

## Summary

North Sea Port wishes to upgrade the rail connections for the harbour areas around the Gent-Terneuzen Canal. The aim is to be ready for the growth in port operations and related increase in rail traffic that are expected between now and 2030.

At the same time, the quality of the rail connections is to be enhanced, to increase the attractiveness of this port area for shippers and carriers by comparison with other ports. It is also hoped that enhancing the quality of rail connections will induce a modal transfer from road to rail, a desirable outcome in view of rail's greater sustainability.

This report looks at the likely increase in port operations and rail traffic between now and 2030. As there is a degree of uncertainty regarding future developments, the report looks at two scenarios: **a realistic scenario – 2030 Low – and an optimistic scenario – 2030 High.**

The study also assesses the capacity of the existing rail network in the port area and the expansion or other measures that will be necessary in order to absorb the expected growth. A simulation model has been developed and implemented for this purpose.

Table 1 shows the expected increase in the number of trains.

*Table 1. Rail traffic, in trains per week (total figures for both directions)*

Year	Netherlands	Belgium	Total
2016	53	248	301
2020	78	340	418
2030 Low	106	389	495
2030 High	180	548	728

The conclusions of the capacity assessment, assuming the figures for **2030 Low**, are as follows:

1. If rail traffic to and from the east bank of the canal in the Netherlands rises as predicted, and an increase in shipping causes the opening times of the Sluiskil Bridge for rail traffic to be reduced as expected, then those opening times will constitute a permanent bottleneck from 2028 onwards. Under those circumstances, it would only be possible to increase rail capacity by linking the Dutch and Belgian rail networks on the east bank, between Axel and Zelzate.
2. The single-track line between Wondelgem and Zandeken forms a bottleneck for rail traffic on the west bank of the canal.
3. Creating a rail link between Axel and Zelzate would distribute rail traffic more evenly between the two sides of the canal, and would mitigate the anticipated capacity bottleneck on the single-track line between Wondelgem and Zandeken.
4. If the Axel-Zelzate link were not to be built, it would become necessary to double the tracks on the Wondelgem-Zandeken line by about 2028.
5. The expected growth in rail traffic will also create a shortage of siding capacity at certain locations. This will definitely be the case at the Gent-Zeehaven yard.
6. There are serious usability problems with the rail network in Zeelandic Flanders (Dutch: Zeeuws-Vlaanderen, the southernmost region of the province of Zeeland in the south-western Netherlands):
  - a. Trains have to stop frequently because of the lack of train control and protection.
  - b. Maximum speed is 30 km/h.

This leads to long journey times and to heavy use of the available capacity. The situation could be improved by installing train protection and by modifying or removing unprotected level-crossings (the “Improved Track” scenario). This would also enhance safety at level crossings.

- The single-track link to and from a large part of the port rail network via the Sluiskil Bridge, together with the single-track lines within a large part of that network, mean that rail traffic across most of the port area is vulnerable to the effects of disruptions and line closures. Furthermore, there is no alternative route through less populated areas for trains carrying hazardous freight.

A number of infrastructure-based solutions have been developed and studied. The figure below sets out those solutions, together with a recommended decision-making sequence.

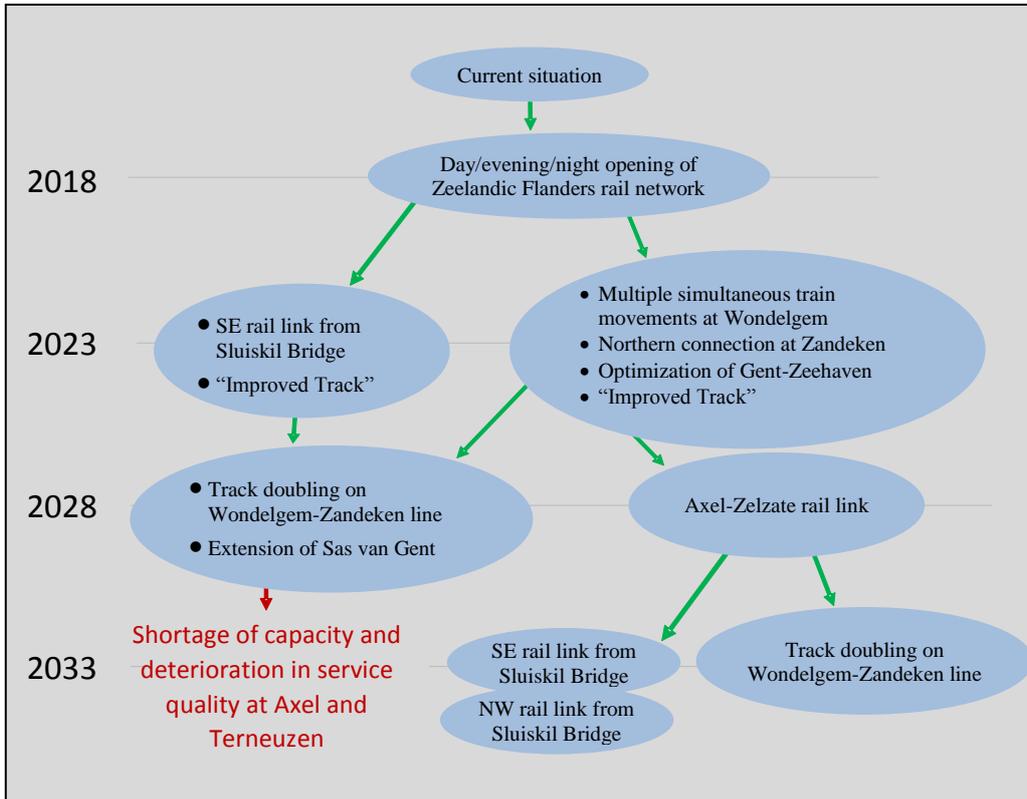


Figure 1. Decision-making diagram for infrastructure expansion over time. In each case, the year given is that in which a measure should **enter service**. A green arrow indicates that an expansion measure is future-proof with regard to the following expansion measure.

The decision-making diagram should be followed in the light of actual growth in rail traffic.

A choice must therefore be made as to what major infrastructure expansion is needed by 2028.

- If we assume the “2030 Low” figures for rail traffic, building the Axel-Zelzate rail link is a more future-proof solution than doubling the number of tracks between Wondelgem and Zandeken, as the limited capacity of the Sluiskil Bridge will become a permanent bottleneck once those traffic levels are reached.
- Creating the Axel-Zelzate link would create a more balanced rail network than doubling the tracks between Wondelgem and Zandeken, as it would build in redundancy and hence reliability. It would also ensure better utilization of existing infrastructure and less disruption to shipping.
- The Axel-Zelzate link would also have advantages as regards noise and external safety, as a line on the east bank of the canal would run through a less densely populated area.

Any major infrastructure expansion would take about 10 years from start to finish. This means that the process for any of the major expansion measures that are expected to be needed in 2028 should start in 2018.

Further study is recommended regarding parameters that could influence use of the rail system, and hence its capacity, such as:

- The restrictions on shippers and carriers in terms of the time at which they can move and the amount of time they spend at the yard.
- The capacity taken up by light-engine movements.
- The number of trains that will make use of the expected evening and night opening of the rail network in Zeelandic Flanders.