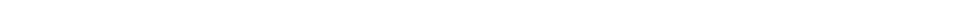




# ***Traffic Management***



## Introduction

**Traffic control** has a task to define every potential traffic situation and solve it functionally in a way that is regular and familiar to all participants. Traffic demands (intensity and character of traffic flows on network) are constantly changing in space and time sense, in accordance with the rhythm of the urban activity and character of the surrounding that defines them. Traffic regulation, as practical, static organization of traffic system, can not follow changeable traffic demand, so in the periods of peak traffic hours there are traffic satiation, jamming, drastic fall of system efficiency and very negative influence of traffic to urban surroundings.

The right combination of high tech equipment and the implementation of the best practice builds functional and significantly improved traffic control system. Our solution enables real-time monitoring, early detection and faster response.

## Features

Traffic control system is based on implementation of various **ITS (Intelligent Transport Systems)** applications. ITS systems incorporate advanced information and communication technologies used to provide desired status information, automatically generate the appropriate command, suggesting or just informing, which is then implemented and reported to the system users in the required manner.



ITS systems usually use some of the available technologies in order to detect certain events in the traffic process (high traffic density, long queues of vehicles, small or high speeds of individual vehicles or the whole traffic lines, arrival of mass transportation vehicles). Having processed the information and generating the appropriate command, the system uses some of the **VMS (Variable Message Signs)** to notify the users about the actions taken. VMS messages can be of either informative or demanding character, depending on the actions.



The messages can be timely notices of the required event (arriving to an accident site or a traffic jam, etc.), suggestions of the recommended action that would enable higher system efficiency (recommended speed, alternative route recommendation, etc.) or warnings demanding immediate attention (speed limit, forbidden overtaking, mandatory turns, etc.).

Our solution is realized as scalable and adaptable system in which it is easy to add and implement new additional functions, in accordance to traffic control needs.

## Solution Elements

### Traffic Nodes

Traffic light controlled intersection (corridor crossing) full configuration includes traffic light control, traffic counting, video monitoring of traffic and outdoor equipment (cabinets, poles, traffic light lamps, displays, traffic signs, antennas, cameras, etc.), traffic signs with changeable content and information displays (various suggestions and information to traffic participants - suggested speed, suggested track, suggested direction, available parking places, micro location map with suggested direction, etc.).

General traffic control (video surveillance and radars) includes:

- Video monitoring of traffic and outdoor equipment;
- Control of vehicle velocity by radars;
- Increased public awareness for law obeying and safe driving.



Our project includes a large number of information displays and VMS (Variable Message Signs), with different dimensions, for global traffic managing and information such as:

- Recommended corridors;
- Parking zones availability;
- Congestions on corridors;
- Maximum available speeds regarding conditions;
- Road work information etc.

### Center for Remote Traffic Control and Monitoring

A part of our solution is a large and modern Center for Traffic Control (CTC), with several functions and components, such as:

- Software and equipment for traffic control (central station, work stations, video walls, controllers, etc.);
- Software and equipment for video surveillance (software for vehicle detection, alarm activation, movement detection, congestion recognition, counting of vehicles, etc.);
- Communication equipment and data base;
- Software and equipment for information displays control;
- UPS equipment.



### Video Surveillance System

Our solution also forecasts a functional video surveillance system, which includes IP cameras connected via CTC, whose main tasks are:

- Safe driving enforcement;
- Traffic data collecting;
- Evidence for legal system support;
- Alerts in cases of natural disasters and/or critical conditions.





## Communication Network

Our solution implies **CANOPY network**, as basic communication method directional radio network with 2 basic configurations:

- **Point to Point** (OFDM link, as transport module)
- **Point to Multi-point** (Access point & Subscriber module)

**Ease of Deployment:** Canopy equipment provides remote wireless surveillance of facilities that could not have been reached previously. Lightweight and compact, Canopy can be installed quickly and relocated easily to meet customer needs for short term installation and surveillance. **High security:** Ensuring data confidentiality and integrity are major concerns of end users. Canopy security at the hardware, software and interface layers, along with encryption and user authentication, supports enterprise requirements to comply with security regulations.



**Bandwidth Management and Low Latency:** Canopy supports the bandwidth intensive and latency sensitive requirements of video data. Maximum data rate settings can be customized to accommodate higher bandwidths for video and define tiered services for video traffic.

**Low Interference:** The Canopy system has a unique signal synchronization and a high level of tolerance to self-interference, providing reliable service even when two devices are placed close together.

**Service Reliability:** A Mean-Time-Before-Failure of about 40 years provides long term reliability. An operating temperature of -40°C to +55°C allows the Canopy to provide continued monitoring in harsh condition. The Canopy supports any “packet data” application which includes streaming IP-based surveillance video.

## System Benefits

Solution of this kind offers multiple advantages and ensures crucial benefits:

- **Traffic control and management in general**  
traffic redirection, congestion elimination, dynamic information and announcements etc;
- **Law enforcement**  
Lower number of accidents, safe driving encouragement, regulations improvement;
- **General safety increase**  
suspicious vehicle detection, data and evidence collecting, data base forming, surveillance of major city institutions, etc;
- **Higher police efficiency**  
higher availability and possible redirection of police resources;
- **Long term budget costs cutting**
- **Public city systems adjustment**  
public transportation system and other systems as well;
- **Forming of multi functional center for control**
- **Traffic signalization interconnecting**  
Forming of corridors, “green wave” formation, higher system throughput, flow control etc;
- **Forming of broadband communication system CANOPY**  
Simple deployment, high security communication, bandwidth management and low latency, low interference, reliable system, optional: “mash” structure-for redundancy, high scalability and different data transmission, possibility for integration into another systems

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