Capacity Strategy 2027

TTR advanced planning

BANEDANMARK

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Corrections and changes

This document contains corrections and changes, as described in the following table. This document is the initial release of Capacity Strategy 2027. Corrections will be listed in the table below.

Version	Date
0.1	**Initial release**

Document presentation

This is the first draft of the Danish Capacity Strategy document, written according to RNE's Capacity Strategy Handbook, version 1.0 (RailNetEurope, 2021). The document is valid for the timetable year 2027 ("TT2027"). The geographical scope of this document is described in the Introduction. An overview of the planned available infrastructure expected improvements and major temporary restrictions.
The document has four main chapters: Introduction, Expected Capacity of Infrastructure, Temporary Capacity Restrictions and Traffic planning principles, followed by Appendices focusing on specific topics. The Swedish-Danish cross-border section, managed by Øresundsbro Konsortiet, is included in the Danish chapters for simplicity.
The target groups for this document include railway undertakings, non-railway-undertaking capacity applicants, political decision makers and other stakeholders. Other infrastructure Managers, service facility and terminal operators can use this document as a coordination tool for long term planning at international level

Legal ground

A basic principle of directive 2012/34/EU establishing a single European railway area (SERA), and the national legislation implementing it, is to meet the market demand for rail capacity as far as possible. This shall be the aim of infrastructure managing and capacity allocation.
According to Article 83 of SERA, the infrastructure manager shall adopt a business plan designed to ensure optimal and efficient use, provision, and development of the infrastructure. The infrastructure managers are also obliged to assess the need for different types of transport services and to plan for meeting such needs.
This Capacity Strategy is connected to the TTR-project aiming at achieving a new allocation process. The purpose of this document is to roughly indicate potential future usage of the infrastructure concerned but is also considered as compliant with current railway legislation. This strategy is a mere assessment of possible future scenarios under evolving market demand and the real outcome of the planning and allocation process may therefore differ from this strategy.

Timeline

The work on this Capacity Strategy started with input collection in July 2023, to create a first draft document for September 2023, where input from all the stakeholders is collected continuously. The input collected will be integrated in the final document to be published and validated by December 2023, after harmonization of the different requests and needs from the neighboring IMs.

A Capacity Strategy document for TT2028 will be elaborated between January and October 2024. The elaboration times of the document for different years are not aligned due to the initial transitional period, which is expected to impact timetable years up to TT2028.

0 Introduction

0.1 Geographical Scope

This Capacity Strategy document covers the Timetable Year 2027 ("TT2027") on a broader portion of the Danish rail network than the Capacity Strategy 2026. During 2024, a Capacity Model for TT2027 will be created and presented in a separate dedicated document.
The following line sections are included for TT2027, in addition to the geographical scope for Capacity Strategy TT2026 (Banedanmark, Bane NOR, Trafikverket, 2023):

- Aalborg – Hjørring
- Hjørring – Frederikshavn
- Langå – Viborg
- Viborg – Struer
- Herning – Holstebro – Struer
- Skanderborg – Herning
- Vejle – Herning
- Tinglev – Sønderborg
- Roskilde – Holbæk

Further relevant lines from neighboring IMs are included in this document for the sake of completeness of information towards the stakeholders. The pilot scope will be extended every year to eventually cover the whole national networks in the Capacity Strategy document for TT2028. The pilot document will be divided into single national documents when the TTR project is fully implemented in all the participating countries, expectedly for TT2027. Illustration 0.1 provides an overview of the pilot line extension for TT2027 across borders and IMs.
Compared to the TT2026 Capacity Strategy, the 2027 Strategy will feature additional sections, meaning that the main corridors for both passenger and freight traffic are included, as well as a number of secondary corridors.
All the included lines are at least double tracked except for the line Tinglev – Padborg.

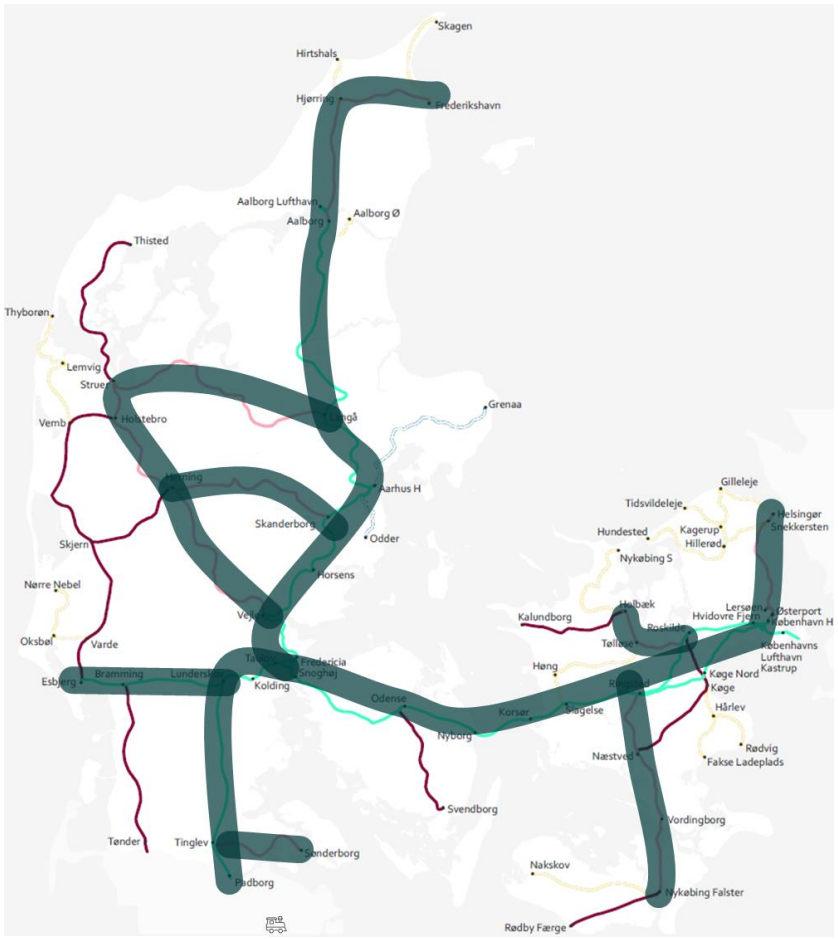

Illustration 0.1 – Overview of the geographical scope for TT2027

0.2 Railway Infrastructure Managers

The Danish network is managed by two IMs: Banedanmark and Sund & Bælt Holding A/S. Both are owned 100% by the Danish state. Sund & Bælt Holding A/S has the following subsidiaries to manage different railway infrastructures: A/S Øresund and A/S Storebælt.
A/S Øresund manages the sections from Copenhagen Airport Kastrup to Copenhagen Central Station and Vigerslev. The Øresund link itself from Copenhagen Airport Kastrup to Lernacken is managed by Øresundsbro Konsortiet I/S, owned by the Danish state and the Swedish state through A/S Øresund (50%) and SVEDAB AB (50%), respectively.
A/S Storebælt owns the Great Belt Link. Both Korsør and Nyborg stations are included. Ownership covers infrastructure development and maintenance.
The rest of the lines are managed by Banedanmark. Banedanmark is in charge of traffic planning and management throughout the whole geographical scope.
Neighboring IMs on major lines are DB Netze and Øresundsbro Konsortiet, sharing the borders at Padborg and Copenhagen Airport Kastrup stations, respectively. Due to the limited extensions of the Øresund fixed link and the natural extension of the traffic beyond Lernacken, Trafikverket is also considered as a neighboring IM and is invited to provide input to this document.
Regional and local IMs are also sharing borders with Banedanmark within the geographical scope 2027:

- Lokaltog (Region H) at Elsinore and Snekkersten
- Lokaltog (Region S) at Nykøbing Falster and Slagelse
- Nordjyske Jernbaner at Aalborg
- Midtjyske at Herning, Holstebro and Struer

0.2.1 List of involved stakeholders

Stakeholder	Roles and involvement
Involved IMs	Trafikverket DB Netze Øresundsbro Konsortiet A/S Øresund SVEDAB AB A/S Storebælt Lokaltog
Terminals	Høje Taastrup Kombiterminal (Banedanmark) Taulov Kombiterminal (Banedanmark) Padborg Kombiterminal (TX Logistik) Esbjerg Havn (Port of Esbjerg) Fredericia Havn (Associated Danish Ports – ADP A/S) Aarhus Havn (APM Terminals) Aalborg Havn Terminal (Port of Aalborg) Hirtshals Havn Terminal (Municipality of Hjørring)
Service facilities	Depot tracks:

	Copenhagen Airport Kastrup, Copenhagen Central Station, Roskilde, Ringsted, Odense, Fredericia, Padborg, Esbjerg, Aarhus, Aalborg, Næstved, Nykøbing Falster

1 Expected Capacity of Infrastructure

In this chapter, an overview of the different railway infrastructure projects affecting capacity is given. The list includes projects expected completed by TT2027 which will either increase or decrease the infrastructure capacity, compared to the current state.

1.0 Additional available capacity

This section refers to information that is available in the documents "Banedanmarks Anlægsplan 2035 – Opdatering April 2023" (Banedanmark, 2023), "Beslutningsgrundlag Øresundsperroner på Ny Ellebjerg Station" (Banedanmark, 2021), and "Forundersøgelse af Ny Kastrup Lufthavn Station" (Sund & Bælt, 2019), published by the Danish Ministry of Transport.
The Danish railway network is undergoing major projects for capacity increase, which consists mainly of the Signaling Programme ("SP), the Electrification Programme ("EP"), and individual line upgrades towards 2026 and beyond.
The main principle for planning and coordinating these major programs is to roll out SP before EP on non-electrified lines whenever possible, and thereby reducing the need for immunization of the legacy signaling system against traction current and its interferences.
Table 1.1 below summarizes the projects for improving the railway capacity expectedly completed by TT27. Illustration 1.1 shows a graphical representation of the same information.

Project name	Project proposal defined	Project approved by the IM's management	Financing secured	Commissioning scheduled	Comments
New platforms and station layout at CPH airport	Yes	Yes	Yes	TT2026	Project manager: Sund&Bælt
New Platforms Ny Ellebjerg	Yes	Yes	Yes	TT2025	Project manager: Metroselskabet
SP (Vigerslev - Peberholm)	Yes	Yes	Yes	TT2026	
SP Roskilde - Holbæk	Yes	Yes	Yes	TT2025	
SP Korsør – Fredericia	Yes	Yes	Yes	TT2027	
SP Lunderskov – Esbjerg	Yes	Yes	Yes	TT2025	
SP (Fredericia) – Aarhus	Yes	Yes	Yes	TT2026	Commissioning during TT2026
SP Aarhus - Aalborg	Yes	Yes	Yes	TT2025	
SP Fredericia – Padborg	Yes	Yes	Yes	TT2027	

SP (Tinglev) – Sønderborg	Yes	Yes	Yes	TT2027	
Stilling Station – New platform	Yes	Yes	No	TT2025	Expected, not scheduled
Storstrøms Bridge - Construction	Yes	Yes	Yes	TT2027	
Aarhus H – Various	Yes	Yes	Yes	TT2027	SP, EP, Speed upgrade, New platforms
Langå Station – Speed upgrade + SP	Yes	Yes	Yes	TT2025	
Aalborg Station – Speed upgrade + SP + EP	Yes	Yes	Yes	TT2025	
New platforms Brønderslev Station	Yes	Yes	Yes	TT2025	

Table 1.1: Expected changes in infrastructure capacity for TT27.

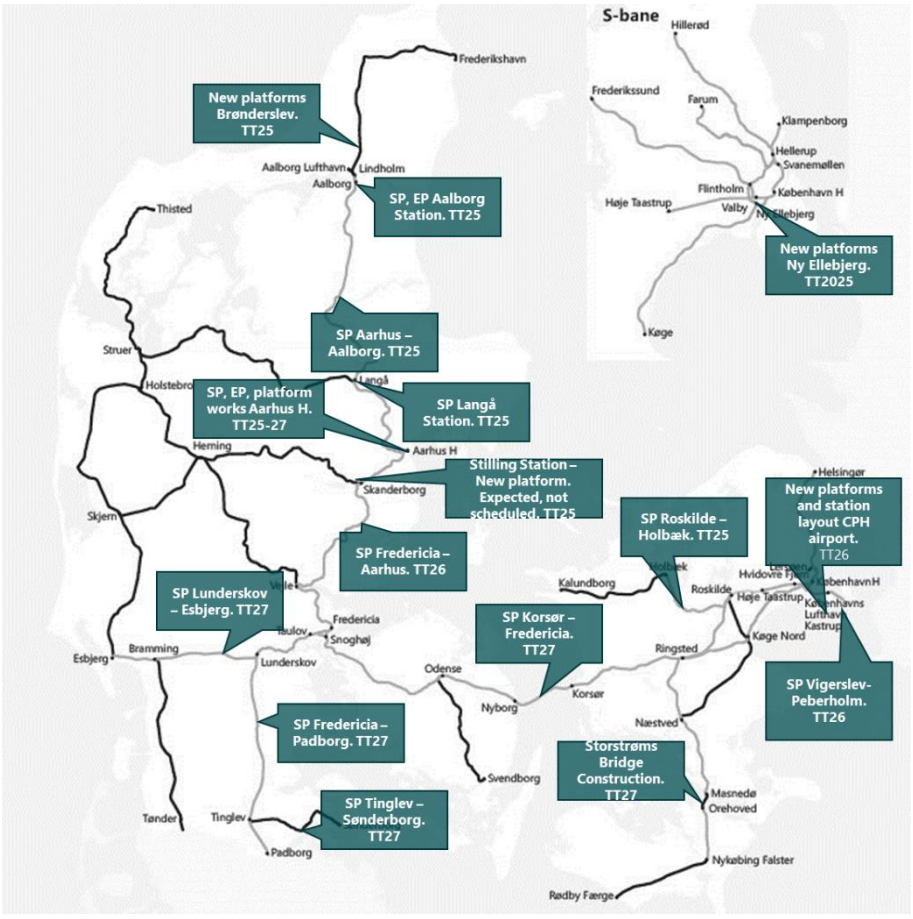

Illustration 1.1: Expected changes in infrastructure capacity for TT27.

Signaling Programme (SP)

The switch from the legacy signaling system ATC to ETCS/ERTMS is expected to increase line capacity. On individual lines, the new signaling system will also allow for speed increases, reducing total travel time.

SP will be introduced in:

- TT25 on TIP-24 Aarhus-Aalborg; TIP-29 Lunderskov-Esbjerg; TIP-30 Bramming-Tønder; and the TIP-5 section between Roskilde and Holbæk. SP will also be implemented on stations Langå and Aalborg, along with a speed upgrade on both stations.
- TT26 on TIP-11 Vigerslev-Peberholm; and TIP-23 Fredericia-Aarhus
- TT27 on the TIP-1 section between Korsør and Fredericia; TIP-26 Fredericia-Padborg; and TIP-28 Tinglev-Sønderborg. SP will also be introduced on Aarhus H, along with a speed upgrade and new platforms.

Electrification Programme (EP)

The main lines on the Danish network are being electrified. On most of the lines, the electrification system commissioning is subject to the rollout of the new signaling system.

EP will be introduced in:

- TT25 on the TIP-5 section between Roskilde-Holbæk, and on the TIP-31 section between Skjern-Holstebro.
- TT26 on TIP-23 Fredericia-Aarhus; TIP-24 Aarhus-Aalborg; TIP-52 Aalborg-Aalborg Airport.
- TT27 on the TIP-2 section between Vordingborg-Nykøbing F.

New station at CPH airport

Two new platform tracks at CPH airport for passenger service, and new optimized track layout which will help reduce conflicts between passenger and freight traffic in opposite directions. The project is managed by third party Sund & Belt Holding A/S.

New platforms Ny Ellebjerg (Copenhagen S)

New platforms for passengers at Ny Ellebjerg (Copenhagen S) Station on the line towards CPH Airport. The project is managed by third party Metroselskabet.

New platforms Brønderslev Station

The platforms at Brønderslev Station will be rebuilt to a standard height, and thus will accommodate even-leveled entry and exit of trains.

Construction of the Storstrøms Bridge

The construction of the Storstrøms Bridge between Vordingborg and Nykøbing Falster is expected to be completed by Q2 2027. This will also allow the usage of EP on the section in question, as this is planned to be carried out in 2026 and Q1 2027.

1.1 Reduced available capacity

No permanent capacity reductions are planned for TT2026.

2 Temporary Capacity Restrictions

2.0 Principles for TCR Planning

The information in this section refers directly to the documents "Generelle sporspærringsprincipper" (Banedanmark, 2021) and "Sporspærringsprincipper fra 2022" (Banedanmark, 2021). Due to the typical traffic structure and the lack of rerouting possibilities, any track possession on the lines Padborg/Aarhus - Ringsted and Copenhagen/Vigerslev - Peberholm will be expected to have major impact on the traffic. Track possessions on the two sections Copenhagen – Ringsted, via Roskilde or Køge Nord respectively, are expected to have medium impact on the traffic, because of the rerouting possiblity between the two lines in question. The remainder of the network either provides rerouting possibilities, or is subject to lower traffic volumes, which leaves more room to accommodate TCRs, and thus has a lower expected impact on traffic.
Traffic in the triangle area Snoghøj - Taulov – Fredericia can be rerouted.
Traffic in the area between Struer - Langå - Skanderborg – Vejle area is possible to reroute in theory, but in practice the added time required for rerouting means that this is not a viable option.
As a general principle, TCRs are clustered to optimize overall closure of channels, and placed in weekends, at night or during holidays to limit the overall impact on traffic as much as possible. For sections with increased holiday traffic, the latter principle is not in effect.
A full description of the principles for each individual line is included in Appendix A, whereas the complete network is covered in the original document "Sporspærringsprincipper fra 2022" (Banedanmark, 2021).

2.0.1 Total closures

The geographical scope of the Capacity Strategy 2027 covers lines on the Danish national rail network with varying degrees of traffic volumes. On the lines with high traffic volumes, that are also covered in the Capacity Strategy 2026, total closures will be minimized, clustered and scheduled during low-demand periods, such as holidays and school breaks. A limit of 8,33 days/year of total closure is defined for the corridor section Padborg – Ringsted.
On the sections with medium traffic, Aalborg – Hjørring, Hjørring – Frederikshavn, Langå – Viborg, Viborg – Struer, Herning – Holstebro – Struer, Skanderborg – Herning, and Vejle – Herning, total closures must also be scheduled during holidays and school breaks, or a maximum of 56 hours during weekends.
On the section Tinglev - Sønderborg with lower traffic, total closures can be planned throughout the year, but must be planned so as much work as possible can be done at once.
On the section Roskilde - Holbæk, total closures must be held between weeks 27 and 32.

2.0.2 Single-track closures

In case of a single-track closure on double track lines, the remaining active track is always operated at the maximum speed that is allowed by the type of work on the neighboring single-track closures. Generally, the speed limit on operational tracks should never be lower than 80 km/h in the daytime, but a speed limit as low as 40 km/h can be introduced during evening and night hours, when the actual work is being executed.

Table A.1 in Appendix A lists the specific principles for TCRs on the respective individual line sections.
Illustration 2.1 below shows the capacity on the double-tracked network, under single-track closures.

Illustration 2.1: Expected capacity during single track closures.

Number of trains per hour per direction. Red sections have a limit of 2, yellow sections a limit of 4, and green sections a limit of 6 per hour per direction. The section between Roskilde - Høje Taastrup has four tracks.
NB: The section between Odense - Sorø requires bundling of trains in the timetable to allow for 6 trains per hour.

2.1 Pre-Announcement of Major Impact TCRs

The following Major TCRs are announced for timetable years TT24, TT25 and TT26 respectively. The Danish network is undergoing a number of changes the upcoming years, especially with regards to the Signal Programme, Electrification Programme, and general speed upgrades to the network, which will take place the upcoming years. Besides these, the new Kastrup Station and the rebuilding of Aarhus H will also cause a number of Major Impact TCRs over the next few years. Below are all listed major TCRs, sorted by timetable year. Table 2.1 shows the Major Impact TCRs in TT24, Table 2.2 the Major Impact TCRs in TT25, and Table 2.3 the Major Impact TCRs in TT26. A visualization of expected Major Impact TCRs in TT27 is displayed in Illustration 2.2.

Table 2.1: Major Impact TCRs TT24

Network segment	Purpose	Time of Execution	Start	Impact	Impact to passenger & freight traffic	Project approved by the IM's management	Financing secured
Sorø - Slagelse	Drainage	14/6-28/6	Q2 TT24	Single track closure	Max 80 km/h Sections with max 40 km/h	Yes	Yes
Fjennesle v - Sorø	Drainage	7/7-13/7	Q3 TT24	Single track closure	Max 80 km/h Sections with max 40 km/h	Yes	Yes
Ringsted - Slagelse	Track renewal	13/7-22/7	Q3 TT24	Total closure	Total closure – passenger traffic will be rerplaced by buses between Slagelse and Ringsted.	Yes	Yes
Fjennesle v - Sorø	Drainage	22/7-27/7	Q3 TT24	Single track closure	Max 80 km/h	Yes	Yes

					Sections with max 40 km/h		
Ringsted – Fjennesle v	Drainage	27/7-26/8	Q3 TT24	Single track closure	Max 80 km/h Sections with max 40 km/h	Yes	Yes
Slagelse – Forlev	Various works	7/7-13/7	Q3 TT24	Single track closure	Max 80 km/h Sections with max 40 km/h	Yes	Yes
Slagelse - Korsør	Various works	13/7-22/7	Q3 TT24	Total closure	Total closure – passenger traffic will be replaced by buses between Slagelse and Korsør.	Yes	Yes
Slagelse – Forlev	Reduced speed – bridges requiring stabilizing	22/7-25/7	Q3 TT24	Speed restriction	Max 80 km/h both tracks	Yes	Yes
Korsør - Forlev	Various works	22/7-12/8	Q3 TT24	Single track closure	Max 80 km/h Sections with max 40 km/h	Yes	Yes
Forlev-Korsør	Reduced speed – bridges requiring stabilizing	12/8-15/8	Q3 TT24	Speed restriction	Max 80 km/h	Yes	Yes
Slagelse – Forlev	Various works	12/8-26/8	Q3 TT24	Single track closure	Max 80 km/h Sections with max 40 km/h	Yes	Yes
Slagelse – Forlev	Reduced speed – bridges	26/8-28/8	Q3 TT24	Speed restriction	Max 80 km/h	Yes	Yes

	requiring stabilizing						
Nykøbing Falster Vest - Rødby Færge	Fehmarn construction works	1/1-31/12	Q1 TT24	Total closure	Total closure except Lollandbanen	Yes	Yes
Nykøbing Falster - Nykøbing Falster Vest	Fehmarn construction works	1/1-31/12	Q1 TT24	Speed restriction	Max 40 km/h	Yes	Yes
Kastrup Station	New Kastrup Airport Station	16/6-10/8	Q2 TT24	Track closures	2 tracks closed 16/6-29/6; 1 track closed 29/6-10/8	Yes	Yes
Hedensted – Vejle	Re-isolation of bridges	14/6-26/7	Q2 TT24	Single track closure	Only one track in use	Yes	Yes
Aarhus – Hørning	Bridge works	14/6-26/7	Q2 TT24	Single track closure	Only one track in use	Yes	Yes
Aarhus H	Platform works	April-October	Q2 TT24	Platform closures	No parking in Aarhus H – no impact on timetabling. One track taken out of commission at a time.	Yes	Yes
Langå Station	Various works	24/6-26/7	Q2 TT24	Closures on track 2 and 3; then 3 and 4	Closures on 2 tracks concurrently, other tracks remain open	Yes	Yes
Hobro - Hjørring S	Various works	12/8-7/10	Q3 TT24	Total closure	Total closure – passenger traffic will be replaced by buses	Yes	Yes
Langå Station	Various works	12/8-23/9	Q3 TT24	Closure of tracks 1 and 2	Traffic delays due to track closures	Yes	Yes

Hjørring Station	Track restructuring	26/7-7/10	Q3 TT24	Total closure	Total closure – passenger traffic will be replaced by buses	Yes	Yes
Fredericia – Taulov	Track renewal	31/5-23/6	Q2 TT24	Single track closure	Single track operation	Yes	Yes
Lundersk ov – Vamdrup	Track renewal	21/7-14/8	Q3 TT24	Single track closure	Single track operation	Yes	Yes
Tinglev Station	Track renewal	12/6-24/6	Q2 TT24	Track closures	Single track operation Rødekro - Tinglev	Yes	Yes
Vamdrup – Lundersk ov	Track renewal	25/6-15/7	Q2 TT24	Single track closure	Periods with restricted access in Vamdrup	Yes	Yes
Vojens Station	Track renewal	16/7-20/7	Q3 TT24	Track closures	Single track operation Rødekro - Vamdrup	Yes	Yes
Kolding – Lundersk ov	Track renewal	31/5-21/6	Q2 TT24	Single track closure	Single track operation	Yes	Yes
Vojens - Rødekro	Track renewal	21/7-14/8	Q3 TT24	Single track closure	Single track operation Vojens - Rødekro	Yes	Yes
Tinglev – Padborg	Various works	17/5-20/5 + 16/7-20/7	Q2 TT24	Total closure	Total closure – passenger traffic will be replaced by buses	Yes	Yes
Esbjerg – Lundersk ov	Signal programm e	24/3-2/4	Q1 TT24	Total closure	Total closure – passenger traffic will be replaced by buses	Yes	Yes

Table 2.2: Major Impact TCRs TT25

Network segment	Purpose	Time of Execution	Start	Impact	Impact to passenger & freight traffic	Project approved by the IM's management	Financing secured
Ringsted – Fjenneslev	Track renewal	24/5-22/6	Q2 TT25	Single track closure	Single track operation Max 80 km/h Sections with max 40 km/h	Yes	Yes
Sorø - Fjenneslev	Track renewal	22/6-27/6	Q2 TT25	Single track closure	Single track operation Max 80 km/h Sections with max 40 km/h	Yes	Yes
Sorø Station	Various works	27/6-8/7	Q2 TT25	Track closures	Only operations in track 1 + 2 Sorø	Yes	Yes
Slagelse - Sorø	Track renewal	8/7-12/7	Q3 TT25	Single track closure	Single track operation. Max 80 km/h Sections with max 40 km/h	Yes	Yes
Ringsted – Slagelse	Track renewal	12/7-21/7	Q3 TT25	Total closure	Total closure –	Yes	Yes

					passenger traffic will be replaced by buses		
Sorø Station	Track restructuring + drainage	21/7-11/8	Q3 TT25	Track closure	Single track operation in track 3	Yes	Yes
Middelfart – Fredericia/Taulov	Renewal junctures	23/6-3/8	Q2 TT25	Track closure	Single track operations	Yes	Yes
Middelfart – Fredericia/Taulov	Renewal junctures	14/7-3/8	Q3 TT25	Total closure	Total closure at night	Yes	Yes
CPH Airport – Kastrup Station	New Kastrup Airport Station	16/10-13/11	Q4 TT25	Track closures	Freight trains will use passenger channels through CPH Airport	Project is in Sund & Belt / Yes	Yes
Børkop - Fredericia	Bridge works	6/6-21/7	Q2 TT25	Track closures	Single track operation	Yes	Yes
Hørning - Aarhus	Rebuild Aarhus H	9/12/24 - 21/4/25	Q4 TT24	Track closures	Track 6 and 7 closed at Aarhus H	Yes	Yes
Hørning - Aarhus	Rebuilding Aarhus H	21/4/25 -TT26	Q2 TT25	Track closures	Tracks 4, 5, 6 and 7 closed at Aarhus H	Yes	Yes
Aarhus H	Rebuilding Aarhus H	24/11/25-TT26	Q4 TT25	Track closures	One track closed at a time	Yes	Yes
Brabrand – Aarhus H	Rebuilding Aarhus H	9/12/24 - 21/4/25	Q4 TT24	Track closures	Tracks 6 and 7 closed at Aarhus H	Yes	Yes

Brabrand – Aarhus H	Rebuilding Aarhus H	21/4-23/11	Q2 TT25	Track closures	Tracks 4, 5, 6 and 7 closed at Aarhus H	Yes	Yes
Brabrand – Aarhus H	Rebuilding Aarhus H	23/11-13/12	Q4 TT25	Track closures	Single track operation	Yes	Yes

Table 2.3: Major Impact TCRs TT26

Network segment	Purpose	Time of Execution	Start	Impact	Impact to passenger & freight traffic	Project approved by the IM's management	Financing secured
Ringsted – Fjennesle v	Track renewal	14/5-25/6	Q2 TT26	Single track closure	Single track operation Max 80 km/h Sections with max 40 km/h	Yes	Yes
Sorø - Fjennesle v	Track renewal	25/6-5/7	Q2 TT26	Single track closure	Single track operation Max 80 km/h Sections with max 40 km/h	Yes	Yes
Slagelse - Sorø	Track renewal	5/7-11/7	Q3 TT26	Single track closure	Single track operation. Max 80 km/h Sections with max 40 km/h	Yes	Yes
Ringsted – Slagelse	Track renewal	11/7-20/7	Q3 TT26	Total closure	Total closure – passenger traffic will	Yes	Yes

					be replaced by buses		
Fjennesle v – Ringsted	Track renewal	20/7-31/7	Q3 TT26	Single track closure	Single track operation Max 80 km/h Sections with max 40 km/h	Yes	Yes
Sorø - Fjennesle v	Track renewal	31/7-10/8	Q3 TT26	Single track closure	Single track operation Max 80 km/h Sections with max 40 km/h	Yes	Yes
Ejby – Kavslund e	New track across West Funen	13/6-11/7	Q2 TT26	Single track closure	Single track operation	Yes	Yes
Odense – Holmstru p	New track across West funen	21/6-11/7	Q2 TT26	Single track closure	Single track operation	Yes	Yes
Odense – Kavslund e	New track across West Funen	11/7-20/7	Q3 TT26	Total closure	Total closure – passenger traffic will be replaced by buses	Yes	Yes
Ejby – Kavslund e	New track across West Funen	20/7-27/7	Q3 TT26	Single track closure	Single track operation	Yes	Yes
Kavslund e	New track across West Funen	26/7-8/11	Q3 TT26	Track closure	Reduced traffic across West Funen	Yes	Yes
Odense - Marslev	Bridge renewal	14/5-20/7	Q2 TT26	Track closure s	Total closures 14/5-17/5	Yes	Yes

					+ 12/6-15/6, otherwise single track operation		
CPH Airport – Kastrup Station	New Kastrup Airport Station	27/2-2/4	Q1 TT26	Track closures	2 tracks closed for duration	Project is with Sund & Belt / Yes	Yes
Hørning - Aarhus H	Rebuilding Aarhus H	14/12/25-2/1/26	Q4 TT25	Track closures	Tracks 4, 5, 6, 7 closed. Single track operation	Yes	Yes
Aarhus H	Rebuilding Aarhus H	14/12/25-2/1/26	Q4 TT25	Track closures	One track out of commission at a time	Yes	Yes
Aarhus H	Rebuilding Aarhus H	14/12/25-2/1/26	Q4 TT25	Track closures	Tracks 402, 403, 404, 405, 406, 407 closed. Freight to Aalborg goes through Aarhus Harbour.	Yes	Yes
Aarhus H	Rebuilding Aarhus H	14/12/25-2/1/26	Q4 TT25	Single track closure	Closure track 500, bridge H	Yes	Yes
Hørning - Aarhus	Rebuilding Aarhus H	2/1-12/1	Q1 TT26	Total closures	Total closure Skanderborg – Aarhus H + Brabrand – Aarhus H	Yes	Yes
Hørning - Aarhus	Rebuilding Aarhus H	12/1-7/4	Q1 TT26	Track closures	Heavily reduced operation.	Yes	Yes
Hørning - Aarhus	Rebuilding Aarhus H	7/4-11/5	Q1 TT26	Track closures	Heavily reduced operation.	Yes	Yes
Aarhus H	Rebuilding Aarhus H	12/1-7/4	Q1 TT26	Track closures	Reduced operation	Yes	Yes
Hørning - Aarhus	Rebuilding Aarhus H	14/12/25-2/1/26	Q4 TT25	Track closures	Single track operation	Yes	Yes

Brabrand - Aarhus	Rebuilding Aarhus H	14/12/25-2/1/26	Q4 TT25	Track closures	Single track operation	Yes	Yes

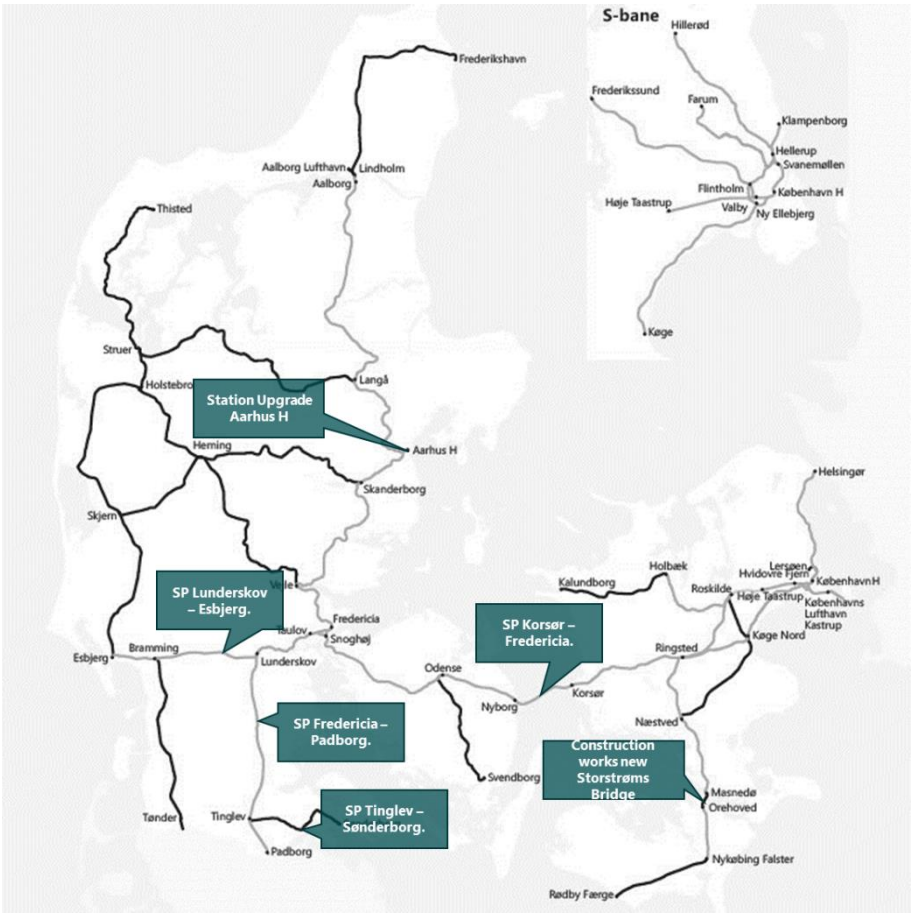

Illustration 2.2: Location of projects that will require major TCRs in TT27.

3 Traffic Planning Principles

3.0 Traffic planning principles

The following types of traffic can be expected on the different railway sections based on Banedanmark's work on future timetables. This information is used to construct the first drafts of the capacity model. In future Capacity strategies, this section will include prognosis for ad-hoc and rolling planning capacity segments as well.

Network segment	Infrastructure Manager	Relevance	Capacity saturation	IF	NF	HSP	LDP	RPS
Kastrup Airport - Kalvebod - Vigerslev	A/S Øresund	I	H	●		●	●	●
Kalvebod - Copenhagen Central - Vigerslev/ Hvidovre Fjern	A/S Øresund	I	H			●	●	●
Vigerslev - Hvidovre Fjern - Høje Taastrup	Banedanmark	I	H	●			●	●
Vigerslev - Køge Nord	Banedanmark	I	M	●		●	●	●
Lernacken – Peberholm – Kastrup Airport	Øresundsbro Konsortiet	I	H	●		●	●	●
Høje Taastrup - Roskilde	Banedanmark	I	L	●	●		●	●
Roskilde - Ringsted	Banedanmark	I	M	●	●	●	●	●
Køge Nord - Ringsted	Banedanmark	I	M	●		●	●	●
Ringsted - Korsør	Banedanmark	I	M	●	●	●	●	●
Korsør - Nyborg	A/S Storebælt	I	H	●	●	●	●	●
Nyborg - Odense	Banedanmark	I	M	●	●	●	●	●
Odense - Snoghøj	Banedanmark	I	H	●	●	●	●	●
Snoghøj – Fredericia/ Taulov	Banedanmark	I	M		●	●	●	●
Snoghøj – Taulov	Banedanmark	I	L	●	●	●	●	
Taulov - Tinglev	Banedanmark	I	L	●	●	●	●	●
Tinglev - Padborg	Banedanmark	I	M	●	●		●	●
Roskilde - Holbæk	Banedanmark	N	L		●			●
Vejle – Herning	Banedanmark	N	M		●		●	●
Skanderborg - Herning	Banedanmark	N	L					●
Herning – Holstebro – Struer	Banedanmark	N	L		●		●	●

Langå - Struer	Banedanmark	N	L					●
Aalborg - Hjørring	Banedanmark	I	M	●	●		●	●
Hjørring - Frederikshavn	Banedanmark	I	L	●	●			●
Tinglev - Sønderborg	Banedanmark	I	L				●	●

Table 3.1: Traffic planning principles for TT027 in Denmark. Relevance: I = International, N = National. Capacity Saturation: H = High, M = Medium, L = Low. IF = International Freight. NF = National Freight. HSP = High Speed Passenger. LDP = Long-distance Passenger.

The Danish railway timetable is typically planned as a clock-faced symmetric timetable with an hourly pattern. The pattern differs between rush, daytime, evening, and night hours.
In general, two transit freight train paths per direction per hour are planned between Peberholm (Swedish-Danish border) and Padborg (Danish-German border). During rush hours in the Copenhagen area only one freight train path per direction per hour is available. The freight train paths are planned according to the longest and heaviest model train allowed on the Danish rail network (worst case), allowing any rolling stock to run, and providing punctuality margins in case of better actual performance than planned.
Freight traffic is normally planned to run via Høje Taastrup between Copenhagen and Ringsted. However, the line via Køge Nord can also be used, although this requires the trains to be able to run under ETCS.
Fast passenger trains (InterCity Express and InterCity) are mainly scheduled to run via Køge Nord between Copenhagen and Ringsted, separating them from slower freight and regional trains on the line via Høje Taastrup. Roskilde is expected to be served by one fast passenger train per hour.
Passenger trains are not bundled according to their travelling speed but are planned to provide a regular service frequency, for example half hourly. This gives a traffic mix of fast and slow trains on the mainlines. Fast passenger trains can be planned to overtake slower passenger trains at traffic hubs e.g., Odense station. Overtaking of freight trains is planned to take place regularly at given stations due to the traffic mix of trains.

3.1 Traffic flows

Illustration 3.1 shows a map of the expected traffic capacity demand on the line sections included in this Capacity Strategy. The line sections depicted in red can be characterized as bottlenecks, whereas green sections are expected to accommodate all or most of the capacity requests without changes. On the yellow sections, some changes in the paths applied for might be necessary to accommodate all requests. TCRs are not yet scheduled in detail and are therefore not shown in the figure.

Illustration 3.1: Expected capacity requests. Green: All requests might be met. Yellow = Changes might be necessary. Red = High demand expected; possible rejections.

In Denmark, the expected capacity demand for TT2027 is similar to past TT years, and generally rather low. In the sections Peberholm – Kastrup – Kalvebod – Vigerslev – Høje Taastrup (the Copenhagen area) and Odense - Snoghøj (Western Funen) the capacity utilization is higher but still in balance. The same holds true for the sections Aalborg – Hjørring (Northern Jutland), Skanderborg – Silkeborg (Eastern Jutland) and Herning – Holstebro – Struer (Western Jutland), where the capacity utilization is also higher, but not out of balance.

The volume and structure of future railway traffic in Denmark is discussed within the "Trafikplan"-working group chaired by the Danish Ministry of Transport. Members are the major stakeholders within the Danish railway sector. Illustration 3.2 shown below shows the expected volume of passenger trains in TT2027. The plan entails two freight trains per hour per direction outside rush hours.

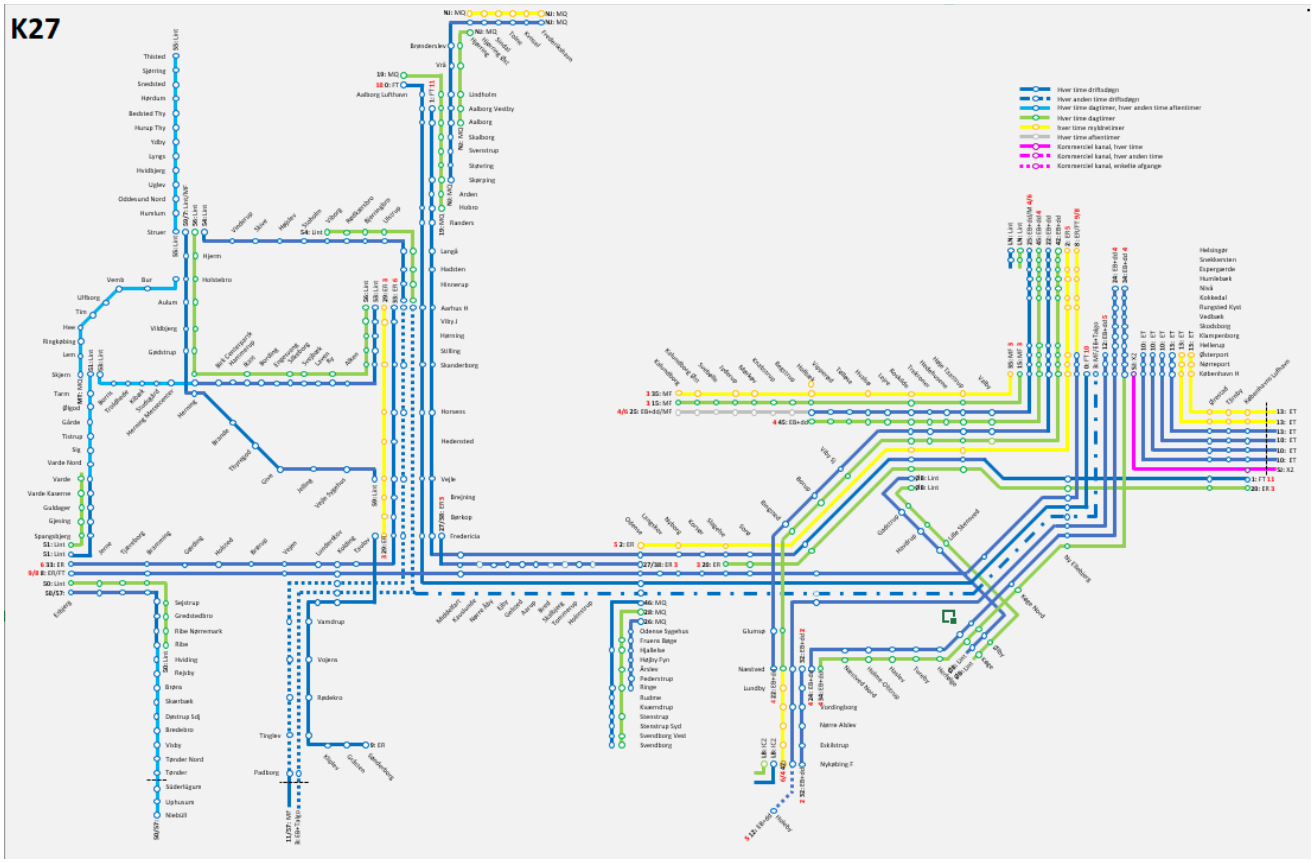

Illustration 3.2: Expected line diagram for passenger trains for TT27. Dark blue: Every hour during operational day. Dark blue dotted: Every second hour operational day. Light blue: Every hour during daytime hours, every second hour during evening hours. Green: Every hour during daytime hours. Yellow: Every hour during rush hours. Gray: Every hour during evening hours. Pink: Commercial train every hour. Pink dotted: Commercial train every second hour. Pink spaced dotted: Commercial train, few departures.

3.2 Harmonization with neighboring IMs

There are two railway border crossings between Denmark and Germany – one in Padborg and one in Tønder. The border crossing traffic volumes are expected to be, respectively:

- Padborg: 1.5 passenger trains per hour, 2 freight trains per hour
- Tønder: 1 regional passenger train per hour

Between Denmark and Sweden there is one railway border crossing: Peberholm. The traffic volumes are expected, on both sides, to be:

- 6 Regional trains per hour
- 2 high speed trains per hour
- 2 freight trains per hour
- 1 long distance train per hour

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Appendix A: Planning principles for Temporary Capacity Restrictions

TIB	Line section	Total closure	Single track operation	Temporary Speed Restriction on neighboring track	Train paths per hour	Rerouting	Notes	3. parts projekter	Impact on traffic
1	Copenhagen - Høje Taastrup (Høje Taastrup - Roskilde).	Max 4 weeks during general industrial holidays, or max 56 hours during weekends. Only weekend total closure between Roskilde and Høje Taastrup, or in shade of other closures.	Can be planned during general industrial holidays in June-August, other holiday periods, or in shade of other closures. Only one track can be closed at a time between two locations with crossovers. The line section between Høje Taastrup and Roskilde has four tracks, so two tracks can be closed at the same time.	Always at least 80 km/h on neighboring track. In case of a speed restriction of 40 km/h, this must be planned as a complete line closure, or during week 27-32, or other holidays.	6-8 train paths per hour. (14 if two out of four tracks are available between Roskilde - Høje Taastrup)	Trains can alternatively run via Vigerslev- Køge Nord - Ringsted. This requires ETCS-capable rolling stock.	Passengers can be rerouted on Metro trains between Copenhagen and Høje Taastrup. Total closures will be avoided between Høje Taastrup and Roskilde. In case of closure, some traffic can be rerouted through Vigerslev - Køge Nord - Ringsted, where closures cannot be planned at the same time. Large events, e.g., Roskilde Festival (ultimo June) are taken into consideration.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	Medium

1	Roskilde - Ringsted	Max 4 weeks during general industrial holidays, or max 56 hours during weekends. Alternatively, in shade of other closures.	Can be planned during general industrial holidays in June-August, other holidays, or in shade of other closures. Only one track can be closed at a time between two locations with crossovers.	Always at least 80 km/h on neighboring track. In case of a speed restriction of 40 km/h, this must be planned as a complete line closure, or during week 27-32, or other holidays.	6-8 train paths per hour.	Trains can alternatively run via Vigerslev- Køge Nord - Ringsted. This requires ETCS-capable rolling stock.	In case of closure, passengers to Viby and Borup are rerouted via bus. Freight traffic rerouted via Køge Nord. Large events, e.g., Roskilde Festival (ultimo June) are taken into consideration.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	Medium
1	Ringsted - Korsør - Nyborg	8 days and 8 hours during general industrial holidays, or max 30 hours during weekends.	Can be planned during general industrial holidays in June-August, other holidays, or in shade of other closures. Only one track can be closed at a time between two locations with crossovers.	Always at least 80 km/h on neighboring track. In case of a speed restriction of 40 km/h, this must be planned as a complete line closure, or during week 27-32, or other holidays.	6-8 train paths per hour. (5 on the line section, Sorø - Slagelse)	No rerouting available.	In case of closure, freight traffic cannot pass through. As this line section has particularly high ridership, extra buses are required. Large events, e.g., Roskilde Festival (ultimo June) are taken into consideration.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	High

2	Ringsted - Næstved	8 days and 8 hours during general industrial holidays, or max 30 hours during weekends.	Can be planned during general industrial holidays in June-August, other holidays, or in shade of other closures. Only one track can be closed at a time between two locations with crossovers.	Always at least 80 km/h on neighboring track. In case of a speed restriction of 40 km/h, this must be planned as a complete line closure, or during week 27-32, or other holidays.	6 train paths per hour.	There are limited options for rerouting via Roskilde - Køge, due to ERTMS. This option will gradually increase, as DSB-equipment is equipped with ERTMS.	Freight must be able to run between Ringsted - Næstved until their locomotives are equipped with ERTMS, allowing them to run via Roskilde - Køge - Næstved. DSB must have access to Næstved with their electric locomotives. Longer single-track operations are allowed, as well as total closures in case of rerouting.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	Mediu m
2	Næstved - Nykøbing Falster	Total closures are given to the RFB project until 2022 (K23), as agreed upon.	Single track operation is given to the RFB-project until 2022 (K23), as agreed upon.	Always at least 80 km/h on neighboring track. In case of a speed restriction of 40 km/h, this must be planned as a complete line closure, or during week 27-32, or	At least 6 train paths per hour.	Traffic can be rerouted via Roskilde - Køge, with trains equipped with ERTMS-equipment. Between Køge - Næstved, ATC is used.	RFB coordinates the works on TIB-2, including the work on SP and EP. Local trains must be able to get to Nykøbing F. with their customers outside of holiday periods. Currently, there is a lack of clarification regarding traffic before SP.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	Low

				other holidays.					
5	Roskilde - Holbæk	Total closures must be held during the general industrial holidays (wk 27-32).	Closures on Roskilde - Holbæk should be planned around public holidays, or the general industrial holidays.	Always at least 80 km/h on neighboring track. In case of a speed restriction of 40 km/h, this must be planned as a complete line closure, or during week 27-32, or other holidays.	At least 6 train paths per hour.	No rerouting available.	Local trains run between Holbæk - Tølløse. Total closures cannot be done in a way so the customer cannot get to their workshop in Holbæk - otherwise, this must be agreed upon with Lokaltog. DSB has previously ran their IC trains through Tølløsebanen, when there has been single track operations on TIB-1 between Ringsted - Korsør.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	Medium

6	Vigerslev-Køge Nord-Ringsted	Only in the evenings, or at night.	Only in the evenings, or at night.	Always at least 80 km/h on neighboring track. In case of a speed restriction of 40 km/h, this must be planned as a complete line closure, or during week 27-32, or other holidays.	6-8 train paths per hour.	Alternatively, trains can run through Høje Taastrup - Roskilde. Once SP has been rolled out, trains can be rerouted to Køge and Næstved from Køge Nord.	As the line has opened recently, only evening/night maintenance closures are expected. There cannot be closures on this line section, if there are already closures on the line from Copenhagen - Roskilde - Ringsted.	-Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	Medium
10	Elsinore - Copenhagen	Max 6 weeks during general industrial holidays.	Can be planned during general industrial holidays (wk. 27-32) between Østerport-Nivå, and Snekkersten - Elsinore. Between Nivå - Snekkersten, closures can be planned at other times of the year. Single track operations can also be carried out in connection with public holiday periods.	Always at least 80 km/h on neighboring track. In case of a speed restriction of 40 km/h, this must be planned as a complete line closure, or during week 27-32, or other holidays.	At least 6 train paths per hour. (Between Nivå and Snekkersten, less than 6).	No rerouting available.	Trains are reversed in Nivå between Østerport - Nivå. Both Lokalbanen and DSB operate between Snekkersten - Elsinore. Freight runs 2-3 times a week between Østerport - Snekkersten - Elsinore, and on to the tracks that are managed by Lokalbanen.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	Medium

11	Peberholm - Copenhagen/Vigerslev	8 days and 8 hours during general industrial holidays, or max 30 hours during weekends.	Can be planned during general industrial holidays in June-August, other holidays, or in shade of other closures. Only one track can be closed at a time between two locations with crossovers.	Always at least 80 km/h on neighboring track. In case of a speed restriction of 40 km/h, this must be planned as a complete line closure, or during week 27-32, or other holidays.	6-8 train paths per hour.	No rerouting opportunites. A total closure of this section closes the ScanMed corridor. No passenger traffic.	In case of closure, freight traffic cannot pass through. Passengers can travel by the Metro between Copenhagen City and the airport. Total closures should not exceed 8 days per year. Large events, e.g., Roskilde Festival (ultimo June) are taken into consideration.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	High
1 + 23	Snoghøj - (Fredericia) - Skanderborg	8 days and 8 hours during general industrial holidays, or max 30-56 hours during weekends.	Single-track operation in May-September, or during holiday periods.	Always at least 80 km/h on neighboring track. In case of a speed restriction of 40 km/h, this must be planned as a complete line closure, or during week 27-32, or other holidays.	4 train paths per hour.	Trains can be rerouted in the triangle area Snoghøj - Taulov - Fredericia.	If Snoghøj - Fredericia is closed, trains must be reversed in Taulov. If Taulov - Snoghøj is closed, trains must be reversed in Fredericia. There must be at least 6 train paths between Fredericia - Vejle.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	High

23	Skanderborg-Aarhus	8 days and 8 hours during general industrial holidays, or max 30-56 hours during weekends.	Single track operation in June-August, or during holiday periods.	Always at least 80 km/h on neighboring track. In case of a speed restriction of 40 km/h, this must be planned as a complete line closure, or during week 27-32, or other holidays.	4-6 train paths per hour.	No rerouting available.	There must be 4-6 train paths per hour between Skanderborg - Aarhus, as several railway companies operate on this line section.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	High
24	Aarhus - Aalborg	8 days and 8 hours during general industrial holidays, or max 30-56 hours during weekends.	Single-track operation in May-September, or during holiday periods.	Always at least 80 km/h on neighboring track. In case of a speed restriction of 40 km/h, this must be planned as a complete line closure, or during week 27-32, or other holidays.	At least 4 train paths per hour.	No rerouting available.	There is the possibility of a long rerouting through Langå - Struer - Skanderborg. From a Traffic point of view, this is not an option.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	Medium

1 + 26	Nyborg - (Snoghøj) - Lundeskov	8 days and 8 hours during general industrial holidays, or max 30 hours during weekends.	Can be planned during general industrial holidays in June-August, other holidays, or in shade of other closures.	Always at least 80 km/h on neighboring track. In case of a speed restriction of 40 km/h, this must be planned as a complete line closure, or during week 27-32, or other holidays.	6 train paths per hour.	No rerouting available between Nyborg - Snoghøj.	Freight cannot get through. Extra buses required for passenger traffic, as this is the most busy line section in Denmark. Large events, e.g., Roskilde Festival (ultimo June) are taken into consideration.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	High
26	Lunderskov - (Tinglev) - Padborg	8 days and 8 hours during general industrial holidays, or max 30 hours during weekends.	Single track operation in June-August, or during holiday periods.	Always at least 80 km/h on neighboring track. In case of a speed restriction of 40 km/h, this must be planned as a complete line closure, or during week 27-32, or other holidays.	At least 4 train paths per hour.	No rerouting available to Padborg. Trains can, however, be rerouted through Esbjerg to Tønder/Nïebüll, when track closure south of Lunderskov.	Rerouting freight through Tønder/Nïebüll is more costly, and this line section cannot guarantee the agreed upon train lengths.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	High

29	Bramming - Esbjerg	Total closures must be placed in the general industrial holidays (wk 28-31), other public holidays, or max 30-56 hours during weekends.	Single track operation in June-August, or during holiday periods.	Always at least 80 km/h on neighboring track. In case of a speed restriction of 40 km/h, this must be planned as a complete line closure, or during week 27-32, or other holidays.	At least 4 train paths per hour.	No rerouting available.	There are many travelers and several train systems between Bramming and Esbjerg, including an Intercity system. There are freight transports.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	Medium
29	Lunderskov - Bramming	Total closures can be planned throughout the year. See "Notes".	Single-track operation in May-September, or during holiday periods.	Always at least 80 km/h on neighboring track. In case of a speed restriction of 40 km/h, this must be planned as a complete line closure, or during week 27-32, or other holidays.	At least 4 train paths per hour.	No rerouting available.	This stretch cannot be closed at the same time as Lunderskov - Padborg. Total closures should be as brief as possible. Planning should consider the summer holidays, as IC trains and freight trains are in use. Total closures must be short, and shaded by other works. There are IC trains and freight.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	Low

25	Aalborg - Hjørring	Total closures must be placed in the general industrial holidays (wk 28-31), other public holidays, or max 30-56 hours during weekends. Max 4 weeks.	6-9 hours of closure. Can be performed in Mid June-Mid August, or during holiday periods. See "Notes".	At least 80 km/h on neighboring track on the line section Aalborg - Lindholm. Speed restrictions must be aligned with the number of train channels per hour. In case of several restrictions on the line section, speed restrictions of 40 km/h should not occur.	At least 4 train paths per hour between Aalborg-Lindholm.	No rerouting available.	Closures on the line section Aalborg - Lindholm - Aalborg Airport should be planned with respects to when the largest number of people are expected to travel here. Nordjyske must be able to get to their workshop in Hjørring. Freight transports are planned to Hirtshals, which is crucial for placement of closures. The autumn holiday can be used for various closures Monday-Friday.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	High
25	Hjørring - Frederikshavn	Total closures can be planned throughout the year. See "Notes". Max 4-6 weeks.	6-9 hours of closure, all year.	Speed restrictions must be aligned with the number of train channels per hour. In case of several restrictions on	At least 2 train paths per hour.	No rerouting available.	Nordjyske Jernbaner must be able to reach their workshops in Skagen or Hjørring. Closures and length of closure must reflect this consideration. Closures should be	Projects are judged by size and importance, as well as the possibility for the project to be in shade	Low

				the line section, speed restrictions of 40 km/h should not occur.			placed outside of the summer holidays, in consideration of the holiday visitors.	of other closures.	
28	Tinglev - Sønderborg	Total closures can be planned throughout the year. See "Notes". Max 6 weeks.	6-9 hours of closure, all year.	Speed restrictions must be aligned with the number of train channels per hour. In case of several restrictions on the line section, speed restrictions of 40 km/h should not occur.	At least 2 train paths per hour.	No rerouting available.	Closures must be planned so that as many works as possible is done simultaneously, to minimize the risk of BDK having to return immediately. Closures can thus be performed for up to 3 months at a time. Via communication with RUs, we must be able to perform closures outside school holidays.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	Low

32	Langå - Viborg	Total closures must be placed in the general industrial holidays (wk 28-31), other public holidays, or max 30-56 hours during weekends. Max 4 weeks.	6-9 hours of closure. Can be performed in Mid June-Mid August, or during holiday periods.	Speed restrictions must be aligned with the number of train channels per hour. In case of several restrictions on the line section, speed restrictions of 40 km/h should not occur.	At least 2 train paths per hour.	There is rerouting available, but this is considered to not be a viable option due to the added time required.	There are several train systems, and lots of customers. Special attention must be given to military transport to/from Skive.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	Medium
32	Viborg - Struer	Total closures can be planned throughout the year. See "Notes". Max 6 weeks.	6-9 hours of closure, all year.	Speed restrictions must be aligned with the number of train channels per hour. In case of several restrictions on the line section, speed restrictions of 40 km/h should not occur.	At least 2 train paths per hour.	There is rerouting available, but this is considered to not be a viable option due to the added time required.	This line section cannot have a closure at the same time as the line section between Struer - Herning.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	Low

33	Vejle - Herning	Total closures must be placed in the general industrial holidays (wk 28-31), other public holidays, or max 30-56 hours during weekends. Max 4 weeks.	6-9 hours of closure. Can be performed in Mid June-Mid August, or during holiday periods.	Speed restrictions must be aligned with the number of train channels per hour. In case of several restrictions on the line section, speed restrictions of 40 km/h should not occur.	At least 2 train paths per hour.	There is rerouting available, but this is considered to not be a viable option due to the added time required.	There are several train systems, and lots of customers. The autumn holidays can be used for closures from Monday - Friday.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	High
33	Herning - Holstebro - Struer	Total closures must be placed in the general industrial holidays (wk 28-31), other public holidays, or max 30-56 hours during weekends. Max 4 weeks.	6-9 hours of closure. Can be performed in Mid June-Mid August, or during holiday periods.	Speed restrictions must be aligned with the number of train channels per hour. In case of several restrictions on the line section, speed restrictions of 40 km/h should not occur.	At least 2 train paths per hour.	There is rerouting available, but this is considered to not be a viable option due to the added time required.	Closures between Herning and Skibbild must be done in shorter periods, because of the Superhospital in Gødstrup. There are many student travelers between Holstebro and Struer.	Projects are judged by size and importance, as well as the possibility for the project to be in shade of other closures.	Medium

35	Skanderborg - Herning	Total closures must be placed in the general industrial holidays (wk 28-31), other public holidays, or max 30-56 hours during weekends. Max 4 weeks.	6-9 hours of closure, all year.	Speed restrictions must be aligned with the number of train channels per hour. In case of several restrictions on the line section, speed restrictions of 40 km/h should not occur.	At least 2 train paths per hour.	There is rerouting available, but this is considered to not be a viable option due to the added time required.	Extra train systems are in use, and the customer base is large. In case of closures, trains must be able to run to/from Silkeborg. The autumn holiday can be used for various closures from Monday-Friday.	Projekterne vurderes efter størrelse og vigtighed, samt muligheden for, at projektet kan ligge i ly af andre sporspærringer.	High

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TTR advanced planning

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4 Validation

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