



CiViTAS
Cleaner and better transport in cities



THE CIVITAS INITIATIVE
IS CO-FINANCED BY THE
EUROPEAN UNION

CIVITAS Forum

27-29 September 2010

Malmö (Sweden)

Speaker, Organisation

Towards Intelligent Traffic Management and Control in the City Centre of Skopje



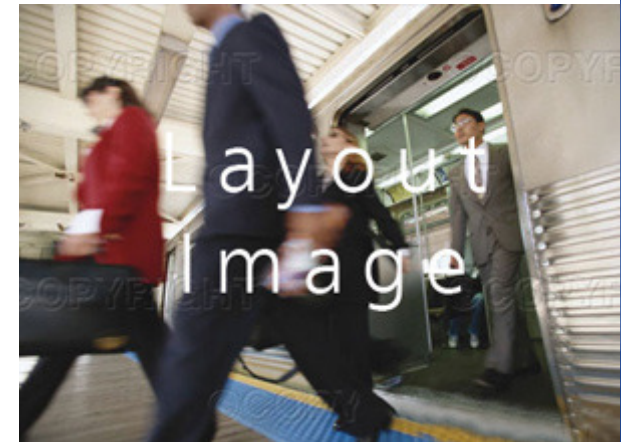
Presentation Contents

- **State of the Art - general remarks**
- **Identification of the problems**
- **Best practices used until present**
 - Unconventional solutions - ITMS
- **Urban traffic management and control (UTMC) - the focal point**
- **Designing ITS infrastructure**
- **Designing of UTMC**
- **Conclusions and future steps**
 - Key indicators for success
 - Challenges and obstacles that have to be overcome in achieving success



State of the Art - General Remarks

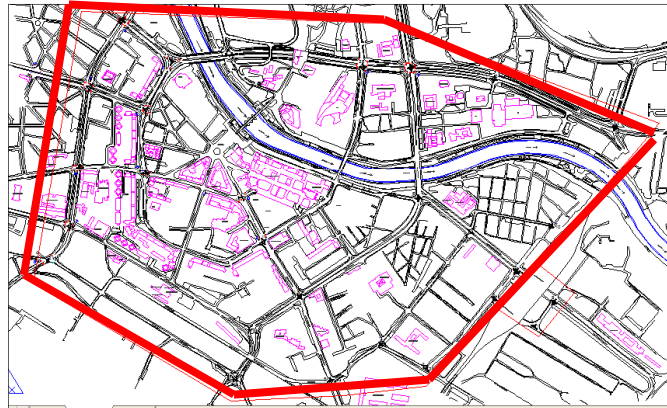
- Increasing travel and congestion
- Physical constraints on urban transportation infrastructure
- The traditional systems of urban traffic management and control
- Intersections operate near or over capacity



Identification of the problems

City Centre of Skopje

- The area of intersections - **28**
- Approach, Circulating and Exiting Flows
 - in peak hour (08:30 until 09:30) - **110 000** veh/h; (16:30 – 17:30) – **118 000veh/h**
- Critical Intersections - **14**
- Degree of Saturations:
1.19 – 2.9
- Worst LOS - **F**
- Average delays:
109s/v – 961 s/v



Best practices used until present

A general call for *something to be done* becomes obvious

- **Unconventional solutions** – ITMS by means of intelligent traffic management systems.

Because:

Acts as source of data:

- traffic and travel information (congestion, journey times)
- real-time trip planning

Links to other systems:

- other transport modes for co-ordination
- emergency services incident management co-ordination



The Urban Traffic Management and Control - Focal Point

Traffic management and control is a central part of ITS

- Targets should include:
 - detection (location of loop detector is still in progress)
 - strategy implementation (**UTOPIA**)
 - use and impact of VMS (for future research)



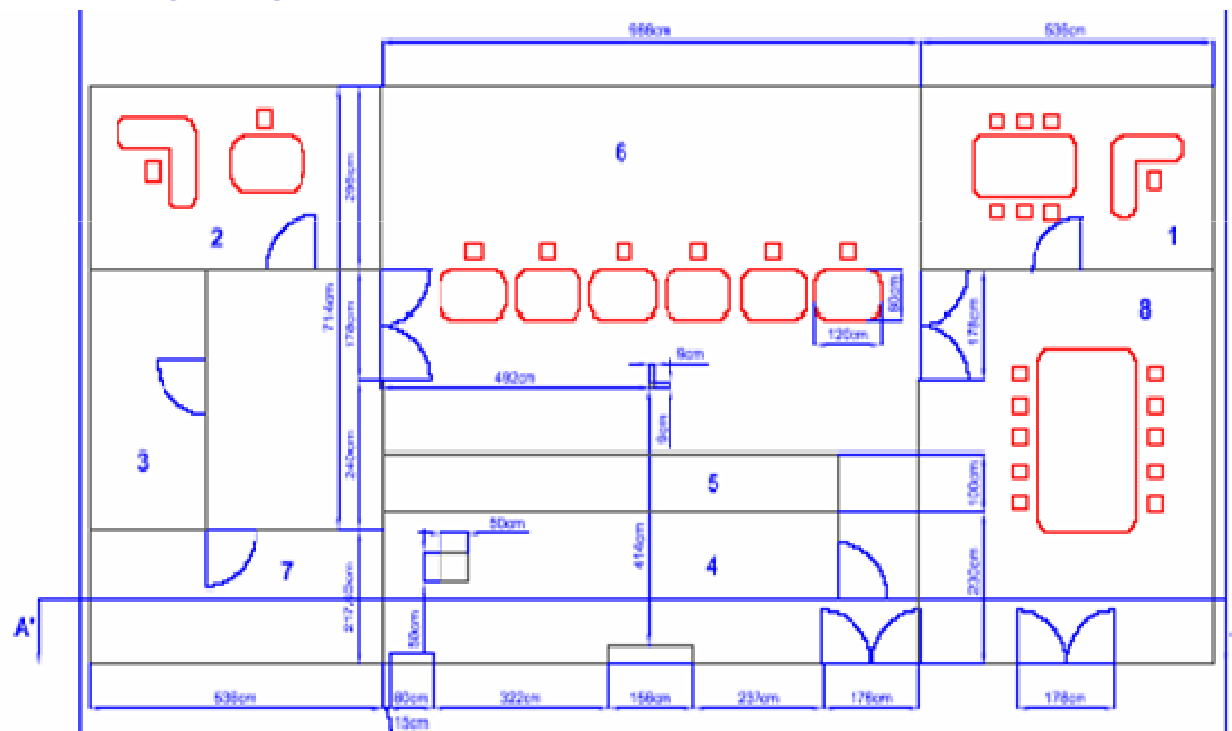
Designing ITS Infrastructure

- **Challenges**
 - Easy to understand – to operate and integrate in the existing system
 - Easy to maintain
 - Need for redundant data – avoid communication failure
 - Last, but not least – expandable – provide spare capacity
- **Therefore→**
 - Wired network
 - Optical cable network
 - Wireless network
 - Controllers



Designing the UTMC

- Physical design
- Lighting



Legend: 1. Supervisor Office, 2. Office, 3. Kitchen, 4. Equipment room, 5. Video wall, 6. Main room, 7. WC, 8. Conference room



Designing the UTMIC

Communications systems

- 3 types

Information displays

- Video Walls

Operator workstations design

- Challenge - operate from a single workstation or two or more operators competing for the same camera

Computer equipment

- Operator workstations
- Network

Staffing

- surveillance, detect and clear incidents from the road network in the city of Skopje



Conclusions and future steps

- **Key indicators for success:**
 - TMC is the crucial point of the operational problem solving in traffic system by means of ITS
 - Intelligent traffic light system's potential (UTOPIA)
 - Information technology's potentials in reducing travel times, travel expenses for the users and environmental degradation
- **Challenges and obstacles that have to be overcome in achieving success:**
 - Systematic & open international exchange of experience and research results
 - Integrated systems approach, knowledge-based research work, the shift from traditional to new thinking – emphasized
 - User behaviour and adaptation (User Acceptance)
 - Local transport policy framework (political)
 - Correct estimation of the hardware, software and communication costs (financial)



THANK YOU

Ass. Prof. Kostandina Veljanovska, PhD

Teaching Ass. Daniela Koltovska Nečoska, MSc

Contact

kostandina@rocketmail.com

daniela.koltovska@gmail.com

www.famis.edu.mk

www.tfb.uklo.edu.mk



THE CIVITAS INITIATIVE
IS CO-FINANCED BY THE
EUROPEAN UNION