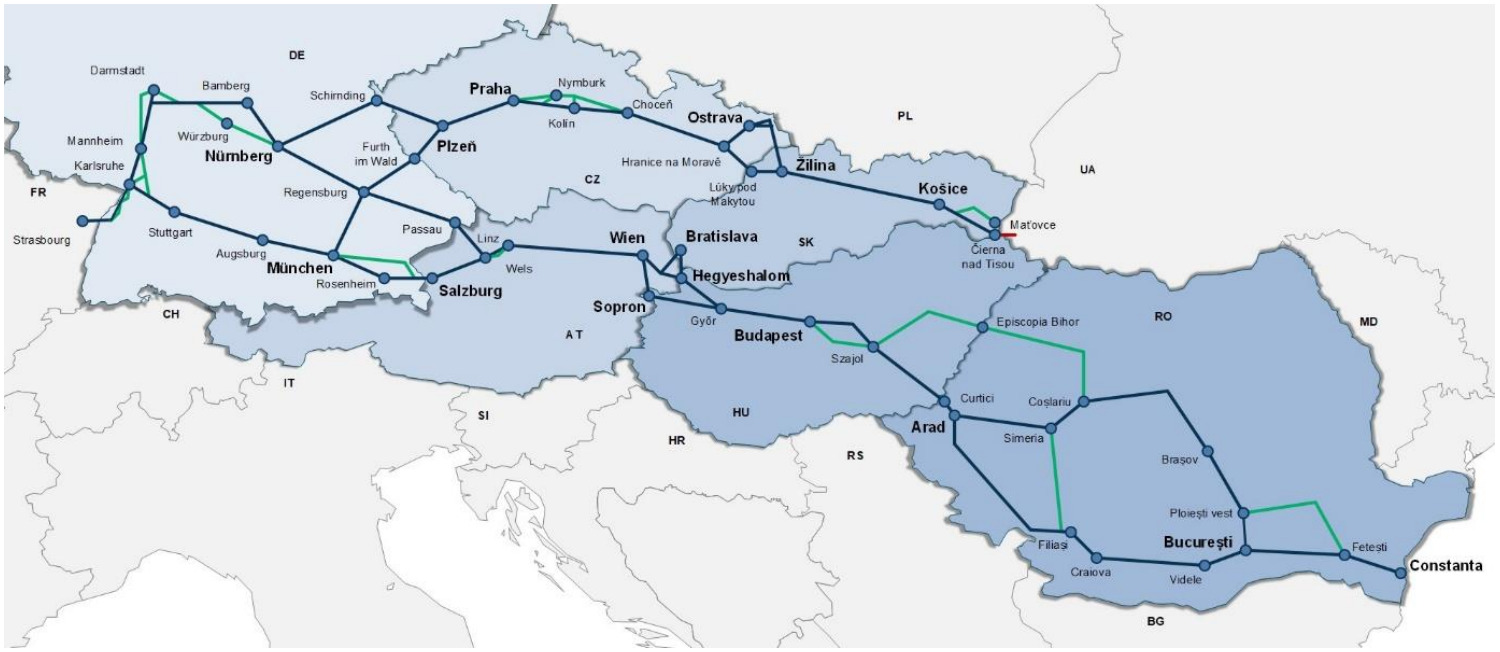
Rail Freight Corridor Rhine-Danube

International Contingency Management



Re-Routing Overview

2021 – 2022

TABLE OF CONTENT

Co-financed by the European Union
Connecting Europe Facility

Co-financed by the European Union
Connecting Europe Facility

VERSION CONTROL

VERSION	AUTHOR	DATE	CHANGES
	Zsolt Ungvári Svenja Roßkopf	29/01/2021	Creation of first draft
	Zsolt Ungvári Svenja Roßkopf	22/02/2021	Creation of second draft
1.0	Zsolt Ungvári Svenja Roßkopf	25/03/2021	Creation of final document
1.1	Svenja Roßkopf	11/08/2021	Change of RFC Coordinator contact details

Co-financed by the European Union
Connecting Europe Facility

1. General Information

1.1. Introduction

Large incidents, such as Rastatt in 2017, have showed that international measures must be implemented to be able to quickly organize traffic after a major interruption. Therefore, the European Rail Infrastructure Managers (IM) agreed on international processes described in the "Handbook for International Contingency Management". The document was adopted by the RNE General Assembly on 16th May 2020, it was endorsed by PRIME and the RU Dialogue, and acknowledged by important European sector associations.

An important new element is an international re-routing overview for the Rail Freight Corridors (RFC) and re-routing scenarios for the critical routes.

These re-routing scenarios help traffic management and timetabling with the coordination of the deviation of freight trains in the plannable phase (as soon as possible after an incident) in case of larger incidents with an international impact.

This document includes scenarios with the possible re-routing options for all critical sections with limited re-routing capacity on RFC Rhine-Danube.

Railway Undertakings (RU) are consulted on re-routing overview and re-routing scenarios, and asked to give information on restrictions from their point of view. The feedback is not part of this document. The re-routing scenarios shall also serve as a basis for the RU contingency management with the objective to increase possible use of deviation routes.

1.2. Publication and updates

The national IMs are responsible to distribute this document, or the contained information with the re-routing scenarios within their own organisation and to the RUs, which run on their network. RFC Rhine-Danube publishes the re-routing overview on the website of the corridor and organises the consultation with RUs.

The re-routing overview for RFC Rhine-Danube shall be reviewed at least in every two years based on the input given by the infrastructure managers.

1.3. Processes and communication for international disruptions

In case of international disruptions, international processes for incident management and incident communication, which shall apply during the plannable phase are described in chapter 4 of the Handbook for International Contingency Management. They do not replace national incident management procedures but complement them in order to allow for a better international cooperation.

An overview with responsibilities in time of traffic management and timetabling is included in point 4.1 of the Handbook for International Contingency Management.

In order to organize the international coordination of an international disruption, several key roles on a managerial level are defined in point 5.2 of the Handbook for International Contingency Management.

Co-financed by the European Union
Connecting Europe Facility

On RFC Rhine-Danube the “Coordinator of the RFC” role is fulfilled by the Permanent Management Office. The contact details of the concerned managers can be found below:

1. Managing Director
   - Name: Zita Koops-Árvai
   - E-Mail: koops-arvai.zita@mav.hu
   - Phone: +36 30 260 3832
2. C-OSS Manager
   - Name: Svenja Roßkopf
   - E-Mail: svenja.rosskopf@deutschebahn.com
   - Phone: +49 69 265 26779 / +49 1523 7465713

1.4. General restrictions

RUs crossing a border must take all national rules into account (see network statement). For example: language requirements for the train drivers, other signalling- and power systems.

In France attention must be paid to the profile limitations and authorisation of locomotives. Due to that RUs should be aware of limited locomotives which fulfil authorisation requirements. Furthermore, train drivers need to speak French.

1.5. Definition of infrastructure parameters

Term	Definition
Line Section	section of the normal RFC Routing
Deviation including Route	section which replaces the normal routing on the deviation route
Passengers	section used for passenger traffic
Freight	section used for freight traffic
Traction Power	catenary voltage / In B also a standard thermal locomotive and a standard electric locomotive are given
Length	maximum allowed length for a train (in meters, locomotive included)
Line Category	e.g. D4, D5…
Gauge	e.g. GB, GB1, GC, etc.
Intermodal Freight Code	PC code e.g. P/C 70/400 - SNCF Réseau uses the codes C45
Signalling	Version of ETCS (when in use) or the STM
Speed	Max speed for a freight train or maximum speed allowed on the line section (in km/h, passengers)
Weight	Maximum weight (in tons) which can be handled by one locomotive
Other Border	To be filled out if the deviation section makes use of another border point than the 'normal' line section
Miscellaneous	Useful extra information

Co-financed by the European Union
Connecting Europe Facility

Gradient	This the gradient (in per mille) of the line section
In re-routing scenarios	Is it in or not in the scenarios document
Length of Section	In km

Capacity indication is an indication of the free capacity on a deviation route in case of an incident based on current traffic volume.

1.6. Structure

The re-routing scenarios are published as follows:

- ✓ Chapter 2 – Western Part of the corridor (West of Vienna/Plzeň)
  - Overview map of the critical sections
  - Overview on the critical sections and re-routing lines
  - Detailed re-routing scenarios for each identified critical section, including a schematic map, information on the infrastructure parameters, and restrictions (if applicable).

- ✓ Chapter 3 – North-Eastern Part of the corridor (East of Hranice na Moravě)
  - Overview map of the critical sections
  - Overview on the critical sections and re-routing lines
  - Detailed re-routing scenarios for each identified critical section, including a schematic map, information on the infrastructure parameters, and restrictions (if applicable).

- ✓ Chapter 4 – Central Part of the corridor (East of Vienna till Budapest)
  - Overview map of the critical sections
  - Overview on the critical sections and re-routing lines
  - Detailed re-routing scenarios for each identified critical section, including a schematic map, information on the infrastructure parameters, and restrictions (if applicable).

- ✓ Chapter 5 – South-Eastern Part of the corridor (East of Budapest)
  - Overview map of the critical sections
  - Overview on the critical sections and re-routing lines
  - Detailed re-routing scenarios for each identified critical section, including a schematic map, information on the infrastructure parameters, and restrictions (if applicable).

Re-routing options focus on freight trains.

Co-financed by the European Union
Connecting Europe Facility

1.7. Disclaimer / Limitation of Liability

These re-routing scenarios serve for information only. Although every care has been taken by RFC Rhine-Danube to ensure the accuracy of the information published, no warranty can be given in respect of the accuracy, reliability, up-to-dateness, or completeness of this information. RFC Rhine-Danube and the involved IMs/AB (Allocation body) accept no liability for direct or indirect damages of material or immaterial nature arising from use or non-use of the published information. Moreover, all responsibility for the content of any external sites referred to by this document (links) is declined.

RFC Rhine-Danube reserves the right to alter or remove the content, in full or in part, without prior notice.

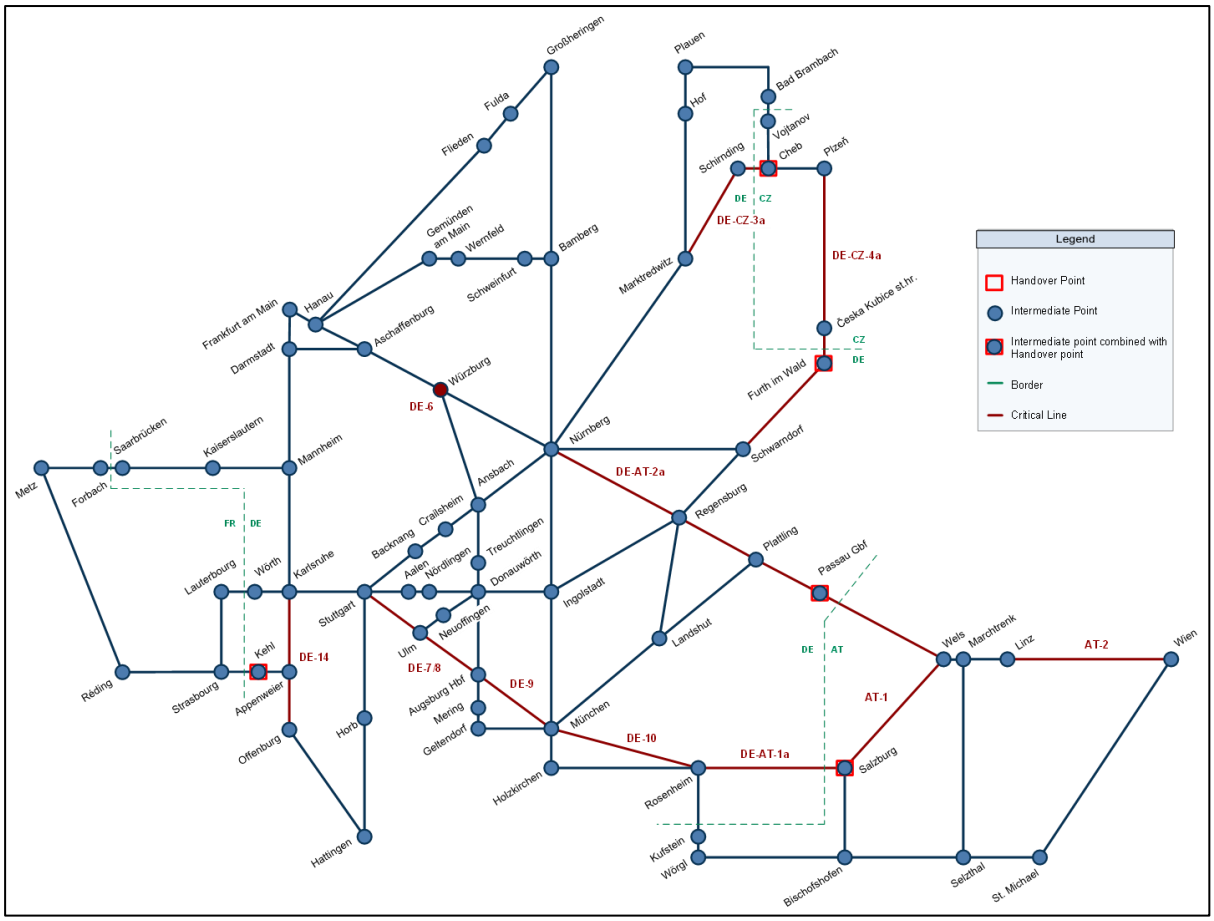
Co-financed by the European Union
Connecting Europe Facility

2. Western Part

2.1. Overview re-routing options western part

The following sections with limited re-routing possibilities are defined for the western part of RFC Rhine-Danube.

Some re-routing options can be used for various sections.



Overview Critical Lines	
Critical Line	**Description**
AT-1	Salzburg - Wels
AT-2	Linz - Wien Zvbf
DE-10	München - Rosenheim
DE-14	Karlsruhe - Offenburg
DE-6	Hub Würzburg
DE-7/8	Stuttgart - Ulm - Augsburg
DE-9	Augsburg - München
DE-AT-1a	Rosenheim - Salzburg
DE-AT-2a	Nürnberg - Passau - Wels
DE-CZ-3a	Marktredwitz - Cheb - Plzeň
DE-CZ-4a	Schwandorf - Furth im Wald - Plzeň

Co-financed by the European Union
Connecting Europe Facility

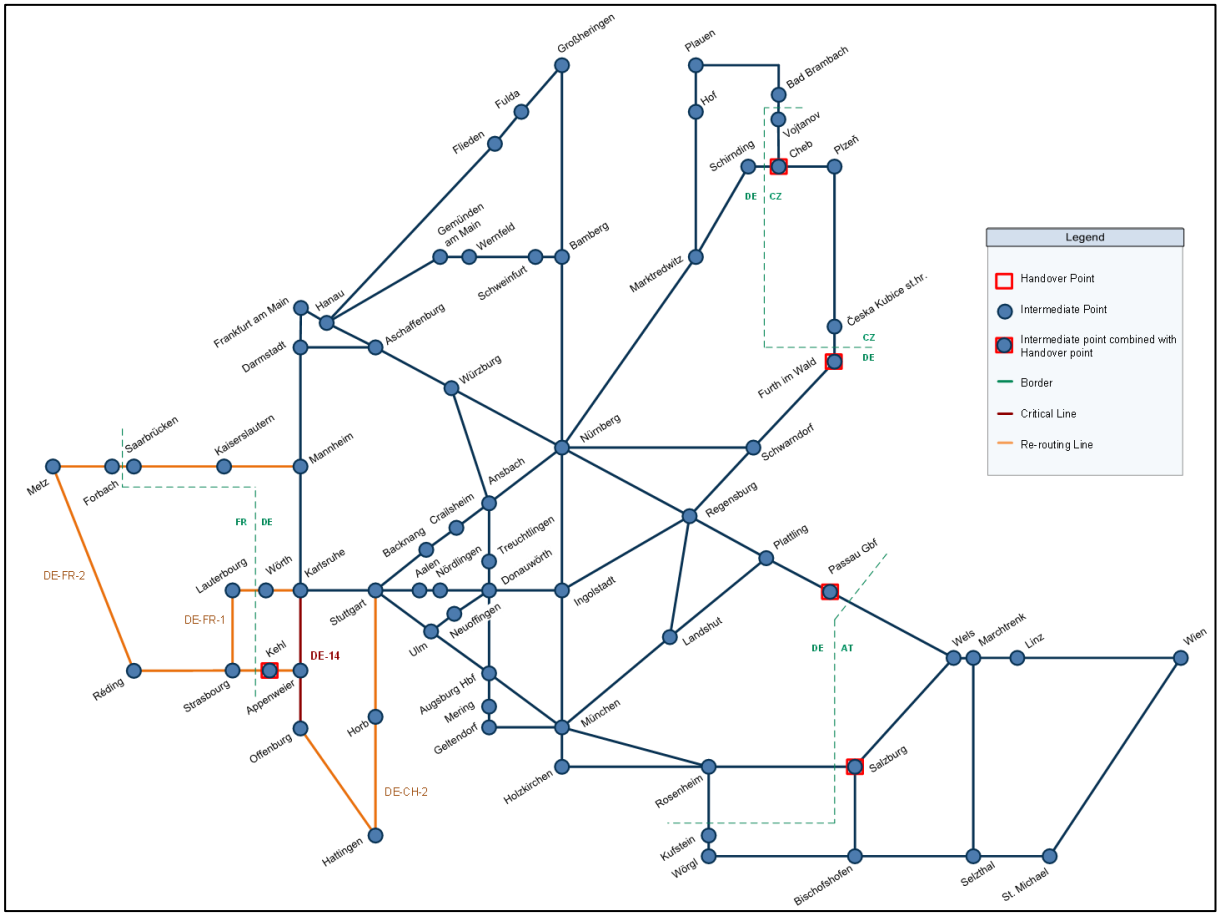
Overview Re-routing Lines	
Re-routing Line	**Description**
AT-4	Salzburg - Bischofshofen - Selzthal - Marchtrenk/Linz
DE-FR-1	Karlsruhe – Wörth – Strasbourg – Offenburg
DE-20	Gemünden – Wernfeld – Schweinfurt – Bamberg – Nürnberg
DE-21	Darmstadt – Stuttgart – Backnang – Crailsheim – Ansbach – Nürnberg
DE-22	Hanau – Flieden – Fulda – Großheringen – Bamberg – Nürnberg
DE-23	Stuttgart – Aalen – Nördlingen – Donauwörth – Augsburg
DE-24a	Stuttgart – Backnang – Crailsheim – Ansbach – Treuchtlingen – Augsburg
DE-24b	Stuttgart – Backnang – Crailsheim – Ansbach – Treuchtlingen – Ingolstadt – München
DE-24c	Stuttgart – Darmstadt – Aschaffenburg – Würzburg – Ansbach – Treuchtlingen – Augsburg
DE-25	(Ulm –) Neuoffingen – Donauwörth – Ingolstadt – München
DE-26	Augsburg - Mering - Geltendorf - München
DE-27	München – Holzkirchen – Rosenheim
DE-28	Nürnberg - Ingolstadt - Regensburg
DE-29	Nürnberg – Ingolstadt – München – Landshut – Plattling
DE-AT-1b	Nürnberg - Ingolstadt - München - Salzburg - Wels
DE-AT-1c	Regensburg - Landshut - München - Salzburg - Wels
DE-AT-1d	München - Salzburg - Wels
DE-AT-1e	München - Salzburg - Bischofshofen - St. Michael - Wien
DE-AT-2b	München – Plattling – Passau – Wels
DE-AT-2c	München - Passau - Marchtrenk - Selzthal - St. Michael - Wien
DE-AT-IT-1	Rosenheim – Kufstein – Wörgl – Bischofshofen – Salzburg
DE-CH-2	Strasbourg - Offenburg - Hattingen - Horb - Stuttgart
DE-CZ-2	Nürnberg - Marktredwitz - Hof - Plauen - Bad Brambach - Vojtanov - Cheb
DE-CZ-3b	Nürnberg - Marktredwitz - Cheb - Plzeň
DE-CZ-4b	Nürnberg - Schwandorf - Furth im Wald - Plzeň
DE-FR-1	Karlsruhe – Wörth – Strasbourg – Offenburg
DE-FR-2	Mannheim – Metz – Strasbourg – Offenburg

Co-financed by the European Union
Connecting Europe Facility

2.2. Re-routing scenario for section Karlsruhe - Offenburg

2.2.1. General Description

Schematic map including re-routing options.



When the section Karlsruhe - Offenburg (DE-14) is blocked re-routing options are:

Re-routing Line	Description
DE-FR-1	Karlsruhe – Wörth – Strasbourg – Offenburg
DE-FR-2	Mannheim – Metz – Strasbourg – Offenburg
DE-CH-2	Strasbourg - Offenburg - Hattingen - Horb - Stuttgart

Co-financed by the European Union
Connecting Europe Facility

2.2.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section DE-14: Karlsruhe - Offenburg																
DB Netz	Karlsruhe - Offenburg	x	x	15 kV, 16.7Hz AC	740	D4	2 to 4	5-10‰	GC	P/C 70/400	PZB, LZB (4000 PZB only)	Up to 250	72	2645-2805	5-10‰ (lines 4280 and 4000 run parallel)	Limited
Re-routing Option DE-FR-1: Karlsruhe – Wörth – Strasbourg – Offenburg																
DB Netz	Karlsruhe Gbf - Wörth	x	x	15 kV, 16.7Hz AC		D4	2		GA	P/C 80/410	PZB	120	11	3030-3045 (V-Tfz DB – 232/233)	Karlsruhe <-> France, change of direction in Wörth	Excellent
DB Netz	Wörth - Lauterbourg (border)	x	x	Diesel	600	D4	1		Upon request	P/C 80/410	PZB	100	11	3030-3945 (V-Tfz DB 232/233)	Karlsruhe <-> France, change of direction in Wörth	Good
SNCF Réseau	Lauterbourg border - Strasbourg	x	x	Diesel	750	D4	2	< 12,5‰	GB1	C45	No speed control system	61-100	58	D4		Good
DB Netz	Kehl - Appenweier (Offenburg)	x	x	15 kV, 16.7Hz AC	740	D4	2		Upon request	P/C 80/410	PZB	160	14			Limited
Re-routing Option DE-FR-2: Mannheim – Metz – Strasbourg – Offenburg																
DB Netz	Mannheim - Kaiserslautern - Saarbrücken - Forbach border	x	x	15 kV, 16.7Hz AC	740	D4	2 to 4	< 20‰	GA	P/C 70/400	PZB	Up to 160	135	1890-1935		Limited
SNCF Réseau	Forbach (border) - Metz	x	x	25 kV, 50 Hz AC	750	D4	2	< 12,5‰	GB1	C45	KVB	121-160	75	D4		Good
SNCF Réseau	Metz - Réding	x	x	25 kV, 50 Hz AC	750	D4	2	< 12,5‰	GB1	C45	KVB	121-160	86	D4		Limited
SNCF Réseau	Réding - Strasbourg	x	x	25 kV, 50 Hz AC	750	D4	2	< 12,5‰	GB	C45	KVB	121-160	68	D4		Limited
SNCF Réseau	Strasbourg-Offenburg	x	x	25 kV, 50 Hz AC	750	D4	2	< 12,5‰	GB1	C45	No speed control system	101-120	5	D4		Excellent
DB Netz	Kehl - Appenweier (Offenburg)	x	x	15 kV, 16.7Hz AC	740	D4	2		Upon request	P/C 80/410	PZB	160	14			Limited
Re-routing Option DE-CH-2: Strasbourg - Offenburg - Hattingen - Horb - Stuttgart																
DB Netz	Strasbourg - Offenburg - Hattingen - Horb - Stuttgart	x	x	15 kV, 16.7Hz AC	600	D4	1 to 2		Upon request	P/C 50/380	PZB	70-140	316	1060 - 1120 (E-Tfz DB 185)	Change of direction in Singen (Hohentw) and eventually in area Stuttgart	Limited

Co-financed by the European Union
Connecting Europe Facility

2.2.3. Restrictions

DE-FR-1:

- Change of direction in Wörth necessary, coming from either direction.
- Track between Wörth and Strasbourg / Hausbergen is not electrified, diesel locomotives are required.
- Single track between Wörth – Lauterbourg: No turnouts on single track line.
- Change of direction in Wörth.
- Night closure of track between 21.00 hours and 6.00 hours.
- Capacity limitations in Wörth (track length and occupancy).
- Limited capacity in Lauterbourg between 6.00 – 21.00 hours due to at grade platform access.
- Profile limitations: Intermodal Gauge C45 (mainly Strasbourg).
- Change of direction in Hausbergen.
- Capacity limitations between 6.00 – 21.00 hours because of Strasbourg passenger station.
- Capacity limitations in Kehl (no change of driver or locomotive).

DE-CH-2:

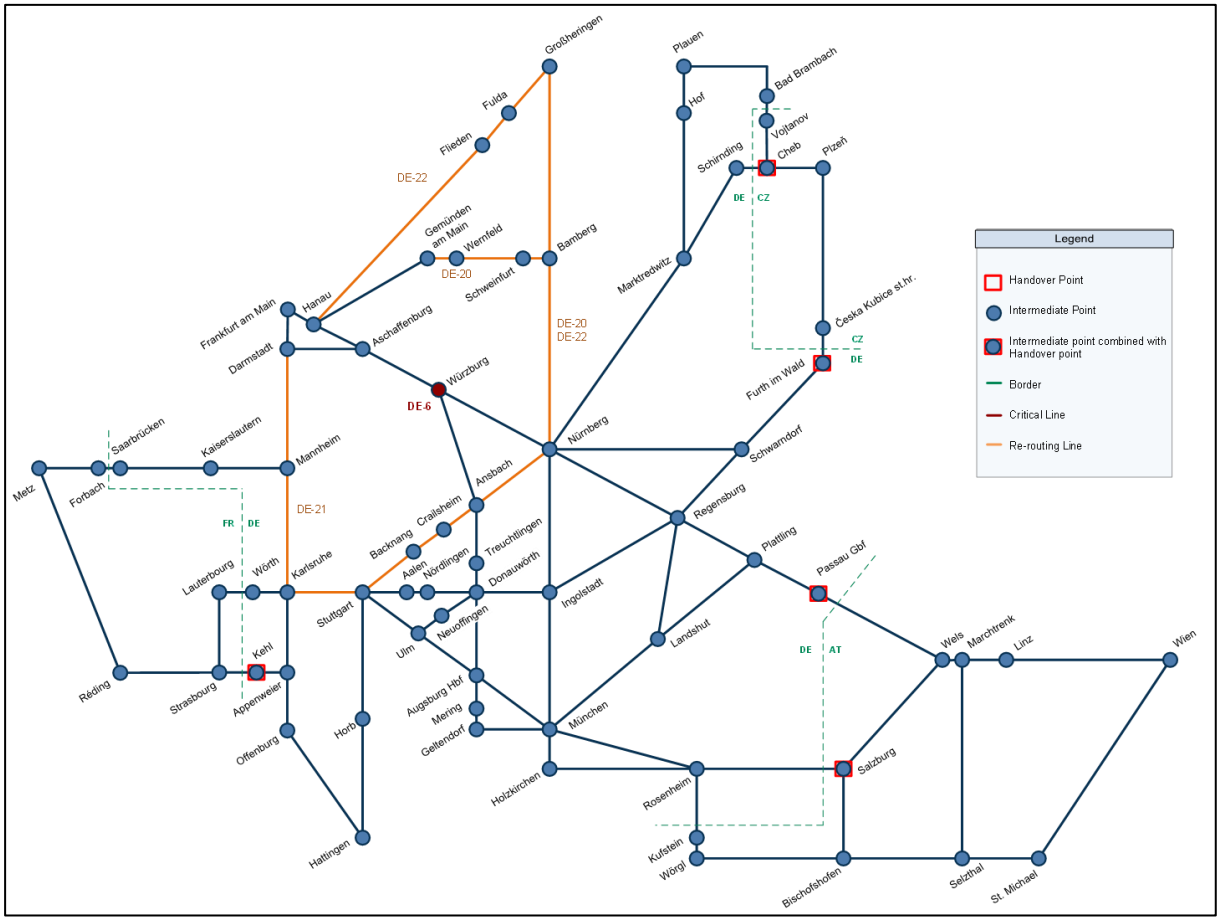
- Change of direction necessary in Singen (Hohentwiel) and eventually in area Stuttgart.
- Night closure between Offenburg and Hattingen

Co-financed by the European Union
Connecting Europe Facility

2.3. Re-routing scenario for hub Würzburg

2.3.1. General Description

Schematic map including re-routing options.



When the hub Würzburg (DE-6) is blocked re-routing options are:

Re-routing Line	Description
DE-20	Gemünden – Wernfeld – Schweinfurt – Bamberg – Nürnberg
DE-21	Darmstadt – Stuttgart – Backnang – Crailsheim – Ansbach – Nürnberg
DE-22	Hanau – Flieden – Fulda – Großheringen – Bamberg – Nürnberg

Co-financed by the European Union
Connecting Europe Facility

2.3.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section DE-6: Hub Würzburg																
DB Netz	Hub Würzburg	x	x	15 kV, 16.7Hz AC	740	D4				P/C 80/410	PZB					Limited (Day), Good (Night)
Re-routing Option DE-20: Gemünden – Wernfeld – Schweinfurt – Bamberg – Nürnberg																
DB Netz	Gemünden – Wernfeld – Schweinfurt – Bamberg – Nürnberg	x	x	15 kV, 16.7Hz AC	720	D4	2		Upon request	P/C 80/410	PZB	100	173	1820 - 2690 (E-Tfz DB 185)		Limited
Re-routing Option DE-21: Darmstadt – Stuttgart – Backnang – Crailsheim – Ansbach – Nürnberg																
DB Netz	Darmstadt – Stuttgart – Backnang – Crailsheim – Ansbach – Nürnberg	x	x	15 kV, 16.7Hz AC	720	D4	2		Upon request	P/C 80/410	PZB	120	346	1510 - 1930 (E-Tfz DB 185)	Change of direction in Kornwestheim	Limited
Re-routing Option DE-22: Hanau – Flieden – Fulda – Großheringen – Bamberg – Nürnberg																
DB Netz	Hanau – Flieden – Fulda – Großheringen – Bamberg – Nürnberg	x	x	15 kV, 16.7Hz AC	690	D4	2		Upon request	P/C 80/410	PZB	80-160	544	840 - 860 (E-Tfz DB 185)	Weight can be increased by pushing train between Großheringen and Bamberg	Limited

2.3.3. Restrictions

DE-21: Change of direction in Kornwestheim necessary.

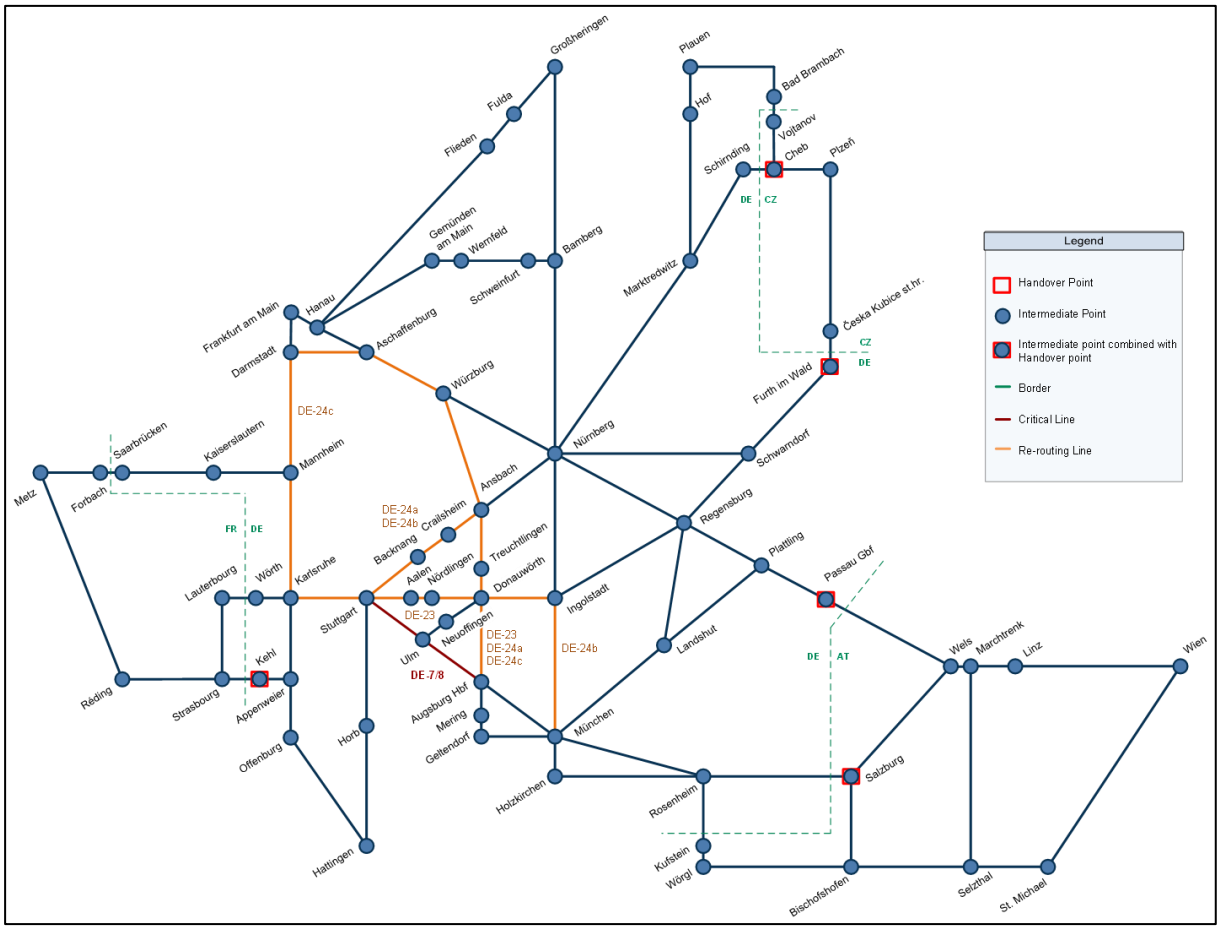
DE-22: Weight can be increased by pushing loco between Großheringen and Bamberg.

Co-financed by the European Union
Connecting Europe Facility

2.4. Re-routing scenario for section Stuttgart - Ulm - Augsburg

2.4.1. General Description

Schematic map including re-routing options.



When the section Stuttgart - Ulm – Augsburg (DE-7/8) is blocked re-routing options are:

Re-routing Line	Description
DE-23	Stuttgart – Aalen – Nördlingen – Donauwörth – Augsburg
DE-24a	Stuttgart – Backnang – Crailsheim – Ansbach – Treuchtlingen – Augsburg
DE-24b	Stuttgart – Backnang – Crailsheim – Ansbach – Treuchtlingen – Ingolstadt – München
DE-24c	Stuttgart – Darmstadt – Aschaffenburg – Würzburg – Ansbach – Treuchtlingen – Augsburg

Co-financed by the European Union
Connecting Europe Facility

2.4.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section DE-7/8: Stuttgart - Ulm - Augsburg																
DB Netz	Stuttgart - Ulm - Augsburg	x	x	15 kV, 16.7Hz AC	740	D4	2	up to 22,5‰		P/C 80/410	PZB, LZB	80 - 200	183	930 - 1385	Weight can be increased by pushing between Stuttgart and Ulm	Limited
Re-routing Option DE-23: Stuttgart – Aalen – Nördlingen – Donauwörth – Augsburg																
DB Netz	Stuttgart – Aalen – Nördlingen – Donauwörth – Augsburg	x	x	15 kV, 16.7Hz AC	560	D4	1 to 2		Upon request	P/C 70/400	PZB	120	191	1510 - 1755 (E-Tfz DB 185)		Limited
Re-routing Option DE-24a: Stuttgart – Backnang – Crailsheim – Ansbach – Treuchtlingen – Augsburg																
DB Netz	Stuttgart – Backnang – Crailsheim – Ansbach – Treuchtlingen – Augsburg	x	x	15 kV, 16.7Hz AC	720	D4	1 to 2		Upon request	P/C 80/410	PZB	160	269	1510 - 1930 (E-Tfz DB 185)		Limited
Re-routing Option DE-24b: Stuttgart – Backnang – Crailsheim – Ansbach – Treuchtlingen – Ingolstadt – München																
DB Netz	Stuttgart – Backnang – Crailsheim – Ansbach – Treuchtlingen – Ingolstadt – München	x	x	15 kV, 16.7Hz AC	720	D4	1 to 2		Upon request	P/C 80/410	PZB	160	320	1510 - 1930 (E-Tfz DB 185)		Limited
Re-routing Option DE-24c: Stuttgart – Darmstadt – Aschaffenburg – Würzburg – Ansbach – Treuchtlingen – Augsburg																
DB Netz	Stuttgart – Darmstadt – Aschaf-fenburg – Würzburg – Ansbach – Treuchtlingen – Augsburg	x	x	15 kV, 16.7Hz AC	720	D4	2		Upon request	P/C 80/410	PZB	160	507	1595 - 1620 (E-Tfz DB 185)		Excellent

2.4.3. Restrictions

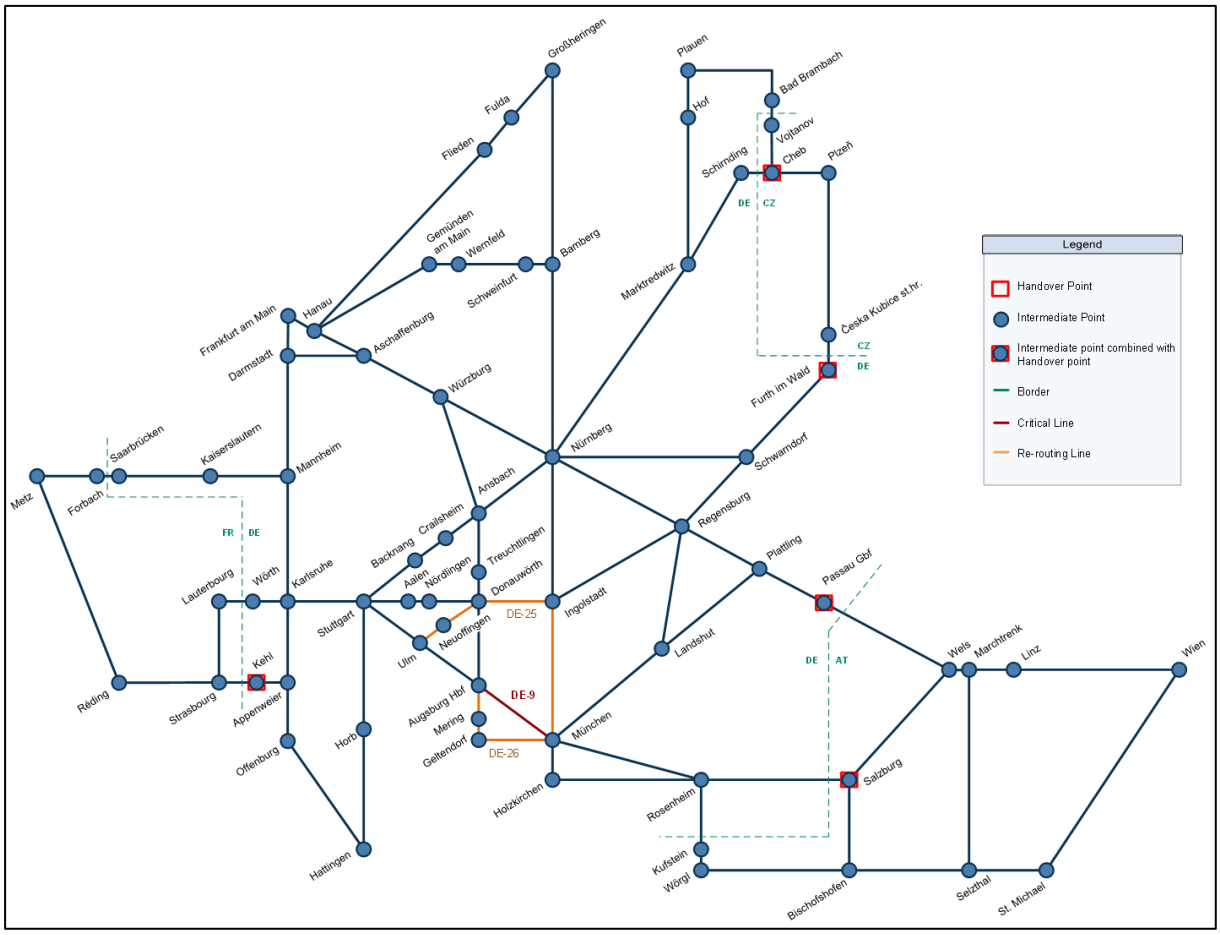
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

2.5. Re-routing scenario for section Augsburg - München

2.5.1. General Description

Schematic map including re-routing options.



When the section Augsburg – München (DE-9) is blocked re-routing options are:

Re-routing Line	Description
DE-25	(Ulm –) Neuoffingen – Donauwörth – Ingolstadt – München
DE-26	Augsburg - Mering - Geltendorf - München

Co-financed by the European Union
Connecting Europe Facility

2.5.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section DE-9: Augsburg - München																
DB Netz	Augsburg - München	x	x	15 kV, 16.7Hz AC	700	D4	2 to 4			P/C 80/410	PZB, LZB	160 or 230	54	3145 - 3125		Excellent
Re-routing Option DE-25: (Ulm –) Neuoffingen – Donauwörth – Ingolstadt – München																
DB Netz	(Ulm –) Neuoffingen – Donauwörth – Ingolstadt – München	x	x	15 kV, 16.7Hz AC	730	D4	1 to 2		Upon request	P/C 80/410	PZB	140	169	2750 - 2690 (E-Tfz DB 185)	Change of direction in Ingolstadt	Limited
Re-routing Option DE-26: Augsburg - Mering - Geltendorf - München																
DB Netz	Augsburg - Mering - Geltendorf - München	x	x	15 kV, 16.7Hz AC	480	D4	1 to 2		Upon request	P/C 80/410	PZB	100	73	2740 - 2750 (E-Tfz DB 185)		Limited

2.5.3. Restrictions

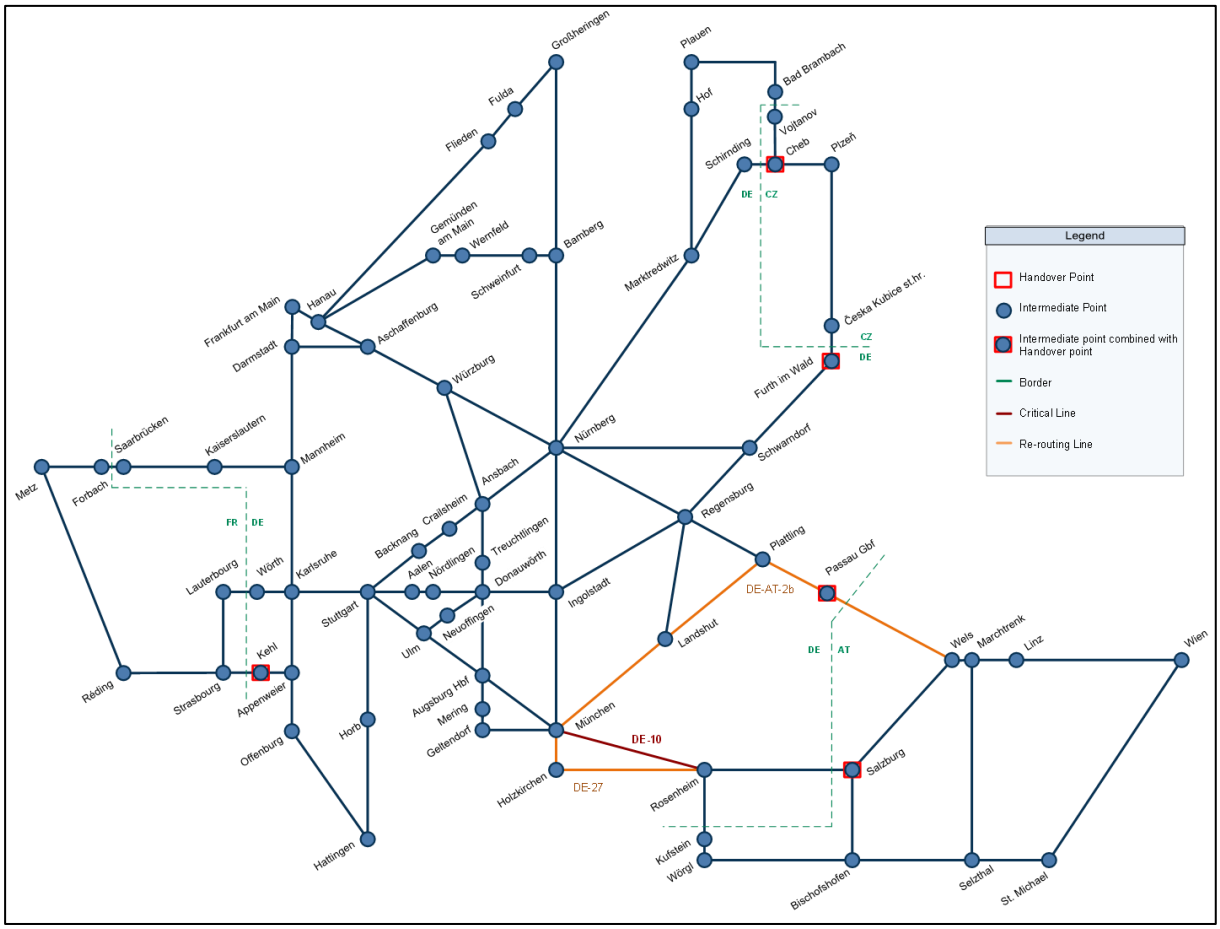
DE-25: Change of direction in Ingolstadt necessary.

Co-financed by the European Union
Connecting Europe Facility

2.6. Re-routing scenario for section München - Rosenheim

2.6.1. General Description

Schematic map including re-routing options.



When the section München – Rosenheim (DE-10) is blocked re-routing options are:

Re-routing Line	Description
DE-27	München – Holzkirchen – Rosenheim
DE-AT-2b	München – Plattling – Passau – Wels

Co-financed by the European Union
Connecting Europe Facility

2.6.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section DE-10: München - Rosenheim																
DB Netz	München - Rosenheim	x	x	15 kV, 16.7Hz AC	710	D4	2			P/C 80/410	PZB	160	67	2750 - 2550		Good
Re-routing Option DE-27: München – Holzkirchen – Rosenheim																
DB Netz	München – Holzkirchen – Rosenheim	x	x	15 kV, 16.7Hz AC	610	D4	1 to 2		Upon request	P/C 80/410	PZB	120	71	2140 - 1575 (E-Tfz DB 185)		Limited
Re-routing Option DE-AT-2b: München – Plattling – Passau – Wels																
DB Netz	München – Plattling – Passau	x	x	15 kV, 16.7Hz AC	500	D4	1 to 2		Upon request	P/C 80/410	PZB	140	180	1250 - 1250 (E-Tfz DB 185)		Limited
ÖBB Infra	Passau-Wels	x	x	15 kV, 16.7Hz AC	700	D4: 22,5t (8,0 t/m)	2	8,127‰	GA, G1, G2	P/C 80/410	PZB, ETCS	160	82	1450		

2.6.3. Restrictions

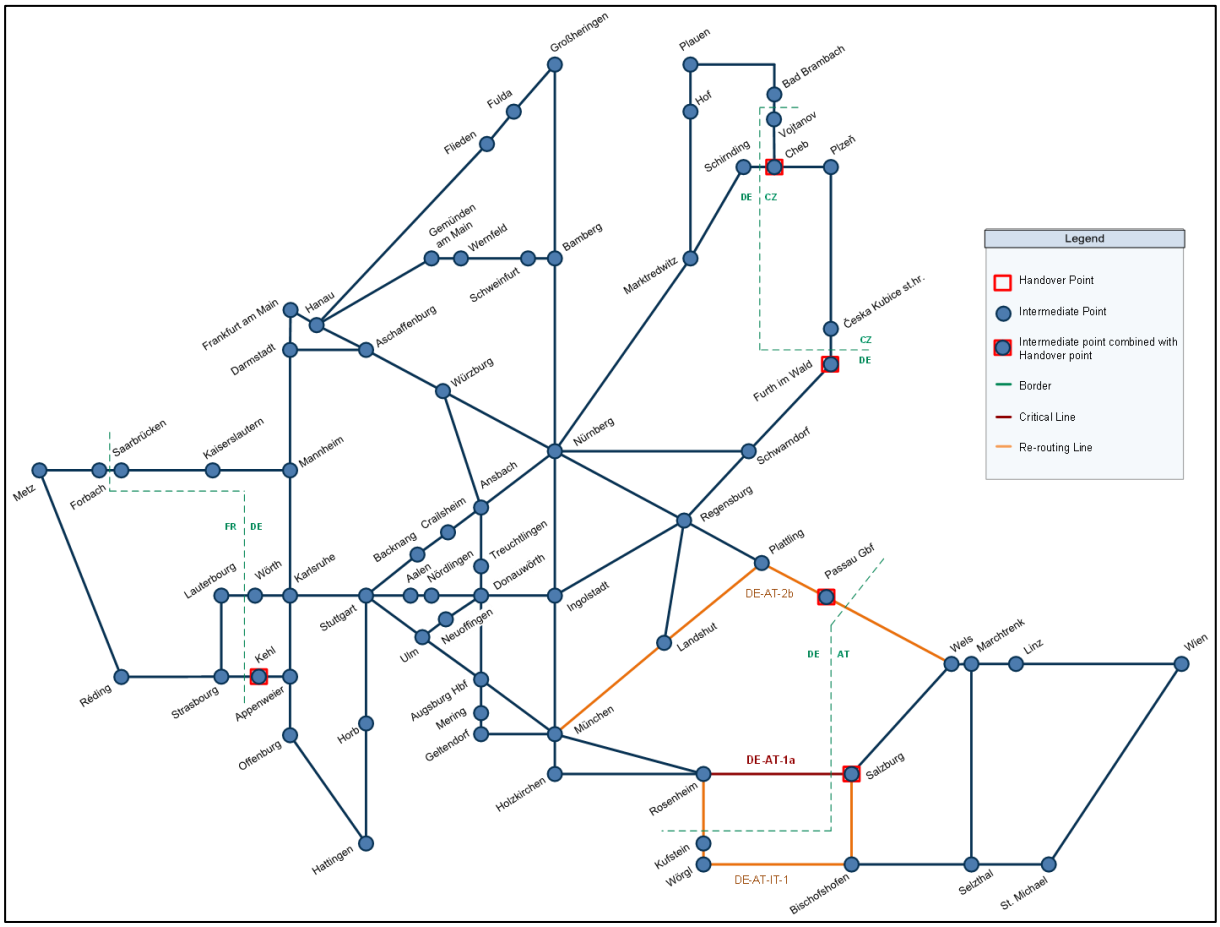
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

2.7. Re-routing scenario for section Rosenheim - Salzburg

2.7.1. General Description

Schematic map including re-routing options.



When the section Rosenheim – Salzburg (DE-AT-1a) is blocked re-routing options are:

Re-routing Line	Description
DE-AT-IT-1	Rosenheim – Kufstein – Wörgl – Bischofshofen – Salzburg
DE-AT-2b	München – Plattling – Passau – Wels

Co-financed by the European Union
Connecting Europe Facility

2.7.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section DE-AT-1a: Rosenheim - Salzburg																
DB Netz	Rosenheim - Salzburg	x	x	15 kV, 16.7Hz AC	630	D4	2			P/C 80/410	PZB	160	88	1815 - 1670		Limited (Day), Good (Night)
Re-routing Option DE-AT-IT-1: Rosenheim – Kufstein – Wörgl – Bischofshofen – Salzburg																
DB Netz	Rosenheim – Kufstein	x	x	15 kV, 16.7Hz AC	580	D4	2		Upon request	P/C 50/380	PZB	140	34	840 - 770 (E-Tfz DB 185)		Excellent
ÖBB Infra	Wörgl – Bischofshofen – Salzburg	x	x	15 kV, 16.7Hz AC	600	D4: 22,5t (8,0 t/m)	Double track	26,7‰	GA, G1, G2	P/C 50/380	PZB, ETCS	130	195	750 one loco (1216)		Good
Re-routing Option DE-AT-2b: München – Plattling – Passau – Wels																
DB Netz	München – Plattling – Passau	x	x	15 kV, 16.7Hz AC	500	D4	1 to 2		Upon request	P/C 80/410	PZB	140	180	1250 - 1250 (E-Tfz DB 185)		Limited
ÖBB Infra	Passau-Wels	x	x	15 kV, 16.7Hz AC	700	D4: 22,5t (8,0 t/m)	2	8,127‰	GA, G1, G2	P/C 80/410	PZB, ETCS	160	82	1450		

2.7.3. Restrictions

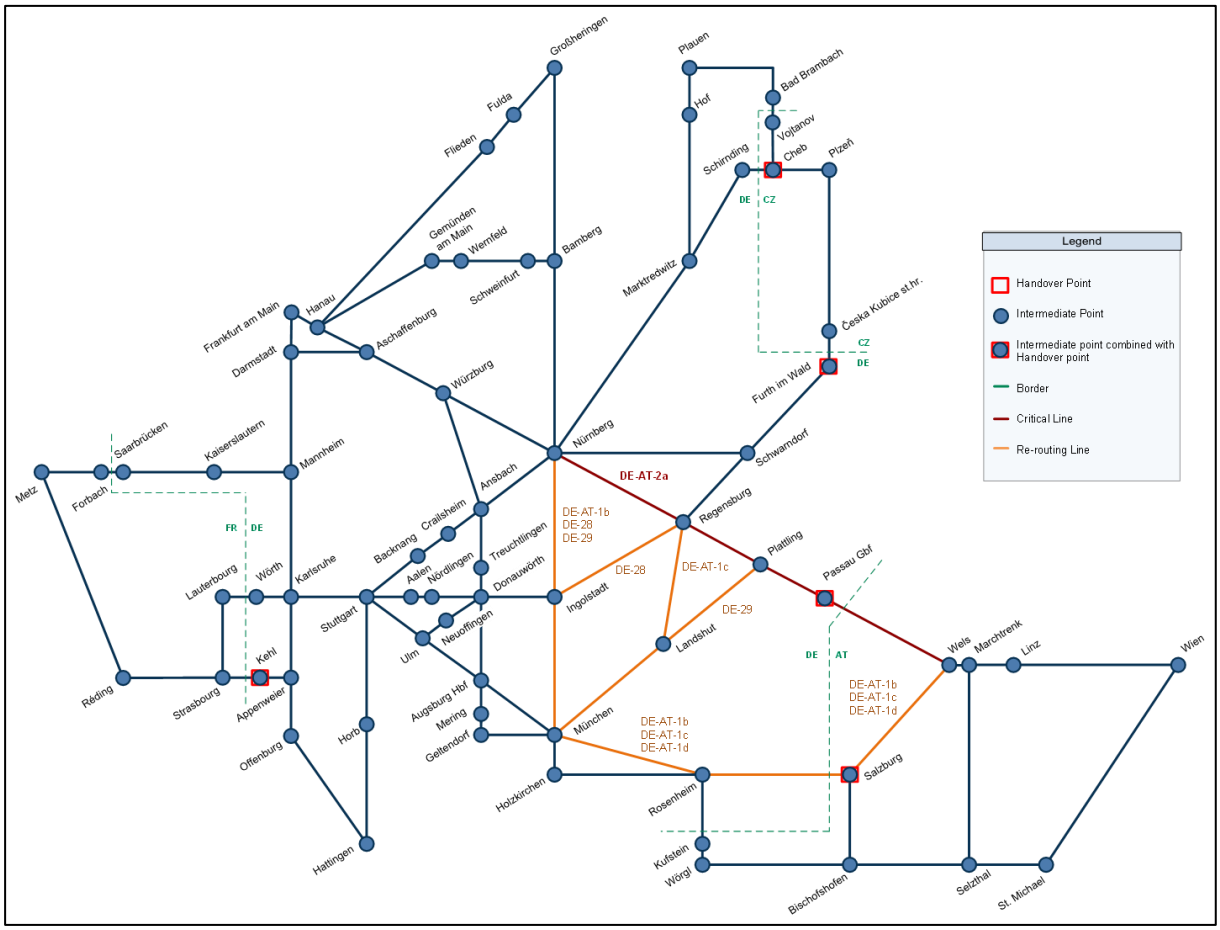
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

2.8. Re-routing scenario for section Nürnberg - Passau - Wels

2.8.1. General Description

Schematic map including re-routing options.



When the section Nürnberg - Passau – Wels (DE-AT-2a) is blocked re-routing options are:

Re-routing Line	Description
DE-AT-1d	München - Salzburg - Wels
DE-AT-1b	Nürnberg - Ingolstadt - München - Salzburg - Wels
DE-AT-1c	Regensburg - Landshut - München - Salzburg - Wels
DE-28	Nürnberg - Ingolstadt - Regensburg
DE-29	Nürnberg – Ingolstadt – München – Landshut – Plattling

Co-financed by the European Union
Connecting Europe Facility

2.8.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous / Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section DE-AT-2a: Nürnberg - Passau - Wels																
DB Netz	Nürnberg - Passau - Wels	x	x	15 kV, 16.7Hz AC	700	D4	2			P/C 80/410	PZB	160	214	1800 - 1870		Limited
ÖBB Infra	Passau-Wels	x	x	15 kV, 16.7Hz AC	700	D4: 22,5t (8,0 t/m)	2	8,127‰	GA, G1, G2	P/C 80/410	PZB, ETCS	160	82	1450		
Re-routing Option DE-AT-1d: München - Salzburg - Wels																
DB Netz	München-Salzburg	x	x	15 kV, 16.7Hz AC	610	D4: 22,5t (8,0 t/m)	2			P/C 80/410	PZB	160	141	1800	Border: Salzburg	Good
ÖBB Infra	Salzburg-Wels	x	x	15 kV, 16.7Hz AC	610	D4: 22,5t (8,0 t/m)	2	12,04‰	GA, G1, G2	P/C 80/410	PZB, LZB, ETCS	200	100	1250		
Re-routing Option DE-AT-1b: Nürnberg - Ingolstadt - München - Salzburg - Wels																
DB Netz	Nürnberg - Ingolstadt - München - Salzburg	x	x	15 kV, 16.7Hz AC	630	D4	2		Upon request	P/C 80/410	PZB	160	344	1815 - 1670 (E-Tfz DB 185)		Limited
ÖBB Infra	Salzburg-Wels	x	x	15 kV, 16.7Hz AC	610	D4: 22,5t (8,0 t/m)	2	12,04‰	GA, G1, G2	P/C 80/410	PZB, LZB, ETCS	200	100	1250		
Re-routing Option DE-AT-1c: Regensburg - Landshut - München - Salzburg - Wels																
DB Netz	Regensburg – Landshut – München – Salzburg	x	x	15 kV, 16.7Hz AC	630	D4	2		Upon request	P/C 80/410	PZB	120	287	1670 - 1670 (E-Tfz DB 185)		Limited
ÖBB Infra	Salzburg-Wels	x	x	15 kV, 16.7Hz AC	610	D4: 22,5t (8,0 t/m)	2	12,04‰	GA, G1, G2	P/C 80/410	PZB, LZB, ETCS	200	100	1250		
Re-routing Option DE-28: Nürnberg - Ingolstadt - Regensburg																
DB Netz	Nürnberg - Ingolstadt - Regensburg	x	x	15 kV, 16.7Hz AC	740	D4	1 to 2		Upon request	P/C 80/410	PZB	160	187	2520 - 2640 (E-Tfz DB 185)		Limited
Re-routing Option DE-29: Nürnberg – Ingolstadt – München – Landshut – Plattling																
DB Netz	Nürnberg – Ingolstadt – München – Landshut – Plattling	x	x	15 kV, 16.7Hz AC	629	D4	1 to 2		Upon request	P/C 80/410	PZB	120	317	2400 - 2620 (E-Tfz DB 185)		Limited

2.8.3. Restrictions

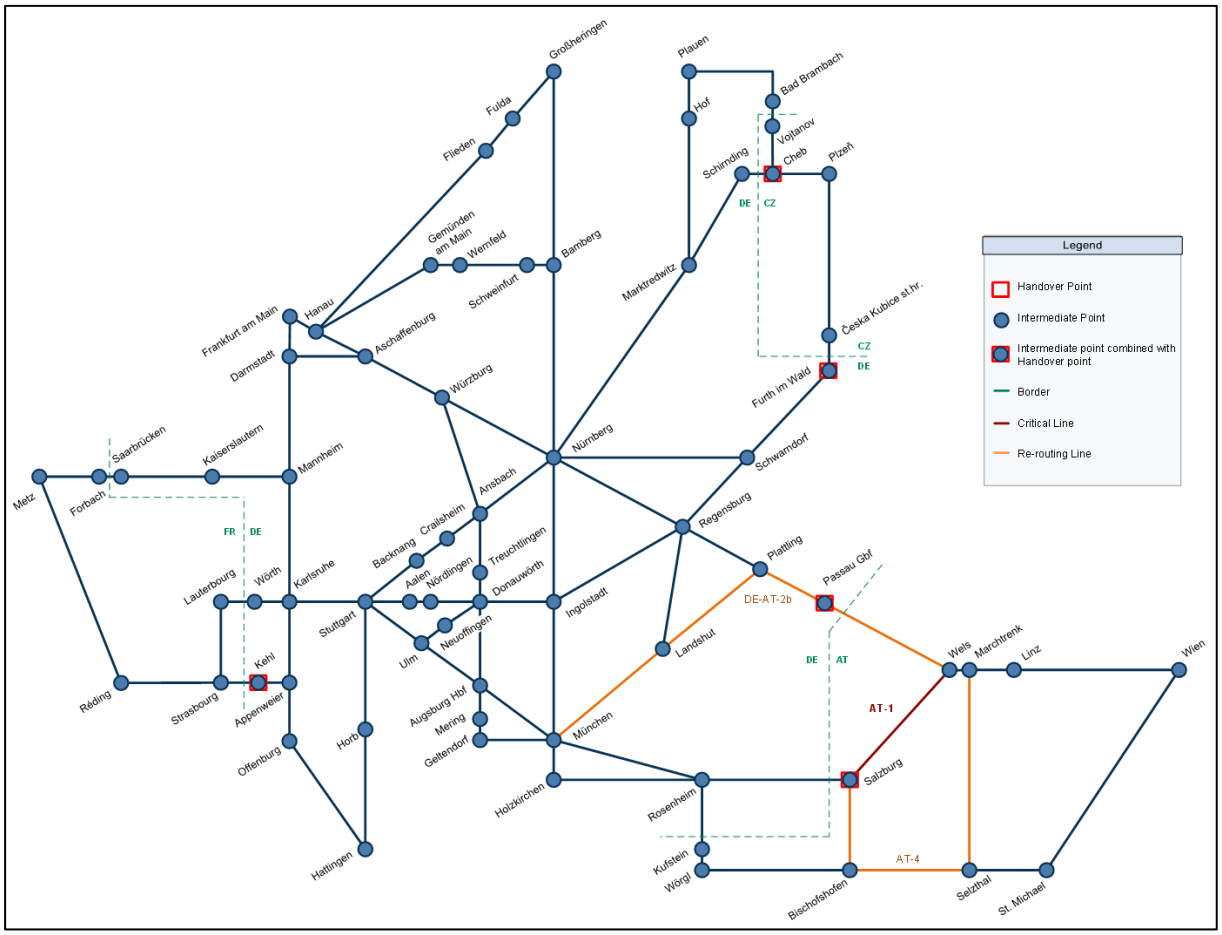
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

2.9. Re-routing scenario for section Salzburg - Wels

2.9.1. General Description

Schematic map including re-routing options.



When the section Salzburg - Wels (AT-1) is blocked re-routing options are:

Re-routing Line	Description
DE-AT-2b	München – Plattling - Passau - Wels
AT-4	Salzburg - Bischofshofen - Selzthal - Marchtrenk/Linz

Co-financed by the European Union
Connecting Europe Facility

2.9.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section AT-1: Salzburg - Wels																
ÖBB Infra	Salzburg-Wels	x	x	15 kV, 16.7Hz AC	610	D4: 22,5t (8,0 t/m)	2	12,04‰	GA, G1, G2	P/C 80/410	PZB, LZB, ETCS	200	100	1250		
Re-routing Option DE-AT-2b: München - Plattling - Passau - Wels																
DB Netz	München – Plattling – Passau	x	x	15 kV, 16.7Hz AC	500	D4	1 to 2		Upon request	P/C 80/410	PZB	140	180	1250 - 1250 (E-Tfz DB 185)		Limited
ÖBB Infra	Passau-Wels	x	x	15 kV, 16.7Hz AC	700	D4: 22,5t (8,0 t/m)	2	8,127‰	GA, G1, G2	P/C 80/410	PZB, ETCS	160	82	1450		
Re-routing Option AT-4: Salzburg - Bischofshofen - Selzthal - Marchtrenk/Linz																
ÖBB Infra	Salzburg-Bischofshofen-Selzthal	x	x	15 kV, 16.7Hz AC	610	D3: 22,5t (7,2 t/m)	2	34,99‰	GA, G1, G2	P/C 50/380	PZB	120	398	700		
ÖBB Infra	Marchtrenk-Selzthal	x	x	15 kV, 16.7Hz AC	610	D4: 22,5t (8,0 t/m)	2	34,99‰	GA, G1, G2	P/C 50/380	PZB	140	355	700		

2.9.3. Restrictions

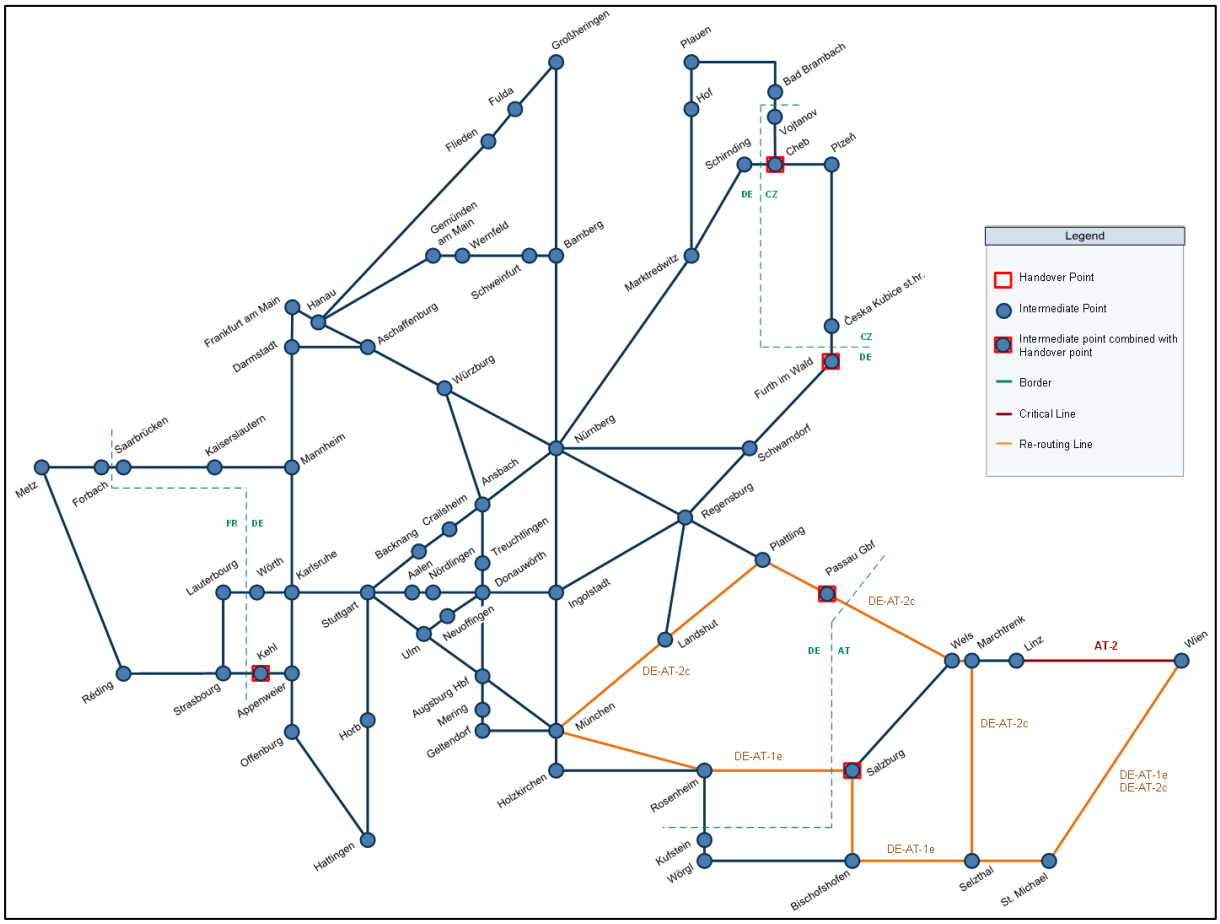
- Freight trains need to change direction in Bischofshofen
- Capacity on the section Selzthal – Linz is limited during the day

Co-financed by the European Union
Connecting Europe Facility

2.10. Re-routing scenario for section Linz - Wien Zvbf

2.10.1. General Description

Schematic map including re-routing options.



When the section Linz - Wien Zvbf (AT-2) is blocked re-routing options are:

Re-routing Line	Description
DE-AT-1e	München - Salzburg - Bischofshofen - St. Michael - Wien
DE-AT-2c	München - Passau - Marchtrenk - Selzthal - St. Michael - Wien

Co-financed by the European Union
Connecting Europe Facility

2.10.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section AT-2: Linz - Wien Zvbf																
ÖBB Infra	Linz-Wien Zvbf	x	x	15 kV, 16.7Hz AC	650	D4: 22,5t (8,0 t/m)	2	13‰	GA, G1, G2		PZB	160	182	950	Capacity middle, depends on time	
Re-routing Option DE-AT-1e: München - Salzburg - Bischofshofen - St. Michael - Wien																
DB Netz	München-Salzburg	x	x	15 kV, 16.7Hz AC	610	D4: 22,5t (8,0 t/m)	2			P/C 80/410	PZB	160	141	1800	Border: Salzburg	Good
ÖBB Infra	Salzburg-Bischofshofen-Selzthal	x	x	15 kV, 16.7Hz AC	610	D3: 22,5t (7,2 t/m)	2	34,99‰	GA, G1, G2	P/C 50/380	PZB	120	398	700		
ÖBB Infra	Selzthal-St.Michael-Wien	x	x	15 kV, 16.7Hz AC	610	D3: 22,5t (7,2 t/m)	2	34,99‰	GA, G1, G2	P/C 50/380	PZB	120	355	700		
Re-routing Option DE-AT-2c: München - Passau - Marchtrenk - Selzthal - St. Michael - Wien																
DB Netz	München – Plattling – Passau	x	x	15 kV, 16.7Hz AC	500	D4	1 to 2		Upon request	P/C 80/410	PZB	140	180	1250 - 1250 (E-Tfz DB 185)		Limited
ÖBB Infra	Marchtrenk-Selzthal	x	x	15 kV, 16.7Hz AC	610	D4: 22,5t (8,0 t/m)	2	34,99‰	GA, G1, G2	P/C 50/380	PZB	140	355	700		
ÖBB Infra	Selzthal-St.Michael-Wien	x	x	15 kV, 16.7Hz AC	610	D3: 22,5t (7,2 t/m)	2	34,99‰	GA, G1, G2	P/C 50/380	PZB	120	355	700		

2.10.3. Restrictions

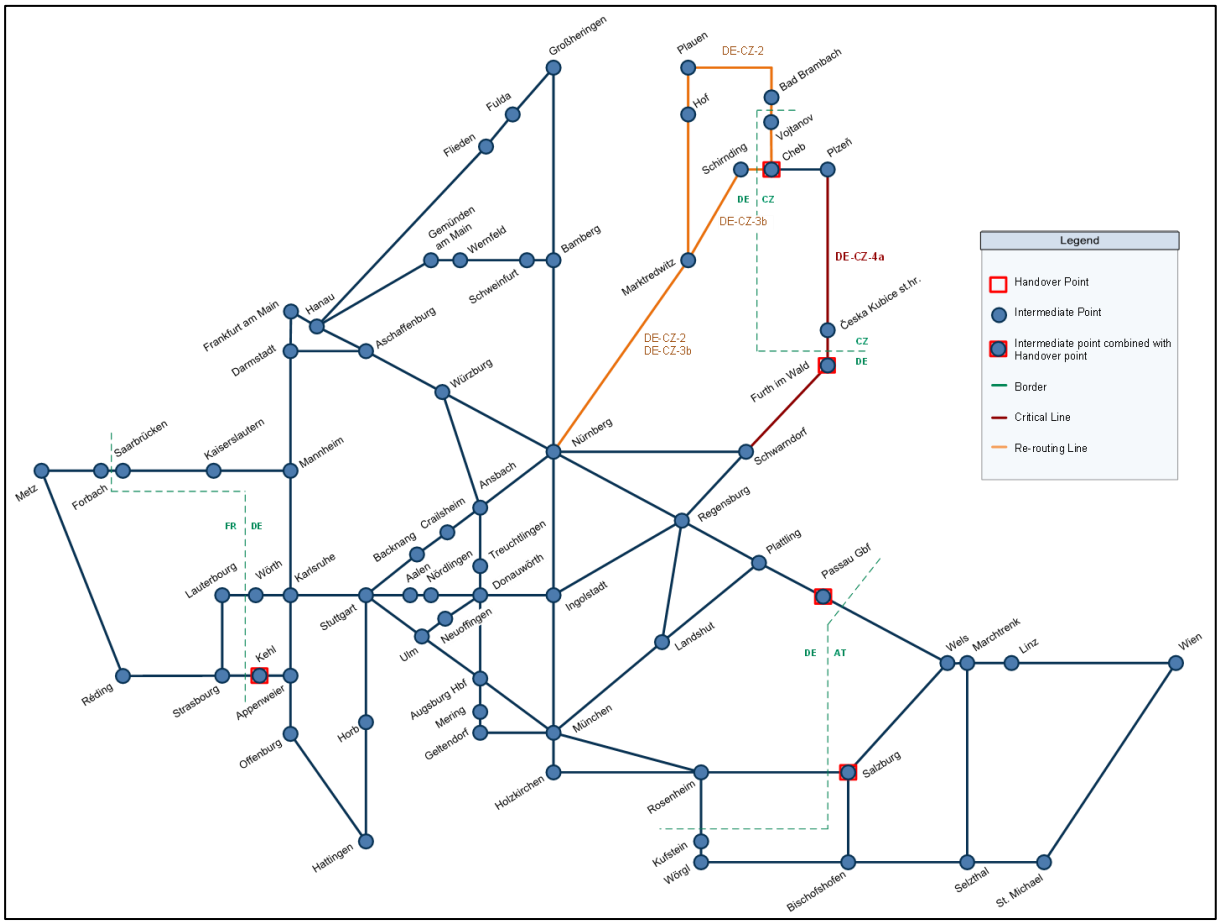
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

2.11. Re-routing scenario for section Schwandorf - Furth im Wald - Plzeň

2.11.1. General Description

Schematic map including re-routing options.



When the section Schwarndorf - Furth im Wald - Plzeň (DE-CZ-4a) is blocked re-routing options are:

Re-routing Line	Description
DE-CZ-2	Nürnberg - Marktredwitz - Hof - Plauen - Bad Brambach - Vojtanov - Cheb
DE-CZ-3b	Nürnberg - Marktredwitz - Cheb - Plzeň

Co-financed by the European Union
Connecting Europe Facility

2.11.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section DE-CZ-4a: Schwandorf - Furth im Wald - Plzeň																
DB Netz	Schwarndorf - Furth im Wald	x	x	Diesel	580	D4	1			P/C 80/410	PZB	80	173	1390 - 1520		Limited
SZCZ	Furth im Wald - Plzeň	x	x	Diesel	536	C3	1	11‰	GCZ3	P/C 78/402	LS	120	75	CZ 753.7: T 800, S 750, U 650		
Re-routing Option DE-CZ-2: Nürnberg - Marktredwitz - Hof - Plauen - Bad Brambach - Vojtanov - Cheb																
DB Netz	Nürnberg - Marktredwitz - Hof - Plauen - Bad Brambach	x	x	Diesel	570	CM4	1 to 2		Upon request	P/C 38/357	PZB	80-120	280	910 - 1240 (V-Tfz DB 232)	Change of dircetion in Plauen	Limited
SZCZ	Vojtanov (border) - Vojtanov - Cheb	x	x	Vojtanov (border) - Vojtanov Diesel; Vojtanov - Cheb 25 kV 50 Hz	600	D3	1	14‰	GC	P/C 78/402	LS	90	23	DB 232/233: T 1020, S 900		
Re-routing Option DE-CZ-3b: Nürnberg - Marktredwitz - Cheb - Plzeň																
DB Netz	Nürnberg - Marktredwitz - Schirnding - Cheb	x	x	Diesel	640	D4	1 to 2		Upon request	P/C 80/410	PZB	100	158	1840 - 1760 (V-Tfz DB 232)		Limited
SZCZ	Cheb - Plzeň	x	x	25 kV, 50 Hz AC	615	D4	1	11‰	GC	P/C 78/402	LS	140	117	DB193/CZ 383: T4 1600, S 1300, U 1100	Change of direction in Cheb	

2.11.3. Restrictions

DE-CZ-2: Change of direction in Plauen necessary.

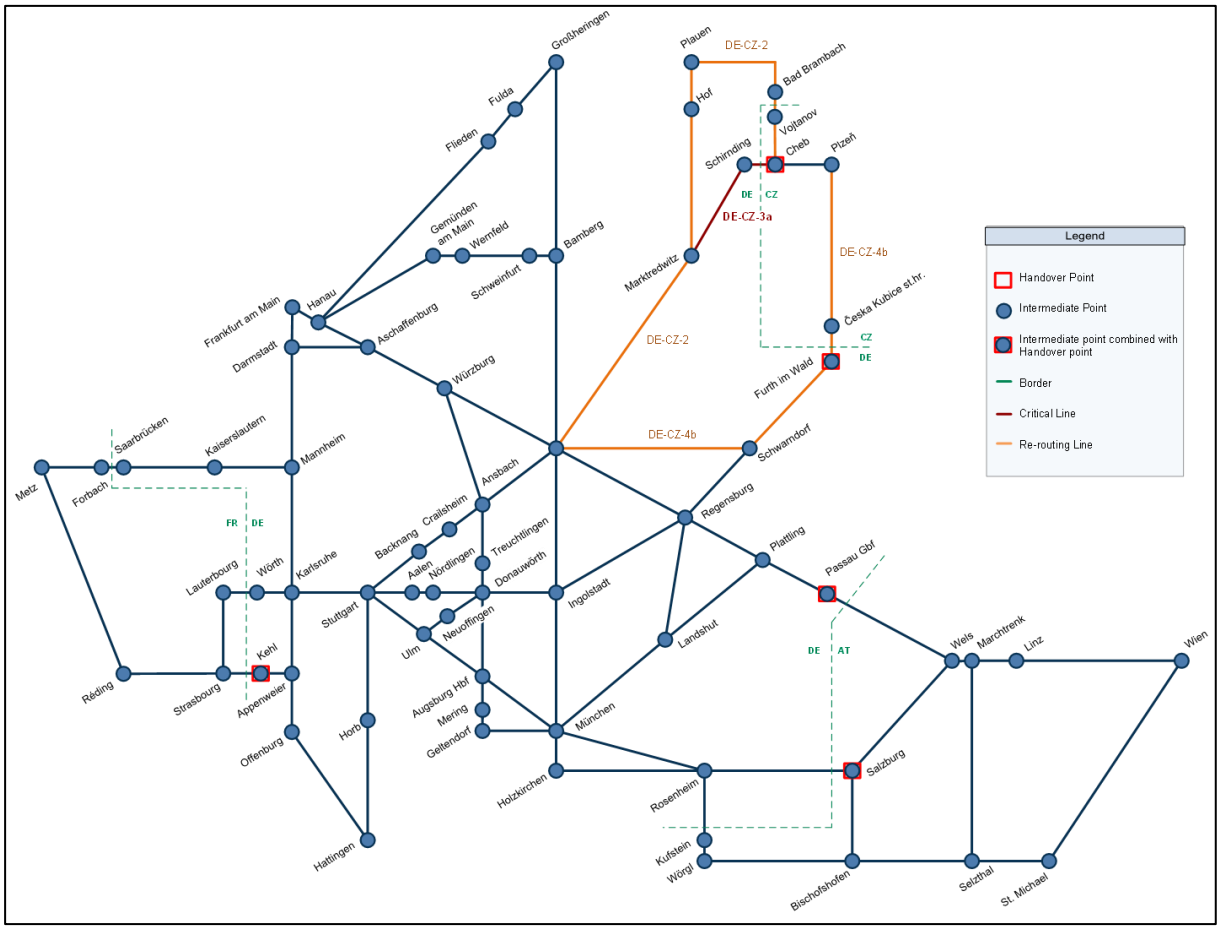
DE-CZ-3b: Change of direction in Cheb necessary.

Co-financed by the European Union
Connecting Europe Facility

2.12. Re-routing scenario for section Marktredwitz - Cheb - Plzeň

2.12.1. General Description

Schematic map including re-routing options.



When the section Marktredwitz - Cheb – Plzeň (DE-CZ-3a) is blocked re-routing options are:

Re-routing Line	Description
DE-CZ-2	Nürnberg - Marktredwitz - Hof - Plauen - Bad Brambach - Vojtanov - Cheb
DE-CZ-4b	Nürnberg - Schwandorf - Furth im Wald - Plzeň

Co-financed by the European Union
Connecting Europe Facility

2.12.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section DE-CZ-3a: Marktredwitz - Cheb - Plzeň																
DB Netz	Marktredwitz - Schirnding	x	x	Diesel	640	D4	1 to 2			P/C 80/410	PZB	100	158	1840 - 1760		Good
SZCZ	Cheb - Plzeň	x	x	25 kV, 50 Hz AC	615	D4	1	11‰	GC	P/C 78/402	LS	140	117	DB193/CZ 383: T4 1600, S 1300, U 1100	Change of direction in Cheb	
Re-routing Option DE-CZ-2: Nürnberg - Marktredwitz - Hof - Plauen - Bad Brambach - Vojtanov - Cheb																
DB Netz	Nürnberg - Marktredwitz - Hof - Plauen - Bad Brambach	x	x	Diesel	570	CM4	1 to 2		Upon request	P/C 38/357	PZB	80-120	280	910 - 1240 (V-Tfz DB 232)	Change of dircetion in Plauen	Limited
SZCZ	Vojtanov (border) - Vojtanov - Cheb	x	x	Vojtanov (border) - Vojtanov Diesel; Vojtanov - Cheb 25 kV 50 Hz	600	D3	1	14‰	GC	P/C 78/402	LS	90	23	DB 232/233: T 1020, S 900		
Re-routing Option DE-CZ-4b: Nürnberg - Schwandorf - Furth im Wald - Plzeň																
DB Netz	Nürnberg - Schwandorf - Furth im Wald	x	x	Diesel	580	D4	1		Upon request	P/C 80/410	PZB	80	173	1390 - 1520 (V-Tfz DB 232)		Limited
SZCZ	Furth im Wald - Plzeň	x	x	Diesel	536	C3	1	11‰	GCZ3	P/C 78/402	LS	120	75	CZ 753.7: T 800, S 750, U 650		

2.12.1. Restrictions

DE-CZ-2: Change of direction in Plauen necessary.

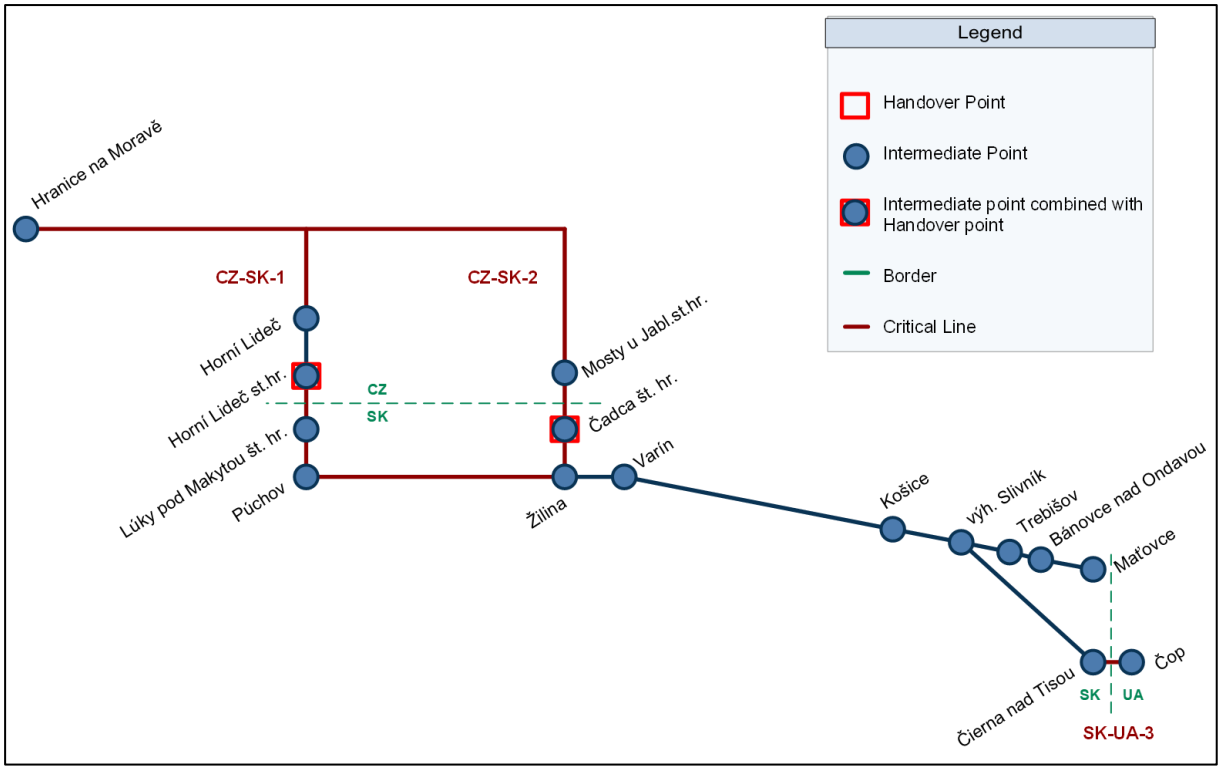
Co-financed by the European Union
Connecting Europe Facility

3. North-Eastern Part

3.1. Overview re-routing options north-eastern part

The following sections with limited re-routing possibilities are defined for the north-eastern part of RFC Rhine-Danube.

Some re-routing options can be used for various sections.



Overview Critical Lines	
Critical Line	**Description**
CZ-SK-1	Hranice na Moravě - Horní Lideč - Žilina
CZ-SK-2	Hranice na Moravě - Čadca - Žilina
SK-UA-3	Čierna nad Tisou - Čop

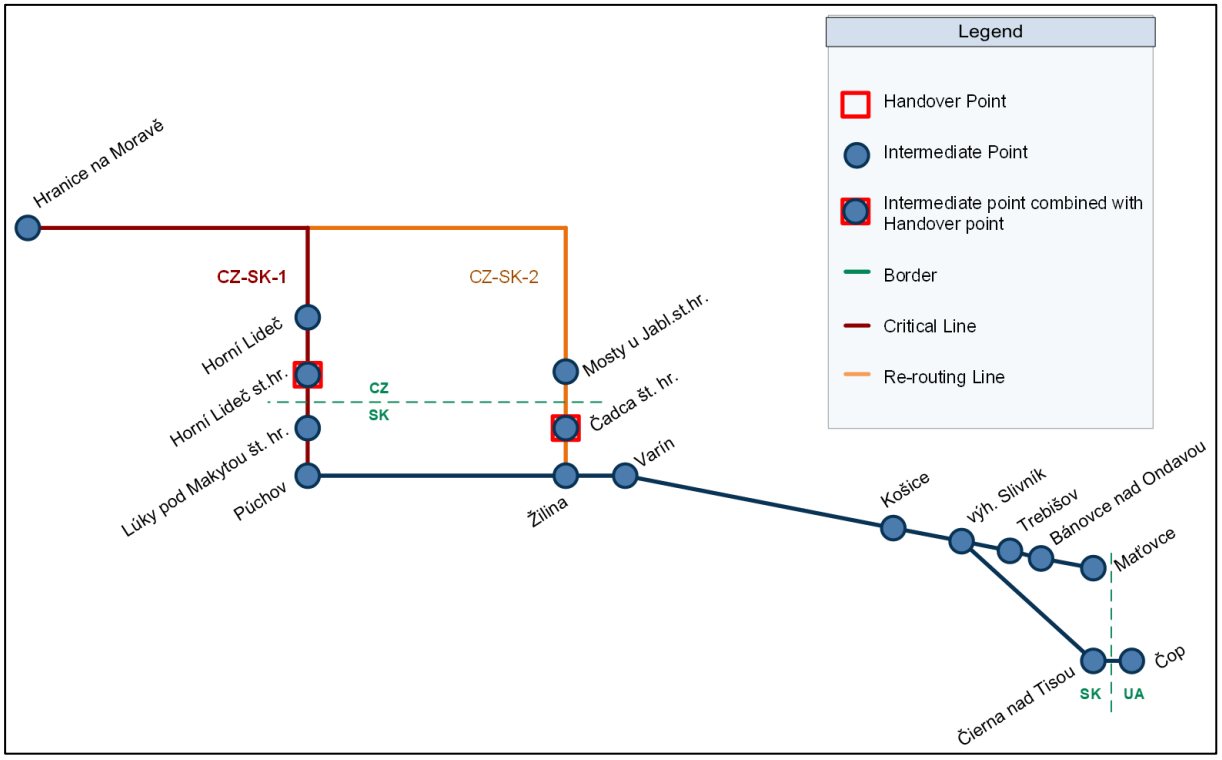
Overview Re-routing Lines	
Re-routing Line	**Description**
CZ-SK-1	Hranice na Moravě - Horní Lideč - Žilina
CZ-SK-2	Hranice na Moravě - Čadca - Žilina
SK-1	Košice - Bánovce nad Ondavou - Maťovce

Co-financed by the European Union
Connecting Europe Facility

3.2. Re-routing scenario for section Hranice na Moravě - Horní Lideč - Žilina

3.2.1. General Description

Schematic map including re-routing options.



When the section Hranice na Moravě - Horní Lideč – Žilina (CZ-SK-1) is blocked re-routing options are:

Re-routing Line	Description
CZ-SK-2	Hranice na Moravě - Čadca - Žilina

Co-financed by the European Union
Connecting Europe Facility

3.2.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section CZ-SK-1: Hranice na Moravě - Horní Lideč - Žilina																
SZCZ	Hranice na Moravě - Horní Lideč	x	x	3 kV DC	645	D4	2	18‰	Z-GCZ3	P/C 67/391	LS	160	71	193: T4 1300, S 1050, U 900		
ŽSR	Horní Lideč - Lúky p. Makytou	x	x	DC 3 kV	645	D4	2	18‰	GB/0-VM	P/C 70/400	Level STM	90	14	max. 2800		Excellent
ŽSR	Lúky p. Makytou - Púchov	x	x	DC 3 kV; 25 kV, 50 Hz AC	625	D4	2	18‰	GB/1-VM	P/C 70/400	Level STM	90	28	max. 2800		Excellent
ŽSR	Lúky p. Makytou - (Púchov) - Žilina	x	x	DC 3 kV	750	D4	2	7‰	GB/1-VM	P/C 70/400	Level 0, Level 1 - ETCS 1	120-160	43	max. 3800		Excellent
Re-routing Option CZ-SK-2: Hranice na Moravě - Čadca - Žilina																
SZCZ	Hranice na Moravě - Mosty u Jablunkova	x	x	3 kV DC	650	D4	2	16‰	Z-GCZ3	P/C 80/410	LS	160	118	193: T4 1300, S 1050, U 900		
ŽSR	Mosty u Jablunkova - Čadca	x	x	DC 3 kV	650	D4	2	16‰	GB/1-VM	P/C 70/400	Level STM	80 - 100	10	max. 3800		Excellent
ŽSR	Čadca - Žilina	x	x	DC 3 kV	700	D4	2	16‰	GB/1-VM	P/C 70/400	Level STM, Level 2 - ETCS 2	100-140	30	max. 3800		Excellent

3.2.3. Restrictions

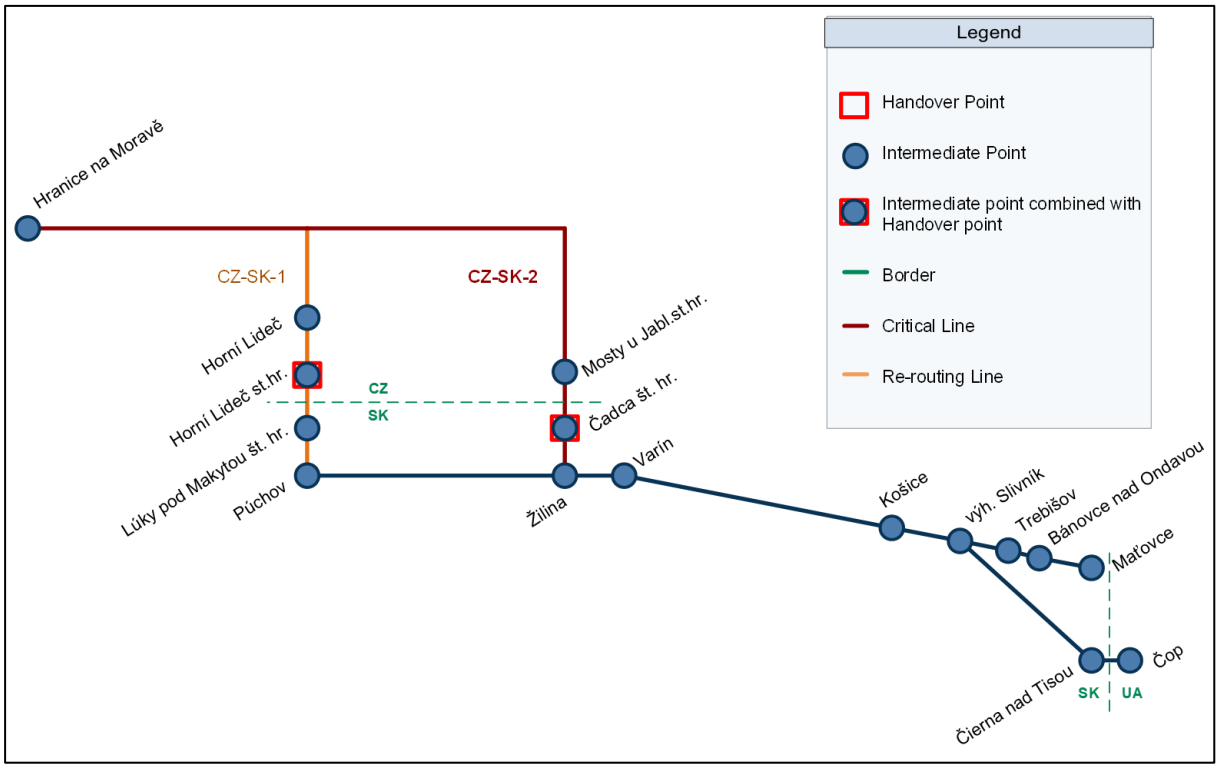
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

3.3. Re-routing scenario for section Hranice na Moravě - Čadca - Žilina

3.3.1. General Description

Schematic map including re-routing options.



When the section Hranice na Moravě - Čadca – Žilina (CZ-SK-2) is blocked re-routing options are:

Re-routing Line	Description
CZ-SK-1	Hranice na Moravě - Horní Lideč - Žilina

Co-financed by the European Union
Connecting Europe Facility

3.3.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section CZ-SK-2: Hranice na Moravě - Čadca - Žilina																
SZCZ	Hranice na Moravě - Mosty u Jablunkova	x	x	3 kV DC	650	D4	2	16‰	Z-GCZ3	P/C 80/410	LS	160	118	193: T4 1300, S 1050, U 900		
ŽSR	Mosty u Jablunkova - Čadca	x	x	DC 3 kV	650	D4	2	16‰	GB/1-VM	P/C 70/400	Level STM	80 - 100	10	max. 3800		Excellent
ŽSR	Čadca - Žilina	x	x	DC 3 kV	700	D4	2	16‰	GB/1-VM	P/C 70/400	Level STM, Level 2 - ETCS 2	100-140	30	max. 3800		Excellent
Re-routing Option CZ-SK-1: Hranice na Moravě - Horní Lideč - Žilina																
SZCZ	Hranice na Moravě - Horní Lideč	x	x	3 kV DC	645	D4	2	18‰	Z-GCZ3	P/C 67/391	LS	160	71	193: T4 1300, S 1050, U 900		
ŽSR	Horní Lideč - Lúky p. Makytou	x	x	DC 3 kV	645	D4	2	18‰	GB/0-VM	P/C 70/400	Level STM	90	14	max. 2800		Excellent
ŽSR	Lúky p. Makytou - Púchov	x	x	DC 3 kV; 25 kV, 50 Hz AC	625	D4	2	18‰	GB/1-VM	P/C 70/400	Level STM	90	28	max. 2800		Excellent
ŽSR	Lúky p. Makytou - (Púchov) - Žilina	x	x	DC 3 kV	750	D4	2	7‰	GB/1-VM	P/C 70/400	Level 0, Level 1 - ETCS 1	120-160	43	max. 3800		Excellent

3.3.3. Restrictions

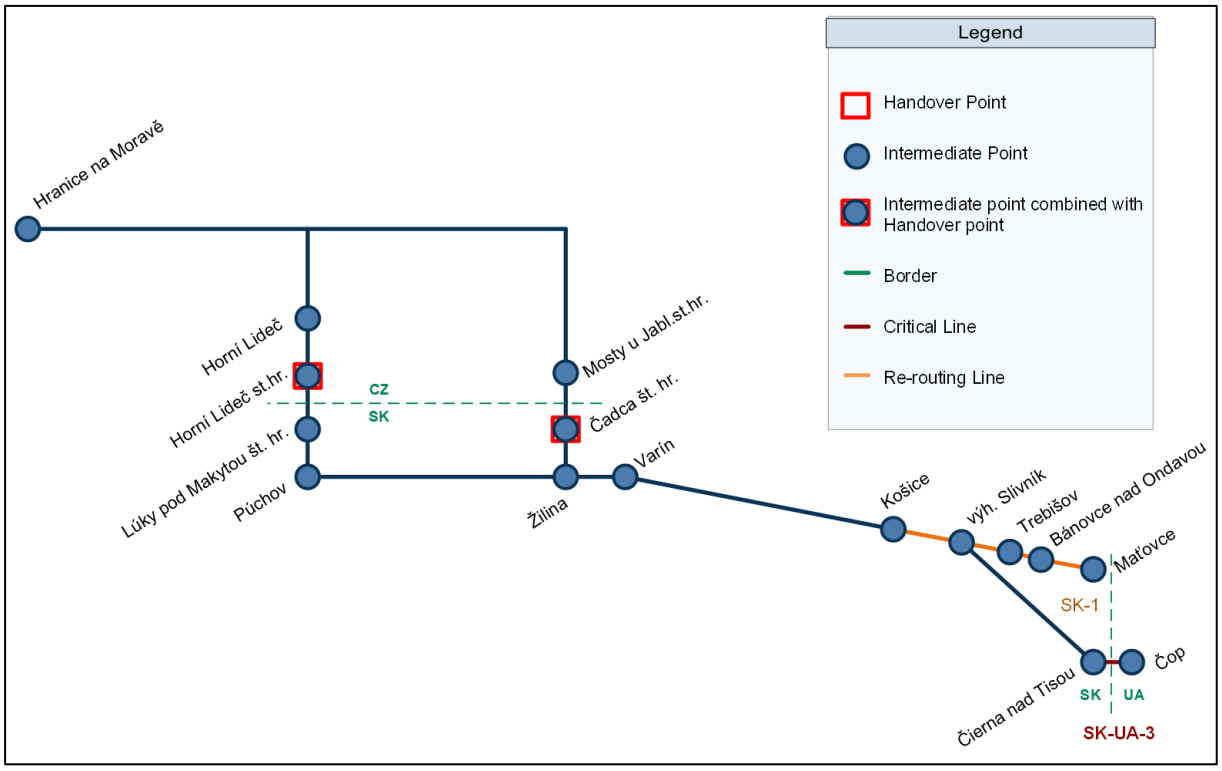
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

3.4. Re-routing scenario for section Čierna nad Tisou - Čop

3.4.1. General Description

Schematic map including re-routing options.



When the section Čierna nad Tisou - Čop (SK-UA-3) is blocked re-routing options are:

Re-routing Line	Description
SK-1	Košice - Bánovce nad Ondavou - Maťovce

Co-financed by the European Union
Connecting Europe Facility

3.4.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section SK-UA-3: Čierna nad Tisou - Čop																
ŽSR	Čierna nad Tisou - Čop	x	x	DC 3 kV	700/670	D4	1	3‰	GB/1-VM	P/C 70/400	Level 0	50	5	max. 4200		Good
Re-routing Option SK-1: Košice - Bánovce nad Ondavou - Maťovce																
ŽSR	Košice - výh. Slivník	x	x	DC 3 kV	700/670	D4	2	18‰	GB/1-VM	P/C 70/400	Level STM	100	37	max. 4200		Excellent
ŽSR	výh. Slivník - Trebišov	x	x	DC 3 kV	680	D4	1	15‰	GB/1-VM	P/C 70/400	Level 0	80	16	max. 3800		Excellent
ŽSR	Trebišov - Bánovce nad Ondavou	x	x	DC 3 kV	620	D4	1	8‰	GB/0-VM	P/C 70/400	Level 0	100	11	max. 3800		Excellent
ŽSR	Bánovce nad Ondavou - Maťovce	x	x	DC 3 kV	655	D4	1	9‰	GB/1-VM	P/C 70/400	Level 0	70-80	29	max. 3800		Excellent

3.4.3. Restrictions

No specific (other) restrictions given. See for the infrastructure characteristics the table above.

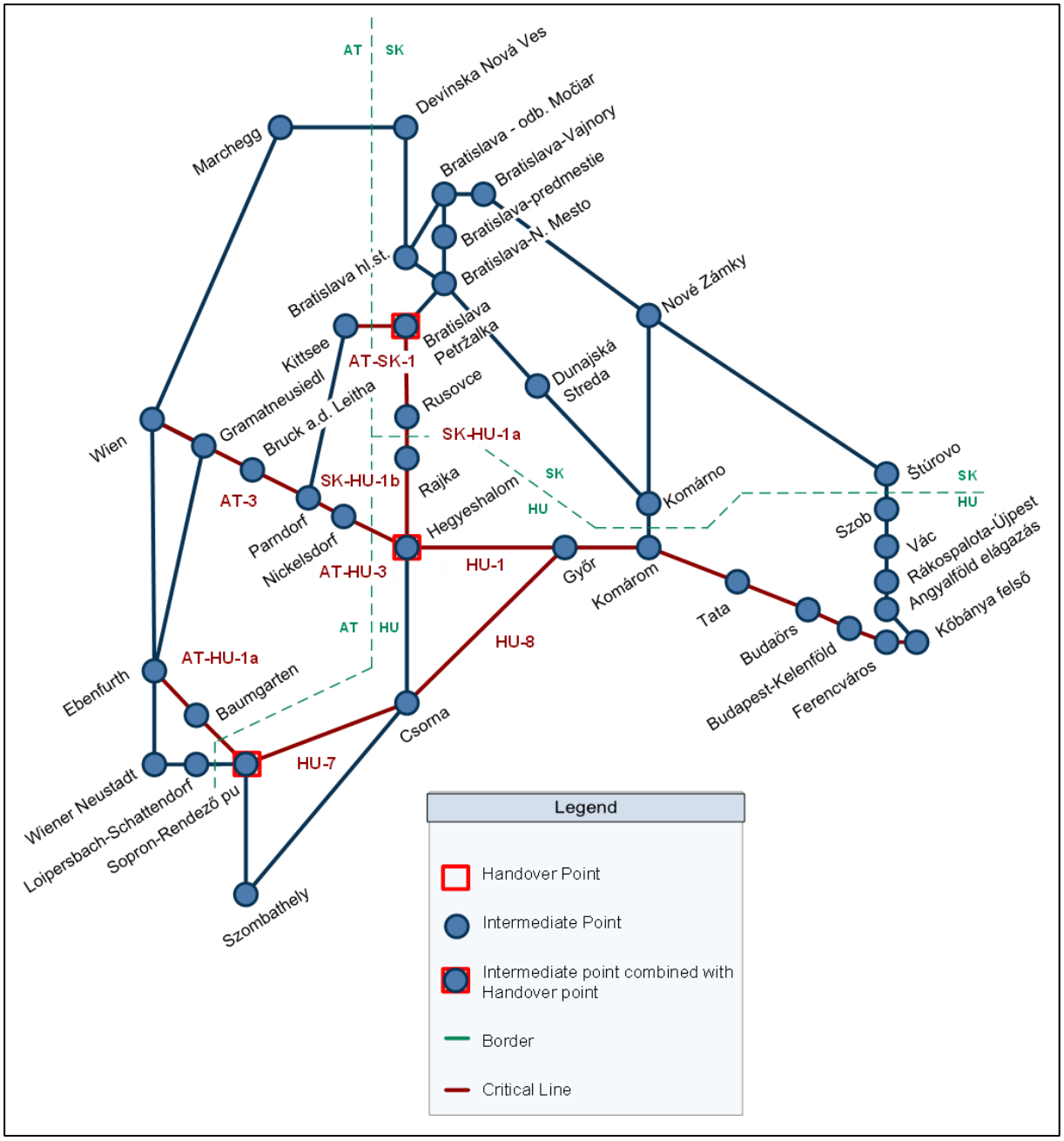
Co-financed by the European Union
Connecting Europe Facility

4. Central Part

4.1. Overview re-routing options central part

The following sections with limited re-routing possibilities are defined for the south-eastern part of RFC Rhine-Danube.

Some re-routing options can be used for various sections.



Co-financed by the European Union
Connecting Europe Facility

Overview Critical Lines	
Critical Line	**Description**
AT-3	Wien - Parndorf
AT-HU-1a	Ebenfurth - Sopron
AT-HU-3	Parndorf - Hegyeshalom
AT-SK-1	Kittsee - Bratislava-Petržalka
HU-7	Sopron - Csorna
HU-8	Csorna - Győr
HU-1	Hegyeshalom - Győr - Komárom - Budapest
SK-HU-1a	Rusovce - Rajka
SK-HU-1b	Bratislava-Petržalka - Rajka - Hegyeshalom

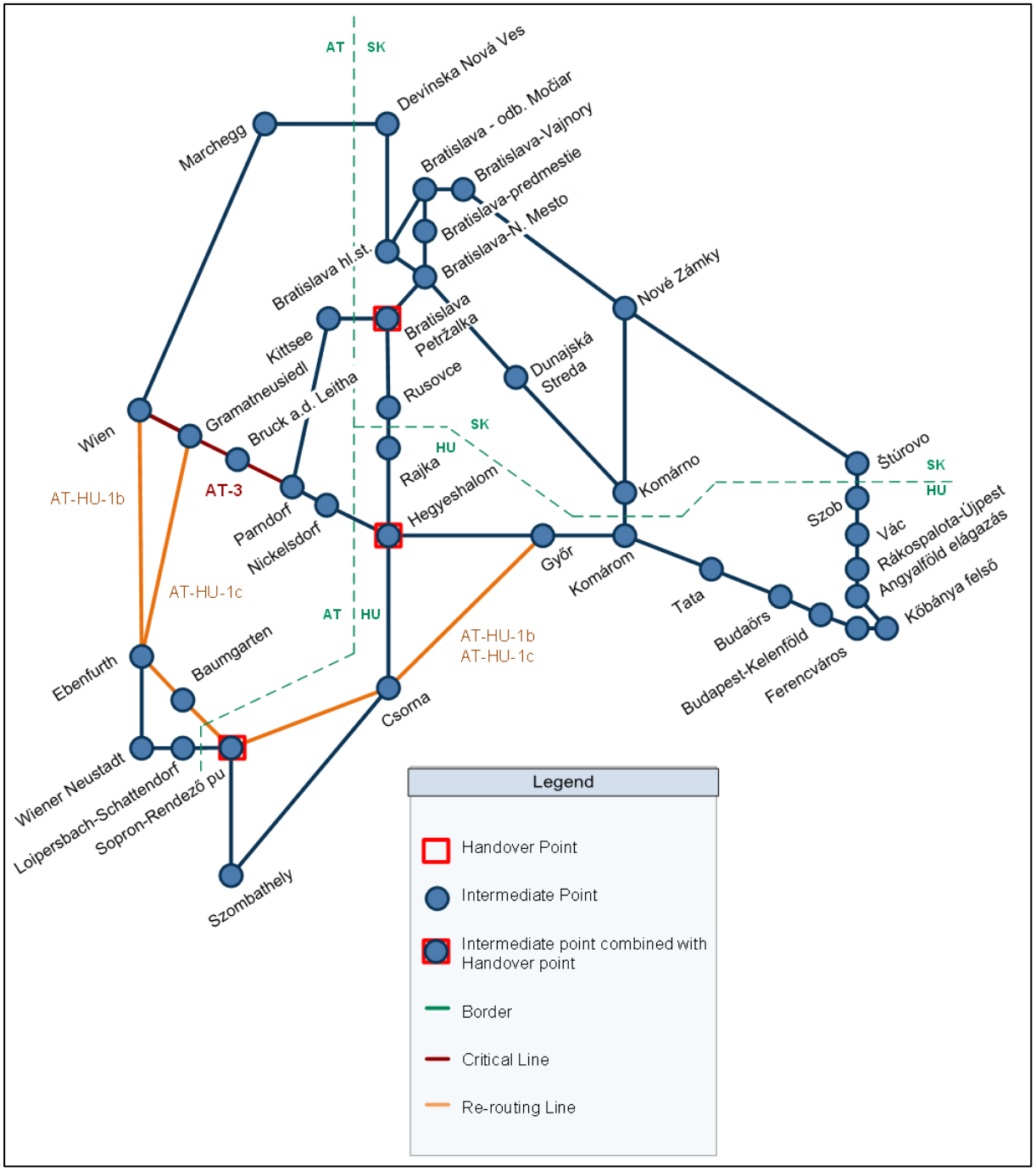
Overview Re-routing Lines	
Re-routing Line	**Description**
AT-HU-1b	Wien - Ebenfurth - Sopron - Győr
AT-HU-1c	Gramatneusiedl - Ebenfurth - Sopron - Györ
AT-HU-2	Ebenfurth - Wiener Neustadt - Sopron
AT-SK-2a	Marchegg - Devínska Nová Ves - Bratislava hl.st. - Bratislava-N. Mesto - Bratislava-Petržalka
AT-SK-2b	Marchegg - Devínska Nová Ves - Bratislava hl.st. - Bratislava-Vajnory - Bratislava-Petržalka
AT-SK-HU-1a	Bratislava hl.st. - Nové Zámky - Štúrovo - Szob
AT-SK-HU-1b	Wien - Bruck a. d. Leitha - Parndorf - Kittsee - Bratislava - Nové Zámky - Štúrovo - Budapest
AT-SK-HU-2a	Wien - Bruck a. d. Leitha - Parndorf - Kittsee - Bratislava - Nové Zámky - Komárom
AT-SK-HU-2b	Parndorf - Bratislava-Petržalka - Nové Zámky - Komárom
AT-SK-HU-2c	Bratislava-Petržalka - Nové Zámky - Komárom
AT-SK-HU-2d	Bratislava hl.st. - Nové Zámky - Komárno - Komárom
AT-SK-HU-3a	Parndorf - Bratislava-Petržalka - Dunajská Streda - Komárom
AT-SK-HU-3b	Bratislava-N. Mesto - Dunajská Streda - Komárno - Komárom
AT-SK-HU-3c	Bratislava-Petržalka - Dunajská Streda - Komárno - Komárom
HU-4	Sopron - Szombathely - Csorna
HU-5	Csorna - Hegyeshalom - Győr

Co-financed by the European Union
Connecting Europe Facility

4.2. Re-routing scenario for section Wien - Parndorf

4.2.1. General Description

Schematic map including re-routing options.



When the section Wien – Parndorf (AT-3) is blocked re-routing options are:

Re-routing Line	Description
AT-HU-1b	Wien - Ebenfurth - Sopron - Győr
AT-HU-1c	Gramatneusiedl - Ebenfurth - Sopron - Györ

Co-financed by the European Union
Connecting Europe Facility

4.2.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section AT-3: Wien - Parndorf																
ÖBB Infra	Wien Zvbf-Parndorf	x	x	15 kV, 16.7Hz AC	700	D4: 22,5t (8,0 t/m)	2	16‰	GA, G1, G2		PZB	120		1350	Capacity low, depends on time	
Re-routing Option AT-HU-1b: Wien - Ebenfurth - Sopron - Győr																
ÖBB Infra	Wien - Ebenfurth	x	x	15 kV, 16.7Hz AC	700	D4: 22,5t (8,0 t/m)	2	16‰	GA, G1, G2		PZB	120	41	1350	Capacity low, depends on time	
GYSEV	Ebenfurth - Sopron	x	x	25 kV, 50 Hz AC	650	D4	1	10‰	GA, G2	P/C 70/400	Inudsi, PZB	100	30	depends on the loco		
GYSEV	Sopron - Csorna	x	x	25 kV, 50 Hz AC	600	C4	1	7‰	GA, G2	P/C 70/400	EVM	100/120	54	depends on the loco		
GYSEV	Csorna - Győr	x	x	25 kV, 50 Hz AC	600	C4	1	7‰	GA, G2	P/C 70/400	EVM	120	31	depends on the loco		
Re-routing Option AT-HU-1c: Gramatneusiedl - Ebenfurth - Sopron - Győr																
ÖBB Infra	Gramatneusiedl - Ebenfurth	x	x	15 kV, 16.7Hz AC	700	D4: 22,5t (8,0 t/m)	1	20‰	GA, G1, G2	P/C 80/410	PZB	140	22	1450 one loco (1216)	Border: Ebenfurth	
GYSEV	Sopron - Csorna	x	x	25 kV, 50 Hz AC	600	C4	1	7‰	GA, G2	P/C 70/400	EVM	100/120	54	depends on the loco		
GYSEV	Csorna - Győr	x	x	25 kV, 50 Hz AC	600	C4	1	7‰	GA, G2	P/C 70/400	EVM	120	31	depends on the loco		

4.2.3. Restrictions

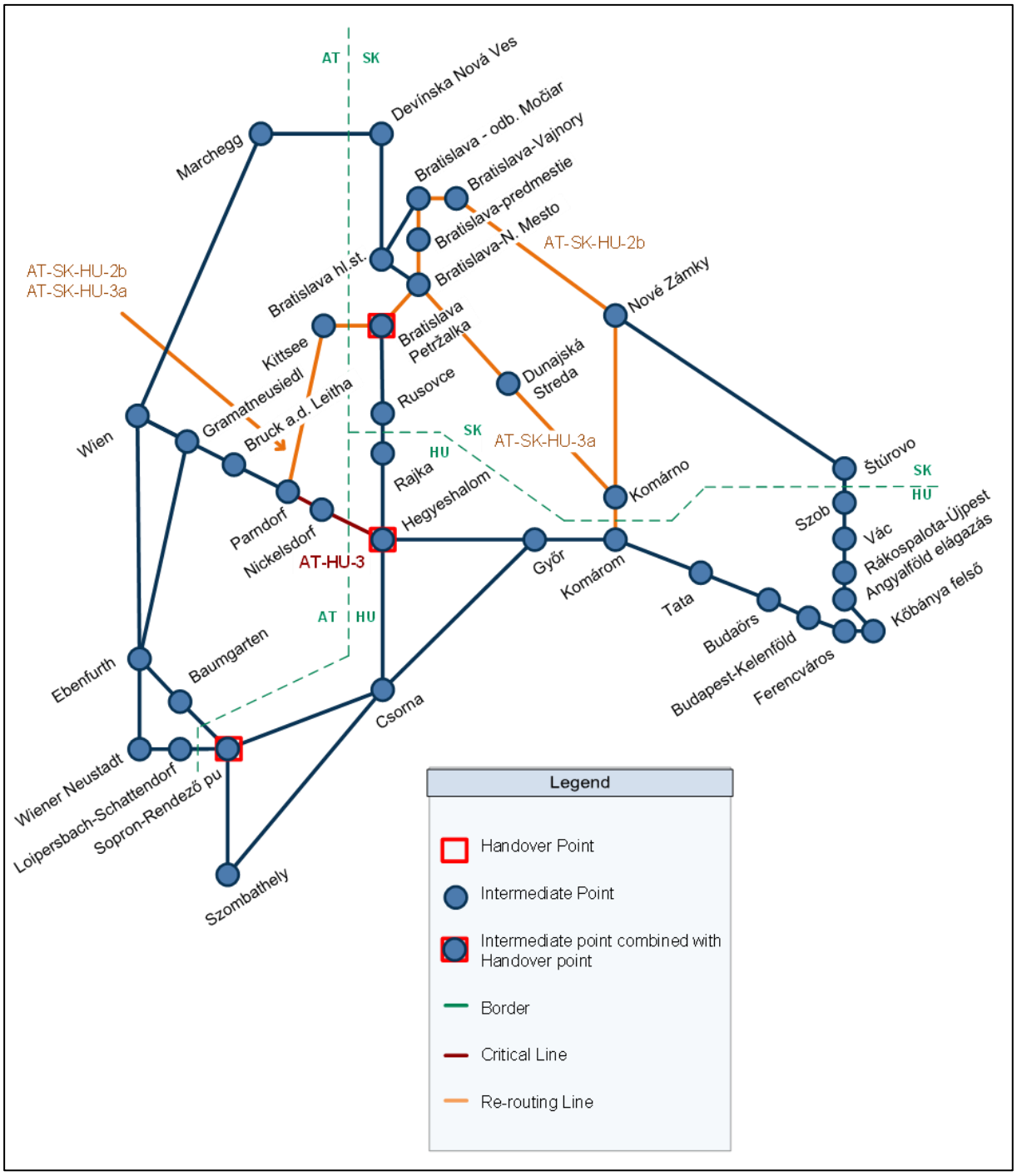
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

4.3. Re-routing scenario for section Parndorf - Hegyeshalom

4.3.1. General Description

Schematic map including re-routing options.



When the section Parndorf – Hegyeshalom (AT-HU-3) is blocked re-routing options are:

Re-routing Line	Description
AT-SK-HU-2b	Parndorf - Bratislava-Petržalka - Nové Zámky - Komárom
AT-SK-HU-3a	Parndorf - Bratislava-Petržalka - Dunajská Streda - Komárom

Co-financed by the European Union
Connecting Europe Facility

4.3.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section AT-HU-3: Parndorf - Hegyeshalom																
ÖBB Infra	Parndorf-Hegyeshalom	x	x	15 kV, 16.7Hz AC	700	D4: 22,5t (8,0 t/m)	2	16‰	GA, G1, G2		PZB	120	24	1350	Capacity low, depends on time	
Re-routing Option AT-SK-HU-2b: Parndorf - Bratislava-Petržalka - Nové Zámky - Komárom																
ÖBB Infra	Parndorf - Kittsee	x	x	15 kV, 16.7Hz AC	590	D4: 22,5t (8,0 t/m)	1	12,5‰	GA, G1, G2	P/C 80/410	PZB	160	20	1650 one loco (1216)	Border: Bratislava Petržalka	
ŽSR	Kittsee - Bratislava-Petržalka	x	x	15 kV, 16.7Hz AC	690	D4	1	2‰	GC -1VM	P/C 80/400	Level 0	140 - 160	5	max. 3800	Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz	Excellent
ŽSR	Bratslava-N.Mesto - Bratislava-Petržalka	x	x	25 kV, 50 Hz AC	690	D4	2	8‰	GB/1-VM	P/C 70/400	Level 0	80	13	max. 3800		Excellent
ŽSR	Bratislava-predmestie - Bratislava N. Mesto	x	x	25 kV, 50 Hz AC	690	D4	2	8‰	GB/1-VM	P/C 70/400	Level 0	60	2	max. 3800		Excellent
ŽSR	odb. Močiar - Bratislava-predmestie	x	x	25 kV, 50 Hz AC	690	D4	1	3-4‰	GB/1-VM	P/C 70/400	Level 0	60	1,3	max. 3800		Excellent
ŽSR	Bratislava-Vajnory - odb. Močiar	x	x	25 kV, 50 Hz AC	700	D4	2	3-8‰	GB/1-VM	P/C 70/400	Level STM	120	4,2	max. 3800		Excellent
ŽSR	Bratislava-Vajnory - Nové Zámky	x	x	25 kV, 50 Hz AC	700	D4	2	4-8‰	GB/1-VM	P/C 70/400	Level 0, STM	120-140	140	max. 3800		Excellent
ŽSR	Nové Zámky - Komárno	x	x	25 kV, 50 Hz AC	620	D4	1	5-8‰	GB/1-VM	P/C 70/400	Level 0	60-100	37	max. 3800		Excellent
MÁV	Komárno - Komárom		x	25 kV, 50 Hz AC	750	CM2	1	< 4,3‰	GC	P/C 70/400		80		depends on the loco		

Co-financed by the European Union
Connecting Europe Facility

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section AT-HU-3: Parndorf - Hegyeshalom																
ÖBB Infra	Parndorf-Hegyeshalom	x	x	15 kV, 16.7Hz AC	700	D4: 22,5t (8,0 t/m)	2	16‰	GA, G1, G2		PZB	120	24	1350	Capacity low, depends on time	
Re-routing Option AT-SK-HU-3a: Parndorf - Bratislava-Petržalka - Dunajská Streda - Komárom																
ÖBB Infra	Parndorf - Kittsee	x	x	15 kV, 16.7Hz AC	590	D4: 22,5t (8,0 t/m)	1	12,5‰	GA, G1, G2	P/C 80/410	PZB	160	20	1650 one loco (1216)	Border: Bratislava Petržalka	
ŽSR	Kittsee - Bratislava-Petržalka	x	x	15 kV, 16.7Hz AC	690	D4	1	2‰	GC -1VM	P/C 80/400	Level 0	140 - 160	5	max. 3800	Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz	Excellent
ŽSR	Bratislava-N. Mesto - Bratislava-Petržalka	x	x	25 kV, 50 Hz AC	690	D4	2	8‰	GB/1-VM	P/C 70/400	Level 0	80	13	max. 3800	Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz	Excellent
ŽSR	Bratislava-N. Mesto - Dunajská Streda - Komárno	x	x	Diesel	625	C4, D4	1	5‰	GB/O-VM	P/C 70/400	Level 0	80	95	max. 2200	Komárno and Bratislava-N.Mesto AC 25 kV 50hz	Excellent
MÁV	Komárno - Komárom		x	25 kV, 50 Hz AC	750	CM2	1	< 4,3‰	GC	P/C 70/400		80		depends on the loco		

4.3.3. Restrictions

AT-SK-HU-2b: Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz

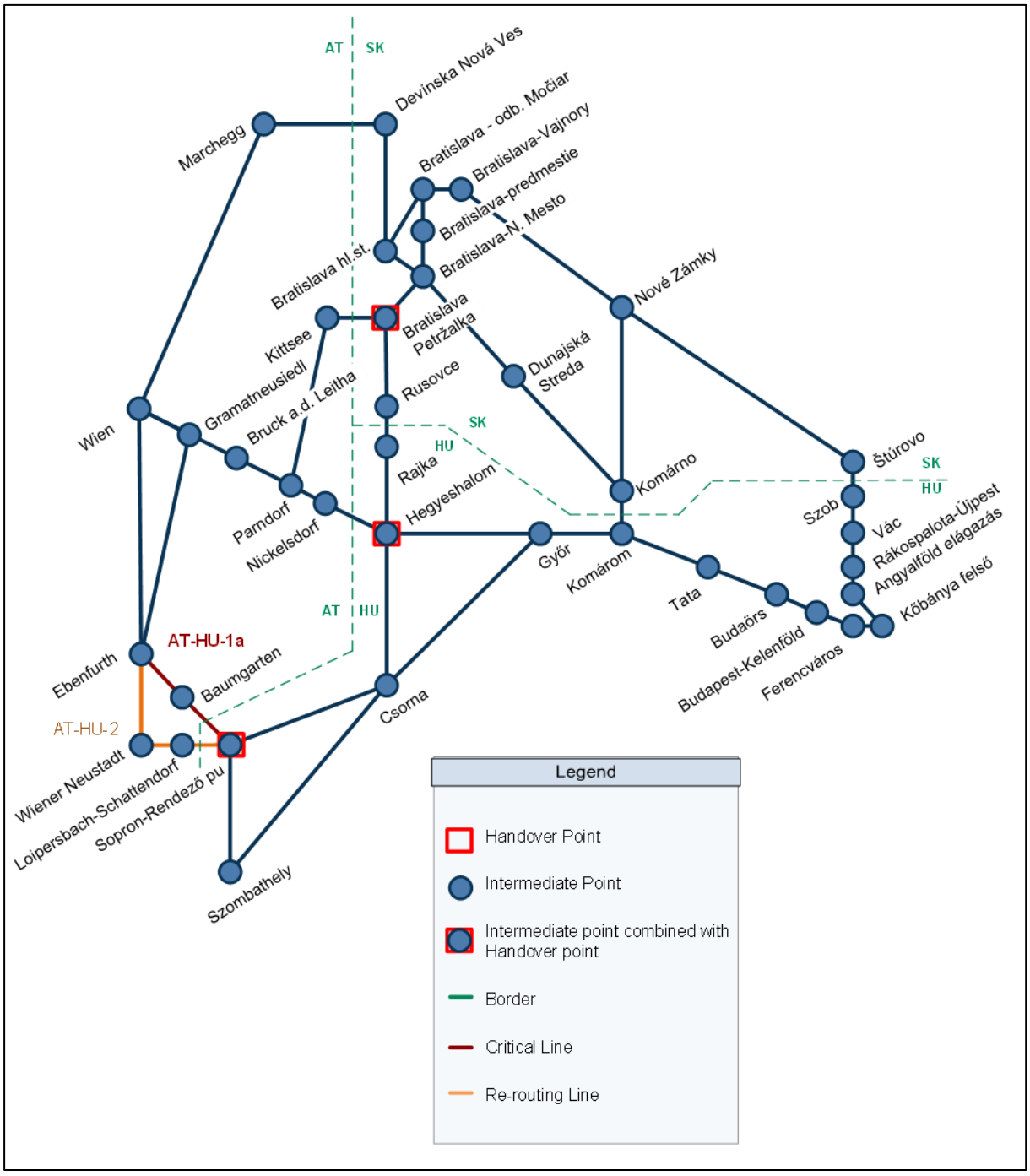
AT-SK-HU-3a: Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz; Komárno and Bratislava-N.Mesto AC 25 kV 50hz

Co-financed by the European Union
Connecting Europe Facility

4.4. Re-routing scenario for section Ebenfurth - Sopron

4.4.1. General Description

Schematic map including re-routing options.



When the section Ebenfurth – Sopron (AT-HU-1a) is blocked re-routing options are:

Re-routing Line	Description
AT-HU-2	Ebenfurth - Wiener Neustadt - Sopron

Co-financed by the European Union
Connecting Europe Facility

4.4.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous / Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section AT-HU-1a: Ebenfurth - Sopron																
GYSEV	Ebenfurth - Sopron	x	x	25 kV, 50 Hz AC	650	D4	1	10‰	GA, G2	P/C 70/400	Inudsi, PZB	100	30	depends on the loco		
Re-routing Option AT-HU-2: Ebenfurth - Wiener Neustadt - Sopron																
ÖBB Infra	Ebenfurth - Wiener Neustadt - Sopron	x	x	Diesel	650	D4	1		GC	P/C 70/400	Indusi, EVM	120	42,5	1600		

4.4.3. Restrictions

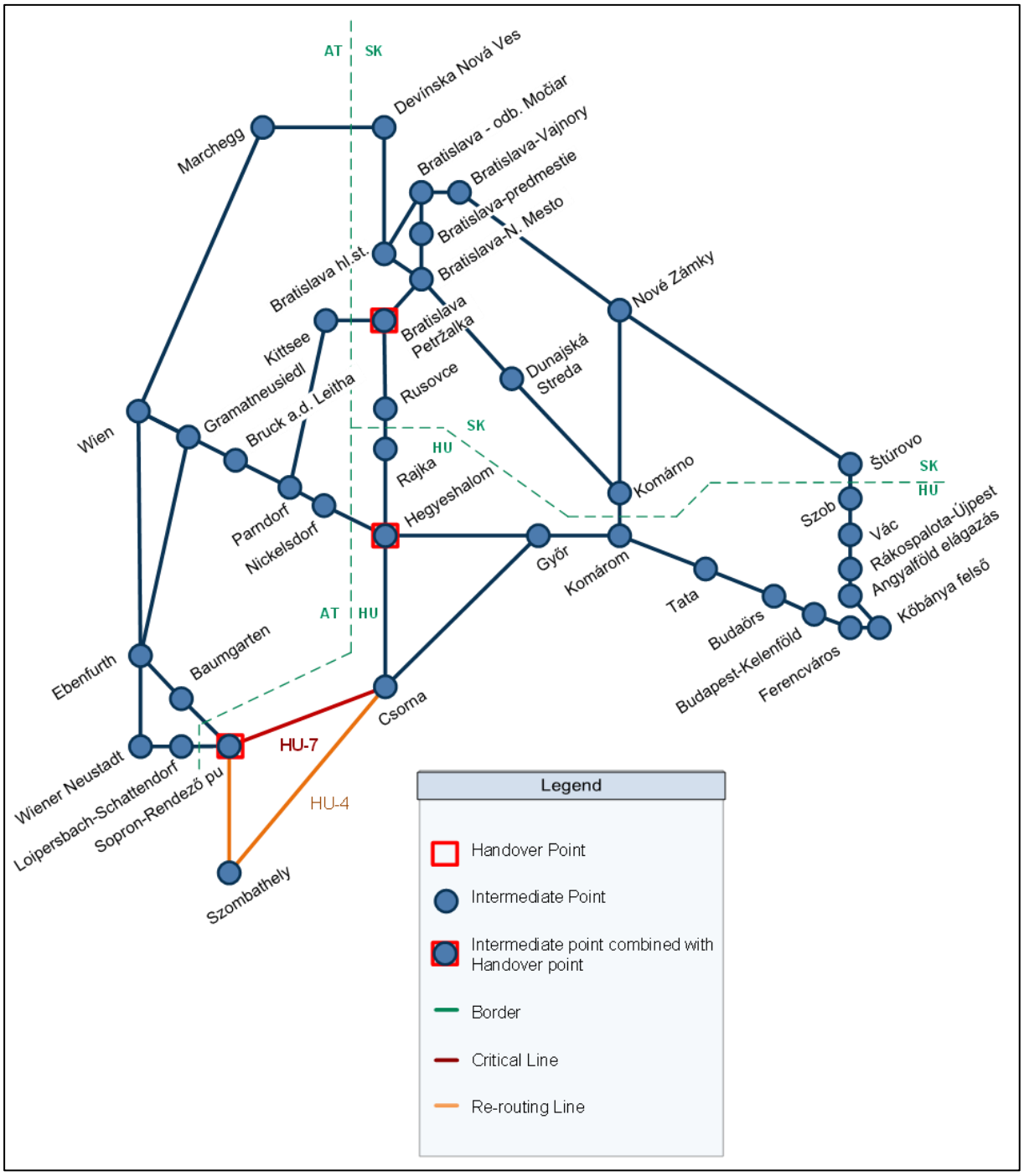
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

4.5. Re-routing scenario for section Sopron - Csorna

4.5.1. General Description

Schematic map including re-routing options.



When the section Sopron – Csorna (HU-7) is blocked re-routing options are:

Re-routing Line	Description
HU-4	Sopron - Szombathely - Csorna

Co-financed by the European Union
Connecting Europe Facility

4.5.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section HU-7: Sopron - Csorna																
GYSEV	Sopron - Csorna	x	x	25 kV, 50 Hz AC	600	C4	1	7‰	GA, G2	P/C 70/400	EVM	100/120	54	depends on the loco		
Re-routing Option HU-4: Sopron - Szombathely - Csorna																
GYSEV	Sopron - Szombathely - Csorna	x	x	25 kV, 50 Hz AC	600	C2	1		GB	P/C 70/400	EVM	100	134	depends on the loco		

4.5.3. Restrictions

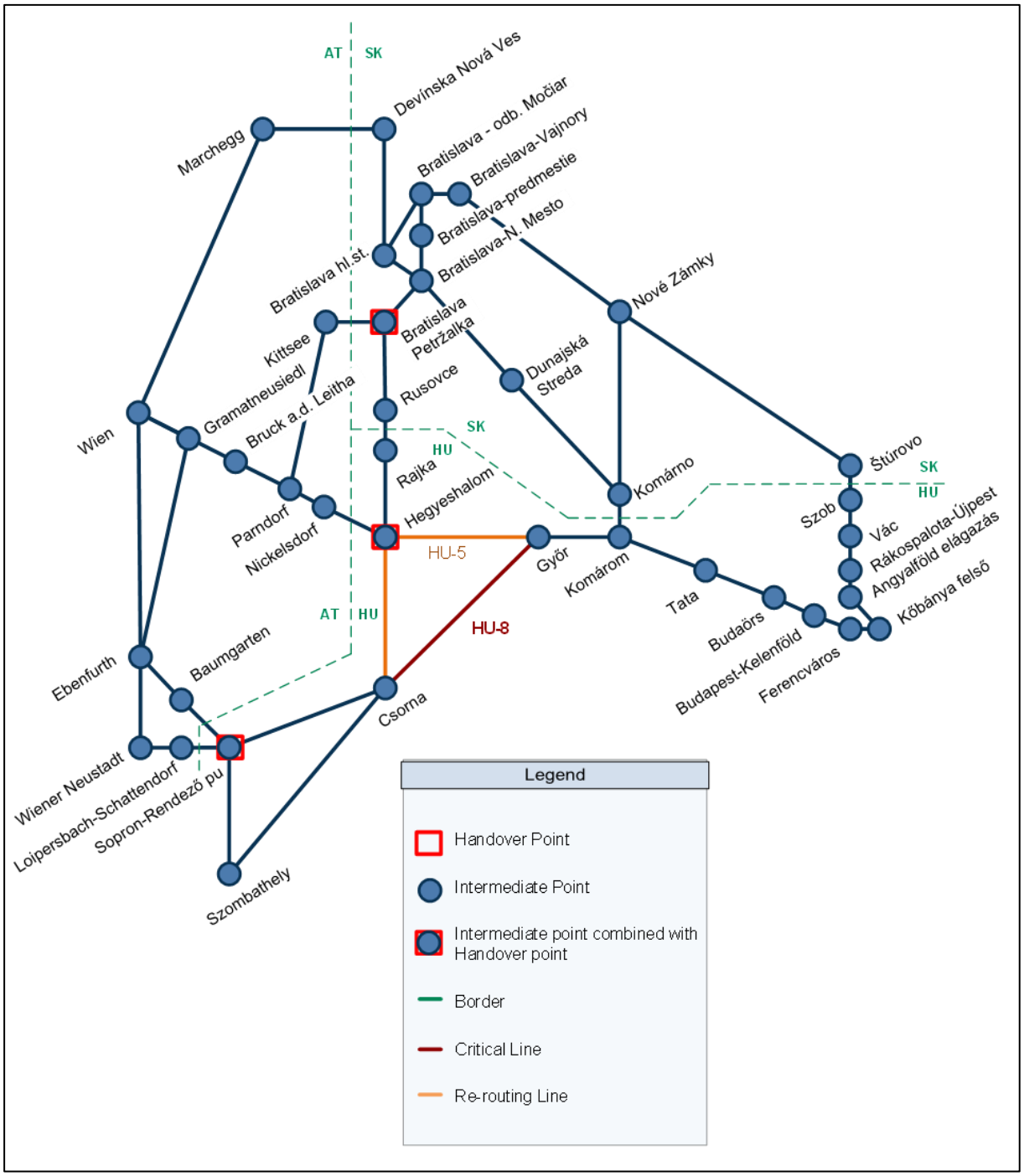
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

4.6. Re-routing scenario for section Csorna - Győr

4.6.1. General Description

Schematic map including re-routing options.



When the section Csorna – Győr (HU-8) is blocked re-routing options are:

Re-routing Line	Description
HU-5	Csorna - Hegyeshalom - Győr

Co-financed by the European Union
Connecting Europe Facility

4.6.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section HU-8: Csorna - Győr																
GYSEV	Csorna - Győr	x	x	25 kV, 50 Hz AC	600	C4	1	7‰	GA, G2	P/C 70/400	EVM	120	31	depends on the loco		
Re-routing Option HU-5: Csorna - Hegyeshalom - Győr																
GYSEV	Csorna - Hegyeshalom - Győr	x	x	25 kV, 50 Hz AC	600	C2	1		GB	P/C 70/400	EVM	100	86	depends on the loco		

4.6.3. Restrictions

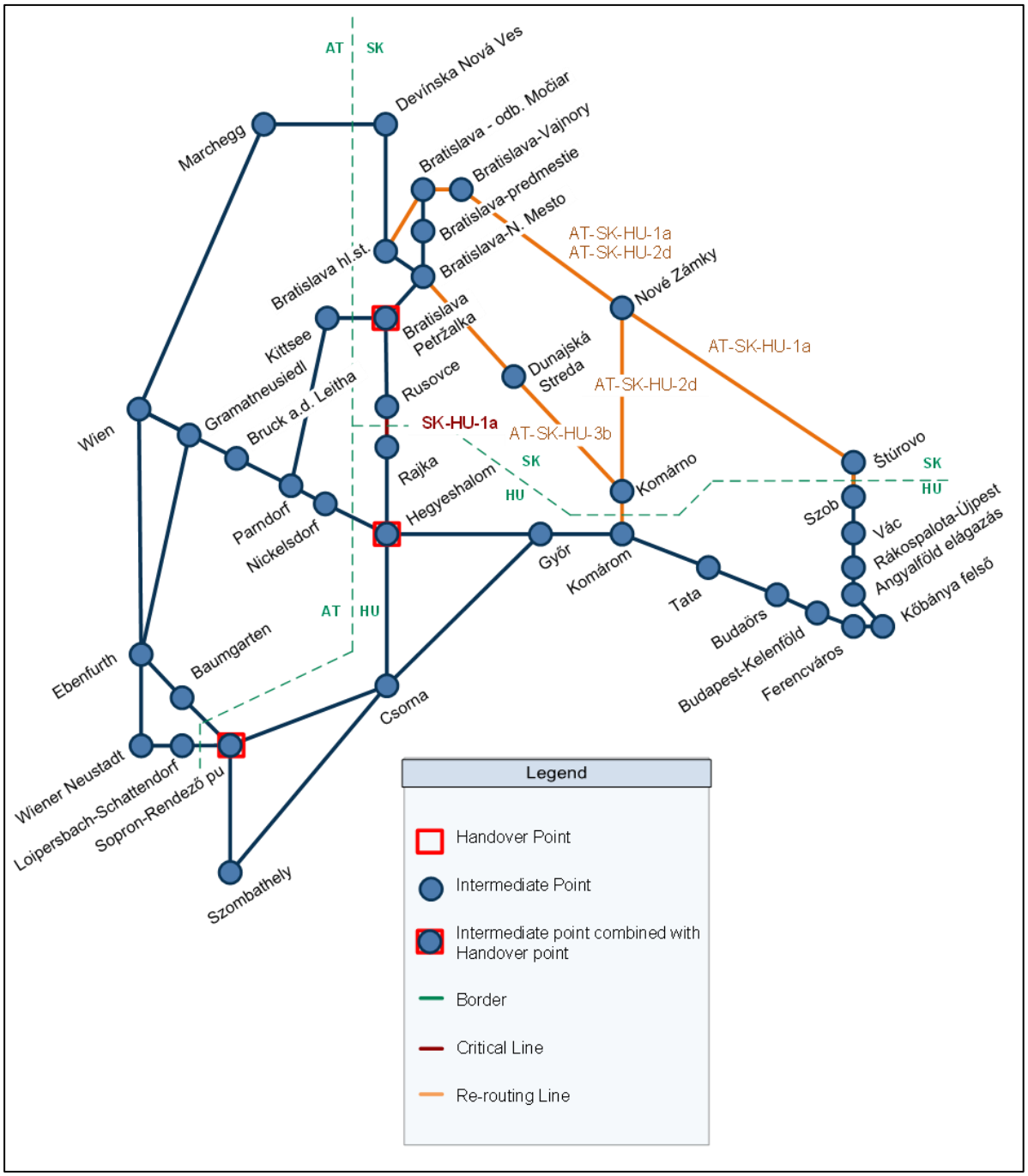
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

4.7. Re-routing scenario for section Rusovce - Rajka

4.7.1. General Description

Schematic map including re-routing options.



When the section Rusovce – Rajka (SK-HU-1a) is blocked re-routing options are:

Re-routing Line	Description
AT-SK-HU-1a	Bratislava hl.st. - Nové Zámky - Štúrovo - Szob
AT-SK-HU-2d	Bratislava hl.st. - Nové Zámky - Komárno - Komárom
AT-SK-HU-3b	Bratislava-N. Mesto - Dunajská Streda - Komárno - Komárom

Co-financed by the European Union
Connecting Europe Facility

4.7.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section SK-HU-1a: Rusovce - Rajka																
ŽSR	Rusovce - Rajka	x	x	25 kV, 50 Hz AC	690	D4	1	3‰	GB-1VM	P/C 70/400	Level 0	80	7	max. 3800		Excellent
Re-routing Option AT-SK-HU-1a: Bratislava hl.st. - Nové Zámky - Štúrovo - Szob																
ŽSR	Bratislava hl.st. - Bratislava-Vajnory	x	x	25 kV, 50 Hz AC	700	D4	2	4-8‰	GB/1-VM	P/C 70/400	Level STM	120	10	max. 3800		Excellent
ŽSR	Bratislava-Vajnory - Nové Zámky	x	x	25 kV, 50 Hz AC	700	D4	2	4-8‰	GB/1-VM	P/C 70/400	Level 0, STM	120-140	140	max. 3800		Excellent
ŽSR	Nové Zámky - Štúrovo / Szob	x	x	25 kV, 50 Hz AC	700	D4	2	4-8‰	GB/1-VM	P/C 70/400	Level 0, STM	120-140	140	max. 3800		Excellent
Re-routing Option AT-SK-HU-2d: Bratislava hl.st. - Nové Zámky - Komárno - Komárom																
ŽSR	Bratislava hl.st. - Bratislava-Vajnory	x	x	25 kV, 50 Hz AC	700	D4	2	4-8‰	GB/1-VM	P/C 70/400	Level STM	120	10	max. 3800		Excellent
ŽSR	Bratislava-Vajnory - Nové Zámky	x	x	25 kV, 50 Hz AC	700	D4	2	4-8‰	GB/1-VM	P/C 70/400	Level 0, STM	120-140	140	max. 3800		Excellent
ŽSR	Nové Zámky - Komárno	x	x	25 kV, 50 Hz AC	620	D4	1	5-8‰	GB/1-VM	P/C 70/400	Level 0	60-100	37	max. 3800		Excellent
MÁV	Komárno - Komárom		x	25 kV, 50 Hz AC	750	CM2	1	< 4,3‰	GC	P/C 70/400		80		depends on the loco		
Re-routing Option AT-SK-HU-3b: Bratislava-N. Mesto - Dunajská Streda - Komárno - Komárom																
ŽSR	Bratislava-N. Mesto - Dunajská Streda - Komárno	x	x	Diesel	625	C4, D4	1	5‰	GB/O-VM	P/C 70/400	Level 0	80	95	max. 2200	Komárno and Bratislava-N.Mesto AC 25 kV 50hz	Excellent
MÁV	Komárno - Komárom		x	25 kV, 50 Hz AC	750	CM2	1	< 4,3‰	GC	P/C 70/400		80		depends on the loco		

4.7.3. Restrictions

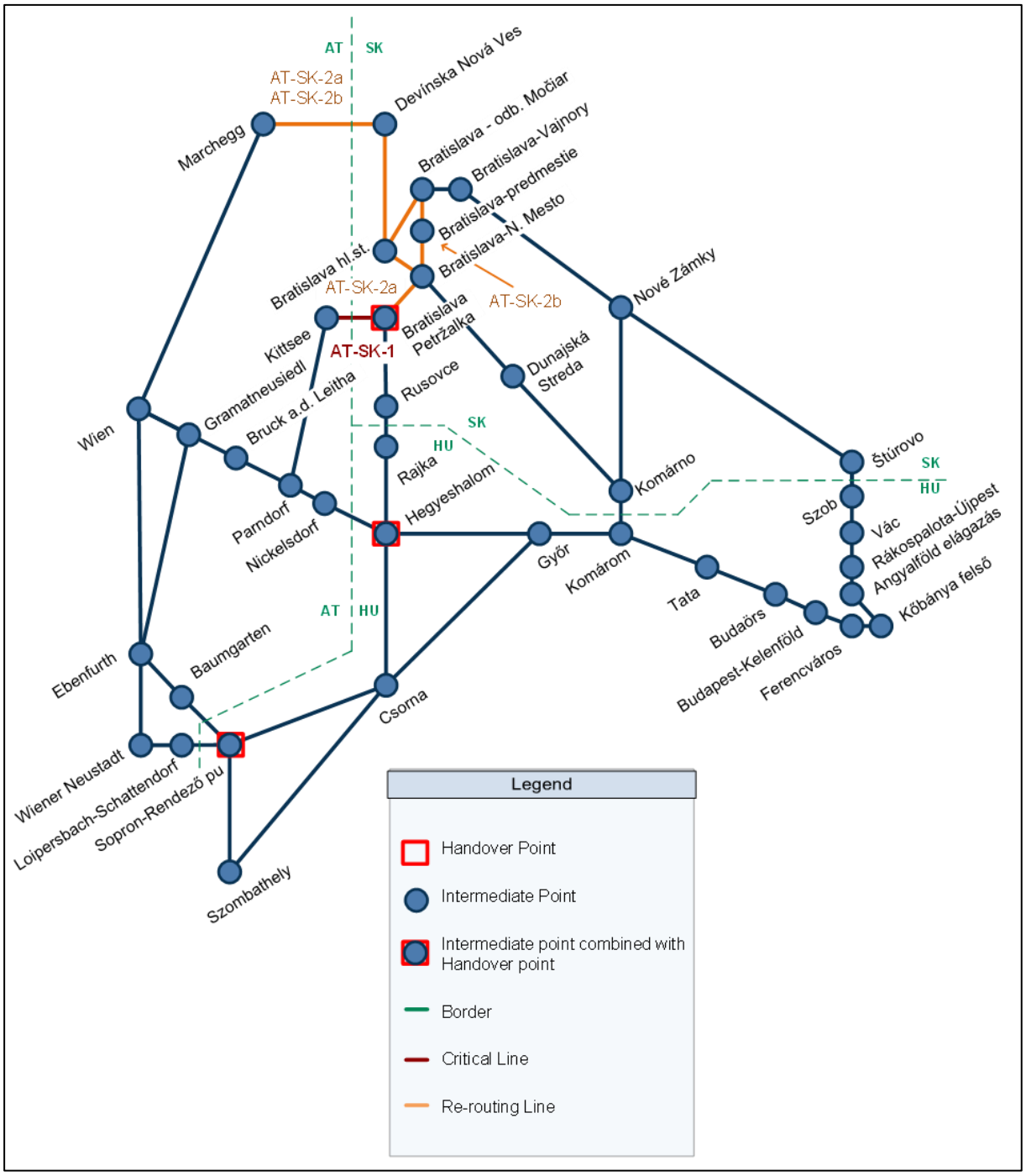
AT-SK-HU-3b: Komárno and Bratislava-N.Mesto AC 25 kV 50hz

Co-financed by the European Union
Connecting Europe Facility

4.8. Re-routing scenario for section Kittsee - Bratislava-Petržalka

4.8.1. General Description

Schematic map including re-routing options.



When the section Kittsee - Bratislava-Petržalka (AT-SK-1) is blocked re-routing options are:

Re-routing Line	Description
AT-SK-2a	Marchegg - Devínska Nová Ves - Bratislava hl.st. - Bratislava-N. Mesto - Bratislava-Petržalka
AT-SK-2b	Marchegg - Devínska Nová Ves - Bratislava hl.st. - Bratislava-Vajnory - Bratislava-Petržalka

Co-financed by the European Union
Connecting Europe Facility

4.8.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section AT-SK-1: Kittsee - Bratislava-Petržalka																
ŽSR	Kittsee - Bratislava-Petržalka	x	x	15 kV, 16.7Hz AC	690	D4	1	2‰	GC -1VM	P/C 80/400	Level 0	140 - 160	5	max. 3800	Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz	Excellent
Re-routing Option AT-SK-2a: Marchegg - Devínska Nová Ves - Bratislava hl.st. - Bratislava-N. Mesto - Bratislava-Petržalka																
ŽSR	Marchegg - Devínska Nová Ves	x	x	Diesel	700	C3	1	8‰	GC/2-VM	P/C 70/400	Level 0	80	6	max. 2600		Excellent
ŽSR	Devínska Nová Ves - Bratislava hl.st.	x	x	25 kV, 50 Hz AC	700	D4	2	8‰	GB/1-VM	P/C 70/400	Level STM	80-120	13	max. 3800		Excellent
ŽSR	Bratislava hl.st. - Bratislava-N. Mesto	x	x	25 kV, 50 Hz AC	690	D4	1	14‰	GB/0-VM	P/C 70/400	Level 0	80	5	max. 3800		Excellent
ŽSR	Bratislava-N. Mesto - Bratislava-Petržalka	x	x	25 kV, 50 Hz AC	690	D4	2	8‰	GB/1-VM	P/C 70/400	Level 0	80	13	max. 3800	Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz	Excellent

Co-financed by the European Union
Connecting Europe Facility

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section AT-SK-1: Kittsee - Bratislava-Petržalka																
ŽSR	Kittsee - Bratislava-Petržalka	x	x	15 kV, 16.7Hz AC	690	D4	1	2‰	GC -1VM	P/C 80/400	Level 0	140 - 160	5	max. 3800	Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz	Excellent
Re-routing Option AT-SK-2b: Marchegg - Devínska Nová Ves - Bratislava hl.st. - Bratislava-Vajnory - Bratislava-Petržalka																
ŽSR	Marchegg - Devínska Nová Ves	x	x	Diesel	700	C3	1	8‰	GC/2-VM	P/C 70/400	Level 0	80	6	max. 2600		Excellent
ŽSR	Devínska Nová Ves - Bratislava hl.st.	x	x	25 kV, 50 Hz AC	700	D4	2	8‰	GB/1-VM	P/C 70/400	Level STM	80-120	13	max. 3800		Excellent
ŽSR	Bratislava hl.st. - Bratislava-Vajnory	x	x	25 kV, 50 Hz AC	700	D4	2	4-8‰	GB/1-VM	P/C 70/400	Level STM	120	10	max. 3800		Excellent
ŽSR	Bratislava-Vajnory - odb. Močiar	x	x	25 kV, 50 Hz AC	700	D4	2	3-8‰	GB/1-VM	P/C 70/400	Level STM	120	4,2	max. 3800		Excellent
ŽSR	odb. Močiar - Bratislava-predmestie	x	x	25 kV, 50 Hz AC	690	D4	1	3-4‰	GB/1-VM	P/C 70/400	Level 0	60	1,3	max. 3800		Excellent
ŽSR	Bratislava-predmestie - Bratislava N. Mesto	x	x	25 kV, 50 Hz AC	690	D4	2	8‰	GB/1-VM	P/C 70/400	Level 0	60	2	max. 3800		Excellent
ŽSR	Bratslava-N.Mesto - Bratislava-Petržalka	x	x	25 kV, 50 Hz AC	690	D4	2	8‰	GB/1-VM	P/C 70/400	Level 0	80	13	max. 3800		Excellent

4.8.1. Restrictions

AT-SK-2a: Marchegg - Devínska Nová Ves - diesel; Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz

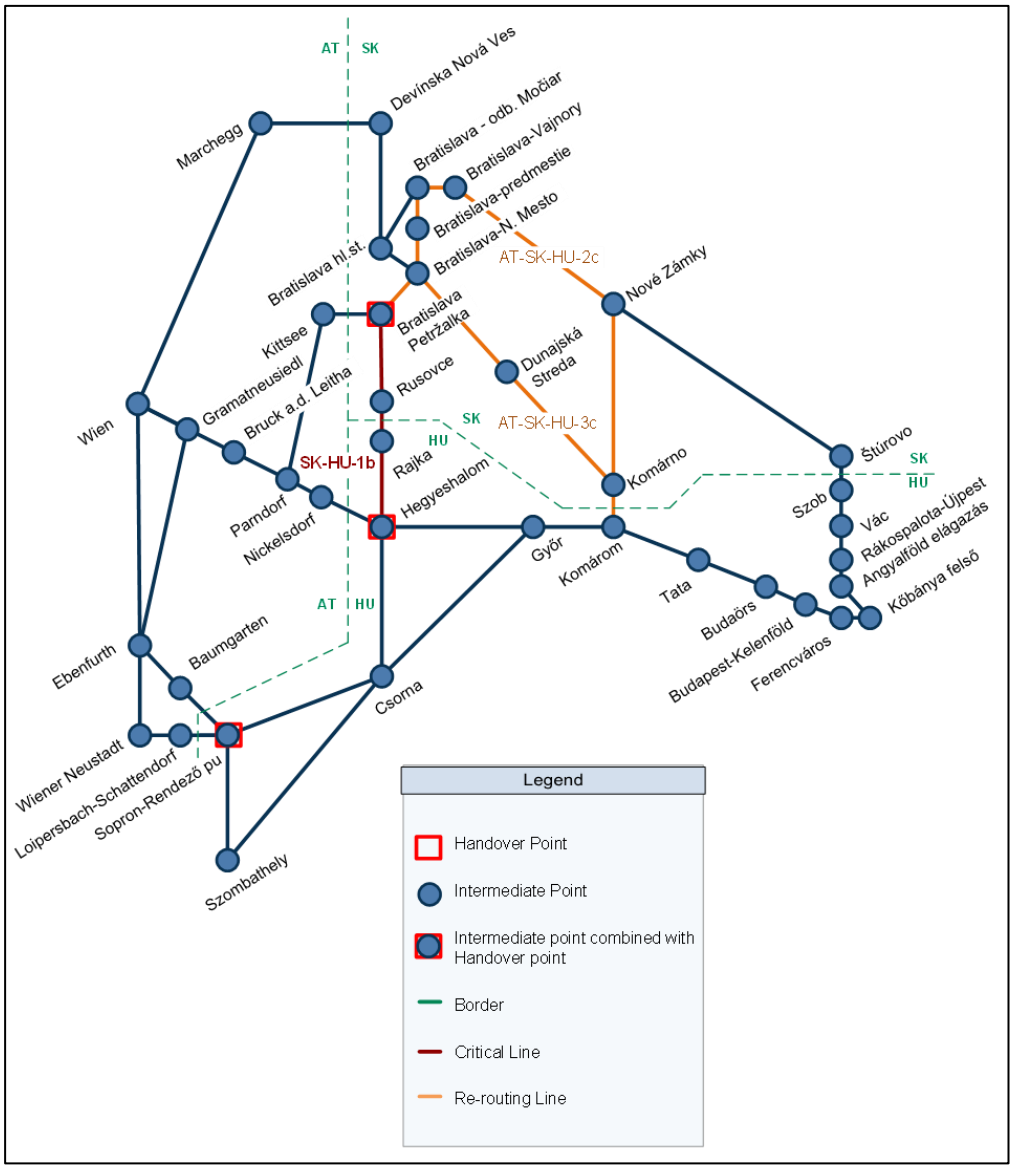
AT-SK-2b: Marchegg - Devínska Nová Ves - diesel; Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz

Co-financed by the European Union
Connecting Europe Facility

4.9. Re-routing scenario for section Bratislava-Petržalka - Rajka - Hegyeshalom

4.9.1. General Description

Schematic map including re-routing options.



When the section Bratislava-Petržalka - Rajka – Hegyeshalom (SK-HU-1b) is blocked re-routing options are:

Re-routing Line	Description
AT-SK-HU-3c	Bratislava-Petržalka - Dunajská Streda - Komárno - Komárom
AT-SK-HU-2c	Bratislava-Petržalka - Nové Zámky - Komárno - Komárom

Co-financed by the European Union
Connecting Europe Facility

4.9.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section SK-HU-1b: Bratislava-Petržalka - Rajka - Hegyeshalom																
ŽSR	Bratislava-Petržalka - Rusovce	x	x	25 kV, 50 Hz AC	700	D4	1	8‰	GB/1-VM	P/C 70/400	Level 0	80	10	max. 3800	Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz	Excellent
ŽSR	Rusovce - Rajka	x	x	25 kV, 50 Hz AC	690	D4	1	3‰	GB-1VM	P/C 70/400	Level 0	80	7	max. 3800		Excellent
GYSEV	Rajka - Hegyeshalom	x	x	25 kV, 50 Hz AC	750	C3	1	4‰	GA, G2	P/C 70/400	ETCS L1	100	13	depends on the loco		
Re-routing Option AT-SK-HU-3c: Bratislava-Petržalka - Dunajská Streda - Komárno - Komárom																
ŽSR	Bratislava-N. Mesto - Bratislava-Petržalka	x	x	25 kV, 50 Hz AC	690	D4	2	8‰	GB/1-VM	P/C 70/400	Level 0	80	13	max. 3800	Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz	
ŽSR	Bratislava-N. Mesto - Dunajská Streda - Komárno	x	x	Diesel	625	C4, D4	1	5‰	GB/O-VM	P/C 70/400	Level 0	80	95	max. 2200	Komárno and Bratislava-N.Mesto AC 25 kV 50hz	Excellent
MÁV	Komárno - Komárom		x	25 kV, 50 Hz AC	750	CM2	1	< 4,3‰	GC	P/C 70/400		80		depends on the loco		

Co-financed by the European Union
Connecting Europe Facility

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section SK-HU-1b: Bratislava-Petržalka - Rajka - Hegyeshalom																
ŽSR	Bratislava-Petržalka - Rusovce	x	x	25 kV, 50 Hz AC	700	D4	1	8‰	GB/1-VM	P/C 70/400	Level 0	80	10	max. 3800	Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz	Excellent
ŽSR	Rusovce - Rajka	x	x	25 kV, 50 Hz AC	690	D4	1	3‰	GB-1VM	P/C 70/400	Level 0	80	7	max. 3800		Excellent
GYSEV	Rajka - Hegyeshalom	x	x	25 kV, 50 Hz AC	750	C3	1	4‰	GA, G2	P/C 70/400	ETCS L1	100	13	depends on the loco		
Re-routing Option AT-SK-HU-2c: Bratislava-Petržalka - Nové Zámky - Komárom																
ŽSR	Bratslava-N.Mesto - Bratislava-Petržalka	x	x	25 kV, 50 Hz AC	690	D4	2	8‰	GB/1-VM	P/C 70/400	Level 0	80	13	max. 3800		
ŽSR	Bratislava-predmestie - Bratislava N. Mesto	x	x	25 kV, 50 Hz AC	690	D4	2	8‰	GB/1-VM	P/C 70/400	Level 0	60	2	max. 3800		
ŽSR	odb. Močiar - Bratislava-predmestie	x	x	25 kV, 50 Hz AC	690	D4	1	3-4‰	GB/1-VM	P/C 70/400	Level 0	60	1,3	max. 3800		
ŽSR	Bratislava-Vajnory - odb. Močiar	x	x	25 kV, 50 Hz AC	700	D4	2	3-8‰	GB/1-VM	P/C 70/400	Level STM	120	4,2	max. 3800		
ŽSR	Bratislava-Vajnory - Nové Zámky	x	x	25 kV, 50 Hz AC	700	D4	2	4-8‰	GB/1-VM	P/C 70/400	Level 0, STM	120-140	140	max. 3800		Excellent
ŽSR	Nové Zámky - Komárno	x	x	25 kV, 50 Hz AC	620	D4	1	5-8‰	GB/1-VM	P/C 70/400	Level 0	60-100	37	max. 3800		Excellent
MÁV	Komárno - Komárom		x	25 kV, 50 Hz AC	750	CM2	1	< 4,3‰	GC	P/C 70/400		80		depends on the loco		

4.9.1. Restrictions

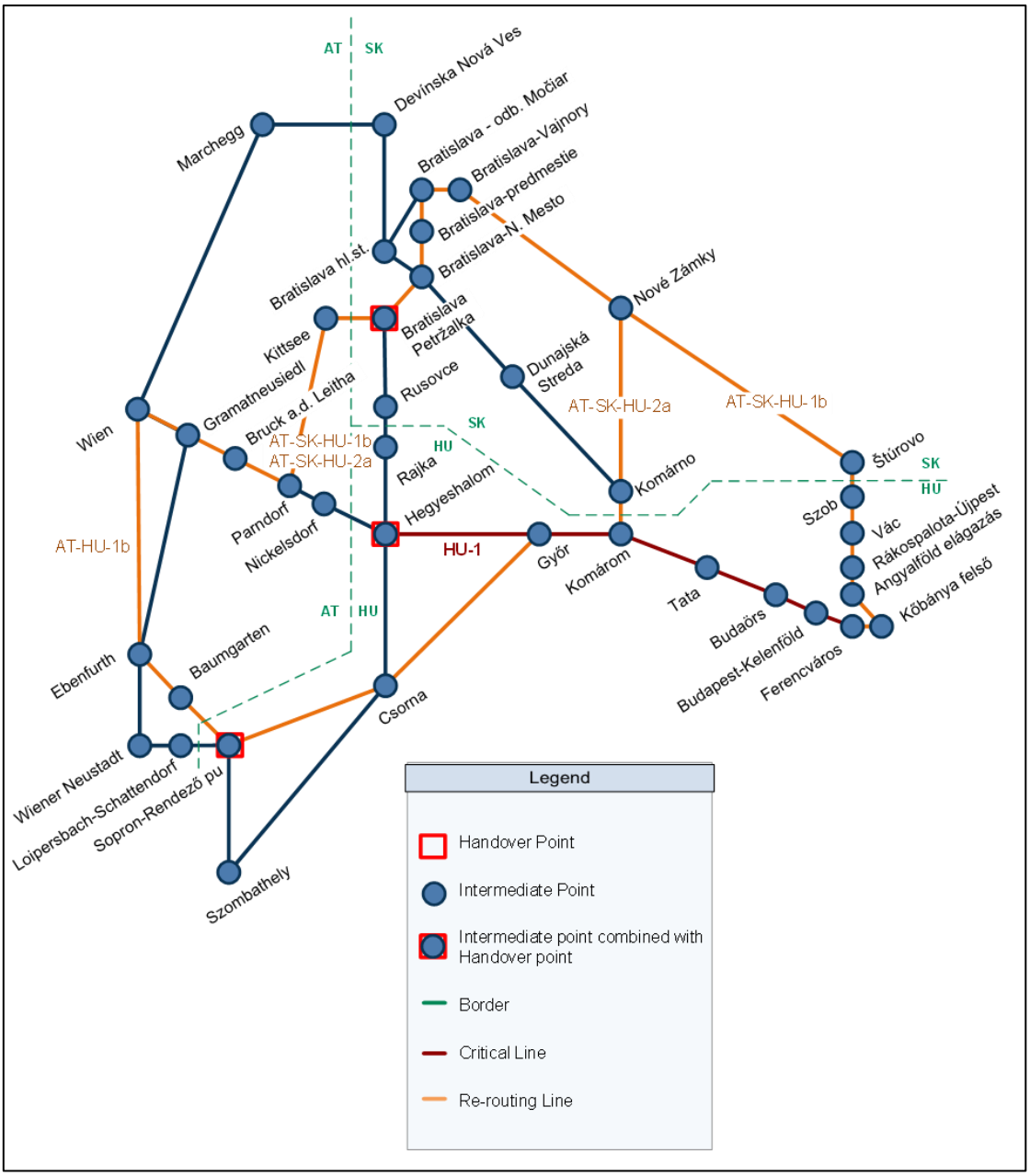
AT-SK-HU-3c: Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz; Komárno and Bratislava-N.Mesto AC 25 kV 50hz

Co-financed by the European Union
Connecting Europe Facility

4.10. Re-routing scenario for section Hegyeshalom - Győr - Komárom - Budapest

4.10.1. General Description

Schematic map including re-routing options.



When the section Hegyeshalom - Győr - Komárom – Budapest (HU-1) is blocked re-routing options are:

Re-routing Line	Description
AT-HU-1b	Wien - Ebenfurth - Sopron - Győr
AT-SK-HU-2a	Wien - Bruck a. d. Leitha - Parndorf - Kittsee - Bratislava - Nové Zámky - Komárom
AT-SK-HU-1b	Wien - Bruck a. d. Leitha - Parndorf - Kittsee - Bratislava - Nové Zámky - Štúrovo - Budapest

Co-financed by the European Union
Connecting Europe Facility

4.10.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section: HU-1: Hegyeshalom - Győr - Komárom - Budapest																
MÁV	Nickelsdorf/Hegyeshalom - Hegyeshalom	X	X	25 kV, 50 Hz AC	750	C3	2	0-5‰	GC	P/C 70/400	PZB	120		depends on the loco	Hegyeshalom - Győr - Komárom - Budapest	Excellent
MÁV	Hegyeshalom - Tata	X	X	25 kV, 50 Hz AC	750	C3	2	5-10‰	GC	P/C 70/400	ETCS L1	160		depends on the loco	Hegyeshalom - Győr - Komárom - Budapest	Excellent
MÁV	Tata - Budaörs	X	X	25 kV, 50 Hz AC	750	C3	2	5-10‰	GC	P/C 70/400	ETCS L1	140		depends on the loco	Hegyeshalom - Győr - Komárom - Budapest	Excellent
MÁV	Budaörs - Budapest-Kelenföld	X	X	25 kV, 50 Hz AC	750	C3	2	5-10‰	GC	P/C 70/400	ETCS L1	120		depends on the loco	Hegyeshalom - Győr - Komárom - Budapest	Excellent
MÁV	Budapest-Kelenföld - Ferencváros	X	X	25 kV, 50 Hz AC	750	C3	2	5-10‰	GC	P/C 70/400	EVM	80		depends on the loco	Hegyeshalom - Győr - Komárom - Budapest	Excellent
Re-routing Option AT-HU-1b: Wien - Ebenfurth - Sopron - Győr																
ÖBB Infra	Wien - Ebenfurth	x	x	15 kV, 16.7Hz AC	700	D4: 22,5t (8,0 t/m)	2	16‰	GA, G1, G2		PZB	120	41	1350	Capacity low, depends on time	
GYSEV	Ebenfurth - Sopron	x	x	25 kV, 50 Hz AC	650	D4	1	10‰	GA, G2	P/C 70/400	Inudsi, PZB	100	30	depends on the loco		
GYSEV	Sopron - Csorna	x	x	25 kV, 50 Hz AC	600	C4	1	7‰	GA, G2	P/C 70/400	EVM	100/120	54	depends on the loco		
GYSEV	Csorna - Győr	x	x	25 kV, 50 Hz AC	600	C4	1	7‰	GA, G2	P/C 70/400	EVM	120	31	depends on the loco		

Co-financed by the European Union
Connecting Europe Facility

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Re-routing Option AT-SK-HU-2a: Wien - Bruck a. d. Leitha - Parndorf - Kittsee - Bratislava - Nové Zámky - Komárom																
ÖBB Infra	Wien Zvbf-Parndorf	x	x	15 kV, 16.7Hz AC	700	D4: 22,5t (8,0 t/m)	2	16‰	GA, G1, G2		PZB	120	55	1350	Capacity low, depends on time	
ÖBB Infra	Parndorf - Kittsee	x	x	15 kV, 16.7Hz AC	590	D4: 22,5t (8,0 t/m)	1	12,5‰	GA, G1, G2	P/C 80/410	PZB	160	20	1650 one loco (1216)	Border: Bratislava Petržalka	
ŽSR	Kittsee - Bratislava-Petržalka	x	x	15 kV, 16.7Hz AC	690	D4	1	2‰	GC -1VM	P/C 80/400	Level 0	140 - 160	5	max. 3800	Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz	Excellent
ŽSR	Bratslava-N.Mesto - Bratislava-Petržalka	x	x	25 kV, 50 Hz AC	690	D4	2	8‰	GB/1-VM	P/C 70/400	Level 0	80	13	max. 3800		Excellent
ŽSR	Bratislava-predmestie - Bratislava N. Mesto	x	x	25 kV, 50 Hz AC	690	D4	2	8‰	GB/1-VM	P/C 70/400	Level 0	60	2	max. 3800		Excellent
ŽSR	odb. Močiar - Bratislava-predmestie	x	x	25 kV, 50 Hz AC	690	D4	1	3-4‰	GB/1-VM	P/C 70/400	Level 0	60	1,3	max. 3800		Excellent
ŽSR	Bratislava-Vajnory - odb. Močiar	x	x	25 kV, 50 Hz AC	700	D4	2	3-8‰	GB/1-VM	P/C 70/400	Level STM	120	4,2	max. 3800		Excellent
ŽSR	Bratislava-Vajnory - Nové Zámky	x	x	25 kV, 50 Hz AC	700	D4	2	4-8‰	GB/1-VM	P/C 70/400	Level 0, STM	120-140	140	max. 3800		Excellent
ŽSR	Nové Zámky - Komárno	x	x	25 kV, 50 Hz AC	620	D4	1	5-8‰	GB/1-VM	P/C 70/400	Level 0	60-100	37	max. 3800		Excellent
MÁV	Komárno - Komárom		x	25 kV, 50 Hz AC	750	CM2	1	< 4,3‰	GC	P/C 70/400		80		depends on the loco		

Co-financed by the European Union
Connecting Europe Facility

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Re-routing Option AT-SK-HU-1b: Wien - Bruck a. d. Leitha - Parndorf - Kittsee - Bratislava - Nové Zámky - Štúrovo - Budapest																
ÖBB Infra	Wien Zvbf-Parndorf	x	x	15 kV, 16.7Hz AC	700	D4: 22,5t (8,0 t/m)	2	16‰	GA, G1, G2		PZB	120	55	1350	Capacity low, depends on time	
ÖBB Infra	Parndorf - Kittsee	x	x	15 kV, 16.7Hz AC	590	D4: 22,5t (8,0 t/m)	1	12,5‰	GA, G1, G2	P/C 80/410	PZB	160	20	1650 one loco (1216)	Border: Bratislava Petržalka	
ŽSR	Kittsee - Bratislava-Petržalka	x	x	15 kV, 16.7Hz AC	690	D4	1	2‰	GC -1VM	P/C 80/400	Level 0	140 - 160	5	max. 3800	Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz	Excellent
ŽSR	Bratslava-N.Mesto - Bratislava-Petržalka	x	x	25 kV, 50 Hz AC	690	D4	2	8‰	GB/1-VM	P/C 70/400	Level 0	80	13	max. 3800		Excellent
ŽSR	Bratislava-predmestie - Bratislava N. Mesto	x	x	25 kV, 50 Hz AC	690	D4	2	8‰	GB/1-VM	P/C 70/400	Level 0	60	2	max. 3800		Excellent
ŽSR	odb. Močiar - Bratislava-predmestie	x	x	25 kV, 50 Hz AC	690	D4	1	3-4‰	GB/1-VM	P/C 70/400	Level 0	60	1,3	max. 3800		Excellent
ŽSR	Bratislava-Vajnory - odb. Močiar	x	x	25 kV, 50 Hz AC	700	D4	2	3-8‰	GB/1-VM	P/C 70/400	Level STM	120	4,2	max. 3800		Excellent
ŽSR	Bratislava-Vajnory - Nové Zámky	x	x	25 kV, 50 Hz AC	700	D4	2	4-8‰	GB/1-VM	P/C 70/400	Level 0, STM	120-140	140	max. 3800		Excellent
ŽSR	Nové Zámky - Štúrovo / Szob	x	x	25 kV, 50 Hz AC	700	D4	2	4-8‰	GB/1-VM	P/C 70/400	Level 0, STM	120-140	140	max. 3800		Excellent
MÁV	Štúrovo / Szob - Vác	x	x	25 kV, 50 Hz AC	750	CM3	2	< 4,6‰	GC	P/C 70/400	EVM	100		depends on the loco		Excellent
MÁV	Vác - Rákospalota-Újpest	x	x	25 kV, 50 Hz AC	750	CM3	2	< 3,9‰	GC	P/C 70/400	EVM	120		depends on the loco		Excellent
MÁV	Rákospalota-Újpest - Angyalföld elágazás	x	x	25 kV, 50 Hz AC	750	CM2	1	< 6,1‰	GC	P/C 70/400		60		depends on the loco		Excellent
MÁV	Angyalföld elágazás - Kőbánya felső	x	x	25 kV, 50 Hz AC	750	CM2	2	< 5,9‰	GC	P/C 70/400	EVM	80		depends on the loco		Good
MÁV	Kőbánya felső - Ferencváros	x	x	25 kV, 50 Hz AC	750	CM3	2	< 5,6‰	GC	P/C 70/400	EVM	60		depends on the loco		Excellent

4.10.3. Restrictions

AT-SK-HU-2a: Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz

AT-SK-HU-1b: Bratislava Petržalka - traction power AC 15 kV 16,7Hz and AC 25 kV 50Hz

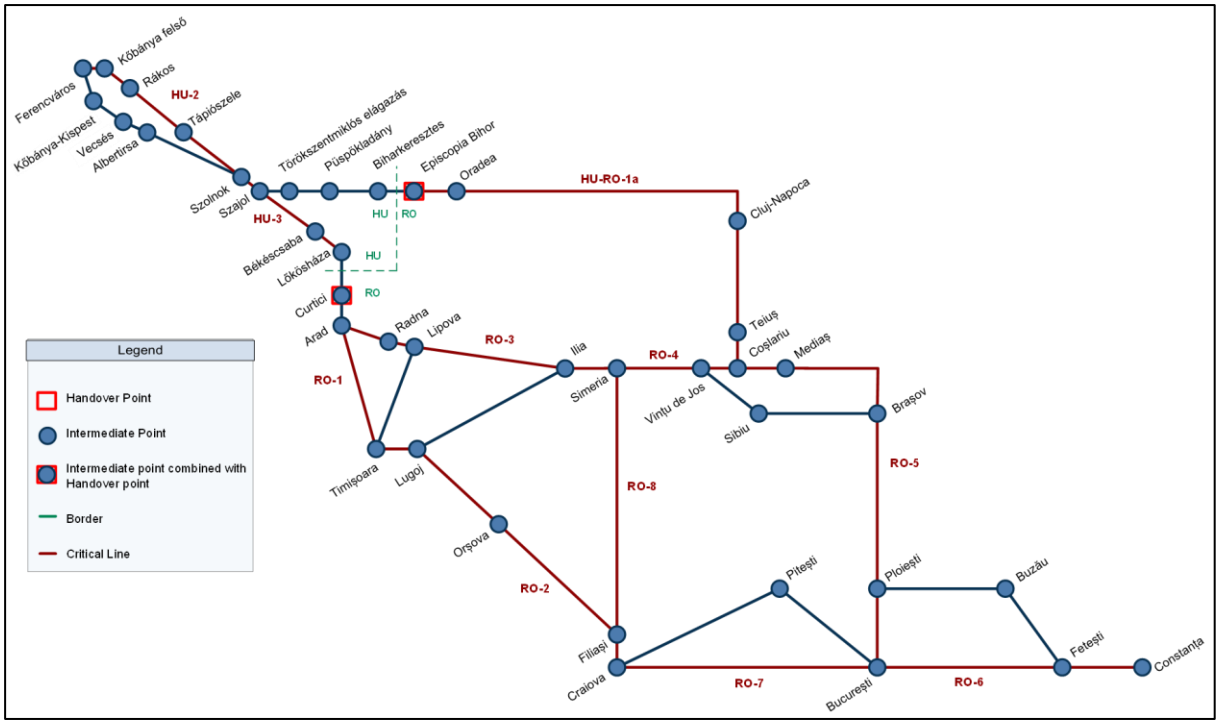
Co-financed by the European Union
Connecting Europe Facility

5. South-Eastern Part

5.1. Overview re-routing options south-eastern part

The following sections with limited re-routing possibilities are defined for the south-eastern part of RFC Rhine-Danube.

Some re-routing options can be used for various sections.



Overview Critical Lines	
Critical Line	**Description**
HU-2	Budapest - Szolnok
HU-3	Szolnok - Lőkösháza
HU-RO-1a	Biharkeresztes - Coșlariu
RO-1	Arad - Timisoara
RO-2	Timisoara - Craiova
RO-3	Arad - Simeria
RO-4	Simeria - Brasov
RO-5	Brasov - București
RO-6	București - Constanța
RO-7	Craiova - București
RO-8	Simeria - Filiasi

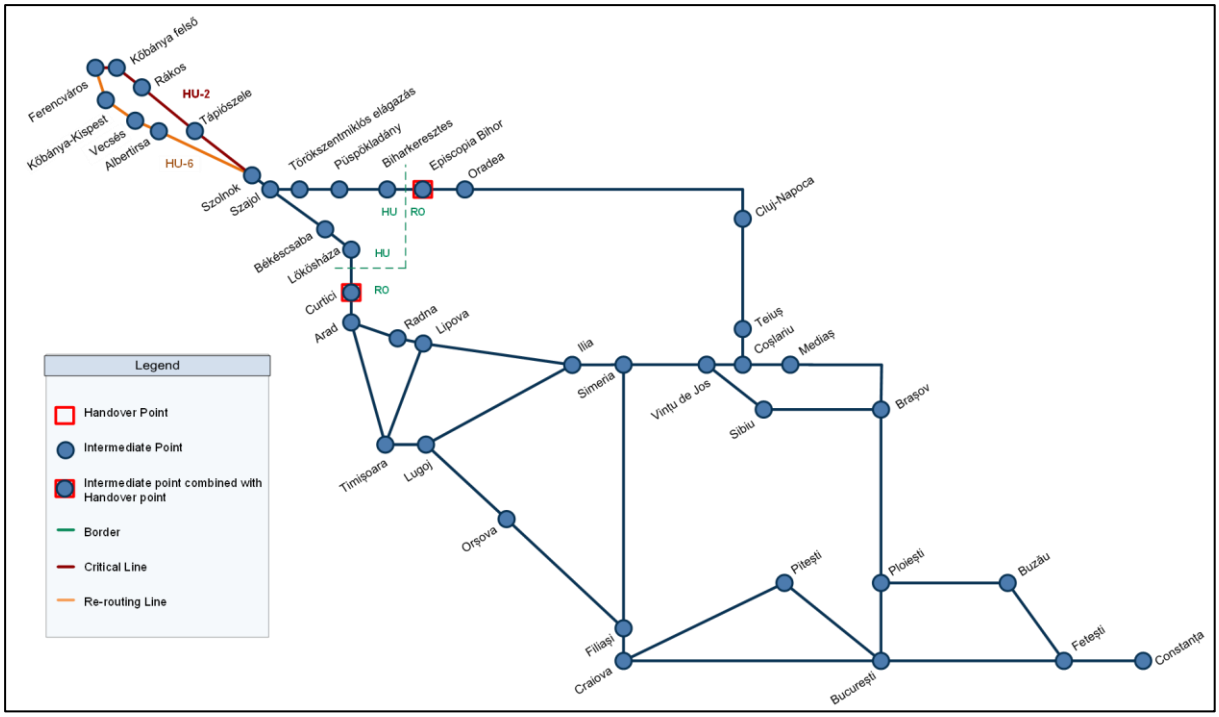
Co-financed by the European Union
Connecting Europe Facility

Overview Re-routing Lines	
Re-routing Line	**Description**
HU-6	Budapest - Cegléd - Szolnok
HU-RO-1b	Szolnok - Püspökladány - Biharkeresztes - Episcopia Bihor - Cluj-Napoca - Coșlariu
HU-RO-2	Szajol - Curtici - Arad - Simeria - Coșlariu
RO-9	Arad - Radna- Timisoara
RO-10	Timisoara - Arad - Simeria - Filiasi - Craiova
RO-11	Arad - Timisoara - Orsova - Filiasi - Simeria
RO-12	Simeria - Sibiu - Brasov
RO-13	București - Ploiesti - Buzau - Fetesti - Constanța
RO-14	Craiova - Pitesti - București
RO-15	Simeria - Ilia - Lugoj - Filiasi
RO-16	Brașov - Simeria - Craiova - București

5.2. Re-routing scenario for section Budapest - Szolnok

5.2.1. General Description

Schematic map including re-routing options.



When the section Budapest – Szolnok (HU-2) is blocked re-routing options are:

Re-routing Line	Description
HU-6	Budapest - Cegléd - Szolnok

Co-financed by the European Union
Connecting Europe Facility

5.2.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section HU-2: Budapest - Szolnok																
MÁV	Ferencváros - Kőbánya felső	X	X	25 kV, 50 Hz AC	750	C2	2	10-15‰	GC	P/C 70/400	EVM	60		depends on the loco		Good
MÁV	Kőbánya felső - Rákos	X	X	25 kV, 50 Hz AC	750	C2	2	5-10‰	GC	P/C 70/400	EVM	80		depends on the loco		Good
MÁV	Rákos - Tápiószele	X	X	25 kV, 50 Hz AC	750	C3	2	5-10‰	GC	P/C 70/400	EVM	100		depends on the loco		Excellent
MÁV	Tápiószele - Szolnok	X	X	25 kV, 50 Hz AC	750	C3	2	0-5‰	GC	P/C 70/400	EVM	120		depends on the loco		Excellent
Re-routing Option HU-6: Budapest - Cegléd - Szolnok																
MÁV	Ferencváros - Kőbánya-Kispest	x	x	25 kV, 50 Hz AC	750	D3	2	< 3,3‰	GC	P/C 70/400	EVM	80		depends on the loco		Excellent
MÁV	Kőbánya-Kispest - Vecsés	x	x	25 kV, 50 Hz AC	750	D4	2	< 4,2‰	GC	P/C 70/400	EVM	120		depends on the loco		Excellent
MÁV	Vecsés - Albertirsa	x	x	25 kV, 50 Hz AC	750	D3	2	< 4,5‰	GC	P/C 70/400	EVM	120		depends on the loco		Excellent
MÁV	Albertirsa - Szolnok	x	x	25 kV, 50 Hz AC	750	D4	2	< 5,3‰	GC	P/C 70/400	EVM	120		depends on the loco		Excellent

5.2.3. Restrictions

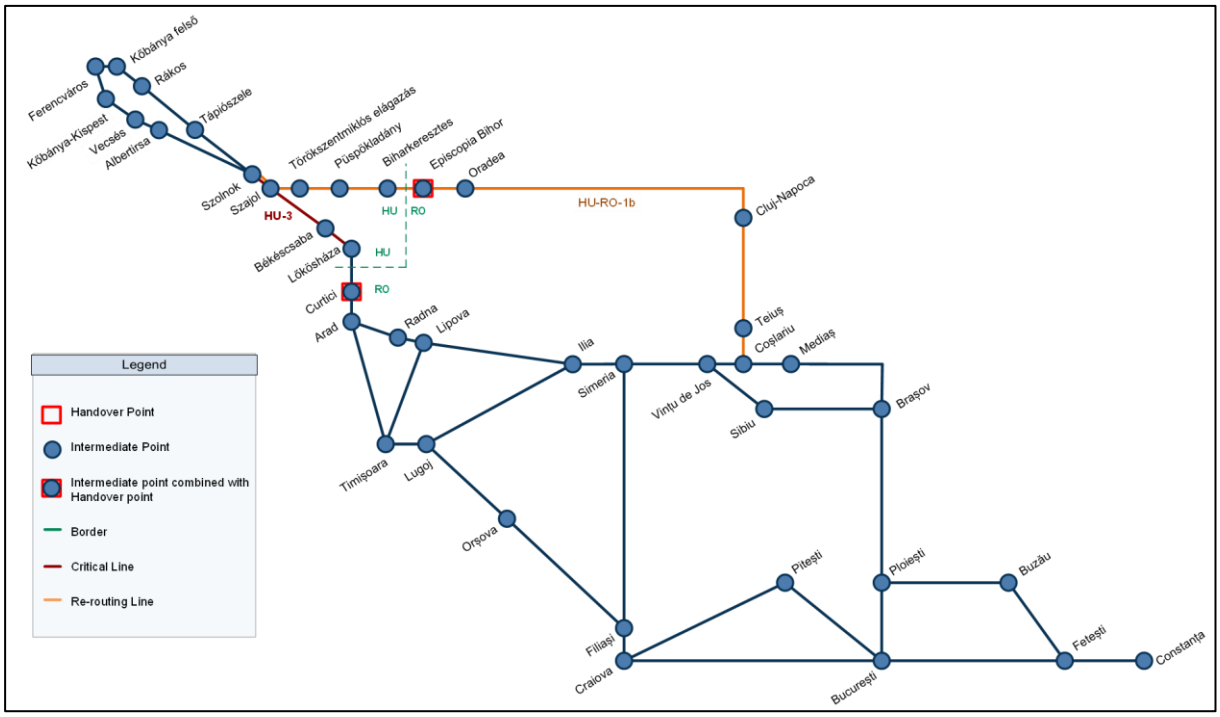
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

5.3. Re-routing scenario for section Szolnok – Lőkösháza

5.3.1. General Description

Schematic map including re-routing options.



When the section Szolnok – Lőkösháza (HU-3) is blocked re-routing options are:

Re-routing Line	Description
HU-RO-1b	Szolnok - Püspökladány - Biharkeresztes - Episcopia Bihor - Cluj-Napoca - Coșlariu

Co-financed by the European Union
Connecting Europe Facility

5.3.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous / Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section HU-3: Szolnok - Lőkösháza																
MÁV	Szolnok - Szajol	X	X	25 kV, 50 Hz AC	750	D4	2	0-5‰	GC	P/C 70/400	EVM	120		depends on the loco		Excellent
MÁV	Szajol - Békéscsaba	X	X	25 kV, 50 Hz AC	750	D4	2	0-5‰	GC	P/C 80/410	EVM	120		depends on the loco		Excellent
MÁV	Békéscsaba - Lőkösháza/Curtici	X	X	25 kV, 50 Hz AC	750	C2	1	0-5‰	GC	P/C 70/400	EVM	100		depends on the loco		Good / Limited
Re-routing Option HU-RO-1b: Szolnok - Püspökladány - Biharkeresztes - Episcopia Bihor - Cluj-Napoca - Coşlariu																
MÁV	Szolnok - Törökszentmiklós elágazás	x	x	25 kV, 50 Hz AC	750	D4	2	< 4,1‰	GC	P/C 70/400	EVM	120		depends on the loco		Excellent
MÁV	Törökszentmiklós elágazás - Püspökladány	x	x	25 kV, 50 Hz AC	750	D4	2	< 0,6‰	GC	P/C 70/400	EVM	120		depends on the loco		Excellent
MÁV	Püspökladány - Biharkeresztes	x	x	Diesel	750	CM2	1	< 3,5‰	GC	P/C 80/410		100		depends on the loco		Limited
CFR	Episcopia Bihor - Cluj-Napoca	x	x	Diesel	600	C3	1; 2: Episcopia Bihor - Oşorhei Telechiu - Aleşd Poieni - Cluj Napoca - Coşlariu	15-20‰	GC	P/C 45/375	Indusi 60	60/70			Border: Episcopia Bihor	
CFR	Cluj-Napoca - Coşlariu	x	x	25 kV, 50 Hz AC	600	C3	1; 2: Episcopia Bihor - Oşorhei Telechiu - Aleşd Poieni - Cluj Napoca - Coşlariu	15-20‰	GC	P/C 45/375	Indusi 60	60/70			Border: Episcopia Bihor	

5.3.3. Restrictions

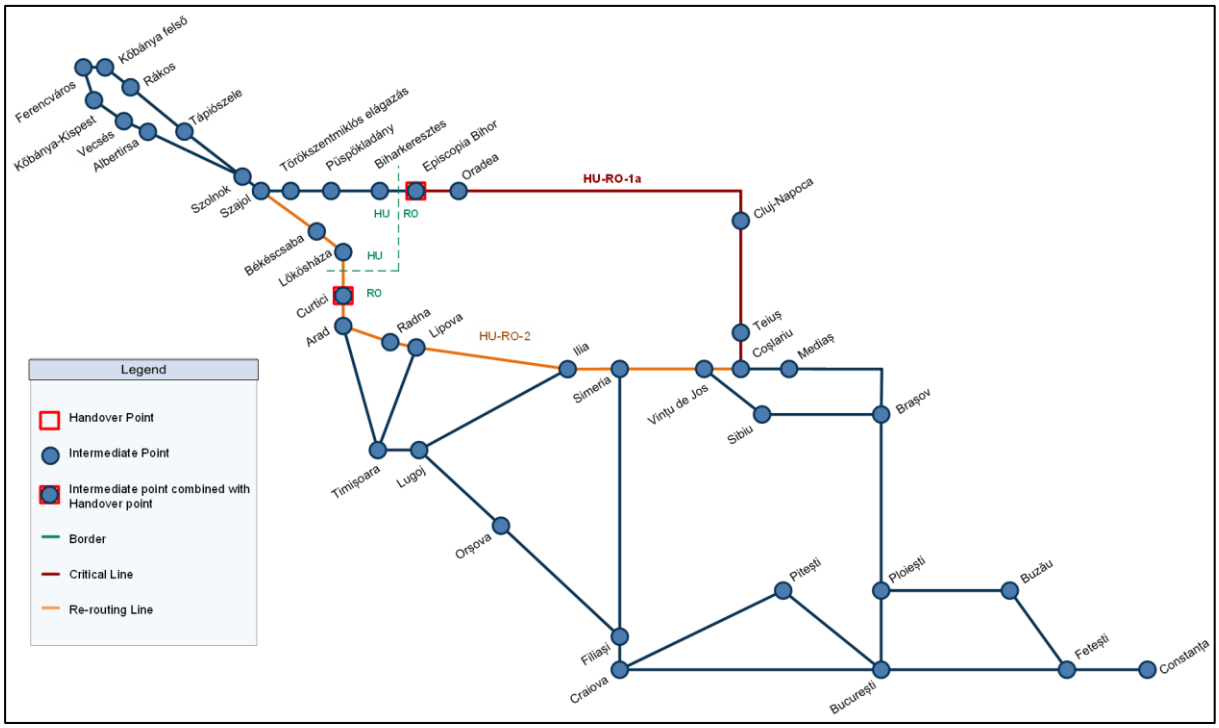
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

5.4. Re-routing scenario for section Biharkeresztes - Coslariu

5.4.1. General Description

Schematic map including re-routing options.



When the section Biharkeresztes – Coslariu (HU-RO-1a) is blocked re-routing options are:

Re-routing Line	Description
HU-RO-2	Szajol - Curtici - Arad - Simeria - Coșlariu

Co-financed by the European Union
Connecting Europe Facility

5.4.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section HU-RO-1a: Biharkeresztes - Cluj-Napoca - Coşlariu																
MÁV	Püspökladány - Biharkeresztes	x	x	Diesel	750	CM2	1	< 3,5‰	GC	P/C 80/410		100		depends on the loco		Limited
CFR	Episcopia Bihor - Cluj-Napoca	x	x	Diesel	600	C3	1; 2: Episcopia Bihor - Oşorhei Telechiu - Aleşd Poieni - Cluj Napoca - Coşlariu	15-20‰	GC	P/C 45/375	Indusi 60	60/70			Border: Episcopia Bihor	
CFR	Cluj-Napoca - Coşlariu	x	x	25 kV, 50 Hz AC	600	C3	1; 2: Episcopia Bihor - Oşorhei Telechiu - Aleşd Poieni - Cluj Napoca - Coşlariu	15-20‰	GC	P/C 45/375	Indusi 60	60/70			Border: Episcopia Bihor	
Re-routing Option HU-RO-2: Szajol - Curtici - Arad - Simeria - Coşlariu																
MÁV	Szajol - Békéscsaba	X	X	25 kV, 50 Hz AC	750	D4	2	0-5‰	GC	P/C 80/410	EVM	120		depends on the loco		Excellent
MÁV	Békéscsaba - Lőkösháza/Curtici	X	X	25 kV, 50 Hz AC	750	C2	1	0-5‰	GC	P/C 70/400	EVM	100		depends on the loco		Good / Limited
CFR	Curtici - Arad	x	x	25 kV, 50 Hz AC	750	D4	2	0 - 5‰	GC	P/C 45/375	Indusi 60	120		3000		
CFR	Arad - Simeria	x	x	25 kV, 50 Hz AC	750	C3	2	5-10‰	GC	P/C 45/375	indusi 60	120				
CFR	Simeria - Mediaş - Braşov	x	x	25 kV, 50 Hz AC	600	C3	2	5-20‰	GC	P/C 45/375	indusi 60	60/120				

5.4.3. Restrictions

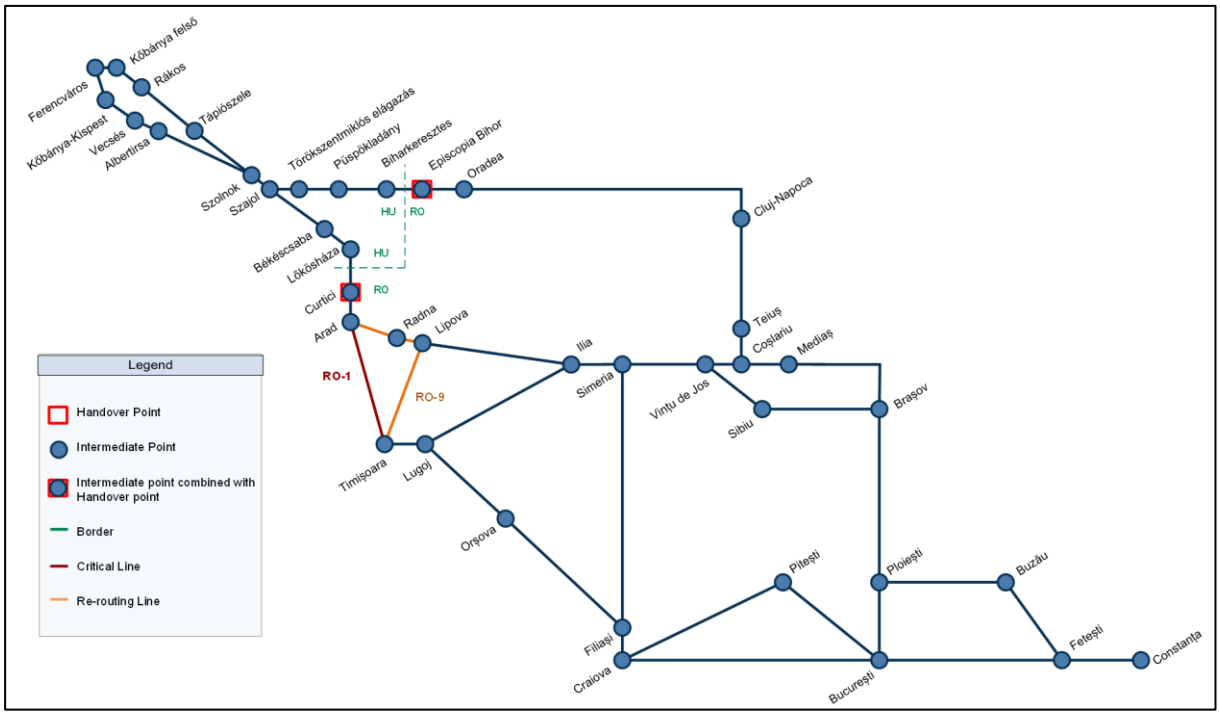
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

5.5. Re-routing scenario for section Arad - Timișoara

5.5.1. General Description

Schematic map including re-routing options.



When the section Arad - Timișoara (RO-1) is blocked re-routing options are:

Re-routing Line	Description
RO-9	Arad - Radna- Timișoara

Co-financed by the European Union
Connecting Europe Facility

5.5.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section RO-1: Arad - Timișoara																
CFR	Arad - Timișoara	x	x	25 kV, 50 Hz AC	750	C3	1 2: Ronaț Triaj Gr. D - Timișoara	0 - 5‰	GC	P/C 45/375	indusi 60	60				
Re-routing Option RO-9: Arad - Radna - Timișoara																
CFR	Arad - Radna	x	x	25 kV, 50 Hz AC	630	C3	2	5-15‰	GC	P/C 45/375	Indusi 60	80	plus 45	900		Limited
CFR	Radna-Timișoara	x	x	Diesel	630	C3	1	5-15‰	GB	P/C 45/375	Indusi 60	80	plus 45	900		Limited

5.5.3. Restrictions

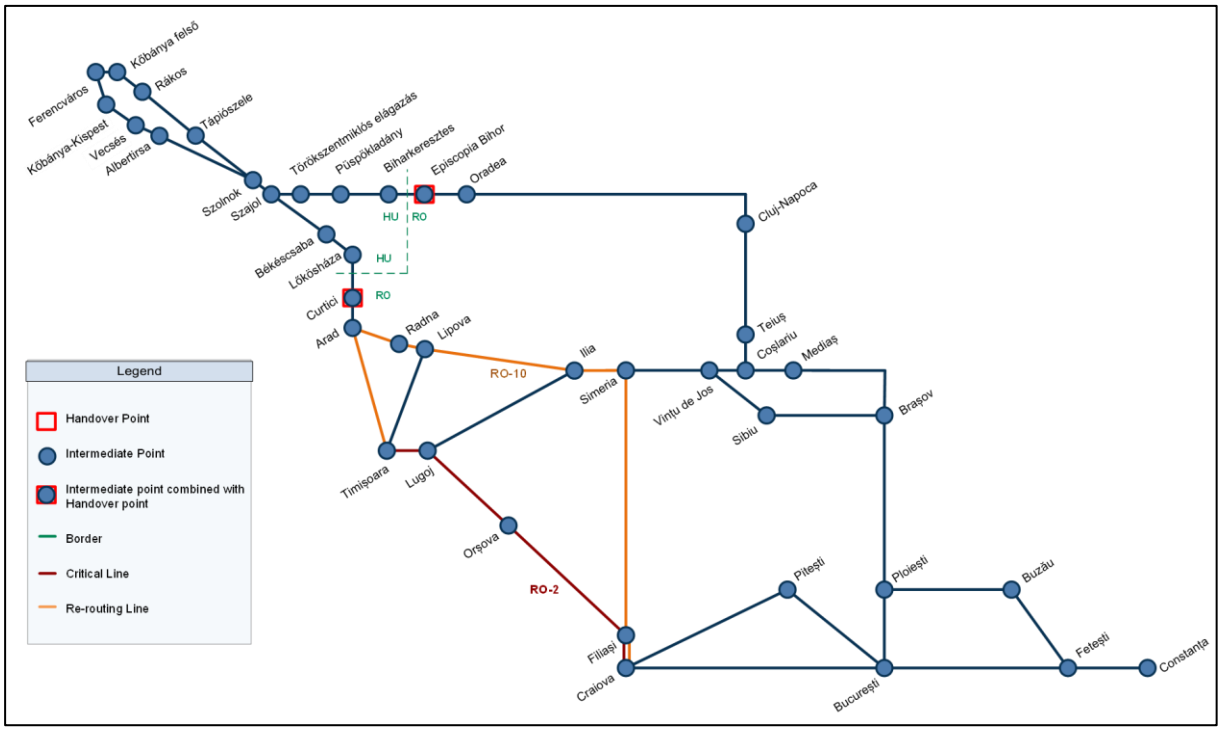
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

5.6. Re-routing scenario for section Timișoara - Craiova

5.6.1. General Description

Schematic map including re-routing options.



When the section Timișoara – Craiova (RO-2) is blocked re-routing options are:

Re-routing Line	Description
RO-10	Timișoara - Arad - Simeria - Filiași - Craiova

Co-financed by the European Union
Connecting Europe Facility

5.6.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section RO-2: Timişoara - Craiova																
CFR	Timişoara - Craiova	x	x	25 kV, 50 Hz AC	720	C3	1, 2: Cavaran - Zagujeni, Strehala - Filiasi	5-25‰	GC	P/C 45/375	indusi 60	60/100				
Re-routing Option RO-10: Timişoara - Arad - Simeria - Filiaşi - Craiova																
CFR	Timişoara - Arad - Simeria - Filiaşi	x	x	25 kV, 50 Hz AC	550	C3	2(1)	5-25‰	GB	P/C 45/375	indusi 60	80	plus 128	1500		Limited
CFR	Filiaşi - Craiova	x	x	25 kV, 50 Hz AC	550	C3	2(1)	5-25‰	GB	P/C 45/375	indusi 60	80	plus 128	1500		Limited

5.6.3. Restrictions

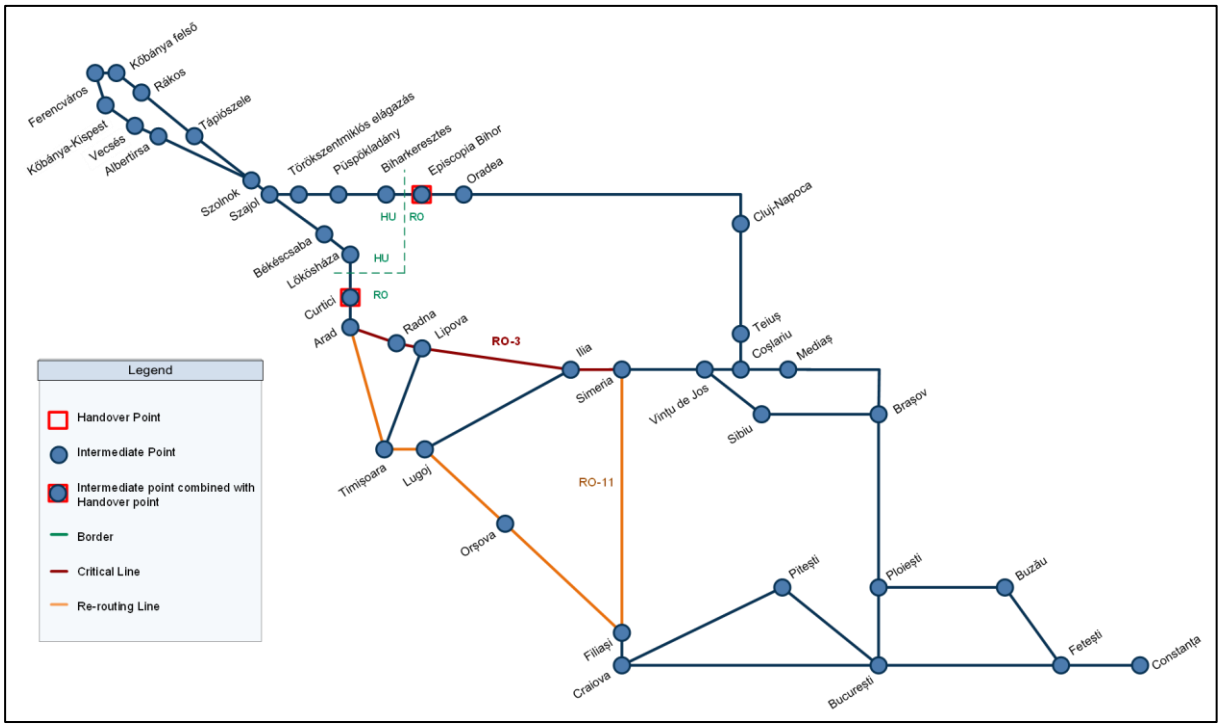
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

5.7. Re-routing scenario for section Arad - Simeria

5.7.1. General Description

Schematic map including re-routing options.



When the section Arad – Simeria (RO-3) is blocked re-routing options are:

Re-routing Line	Description
RO-11	Arad - Timișoara - Orșova - Filiași - Simeria

Co-financed by the European Union
Connecting Europe Facility

5.7.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section RO-3: Arad - Simeria																
CFR	Arad - Simeria	x	x	25 kV, 50 Hz AC	750	C3	2	5-10‰	GC	P/C 45/375	indusi 60	120				
Re-routing Option RO-11: Arad - Timișoara - Orșova - Filiași - Simeria																
CFR	Arad - Timișoara - Orșova - Filiași - Simeria	x	x	25 kV, 50 Hz AC	550	C3	2(1)	5-25‰	GB	P/C 45/375	indusi 60	80	plus 390	1500		Limited

5.7.3. Restrictions

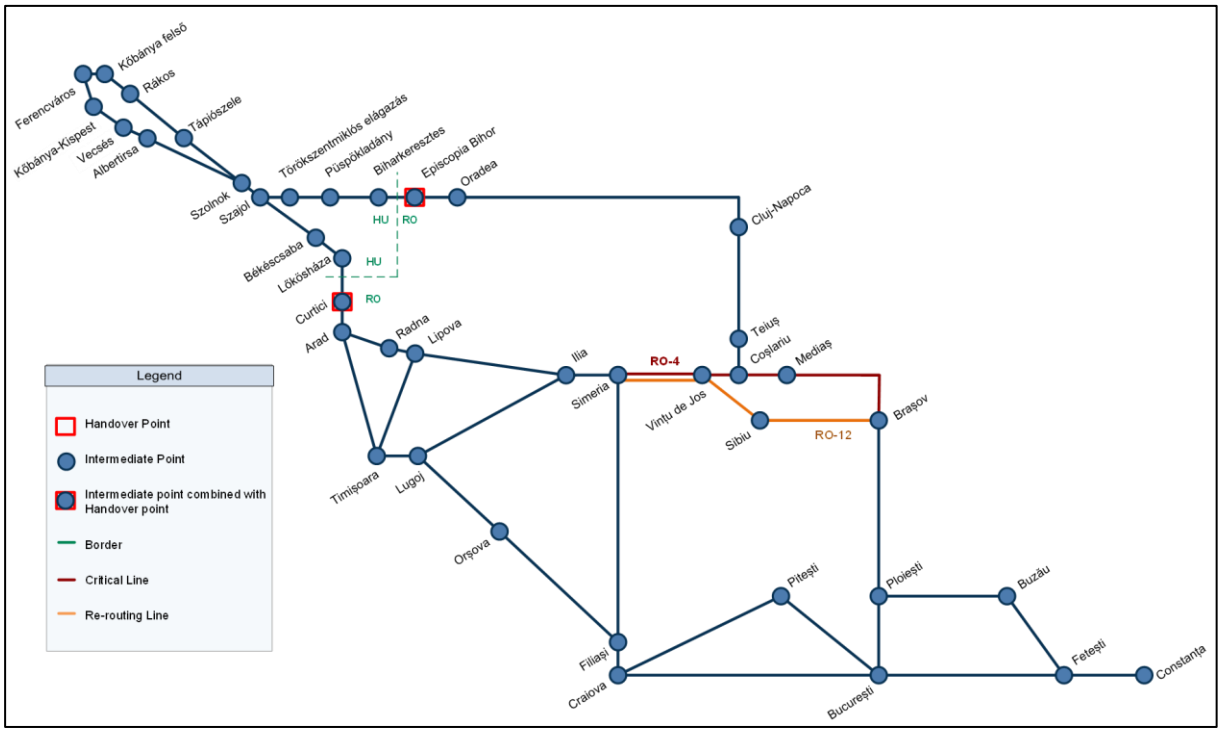
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

5.8. Re-routing scenario for section Simeria - Mediaș - Brașov

5.8.1. General Description

Schematic map including re-routing options.



When the section Simeria - Mediaș - Brașov (RO-4) is blocked re-routing options are:

Re-routing Line	Description
RO-12	Simeria - Sibiu - Brașov

Co-financed by the European Union
Connecting Europe Facility

5.8.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section RO-4: Simeria - Mediaș - Brașov																
CFR	Simeria - Mediaș - Brașov	x	x	25 kV, 50 Hz AC	600	C3	2	5-20‰	GC	P/C 45/375	indusi 60	60/120				
Re-routing Option RO-12: Simeria - Sibiu - Brașov																
CFR	Simeria - Vințu de Jos	x	x	25 kV, 50 Hz AC	600	C3	1	5-20‰	GB	P/C 45/375	Indusi 60	80/60	~	1350		Limited
CFR	Vințu de Jos - Sibiu - Brașov	x	x	Diesel	600	C3	1	5-20‰	GB	P/C 45/375	Indusi 60	80/60	~	1350		Limited

5.8.3. Restrictions

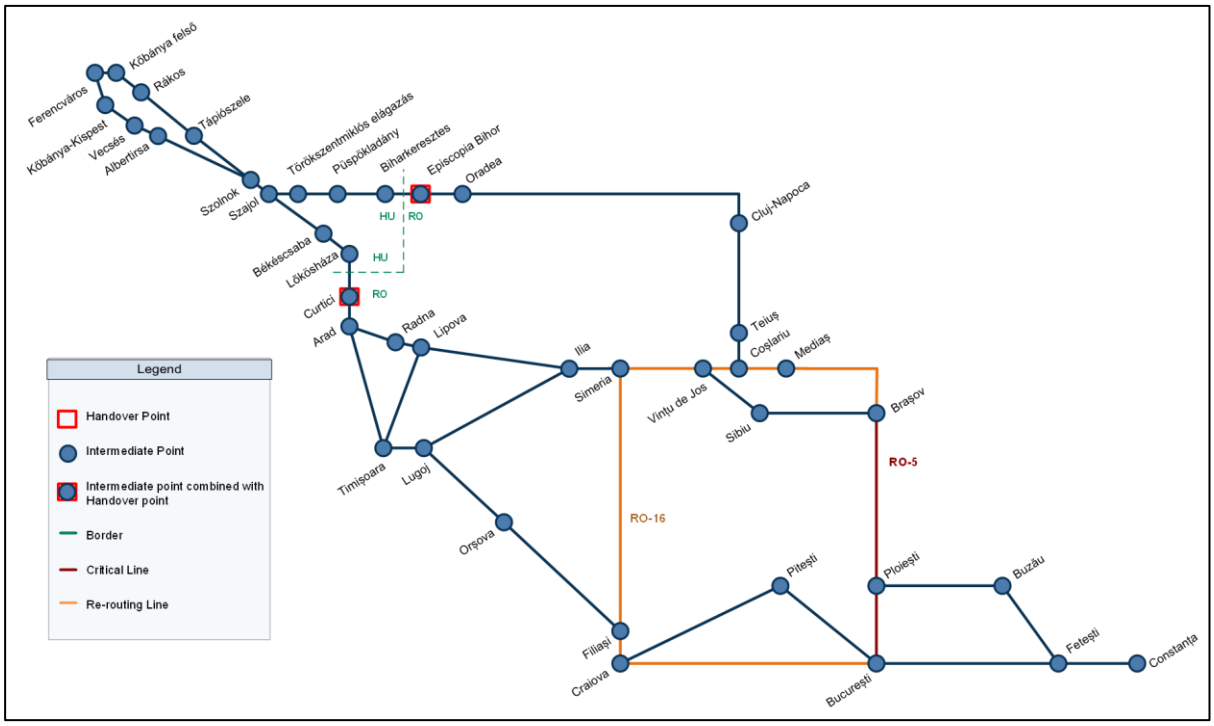
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

5.9. Re-routing scenario for section Brașov - București

5.9.1. General Description

Schematic map including re-routing options.



When the section Brașov – București (RO-5) is blocked re-routing options are:

Re-routing Line	Description
RO-16	Brașov - Simeria - Craiova - București

Co-financed by the European Union
Connecting Europe Facility

5.9.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section RO-5: Brașov - București																
CFR	Brașov - București	x	x	25 kV, 50 Hz AC	640	C3/D4	2	5-35‰	GC	P/C 45/375	indusi 60	100				
Re-routing Option RO-16: Brașov - Simeria - Craiova - București																
CFR	Simeria - Mediaș - Brașov	x	x	25 kV, 50 Hz AC	600	C3	2	5-20‰	GC	P/C 45/375	indusi 60	60/120				
CFR	Simeria - Filiași	x	x	25 kV, 50 Hz AC	550	C3	2(1)	5-25‰	GC	P/C 45/375	indusi 60	80				
CFR	Filiași - Craiova	x	x	25 kV, 50 Hz AC	550	C3	2(1)	5-25‰	GB	P/C 45/375	indusi 60	80	plus 128	1500		Limited
CFR	Craiova - București	x	x	25 kV, 50 Hz AC	750	C3	2	0-15‰	GC	P/C 45/375	indusi 60	60/100				

5.9.3. Restrictions

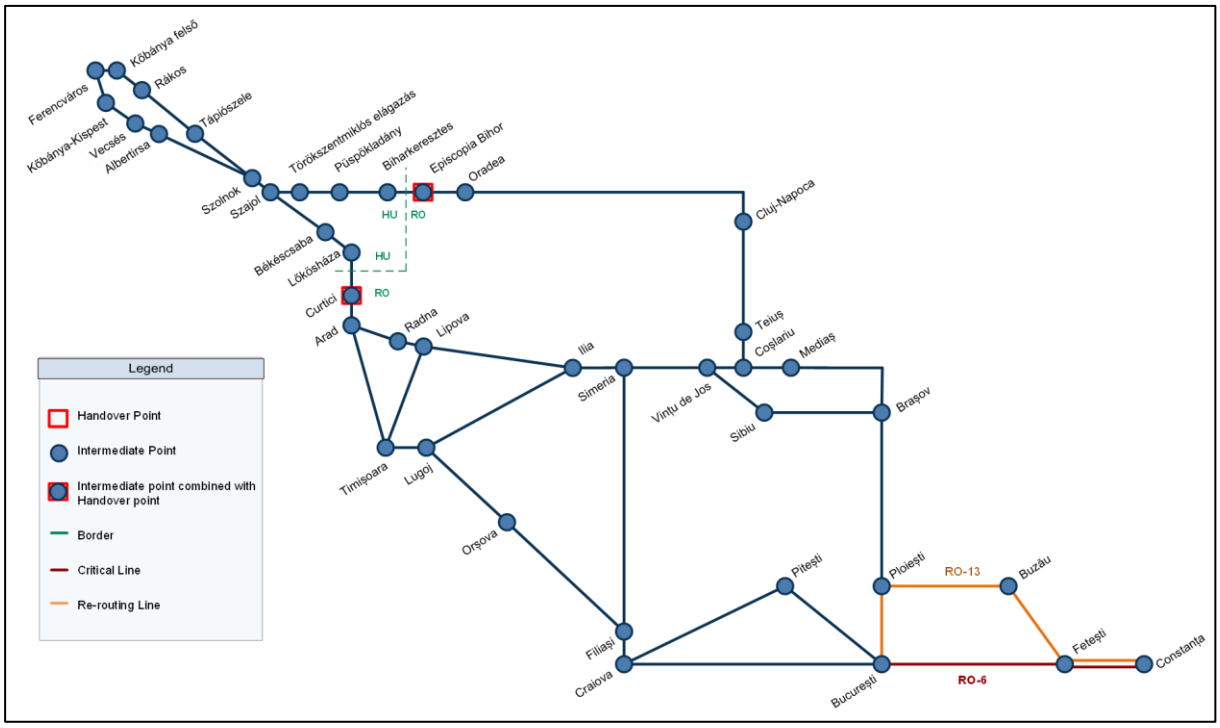
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

5.10. Re-routing scenario for section București - Constanța

5.10.1. General Description

Schematic map including re-routing options.



When the section București – Constanța (RO-6) is blocked re-routing options are:

Re-routing Line	Description
RO-13	București - Ploiești - Buzău - Fetești - Constanța

Co-financed by the European Union
Connecting Europe Facility

5.10.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section RO-6: București - Constanța																
CFR	București - Constanța	x	x	25 kV, 50 Hz AC	750	D4	2	5-15‰	GC	P/C 45/375	indusi 60	120				
Re-routing Option RO-13: București - Ploiești - Buzău - Fetești - Constanța																
CFR	București - Ploiești - Buzău - Fetești - Constanța	x	x	25 kV, 50 Hz AC	600	C3	2	5-15‰	GB	P/C 45/375	Indusi 60	120/80	plus 113	2700		Limited

5.10.3. Restrictions

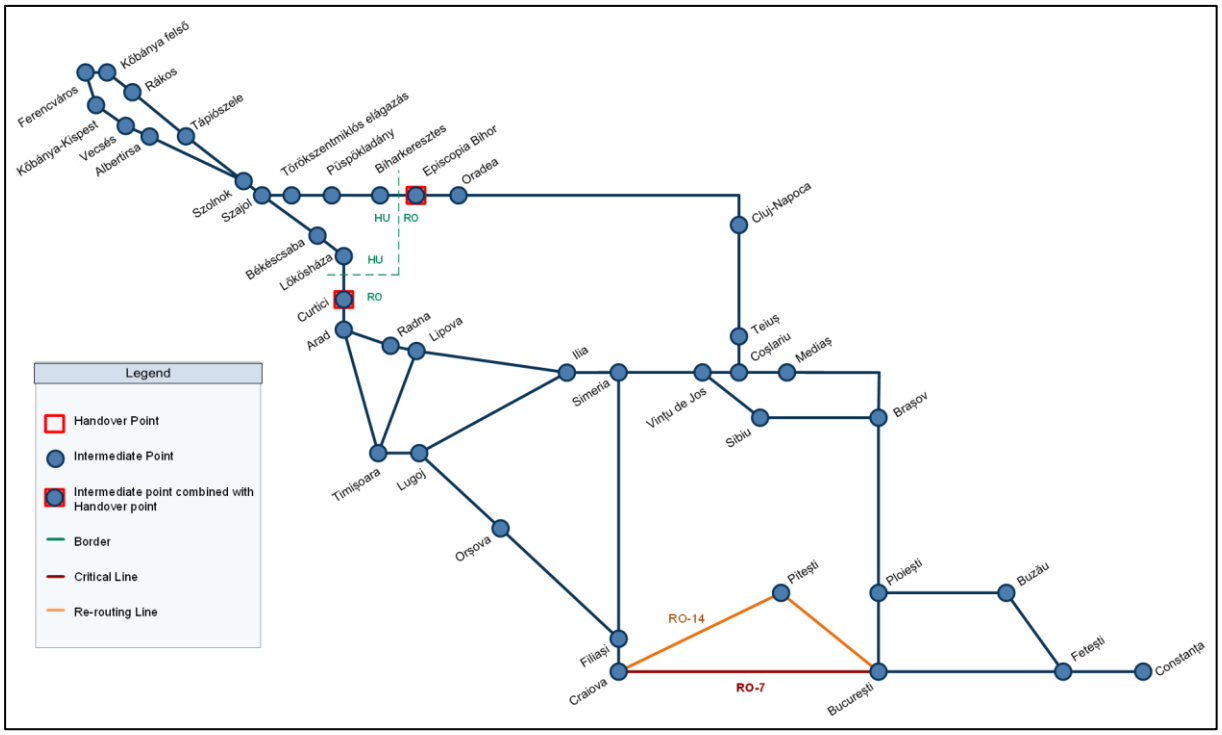
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

5.11. Re-routing scenario for section Craiova - București

5.11.1. General Description

Schematic map including re-routing options.



When the section Craiova – București (RO-7) is blocked re-routing options are:

Re-routing Line	Description
RO-14	Craiova - Pitesti - București

Co-financed by the European Union
Connecting Europe Facility

5.11.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section RO-7: Craiova - București																
CFR	Craiova - București	x	x	25 kV, 50 Hz AC	750	C3	2	0-15‰	GC	P/C 45/375	indusi 60	60/100				
Re-routing Option RO-14: Craiova - Pitești - București																
CFR	Craiova - Pitești - București	x	x	Diesel	600	C3	1, partially 2	5-15‰	GB	P/C 45/375	Indusi 60	100/80	plus 42	1000/2000		Limited

5.11.3. Restrictions

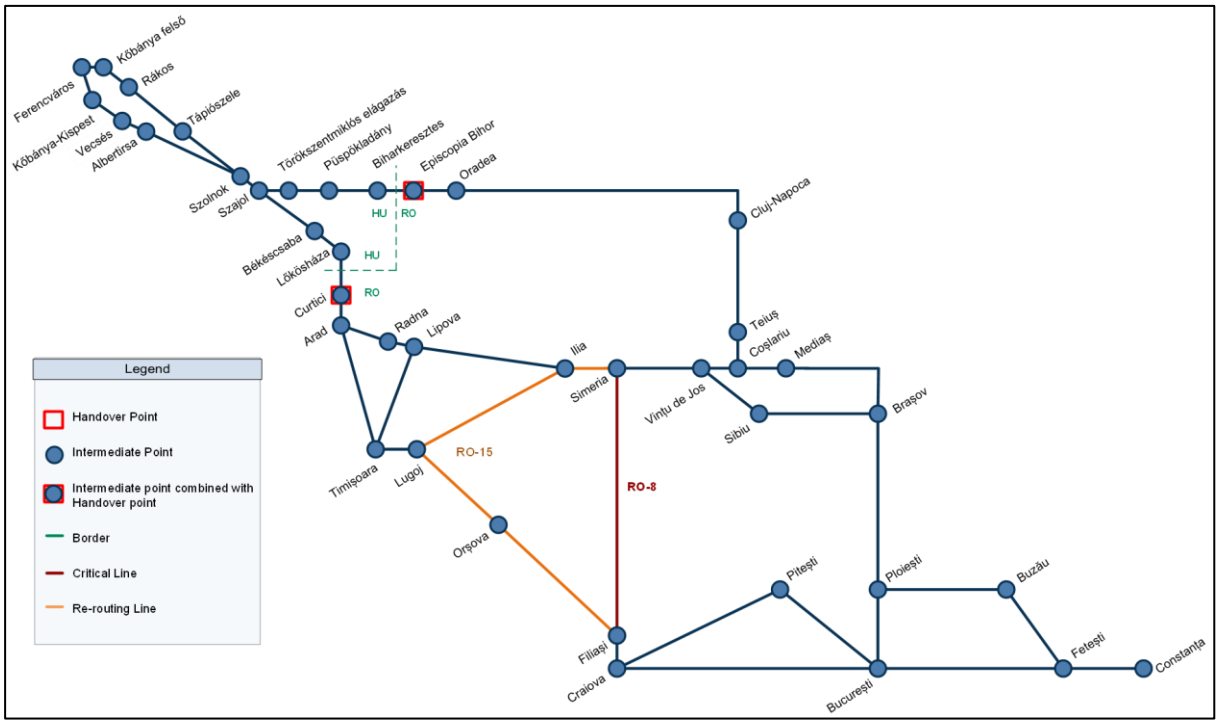
No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

5.12. Re-routing scenario for section Simeria - Filiași

5.12.1. General Description

Schematic map including re-routing options.



When the section Simeria – Filiași (RO-8) is blocked re-routing options are:

Re-routing Line	Description
RO-15	Simeria - Ilia - Lugoj - Filiași

Co-financed by the European Union
Connecting Europe Facility

5.12.2. Infrastructure Parameters of Re-routing Options

IM	Line section	Usage		Traction power	Train length	Line category	Number of tracks	Gradient	Gauge	Intermodal freight code	Signalling	Speed	Length of section	Weight	Miscalleanous/ Restrictions	Capacity Indication
		Pass	Frei		in m			in per mille				in km/h	in km	in t		
Section RO-8: Simeria - Filiași																
CFR	Simeria - Filiași	x	x	25 kV, 50 Hz AC	550	C3	2(1)	5-25‰	GC	P/C 45/375	indusi 60	80				
Re-routing Option RO-15: Simeria - Ilia - Lugoj - Filiași																
CFR	Simeria - Ilia - Lugoj - Filiași	x	x	Diesel	700	C3	1	5-15‰	GB	P/C 45/375	Indusi 60	100/80	plus 144	2100		Limited

5.12.3. Restrictions

No specific (other) restrictions given. See for the infrastructure characteristics the table above.

Co-financed by the European Union
Connecting Europe Facility

Annex 1: Overview of Critical lines on RFC Rhine-Danube

Re-routing Line	Description
AT-1	Salzburg - Wels
AT-2	Linz - Wien Zvbf
AT-3	Wien - Parndorf
AT-HU-1a	Ebenfurth - Sopron
AT-HU-3	Parndorf - Hegyeshalom
AT-SK-1	Kittsee - Bratislava-Petržalka
CZ-SK-1	Hranice na Moravě - Horní Lideč - Žilina
CZ-SK-2	Hranice na Moravě - Čadca - Žilina
DE-10	München - Rosenheim
DE-14	Karlsruhe - Offenburg
DE-6	Hub Würzburg
DE-7/8	Stuttgart - Ulm - Augsburg
DE-9	Augsburg - München
DE-AT-1a	Rosenheim - Salzburg
DE-AT-2a	Nürnberg - Passau - Wels
DE-CZ-3a	Marktredwitz - Cheb - Plzeň
DE-CZ-4a	Schwandorf - Furth im Wald - Plzeň
HU-1	Hegyeshalom - Győr - Komárom - Budapest
HU-2	Budapest - Szolnok
HU-3	Szolnok - Lőkösháza
HU-7	Sopron - Csorna
HU-8	Csorna - Győr
HU-RO-1a	Biharkeresztes - Coșlariu
RO-1	Arad - Timisoara
RO-2	Timisoara - Craiova
RO-3	Arad - Simeria
RO-4	Simeria - Mediaș - Brasov
RO-5	Brasov - București
RO-6	București - Constanța
RO-7	Craiova - București
RO-8	Simeria - Filiasi

Co-financed by the European Union
Connecting Europe Facility

SK-HU-1a	Rusovce - Rajka
SK-HU-1b	Bratislava-Petržalka - Rajka - Hegyeshalom
SK-UA-3	Čierna nad Tisou - Čop

Annex 2: Overview of Re-routing lines on RFC Rhine-Danube (Table)

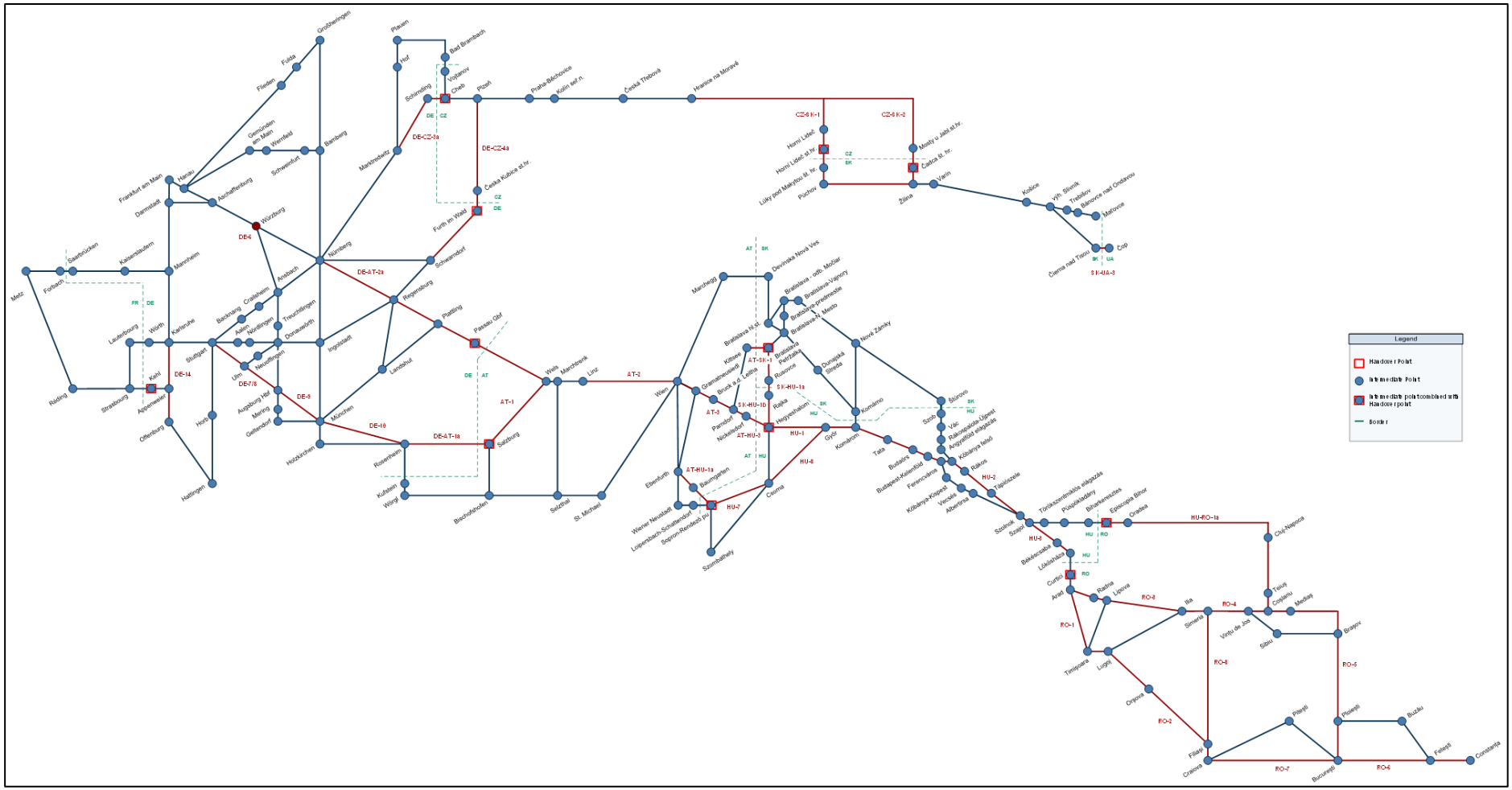
Re-routing Line	Description
AT-4	Salzburg - Bischofshofen - Selthal - Marchtrenk/Linz
AT-HU-1b	Wien - Ebenfurth - Sopron - Győr
AT-HU-1c	Gramatneusiedl - Ebenfurth - Sopron - Györ
AT-HU-2	Ebenfurth - Wiener Neustadt - Sopron
AT-SK-2a	Marchegg - Devínska Nová Ves - Bratislava hl.st. - Bratislava-N. Mesto - Bratislava-Petržalka
AT-SK-2b	Marchegg - Devínska Nová Ves - Bratislava hl.st. - Bratislava-Vajnory - Bratislava-Petržalka
AT-SK-HU-1a	Bratislava hl.st. - Nové Zámky - Štúrovo - Szob
AT-SK-HU-1b	Wien - Bruck a. d. Leitha - Parndorf - Kittsee - Bratislava - Nové Zámky - Štúrovo - Budapest
AT-SK-HU-2a	Wien - Bruck a. d. Leitha - Parndorf - Kittsee - Bratislava - Nové Zámky - Komárom
AT-SK-HU-2b	Parndorf - Bratislava-Petržalka - Nové Zámky - Komárom
AT-SK-HU-2c	Bratislava-Petržalka - Nové Zámky - Komárno - Komárom
AT-SK-HU-2d	Bratislava hl.st. - Nové Zámky - Komárno - Komárom
AT-SK-HU-3a	Parndorf - Bratislava-Petržalka - Dunajská Streda - Komárom
AT-SK-HU-3b	Bratislava-N. Mesto - Dunajská Streda - Komárno - Komárom
AT-SK-HU-3c	Bratislava-Petržalka - Dunajská Streda - Komárno - Komárom
CZ-SK-1	Hranice na Moravě - Horní Lideč - Žilina
CZ-SK-2	Hranice na Moravě - Čadca - Žilina
DE-20	Gemünden – Wernfeld – Schweinfurt – Bamberg – Nürnberg
DE-21	Darmstadt – Stuttgart – Backnang – Crailsheim – Ansbach – Nürnberg
DE-22	Hanau – Flieden – Fulda – Großheringen – Bamberg – Nürnberg
DE-23	Stuttgart – Aalen – Nördlingen – Donauwörth – Augsburg
DE-24a	Stuttgart – Backnang – Crailsheim – Ansbach – Treuchtlingen – Augsburg
DE-24b	Stuttgart – Backnang – Crailsheim – Ansbach – Treuchtlingen – Ingolstadt – München
DE-24c	Stuttgart – Darmstadt – Aschaffenburg – Würzburg – Ansbach – Treuchtlingen – Augsburg
DE-25	(Ulm –) Neuoffingen – Donauwörth – Ingolstadt – München

Co-financed by the European Union
Connecting Europe Facility

DE-26	Augsburg - Mering - Geltendorf - München
DE-27	München – Holzkirchen – Rosenheim
DE-28	Nürnberg - Ingolstadt - Regensburg
DE-29	Nürnberg – Ingolstadt – München – Landshut – Plattling
DE-AT-1b	Nürnberg - Ingolstadt - München - Salzburg - Wels
DE-AT-1c	Regensburg - Landshut - München - Salzburg - Wels
DE-AT-1d	München - Salzburg - Wels
DE-AT-1e	München - Salzburg - Bischofshofen - St. Michael - Wien
DE-AT-2b	München – Plattling – Passau – Wels
DE-AT-2c	München - Passau - Marchtrenk - Selzthal - St. Michael - Wien
DE-AT-IT-1	Rosenheim – Kufstein – Wörgl – Bischofshofen – Salzburg
DE-CH-2	Strasbourg - Offenburg - Hattingen - Horb - Stuttgart
DE-CZ-2	Nürnberg - Marktredwitz - Hof - Plauen - Bad Brambach - Vojtanov - Cheb
DE-CZ-3b	Nürnberg - Marktredwitz - Cheb - Plzeň
DE-CZ-4b	Nürnberg - Schwandorf - Furth im Wald - Plzeň
DE-FR-1	Karlsruhe – Wörth – Strasbourg – Offenburg
DE-FR-2	Mannheim – Metz – Strasbourg – Offenburg
HU-4	Sopron - Szombathely - Csorna
HU-5	Csorna - Hegyeshalom - Győr
HU-6	Budapest - Cegléd - Szolnok
HU-RO-1b	Szolnok - Püspökladány - Biharkeresztes - Episcopia Bihor - Cluj-Napoca - Coșlariu
HU-RO-2	Szajol - Curtici - Arad - Simeria - Coșlariu
RO-10	Timisoara - Arad - Simeria - Filiasi - Craiova
RO-11	Arad - Timisoara - Orsova - Filiasi - Simeria
RO-12	Simeria - Sibiu - Brasov
RO-13	București - Ploiesti - Buzau - Fetesti - Constanța
RO-14	Craiova - Pitesti - București
RO-15	Simeria - Ilia - Lugoj - Filiasi
RO-16	Brașov - Simeria - Craiova - București
RO-9	Arad - Radna- Timisoara
SK-1	Košice - Bánovce nad Ondavou - Maťovce

Co-financed by the European Union
Connecting Europe Facility

Annex 3: Overview of Re-routing lines on RFC Rhine-Danube (Map)



Co-financed by the European Union
Connecting Europe Facility