

TRAFFIC ACCESSIBILITY STUDY FOR THE WIND FARMS OF NORTH OSTROBOTHNIA AND KAINUU REGIONAL PLANS

30 September 2022, annexes to the presentation

Photo: Juha-Matti Kaataja 2022



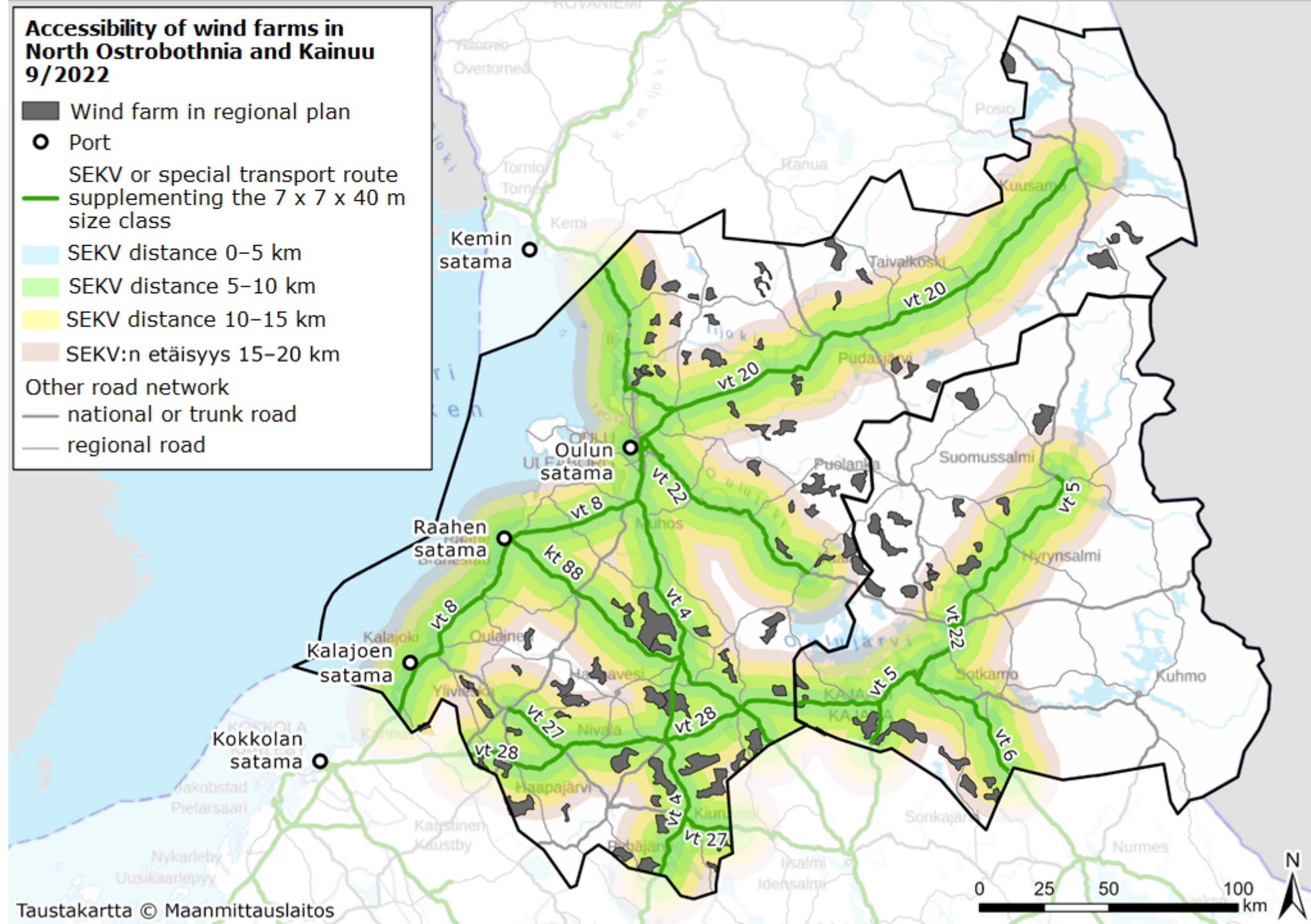
Annexes

- Suitability of the road network in North Ostrobothnia and Kainuu for special transport
- Route maps for the whole area
- Maps of the main routes in North Ostrobothnia
- Maps of the main routes in Kainuu
- Maps of port connections on the main routes
- North Ostrobothnia area-specific maps
- Kainuu area-specific maps

Suitability of the road network in North Ostrobothnia and Kainuu for special transport

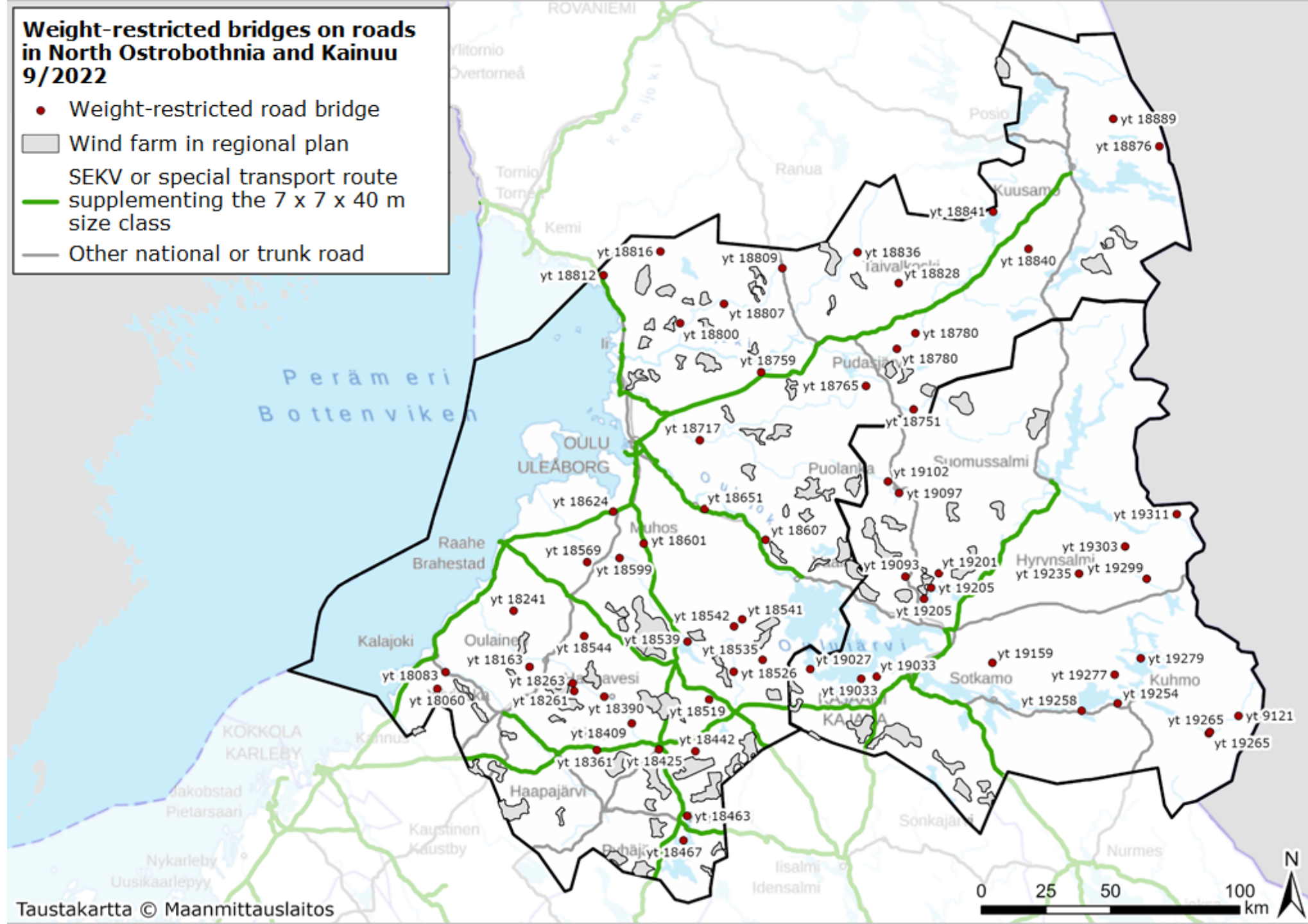
Accessibility of wind farms in North Ostrobothnia and Kainuu 9/2022

- Wind farm in regional plan
- Port
- SEKV or special transport route
supplementing the 7 x 7 x 40 m
size class
- SEKV distance 0–5 km
- SEKV distance 5–10 km
- SEKV distance 10–15 km
- SEKV:n etäisyys 15–20 km
- Other road network
- national or trunk road
- regional road



Weight-restricted bridges on roads in North Ostrobothnia and Kainuu

- Weight-restricted road bridge
- Wind farm in regional plan
- SEKV or special transport route supplementing the 7 x 7 x 40 m size class
- Other national or trunk road



Fixed height restrictions on roads in North Ostrobothnia and Kainuu 9/2022

Location of height restriction on road network

- national or trunk road
- △ regional or connecting road

Headroom (source: Road Register TL 263)

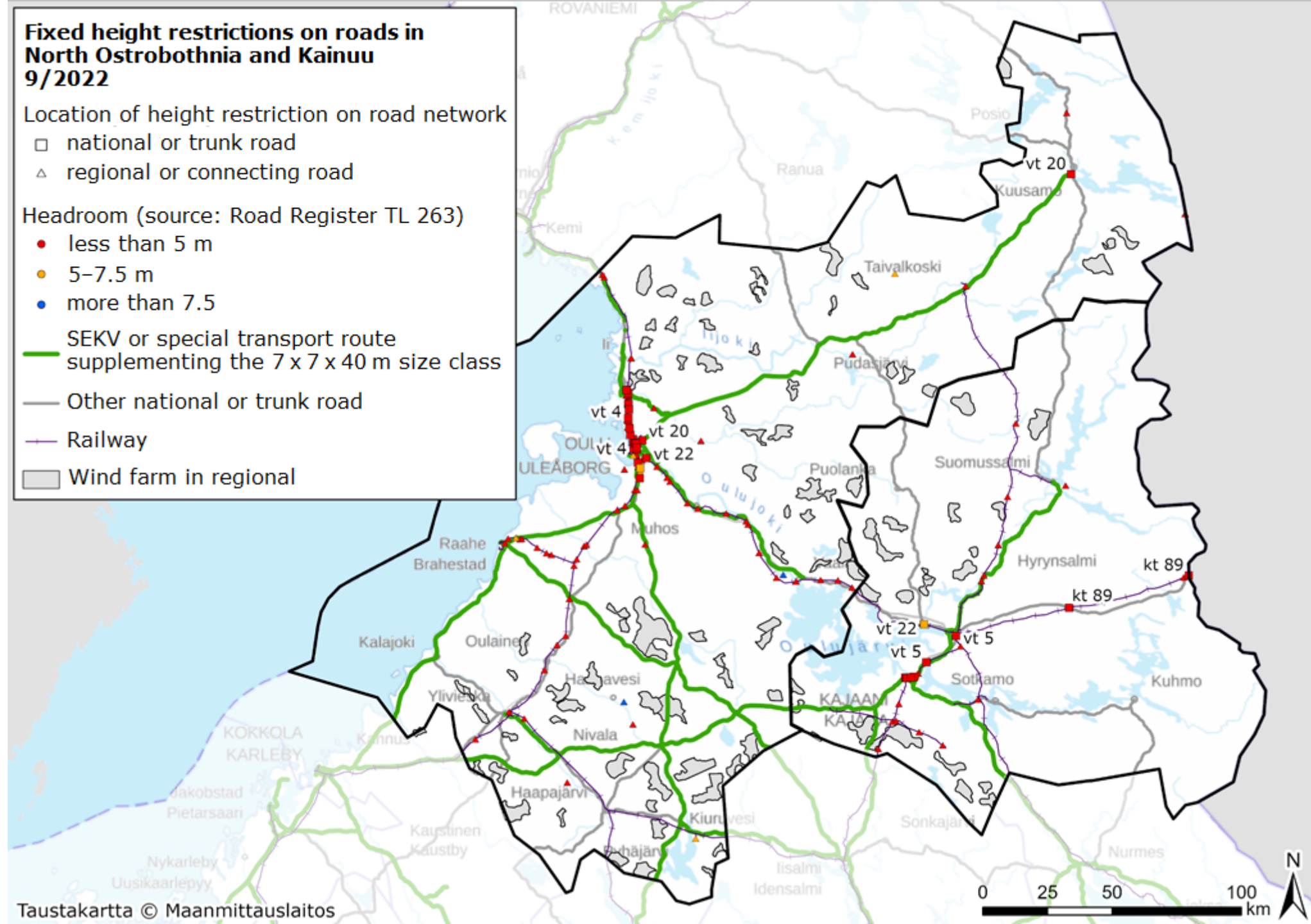
- less than 5 m
- 5–7.5 m
- more than 7.5 m

SEKV or special transport route supplementing the 7 x 7 x 40 m size class

Other national or trunk road

Railway

Wind farm in regional



Width restrictions on roads in North Ostrobothnia and Kainuu 9/2022

Location of restriction on road network

- national or trunk road
- △ regional or connecting

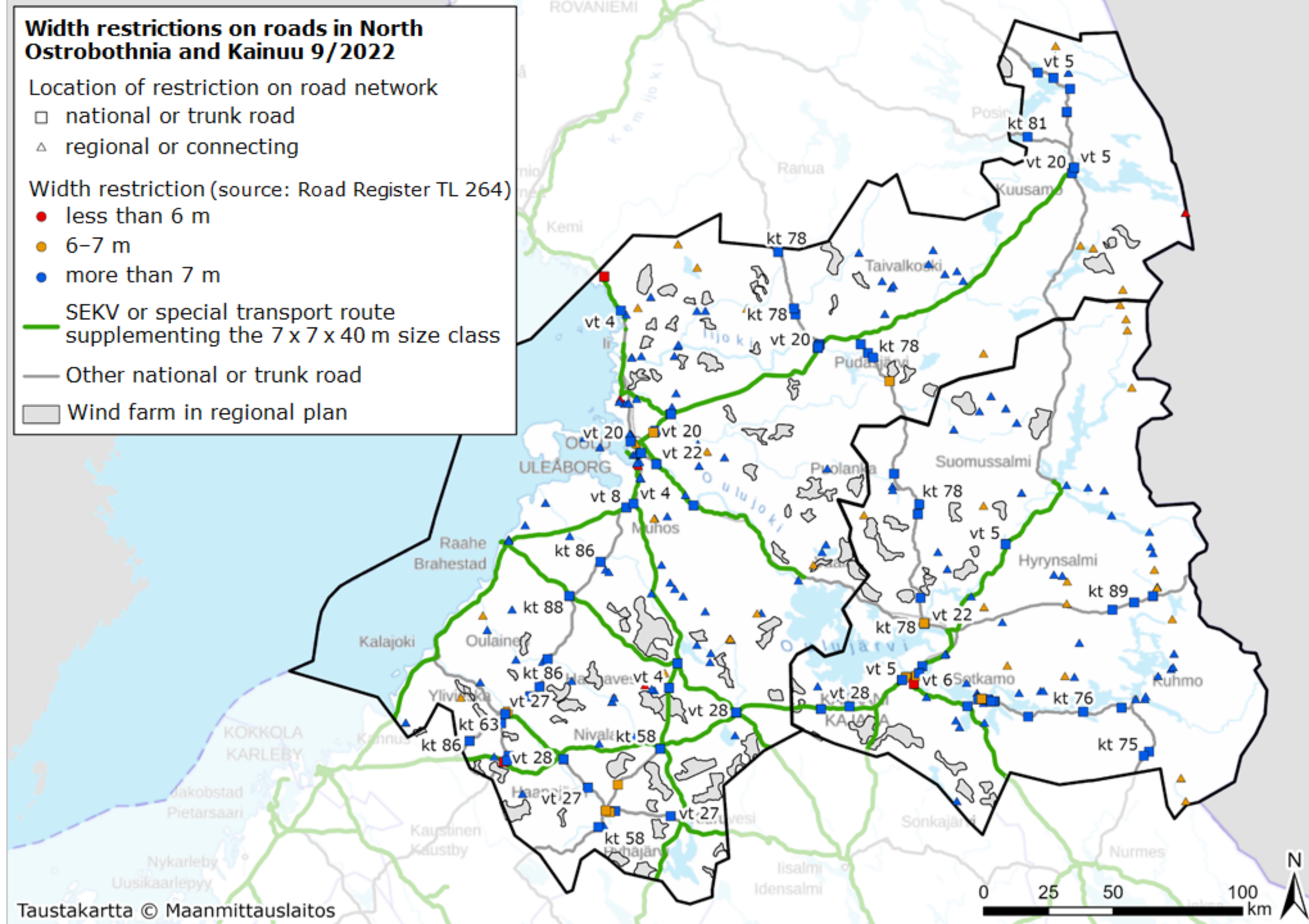
Width restriction (source: Road Register TL 264)

- less than 6 m
- 6–7 m
- more than 7 m

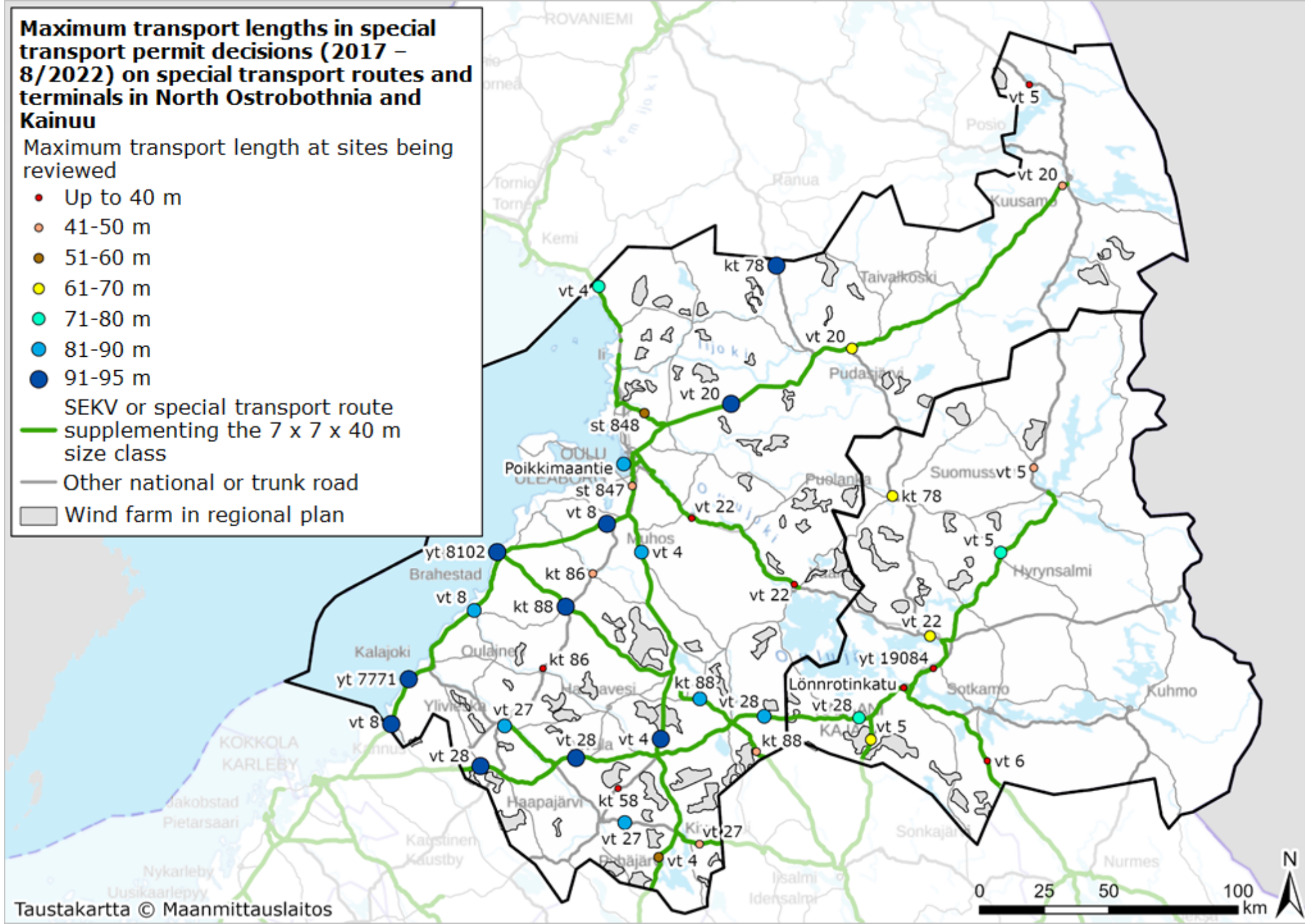
SEKV or special transport route supplementing the 7 x 7 x 40 m size class

Other national or trunk road

Wind farm in regional plan



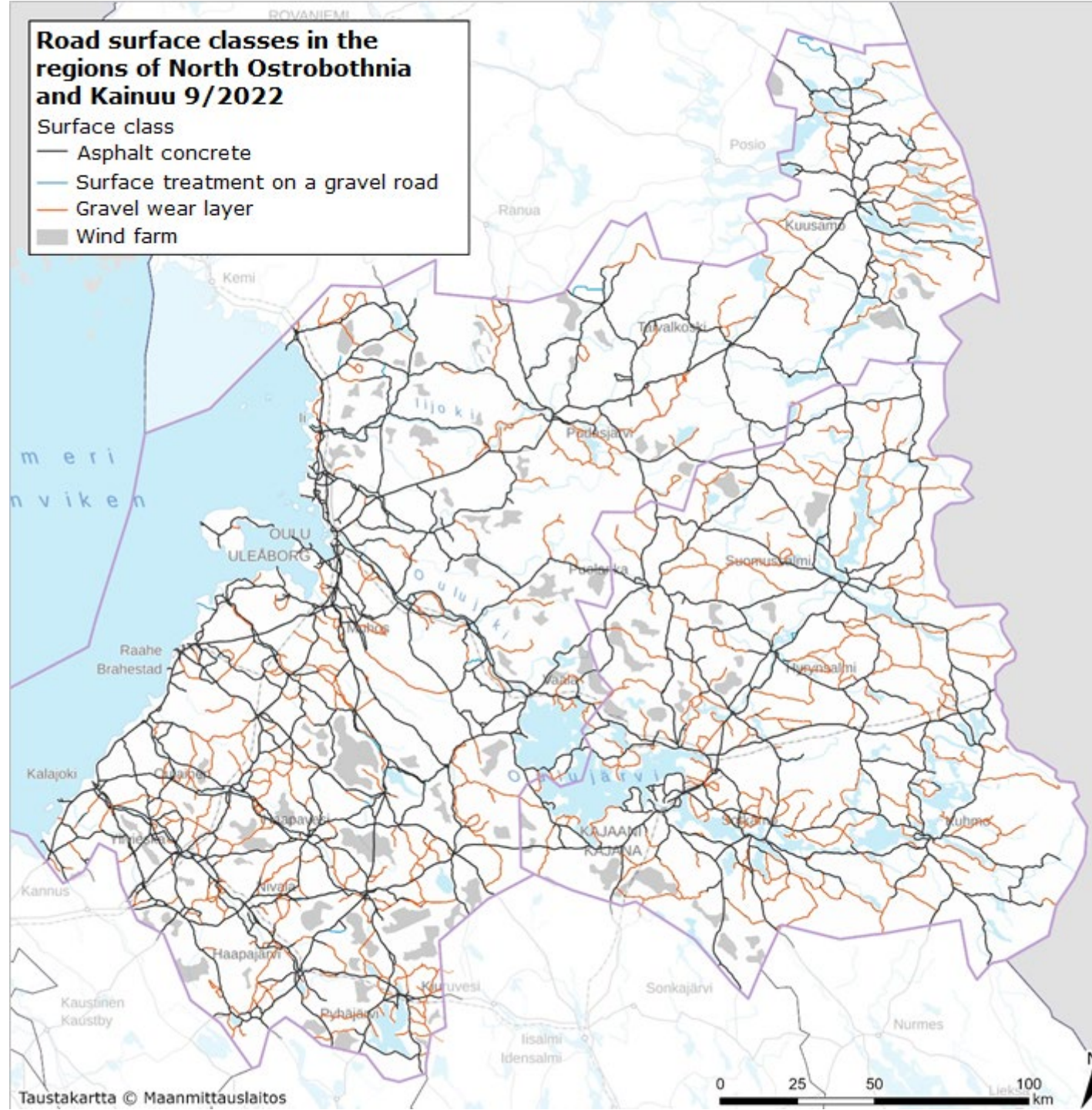
- SEKV or special transport route
— supplementing the 7 x 7 x 40 m
size class
- Other national or trunk road
- Wind farm in regional plan



Road surface classes in the regions of North Ostrobothnia and Kainuu 9/2022

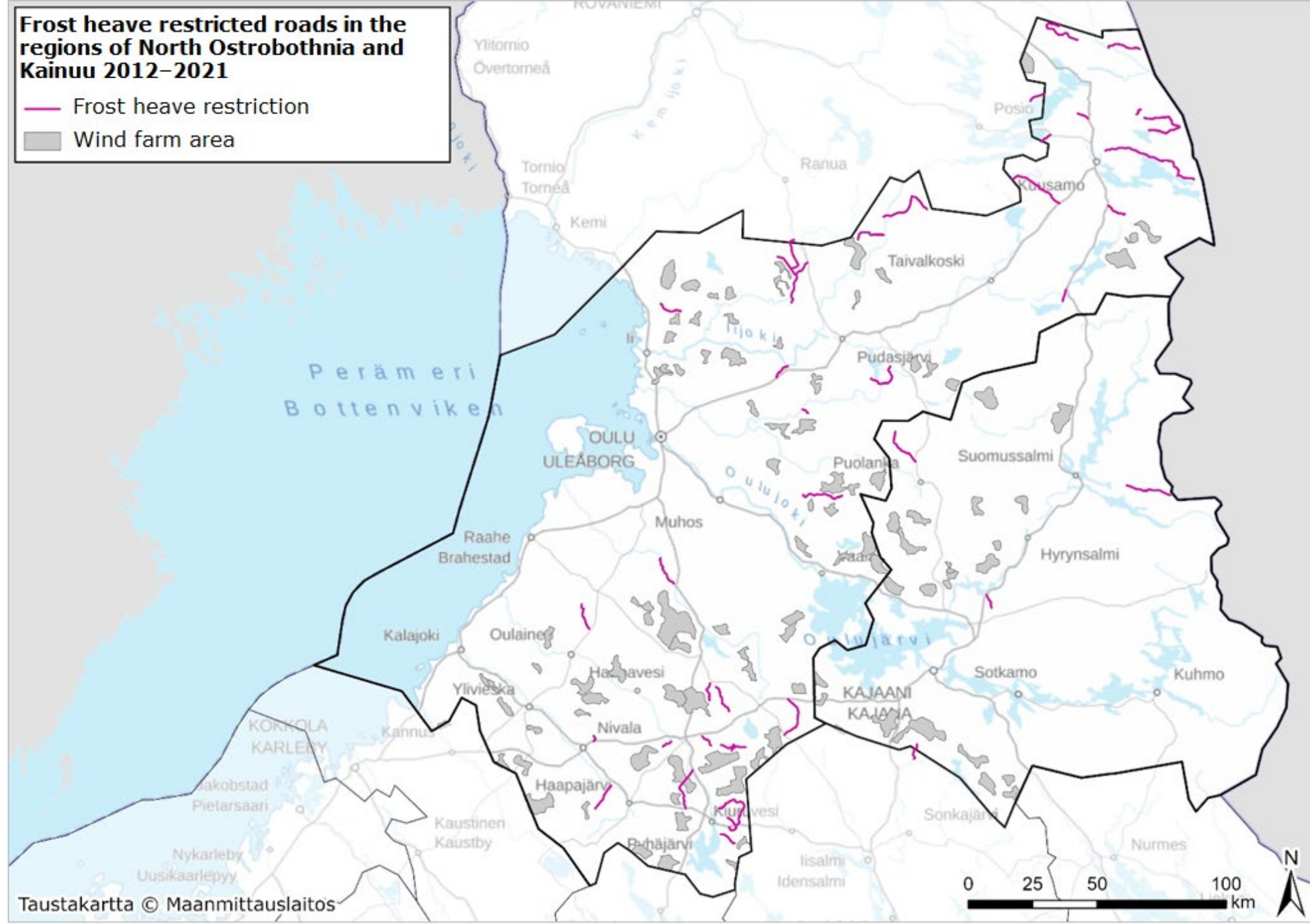
Surface class

- Asphalt concrete
- Surface treatment on a gravel road
- Gravel wear layer
- Wind farm



Frost heave restricted roads in the regions of North Ostrobothnia and Kainuu 2012–2021

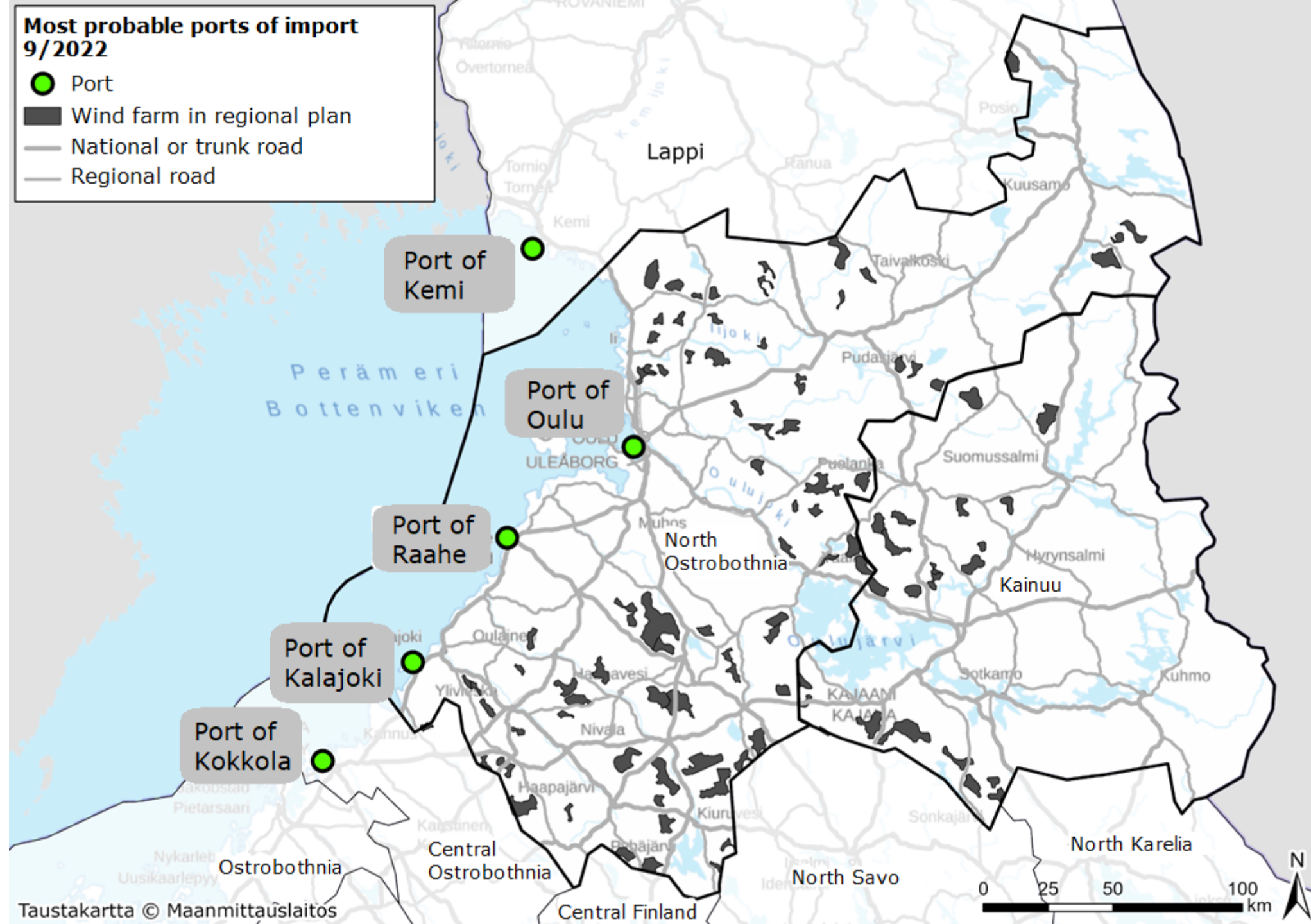
- Frost heave restriction
- Wind farm area



Route maps for the whole area

**Most probable ports of import
9/2022**

- Port
- Wind farm in regional plan
- National or trunk road
- Regional road



Main routes in North Ostrobothnia and Kainuu 9/2022

Main route (including parts of routes for different wind turbine component)

Port

North Ostrobothnia wind farms

Wind farm area (tv-1)

Potential wind farm area (tv-3)

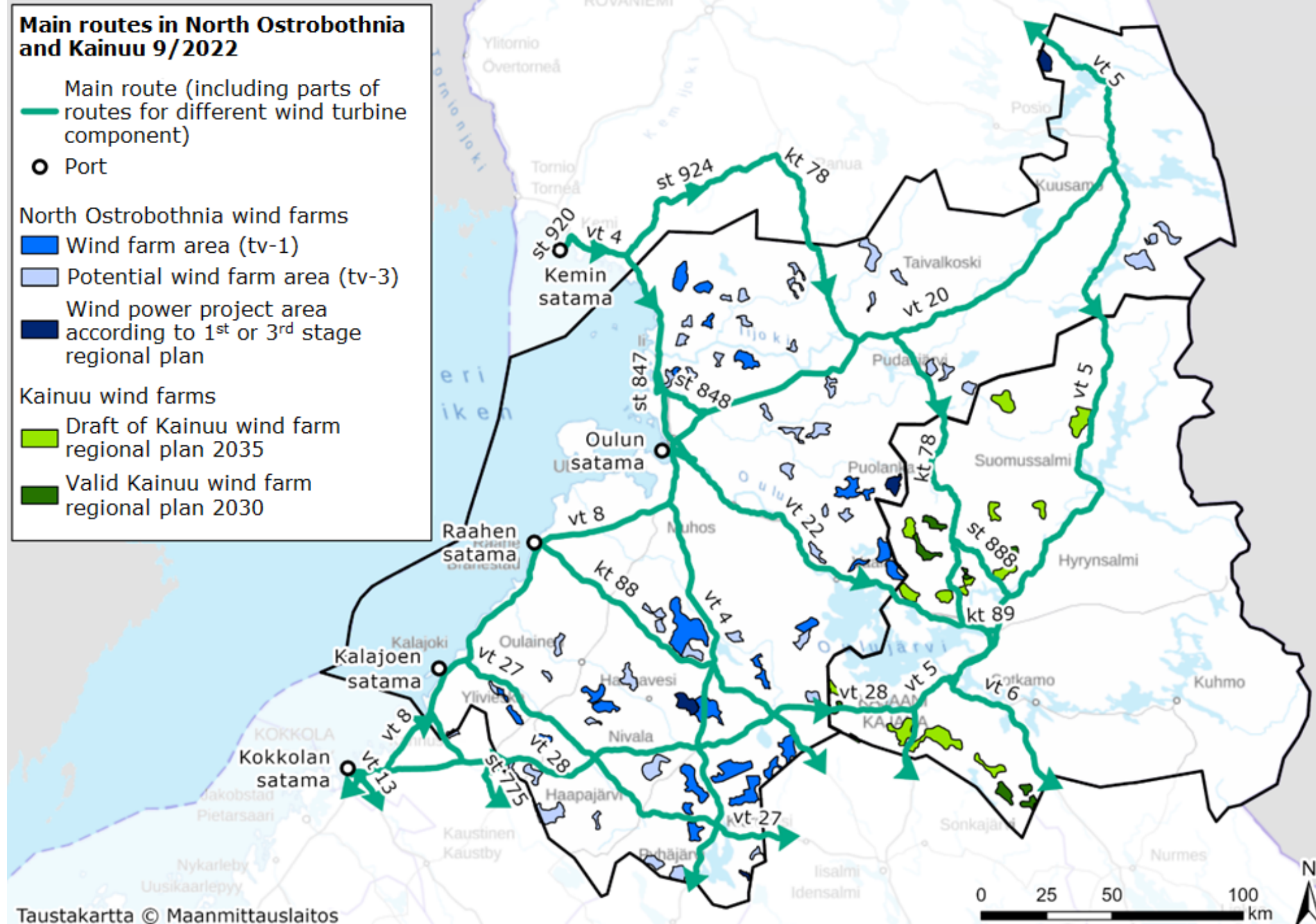
Wind power project area

according to 1st or 3rd stage regional plan

Kainuu wind farms

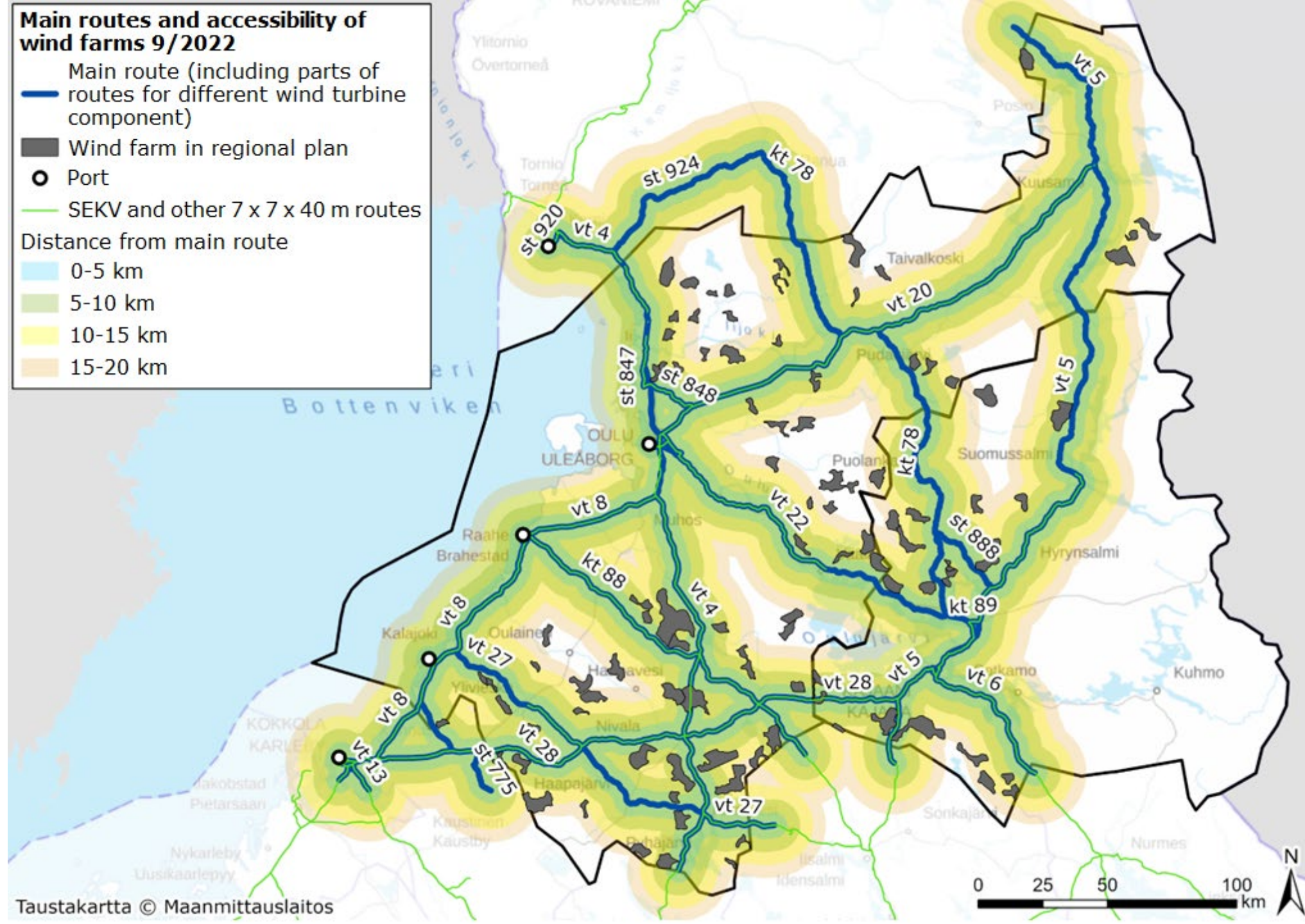
Draft of Kainuu wind farm regional plan 2035

Valid Kainuu wind farm regional plan 2030



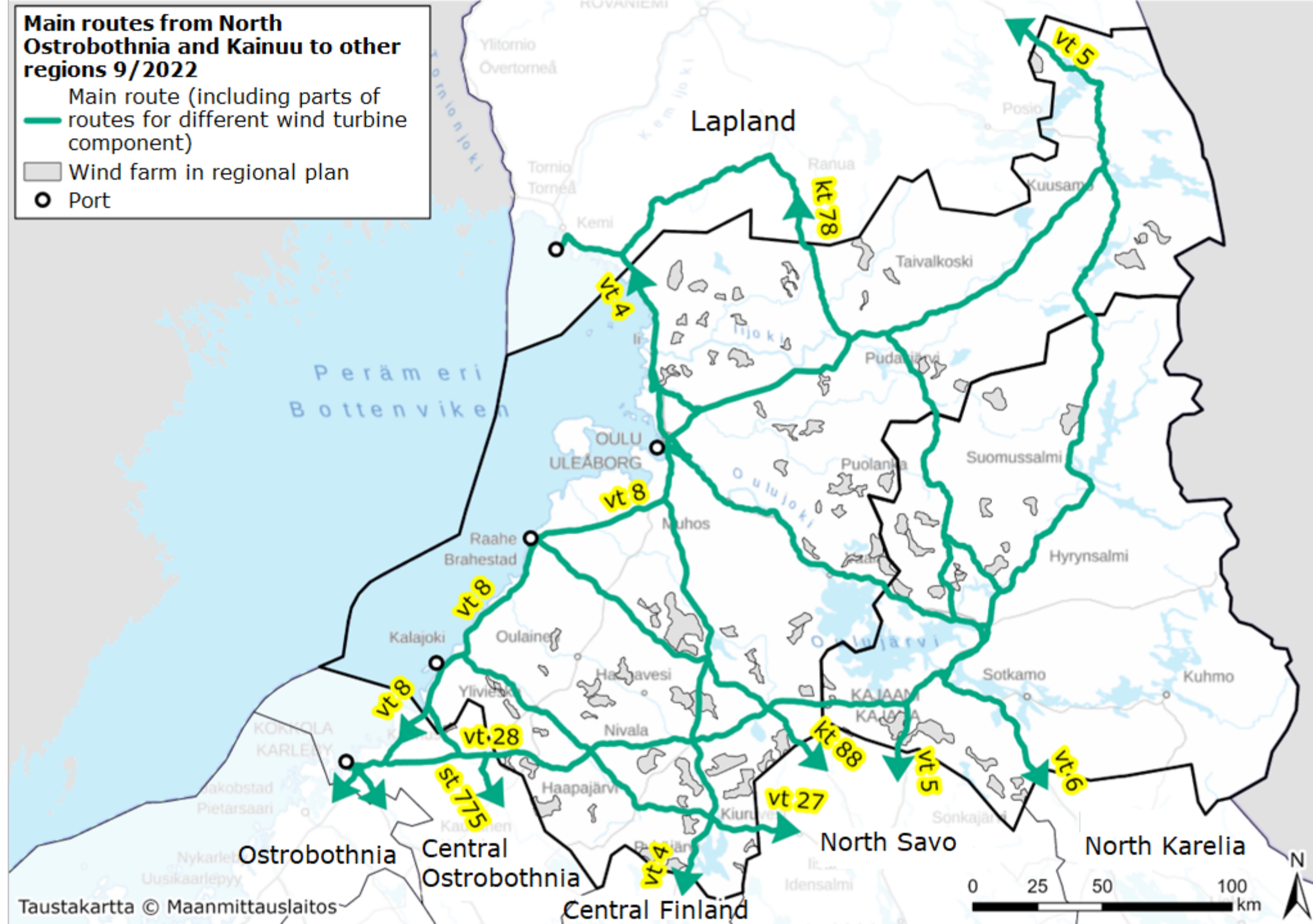
Main routes and accessibility of wind farms 9/2022

- Main route (including parts of routes for different wind turbine component)
- Wind farm in regional plan
- Port
- SEKV and other 7 x 7 x 40 m routes
- Distance from main route
 - 0-5 km
 - 5-10 km
 - 10-15 km
 - 15-20 km



Main routes from North Ostrobothnia and Kainuu to other regions 9/2022

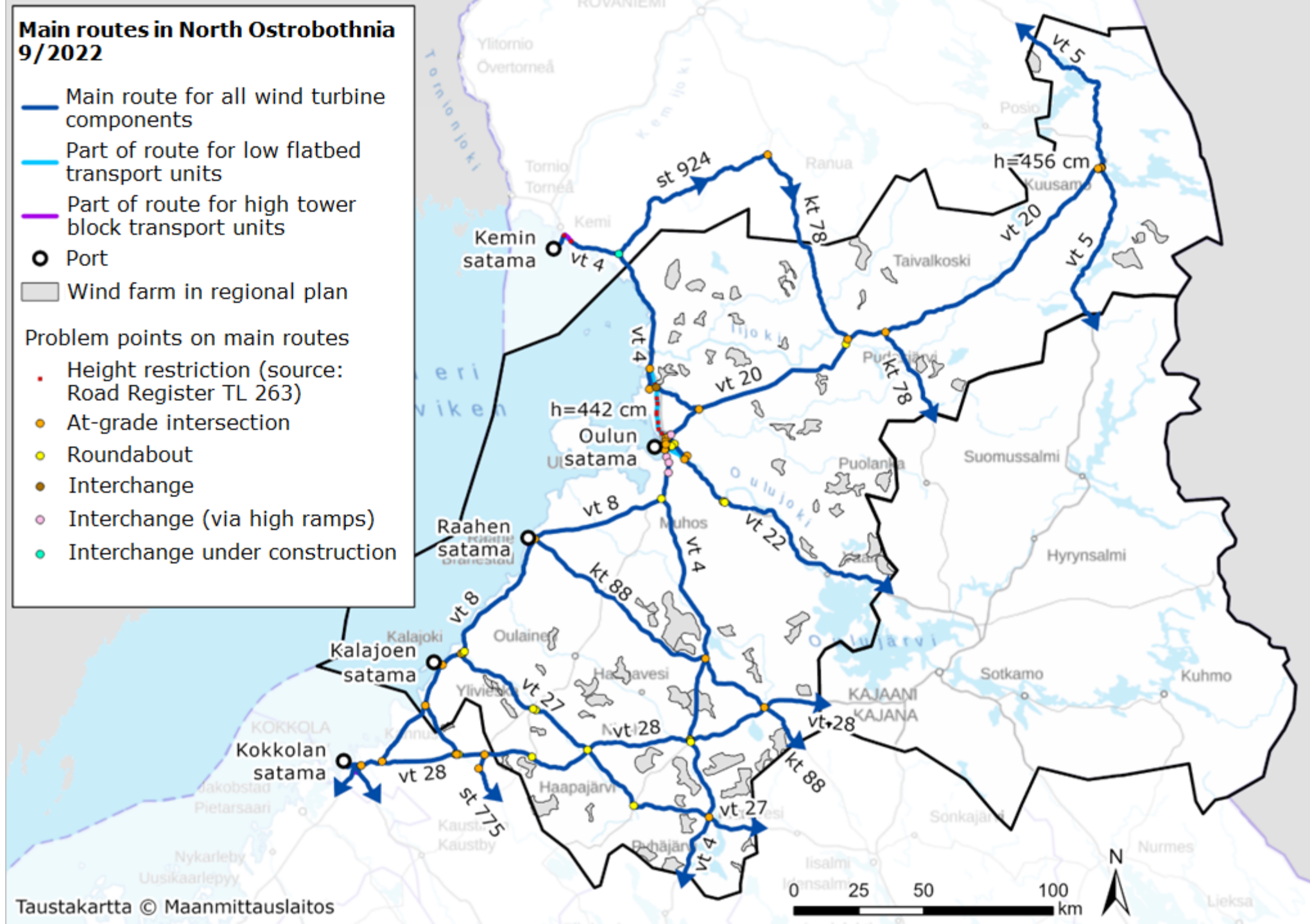
- Main route (including parts of routes for different wind turbine component)
- Wind farm in regional plan
- Port



Maps of the main routes in North Ostrobothnia

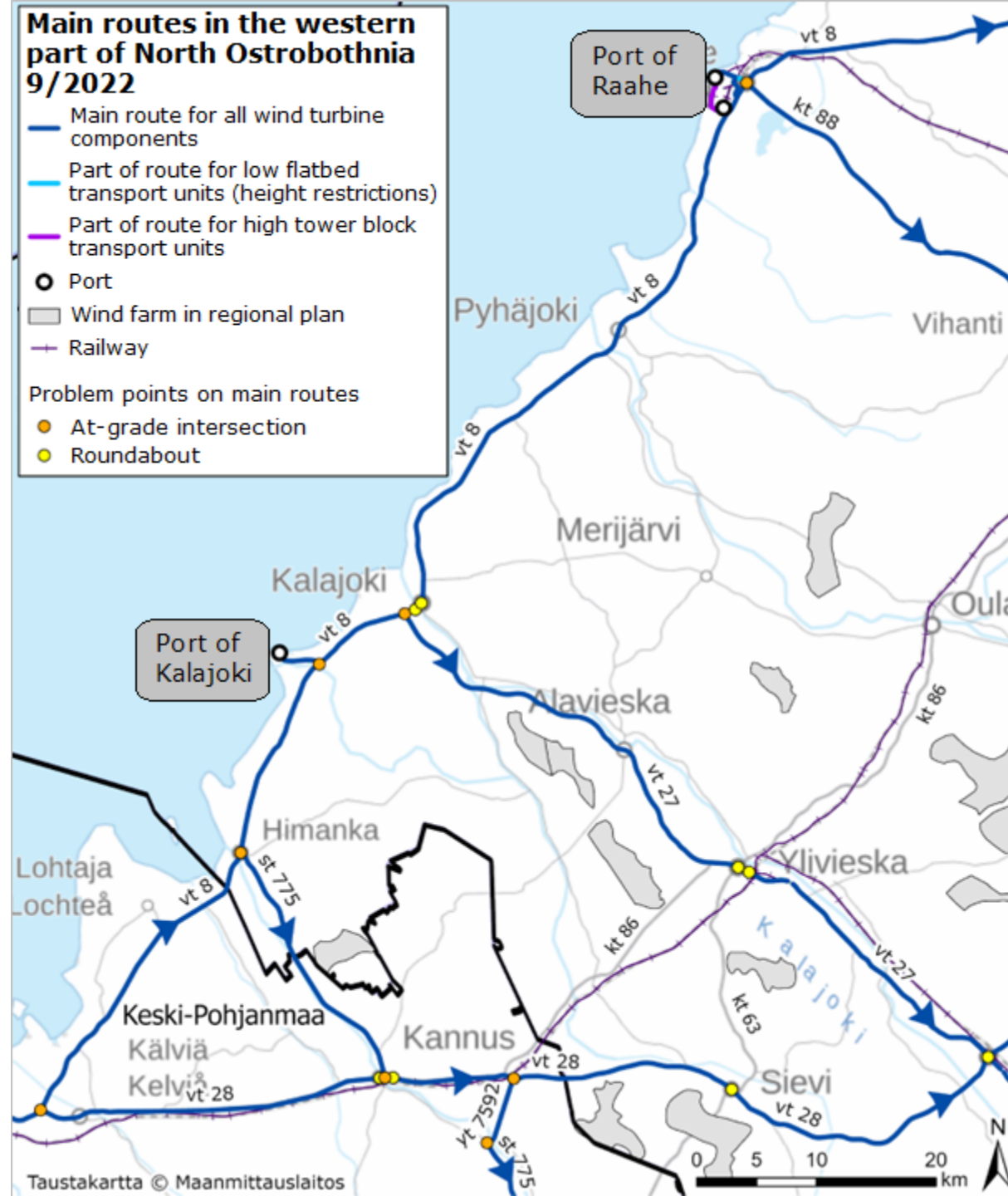
Main routes in North Ostrobothnia

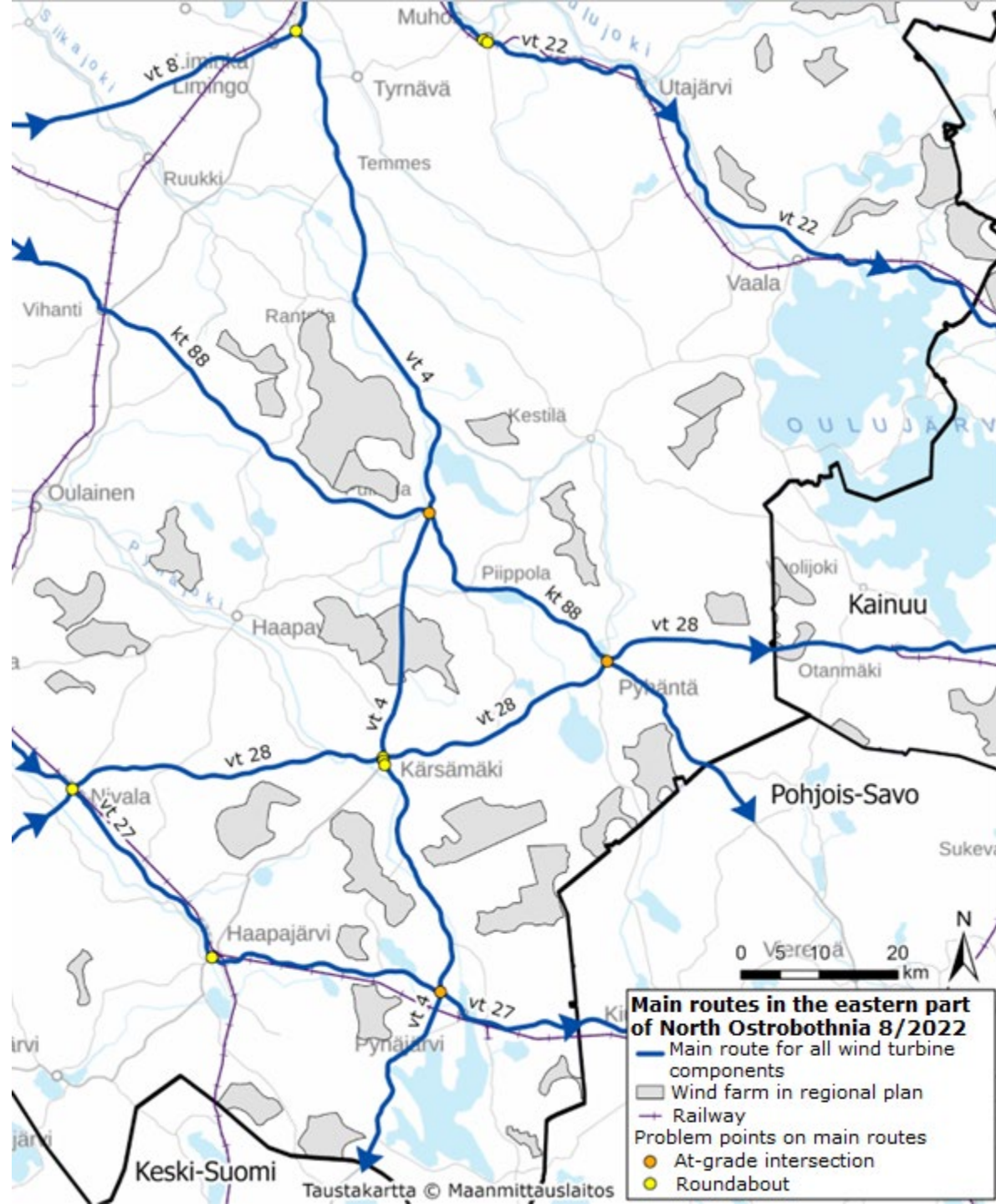
-  Main route for all wind turbine components
 -  Part of route for low flatbed transport units
 -  Part of route for high tower block transport units
 -  Port
 -  Wind farm in regional plan
- Problem points on main routes
-  Height restriction (source: Road Register TL 263)
 -  At-grade intersection
 -  Roundabout
 -  Interchange
 -  Interchange (via high ramps)
 -  Interchange under construction

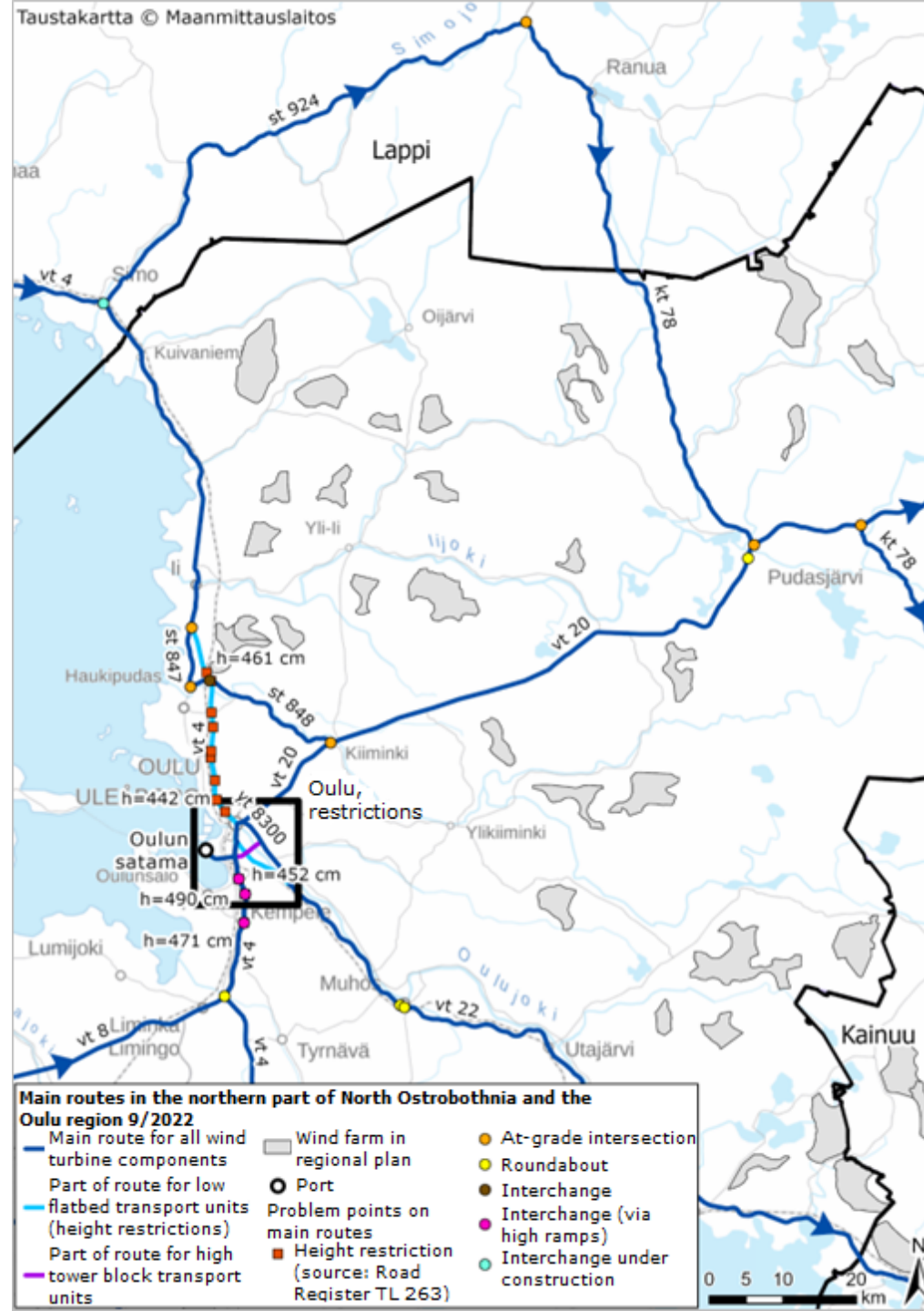


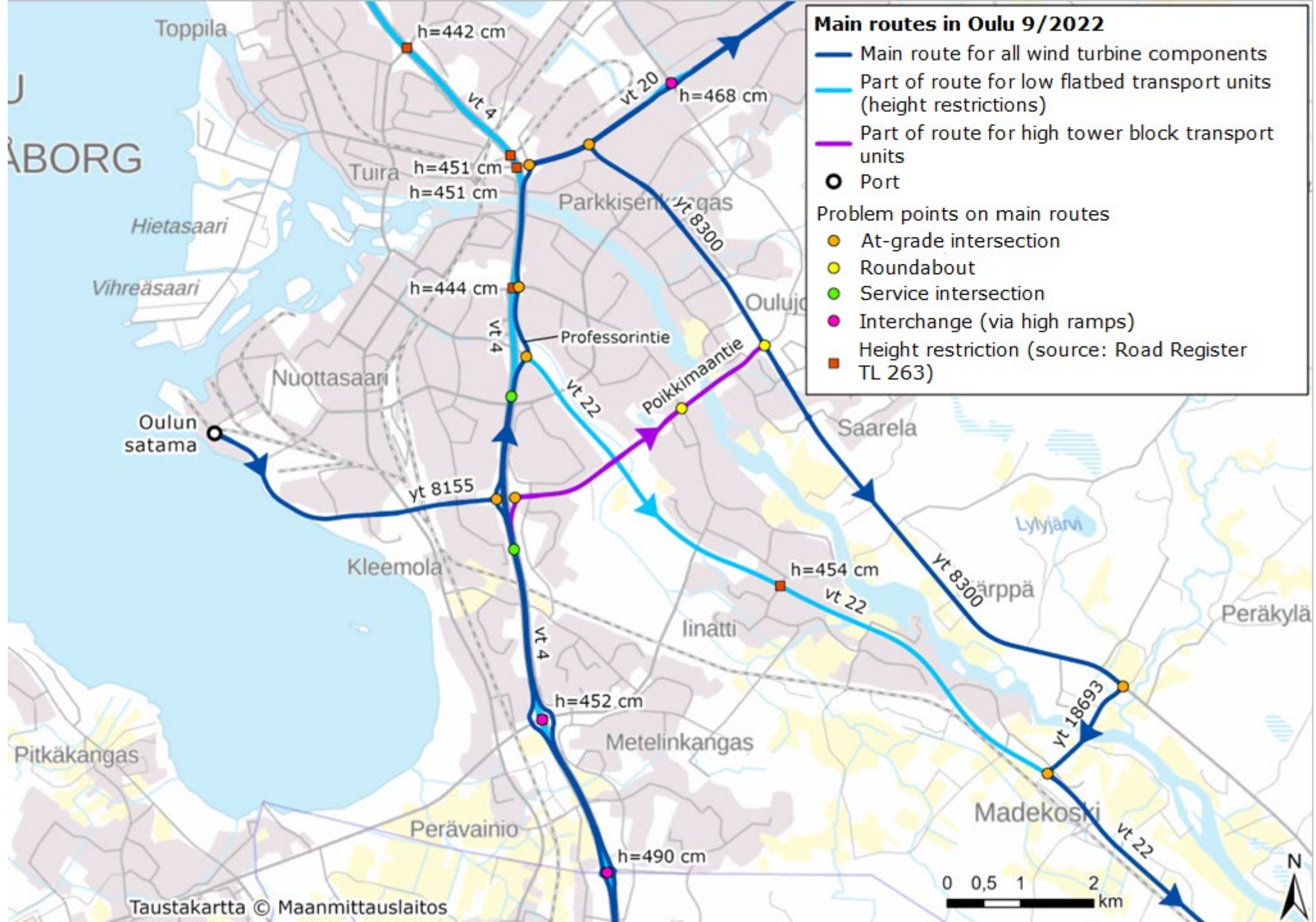
Main routes in the western part of North Ostrobothnia 9/2022

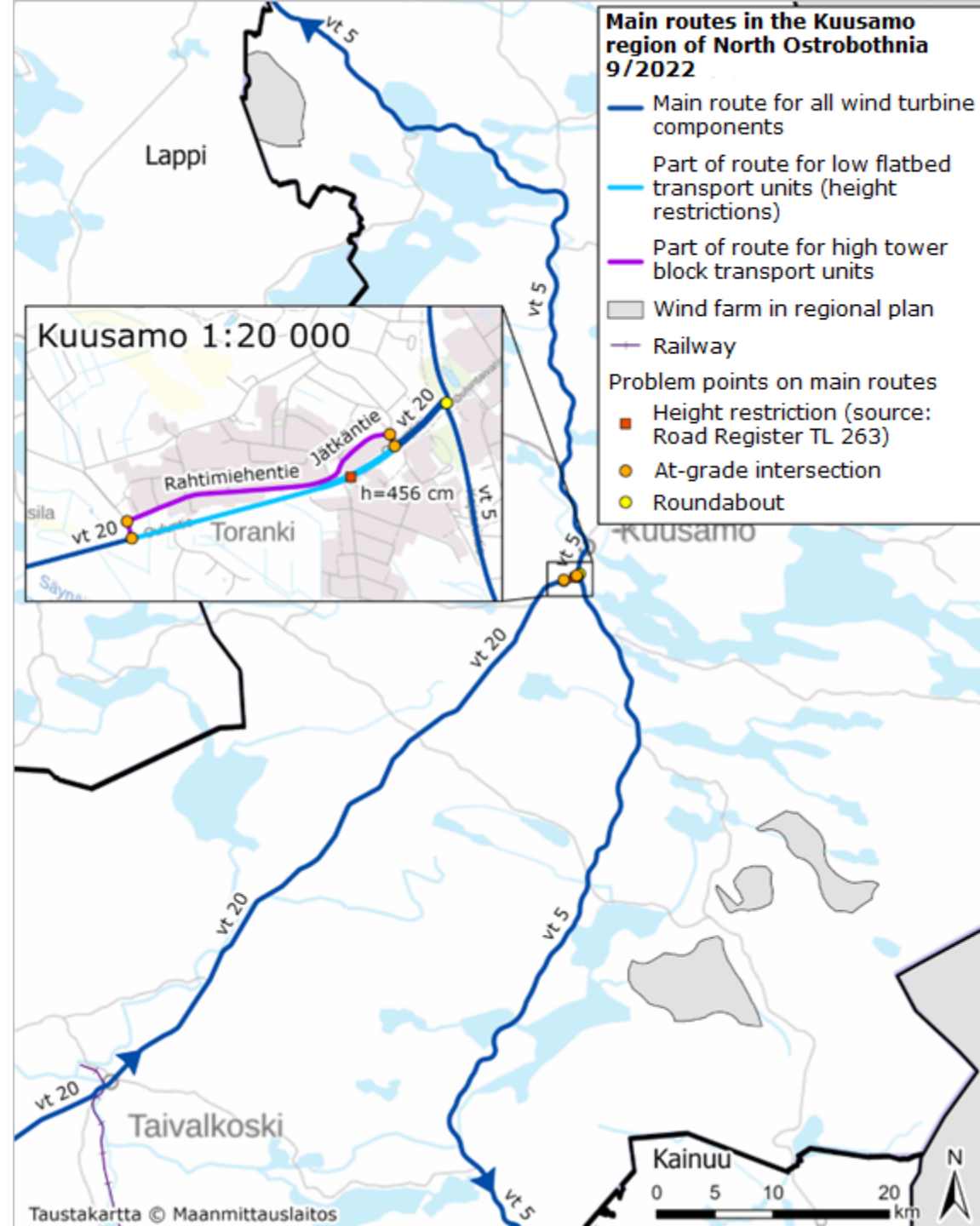
- Main route for all wind turbine components
 - Part of route for low flatbed transport units (height restrictions)
 - Part of route for high tower block transport units
 - Port
 - Wind farm in regional plan
 - Railway
- Problem points on main routes
- At-grade intersection
 - Roundabout



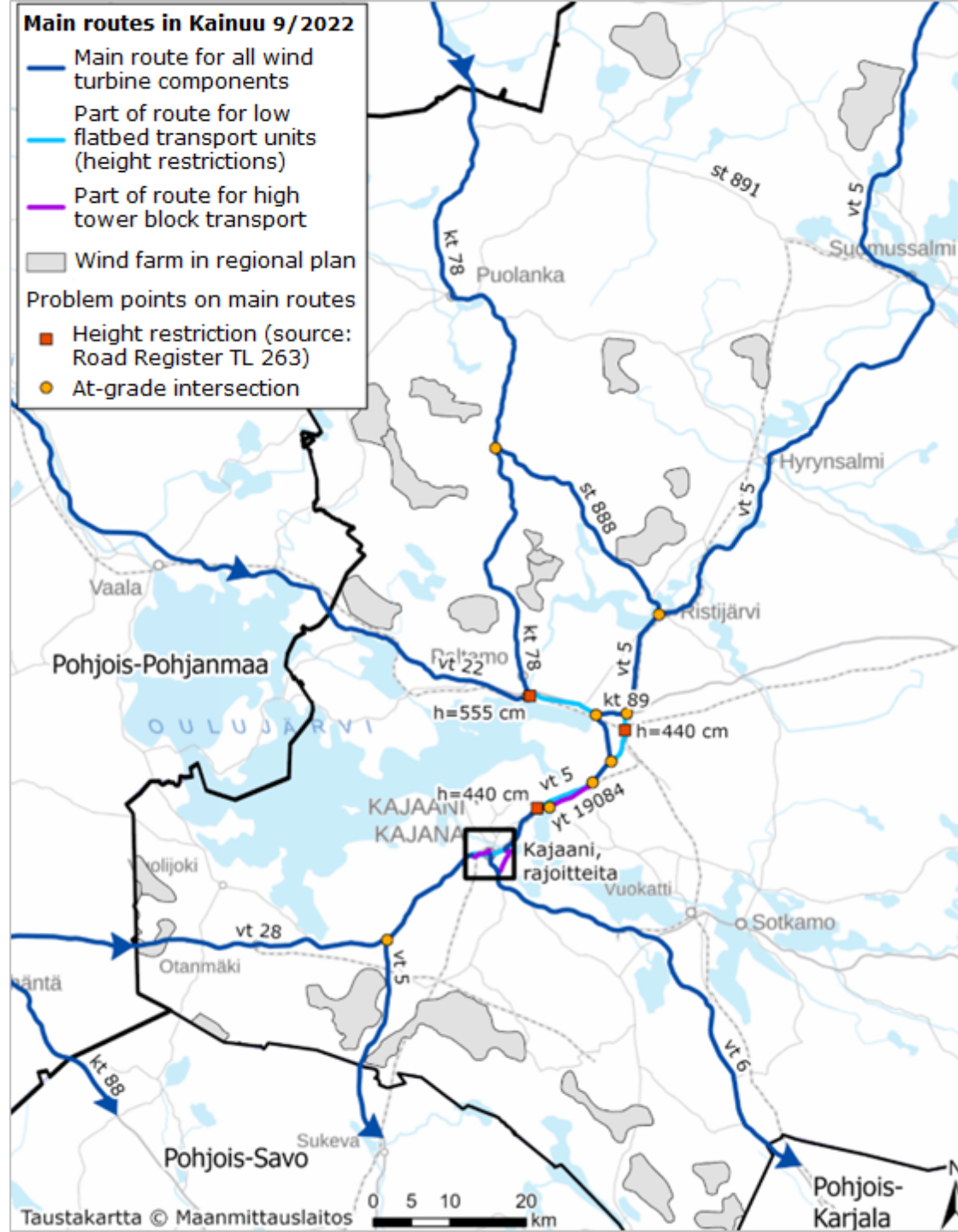


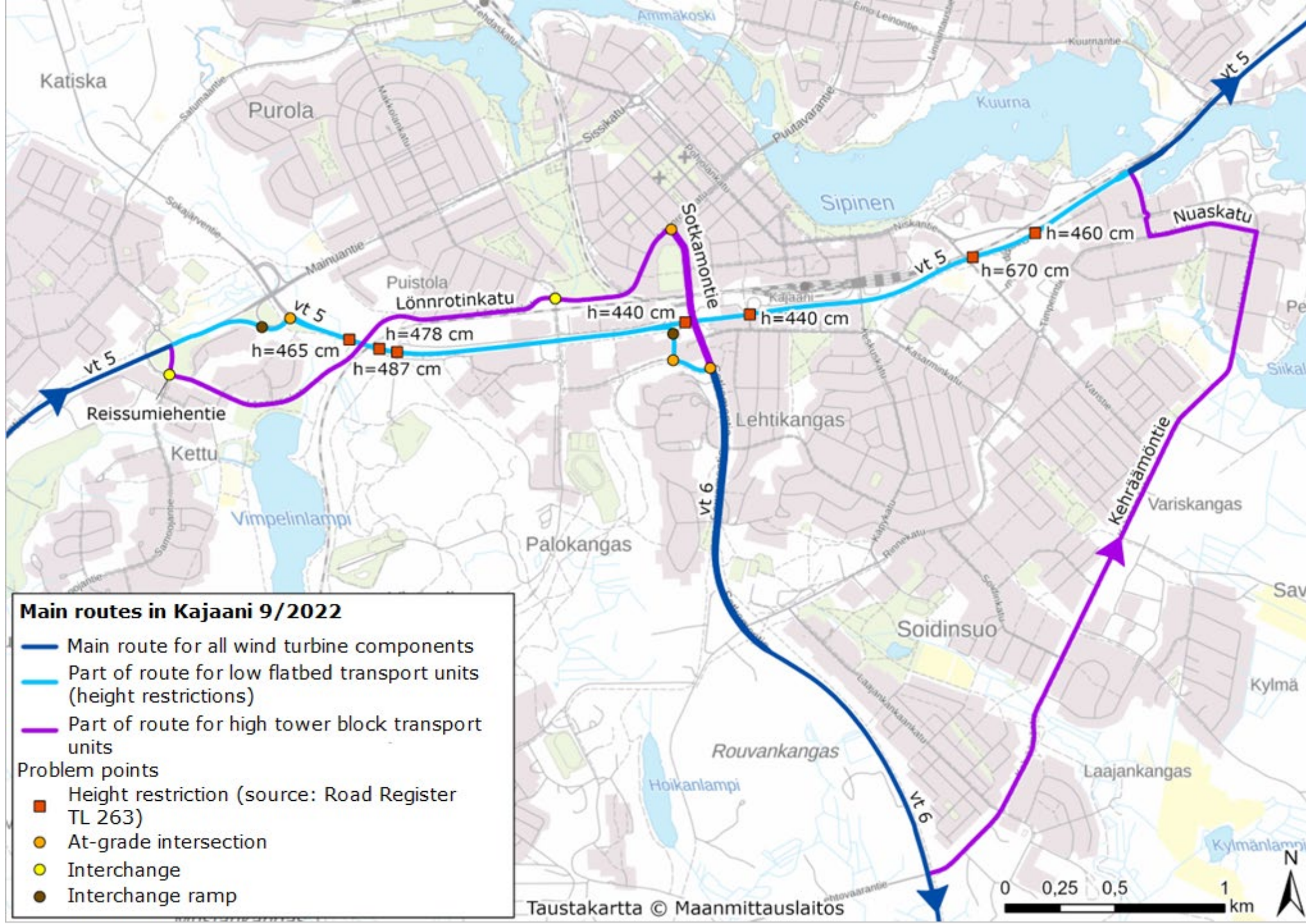






Maps of the main routes in Kainuu





Maps of port connections on the main routes

Route from the Port of Oulu 9/2022

- Starting point of route inspection
- Main route for all wind turbine components
- Part of route for low flatbed transport units (height restrictions)
- Part of route for high tower block

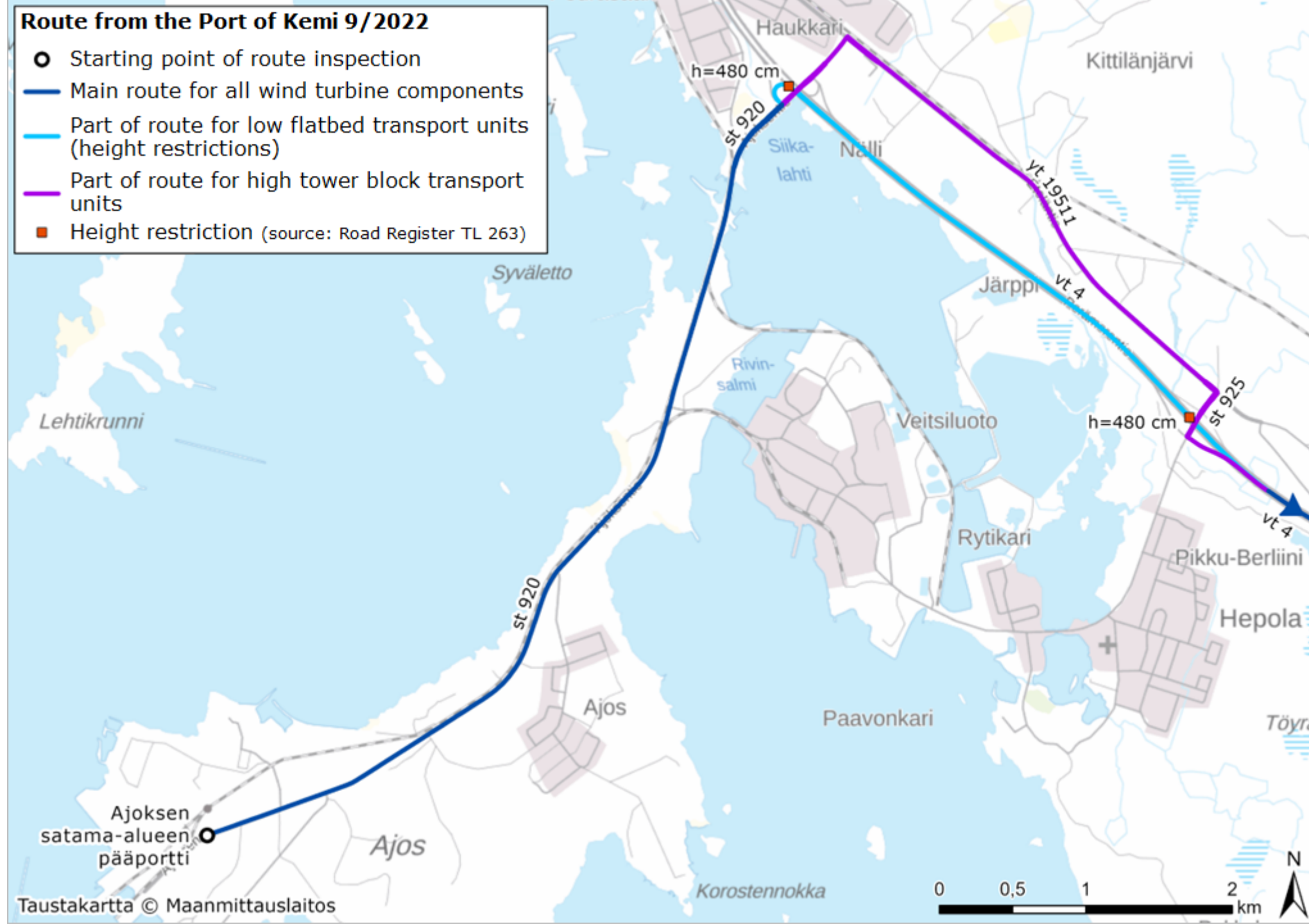
Problem points

- Height restriction (source: Road Register TL 263)
- At-grade intersection
- Service intersection



Route from the Port of Kemi 9/2022

- Starting point of route inspection
- Main route for all wind turbine components
- Part of route for low flatbed transport units (height restrictions)
- Part of route for high tower block transport units
- Height restriction (source: Road Register TL 263)



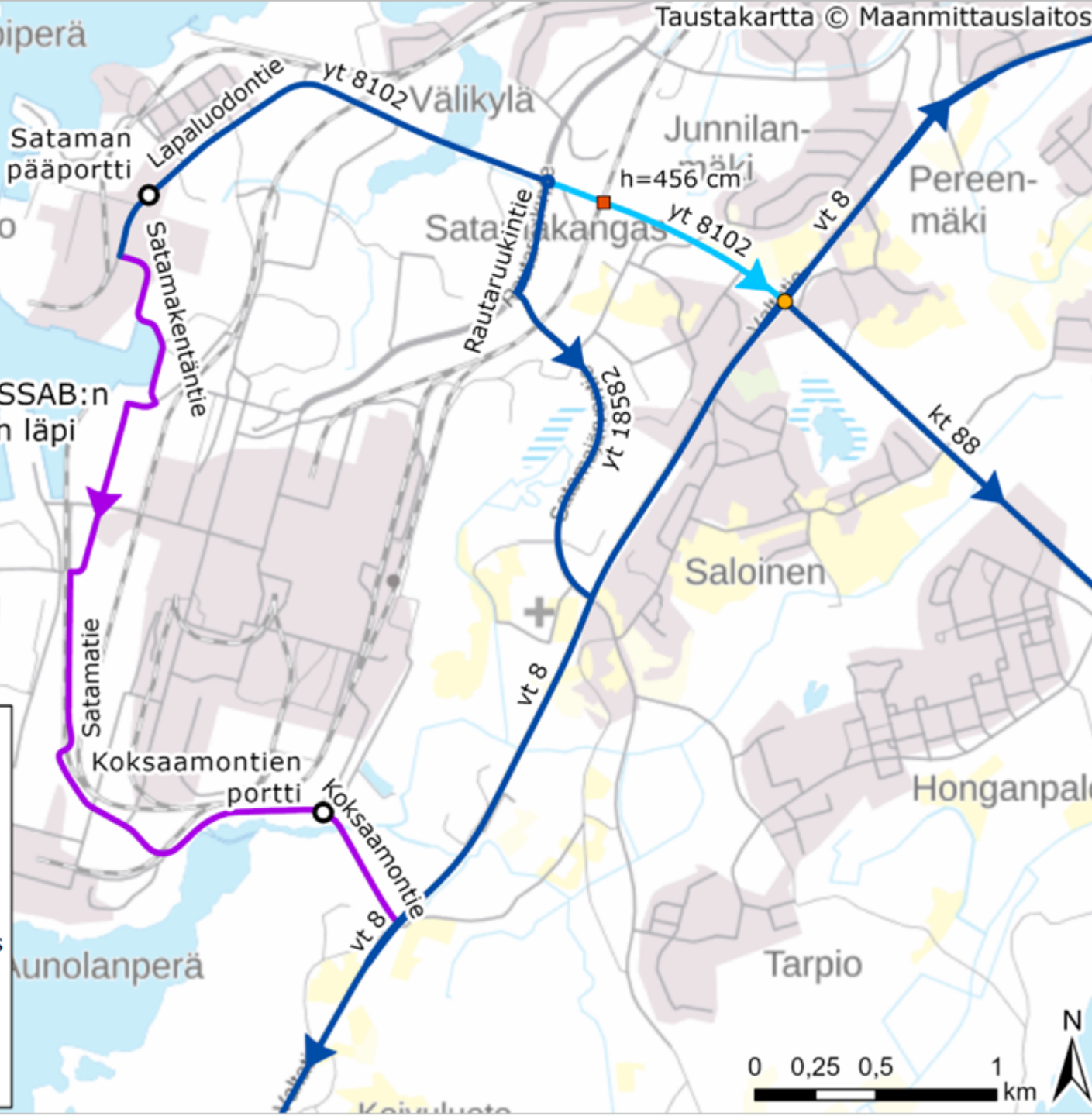
Route from the Port of Raahë 9/2022

- Starting point of route inspection
- Main route for all wind turbine components
- Part of route for low flatbed transport units (height restrictions)
- Part of route for high tower block transport units

Problem points on main routes

- Height restriction (source: Road Register TL 263)
- At-grade intersection

kulkeminen SSAB:n
tehdasalueen läpi



0 0,25 0,5 1 km



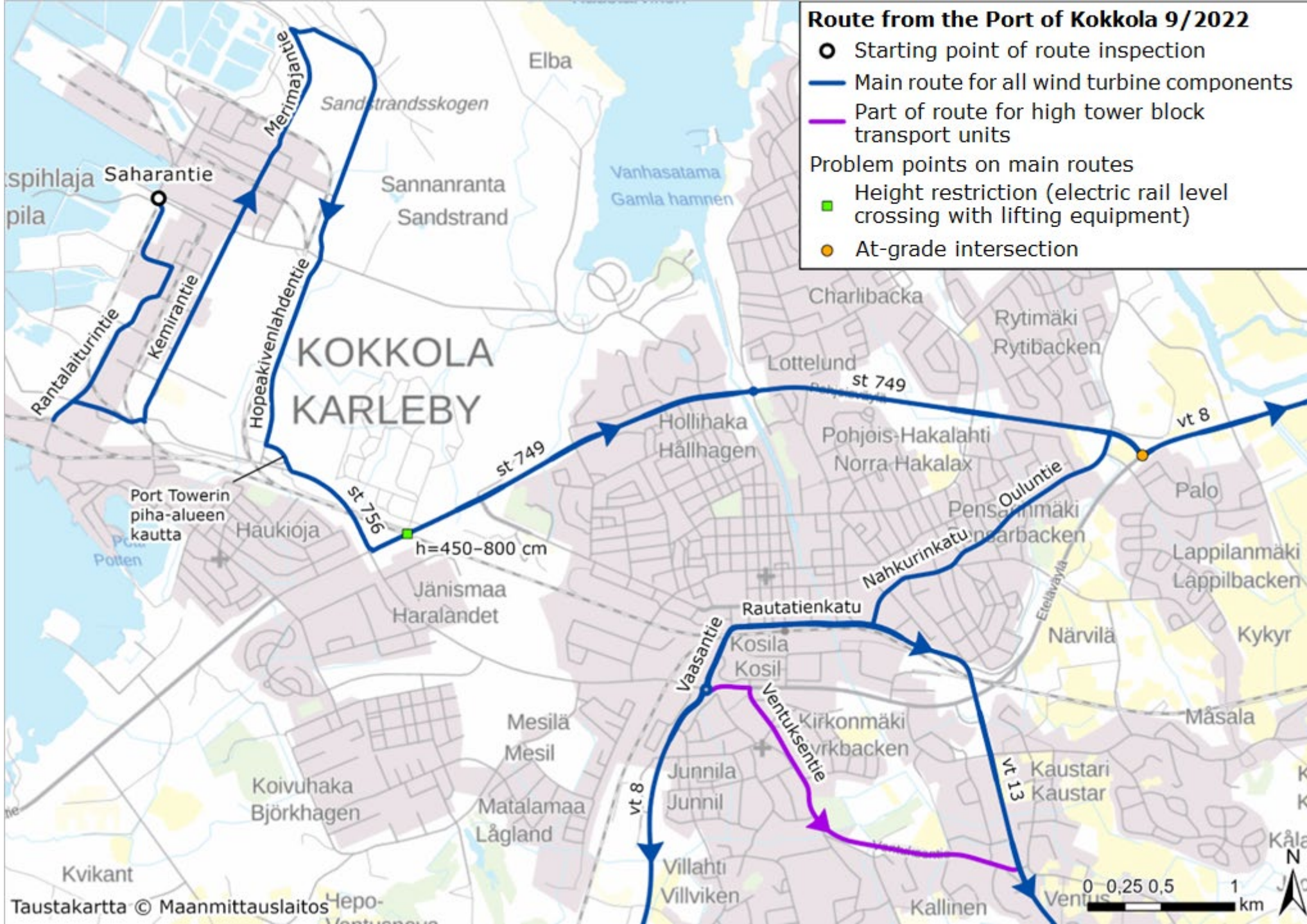
Route from the Port of Kalajoki 9/2022

- Starting point of route inspection
- Main route for all wind turbine components

Problem point on main route

- At-grade intersection



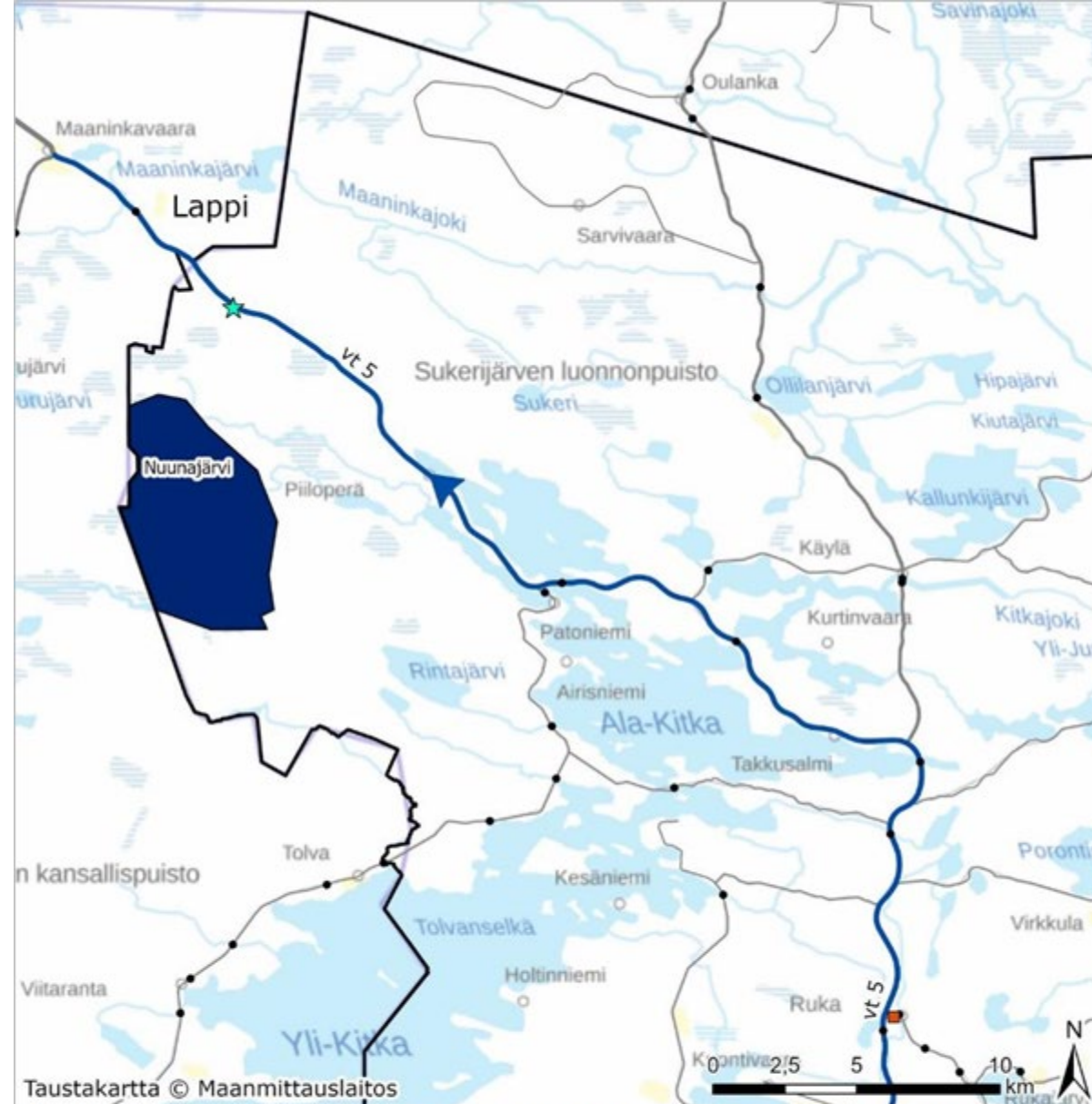


North Ostrobothnia area-specific maps



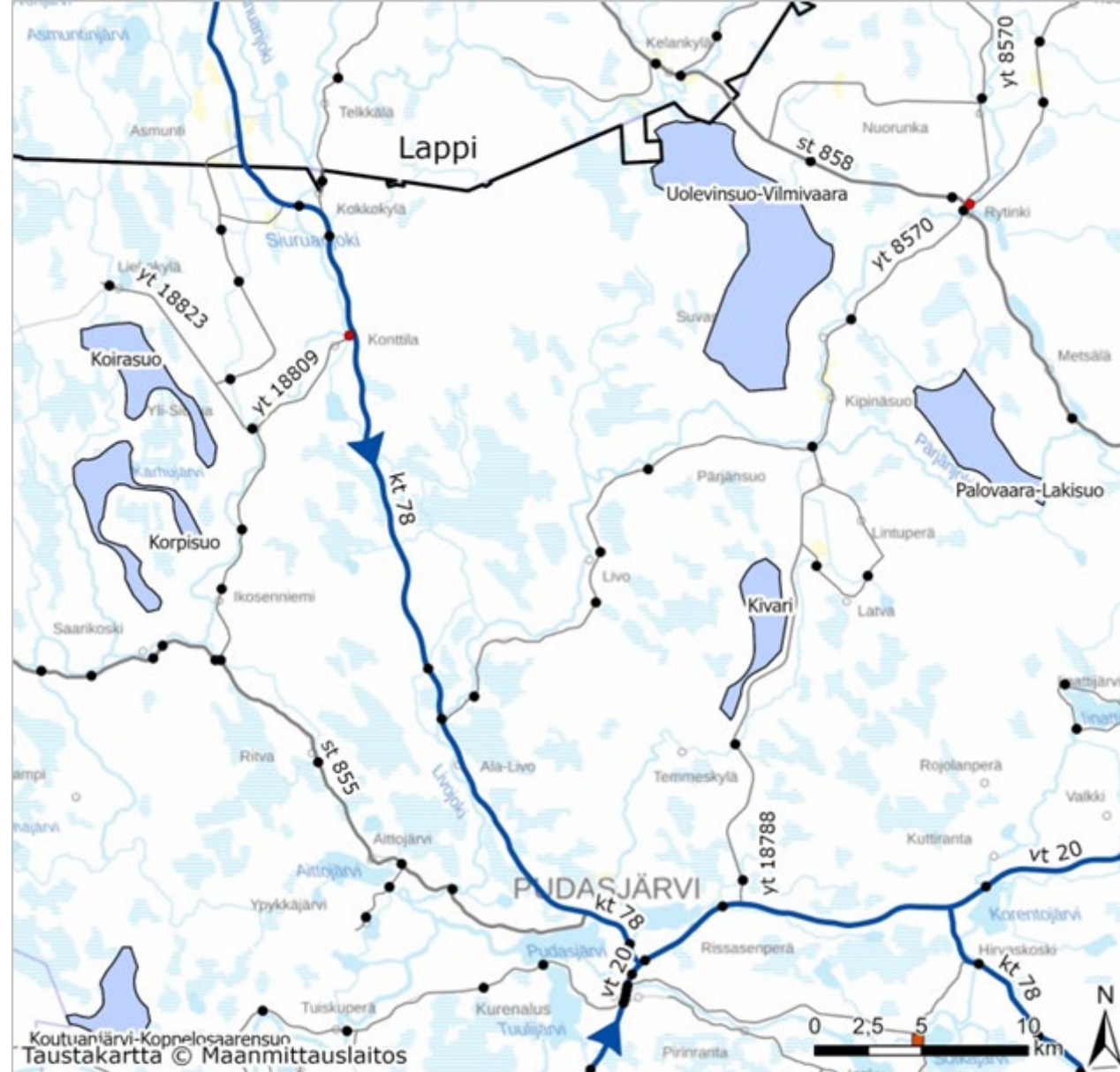
Routes to North Ostrobothnia wind farms, Kuusamo 9/2022

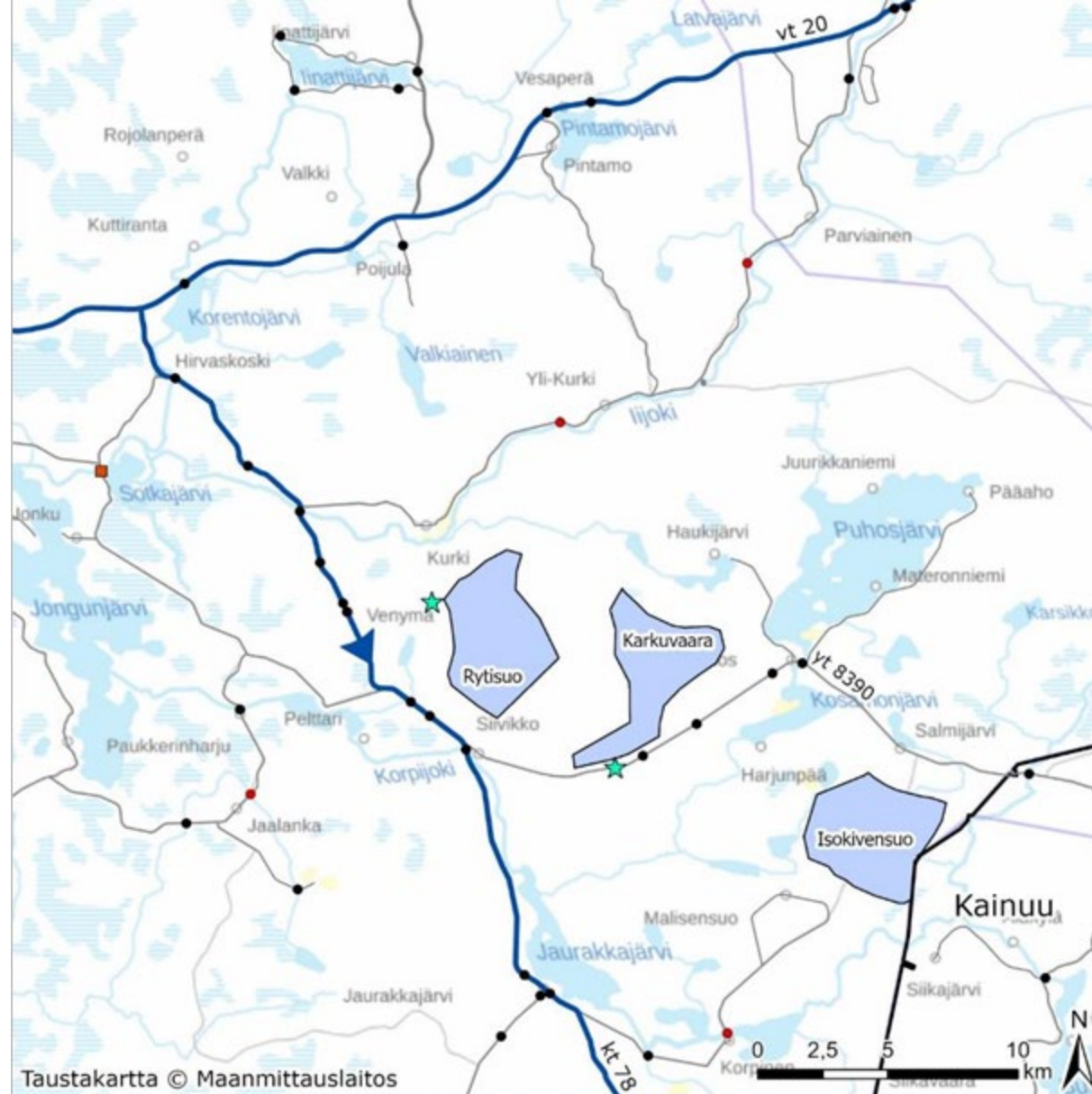
- | | |
|--|--|
| Wind farm area (tv-1) | Main route for all wind turbine components |
| Potential wind farm area (tv-3) | Height restriction (source: Road Register TL 263) |
| Wind power project area according to 1 st or 3 rd stage regional plan | Road bridge |



Routes to North Ostrobothnia wind farms, Kuusamo 9/2022

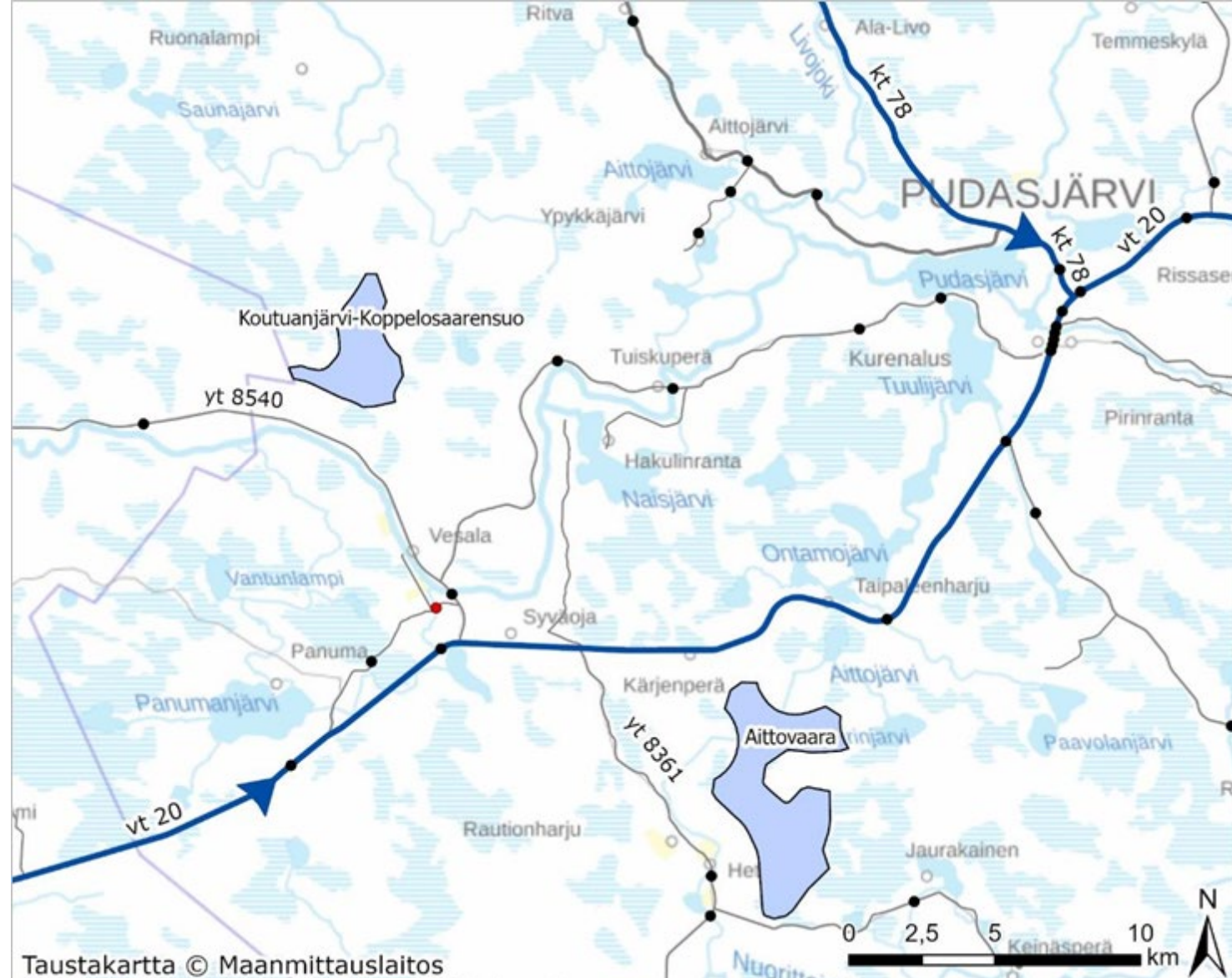
- Wind farm area (tv-1)
- Potential wind farm area (tv-3)
- Wind power project area according to 1st or 3rd stage regional plan
- ★ Route from road to wind farm
- Main route for all wind turbine components
- Height restriction (source: Road Register TL 263)
- Road bridge





Routes to North Ostrobothnia wind farms, Pudasjärvi 9/2022

- | | |
|---|--|
| Wind farm area (tv-1) | Route from road to wind farm |
| Potential wind farm area (tv-3) | Main route for all wind turbine components |
| Wind power project area according to 1 st or 3 rd stage regional plan | Road bridge |
| | Weight-restricted road bridge |

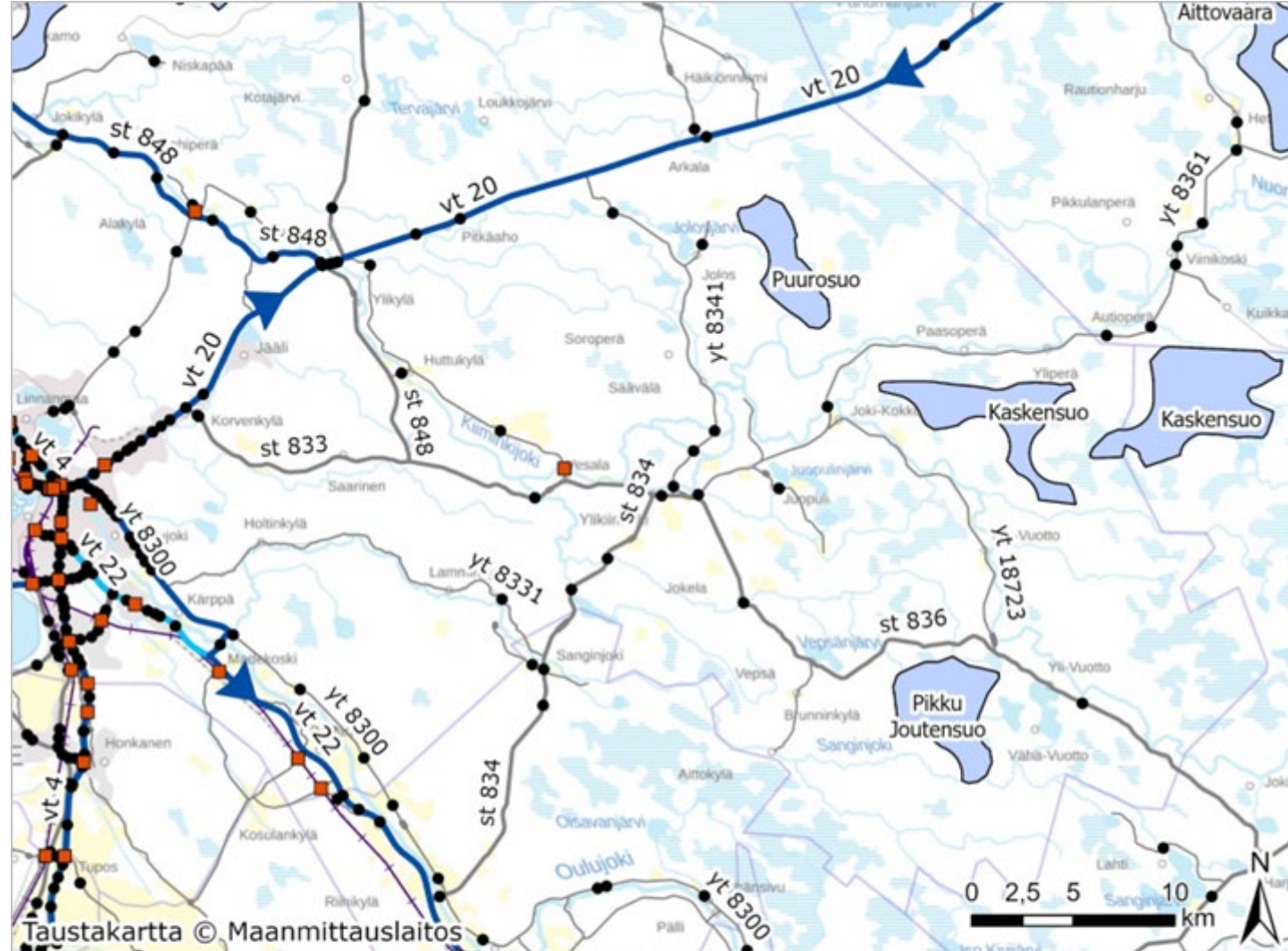


Routes to North Ostrobothnia wind farms, Pudasjärvi 9/2022

- | | |
|--|--|
| Wind farm area (tv-1) | Main route for all wind turbine components |
| Potential wind farm area (tv-3) | Road bridge |
| Wind power project area according to 1 st or 3 rd stage regional plan | Weight-restricted road bridge |

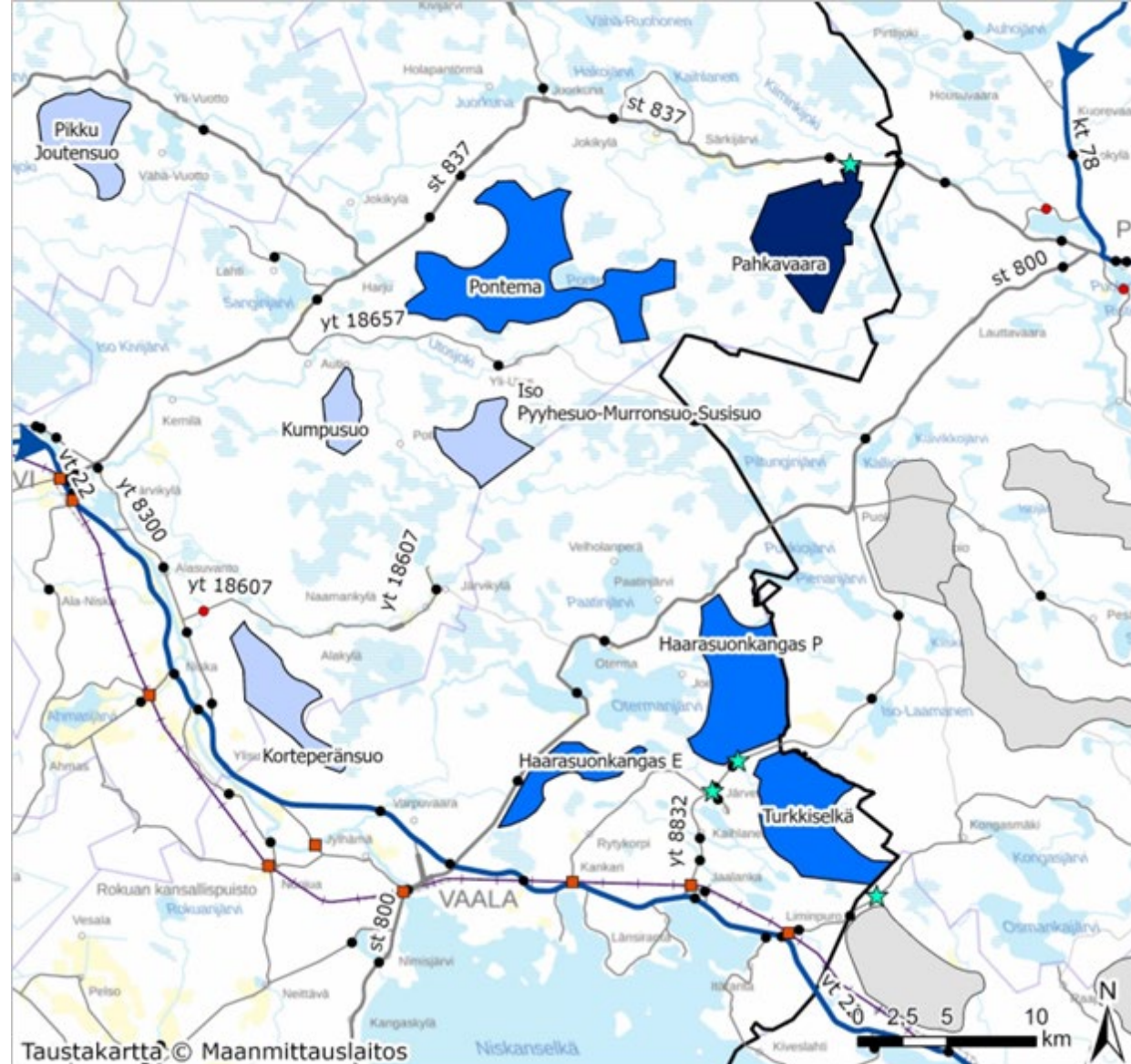


- Ramboll



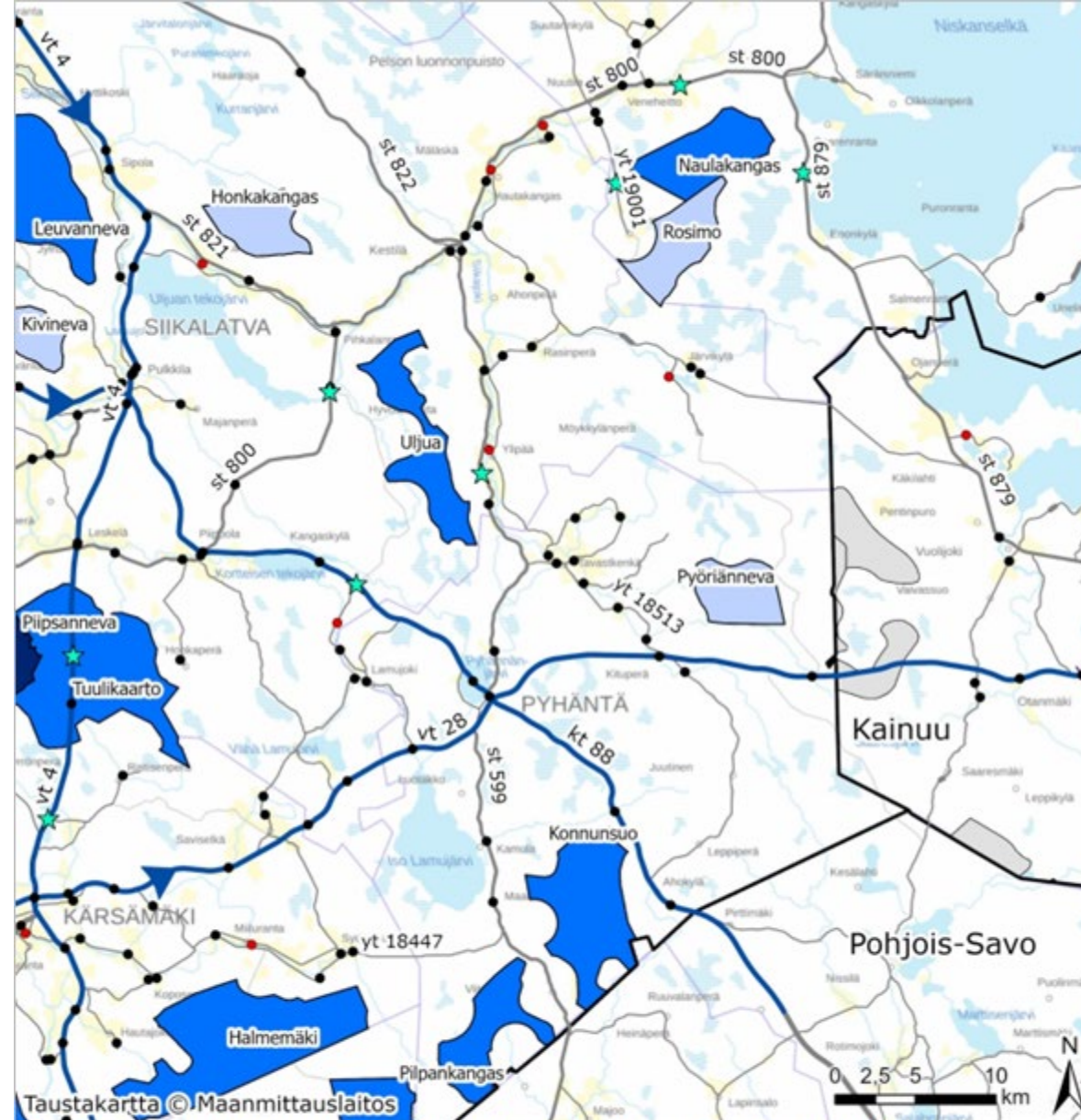
Routes to North Ostrobothnia wind farms, Oulu 9/2022

- Wind farm area (tv-1)
- Potential wind farm area (tv-3)
- Wind power project area according to 1st or 3rd stage regional plan
- Main route for all wind turbine components
- Part of route for low flatbed transport units (height restrictions)
- Height restriction (source: Road Register TL 263)
- Road bridge
- Weight-restricted road bridge
- Railway



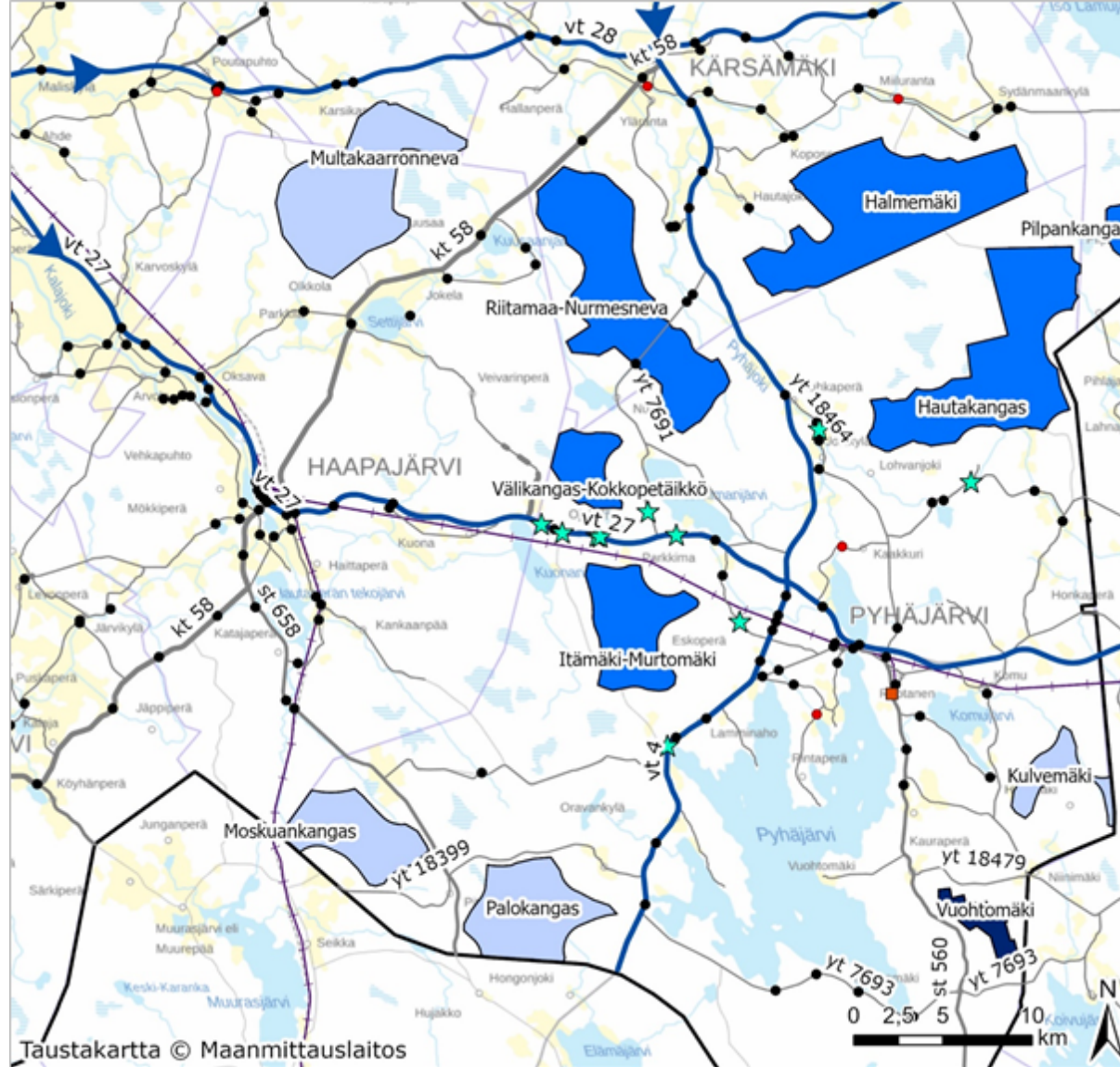
Routes to North Ostrobothnia wind farms, Utajärvi and Vaala 9/2022

- | | |
|--|---|
| Wind farm area (tv-1) | Main route for all wind turbine components |
| Potential wind farm area (tv-3) | Height restriction (source: Road Register TL 263) |
| Wind power project area according to 1 st or 3 rd stage regional plan | Road bridge |
| ★ Route from road to wind farm | Weight-restricted road bridge |
| | Railway |



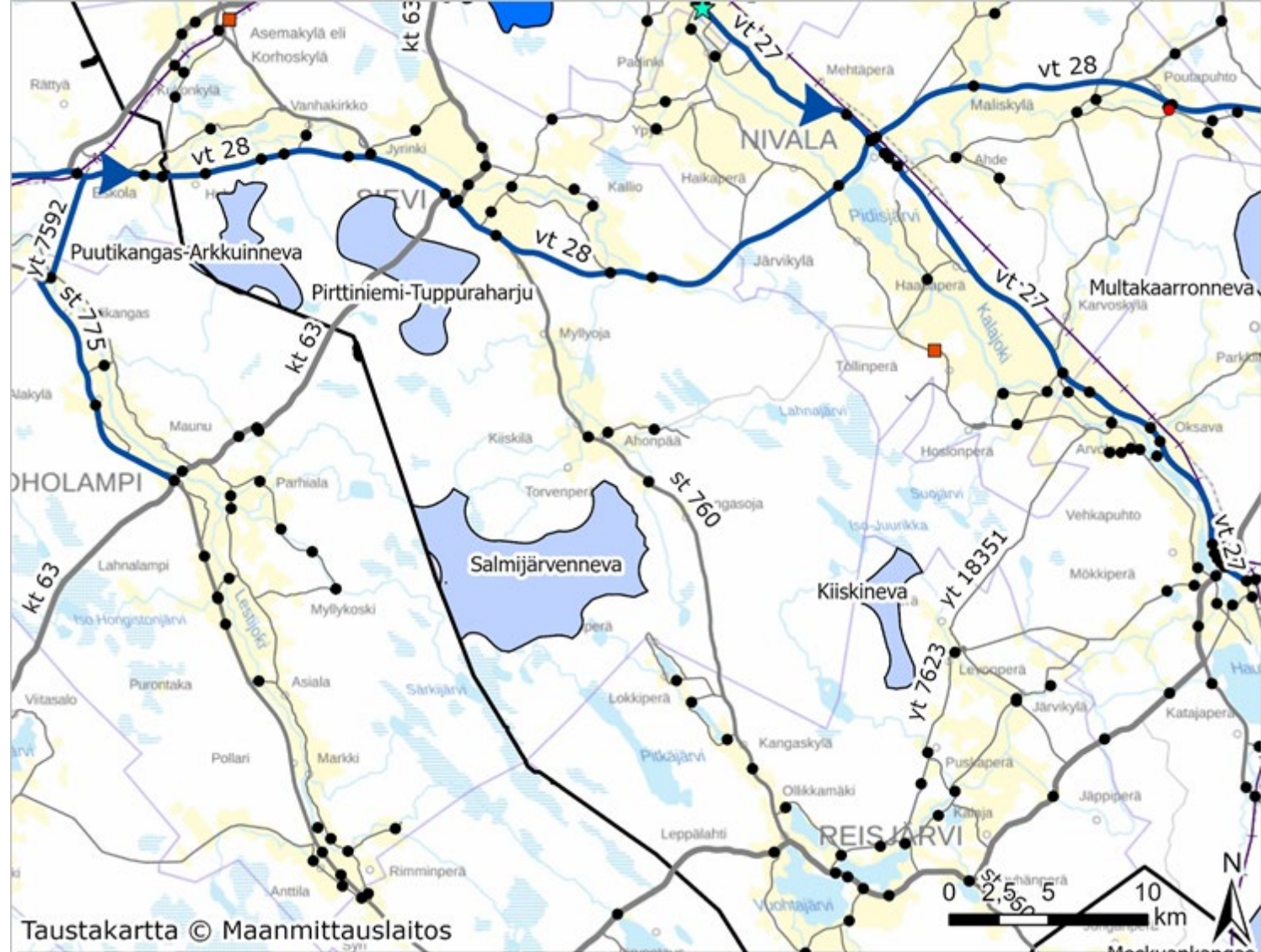
Routes to North Ostrobothnia wind farms, Pyhäntä and Vaala 9/2022

- | | |
|--|--|
| Wind farm area (tv-1) | ★ Route from road to wind farm |
| Potential wind farm area (tv-3) | — Main route for all wind turbine components |
| Wind power project area according to 1 st or 3 rd stage regional plan | • Road bridge |
| | • Weight-restricted road bridge |



**Routes to North Ostrobothnia wind farms, Pyhäjärvi, Haapajärvi and Karsämäki
9/2022**

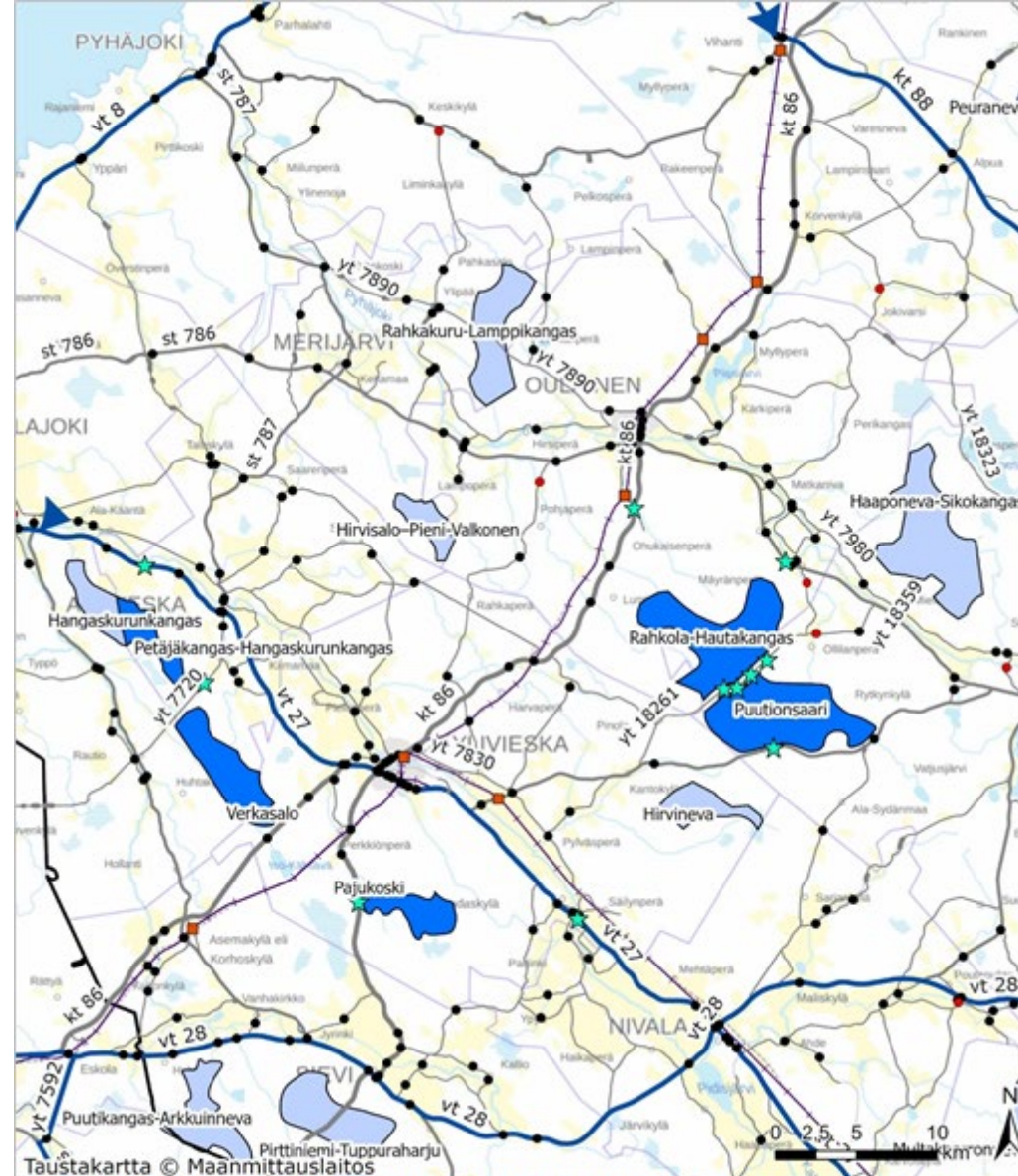
- | | |
|--|--|
| Wind farm area (tv-1) | Main route for all wind turbine components |
| Potential wind farm area (tv-3) | Height restriction (source: Road Register TL 263) |
| Wind power project area according to 1 st or 3 rd stage regional plan | Road bridge |
| ★ Route from road to wind farm | Weight-restricted road bridge |
| | Railway |



Taustakartta © Maanmittauslaitos

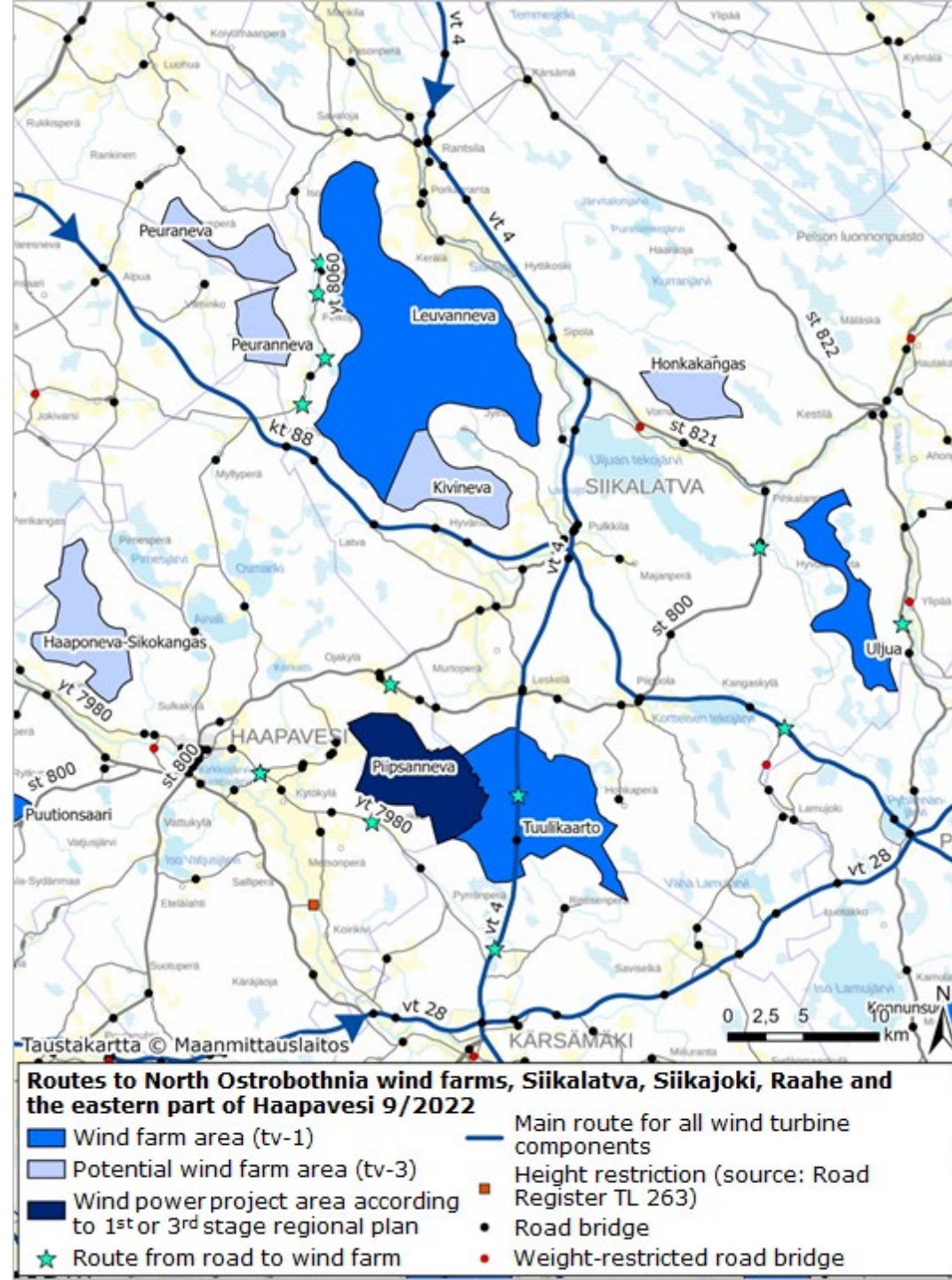
Routes to North Ostrobothnia wind farms, Sievi and Reisjärvi 9/2022

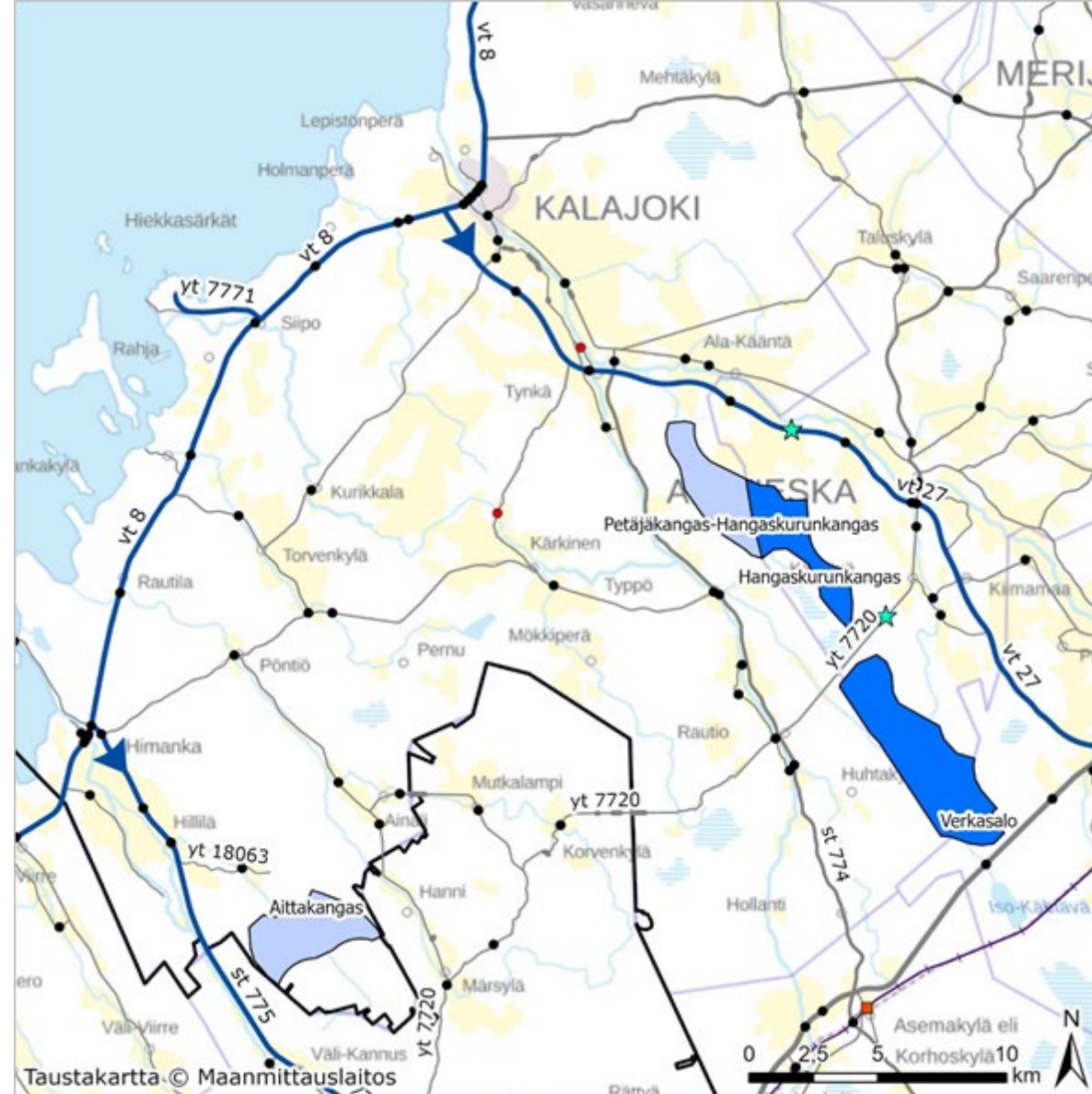
- | | |
|---|---|
|  Wind farm area (tv-1) |  Height restriction (source: Road Register TL 263) |
|  Potential wind farm area (tv-3) |  Road bridge |
|  Wind power project area according to 1 st or 3 rd stage regional plan |  Weight-restricted road bridge |
|  Main route for all wind turbine components |  Railway |



Routes to North Ostrobothnia wind farms, Oulainen, Merijärvi, Ylivieska, Alavieska and the western part of Haapavesi 9/2022



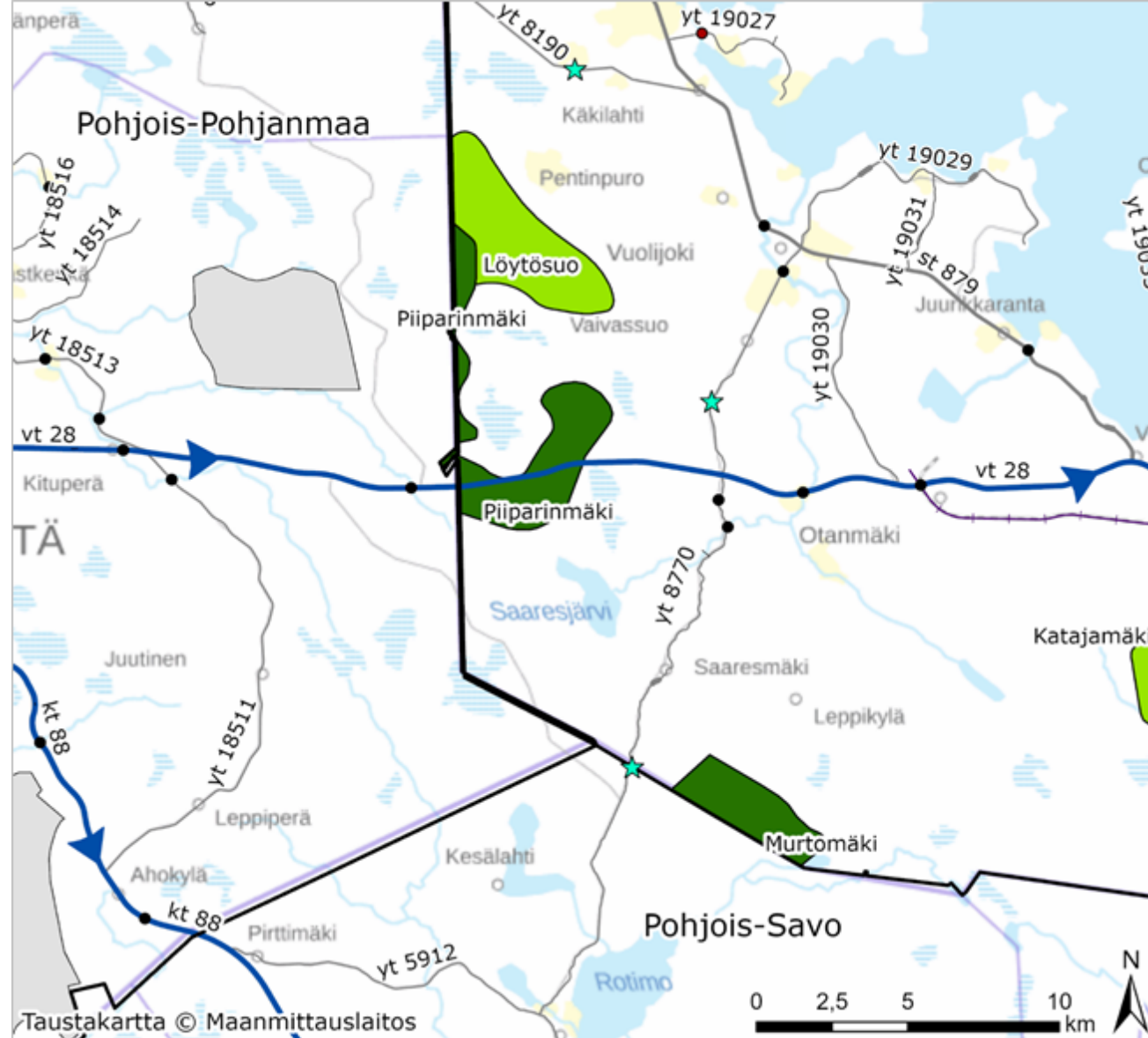




Routes to North Ostrobothnia wind farms, Kalajoki 9/2022

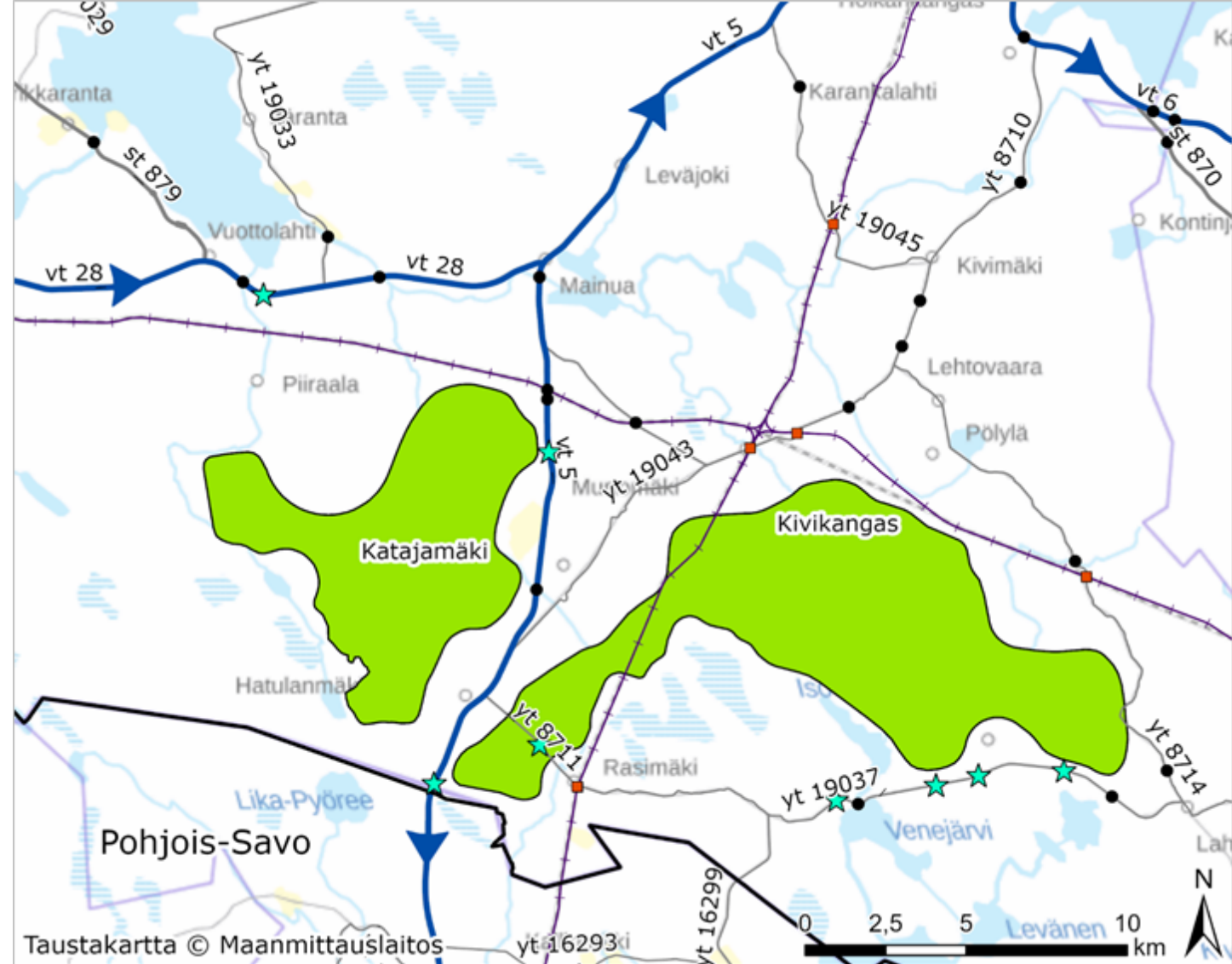
- | | |
|--|--|
| Wind farm area (tv-1) | Main route for all wind turbine components |
| Potential wind farm area (tv-3) | Height restriction (source: Road Register TL 263) |
| Wind power project area according to 1 st or 3 rd stage regional plan | Road bridge |
| ★ Route from road to wind farm | Weight-restricted road bridge |
| | Railway |

Kainuu area-specific maps



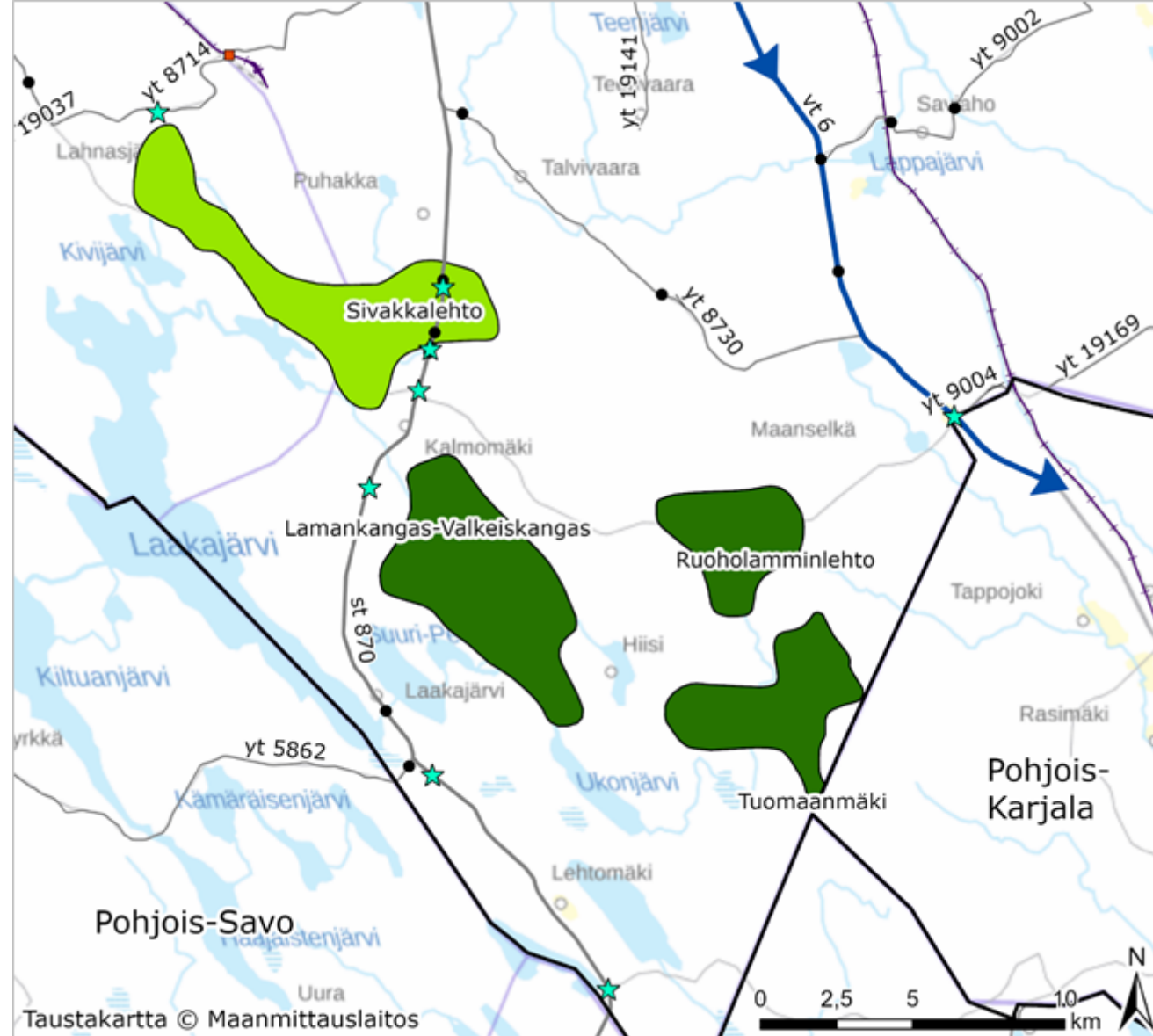
Routes to Kainuu wind farms, Kajaani 9/2022

- | | |
|---|--|
| Draft of Kainuu wind power regional plan 2035 | North Ostrobothnia wind farm |
| Valid Kainuu wind power regional plan 2030 | Main route for all wind turbine components |
| Route from road to wind farm | Road bridge |
| | Weight-restricted road bridge |



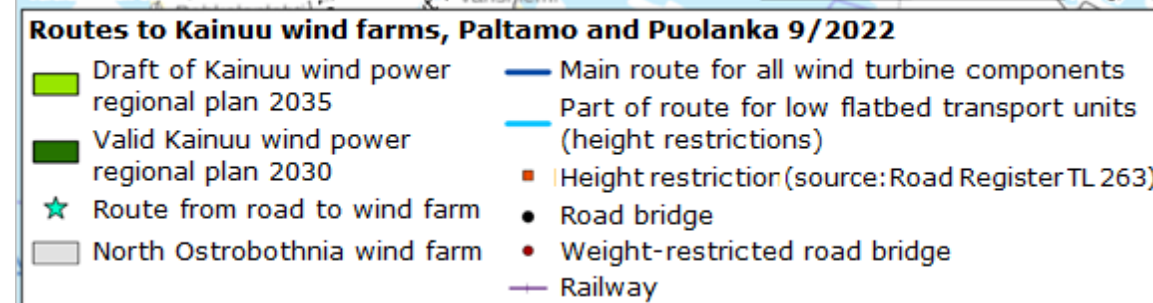
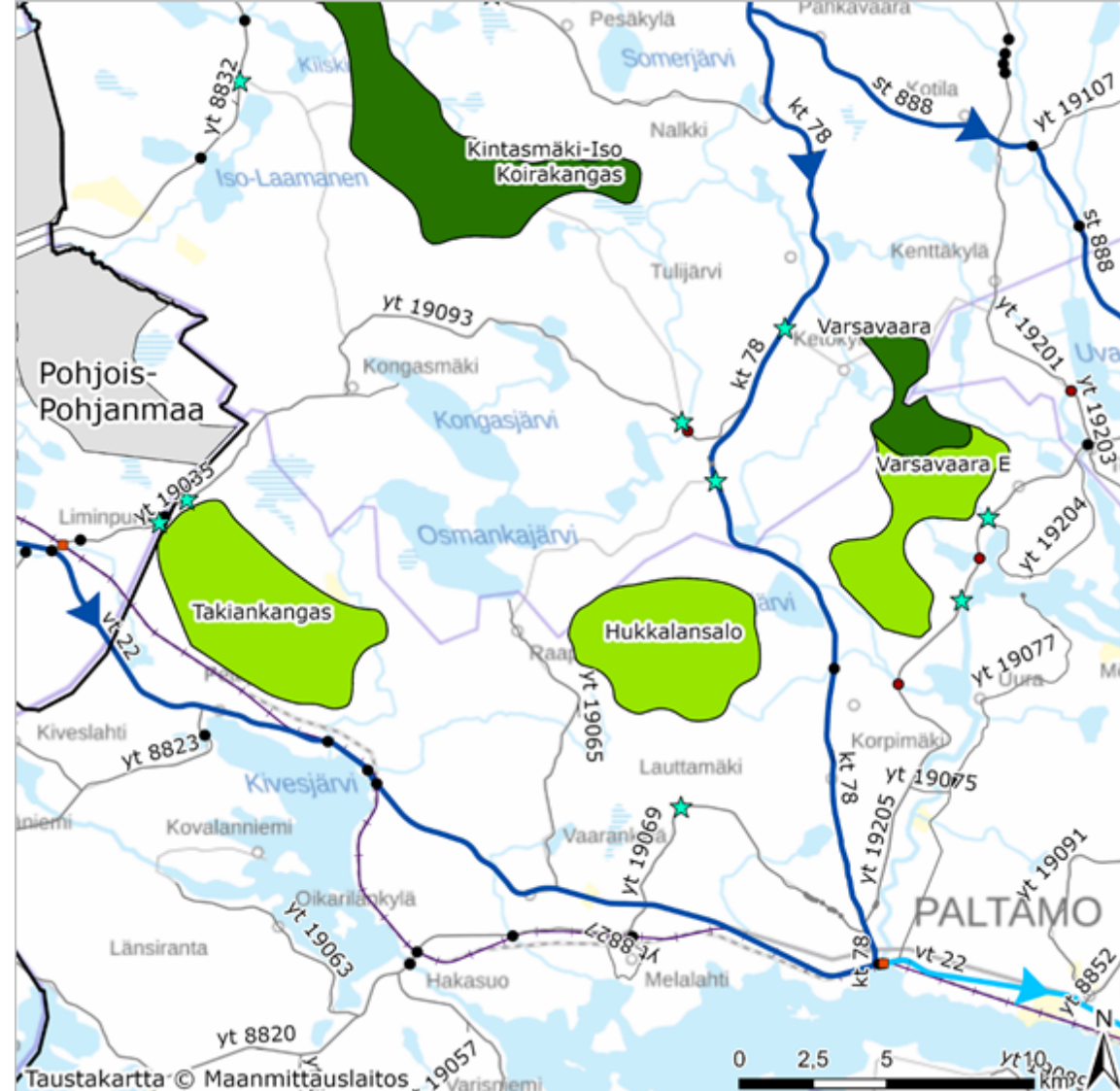
Routes to Kainuu wind farms, Kajaani 9/2022

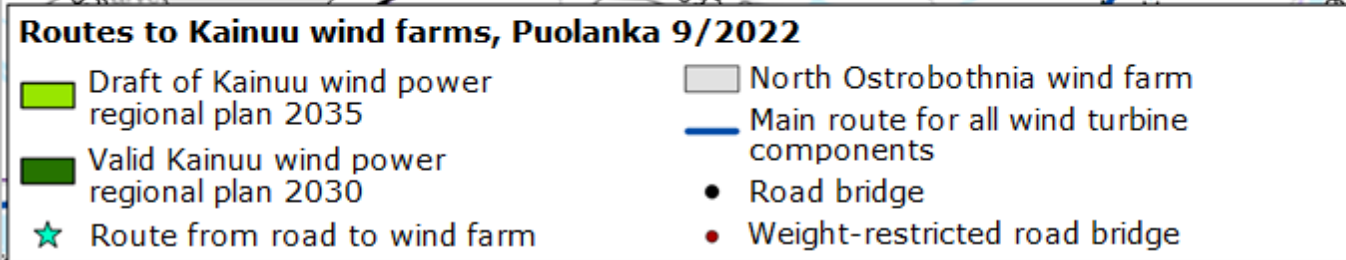
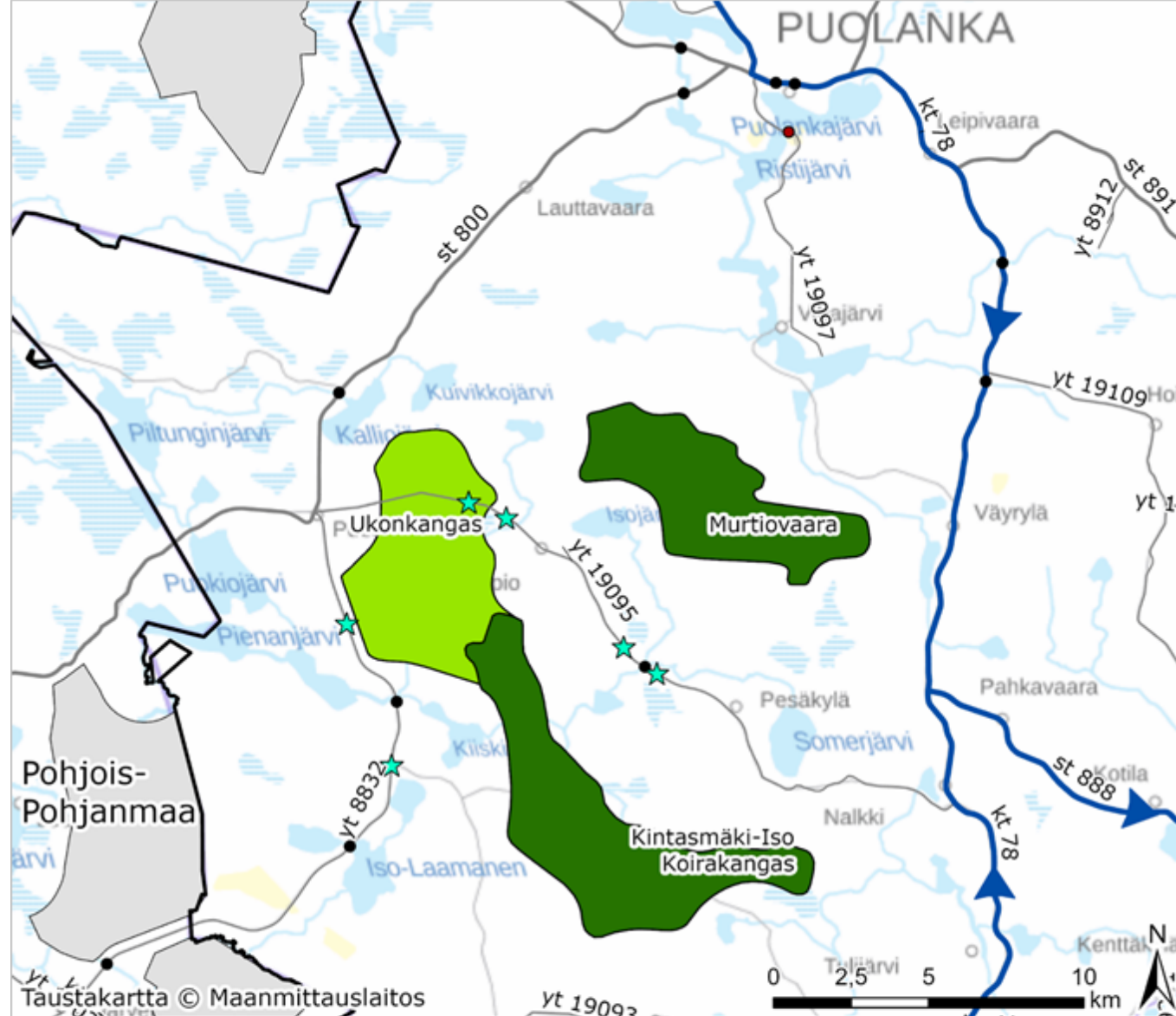
- | | |
|---|---|
|  Draft of Kainuu wind power regional plan 2035 |  Main route for all wind turbine components |
|  Valid Kainuu wind power regional plan 2030 |  Height restriction (source: Road Register TL 263) |
|  Route from road to wind farm |  Road bridge |
| |  Weight-restricted road bridge |
| |  Railway |

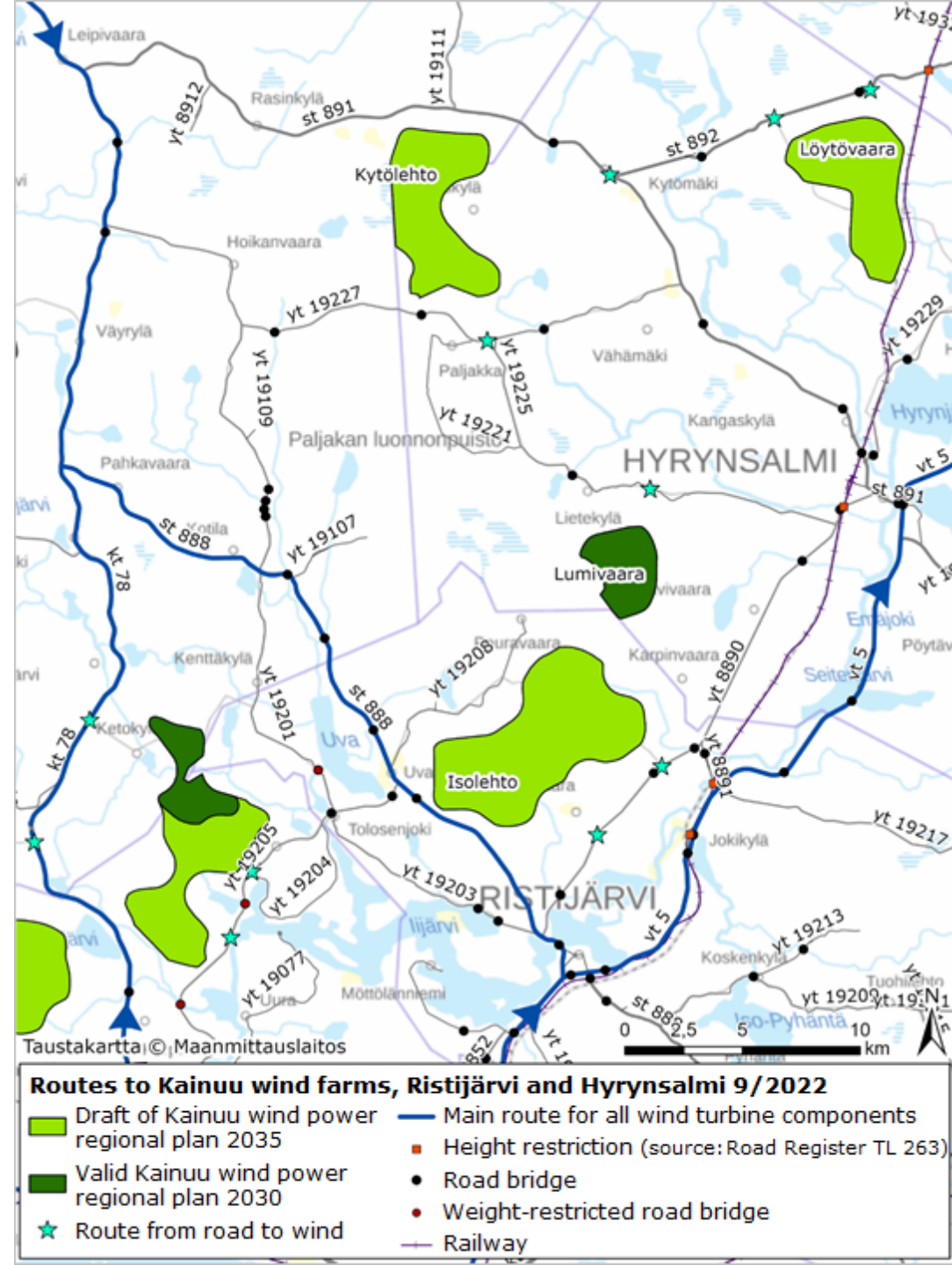


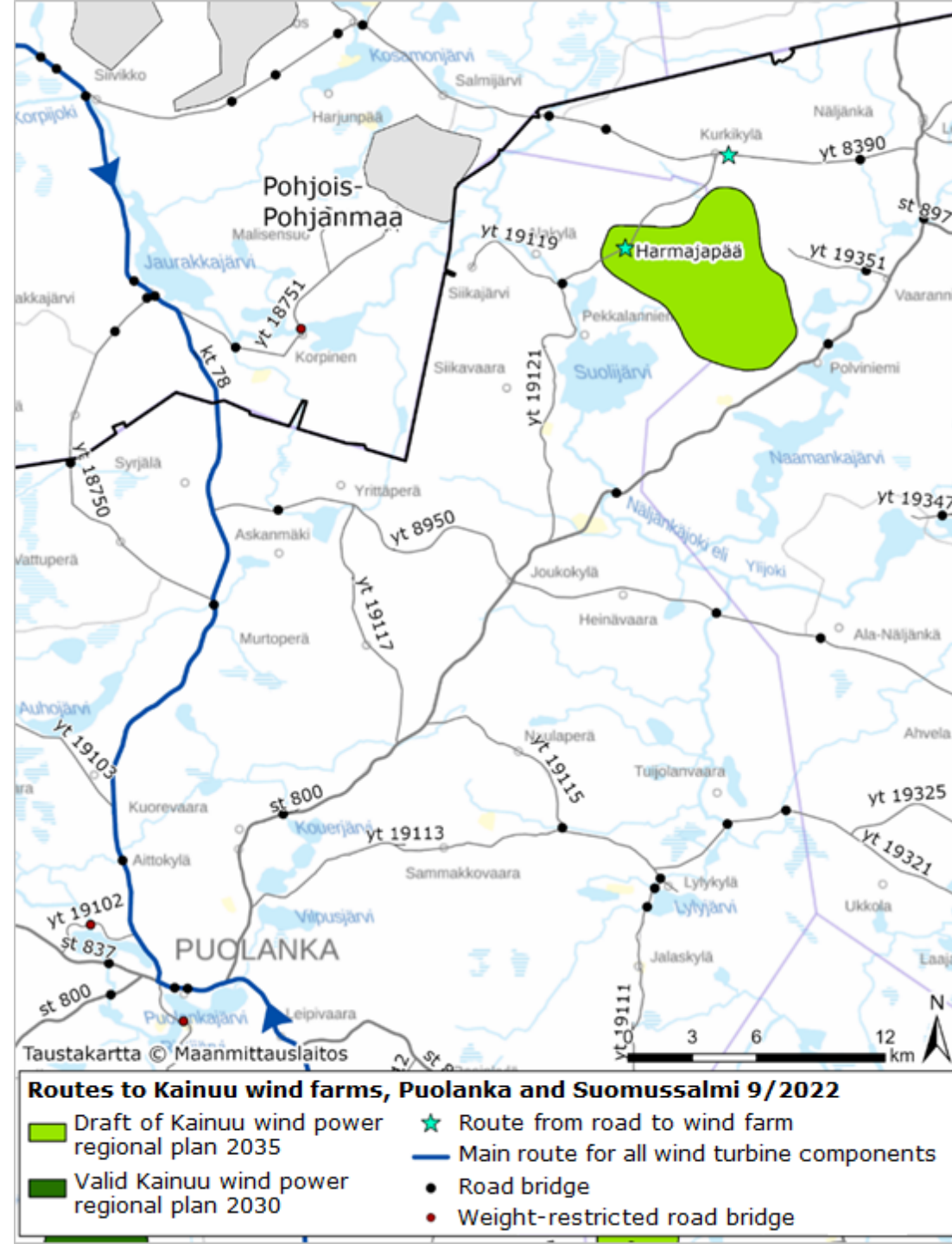
Routes to Kainuu wind farms, Kajaani and Sotkamo 9/2022

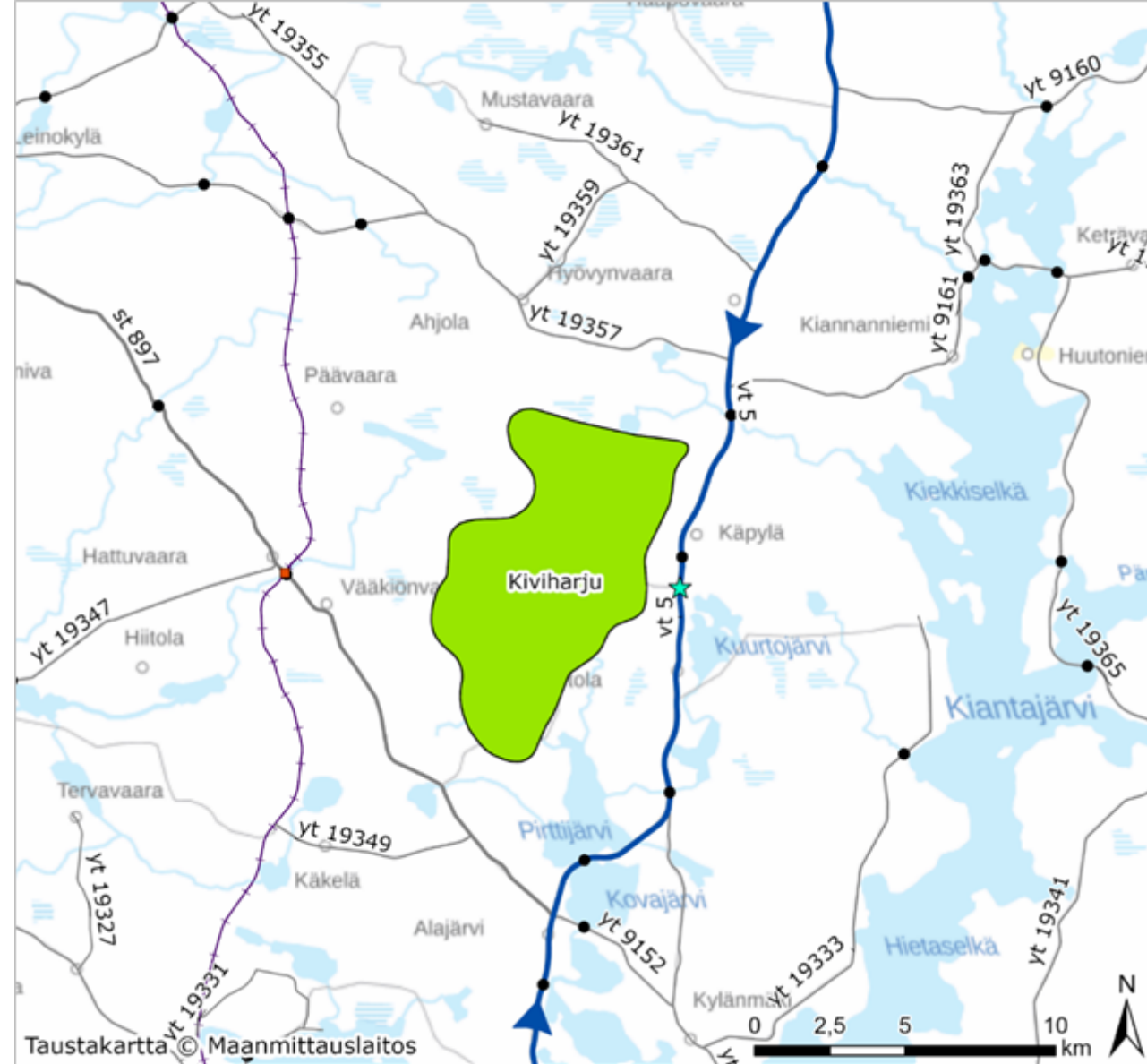
- | | | |
|---|---|--|
| Draft of Kainuu wind power regional plan 2035 | Valid Kainuu wind power regional plan 2030 | Main route for all wind turbine components |
| Route from road to wind farm | Height restriction (source: Road Register TL 263) | Road bridge |
| | | Railway |











Routes to Kainuu wind farms, Suomussalmi 9/2022

- Draft of Kainuu wind power regional plan 2035
- Valid Kainuu wind power regional plan 2030
- Main route for all wind turbine components
- Height restriction (source: Road Register TL 263)
- Road bridge
- Weight-restricted road bridge
- Route from road to wind farm