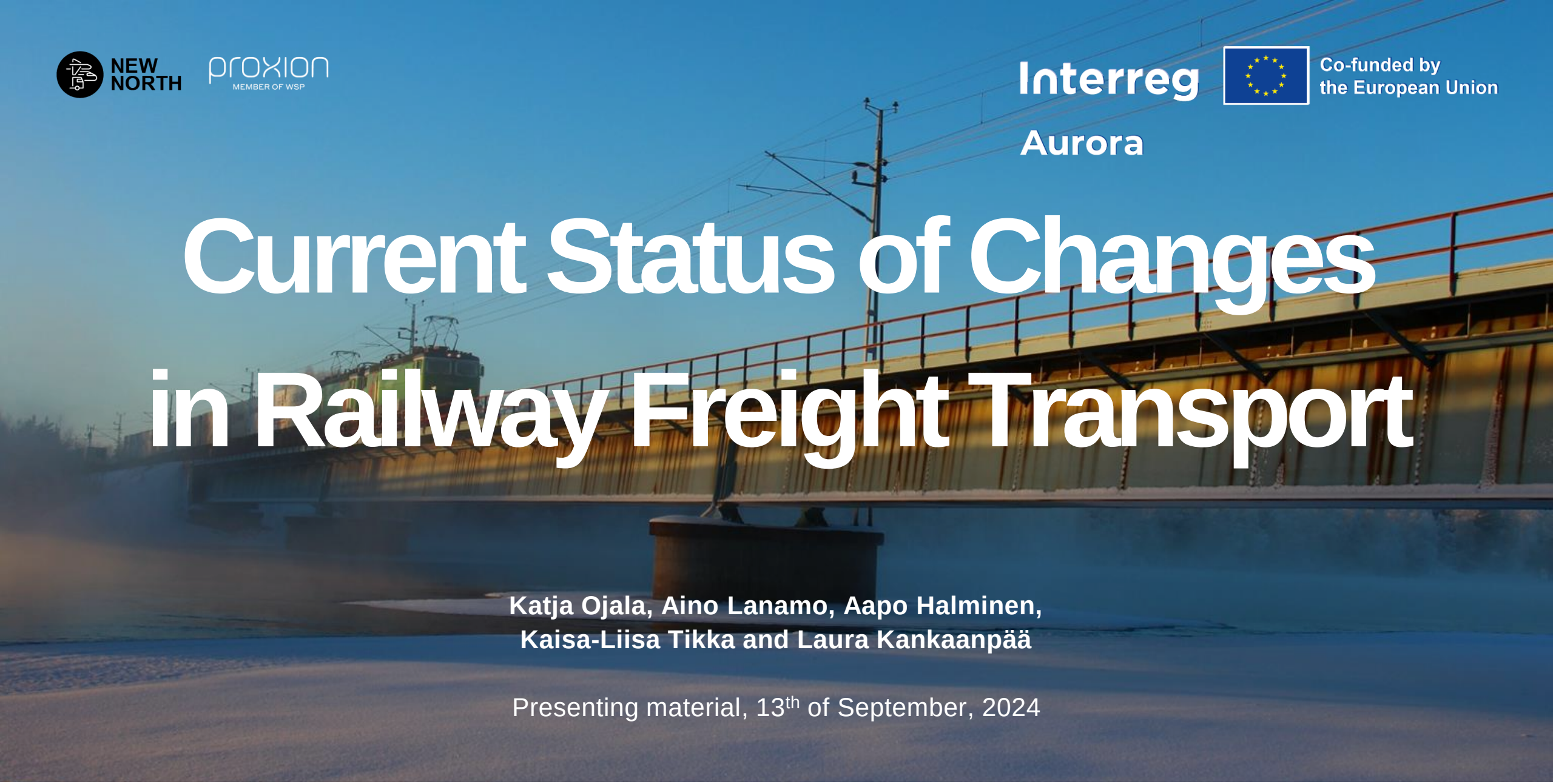

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# Current Status of Changes in Railway Freight Transport

**Katja Ojala, Aino Lanamo, Aapo Halminen, Kaisa-Liisa Tikka and Laura Kankaanpää**

Presenting material, 13th of September, 2024

LAPIN LIITTO

KAINUUN LIITTO

Länsstyrelsen Västerbotten

Länsstyrelsen Norrbotten

Nordland FYLKESKOMMUNE

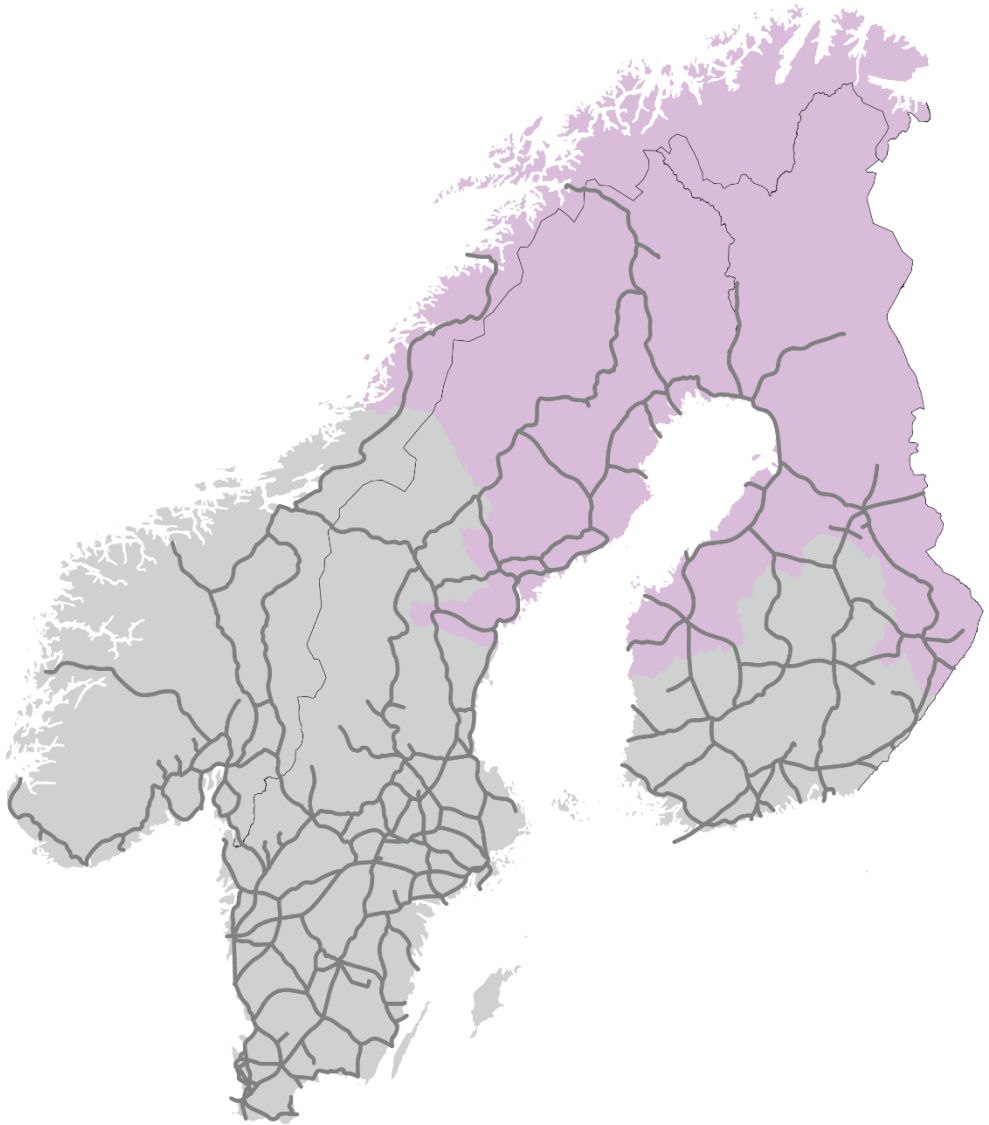
POHJOIS-KARJALA Maakuntaliitto

Troms fylkeskommune
Romssa fylkkasuohkan
Tromssan fylkinkomuuni

Finnmark fylkeskommune
Finnmárkku fylkkagielda
Finnmarkun fylkinkomuuni

KVARKENRÅDET
MERENKURKUN
NEUVOSTO

POHJOIS-POHJANMAA
COUNCIL OF OULU REGION



# Aims of the study

**Main goal:**

To create an illustrative material of possible future development of railway traffic in the **New North project area,** and analyse impact of these outlooks on railway capacity.

**Subgoals:**

- Map current railway traffic and capacity situation.
- Define economic outlooks and their impacts on railway flows.
- Analyse impacts of future outlooks for the railway capacity

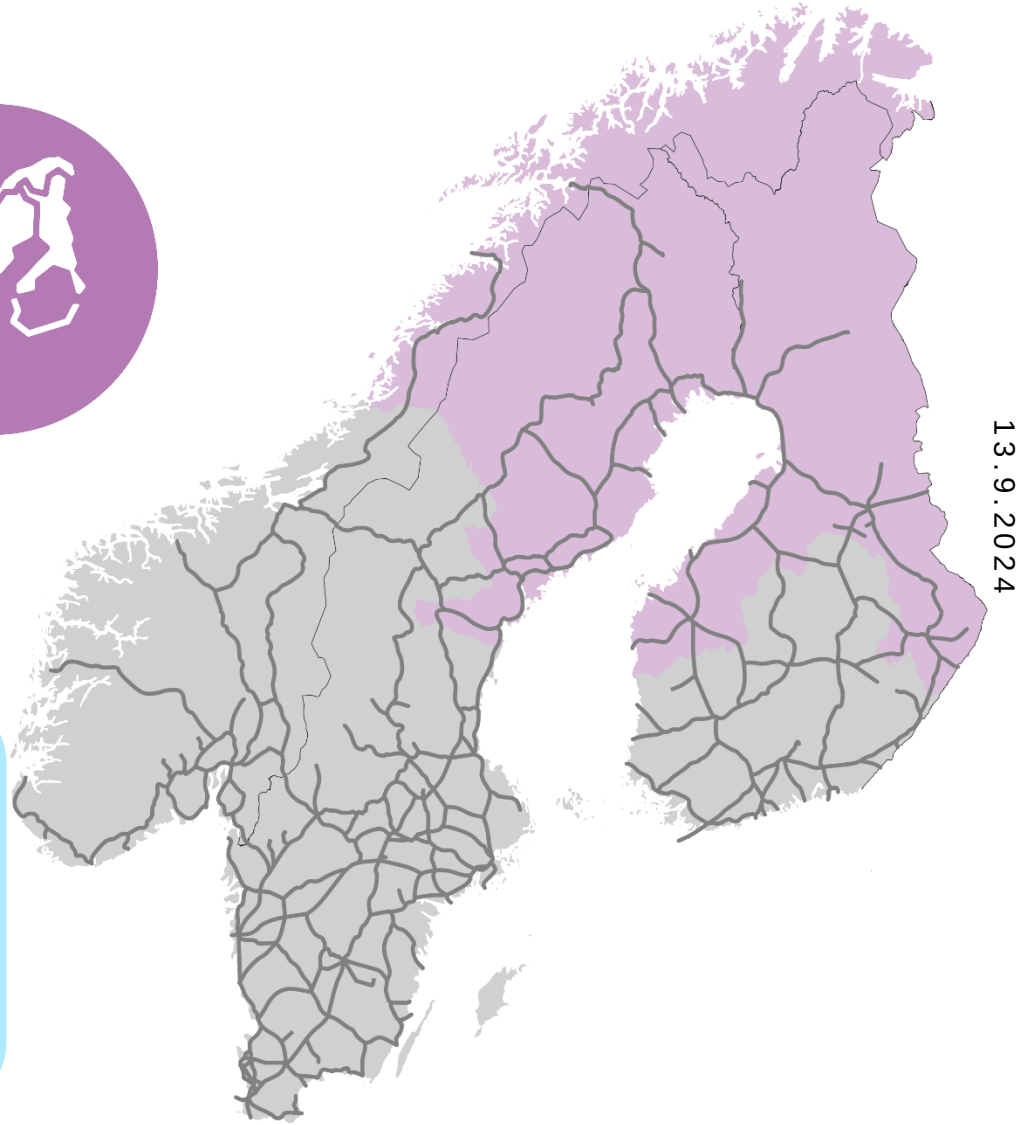
13.9.2024

# Scope of the study

Focused on presenting **the current status** and **creating outlooks of traffic flows** and their impact on capacity on current railway network.

**First** study of WP 4: Green transport corridors

Is based on publicly available information. Doesn't include analysis of the adequacy of the railway capacity, development needs or analysis of new connections but **provides starting information** for further studies of this perspective.



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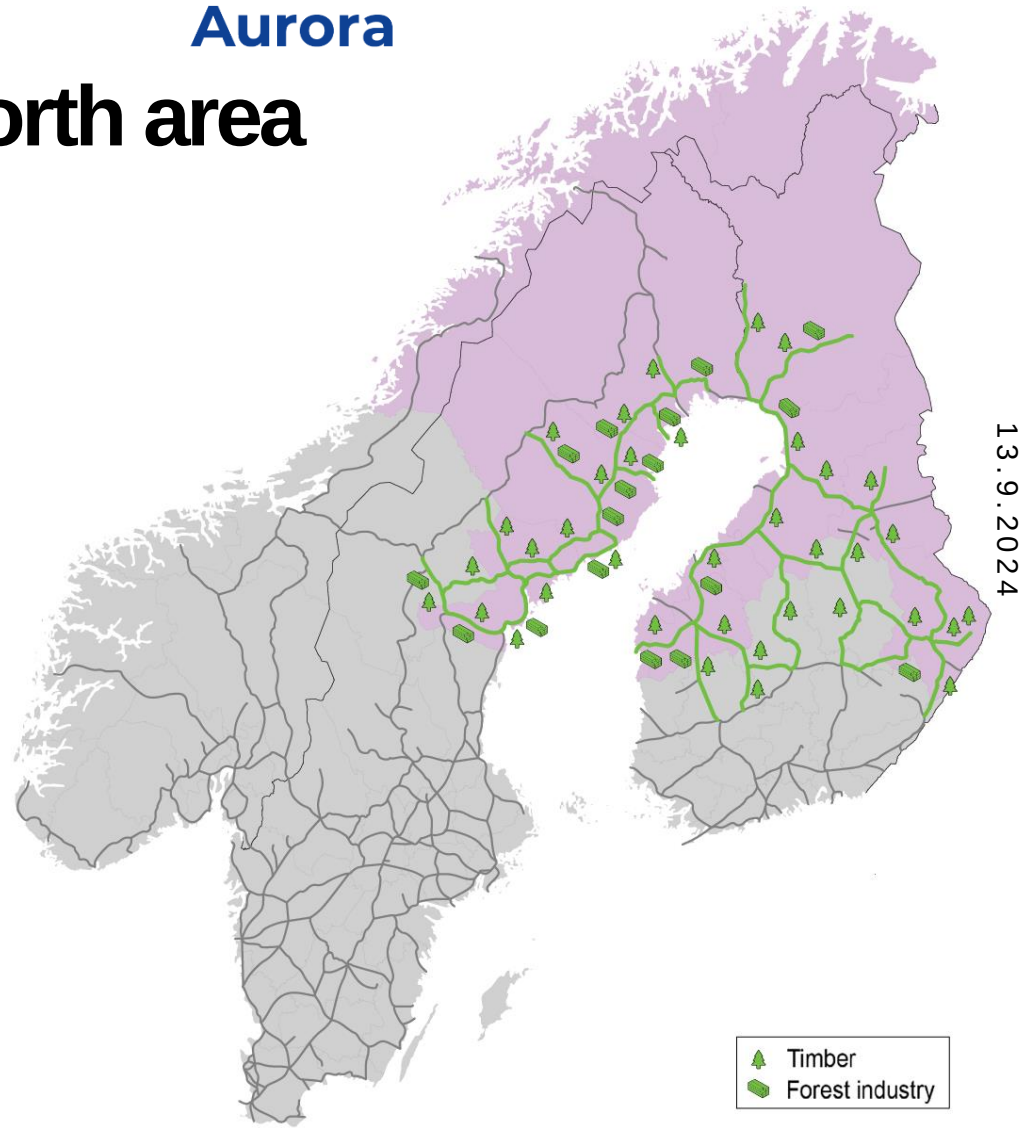
# Rail cargo commodities in the New North area

The role of **forest industry** in the project area is significant, especially on the Finnish side. Most important destinations for **timber** are Kemi pulp mill, Äänekoski pulp mill, Uimaharju pulp mill and several mills in South-Eastern Finland. There are also smaller mills eg. in Pietarsaari and Oulu.

In Sweden, remarkable forest industry areas are e.g. in Obbola (Umeå), Husum, Domsjö (Örnsköldsvik), Dynäs (Kramfors), Östrand (Timrå), Ortviken (Sundsvall), Piteå and Kalix.

**Forest industry products** (pulp, cardboard, laminated wood, paper etc.) are then transported to ports. Important destinations include Helsinki, Kotka, Gothenburg and Piteå ports.




The symbols represend the commodities transported on the railway line next to them.

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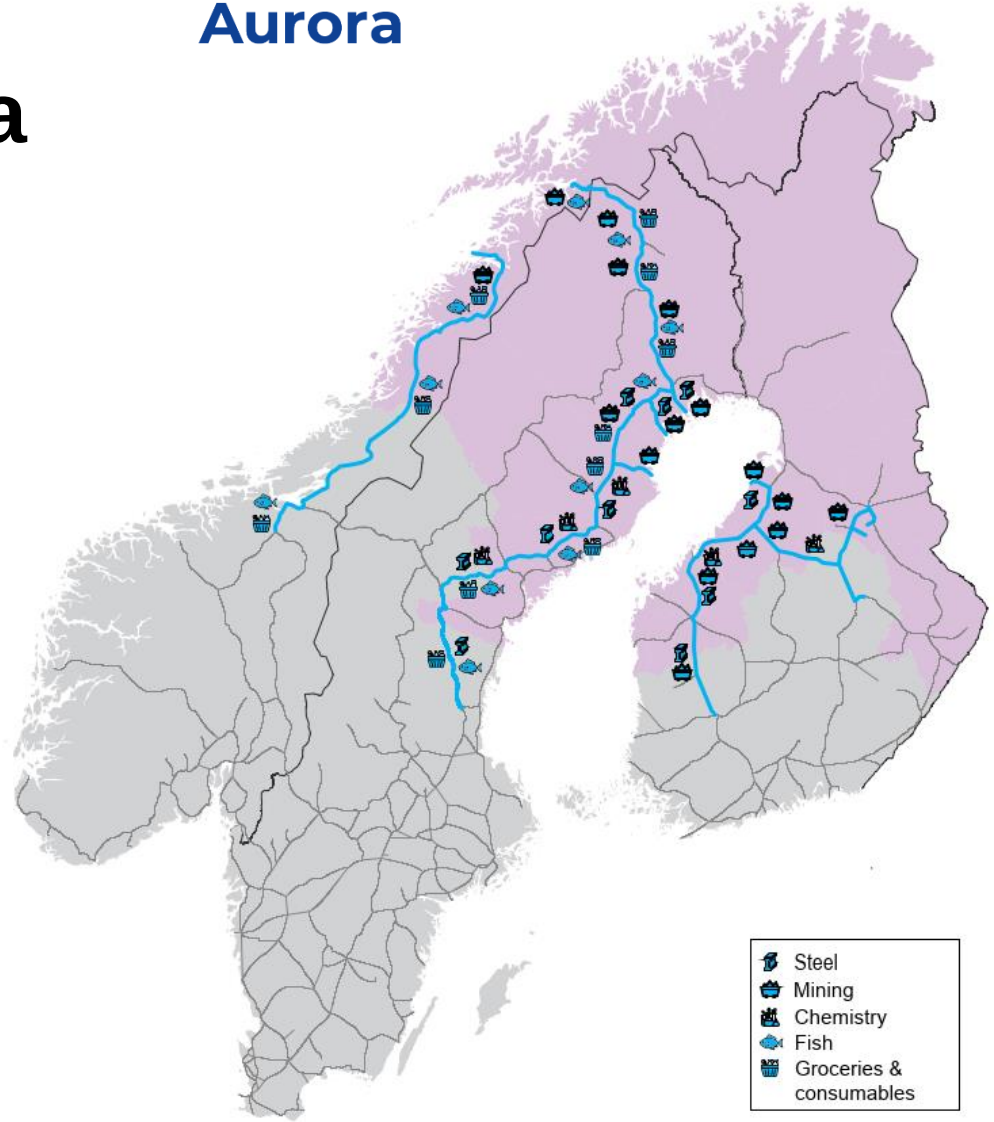
# Rail traffic flows in the New North area

Mining contributes most to the railway transports in the project area: **iron ore** transports from Kiruna & Gällivare to ports of Narvik and Luleå through so-called Malmbanan. There is also a **steel mill** in Luleå and copper smelter and battery industry (using mining products) near Skellefteå port.

In Norway, transportation of **fish, groceries & consumables** are most significant, after mining products. They're transported via both Malmbanan and Nordlandsbanen towards south, mainly Oslo area.

In the Finnish side important transportations include trains from Sotkamo mine (**nickle, zinc, uranium**) to ports of Kokkola and Kotka, **steel** from Raahe to Hämeenlinna, **chemicals** (fertilizers and it's ingredients) to and from Siilinjärvi and **mining industry transportations** (copper and nickel concentrates) from Kemi to Harjavalta.




The symbols represend the commodities transported on the railway line next to them.

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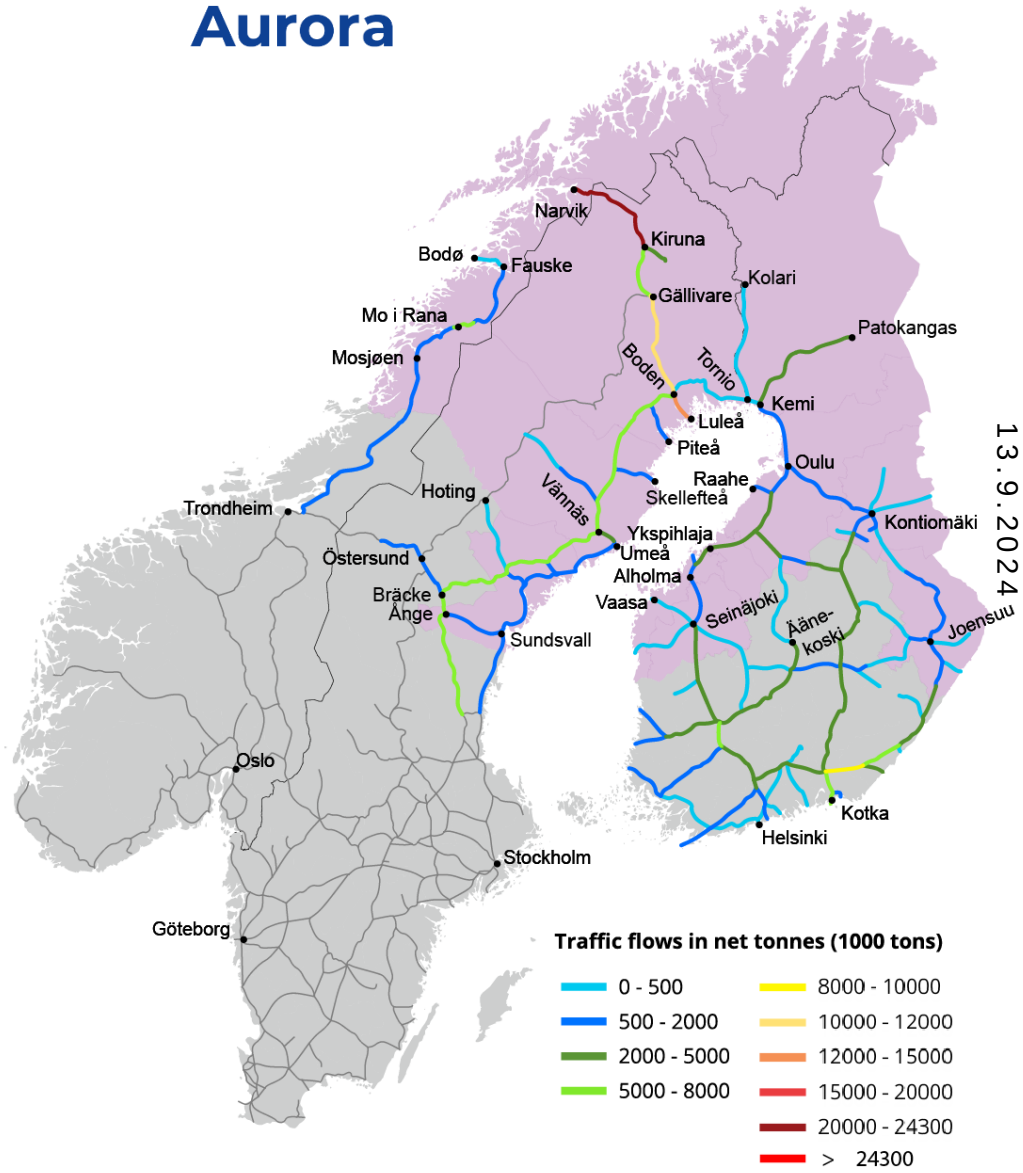
# Rail traffic flows in New North area

Largest traffic flow in the project area is **transport of iron ore between Kiruna and Narvik** port. Also the rest of **Malmbanan** is under heavy utilization due to relatively heavy cargo.

In Finland, traffic **flows** on the project area **are more moderate.** Links from **north to south have heaviest loads**, though Iisalmi–Ylivieska has also moderately high flows due to **mine in Sotkamo** and **fertilizer factory in Siilinjärvi.**

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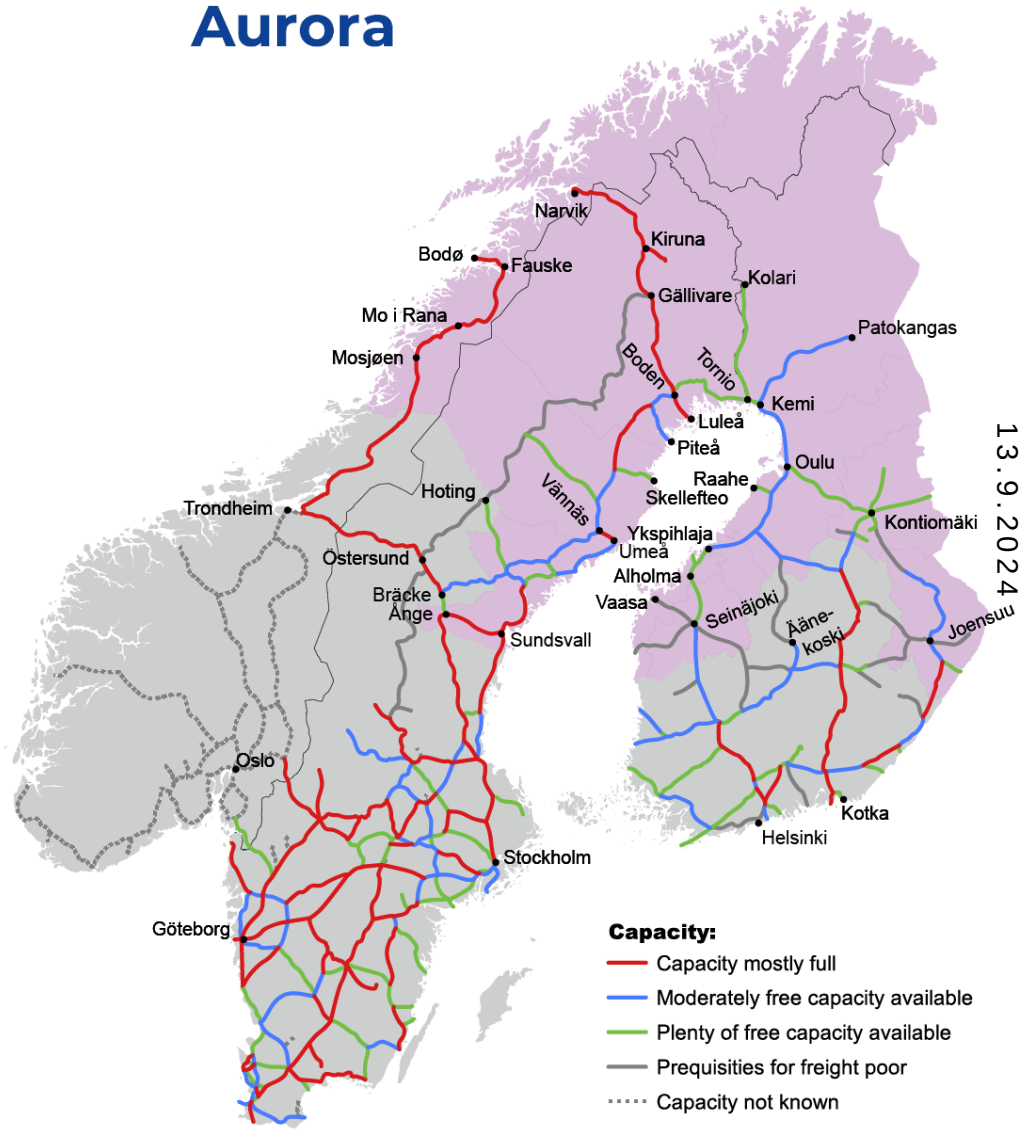
# Rail capacity in New North area

The **most significant capacity deficit is on Malmbanan** (Narvik–Kiruna–Luleå), in which iron ore transports uses most of the capacity. At the moment also Nordlandbanan in Norway is facing its' current capacity limits.

In Finnish side, railway lines on the project area have **moderately or plenty of free capacity** available. However, **north–south links are under heavy utilisation** south of the project area limiting transports to southern ports. Same applies to Sweden, where southern part of the network is quite busy. In Finland some lines have capacity in theory, but condition of the track is poor. That applies also to northern sections of Inlandsbanan in Sweden.

**Changing gauge** between **Tornio and Haparanda** also limits transports between Finland and Sweden. Capacity is limited and costs are high.




The map is presenting the busiest 2 hour capacity

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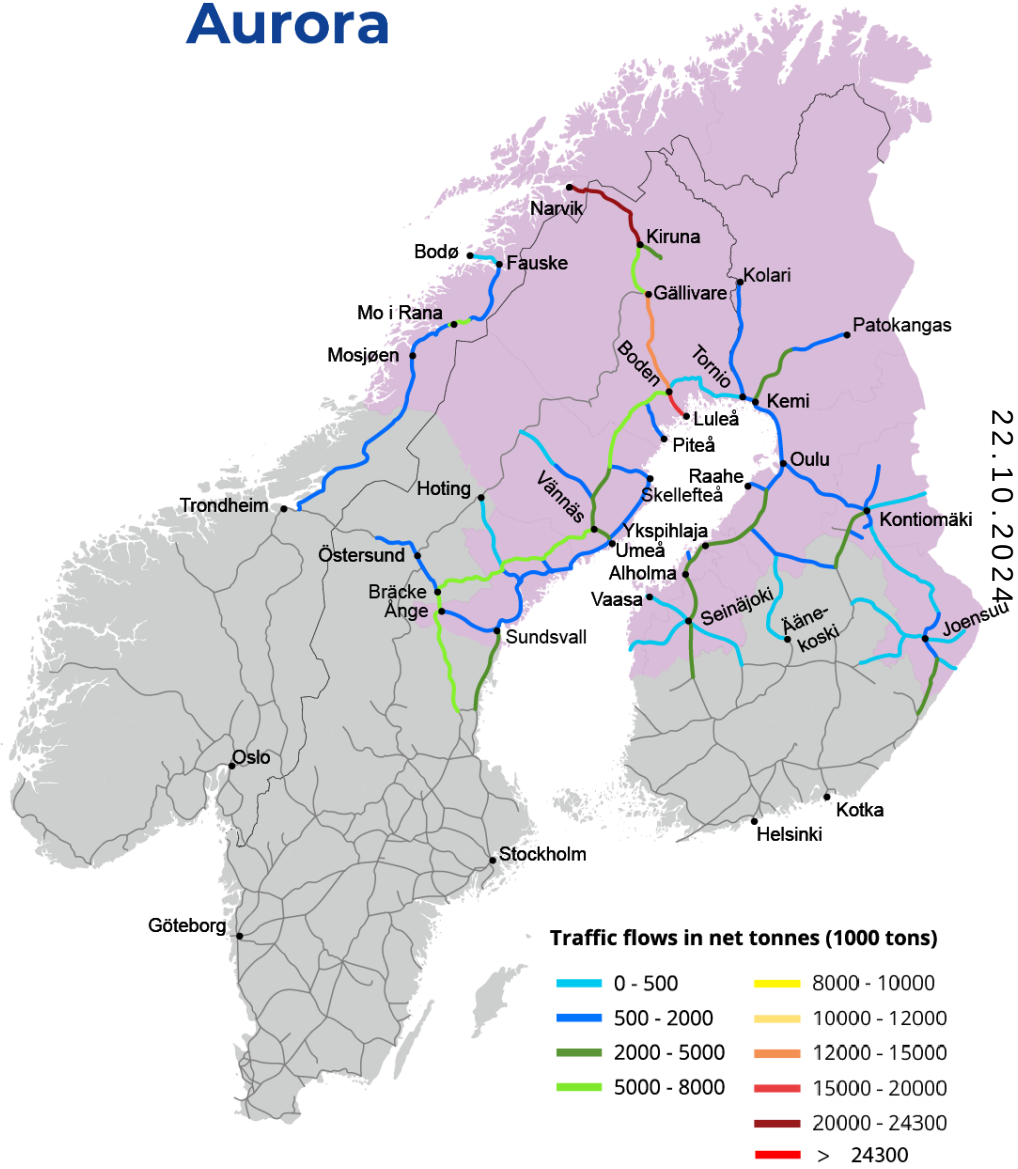
# Forecast for 2030

**FINLAND** (*official forecast*)
Most changes are caused by **shifting timber transports** and most remarkable effects are in corridors **Patokangas-Kemi** and **Iisalmi-Kontiomäki**. The timber forecast have been **controversial**, as forest industry has scaled down and ceasing imports from Russia has not increased domestic transports as forecasted.

**SWEDEN** (*based on confirmed investments in the area by 2030**)
**Iron ore transports** between Gällivare–Boden & Boden–Luleå **will increase** due to investments in mining (LKAB) and steel production in Boden & Luleå (H2Green Steel, SSAB).

**NORWAY** (*official forecast*)
**More demand on transports between Kiruna-Narvik** due investments in Kiruna area. (Kaunis Ore, LKAB). Combined transports are expected to increase moderately in Ofotbanan, after investments for new crossing-points. In Nordlandbanan, minor increase in transports is to be expected, but no major changes are estimated.




** Estimation is done in this project taking into account the official forecast for 2045.*

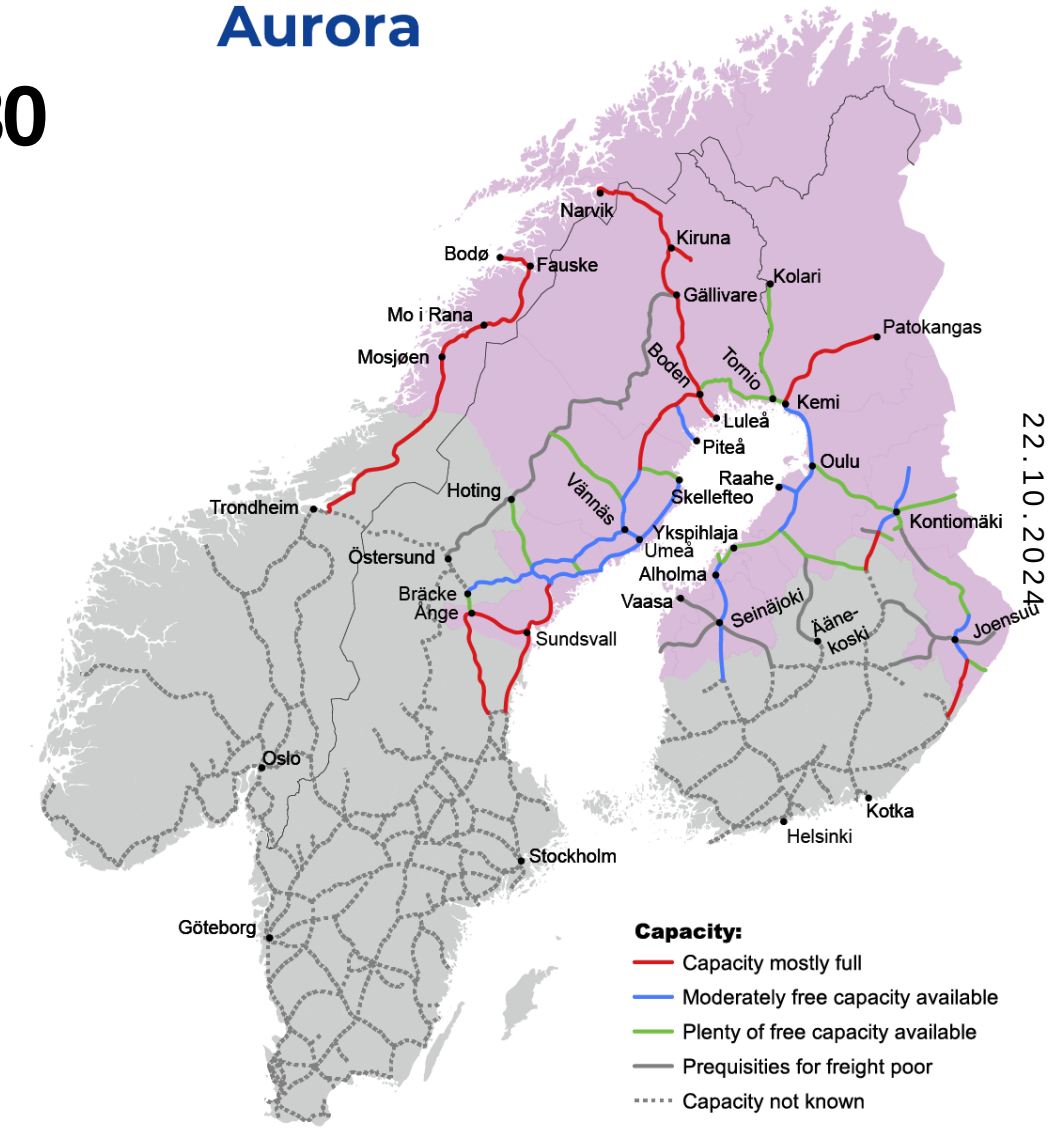
# Rail capacity on official forecasts 2030

**Capacity utilization increasing:**

- Kemi–Patokangas (timber)
- Raahe branch line (steel)
- Kontiomäki–Pesiökylä (timber)
- Iisalmi–Kontiomäki (timber)

**Capacity utilization decreasing:**

- Iisalmi–Ylivieska
- Alholma–Seinäjoki
- Lieksa–Eno
- Boden–Vännäs

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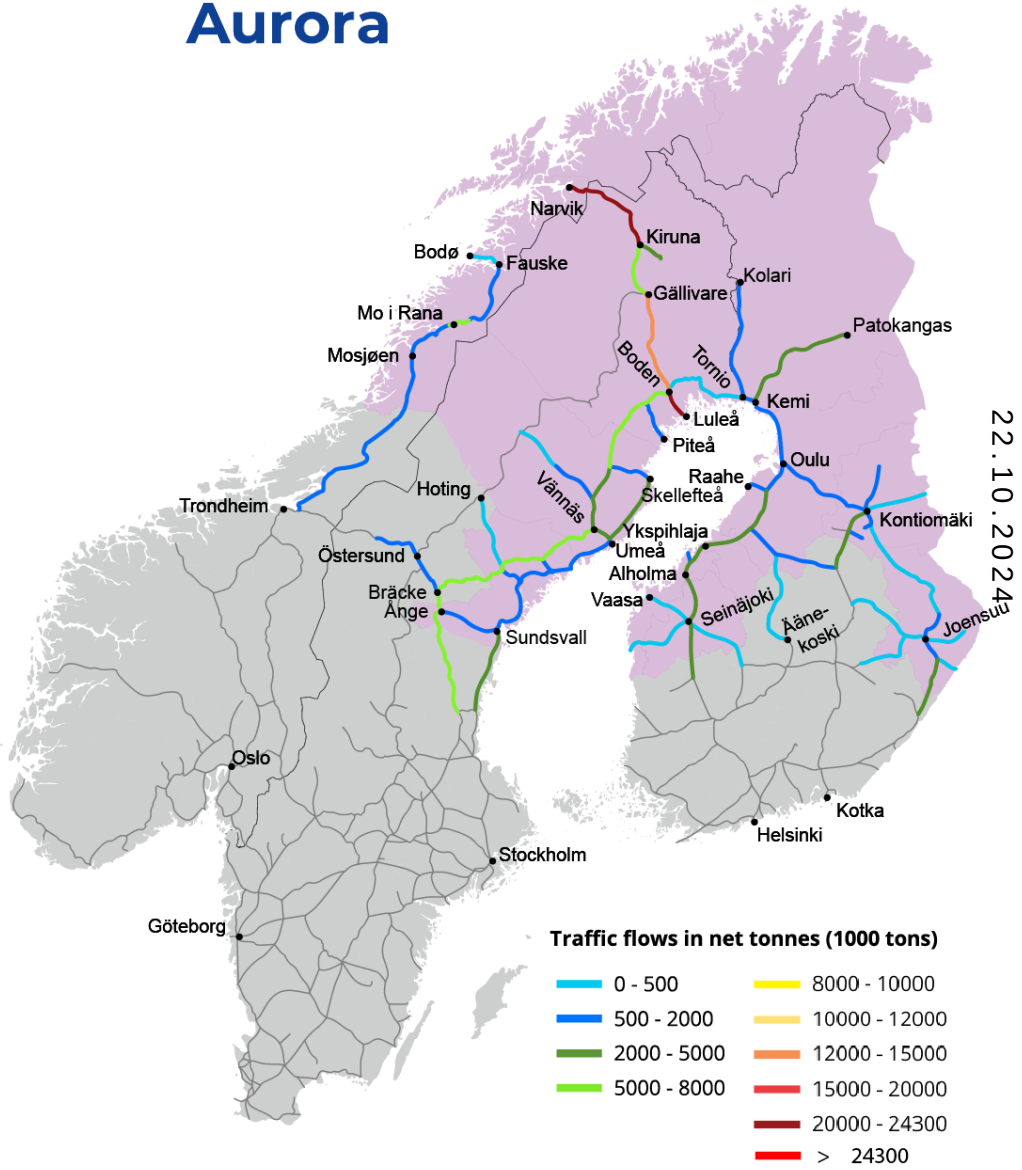
# Outlook for 2030

If new investments – which are not yet calculated in the official forecasts – realize in the project area, there will be few major effects:

- **New pulp mills** in Kemijärvi (near Patokangas) and Paltamo (near Kontiomäki) **will increase the demand** of transports for timber and pulp which effects mostly lines **Patokangas–Kemi** and **Kontiomäki–Oulu**

- **Vaasa–Seinäjoki corridor** will have to accomodate **new transportations** (minerals, chemicals) mainly from Sotkamo mine

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# Rail capacity in 2030 outlook:

## Capacity utilization increasing:

- Kolari–Tornio (timber)
- Tornio–Kemi (timber)
- Vaasa–Seinäjoki (minerals)

## Capacity utilization decreasing:

- Nowhere

## New track

- Skellefteå–Umeå (eases capacity between Boden and Vännes)


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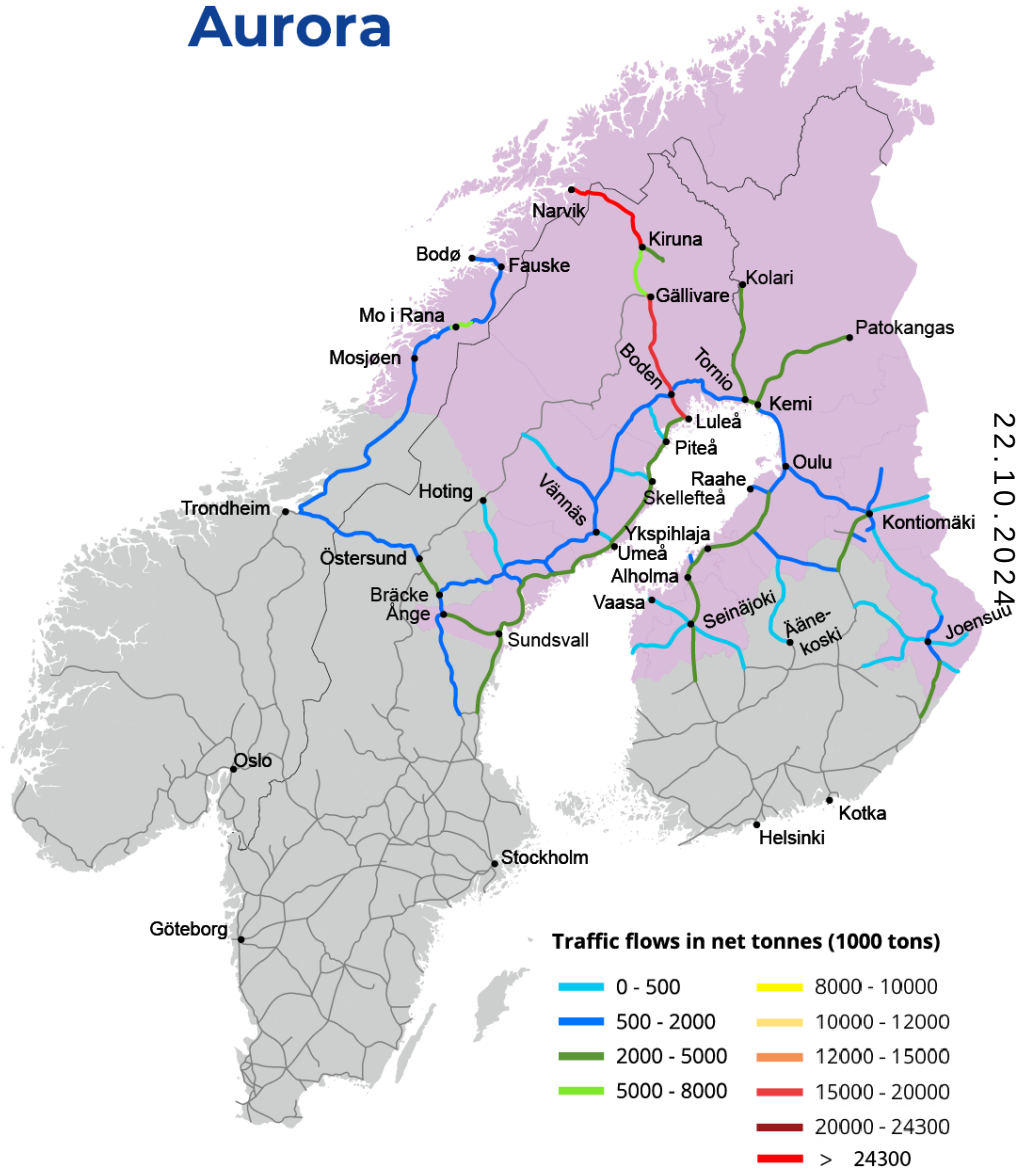
# Outlook for 2050

FINLAND (*official forecast added with new mine investments*)
**Several mine investments will increase transports in Lapland**. Mine in Hannukainen will affect Tornio–Kolari line and mines in Sokli and Sakatti will increase transports between Kemi and Rovaniemi.

SWEDEN (*official forecast 2045*)
In Sweden, **more transports will shift** from the Boden–Vännäs line **to Norrbotniabanan**.

NORWAY (& SWEDEN)
Transports of **iron ore** between Kiruna and Narvik are still **expected to increase**, as worldwide demand for fossil free iron grows. **Combined transports continue to increase moderately** also in Nordlandsbanan, due investments to infrastructure and demand for climate-free transports.

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# Rail capacity in 2050 outlook:

## Capacity utilization increasing:

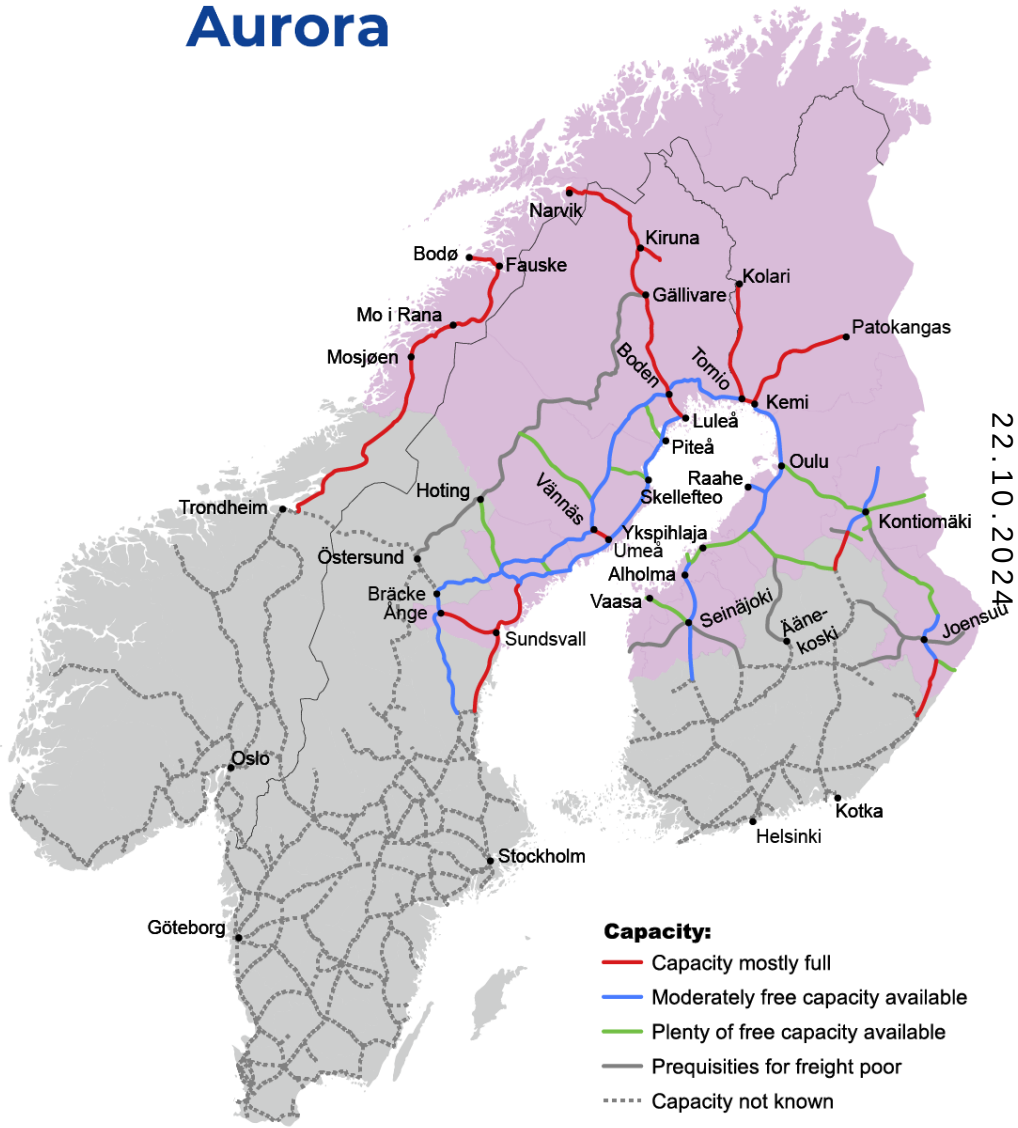
- Boden–Tornio
- Kolari–Tornio (mining)
- Tornio–Kemi (mining)
- Norrbotniabanan

## Capacity utilization decreasing:

- Boden–Vännäs (shifting to Norrbotniabnan)

## New track

- Luleå–Piteå–Skellefteå–Umeå (eases capacity between Boden and Vännes)

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## Current rail transports

- Iron ore on Malmbanan between Luleå and Narvik has highest volumes in the project area. Sweden and Finland have steel & metal industry that also require transportation of copper, nickle and zinc, and chemicals.
- Timber and forest industry products are very important especially in Finland but also in Sweden.
- In Finland, transports of fertilizer industry ingredients, products and by-products generate demand for rail.
- In Norway and Sweden, fish, groceries and consumables are transported on rails within the project area.

## Net tonnes development:

Now:
- Highest amounts by rail are at Malmbanan and the Swedish Main line. In Finland and Norwegian Nordland line transports are more moderate.

2030:
- In official forecasts transports of timber (FI) and iron ore (NO + SE) will increase.
- Paltamo & Kemijärvi potential new pulp factories affect timber flows.

2050:
- New Norrbotniabanan will shift tonnes from the Swedish Main line.
- Increasing global demand for fossil free iron will keep the iron ore transports high and is expected to increase further
- Lines from Kemi to Kolari and Patokangas will have increased transport demand due to mining investments.

## Rail capacity development

Now:
- Utilisation of Malmbanen, Kemi–Patokangas line, Nordland line and several lines leading south from the project area have capacity mostly used within the busiest 2-hour window.

2030:
- In Finland, capacity utilisation will increase between Kemi and Patokangas and several other sections.

2050:
- In Sweden, opening Norrbotniabanan will ease congestion.
- Line between Tornio and Kolari will have high-capacity utilisation.
- Lines from Kemi to Patokangas and Kiruna to Narvik might struggle with available capacity.

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