

20 24

ANNUAL REPORT

**RAIL FREIGHT
CORRIDOR
RHINE-ALPINE**



Funded by
the European Union

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Despite the many challenges, we jointly supported the gradual improvement of conditions for rail freight on the Corridor lines and for cross-border traffic. Here are RFC Rhine-Alpine's focus topics for 2024, with joint information from the Management Board and the Executive Board.

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Rail infrastructure personnel operating in the Netherlands.

A YEAR OF ECONOMIC AND LEGISLATIVE CHANGES

The economic situation in Europe further deteriorated in 2024, with economic growth stagnating and noticeably impacting transport volumes on the Rail Freight Corridor (RFC) Rhine-Alpine. Principal customers for rail freight transport, such as the chemical and automotive industries, faced stagnant sales markets in 2024. Additionally, energy prices were rising due to the Russian war of aggression and track access charges for rail transport increased in many European countries.

The overall economic climate, coupled with persistently high levels of construction activity along the Corridor lines, led to a significant decline in the number of cross-border freight trains by 5.9%. This decline was noticeable at all borders of the Corridor, with the border between Belgium and the Netherlands being the only exception. In 2024, two ICM cases occurred on RFC Rhine-Alpine, both in the Aachen-Cologne region, resulting in significant train reroutings and cancellations. Despite these challenges, the overall RFC Rhine-Alpine exit punctuality (within a 30-minute threshold) rose from 50% to 51% in 2024, but still remains at a low level. Major factors affecting punctuality included the extraordinary high level of construction activity and the high-capacity utilisation of key junctions on the Corridor lines, causing carry-over effects.

RFC Rhine-Alpine will continue to support Infrastructure Managers and Railway Undertakings in finding joint solutions to capacity shortages stemming from these TCRs, such as

developing innovative rerouting solutions for the closure at Rastatt in August 2024.

In recent years, a stable number of Pre-arranged Paths (PaPs) has been offered on various sections of RFC Rhine-Alpine. Some PaPs were affected by TCRs, necessitating the removal of certain days, which impacted the offered PaP-km. The main areas of improvement for the PaP offer for TT2025 included higher profiles and adapted routings. Despite a slight increase in the offer, a 14% decrease in the volume of requested PaP-km for TT2025 was recorded compared to TT2024.

The Quality Core Group continued discussing three projects aimed at finding suitable solutions for identified problem areas to enable lasting improvements in quality and reliability. This initiative, started by the Executive Board in 2023, brings together all stakeholders along the Corridor, including Infrastructure Managers, Railway Undertakings, and freight forwarders. The presentation of the outcome from the Quality Core Group's work is scheduled for mid-2025.

In June 2024, the revised TEN-T Regulation ((EU)2024/1679) was published. This regulation introduces operational targets in areas such as dwell time and punctuality as well as new and enhanced existing infrastructure requirements. It also includes the introduction of European Transport Corridors, aligning the former multi-modal Core Network Corridors and RFCs. Additionally, the regulation prescribes the merger of the North Sea - Mediterranean and Rhine - Alpine corridors. The new RFC will encompass the freight railway lines of the ETC North Sea - Rhine - Mediterranean, incorporating new routes not previously considered, such as Le Havre - Rouen - Paris or Saarbrücken - Trier - Koblenz.

Adapting the Corridor organisation to the new regulatory environment was a key task for the Executive Board and the Management Board of RFC Rhine-Alpine and RFC North Sea - Mediterranean in the second half of 2024. In December, the transport ministers of the seven participating countries celebrated the signing of the ministerial arrangement establishing the Executive Board of RFC North Sea - Rhine - Mediterranean. The Management Boards of both RFCs started the discussion on the future organisation of the merged RFC North Sea - Rhine - Mediterranean and launched the preparation of the Implementation Plan for the new RFC to be published in July 2025. The Railway Undertaking Advisory Group also developed the foundations for the new cooperation, deciding to meet as a unified RAG.

This Annual Report provides an overview of the main developments on RFC Rhine-Alpine in 2024, focusing on KPIs, performance, infrastructure, and key topics. We would like to thank everyone involved in the Corridor for their contributions to improved international cooperation and infrastructure in 2024.



Ebru van Schie Akdag
Chairperson of the
Executive Board



Guus de Mol
Chairperson of the
Management Board



Marc Adler
Managing Director
of RFC Rhine-Alpine

RFC RHINE-ALPINE IN A NUTSHELL

ORGANISATION

RFC Rhine-Alpine was established in November 2013 according to Regulation (EU) 913/2010 concerning a European rail network for competitive freight. The aim of the Regulation is to increase the competitiveness and market share of rail freight by creating international freight corridors with a high level of performance.

With the publication of the revised TEN-T Regulation in June 2024, the RFC Regulation was amended and the RFCs will gradually evolve to the freight corridors in alignment with the European Transport Corridors (ETC). Preparations have started to adapt to this new environment, but in 2024 our organisational structure basically remained the same.

The cooperation of Infrastructure Managers (IMs) and Allocation Body (AB) on RFC Rhine-Alpine is organized by a joint office and has the legal form of a European Economic Interest Grouping (EEIG). All IMs and the AB of the corridor countries are members or contractors of the EEIG:

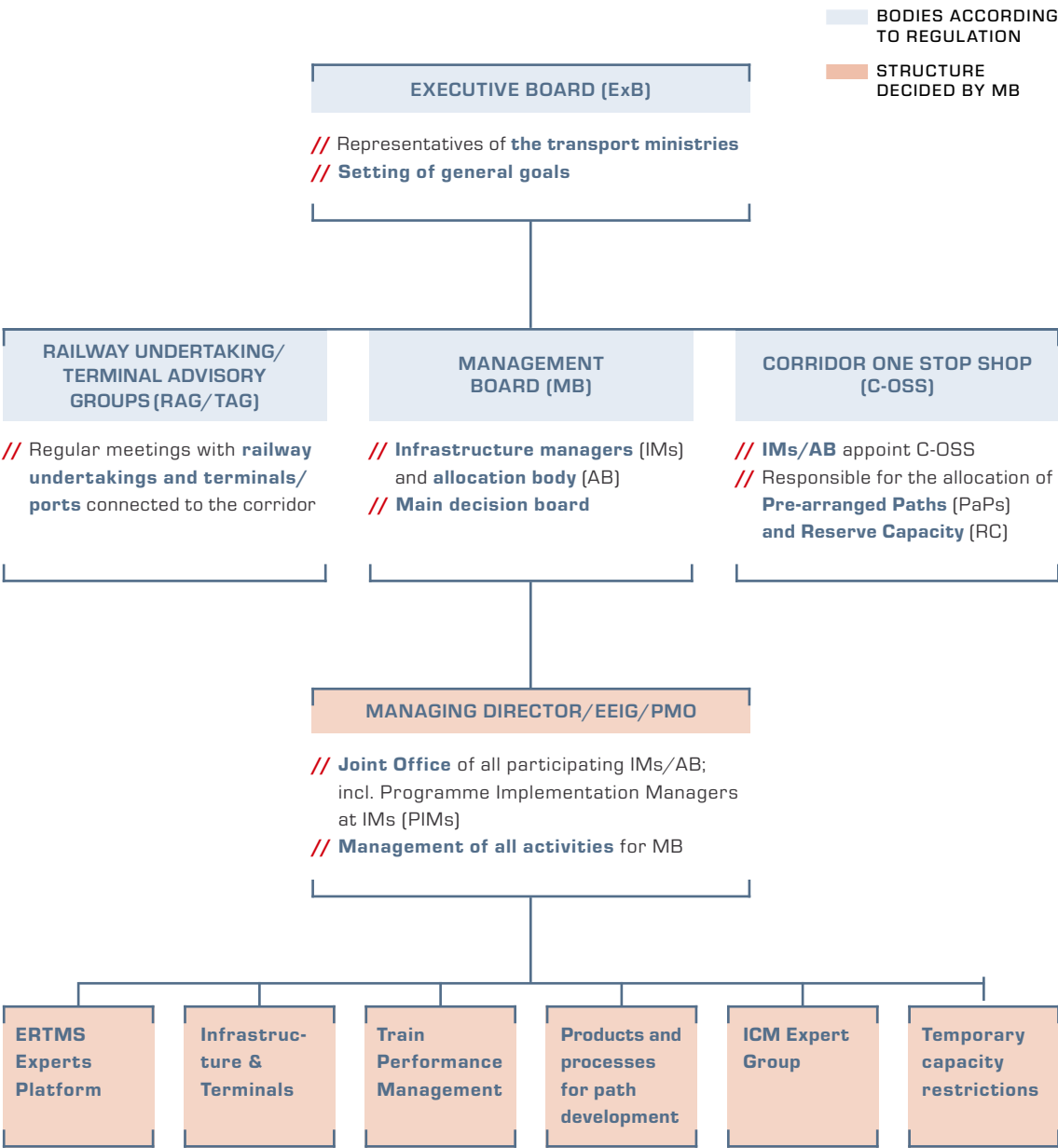
- ProRail (The Netherlands)
- Infrabel (Belgium)
- DB InfraGO AG (Germany)
- SBB Infrastruktur (Switzerland)
- BLS Netz AG (Switzerland)
- TVS (Swiss Allocation Body)
- RFI (Italy).

The Executive Board (ExB) represents the Member States of the Corridor, through the participation of the Ministries of Transport (MoT) and takes landmark decisions for cooperation on the Corridor. In 2024, the ExB was chaired by Ebru van Schie - Akdağ from the Dutch Transport Ministry. In September 2024, Wolfgang Bannasch retired from his position at the German Ministry of Transport and introduced his successor, Lara Elsen, as member of the ExB.

The Management Board (MB) consists of high-level management representatives of the IMs/AB and is responsible for the further development of the international cooperation of the IM/AB partner organisations. The MB has set up a Programme Management Office (PMO) as the permanent working organisation.

The PMO is represented by the joint office team and one delegate of each IM/AB, the so-called Programme Implementation Managers (PIM). They are responsible for the coordination and reporting of their national project implementation to the Corridor organisation. Furthermore, the PMO monitors the goals and actions of currently six RFC Rhine-Alpine Working Groups (WG) and Expert Groups. These groups were established to work efficiently on various topics for the improvement and support of cross-border rail freight services on the Corridor.

ORGANISATIONAL STRUCTURE OF RFC RHINE-ALPINE



Six working groups with experts from IMs of the corridor; yearly agreement on workplans and objectives

The Railway undertaking Advisory Group (RAG) and the Terminal Advisory Group (TAG) are advisory groups to the MB. They serve as exchange platforms to involve Railway Undertakings (RU), terminals and ports as well as stakeholders of the intermodal transport chain to discuss customer opinions and requirements for the development of RFC Rhine-Alpine from an external point of view. The Corridor One-Stop-Shop (C-OSS) facilitates train path management for international rail freight. It is the single point of contact allowing applicants to request and receive answers regarding infrastructure capacity for international freight trains.

3,900 KM
OF CORRIDOR LINES

5
SEAPORTS

- AMSTERDAM
- ANTWERP-BRUGES*
- GENOA
- NORTH SEA PORT**
- ROTTERDAM

FACTS & FIGURES

100,725
FREIGHT TRAINS
ON RFC RHINE-ALPINE

MORE THAN
100
TERMINALS

6.6
MILLION
PAP-KM
PRE-BOOKED BY THE C-OSS
FOR TT2025

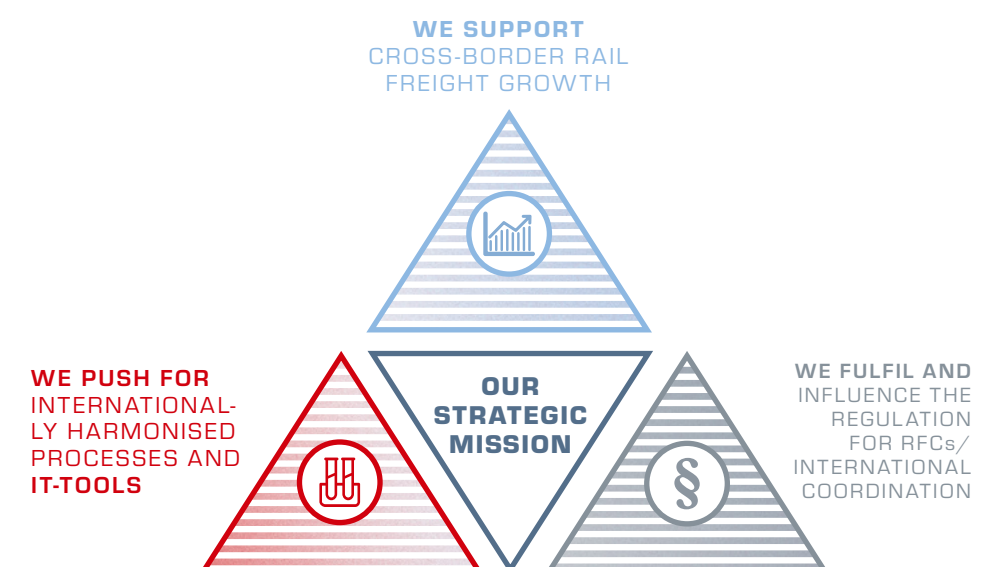
*North Sea Port – merger of the ports of Gent, Vlissingen and Terneuzen
**Name of the unified port company after the merger of the ports of Antwerp and Zeebrugge

VISION

With our services, we facilitate cross-border rail freight transport to create a competitive advantage against other transport modes. Our partner IMs/AB cooperate intensively to achieve a consistent transport chain and to provide better railway services for international freight transport in Europe.

By enhancing flexibility and quality of rail freight services on the Corridor and optimising the use of scarce capacity through a high level of international cooperation, we want to foster rail freight services as a sustainable transport mode in Europe. Jointly, we make the shift from road to rail happen.

The objectives of RFC Rhine-Alpine were formulated as strategic missions by the Management Board in January 2021. They describe the objectives of RFC Rhine-Alpine (growth of rail freight, international harmonisation and coordination), and also indicate the role the RFC can realistically play in pursuing these objectives (support, push and Fulfil/influence).



PERFORMANCE REPORT

This chapter provides information about traffic developments at borders and the modal split in trans-Alpine traffic and in the ports of Antwerp, Rotterdam and Genoa as well as about the most recent KPIs on capacity management and operations. The KPIs have been coordinated with external stakeholders like RUs and MoTs and are the same for all RFCs.

The progress on the four core objectives, that were defined in the Implementation Plan Update 2023 is monitored in the following Performance Report under the related KPI category.

MARKET DEVELOPMENT KPIs

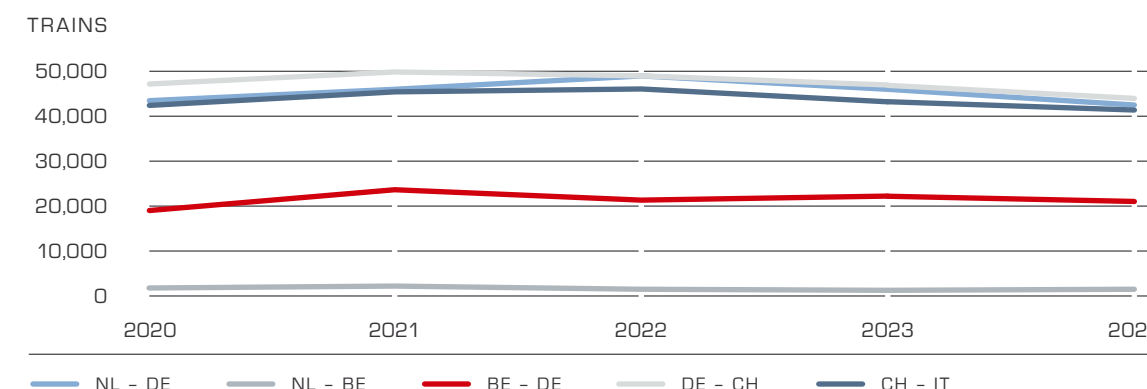
This part of the Performance Report gives information on the development of the KPI number of trains per border on RFC Rhine-Alpine, the modal split of rail in selected ports and in trans-alpine freight traffic. The information on the number of trains is provided by the IMs and is mainly related to the border points on the Corridor. Regarding the modal split, existing information from different sources is compiled in this report. The Market development KPI "Ratio of the Capacity Allocated

by the C-OSS and the Total Allocated Capacity" is included under the part "Capacity Management KPIs", p.30.

KPI NUMBER OF TRAINS PER BORDER

The KPI Number of trains per border is heavily influenced by the overall economic situation. Consequently, together with a high level of construction works on the Corridor lines, a significant decline in the number of cross-border freight trains on all borders was noticed, except on the border between the Netherlands and Belgium (see also 38-39). The general evolution in 2024 for the entire Corridor, compared to 2023, was a decrease in traffic of 5.90%.

KPI NUMBER OF TRAINS PER BORDER



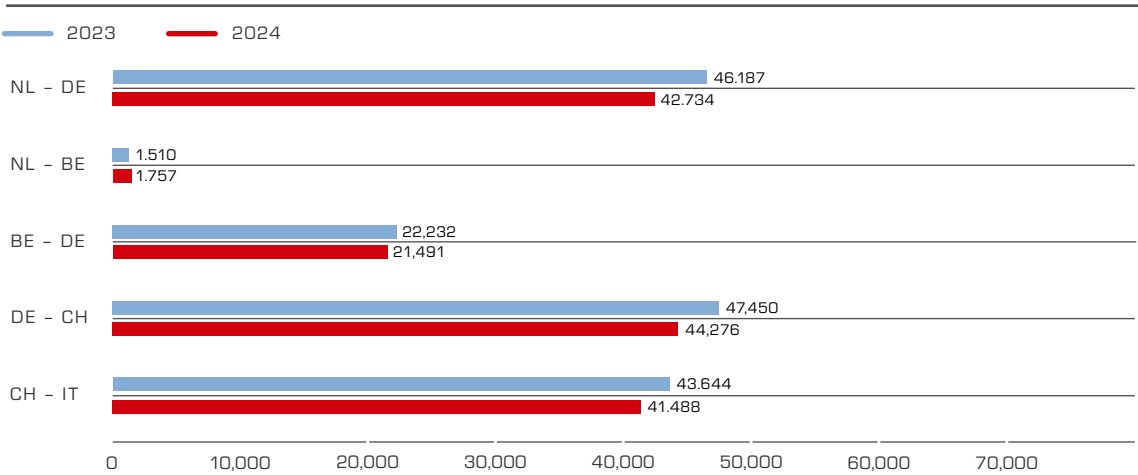
CORE OBJECTIVE 1: KPI NUMBER OF TRAINS PER BORDER

BORDER CROSSING	NL - DE	NL - BE	BE - DE	DE - CH	CH - IT
AVERAGE 5 YEARS & GOAL FOR 2025	45,590	1,877	21,594	50,585	45,754
2024 FIGURES	42,734	1,757	21,491	44,276	41,488
DEVIATION IN %	- 6.3%	-6.4%	-0.5%	-12.5%	-9.3%

For this existing KPI, RFC Rhine-Alpine aims to stabilize the number of trains per border on the Corridor (regrouped per country) at the respective average of the 5-year time-span 2018 - 2022. This core objective was set in 2023 while keeping in mind the increase in TCRs on the Corridor lines in

the upcoming years and the economic growth of the Corridor regions. In 2024, none of the borders on RFC Rhine-Alpine met the target set for 2025, with economic stagnation and increased construction volumes being the main reasons for the decline in cross-border traffic.

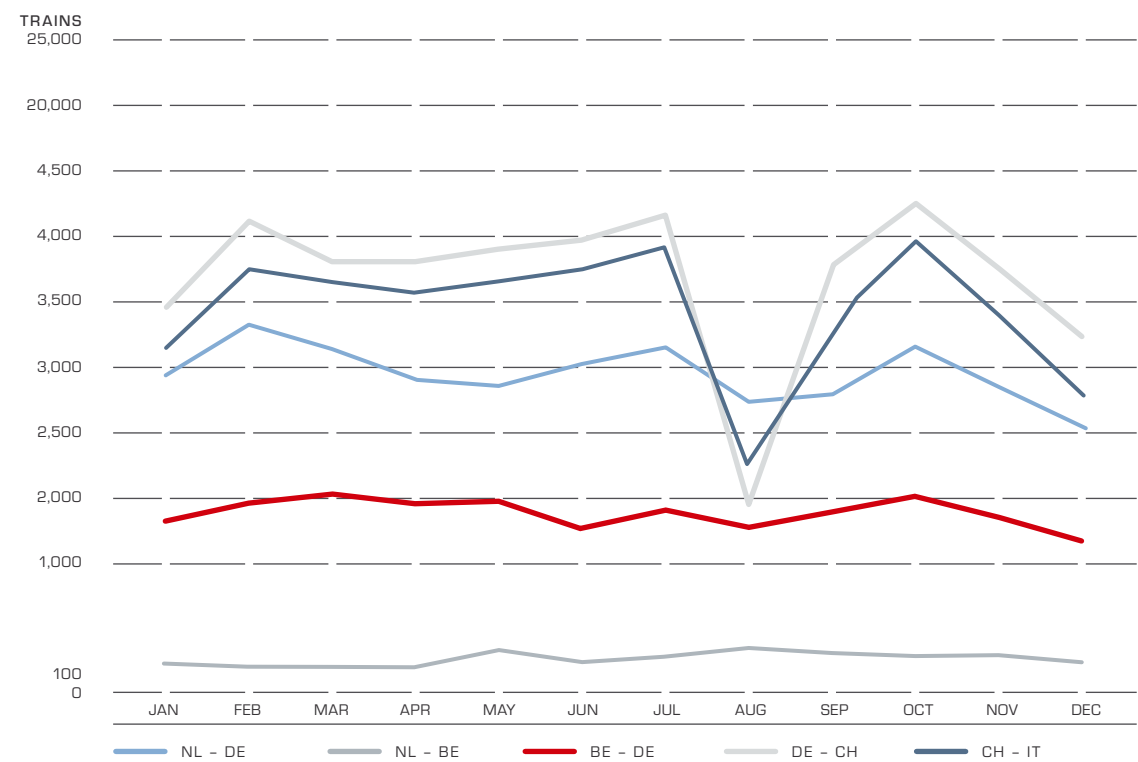
KPI NUMBER OF TRAINS PER BORDER - COMPARISON 2023/2024



Disclaimer: The Bad Bentheim border point (NL - DE) is included to have a full picture of the traffic between the Netherlands and Germany to take into account re-routed trains due to works between Emmerich and Oberhausen, even though this border point is not part of the Corridor.

MONTHLY NUMBER OF TRAINS PER BORDER

Number of commercial freight trains crossing selected border points



RheinCargo train on the Frick - Hornussen route in Switzerland.

BORDER CROSSINGS NL - DE

At the border points between the Netherlands and Germany, traffic volumes went down by 7.5% in 2024, compared to 2023. The decrease in the number of freight trains at the Dutch-German border crossings is mainly due to the diminishing number of coal trains. Demand for coal in Germany is still going down (closure of coal-based power plants). In most other freight segments (such as intermodal, dry bulk, wet bulk) the number of trains can be considered as stable.

BORDER CROSSING NL - BE

In 2024 volumes rose by 16.4% in comparison to 2023. This is mainly due to the increased traffic to and from Terneuzen (part of North Sea Port).

BORDER CROSSING BE - DE

At the border point Montzen - Aachen-West, traffic decreased by 3.3% in 2024 compared to 2023. This is due to a general downturn in the economy, a line closure in June, the ICM case in July in Aachen and the ICM case near Dorsfeld between Aachen and Cologne from the 22nd of November until the 23rd of December 2024.

BORDER CROSSING DE - CH

Compared to 2023, traffic at the Basel border point decreased by 6.7% in 2024. This negative trend in train numbers is attributable to two factors: firstly, the poor economic development in the eurozone and, secondly, the infrastructure problems on the access routes to Switzerland, which are making a further shift to rail transport more difficult.

Economic losses in the energy-intensive industries (steel, chemicals) as well as the automotive and

mechanical engineering sectors are leading to declines in international transit traffic, as these industrial products are primarily transported by rail. Weakening export figures are reducing international transit traffic, which is also affecting Switzerland's cross-border train numbers. Despite falling transport volumes, the modal split in Switzerland has remained almost constant, meaning that the Swiss market is more likely to be affected by generally weak economic developments rather than by problems in individual transport sectors. Increased construction volumes and longer line closures (Rastatt summer 2024) lead to rerouting of freight traffic with decreasing train path availability.

BORDER CROSSINGS CH - IT

In 2024 the overall evolution, compared to 2023 was a decrease in traffic of 5.4%. The reduction in traffic for the whole of 2024 is entirely linked to the decrease in freight traffic to Luino.

MODAL SPLIT OF TRANS-ALPINE FREIGHT TRANSPORT AND IN SELECTED PORTS

The rail freight volume across the Swiss Alpine crossings Gotthard and Simplon in 2024 totaled 25.7 million tons, marking a 3.7% (976,000 tons) decline compared to the previous year. This continued the downward trend in rail freight observed since 2022.

2024 saw significant disruptions due to construction work. On the southern routes, key closures included the Luino line (Gotthard axis to Busto Arsizio/Gallarate) from January 7-28,

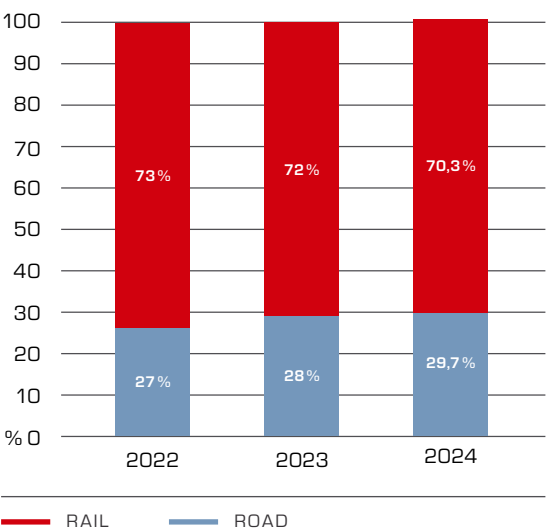
interruptions on the Simplon axis (Domodossola–Milan) between June and September, and a full closure of the Simplon section (Iselle di Trasquera–Domodossola) from August 9–30.

On the northern routes, the total closure of the Karlsruhe–Basel line (Rheintal route) near Rastatt (August 9–29) caused major detours, with limited options for large-profile unaccompanied combined transport (e.g., semi-trailers).

In Switzerland, operational challenges persisted, including reduced capacity at the Gotthard Base Tunnel until September and single-track operations on the Bözberg line between March and November, further affecting the Gotthard route.

These disruptions, combined with limited rerouting options, significantly impacted rail freight efficiency and contributed to the continued decline in volumes.

MODAL SPLIT OF TRANS-ALPINE FREIGHT TRANSPORT 2022-2024



PORT OF ROTTERDAM

In 2023, the total throughput of containers decreased: in tonnes by 6.8% (to 130.1 million tonnes) and in TEUs by 7.0% (to 13.4 million TEU). The decline that started in 2022 has continued in 2023. The main reasons for the decrease of freight transport are decrease in coal transport, lower consumption and production in Europe and the loss of volumes to and from Russia due to the sanctions. The change in the modal split is

not only due to the many infrastructure works in the Netherlands and Germany, but also to the lower cost of road transport and the increased cost of rail transport.

PORT OF ANTWERP¹

In 2023, there was a slight decrease in the market share of rail regarding the transportation of maritime containers from 7.6% to 7.3%. This is related to the geopolitical situation, leading to a general slowdown of the economy and hence less demand. Also, numerous infrastructure works, especially in Germany, impacted the hinterland traffic.

PORT OF GENOA

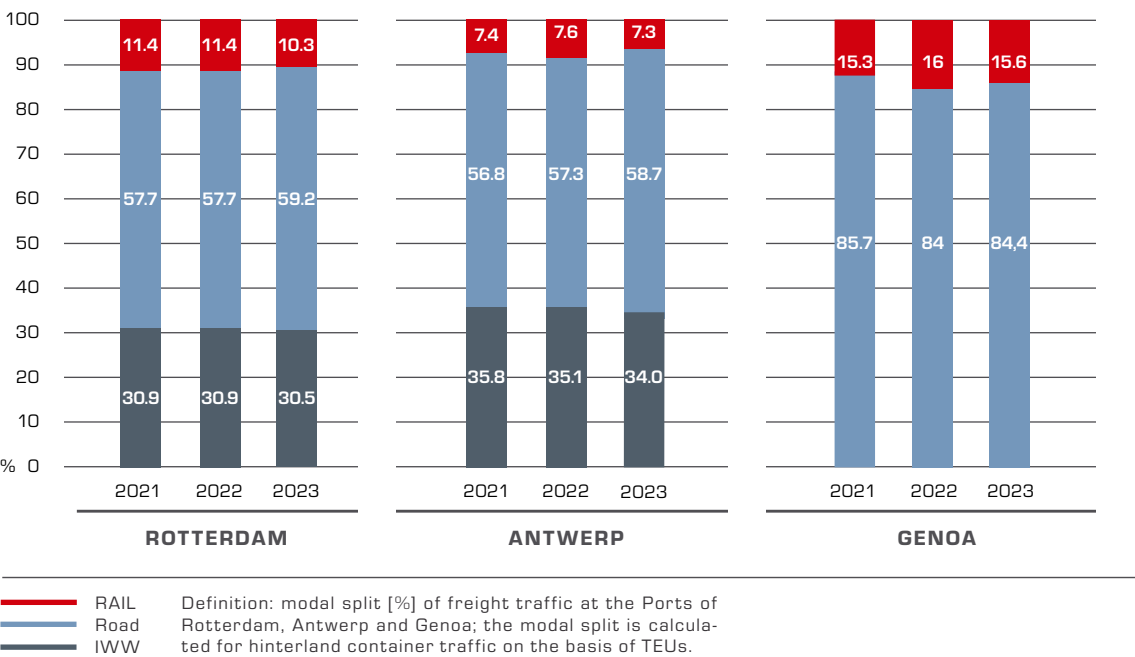
After four consecutive years of increase (from 2019), traffic by rail to and from the port of Genoa registered a setback in 2023 with a reduction of 6.5 percentage points compared to 2022, reaching about 8,640 trains moved in a year and returning to the 2021 levels.

At the same time the gateway volumes continue to remain above 2 million TEU despite a 3.9% reduction compared to 2022 and, in general, the port's overall throughput (including transshipment) is still below the levels reached during the pre-pandemic period.

In terms of rail volumes (TEU) the performance was also negative with a reduction of 6.3% compared to 2022 with a total of almost 340,000 TEUs shipped by rail in Genoa during 2023, with the modal split stopped at 15.6%, decreasing from the previous year.

¹ Despite the merger of the ports of Antwerp and Zeebrugge into the unified port company, Port of Antwerp – Bruges in April 2022, the figures relate only to the Port of Antwerp.

MODAL SPLIT IN PORTS 2021 – 2023



As the information is usually not available for the previous year when the Annual Report is compiled, only the development for the ports up to 2023 is shown.



Inland Waterway Vessel – Duisport.



Aerial View of the Port of Rotterdam.

OPERATIONS KPIs

This part of the Performance Report gives information on the general development of punctuality of freight traffic on RFC Rhine-Alpine, the number of trains and train kilometres on RFC Rhine-Alpine as well as the planned and actual dwell time in border sections.

PUNCTUALITY REPORT 2024

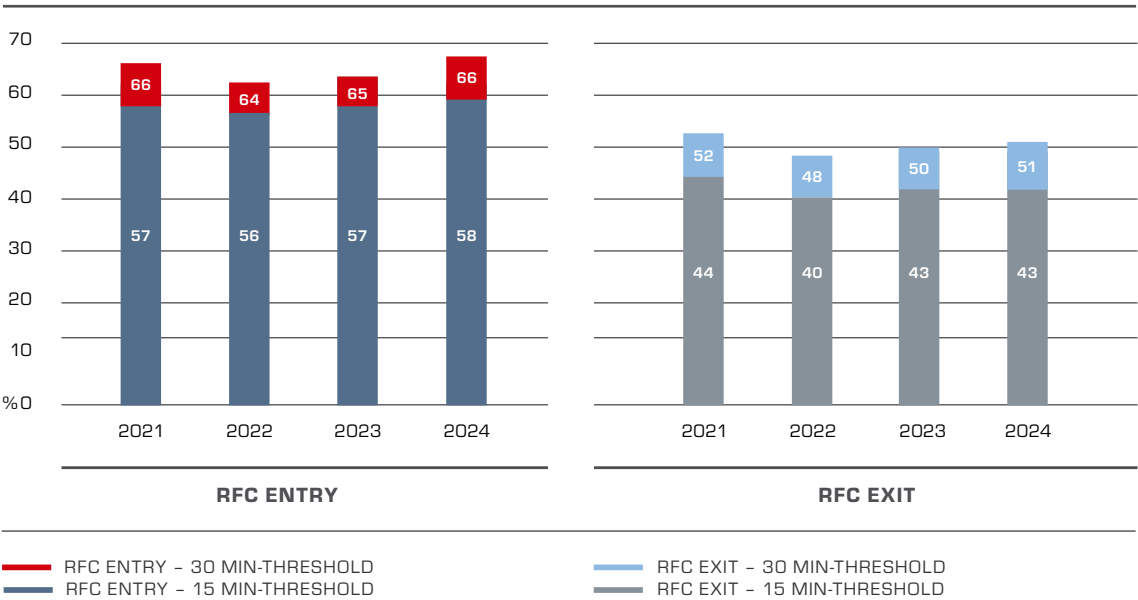
Punctuality calculation is performed using the Train Information System (TIS) data by comparing the timetable delivered to TIS and the running time in operations at defined measuring points. On the Customer Information Platform (CIP), RFC Rhine-Alpine publishes on a monthly basis the Train performance report management summary, with punctuality figures, number of trains and distribution of delay reasons.

The RFCs agreed on considering international freight trains on the Corridors as punctual when they are not more than 30 minutes delayed. Other international Working Groups set a 15-minute threshold. For this reason, both figures are shown as an overall punctuality KPI for RFC Entry and RFC Exit. To understand the graphs correctly, it is necessary to know that RFC Entry is defined as the location where the train first enters an RFC line (first point on the train run belonging to the RFC). RFC Exit indi-

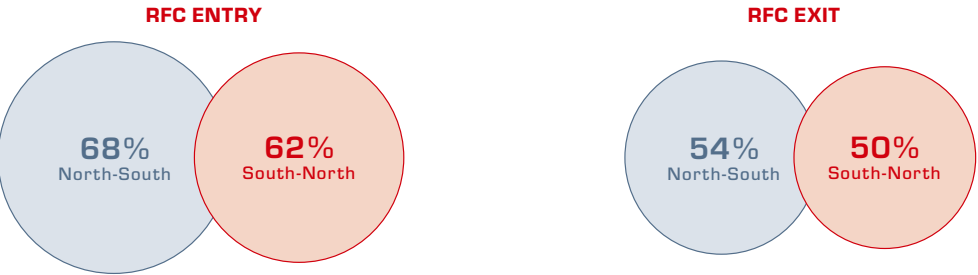
cates the location where the train exits the RFC line the last time (last point of the train run belonging to the RFC).

In 2024, the overall RFC punctuality slightly improved compared to 2023 but is still on a low level. The exit punctuality (30min threshold) increased from 50% to 51% in 2024, with simultaneously decreasing train numbers in the course of the year. Capacity bottlenecks are still the main cause of delays in freight transport on RFC Rhine-Alpine. These were exacerbated by an extraordinarily high volume of construction works and the resulting diversions. Due to the expected high level of construction activity, a significant improvement of punctuality on the Corridor lines is not to be expected in the coming years. In addition, the expected increase in extreme weather conditions due to climate change have to be mentioned, which are already affecting the reliability of rail freight transport today. An example was the extreme rainfall in southern Germany and Switzerland in early June 2024, which resulted in flooding at Lake Constance and the Rhine. Three weeks later, there were yet again extreme amounts of rainfall, causing further flooding in Switzerland.

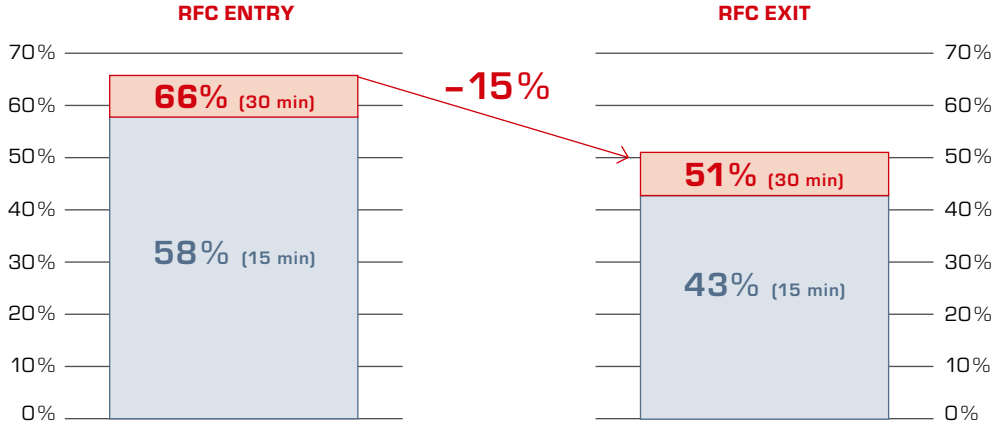
PUNCTUALITY DEVELOPMENT 2021 - 2024



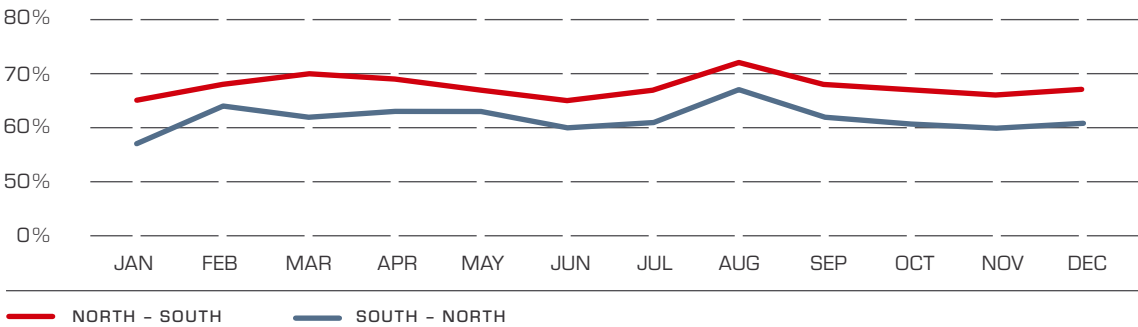
RFC ENTRY AND EXIT PUNCTUALITY PER DIRECTION IN 2024 (30' THRESHOLD):



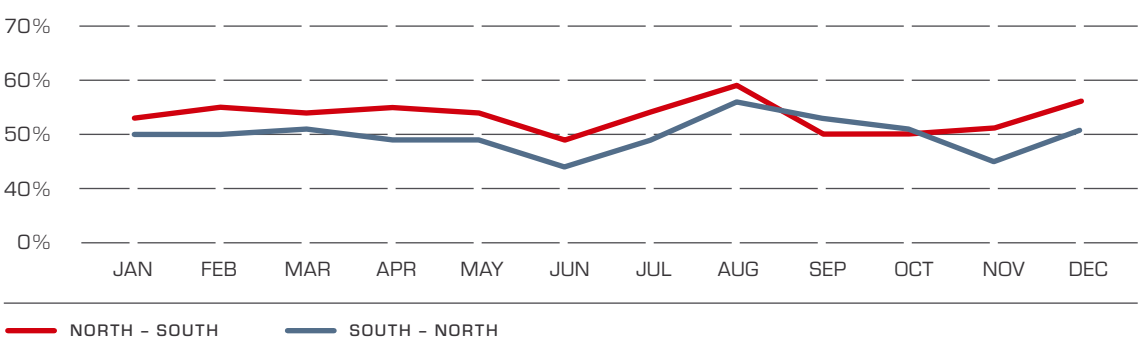
KPI RFC ENTRY AND EXIT PUNCTUALITY IN 2024



MONTHLY RFC ENTRY PUNCTUALITY PER DIRECTION



MONTHLY RFC EXIT PUNCTUALITY PER DIRECTION



CORE OBJECTIVE 2: DELTA RFC ENTRY AND EXIT PUNCTUALITY

	2021	2022	2023	2024	2025
ENTRY PUNCTUALITY	66	64	65	66	
EXIT PUNCTUALITY	52	48	50	51	
DELTA ENTRY PUNCTUALITY VS EXIT PUNCTUALITY	-14	-16	-15	-15	-16

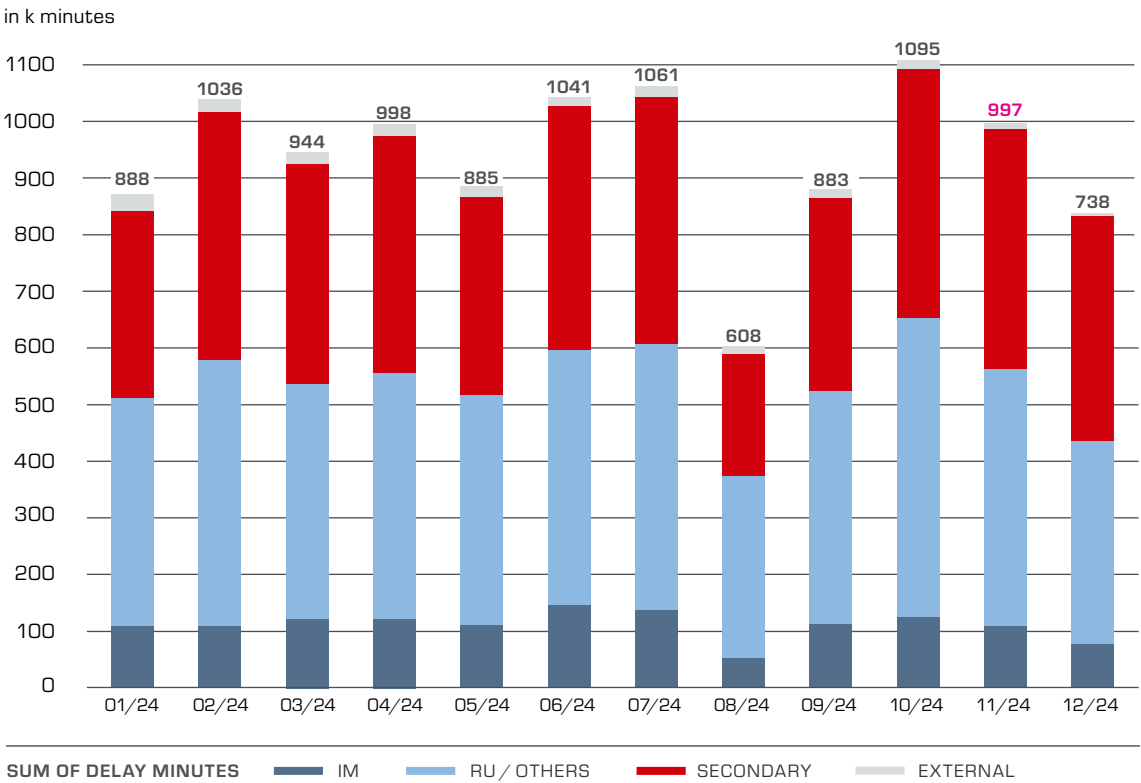
It is the goal of RFC Rhine-Alpine to improve performance, mainly punctuality and reliability, on the Corridor. Thus, the delta between Entry and Exit Punctuality was chosen to show the performance on the Corridor lines.

The target is to keep the delta of Entry and Exit Punctuality (30 min threshold) stable at 16% in 2025. This takes into account the

current and expected capacity limits on the Corridor lines due to major construction works in the upcoming years.

In 2024, the delta between Entry and Exit punctuality on the Corridor lines was -15%; hence the target level defined in the core objective for 2025 was already met in 2024.

TOTAL NUMBER OF DELAY MINUTES REPORTED TO TIS FOR BOTH DIRECTIONS



The graph above shows the total number of delay minutes reported by the IMs to TIS for both directions.

IM delay reasons: e.g., timetable planning, dispatching errors, infrastructure failures, temporary capacity restrictions (as far as not considered in timetable), unplanned works.

RU/others' delay reasons: e.g., train preparation, train formation by RU, rostering/re-rostering, rolling stock failures, loading irregularities, RU staff. RU/others' delay reasons also include delays caused by terminals (loading, unloading) or other parties (e.g., truck drivers) before handing the train over to the RUs.

Secondary delays: delays indirectly caused by the previous reasons, e.g., delayed circulation of another train and the resulting track occupation or conflicts within nodes. Incidents with trains/dangerous goods are also displayed here.

External reasons: delays which are out of the influence of IMs and RUs, e.g., weather conditions, natural events, authorities.



Construction works on the Riedbahn in autumn 2024.

MAIN FACTORS AFFECTING OVERALL PUNCTUALITY

THE NETHERLANDS

During 2024 there were again some longer periods of total closure of the German railway line between Emmerich and Oberhausen. During these periods freight trains from and to Germany had to run via the border stations Oldenzaal (Bentheimroute) and Venlo (Brabantroute). These are both routes with not only freight traffic but also with heavy passenger traffic. Punctuality of the freight trains running via these routes is always lower as on the dedicated freight line "Betuweroute". During these rerouting periods there were regular problems with the capacity in the yard Venlo and the German yard Viersen, where trains in the direction Ruhr area have to change direction.

BELGIUM

Most delays on the Infrabel network were caused by single incidents: delays from the neighbouring IMs and incidents involving a person. Despite multiple measures being implemented to prevent the last one, these incidents still cause a lot of delays, but less than compared to 2023.

Other causes with a big impact on the punctuality figures were a fire in a signal box and some cases of infrastructure breakdown.

Due to the better communication regarding the rules of exceptional transport with DB InfraGO, this no longer popped up as a major incident in 2024 as opposed to 2023.

GERMANY

The refurbishment of the German rail network as part of DB InfraGO's high-performance network program picked up speed in 2024 with the construction measures on the Emmerich - Oberhausen section and on the Riedbahn. The associated capacity restrictions have also had a negative impact on operating quality.

Other factors that reduced the quality of operations in 2024 were the GDL trade union strikes at the beginning of the year and the ICM cases in Aachen and Dorsfeld.

SWITZERLAND

Following the derailment of a freight train in the Gotthard Base Tunnel (GBT) on 10 August 2023, the tunnel was fully reopened to traffic in September 2024. Despite this period of restricted traffic, the base tunnel achieved a high-capacity utilisation and showed excellent operational stability.

The average punctuality of freight trains on the Swiss section of RFC Rhine-Alpine in 2024 was over 70%. This demonstrates the high production quality and performance of the rail network.

Within the BLS Network on the Lötschberg-Axis no relevant incidents occurred in 2024. Despite many TCR's the operational quality in the past year has been very high – stringent (re-)planning and close cooperation with the RUs made this possible. Passenger punctuality on BLS operated lines reached 95.6% (thresh- old 3') and this had also positive effect on freight traffic. In N-S direction transit freight trains entered with 61% punctuality (threshold 30') into the BLS Network and left with 59% – reflecting a loss of 2%. In S-N direction entry punctuality was 48%, exit punctuality 60% which means a significant punctuality gain of 12%.

ITALY

Derailment at Triplo Bivio Seveso

The event led to the reprogramming of all trains scheduled from Milano Certosa to Milano Lambrate with passage through the Triplo Bivio Seveso location. The reprogramming via the only passable line (via Bivio Mirabello), led to the saturation in terms of railway circulation of the latter. Freight traffic was also strongly affected by the event since the solution adopted for passenger trains was not viable for freight and, furthermore, many

transports were cancelled due to the disturbed circulation. The event lasted from 13/09 to 21/09.



Derailment of a freight train at Triplo Bivio Seveso in Italy.

Disconnection of the Milan hub from the railway traffic management system:

The event completely affected the day of 10/06 starting from 12:20. The entire train circulation management system of the Milan hub was disconnected. It was therefore impossible for the operators on duty to regularly manage the

railway circulation of any segment. Freight traffic almost completely stopped to allow the circulation of the minimum passenger services for the day of 10/06.

Laveno - Luino Line Interruption

Interruption of the Laveno - Luino line from 26/08 to 28/08 following checks on underpass work.

Derailment between Parma and Sant'Ilario

Another event, not linked to the jurisdiction of Milan but linked to the territory of Bologna, which however had a very important impact, was the derailment of a freight train between Parma and Sant'Ilario on 11/07. The incident caused damage to the railway infrastructure with the consequent need to restore it. Operations ended on 09/08. Freight traffic was significantly slowed down due to the limited capacity (during the daytime slot reserved for passenger trains) which required the rescheduling of freight transport on alternative lines and/or in different time slots from those originally scheduled.



Repairing the tracks damaged by a derailment between Parma and Sant'Ilario.



A freight train runs on the Riedbahn one day after the reopening in December 2024.

KPI TRAIN KILOMETERS ON RFC RHINE-ALPINE *

BORDER	AVG. PLANNED DWELL (MIN.)	AVG. REAL DWELL (MIN.)
AACHEN-WEST — MONTZEN	69	90
BASEL BADISCHER BF. — BASEL SBB PB/RB	54	62
BRIG — DOMO II	186	180
BRIG — DOMODOSSOLA	97	117
CHIASSO SM — BIVIO PC ROSALES	83	75
EMMERICH — ZEVENAAR OOST	8	10
KALDENKIRCHEN — VENLO	37	46
RANZO — S. ABBONDIO — LUINO	68	71
** ZELZATE- SAS VAN GENT	1	0

* Due to a system error, the data collected in 2024 is not reliable

For Zelzate – Sas van Gent **
** measured only on the Belgian side

NUMBER OF TRAINS ON
RFC RHINE-ALPINE

100,725

A new RFC train definition was introduced by the RFC Network in 2024, which should lead to a more precise allocation of individual trains to individual corridors, especially on overlapping borders. As this KPI is heavily dependent on the allocation to specific corridors, there was too much numerical distortion here in the past, which stood in the way of publication.

TRAIN KILOMETERS
ON RFC RHINE-ALPINE

51,092,424

This KPI is calculated as the sum of real distances between origin and destination of all trains crossing a border along the RFC. This KPI is published for the first time for the year 2024.

KPI DWELL TIME IN BORDER SECTIONS
(PLANNED AND ACTUAL)

Planned dwell in a single point is calculated as difference between scheduled departure from point and scheduled arrival to point. For each train, the planned dwell times at all relevant measuring points are summed up. The KPI provides the average planned dwell of all international freight trains crossing the border, including the train with zero planned dwell, with the data deriving from TIS. The border Sas van Gent – Zelzate, is published for the first time in 2024 on RFC Rhine-Alpine.

Generally, the figures substantiate the known bottlenecks within the Corridor, where planned dwell times are not sufficient to buffer operational restrictions and missing capacity in neighbouring networks and nodes.

THE RFC TRAIN DEFINITION

A train is classified as an RFC train if it is a freight train, crosses at least one international border, and operates entirely or partially on a section of an RFC network. If an already identified RFC train travels 300 km or more within the network of another RFC without crossing its border, it remains assigned to the original RFC corridor. Specific assignment rules apply to overlapping sections of RFC corridors: trains operating on fully overlapped sections are assigned to all involved corridors, though the respective RFCs may apply additional criteria to assign the train to a single corridor. If a train operates only partially in overlapping sections, it is assigned to the RFC if it crosses one border along the RFC and runs at least one section exclusively within a single RFC. Additionally, if a train operates on an overlapping section, but there is at least one corridor that can also cover the previous or following non-overlapping section, the train will be assigned to that corridor(s) only.

CAPACITY
MANAGEMENT KPIs

This part of the Performance Report presents details on the development of the Pre-arranged Paths (PaPs) and Reserve Capacity (RC) offered on RFC Rhine-Alpine.

KPI VOLUME OF OFFERED, REQUESTED
AND PRE-BOOKED CAPACITY

This KPI shows the development of offered, requested and pre-booked PaPs for the 2020 – 2025 (TT). Generally, the offered PaPs are planned for operation on seven days a week, yet some connections might have a lower availability (e.g., 4 or 5 running days), or a given PaP might not be available on some days throughout the year due to TCRs.

These cut out days led to a decrease in the volume of offered PaP-km. For TT2025, 17 million PaP-km were offered. The volume of requested capacity (PaPs) was 7.3 million PaP-km and decreased by 24% compared to the previous year. 43% of the freight capacity was requested for TT2025. Due to conflicts between some requests, it was only possible to allocate 90% of the requested capacity as PaPs. This led to a volume of pre-booked capacity of 6.6 million PaP-km. The remaining 10% were answered with tailor-made paths. In addition to

the requests for PaPs, a high amount of connected feeder and outflow paths was requested and allocated.

A reserve capacity of 1,65 million path-km was offered for TT2024. As in previous years, no requests were received. For TT2025, the offer remains nearly on the same level at 1,71 million path-km.

KPI RATIO OF PRE-BOOKED CAPACITY

This KPI shows the ratio of the volume of pre-booked capacity (at X-7.5) to the volume of offered capacity (PaPs). For TT2025 the ratio is 39% compared to 49.70% for TT2024.

KPI NUMBER OF REQUESTS INCLUDING
NUMBER OF CONFLICTS AT X-8

This KPI shows the number of conflicting and clean requests (i.e., dossiers) made by the applicants in the Path Coordination System (PCS). The number of requested dossiers for TT2025 decreased by 33% compared to the previous year. There were 28 conflicting PaP requests. All applicants that could not receive a PaP after the conflict solving process were answered with a tailor-made path offer (see graph on page 33).

CORE OBJECTIVE 3: RATIO OF PAP CAPACITY OFFERED AND FINAL TIMETABLE OFFER

	TT 2021	TT 2022	TT 2023	TT 2024	TT 2025	TT 2026
VOLUME OF OFFERED PRE-ARRANGED PATHS (X-11) IN MILLION PATH-KM	17.6	18.2	18.1	16.7	17.0	
FINAL TIMETABLE OFFER (X-3) IN MILLION PATH-KM	4.1	5.0	6.9	8.3	6.6	
RATIO	23.30%	27.47%	38.12%	49.70%	39%	35%

It is the objective of RFC Rhine-Alpine to publish a PaP offer (at X-11) on all principal Corridor lines crossing a border that fits the needs of the customers in the best possible way. The quality of the initial PaP offer (at X-11) can best be derived through comparison to the Final timetable offer (at X-3), which is closest to the actual train run. The aim is to stabilize the ratio at 35% until TT2026.

For TT2025, the volume of offered PaPs (X-11) was 17 million path-km and the final timetable offer (at X-3) was 6.6 million path-km, resulting in a ratio of 39%. Compared to the previous timetable year, this is a decrease of 10.7%, but still above the target of 35% for TT2026.

KPI VOLUME OF OFFERED, REQUESTED AND PRE-BOOKED CAPACITY

This KPI shows the volume of PaPs in the phases of PaP publication (X-11), PaP requesting (X-8) and PaP pre-allocation (X-7.5) in million path-km per year.



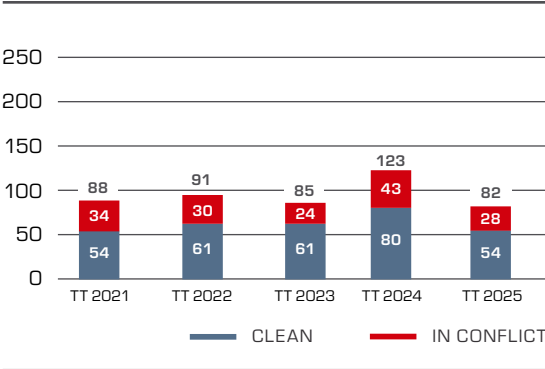


Freight train on the right bank of the Rhine opposite Oberwesel in Germany.

KPI RATIO OF THE CAPACITY ALLOCATED BY THE C-OSS AND THE TOTAL ALLOCATED CAPACITY

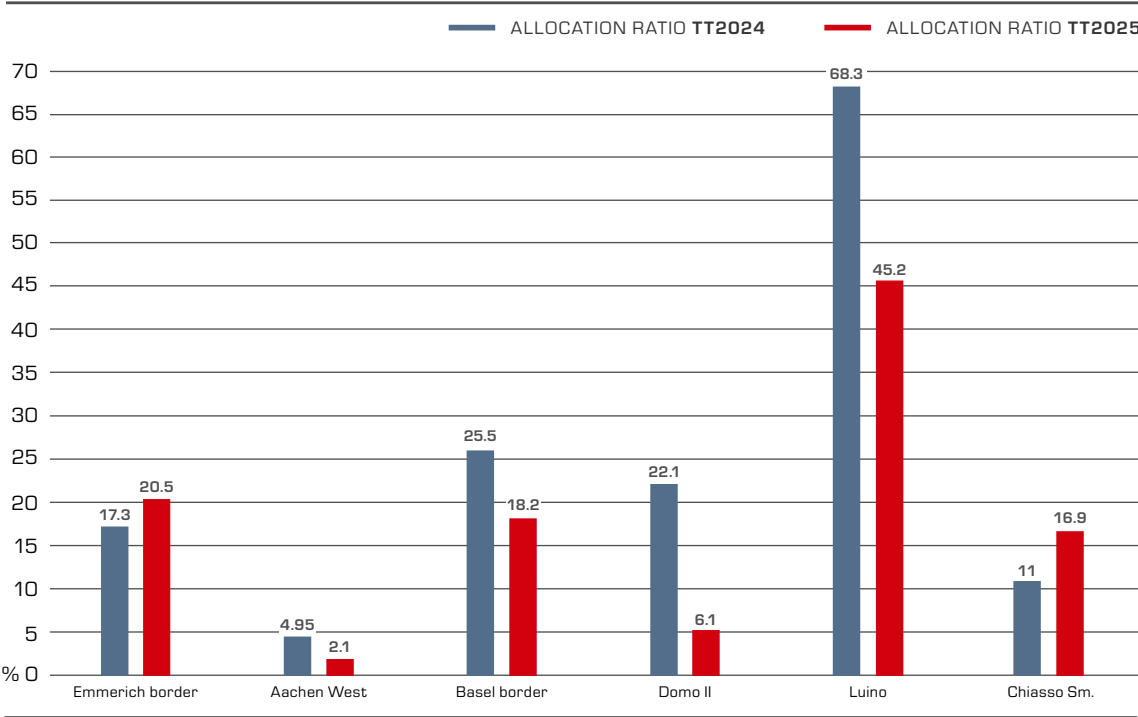
The KPI Ratio of the capacity allocated by the C-OSS and the total allocated capacity is calculated with data provided by the IMs and the C-OSS of RFC Rhine-Alpine, both after the finalisation of the allocation process. At every border where PaP capacity is offered by the C-OSS, the number of crossing trains, which have been allocated via PaPs in PCS (including feeder/outflow and tailor-made paths), is compared to the number of international freight trains, which were requested via PCS or national systems and allocated by the IMs along the Corridor. The shift of the offered capacity between the axis through Switzerland due to TCRs led to a change in the ratio of capacity allocated compared to the previous years. In relation with the decreased amount of requested capacity, the numbers of allocated capacity per border changes intensively for e.g. Luino & Domo II.

KPI NUMBER OF REQUESTS INCLUDING NUMBER OF CONFLICTS AT X-8



This KPI shows the total number of requests and the number of clean dossiers (multiple path requests placed in PCS which referred to the same PaP on RFC Rhine-Alpine).

KPI RATIO OF CAPACITY ALLOCATED BY C-OSS AND THE TOTAL ALLOCATED CAPACITY



This KPI shows the ratio of trains which were allocated by the C-OSS as PaPs compared to trains which were requested via PCS or national systems and allocated by the IMs.



Emergency maintenance on a special rail switch at the Kijfhoek marshalling yard.

KPI Average Planned Speed of PaPs

The KPI Average Planned Speed of PaPs shows the average of the planned commercial speed of the PaPs in km/h for selected connections (see also Core objective 4 below). The KPI is calculated by dividing the length of the PaP by the planned travel time. Thus, the average planned speed of PaPs also includes necessary stops on the route, as well as parts with restricted speed (e.g., cities). On RFC Rhine-Alpine, it is constantly adjusted from year-to-year to better fit the needs of IMs and applicants respectively, for instance taking into account necessary stops for train drivers or

necessary waiting times at borders on that O/D relation. Thus, increasing the speed of a PaP does not directly lead to better quality. The PaPs running on the respective O/D have to cover the whole section to be included into the calculation. At some borders, a longer stopping time is caused by e.g., customs handling or the applicants' desired change of operation. This leads to a lower average speed than at borders without dwelling time. The selected O/Ds serve as examples. Further connected O/Ds would show hardly any difference regarding planned speed (e. g. Amsterdam instead of Maasvlakte).

CORE OBJECTIVE 4: KPI AVERAGE PLANNED SPEED OF PAPS FOR TT2025

AVERAGE PLANNED SPEED OF PAPS ON RFC RHINE-ALPINE IN KM/H	LENGTH OF THE STRETCH IN KM	TT 2023	TT 2024	TT 2025	TT 2026	GOAL TT 2026
MAASVLAKTE – OBERHAUSEN STERKRADE	228.1 KM	70.8	71.5	71.3	72.71	71.5
Y. SCHIJN – DORSFELD	211.3 KM	46.1	45.7	46.6	47.67	45.7
BASEL SBB RB – NOVARA B. TO	339.5 KM	39.6	42.1	37.3	42.53	42.1
TROISDORF – BASEL SBB RB	509.0 KM	61.3	62.7	62.3	60.72	62.7
KARLSRUHE GBF – GALLARATE	519.4 KM	51	50.8	50.7	51.06	50.8
MAASVLAKTE – MILANO SM	1,148.3 KM	53.9	56.2	56.2	55.79	56.2
Y. SCHIJN – MILANO SM	1,092.9 KM	50.5	52.5	51.0	50.25	52.5
BASEL SBB RB – MILANO SM	330.3 KM	47.8	49.0	47.1	48.28	49
BASEL SBB RB – CHIASSO SM	274.0 KM	58.6	57.9	58.1	58.79	57.9

The goal is to keep the average planned speed of PaPs per selected O/D on the level of TT2024 until TT2026 (published in 2025), as the current values reflect years of adapting to enable smooth running of trains on the Corridor lines. The biggest decrease for the O/D Troisdorf-Basel due to the high volume of TCRs in Germany during the timetable year. Overall, the average planned speed of PaPs was stable for TT2026 despite

the expected TCRs on Corridor lines. The target set for TT2026 was met on all O/Ds except Troisdorf – Basel SBB RB, Maasvlakte – Milano SM, Y. Schijn – Milano SM and Basel SBB RB – Milano SM. The main reason for the failure to achieve the targets set for these O/Ds are adjustments to the PaPs in northern Italy in order to guarantee greater stability of the products on offer.

INFRA STRUC TURE

PROJECTS

This chapter reports on projects that made significant progress or were completed during 2024. These projects are part of the Investment Plan of RFC Rhine-Alpine.

PROJECTS ON RFC RHINE-ALPINE



PROJECTS IN THE NETHERLANDS

1 TENDER MAASVLAKTE ZUID PHASE 1

In 2024, the contract was signed for the construction of a bundle of six tracks for 740m trains as part of the new Maasvlakte Zuid railway yard. This project was realised in close cooperation between the Port of Rotterdam Authority and ProRail using a Connecting Europe Facility (CEF) subsidy. The construction of the first track bundle will start in the spring of 2025 and will be put into use mid-2027.

At the end of 2024, the decision has been made to start the project for the electrification of the distribution triangle at the Maasvlakte, which is one of the last parts of the main track without catenary. This makes it possible to drive a complete circle on the Maasvlakte with electric locomotives, optimizing logistics and easing shunting with electric locomotives between the new Maasvlakte Zuid SY and the existing SY Maasvlakte West.

2 START OF CONSTRUCTION OF THE SOUTHWEST CONNECTION METEREN

On June 26, ProRail and construction company Van Hattem en Blankevoort started the construction of a new connection between the Betuweroute and the Utrecht – 's Hertogenbosch line at Meteren. Together with improvements between 's Hertogenbosch and Vught, this will provide a new route for freight trains between Rotterdam and Venlo and will result in less freight traffic via Dordrecht, Breda and Tilburg. The new connection is expected to be ready for use in 2031.

3 MODERNISATION OF THE KIJFHOEK RAILWAY YARD

Three important matters will be addressed at the Kijfhoek marshalling yard in the coming years:

- Modernisation of the hump system.
- Adjustment and expansion of the emergency routes and fire-fighting facilities.
- Regular replacement of tracks and sleepers.

At the end of 2024, the first half of the hump system has been put back in service after a 1½ year modernization project. The second half of the hump system will be put back in service in 2025, with full functioning expected to be completed in 2026.

4 EUROPEAN SUBSIDY TO IMPROVE MILITARY RAIL TRANSPORT

The Netherlands will receive 43 million Euro in European subsidies to prepare the railway for faster and easier military transport. ProRail will use the subsidy to construct waiting and storage tracks for 740m long freight trains. These will be located at five locations in the Netherlands: at Rotterdam Noord Goederen, Lage Zwaluwe, Waalhaven Zuid, Onnen and at Roosendaal station. Regular freight and passenger transport will also benefit from these adjustments to the track. In 2024, the project decision was made for the construction of a 740 m waiting track for Rotterdam Noord Goederen. The date of commissioning is December 2027.

5 DEVELOPMENT ERTMS

In 2024, the focus was on preparatory and overarching work to commission ETCS, such as adjusting the IT systems for traffic management and timetable planning and developing the Central Safety System (CSS). Related to this, two new data centers have been completed to house the CSS system.

A quote request has been made for the implementation of ETCS on two lines in the Northern part of the Netherlands. These lines are relatively simple and only one RU runs there. These lines will be used as Early Deployment Lines to learn step by step and increase complexity along the way.

The national ERTMS deployment (after Betuweroute and Havenspoorlijn) on the main RFC Rhine – Alpine lines was decided in 2019. The 2019 plan included also ERTMS roll-out on Rotterdam – Venlo and Amsterdam – Betuweroute by 2030. In 2024 it turned out that this development was too optimistic and roll-out plans are temporary halted. The revised plan includes Port of Vlissingen – Roosendaal (2029 – 2030) and Kijfhoek – Roosendaal – Belgian border (2031). At this stage it is not possible to provide information about new realisation dates for other lines.

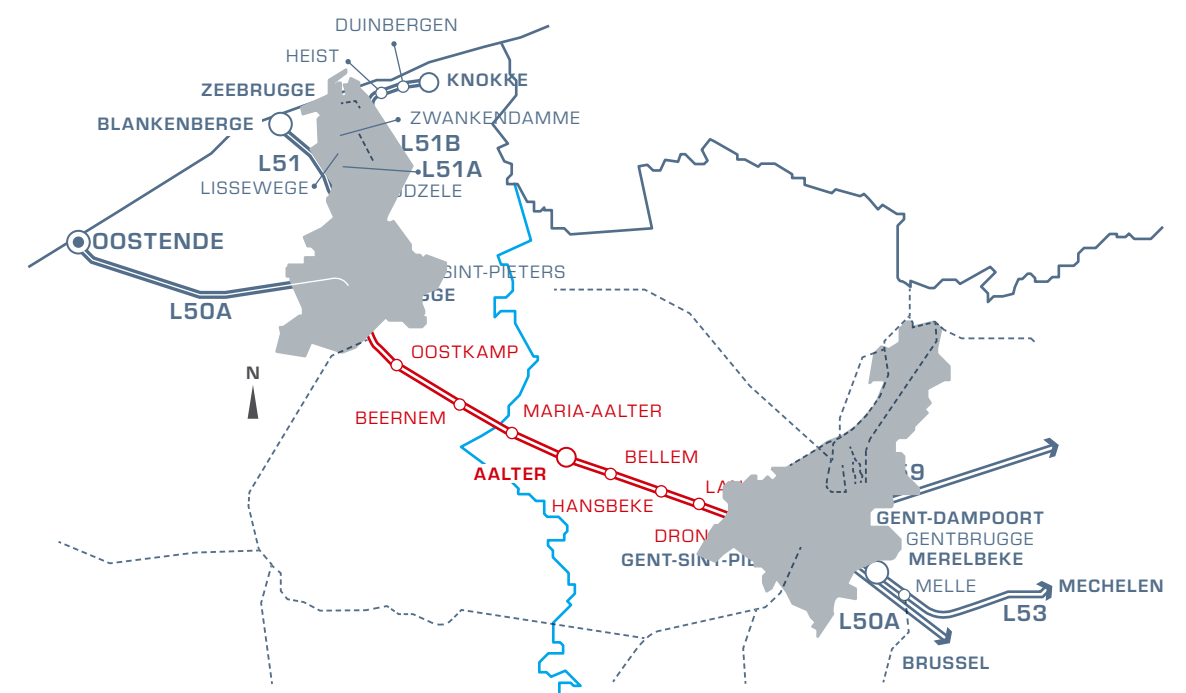
PROJECTS IN BELGIUM

6 THIRD AND FOURTH TRACK BETWEEN GENT AND BRUGGE

The works concerning track, catenary and cabling for the third and fourth track between Gent and Brugge continued in 2024. In April 2024, track B of line L50D came into service between

Y Stuivenberg (Oostkamp) and Y Bellem. This involves 16km of new track. By the end of 2027, the 2 new tracks of line L50D will be fully completed between Gent and Brugge. After that the modernisation of the existing tracks will start. The overall project will be finalised by 2030.

THIRD AND FOURTH TRACK BETWEEN GENT AND BRUGGE



Third and fourth track between Gent and Brugge.

7 DEVELOPMENTS IN THE PORT OF ANTWERP-BRUGES

In Antwerp, the electrification of the railway line L11 (Y Stabroek – connection BASF) started in October 2024 (foreseen end date December 2026). A segment of the line (between KP08 and KP13) will also be doubled. For this segment the building licence is expected in 2025 (foreseen end date of the works December 2026). This project will provide a smoother access to the hinterland of the port and will reduce travel time.

Also the electrification of 3 tracks in the fan of sidings "Oorderen" started in 2024 as well as the electrification of line L222 in the direction of Oorderen.

In Zeebrugge, works started in March 2024 on the prolongation of 2 tracks in the fan of sidings "Pelikaan" in order to receive trains up to 740m. The works are foreseen to be finalised in October 2025, but the tracks will already be put into service in August 2025.



Fan of sidings "Zandeken", where in May 2023 – 4 additional long tracks were put into service.

8 DEVELOPMENTS NORTH SEA PORT

On the left bank of the Canal Gent – Terneuzen, the construction of the new ring railway, connecting the fan of sidings "Zandeken" with the Kluizendok in the port of Gent (part of North Sea Port) was finalised at the end of 2024, apart from some finishing works. This new infrastructure will, once put into service, provide a better access for freight trains coming from the shunting yard Gent-Zeehaven to the terminals in that dock.

On the right bank of the Canal Gent - Terneuzen, the works to prolong 6 existing tracks in the fan of sidings "Mercator" (side Zelzate) continued in 2024. The works should be finalised by mid-2025.

9 ETCS IN BELGIUM

ETCS deployment continued with the aim of the whole network to be equipped by 2025. During 2024, several stretches along RFC Rhine-Alpine were equipped with ETCS, such as Y Bernadettestraat – Beveren – Melsele, Lier – Aarschot – Leuven, Brugge – Zeebrugge, Brugge – Gent (except for the station of Gent, foreseen in 2025) and Hasselt – Bilzen – Glons – Liège – Visé – Montzen – Botzelaer. At the end of 2024, 79% of the main tracks of the network were equipped with ETCS.



New ring railway in the port of Gent (North Sea Port).

PROJECTS IN GERMANY

10 GENERAL REFURBISHMENT OF THE HIGHLY CONGESTED RAIL NETWORK

To improve quality and stability of operations on the main railway lines, DB InfraGO is launching an extensive program for renewal and maintenance over the coming years. Modern equipment and technology will significantly reduce the number of infrastructure-related disruptions, and additional overtaking opportunities for trains will provide more flexibility. To this end, the respective lines will be modernised within a few months.

In the coming years, further sections of RFC Rhine-Alpine are essential parts of this extensive program to provide an efficient infrastructure (high-performance network):

- 2024-2026 Emmerich - Oberhausen
- 2026 Neuss – Wiesbaden (right bank of the Rhine)
- 2027 Frankfurt - Heidelberg

- 2028 Köln – Mainz (left bank of the Rhine)
- 2028 or 2029 Aachen – Cologne.

11 RIEDBAHN REFURBISHMENT

The Riedbahn, connecting Frankfurt am Main and Mannheim, underwent a major infrastructure upgrade completed in December 2024. The line plays a key supporting role in north-south freight flows. As part of DB's S3 Rehabilitation Programme, the upgrade aims to reduce disruptions by 80%, improving reliability and capacity for both freight and passenger transport.



Special freight trains – Gernsheim in Germany.

12 EMMERICH - OBERHAUSEN

The design and approval planning for the third track has largely been completed. Additional tendering processes for the construction works continued in the sections Wesel and Mehrhoog in 2024.

Meanwhile seven out of twelve planning approvals have been granted and they are final non-appealable. The planning approvals for the sections 2.3 Mehrhoog and 3.3 Emmerich Praest are the next, being expected in 2025.

In section 1.1 Oberhausen, the construction of the extension of the railway line has continued in 2024.

Preliminary works in section 1.2 Oberhausen-Sterkrade and the construction of the 3rd track in the sections Dinslaken and Voerde continued in 2024.

In Rees, Voerde and Dinslaken catenary and engineering construction works continued in 2024. A preponderant part of the bridge construction has already been completed.

A temporary platform and overpass were built in Voerde-Friedrichsfeld.

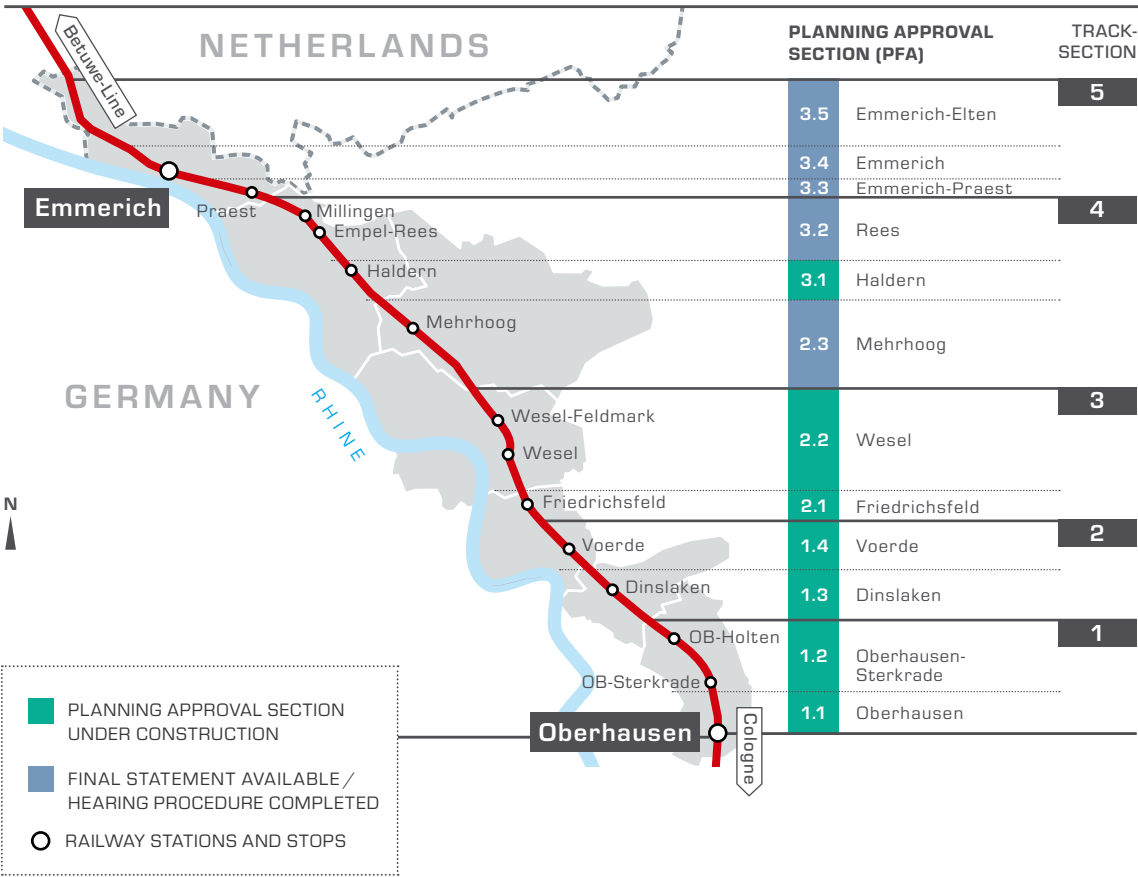
New platforms and pedestrian underpasses are under construction in Rees-Haldern and has been completed in Dinslaken.

In the sections 1.4-2.1 Voerde-Friedrichsfeld and 2.2 Wesel engineering works continued in 2024.

On November 1st, 2024, a single track closure started for 80 weeks, with temporary total closures..

Additionally, the general refurbishment of the high-performance network between Oberhausen and Emmerich takes place from 2024 to 2026.

PROJECT EMMERICH - OBERHAUSEN



13 NEW FRANKFURT-MANNHEIM LINE

The new line from Frankfurt to Mannheim is a central link in Deutsche Bahn's high-speed network. It closes the gap between the two ICE connections Cologne-Rhine/Main and Mannheim-Stuttgart. The new line will relieve the pressure on the two existing Riedbahn and Main-Neckar-Bahn lines and significantly improve local and long-distance transport services in the region.

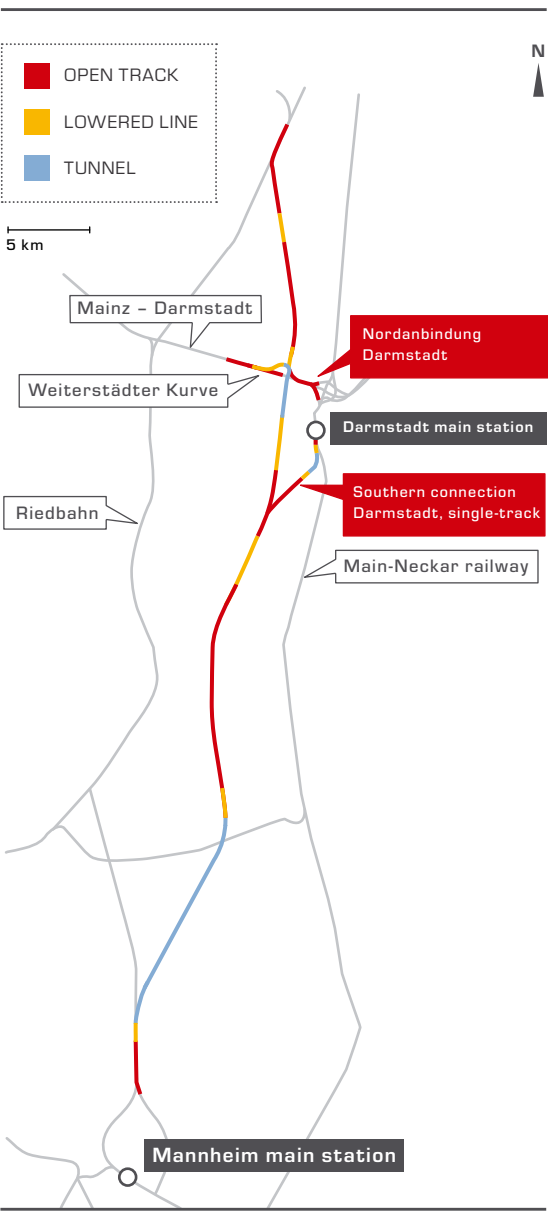
Since 2016, the Frankfurt - Mannheim Participation Forum has been supporting the planning of the new railway line with around 100 representatives of all interest groups from politics, the environment and the public.

In 2024, Deutsche Bahn continued its technical planning for all sections of the new line. An important milestone was reached with the submission of the planning approval documents for section 1 (Zeppelinheim-Darmstadt North) to the Federal Railway Authority in autumn 2024.

In addition, the section between Einhausen/Lorsch and Mannheim was adapted in 2024 following further investigations. The new route now envisages a continuous tunnel built by mining means from Einhausen to Mannheim-Blumenau.

In 2024, the Frankfurt-Mannheim Participation Forum has dealt intensively with the regional requirements for the new railway line, which go beyond the legal requirements, for the upcoming parliamentary debate. In December 2024, the region's demands were presented and finalised at the 19th meeting of the Participation Forum. In 2025, Deutsche Bahn will finalise the report for parliamentary referral and submit it to the Federal Ministry for Digital and Transport. The exact date of the referral to the German Bundestag has not yet been set.

NEW FRANKFURT - MANNHEIM LINE

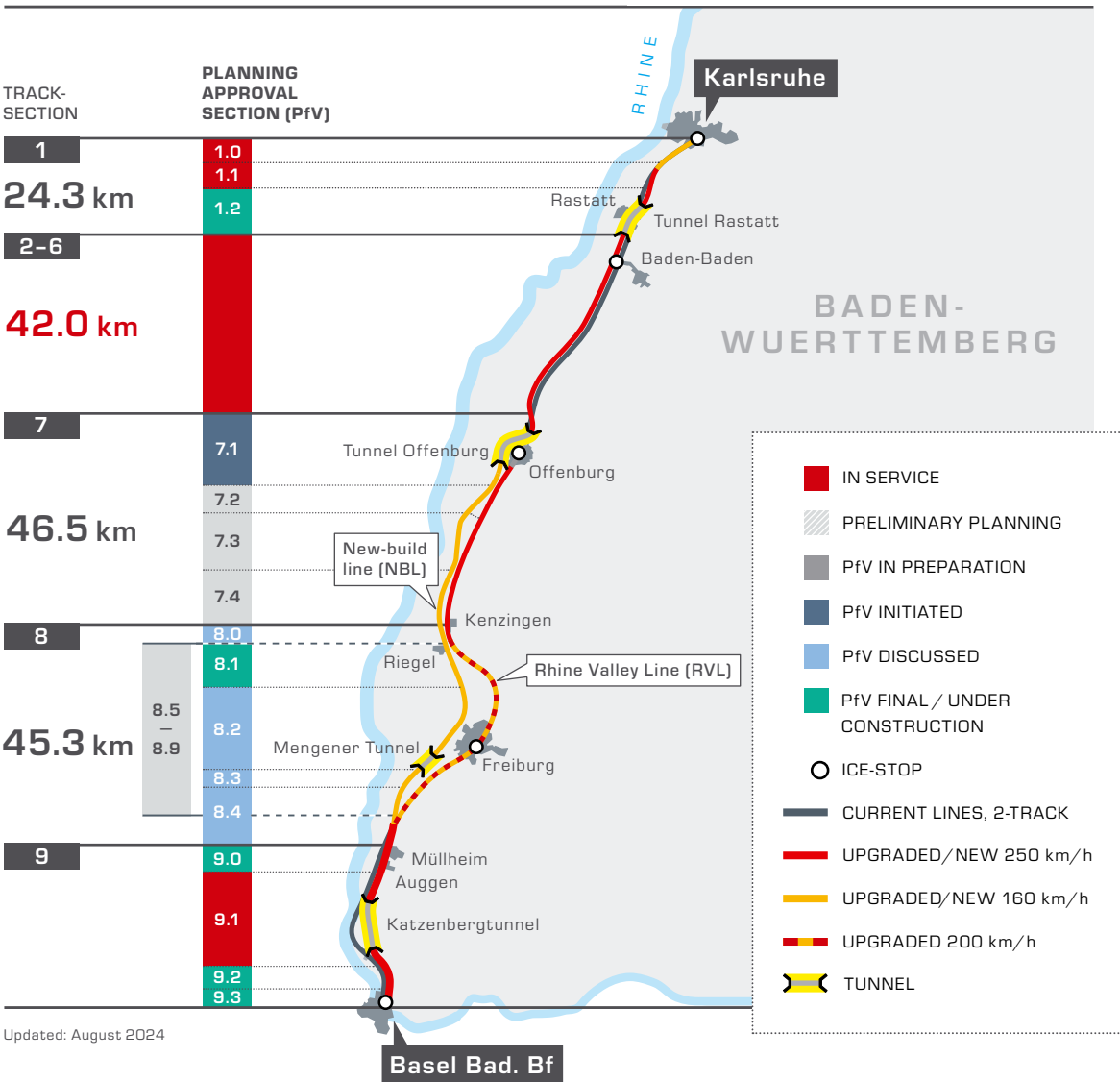


14 **ABS/NBS KARLSRUHE
- BASEL**

In 2024, the project Karlsruhe – Basel made further progress both in the planning approval process and in the construction works:

- In Track Section 1: The concrete works for the solid track and cable conduits in the tunnel were carried out. The wrecked (first) drilling machine was successfully removed. The investigation and arbitration process are still ongoing.
- In Track Section 7: “Early public participation” took place. Planning approval for the Offenburg Tunnel was started.
- In Track Section 8: Planning and preparation for the construction works continued. The approval process for the other planning approval sections (PAS/PfA/Planfeststellungsabschnitte) is still continuing.
- In Track Section 9: Construction works continued. The preparations for new barrier-free platforms and for building the track will be continued in all sections. In PAS 9.2/9.3 four tracks for putting aside freight trains were put into service.

NEW DEVELOPMENTS ON KARLSRUHE - BASEL



15 **ETCS IN GERMANY ON CORRIDOR
RHINE-ALPINE**

Regarding ETCS, 2024 was characterized by a mix of demanding preliminary and accompanying activities as part of a general modernisation and digitalisation of the railway system, in addition to the typical tasks of the ETCS implementation on RFC Rhine-Alpine. Key activities included:

- a) Planning for the ETCS deployment on additional line sections
- b) New tenders for interlockings and ETCS equipment,
- c) Participation in developing a new contractual framework for interlocking and ETCS tenders
- d) Coordination with the future Operational Control Strategy (BSS)
- e) Integration of interlocking renewal and ETCS equipment in high-performance network projects
- f) Further construction progress on cable ducts and interlockings
- g) Negotiations for track possessions and expert resources for approval of planning and certification
- h) Establishing functional capability of RBCs and ETCS.

Concrete achievements in 2024:

- ETCS ready upgrades in two interlockings in Oberlahnstein were successfully completed.

- Commissioning of three newly constructed interlockings between Karlsruhe and Offenburg: ESTW Baden-Baden, ESTW Bühl, and ESTW Rastatt Süd. These interlockings are ETCS ready and part of the plan to place ETCS L2 in service between Karlsruhe and Offenburg in 2026.
- Furthermore, successful completion and establishment of functionality of three Radio Block Centres in Basel, Buggingen and Freiburg. This includes a positive report by the European Union Agency for Railways (ERA) (trackside approval) and other national technical certificates which are necessary for the final and first authorisation of this new ETCS product delivered by Hitachi GTS. The commissioning is expected in 2025 and will pave the way also for ETCS in the node of Stuttgart (S 21).
- Preparatory construction of cable ducts has been executed and awarded along the whole Corridor Rhine-Alpine, wherever interlockings are planned to be replaced or upgraded.
- Regarding the Operational Control Strategy (BSS), a framework agreement was concluded for the construction of technology centers (TSO). Tenders for the construction of operational centers (BSO) are currently in progress. Additionally, site clearance and securing the building ground for BSOs started in 2024.

Commissioning of a new ETCS-ready interlocking between Karlsruhe and Offenburg.



OVERVIEW MAP



A freight train in Kaufdorf – Switzerland.

PROJECTS IN SWITZERLAND

16 COMPLETE EXPANSION OF THE LÖTSCHBERG BASE TUNNEL

On the BLS infrastructure an important milestone was achieved in 2024. The Swiss Parliament approved the full extension of the Lötschberg Base Tunnel (LBT) within the national program STEP AS 2035. This includes equipping the existing tunnel in raw construction between Ferden and Mitholz with railway equipment (tracks, traction current etc.) as well as the excavation and railway equipment of the second tube between Mitholz and Frutigen. By the end of those works in December 2035 (current planning) the LBT will consist of two continuous separate tubes.

With the full expansion of the LBT, the northern approach route between the Wengi-Ey junction and the north tunnel portal will also be upgraded to double track. This mainly involves equipping the Engstlige tunnel with the railroad equipment for a second track.

Further 2024 activities on the project include:

- Successful procurement of a new shell construction planner for the submission and execution phase of the full extension
- Successful start of three large shell construction lots for the renovation of the existing access

tunnels in Mitholz, Ferden and Steg, which will serve as evacuation routes during the expansion and construction site logistics

- Implementation and completion of various preliminary lots in preparation of the shell tunnel for the upcoming expansion works
- Tendering of the works for the main lot 03 (expansion Engstlige tunnel)
- Signing of the implementation agreement "Realization Complete expansion of the Lötschberg base line" with the Federal Office for Transport.

17 RENOVATION OF THE HAUENSTEIN BASE TUNNEL

The Hauenstein Tunnel project commenced in September 2023. It involves the renovation of the tunnel vault, track drainage and safety-relevant systems as well as the renewal of the tracks. These works are expected to result in operational restrictions, with completion anticipated by 2028. This required several route closures and reduced operations in 2024, which limited the train path capacities for freight transport.

18 FOUR-LANE EXPANSION OF LIESTAL

The four-lane expansion of Liestal will reduce crossing conflicts between long-distance trains and regional/freight trains and increase flexibility in the management of train traffic. This enables

OVERVIEW MAP

more punctual and disruption-free rail transport operations. The basic construction works on track 1 were completed in 2024.

19 THE MUTTENZ GRADE SEPARATION

The Muttentz grade separation is part of several measures in the Basel area that will increase train path capacities for freight transport. The construction works were largely completed in 2024, with the remaining works to be completed by the end of 2025.

20 GOTTHARD BASE TUNNEL REOPENING

On 10th August 2023, a freight train derailed in the Gotthard Base Tunnel and severely damaged the tunnel infrastructure. The tunnel was closed for months, and a replacement concept was developed for freight and passenger transport, which enabled operation with significantly reduced capacity. The tunnel has been open to traffic again without restrictions since 2nd September 2024.

21 BRIG PERFORMANCE IMPROVEMENT STATION GRIDIRON (NORTH)

A maximum of 4 tracks for freight trains with a length of 750m are to be realized at Brig station. The system is part of the expansion of the Lötschberg Base Tunnel and serves to increase the performance of the operating changeover point. As of 2025, works are on schedule and commissioning is currently planned for 2033.

22 BELLINZONA – GIUBIASCO: THIRD TRACK

On the Bellinzona - Giubiasco line, a third track will contribute to operational stability for passenger and freight transport. Due to objections, bringing into service will be postponed until the end of 2031.

PROJECTS IN ITALY

23 NEW INTERLOCKING AT MONZA STATION

A new Interlocking system has been implemented in Monza Station on the Chiasso – Milano Line with new headway of 4 minutes to Milano Greco Pirelli.

Thanks to this project, the main phase of the technological upgrade for capacity of Milano – Chiasso has been completed. The new interlocking system was put into service in June 2024.

24 UPGRADE OF TERNATE VARANO BORGHI STATION TRACK FOR FREIGHT TRAINS UP TO 740 M

A new Crossing Track for freight trains up to 740 m has been implemented in Ternate Varano Borghi Station on the Gallarate – Laveno Line. The project has increased the track length of the first track up to 750m. The operation of freight traffic on the line will be improved, allowing a new crossing point for long freight trains. The works were completed in November 2024.

25 UPGRADE OF RIVALTA SCRIVIA STATION TRACK FOR FREIGHT TRAINS UP TO 740 M

The track doubling between Rivalta Scrivia and Tortona and upgrading of the station of Rivalta Scrivia with 4 tracks for freight trains up to 740 m have been completed. It is one of the complete stages of the Third Giovi Pass and it ends the works on the Rivalta Scrivia station. Both interventions were put into service in June 2024. The end of the works on the entire project, from Genoa to Padana Plain is expected in 2027.

26 UPGRADE OF DOMODOSSOLA – MILAN LINE P/C 80-410

In summer 2024, works for the upgrading of the line Domodossola - Milan to the P/C 80-410 combined transport profile started on the section Arona – Verbania.

KEY TOPICS

IN 2024

Despite the many challenges, we jointly supported the gradual improvement of conditions for rail freight on the Corridor lines and for cross-border traffic. Here are RFC Rhine-Alpine's focus topics for 2024, with joint information from the Management Board and the Executive Board.

POLICY DEVELOPMENTS

PUBLICATION TEN-T REGULATION

On 13 June 2024 the revised TEN-T Regulation (EU)2024/1679 was published. The regulation strengthens the TEN-T network by laying down TEN-T parameters for the core, the new extended core and the comprehensive networks. For the core network, to be completed by 2030, ERTMS, 740m train length, 22.5 tonnes axle load, 100 km/h train speed for freight trains and new provisions on loading gauge need to be complied with (the latter only by 2040). The new extended core network is to be realised by 2040. By 2040, passenger railway lines of the core and extended core network must support trains travelling at speeds of 160 km/h.

In the new TEN-T Regulation European Transport Corridors (ETC) are introduced, the lines of which are synchronised with the lines of the Rail Freight Corridors. Furthermore the TEN-T Regulation strengthens the performance of the RFCs by introducing performance requirements for the traffic related to dwell time and punctuality. For rail freight corridors it becomes optional to also include passenger traffic in their scope of operations. The TEN-T Regulation does also include the merger of the Rhine - Alpine and North Sea - Mediterranean corridors into the new corridor North Sea - Rhine - Mediterranean (NSRM) by January 2026.

PROPOSAL ON CAPACITY MANAGEMENT REGULATION

The European Commission's proposal for a Regulation on the use of railway infrastructure capacity in the Single European Railway Area was published in 2023. The European Parliament adopted its position on the proposal in its first reading by April 2024. The EU Transport Council adopted its general approach on the proposal in the June 2024 Transport Council under the then Belgian EU presidency. The proposed regulation foresees a fundamental reform in the regulatory framework on capacity management to be introduced by 2029 / 2031. The reform would include more strategic and long-term planning by the IMs with new opportunities for both rail freight and rail passenger services. The new approach replaces the capacity management provisions and Corridor One-Stop-Shop of the RFCs and foresees to end the EU legal framework for RFCs by 2029. Under the Hungarian EU presidency in the 2nd half of 2024 the preparations for trilogue meetings between the Council, The European Parliament and the European Commission on this proposal have started and may be finalised in 2025.

IRG-Rail has published its comprehensive analysis on the Commission proposal. It emphasises the need for equity, transparency, non-discrimination and the preservation of the importance of the rail regulatory bodies. The role of the European Network of Rail Regulatory Bodies (ENRRB) in supervision and coordination is highlighted, along with the need for the Regulatory Bodies to have sufficient resources and to be able to make their decisions independently. Apart from that, the ENRRB should provide positions and opinions on the development of framework conditions by the European Network of Infrastructure Managers (ENIM). In addition, the paper addresses proposals for the needs of service facilities in the development of capacity planning and allocation. It suggests that the management of limited capacity based on socio-economic and environmental criteria is logical. It should also enable flexibility and adaptability in decisions.

Please see the following link for more details:

[RailCapacityReformlongpaper.pdf](#)

[RailShortPaperonCapacityproposal.pdf](#)

MINISTERIAL AGREEMENT ON RFC NSRM EXECUTIVE BOARD

At the margin of the 5 December 2024 EU Transport Council, the transport ministers of Belgium, France, Germany, Italy, Luxembourg, the Netherlands and Switzerland signed the ministerial arrangement on the establishment of the Executive Board for the new Rail Freight Corridor North Sea - Rhine - Mediterranean. The existing RFCs Rhine - Alpine and North Sea - Mediterranean will be phased out. The new Corridor will take over the operational responsibilities, like the operation of the Corridor One-Stop-Shop and activities of the revised Regulation (EU) 913/2010. The Irish Department of Transport joined the Executive Board of the new RFC as an observer.

The ministerial arrangement can be found under the [following Weblink](#)

As of 1st January 2025, the establishment of the new Executive Board is a fundamental step in taking the next steps toward making the Corridor operational, such as the decision on the corridor implementation plan.

In the course of 2024, several workshops took place at Management Board level to discuss the future organisation of the merged Corridor, which will be continued in 2025.

CAPACITY OFFER

In 2024, the WG Products and Processes held 6 meetings throughout 2024 and focused on the preparation of the PaP offer for TT2026 with changes in the amount of offered PaPs for the lines crossing Switzerland, as well as the offered parameters. Main goal was to include TCRs as far as possible in the PaP Catalogue.

On 21 June 2024, the meeting with the respective Heads of timetabling of RFC Rhine-Alpine was held as an exchange of all IMs on the deadlines of the draft and final timetable. Both the draft and final timetables were published on time in 2024.



Cargo train – Port of Rotterdam.

TEMPORARY CAPACITY RESTRICTIONS

The focus of the WG TCR of RFC Rhine-Alpine was to facilitate the early cooperation of the Infrastructure Managers (IMs) to coordinate Temporary Capacity Restrictions (TCRs) due to infrastructure works. The aim was to best coordinate relevant TCRs to reduce the impact for Railway Undertakings and keep freight trains running.

In previous years dedicated bi- and trilateral working groups were introduced, in which experts from the TCR departments of the IMs coordinate TCRs. Now, four of those working groups exist on the Corridor and will typically meet twice a year or more often if required:

- BeNeDe (Belgium, Netherlands, Germany)
- RAN (France, Germany, Luxembourg, Belgium, Switzerland)
- Rheintalbahn (Germany, Switzerland)
- ProdFer (Italy, Switzerland).

The well-established working groups not only conduct the coordination of TCRs but also inform and consult applicants on a regular basis. The reactions of the applicants highlight

the appreciation and relevance of the working groups.

Some of the achievements of the working groups in 2024 were:

- finalisation of the coordination of the Rhine Valley closure in summer 2024.
- finalisation of the coordination of the 80-weeks closure Emmerich – Oberhausen (ABS 46) from 2024 to 2026.
- SBB's coordination with RFI and DB InfraGO and involved applicants to find solutions for the restrictions in the Gotthard Base Tunnel.
- coordination of all works with any impact on the neighbouring IM(s) to minimize the impact of restricted capacity.

The WG TCR collects the results of these bi- and multilateral workings groups and summarizes and publishes the results twice a year in the form of a TCR Overview (Excel file) and Impact sheets.

INTERNATIONAL CONTINGENCY MANAGEMENT

In 2024, two ICM cases were declared on RFC Rhine-Alpine. Following an embankment fire on 28 June 2024, which damaged cables on the track system near Aachen, the first ICM was declared by DB InfraGO on 1st of July with the assistance of the corridor team. For five days, only three trains per hour could be handled. Thanks to accelerated repair measures, the line was reopened on 3 July, allowing rail traffic to return to normal.

The second ICM case occurred near Dorsfeld on the Cologne-Aachen line on 21 November 2024, when the derailment of a train severely damaged the overhead lines and tracks, resulting in a full closure. One of the consequences

of the full closure was that no ad-hoc transport services could be operated in the region for three weeks. On 23 December 2024, the line was reopened at a reduced speed.

On 15th October 2024, the Corridor invited colleagues from the Timetable department and Traffic Control to Basel for an ICM simulation to further deepen the processes of the ICM Handbook. Focus was placed on coordinating the ad hoc timetable, as problems had arisen here in previous cases. Going through the ICM steps together helped to uncover problematic differences between the countries' timetabling deadlines and concepts. This will further be addressed in another training session in 2025.



Freight train involved in the ICM case near Dorsfeld on the Aachen – Cologne line.

TRAIN PERFORMANCE MANAGEMENT

The WG TPM met four times in 2024 with regular telcos supporting the coordination within the WG.

In the meantime, at all RFC borders, except for Zelzate / Sas van Gent, bilateral working groups are active to tackle specific operational issues in a structured way, together with the RUs. The exchange with the Corridor WG TPM is a standing topic on the agenda and is ensured through the representatives of the concerned IMs.

While the main task during the past years was to carry out analysis of overall traffic and train figures based on the RNE TPM reports, and identify quality issues, the focus of the WG TPM in 2024 shifted to support RNE and the ExB initiative – namely the Quality Core Group (see below) as well as the Performance Management Group and the Data Quality Working Group at RNE level, in which members of the WG TPM were directly involved. Another highlight of the WG TPM is the development of a dashboard to display the well-known Spider Report that was fully available online at the end of 2024.

The WG TPM also discussed the future merger of RFC Rhine-Alpine and North Sea - Mediterranean.

Although successful in general aspects, the discussion on the detailed tasks and responsibilities will carry on in 2025 with the aim of the new working group to be fully functional mid-2025. The aim will be to incorporate all quality initiatives into the WG TPM and shift the focus from monitoring quality issues and supporting other initiatives, to propose quality initiatives itself.

On rail freight quality, the Executive Board established in 2023 the Quality Core Group (QCG) with the aim to develop with the stakeholders' realistic tools and instruments for improving the quality of service. In December 2023, 3 priorities were identified for follow up in 2024 (improved data sharing, standard rerouting, corridor capacity strategies). Objective is to agree on realistic projects to improve reliability with the support of all stakeholders. On the side of the IMs, BLS, representing RFC Rhine-Alpine, is directly involved in this Group along with the MB chairperson. As the subprojects were not concluded in 2024, the QCG will continue in 2025 and will present the results.



Construction works as part of the general renovation of the Riedbahn in September 2024.

ERTMS DEVELOPMENTS

ERTMS TASK FORCE

In 2024, four meetings of the ERTMS Task Force took place: two online and two in person. In view of the intended merger of the RFCs North Sea Mediterranean and Rhine-Alpine, the group of participants was extended to include representatives from France and Luxembourg.

In 2024, the objectives for the cooperation were confirmed, mainly

- Monitoring the ERTMS trackside deployment,
- Discussion on selected horizontal topics related to ERTMS,
- Exchange on vehicle equipment migration strategies and
- Various topics of cross-border cooperation.

In addition, an information event was organised for RUs, leasing companies and suppliers on ETCS deployment on the future RFC North Sea Rhine – Mediterranean (NSRM) in Zürich in October 2024 (see page 54 events). One of the conclusions of the event was that it became clear that the vehicle side requires greater attention and integration into the overall ERTMS planning. In logistical, financial, and technical terms there are fundamental challenges in equipping the vehicle fleet. In addition, special issues have to be considered that are only associated with ETCS, such as key management and ETCS System Compatibility testing. Another aggravating circumstance is the continuing dynamic nature of the related TSI, which has an impact on the vehicle equipment and thus on investment security. In this context, particularly the conversion of radio technology from GSM-R (2G) to FRMCS (5G) is seen as critical. For economic reasons, migration via GPRS is not an option for vehicle owners at least in freight transport.

At the ERTMS Task Force meeting in November 2024, the European Coordinator for ERTMS, Mathias Ruete, emphasized the particular importance of the Corridor for the European ERTMS project.

In December, the ExB confirmed the continuation of the ERTMS Experts Platform and the ERTMS Task Force in the structure of the new RFC NSRM.

Key objectives in 2025 will be the provision of the necessary documentation on the deployment and the continuation of dialogue with RUs, leasing companies and industry.

ERTMS EXPERTS PLATFORM

In the context of the future merger of RFC Rhine-Alpine and RFC North Sea-Mediterranean as stipulated by the revised TEN-T Regulation, the ERTMS Experts Platform of the IMs has extended its participants in 2024 at the request of the Task Force with representatives from SNCF Réseau and CFL.

A total of five hybrid meetings took place. Exchange was somewhat more intensive in 2024 compared to the previous year. The following topics were successfully elaborated:

- Preparation of the ERTMS Task Force meetings
- On behalf of the ministries, preparation and organization of two information events on the introduction of ERTMS on RFCs North Sea Mediterranean and Rhine-Alpine for RUs, vehicle owners and industry (1x online in May, 1x in presence in October in Zürich – see events xxx)
- Design of a map in MS Visio for the new RFC NSRM, transfer of previously separate databases and transfer of the information to the NSRM maps and creation of common views for the cross-border sections
- Monitoring and discussion of various ETCS-related topics (status Revision TSI 2023, National Implementation Plans, ESC, online key management, cross-border agreements/ arrangements, trackside approval).

In addition, the Corridor was also represented in the meetings of the EUG's RU platform in 2024, which further strengthens the exchange between IMs and vehicle owners on the requirements and development of vehicle equipment.

INFRASTRUCTURE AND CAPACITY

In 2024, the WG Infrastructure & Terminals met three times. The overview of specific infrastructure parameters, including intermodal gauge, profile and maximum train length, were revised and updated. The information on RFC Rhine-Alpine parameters in the Customer Information Platform (CIP) was kept up to date. Additionally, quarterly reports were prepared, providing insights into train volumes at the Corridor's border points.



Cargo train passing through the city.

MARKETING AND CUSTOMER RELATIONS



A freight train on the Mannheim - Frankfurt line in Germany.

CONNECTING EUROPE DAYS

The Connecting Europe Days is a key event that brings together high-level policymakers, industry leaders, and experts from across Europe to discuss the development and implementation of the TEN-T Network. The event provides a platform for showcasing major infrastructure projects, fostering collaboration, and driving forward Europe's transport, energy, and digital connectivity goals. In 2024, RFC Rhine-Alpine took part in the Connecting Europe Days, held from April 2 to 5 in Brussels. During the event, Professor Paweł Wojciechowski, who will remain the European Coordinator, introduced the new ETC North Sea – Rhine – Mediterranean, in line with the revised TEN-T Regulation. The discussions covered important topics such as strength-

ening the TEN-T governance, exploring future financing options, and the role of European Coordinators in shaping the future of transportation in Europe. These discussions were well-received by both panellists and the audience, sparking meaningful conversations about the future of transport.

Alongside the EU's presentation, RFC Rhine-Alpine together with the RFC Network also hosted a workshop on Quality Circle Operations (QCOs). During the session, updates on current initiatives aimed at improving cross-border rail freight, including developments on RFC Rhine-Alpine, were shared.

ERTMS DAY IN ZÜRICH

On 16th October, RFC Rhine-Alpine, in collaboration with RFC North Sea – Mediterranean, hosted an ERTMS information event in Zürich. Over 60 participants, including representatives from railway undertakings, leasing companies, manufacturers, infrastructure managers and ministries, attended the event. The main focus of the presentations was the roll-out planning on Corridor lines, with information prepared by the Corridor ERTMS Experts Platform. In the afternoon, attendees had the opportunity to engage in an open discussion to explore joint solutions for the challenges surrounding the further roll-out. The event was considered a success by the participants and a repeat is planned for the future.



Joint RAG meeting March 2024 – Bern.

RAILWAY UNDERTAKING ADVISORY GROUP

Matthias Stoorvogel (Lineas) stepped down as RAG speaker of RFC Rhine-Alpine. RFC Rhine-Alpine would like to thank him for his continuous support and the fruitful efforts to bring rail freight forward. As successors, Sandra Kuhlmann (DB Cargo) and Annik Jeiziner (SBB Cargo International) took over as co-speakers of the RAG of RFC Rhine-Alpine.

While the main discussions on the Corridor were also reflected in the RAG, a few topics stood out. A continuous topic of the RAG meetings in 2024 were the Temporary Capacity Restrictions, especially the newly introduced construction regime in Germany. Specifically, the total closure of the Rhine Valley and the operational handling of the corridor trains via France was highlighted as a challenging but nevertheless a best practice during the year. Due to a three-week closure at Rastatt on the Karlsruhe-Basel line and low capacity on re-routing, an innovative solution was needed to minimise the cancellation of freight trains. Using a re-routing via the Wörth (Rhine) – Lauterbourg – Strasbourg – Kehl route to rejoin the Rhine Valley Railway in Offenburg, 427 freight trains were run in the three-week span, equivalent to 16,000 truckloads.

Looking into the future, a total closure of the Rhine Valley in 2027 was again focal point of the discussion in the RAG. As a potential exam-

ple for the future, the project is now being evaluated by the participating RUs and IMs to gain insights for possible future cross-border re-routings.

A main topic was also the future merger of RFC Rhine-Alpine and RFC North Sea–Mediterranean as well as the added responsibilities of the RAG from the amended Regulation 913/2010. As a first step, the decision was taken to only hold joint RAG meetings between the two Corridors ahead of the formal merger. The RAG speakers of RFC Rhine-Alpine and Lieven Goethals and Paul Hodgson, the RAG speakers of RFC North Sea–Mediterranean, agreed to jointly represent the new RAG on the RFC NSRM during the merger process.



Colleagues of the RFC Network at the Connecting Europe Days 2024 in Brussels.

The RAG drew up a draft Memorandum of Understanding describing how the new RAG intends to work together internally as well as the exchange with the Management Board and Executive Board of the new Corridor. Additionally, a wish list has been communicated by the RUs, outlining key priorities and expectations for future cooperation and operational improvements

TERMINAL ADVISORY GROUP

As in the previous year, the TAG was organised together with RFC North Sea-Mediterranean. During the meeting in Duisburg on the 11th of September 2024, updates on the development and performance of the corridor traffic were presented and discussed. Topics presented were also the new construction regime in Germany as well as the amended regulations on the European level. A discussion of how to organize the TAG to fulfil the new role as foreseen in the Regulation 913/2010 will continue in 2025. The TAG meeting was concluded with an extensive and insightful site-visit of the Duisport premises.



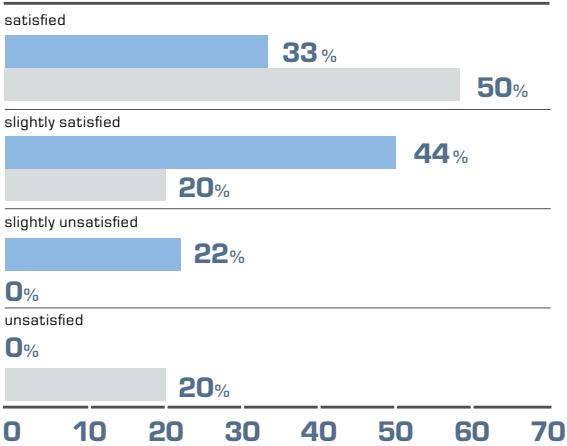
Infrastructure and terminal working group meeting in Genoa.

USER SATISFACTION SURVEY

The User Satisfaction Survey 2024 was jointly conducted with all eleven Rail Freight Corridors under the lead of RNE, using a streamlined questionnaire and optional interviews to better understand user needs. The survey was carried out between August and October 2024 and two interviews were conducted on the Corridor. The overall satisfaction rate for RFC Rhine-Alpine was 77%, a decrease from the 80% in 2023.

While the results reflect certain challenges faced over the past year, they also provide valuable insights into areas that require improvement. Users highlighted ongoing issues such as cross-border harmonization of TCRs and the need for more robust performance measures. At the same time, key strengths were recognized, including the information provided by the RFC and the attractiveness of the commercial offer.

OVERALL SATISFACTION WITH RFC RHINE-ALPINE



CUSTOMER INFORMATION PLATFORM

The Customer Information Platform (CIP) has played a key role in ensuring transparency and effective communication with customers in the rail sector. To improve the management and accessibility of infrastructure data, CIP became part of the Railway Infrastructure System (RIS) in May 2024. As part of this centralised platform developed by RNE, it enables the integration of high-quality data from RINF.

REPORT FROM THE REGULATORY BODIES

IRG-Rail's report on the monitoring of Rail Freight Corridors deals with the monitoring of the RFCs and aims to improve cooperation and the exchange of information between RBs. It describes the methods and objectives of monitoring, including the collection of quantitative KPIs and the analysis of qualitative aspects through questionnaires and customer satisfaction surveys. The paper analyses the results of the monitoring, including the utilisation of train paths, the number of conflicts and customer

satisfaction, and highlights the challenges and potential for improvement at the RFCs. It also highlights challenges such as temporary capacity restrictions, IT tools and the need for greater harmonisation. The work of monitoring will continue in 2025.

Please see the following link for more details: <https://irg-rail.eu/download/5/1077/202410IRG-RailMonitoringRailFreightCorridors-report.pdf>



Freight train entering Basel Bad station coming from Germany.

NSA WORKING GROUP REPORT

The National Safety Authorities (NSAs) of RFC Rhine-Alpine (RALP) and RFC Scandinavian-Mediterranean (ScanMed) are organised as “NSA Corridor Group”, which deals with NSA related topics on both corridors in its respective NSA Working Groups.

Since their establishment, the tasks of the NSA Working Groups have significantly changed. Originally, there was only a limited number of European legislation with regard to authorisations, which changed in particular after the introduction of the 4th Railway Package. In the past, the task of the NSA Working Groups was to coordinate the authorisation of specific cross-border vehicles or cross-border infrastructure projects between the different NSAs on the corridors. With today’s European legislation, mainly due to the 4th Railway Package and the new role of ERA as authorising entity for vehicles and for ERTMS trackside approval, the main task of the NSA Working Groups now is to coordinate national checks during the authorisation procedures conducted by ERA.

One of the two main NSA Working Groups is the Task Force Interoperability (TFI). It supports vehicle authorisation projects concerning vehicles operating on the Corridor, whose approval process is managed by ERA.

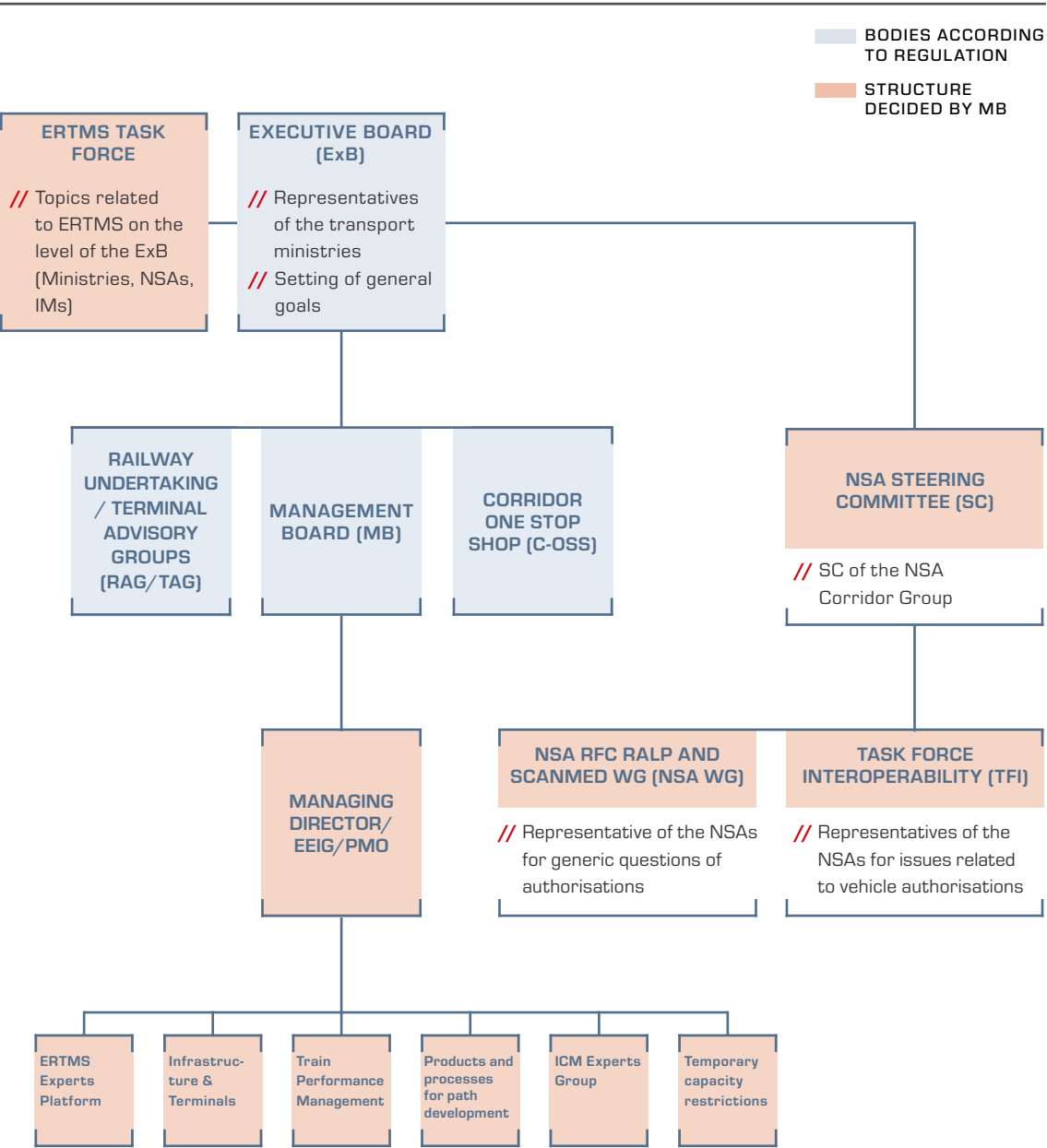
The second NSA Working Group is the NSA RFC RALP + ScanMed Working Group abbreviated as “NSA WG”. This NSA WG is dealing with generic topics in relation to the European legislation and their application, especially with respect to the subsystems Control Command and Signalling (CCS) and Operations (OPE). TFI and NSA WG cooperate, exchange, and support each other in concrete projects, if required.

At management level, above the Working Groups TFI and NSA WG there is the so-called NSA Steering Committee (SC) which governs the whole NSA Corridor Group. The NSA Corridor Group is embedded into the structure of the RFC Rhine-Alpine organisation as follows: (see graph opposite).



Aerial view of the general refurbishment of the Riedbahn in summer 2024.

ORGANISATIONAL STRUCTURE OF NSA WORKING GROUP



The following sections report on the activities of the NSA Working Groups.

(1) NATIONAL SAFETY AUTHORITY FOR THE RFC RHINE ALPINE & SCANDINAVIAN-MEDITERRANEAN WORKING GROUP (NSA WG)

The NSA WG develops a common understanding of ERTMS issues in relation to authorisation and implementation on the corridors.

Besides generic topics such as errors, interpretation and handling of legislation, etc. also other topics like operational issues are dealt with and coordinated with the responsible stakeholders. Issues identified by the group, which cannot be solved on corridor level or might have a broader impact, are reflected by NSAs via their national channels, e.g. MoTs, into the respective groups on European level (e.g. ERTMS NSA Network, or in the frame of the TSI CCS Working Party, both organised by ERA).

NSA WG ACTIVITIES IN 2024

CCS TSI AMENDMENT 2025

In 2023 the new CCS TSI (Commission Implementing Regulation (EU) 2023/1695) was adopted. After publication in the Official Journal of the European Union, it entered into force on 28 September 2023.

With the new CCS TSI 2023 an updated application guide came into force, published by ERA.

Some updates are missing in the CCS TSI 2023 and need an amendment. The NSA WG is continuously dealing with the CCS TSI drafts provided. This in order to obtain a common understand-



Realisation of the southwest curve in Meteren – Netherlands.

ing on the impact and consequences of those as well as align related comments.

The NSA WG is also continuously dealing with the update of the CCS TSI application guide. The goal is to achieve a mutual understanding of the CCS TSI and to discuss issues with regard to the implementation of this TSI.

NATIONAL RULES (NRs) RELATED TO CCS

The NSAs are continuously discussing the NTRs related to CCS that are relevant for vehicle authorisation in order to get a mutual understanding of these rules. Based on this work, trilateral discussions took place, starting with Germany, Austria and Switzerland to explore possibilities to harmonise rules that are similar in two or more countries. The results of those discussions were summarized by and shared within the NSA WG. Each member started to add their rules to the summary. Discussions on those will continue in 2025 encompassing changes within the NR's due to the CCS TSI.

CONTINUOUS EXCHANGE OF EXPERIENCE WITH ERTMS VEHICLE PROJECTS

The Dutch ETCS project on retrofitting the Dutch freight locomotive fleet to ETCS Baseline 3 and the Dutch ERTMS project coordinating the ERTMS roll-out in passenger rail traffic regularly share updates on their state of play with the NSA WG. The focus is on lessons learned and newly arising issues, e.g. concerning national technical rules and derogation procedures, the specifications published in the CCS TSI Revision 2023 as well as the procedures and responsibilities according to the 4th Railway Package.

COORDINATION OF DEVELOPMENT REVISION TSI

During the performance of the primary working group tasks, coordination also takes place with the WG TSI OPE Operational Harmonisation (OH). Due to the coherence of regulations within and between both subjects, TSI OPE and TSI CCS, and the WG members that also participate in the TSI OPE OH. This allows rapid and effective tuning to take place and leads to more homogeneous, unambiguous and coherent wording of laws and provisions.

CONTINUOUS UPDATE ON DIFFERENT EUROPEAN ERTMS RELATED WORKING GROUPS

To ensure a wide knowledge of European



Freight train on the Kaufdorf - Thurnen line in Switzerland.

developments in the field of CCS and ERTMS, we regularly provide input into the work of the following groups:

- Task force Interoperability (TFI),
- ERTMS Experts Platform RALP
- ERTMS Control Group
- Topical Working Group Train Architecture
- Operational Harmonization
- RISC and also the
- Steering Committee of RFC RALP and Scan-Med.

This is either done by members of the WG who also participate in one of those groups or after invitation by a representative of these respective groups. Thus, a broad perspective of CCS / ERTMS is achieved by the WG, helping e.g. in addressing and understanding issues, and in delivering input to the legislators to harmonise legal texts.

OBJECTIVES OF THE NSA WG FOR 2025

According to the annual work plan of the NSA WG for 2025, the group will in particular focus on the following main objectives:

GUIDANCE FOR PROJECTS

The NSA WG intends to continue guiding CCS vehicle projects with regard to derogation aspects concerning NTRs for ERTMS and Class B systems. It will also continue to identify and share best practices with the sector with respect to CCS authorisation.

CROSS-BORDER INTEROPERABILITY ISSUES

The NSA WG will tackle issues hampering cross-border traffic related to ERTMS as well as operational problems identified on the Corridor falling under the responsibility of the NSAs. In parallel NSAs also work on ERA level on a harmonised cross-border agreement template via a NSA Network subgroup.

NATIONAL RULES (NRs) RELATED TO CCS

The NSAs will continue discussing the NRs in the area of CCS that are relevant for vehicle authorisation. The purpose is to get a mutual understanding of these rules and - if possible - to promote their harmonisation.

The NSAs will exchange views and experiences in notifying national rules for trackside CCS, as ERA is now asking Member States to provide national rules on the trackside CCS subsystem, if necessary.

(2) TASK FORCE INTEROPERABILITY (TFI)

IMPACT OF 4TH RAILWAY PACKAGE ON TFI

The TFI is a Working Group aiming at facilitating the authorisation of vehicles in the networks of Austria, Germany, Italy, the Netherlands and Switzerland.

The 4th Railway Package brought some changes to the TFI. The authorisation process changed from "authorisation for placing into service" to the new concept "authorisation for placing on the market".

The legal basis for the authorisation for placing vehicles on the market (requirements, process steps, responsibilities, timeframes, and evidence) is provided by the Implementing Regulation (EU) 2018/545.

The One-Stop-Shop (OSS), an IT tool governed by ERA is to be used as instrument to file, manage and proceed all applications.

Furthermore, all authorisations for international vehicles are now issued by ERA as authorising entity in cooperation with the NSAs, that remain responsible for assessing the notified national technical rules.

For that purpose, the NSAs mentioned above signed formal cooperation agreements with ERA on the basis of Article 76 of the ERA Regulation (EU) 2016/796.

To reflect ERA's new role as authorising entity the TFI modified its composition and now includes experts from ERA and NSAs as well as Infrastructure Managers of the member states mentioned above, which all provide their specific experiences in vehicles, the authorisation pro-

cess and the interfaces between vehicles and infrastructure to the group. Thereby, the cooperation between ERA and the NSAs will be strengthened.

Beyond that, the TFI also invites representatives of vehicle manufacturers to the meetings to discuss and solve concrete issues occurring in the authorisation of vehicle projects on the Corridor.

The TFI provides an excellent platform for applicants to clarify general items with regard to the process of placing vehicles on the market and with regard to the operation of authorised vehicles in the corridor countries.

As authorising entity ERA now has an active role in the TFI and exchanges documents and information with the NSAs and other participants of the meetings.

(3) MISCELLANEOUS: CONTRIBUTION TO ERA ERTMS WORKING GROUPS

As the NSAs of RFC Rhine-Alpine also participate in the ERTMS Working Groups organised by ERA, the NSAs coordinate their views in order to achieve - if possible and appropriate - a common Corridor position in the respective Working Groups. Furthermore, ERTMS issues occurring on RFC Rhine-Alpine can be addressed to ERA, which is the system authority for ERTMS and an authorising entity in all corridor countries.



The line between Frankfurt and Darmstadt shortly before reopening in December 2024.

ANNEX:
LIST OF ABBREVIATIONS

AB	Allocation Body	NSA	National Safety Authority
ABS	Ausbaustrecke (upgraded line)	NSRM	RFC North Sea-Rhine-Mediterranean
AS	Ausbauschchnitt (Expansion section)	O/D	Origin / Destination
BSO	operational centre	PaP	Pre-arranged Path
BSS.....	Operational Control Strategy	PAS.....	Planning Approval Section
CCS	Control Command and Signalling (TSI)	PCS	Path Coordination System
CEF	Connecting Europe Facility	PfA	Planfeststellungsabschnitt (approval section)
CFL	Société Nationale des Chemins de Fer Luxembourgeois	PIM	Programme Implementation Manager
CIP	Customer Information Platform	PMO	Programme Management Office
C-OSS	Corridor One-Stop-Shop	QCG	Quality Core Group
CSS	Central Safety System	QCO	Quality Circle Operations
EEIG	European Economic Interest Grouping	RAG	Railway undertaking Advisory Group
ENIM	European Network of Infrastructure Managers	RALP.....	RFC Rhine-Alpine
ENRRB.....	European Network of Rail Regulatory Bodies	RAN.....	Rhine Ardennes North Sea
ERA	European Union Agency for Railways	RBC	Radio Bloc Centre
ERTMS	European Rail Traffic Management System	RC	Reserve Capacity
ESC	ETCS System Compatibility	RFC	Rail Freight Corridor
ESTW.....	Elektronisches Stellwerk – electronic signal box	RINF	Register of Infrastructure
ETC.....	European Transport Corridor	RIS	Railway Infrastructure System
ETCS	European Train Control System	RISC	Rail Interoperability and Safety Committee
EU	European Union	RNE	RailNetEurope
EUG	ERTMS Users Group	RU	Railway Undertaking
ExB	Executive Board	ScanMed	RFC Scandinavian-Mediterranean
FRMCS	Future Railway Mobile Communication System	SNCF Réseau.....	Société Nationale des Chemins de fer Français (French IM)
GBT	Gotthard Base Tunnel	TAG	Terminal Advisory Group
GDL.....	Gewerkschaft Deutscher Lokomotivführer (Union of German train drivers)	TCR	Temporary Capacity Restriction
GPRS	General Packet Radio Service	TEN-T	Trans-European Network – Transport
GSM-R	Global System for Mobile Communications - Railway	TEU	Twenty foot equivalent unit (standard container)
ICM	International Contingency Management	TIS	Train Information System
IRG-Rail.....	Independent Regulators’ Group - Rail	TPM	Train Performance Management
IM	Infrastructure Manager	TSI	Technical Specifications for Interoperability
IWW	Inland Waterways	TSO.....	Technical Centre
L1 LS.....	Level 1 Limited Supervision (ETCS)	TT	Timetable
LBT	Lötschberg Base Tunnel	WG	Working Group
MB	Management Board		
MoT	Ministry of Transport		
NBS	Neubaustrecke (new line)		
NR / NTR.....	National Rule / National Technical Rule		

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