



Tornio - Haparanda connection, covering challenges and plans for the future

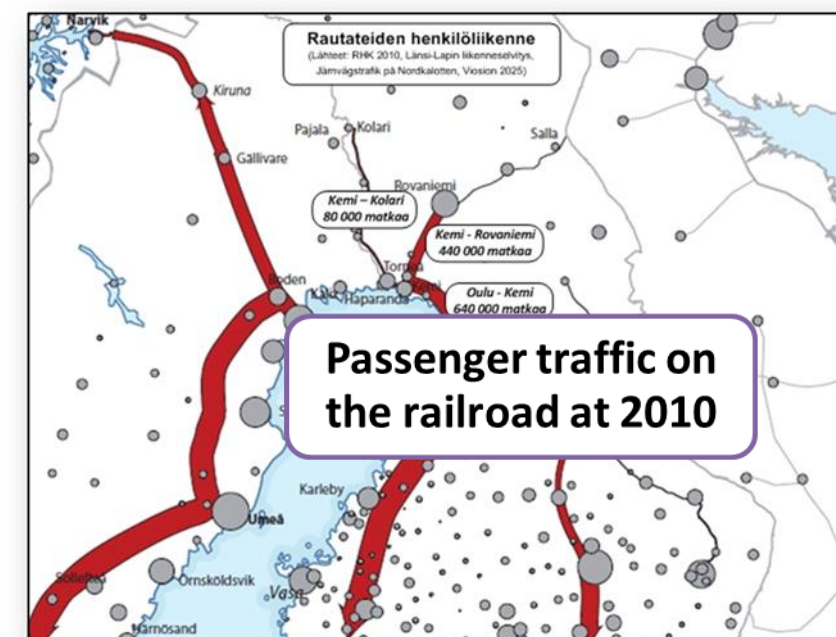
Background and status

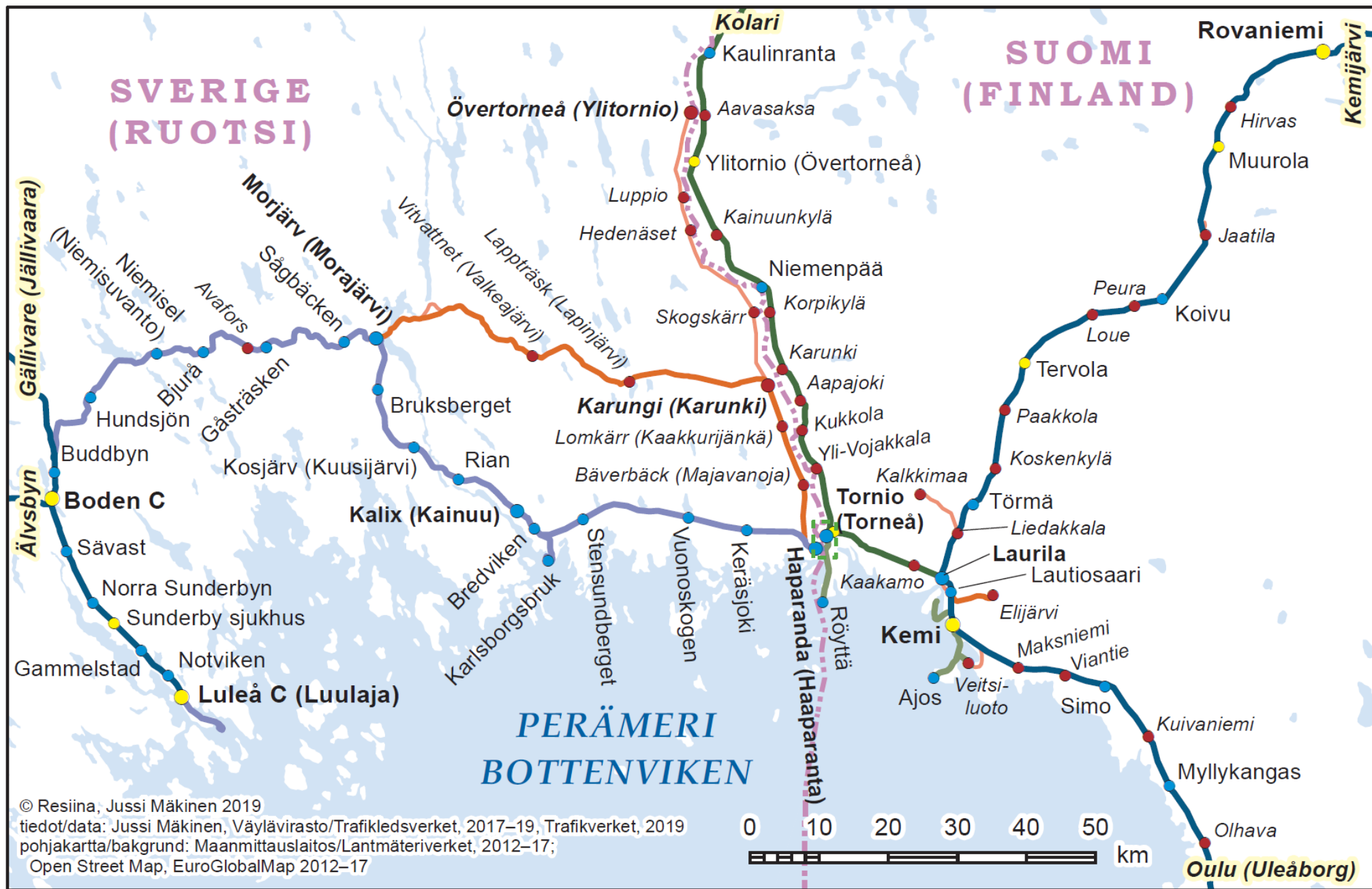
Tornio railway bridge



Background

- Originally passenger traffic between Tornio and Haparanda was shut down on 28 May 1988. Passenger traffic continues still from Helsinki via Tornio-East to Kolari.
- 2013 the new, improved and electrified Haparanda line from Boden to Haparanda was taken in use. 2021, 1.4. passenger services have started from Luleå to Haparanda.
- The remaining gap in electrification, Haparanda-Laurila has been acknowledged both in a measure of choice study (2014, Swedish Transport Administration in cooperation with the Finnish Transport Agency) and also as a deficit in the Joint Barents Transport Plan.
- Freight traffic by rail across the Tornio-Haparanda border is today modest, only a few carriages twice a week. In addition, occasional special transports, e.g. supply trains and trains for maintenance.





Status

- No governmental investment decisions regarding implementation yet.
- Planning status is on-going and has been granted CEF-funding.
- Idea so far is to build Finnish 25 kVh 50 Hz electrification and Finnish safety devices for the 1524mm track gauge in the railway yard and station of Haparanda.
- The switchgear in Tornio can be extended to the wide tracks in Haparanda, which connects the different track gages.
- The existing border bridge over Tornio will remain, but it will be extended in height for the electrification.
- The transshipment option can also be maintained in Tornio if needed (option 1b).
- Changes to the passenger platforms in Haparanda is required for long distance trains to operate.

Challenges

Tornio railway station





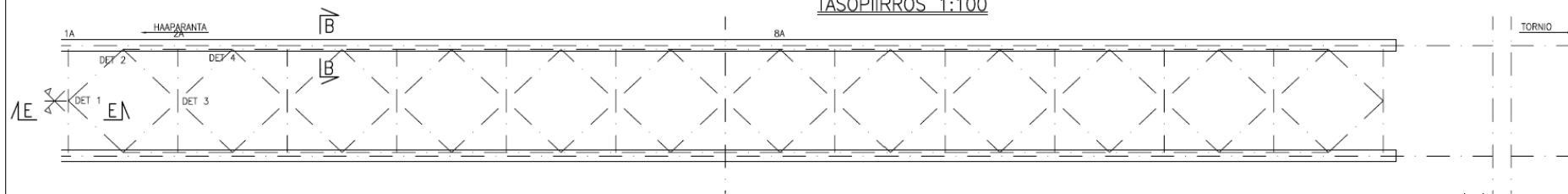
Challenges

- Finnish and Swedish electrification systems are different (25 and 15 kWh and they also have different system heights). Electrification cannot be used by both parties, even if there is double track with both track gauges (1524mm and 1435mm).
- Different track gauge, e.g. where to load and unload freight traffic and how passengers would switch to different trains.
- Largest axle load between Tornio and Oulu is 22,5 tons vs. Haparanda to Boden 25 tons. Border bridge allows maximum 22,5 tons and upgrading it would require a new bridge.
- Border bridge is over 100-year old, which is restricting upgrading it and lifespan even upgraded estimated is 20-30 years.
- The iron frame of the border bridge is limiting train sizes and requires expansion to install the electrification.

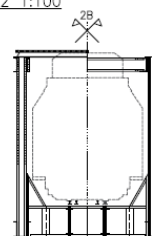
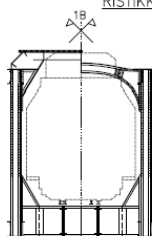
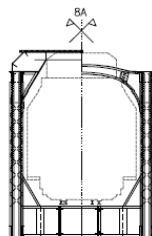
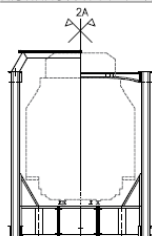
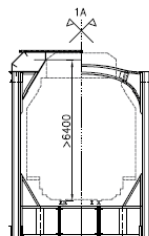
TORNIONJOEN RATA SILTA
SIVUKUVA 1:500



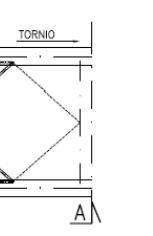
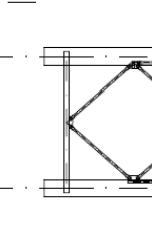
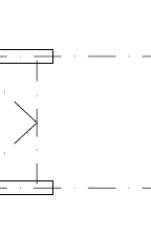
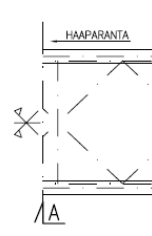
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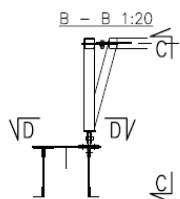
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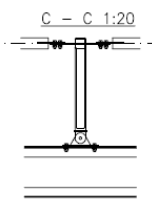
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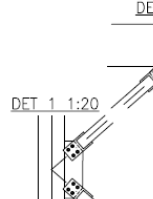
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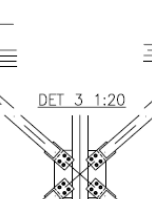
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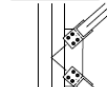
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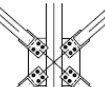
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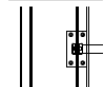
DET 1 1:20



DET 3 1:20



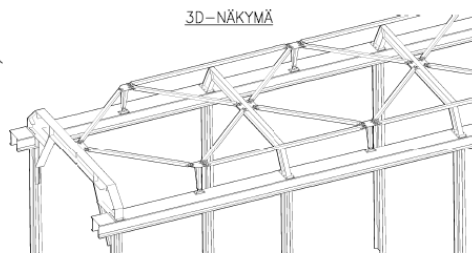
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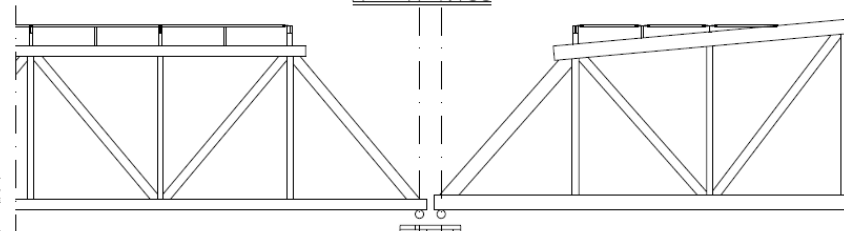
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3D-NÄKYMÄ

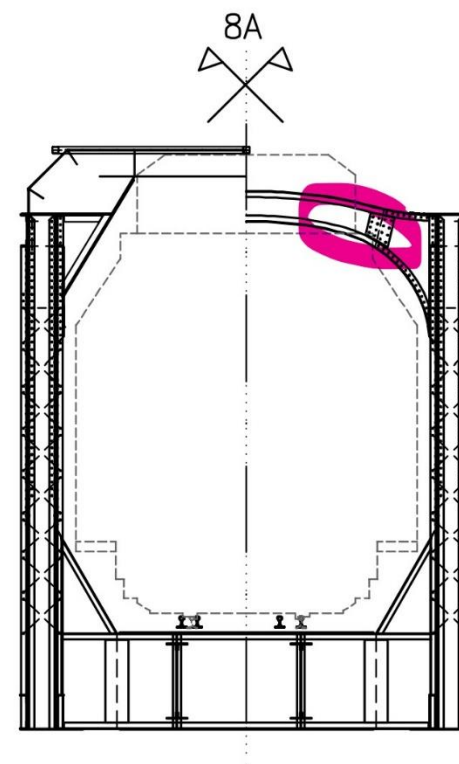
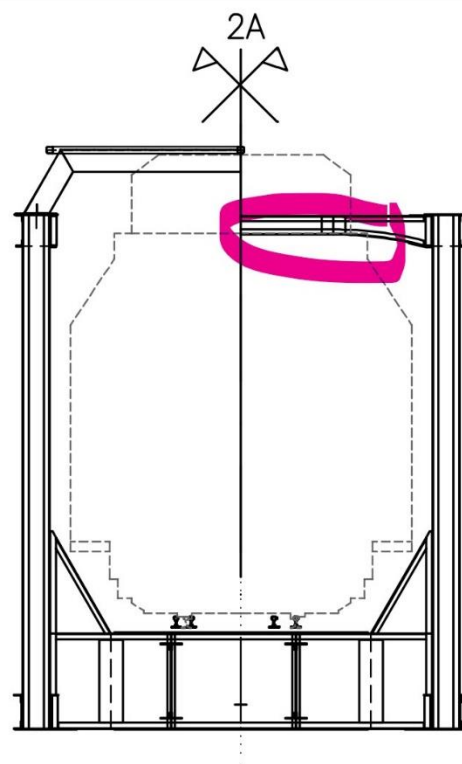
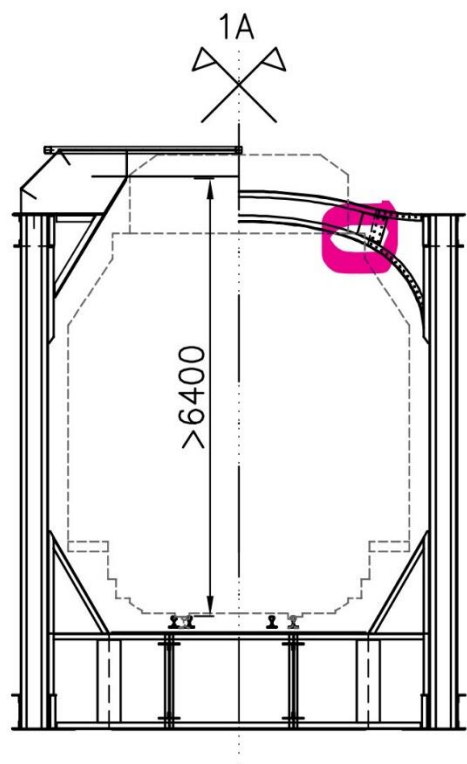


A - A 1:100



Finnish Transport
Infrastructure Agency

RISTIKKOTYYPPI 1 1:100



DET 2 1:20

Challenges continued

- Legal bindings, e.g. FTIA as has competence/powers only within the borders of the Finnish state (FTIA Act 862/2009, 1 §)
 - (Rail Traffic Act § 181 (1/2019)) The Finnish Transport and Communications Agency can agree with the national safety authority in Sweden on the practical, technical and administrative arrangements needed to ensure safe traffic and smooth railway interconnection between the railway border stations in Tornio and Haparanda.
 - Border agreement from 1924 is still valid and restricting e.g. changes that would be needed to do in Tornio station (removal or changes on 1435mm track gauges).
 - "Interconnection between border stations must take place up to two simple tracks attached to the same sleepers, one track being Finnish, the other Swedish"
 - "The border stations must be connected to each other by special electric telegraph and telephone lines--"
- Administration problems, that are yet to be discussed.
 - Who would operate trains on the other side of the border, who is the infrastructure manager, maintenance operation e.g..

What is in for the future?

Haparanda railway station, 1524 mm tracks



Future

- Planning will be finished by the end 2022 and implementation can start on summer 2021.
- Trains can be transported even with different gauge with roller stands, which gives an opportunity to move trains further inland for maintenance (only 60 km/h).
- Study from 2018 shows that only 47-72 000 tons between the border were handled by rail, but at the same time it is estimated that 150 000 trucks cross the border each year with 1,5-2 M tons of transports.
- 2019 almost 300 000 tons were transported between Kemi and Tornio, and about same amount between Tornio and Kolari, and the estimation is that it will grow in the future, especially since the new Factory planned to be built in Kemi.
- True land connection to Europe.



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