



Capacity Strategy TT 2028

SBB Infrastruktur AG, BLS Netz AG

Definitive version

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0 Introduction

Capacity Strategy 2028 is being drawn up in accordance with RNE¹ directives and in line with the jointly agreed definition of “Minimal Viable Product” (MVP)²; its purpose is to coordinate cross-border capacity management. This capacity strategy is not legally binding and is not a means for ensuring capacity. The network utilisation concept and the network utilisation plan continue to be binding for ensuring capacity on the Swiss national rail network.

The capacity strategy which is drawn up annually includes any infrastructure capacity changes (upgrades / decommissioning work) compared to the previous year's capacity strategy, planning principles for temporary capacity restrictions (TCRs) and restrictions on the use of their associated facilities, principles of traffic planning and traffic flows, as well as validation of the strategy by neighbouring, international infrastructure managers (IMs). Within Switzerland, these aspects relate to the approved and published network utilisation plan (NNP) for the relevant timetable year.

The benefit of having a capacity strategy is that cross-border capacities are coordinated and published internationally at an early stage.

0.1 Contact details

Capacity Strategy 2028 will be published on SBB AG's website in December 2024: <https://company.sbb.ch/en/sbb-as-business-partner/services-rus/network-access/train-paths.html>.

If you have any questions or comments, please e-mail kapazitaetsmanagement.konzeption@sbb.ch

0.2 Geographical Scope

As part of the conceptual work for TTR@CH³ it was decided that in the initial phase the scope of the capacity strategy should be limited to the north/south corridors, i.e. to the Rail Freight Corridors (RFCs). This focus makes it possible to gain initial experience of the capacity strategy while optimising the use and efficiency of resources.

The responsible organisational unit has already expanded the geographical scope of the capacity strategy to further border crossings.

This Capacity Strategy 2028 for the North/South axes covers the following routes:

- Basel – Lötschberg – Brig – Domodossola
- Basel – Gotthard – Bellinzona – Luino
- Basel – Gotthard – Bellinzona – Chiasso

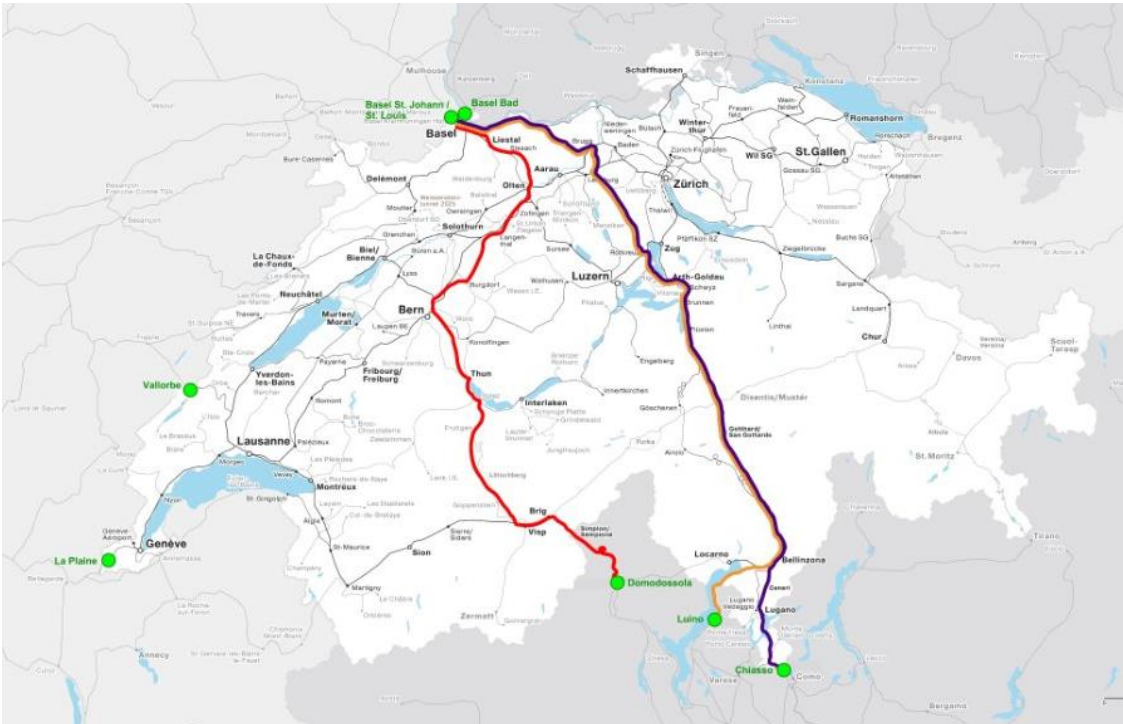
and the following border points:

- Basel Bad (DE/CH)
- Basel St. Johann / St. Louis (CH/FR)
- Domodossola (IT/CH)
- Luino (IT/CH)
- Chiasso (CH/IT)
- La Plaine (CH/FR)
- Vallorbe (CH/FR)

¹ Handbook Capacity Strategy RNE, Version 3.0

² The MVP Capacity Strategy Concept. The Infrastructure Managers involved: Infrabel, ProRail, ACF, DB Netz, SBB Infrastructure, BLS Netz, ÖBB Infrastructure and RFI.

³ Decision by the TTR@CH Steering Committee dated 1.12.2021



0.3 List of involved IMs

Involved Infrastructure Managers
<ul style="list-style-type: none"> SBB Infrastruktur AG
<ul style="list-style-type: none"> BLS Netz AG
<ul style="list-style-type: none"> DB InfraGO AG
<ul style="list-style-type: none"> RFI
<ul style="list-style-type: none"> SNCF Réseau

0.4 List of service facilities

The table below shows the service facilities and workshops that are relevant to the geographical scope:

SBB Passenger Division service facilities	Tasks
Running Gear Competence Center Basel	Maintenance close to operations
Basel service facility	Maintenance close to operations
Arbedo Castione service facility	Maintenance close to operations
Biasca service facility	Maintenance close to operations
Brig service facility	Maintenance close to operations
Geneva service facility	Maintenance close to operations
SBB Cargo workshops	
Brig workshop	Repair and maintenance
Chiasso workshop	Repair and maintenance

Muttenz workshop	Repair and maintenance
BLS workshops	
Spiez workshop	Cleaning and repairs

Sources:

- [Passenger Services Production service facilities. \(sharepoint.com\)](#)
- [Our workshops - BLS AG](#)

1 Expected Capacity of Infrastructure in 2028

This chapter contains the information which is available about the expected, permanently usable, positive (additional) impacts on capacity and the expected, permanently negative impacts on capacity compared to the previous year. Capacity changes can result both from upgrades (capacity increases) and from decommissioning of facilities (capacity decreases).

1.1 Additional Available Capacity

No impact on capacity resulting from the upgrades is known for the 2028 timetable.

1.2 Reduced Available Capacity

Decommissioning has no known impact on capacity for the 2028 timetable.

Sources:

- BLS-Netz: Datencontrolling Projekte BLS-IAN vom 31.05.2024
- SBB Infrastructure: Documentation, implementation planning for upgrade phases as at 12/2023, 27 February 2024 update.

2 Temporary Capacity Restrictions

The TCRs published in this section should be regarded as advance notice. They are not legally binding, i.e. it is permissible if certain aspects such as deadline postponements or project changes are not definitive; similarly, there is no requirement for an alternative concept for the TCR. The existing information channels for fulfilling the requirements set out in Art. 11b RailNAO are still binding; the contents of the capacity strategy should therefore be interpreted as best-effort additional information.

2.1 Principles for TCR Planning

The legal basis for capacity restrictions due to construction work can be found in Art. 11b of the Rail Network Access Ordinance (RailNAO). According to this Article, the infrastructure manager (IM) must notify any construction work on a line if it will result in more than one third of the daily traffic volume being subject to restriction for more than seven consecutive days; such notification must be published at least 24 months before the start of the affected timetable period and updated at least 12 months beforehand. Furthermore, the IM must give the affected railway undertakings and the operators of any affected private sidings three months' notice of weekend closures and extended night closures

The network usage plan (NNP) secures capacities for the individual modes of transport within Switzerland. The NNP for each timetable year is drawn up by the IM and approved by the Federal Office of Transport (FOT). Essentially, capacity restrictions due to construction work are identified in the NNP, if they are continuous closures of at least 30 days or repeated, identical individual closures accumulated of at least 30 days. Shorter possessions (> 10 days) such as protracted night-time possessions involving total closure, permanent single-line working or individual constructions phases are also listed. Furthermore, the NNP includes maintenance windows that impact capacity.

Network utilisation concept / network utilisation plans:

- <https://www.bav.admin.ch/bav/en/home/modes-of-transport/railways/informations-for-professionals/network-usage-concept-and-plans.html>
- <https://company.sbb.ch/en/sbb-as-business-partner/services-rus/network-access/train-paths.html>

Although Annex VII of EU Directive 2012/34 is not directly applicable to Switzerland, in practice a procedure is used that is largely in line with the deadlines set out in Annex VII. As regards Switzerland, the effect on the transit corridors is shown below:

	Very long possessions Major impact TCR	Long possessions High impact TCR
Definition according to Annex 7 (EU directive)	>30 days, more than 50% of traffic affected	>7 consecutive days, more than 30% of traffic affected
Definition according to RailNAO Art. 11b	-	>7 consecutive days, more than one third of traffic restricted
Publication of line closure according to RailNAO Art. 11b	First published at least 24 months before start of the relevant timetable period, updated at least 12 months before start of the relevant timetable period	

The relevant capacity restrictions are published by the IMs in the OneStopShop by the specified deadlines:

<https://company.sbb.ch/en/sbb-as-business-partner/services-rus/network-access/capacity-limitations.html>

The relevant capacity restrictions for the timetable year 2028 will therefore be published in the appropriate section of the OneStopShop for the first time in December 2025 and updated in December 2026.

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

Assignments (projects) affecting one or more installation types will be pooled at an early stage in the process for joint implementation with equal intervals. Clustering already forms part of possession ordering.

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

Once the harmonised need for possessions, including functional requirements, is in place, the capacity planning phase begins. Accumulation testing is performed during this phase.

The method employed involves recording and applying a structural and traffic assessment to the planned possessions X-43, X-26 and X-16 months before implementation year. The interaction of the individual items is examined from an overall perspective and a corridor perspective during implementation. This identifies the impact on availability (e.g. disruption to train routes) and highlights capacity issues. All of this takes place in consultation with process participants. Consultation takes place several times (iteratively) during the examination process.

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

See section 2.1.4

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

Handling the requirement for maintenance possessions:

Essentially, no distinction is made between the requirement for maintenance possessions or for renewal possessions. The medium-term requirement for possessions will be registered with the central planning office.

As regards new maintenance windows, a study will be commissioned and a rough possessions plan will usually be drawn up in the first instance; the detailed plan will be adjusted as required over the following years.

GSM-R⁴ / RBC⁵ maintenance windows

On ETCS L2⁶ routes, technical maintenance work needs to be carried out and software updated at regular intervals on the RBC and GSM-R systems. For this work to be carried out, the relevant routes need to be completely closed on six simultaneous occasions (Sun to Mon nights) each year. The dates will be laid down for several years.

Two of these nights will be subject to total closures of around 4 hours which must be implemented on all ETCS-L2 routes at the same time. No additional possessions may be granted during this time. There is some flexibility as regards the other four nights. (Check whether there is any conflict with other projects, set priorities and, if necessary, impose certain restrictions on the maintenance windows).

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

Applications for "major impact" TCRs must be registered with the construction department within the central planning office at X-43 months, followed by an initial cumulative assessment (regional, national and international) (See section 2.1.2) and by the definition of framework conditions by the relevant portfolio manager responsible for possessions.

Before the next step at X-26 months, the TCR request must be specified in greater detail and submitted in the form of an outline construction programme schedule. At the same time, any "high impact" TCR requests must be declared for the first time. The cumulative assessment will need to be updated and applications coordinated with other TCRs. A similar procedure will be used for "medium impact" TCRs at X-16 months.

Once a TCR has been received for evaluation and consultation, a rough, capacity-based plan will then be developed. The plan will then be presented to the RUs during a meeting for them to accept it.

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

Consultation process

Once the outline replacement plan, based on residual capacities, has been accepted by the stakeholders involved (the RUs affected and, in the case of regional services, those cantons that place orders for them), the corresponding TCR will be approved for implementation. The replacement service plan, train by train, will be developed and resubmitted to the stakeholders six months before construction work starts. Stakeholders will then have about two weeks to evaluate the plan so that the final version will be available five months before construction work starts.

Depending on the duration and extent of the capacity reduction, the TCR will be published in the national network usage plan (NNP) and taken into account in the annual train path catalogue and timetable.

Approval and escalation procedure

Possessions for construction works which, according to the definition, require an outline plan, will be studied within the outline plan framework, presented to the Steering Meeting (StM) Capacity Management and approved. All railway undertakings (RUs) and the Swiss train path allocation body (TVS) are represented at the steering meetings. Plans are divided into "simple" (few implications for RUs) and "complex" (medium to serious implications for RUs). Stakeholders, and if necessary the cantons, will be involved proactively and at an early stage in the approvals procedures. This is especially true for "complex" plans.

Information is exchanged at meetings, during timetable workshops or by email. The RUs concerned, the TVS and possibly the canton (as the ordering party for licensed passenger services) are all involved, without discrimination, in order to discuss the details of the plan and the needs of all those involved and in order to find a common option. If it is of assistance, partners (e.g. planners, project managers) can also be involved. In the case of a complex plans, information may be exchanged before the StMM or, in the case of a simple plan, after the StM (if appropriate).

If, despite a constructive exchange of views between the RUs, TVS and possibly the cantons, any outline plans are rejected twice during the StMs, or if no common solution can be found, the proposed plans will be escalated. Three escalation steps are provided for:

1. Regional committee
2. National committee: Medium-Term Service Provision and Resource Plans (MAR6)
3. Top-level national committee: Service and Timetable Board (AFB)

2.2 Pre-Announcement of Major Impact TCRs

The purpose of the capacity strategy is to give advance notice of the most severe capacity restrictions. As a new feature in the capacity strategy for the 2028 timetable, major-impact TCRs are reported with the criterion:

TCR >30 days and more than 50% capacity restrictions.

No major-impact TCRs are planned for the 2028 timetable.

3 Traffic Planning Principles and Traffic Flows

Capacity planning under TTR will continue to be based on the existing national tools at our disposal, i.e. the Network Usage Concept (NNK) and Network Usage Plan (NNP). The contents of the NNP fully cover the requirements in the "Traffic planning and traffic flows" section. According to the RNE, capacity strategies are to be aligned with each of the respective neighbouring countries.

3.1 Traffic Planning Principles

This section describes the main principles for each rail line; these principles will be used later on, when planning those aspects to be included in the capacity models and when planning the capacity available for use.

According to TTR, it is possible, in the capacity strategy for individual routes, to define whether they should be classified as "pre-planned" (all planned capacities as ready-made capacity products - similar to today's train path catalogue), as "semi-pre-planned" (ready-made capacity products as well as residual capacities for tailor-made orders) or as "non-pre-planned" (no ready-made capacity products, only tailor-made orders). Since it would be necessary to define the maximum capacity of a route for the "pre-planned" variant, something which in practice is very difficult to achieve, TTR@CH envisages focusing on the "semi-pre-planned" variant in its capacity strategy. In this way, for example, those train paths guaranteed in the NNP can be identified in the capacity model and in the subsequent train path catalogue as ready-made products; if there are further capacity needs, customer-oriented solutions can then still be found within any residual capacities which may be available.

As mentioned above, the NNP 2028 already covers the TTR requirements for the "Transport planning and traffic flows" sections. In Switzerland, the various needs of the market and of stakeholders are ascertained at a very early stage. Approximately every 10 years, the federal government commissions an expansion phase. This expansion phase is planned in partnership with the various stakeholders - the federal government, cantons, sectors of the industry (including terminals and service facilities), RUs, etc. - under the leadership of the FOT. The outcome is an agreed service concept including the essential infrastructure measures. Parliament approves the expansion phase including the service concept and allocates the financial resources for the necessary infrastructure. The network usage concept (NNK) secures the train paths required for the long-distance, regional and freight services. Any stakeholder affected can request changes to the service concept during the change management process conducted annually on behalf of the federal government. The network usage plan (NNP) describes in written form the planned capacity distribution between long-distance, regional, freight and other traffic types (e.g. car-carrying trains) in the implementation years up to X-7 years in advance. Stakeholders are also consulted annually in the NNP process by means of a hearing and are given the opportunity to contribute accordingly. The table below shows the most important planning parameters for the standard passenger and freight train categories:

Category	Product	Parameter
Long-distance traffic	Intercity / Interregio, dispatched	400m / 300m, R135%
Long-distance traffic	Eurocity / Intercity Gotthard	400m, R135%
Long-distance traffic	Interregio /Regional Express, Driver-only departure readiness control 300m	300m, R135%
Long-distance / Regional traffic	Interregio /Regional Express, Driver-only departure readiness control 200m and shorter	150m, R135%
Regional traffic	S-Bahn / Regio (double-decker)	150m, R135% 300m, R135% (Zürcher S-Bahn) 200m, R135% (S-Bahn Bern)
Regional traffic	S-Bahn / Regio	150m, R135% 210m, R135% 60m, R135%
Freight traffic, national	Standard	1 Re482, 1600t, 750m, D65, V/min 100 km/h
Freight traffic, national	Express	1 Re420, 800t, 400m, A95, V/min 120 km/h
International freight services	Transit Gotthard	1 Re482*, 1600t, 750m, D70, V/min 100 km/h (Nord-Süd) 1 Re482*, 1400t, 750m, D70, V/min 100 km/h (Süd-Nord) * Bellinzona S.Paolo – Chiasso Smistamento section = 2 Re482 Feeder path via Ceneri Berg 2 Re482, 1400t, 750m, D70, V/min 100 km/h
International freight services	Transit Lötschberg	2 Re482, 1600t, 750m, D70, V/min 100 km/h (Nord-Süd) 2 Re482, 1400t, 750m, D70, V/min 100 km/h (Süd-Nord)

Sources: Timetable planning documents for domestic + transit freight train categories / consolidation project AK 2035 (Dispatch 2026).

Note: Basic details of the rolling stock listed can be found in the network utilisation concept. There are different requirements as regards acceleration and maximum speed for passenger services. More details of N-series and of rolling stock capable of fast acceleration are given in the NNP..

The NNP contains the capacities available in a standard hour and during passenger traffic peak hours (06.00-09.00 and 16.00-19.00, Monday to Friday, excluding public holidays) that are guaranteed for allocating train paths in the 2028 timetable.. Timings to the precise minute as well as connections and connecting services shown on the network charts are not binding. The number of train paths shown on the route sections equates to the maximum number of train paths guaranteed for a particular type of traffic on this entire route section. Subsections of this route section may have fewer train paths. The NNP 2028 does not yet list any restrictions due to possessions..

Link to the published NNP 2028 (published: 20.11.2023)

<https://company.sbb.ch/en/sbb-as-business-partner/services-rus/network-access/train-paths.html>

3.2 Traffic Flows

The summary below shows, in respect of every MVP route, those train categories / capacities which are used in the capacity model. Note: Only those train paths which cross via the designated border point are taken into account and coordinated. If the traffic flows at the border are not identical, the reason must be clearly explained.

SBB Infrastruktur	DB InfraGO AG
Basel Bad / Basel Bad Rbf (D) – Basel SBB / Basel SBB RB (CH)	
<ul style="list-style-type: none"> ▪ long-distance trains: 1.5 / hour ▪ regional trains: 3 / hour (at peak hours) ▪ freight trains: 10⁷ / hour 	<ul style="list-style-type: none"> ▪ long-distance trains: 1.5 / hour ▪ regional trains: 3 / hour ▪ freight trains: 5 / hour

There is a difference between DB's freight capacity (5 train paths per hour/direction) and that of SBB (10 train paths per hour/direction: 8 train paths to Weil am Rhein - national border and 2 train paths between Basel Bad Bf - Rheinhafen). DB has stated that until work in the Basel Bad Bf area to upgrade the Basel to Karlsruhe Rhine valley line to four tracks is complete, freight traffic capacity must be reduced by 3 train paths to 5 train paths per hour and direction until approx. 2029.

The outcome after harmonisation:

→ Long-distance traffic: 1.5 train paths; regional traffic: 3 train paths; and freight traffic: 5 train paths per hour/direction.

SBB Infrastruktur	RFI
Domodossola	
<ul style="list-style-type: none"> ▪ long-distance trains: 0.5 / hour ▪ express regional trains: - ▪ regional trains: 0.5 / hour ▪ freight trains: 3 / hour 	<ul style="list-style-type: none"> ▪ long-distance trains: 0.5 / hour ▪ express regional trains: - ▪ regional trains: - ▪ freight trains: 3.5 / hour
Chiasso	
<ul style="list-style-type: none"> ▪ long-distance trains: 1 / hour ▪ express regional trains: - ▪ regional trains: 3 / hour ▪ freight trains: 4 / hour 	<ul style="list-style-type: none"> ▪ long-distance trains: 1 / hour ▪ express regional trains: 1 / hour ▪ regional trains: 2 / hour ▪ freight trains: 4 / hour
Luino	
<ul style="list-style-type: none"> ▪ long-distance trains: - ▪ express regional trains: - ▪ regional trains: 0.5 / hour ▪ freight trains: 2 / hour 	<ul style="list-style-type: none"> ▪ long-distance trains: - ▪ express regional trains: - ▪ regional trains: 0.5 / hour ▪ freight trains: 2 / hour

After mutual harmonisation between RFI and SBB Infrastructure, the following differences remain at the Domodossola border crossing. These can be explained as follows:

Regional services: The regional traffic path that only operates at certain times will be routed to Domodossola and not extended beyond there. Following consultation, it was decided not to include it in the table.

Freight services: the 3.5 freight traffic train paths represents the average of the 3 or at times 4 possible train paths.

The outcome after harmonisation Domodossola:

→ Long-distance traffic: 0.5 train paths, regional traffic: 0 train paths, freight traffic: 3 train paths per hour/direction.

SBB Infrastruktur	SNCF Réseau
St - Louis	
<ul style="list-style-type: none"> ▪ long-distance trains: 0.5 / hour ▪ regional trains: 4 / hour ▪ freight trains: 2 / hour 	<ul style="list-style-type: none"> ▪ long-distance trains: 0.5 / hour ▪ regional trains: 4 / hour ▪ freight trains: 2 / hour
La Plaine	
<ul style="list-style-type: none"> ▪ long-distance trains: 0.5 / hour ▪ regional trains: 2 / hour ▪ freight trains: 0.5 / hour 	<ul style="list-style-type: none"> ▪ long-distance trains: 0.5 / hour ▪ regional trains: 3 / hour ▪ freight trains: -
Vallorbe	
<ul style="list-style-type: none"> ▪ long-distance trains: 0.5 / hour ▪ regional trains: - ▪ freight trains: 0.5 / hour 	<ul style="list-style-type: none"> ▪ long-distance trains: 0.5 / hour ▪ regional trains: - ▪ freight trains: -

After mutual harmonisation between SNCF Réseau and SBB Infrastructure, the following differences remain at the La Plaine, border crossing. These are attributable to the counting method:

Regional services: SNCF Réseau counts TER Lyon (2 variants every 2nd hour), TER Grenoble/Valence and TER Bellegarde as one path each. SBB-I counts the 2-hourly paths and paths that are only offered at certain times as 0.5 of a path. Owing to differing departure times, there are 2 guaranteed paths for TER-Lyon: one every 2 hours and one at certain times, again with 2 variants.

Freight services: The path is an extension of the path from Meyrin Cargo and is not systematically operated. Nevertheless, it can be guaranteed.

The outcome after harmonisation La Plaine:

➔ Long-distance traffic: 0.5 train paths, regional traffic: 2 train paths, freight traffic: 0.5 train paths paths per hour/direction.

Vallorbe: The path is an extension of the path from Lausanne Triage- Le Day-Vallorbe and is not systematically operated. Nevertheless, it can be guaranteed.

The outcome after harmonisation Vallorbe:

➔ Long-distance traffic: 0.5 train paths, regional traffic: 0 train paths, freight traffic: 0.5 train paths paths per hour/direction.

4 Validation

National

This capacity strategy is approved by the two infrastructure managers (IMs) involved, BLS AG and SBB AG.

Approved by SBB Infrastructure	Approved by BLS Netz
Head of Capacity Management: 30.10.2024	Head of Planning, Operations & Services: 20.09.2024

International

Data on cross-border capacities were either supplied by neighbouring countries.