The ROADEX Projects
Exchanging information on low volume roads across the European Northern Periphery

Krister Palo, Swedish Transport Administration
Project Coordinator, ROADEX IV
The ROADEX Project:

www.roadex.org
The “ROADEX” co-operation

• A “trans-national” network of Northern Periphery roads organisations committed to:
  • Share best practice
  • Research and develop new knowledge
  • Implement and test new solutions
→ FOCUS on low volume roads

• Running for 12 years over 4 projects
• Supported by EU funding from the Interreg Northern Periphery Programme.
The ROADEX IV Partners:

- Lead Partner, The Swedish Transport Administration Northern Region, The Swedish Forest Agency
- Centre for Economic Development, Transport and the Environment, Lapland, Keski-Suomi and Savo Karelia regions
- The Government of Greenland
- The Icelandic Road Administration
- The Northern Region, Norwegian Public Roads Administration
- The Highland Council, The Western Isles Council, Forestry Commission Scotland
- The National Roads Authority, The Department of Transport, Ireland
- Associate Partner: The Forest Engineering Research Institute of Canada, (FERIC)
- Project Consultant: Roadscanners Oy, Finland
ROADEX IV
4 projects since 1998:

- **ROADEX I**
  1998-2001
  The Pilot Project

- **ROADEX II**
  2002-2005
  The Research Project

- **ROADEX III**
  2006-2007
  The Dissemination Project

- **ROADEX IV**
  2009-2012
  The Implementation Project

Timeline:
Why are we collaborating?

- **Common problems and challenges** of:
  - Mature road networks in peripheral areas
  - Low traffic volumes
  - Lifeline roads to remote communities
  - Limited budgets
  - Increasing user expectations
  - Changing climate

- Looking for **sustainable solutions**:
  - Affordable
  - Fit for purpose
  - Environmentally sustainable

- All need to get **MORE from LESS**
A Functioning Road is Essential not only for the Rural Survival but also for the Whole Society

Almost 100% of the product transportation of

- farming
- fishing
- forest industry
- aggregate industry

.... and also mining

are using low traffic volume road network!
Challenges for Road Condition Management: Meeting Accessibility & Safety Demands
Challenges:
Higher total weights, higher tyre pressures
Challenges:
Aging Road Structures
Challenges: Current Design and Dimensioning Methods are made for High Traffic Volume Roads

Elastic response

Permanent deformation
Challenges: Global Warming, Environmental Awareness

Rossby Centre Rainfall Scenarios

winter

summer

Saarelairen & Makkonen 2007
Challenges: Disappearing knowledge
Modern production "the management of logistical chains"

End User Needs: Increasing Heavy Traffic

Road Owner Obligations: Road Network Performance

How to close the Gap?

Reaction / Decision Making

LOAD / TRAFFIC RESTRICTIONS

MAINTENANCE / REHABILITATION MEASURES

NO MEASURES

Reducing road funding

www.roadex.org
The Northern Periphery Programme area
The ROADEX approach:

• **Map** the weak sections of road and **FOCUS** in on them
• **Understand** the processes causing the problems
• **Innovate** - find new ‘fit for purpose’ structures and treatments

= efficiency, savings & sustainability
ROADEX I-IV research outputs

- A user perspective on ROADEX test areas’ road network service level
- Permanent deformation
- New material treatment techniques
- Managing spring thaw weakening on low volume roads
- Socio-economic impacts of road conditions on low volume roads
- Drainage on low volume roads
- Dealing with bearing capacity problems on low volume roads constructed on peat
- Environmental guidelines & checklist
- Structural Innovations
- Monitoring, communication and information systems & tools for focusing actions
- Road management policies for low volume roads – some proposals

- Vibrations and health issues
- Road policies
- Climate change
- Road widening

All reports available at www.roadex.org
Demonstration projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Leader</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drainage maintenance</td>
<td>Timo Saarenketo</td>
</tr>
<tr>
<td>Low impact vehicles &amp; TPC</td>
<td>Pauli Kolisoja</td>
</tr>
<tr>
<td>Forest road policies</td>
<td>Svante Johansson</td>
</tr>
<tr>
<td>Design against rutting</td>
<td>Pauli Kolisoja</td>
</tr>
<tr>
<td>Roads on Peat</td>
<td>Ron Munro</td>
</tr>
<tr>
<td>Driver vibration</td>
<td>Johan Granlund</td>
</tr>
</tbody>
</table>

7 countries, 11 partners, > 23 demos
The ROADEX Knowledge Centre

www.roadex.org
ROADEX E-Learning packages

E-Learning
An extension of the e-learning project. This permits the production of additional educational material and graphics to make the package more complete and attractive to users.

Lesson 1
Permanent Deformation
The importance of the road network to a society can be compared with the vascular system of a human body.

Lesson 2
Road Construction Over Peat
The importance of the road network to a society can be compared with the vascular system of a human body.

Lesson 3
Drainage of Roads
The importance of the road network to a society can be compared with the vascular system of a human body.

Lesson 4
Environmental Considerations for Low Volume Roads
The importance of the road network to a society can be compared with the vascular system of a human body.
New survey methods to help designers focus on problem sections and make correct diagnoses;

New risk assessments methods for heavy traffic on public and forest roads;

New models for designing road structures against permanent deformation;

New guidance for rehabilitating low volume roads;

New training packages for in-house & external staff;

New techniques for real time road condition monitoring;

New information for political decision makers regarding the importance of rural road conditions;

And many others …..
BENEFITS OF ROADEX COOPERATION:

• Sharing r&d investment sharing innovations & benefits

• Harmonization of road management standards and practises

• Money savings (20-50 %): in spite of reduced funding general rural road condition is still in acceptable level

• Increased traffic safety

• Decreased health risks for professional road users
ROADEX network have been awarded in 2009 Regio Stars competition in the category of:

Research, Technological Development and Innovations
Thank you

www.roadex.org
Diploma course in operation and maintenance of roads and green areas

A co-operation between University of Copenhagen (Forest and Landscape) and the Danish Road Directorate

NVF/BRA seminar on Summer Operations
May 18th-19th 2011 in Stockholm
Søren Gludsted
Job satisfaction

1. Healthy working environment
2. Great colleagues
3. Meaningful job
4. Good management (nearest manager)
5. Participation in decision making
6. Opportunity for professional and personal development
7. Responsibility
8. Making a difference
9. Job flexibility
10. Caring management (nearest manager)
11. Possibility of obtaining job results
12. Decent salary
13. Safety in employment
14. Good career possibilities
15. Status and respect
16. Employee benefits
Competence development

- "Diploma course in operation and maintenance of roads and green areas" are carried out by the Danish Road Directorate in cooperation with University of Copenhagen and Training Center for Road Sector.
- The course aims for the generalist level at specialists, operation and management superiors, road inspection employees and contract managers etc.
- The course is also open for contractors and consultants, see next page.
# Course participants

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
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</thead>
<tbody>
<tr>
<td>Municipalities</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>The Danish Road Directorate</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Operation and maintenance contractors</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Consultants</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>20 (max.)</td>
<td>26 (max.)</td>
</tr>
</tbody>
</table>
Park diploma course structure 2010

- The course is a part of the Park diploma education
- Completion equals 60 ECTS points

- Financial management 9 ECTS
- Communication and management 9 ECTS
- Assignment management 12 ECTS
- Assignment sharing 15 ECTS
- Operation and maintenance control 9 ECTS
- Construction management 9 ECTS
- Health design 6 ECTS
- Operation and maintenance of roads and green areas 12 ECTS
- Examination project 15 ECTS
Diploma course in operation and maintenance of roads and green areas

The diploma course in operation and maintenance of roads and green areas is build up in three blocks, each of 3 days (in 2011), and an examination.

There is much homework and a final exam.

<table>
<thead>
<tr>
<th>Block 1:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Settings for operation and maintenance</td>
</tr>
<tr>
<td>• Operation and maintenance in the economics</td>
</tr>
<tr>
<td>• Who shall carry out the operation and maintenance tasks</td>
</tr>
<tr>
<td>• Organization at the entrepreneurs</td>
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<tr>
<td>• Economic prioritizing of tasks</td>
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<tr>
<td>• How the operation and maintenance is carried out in other countries</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Block 2:</th>
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<tbody>
<tr>
<td>• Tenders and contracting</td>
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<tr>
<td>• Form of collaboration</td>
</tr>
<tr>
<td>• The tender material</td>
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<tr>
<td>• Selection and allocation</td>
</tr>
<tr>
<td>• Settlings of accounts form of construction</td>
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<table>
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<tr>
<th>Block 3:</th>
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<tbody>
<tr>
<td>• Managing economy</td>
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<tr>
<td>• Managing time</td>
</tr>
<tr>
<td>• Managing quality</td>
</tr>
<tr>
<td>• Trim of operation and maintenance</td>
</tr>
<tr>
<td>• Management of the co-operation</td>
</tr>
<tr>
<td>• Management of disagreements and conflicts</td>
</tr>
</tbody>
</table>
In block 1 and 2 there are excursions, eg. to the Garden of Frederiksborg Castle in Hillerød
**Course structure change from 2012**

In 2011, the course contains module 1  
In 2012 there will be a module 2 about Quality Management

<table>
<thead>
<tr>
<th>Module</th>
<th>Block</th>
<th>Days</th>
<th>Details</th>
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<tbody>
<tr>
<td>Module 1</td>
<td>Block 1</td>
<td>3</td>
<td>Organisation and planning of operation and maintenance</td>
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<tr>
<td></td>
<td>Block 2</td>
<td>3</td>
<td>Purchase of operation and maintenance contractors</td>
</tr>
<tr>
<td></td>
<td>Block 3</td>
<td>2</td>
<td>Execution of operation and maintenance</td>
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<tr>
<td></td>
<td>Examination</td>
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<tr>
<td>Module 2</td>
<td>Block 1</td>
<td>3</td>
<td>Quality and management</td>
</tr>
<tr>
<td></td>
<td>Professional day</td>
<td>1</td>
<td></td>
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</tbody>
</table>
Module 1. Home work, papers of reflection and examination

Theme reflections are editors of the “work papers” which are continuously prepared.

Home assignments 1 and 2 are a part of the examination report as enclosures, and there will be references to these when relevant in the theme reflections and perspectives.

Networking is an essential part of the course!
Diploma course in operation and management of roads and green areas

Link:  