

RITS-Net

Final Conference

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RITS-net

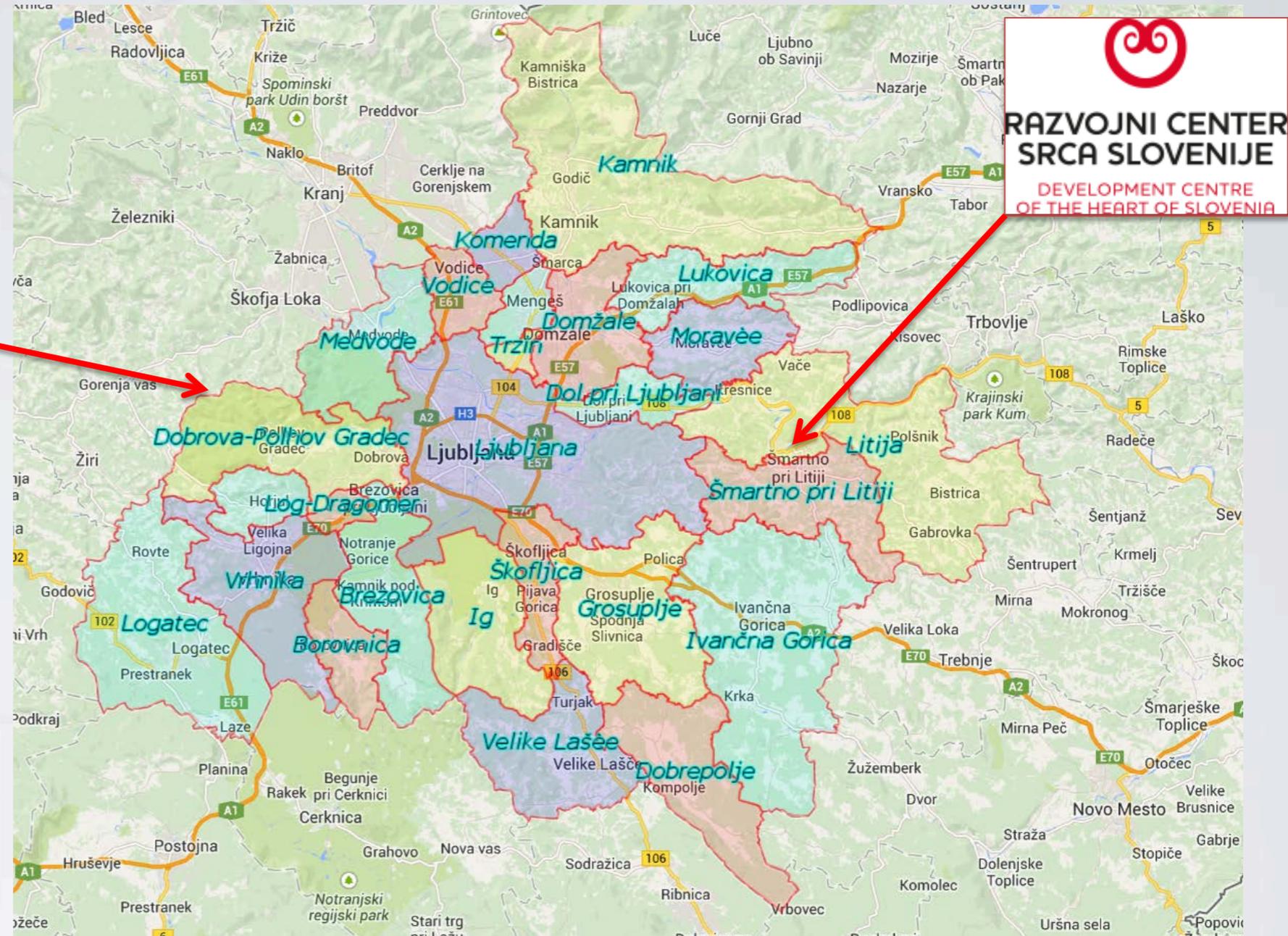
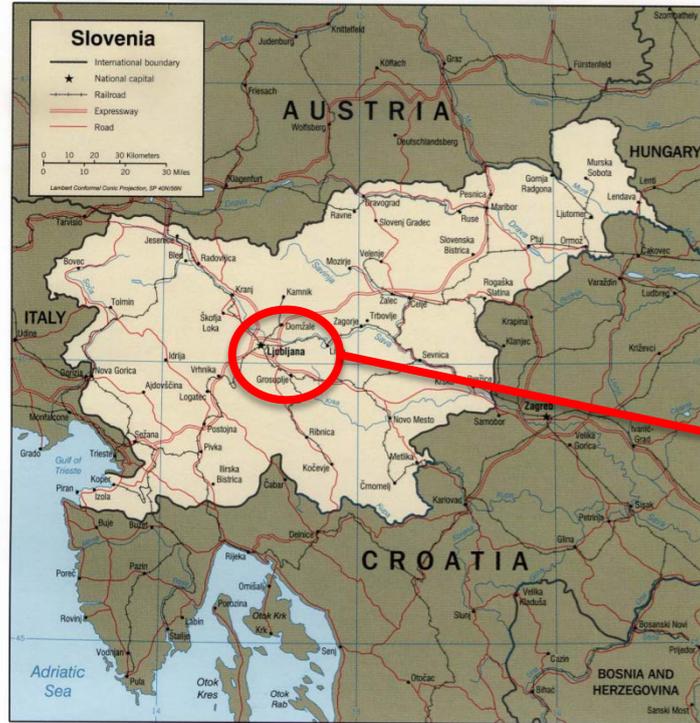
Regions for Intelligent Transport Solutions



European Union

European Regional Development Fund

Ljubljana urban region (LUR), Slovenia




RAZVOJNI CENTER SRCA SLOVENIJE
 DEVELOPMENT CENTRE OF THE HEART OF SLOVENIA

Kamnik
 Komenda
 Vodice
 Medvode
 Trzin
 Domžale
 Moravče
 Ljubljana
 Dol pri Ljubljani
 Litija
 Šmartno pri Litiji
 Dobrova-Polhov Gradec
 Log-Dragomer
 Vrhnika
 Brezovica
 Ig
 Škofljica
 Grosuplje
 Ivančna Gorica
 Velike Lašče
 Dobropolje

130.000 commuters travel to the city every day
 252.000 workplaces
 90% daily commuting with personal vehicle

Population: 2 mio.
 Capital city: Ljubljana

Statistical data of the region are valid for 2007 unless otherwise stated.

Area	2,555 km ²
Population	508.607
Number of Inhabitants	
Population Density	31 December 2007 199.1
Number of Births	5,570
Number of Deaths	4,021
Natural Population Growth	1,54

Transport challenges

Roads & Railways: Any changes in the last decade ?

Human Behaviour

- + : TALKING about “traffic safety & security”: education, warning actions, consequences, studies, etc.
- : “hurry & rush business”, “door to door“ delivery, settlement and migrations →
↑transport demand, degree of motorisation, modal-split (↑ car ownership , ↓ public transport)
↑congestion, ↑enviroment & safety impact,
- : changing age structure of population → changing human factors in transportation

Vehicles

- + : new technologies, favourable age structure of vehicle fleet
- : bigger & powerful vehicles → potential lower traffic safety for pedestrians, cyclist

Infrastructure

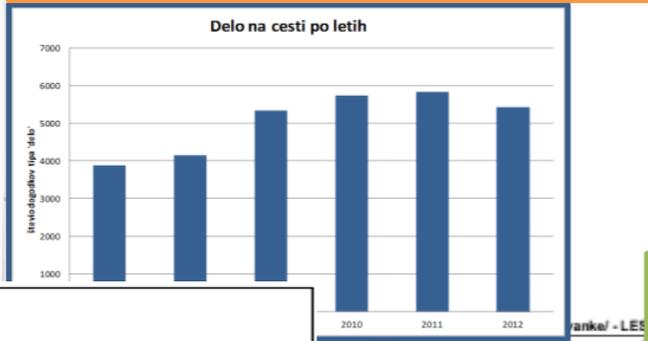
- + : new motorways, traffic calming measures, intelligent infrastructure, managing “black spots”
- : stagnation of other roads and railway renovation and modernisation
- : new vehicles & new technologies → need for standards in transportation and traffic engineering



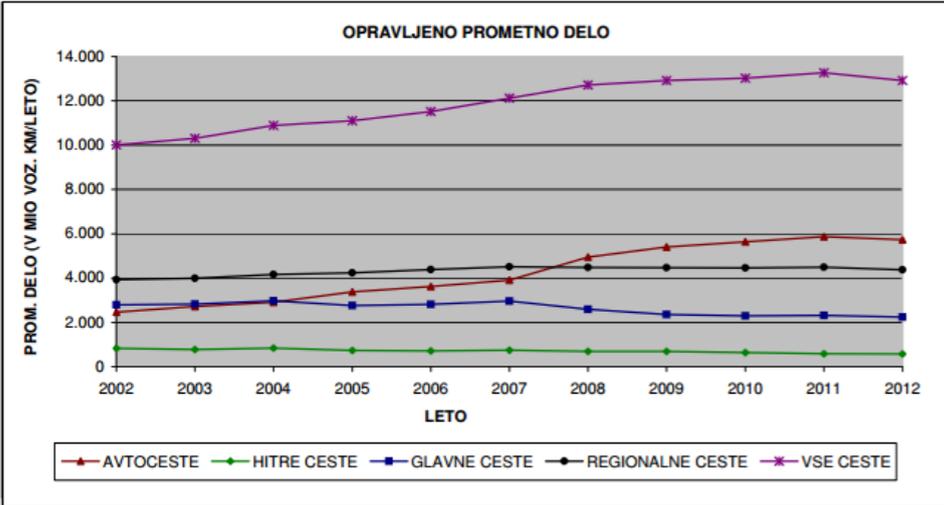
Transport challenges

Users delay costs on slovenian motorway network (cca. 600 km) – value of time **100 – 120 mio. €/ year** (source TIC-Kažipot)

Aging of transport infrastructure → work zones expected

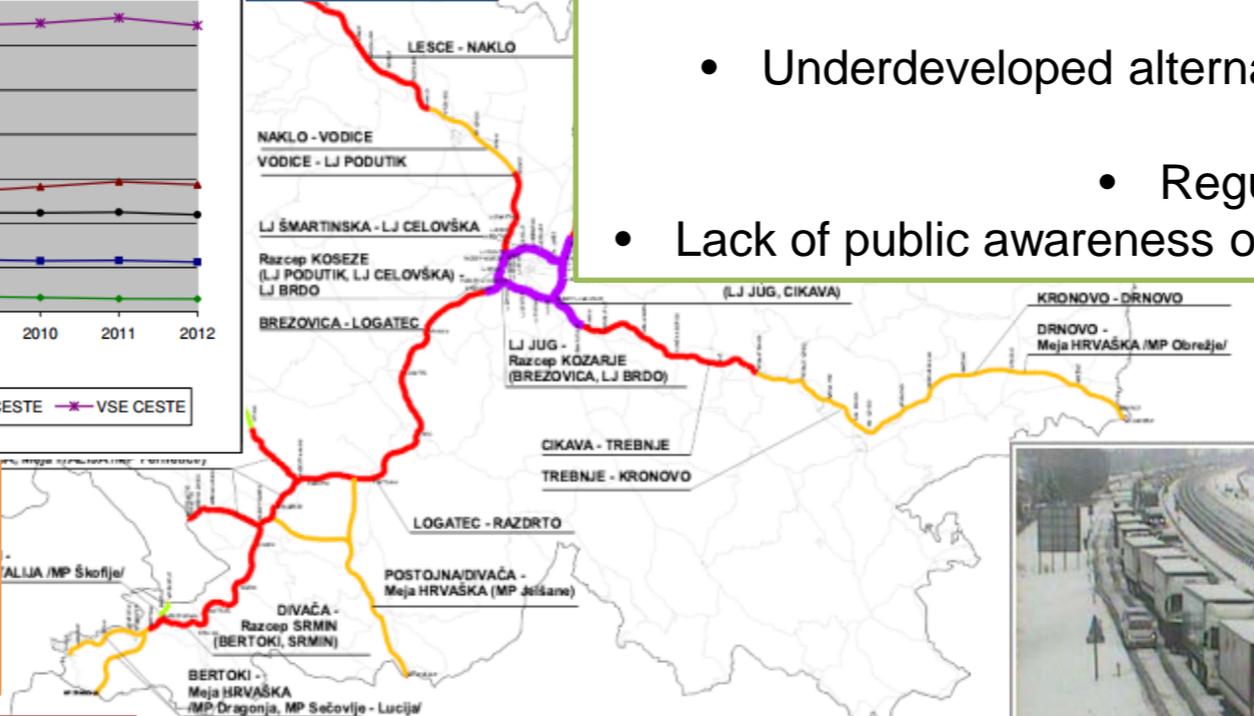


124 fatalities 2013, slow falling trend (source: Police)



- Lack of integrated public transport (tariffs, timetables and infrastructure);
- Underdeveloped alternatives to “do something” without transport;
 - Regulation and institutional barriers;
- Lack of public awareness of safe, green and smart mobility

Transport demand: still grows on TEN-T network **3-5 %/ year**, generally calm down (source Agency for Roads)



DOLOČITEV POTENCIALNO NEVARNIH ODSEKOV NA AVTOCESTAH RS, 2010

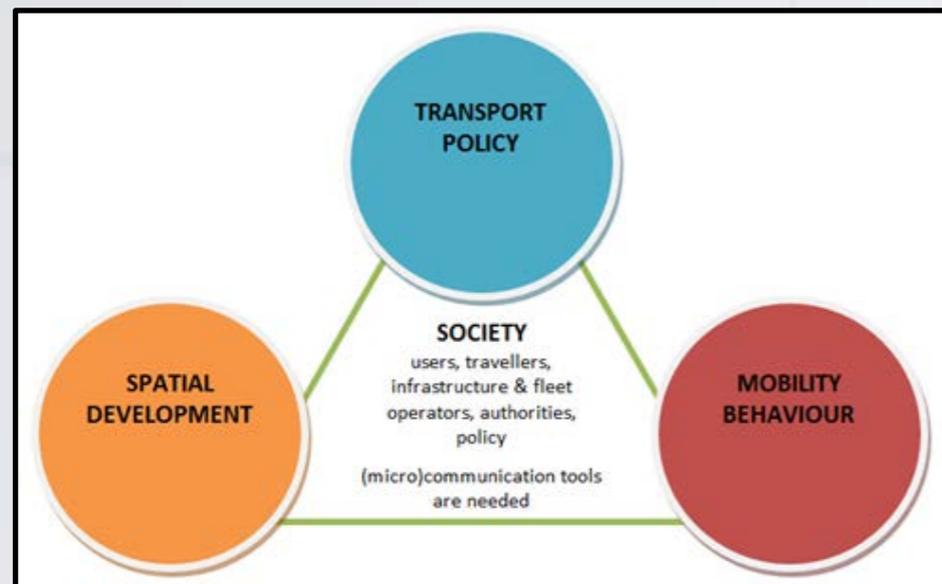


climate diversity

A1/E61/E70 Ljubljana - Koper,

Transport Priority Measures

MANAGING TRANSPORT DEMAND



MANAGING TRANSPORT SUPPLY

Optimization of transport system capacities:

- vehicles and fleet optimization;
- transport infrastructure;

Continuity of traffic and freight management (logistics optimization);

Decarbonisation of all transport modes, energy-efficient technologies while ensuring safety;

Optimising integration, inter/multi-modality and improving the interoperability of transport system and services;

Territorial integration of existing transport systems;

Transport accessibility, intermodal hubs and multi-modal logistics platforms.



tools of automatisisation, communication and information exchange

Main ITS applications in Use

TRAFFIC INFORMATION CENTRE FOR PUBLIC ROADS (TIC) Kažipot system as the main INFO TRAFFIC POINT

2 public road operators
(DARS d.d. and Slovenian Roads Agency) in 1 common centre

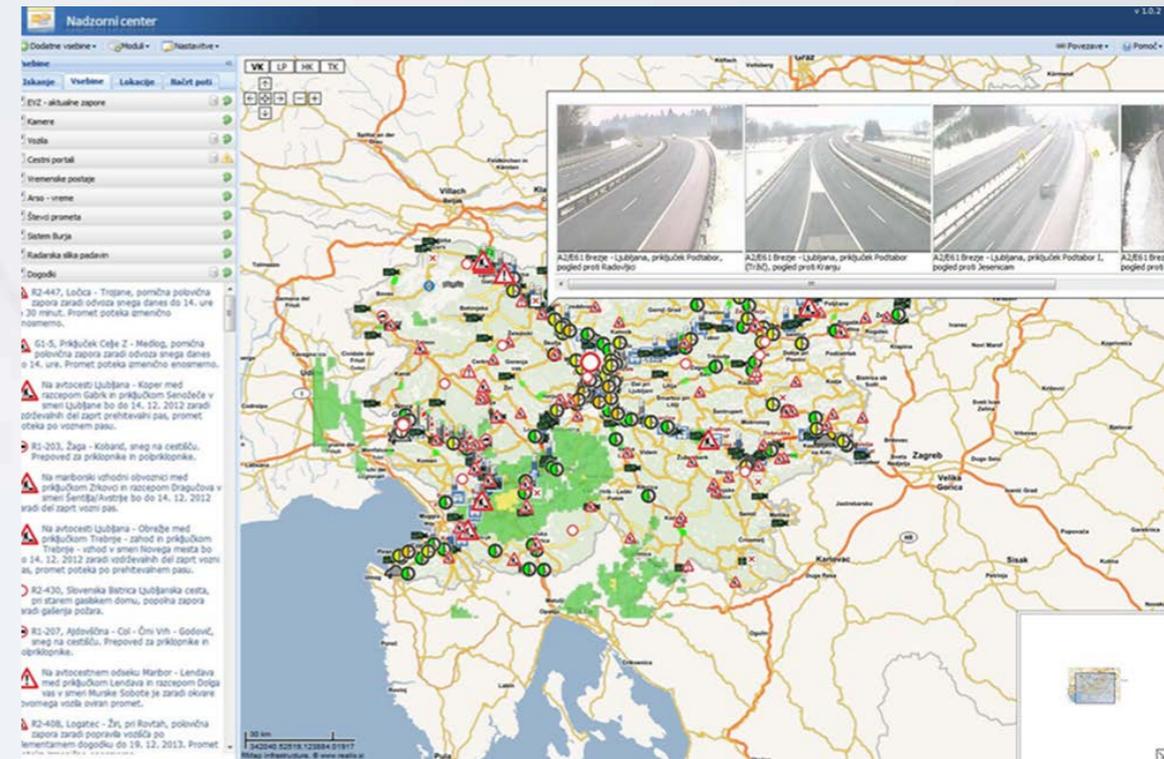
- 1. Web portal
www.promet.si
- 2. info@tel
answering
machine
(080 2240)
- 3. Call centre
(1970)



B2B channels
such as:
HTML/XML
traffic reports,
RSS and
geoRSS
feeds, RDS-
TMC alerts



Sensors, Users,
Operators, etc.

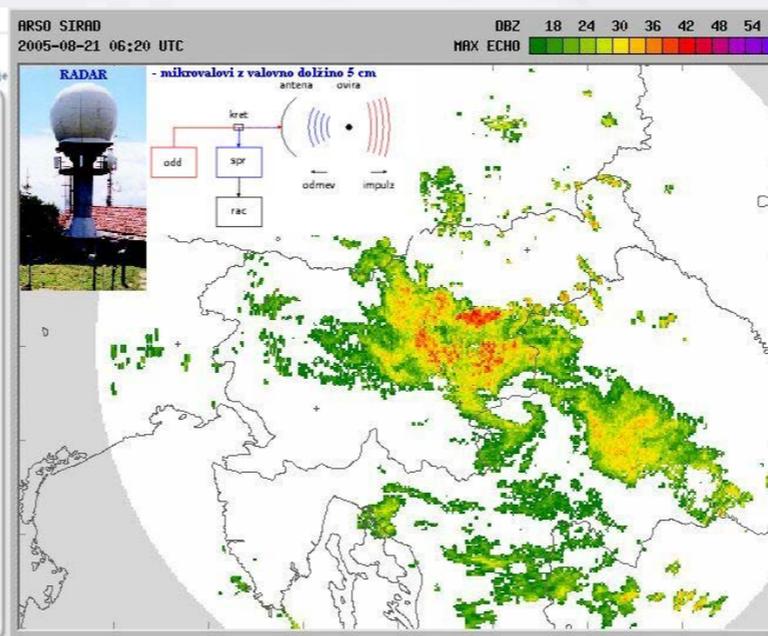
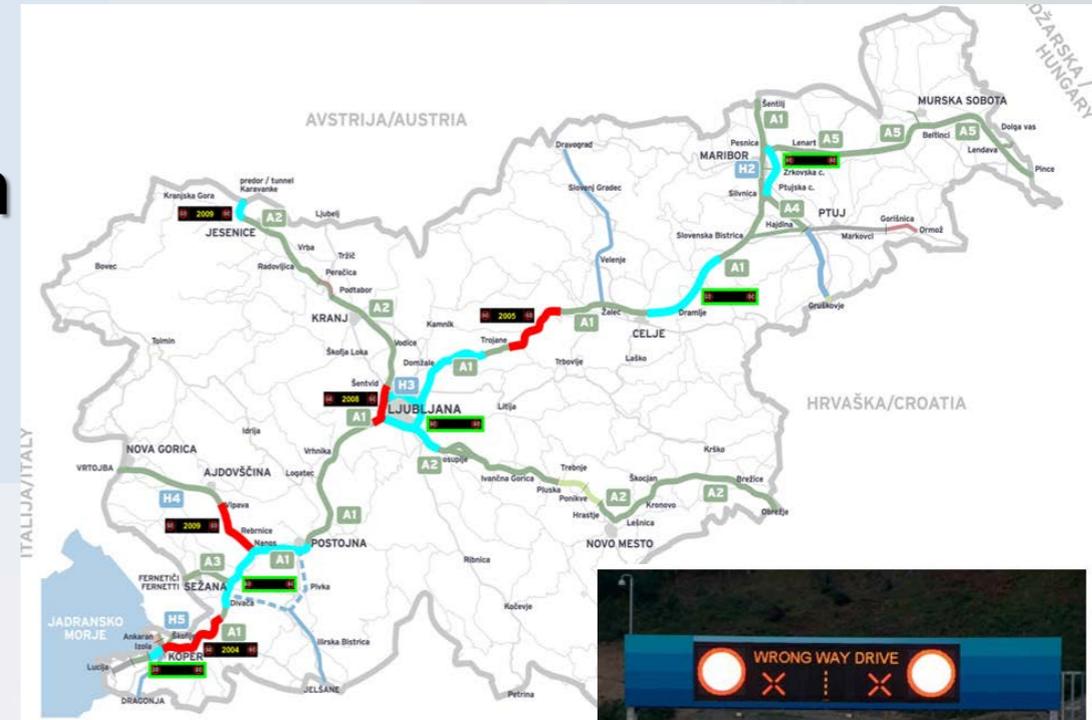


Main ITS applications in Use

Traffic Control System on motorways

RWIS – Road weather information system

- Reduction in the costs of winter road maintenance (saving of 20% on spreading materials)
- Optimization of road winter maintenance services;



3 organisations with common Road Weather Information System (RWIS): Slovenian Road Agency, DARS d.d (road operators) and Slovenian Environment Agency

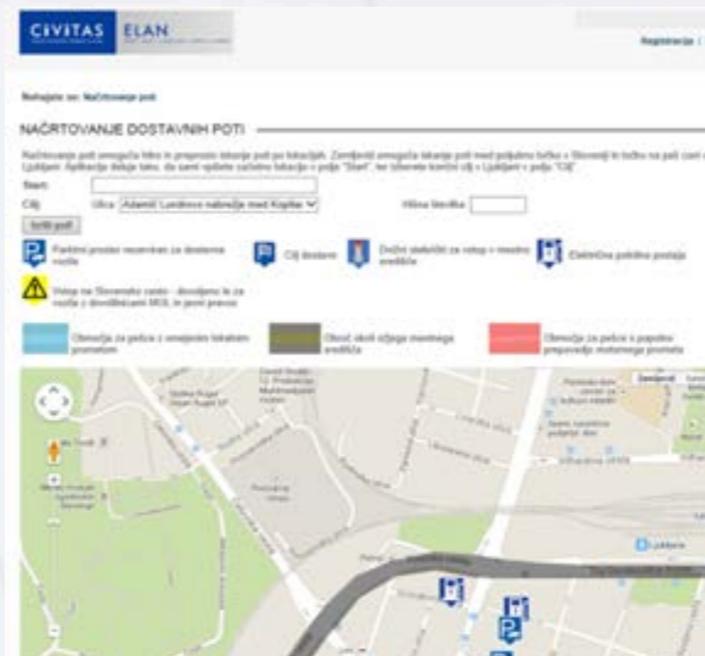
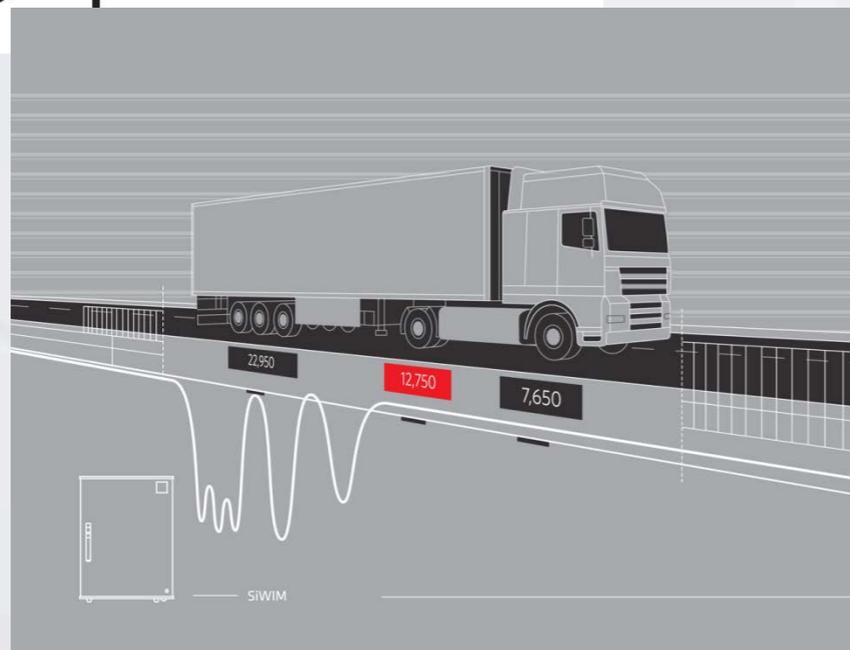
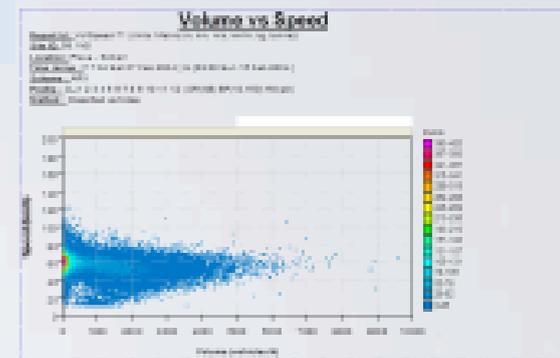
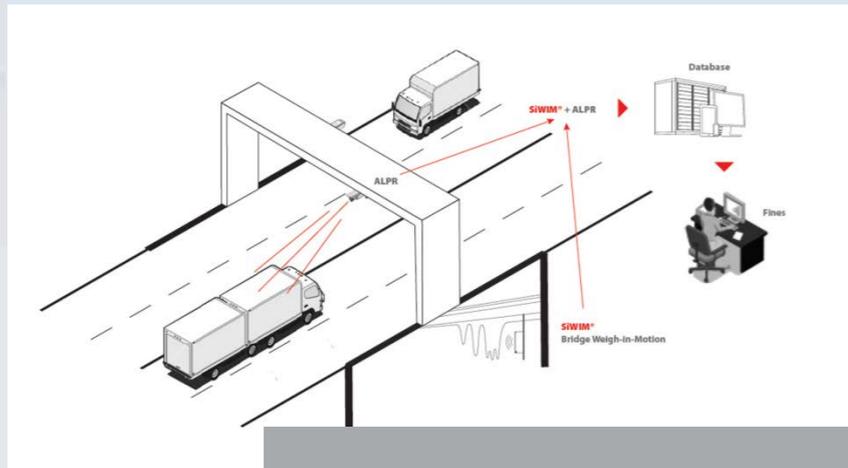


Main ITS applications in Use

Urban logistics – Dostave.si web portal and Access control

Weigh in motion monitoring system – called SI-WIM:

with determination of dangerous goods loads



Main ITS applications in Use

PT & Fleet management: Urban PT

Ljubljana Urban Region Cities / Conurbations

Time tables coordinated by 2 PT operators (LPP PT bus operator & Slovenian Railways) and collected by

Ljubljana as the case of „SoA“ for Urban PT management for other regions

Payment facilities

„The URBANA card – no-contact prepaid smart card for public services“

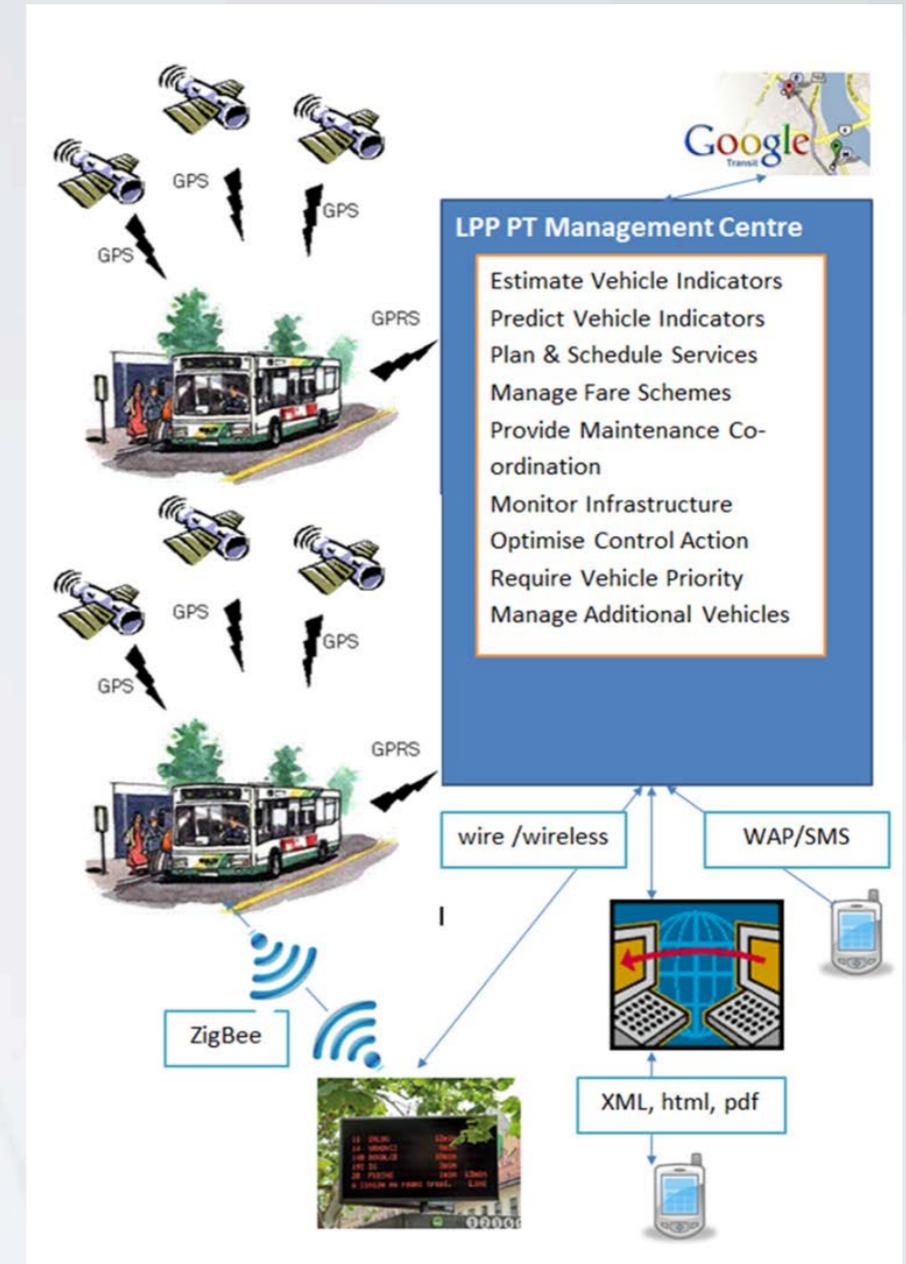
Transportation demand management

prevoz.org – www.prevoz.org

Carpooling/Ridesharing Service in Slovenia (Students)

GoOpti – www.goopti.com

Transport on demand, Innovative Booking System
1 Company – 6 countries



ITS for future implementation

What should be done to implement the higher level of ITS understanding in Slovenia / LUR?

- Public discussion and presentations of specific intentions;
- **ADOPTION or UPGRADE** of strategic documents:
ITS Strategies on the National, Regional and Municipality level Update
- Rules and responsibilities of ITS actors in Slovenia definition: integrity, liability, etc.
- Geographical and Functional Integration

ITS for future implementation - LUR / Slovenia / EU -

Regional ITS Action plan 2014-2020 → should be adopted

Regional Mobility Center → should be established

Multilanguage and Multimodal travel information system & e-ticketing → project IJPP (Integrated PT)

Regional real-time PT management

eParking Info & Reservation

Smart mobility on highways in LUR

Traffic monitoring

Regional traffic data warehouse

Smart pedestrian and cyclists crossing

PT & emergency vehicles priority system

Education about ITS and iMobility



Feasibility Study

Smart mobility on motorways in LUR /Slovenia

Challenges ...

The growth of traffic

Congestion, Cost, Hazard, Carbon footprint

- Motorways interchanges and rest areas as **hubs**
- **ITS** - Intelligent Transportations Systems and services
- Collective transport (mass transit): public transport, carpooling, carsharing, BRT - Bus Rapid Transit ...

Feasibility Study

Smart mobility on motorways in LUR /Slovenia

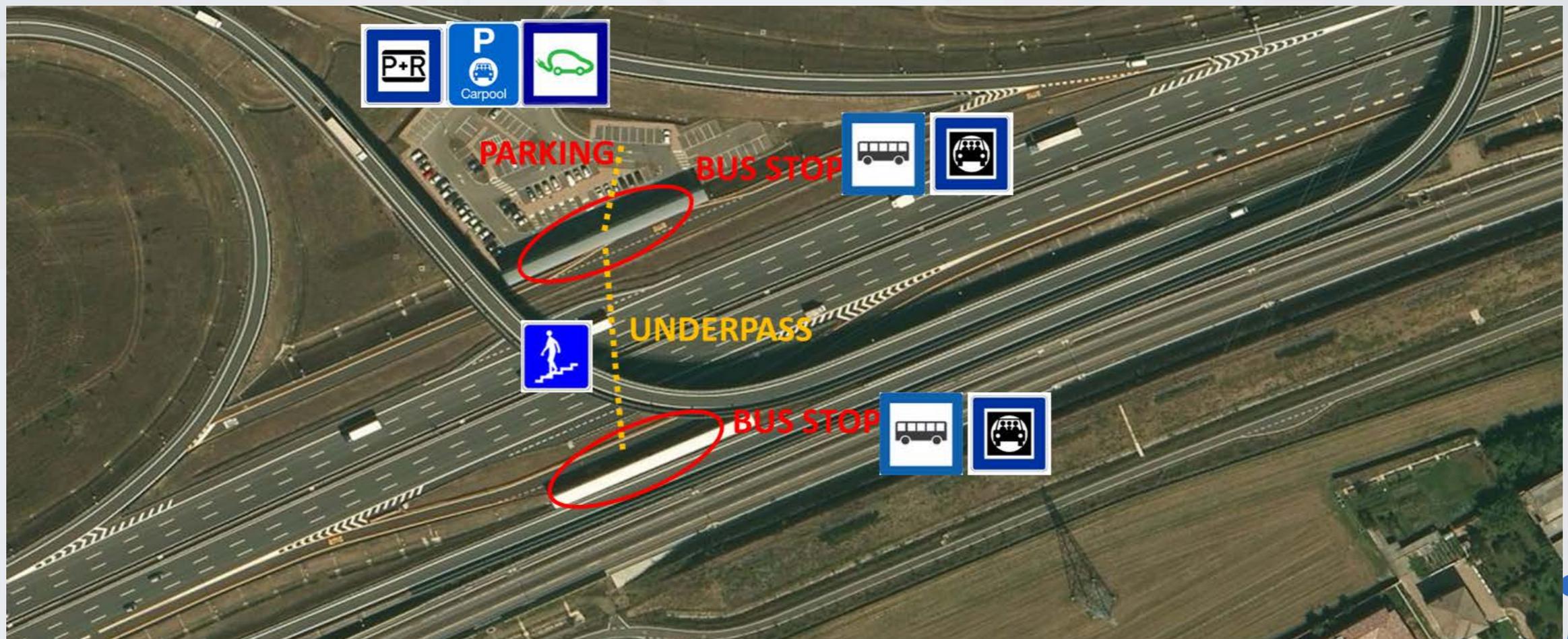
Problems of collective transport on motorways - case LUR:

- The average occupancy vehicles in the LUR is 1.35 persons/vehicle
- Parking near motorways interchanges areas is disordered and dangerous (illegal parking); interchanges are not in the function of travelers hubs,
- Parking areas with no maintenance manager
- Lack of information about the service, parking facilities, etc.
- There is no promotion of alternative transport modes



The purpose and objectives of the study

- Demonstration of potential development of missing infrastructure for sustainable mobility on motorways
- Correlating best practices: Torino – Milano (Italy)



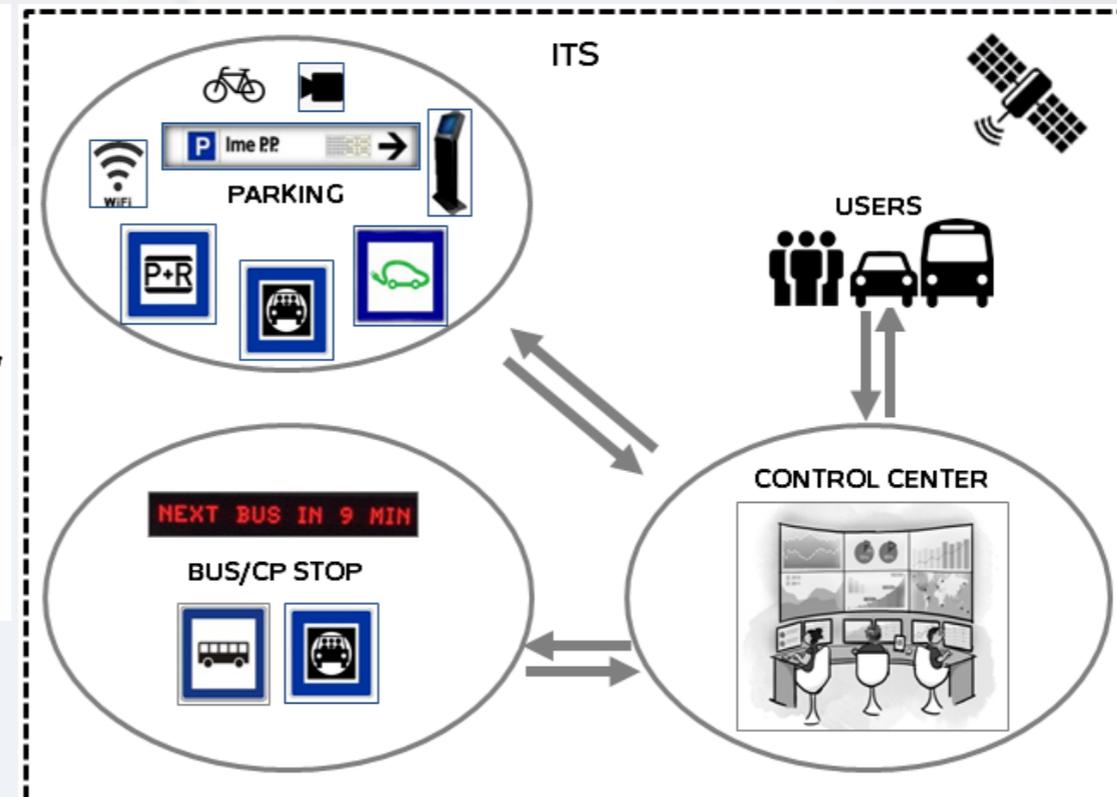
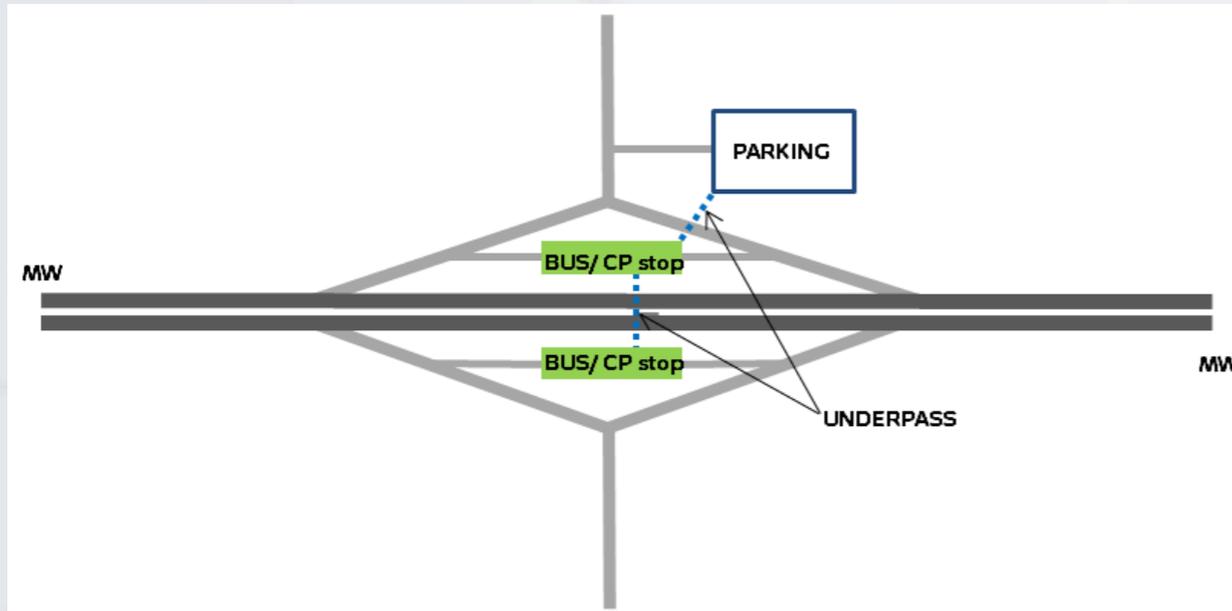
Potential measures and guidelines

- **Infrastructure measures**

- Integrating basic motorways infrastructure with other transport modes
- ITS equipment

- **Management measures**

- business model, management: signalization, ITS equipment and



Modeling the effects of measures

- Results - case of interchange Ivančna Gorica (20km east from Ljubljana)
- Scenarios
 - Scenario V0 – current state (Ivančna Gorica – Ljubljana): „do nothing“,
 - Scenario V1 – introduction of new parking area (Ivančna Gorica),
 - Scenario V2 – scenario V1 + carpoolers on bus priority lanes in Ljubljana,
 - Scenario V3 – scenario V2 + Congestion charging Ljubljana



V0



V1



V2



V3

Modeling the effects

- Results - case of Ljubljana)

- Scenarios

- Scenario V0 – current situation
- Scenario V1 – introduction of new parking area (Ivančna Gorica),
- Scenario V2 – scenario V1 + carpoolers on bus priority lanes in Ljubljana,
- Scenario V3 – scenario V2 + Congestion charging Ljubljana

- Annual savings of external and operating costs
- Change in transport demand
- Change of modal split (carpoolers as new transport mode?)



V0



V1



V2



V3

Lessons Learnt

- Some ITS and other measures are non-remunerative, but could be accepted as positive and opened to further spatial (regional) development
- ... but are much more cheaper than additional capacity extension of main transport infrastructure (e.g. new traffic lanes)
- „Ride-sharing“ (mass transit) and ITS → need for promotion (campaign) and need for education also in spatial and mobility planning
- Next generation of ITS technology (data exchange tools, automation tools and information tools) → need for ITS architecture design
- Vehicles and fleet optimization → sustainable design of future and upgrade of existing interchanges (transport infrastructure)