

MARA NORD PROJECT

Developing joint Nordic model for road condition monitoring with GPR method

FUNDED BY:

Interreg IV A North Programme,
Regional Council of Lapland,
and North Calotte Council

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**INTERREG
IV A NORD**



Gränslösa möjligheter
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TRAFIKVERKET

Liikennevirasto



Rovaniemen
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University of Applied Sciences



Centre for Economic Development,
Transport and the Environment



PROJECT PURPOSE

Mara Nord Projects Purpose was to demonstrate the potential of the GPR method for monitoring and evaluation of the quality of the pavement and road structures in Finland, Sweden and Norway.

The project purpose was achieved through cooperation between Finnish Swedish and Norwegian Transport Authorities, Universities, consultant companies and GPR manufacturers



COMMON CHALLENGES

- GPR method is complex
- The understanding and the use of the GPR method in Finland, Sweden and Norway is different
- The purchasing and controlling of the GPR services for Road Authorities can be challenging
- Selecting the right measurement can be challenging for Road Authorities
- The companies that provide GPR services need to meet different criteria's in each country. These requirements are not always clear
 - For the equipment standards
 - For the result interpretation requirements
- Providing of the services across the borders is complex and less profitable because of different regulations, standards and pricing
- The licenses for providing GPR services are expensive and compulsory in Finland
- The quality assurance of new asphalt pavements with GPR are still challenging

SOLUTIONS FOR THE CHALLENGES

1. Providing trainings

- Aimed at Road Authorities for purchasing GPR services (EDU1)
- Aimed towards GPR consultants, for providing GPR services (EDU2)

2. Harmonizing the recommendations and work towards common standards between Finland, Sweden and Norway

3. Benchmark different GPR units and antennas with an aim to highlight application techniques and usability

4. Promoting GPR method and dissemination of the project

5. Further tests and research of the quality assurance of new asphalt pavements

6. Project Management

PARTNERSHIP

- Swedish Transport Administration
- Norwegian Public Roads Administration
- Rovaniemi University of Applied Sciences
- Oulu University of Applied Sciences
- The Centre for Economic Development,
Transport and the Environment of Finland
Lapland
- Finnish Transport Agency (co-financed)



INTERREG IV/A/NORD

PROJECT TEAM

- Ideas was started by **Ari Karjalainen** and the project was planned during 2007-2009
- **Johan Ullberg** and **Leif Bakkløk** both where involved in the idea development
- **Janne Poikajärvi** joined the team and was assigned as project substance leader in RAMK
- **Per Otto Aursand** joined the project team soon after the beginning of the project
- **Martin Karlsson** got involved in the project after the company visits and was selected as the company representative in the project

PROJECT HAS SUPPORT FROM BUSINESS

- Finland
 - Carement Oy
 - Road Consulting Oy
 - Roadscanners Oy
- Sweden
 - Malå GeoScience AB
 - Ramböll Sverige Ab
 - Statens väg-och
- Norway
 - NCC roads
 - Sintef
 - 3D Radar

MARA NORD HAS ACHIEVED

- The trainings (EDU 1 and EDU 2) have been provided
- 5 Joint recommendations are written
 - Use of GPR in pavement design and road rehabilitation projects
 - Use of GPR in bridge applications
 - Use of GPR in site investigation
 - Use of GPR in road construction quality control
 - Use of GPR in Asphalt quality control
- Benchmarking of the different equipment has been done and is reported
- Further tests of the method have been carried out
- Project has been promoted in different forums
 - EGU 2011 and 2012 assembly
 - NDT magazine
 - Barents Transportation forum
- Three articles have been produced during the project and two seminar abstracts
- Reports and Recommendations available on <http://maranord.ramk.fi/>

Thank you to the Mara Nord team!

Welcome
and
enjoy the seminar!