Baltic Loop

Conditions for increased freight flows in the Baltic Sea area

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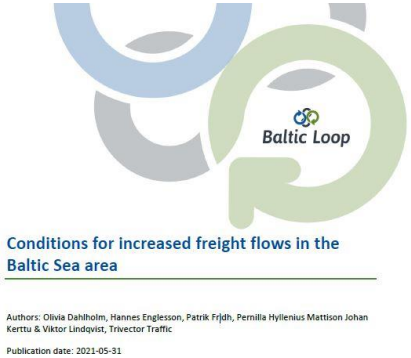
Background and aim

- We have compiled and analysed the conditions for increased freight flows within the Northern Growth Zone corridor (Oslo-Sthlm-St. Petersburg).
- The overall aim of Baltic Loop is to reduce travel and freight times for passengers and goods and to reduce emissions.
- The goal of this work has been to investigate challenges that increased passenger and freight flows may entail for today's logistics chains in *The Northern Growth Zone*, and to identify bottlenecks and measures to remedy these, based on data and studies compiled by the project partners.



The Northern growth zone-corridor: three corridors

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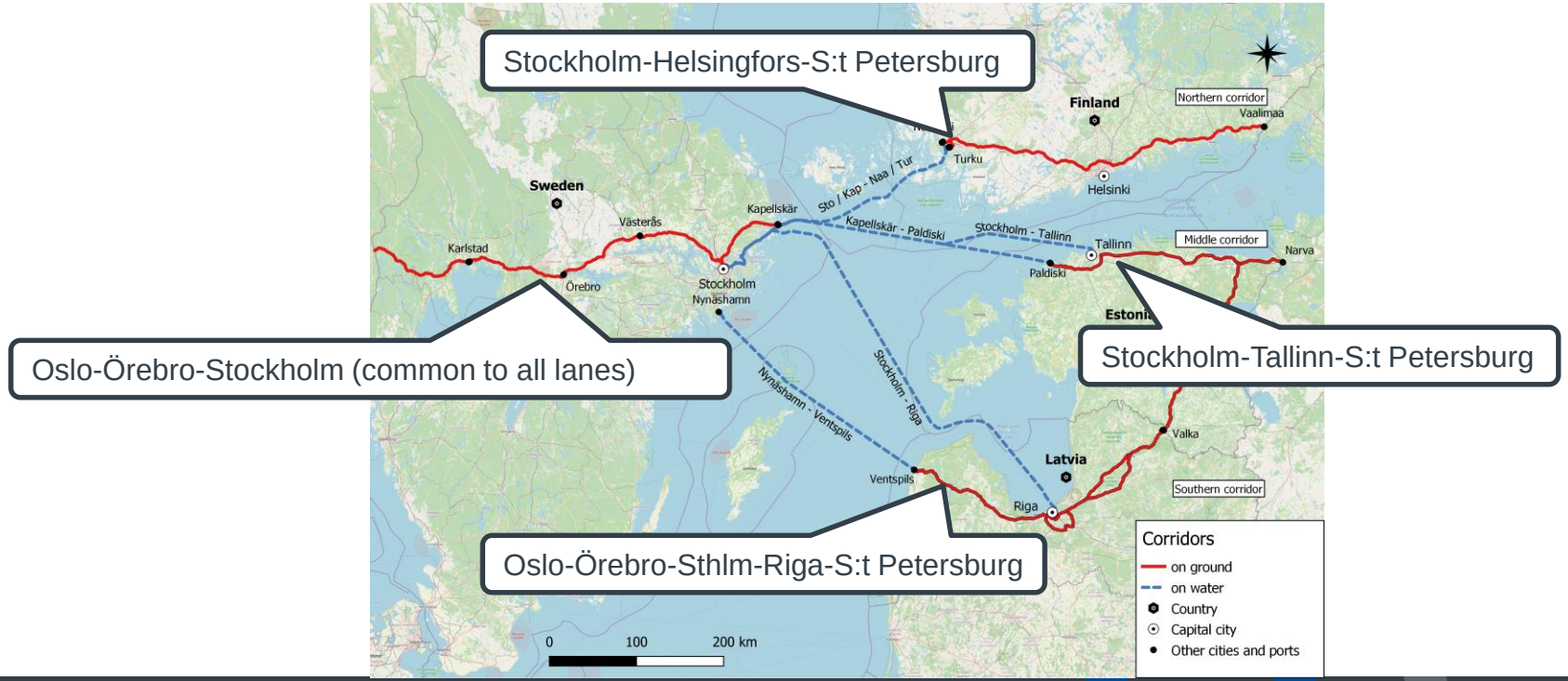
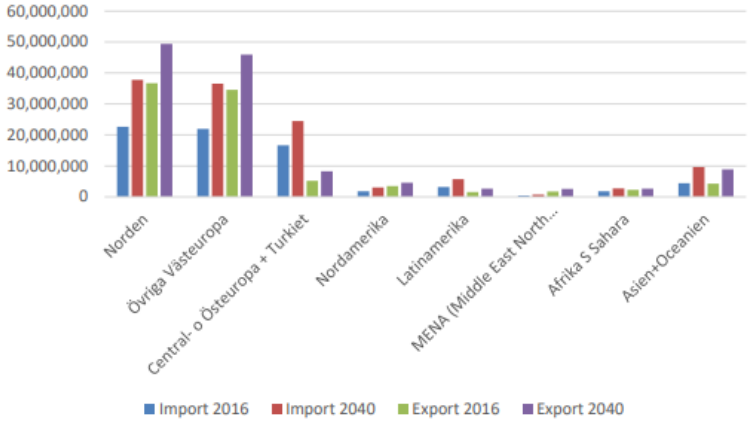


Freight flows: compiled analysis

- Extensive trade and freight transport between countries along the routes in question.
- The total volumes of goods are expected to increase sharply in the future, especially on the road within Europe and via sea transport from China.



General bottlenecks for all three corridors

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We have grouped and defined bottlenecks according to the following:

- Institutional bottlenecks
  - lack of communication and cooperation between relevant stakeholders.
- Operational bottlenecks
  - capacity constraints, infrastructural conditions.
- Technical bottlenecks
  - challenges related to existing digital tools and implementation of new solutions.

General bottlenecks for all three corridors

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Institutional bottlenecks

- Inadequate collaborations and insufficient alignment of various interests.
- Incomplete feedback and communication between infrastructure users and infrastructure planners.
- Lack of willingness to share data and try new solutions.
- Cross-border transport to / from Norway and Russia requires a lot of administration.
- The competitiveness of shipping is hampered by high pilot fees.
- Lack of compatibility between different digital systems for transport.

General bottlenecks for all three corridors

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Operational bottlenecks

- Weather conditions have a big impact
- Insufficient infrastructure capacity causes congestion and delays, especially on access roads to major port cities during rush hour.
- Cross-border infrastructure investments are being neglected due to the fact that the countries have different priorities and there is no common picture of the infrastructure around the Baltic Sea.

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Technical bottlenecks

- Poor compatibility between different systems and organizations limits the flow of information.
- Communication and information exchange between different marine carriers still largely consists of analogue, manually transmitted data (telephone, fax, etc.)

Bottlenecks linked to geographical location

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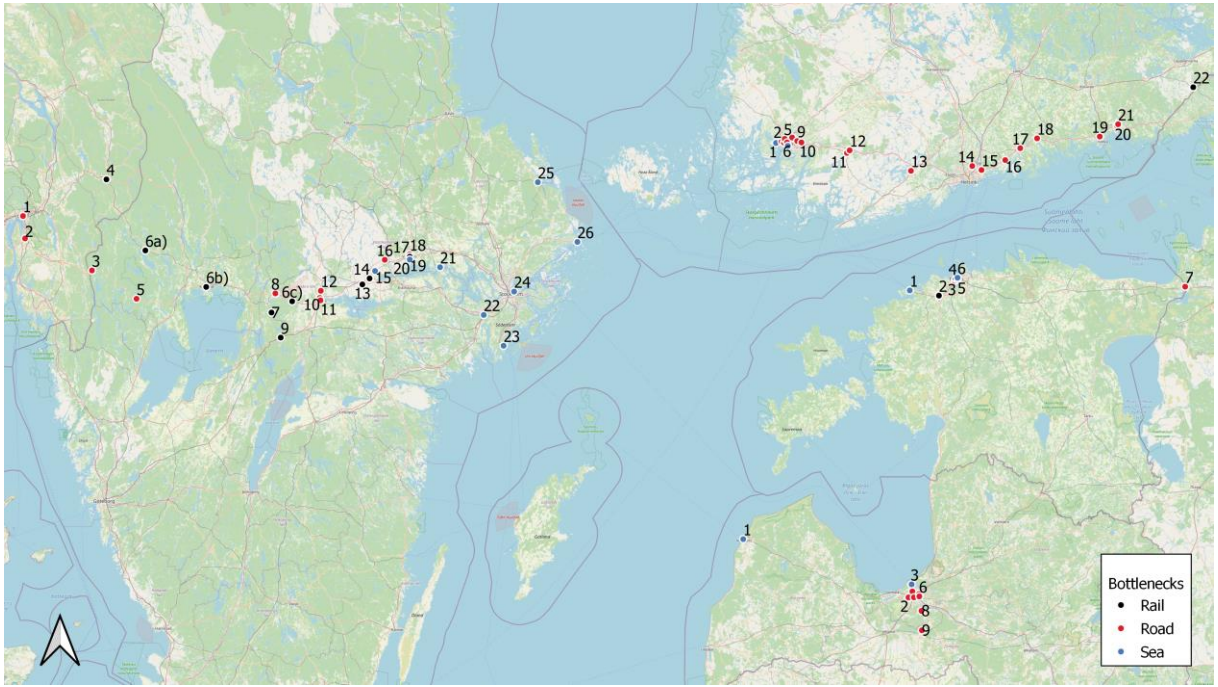
- A total of about 50 bottlenecks can be connected to a specific geographical location in the corridor.

Bottlenecks: All corridors

Baltic Loop



Bottlenecks: Oslo-Örebro-Stockholm

Bottlenecks: Oslo-Örebro-Stockholm

Baltic Loop

ID	Description	Type	Country
1	Oslo area - lack of accessibility at certain times, need for lanes for heavy traffic towards ports and railway terminals	Road	Norway
2	Poor accessibility on the E18 Vinterbro-Oslo.	Road	Norway
3	The toll station at Hån, customs station at 61 between Sweden and Norway, is closed at night, which means that truck traffic does not cross the border unhindered throughout the day.	Road	Sweden
4	Kongsvingerbanen (Oslo-Riksgränsen) - Limited capacity and speed, mainly due to lack of long meeting tracks. This is planned to be remedied during the planning period (2018–2029).	Rail	Norway
5	Varying road standard. On the Norwegian side, there is a motorway standard up to the border. On the Swedish side, it is 80 km of curvy country road from Grums to the Norwegian border. Coordination around improvement measures on E18 is deficient.	Road	Sweden
6	Sections of railway between Oslo-Stockhom constitute bottlenecks like the Gränsbanan Arvika-Lilleström (6A), the entire section Kristinehamn-Kil (6B, Värmlandsbanan), and the Nobelbana Kristinehamn-Örebro (6c) which are regarded as bottlenecks and primarily require double tracks in several places along single tracks.	Rail	Sweden
7	Lack of capacity regarding the connection with intersecting train paths and conflicts with traffic on the Västra stambanan in Laxå. The capacity shortages on the Laxå-Kristinehamn section will persist as no measures are planned during the planning period.	Rail	Sweden
8	Poor usability for goods due to bridges that do not support BK4 in Karlskoga. No action is planned.	Road	Sweden
9	Lack of reliability in train traffic on the Värmland line (Riksgränsen-Laxå)	Rail	Sweden
10	Shortcomings in the capacity of the E18 through Örebro.	Road	Sweden
11	Poor usability for goods due to bridges that do not support BK4 in Örebro. No action is planned.	Road	Sweden
12	Inadequate connection of Godsstråket through Bergslagen to Mälarbanan in Hovsta.	Road	Sweden

Bottlenecks: Oslo-Örebro-Stockholm

Baltic Loop

ID	Description	Type	Country
13	The significant shortage in Arboga linked to capacity is expected to be partially remedied as it is planned for platform extension within the planning period.	Rail	Sweden
14	On the section Örebro-Västerås (Mälarbanan), capacity (single track) is lacking in several places.	Rail	Sweden
15	There are significant shortcomings in capacity and safety in the fairway to the Port of Copenhagen, but measures are underway in the current plan.	Sea	Sweden
16	The bottleneck Köping-Västjädra on E18 must be removed through double files.	Road	Sweden
17	Lack of reststop opportunities for commercial traffic through Västerås. No action is planned.	Road	Sweden
18	Shortcomings in the capacity of the E18 through Västerås.	Road	Sweden
19	Capacity problems in Västerås C. The number of trains arriving and departing from the station will increase sharply, which will lead to an increased load at the station. No measures are planned to solve this problem during the planning period.	Rail	Sweden
20	There are significant shortcomings in capacity and safety in the fairway to the port of Västerås, but measures are underway in the current plan.	Sea	Sweden
21	There are remaining shortcomings in safety and capacity regarding the possibility of crossing the Wheel Bridge with ships in the so-called Mälarmax size.	Sea	Sweden
22	The traffic at Södertälje harbor is increasing and thus also the need to be able to operate the harbor with larger vessels.	Sea	Sweden
23	The new port in Norvik requires capacity strengthening in the road network.	Sea	Sweden
24	Port of Stockholm - Reducing area for port area and congestion in traffic, despite the application of ITS.	Sea	Sweden
25	Hargshamn: The port is taking measures to be able to handle an increase in freight volumes from Bergslagen. In order to benefit from the measures, measures are also required in the fairway.	Sea	Sweden
26	Kapellskär: The port's location 90 km north of Stockholm means that transports from the south must pass Stockholm, which entails a risk of minor delays due to traffic conditions, which in turn can lead to serious consequential delays if the transports miss ship departures. Suboptimal design of the port area, with limited capacity for waiting trucks in the port area.	Sea	Sweden

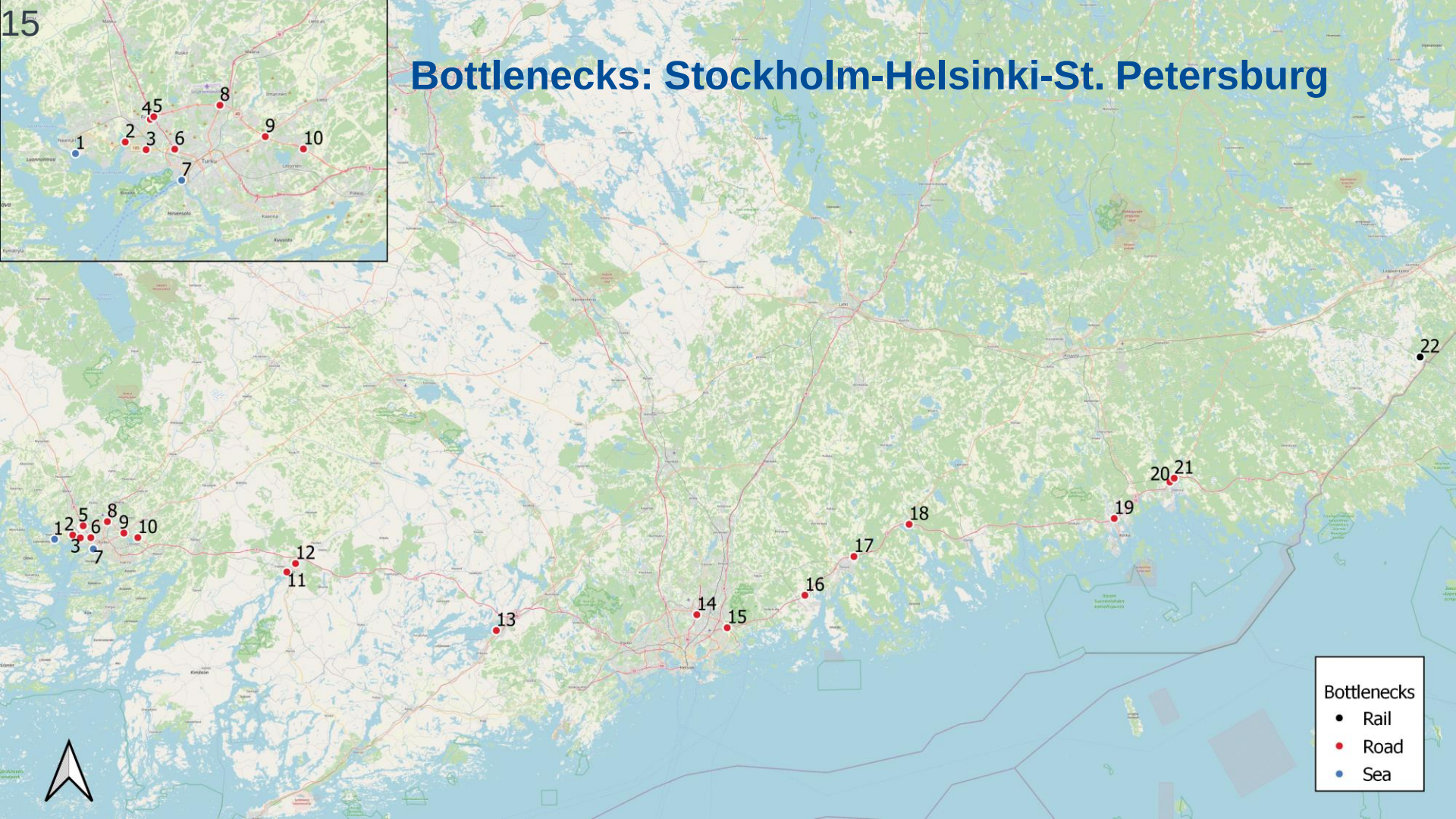
Bottlenecks: OSLO-ÖREBRO-STOCKHOLM

Baltic Loop

General bottlenecks:

- Road – General bottlenecks
  - Changing national requirements for winter tires between Sweden and Norway (Nor 3PMSF all axles, Sve M + S on all axles).
- Rail – General bottlenecks
  - The long allocation process (18 months) for train paths for freight transport requires a long advance of the transport operators and sometimes leads to allocated train paths not being used as the intended transports are distributed at shorter notice and may be performed by another operator or with another mode of transport.
  - Sharply increased track fees in order to contribute to the financing of maintenance and new construction.
  - Lack of long-term cross-border collaborations and investments.
  - Need for new Oslo-Stockholm railway infrastructure and clear guidelines for improving existing railways.

Bottlenecks: Stockholm-Helsinki-St. Petersburg



Bottlenecks: Stockholm-Helsinki-St. Petersburg

Baltic Loop

ID	Description	Type	Country
1	Naantali port: • Limited parking space for queuing trucks into the port. • Inadequate traffic solutions in the port, during arrival and departure.	Sea	Finland
2	Discontinuity in the ring road at Raisionlahti (Turku ring road / highway 40).	Road	Finland
3	Insufficient capacity at the intersections between road 185 and intersecting roads at the height of Perno.	Road	Finland
4	Crowding in central Raisio / Reso	Road	Finland
5	Congestion at the intersection (traffic junction) E18 / E8.	Road	Finland
6	Turku-Raiso: accessibility problems from the port to the E18	Road	Finland
7	Åbo port: • Narrow fairway that limits the number of simultaneous ships that can call at the port. • Limited parking space for queuing trucks into the port. • Inadequate traffic solutions in the port, during arrival and departure. • The port's design and surrounding buildings limit the possibilities for port-based activities to establish themselves in the immediate vicinity of the port. • Seasonal peaks in passenger traffic (holidays, summer time) cause limiting freight capacity as passenger traffic is prioritized on car deck. • The simultaneous arrival and departure of two ferry companies from the port means a burden on the port's spaces and traffic solutions.	Sea	Finland

Bottlenecks: Stockholm-Helsinki-St. Petersburg

Baltic Loop

ID	Description	Type	Country
8	Delays (bottlenecks) in transport in Finland are reported by transport operators mainly to be congested on the Turku / Turku ring road, especially in rush hour traffic.	Road	Finland
9	Turku: discontinuity in the ring road at Kausela, and at Raisionlahti (Turku ring road / highway 40).	Road	Finland
10	Tuulissuo-Avanti industrial area: temporary reconstruction of E18 (2020–2023) affects accessibility to / from the industrial area	Road	Finland
11	Meriniitty / other industrial areas: poor accessibility via 110 and 224 to E18 from the industrial area	Road	Finland
12	Road 52: Slow driving times from / to road 52 to E18. The last section of Salo's ring road is being planned.	Road	Finland
13	Road 25: accessibility problems	Road	Finland
14	Delays (bottlenecks) in transport in Finland are reported by transport operators mainly due to congestion on the ring road around Helsinki (Ring III), especially in rush hour traffic.	Road	Finland
15	Road 103 / E18 / RING III: Traffic from the port of Vuosaari - queuing on the E18 due to large traffic volumes.	Road	Finland
16	Road 148: Accessibility problems to / from Sköldvik	Road	Finland
17	Road 170 and surrounding intersections: High traffic flows with traffic problems	Road	Finland
18	The intersection between road 6 / E18: queue formation	Road	Finland
19	E18 from Pyhtää municipal border to Kyminlinna-Hovila-Karhula: accessibility problems	Road	Finland
20	The intersection between road 26 / E18: accessibility problems	Road	Finland
21	The intersection between road 371 / E18: accessibility problems	Road	Finland

Bottlenecks: Stockholm-Helsinki-St. Petersburg

Baltic Loop

General bottlenecks:

- Waiting times for ships for transport Naantali-Kapellskär and Turku-Stockholm.
- Insufficient number of freight lines and insufficient frequency of transports between Finland and Sweden.
- Inadequate winter road maintenance on the road network.
- VR's (train operator) concentration on forest, chemical, and metal products and their requirements for at least 5 train carriage shipments (which is too large volumes for most transport customers), has made train traffic to the ports almost non-existent.
- Rigid manual and partially overlapping systems for reporting to authorities (Portnet, AREX).

Bottlenecks: Stockholm-Tallinn-St. Petersburg

Bottlenecks: Stockholm-Tallinn-St. Petersburg

Baltic Loop

ID	Description	Type	Land
1	Lack of railway infrastructure creates bottlenecks for the ports, especially in Paldiski. The port / port authority lacks an authority commitment to improve the infrastructure in the form of a railway bypass.	Rail/ Sea	Estonia
2	The Paldiski-Ülemiste railway connection is a potential bottleneck if volumes from the port of Paldiski increase, partly due to the route, which means that freight transport disturbs residents at night.	Rail	Estonia
3	The Paldiski-Tallinn connection means that freight transport passes through central Tallinn and residential areas, which means disruptions and restrictions for freight transport.	Road	Estonia
4	Balti Jaam railway station in central Tallinn has reached its capacity ceiling and needs modernization and new connection tracks and upgraded traffic management systems at railway crossings in central Tallinn.	Rail	Estonia
5	The importance of tourism and the cultural environment in central Tallinn makes large volumes of heavy traffic unsuitable, for example ro-ro transport in combination with passenger traffic. Makes demands on new business models at ferry operators.	Road	Estonia
6	Tallinn: Ferry traffic's large space requirements mean that the port area becomes a delimited / isolated logistics zone.	Sea	Estonia
7	Delays on the Tallinn-St. Petersburg and queuing for trucks in Narva on the Estonian-Russian border: E20 Tallinn-Narva (part of the TEN-T network).	Road	Estonia

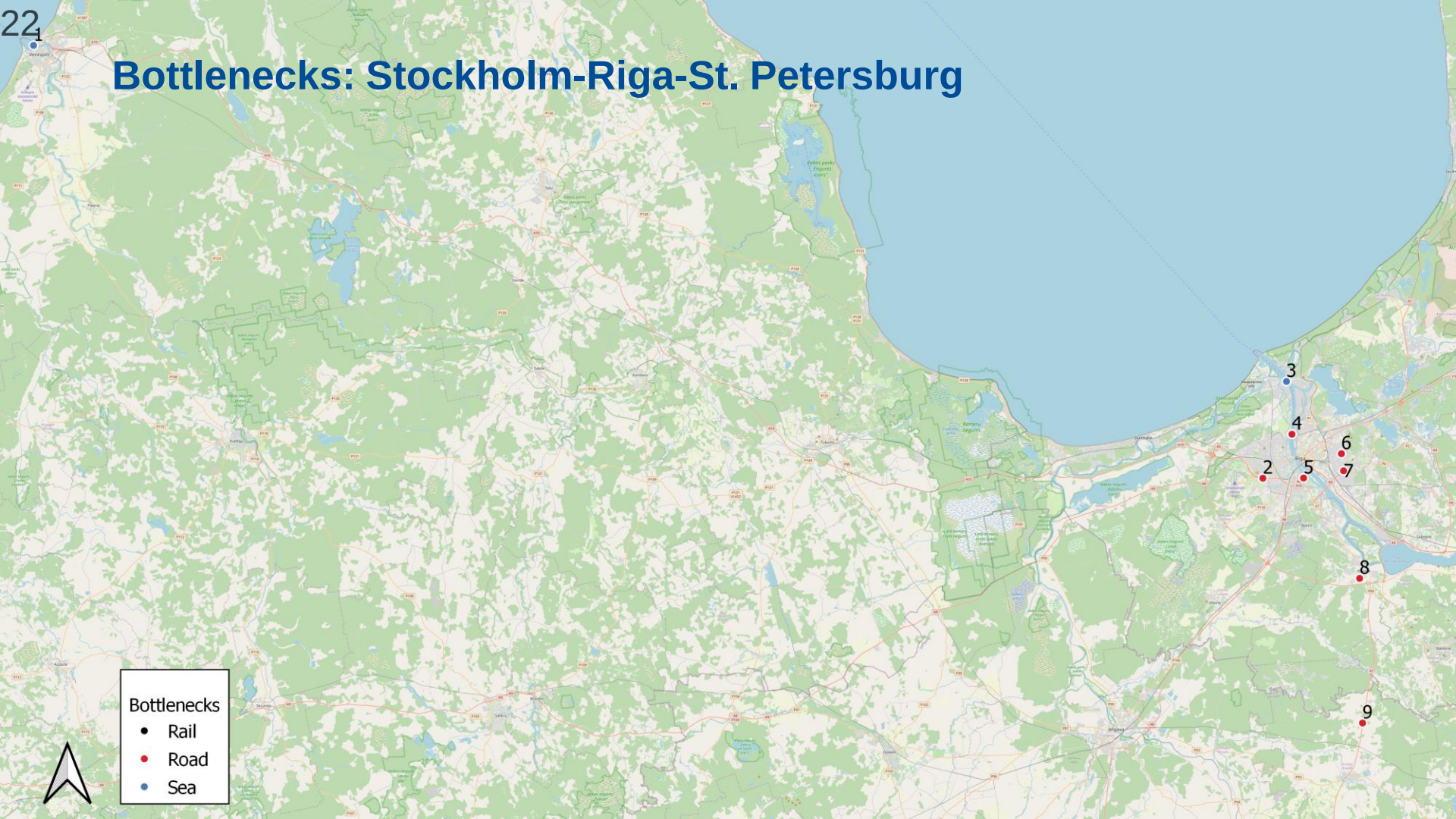
Bottlenecks: Stockholm-Tallinn-St. Petersburg

Baltic Loop

General bottlenecks

- Time-consuming processing at customs clearance.

Bottlenecks: Stockholm-Riga-St. Petersburg



Bottlenecks: Stockholm-Riga-St. Petersburg

Baltic Loop

ID	Description	Type	Country
1	Insufficient parking for trucks and ramp for loading ships in Ventspil's harbor.	Sea	Latvia
2	A10: Problems in traffic junctions where motorways cross each other, partly due to a high flow of commuting cars to / from Riga. The ring road has only one lane in each direction.	Road	Latvia
3	The port of Riga is located on both sides of the river Daugava, which means that trucks are forced to drive around Riga on the ring road (about 1 hour drive) to access both parts of the port.	Sea	Latvia
4	All road transport of both goods and people is hindered by the fact that it is not possible to cross the port and the river Daugava north of central Riga ("missing northern crossing"). The result is that all traffic is diverted on Riga's ring road south of the city or through central Riga.	Road	Latvia
5	The heavy traffic reduces the passability and driving speeds on the Riga ring road. In addition, there are two sections on the ring road where congestion occurs due to deficiencies in the infrastructure (bridge + traffic signals in combination with high vehicle flows).	Road	Latvia
6	A2 / 3: Problems in traffic junctions where motorways cross each other, partly due to a high flow of commuting cars to / from Riga. The ring road has only one lane in each direction.	Road	Latvia
7	Despite restrictions on freight transport through central Riga, a large number of lorries still pass through or in connection with the city centre, especially in connection with the port area, which impairs air quality, causes disruption and has a negative effect on road safety.	Road	Latvia
8	Ķekava: there are major traffic problems at the new bypass at Kekava south of Riga.	Road	Latvia
9	Via Baltica (E67 Kaunas-Riga-Tallinn) there are major traffic problems, which will hopefully be relieved somewhat when Rail Baltica is completed and some freight transport can move to the railway.	Road	Latvia

Proposal for measures: General measures for all three corridors

Baltic Loop

The following general measures for more efficient transport have been identified in the documentation received from the project partners:

- New contract models for increased flexibility, competition, and innovation, especially in shipping, which are characterized by long exclusive contracts.
  Public-Private Partnerships (PPP) for increased collaboration and investment planning.
- Standardization of communication and information to collect data in a similar way to enable automatic systems for optimizing traffic flows to and from ports and border controls.
- Implementation of the ERTMS signalling system to achieve interoperability in the European railway network. In Sweden, there are two CEF-funded projects that will equip 332 locomotives with the necessary instruments. The projects will be implemented by the Swedish Transport Administration 2017 to 2020 resp.
- Rail Baltica, a railway infrastructure project in the North Sea-Baltic corridor, which aims to integrate the Baltic states into the European railway network. With a length of 870 km, the new railway link covers Poland, Lithuania, Latvia, and Estonia. The project, which is prioritized by the EU, will remove bottlenecks for passenger and freight transport, expand cross-border connections and promote modal integration and interoperability. The construction phase will start in 2019 and will be completed in 2026.
- Driverless transport solutions in ports and cities and development of other innovative logistics solutions for increased efficiency (informant in Finland / Baltics).

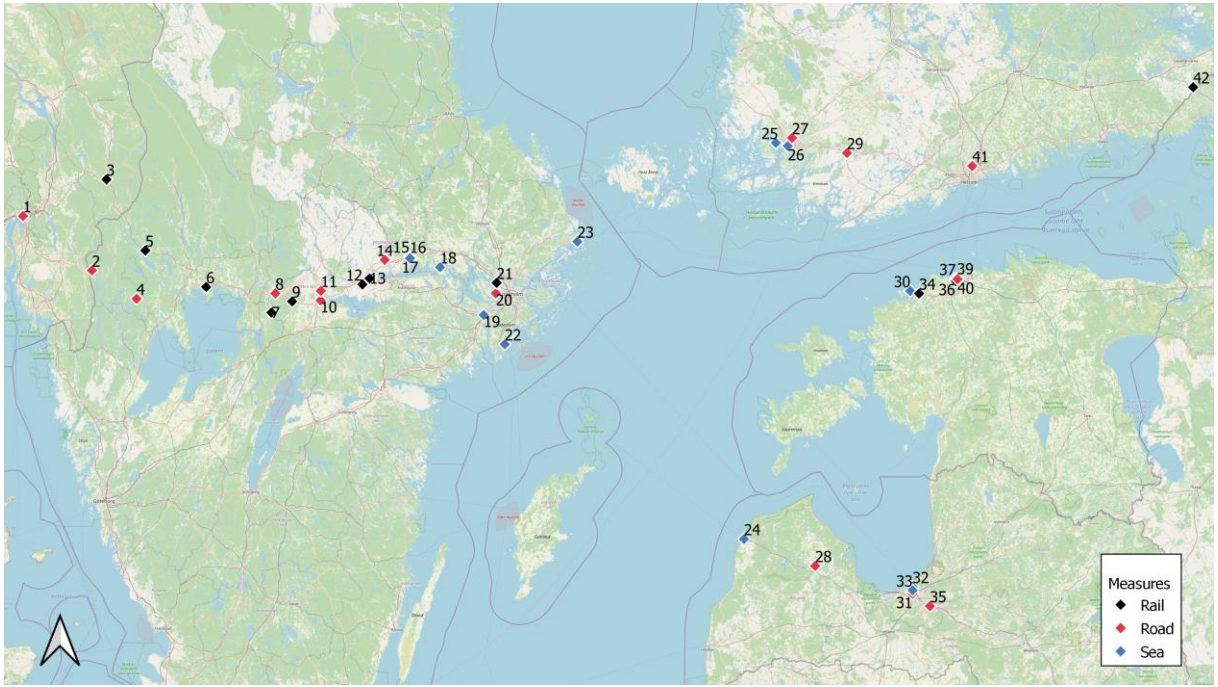
Proposal for measures: General measures for all three corridors

Baltic Loop

Trivector has identified proposals for complementary comprehensive measures for more efficient freight transport:

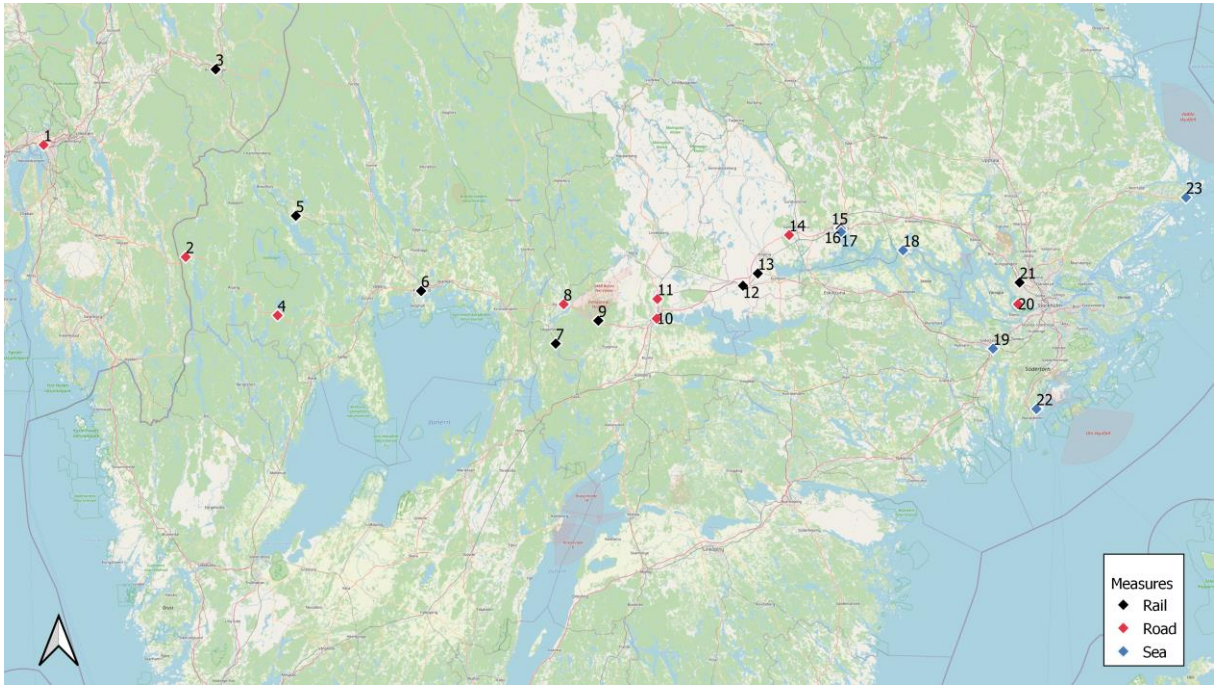
- Collaboration forum for Baltic Sea ports to standardize system selection, interfaces, and handling of information, etc., to minimize time consumption and manual work linked to ship traffic between the ports in the Baltic Sea.
- Customs cooperation to facilitate cross-border transport, primarily by road, preferably linked to political cooperation and negotiations at international level.
- Shorten the allocation process for train paths in Sweden through a simpler and more agile handling to facilitate transfer from road to railway.
- Reduced fairway charges to promote domestic water traffic and thereby relieve the road and rail network.
- Review the ships 'arrival times at ports to reduce the load on the Baltic Sea ports' spaces and traffic solutions.
- Dry port and train commuter concept, for example with dry port collaborations and train commutes for the ports of Stockholm, like the port of Gothenburg. The concept can also be spread further in NGZ via collaboration forums with the Baltic Sea ports.
- Initiation of cooperation for railway connection St Petersburg - Stockholm - Oslo, e.g. a northern variant of the east-west railway connection that is under development by the International Railway Union (UIC), alternatively a route via the port of Murmansk (see the corridor Stockholm-Helsinki-St Petersburg).

Proposal for measures: all corridors



Proposal for measures: Oslo-Örebro-Stockholm

Baltic Loop



Proposal for measures: Oslo-Örebro-Stockholm

Baltic Loop

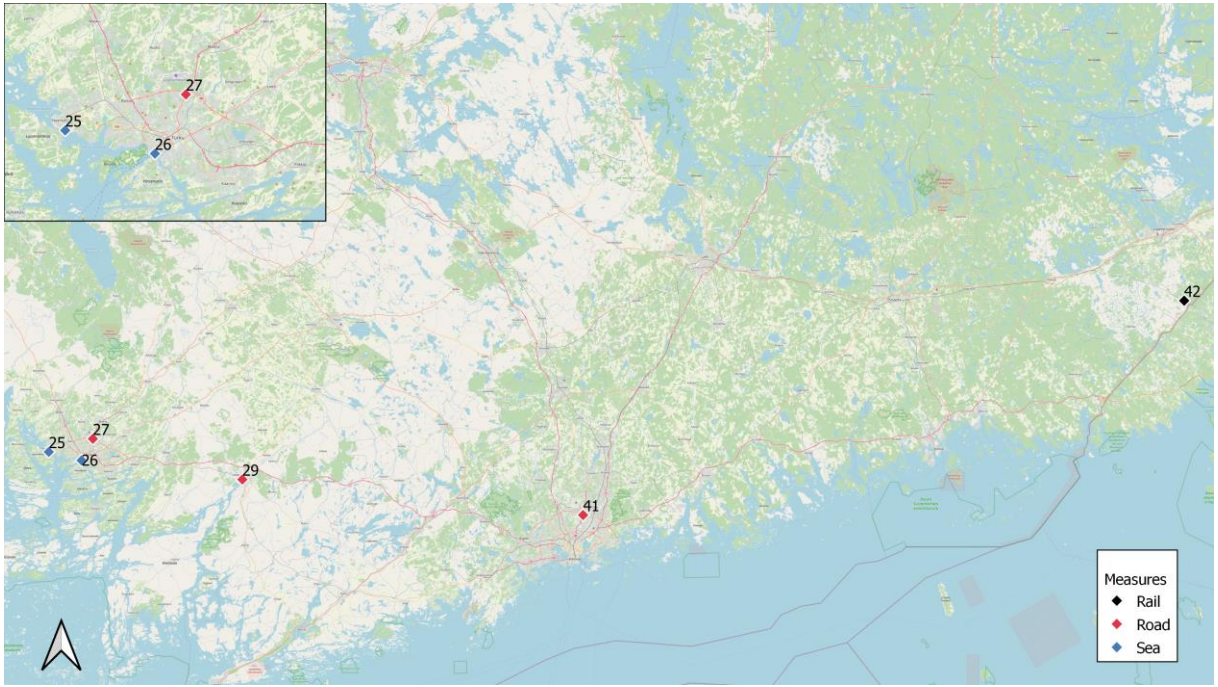
ID	Measure	Source	Country
1	Oslo area - extra lanes for heavy traffic towards ports and railway terminals	Trivector	Norway
2	Open 24 hours a day at the customs station at Hån on road 61 between Sweden and Norway	Trivector	Sweden
3	Extend the meeting tracks on the Kongsvinger line (Oslo-Riksgränsen) for increased capacity and speed	Trivector	Norway
4	Improve the road standard from Grums to the Norwegian border.	Trivector	Sweden
5	The Arvika – Lilleström Gränsbanan. New railway with the aim of improving the possibilities for transport between Stockholm and Oslo and improved capacity in the existing railway network.	Trivector	Sweden / Norway
6	Double track in locations along the Kristinehamn-Kil section (Värmlandsbanan)	Trivector	Sweden
7	Improved capacity regarding the connection with intersecting railways and conflicts with traffic on the Västra stambanan in Laxå.	Trivector	Sweden
8	Upgraded bearing capacity class on bridges in Karlskoga so that they can handle BK4.	Trivector	Sweden
9	Nobelbanan Kristinehamn-Örebro. New railway with the aim of improving the possibilities for transport between Stockholm and Oslo and improved capacity in the existing railway network.	Trivector	Sweden
10	Upgraded bearing capacity class on bridges in Örebro so that they can handle BK4.	Trivector	Sweden
11	Improved connection of Godsstråket through Bergslagen to Mälarbanan in Hovsta.	Trivector	Sweden
12	Fix capacity deficiencies in Arboga through a platform extension in Arboga Bangård.	Trivector	Sweden

Proposal for measures: Oslo-Örebro-Stockholm

ID	Measure	Source	Country
13	Upgrade to double track at locations on the Örebro-Västerås section (Mälarbanan).	Trivector	Sweden
14	Build a motorway (double lanes) on the E18 between Köping and Västjädra.	Trivector	Sweden
15	Create break opportunities for commercial traffic through Västerås.	Trivector	Sweden
16	Reconstruction of Västerås C for increased safety and capacity.	Trivector	Sweden
17	Västerås Port: • There is already today an inland vessel shuttle for container traffic between Stockholm Norvik and the port of Västerås (departures 2 times / week). This can be given more departures or implemented in more places to relieve the road network and contribute to the transfer of goods from road to other modes of transport. • Set up ferry departures between Västerås - Naantali, for less land traffic through Stockholm and longer rest periods so drivers can continue driving directly (Trivector)	Baltic Loop/ Trivector	Sweden
18	Capacity and safety-enhancing measures to enable passage at Hjulstabron with ships in the so-called Mälarmax size.	Trivector	Sweden
19	Enable traffic on Södertälje harbor with larger vessels due to increased traffic. Ro-Ro line to the east.	Trivector	Sweden
20	Bypass Stockholm, which relieves the road network around the capital and reduces the vulnerability of the road system, will be completed around 2030.	Baltic Loop	Sweden
21	Mälarbanan is expanded from two to four tracks to increase capacity. Mälarbanan is connected to Ostkustbanan and Citybanan. The Mälar line is the only line that is expected to have an improved situation in the future, on other lines capacity utilization will increase.	Sweco 2015	Sweden
22	The recently completed port of Norvik (Nynäshamn) complements the port infrastructure in the Stockholm region.	Baltic Loop	Sweden
23	Modernization of the port in Kapellskär with: • System for automatic mooring • Shore power for ships and • New passenger facilities, which increases the capacity to receive larger passenger ships from Naantali within a few years	Baltic Loop	Sweden

Proposal for measures: Stockholm-Helsinki-St. Petersburg

Baltic Loop



Proposal for measures: Stockholm-Helsinki-St. Petersburg

Baltic Loop

ID	Measures	Source	Country
25	Naantali port: • New physical structure to handle check-in and transport waiting for ships. • Extended parking space for queuing trucks into the port. • InstAlltion of automatic mooring system for increased speed for ships in the port, reduced climate impact and increased work environment safety. • Shore power for ships. • Establish ferry departures between Västerås - Naantali, for less land traffic through Stockholm and longer rest periods so drivers can continue driving directly (Trivector)	Baltic Loop/ Trivector	Finland
26	Turku port: • Extended parking space for queuing trucks into the port.	Trivector	Finland
27	Road connections to Turku and Naantali ports have been upgraded in recent years and further plans nearing completion, eg upgrading of the Turquoise ring road (E18): • The E18 / E8 intersection in Raisio just north of Turku handles through traffic that must be passed by traffic to and from the ports of Naantali and Turku. Planned measures will begin in 2021 and include replacing the existing traffic area, a new traffic line in central Raisio and a tunnel.	Baltic Loop	Finland
29	Meriniitty / other industrial areas: Improved accessibility via 110 and 224 to E18 from the industrial area.	Trivector	Finland
41	Measures aimed at reducing congestion on the Helsinki ring road (Ring III), especially in rush hour traffic.	Trivector	Finland
42	Longer siding at the border station in Vainikkala to enable longer train sets (1 km or more) to be handled on the Finnish side of the border.	Trivector	Finland

Proposal for measures: Stockholm-Tallinn-St. Petersburg

Baltic Loop

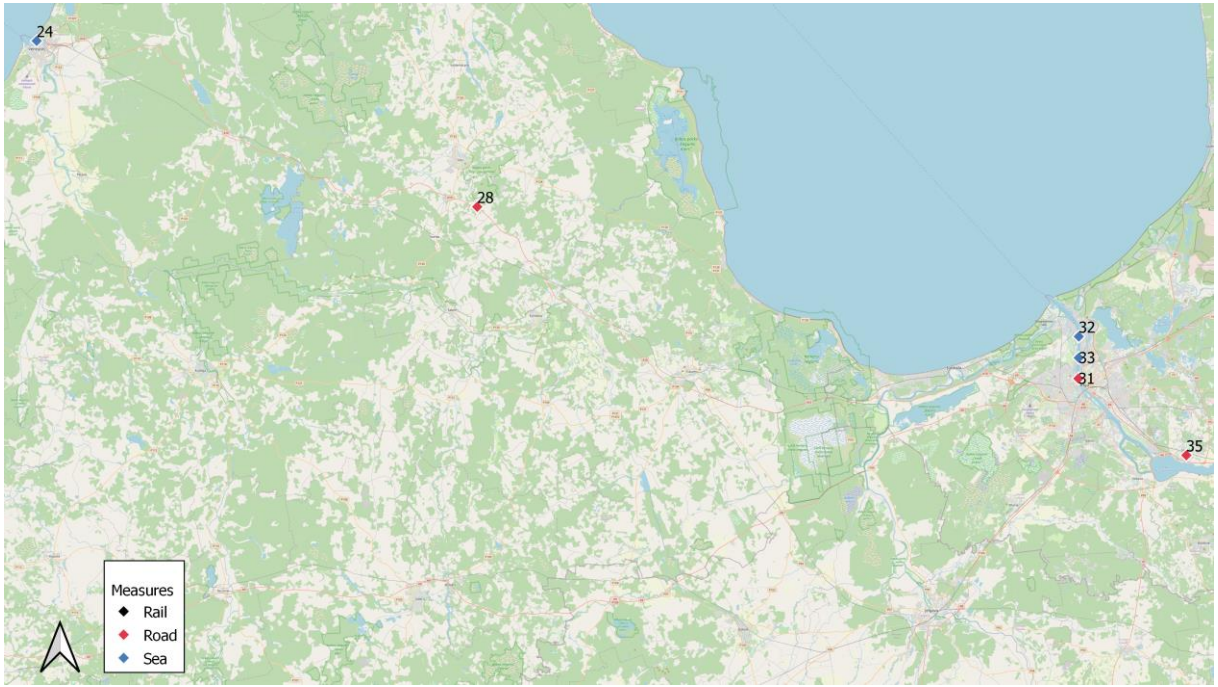
Proposal for measures: Stockholm-Tallinn-St. Petersburg

Baltic Loop

ID	Measures	Source	Country
30	The port of Paldiski: • is considered to have the potential to develop in the longer term with a new industrial park and logistics center (34 ha) • new quay to receive large, awkward deliveries, such as wind turbine components • Improved railway infrastructure in Estonian ports, especially in Paldinski • Give the port authority a mandate to build a railway bypass	Baltic Loop	Estonia
34	In parallel with the reconstruction of the Lääne-Harju railway (including Tallinn-Paldiski), a new signaling system is being installed that provides increased speed and capacity.	Baltic Loop	Estonia
36	Create another transport route for freight transport between Paldinski and Tallinn to avoid going through central Tallinn and residential areas.	Trivector	Estonia
37	Capacity building measures at Balti Jaam station in Tallinn: • modernization • new connection tracks • upgraded traffic management system at railway crossings in central Tallinn	Trivector	Estonia
38	Tallinn's railway ring will reduce freight traffic bottlenecks and provide increased transport options for passenger transport to cities and workplaces in the region.	Baltic Loop	Estonia
39	New digital solutions in the port of Tallinn, for example: • Smart Port - Traffic management in the port and automatic check-in of passengers and vehicles • Single Window and Logistics X-road - Digitization of data exchange in logistics chains • FlexPort - “port management system” (port management program) • Shore power for ships	Baltic Loop	Estonia
40	New business models at ferry operators to avoid the impact of heavy traffic on tourism and cultural environments in central Tallinn.	Trivector	Estonia

Proposal for measures: Stockholm-Riga-St. Petersburg

Baltic Loop



Bottlenecks: Stockholm-Riga-St. Petersburg

Baltic Loop

General bottlenecks

No regular delays are reported for freight transport on the routes Riga-Ventspils and Riga-Valmiera-Valka, but what occurs are temporary events that cause bottlenecks, as well as waiting times in port. The delays are reported to stem from the traffic situation on road sections on the Riga ring road, as well as on road A10 towards Tukums and roads A1 and A2 to the east. Long waiting times for ships in the port of Ventspils are also reported to reduce transport efficiency.

Bottlenecks: Stockholm-Riga-St. Petersburg

Baltic Loop

General bottlenecks

- Increased road traffic as a result of increased passenger and freight traffic to and from Riga.
- Inadequate investment in the national road network.
- Lack of wildlife fencing, causing collisions.
- Lack of cross-border public transport and air connections in the east-west direction.
- Need for information on cross-border transport flows.
- Lack of communication and cooperation between different actors (including municipalities and academic institutions) when it comes to planning that affects transport. This leads to a lack of cooperation to solve challenges in terms of freight transport, public transport and to bring about major infrastructure projects around Riga.
- The lack of long-term perspective in transport planning leads to changing goals and priorities for each new political term.
- The transport sector is not treated as one and the same sector, but as separate parts without any overall strategy and common goal.
- There is currently no working business model and infrastructure for e-commerce. There is no facility for packaging and picking and bulk transports are not handled.
- There is no strategy for freight traffic to and from St. Petersburg, as the quantities of goods and the frequency of transports are very unstable. No detailed analysis has been made of this situation.

Proposal for measures: Stockholm-Riga-St. Petersburg

Baltic Loop

ID	Beskrivning	Typ	Land
24	The port of Ventspils: • is being expanded and additional areas (100 ha) are allocated for further development. • parking space for trucks and ramp for loading ships in Ventspil's harbor.	Baltic Loop	Latvia
28	Maintenance and improvement measures of the infrastructure on the Riga-Ventspils section are underway (2021–2023).	Baltic Loop	Latvia
31	A new road link across the Daugava and the reconstruction of part of the A2 motorway are further future road links that are of great importance for transport	Baltic Loop	Latvia
32	The port of Riga is being upgraded (started in 2020) with, among other things, new road connections, bridges, crossings, railway infrastructure and new berths.	Baltic Loop	Latvia
33	Internal barge traffic in the port of Riga, so that trucks do not have to drive around to reach both sides of the port.	Trivector	Latvia
35	A new intermodal freight terminal in Salaspils, south of Riga is planned for 2023–2026, which enables transhipment from land to shipping without having to pass central Riga	Baltic Loop	Latvia

Effects of measures

- A total of 54 different measures (of which 13 overall) have been impact assessed by participants from the project's partners and through the workshop conducted with officials from the Örebro Region.

Effects of measures

ID	Measures	WS	Measure category	Country	Type
Ö1	New contract models for increased flexibility, competition and innovation, especially within the Sea, which are characterized by long exclusive contracts.	Medium-low	General measure	All	All, primarily sea
Ö2	Public-Private Partnership (PPP) for increased collaboration and investment planning.	Medium-low	General measure	All	All
Ö3	Standardization of communication and information to collect data in a similar way to enable automatic systems for optimizing traffic flows to and from ports and border controls.	Medium-high	General measure	All	All
Ö4	Improved compatibility between different digital transport systems, to reduce paperwork and increase knowledge of freight transport, especially in cross-border transport.	Medium-high	Digital	All	All
Ö5	Driverless transport solutions in ports and cities and the development of other innovative logistics solutions can contribute to increased efficiency.	Medium-low	General measure	All	All
Ö6	Implementation of the ERTMS signaling system for interoperability in the European Rails Network. In Sweden, there are two CEF-funded projects that will equip 332 locomotives with the necessary instruments. The projects will be implemented by the Swedish Transport Administration 2017 to 2023.	Low	Digital	All	Rail

Effects of measures

ID	Measures	WS	Measure category	Country	Type
Ö7	Collaboration forums for the Baltic Sea ports' standardizing system selection, interfaces, and handling of information, etc. Minimize time consumption and manual work linked to ship traffic between the ports of the Baltic Sea.	Medium-high	General measure	All	Sea
Ö8	Customs (toll) cooperation to facilitate cross-border transport - primarily by road.	Medium-high	General measure	All	All, primarily road
Ö9	Facilitate the transfer of road to rail - for the Swedish part, freight traffic on rail must be simpler and more agile ("The long allocation process (18 months) for train paths for freight transport requires long anticipation of the transport operators and sometimes leads to allocated train paths not being used")	Medium-high	General measure	Sweden	Rail
Ö10	Reduced fairway charges can promote domestic traffic on water and relieve the Road and Rails network. Differentiate model for cheaper domestic traffic.	Medium-high	General measure	All	Sea
Ö11	Shift arrivals in the schedule to alleviate congestion for Baltic Sea port spaces and traffic solutions	Medium-low	General measure	All	Sea
Ö12	Dry port and train commuter concept: Can Stockholm ports work with dry port collaborations and train commutes, like the port of Gothenburg? The concept can also be spread further in NGZ via collaboration forums with the Baltic Sea ports	Medium-high	General measure	All	All
Ö13	Rail Baltica is a railway infrastructure project that is part of the Nordsea -Baltic corridor. It aims to integrate the Baltic States into the European Railway Network. With a length of 870 km, the new Rail link covers Poland, Lithuania, Latvia, and Estonia.	High	Infrastructure	Estonia, Latvia	Rail

Effects of measures

Baltic Loop

ID	Measures	WS	Measure category	Country	Type
1	Oslo area - extra lanes for heavy traffic towards ports and railway terminals	Low	Infrastructure	Norway	Road
2	Open 24 hours a day at the customs station at Hån at Road 61 between Sweden and Norway	Low	Service	Sweden	Road
3	Extend the meeting tracks on the Kongsvingerbana (Oslo-Riksgränsen) for increased capacity and speed	High	Infrastructure	Norway	Rail
4	Improve the road standard from Grums to the Norwegian border.	Low	Infrastructure	Sweden	Road
5	The Gränsbana Arvika-Lilleström. New railway with the aim of improving the possibilities for transport between Stockholm and Oslo and improved capacity in the existing railway network.	High	Infrastructure	Sweden/ Norway	Rail
6	Double track in several places along the Kristinehamn-Kil section (Värmlandsbanan)	High	Infrastructure	Sweden	Rail
7	Improved capacity regarding the connection with intersecting train roads and conflicts with traffic on the Västra stambanan in Laxå.	Medium-high	Infrastructure	Sweden	Rail
8	Upgraded bearing capacity class on bridges in Karlskoga so that they can handle BK4.	Low	Infrastructure	Sweden	Road
9	Upgraded bearing capacity class on bridges in Örebro so that they can handle BK4.	Low	Infrastructure	Sweden	Road
10	Nobelbanan Kristinehamn-Örebro. New railway with the aim of improving the possibilities for transport between Stockholm and Oslo and improved capacity in the existing railway network.	High	Infrastructure	Sweden	Rail

Effects of measures

ID	Measures	WS	Measure category	Country	Type
11	Improved connection of Godsstråket (the freight corridor) through Bergslagen to Mälarbanan in Hovsta.	Medium-high	Infrastructure	Sweden	Road
12	Fix capacity deficiencies in Arboga through a platform extension in Arboga Bangård.	Medium-low	Infrastructure	Sweden	Rail
13	Upgrade to double track at several locations on the Örebro-Västerås section (Mälarbanan).	High	Infrastructure	Sweden	Rail
14	Build a motorway (double lanes) on the E18 between Köping and Västjädra.	Low	Infrastructure	Sweden	Road
15	Create rest stop opportunities for commercial traffic through Västerås.	Low	Infrastructure	Sweden	Road
16	Reconstruction of Västerås C for increased safety and capacity.	Medium-low	Infrastructure	Sweden	Rail
17	Port of Västerås: There is already an inland vessel shuttle for container traffic between Stockholm Norvik and the port of Västerås (departures 2 times / week). Such a solution can be implemented in more places or to a greater extent to relieve the road network and contribute to the desired transfer of goods from Road to other modes of transport. If possible, set up ferry departures between Västerås - Naantali. Less land traffic through Stockholm and longer time for drivers to rest so that they can continue driving directly.	Medium-low	Infrastructure	Sweden	Sea
18	Capacity and safety-enhancing measures to enable passage at Hjulstabron with ships in the so-called Mälarmax size.	Medium-low	Infrastructure	Sweden	Sea
19	Enable traffic on Södertälje harbor with larger vessels as a result of increased traffic. Ro-Ro line to the east.	Medium-high	Infrastructure	Sweden	Sea
20	Bypass Stockholm, which relieves the Road Network around the capital and reduces the vulnerability of the Road system, will be completed around 2030.	Medium-low	Infrastructure	Sweden	Road

Effects of measures

ID	Measures	WS	Measure category	Country	Type
21	Mälarbanan expansion from two to four tracks, which will increase capacity considerably. Mälarbanan is connected to Ostkustbanan and Citybanan. Mälarbanan is the only line that is expected to have an improved situation in the future, on other lines capacity utilization will increase.	High	Infrastructure	Sweden	Rail
22	The recently completed port of Norvik (Nynäshamn) complements the port infrastructure in the Stockholm region.	Medium-low	Infrastructure	Sweden	Sea
23	Modernization of the port in Kapellskär with systems for automatic mooring, shore power for ships and new passenger facilities, which increases the capacity to receive larger passenger ships from Naantali within a few years.	Medium-high	Infrastructure	Sweden	Sea
24	The port of Ventspils is being expanded and additional areas (100 ha) are allocated for further development. Parking space for trucks and ramp for loading ships in Ventspils port.	Medium-low	Infrastructure	Latvia	Sea
25	Naantali port: New physical structure to handle check-in and transport waiting for ships. Extended parking space for queuing trucks into the harbor. Installation of automatic mooring system for increased speed for ships in the port, reduced climate impact and increased work environment safety. Shore power for ships. If possible, set up ferry departures between Västerås - Naantali. Less land traffic through Stockholm and longer time for drivers to rest so that they can continue driving directly.	Medium-low	Infrastructure	Finland	Sea
26	Port of Turku: Extended parking area for queuing trucks into the port.	Low	Infrastructure	Finland	Sea
27	Road connections to Turku and Naantali ports have been upgraded in recent years and further plans are nearing completion, including the upgrading of the Turku ring road (E18).	Medium-high	Infrastructure	Finland	Road
28	Ongoing maintenance and improvement measures of the infrastructure on the Riga-Ventspils section (2021–2023).	Medium-low	Infrastructure	Latvia	Road

Effects of measures

ID	Measures	WS	Measure category	Country	Type
29	Meriniitty / other industrial areas: Improved accessibility via 110 and 224 to E18 from the industrial area	Low	Infrastructure	Finland	Road
30	The port of Paldiski is judged to have the potential to be developed in the longer term with a new industrial park and logistics center (34 ha) new quay to receive large, awkward deliveries, such as wind turbine components. Improved rail infrastructure in Estonian ports, especially in Paldinski. Give the port authority a mandate to build a Rail Bypass.	High	Infrastructure	Estonia	Sea
31	A new road connection over Daugava and rebuilding of part of the A2 motorway are further future road connections that are of great importance for transport	Medium-high	Infrastructure	Latvia	Road
32	The port of Riga is being upgraded (started in 2020) with, among other things, new road connections, bridges, crossings, railway infrastructure, and new berths.	High	Infrastructure	Latvia	Sea
33	Internal barge traffic in the port of Riga, so that trucks do not have to drive around to reach both sides of the port.	Low	Other	Latvia	Sea
34	In parallel with the rebuilding of the Lääne-Harju-Rail (including Tallinn-Paldiski), a new signalling system is being installed that provides increased speed and capacity.	High	Infrastructure	Estonia	Rail

Effects of measures

ID	Measures	WS	Measure category	Country	Type
35	A new intermodal freight terminal in Salaspils, south of Riga is planned for 2023–2026, which enables transhipment from land to sea without having to pass central Riga	Medium-high	Infrastructure	Latvia	Road
36	Create another transport route for freight transport between Paldinski and Tallinn to avoid going through central Tallinn and residential areas.	Medium-low	Infrastructure	Estonia	Road
37	Capacity-enhancing measures at Balti Jaam Rails Station in Tallinn: modernization, new connection tracks, and upgraded traffic management systems at Rails crossings in central Tallinn.	Medium-high	Infrastructure/ Digital	Estonia	Rail
38	Tallinn's railway ring will reduce freight traffic bottlenecks and provide increased transport options for passenger transport to cities and workplaces in the region.	High	Infrastructure	Estonia	Rail
39	The Port of Tallinn is investing in new digital solutions, including: Smart Port - Traffic management in the port and automatic check-in of passengers and vehicles. Single Window and Logistics X-road - Digitization of data exchange in logistics chains. FlexPort - "port management system" (port management program). Shore power for ships.	Medium-high	Digital	Estonia	Sea
40	New business models for ferry operators to avoid the impact of heavy traffic on tourism and cultural environments in central Tallinn.	Low	Other	Estonia	Road
41	Measures aimed at reducing congestion on the Helsinki ring road (Ring III), especially in rush hour traffic.	Medium-low	Infrastructure	Finland	Road
42	Longer siding at the border station in Vainikkala to enable longer train sets (1 km or more) to be handled on the Finnish side of the border.	Medium-low	Infrastructure	Finland	Rail

General recommendations

- There are a large number of bottlenecks already today, at the same time as the flow of goods is expected to increase in the future
  - To cope with this, continued cooperation is required, both at regional and national level, between the countries concerned along the routes.
  - By continuously updating the data on bottlenecks and proposed measures, gradual improvements are achieved if investments are made at the same time.

- Both long-term decisions and an agile approach are needed
  - Freight transport is strongly dependent on several different factors that individual countries or regions have difficulty influencing (trade patterns, production capacity, etc.).

- Prioritize measures that contribute to good opportunities for using the railway on land in combination with shipping across the Baltic Sea in order to create an efficient and sustainable transport corridor between Oslo and St. Petersburg.

Interreg
Central Baltic

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Thanks for listening!

Ahmed Alaeddine
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