

# High Speed Line Plans in Finland

Timo Kohtamäki, CEO, Finnish Rail Ltd.

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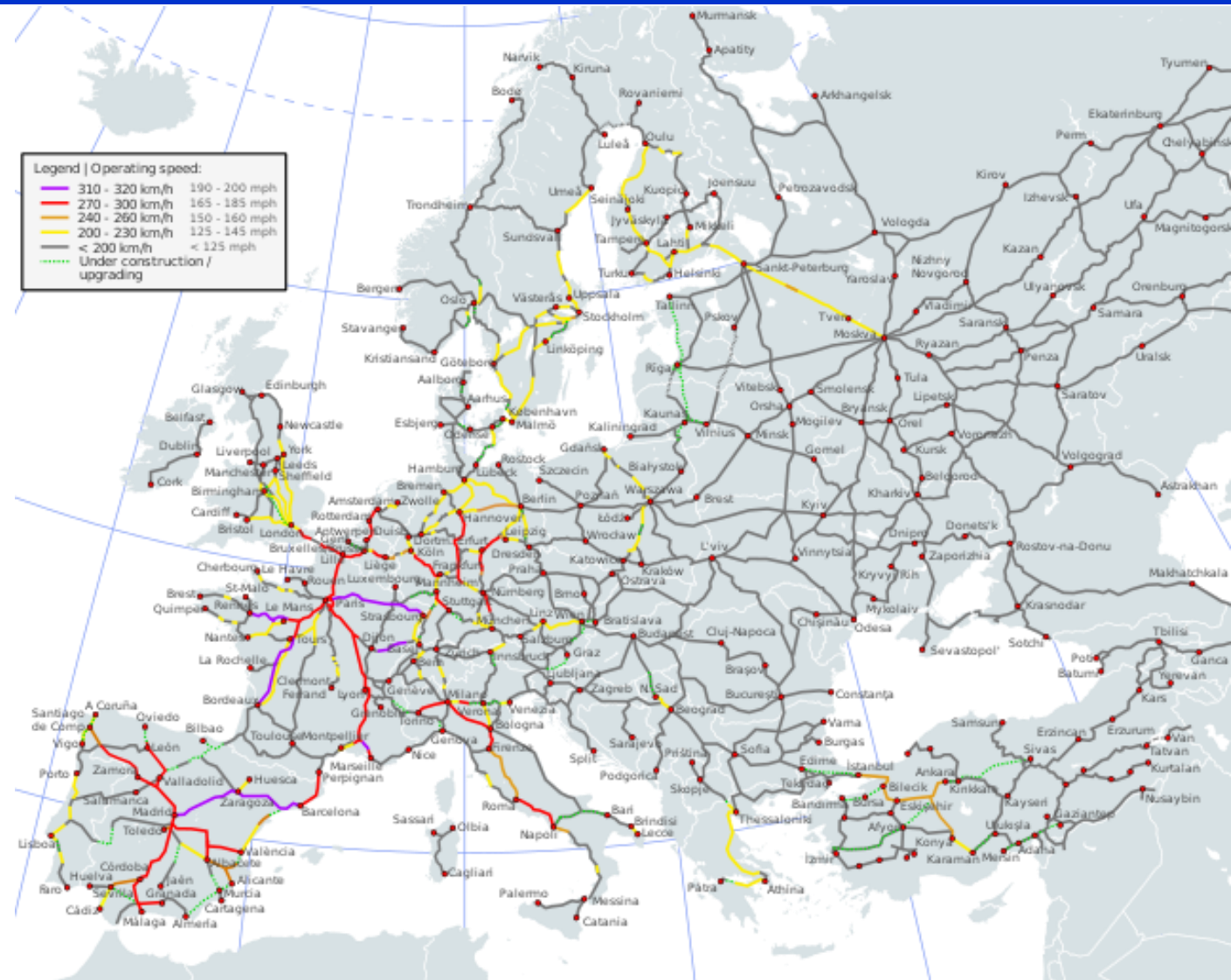
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# Finland and European railways

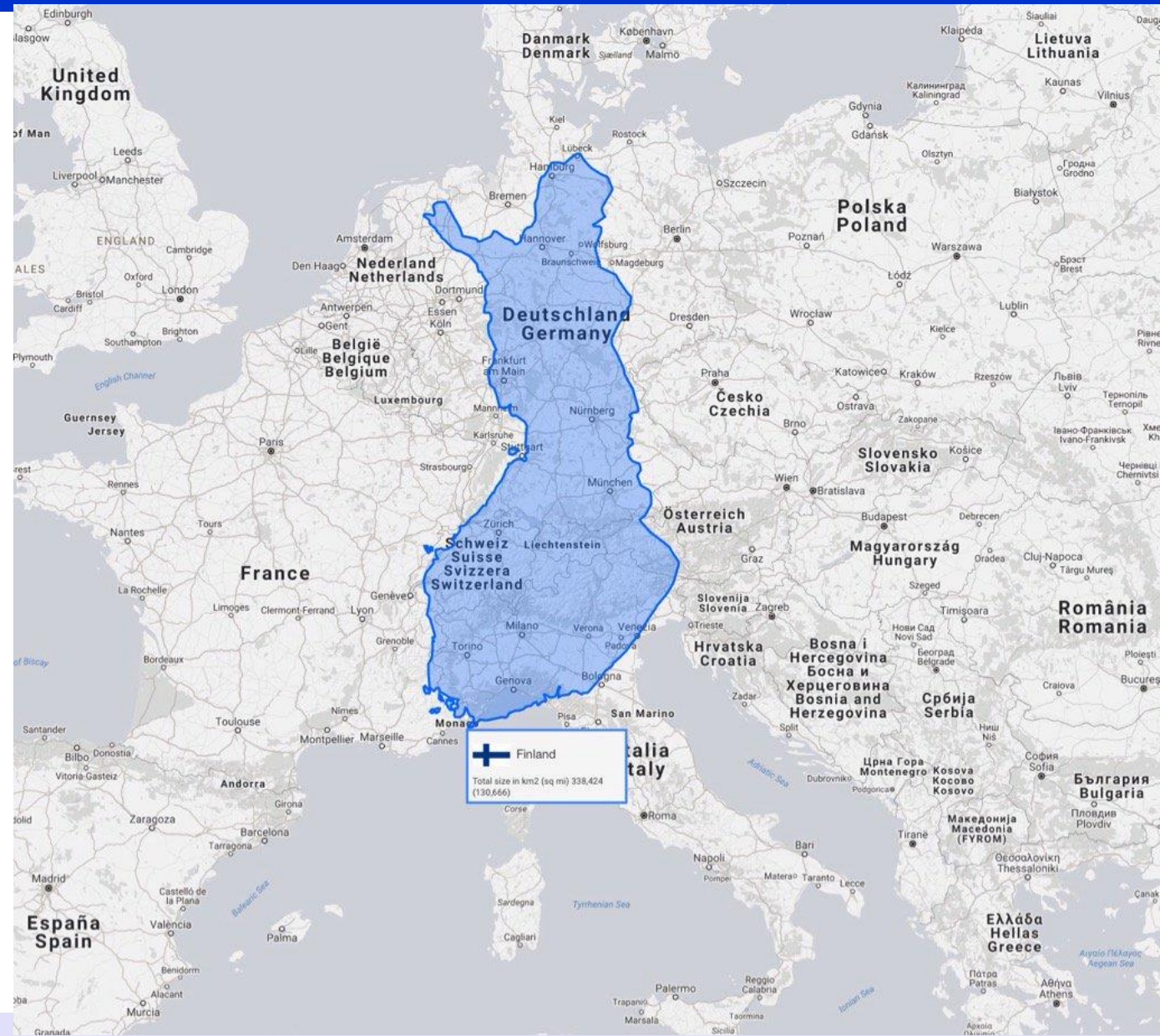


*Plan to connect Helsinki, (Finland) and Tallinn, (Estonia) with an undersea tunnel.*



# Finland compared to Europe

- Finland has a population of over 5.53 million people and an average population density of 19 inhabitants per square km



# Key challenges of Finland

## Ukraine situation affecting Finland

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- Russian air space closure affecting flights to Asia
- Changes in container traffic
- Finland-Russia Allegro train traffic ended in March 2022

## Railway investments elsewhere in Europe

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- Rail Baltica
- Southern Scandinavia investments in railways

## Challenges in Finnish economy

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- Population ageing
- Climate change



## Finnish Rail Ltd

- Finnish Rail Ltd ( in Finnish Suomi-rata Oy), was established in 2020 to plan a new high speed railway to connect the Helsinki region to northern Finland
- The target is to find new ways to finance big infrastructure investments and to find new business model to maintain the infrastructure and railway operations
- The owners of the company are state of Finland (51% of shares), twenty cities and Finavia Oyj (the company operating Helsinki-Vantaa International Airport)





# Finnish Rail Ltd

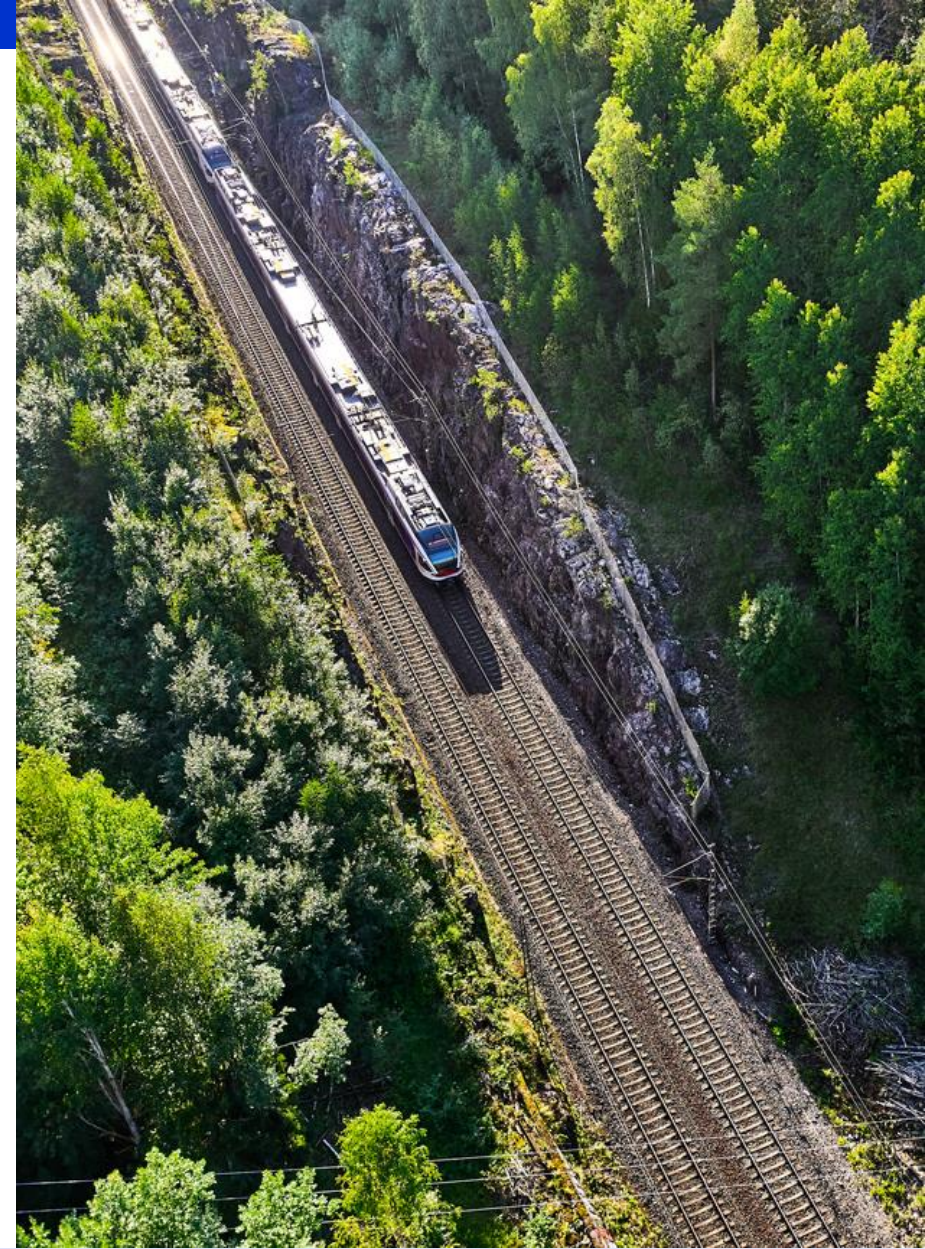
- Suomirata is a vision for the future of passenger and freight traffic in Finland. It aims to raise the service standard in railway operations and to take a decisive step in Finnish railway traffic.
- Finnish Rail Ltd have 155 M Eur budget for planning phase.
- Estimated cost 6,0 bn Eur.





# The mission of the company

- To analyse the possibilities to activate private money to invest in new railway and to operate on new infrastructure
- To analyse the dynamical effects of the investment to Finnish economy and demography
- To prepare an implementation plan including
  - the physical line of the high speed railway
  - the business model how to finance the infrastructure investment
  - the business model for the operation on the new railway called Suomirata



# Suomirata brings Finland closer

## MAIN RAILWAY LINE:

About half of Finns live along the mainline.

In addition, more than half of Finland's jobs

More than 70 percent of education, research and innovation activities are located in its area of influence.

- Suomen rataverkko  
Railway network in Finland
- Päärata | Main railway line
- ||||| Lentorata  
Airport Railway



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# Why Suominata?

- shortening travel times
- expanding people's employment areas
- freeing up rail capacity, which will allow local train traffic to emerge even where it does not currently exist
- improving the competitiveness of the whole country
- creating sustainable, climate-friendly growth, jobs and businesses both during and after construction
- creating climate-friendly alternatives to travel within the country
- connecting Finland to the global airport network via a railway connection.





High speed rail line or something  
else?



# Development of the Main Railway Line or New High Speed Rail Line

## Two possibilities:

Development of the main rail line (187 km) operated with a top speed of 200-250 km/h. Due to the geometry of the line section, the speed limit is below that in many places.

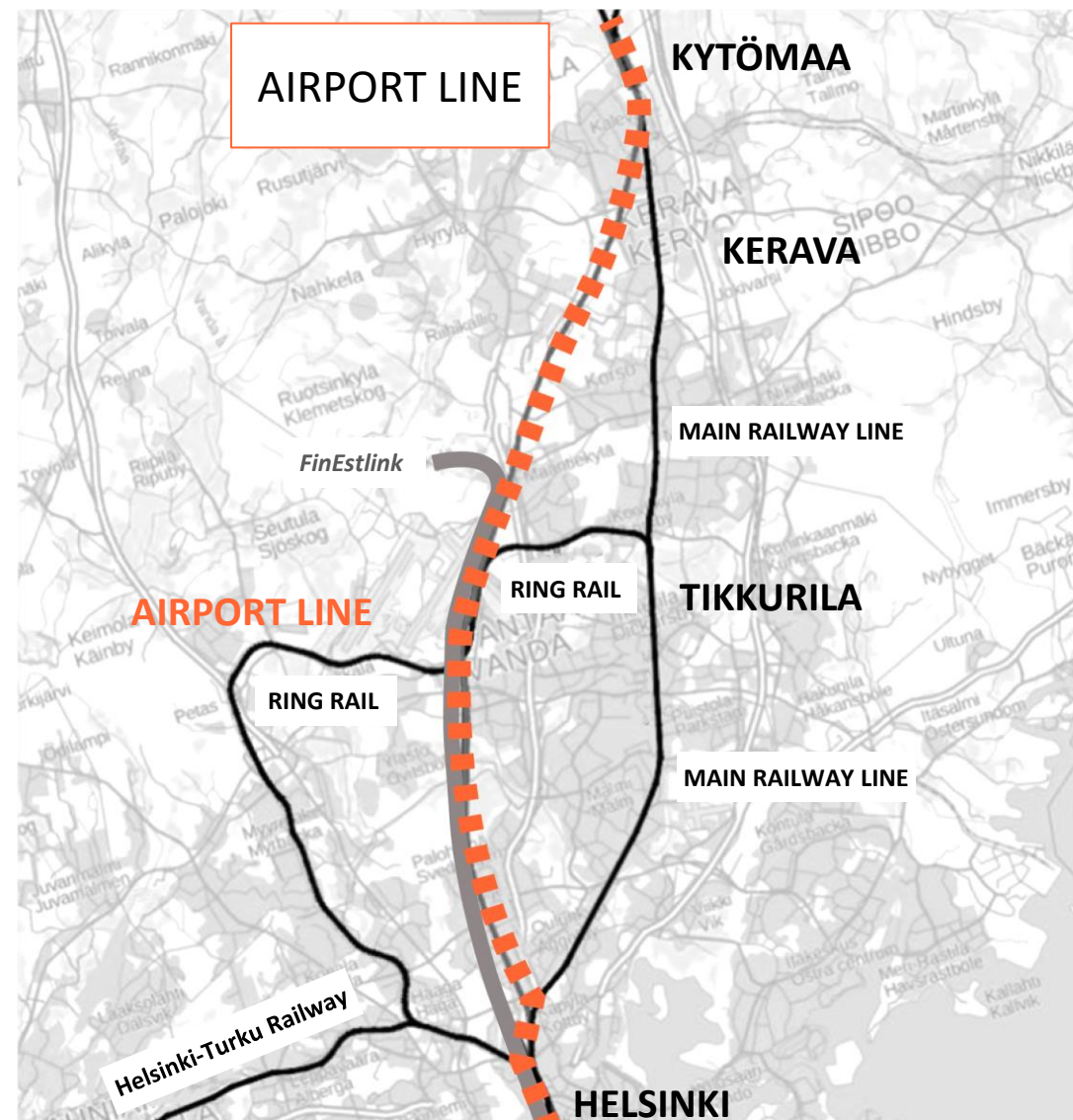
OR

New fast rail line is about 175 km long connection and trains will operate with a top speed of 300 km/h



# Airport line

- The airport line is a two-track long distance line, which will connect Helsinki-Vantaa Airport to long-distance train traffic.
- 30 km, in tunnel 28 km





# Ongoing studies

- Suomi-rata Oy has launched two preliminary studies:
  - High-speed Helsinki – Tampere rail line review main directional survey
  - Riihimäki-Tampere connection development report
- The company is also procured *an Impact Assessment of Alternatives* and it started at 02/2022
- Environmental Impact Assessment (EIA) of the airport line started in May 2022.



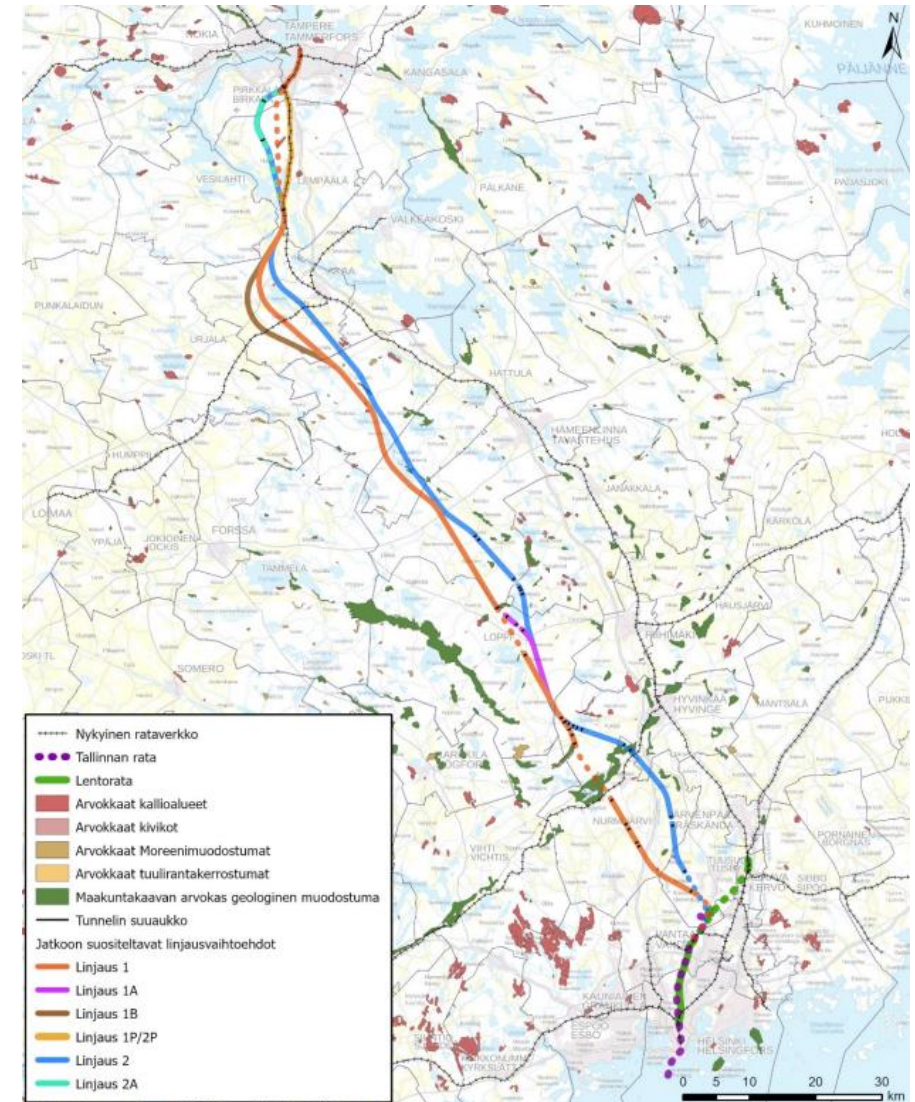
# New High Speed Rail Line

## Option 1 (1, 1A, 1B, 1B/2B)

- length 177,5 km (from Helsinki)
- tunnels 9, 49 km
- 20 master plans
- 3,3 Mrd€ + airport line app. 2,7 Mrd€ = 6 Mrd€  
(If Lempäälä-Tampere in current track 5,5 Mrd€)

## Option 2 (2, 2A)

- length 179,5 km (from Helsinki)
- tunnels 11 kpl, app. 22 km
- 25 master plans
- 2,9 Mrd€ + airport line app. 2,7 Mrd€ = 5,6 Mrd€  
(If Lempäälä-Tampere in current track 5,4 Mrd€)

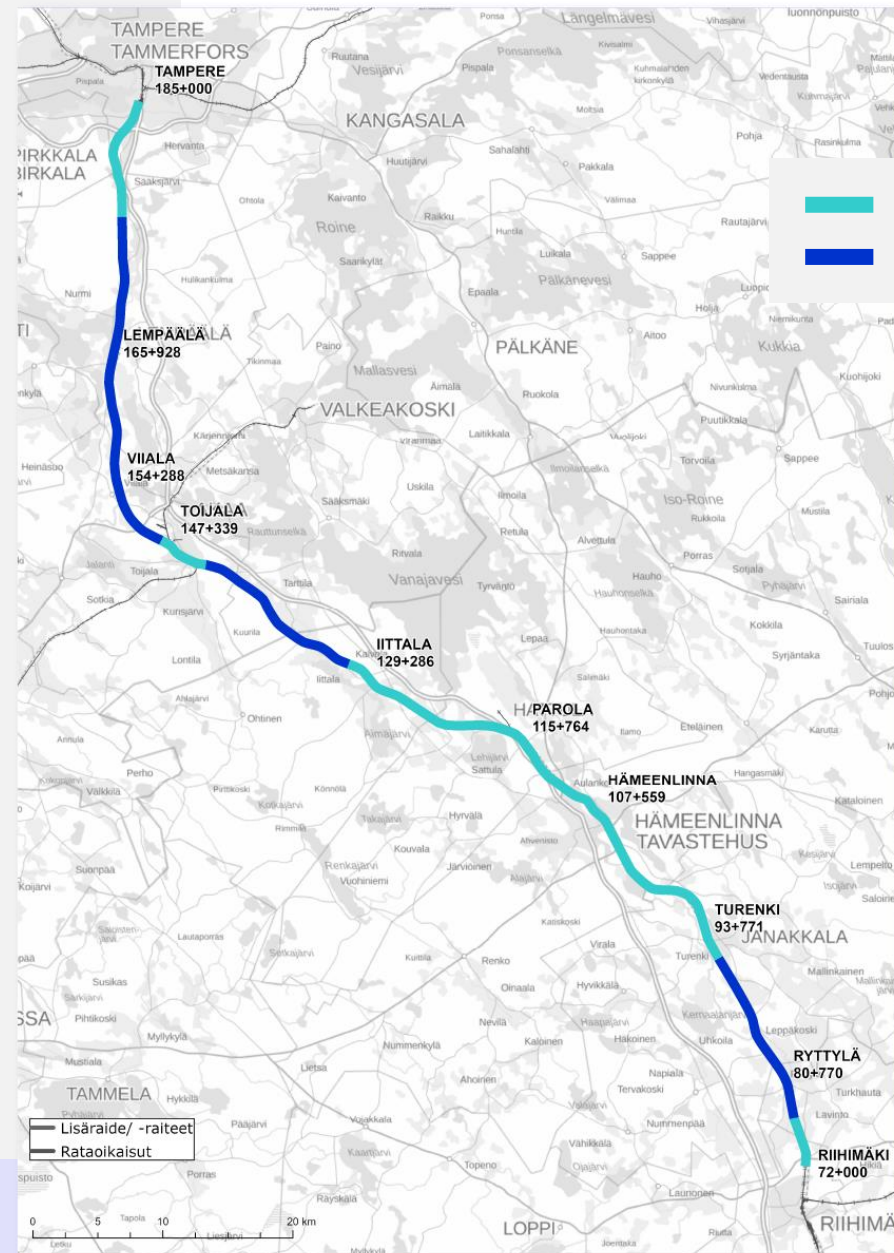


*Note! Cost estimates are preliminary and can be used only for comparison between different options.*



# Main rail line development

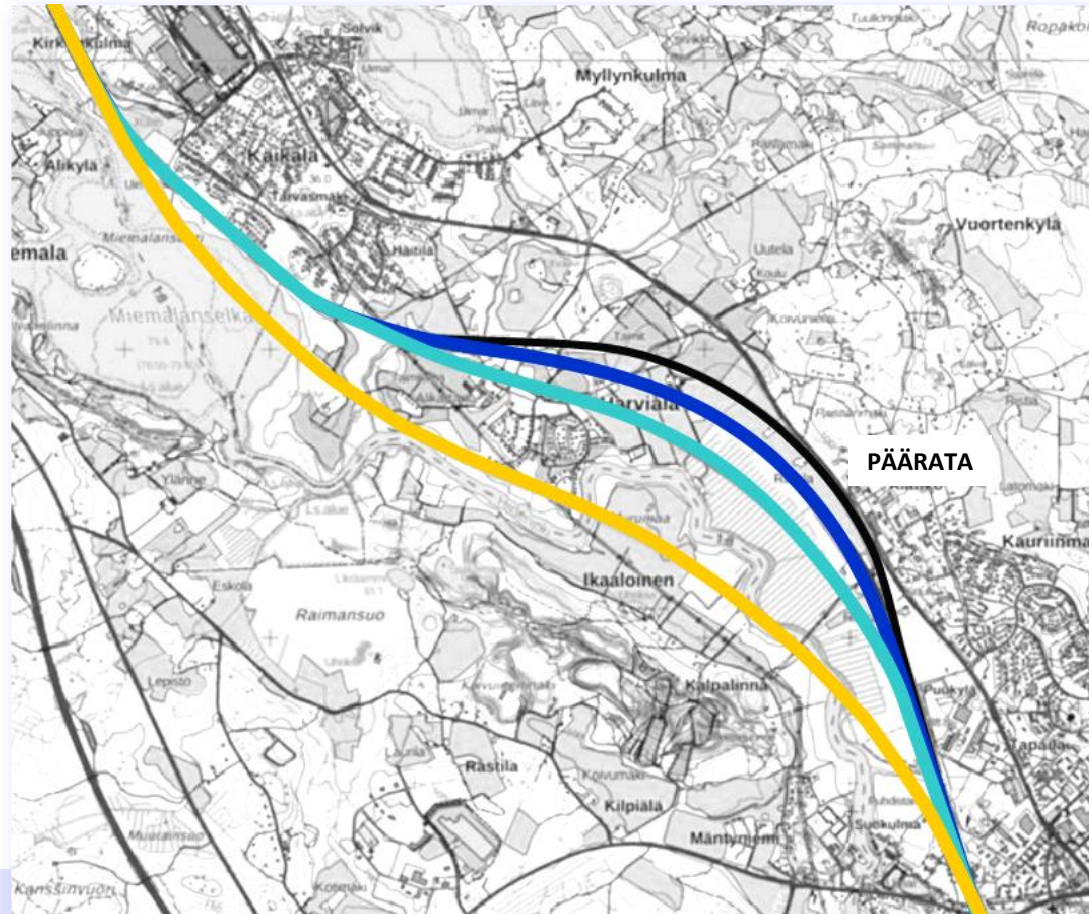
- Cost estimate Riihimäki-Tampere shortcuts and new tracks 1 Mrd€ + airport line app. 2,7 Mrd€ = 3,7 Mrd€
- As a premise Pasila –Riihimäki 3. phase has been carried out, cost estimate 300 M€
- Stations in current locations
- Difficulties of construction in a train line in use is not included in cost estimation. Impact is significant.



# Main rail line short cut examples

Turenki-Hämeenlinna

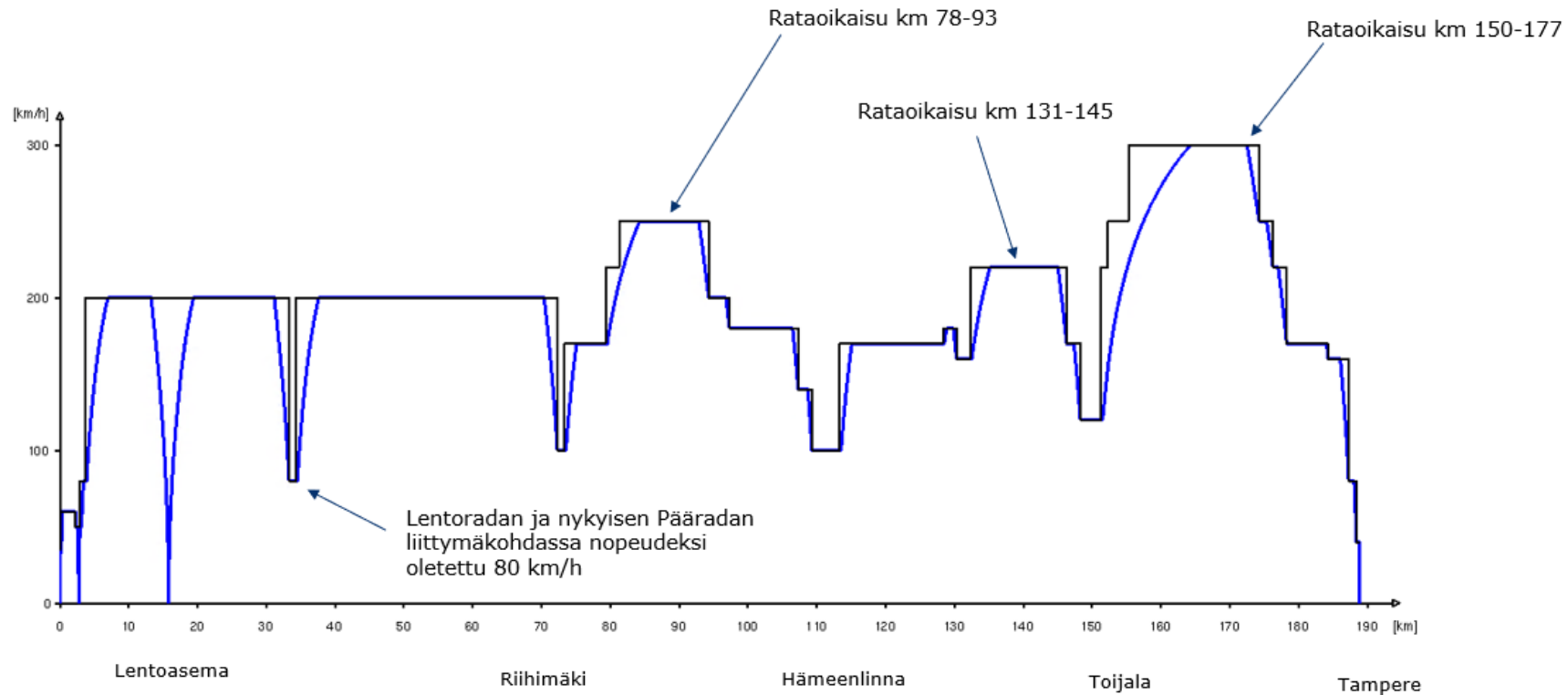
- 220 km/h
- 250 km/h
- 300 km/h





# Riihimäki-Tampere study

## Junan simuloitu kulku suorituskyykyprosentilla 100



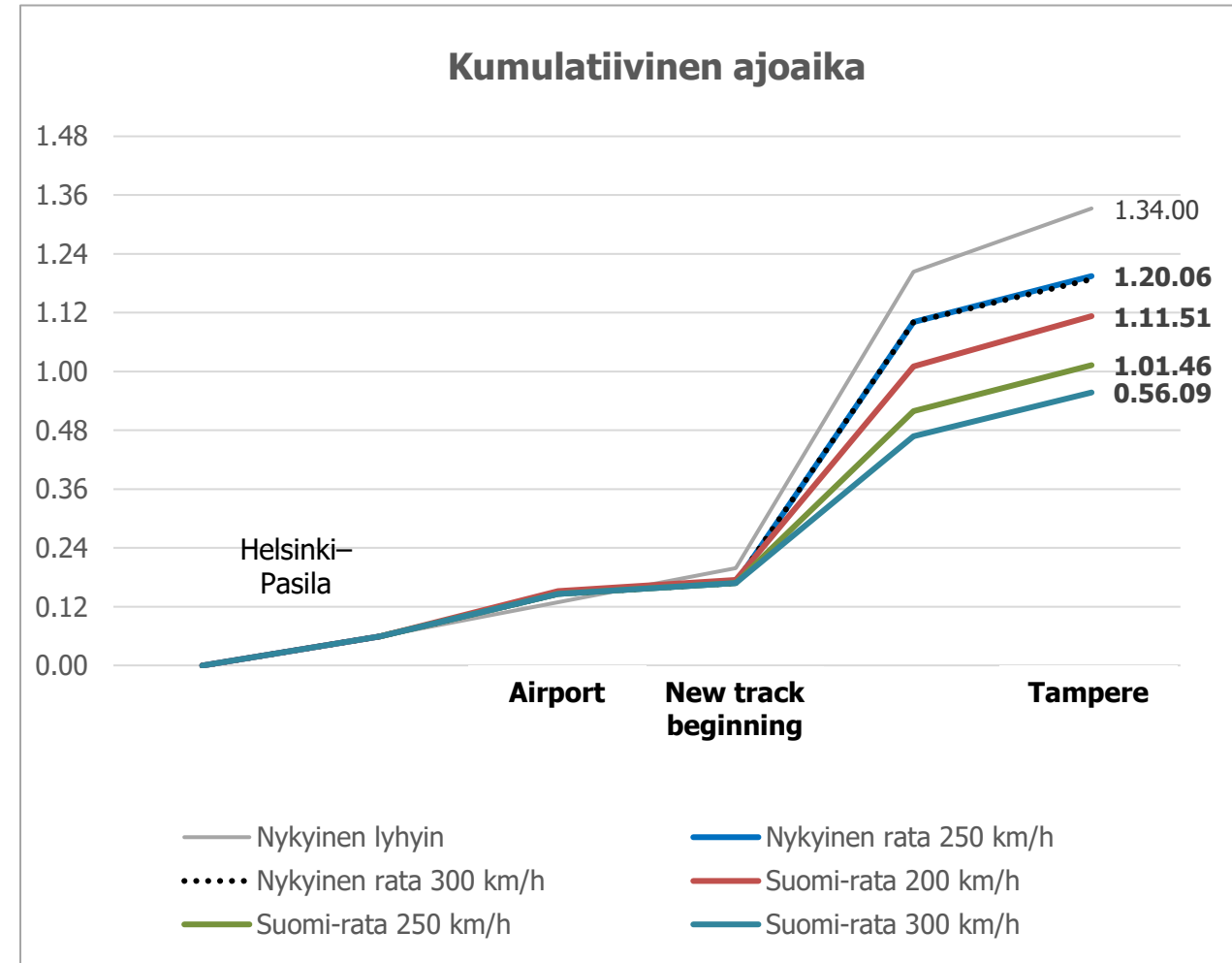
# Travel time comparison

Assumption: Pasila-Riihimäki 200 km/h

High speed rail line

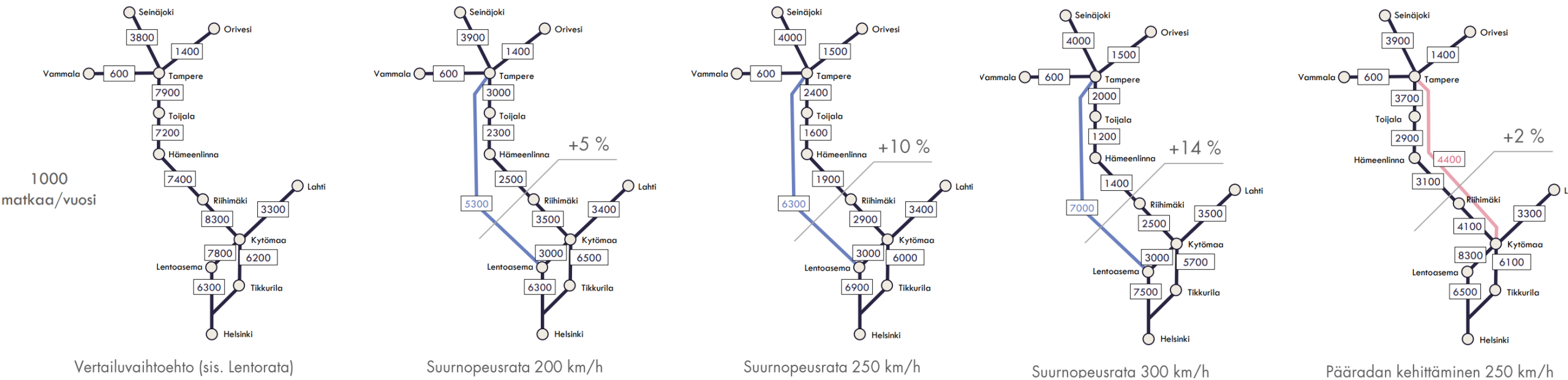
250 km/h - > 1 h 2 min

300 km/h -> 56 min





# Preliminary amount of travelers in 2040



# Preliminary point of views

- Two possibilities: development of the main railway line or new high speed rail line
- Both options will increase the capacity of passenger and freight traffic
- High speed rail line is quicker increasing the attractiveness of train traffic and amount of passengers
- New high speed rail line creates more capacity to main railway line
- New high speed rail line cuts cultural environment and nature
- Main railway line development would affect the rail operations during construction. Building new tracks to current locations would also affect the potential land use
- Investors are mainly interested in high speed rail line option since the operations in a new line are separated from the railway network
- Main railway line development can be carried out in phases, financing most likely from the state budget.
- Small differences in CO2 between the options. Future studies will define exact amounts
- New rail line would create flexibility to further develop railway traffic





[suomirata.fi/en](https://suomirata.fi/en)

