THE REPUBLIC OF POLAND

INFORMATION FOR THE EUROPEAN COMMISSION

concerning national ITS measures envisaged for the next period of five years, in accordance with Article 17(2) of Directive 2010/40/EU

Ministry of Transport, Construction and Maritime Economy

ul. T. Chałubińskiego 4/6, 00-928 Warsaw

Phone +48 22 630 11, fax +48 22 830 02 61

e-mail: info@transport.gov.pl, www.transport.gov.pl

Table of contents

Introduction

According to the Commission's guidelines on reporting of Member States, information on activities relating to intelligent transport systems (ITS) envisaged over the following 5-year period referred to in Article 17(2) of Directive 2010/40/EU should include a general report on the activities planned over the next five years and for the deployment of ITS in the Member State. The report should include at least the following relevant information on the following:

a) a description of the national approach and/or strategy on the development and deployment of ITS, including their main objectives;

b) a description of the technical and legal framework applicable to the development and deployment of ITS;

c) a description of the ITS deployment activities;

d) a description of the national priority areas for actions and related measures, including an indication of how these actions and measures are related to the priority areas laid down in Article 2 of Directive 2010/40/EU;

e) the implementation of current and planned actions covering instruments, consultation and active stakeholders, milestones, monitoring.

In order to implement the above recommendations the information has been prepared in cooperation with the offices of the central government, provincial authorities and municipal authorities and GDDKiA, ITD and the ITS Technology Platform. Because of the need to ensure transparency, the information was developed on the basis of the EC guidelines broken down into:

− Country Strategy Papers and their description, including a summary of the implementation of activity 8.3 *Development of Intelligent Transport Systems implemented under the Operational Programme Infrastructure and Environment for 2007-2013,*

− ITS projects that are currently being implemented or planned to be implemented, covering:

　　1) the whole country,

　　2) areas of particular provinces,

　　3) urban areas.

− information on plans concerning projects and potential sources of funding ITS research projects,

− list of projects for the purpose of monitoring.

Implementation by notifiers of each project is determined by the amount of funds allocated in their budgets for this purpose, or a possibility of obtaining funds from the EU budget.

1. The national/strategic approach[1]

Long-Term National Development Strategy - Poland 2030. The third wave of modernity - draft

The draft long-term national development strategy *Poland 2030. The third wave of modernity* states with respect to ITS that the main strategic and long-term objective of transport policy is to increase the accessibility of various areas of Poland by creating a sustainable, coherent and user-friendly transport system at the national (local), European and global levels. The achievement of the strategic goal within the next 20 years will require the implementation of specific objectives, namely the efficient modernisation, expansion and deployment of integrated transport infrastructure, changes in transport system organisation and management, improvement of road user safety, facilitating traffic in metropolitan urban areas, reducing the negative impact on the environment.

Achieving a coherent transport system requires both the dynamic development of the missing pieces of transport infrastructure to launch the system as soon as possible, and the use of ITS to improve the operation of transport and the safety of road users. Traffic should also be monitored on an ongoing basis and properly managed. This entails limiting the growth rate of traffic and transport in some transport subsystems (e.g. individual transport in cities), as well as shortening travel times and modal splits. The implementation of the target ITS for traffic management and linking it with existing local systems is one of the key projects in the area of transport. Modern transport technologies allow for the optimisation of network utilisation and improvements in road user safety.

*Medium-Term National Development Strategy 2020 - **draft***

The medium-term *National Development Strategy 2020* draft under the *Increase in transport efficiency* objective provides that a user-friendly transport system and procedures will be developed to integrate the transport system. The most important ITS activities will include: expansion and modernisation of equipment for the collection and distribution of data on the status and use of transport infrastructure (for example, information about traffic congestion), the development of systems for management and control of urban and non-urban road traffic, the introduction of systems to increase traffic safety (including the design and development of automatic traffic surveillance), the development of an integrated accident management system, the development of an integrated system of passenger and goods transport.

The Concept of the National Spatial Development 2030

The extension of ITS is also provided for in the *Concept for National Spatial Development 2030*, a document adopted by the Polish Council of Ministers on 13 December 2011.

---

[1] The draft strategy documents submitted reflect the status of work as at June 2012.

Strategy for Energy Security and the Environment - draft

The draft strategy for energy security and the environment highlights the importance of sustainable and environmentally friendly transport, which is to play a significant role in achieving environmental objectives. The direction of intervention *3.3. Protection of air, including a reduction in the impact of the energy sector* in the strategy clearly states that the implementation of measure 45 ('Implementation of instruments') will contribute to the improvement of air quality and should be based on the modernisation of urban transport in order to achieve environmentally friendly transport. Urban transport management should reduce the nuisance to people and the environment (noise, air pollution).

This strategy also identifies measures to increase the efficiency of energy use in the transport sector. Furthermore it states the problem of the impact of pollution on soil and the contribution of transport in the process of adaptation to climate change. The draft document also provides for measures to promote a greater environmental approach to transport in the priority areas for the environment (air protection, energy efficiency).

Transport Development Strategy until 2020 (with a prospect until 2030) - draft

The draft Transport Development Strategy makes direct references to individual ITS applications in transport. The Strategy primarily announces the expansion of the electronic toll collection system, the development of the National Traffic Management System and the widespread use of ITS for transport system management. This strategy will provide the basis for specific programmes and implementation plans. The implemented measures should:

- allow for the integration of the various modes of transport;
- affect the optimisation of traffic and infrastructure management;
- result in a better information service for users of transport services;
- translate into improved safety for road users;
- reduce the negative impact of transport on the environment and climate, improve transport energy efficiency and
- mitigate the negative impacts of climate change affecting the infrastructure and transport activities in order to contribute to improving the safety of road users.

Currently, the greatest potential for the use of ITS in Poland is in the field of road transport, which includes the collection of fees for the use of road infrastructure, application of support systems, road safety and provision of comprehensive open passenger information. Other, non-road modes of transport, due to their characteristics, have already been substantially computerised. The measures to be undertaken are aimed at modernising and providing internal interoperability at the European level (pertains mainly to such systems as ERTMS, SESAR and VTMS).

The following activities are planned for each transport mode:

Rail transport

1/ Implementation of a unified freight telematics system by implementing the technical

specification for interoperability of telematics freight applications for freight using the trans-European conventional rail system - TAF TSI on main TEN-T rail corridors;

2/ Implementation of a unified passenger transport telematics system by implementing the technical specification for interoperability of telematics passenger transport applications for passenger transport using the trans-European conventional rail system - TAF TSI on main TEN-T rail corridors, including the creation of interfaces extending its functionality to other means of transportation;

3/ Extending the functionality of the Timetable Design System - SKRJ;

4/ The implementation of ERTMS on major TEN-T transport corridors.

Road Transport

1/ Transposition of Directive 2010/40/EU the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport (OJ L 207, 26.8.2010, p. 1) into Polish law;

2/ Provision of information services for safe and secure parking spaces for heavy goods vehicles and commercial vehicles - on selected sections of national roads;

3/ Provision of services for booking safe and secure parking spaces for heavy goods vehicles and commercial vehicles - on selected sections of national roads;

4/ Provision of travel information using different modes of transport;

5/ Provision of real-time traffic information;

6/ Determination of the scope of data and development of procedures for providing users with free road safety information;

7/ Implementation of the measure 'Development of Intelligent Transport Systems' under the Operational Programme Infrastructure and Environment.

8/ Gradual implementation of an electronic toll collection system for the use of road infrastructure on selected public road network for vehicles weighing more than 3.5 t.

9/ Construction of the National Traffic Management System.

Air transport

Modernisation of air traffic management infrastructure (SESAR) for SES (Single European Sky) implementation purposes.

Sea transport

1/ Construction of a National Sea Safety System;

2/ Development of a ship traffic monitoring and information system (SSN and VTS/VTMS).

Inland waterway transport

Launching a system of harmonized river information services (RIS).

The "*Efficient State* 2020" Strategy - draft

The Efficient State Draft Strategy provides for the implementation and improvement of the emergency call system. Co-operation of rescue services is to be achieved also by striving to provide an eCall system service.

The efficient functioning of the system will be supported by information and communication technologies, with the use of the following projects:

- SIPR - Emergency Call IT System,

- OST 112 - Nationwide ICT network to handle emergency number 112 and other emergency numbers,

- PLI CBD - Location and Information Platform with Central Database - used to provide identification data and location of the caller to the services handling the 112 emergency number and other emergency numbers.

National Transport Policy for 2006–2025

According to the document **National Transport Policy for 2006–2025**[2], the primary objective adopted of the transport policy is to radically improve the quality of the transport system and its further sustainable development, because the quality of the transport system is one of the key factors affecting the living conditions and the economic development of Poland and its regions.

This objective will be achieved through the implementation of specific objectives:

– Objective 1: Improving transport accessibility and quality as a factor improving living conditions and eliminating the barriers to economic development.

– Objective 2: Supporting the competitiveness of the Polish economy as a key tool for economic development.

– Objective 3: Improving the efficiency of the transport system.

– Objective 4: Integration of transport modes and geographical areas within the transport system.

– Objective 5: Improving safety to achieve a radical reduction in the number of accidents and limit their consequences (fatalities, injuries) and the improvement of public perception of the personal safety of transport users of and cargo security.

– Objective 6: Reducing the negative impact of transport on the environment and living conditions.

The implementation of ITS projects, and in particular the Construction of the National Traffic Management System is in line with the stated objectives and helps forge the links between them.

Furthermore, the policy identifies directions in the development of road transport and states that the development of road infrastructure should be accompanied by improved coordination of road and traffic management in networks comprising roads of different categories. It is necessary to

---

[2] National Transport Policy for 2006-2025, Warsaw, 2005.

increase the role of road administration in the implementation of intelligent transport systems because they are highly efficient at much lower cost than "heavy" projects.

Activities involving national roads will consist in installing dynamic monitoring and traffic management systems on motorways, expressways and other roads, in particular in urban areas and the vicinity of large cities. In conjunction with other activities this will lead to reduced traffic congestion, improved safety and reduced environmental nuisance.

A vision of transport development in Poland is presented and it is noted that the achievement of ambitious transport policy objectives can be accelerated by the use of the opportunities offered by advancements in technology and transport organisation and management. Solutions improving the efficiency and quality of transport systems include advanced technological and organisational solutions referred to as Intelligent Transport Systems. These include advanced traffic management methods.

The National Road Safety Programme

The **National Road Safety Programme**[3] presents striving to completely eliminate fatalities as a vision of road safety (BRD) in Poland. This vision means that:

- measures to protect the life and health of road users should be prioritised and placed above mobility and other objectives of the transport system,

- the transport system should be designed, constructed, operated and managed so that it can compensate for user imperfections and mistakes,

- reducing the number of accidents in transport and their consequences is a fundamental duty of all those creating, managing and using the transport system in Poland.

The adopted strategic vision sets specific objectives:

1) Lay the foundations for conducting effective and long-term actions contributing to road safety.

2) Development of the safe behaviour of road users.

3) Protection of pedestrians, children and cyclists.

4) Construction and maintenance of safe road infrastructure.

5) Reducing the severity and consequences of road accidents.

The implementation of each objective and priority requires a number of comprehensive, effective and integrated activities in Poland. Some of those activities included the following:

- Upgrading traffic speed control.

- Conducting a systematic study of traffic speed - conducting effective measures to reduce the share of speed as a key cause of fatal road accidents requires scientific support by: research into overall trends in speed changes and an assessment of the effectiveness of actions as well as educational, repressive and engineering measures implemented for speed management, development of speed control monitoring points effected by vehicles.

---

[3] National Road Safety Programme 2005-2007-2013, GAMBIT 2005, Warsaw, 2005

– Enhancing the protection of pedestrians, children and cyclists by applying road traffic control measures.

– Implementing modern traffic management measures. Traffic management in the network of streets includes measures aimed at the efficient use of transport infrastructure, allowing for the improved performance of the transport network (traffic conditions, accessibility) as well as ensuring road user safety and minimising the environmental impact of traffic. The use of ITS makes it possible to reduce the number of accidents, reduce their severity and the duration of rescue operations. For road safety purpose systems for speed management, the monitoring of driver and vehicle performance systems are used. Many ITS applications can improve the safety of vulnerable road users. The measures for the introduction of modern traffic management at the initial stage should include the development of national functional and hardware standards and guidelines for the use of ICT equipment and intelligent transport systems which enable the integration of national systems with the systems of other EU countries. Of particular importance are promotional activities geared towards the creation and development of intelligent transport systems which allow for the possibility to create co-funding pilot implementations.

– Reducing the time of road incident detection and emergency calls.

– Reducing the time to reach the accident scene and transport the injured to the nearest emergency hospital – use of traffic control systems giving priority to emergency vehicles.

National Road Construction Programme for 2011–2015

National Road Construction Programme for 2011–2015[4] defines the goals and priorities for national road construction projects for 2011–2015. The main objective is to strengthen the social, territorial and economic cohesion. From a territorial point of view, it is important to ensure transport cohesion in EU Member States. Creation of a European transport system is the condition necessary for the citizens and entrepreneurs to take full advantage of the established economic area without internal borders.

By 2015 a number of infrastructure projects are planned, particularly motorways and expressways. These projects will be implemented taking into account the overriding objective, which is to improve living conditions and to minimise the environmental impact.

The implementation of ITS projects is consistent with these objectives. Modern traffic management solutions which will be implemented as part of the project will significantly contribute to improving the quality of life by improving road safety and travel comfort, as well as contribute to reducing the negative impact of road traffic on the environment by reducing travel times and energy consumption.

Operational Programme Infrastructure and Environment for 2007 - 2013

In the current financial perspective 2007-2013, under the Operational Programme Infrastructure and Environment the measure 8.3 *Development of Intelligent Transport Systems*

---

[4] National Road Construction Programme for 2011-2015 Annex to Resolution of the Council of Ministers No 10/2011 of 25 January 2011.

is being implemented, with partial funding from the European Regional Development Fund. As of 23 May this year, as part of this measure 11 agreements were signed for a total amount in excess of PLN 487 million in EU funding.

The competition for measure 8.3 was announced on 29 April 2010. Selection of projects was conducted from 1 June 2010 to 1 September 2010.

As part of the competition 14 applications were submitted for a total funding of PLN 612.92 million. On 5 January 2011, the ranking list of the competition was approved. As a result of the formal, evaluations based on 1st level technical criteria, and partially on the basis of 2nd level technical criteria, 11 projects with a value of PLN 488.36 million (including 1 project with a reduced level of funding) were selected for the final evaluation on the basis of 2nd level technical criteria, 3 projects were placed on the reserve list and no project was rejected.

Furthermore, on 29 February 2012, the competition ranking list was updated due to an increase in the amount allocated to the competition resulting from the application of the current EUR/PLN exchange rate. As a result of this update, 12 projects received the full funding requested, and one project was placed on the reduced funding list with one still on the reserve list.

To date, the evaluation and approval procedure for 11 of the 12 projects from the basic list has been completed.

Eleven agreements have been signed for a total EU funding amount of **PLN 487.13 million**, representing **84 %** of the allocated funds for the competition concerned.

To date, as part of these measures beneficiaries have started the actual implementation of 4 projects for which contracts have been signed for construction works:

- *Intelligent Transport System "ITS Wrocław",*

- *Implementation of the Integrated Traffic Management System TRISTAR in Gdańsk, Gdynia and Sopot*

- *Dynamic Passenger Information System in the area of operations of KZK GOP*

- *Building an Integrated Road Traffic Management System in Kalisz - Stage I.*

List of projects under measure 8.3, for which funding agreements have been signed, together with the planned project completion dates:

No	Project title	Planned completion date
1	Intelligent Transport Systems in Bydgoszcz	31-12-2013
2	Expansion of the detection system in the city of Gliwice and upgrading of selected traffic lights, stage I	31-10-2012
3	The development of a public transport management system in Kraków	31-12-2013
4	Intelligent transportation system "ITS Wroclaw"	31-03-2015

5	ITS Poznań	31-03-2015
6	Implementation of the Integrated Traffic Management System TRISTAR in Gdańsk, Gdynia and Sopot	30-08-2014
7	Dynamic Passenger Information System in the area of operations of KZK GOP	31-12-2012
8	Construction of the Integrated Traffic Management System in Kalisz, stage I	31-10-2013
9	Construction of the Intelligent Transport System in Koszalin	31-12-2013
10	Expansion of the intelligent road transport system in the city of Rzeszów	30-11-2014
11	Improving the functioning of urban transport in the Szczecin agglomeration through the use of telematics systems	14-06-2013
12	Integrated Traffic Management System in the capital city of Warsaw in 2011-2014	31-12-2014

In the future financial perspective, ITS is planned to be funded under objective 7 *Promoting sustainable transport and removing bottlenecks in key network infrastructures* (Article 9 of the general draft regulation). Consideration is also being given to include ICT solutions in urban areas in funding arrangements under objective 4 *Supporting the shift towards a low-carbon economy in all sectors.* Details regarding the award of European grants will be in the operational programme, the first draft of which will be created this autumn.

2. National level projects

Electronic toll collection system

The electronic toll collection system viaTOLL is currently the largest national road ITS project. The system has been in operation since July 2011, the first expansion of the system is planned in July 2012, to be followed by further expansion projects, when newly built road sections are put in operation.

The viaTOLL system allows for the free flow of traffic and therefore vehicles are not required to stop to pay the toll.

At the entrance to a toll highway managed by the General Director for National Roads and Motorways, vehicles registered in the ETC will use designated lanes. When a vehicle fitted with a special on-board device for toll charging (viaBOX) approaches a toll plaza, the toll gate opens automatically.

The electronic toll collection system viaTOLL is primarily a tool for toll collection on national roads for motor vehicles with MPW above 3.5 tonnes and buses, regardless of their MPW.

In the electronic toll collection system, the amount of the toll depends on the actual number of kilometres travelled, and the toll is directly related to the cost of infrastructure construction and operation.

The ViaTOLL system can serve as a tool for collecting data on the traffic of motor vehicles on national roads covered by the real time system.

In addition, the system can provide data on the structure of the transport fleet, the size of transport companies, traffic volume, viaBOX activity, kilometres travelled by a vehicle or company during a specified time, vehicle speed, etc.

On the basis of collected data and upon an appropriate analysis, the system can be used for two purposes - for the purposes of public administration and private or commercial enterprises.

Public administration:

– <u>toll policy tool</u> – sets the amount of applicable toll rates, selects roads for toll charging, verifies pricing as a stimulus for fleet replacement (the fleet replacement rate of the two cleaner EURO classes);

– <u>traffic management tool</u> – traffic volume – toll rates can be differentiated in the case of excessive congestion, depending on the time of the day, day of the week, in the future a possibility for charging for external costs – noise and pollution, responding in the event of a road accident;

– <u>velocity measurement</u> – in the future it may be used by the police to penalise drivers for exceeding the speed limit,

– tracking suspect, dangerous cargo – it can be used by services such as the Customs to track smuggling;

– driver tracking and monitoring by GITD;

– interoperability with other fee collection systems in Europe - in accordance with Directive 2004/52/EC on the interoperability of electronic road toll systems; interoperability is standardised and interoperable platforms at the following levels: technical, contractual and operational. The electronic toll collection system is based on one of the technologies recommended by Directive 2004/52/EC and will be prepared to support the interoperability of services offered by the providers of a European Electronic Toll Service (EETS providers).

The use of an electronic toll collection system assumes that in the future interoperability will enable the introduction of a European Electronic Toll Service. Thanks to this service, road users will be able to move freely within the European road network under a single contract with the EETS Provider.

– in the future, the electronic toll collection system may also interoperate with other fee collection systems such as a system of charging for entering the city centre.

Private companies:

– Fleet management;

– Tracking and monitoring of drivers;

– Optimal planning of routes, avoiding the unladen journeys;

– Tracking of dangerous goods;

– Control of travelled distance and a vehicle utilisation rate.

National traffic management system

In 2012-2017, the General Directorate for National Roads and Motorways will implement the **National Traffic Management System (KSZR)**.

The KSZR will cover a network of motorways (including concession motorways), expressways and road sections covered by the electronic toll collection system, as well as road sections that combine sections covered by the ETC; a total of 3 900 km of national roads (including the whole network of about 1 200 expressways – 1 400 km managed by GDDKiA, planned to be put into operation in 2016 and the remaining network of national roads of about 1 300 km planned to be covered by the viaTOLL system in 2017).

The points of reference are road sections which will be put into operation in 2016 in accordance with the applicable National Road Construction Programme 2011–2015 (Annex to the Resolution of the Council of Ministers No 10/2011 of 25 January 2011), and considering the schedules and project progress stages.

The KSZR will perform the following functions:

– real-time monitoring of traffic parameters and weather conditions, the condition of roads and archiving of data obtained;

- dynamic management of traffic flows (along with the controls in urban areas and high traffic concentration areas);

- provide information on traffic conditions (current and forecast) to road users and third parties (users, media, navigation service operators, public services, etc.)

- archive data used for the planning and modelling of the road network development;

- detection and management of traffic incidents.

The KSZR will be equipped with broadly defined telematics infrastructure, which can be attributed to three component systems:

1) A system of traffic data collection;

2) A traffic management system;

3) A communications system.

A traffic data warehouse is planned to be created as part of the project to aggregate and keep and process data collected by the KSZR in order to continue providing information to those competent to use it (in particularly for traffic modelling and forecasting, for design and statistical purposes as well as for third parties).

The implementation of the following subsystems is provided as part of the traffic management functionality:

- a traffic control subsystem (e.g. using flexible speed limits, lane (or possibly shoulder) occupation control, control of traffic inflow from interchanges);

- a subsystem providing information about the turnover and occupancy of parking spaces at Rest Service Areas (RSA);

- a subsystem for weight preselection of overloaded vehicles;

- a CCTV subsystem;

- a meteorological service subsystem (along with a system providing users with information on road surface condition, air transparency, visibility, etc.).

Furthermore, in order to more fully illustrate the KSZR products, a brief description of the proposed subsystem for traffic control is presented below.

This subsystem will influence user behaviour through specific appropriate procedures to be implemented by the operator (dispatcher) at the Traffic Management Centre (TMC) by means of variable message signs, particularly in the following:

- control traffic flows towards interchanges;

- control traffic capacity on a road route;

- lane occupancy control;

- detours of a motorway link;

- information on a motorway link blockage;

- information on a motorway lane closure;
- evacuation of traffic from a motorway.

A subsystem showing information on RSA parking occupancy should also be mentioned.

In general, information on the number of vacant RSA parking spaces will be communicated to users via variable message signs, a website and the TMC. We assume that variable message signs will display information on the number of currently vacant parking spaces at the nearest and the next RSAs.

The data collected will cover the number of vacant parking spaces for:
- passenger cars,
- heavy goods vehicles,
- coaches,
- vehicles carrying dangerous goods.

In terms of performance of road administration functions, the KSZR will provide video monitoring covering the following:
- situation at motorway interchanges;
- situation at RSAs;
- the situation at toll plaza gates;
- situation at the road maintenance sections (OUD);
- surface conditions, visibility, etc.

The KSZR shall also functionally cover construction of a comprehensive meteorological service subsystem, which will be based mainly on data from weather stations and sensors detecting surface conditions. The main tasks performed by this subsystem are the following:
- collecting data from weather stations;
- weather forecasting;
- transmission of road condition data to the TMC and OUD (e.g. for winter maintenance);
- generating warnings to road users about weather conditions dangerous for traffic (e.g. slippery road surfaces, side wind, fog, etc.).

The KSZR will comprise 4 Traffic Management Centres, where individual KSZR functions will be handled:

- in the town of Opacz (near Warsaw) - strategic management of the entire road network covered by the traffic management system and the management at the level of the regional road network in: Mazowieckie, Warmińsko-Mazurskie, Lubelskie, Podlaskie and Świętokrzyskie provinces;

- in the town of Widawa (near Wrocław) - management at the level of the regional road network in: Dolnośląskie, Opolskie, Małopolskie, Podkarpackie and some roads covered by the system in Lubuskie and Śląskie provinces;

- in the town of Stryków - management at the level of the regional road network in: Łódzkie, Pomorskie, Zachodniopomorskie, Wielkopolskie, Kujawsko–Pomorskie provinces and some of the roads covered by the system in Lubuskie province;

- in the village of Milówka (near Żywiec) - management of the road network covered by the traffic management system in the area of the Silesian conurbation (excluding motorways) and the management of a system of tunnels.

The KSZR created as part of the project is complementary to other ongoing and planned projects implementing the ITS in GDDKiA, including the vehicle weighing system, "Scales are important", the Electronic Toll Collection System (ViaToll), Meteorological Service System and Video Surveillance System of Roads Surface Condition operating as part of already developed and planned traffic management systems, journey Information System on roads connecting Kraków and Zakopane (7 and 47), the A-8 Motorway Information System, traffic management system on the A-2 between Konin and Stryków, the A-4 motorway information system (section Katowice-Wrocław), etc.

Work on KSZR will be carried out in the following order:

1) Development of general functional requirements of the system,

2) Development of a long-term capital expenditure programme,

3) Development of a feasibility study,

4) Development of ITS technical specifications as lists of functional and operational requirements for equipment which is an integral part of the system,

5) Preparation of tender documentation for the public contract award procedure (design and build), of which an essential element is the functional specification, and determine the final value of the contract,

6) Development of the tender documentation and selection of the Contract Engineer/Investment Supervision Engineer,

7) Preparation of applications for funding, the measures to be funded with Community funds – if appropriate selection is announced and the appropriate application and notification procedure is carried out (subject to availability and amount of allocations),

8) Completion of the tender procedure,

9) Design development and system implementation,

10) Commissioning and system audit preceded by personnel selection and training to operate the system.

So far the tasks referred to in points 1, 2 and 3 have been completed, and the capital expenditure program is currently being reviewed to update it according to the funding available.

The following tasks from 4 are currently in the implementation stage, which include the development of a package of technical specifications of ITS elements by working groups in collaboration with the of ITS Polska Association, the research sector and the private sector. The main part of the work performed by working groups has already been completed and currently the developed specifications are being further specified, organised, etc. The following subject areas are being covered by individual studies:

1) Specifications for traffic telematics equipment

2) Implementation standards of media for KSZR communication and data purposes

3) The standard for defining motion detection area

4) Logical architecture and the functional relationship of KSZR telecommunications equipment
Standards for data communication protocols for the traffic management system

5) IT architecture of the data warehouse in the KSZR coverage area

6) The rules for the collection, archiving and use of data obtained from KSZR

7) Dedicated applications for short- and long-term traffic forecasts based on historical data as well as current real-time data.

The actions, in particular the functions and tasks characterised above to be carried out by the KSZR, in order to appropriately prepare and implement the KSZR, are public and open, and thus no particular technological solution has been predetermined in any respect.

ITS specifications are being developed as a result of the cooperation between ITS Polska Association and GDDKiA established under an agreement on the joint development of the Technical Specifications package necessary to systematise and standardise the process of preparation and implementation of infrastructure projects with the use of ITS.

ITS specifications are prepared in an open and transparent manner, which is ensured through involvement of all stakeholders in the process of their development.

System assumptions and their functionalities are broadly consistent with the so-called priority areas and priority actions. Due to the size of the project, in particular the convergence with the Priority Area No I – "Optimal use of road, traffic and travel data" and its various component activities can be noted. The KSZR will provide final information for users and source data to download: road and traffic data provided in real time, or more precisely in near real-time (travel information via the Internet, variable message signs), computer language data for download, such as XML, in particular for navigation service operators, radio stations, digital map operators. The KSZR will be interoperable with other similar systems used in urban areas or by traffic management centres abroad (e.g. through the use of data transmission model DATEX II).[5]). Basic

---

[5] DATEX is a set of specifications which standardise the transmission of traffic and travel information in Europe. It was created as a mechanism to facilitate the exchange of information between traffic management centres and information systems for drivers. It has become a standard for many ITS applications which have been built in Europe since the 1990s. In 2006, about 60 DATEX data exchange centres operated in Europe, both nationally and

information about the system (e.g. a decrease in the free traffic flow, congestion, travel times, road accidents, etc. will be generated by the system and made available through a variety of access channels: variable message signs (including rotating prism VMSs), websites, and mobile applications downloadable free of charge from GDDKiA, among other things. The issue of "universal traffic messages" should also be emphasised. GDDKiA, as part of the KSZR, has set itself the task of selection of messages and pictograms for traffic management in this area, so that in accordance with the requirements of the Directive they are as understandable as possible for every user, regardless of the language used (for example, Deployment Guidelines which are in the final phase of development as part of the EasyWay[6]

Road traffic surveillance

The following projects are planned to be implemented as part of the activities of the Inspectorate of Road Transport (ITD) in the next 5 years:

1) Launching an automated system of administrative penalties for exceeding the standards relating to axle load and total vehicle weight, only on the basis of measurements of pre-selection scales.

2) Expansion of fixed equipment for speed recording.

3) Deployment of section speed controls.

4) Launching a system for imposing penalties for passing through a red light.

Tender procedures are currently underway for the purchase of measurement infrastructure, which is a component of the automatic traffic surveillance system. The completion of the majority of contracts is expected in the third quarter of this year. The following procedures are underway:

– mobile recorders;

– fixed recording equipment;

– equipment recording vehicles passing through red lights;

– section speed control (installation expected to be completed in 2013).

internationally. In recent years due to the evolution of IT systems and ITS software applications, the need to update standard arose. Therefore the DATEX II format was created in 2003 (www.datex2.eu). The new specification covers a broader range of applications and, apart from non-urban roads and motorways, also includes urban roads. Potential users of the data are not only traffic management centres and road authorities, but also other ITS service providers. The DATEX II format is described in the manual DATEXIIv2.1-UserGuide and other sources. The proposed system should allow for automatic conversion of data sent to other traffic management centres, media (RDS-TMC) and other parties to the DATEX II format, as well as the conversion of the format of the data received from other traffic management centres to the DATEX format required for operational management.

[6] EasyWay is a project of the European Commission, which aims to define the requirements, in particular the trans-European road network, for services such as traveller information, traffic management and fleet systems http://www.easyway-its.eu/ platform).

Furthermore, work is underway on part of the procurement procedure for a central processing system, which is an ICT system allowing for full automation of control functions and integration of equipment owned by ITD.

The Chief Road Transport Inspector plans to introduce a corporate data model to consolidate data from all operating systems in order to use the mechanisms and analytical tools necessary to optimise management planning.

Emergency call system

Applicable regulations for the emergency call system are provided for in particular by the following legal acts:

1. The Act of 24 August 1991 on fire protection *(Journal of Laws of 2009 No 178, item 1380, as amended)*;

2. The Regulation of the Minister of the Interior of 31 June 2009 concerning the organisation and functioning of the emergency call centres and provincial emergency notification systems *(Journal of Laws No 130, item 1073, as amended).*

Currently, the Ministry of Administration and Digitization is working on the new *Regulation on the organisation and functioning of a system collecting and providing access to information and data on the location of the network termination, from which a call to the emergency number "112" is made or other emergency numbers* with respect to the provisions of the emergency call system. At the same time preliminary work is in progress at the Ministry of Administration and Digitization over the new Regulation on the organisation and functioning of Emergency Call Centres / Provincial Emergency Call Centres (CPR/WCPR).

The Act of 13 July 2012 *amending the Act on Government Administration Departments and certain other Acts* was published in the Journal of Laws on 8 August 2012, item 908 and shall enter into force on 8 September 2012, therefore the control of the emergency call system was transferred from the competence of the Minister of the Interior to the minister responsible for public administration.

Emergency call centres have been launched in 4 provinces. These centres, however, do not offer full functionality. As further ICT projects are put into service, the functional range of centres and their territorial coverage will be progressively extended. Ultimately, emergency call centres will to handle calls to basic emergency numbers, such as 112 (the single European emergency number), 999 (State Emergency Medical Service), 998 (State Fire Service) and 997 (Police).

Until such centres are launched in a particular area, their tasks are carried out under the agreement referred to in Article 1(1) of the Act of 15 December 2011 amending the Act on amending the Act on fire protection and certain other Acts. Pursuant to this provision the Governor may delegate the duties of emergency call centres, including handling the service emergency number 112 to the State Fire Service or the local government units by way of an agreement until 31 December 2013.

Currently notification sent to emergency number 112 is received by Police dispatchers (most calls to which come from mobile networks) and the State Fire Service dispatchers (most calls to which come from landline networks). Receiving calls based on this model will be phased out, with the

development of functional and territorial emergency call centres, which is to take place no later than by the end of 2013.

The eCall system

The Committee for European Affairs of the Ministry of Foreign Affairs at its meeting on 4 March 2011 decided not to sign the eCall Memorandum of Understanding, a document that may have been considered as a declaration of support for the implementation of this system in European countries.

The Emergency Call IT System (SIPR) being implemented by the Centre of IT Project MAD provides the functionality of receiving eCall signals. Ultimately SIPR is to be implemented in emergency call centres by 31 December 2013.

Other ITS solutions being implemented

1) Vehicle weighing preselection system - "Scales are important", which aims to introduce a comprehensive system for elimination of heavy goods vehicles in excess of maximum authorised axle loads, total weight and height, and a system of measurement and monitoring of heavy goods vehicle traffic intended for use on Class A, S and GP roads. As part of the "Scales are important" project, sites for checking heavy goods vehicles for maximum authorised weight, axle loads and heights will be launched. The site comprises the following:

    −   a stand intended for static vehicle weighing (portable scales);

    −   a preselection measuring point equipped with the necessary measurement tools for checking the total weight, axle load and total weight, length and height (24-hour continuous weigh in motion vehicle measuring).

    The optimal use of road traffic data, such as with the vehicle weighing system, will be achieved through the installation of cameras and induction loops to collect information on the number and types of vehicles. As part of the system, heavy goods vehicle traffic will be monitored. Installed sensors for measuring the total weight, axle loads and vehicle heights will also collect information on the possible exceeding of safety-related and traffic protection parameters. The system is being implemented in consultation and cooperation with the Inspectorate of Road Transport and the Ministry of Transport, Construction and Maritime Economy.

2) A Meteorological Service System operating within the already developed and planned systems, is dedicated primarily to maintenance services.

3) Video Surveillance System of Road Surface Condition operates within the already developed systems and is currently being expanded.

4) The Travel Information System for roads connecting Kraków and Zakopane - travel time measurement system for the road between Krakow and Zakopane with intermediate points in Myślenice and Rabka-Zdrój. Registration plates are read at the measurement points to calculate

average travel time for individual road sections. Data are transmitted to variable roadside message signs and are available on the website www.nadrodze.info. The system provides information on travel time for users of national roads Nos 7 and 47 of the road section Kraków - Myślenice - Rabka-Zdrój - Zakopane.

5) The Traffic Management System is being implemented as part of upgrading the Konin - Stryków section of the A2 motorway to meet the requirements of a toll motorway. It consists of a system of traffic information, caution and prohibitory signs using information about the current traffic volume at interchanges, information from weather stations and calls concerning road events and works, providing information in real time. The system is managed by the Stryków Traffic Management Centre.

6) The Integrated Meteorological Service and Traffic Management System on the A-4 Wrocław (Bielany) – Sośnica motorway section. The system is provided with variable message signs interoperating with meteorological stations, capable of displaying real-time information and alerts received from the management system and variable message signs affecting the smooth traffic flow. The system was installed on a section of 150 km of A4 motorway running through the area of 3 provinces (Opolskie, Dolnośląskie, Śląskie).

7) Motorway Information System on the A8 motorway forming the Wrocław Motorway Ring-Road. The implemented ITS provides road users with access to weather information (including warnings, alarm messages and weather information) with the use of variable message signs. The system uses variable message signs to manage traffic, i.e. control the use of lanes, introduce speed limits, communicate hazards and disruptions to drivers, detour traffic, communicate type and location of hazards to drivers, suggest alternative routes and provide other information in order to maintain traffic safety.

3. Provincial level projects

MAZOWIECKIE PROVINCE

The measures planned in this province include the following:

1) Regional rail services:

   – creation of an information system for delayed trains in Koleje Mazowieckie,

   – implementation of a Passenger Information System – Information at the ticket office,

   – creation of a system of trainset circulations,

   – implementation of a dynamic real-time passenger information system for the WKD service train traffic,

   – installation of a comprehensive CCTV surveillance system at all stations and stops of the WKD services, including level crossings,

   – construction of telecommunication infrastructure for a fibre-optic conduit including fibre-optic cable laying for the WKD services.

Apart from the already implemented vehicle tracking system using GPS signals and electricity meters for traction units from the company Koleje Mazowieckie, further projects using on-board ITS technology in vehicles are planned, such as installation of fare payment systems (ticket-validation machines) and ticket vending machines.

Plans also include an electronic platform for rolling stock maintenance and a rolling stock failure condition detection system DSAT, which analyses signals from track-side equipment ASDEK and transmits safety relevant information about any possible irregularities in vehicle axles.

Koleje Mazowieckie

So far, the Company has implemented a vehicle location system based on signals from GPS devices and electricity meters of traction power supply for rail vehicles, becoming the first carrier in Poland to pay only for the actual supply of used electricity. The company has also intensified upgrading owned vehicles, equipping them with complete passenger information systems consisting of electronic information boards outside and inside trains, public address systems, and intercoms for passengers to communicate with train staff. During scheduled maintenance, vehicles are equipped with systems for broadcasting advertising, monitoring and passenger counting. Vehicles after fifth level maintenance repairs including upgrades are also fitted with a number of on-board diagnostic tools that enable engine drivers to take prompt action in the case of vehicle failure.

In the coming years, the Company plans further capital expenditure projects associated with the use of on-board ITS technology in vehicles. It should also be noted that every new vehicle purchased by the Company is equipped with a complete passenger information systems and on-board diagnostics. Further plans provide for vehicle customisation to provide transport services in the Warsaw agglomeration by installing fare collection systems (ticket-validation machines) and installation of ticket vending machines. In the coming years the introduction of an electronic platform for operated vehicle maintenance is planned. Furthermore, at present the Company "Koleje Mazowieckie – KM" is working with PKP PLK S.A. on the rolling stock failure condition detection systems (DSAT), which analyse signals transmitted by ASDEK trackside equipment and transmit relevant information to the carrier concerning any irregularities in vehicle axles.

2) Broadly defined public transport

Development of an integrated public transport system in the province (the possibility of journey planning from a stop in one town to a stop in another town, purchasing a ticket for the entire journey and mutual acceptance and harmonisation of rail/road transport tickets and urban transport at least for the sub-regional operator, and optimally also outside the province).

3) Provincial roads.

Exclusive use of acyclic traffic controls to adjust the control parameters of existing traffic lights at isolated traffic lights not covered by centralised area traffic control and management are being introduced as part of limited ITS implementation on provincial roads managed by the Mazowieckie Province Roads Administration (MZDW). These activities are being carried out as part of capital expenditure projects of road expansion, reflected in annual and long-term plans of the Mazowieckie Province Government.

The implementation plan for the Development Strategy of the Mazowieckie Province for 2014-2020 provides for the task of upgrading traffic lights on Mazowieckie Province roads, covering the introduction of acyclic traffic signals in place of the existing fixed-time signals, updating the existing parameters of acyclic signals, monitoring the operation of traffic lights and replacement of focused light source (bulbs) signals by retrofitting diffuse light source (LED) lanterns, which concerns the implementation of the ITS traffic management systems.

These plans are entered in the draft Development Strategy of the Mazowieckie Province for 2014 – 2020, and the sources of funding are funds from transport operator companies, funds from the Operational Programme Infrastructure and Environment, loans from the European Investment Bank and a grant from the Swiss - Polish Cooperation Programme.

ŁÓDZKIE PROVINCE

From 26 April 2010 to 30 November 2011 the Provincial Roads Administration in Łódź implemented a project, "Intelligent transport systems - road load monitoring", under the Regional Operational Programme for Łódzkie Province for 2007 - 2013, Priority Axis I - Transport infrastructure, Measure I. 5 - Intelligent transport systems, including the elements listed in the Directive of the European Parliament and of the Council 2010/40/UE of 7 July 2010. This project

received funding from the Łódzkie Province Board under Resolution No 997/10 of 28 June 2010, i.e. before this Directive was issued.

The project implementation is to provide monitoring and protection against destruction of provincial roads managed by the Province Road Administration in Łódź. The system consists of 8 stations preselected vehicle weigh-in-motion stations (scales and cameras), 17 traffic monitoring stations (cameras), 2 devices to confirm a need to eliminate a suspect vehicle from traffic (portable scales), IT infrastructure for the data transmission and collection and specialised software. Cameras are also fitted with speed measurement radars. Information from measurement points is processed in real time on a server located at the office of the Regional Roads in Łódź. The recorded and processed data are protected by individually provided passwords and accessible to law enforcement services such as the Provincial Police Headquarters in Łódź (6 stations), the Inspectorate of Road Transport (33 stations) and Central Bureau of Investigation (CBŚ) (1 station). The data processing application is modified on an ongoing basis and adapted for the purposes of road maintenance and prevention services. Some information can be provided to road users via the internet, through the website of the Provincial Road Administration in Łódź.

If additional funding is obtained, the system can be extended by traffic control components, provision of visual information to traffic participants and achieving data exchange compatibility with other ITS applications

Measure: *support for the deployment of intelligent road transport systems (ITS)* has been recorded in the lines of action of the currently updated Development Strategy for Łódź Province for 2007-2020 in operational objective 7.1 Strengthen and development of transport and ICT systems.

MAŁOPOLSKIE PROVINCE

Małopolskie Province is carrying out implementation projects on intelligent transport systems in the region. Such projects include a road traffic control system, a programme to improve the availability and quality of passenger rail transport within the Rapid Urban Rail (SKA) in the Kraków Agglomeration, as well as public transport e-tickets in Małopolskie Province.

The Provincial Road Administration (ZDW) in Kraków, which is a budget unit funded by the Małopolskie Province Government, carries out activities related to the implementation of ITS solutions in the provincial road network in Małopolska by implementing the following projects:

1) Podhale Region Intelligent Traffic Management System (ISSRRP)

   The project was implemented in 2011 with funding from the European Union under the Małopolska Regional Operational Programme 2007-2013. It provided for the construction of the ITS system, which consists of a network of specialised equipment, such as traffic volume monitoring stations, warning stations monitoring weather conditions and the condition of road surface, video surveillance stations, and traffic information boards, joined together by a traffic control centre, which also performs the functions of data distributor for a web portal functioning in many dimensions (the internet, GPS navigation, radio, GSM), which will be

used to provide information to road users. An integral part of the system is a mobile traffic control centre operating directly in the field by providing the regional centre with information on road conditions. The physical scope of the project provides for complete monitoring coverage of the network of national and provincial roads of Podhale region and selected district roads. Main project objectives are safer travel and reduced congestion on Podhale roads through the implementation of the Podhale Region Intelligent Traffic Management System, allowing for continuous monitoring of traffic and weather conditions, road surface conditions, traffic management and user/driver communication of traffic conditions prevailing on Podhale roads. The project concerned was the winner of the Leader of the ITS 2012 competition. It won the main prize in the category of best implementation.

2) <u>Integrated Traffic Control System in Małopolskie Province (ZSSRM)</u>

The project is scheduled for implementation in 2013. It is on the list of MRPO's key projects 2007-2013. The project plan includes a system composed of equipment for monitoring and traffic surveillance, broadcasting messages and video monitoring on inbound roads to urban agglomerations (Kraków, Tarnów, Nowy Sącz, Oświęcim), and creation of ICT infrastructure in order to facilitate access to the Palenica Białczańska car park. The system involves constructing autonomous measuring stations located in front of the entry to agglomerations, used to provide real time:

− traffic volume measurement,

− classification of vehicles,

− vehicle speed measurement,

− detection of traffic incidents,

− monitoring traffic of specified vehicles,

− detection of stolen vehicles.

The project involves the development of subsystems comprising ANPR, VMS, video and meteorological monitoring equipment. As part of the ZSSRM project a modern parking management system in Palenica Białczańska will be built with an electronic parking space booking system.

These systems are linked to the first priority area: Optimal use of road, traffic and travel data of Directive 2010/40/EU the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport.

In 2013 – 2015 Małopolskie Province plans to implement an integrated electronic ticketing and electronic passenger information system.

These measures are consistent with the Małopolskie Province Development Strategy for 2011-2020, which adopted the Resolution of the Provincial Assembly No XII/183/11 of 26 September 2011 and by the Strategy for Transport Development in Małopolskie Province for 2010-2030, which adopted the Resolution of the Małopolskie Provincial Board No 1434/10 of 25 November 2010.

Technical information

The Provincial Road Administration in Kraków uses the following technical standards in planning project to be implemented, as well as in the already completed ITS projects (Podhale Region Intelligent Traffic Management System):

Hardware

An analysis of the European, American, and Asian markets is being performed to gain insight into the currently available solutions for ITS equipment available and used in projects of this type. The analysis is being performed for the project needs and rationalisation of the costs incurred on the stated purpose of the project.

Software

Software is required to be open and should enable system interoperability, which in turn translates into the development of a specification containing guidelines for data transmission protocols between system equipment and servers: open protocols using XML and others described by the Contractor in the statement of work, the openness of the database system environment – the database environment running on Microsoft Windows Server operating systems.

The contractor shall develop a modular, scalable system with a client-server architecture (client = desktop application, a Web client and a mobile client).

At the same time, both for the project of the Podhale Region Intelligent Traffic Management System and the proposed ITS projects (including the Integrated Traffic Control System in Małopolskie Province) the designs and technical specifications were developed by ZDW in Kraków.

LUBELSKIE PROVINCE

The Lubelskie Province Board finances and maintains the Lubelskie province road network with a total length of 2 172 km (Lublin Province ranks fourth in Poland in terms of length of the provincial road network). The poor condition of these roads requires a number of immediate repair works to be carried out.

It should be emphasised that repair work on these roads carried out in 2005 - 2011 decelerated the progressive degradation of their surface, but about 68 % of provincial roads are in poor or unsatisfactory condition.

The measurement of performance features of Lubelskie Province roads carried out in 2011, as part of the Road Surface Condition Assessment System (SOSN) revealed that more than half the length of the network requires planning and performance of resurfacing and levelling of the wearing course. It should be noted that these are the most expensive treatments, which in many cases prevents their execution due to lack of funds for this purpose in the Budget of the Province.

Despite this fact, the Provincial Road Administration in Lublin, which performs the statutory function of provincial road administration, has taken action to improve the road safety. All province road intersections with traffic lights installed (13 intersections) have been provided with

intelligent (traffic-actuated) traffic control systems, controlling traffic signals with the use of devices adjusting the signal duration to traffic volumes at intersections, including 2 sections of roads with intelligent, line-coordinated signals. Detection of vehicles at junctions is via inductive loop installed in the carriageway, CCTV cameras or using both of these methods in a "mixed" system.

To further improve traffic safety, variable message signs are planned at the entries to the bridge over the Vistula River (under construction), located in the towns of Kamień and Solec nad Wisłą.

Variable message signs will allow the display of graphic and alphanumeric content:

- Variable message warning signs in the shape of equilateral triangles with sides measuring 1 250 mm (capable of displaying the following signs: A-14, A-19, A-30, A-32, A-33, A-34).

- Variable message prohibitory signs in the shape of circles with a diameter of 1 050 mm (capable of displaying the following signs: B-25, B-26, B-33).

- Simultaneous display of the following information: air temperature, surface temperature.

- Two lines of text displaying up to 9 alphanumeric characters.

LUBUSKIE PROVINCE

The planned update of the Lubuskie Province Development Strategy until 2020, strategic objective 2: High availability of transport and communication, the intervention direction of the operational objective 2.2 includes action to improve communication management for the development of ITS. A detailed action plan in this respect will be developed in the planned update of Lubuskie Province Development Strategy until 2025.

ŚLĄSKIE PROVINCE

An innovative project of the **Silesian Public Services Card** (**ŚKUP**) is being implemented in Śląskie Province. This is an IT system for processing payments for services provided by public institutions. Apart from acting as electronic money, the card will also be a resident ID and an electronic signature certification carrier. The system will allow the use of various services: transport, culture, sports and leisure, library and paid parking. It will also be a platform for exchanging information between project participants and residents.

Project participants are Komunikacyjny Związek Komunalny GOP in Katowice (KZK GOP), which oversees its implementation and the twenty-one cities of the Silesian agglomeration: Będzin, Bytom, Chorzów, Czeladź, Dąbrowa Górnicza, Gliwice, Imielin, Jaworzno, Katowice, Knurów, Mysłowice, Piekary Śląskie, Pyskowice, Radzionków, Ruda Śląska, Siemianowice Śląskie, Sosnowiec, Świętochłowice, Tychy, Wojkowice and Zabrze. The project has received funding from the European Regional Development Fund under the Regional Operational Programme of Śląskie Province from 2007-2013.

The Śląskie Province Government has contributed to the ŚKUP project by handling the rail module, through actions aimed to integrate the ticketing system project in provincial rail services.

On 9 January 2012, the KZK GOP signed an agreement for the project with a consortium of Asseco Poland S.A. and BRE Bank S.A. From that date, contractors have 16 months to fully implement the system: building of data processing centres and installation of points and equipment for sale and support of ŚKUP, as well as card issuance to residents. This stage of work should be completed in May 2013. The second part of the contract – lasting 65 months – will be focused on maintaining the system, and thus providing means of communication, customer service centres and maintenance service for all equipment.

ŚKUP project details are described on the website: www.kartaskup.pl

DOLNOŚLĄSKIE PROVINCE

No ITS (which includes traffic management systems, passenger information systems) has been implemented in Dolnośląskie Province. There are also no plans to implement tasks in this field on Dolnośląskie Province roads over the next five years.

OPOLSKIE PROVINCE

Three speed recording, travel time and vehicle count devices, which also display the speed of passing vehicles and relevant speed-dependent messages have been installed in the Opolskie Province road network. These devices are equipped with self-contained solar panel power supplies. They can also be relocated to 17 different locations.

Works are currently in progress for the development of the Opolskie Province Strategy for 2014-2020 and the Regional Operational Programme for the same period. The section on rehabilitation of transport routes is expected to provide for the use of ITS.

PODKARPACKIE PROVINCE

Currently, there are no plans to implement any ITS on roads of Podkarpackie Province.

PODLASKIE PROVINCE

The Podlaskie Province Government is neither currently performing nor planning any ITS implementation activities in the areas of traffic management or passenger information systems.

POMORSKIE PROVINCE

Province authorities are interested in implementing ITS, in particular in connection with the intensive expansion of the Integrated Traffic Management System TRISTAR. Expectations for ITS are included in both the strategic and planning documents at regional level, such as the Pomorskie Province Zoning Plan, Regional Transport Development Strategy in Pomorskie Province for 2007-2020, as well as at the local level, in such documents as: land use plan of Gdynia, land use plan of Sopot.

In the next financial perspective it will be necessary to continue the development of TRISTAR with new proposed features and linking to traffic management and passenger information systems, managed by national roads and railway lines administrations.

ŚWIĘTOKRZYSKIE PROVINCE

Currently no ITS projects are being implemented in the Świętokrzyskie Province. As part of the work on transport plan, the province plans to implement a passenger information system.

4. Projects in urban areas

WARSAW

Projects planned to be implemented in the coming years by the capital city of Warsaw or municipal companies in the area of priority actions, specified in Article 3 of Directive 2010/40/EU the European Parliament and of the Council of 7 July 2010 *on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport.*

	Project title	Implementing entity	Priority actions
1.	Travel planning platform for the Warsaw agglomeration	Zarząd Transportu Miejskiego	a) provision of travel information for various modes of transport in the territory of the entire EU; c) data and procedures providing users where possible with free-of-charge road safety-related minimum universal traffic information;
2.	Integrated Traffic Management System stage 2.	Municipal Roads Administration	a) the provision of EU-wide multimodal travel information services; b) the provision of EU-wide real-time traffic information services; c) data and procedures providing users where possible with free-of-charge road safety-related minimum universal traffic information; MQ}
3.	Traffic Management System of Miejskie Zakłady Autobusowe	Miejskie Zakłady Autobusowe	None
4.	System for Handling Emergency Events involving MZA vehicles	Miejskie Zakłady Autobusowe	None

5.	Passenger information system (on-board)	Miejskie Zakłady Autobusowe	None
6.	Passenger count system	Miejskie Zakłady Autobusowe	None
7.	On-bus CCTV surveillance system	Miejskie Zakłady Autobusowe	None
8.	Radio and Alarm Communications System	Miejskie Zakłady Autobusowe	None
9.	Passenger Information System (at public transport stops)	Tramwaje Warszawskie	None

TRÓJMIASTO

Coordinated by Gdynia, the largest partnership project of metropolitan nature is being implemented in Trójmiasto by the Municipality of Gdynia, the Municipality of Gdańsk and the Municipality of Sopot with the Implementation of the Integrated Traffic Management System TRISTAR in Gdańsk, Gdynia and Sopot *Implementation of the Integrated Traffic Management System TRISTAR in Gdańsk, Gdynia and Sopot.* The project is co-financed by the European Union with the funds of the European Regional Development Fund under the Operational Programme Infrastructure and Environment (Priority VIII: Transport safety and national transport networks, Measure 8.3 Development of Intelligent Transport Systems). The EU grant will cover 85 % of the eligible costs of this project.

The system will be deployed at major street routes in the transport system of the cities they manage. For the purposes of the traffic management system, an underground cable ducting system will be built with fibre optic cable on the right-of-way boundary of streets covered by the system, the existing traffic lights will be altered and new traffic lights will be erected with the means to control the priority for public transport. Systems to be provided include a system for recording traffic offences, a vehicle identification system with an automatic number plate recognition, roadside weather stations will be built, variable message signs informing about traffic conditions and time of travel to selected points in Trójmiasto, information signs providing the number of vacant parking spaces, and information boards at public transport stops. Journeys can be planned with the use of the web portal and passenger terminals, located in major Trójmiasto junctions, in addition to the possibility to plan a trip including transfers and delayed vehicles. In the TRISTAR system, public transport will be given priority at intersection traffic lights, which will certainly improve its punctuality. The supervisory role of the system will be exercised by the Traffic Management and Control Centre located in Gdansk and Gdynia.

Over the next five years, after the completion of the above project, the Municipality of the City of Gdynia, where possible, plans to provide for additional routes and street pedestrian signalled crossings.

Activities planned for implementation as part of the project "Implementation of the Integrated Traffic Management System TRISTAR in Gdansk, Gdynia and Sopot" is based on a programme and strategic documents, of project partners as well as strategic documents at the province and national level. Their implementation will contribute to the achievement of goals and assumptions, among others the following documents:

Strategic documents of Partner Cities

1) **Development Strategy for the City of Gdynia**

   Some of the tasks to be completed under the objective *Provision of an efficient and environmentally friendly urban transport system* include the following: development and upgrade of the public road network in the city, with a particular emphasis on the city's basic traffic system, the integration of different forms of public transport in the conurbation, encouraging residents to use public transport by improving the quality and variety of transport services.

2) **Development Strategy for the City of Sopot**

   The main objective of *Reasonably formed and safe urban infrastructure* will be achieved by implementing specific objectives, including the objective, *Safer, efficient and sustainable transport system in the City*, including the task *Complete integration of public transport in the agglomeration system*, which is consistent the assumptions above project.

3) **Development Strategy for the City of Gdańsk**

   The strategic objective for priority Residents - *Improve living conditions* – Specific objective *Development of the public transport system*; in terms of economic priority is the strategic objective *Integration of Gdańsk Metropolis* – specific objective *Transport Integration of the Metropolis*. The Strategy Implementation Programme consists of a set of operational programmes developed in detail. The *Gdańsk Metropolis* programme contains such implementation projects as: *The integration of the public transport system of the Gdansk Metropolis* and involves the cooperation of the Municipal Offices of Gdynia, Sopot and other local governments and local public transport operators.

Strategic documents at the Province level

1) **Regional Transport Development Strategy in Pomorskie Province for 2007-2020**

   Section 4 of the *Regional Transport Development Strategy in Pomorskie Province for 2007 - 2020* contains priority actions, among which is the development of an integrated system of traffic management and passenger service at regional and metropolitan levels, and as part of the priority actions listed above, the following will be implemented by the Trójmiasto municipalities: "Development of an integrated road traffic management and passenger service system at a regional and metropolitan scale – Building of the TRISTAR Integrated Road Traffic Management System".

2) Pomorskie Province Regional Development Strategy

The priority AVAILABILITY refers to the need to ensure the mobility of people, the availability of services and efficient and safe movement of goods, information, knowledge and energy, thanks to an efficient infrastructure, and in respect of environmental resources and assets. Strategic objective 1, *Efficient and safe transport system,* shows the following courses of action which have been selected here for relevance to the above project:

− *development and integration of the passenger transport system, including the introduction of effective forms of regional transport management and creation of an integrated public transport system in the metropolitan area (...);*

− *improvement of transport safety in the province by creation of organisational and financial conditions for effective and long-term actions in this respect;*

− *reducing the impact of vehicular transport on the environment and people, by ensuring a high share of alternative (environmentally friendly) means of transporting people and goods, including supporting the development of regional rail, and supra-local infrastructure for cycling and walking.*

The relationship to priority areas and priority actions referred to in the ITS Directive

1) As a result of the above project, for the proper and effective functioning of the system, actions will be conducted consisting in collecting, processing and providing access to road users (in real time) information on travel and traffic conditions, which, marking the implementation of the Priority action (a), (b) and (c) is in line with the priority area I *Optimal use of road, traffic and travel data.*

2) The Traffic Management Centre and Control established as a part of the project will operate as two autonomous branches located in Gdańsk and Gdynia, managing separate areas, while ensuring the exchange of traffic data and information (on an inter-city scale), both between them and service providers providing public transport, which will guarantee the effectiveness of the system in the entire Trójmiasto area, consistent with Priority area II *Continuity of traffic and freight management ITS services.*

3) By building an open architecture system, which in the future will allow the addition of other urban areas, and by an opportunity to expand the system by additional elements, the project implementation is consistent with Priority area IV *Linking the vehicle with the transport infrastructure.*

KRAKÓW

Currently, under the *Operational Programme Infrastructure and Environment* that the Municipality of Krakow is implementing, with funding from the European Regional Development Fund, the following project: "The development of a public transport management system in Kraków" As part of this project, by 2014 the implementation of 3 tasks is planned:

1) **Expansion of the traffic control system (UTCS), including the construction of an underground fibre-optic cable ducting system;**

Implementation of technological solutions to improve tram travel time and expanding the Traffic Control System along the tram line in the area of al. Pokoju, ul. Nowohucka and alongside the Bagatela Theatre – Bronowice Małe service.

Designing traffic signal programmes at intersections covered by the contract, taking into account the complete priority of trams to pass through intersections. Laying fibre optic cables in the underground cable ducting system at some of the urban road sections: allowing for data transfer to and from the Traffic Control Centre, including:

- (bi-directional) digital data transmission between the UTCS system and drivers of traffic lights at intersections,
- (bi-directional) digital data transmission between the TTSS system and dynamic displays of the passenger information system,
- transmission of digital video signals (one-way) from intersection monitoring cameras,
- transmission of digital data and video images (bi-directional) for access control systems for traffic calmed areas and surveillance of public transport lanes.

2) **Access control system for traffic calmed areas and surveillance of public transport lanes;**

The implementation of the control system for lanes dedicated only for public transport traffic and the implementation of solutions which could affect the behaviour and attitudes of road users within the "B" zone. The automatic access control system for "B" zones and monitoring of public transport lanes will allow for more effective control of unauthorised vehicles and prompt penalisation of the owners of those vehicles, thus increasing the attractiveness of the Kraków city centre, in particular the surroundings of the Main Square and Planty by eliminating unauthorised vehicle traffic from zone "B";

3) **Expansion of the public transport management system (TTSS);**

The task provides for:

- on-board computers on all trams, enabling coverage of all tram traffic in the TTSS system, providing continuous tracking of trams and on-time performance against the scheduled service;
- implementation of engineering measures at tram stops to allow better access for passengers to actual passenger information at stops by installing passenger information displays and information boards displaying up-to-date information on public transport services. In this regard, the delivery and installation of 203 information displays are planned at tram stops;
- Delivery of software for analysis of statistical data from TTSS;
- Delivery and installation of 14 displays presenting information about the transport network of Kraków;

- Delivery of Busman software modules;

- Delivery of an integration module for the external information systems on public transport.

Another element of implementation of ITS systems in Kraków is the development of traffic control on major transport routes in Kraków:

1) Completed projects:

- Area Traffic Control System – the corridor of the Krakow Rapid Transit Tramway and all signals along al. 29 Listopada (from Prandota), Aleje Trzech Wieszczów, Konopnickiej, Kamieńskiego, Wielicka (to ul. Bieżanowska) and the First Ring Road - a total of 70 traffic lights;

- Performance of traditional coordination on the following routes: Turowicza - Herberta, Zakopiańska, Opolska, Okulickiego, al. Pokoju (from Ofiar Dąbia to the entry to CH Plaza), Nowohucka (from Stoczniowców to Centralna), Księdza Jancarza.

2) Projects currently underway:

- Construction of the tram line along Mały Płaszów and the route formed by ul. Rybitwy, Christo-Botewa - included in the area traffic control system and the development of a system of dynamic passenger information signs;

- The construction of a tram line to the Jagiellonian University Campus – stage I – creation of an area traffic control system along the tram line being built to the Jagiellonian University Campus. Development of a system of dynamic passenger information displays;

- Construction of the tram line to the Jagiellonian University campus – stage II – inclusion in area traffic control system of traffic lights located on the route formed by ul. Tischnera, Brożka, Wadowicka, Kapelanka, Monte Cassino, Dietla (passable sections), Zielińskiego and signals at the Zwierzyniecki bridge and tram turning circle in Salwator. Dynamic Passenger Information System.

3) Projects prepared for implementation:

- Adaptation of the tram line on the route formed by ul. Mogilska and al. Jana Pawła II to the rapid transit tramway parameters (section from rondo Mogilskie to plac Centralny) - expanding the area traffic management in the area of the project site and the development of a system of dynamic passenger information signs;

- Reconstruction of ul. Kocmyrzowska (from the junction with ul. Bulwarowa to the city border) – expansion of the area traffic management in the area of the project site and development of a system of dynamic passenger information signs;

- Reconstruction of ul. Igołomska (from the junction with ul. Giedroycia to the city border) – expansion of the area traffic management in the area of the project site and development of a system of dynamic passenger information signs;

– Performance of traditional coordination on the following routes: Wielicka (from Wlotowa to Rydygiera), al. 29 Listopada, adding additional coordination signals along ul. Opolska (ultimately from the entry to IKEA to Okulickiego - Andersa). Ultimately, the plan provides for connecting all signals to the area control system.

The following actions are planned as part of the ITS deployment within the Municipality of Krakow in the coming years:

– A vehicle weighing system located on main city inbound routes – installation of a system of scales with the accompanying infrastructure in order to reduce the traffic of overweigh vehicle within the city;

– Traffic management system - a system to inform drivers about road conditions (VMS system);

– Fitting the bus fleet with on-board computers to extend the passenger information system to include bus stops. Implementation of tasks will ensure bus priority in the traffic flow, thus increasing preference to public transport traffic at signal-controlled junctions;

– Car park and vacant parking space information system for the area of the city. Implementation of a system of information boards at key points in the city directing travellers to the nearest car parks with information about available parking spaces.

All these activities, which are either already underway or proposed for implementation, are based on the following strategic / programme documents of the City of Kraków:

Development Strategy for Kraków

The second strategic objective (Resolution No LXXV/742/05 of the Kraków City Council of 13 April 2005), Kraków - a city with a competitive and modern economy – is planning operational objective II-2: Improving transport accessibility. Project completion will help achieve operational objectives, resulting in the further development of the urban public transport, improved standards of public transport services, and the development of public transport infrastructure.

Transport Policy of the City of Kraków for 2007-2015

The main objective of the Policy (Resolution No XVIII/225/07 of the Kraków City Council of 4 July 2007) is to create conditions for the more efficient and safer transport of people and goods, complying with the requirements to limit transport nuisance to the environment, and thus improve transport accessibility within the city and the metropolitan area of the province and Poland.

However, specific objectives directly related to the activities being carried out are: a balanced transport system in the city and the strengthened role of public transport in Kraków. Implementation of these measures will contribute to the improvement of the quality, efficiency and safety of the transport of people by developing the traffic control system and the public transport management system (a dynamic passenger information system). Furthermore, activities comprising the development of the monitoring system and the vehicle weighing system will allow

for maintaining security in traffic calmed areas and reduced nuisance of vehicular traffic in the city centre.

All these actions for the implementation of ITS in Kraków fall within the following priority areas listed in the ITS Directive:

Area I: Optimal use of road, traffic and travel data

This priority area contains activities related to the implementation of a system of signs communicating conditions in the road network - the development of a dynamic passenger information system.

Area II: Continuity of traffic and freight management services

The scope of area II of the Directive covers activities for data transmission in the traffic control system, including prioritisation of public transport vehicles,

Area III: ITS road safety and security applications

Area III of the ITS Directive covers activities aimed at implementing a system of information on available parking spaces, access control system for traffic calmed areas, surveillance of public transport lanes, and a vehicle weigh system.

Area IV: Linking vehicles with the transport infrastructure

Area IV of the ITS Directive covers activities related to fitting public transport vehicles with on-board computers, which send and receive various types of data, making it possible to ensure a priority pass for public transport and transmitting data to the dynamic passenger information system.

Directive ITS priority actions covering the activities which are either underway or proposed to be implemented by the Municipality of Kraków:

  a) the provision of EU-wide multimodal travel information services;

  b) the provision of EU-wide real-time traffic information services;

  c) provision of information services for safe and secure parking places for heavy goods vehicles and commercial vehicles - on selected sections of national roads;

Technical information

The Traffic Control System in Kraków consists of two subsystems:

• Siemens SITRAFFIC SCALA

• VTcenter by Gevas Software.

Traffic light controllers communicate with the Traffic Control Centre (with subsystems concerned) with the use of the **OCIT/O protocol**.

Public transport (trams) is assigned a priority. All controllers active along the tram line are equipped with a radio receiver and a module decoding radio messages transmitted by on-board computers installed on trams. Radio messages are transmitted with the use of the **VDV R09.16 standard.** Frequency 448.0625 MHz.

In order to ensure further development of ITS systems, in terms of the area, quantity, quality and function, through cooperation with different suppliers, the Board of Municipal Infrastructure and Transport in Kraków (ZIKiT) expects that systems proposed by the Contractors/Suppliers will be as open as possible, in particular by using the appropriate interfaces. ZIKiT requires that the development of the UTCS system should consider as much as possible open standards as understood by the European Commission in the document "European Interoperability Framework for Pan-European Government services" of 2004. The reference model for communication protocols is either the OSI model (Open System Interconnection) or is defined by ISO and ITU-T describing the network communication structure as follows:

Reference layer in the OSI model	Protocols required for the System
Application layer XML or HTML - for data transmission structure	In applications where the data transmission rate plays an important role, other methods (such as binary or text files) may be used. The condition is to provide a full description of the protocol structure data sent with its use.
Presentation layer	ASCII or Unicode coding for character data RTF or PDF for block data. JPEG, PNG or BMP for images MPEG2 or MPEG4 or SEQ – for video material MP3 or Ogg – for audio material (or another according to EU guidelines)
Session Layer	- JMS or JMS compatible (or another in accordance with EU guidelines)
Transport Layers	TCP or UDP (or another in accordance with EU guidelines)
Network Layer	IP (or another in accordance with EU guidelines)
Data Link Layer	IEEE 802.3z 1000Base-LX or RS-232 or RS-485 (or another in accordance with EU guidelines)
Physical Layer	available technologies which are not inconsistent with the requirements for higher layers

These assumed expansions of ITS systems are being implemented in the ongoing project, Development of the Public Transport Management System in Kraków:

Expansion of the public transport management system (TTSS)

Expansion of the traffic control system (UTCS)

POZNAŃ

The project underway covers the implementation of the first part of the ITS Poznań. The deadline for implementation is 31 December 2014, and at this stage the project includes the southwest area of the city of Poznań.

The works under the project include the implementation of an integrated intelligent traffic management system in Poznań in the southwest part of the city.

The following is proposed:

- expansion of the traffic management system with the use of the existing infrastructure and the philosophy dynamic area traffic control system developed over many years, expansion of the city's existing telecommunications infrastructure, in particular the fibre-optic transmission network: expansion of the existing MPLS backbone network and the design and execution of ETHERNET fibre optic access network to enable electronic communication between elevated System components installed at various points in the city and the Central ITS System, ensuring transmission of all digital data between these components, including images from cameras, the data collected by the traffic signal controllers, information for passengers, location of means of public transport, etc., expansion of the city's wireless network by adding further wireless nodes necessary for the operation of the ITS system with its full range of functionality;

- the design and implementation of an open IT platform, integrating ITS elements, as well as providing data exchange amongst these elements by means of open communication protocols to be developed and implemented,

- construction of a server room and an operations room with operator equipment, suitable to the needs of System operation and maintenance of the premises of the Traffic Control Centre;

- laying the ICT network;

- Development and implementation of a model for communication network traffic and a technologically-advanced traffic management system to enable short-term prediction of network traffic conditions and intelligent traffic management. The effect will be preventing and relieving congestion in the city network;

- Implementation of a system of displays (including mobile displays) and variable message signs providing drivers with relevant information (about events, risks, recommended diversions, car parks). The objective is to enable dynamic and tactical traffic management and facilitate driving, taking into account current situations in the city, including emergencies (traffic accidents, disasters, mass events, road works, etc.);

- Expansion of a privileged system for trams and buses in order to speed up public transport. This system can also be used by emergency services, including ambulances, etc., in order to optimise the travel time of emergency and law-enforcement vehicles;

- Delivery and implementation of a public fleet management system, enabling control over the punctuality of journeys, online presentation of positions on a digital map, prediction of arrival times, and provision of passenger information. Equipping vehicles with devices that communicate with road infrastructure (traffic signal controllers, distribution points of transmission network signals) and the transfer of information to passengers within the vehicle;

- Design and implementation of the passenger information system, including bus stop display boards and a web portal through which information will be made available to passengers (prediction of traffic loading, information on car parks, road works, diversions, congestions, alternative routes, etc.);

- Delivery and installation of road safety system components: video detection, including vehicle numberplate identification, expansion of the video monitoring system, delivery and installation of sensor stations;

- replacement of traffic signal controllers, supporting structures and points signals.

The main area of implementation will be the area of the city limited by the following streets: Dąbrowskiego - św. Wawrzyńca – Żeromskiego – Dąbrowskiego – Roosevelta - Głogowska - the border of the city of Poznań. This will include about 100 traffic lights, of which approximately 60 require controller replacement, supporting structures and point signals, and a fleet of public transport vehicles consisting of about 550 trams and buses.

The estimated cost of the project is about PLN 102 million, and is co-financed from the European Union funds under the Operational Programme Infrastructure and Environment, measure 8.3. Development of Intelligent Transport System.

ITS expansion is planned to include more city areas from 2015 – 2020, but the implementation of these measures is largely dependent on the ability to obtain extra-budgetary sources of financing.

The implementation of ITS in Poznań is one of the main goals of the programme: Sustainable development of transport (Planned activities/designs: Intelligent Transport) of Poznań City Development Strategy until 2030.

RZESZÓW

As part of the project entitled **Building a system integrating public transport of the city of Rzeszów and the surrounding areas** project on the indicative list at number POPW 3.1-2 (the project during the technical assessment phase) - Priority 3: Province growth centres, Measure 3.1: Urban public transport systems, Operational Programme Development of Eastern Poland in 2007-2013 - designed, delivered and will be implemented **Integrated traffic and public transport**

management system (ZSZRiTP) will be designed, delivered and implemented as one coherent system integrating the operation of the following subsystems:

Area Traffic Control System (SOSRD)

SOSRD is a programme with a significant impact on improving travel within the city. It consists of the following elements:

- a traffic signal control system, allowing for maintaining smooth traffic flow and minimising wait time at intersections,

- A system for prioritising public transport vehicles, allocating the right of first passage to public transport vehicles,

- An information system for drivers using variable message signs, which allows for quick communication of traffic disruptions, changes in the traffic arrangement or recommended detours.

Public Transport Management System (SZTP)

The PTMS will make it possible to track vehicles, count the number of passengers and control of passenger service quality standards by operators, which in turn will enable responding to the current needs of public transport in Rzeszów, with respect to the timetable, reconstruction of the road system, verification of control algorithms, etc. It will interoperate with the following systems:

- Passenger Information System (E-INFO), whose goal is to provide public transport passengers with efficient access to information. Information displays installed at bus stops will display the time of bus arrival for each line. The components of this system will also be installed on buses. Interactive access to information via the Internet is to be provided (including support for nomadic devices and travel planning).

- Electronic Fee Collection System (E-TICKET), whose purpose will be to facilitate the use of public transport, optimise and integrate fares.

These elements will help to reduce vehicle travel time, increase the number of passengers, improve public transport capacity, facilitate travel in the city and increase the safety of all road users.

In order to integrate the systems proposed for the implementation SOSRD, SZTP, E-info and E-ticket included in the Integrated Traffic and Public Transport Management System, an ICT Platform will be designed and implemented for ITS (PTITS). The PTITS will represent the radio transmission and information channel for data communications. Devices interoperating with these systems will be fitted in city buses (150 units). The plans also provide for making the specifications of devices interoperating with the E-TICKET systems available to commercial carriers interested in integration.

Furthermore, as part of the possible extension of the scope of the project or outside the project the **Parking Zone System (SOSP)** is to be designed and implemented to handle the proposed paid parking zone, which is proposed to be deployed in the city centre (management, fee collection, information about available parking places and their locations). In 2013-2025, it will also handle the Park & Go and Park & Ride schemes.

As part of the project **"Development of Intelligent road transport system in the city of Rzeszów"**, project number POIS.08.03.00-00-011/10 – Priority VIII: Transport safety and national transport networks, Measure 8.3: Development of Intelligent Transportation Systems, Operational Programme Infrastructure and Environment in 2007-2013 - proposed delivery and installation of the following systems and equipment in the city of Rzeszów:

- 60 sets of passenger information displays (system expansion),

- 50 e-kiosks sets for the Passenger Public Information system (system expansion),

- *A Vehicle Dynamic Weighing System*, Weigh in Motion type on 5 major city inbound roads and streets: Lwowska, Podkarpacka, Krakowska, Warszawska and Lubelska.

Completed elements of the intelligent transportation system will bring a number of benefits to users of Rzeszow roads. The electronic passenger information light boards delivered as part of the system expansion will display information for passengers on the next bus approaching the bus stop. Passenger information kiosks will serve as 24-hour information desks providing information on possible transport links. They can also provide online information about the city, its attractions, history and major current events. Kiosk functionality can be complemented by the possibility of sale of single and multi-trip paper tickets and topping up electronic cards on contactless media (expansion of the electronic fee collection system).

Design, delivery and implementation of a system of automatic vehicle weighing will result in closing the city to vehicles exceeding the authorised axle load or total weight, which in turn will reduce the risk of damage to the roads.

The proposed activities are to be implemented in 2011-2014.

Reference to the strategic document of the Municipality of Rzeszów - Integrated Public Transport Development Plan of Rzeszów for 2010-2015

Priority Area/priority actions in accordance with Annex 1 of the ITS Directive -

I(4)/c;

II (1.1, 1.2, 1.5)/other actions;

III(4)/ other actions;

IV(1)/other actions

ŁÓDŹ

Since 01.07.2008, the Łódź Area Traffic Control System has been active, which was built as part of the Łódź Regional Tramway project.

Currently, the Area Traffic Control System consists of the following systems:

- Traffic Control System (UTCS) SCATS

    The Traffic Control System SCATS is installed at 70 intersections. The system server (located at the Traffic Control Centre, at the office of the Roads and Transport

Administration in Łódź) monitors the operation of 70 traffic light controllers (58 type controllers, including 53 units of ASR-2008 PL and 5 units ASR-2010, and 12 Eclipse type controllers).

The communication between the Traffic Control Centre and intersections works via an optical fibre network (25 km network), communication devices SOTU (58 units), communication devices TIBBO (116 units). The traffic lights monitoring system also a includes a text message server (located at the CSR) with a communication modem with capabilities to send text messages on the condition of the controller and failures, etc., to any user-defined mobile phone number.

– Public Transport Management System RAPID (PTS)

The Public Transport Management System RAPID currently handles 116 urban public transport vehicles. The system server (located at the Traffic Control Centre, the office of the Roads and Transport Administration in Łódź) analyses on an ongoing basis monitored vehicle locations with the use of GPS modules, on-time performance and, if needed, prioritises delayed trams by sending appropriate messages to the traffic control system. The system communicates with the vehicle via the GSM network using on-board computers installed in vehicles.

– The Passenger Information System (PIS)

The Passenger Information System supports 8 passenger information boards located at four points in the city. The system interoperates with the Public Transport Management System RAPID and displays the actual arrival time to tram stops. It also allows for inputting panel text messages for passengers via the system operator, which are displayed on the boards of choice.

– Video Surveillance System (CCTV)

The system consists of 5 BOSCH PTZ cameras installed at selected intersections. Images are transmitted to the CSR over a shared fibre-optic network. The operator panel with dedicated software (programmes VIDOS and ARCHIVE PLAYER) supports the operation of cameras and recording archived surveillance system records. The system server is located at the Traffic Control Centre at the office of the Roads and Transport Administration.

Currently being implemented as part of the ITS is the project: *Development and upgrading of the tram route on the East - West service (Retkinia - Olechów) including the power supply system and the area traffic control system.* This project is co-financed under OPI&E, measure 7.3. One of the components of the ongoing project is the expansion of the Area Traffic Control System within the peripheral rail line (about 230 signal-controlled intersections connected to the control system).
The project is scheduled for implementation in 2011 - 2014. The project is consistent with the Priority Actions listed in Article 3 (a) – (c) of the ITS Directive. Additionally, please note that ongoing road projects (such as Trasa Górna, Trasa W-Z) involve extension of the already implemented ITS systems.

Implementation of a future text message information system for passengers travelling by public transport is being considered. Preliminary market research is being conducted on the delivery of the system concerned.

These actions are not based on a city programme or strategic documents. Currently, there is no existing document for the City of Łódź to define the rules for ITS implementation. Documents devoted to transport issues, which are currently being produced in the city are the following:

- Strategy for Integrated Development of Lódź 2020+

- Study on the transport system for the city of Łódź

Currently the applicable document is RESOLUTION NO LI/528/97 OF THE ŁÓDŹ CITY COUNCIL of 29 January 1997 on the adoption of transport policy for the city of Łódź.

KALISZ

The project "Building an Integrated Road Traffic Management System in Kalisz - Stage I" is underway, under a "design and build" contract as part of the Operational Programme Infrastructure and Environment

On 09.03.2012, a contract for the implementation of this task was signed with the Consortium of the following companies:

1. UTI TRAFFIC MANAGEMENT SA with the registered office Bucharest Sector 2, Str. Cernauti No 27 B – the Consortium Leader
2. GRUPA UTI Polska Sp. z o.o. with the registered office at ul. Trębacka 4, 00-074 Warsaw. for the gross amount of PLN 19 675 095.99 and the deadline for completion of all tasks by 16.09.2013.

The Kalisz Integrated Traffic Management System (ZSZR) Stage I will consist of the following modules:

1. The subsystem for monitoring and control of traffic lights. This control covers all junctions and pedestrian crossings that fall within the traffic management responsibility of the Mayor of Kalisz.

2. The traffic optimisations subsystem for urban thoroughfares. It will cover the intersection of inbound/outbound city thoroughfares.

3. Intersection video surveillance subsystem. It will cover all intersections and pedestrian crossings connected to the Kalisz ZSZR.

4. A subsystem of variable text message signs. Graphic variable message signs will be installed on city inbound national and provincial roads.

5. A subsystem for detection and recording vehicles exceeding the authorised axle load. Preliminary weigh scales will be installed on city inbound national and provincial roads. This

subsystem will also cover other places where vehicles exceeding authorised axle load can enter the city. Certified portable scales will be purchased that do not require building specialised vehicle weighing stands.

6. Traffic data distribution subsystem. Data processed by the ZSZR will be made available in the graphic form on the website of the Municipal Roads Administration in Kalisz.

7. The subsystem for recording vehicles exceeding the average travel speed at road sections. The subsystems for recording vehicles exceeding the average travel speed at road sections will be installed in the most dangerous places in the city.

8. The subsystem for recording vehicles passing through a red signal. It will be installed at signal-controlled intersections, where the most common traffic incidents involve the offense of failing to stop at red lights.

9. The subsystem for automatic vehicle count with breakdown by category. The vehicle count subsystem will cover all intersections and signal-controlled pedestrian crossings connected to the ZSZR as well as other selected places. In the second case, it should be possible count vehicles broken into categories, assuming definitions of up to 100 different categories of vehicles.

10. The subsystem for wanted vehicle detection. The subsystem will cover all city inbound national and provincial roads and some of the main intersections in the city.

The first stage of development of the Kalisz ZSZR will cover the following 23 traffic lights, to be included in the monitoring and management subsystem:

Intersection of Al. Sikorskiego – Stawiszyńska – Al. Wojska Polskiego

Intersection of Al. Wojska Polskiego – egress from the Dobrzec housing estate

Intersection of Al. Wojska Polskiego – Skłodowskiej-Curie

Intersection of Al. Wojska Polskiego – egress from Tesco

Intersection of Al. Wojska Polskiego – egress from Makro

Intersection of Al. Wojska Polskiego – Tylna (Castorama)

Intersection of Al. Wojska Polskiego – Wrocławska

Intersection of Wrocławska – 29 Pułku Piechoty

Intersection of dróg Poznańska – Harcerska – Al. Wojska Polskiego

Intersection of Al. Wojska Polskiego – Majkowska

Intersection of Al. Wojska Polskiego – Złota

Intersection of Al. Wojska Polskiego – Piskorzewie

Intersection of Al. Wojska Polskiego – Sadowa – Kościuszki

Pedestrian crossing at Al. Wojska Polskiego (Ogrodowa)

Intersection of Al. Wojska Polskiego – Staszica

Intersection of Al. Wojska Polskiego – Serbinowska

Intersection of Górnośląska – Polna

Intersection of Legionów – Polna

Intersection of Górnośląska – Legionów

Intersection of Górnośląska – Serbinowska

Intersection of Górnośląska – Dworcowa

Intersection of Wrocławska – Górnośląska – Podmiejska

Intersection of Al. Wojska Polskiego – entrance from the ring road of Nowe Skalmierzyce

As part of construction stage I:

1. The road projects necessary due to intersection realignment will completed.

2. New traffic management plans and traffic signal control programmes will be developed.

3. Traffic signal coordination plans will be developed.

4. Traffic signals and transmission cables connecting traffic signal controllers and the traffic control centre (CSR). The communication between the controllers will be through the active devices of the traffic control centre (star topology).

5. A room to accommodate the Kalisz ZSZR will be prepared.

6. Intersection pavement will be reconstructed or rehabilitated.

7. All existing traffic lights will be upgraded.

8. Individual traffic lights will be connected to the Kalisz CSR.

9. The operators of the subsystem for monitoring and management of traffic lights will be trained.

Integrated traffic management systems operating within the major arterial roads in the city of Kalisz will help alleviate congestion during peak hours. Operation of the system will consist in gathering information on an ongoing basis on road conditions, and then adjusting the operation of traffic signals in sensitive areas of the city. Where bottlenecks are created, the green light cycle will automatically be extended. At the same time a computer programme will ensure interoperability of traffic signals at adjacent intersections, ensuring smooth traffic flow through major thoroughfares. The overall purpose of the project is to improve transport accessibility and traffic safety in private and public transport in the city of Kalisz through the implementation of the

Integrated Road Traffic Management System. The implementation of the project will improve traffic management through the installation of a modern traffic management system. The project will improve traffic safety by ensuring smooth and organised vehicular traffic flow and reduction of traffic volume in the city centre. This will also reduce public transport travel times. Reducing the cost of public transport will discourage the loss of public transport passengers observed in a number of Polish cities. The result of the project will also be improvement in the condition of the environment by reducing emissions and noise in the city centre.

This task is stage I of the construction of the Integrated Traffic Management System, providing a possibility of System extension by further intersection, however the development is largely dependent on the ability to obtain extra-budgetary sources of financing.

KATOWICE

I. In 2011, a study was developed: "Functional analysis for the Intelligent Transport Management System in Katowice, including the metropolitan function of the city of Katowice." The study defined the types and scales of problems to be resolved in Katowice by the ITS and the methods to solve them, stages of implementation and the expected costs and benefits.

The key projects, accompanying tasks and activities determining the future success of this ITS project were found to be the following:

1) completion of Silesian Public Services Card (ŚKUP) project,

2) the completion of the track infrastructure upgrading project and the purchase of rolling stock,

3) changes in traffic management in the Katowice city centre,

4) extension of paid parking zones,

5) implementation of integrated interchanges to integrate various modes of transport,

6) building of P & R car parks.

Capital expenditures for the preferred option were calculated at PLN 175 208 580.00 gross, including 23 % VAT. The ITS Katowice project was proposed to be a "design and build" contract, with a completion time of at least 3 years:

the first year - Stage 1 (30 % of total project costs),

the second year - Stages 2 and 3 (62 % of total project costs),

the third year - Stage 4 (8 % of total project costs).

Currently, the city does not have the funds to finance the project. Therefore, the ITS project "Implementation of the Intelligent Transport Management System in Katowice, including the metropolitan function of the city of Katowice" was submitted to the PARTNER 3 database as a proposal for implementation in the 2014 - 2020 perspective and to possibly be granted financing from European funds.

The ITS project will be implemented by the City of Katowice, regardless of the possibility of obtaining European funding. Project implementation from Katowice's own funds will result in the need to change the system implementation schedule and extension of the implementation period of the entire project.

II. One of the main lines of action of the KZK GOP in the area of ICT systems is to deploy a Dynamic Passenger Information System. The project aims to implement an IT system to streamline public transport traffic management through the use of ITS solutions (http://www.kartaskup.pl/sdip/strony/p-1-sdip-system-dynamicznej-informacji-pasazerskiej.html>).

Scope of the project:

1. Design, deliver and implement a Dynamic Passenger Information System and the delivery of a professional IT tool to support modelling and traffic analysis,
2. Deliver computers and software for traffic modelling purposes,
3. Provide data transfer using GSM technology for the infrastructure generated by the project.

The Dynamic Passenger Information System will be implemented in 6 out of the 25 municipality operations comprising KZK GOP The project area is serviced with all necessary utilities (i.e. provides access to electricity, and has an extensive ICT network). It has a well-developed network of wireless telephones. The project will be implemented in the municipalities of: Będzin, Dąbrowa Górnicza, Gliwice, Katowice, Sosnowiec, Zabrze and covers the following routes:

1) Katowice Osiedle Tysiąclecia - Katowice Osiedle Paderewskiego,

2) Sosnowiec Dworzec PKP/Municipal Office - Zagórze Osiedle - Dąbrowa,

3) Górnicza Centrum/Gołonóg Manhattan,

4) Będzin Railway station – Dąbrowa Górnicza city centre,

5) Gliwice Plac Piastów/Dworcowa - Zabrze Goethego.

The installation of a total of seventy-two information boards for the above-mentioned routes is assumed, which will display timetables for thirty-three public transport lines serviced by 177 vehicles.

As part of the project, the "Silesian Public Services Card" will be implemented as part of an electronic payment system for services provided by public institutions. It can be used to pay on board public transport vehicles, for parking fees, admittance fees to museums and swimming pools, as well as local taxes in 21 municipalities of the Silesian agglomeration. In addition to the function of electronic money, the card will also act as a form of identification and an electronic signature for the individual holder. The introduction of the card on the market aims to improve the quality of life in the metropolitan area and to facilitate the examination of passenger preferences (for example, it will enable the collection of accurate data on the popularity of individual transport services), which will help to adjust easier and faster to actual needs of the public transport system (http://www.kartaskup.pl).

KIELCE

As part of the activities for the implementation of ITS in 2011 the Passenger Information System (SIP) was implemented.

The system allows for monitoring all public transport vehicles in service in the Kielce Metropolitan Area. Real-time bus traffic monitoring makes it possible to communicate via 24 electronic boards at bus stops providing information to passengers about the actual (not scheduled) arrivals at the bus stop. This information is also available on the website and mobile phones. During the next 5 years, the system is planned to be expanded by another 20 boards for further stops.

SIP is also used by carrier, MPK Kielce, for managing the traffic of their own vehicles, as well as organiser, ZTM Kielce, for current transport service quality monitoring and analysis of the functioning of the transport system.

This is the realisation of assumptions concerning the development of the public transport in Kielce contained in the official city document: "The integrated public transport development plan for Kielce" developed in 2008 by the Department of Transport Systems of Cracow University of Technology.

Implementation of the SIP is linked to the priority area I of the ITS Directive.

OLSZTYN

Within the next five years, the City of Olsztyn will implement the following activities in the field of ITS deployment within the project, "Upgrading and development of the integrated public transport system in Olsztyn":

1) a street traffic control system, with priority for public transport vehicles,

2) a street traffic control centre,

3) controlling the traffic of public transport vehicles on bus and tram services,

4) a dispatch centre for traffic control and management of public transport vehicles,

5) information for passengers on the Internet, at bus stops and on boards,

6) electronic tickets (city cards) along with a top-up system and on-board equipment on trams and buses.

The ongoing measures have their basis in the Olsztyn Development Strategy for 2006 - 2020 and are related to the priority areas listed in the ITS Directive (priority areas: I, III and IV). At the moment works are in progress on the description of the work where standards will be described.

WROCŁAW

Wrocław is implementing two major tasks in priority areas, specified in Article 3 of Directive 2010/40/EU the European Parliament and of the Council of 7 July 2010 *on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport.* As part of a single public procurement procedure of the competitive dialogue, the contract for both tasks was awarded to the Polish-French consortium WASKO S.A. (Gliwice PL) – GERTRUDE S.A.E.M. (Bordeaux FR) under a single project referred to as ITS-Wrocław. Task 1 involves the construction of the Tramway Plus line and priority handling of tram traffic at intersections. Task 2 extends the territorial scope of the ITS system and introduces additional elements such as variable message signs and other information systems for road users. The total Intelligent Transport System in Wrocław project (ITS-Wrocław) includes the following activities:

No	Action name	Link to the Directive
1.	Construction of the Traffic and Public Transport Management Centre with CPD - Data Processing Center (which is partly finished, preparations are underway for milestone acceptance inspections).	Area I and III Priority Action a), b)
2.	ITS to cover 158 intersections in the city. Construction of a vehicle detection system and data transmission system for communication between control cabinets and the CZRiTP at 158 signal-controlled intersections. (10 intersections are connected, work in progress at about 70 intersections, the rest are in the design and approval stages).	Areas I-IV, Priority Action a), b)
3	The construction of a Dynamic Passenger Information subsystem - LED signs at bus stops (168 signs at bus stops). 50 signs are connected, the remaining gradually installed during work at adjacent intersections.	Area I, II and IV, Priority Action a), b)
4.	Provisions of variable message signs above roadways with information about the operability of selected sections (13 locations). Completed design process, erection of support structures in progress.	Area I, Priority Action a), b)
5.	The construction of signs with information on vacant parking places in the vicinity of the city centre in enclosed car parks. The design process in progress.	Area I and III Priority Action e) - f)
6.	Development of a web portal with information on city traffic. Phone system launched with information on traffic conditions. The design process in progress.	Area I and III Priority Action a), b)
7.	Construction and preparation to work with other channels of	Area III and IV, Priority

	information (RDS/TMC/text messages). The design process in progress.	Action d),
8.	Construction of a communication system (about 100 km of municipal fibre network for the whole city in the adopted telecommunication conduit system standard). Completed design process, construction works in progress, 30 % completion progress.	Areas I-IV, Priority Actions a) - b)
9.	Construction of the transmission system and data processing. Completed design process, start of deliveries.	Areas I-IV, Priority Actions a) - b)
10.	Construction of the Public Transport Surveillance subsystem (all urban transport vehicles - about 550 units equipped with onboard computers, GPS transmitters to interoperate with the ITS). Provision of applications for vehicle tracking and reporting deviations from schedules. Task partially implemented, a report system combined with a data processing system, scheduled for late 2012.	Area II and IV

Project implementation was entrusted to the municipal unit - City Roads and Maintenance Administration.

KOSZALIN

I. *The Municipality of Koszalin is implementing the project "Construction of the intelligent transport system in Koszalin"* co-financed by the European Union from the European Regional Development Fund - Operational Programme Infrastructure and Environment, priority VIII Transport safety and national transport networks, Measure 8.3 Development of Intelligent Transport Systems.

Total project value is PLN 13 506 000.00

This quarter, a tender notice is expected for the selection of the main contractor of this system.

The planned completion date of the ITS is 31 December 2013.

The project involves the design and construction of a multi-component, comprehensive Intelligent Transportation System in Koszalin to improve the efficiency and safety of passenger traffic and the transport of goods in the city.

The system will consist of a Traffic Management System, which is a platform integrating all the ITS. The purpose of building the system is to enable operative management of the city's transport system, providing for the possible extension of the system both in terms of its area and functionalities.

The construction of the ITS system consists of the following tasks:

– Construction of a of Traffic Management, Control and Safety Monitoring Centre;

– Area traffic lights control system;

– CCTV monitoring system

– Automatic Number Plate Recognition (ANPR) System

– Video detection system;

– Overheight vehicle preselection system;

– Overweight vehicles preselection system;

– Detection system for vehicles running red lights;

– Detection system for speeding vehicles;

– Free parking spaces information system;

– System of variable message signs;

– The use of a portal for drivers and passengers for ITS purposes.

The ITS will be based on existing, currently under-construction and planned fibre optic infrastructure in the Municipality of the Koszalin, covered mainly in the project "Intelligent Koszalin – expansion of information society infrastructure of e-Koszalin – construction of a data communication network and a video monitoring system" implemented under Measure 3.1 Information Society Infrastructure of the Regional Operational Programme for Zachodniopomorskie Province for 2007-2013.

Basic functions of the Traffic Management System include:
– monitoring road traffic, both using a traffic control system and CCTV network,

– monitoring incidents related with exceeding certain traffic parameters,

– monitoring and visualisation of the technical status of system components (detectors, signalling devices, signalling installation, traffic light controls, regional control servers, data transmission equipment, connections, etc.) and archiving of monitoring-related data,

– enabling control overrides of system components in specific situations,

– management of variable message boards and signs,

– supervision of vehicles committing offences, their tracking and reporting to security services (using integrated ANPR [Automatic Number Plate Recognition] surveillance software with the following modules: detection of vehicles running red lights, identification of overweight vehicles, identification of speeding vehicles and identification of overheight vehicles),

– quick information for rescue teams about accidents or other road dangers (receiving driver reports and reporting dangers, support for the management of rescue teams, reporting incidents),

– collecting, archiving and transmitting data to selected services from the following systems: passage times, preselection of overweight vehicles, preselection of overheight vehicles, preselection of speeding vehicles, detection of vehicles running red lights,

- collecting and archiving the following: visual data, measurements from parameter control systems, information about equipment status, hindrances to traffic flow, incidents, statistical data about offences, traffic intensity,

- providing information to drivers and passengers via Internet portal and variable message boards and signs installed on the road,

- information and guidance to car parks with free parking spaces,

- creating reports, analyses, specifications and statistics illustrating the work of individual subsystems and of the system as a whole,

- planning support – to allow for making preparations for the holiday season appropriately in advance,

- information about diversions caused by accidents, congestion, road works,

- evaluation of each of the subsystems.

II. The objectives of this project fit in with the objectives defined in both the Polish and EU strategic documents, in particular in the local strategies:

Development Strategy for Zachodniopomorskie Province until 2020

According to this document, the mission of the Zachodniopomorskie Province is to: "Create conditions for the stable and sustainable development of the Zachodniopomorskie province based on competitive economy and entrepreneurship of residents and social activity with the optimal use of the existing resources."

Among the six strategic objectives set out in the document under analysis, the third objective is defined as: Improving the competitiveness of the region.

The achievement of this goal will be supported by implementing the following guidance objectives:

- **strengthening the role of Szczecin – the capital of the region and Koszalin – as a national centre for sustainable development,**

- supporting the development of functional and spatial structures,

- activation of regional development centres ranging in size from 20 to 100 000 residents,

- development of small towns (up to 20 000 residents), revitalisation and rural development,

- **development of an efficient, accessible and integrated transport system,**

- promotion of housing and the housing market.

The planned investment fits perfectly in the first and fifth guidance objective as part of the third strategic objective. Construction of intelligent transport system in the city of Koszalin will not only strengthen the role of the region against the background of the Zachodniopomorskie Province, but will also lead to meeting the needs of its residents with respect to safe and efficient travel.

Development Strategy of the Transport Sector for Zachodniopomorskie Province until 2015

According to this document, the primary task of the authorities of Zachodniopomorskie Province is: "the implementation of a comprehensive programme of modernisation and development of the basic infrastructure of transport modes and the entire transport system, which will be modern and integrated into the national and international system and infrastructure to ensure full transport accessibility for people and goods throughout the region."

Priority projects in the field of road transport infrastructure development in Zachodniopomorskie Province until 2015 include modernisation of basic road and street arrangements in major cities of the province, including the construction of car parking.

Implementation of this project will contribute to achieving these goals, and therefore the project is consistent with the Transport Sector Development Strategy for Zachodniopomorskie Province until 2015.

Koszalin development strategy until 2015

In this document, the development of the road transport system is provided for in indirect objective 5.2, defining the accessibility of Koszalin by providing good road, rail and air links, telecommunications, and in the direct objective **5.2.1. Improving transport accessibility of Koszalin and its road vicinity.** Therefore, the development of the transport system and its components was included in development priorities, which pertain to the development of transport infrastructure and are elements of the achieving objectives of economic, social and spatial nature.

III. The relationship to priority areas or priority actions referred to in the ITS Directive

The project "Construction of the intelligent transport system in Koszalin" is linked with the following priority areas:

Priority area I: Optimal use of road, traffic and travel data

Priority area II: Continuity of ITS traffic and freight management services

Priority area III: ITS road safety and security applications. The contract is for the design and supply of equipment and software, the development, start-up and 3-year maintenance of the ITS for the city of Koszalin. The System consists of a Traffic Management System, which constitutes a platform for the integration of the whole ITS, and a series of systems described in the following sections. The purpose of building the system is to enable operative management of the city's transport system, providing for the possible extension of the system both in terms of its area and functionalities. Independent of the structure of individual systems, full functional integration must be provided from a user's point of view. This means, for example, identical selection interface for all cameras in the system – both mobile ones in the CCTV monitoring system and the stationary cameras belonging to other systems. The communication protocol must be open and fully documented enabling communication with the devices installed for the purposes of ITS. The existing communication protocol may be used, on condition that the protocol is open and additional devices can be connected.

It shall also be acceptable for the designer to use his own communication protocol.

SŁUPSK

According to the information provided, no ITS systems have been deployed in the City of Słupsk. In the coming years the implementation of ITS solutions are not planned.

OPOLE

To date no intelligent system operating in the field of road transport (ITS) has been implemented in the town of Opole. For the past few years, reconstruction and road infrastructure projects as well as the purchase of bus fleet, have taken into account the prospect of launching such a system. In purchases of intersection equipment (controller), remote on-line control functionalities are considered, and in the case of purchase of bus fleet, GPS tracking functionality and data transmission are taken into account.

Measures for the implementation of the ITS for traffic management and traveller information have their grounds in the provisions of the City of Opole Strategy for 2012-2020. It should be noted, however, that the construction of the ITS in the next 5 years and taking into account the priority actions set out in the Directive ITS depend on the ability to obtain external assistance resources and Opole's budget potential in the period concerned.

GLIWICE

Since 2011, the city of Gliwice has been carrying out the "Development of a detection system in the city of Gliwice and modernisation of selected traffic lights, Stage I" project. In 2011, a tender was announced for the modernisation of 15 traffic lights including the delivery of a traffic management system in accordance with the requirements of the Contracting Authority. The project was completed and accepted in June 2011. At present, because of signing of the agreement (on 30.05.2011) for co-financing of the task of Measure 8.3: Development of Intelligent Transport Systems, Priority VIII: Transport safety and national transport networks under the Operational Programme Infrastructure and Environment 2007 - 2012, the Municipal Roads Administration in Gliwice in December 2011 announced the tender for the second part of the project, including the upgrading of the next 45 intersections in the city of Gliwice.

At present, these actions are not based on any of the city's strategic documents.

Project Description:

As part of this task, the first part of the project was completed in 2011, including the following:

- Installation and commissioning of measurement points PP of traffic volume on entries to streets in the area of 4 signal-controlled intersections in the city of Gliwice (ul. Pszczyńska and Rybnicka).

- Implementation of automated data capture from measurement points PP to a data storage system and launch of an application providing data on vehicular traffic volumes.

- Technical reconstruction of 15 intersections, including expansion of operated system of controllers, the installation of vehicle detectors (video detection) and pedestrian detectors (buttons for pedestrians), replacement of signal accessories (poles, lantern bodies), upgrade of signal control software.

- Reconstruction of intersections includes the installation of city surveillance cameras at 15 intersections to ensure the observation of the area within the junctions and their approaches.

- Installation at 15 intersections of IT access points to the WiMAX network and backup network based on transmission medium non-conducting electrical pulses with transmission speeds of at least 4 x 1Gbit/s

- Implementation of a station for traffic control at ZDM Gliwice and CRG Gliwice

The next part of the project is planned in 2012 and includes the following:

- Installation and commissioning of measurement points PP of traffic volume on entries to streets in the area of 16 signal-controlled intersections in the city of Gliwice.

- Technical reconstruction of 45 intersections, including expansion of the operated system of controllers, the installation of vehicle detectors (video detection) and pedestrian detectors (buttons for pedestrians), replacement of signal accessories (poles, lantern bodies), and upgrade of signal control software.

- Reconstruction of intersections includes the installation of city surveillance cameras at 45 intersections to ensure the observation of the area within the junctions and their approaches.

- Installation at 45 intersections of IT access points to the WiMAX network and backup network based on transmission medium non-conducting electrical pulses with transmission speeds of at least 4 x 1Gbit/s

- Furnishing a new traffic control centre.

- Streamlining the passage of the A4 bus service through the city.

- The implementation of a central traffic control system and a system for management of line coordinations.

ZIELONA GÓRA

In the city of Zielona Góra, works are underway to implement and extend traffic management systems and passenger information systems.

In 2006, an information system at the stops of City Transport Company was launched. Currently, the system encompasses 18 stops. It will be extended and upgraded in subsequent years. Server and software replacement is planned to adapt the system to modern mobile devices, such as smart phones and mobile phones. Following the upgrade, the entire dynamic information system will be extended and more carriers are planned to be included in the system.

The city of Zielona Góra has prepared project assumptions related to the development of a system for monitoring vehicles passing through red lights. It will be implemented in the next five years, subject to the availability of funds in the city budget.

On 24 April 2012, the Zielona Góra City Council adopted a resolution on the development of the city in 2012-2022. The following operating objectives were defined for the strategic tasks concerning the adaptation of the transport system to the needs of residents and the transit traffic:

1) improve the transport system in the city of Zielona Góra;

2) improve the quality and competitiveness of the urban transport;

3) innovative transport solutions.

Any activities related to the deployment of ITS in the area of Zielona Góra will be implemented based on the above strategy.

BYDGOSZCZ

Bydgoszcz is currently implementing the Intelligent Transport System project for the Urban Transport which involves a dynamic passenger information system at a cost of PLN 4 200 000, as part of the "Construction of tram line from the city centre to the Polish Railway Station Bydgoszcz Główna". Additionally, a procedure is underway to select a contractor for the other ITS project entitled "Intelligent transport systems in Bydgoszcz" at the total estimated cost of PLN 69 063 102.00 which has been granted 85 % EU co-financing, i.e. the amount of 56 286 661.00.

General description of ITS projects in Bydgoszcz:

I. The Intelligent Transportation System for the Urban Transport in Bydgoszcz - dynamic passenger information

The implementation of the Intelligent Transportation System for the Urban Transport in Bydgoszcz encompasses dynamic passenger information and is executed as part of the construction of the tram line from the Bydgoszcz Główna railway station. The main objective of the system implementation:

1) Improve urban transport punctuality by the modernisation of the punctuality analysis system and implementation of an automatic transit time analysis module.

2) Improve safety through the implementation of duress buttons in vehicles with vehicle identification on an electronic map.

3) Facilitate driver functions by supplying equipment indicating the current status against the timetable and enabling communication with the Traffic Headquarters using predefined messages.

4) Enable traffic supervision staff to manage the fleet in real time on an ongoing basis with a view of all the vehicles on an electronic map.

5) Provide passengers with real-time dynamic passenger information at stops, on the website and on mobile phones.

6) Provide the operator of the city transport (ZDMiKP in Bydgoszcz) with tools for automatic analysis and accounting for punctuality, travel time analysis, etc.

7) Enable the sending of free-text messages to stops.

The system is being virtually developed for the entire area of the city of Bydgoszcz, and the visualisation of stop displays is being implemented for a tram service under construction and will be completed by the end of 2012. Further works to extend system visualisation and functionality in the entire city centre will be carried out in the next programme planned for implementation, called "Intelligent transport systems in Bydgoszcz" in 2012-2014 which is described below.

II. Intelligent transport systems in Bydgoszcz

The main objective of the "Intelligent transport systems in Bydgoszcz" central system is to ensure priority passage of rail vehicles in existing transport corridors through the centre of Bydgoszcz, namely:

T0 - (tram main line EW encompassing ul. Fordońska from the turning circle in ul. Wyścigowa to rondo Fordońskie with an intermediary turning circle in ul. Bałtycka, ul. Jagiellońska, ul. Marszałka Focha, ul. Nakielska from rondo Grunwaldzkie to the turning circle Wilczak in ul. Trentowskiego),

T1 - (tram main line NS along ul. Gdańska from the turning circle at LPKiW Myślęcinek in ul. Rekreacyjna to the intersection with ul. Jagiellońska and ul. Marszałka Focha),

while minimising the impact of the implementation of this priority on other participants of traffic in the corridors of:

N2 - (north ring road along the following streets: Fordońska – Kamienna – Artyleryjska – Rotmistrza Pileckiego – Grunwaldzka – Skośna),

S2 - (south route along the following streets: Planu 6-letniego – Wojska Polskiego with a tramway separated in the street – Solskiego – Piękna – Szubińska),

E2 - (along the following streets: Armii Krajowej from Modrzewiowa to Kamienna – Wyszyńskiego – Pomorski Bridge with a tramway section between rondo Fordońskie and rondo Toruńskie – Jana Pawła II, Brzozowa from Jana Pawła II to Goszczyńskiego),

and preserving the current separation and accumulation function in the following corridors:

W1 - (along the following streets: Szubińska from ul. Piękna to plac Poznańskiego – Kruszwicka – Grunwaldzka from rondo Grunwaldzkie to ul. Pileckiego,

E3 - (along: ul. Łęczycka from ul. Kamienna to ul. Fordońska – Kazimierza Wielkiego – Planu 6-letniego from ul. Nowotoruńskiej to ul. Kapuściska.

The ITS area is delimited by the following streets:

from the north: Kamienna – Artyleryjska – Zygmunta Augusta,

from the west: Dworcowa – Królowej Jadwigi – Marszałka Focha – Kruszwicka – Szubińska,

from the south: Piękna – Solskiego - Wojska Polskiego,

from the east: Ujejskiego – Jana Pawła II – Most Pomorski – Wyszyńskiego,

including the section of ul. Fordońska from rondo Fordońskie to ul. Wyścigowa.

Subsystems included in ITS:

1) traffic control with video monitoring and recording of vehicle characteristics,
2) public transport management with dynamic information at stops,
3) parking information,
4) alternative route vehicles guidance.

Main elements of the central traffic and public transport management system in Bydgoszcz, entitled Intelligent transport systems in Bydgoszcz

1) traffic control with video monitoring, which will include, among others:

– modernisation of 45 existing traffic lights and installation of 7 new ones,

– a video monitoring system ensuring the operation of ca. 90 cameras, including 40 CCTV monitoring cameras and 50 cameras for automatic recording of vehicle characteristics,

– fibre-optic cable connection - up to 30 km,

– a traffic control centre (purchase, delivery, installation and start-up);

2) public transport management with dynamic information at stops, which will include, among others:

– equipping 80 trains with radio priority transmitter (purchase with delivery, installation and start-up),

– dynamic information displays at stops (180 units, purchase with delivery, installation and start-up),

– automatic tram switch controls (3 units, purchase with deliver, installation and start-up),

- adjustment of a control room for dynamic information at the stops to the system, implemented under a separate task,

- purchase of 20 information kiosks with ticket vending functions;

3) parking information, which will comprise, among others:

- installation of 101 parking metres,

- equipping 10 inspectors with inspection devices,

- mounting 26 parking information displays,

- equipment of the Paid Parking Zone office;

4) alternative route vehicles guidance, which will consist of, among others:

- installation of 32 variable message signs,

- system loops;

Main results expected after launching ITS:

- relative reduction of car travel time in the area of system operation is determined at the level of 6.03 %,

- relative reduction of public transport travel time in the area of system operation is determined at the level of 8.33 %.

Project implementation time frame: 2012 – 2014.

Additionally, the system "Intelligent transport systems in Bydgoszcz" planned to be implemented is contained in the following documents of the city of Bydgoszcz:

1) *Resolution No XXIX/411/96 of the Bydgoszcz City Council of 10 July 1996 concerning the adoption of directions for transport policy in Bydgoszcz*

2) *Resolution No XXXVI/795/04 of the Bydgoszcz City Council of 10 November 2004 concerning the development strategy of Bydgoszcz, including attachment entitled "Development Strategy of Bydgoszcz until 2015"*

3) *Resolution No LXV/991/10 of the Bydgoszcz City Council of 28 April 2010 concerning the adoption of the integrated Plan for the Development of Public Transport in Bydgoszcz, including attachment "Integrated Plan for the Development of Public Transport in Bydgoszcz for 2007-2015.*

With reference to the ITS Directive, the discussed projects are aligned with the measures listed in the Directive as far at the implemented systems supporting public transport and traffic are concerned, but in the absence of deployment of such systems in the immediate vicinity of Bydgoszcz, they are currently isolated systems not linked with other solutions of this type in the region or in the country.

TORUŃ

The Municipality of Toruń is implementing subproject I, "Traffic management system in Toruń," and subproject II, "Real-time passenger information system," as part of the project "Development of tramway transport in Toruń in 2007 – 2013", co-financed by the European Regional Development Fund under the Regional Operational Programme Province of Kujawsko-Pomorskie Province for 2007-2013 and the budget of the City of Toruń.

Subproject I, "Road traffic management system," includes activities in the field of traffic management, which aim to ensure priority for tramway, improve rail transport accessibility, ensure road safety, and reduce east-west travel time at the section between the city centre and housing estates.

These involve capital expenditure due to the reconstruction of the road network, infrastructure of stops, and the construction/reconstruction/upgrading/reprogramming signals at intersections. Implementation period from 2008-2014.

Subproject II, "Real-time passenger information system," is to cover 65 platforms at 44 tram stops. The sub-project will involve the development of design documentation for information management software for stops and installation works for the installation of information equipment for tram passengers. The scope of the sub-project includes various works related to power supply of the information equipment (technical infrastructure).

Software and hardware will provide ongoing and real-time information on tram departures at almost all tram stops in the tramway network in Toruń, which are currently used or planned to be built. The project is scheduled for implementation in 2012 – 2013.

The project, "Development of the tram transport in Toruń in 2007 – 2013," is one of the major priorities for the implementation of the projects referred to in:

1) Integrated Public Transport Development Plan for the city of Toruń in 2009 - 2015 (Resolution No 625/09 of the Council of Toruń of 27.08.2009);

2) Development Strategy for the city of Toruń until 2020 (Resolution No 935/2010 of the Council of Toruń of 4.11.2010)

Furthermore, the implementation of subproject II, "Real-time passenger information system," fits into Priority Area 1: Optimal use of road, traffic and travel data referred to in the Directive of the European Parliament and of the Council of 7.07.2010 on the framework the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other transport modes.http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32010L0040:PL:NOT

LUBLIN

The municipality of Lublin is implementing measures related to ITS deployment.

Basic data on the project are presented below:

I.	Title of the project (investment): "Integrated Urban Public Transport System in Lublin"

Components related to ITS:

- Development of a Traffic Management System (TMS): Traffic Management System, priorities for public transport,

- Development of a Public Transport Management System (SZTP): Passenger Information System;

Title of the programme: Operational Programme Development of Eastern Poland 2007–2013

Priority III: Provincial growth centres,

Measure III.1: Systems of municipal public transport.

An agreement concerning the development of an individual design (preliminary agreement) was signed with the Polish Agency for Enterprise Development on 21 May 2008.

II.	Implementation

The project, scheduled for 2011-2015, is under construction.

Six contractors have been selected to implement the ITS-related components. Their implementation is scheduled as follows:

TMS: December 2011 - June 2014

SZTP: April 2012 - April 2013

The basic scope includes:

1. Design works divided into stages encompassing the conceptual design followed by building permit design and working design.

2. Construction works

- remodelling or adjustment to regulations and modern control standards on 61 out of 109 traffic signals operated in the city,

- Construction of a traffic control centre (TCC),

- connecting the signals in the above streets with the TCC by means of optical fibre (approx. 22 km line),

- installation of 10 variable message signs (traffic signs and text),

- priority system for the public transport system on selected routes,

- traffic event detection system within the area subject to the measure,

- a system of traffic monitoring and Automatic Number Plate Recognition cameras - ANPR cameras,

3. Training for the personnel of ZDiM [Road and Bridge Company] in Lublin.

III. The above tasks are based on:

- The Development Strategy of the City of Lublin in 2008-2015 (update) adopted by the Council of the City of Lublin under resolution No 442/XXIV/2008 of 25 September 2008.

- The Long-term Capital Expenditure Plan for 2009-2015 - resolution of the Council of the City of Lublin No 467/XXV/2008 of 16 October 2008.

IV. The following relationships to Directive 2010/40/EU the European Parliament and of the Council of 7 July 2010 exist:

- priority areas: optimal use of road, traffic and travel data,

- priority measures: data and procedures providing users with free of charge road safety-related minimum universal traffic information.

V. Technical framework

- the communication protocol is required to be open and rights to it must be assigned to ZDiM. Requirements for the protocol were described (Datex was not required)

quote:

Openness of the system is understood as conformity with the definition of the European Commission published in the document "European Interoperability Framework for pan-European eGovernment Services" of 2004.

....

The reference model for communication protocols is the OSI model (Open System Interconnection) or ISO-OSI (ISO OSI Reference Model) – a standard defined by ISO and ITU-T describing the network communication structure.

Required protocols:

Application layer - XML or HTML - for data transmission structure

Presentation layer - ASCII or Unicode coding for RTF character data or PDF for block data.

JPEG or BMP for images

MPEG2 or MPEG4 or SEQ – for video material

MP3 – for audio material (or another according to EU guidelines)

Session Layers   - - JMS or JMS compatible (or another in accordance with EU guidelines)

Transport Layers - TCP or UDP (or another in accordance with EU guidelines)

Network Layer - IP (or another in accordance with EU guidelines)

Data Link Layer - IEEE 802.3z 1000Base-LX or RS-232 or RS-485 (or another in accordance with EU guidelines)

Physical Layer - available technologies which are not inconsistent with the requirements for higher layers

the following standards were mainly used to define requirements for other accessories: PN-EN 50293, PN-EN 50556, PN-EN 12675, PN-EN 12966,

provisions of annex No 3 to the regulation of the Minister of Infrastructure of 3 July 2003 concerning detailed technical specifications for traffic signs and signals and traffic safety system devices and the conditions of their installation on roads (Journal of Laws No 220 item 2181 of 23 December 2003)

- database systems are based on Oracle, DB2 and MSSQL products.

Details are presented in a functional programme containing 115 pages.

SZCZECIN

The municipality of Szczecin is implementing the following projects:

1. **"Improvement in the performance of urban transport in the Szczecin agglomeration through the use of telematics systems"**
2. **"Development of the Traffic Management System in Szczecin"**

co-financed by the European Union Regional as part of the Operational Programme Infrastructure and Environment.

Re 1

As part of project, **"Improvement in the performance of urban transport in the Szczecin agglomeration through the use of telematics systems,"** the Central Urban Transport Management System is being developed for the Szczecin agglomeration, which will be composed of 11 complementary subsystems of various functions and purposes, to be implemented in two stages. The first stage was implemented until 2010, whereas the implementation of the second stage for the project is envisaged until 2014.

The entire project will comprise the building and extension of the following systems, among others:

• electronic ticketing, consisting mainly in equipping all the urban transport vehicles in electronic ticket markers, purchasing information stands/ ticket and city card vending machines;

• counting passenger flow (information on vehicle occupancy levels will allow adjusting the frequency and capacity of vehicles operated on a particular line or route);

• dynamic passenger information - purchase and installation of passenger information kiosks, extending the operation of wireless access point and installation of multimedia information devices for passengers in 370 vehicles.

• CCTV monitoring in urban transport vehicles;

• optimisation of the transport network - based on the data acquired from all the systems and devices, using a modern server and software, the system itself will optimise the network and indicate (suggest) new lines, routes and detours.

• "on demand" transport - allows the carrying of passengers (who earlier ordered such transport) from peripheries remote from the agglomeration to terminal urban transport stops.

Other elements provided for by the project include:

• development of a tracking and monitoring system for winter service utility vehicles (this allows planning optimal routes for vehicles as the dispatcher can see a real-time map showing streets in which snow has not been removed),

• development of a transport monitoring system (installation of cameras allowing tracking of movement along key transport and road routes and in critical points of the agglomeration).

Total cost of the project: PLN 54 260 722

Re 2

The implementation of project "**Traffic Management System in Szczecin**" is aimed to increase and streamline the traffic in Szczecin and improve transport systems in the Szczecin Metropolitan Area. The introduction of the system is expected to reduce the number of accidents and collisions. An information system about road conditions will be developed for drivers.

The implementation of the TMS is designed to initiate the process of deployment of pilot solutions for ITS technology in Szczecin. As it grows, the system can be expanded in both functional and territorial aspect depending on the current needs and development opportunities of the municipality.

The Implementation of the TMS is to improve the management of information about current traffic conditions in the city directly for private transport, as well as indirectly for public transport, both bus and tram, by: assessing road traffic conditions, decreasing congestion, more efficient use of the existing road and transportation infrastructure, increasing the attractiveness of travel, providing current and forecast information for drivers useful at the planning stage or during the trip, protecting the environment, increasing the safety of users.

All works related to TMS are divided into six principal tasks:

Task 1 - Passenger Information Subsystem - PIS,

Task 2 - Traffic Detection Subsystem - TDS,

Task 3 - Mobile Information Subsystem - MIS,

Task 4 - Communication Subsystem - CS,

Task 5 - Traffic Management System - TMS,

Task 6 - Adjustment of Traffic Lights to operation in TMS - SYG.

The total cost of task implementation is about PLN 10 600 000.

5. Research work and programmes – institutes

Applied Research Programme

In 2011, the National Centre for Research and Development (NCRD) commenced the implementation of the Applied Research Programme, whose scope includes two approaches:

- − Path A − conducting research to gain knowledge in a specific field of science, which has a practical application,
- − Path B − conducting research to achieve predefined practical aims by applying new solutions in specific branches of industry.

The main objective of the Applied Research Programme is to improve the innovativeness of the Polish economy by using results of scientific research, as well as enhancing the cooperation between research organisations and entrepreneurs who are directly interested in applying the results of research in their business activity. The Applied Research Programme encompasses the following areas:

1) Chemical sciences,

2) Geology, mining and construction,

3) Information technology, electronics, automation and robotics,

4) Power and electrical engineering,

5) Materials and material technologies;

6) Mechanical engineering and transport,

7) Medical and pharmaceutical sciences,

8) Biological, agricultural, forestry and veterinary sciences,

9) Interdisciplinary fields.

Areas: information technology, electronics, automation and robotics, mechanical engineering and transport, and interdisciplinary can be directly associated with the implementation of ITS in Poland. In the first competition under the Applied Research Programme, a total of 465 applications were filed in the three areas mentioned above.

Long-term programme entitled "Improvement of safety and conditions of work"

Intelligent Transport Systems (ITS) may find support under the long-term programme implemented by the NCRD entitled "Improvement of the safety and conditions of work" established under the resolution of the Council of Ministers No 154/2010 of 21 September 2010. The main objective of the programme is to develop innovative organisational and technical solutions aimed at developing human resources and new products, technologies, management methods and systems, the use of which will contribute to a significant reduction in the number of

employees exposed to dangerous, harmful and strenuous factors and limitation of related accidents at work and occupational diseases, and the resulting economic and social losses. Under this programme, the NCRD supervised two projects whose aims and objectives are directly related to the use of information and communication technologies in the transport sector. These include:

- "Developing a risk management programme for road transport of hazardous chemicals",

- "Development of risk management system for humans and the environment for transport of hazardous chemicals by rail".

The EUROSTARS Programme

As part of ITS implementation, the international EUROSTARS programme implemented by NCRD must be mentioned. The main objective of the programme is to improve the competitiveness of Europe through supporting businesses, research centres and universities conducting European-wide projects developing products, processes and services.

In relation to the tasks commissioned by the Ministry of Science and Higher Education, the NCRD conducts works related to the implementation of issues based on financing, monitoring and accounting for research and development projects of competitions I-IV, VI and X. Under these competitions, universities and research institutes conduct projects that play an important role in the implementation of intelligent transport systems.

Activities of the Polish Technology Platform for Intelligent Transportation Systems (PTP ITS).

PTP ITS objectives of action are to generate projects affecting the development of ITS and seeking sources of their financing, technical support of the ministry and counselling to entities interested in the field concerned.

In the area of PTP ITS activity, the following working groups were established:

GR-1 – Monitoring, diagnostics, electronic toll collection.

GR-2 – Telecommunication systems (information on roads, traffic, travel).

GR 3 – Control and automation in transport.

GR-4 – Traffic safety.

GR-5 – Architecture and terminology.

GR-6 – Road infrastructure – management systems.

GR-7 – Interoperability (protocols, interfaces, specifications).

Currently, PPT ITS work focuses on the preparation and implementation of the following projects:

1. National ITS architecture.

The objective of the project is to <u>develop a national architecture and operating programme for the deployment of intelligent transport systems</u>. Six tasks are to be implemented:

1. Develop tools for the implementation of project tasks, securing the implementation of research and tasks.

2. Identify national ITS systems and equipment and the needs of users and stakeholders.

3. Develop a model of national ITS architecture, define objectives and tasks for individual state administration bodies, local authorities and the private sector.

4. Develop organisational and technical solutions for ITS subsystems.

5. Develop a programme for the implementation of ITS in Poland taking into consideration legislative and social conditions.

6. Develop a national database of technical specifications, standards and requirements for ITS systems and equipment in order to provide users with a general support in the development of technical specifications of designed telematics systems.

The effects of the project will be as follows:

– catalogues of identified ITS systems and equipment and national projects in this respect, as well as a directory of users' and stakeholders' needs;

– defined directions, functionality and best practice scenarios for ITS;

– minimum technical requirements and organisational and technical solutions for ITS systems and equipment;

– national ITS architecture and a catalogue of tasks and objectives for individual state administration bodies, local authorities and the private sector;

– a programme for the implementation of ITS in Poland taking into consideration legislative and social conditions.

– a national database of technical specifications, standards and requirements for ITS systems and equipment which will be used by the users in the development of ITS;

– IT tools for storage and integration of information about systems and the National ITS Architecture, their modelling, analysis and development.

The project will be implemented by a consortium consisting of the following research institutes:

– the Institute of Road Transport (consortium leader),

– Communication Institute – National Research Institute,

– Road and Bridge Research Institute.

Currently, sources of financing for the project are being sought.

2. Prototype board event recorder - the black box

The objective of the project is to develop two prototypes of economic, versatile on-board devices:

1). Event recorder - a black box for all types of vehicles.

2). Event recorder - a black box for all types of vehicles, taking into account the eCall.

In addition, a recorded data file will be suggested (in the future it may be adopted as a data recording standard) to enable their reading without specialized hardware or software.

The recorder - the black box of a car, can be used to record data on the condition of the vehicle, the driver's driving technique and compliance with the traffic rules and maintaining road safety in the following vehicles:

– passenger cars, service and privileged vehicles – allowing the recording of pre-specified data, able to provide evidence in the case of an accident,

– buses and taxis – in addition to the recorded data, it will help to ensure the safety of the driver and passengers and will enable the location of vehicles in the event of theft,

– trucks – provide recording of data on the technical condition, enable the location, help to reduce the number of accidents and ensure the safety of the driver.

The recorder will be compact - much smaller than a car radio - made of durable materials in a specially protected place, and will have a protective shield for the SD card on which data will be stored.

The project was submitted to the NCRD for the 1st Competition of the Applied Research Programme on 16 March 2012. The project has passed the formal assessment and was referred for technical assessment. The decision to finance the project will be made by the NCRD in July 2012.

3. Model of a system monitoring vehicles carrying dangerous goods

The objective of the project is to develop a model of a system monitoring vehicles carrying dangerous goods.

It will be submitted to a competition organised by the NCRD in late 2012 or early 2013.

4. Parking lot monitoring project

The objective of the project will be to develop a system for the monitoring and reservation of parking spaces.

The project will be submitted as part of the InnoTech competition organised by the NCRD.

The PPT ITS course of action in the context of obtaining funds from the National Research Programme for the coming months:

1. Meeting with industry representatives and the institutions responsible for the implementation of ITS in order to obtain an opinion on potential commercialisation and market demand for various ITS solutions in Poland, and seeking contributions (including contribution in kind), based on the SWOT, POAS etc. (GR1-GR7) - August 2012; responsible: ITS;

2. Sending managers of individual PPT ITS working groups information on absorption, market potential of identified ITS solutions, declared contributions from industrial partners in individual topical groups (potential offer of deployments in urban and non-urban areas, also in the context of improving the efficiency of available solutions, taking into consideration the current and future project life cycle) - August-September 2012; responsible: ITS;

3. Representatives of each partner institution send a proposal for a subject for the project and their own subject-matter contribution in this area – a summary (as part of NCRD competitions, FP7, others) for each working group it participates in – September 2012; responsible: Partners, GR Managers, Members, ITS;

4. Analysis and conclusions based on the materials concerning item 2 and item 3, the exchange of "ideas" amongst PPT ITS Partners, preparation of the 2nd version of the Strategic Research Agenda of PPT ITS (Sectoral Development of Intelligent Transport Systems in Poland) - September 2012; responsible: Partners, GR Managers, ITS;

5. 2nd working meeting of the PPT ITS during the conference "Transport Systems Telematics 2012" – 10-13 October 2012; responsible: GR Managers, ITS, PSTT;

6. Joint development and submission of projects (INNOTECH, FP7, other) - September - November 2012; responsible: GR Managers, ITS, Partners;

7. Development of the 2nd and 3rd versions of the Strategic Research Agenda of PPT ITS (Sectoral Development of Intelligent Transport Systems in Poland) containing a comprehensive and detailed estimate of contributions from the industry sector; preliminary opinion on the document by the NCRD and respective Department of MTBiGM - December 2012; responsibility: GR Managers, ITS.

6. Annexes

Table 1 - List of national projects;

Table 2 - List of provincial projects;

Table 3 - List of urban area projects.