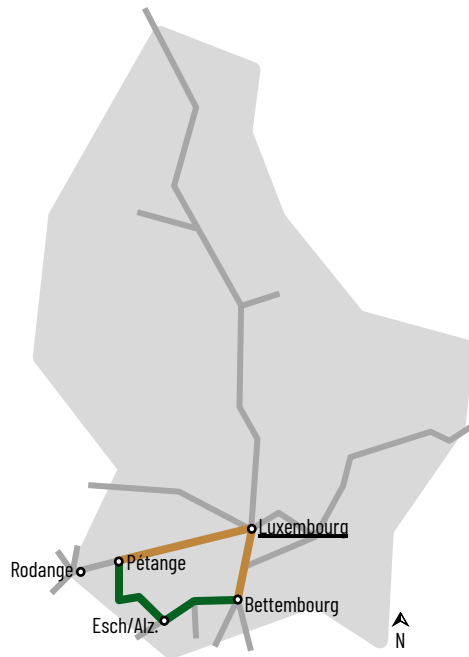
³ Small maintenance works: a.o. screw clamping, vegetation works, control drives

⁴ Maintenance works: a.o. punctual gutter, switch, tie replacement, embankment stabilisation, adaptation of electrical traction installations



In order to guarantee the traffic on the Rail Freight Corridor NRSM, one of the following axles has to stay opened:

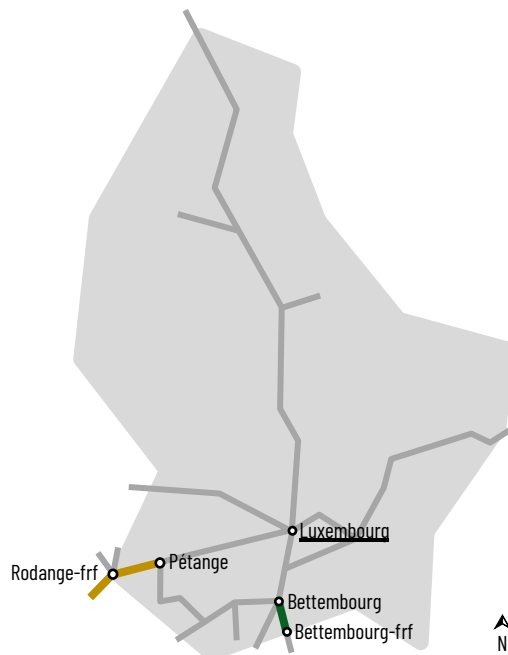
- ■ Bettembourg – Esch/Alz. – Pétange
- ■ Bettembourg – Luxembourg – Pétange



Closures on the segments Pétange – Rodange-frf and Bettembourg – Bettembourg-frf are coordinated with SNCF Réseau.

One of both border lines must stay open to allow the freight traffic to France:

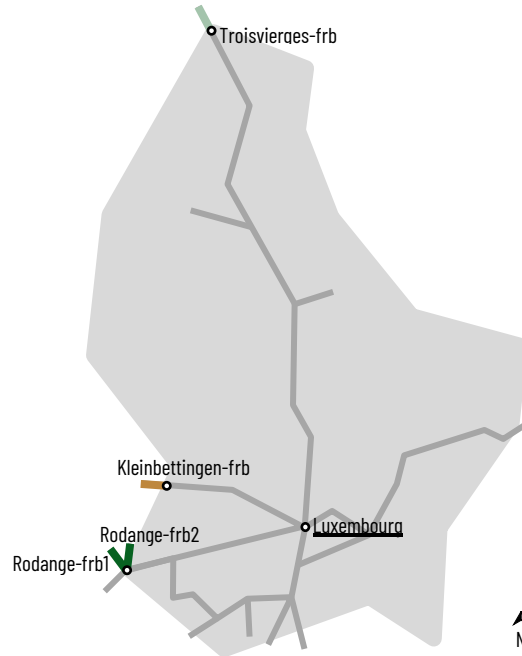
- ■ Bettembourg – Bettembourg-frf (French border)
- ■ Pétange – Rodange-frf (French border)





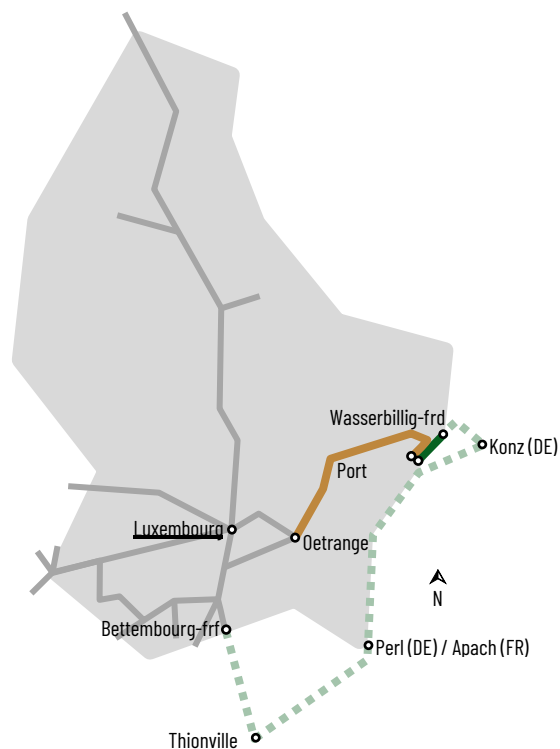
If two of the three following lines are impacted by TCRs, at least one must stay fully accessible to allow the freight traffic to Belgium:

- Luxembourg – Troisvierges-frb (Belgian border)
- Luxembourg – Kleinbettingen-frb (Belgian border)
- Luxembourg – Rodange-frb1 and Luxembourg – Rodange-frb2 (Belgian borders)





For the access to the Port Mertert, the closures on the following sections are incompatible:

- Port Mertert – Oetrange
- Port Mertert – Wasserbillig-frd (German border)
- If necessary, the access to Port Mertert can be discussed in trilateral coordination groups with DB InfraGO and SNCF Réseau.





One of both border lines must stay open to allow the freight traffic to Germany:

-  Oetrange – Wasserbillig-frd (German border)
-  Bettembourg – Bettembourg-frf (French border)



2.1.3 Description of the periods when TCRs will be executed if their nature makes it possible (nights, weekends)

In Luxembourg TCRs are planned according to the following hierarchy:

- During weekends: continuously from Saturday morning to Monday morning
- During school holidays: continuously (major TCRs in summer)
- At night: duration 3h - 6h
- Other periods if necessary

2.1.4 Description of the periods when regular TCR windows will be planned (nights, weekends)

Most TCRs in Luxembourg are planned on defined periods (ex. all nights from 00:40 to 04:00 for two weeks). TCR windows stay rather exceptional and are only planned for closures with complex works on the concerned segments. In other words, the Luxembourgish IM tries to organize tailor-made TCRs as much as possible in advance to avoid capacity wastes. Currently, the large amount of TCRs on the Luxembourgish network gives the IM the possibility to execute unplanned works without creating additional TCRs.

However, in some exceptional cases, TCR windows can be planned. Those tailor-made measures are mostly organized by night and can occur every day with a weekly recurrency. They can be used for any works on the concerned segment. As well as well as regular TCRs, the TCR windows are not considered in the annual timetable. This means that trains have to be delayed or replanned by an ulterior demand.

2.1.5 Description of what the TCR allocation process will look like, how the coordination and consultation will be ensured

In Luxembourg, the only entity who is able to distribute the capacity on the national railway network is the Allocation Body ACF. By allocating capacity, the AB ACF has also the control over the Temporary Capacity Restrictions. A first



consultation between the AB ACF and the IM CFL takes place before the consultations with the neighbouring IMs at X-26. After accepting the TCR planning by ACF and the consultations with the RUs, ACF and IM CFL publish the TCR planning via their distribution channels at X-13.

Two levels of consultation can be distinguished:

- National consultations: all aspects of TCR planning, including TCR scenarios (number, duration, tracks) are discussed with the RUs.
- International: they include the neighbouring IMs (DB Netz, SNCF Réseau and Infrabel) and additionally the concerned IMs by the RFC (SBB). During those meetings, only TCR schedules date, time) are discussed. It is planned to extend the consultation to corresponding international RUs.

Regular consultation meetings are organized yearly (October-November). Additional meetings can be planned during the year by request from the RUs.

2.1.6 International coordination

The Luxembourgish Railway Network takes part to an international coordination group, composed of 5 IMs:

- ACF/CFL representing Luxembourg
- Infrabel representing Belgium
- DB InfraGO representing Germany
- SNCF Réseau representing France
- SBB representing Switzerland.

6 meetings are organized yearly to synchronize the major and high TCRs on both sides of a border point and to plan the deviation routes, considering the available and needed capacities for re-routing.

Additionally, ACF and CFL regularly coordinate with Infrabel and SNCF Réseau all TCRs with impact on each other's neighbouring network, starting from X-33. Ulterior TCRs to the current Capacity Strategy can also be discussed. Sporadically meetings with DB InfraGO are organized if needed. Parallel, a coordination of the border point Troisvierges-frb is organized with Infrabel to ensure the electric supply of the national and neighbouring networks if works are planned.

2.1.7 Description of currently existing (national, bi-, trilateral) escalation process(es) in case of disagreement of the involved stakeholders.

In case of disagreement of the involved national stakeholders, they can make protest by the national regulator *Institut Luxembourgeois de Régulation* (ILR). ILR is the public authority to be contacted by any applicants who consider that they have suffered unfair treatment, discrimination or any other prejudice.

	Institut Luxembourgeois de Régulation Secteur Ferroviaire 17, rue du Fossé L-1536 Luxembourg
Phone	+352 28 228 228
Fax	+352 28 228 229
E-mail	ferroviaire@ilr.lu



2.2. Pre-Announcement of Major Impact TCRs

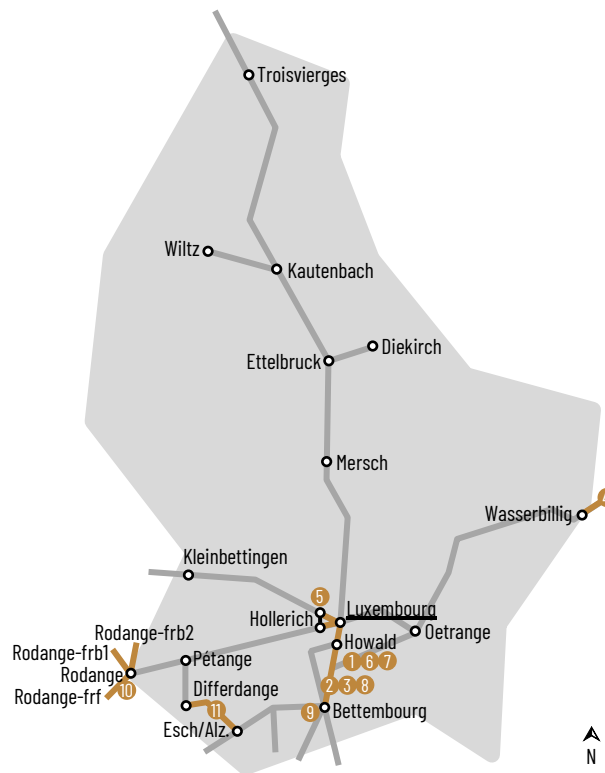
Network segment	Purpose	Time of execution	Start (quarterly basis)	Impact (total closure/single track operation/speed restriction)	Impact to passenger & freight traffic ⁵
1 Luxembourg – Howald	Construction and track connection of a new line between Luxembourg and Bettembourg	09.2025 – 04.2027	Q3 2025	Total closure without significant impact due to a valuable alternative	Re-routing of all trains via Luxembourg Triage Time loss ± 1min Loss of flexibility in Luxembourg
2 Luxembourg (part. incl.) – Bettembourg	Construction and track connection of the new line 8 Track reorganisation in Luxembourg for the new line 8	07.2025 – 09.2025	Q3 2025	Total closure of the segment Luxembourg – Bettembourg Partial closure: tracks 8, 9, 10, 11, 13, 14	Re-routing of transit freight trains via lines 6a and 6f Re-routing of freight trains to Germany and Port Mertert via Sandweiler or Thionville (FR) / Perl (DE) No passenger trains
3 Berchem – Bettembourg (incl.)	Preparation of track connection in Bettembourg of the new line 8	07.2026 – 08.2026	Q3 2026	Total closure	Re-routing of freight trains via lines 6a, 6f and 7 No passenger trains
4 Wasserbillig – Wasserbillig frontière	Bridge renovation	08.2026 – 09.2026	Q3 2026	Total closure	Re-routing of freight trains to Germany via Thionville (FR) / Perl (DE) No passenger trains
5 Luxembourg (entry for lines 5 and 7)	Track reorganisation	03.2027 – 06.2027	Q1-Q2 2027	Partial closure: tracks 1, 2, 3, 4 + entry for lines 5 and 7 closed	No passenger trains on the line 5 between Luxembourg and Bertrange Passenger trains on the line 7 deviated to Howald, however with a reduced capacity
6 Luxembourg – Howald	Construction and track connection of the new line 8	04.2027 – 05.2027	Q2 2027	Partial closure of one of two tracks	Re-routing of half of the trains (in one direction) via Luxembourg Triage Time loss ± 1min Loss of flexibility in Luxembourg
7 Luxembourg – Howald	Construction and track connection of the new line 8	05.2027 – 09.2027	Q2-Q3 2027	Total closure without a significant impact due to a valuable alternative	Re-routing of all trains via Luxembourg Triage Time loss ± 1min Loss of flexibility in Luxembourg
8 Berchem – Bettembourg (incl.)	Construction and track connection of the new line 8	07.2027 – 08.2027	Q3 2027	Total closure	Re-routing of freight trains via lines 6a, 6f and 7 No passenger trains
9 Bettembourg	Preparations for the start-up of the new line 8	08.2027 – 09.2027	Q3 2027	Partial closure: tracks 1 and 2 closed	Reduced capacity by >50% on the line Bettembourg – Thionville (FR) Negligible impact on freight trains
10 Rodange – Rodange frontière b1	Connection of the new maintenance and storage facility	02.2028 – 12.2028	Q1-Q4 2028	Total closure	No passenger traffic Re-routing options of freight trains in discussion

⁵ If the information on “Time of execution” and “Impact to passenger & freight traffic” is not available during the creation of Capacity Strategy, then the field to be filled by “not available” or “N/A”



	Rodange – Rodange frontière b2 Rodange – Rodange frontière f	Improving of the track configuration				
11	Esch/Alz. – Differdange	Modernisation of the line	07.2028 – 09.2028	Q3 2028	Total closure	No passenger traffic Re-routing of freight trains via lines 6 and 7

Map of Major Impact TCRs:



3 Traffic Planning Principles and Traffic Flows

3.1 Traffic Planning Principles

The basic details of the traffic planning principles are detailed below. It can be used in the scope of the Capacity Model (from X-30 to X-11) and the Capacity Supplies (from X-18 to X-12).

Main principles of the network	
Passenger train	Maximum 16 vehicles, 64 axles, 800 tons, 430m
Freight train	Maximum 750m, engine(s) included
Catenary	25kV 50Hz on each line of geographical area
Safety system	ETCS mandatory

Train's categories	
Passenger train	V120 (maximal speed 120km/h)
	V140
Freight train	MA80
	MA90
	ME100
	ME120
Empty loc running	HLP80 (haut-le-pied)
	HLP100
	HLP120

For further details, please consult: *Network Statement, Appendice I of the RGE (IM CFL)*.

3.2 Traffic Flows

The traffic flows for the “Capacity Strategy” are analysed at the border points of Luxembourg. The capacity for 2027 has been elaborated based on the historical data, consultations with the neighbouring IMs as well as the data received from RUs.

The figures have also taken into consideration the impact of the transformation of our network. For passenger traffic, the Ministry of Mobility and Public Maintenance defined the forecast until 2035 in the [National Mobility Plan 2035](#). For freight traffic, we predicted the future demand based on discussions with our freight customers. We expect to include more details of it with the tool CNA (capacity Needs Announcements).

Luxembourg – Belgium

Border point	passenger train paths per hour per direction		freight train paths per hour
	long distance ⁶	regional ⁷	
Athus (BE) – Rodange	0	2	1
Aubange (BE) – Rodange	0	0	1
Sterpenich (BE) – Kleinbettingen	1	2	0
Gouvy (BE) – Troisvierges	1	0	0

⁶ High-speed and Intercity trains

⁷ National and international local trains



Luxembourg – Germany

Border point	passenger train paths per hour per direction		freight train paths per hour
	long distance	regional	
Igel (DE) – Wasserbillig	0	2	1

Luxembourg – France

Border point	passenger train paths per hour per direction		freight train paths per hour
	long distance	regional	
Mont St Martin (FR) – Rodange	0	2	0
Zoufftgen (FR) – Bettembourg	1	5	1



4 Validation

M. HOFFMANN Marc

Director of IM CFL

Luxembourg, 18 December 2024

M. MAHOWALD Claude

Director of ACF

Esch-sur-Alzette, 18 December 2024



Annexe 1: Information on market involvement and opinion gathering

Due to existence of an Infrastructure Manager (CFL) and an Allocation Body (ACF) in Luxembourg, multiple meetings have been organized between these two entities to elaborate the Capacity Strategy 2028:

- ACF: Chapter 0 and 3;
- CFL: Chapter 1 and 2.

The prevision of the needed capacity from the RUs is determinate by the experience of the past years and by the estimation of the RUs itself. A better prediction will be possible with the Capacity Needs Announcement.

Annexe 2: Outlook to the upcoming TT years

All political scopes of the upcoming years are summarized in the [National Mobility Plan 2035](#), fixed by the [Ministry of transport](#). This document focuses on the urban development of Luxembourg and foresees the adaptation of the public transport infrastructure in the country up to 2035.