Elinkeino-, liikenne- ja ympäristökeskus
Närings-, trafik- och miljöcentralen
Centre for Economic Development, Transport and the Environment

Circular economy and transport system - examples from Kymenlaakso region

Hanna Kailasto
Director of Strategy, Media and Communications Unit

Suvi Nirkko
Environmental Specialist, Transport and Infrastructure Unit

29.1.2020

ELY Centre: The leading regional promoter of sustainable development and well-being by promoting:

- Entrepreneurship and economic development
- **Sustainable use of natural resources and the areas**
- **Functionality of the transport system and safety of transport**
- Functionality of labour market, development of competence, labour availability, employment and immigrant intergration
- **Preserving of nature and the environment**
- Development of the countryside

Vision and values

- Developing sustainable future – for the the best for people and regions
- Together we can make Southeast Finland sustainable and dynamic

The values of the Southeast ELY Centre are
- ❖ Customer orientation
- ❖Competence
- ❖ Cooperation

Elinkeino-, liikenne- ja ympäristökeskus
Närings-, trafik- och miljöcentralen
Centre for Economic Development, Transport and the Environment

Organization of ELY Centre

Director-General
Ms Leena Gunnar

Management Group

Advisory Board

Strategy and Regional Development
Ms Hanna Kailasto

Communications
Ms Minna Niukkanen

Customership
Ms Satu Mäkelä

Economic Development, Labour Force and Competence

Director
Ms Satu Mäkelä

Employment, Entrepreneurship and Competence Services
Ms Tea Munne

Countryside Services
Mr Jyrki Pitkänen
Agricultural Monitoring
Mr Osmo Minkkinen

TE Office
Director Mr Jari Saarinen

Transport and Infrastructure

Director
Mr Kari Halme

Transport System
Mr Jussi Kailasto

Road Maintenance Planning
Mr Tuomas Talka

Traffic Telematics

Southern Procurement District
Maintenance
Mr Tuomas Vasama
Investments
Ms Anu Vilamaa

The Environment and Natural Resources

Director-General
Ms Leena Gunnar

Operations Manager
Mr Visa Niittyniemi

Communities and Nature
Mr Pertti Perttola

Environmental Liability
Mr Jaakko Vesivalo

Waterways
Mr Visa Niittyniemi

Elinkeino-, liikenne- ja ympäristökeskus
Närings-, trafik- och miljöcentralen
Centre for Economic Development, Transport and the Environment

Economic Development, Labour Force and Competence

- Employment, Entrepreneurship and Competence Services
  - Promoting growth of enterprises and employment
  - Development of working life
  - Guidance of lifelong learning
  - Development of business, industry and innovation ground
  - Immigration, immigrant intergration and employment
  - Promotion of cultural services and creative business field
  - Coordination of regional and national enterprise services and services of Team Finland.

- **The ELY Centres are remarkable providers of EU funds**

Economic Development, Labour Force and Competence

- Countryside of Possibilities / Countryside Services
  - ELY Centre is responsible for execution of The Rural Development Programme for Mainland Finland in the whole area of Southeast Finland
  - 97 per cent of Southeast Finland is classified as countryside
  - A new kind of entrepreneurship in the countryside creates work and well-being
  - ELY Centres grant support for building cowhouses as well as purchasing machines for a metal company

Elinkeino-, liikenne- ja ympäristökeskus
Närings-, trafik- och miljöcentralen
Centre for Economic Development, Transport and the Environment

The Environment and Natural Resources

- **Developes balanced structure of the areas and community structure**
  - guidance and monitoring of planning and construction
- **Preserves cultural environments and resorts with cultural heritage**
  - conservation
  - cultural heritage
- **Preserves nature and takes care of consideration of special natural resources**
  - programs for preserving areas
  - endangered species and various types of nature
  - valuable landscapes
  - special natural features in planning

The department aims at controlling climate change, promoting sustainable development and good condition of the water system

Elinkeino-, liikenne- ja ympäristökeskus
Närings-, trafik- och miljöcentralen
Centre for Economic Development, Transport and the Environment

The Environment and Natural Resources

- **Protects the environment by**
  - Supervising activities that cause environmental strain
  - supervising the water management
  - supervising the decision on licenses and permits founded on the Environmental Protection Act and the Water Act
  - specializing in wood industry and chemical industry and chemical law
  - preventing environmental damages and taking part in preventing as an authority
  - Environmental Impact Assessment (YVA, SOVA)

- **Follows up the condition of the environment**
  - waterways, groundwater and ground environment
  - changes
- **Promotes the security of water supply and minimises waste water influences**
  - supporting environmental and water-related projects
  - use and care of water resources

The Environment and Natural Resources

- **Promotes good condition of the surface water and ground water by planning the care**
- **Promotes flood prevention by**
  - controlling the risks of flood and drought
  - watercourse regulation and discharge control
  - tasks concerning cross-border waterways
  - guiding the municipalities in land use
  - authority and information officer in acute flood situations
- **Produces and publishes information of Southeast Finland – state of the environment and authoritative operations**
  - foreseeing the future changes
  - decision support
  - promotes environmental awareness

Elinkeino-, liikenne- ja ympäristökeskus
Närings-, trafik- och miljöcentralen
Centre for Economic Development, Transport and the Environment

Transport infrastructure strengthens the vitality of Southeast Finland

The department aims at securing functionality and safety of daily journeys and transport in a sustainable way.

Elinkeino-, liikenne- ja ympäristökeskus
Närings-, trafik- och miljöcentralen
Centre for Economic Development, Transport and the Environment

Transport and Infrastructure in Southeast Finland

- Road network 4100 km
- Paved roads 2669 km
- Gravel roads 1427 km
- Walkways 328 km
- Bridges 880
- Lighting 400 km
- Bus stops 3338
- Parking and resting sites 97

Procurement Districts

- Southern Procurement District, ELY Centre for Southeast Finland
  - Southeast Finland
  - Uusimaa

Director: Kari Halme
Maintenance, chief: Tuomas Vasama
Investments, chief: Anu Vilamaa

- Western Procurement District, ELY Centre for Southwest Finland
  - Southwest Finland
  - Pirkanmaa
  - South Ostrobothnia

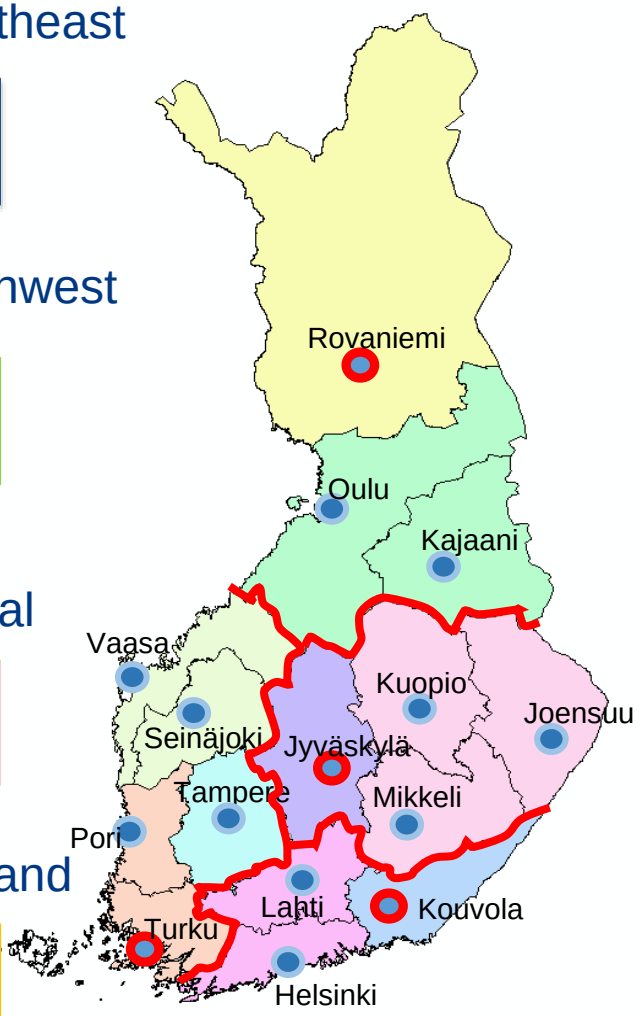
Director: Matti Vehviläinen
Maintenance, chief: Timo Laaksonen
Investments, chief: Ari Perttu

- Eastern Procurement District, ELY Centre for Central Finland
  - Central Finland
  - North Savo

Director: Jukka Lehtinen
Maintenance, chief: Vesa Partanen
Investments, chief: Janne Jaatinen

- Northern Procurement District, ELY Centre for Lapland
  - Lapland
  - North Ostrobothnia

Director: Jaakko Ylinampa
Maintenance, chief: Markku Tervo
Investments, chief: Ari Kilponen



Elinkeino-, liikenne- ja ympäristökeskus
Närings-, trafik- och miljöcentralen
Centre for Economic Development, Transport and the Environment

National organization

Ministry of Economic Affairs and Employment of Finland

Ministry of Economic Affairs and Employment in Finland

The Ministry of Employment and the Economy is responsible for the administrative steering of the ELY Centres.

LVM MINISTRY OF TRANSPORT AND COMMUNICATIONS

Ministry of Transport and Communications

The Ministry of Transport and Communications implements the strategic Government Programme within its sectors.

VÄYLÄ
Finnish Transport Infrastructure Agency

Finnish Transport Infrastructure Agency

Planning, development and maintenance of state infrastucture network. Together with the regional ELY Centres, the Finnish Transport Infrastructure Agency is responsible for the maintenance and development of the state-owned road network.

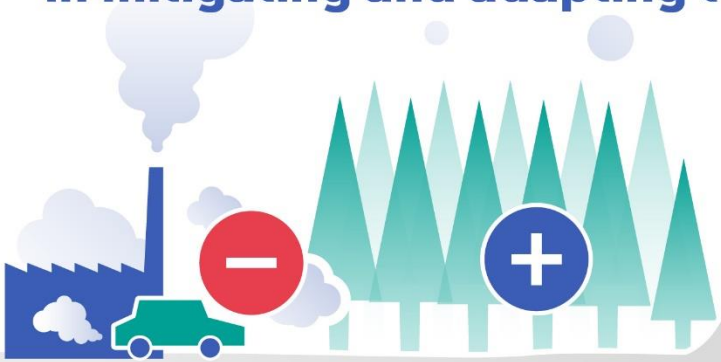
Centre for Economic Development, Transport and the Environment

Centre for Economic Development, Transport and the Environment

Road design, maintenance an development.

Elinkeino-, liikenne- ja ympäristökeskus
Närings-, trafik- och miljöcentralen
Centre for Economic Development, Transport and the Environment

Sustainable development requires urgent global action in mitigating and adapting to climate change.



CLIMATE CHANGE MITIGATION

- Reducing greenhouse gas emissions
- Increasing carbon sinks and managing carbon pools

CLIMATE CHANGE ADAPTATION AND RISK MANAGEMENT

- Adapting administration and decision-making processes to the consequences of climate change
- Protecting and restoring vulnerable habitats
- Greater reduction in emissions from nutrients and harmful substances
- Citizen involvement in decision-making
- Forecast and warning systems
- Flood protection improvements, e.g. levees
- Ensuring futures for people living in areas rendered uninhabitable by climate change

Based on the IPCC SROCC report results. © Finnish Meteorological Institute, Ministry of the Environment, and Climateguide.fi, 2019.

Risks to natural and human systems are expected to be lower at 1.5° C than at 2° C of global warming (high confidence).

Low-carbon road maps 2035 in Finland

- The government will work to ensure that **Finland is carbon neutral by 2035 and carbon negative soon after that.**

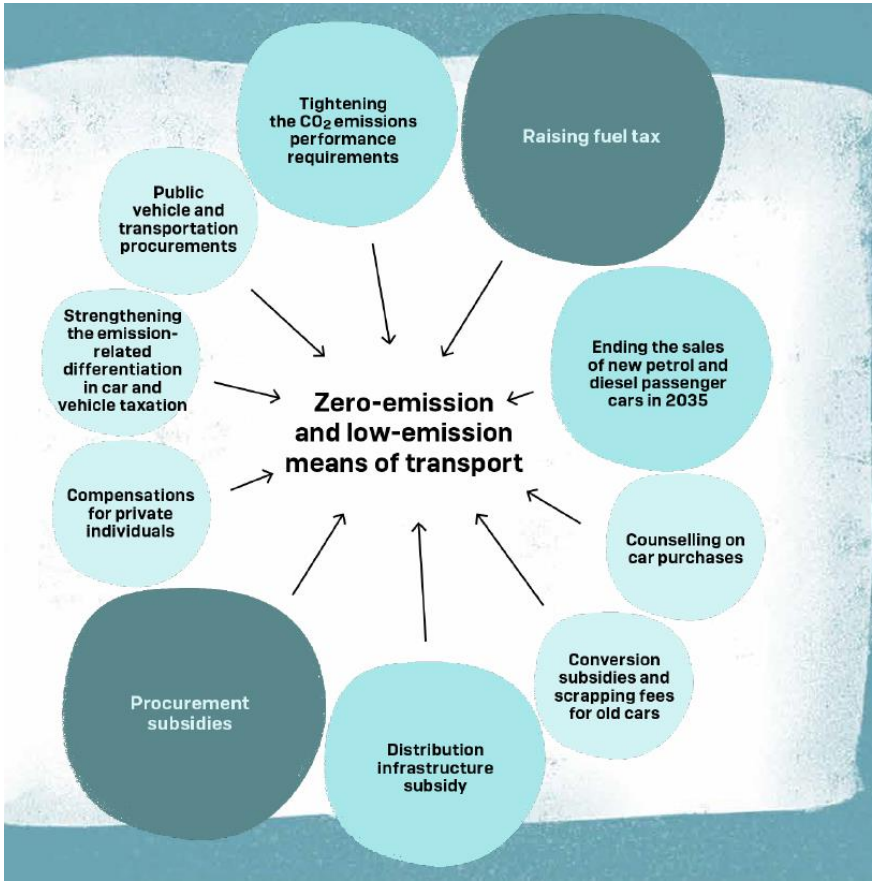
- The road maps will provide a **more detailed picture of the scale and cost** of the measures required.

- The preparation of road maps is well underway in many sectors, with com**pletion expected around May-June 2020:**
  - **Industry, construction, transport, agriculture and forestry**

Measures aiming at sustainable mobility

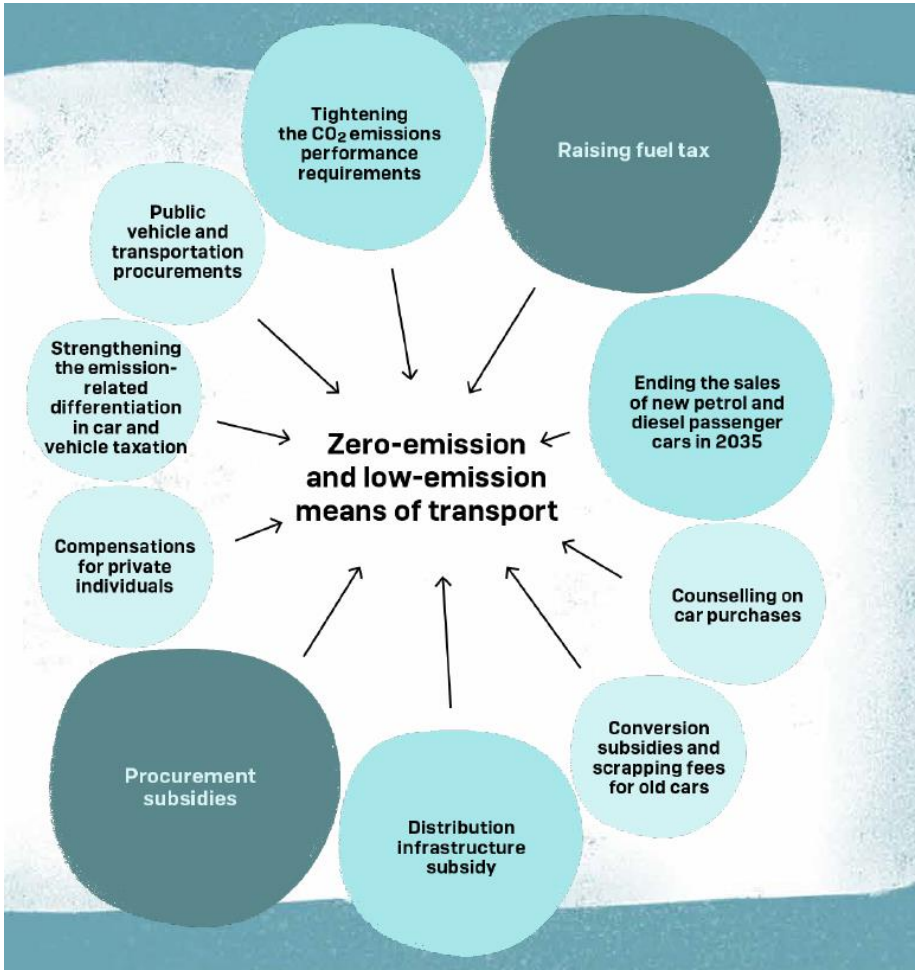
Finland's national energy and climate strategy includes a **target of halving year 2005 transport emissions by 2030 and achieving carbon-free transport by 2045.**

Transport Climate Policy working group in 2018



Picture: SYKE, Särkijärvi

Measures aiming at zero-emission and low emission vehicles



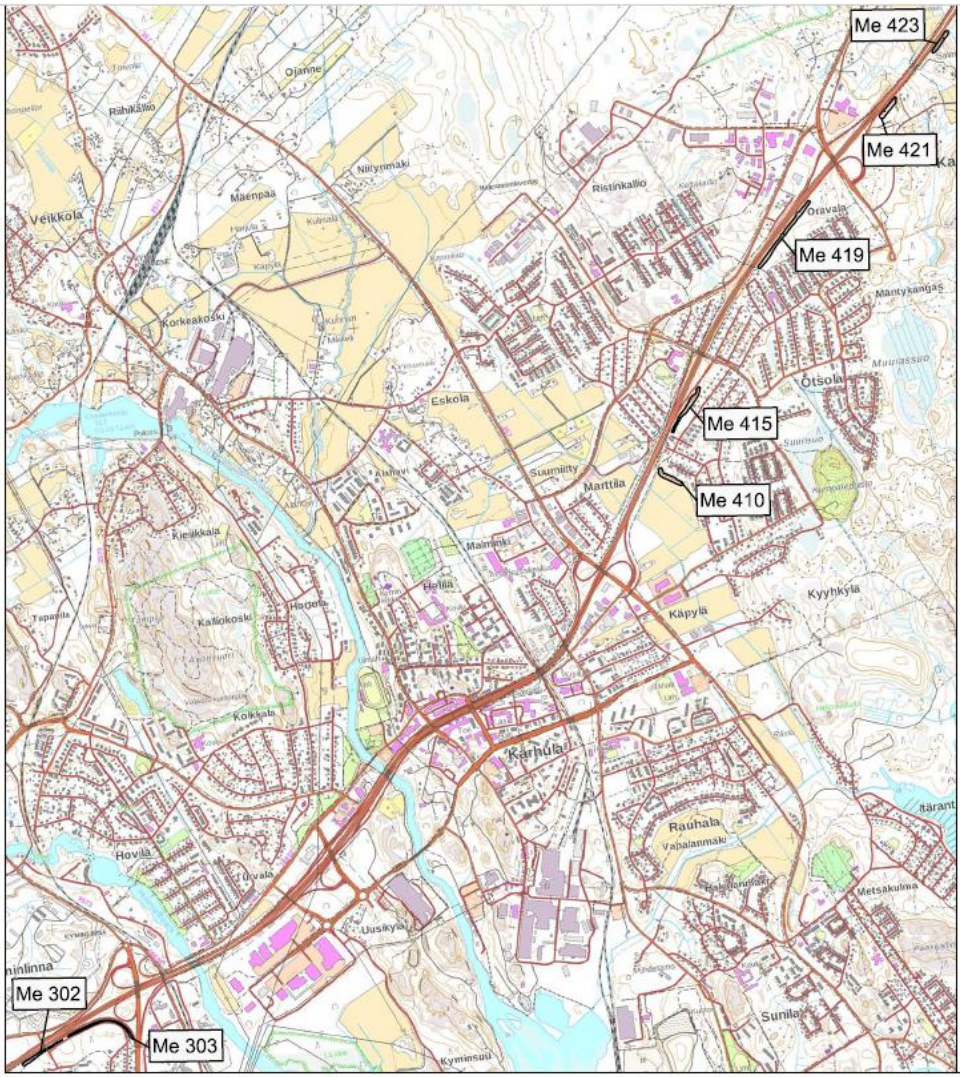
Picture: SYKE, Särkijärvi

Recycling projects in Kymenlaakso

Noise barriers of E 18 motorway (national road 7)

- Noise barrier number 423 in Karhula was the first sound barrier pilot in 2011 (**9000 t of furnace slag from waste incineration)**
- Noise barriers in Kyminlinna – Rantahaka, year 2013 (**60 000 t of bottom ash and 11 000 t of furnace slag**)
- Noise barriers in Virolahti near Vaalimaa by contractor YIT in 2016 (about **94 000 t of furnace slag ja 56 000 t of bottom ash)**

Noise barriers of E 18 motorway. All together dozens of kilometers



Upcoming project in Kymenlaakso road 15 Rantahaka; Kotka - Kouvola

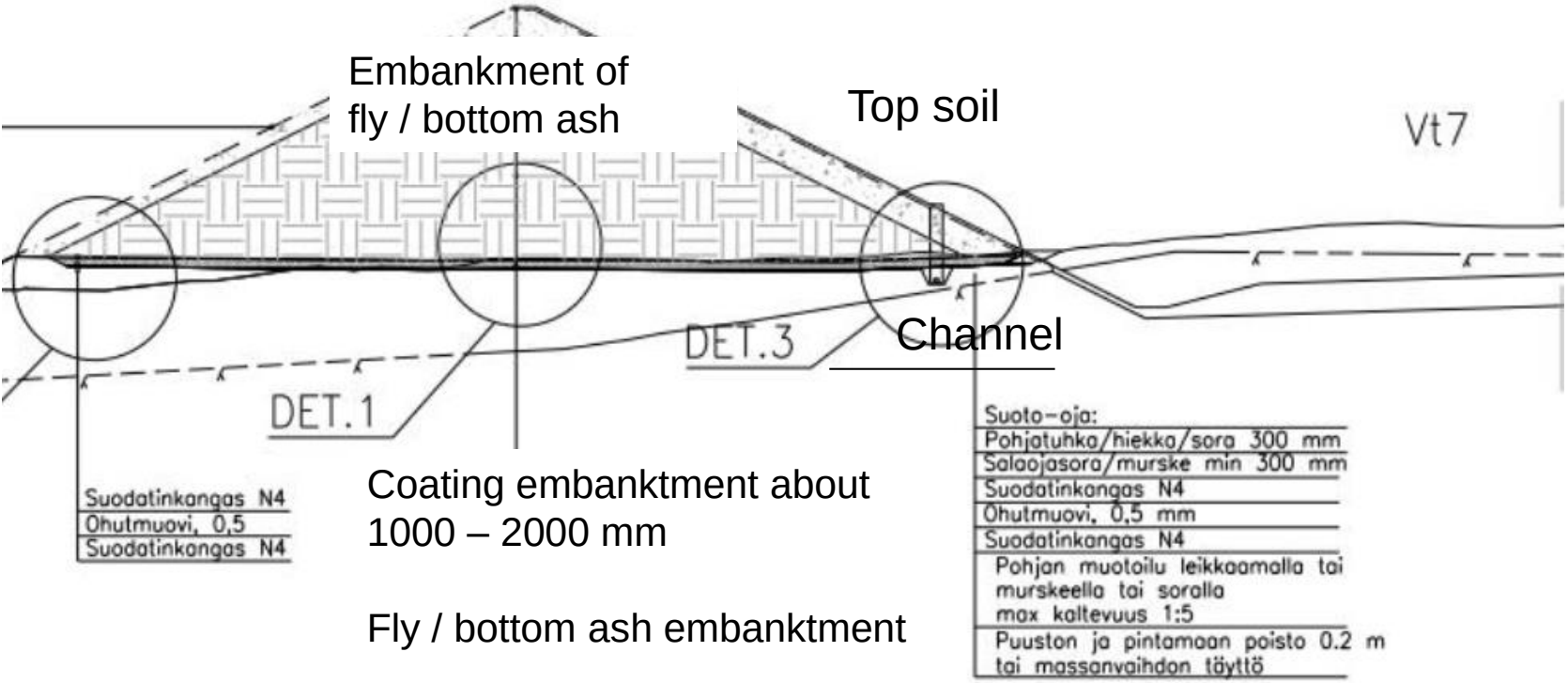
- Road 15 will be improved for about 32 kilometers
- Road construction with a fast line **will improve safety and reduce traffic congestion.**
- Project will **promote suntainable development by improving ecological, social and economical sustainabilyty.**
- There in no financing for the main project yet.

View of Leikari in Kotka at the start of road 15

Upcoming project in Kymenlaakso Road 15 Rantahaka; Kotka - Kouvola

- Highway noise barriers could be made of bottom ash: 250 000 building cubic metres
- **Environmental permit for construction is needed**. The permit under the Environmental Protection Act is required for activities that involve any risk of environmental pollution.
- The ash **can not be used in groundwater area** or around nearby wells. Monitoring is needed

Cross section of noise barrier



Coating embanktment about 1000 – 2000 mm

Fly / bottom ash embanktment

Waterproof (granular drain)

Geotextile
High-density polyethene
Geotextile

Natural ground

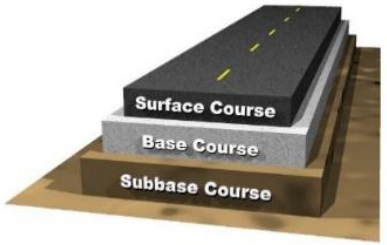
Photo: YIT Rakennus Oy, Virolahti E 18

Photo: YIT Rakennus Oy, Virolahti E 18

Instructions of Finnish Transport Infrastructure Agency

- The FTIA produces a **great deal of publications related to traffic and transport** infrastructure such as instructions and plans.

- **In ELY Centre**
  - **Recycled concrete can be used on subbase course**
  - **Bottom ash can be used on road embankments and in noise barriers**

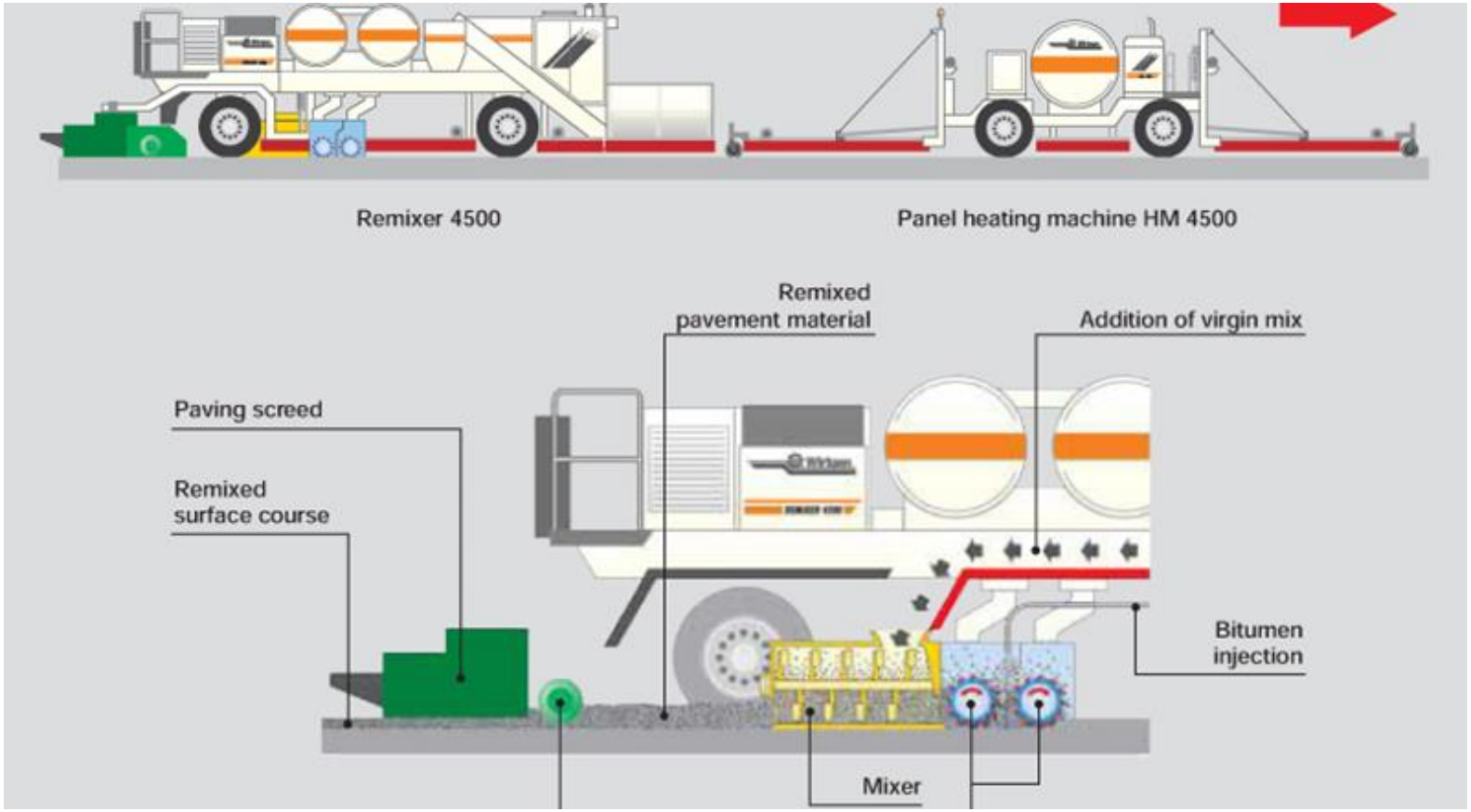


Hot-in-place asphalt recycling

- **One example of saving of natural resources by Remixing (REM)**
  - Heating of old surface course
  - Milling of old heated surface course
  - Soft bitumen is added to reclaimed asphalt
  - Mixture of reclaimed asphalt and new fresh mixture (20 - 25 kg/m^2) in the mixer on the road
  - Laying of the mixture (100 kg/m^2)
  - Compaction
  - Saves resources, money and time
  - **Lower CO_2 emissions during the life of the asphalt if part of the lifecycle**

Photo: YIT

Hot-in-place Asphalt recycling



Picture: Wirgten

Recycling of Asphalt Concrete

- The addition of reclaimed asphalt pavement (RAP = Reclaimed Asphalt Pavement) to an asphalt mixture on plant.

- Finnish Asphalt Spesifications 2017 (Pank ry) for layer:
  - ≤ 50 % RAP used for wearing course
  - ≤ 70 % RAP used for base course

- **Benefits: Reduced landfill, lower CO_2 emissions during the life of the asphalt if part of the lifecycle, reduced price.**

What could we do together to promote circular economy and prevent climate change?

Planet`s future is in our hands

Thank you for you attention

For more information please contact us:

Hanna Kailasto
Director of Strategy, Media and Communications Unit
Email Address: hanna.kailasto@ely-keskus.fi

Suvi Nirkko
Environmental Specialist, Transport and Infrastructure Unit
Email Address: suvi.nirkko@ely-keskus.fi