



# Technical Assistance to Connectivity in the Western Balkans EuropeAid/13785/IH/SER/MULTI

## NORTH MACEDONIA

### Partners:

- Ministry of Transport and Communications
- Public Enterprise for State Roads
- EU Delegation

### Budget of Technical Assistance:

- Euro 50,000

### EU contribution<sup>1</sup>:

- As above (100%)

### Technical Assistance provided by:

- CONNECTA (Technical Assistance to Connectivity in the Western Balkans)

The Intelligent Transport Systems (ITS) design concerned the whole Road Corridor X in North Macedonia (Tabanovce - Gevgelija) of around 180 km (including east Skopje entrance “triangle”). Road corridor X is part of the indicative extension of the TEN-T core network to the Western Balkans. The project is part of the Single Project Pipeline approved by the National Investments Coordinator (NIC) on 07.12.2015.

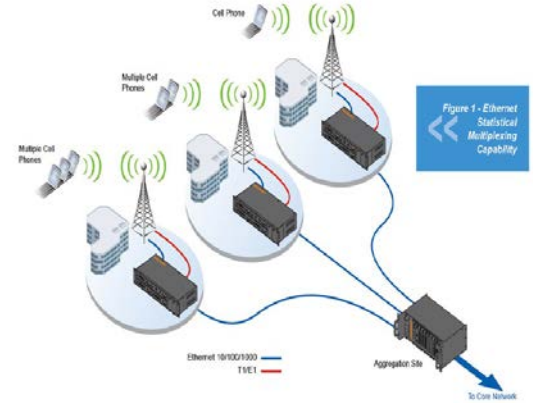
The ITS applications considered according to the initial project design are traffic management and safety, traffic information and traffic control-video surveillance and comprise Variable Message Signs, SOS phones, video surveillance cameras, meteorological signs and tunnel safety equipment (in accordance with EC Directive for tunnels >500m). Two control centres (at Petrovec for the north section and Negotino for the south section) are considered in the design.

The **main objective** is the improvement of traffic and safety conditions along Road Corridor X. This can be achieved by proper management, information and control using ITS applications.

The **purpose** of this TA assignment was to review the design outputs and provide further guidance for improving the project documentation in line with the European Union (EU) technical, legal and institutional standards and requirements.

The **assignment scope** included, in brief:

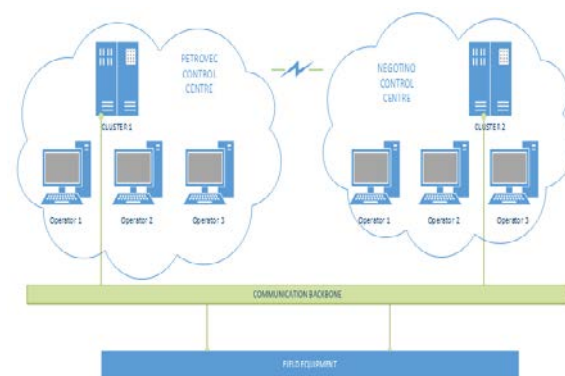
- review of adopted technical specifications for ITS design, before submission of draft documentation;
- review of the draft design documentation on its ITS technical parts and recommendations for adjustments and improvements (in line with EU Directives and standards) before design finalisation and official review.



Ethernet multiplexing capability

### Results achieved by the TA:

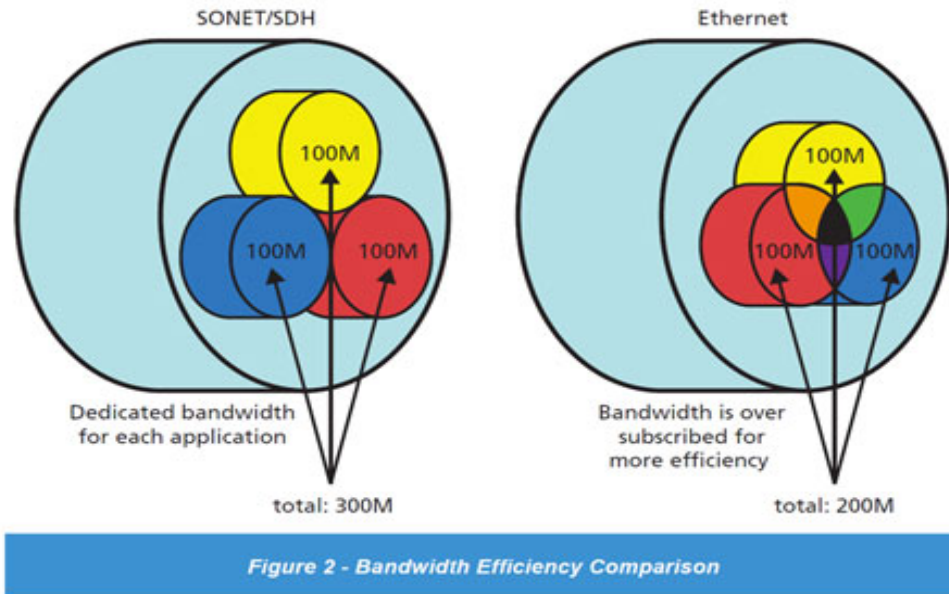
- Review of design standards and specifications and recommendations for improvements;
- Review of system architecture and recommendations for modifications;
- Review of ITS technical design and recommendations for improvements;
- Issue of review report.



Disaster recovery

Transport

<sup>1</sup> EU contribution concerns only Technical Assistance services for project development



**Key recommendations - further actions:**

- Specify Ethernet interface for communication of all field devices;
- Disregard system architecture levels 3a and 3b to simplify system;
- Examine alternatives to inductive loops (e.g. remote sensors);
- Revise ITS design in accordance with review recommendations before submission for formal independent review and approval for implementation.

**Key conclusions:**

CONNECTA completed this TA assignment having stressed some serious concerns over major design deficiencies:

1. Communication Network Design: Synchronous Digital Hierarchy (SDH) network was proposed in the design instead of a more appropriate Ethernet network.
2. Disaster recovery and system redundancy: No disaster recovery or redundancy between the two control centres was specified in the design.
3. System Architecture: Levels 3a and 3b were considered unnecessary as they provide extra complexity and an extra point of failure, which could be avoided if an Ethernet interface is specified for the field devices. Thus, field devices could be accessed directly by the central system.

These concerns were brought promptly to attention of the Beneficiary and should be addressed by the designer together with the detailed comments provided in the report.

The designer acknowledged the importance of some of the concerns expressed by CONNECTA and shall take them to take into account in the documentation finalisation, along with any comments received from the official independent reviewer of the design.

**Benefits expected due to Technical Assistance:**

- Adoption of ITS design standards and specifications in line with latest EU developments;
- Adoption of a state-of-the-art system architecture with reduced complexity;
- Cost savings (both capital and maintenance/operating) by adopting the review proposals.

**Impacts anticipated:**

- Harmonised ITS design with EU standards;
- Long term cost savings;
- Increased ITS availability thanks to proposed technological solutions;
- Modern ITS base for expansion in other corridors/routes.