

PROJECT DATA:

**CROCODILE 2.0_HU
2015-HU-TM-0358-W**

- Beneficiary Organization: Ministry for Innovation and Technology
- Implementing Organizations: Hungarian Public Road Nonprofit Public Limited Company and Budapest Public Road Public Limited Company
- Foreseen net amount of eligible costs: 5,935,471 EUR
- Net amount of the support financed by the Connecting Europe Facility (CEF): 5,045,100 EUR
- Amount of domestic budget support: 890,371 EUR
- Implementation period: 2016-2019

**C-ROADS Hungary
2016-HU-TMC-0216-M**

- Beneficiary Organization: Ministry for Innovation and Technology
- Implementing Organization: Hungarian Public Road Nonprofit Public Limited Company
- Foreseen net amount of eligible costs: 1,995,431 EUR
- Net amount of the support financed by the Connecting Europe Facility (CEF): 1,696,100 EUR
- Amount of domestic budget support: 299,331 EUR
- Implementation period: 2017-2021

**CROCODILE 3
2016-HU-TMC-0300-W**

- Beneficiary Organization: Ministry for Innovation and Technology
- Implementing Organizations: Hungarian Public Road Nonprofit Public Limited Company and Budapest Public Road Public Limited Company
- Foreseen net amount of eligible costs: 2,095,202 EUR
- Net amount of the support financed by the Connecting Europe Facility (CEF): 1,780,900 EUR
- Amount of domestic budget support: 314,302 EUR
- Implementation period: 2017-2021

**FRAME NEXT
MOVE/C3/SUB/2016-405/CEF/PSA/S12.759934**

- Beneficiary Organization: Hungarian Public Road Nonprofit Public Limited Company
- Implementing Organization: Hungarian Public Road Nonprofit Public Limited Company
- Foreseen net amount of eligible costs: 90,000 EUR
- Net amount of the support financed by the Connecting Europe Facility (CEF): 72,000 EUR
- Amount of domestic budget support: 0 EUR, amount of own resources of Hungarian Public Road Nonprofit Plc: 18,000 EUR (20% own contribution)
- Implementation period: 2017-2021

**TN-ITS GO
MOVE/B4/SUB/2017-63/CEF/PSA/S12.770546**

- Beneficiary Organization: Hungarian Public Road Nonprofit Public Limited Company
- Implementing Organization: Hungarian Public Road Nonprofit Public Limited Company
- Foreseen net amount of eligible costs: 147,625 EUR
- Net amount of the support financed by the Connecting Europe Facility (CEF): 118,100 EUR
- Amount of domestic budget support: 0 EUR, amount of own resources of Hungarian Public Road Nonprofit Plc: 29,525 EUR
- Implementation period: 2018-2021

We could not imagine the idea of modern management without the application of **INTELLIGENT TRANSPORTATION SYSTEMS** (abbreviated as ITS). The Hungarian road network is also equipped with several cameras, sensors and signalling devices, thereby facilitating the work carried out by public road operators and providing valuable information to all road users. In the last decade, these systems underwent many changes in line with the dynamic trends of the tele-communications and IT industry, to new openings for both travellers and road operators. **CONNECT, EASYWAY, KÖZOP and CROCODILE PROJECTS** proved to be great impetus for the development, which besides bringing quantity and quality improvement, also enabled the introduction of new, often innovative technological solutions, the creation of Hungarian pilot sites.

The Hungarian Public Road Nonprofit Plc has always been committed to the establishment and deployment of ITS systems, therefore it was a great pleasure and at the same time an enormous challenge having the opportunity to use the resources made available in the framework of the projects for developments carried out on the national road network. As an example, a part of the amount dedicated to the enlargement and replacement of the assets along the roads. The number of **METEOROLOGICAL STATIONS** on the expressway network has now reached 160, the number of **TRAFFIC COUNTING STATIONS** today is 164. The **TRAFFIC CAMERA NETWORK** already includes 400 cameras and the number of **MESSAGE SIGNS** (hereinafter referred to as VMS) also grew considerably, to 291.

This includes, amongst others, the **TRUCK PARKING MANAGEMENT SYSTEM** set up on the M1 motorway. The system uses an image recognition camera for monitoring the parking area. If the camera detects that a parking space is occupied by a vehicle, the number of available parking spaces indicated on the map-based information boards will be reduced. The system aims at increasing traffic safety and balancing the capacity usage of the rest areas.

In addition to the upgrade of the physical equipment, important developments were carried out in the field of travel information services as well.

The **WEBSITE OF THE ROAD USER INFORMATION SERVICES** (Utinform) was renewed, and besides the **MOBILE APPLICATION** is being developed to satisfy the most modern needs. These platforms also help road users to obtain up-to-date traffic information.

In addition to the spectacular works, several IT developments were carried out to facilitate the effective data exchange with external partners and to simplify the internal communications processes by establishing new connections between the basic systems. One of the main IT development goals was the system integration.

As a result, the **TRAFFIC MANAGEMENT SYSTEM** was established, which became the key element of the centralized traffic control and traffic information management. As a result of the integration, the Traffic Management System now incorporates the subsystem managing the traffic monitoring cameras, the meteorological subsystem, the traffic counting subsystems, the answering of emergency calls and the control of the variable message sign boards.

The efforts towards the system integration also include the operation of traffic signal lanterns. The establishment of the **SYSTEM OF TRAFFIC SIGNAL LANTERNS** enabled us to integrate the previously fragmented and diversified remote control applications and to achieve the goal of effective operation management and planning.

Besides operating the traditional systems, Hungary became one of the European Union's pioneering countries: on the M1 motorway we have a 136 km long pilot

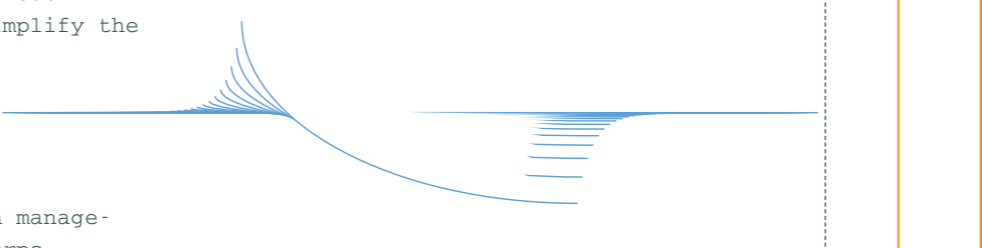
section, where the **COOPERATIVE INTELLIGENT TRANSPORT SYSTEM** (C-ITS) was established, enabling direct communication between vehicles and infrastructure. In the current stage, only a few users can make use of the system's benefits, but in the coming years, the number of vehicles with indoor-unit capable communication is expected to increase, thereby bringing new opportunities of information sharing and control on the medium and on the long term. At the harmonization between the various systems of the member countries, the company is also member of the **EUROPEAN C-ROADS PLATFORM**, a forum dedicated to the establishment of the C-ITS systems.

With a view to making use of the new technology's benefits, Hungarian Public Road Nonprofit Plc also seeks to join the pioneer countries in drafting and elaborating the common standards. Besides deepening the existing cooperation and testing the information and communication technologies, the development of field devices and the increase of network coverage are among the company's priorities as far as domestic developments are concerned. Future development plans include the extension of the C-ITS system on the M1-M19, M7-M70 and M8 expressways and the deployment of city applications in Győr and Zalaegerszeg.

In the framework of the CROCODILE 2 project and in accordance with the Directive 2010/40/EU, the **HUNGARIAN NATIONAL ACCESS POINT** is already being developed and is expected to be set up by the end of 2018. The Hungarian system is planned to be similar to the German style data market system with additional functions. The general mission of the NAP is to provide up-to-date and real, static or real time information to the organisations and individuals.

At the last but not least, we should not forget to mention those results that have been achieved by systems or equipment. The Hungarian Public Road Nonprofit Plc concludes **COOPERATION AGREEMENTS** with Hungary's neighbouring EU countries. Consultations have been carried out between Hungarian and foreign partners on the topics of **TRAFFIC MANAGEMENT** and **DATEX BASED DATA EXCHANGE**. We sincerely hope that these consultations will shortly deliver their objective, and cooperation can move to a higher level, at the end bringing beneficial results for the travellers.

For more information please do not hesitate to contact the Road Traffic Management Department of the Hungarian Public Road Nonprofit Plc.
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ITS

Intelligent Transportation Systems