



XIII
INTERNATIONAL
WINTER ROAD
CONGRESS

QUÉBEC, FEBRUARY 8 TO 11, 2010



Québec 

SUSTAINABLE WINTER SERVICE FOR ROAD USERS

*Winter Service Planning and Management in
Slovakia*

Jan Sedivy

Slovak Road Association

Chairman

sedivy@apvv.sk



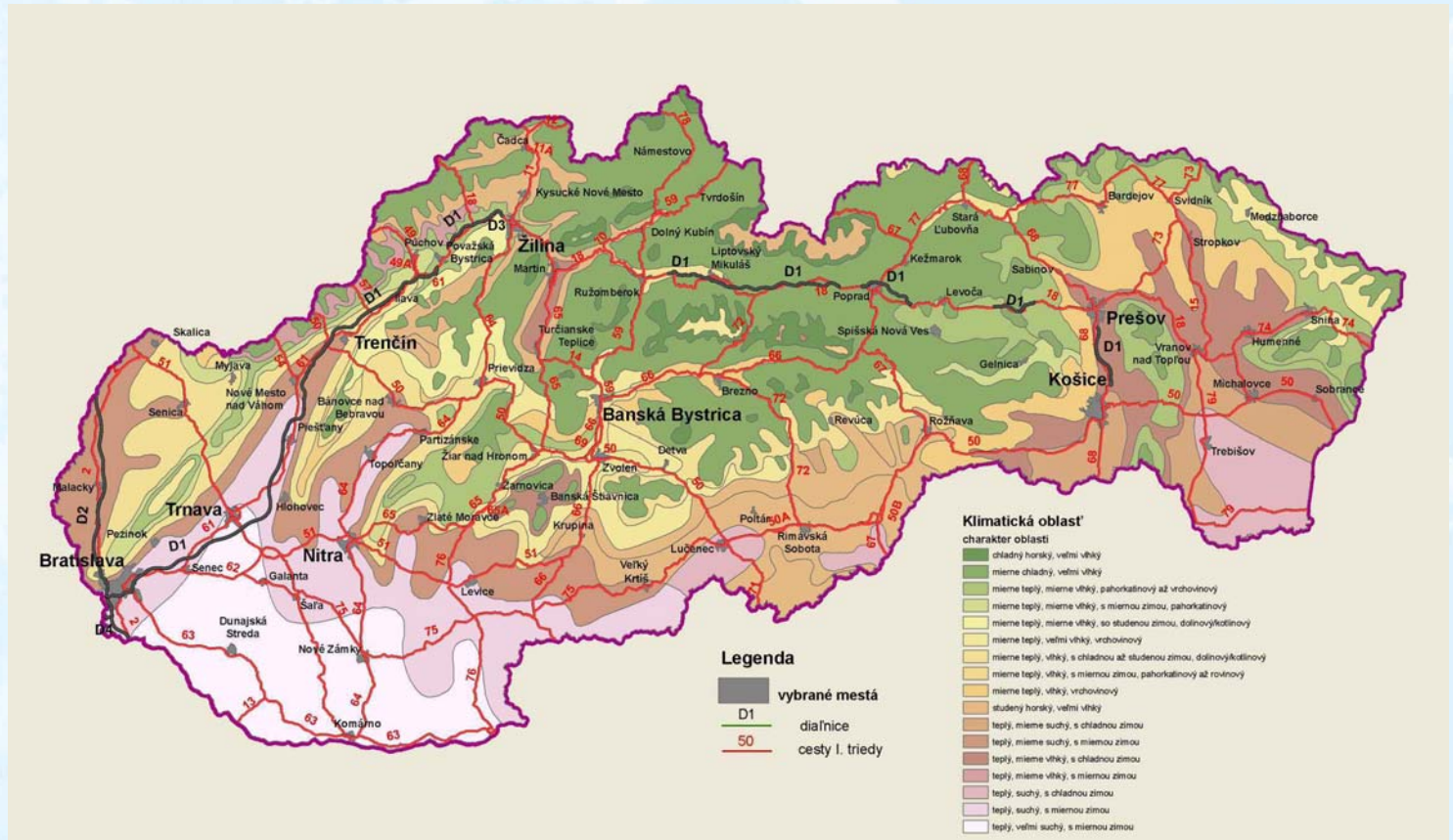
*Slovenská
cestná spoločnosť*

Introduction

- Slovakia
 - area 49 000 km², population 5.4 mil.
 - strategic position in Europe
 - winter service is priority – significant part of budget
- Slovak Road Network
 - length 43,858 km (urban roads 25,942)
 - density 894.4 km/1,000 km², 8.1 km/1,000 inhabitants
- Road Administration
 - decentralisation of road ownership and administration from the state to regions
 - structural changes in road management – necessity to solve winter service in new conditions

Climate Conditions

- North Temperature Zone, rotation of four seasons
- average temperature: winter -2°C , summer $+21^{\circ}\text{C}$
- wide scale of climate areas from a warm, very dry with mild winter (white color) to cold, very moist mountainous (dark green)



Road Management Transformation

- before transformation
 - motorways, expressways, 1st, 2nd and 3rd class roads were in state ownership; administration and maintenance performed by Slovak Road Administration – state budget organisation; urban roads under cities
- after transformation
 - 1. step (since 2004) – 2nd and 3rd class roads (14,089 km) are owned and operated by self-governing regions
 - 2. step (since 2005) – motorways and expressways (552 km) are under National Motorway Company (NMC) – joint stock company with 100% state participation
 - 1st class roads (3,275 km) – owned by state – responsible Slovak Road Administration (maintenance and repair performed by regions or NMC - contracts).
 - urban roads (25,942 km) – under cities

Winter Service Cost

- increase of costs for all maintenance (5,3%) and also for winter maintenance (20,4%) in 2008 (comparisom with 2007)
- winter maintenance: 23,8% of all maintenance costs (2007)
27,2% (2008) (mil.EUR)

Year	2007		2008	
Administrator	All mainten.	Winter maintenance	All mainten.	Winter maintenance
Slovak Road Administration	34.521	7.443	34.517	10.954
National Motorway Company	18.366	5.261	20.498	5.176
Self-governing regions	76.635	18.119	81.389	20.975
In total	129.522	30.823	136.423	37.105

- winter maintenance - expenditures:
 - motorways and expressways 9,375 EUR/km
 - 1st class roads 2,972 EUR/km
 - 2nd and 3rd class roads 1,489 EUR/km

Winter Service after Transformation

- decision to preserve Central Winter Service Management System (according to positive previous experience)
- changes in the Road Law:
 - Winter Service Operational Plans must be submitted by the individual road administrators to the Ministry of Transport for approval
 - road administrators are responsible for provision some operational data for Central Information System free of charge

Winter Service Operational Plan (WSOP)

- managing document for winter service
- drawn up on annual basis before season
- prepared by individual administrator within the scope of its competency and specific conditions
- based on analysis of the previous winter seasons
- has aim to ensure organisational and technical uniformity of winter service
- defined content and structure:
 - determination appropriate technology for differ.conditions
 - set-up of the standards for winter maintenance
 - determination of regime for data delivery to system
 - designation of winter service staff
 - solving of emergency situation etc.

Integrated Information System

- other element to ensure uniformity of winter service
- works at two levels:
 - Central Dispatching and Reporting Service (CDRS)
 - Dispatching and Reporting Service of road administrator
- system works in non-stop regime
- data collected from 156 service units (road administrators)
- CDRS operated by Slovak Road Administration under the authority of Ministry of Transport
- information flow from service units is performed on-line via Internet
- content of reports to CDRS:
 - current weather
 - information on road surface conditions
 - information on non-passable sections (reasons)

Integrated Information System

- Importance:
 - monitoring and supervising of passability of roads
 - using of crucial information for solution calamities
 - on-line presentation situation for public use
 - immediate feedback for service units about weather situation for whole territory – possibility to prepare machinery and people in advance for intervention
- Outputs:
 - tabs
 - maps - generated automatically (passability, current weather etc.)
 - brief notes on situation concerning the roads, mountain passes, tunnels etc. – important when emergency situation occur

Graphic Display of Road Passability - example

• Click

Mapy počasia a zjazdnosti - SSC Extranet - Mozilla Firefox

Súbor Upraviť Zobrazit' História Záložky Nástroje Pomocník

http://sscextranet.devel.weldun.sk/roadmon/map/view.html?zoom=1&longitude=19.42.03&latitude=48.40.20&profile=passability

Najobľúbenejšie Ako začať Prehľad správ HP Color LaserJet 2605... W Wikipédia

Mapy počasia a zjazdnosti - SSC E... x

SLOVENSKÁ SPRÁVA CIEST

HOME STRÁNKA SSC | CESTNÁ DATABANKA | SSC EXTRANET ZJAZDNOSŤ.SK

Prihlásený používateľ: Mgr. Daniel Volár Odhlásiť

SSC Extranet

Monitoring zjazdnosti ciest

- Hlásenia
- Udalosti
- Výstrahy
- Správa o zjazdnosti
- Prehľad počasia
- Prehľad zjazdnosti
- **Mapy počasia a zjazdnosti**
- Aktuálnosť údajov
- Štatistika
- Administrácia
- Nastaviť checkpoint

Technológie on-line

Adresárové služby

Odhlásiť

Mapy počasia a zjazdnosti

Zjazdnosť ciest

Veľká mapa

Mapa farebne zobrazuje stav vozovky na sledovaných úsekoch. Farby majú nasledujúci význam:

■ suchá vozovka	■ vlhká alebo mokrá vozovka
■ zasnežená vozovka	■ poľadovica alebo uzatvorený úsek
■ stav neznámy	

Ovládanie mapy:

Informácie: Kliknutím ľavým tlačidlom myši si vyžiadate zobrazenie podrobnejších informácií o objekte alebo o objektoch, nachádzajúcich sa pod kurzorom a v jeho blízkosti.

Zoom in: Dvojitém kliknutím zobrazíte mapu v podrobnejšej mierke, pričom bude centrovaná v mieste

Hotovo

Windows taskbar: {D:\} - Far, Technická a věcná ..., RE: - Správa (HTM..., Mapy počasia a zja..., Zoner Photo Studi..., EN, 14:21

Graphic Display of Weather Conditions - example

• Click

Mapy počasia a zjazdnosti - SSC Extranet - Mozilla Firefox

Súbor Upraviť Zobrazit' História Záložky Nástroje Pomocník

http://sscextranet.devel.weldun.sk/roadmon/map/view.html

Najobľúbenejšie Ako začať Prehľad správ HP Color LaserJet 2605... W Wikipédia

Mapy počasia a zjazdnosti - SSC E... x

SLOVENSKÁ SPRÁVA CIEST

HOME STRÁNKA SSC | CESTNÁ DATABANKA | SSC EXTRANET ZJAZDNOSŤ.SK

Prihlásený používateľ: Mgr. Daniel Volár [Odhlásiť](#)

SSC Extranet

Monitoring zjazdnosti ciest

- Hlásenia
- Udalosti
- Výstrahy
- Správa o zjazdnosti
- Prehľad počasia
- Prehľad zjazdnosti
- Mapy počasia a zjazdnosti**
- Aktuálnosť údajov
- Štatistika
- Administrácia
- Nastaviť checkpoint

Technológie on-line

Adresárové služby

Odhlásiť

Mapy počasia a zjazdnosti

Počasia

Mapa zobrazuje stav počasia na jednotlivých sledovaných miestach. Ikony majú nasledujúci význam:

jasno	sneženie	polooblačno	hmla
zamračené	mrznúce mrholenie	dážď	stav neznámy

Ovládanie mapy:

Informácie: Kliknutím ľavým tlačidlom myši si vyžiadate zobrazenie podrobnejších informácií o objekte alebo o objektoch, nachádzajúcich sa pod kurzorom a v jeho blízkosti.

Zoom in: Dvojitým kliknutím zobrazíte mapu v podrobnejšej mierke, pričom bude centrovaná v mieste

Hotovo

Windows taskbar: Doručená pošta - ... (D:) - Far Technická a věcná ... RE: - Správa (HTM... Mapy počasia a zja... EN 14:20

Winter Service in Future

- Main focus - legislation and new information system
- Legislation – new text of Road Act is preparing:
 - importance of winter maintenance will be strengthened
 - winter service will be organised by the regional staff
 - regional activities will be co-ordinated by Winter Service Central Staff
- Information system:
 - implementation of National Traffic Information System for Slovakia (NTIS) – one objective is optimisation of winter maintenance procedures and plans, while minimising negative impacts which restrict passability of roads
 - important part - Road Meteorological System – integration data from Slovak Hydrometeorological Institute and data supplied by all automatic road weather stations

Meteorological System

- Two outputs levels - for public and for winter maintenance administrators and service organisations
- Level for administrators will have two modules:
 - Decision-making Module of the Dispatcher (schematic visualisation of road surface changes forecast); extension of existing weather stations network etc.)
 - Winter Maintenance Index (effective feedback of the financial control, constant performance analysis, meteorological conditions evaluation – all for determination demands for planning purposes)
- For fully operational system is necessary - create web application, create unit system of weather stations, equip data storage and processing centre by technology, prepare documentation and manuals, organize trainings for system operators etc.

Thank you for your attention

Contact:

Jan Sedivy

Slovak Road Association

sedivy@apvv.sk

www.cestnaspol.sk