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ROADEX Update

Ron Munro, ROADEX IV Project Manager

ROADEX Workshop in Ireland
Carrick-on-Shannon, 27 October 2011

EU Northern Periphery Programme

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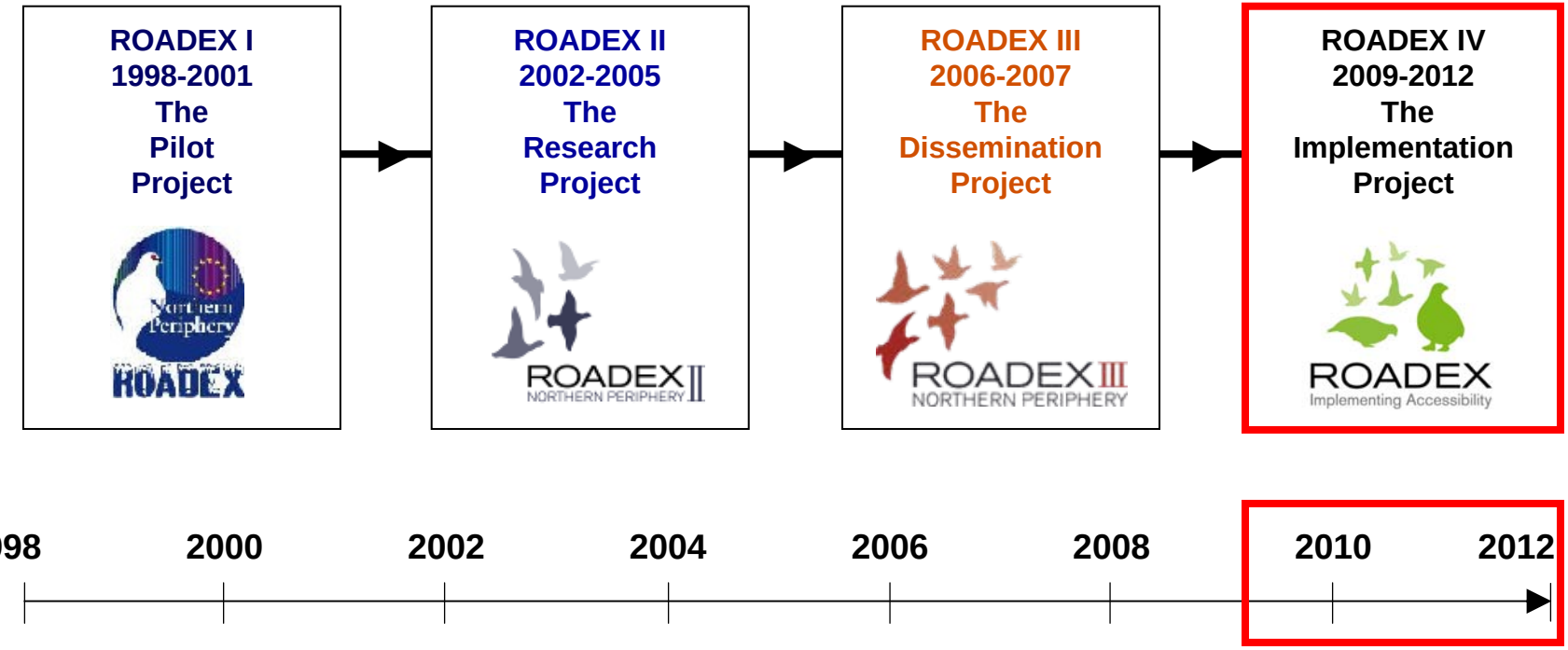
The ROADEX projects 1998 - 2012:



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The ROADEX 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 regio

The Government of Greenland

The Icelandic Road Administration

The Northern Region, Norwegian Public Roads Administration

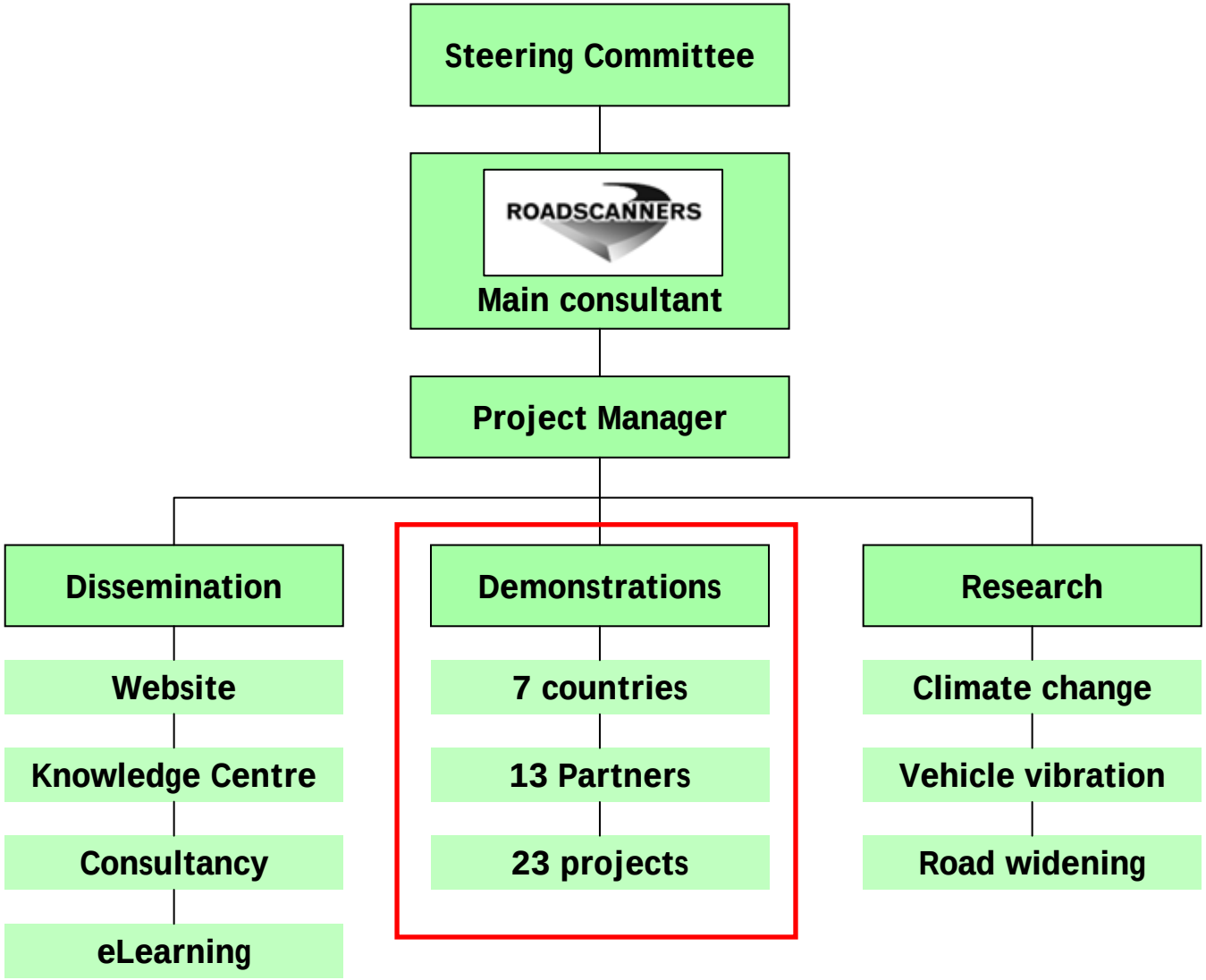
The Highland Council, Forest Enterprise,
Comhairle Nan Eilean Siar

National Roads Authority,
Department of Transport, Ireland

Associate Partner:
The Forest Engineering Research Institute of Canada, (FERIC)

Project Consultant: Roadscanners Oy, Finland

The ROADEX IV Project



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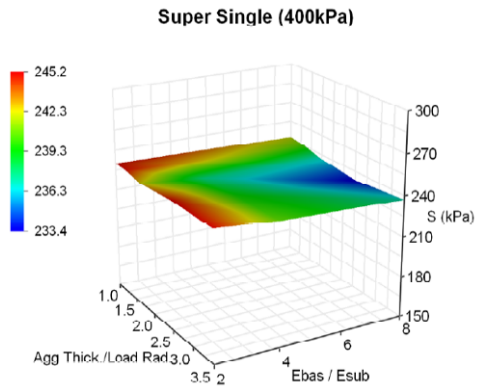
ROADEX demonstration projects

Drainage guidelines
Timo Saarenketo

Road friendly vehicles & TPC
Pauli Kolisoja

Forest road rehabilitation
Svante Johansson



Design against rutting
Pauli Kolisoja

Roads on Peat
Haraldur Sigursteinsson

Driver vibration & health
Johan Granlund

Locations of demonstrations:

- **Location of a demonstration project**

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Demonstration projects:

Original plan to NPP:
23 demonstrations

Current plan:
28+ demonstrations

No	Location	Description
1	Greenland	Drainage surveys in Greenland (2)
2	Iceland	Drainage surveys in Iceland
3	Ireland	Drainage surveys in Ireland (2)
4	Norway	Drainage surveys in Norway
5	Highland	Drainage surveys in Highland
6	Western Isles	Drainage surveys in Western Isles
7	Sweden	Drainage surveys in Sweden
8	Highland	TPCS Stynie Wood, Scotland
9	Finland	TPCS Javarus Percostation. Finland
10	Finland	TPCS slippery road, Finland
11	Highland	Gleann Mor Forest Road
12	Highland	Glen Fiddich Forest Road
13	Sweden	Timmerleden Forst Road
14	Finland	Permanent deformation, Ehikki-Juokslahti drainage I
15	Finland	Permanent deformation, Ehikki-Juokslahti drainage II
16	Finland	Permanent deformation, Ehikki-Juokslahti III geo-reinforcement
17	Finland	Permanent deformation, Rd 16589 Saalahti geo-reinforcement
18	Finland	Permanent deformation, Humalamäentie, 'Tirkkonen method'
19	Sweden	Permanent deformation, Rd AC 1093 Morkan - Dikanäs
20	Sweden	Permanent deformation, Selet - Boden, (with LTU)
21	Ireland	Roads on Peat, N59 Newport - Mulranny, Co. Mayo
22	Ireland	Roads on Peat, N56 Drumnaraw - Cashelmore, Co. Donegal
23	Finland	Vibration & health, Hwy 21 Kilpisjarvi - Kaaresuvanto
24	Finland	Vibration & health, Palojoensuu - Enontekis - Raattama - Muonio
25	Highland	Vibration & health, Kilmallie Sawmill at Corpach, Fort William
26	Highland	Vibration & health, A82 Fort William - Inverness
27	Norway	Vibration & health, Oslo - Finnsnes
28	Sweden	Vibration & health, Road 331, The Beaver Road

(Locations & types of demonstration projects selected by the local Partner)

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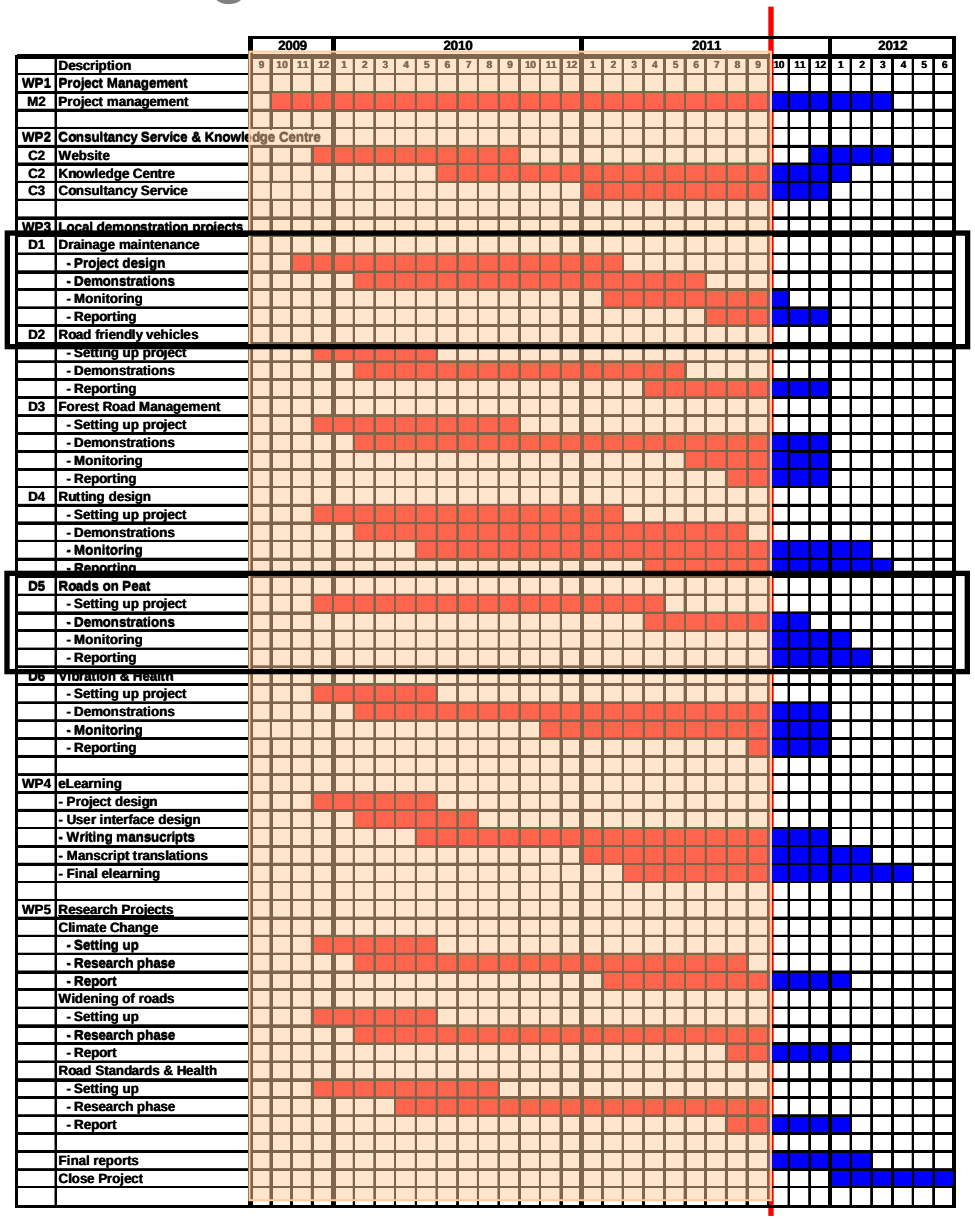
Project status for SC meeting,13 October 2011

- Project generally on plan
- Website in place and current
- Ave 4,500 hits per month
- Knowledge Centre up to date
- “ROADEX Consultancy" active
- Demonstration projects underway
- Reports being produced
- Seminars & workshops being held
- Publicity & communication continuing



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ROADEX IV reports produced to date:

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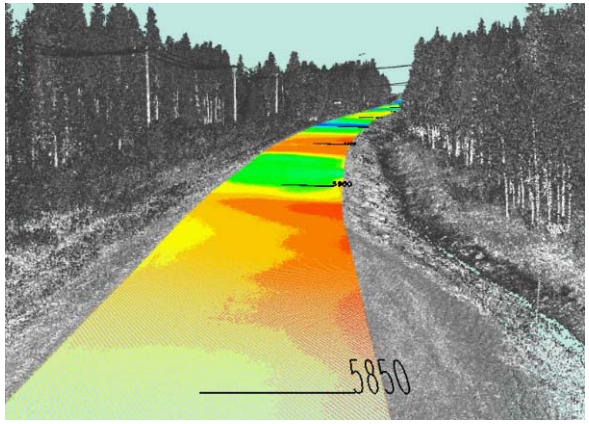
Examples of work in progress:

Trialing methods to minimise permanent deformation on peat

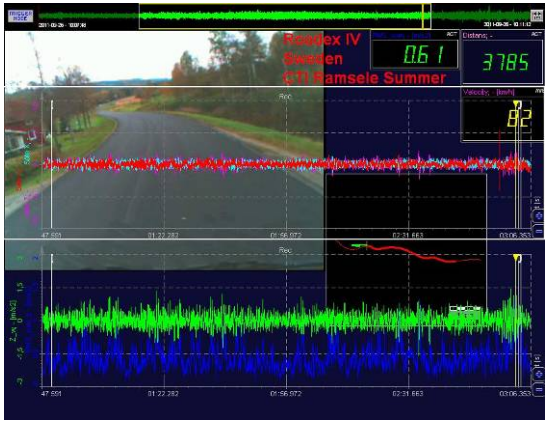
Improving the ROADEX road design methodology with new data

Monitoring the benefits of TPCS on timber haulage vehicles



Using laser scanning and point cloud technology in frost heave analysis

Demonstrating ROADEX drainage surveys and analysis



Measurements of vibration in vehicles and drivers

(Drainage, risk analyses and roads on peat covered today)

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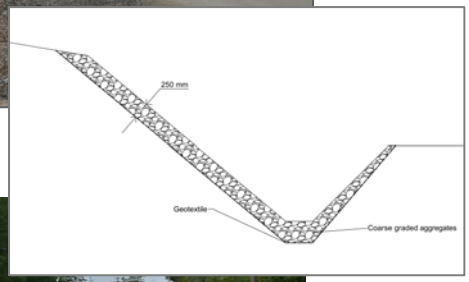
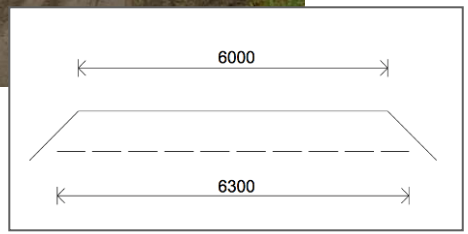
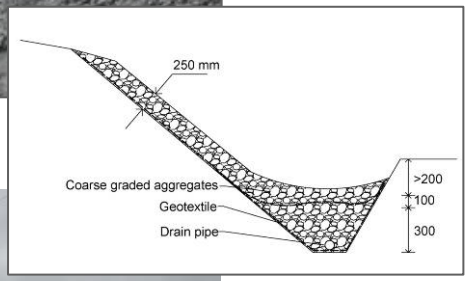
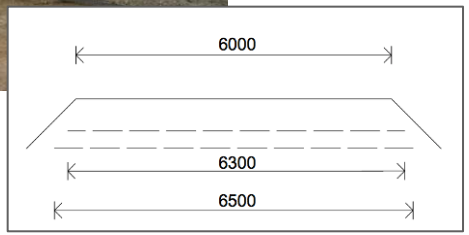
Demonstrations of design against rutting

(Tampere University of Technology)









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Demonstrations of design against rutting

Coarsening of a roadbase by stone crushing

Experience in Ireland!

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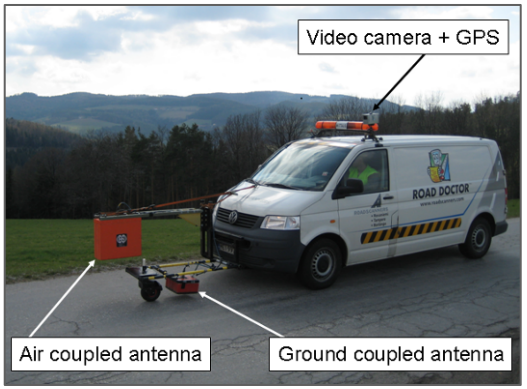
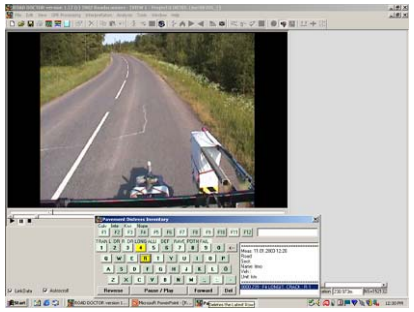
“Timmerleden” Forest Road, Sweden

Competition: (a) Skogsstyrelsen, (b) SCA Skog AB, (c) Sveaskog AB, (d) Roadscanners Oy



Winner = Roadscanners Oy
using the ROADEX design method:

- Step 1 – Collection of data
- Step 2 – Project setup; processing and interpretation of data
- Step 3 – Modulus calculations for road structure and subgrade soil
- Step 4 – Calculation of the initial bearing capacity of the road
- Step 5 - New design; Determining the target bearing capacity
- Step 6 – Checking the design with additional data



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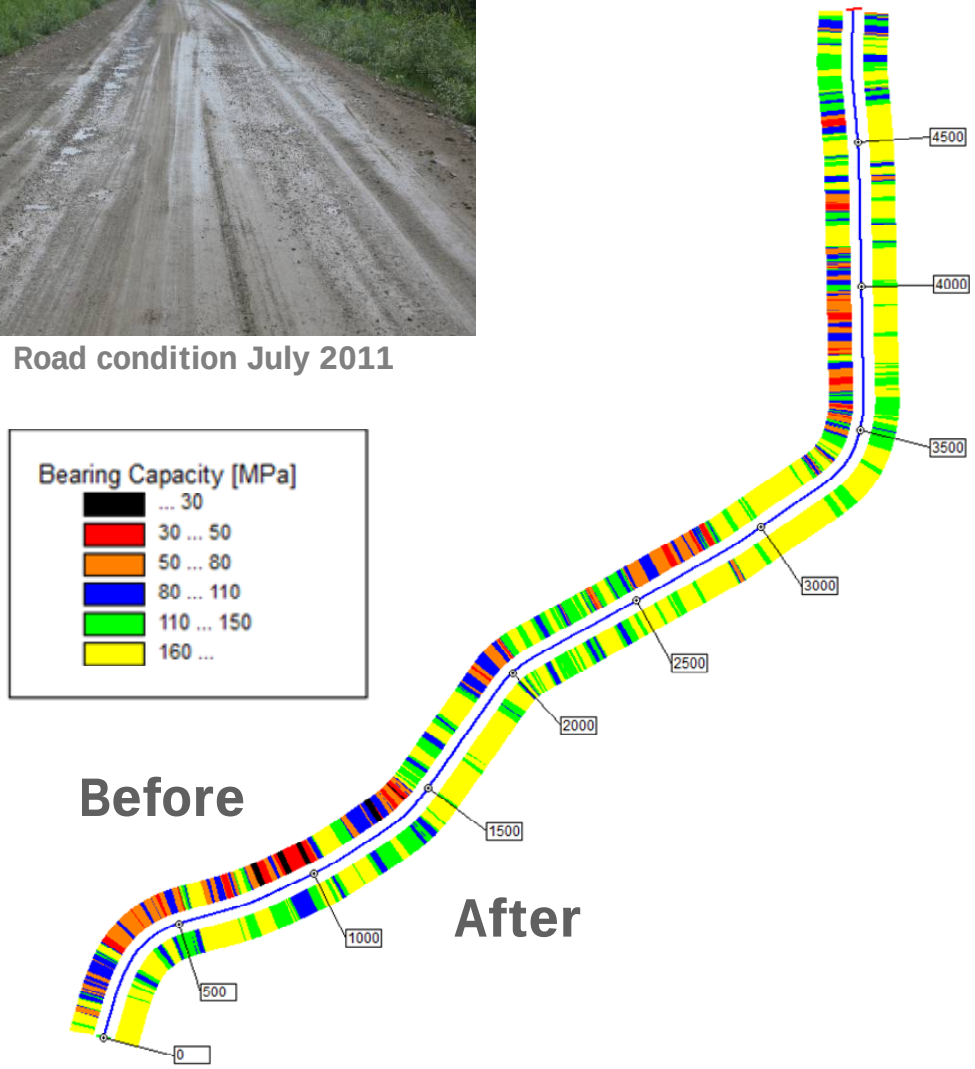
Timmerleden Forest Road Rehabilitation

Road condition July 2011



Bearing capacity before and after rehabilitation

Road condition October 2011

Result = saving of 15% - 50% of normal Partner works

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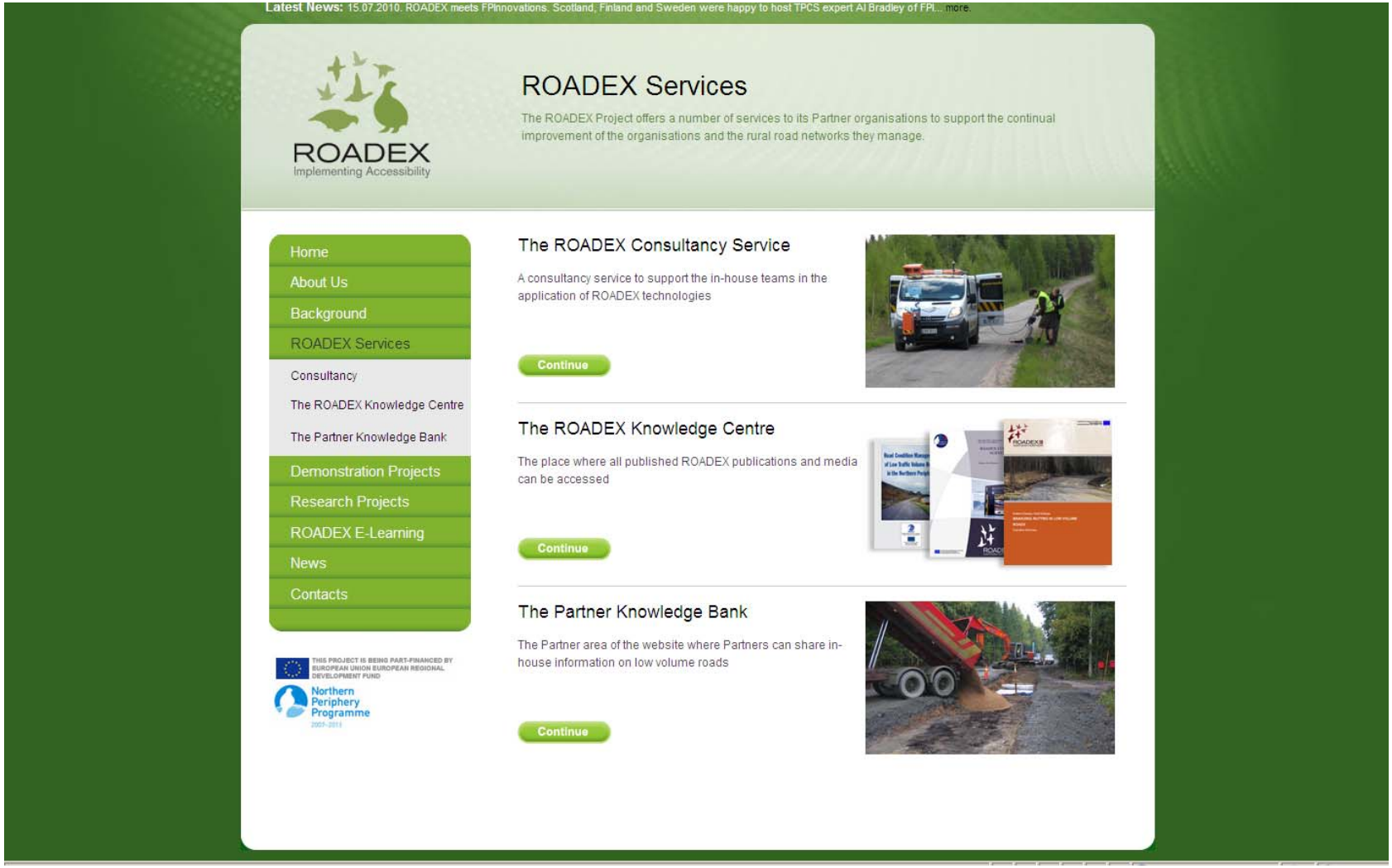
The ROADEX website: www.roadex.org



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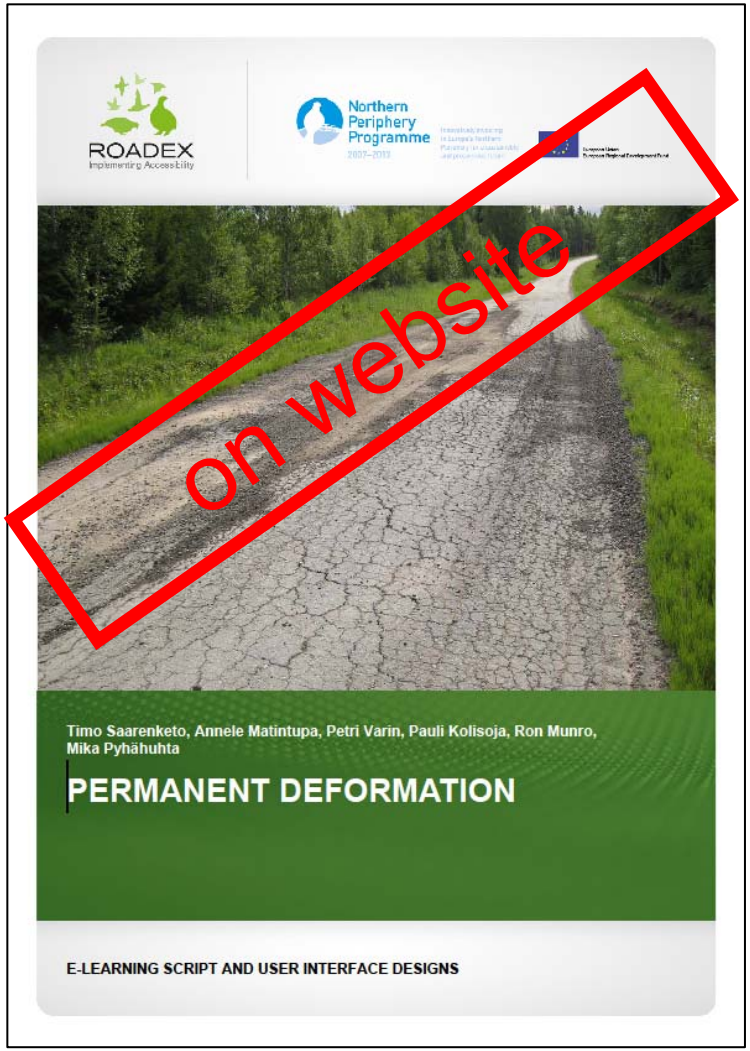
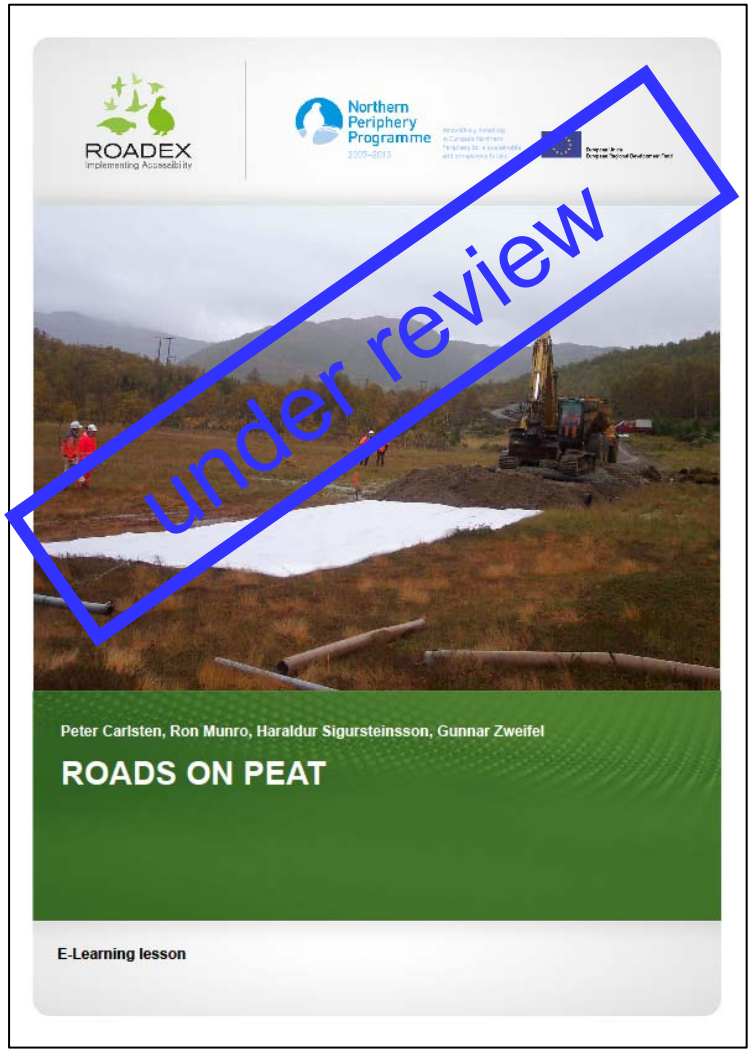
The ROADEX Knowledge Centre: 12 years of ROADEX

Studies, reports, methododologies, techniques, case histories, …

ROADEX E-Learning lessons

Link: http://www.roadex.org/index.php/e-learning/permanent





In preparation: Drainage of roads, Environmental considerations for low volume roads

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The ROADEX Project:

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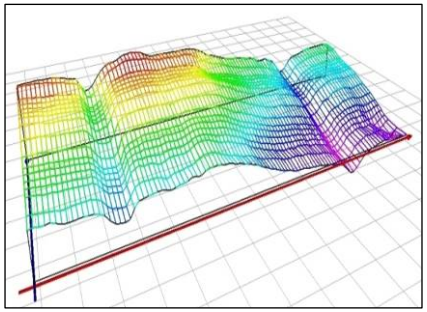

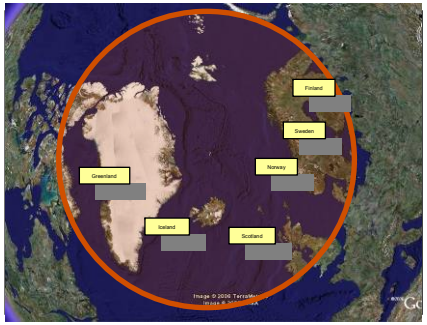

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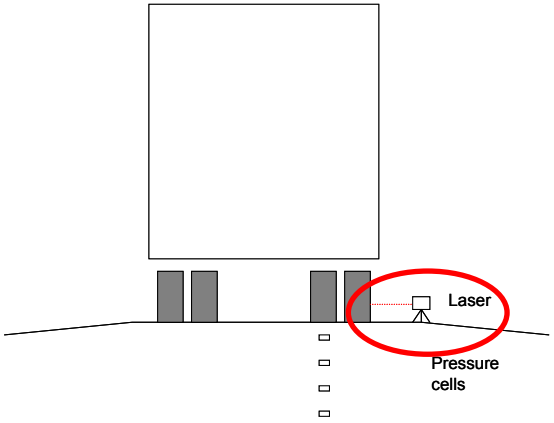
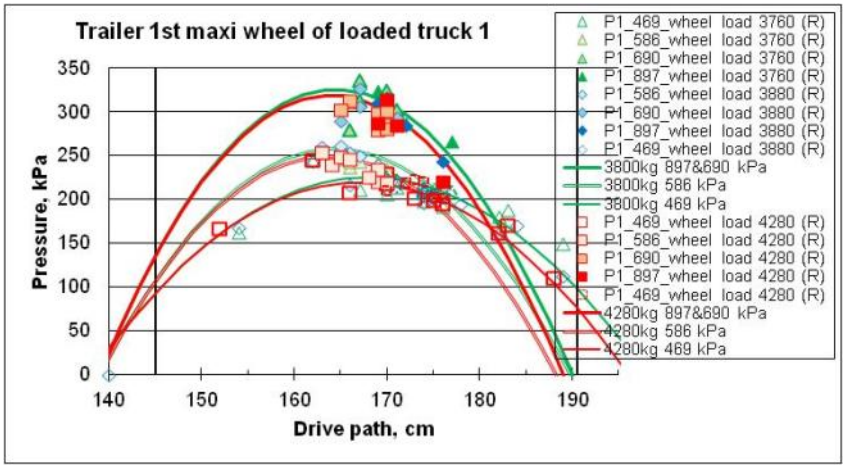
Demonstrations of Tyre Pressure Control (TPC)

Effect of variable tyre pressure with depth:



Driving line of vehicle over pressure cells



Effect of tyre pressure lowering observed at the depths of 70 and 150 mm but hardly any effect at 240 and 370 mm – basically as expected.