# *Saobraćajni Menadžment*
## *Incident Managment Perspective*

**Goran Nikolic, P.Eng.**

**ITS Mini Workshop**

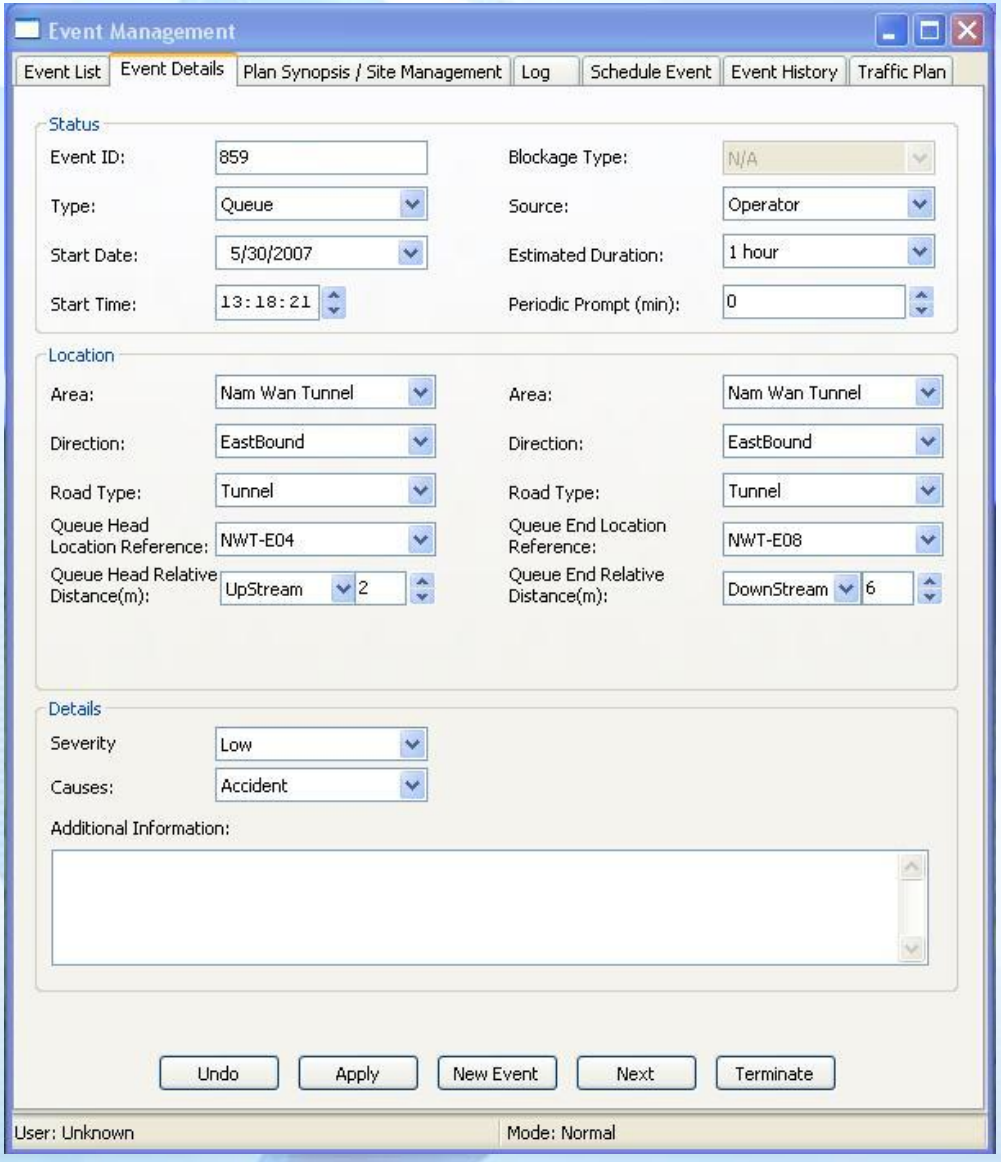
**Beograd, 4 April 2009**

# Incident Manadjment Proces

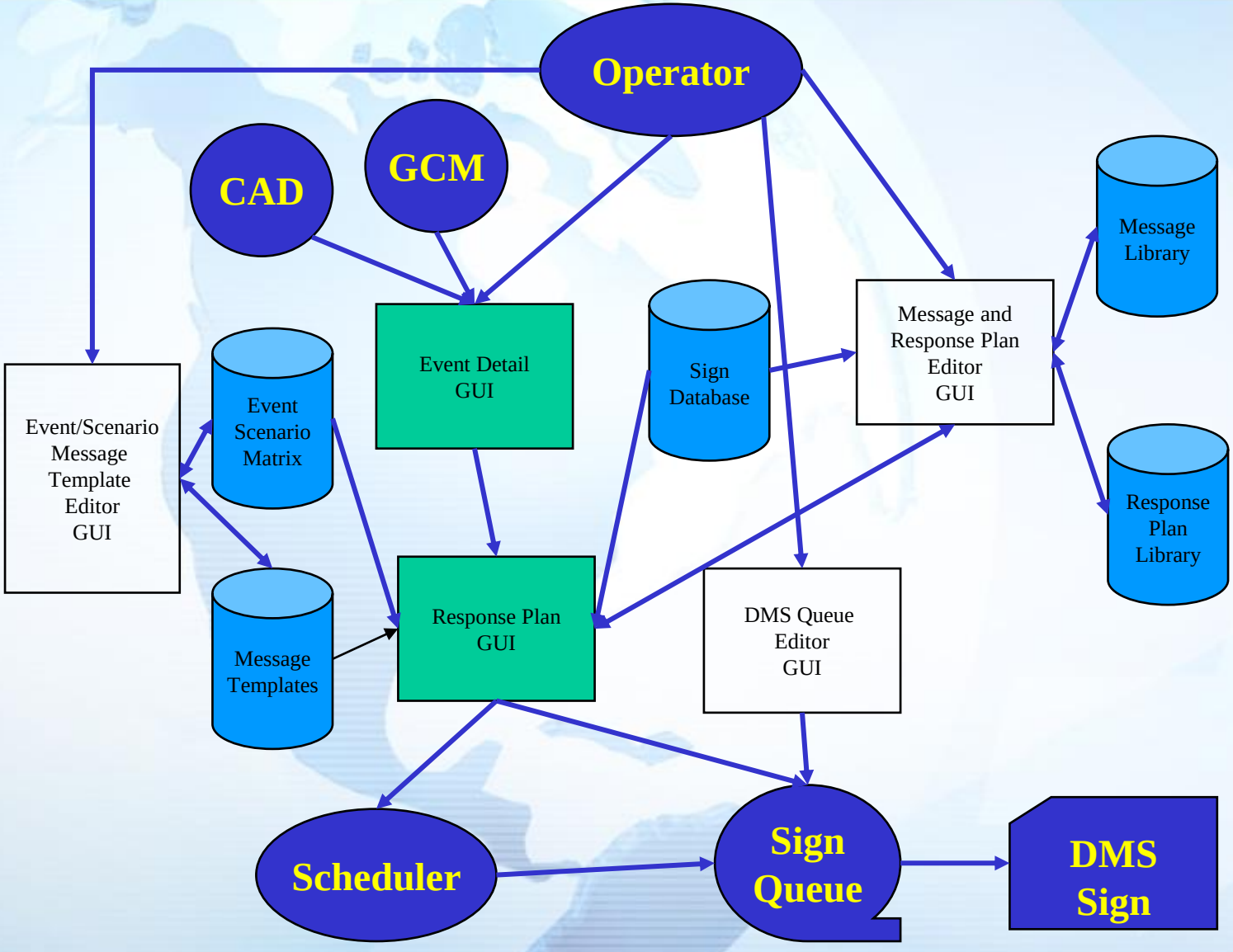
- **Detekcija/Konformacija Incidenta/Udesa**
  - **Policija**
  - **CCTV**
  - **Odrzavanje, etc.**
- **Priprema Odgovora?Akcije**
  - **Input podataka/Informacije**
  - **Akcija/Odgovor ili manuelno ili automatski/sistem**
- **Implementaija Odgovora?Akcije**
  - **Putem kontrolisanja opreme na terenu**
  - **Prenosenje informacije ucesnicima saobracaja**


Ontario
EXPRESS AND COLLECTOR
MOVING WELL
BEYOND NEXT TRANSFER

# Typical Input Requirements



# Typical Implementation Decision Process




DMS EVENT & RESPONSE PLAN FLOW

# Sistemska Oprema na Terenu i Sensori

- VMS
- Prismatic Signs
- Lane Control Signals
- Speed Control Signs
- Vehicle Detectors
- CCTVs
- Emergency Telephone
- Traffic Signals
- Pavement Lighting
- Barriers & Gates
- AID Systems
- Over-height Detectors
- Environmental Sensors
- Solar Sensors
- Power Circuits
- Switches
- Master Clocks
- Fire Alarms & Equipment
- Graphic Video Walls
- SCADA

# Efektivni Menadjment Incidenta/Udesa - Beneficije

- Znacajno umanjenje Reduced delay;
- Improved response time;
- Improved air quality;
- Reduced occurrence of secondary incidents;
- Improved safety;
- Reduced recovery time;
- Enhanced traveller information services;

# Effective Incident Management - Benefits

- **Improved co-ordination and co-operation of response agencies;**
- **Improved public perception of agency operations;**
- **Reduced driver frustration; and**
- **Increased survival rate of crash victims.**

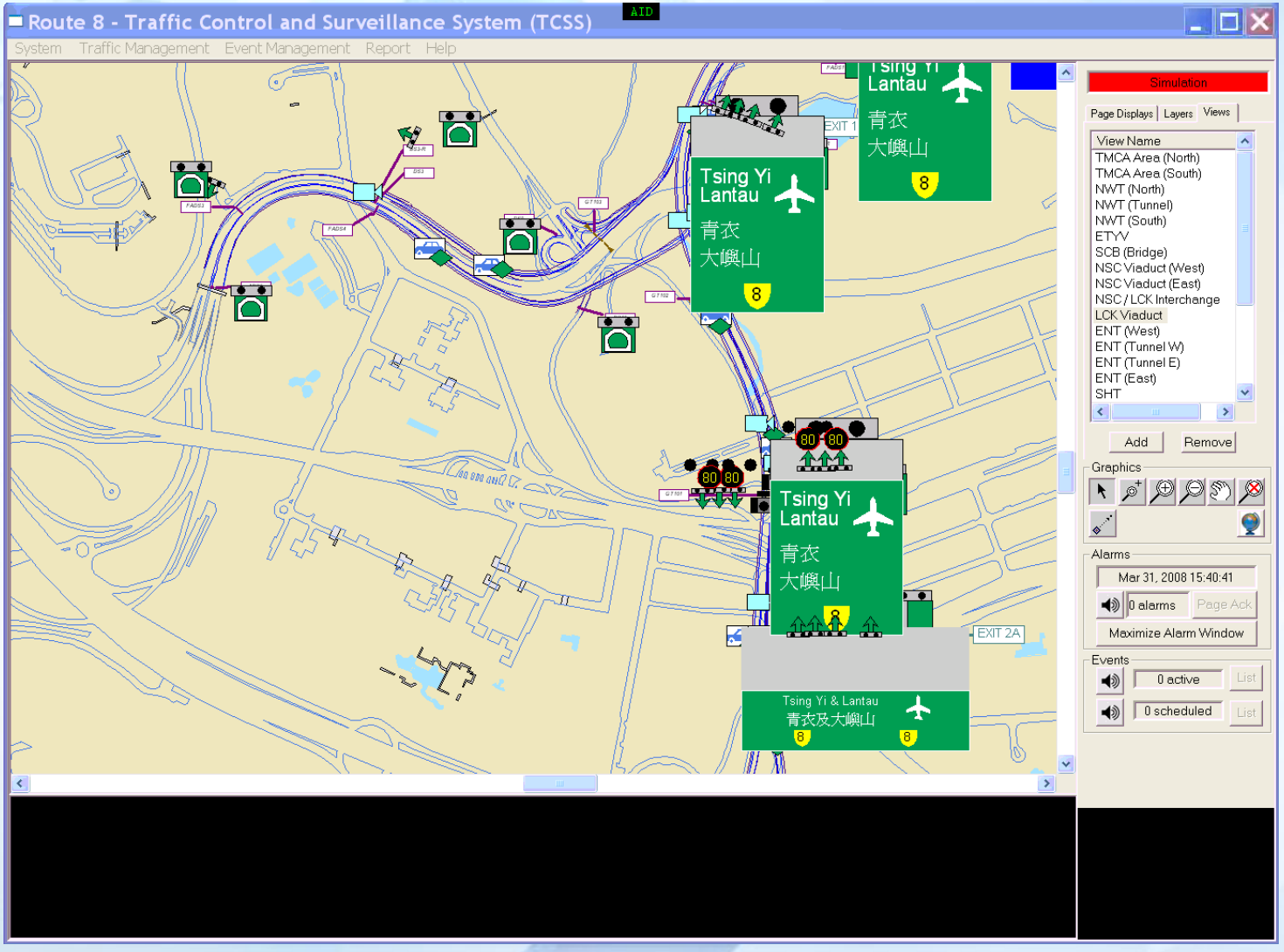
# Traffic Management Differences

- North American approach vs European approach
- Active Diversion vs Passive Diversion
- Statutory vs Informative
- Coordinated vs Stand-alone
- Automatic vs Operator's Intervention

# Project Cases

- **Videos on the Recent Incident Management System in Asia**
  - **Malaysia**
    - **North American approach**
  - **Hong Kong**
    - **European approach**

# Project Cases



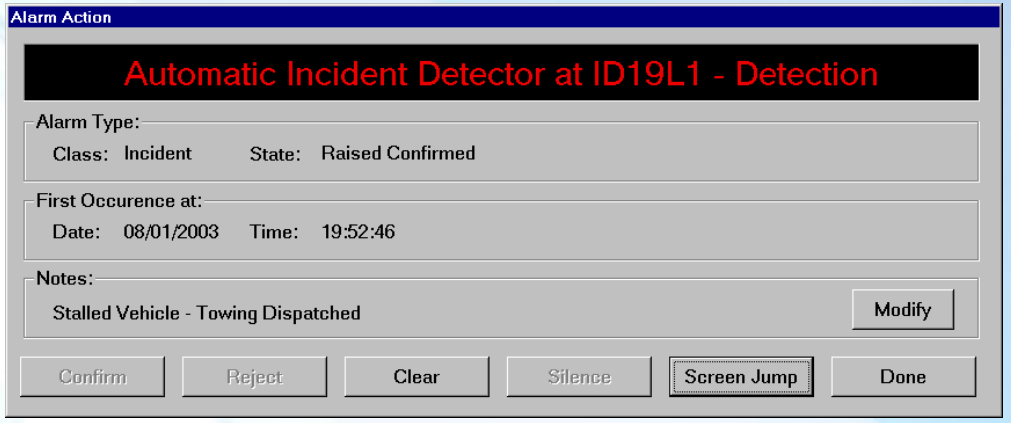
# Variable Message Sign & Matrix Signals

# The Trend of Incident Management

- **Applications Driven**
  - Driven by Traffic management applications instead of technology;
  - Emphasise on:
    - Safety: interlock check, safety alarms;
    - User friendly: graphical interface, point and click operations;
    - Operations assistance: operators - consistency; maintenance staff - fast response
- **Automation as possible**
  - Minimum operator’s intervention in daily operations

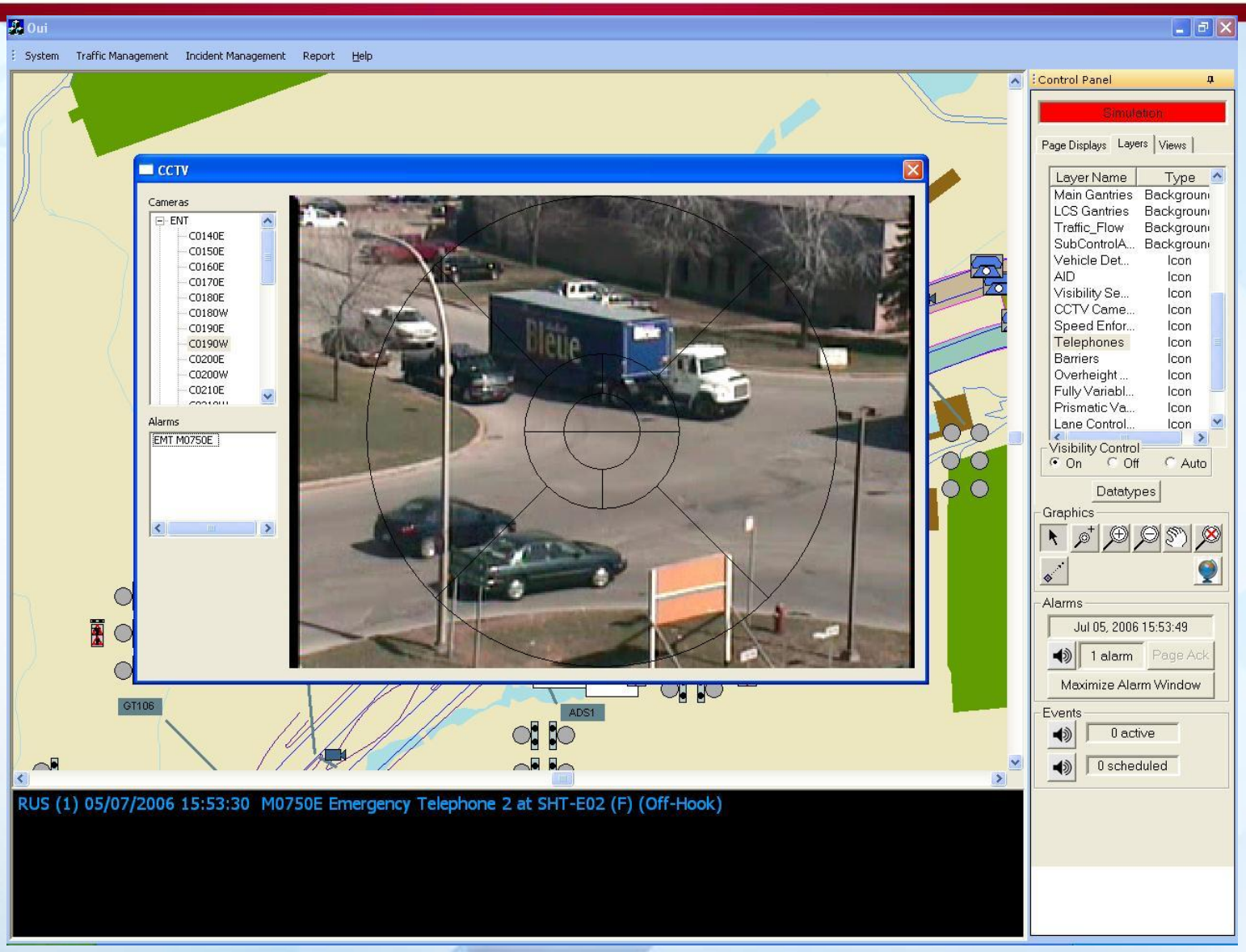
# Traffic Management

- **Automatic Incident Detection Algorithm**

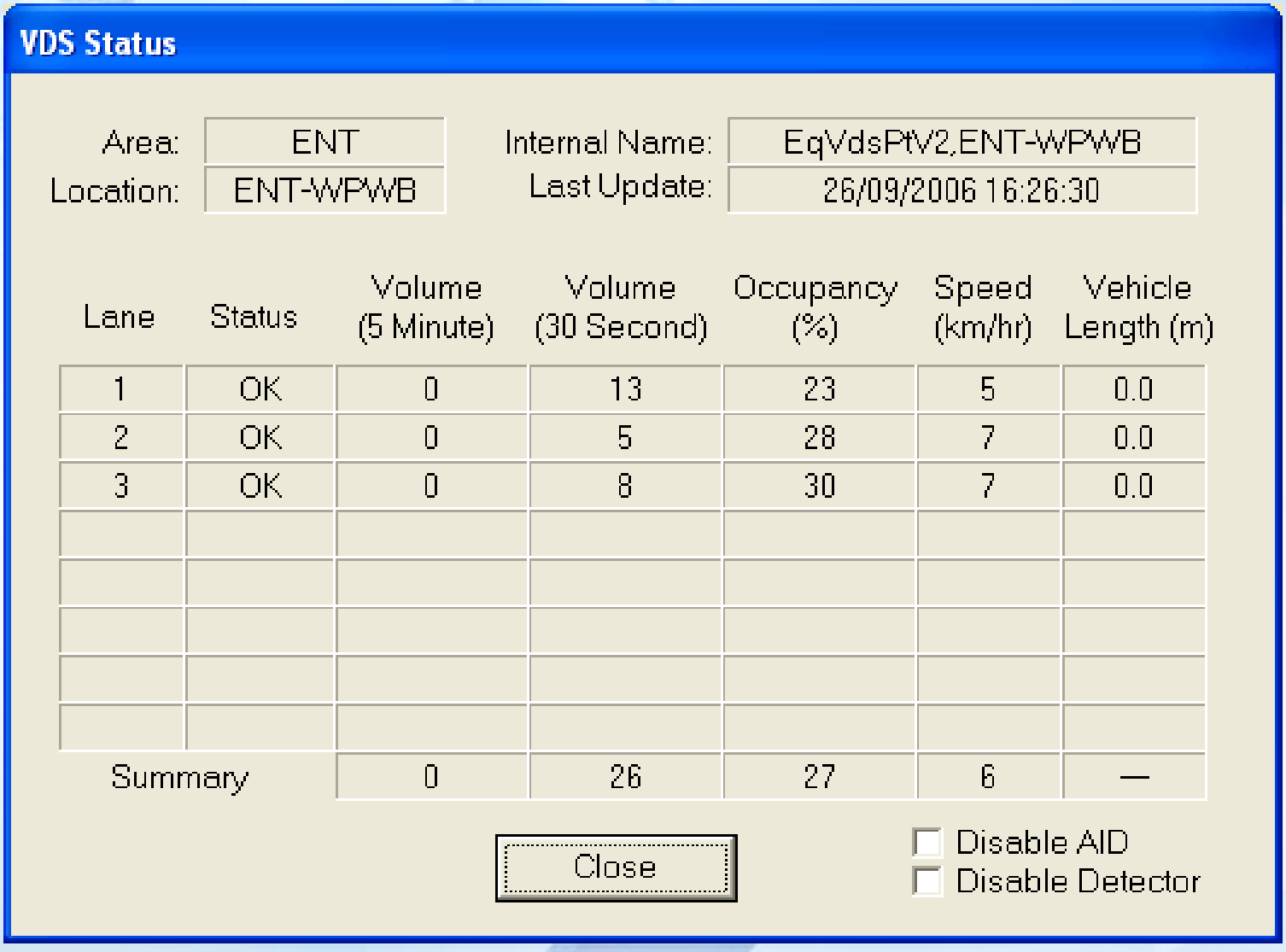



- **Traffic Management Response Plans**
  - Sequenced Multiple Aspect Change
  - Operator Assistance: Advise/instruct
  - Step-through, Preview and Simulation
- **Safety Check on Sign Displays**

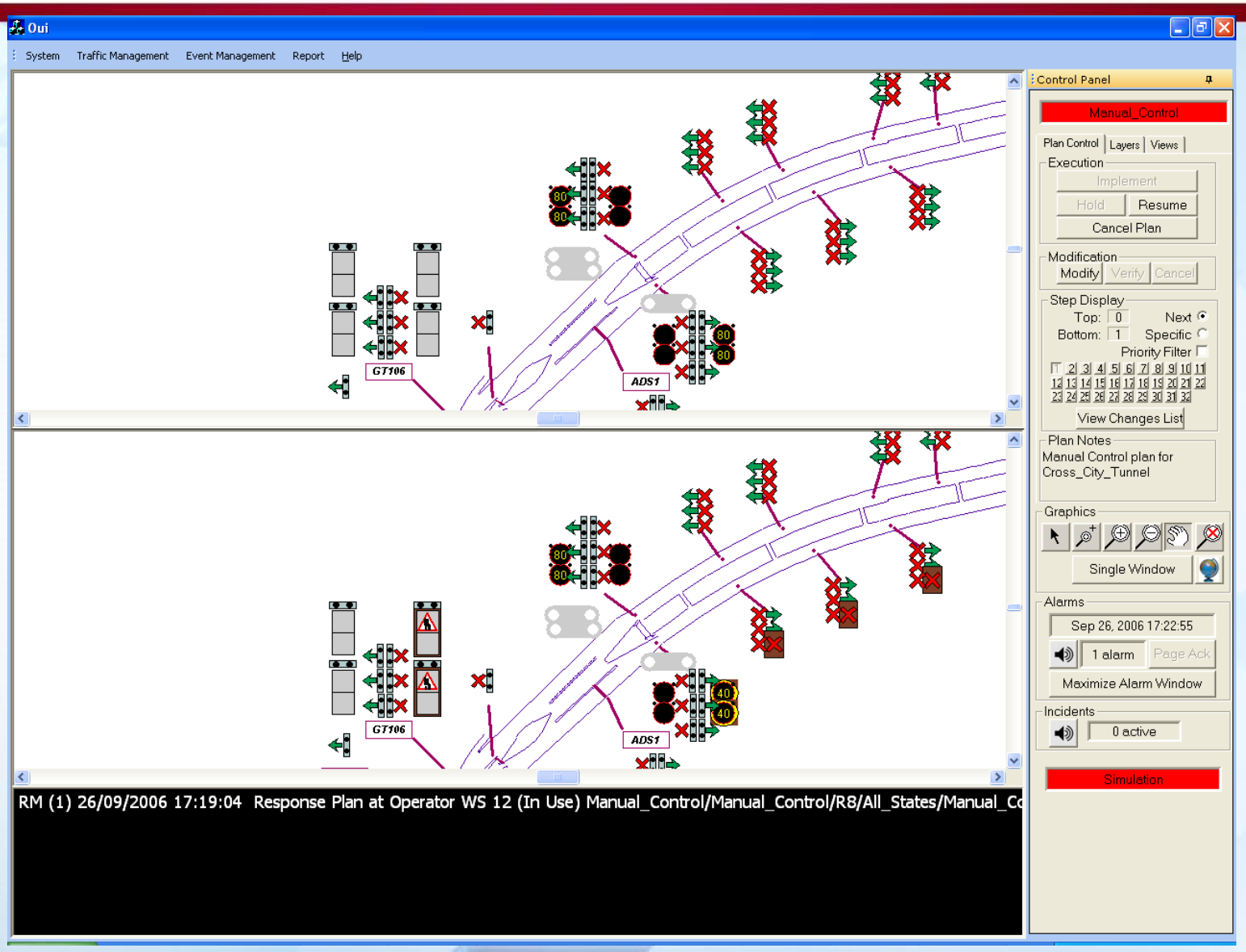
# Integrated Control and Video Display



# Real Time Traffic Information Display

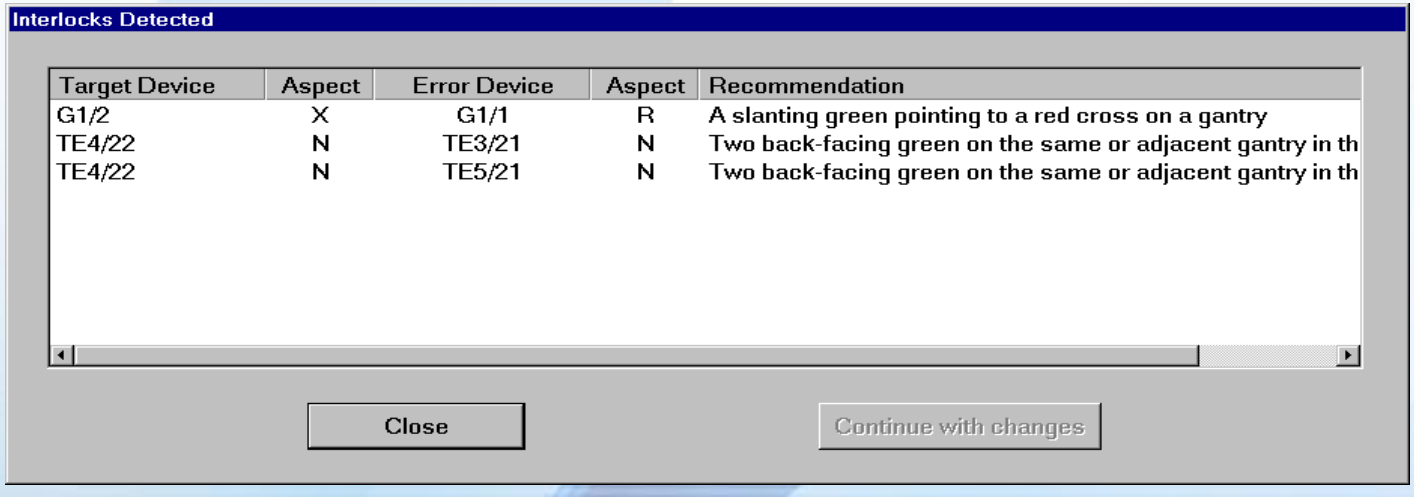


# Target Change Display



# Safety Checks on Sign/Signal Control

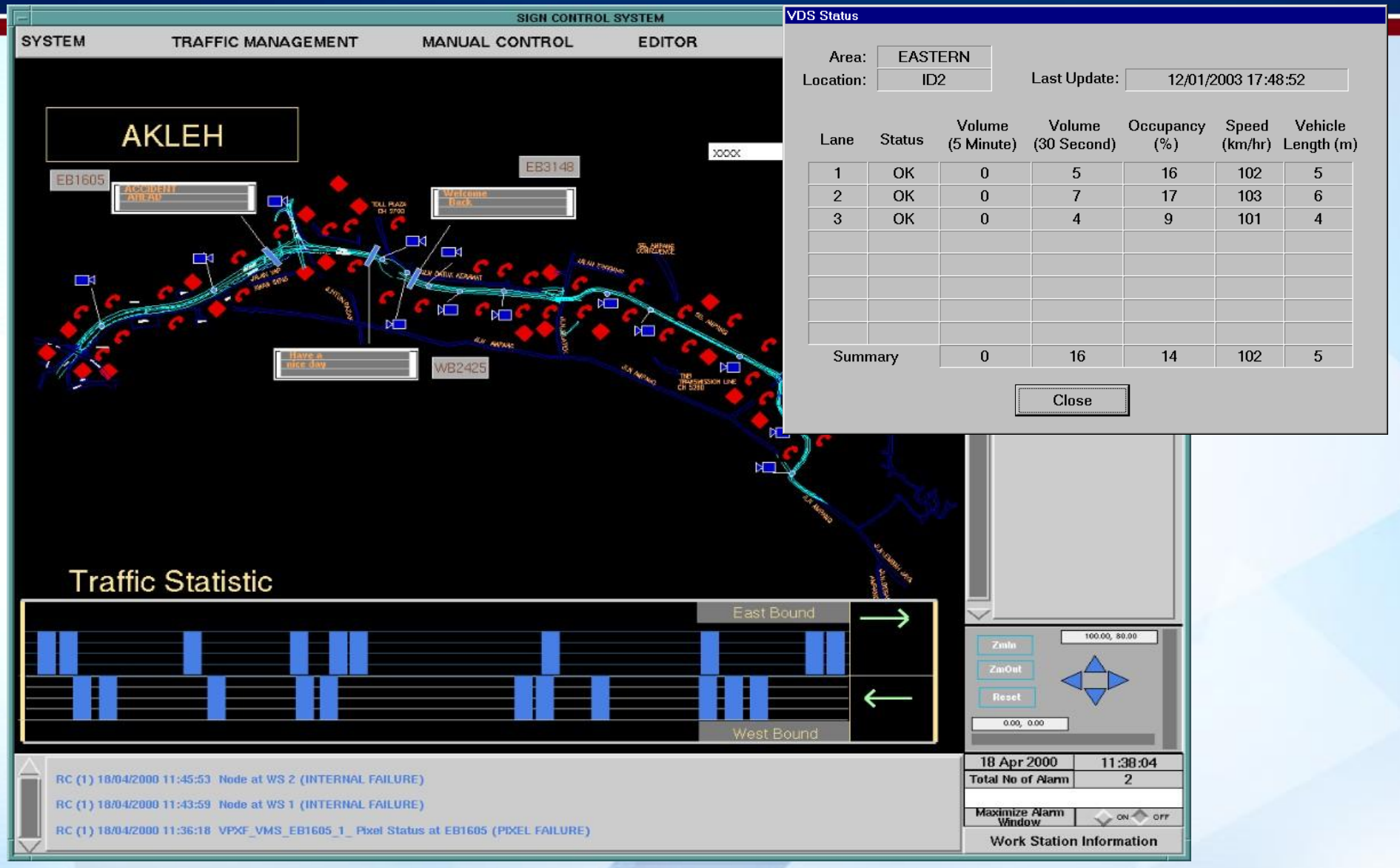
- **The system checks every signal control defined in the plan or any manual controls against a safety matrix and safety rules**
  - two slanting arrows pointing to each other
  - consistency between the displays on signals and signs on the same or adjacent gantries



# Alarm Management

- to allow traffic operator & system manager to have total control of the entire system
- to provide full details of the problems for ease of further action
- all the alarms are prioritised and colour-coded to represent different levels of severity and stages of the alarms

# On-Screen Traffic Statistics




VDS Status

Area: EASTERN
Location: ID2
Last Update: 12/01/2003 17:48:52

| Lane | Status | Volume (5 Minute) | Volume (30 Second) | Occupancy (%) | Speed (km/hr) | Vehicle Length (m) |
|---|---|---|---|---|---|---|
| 1 | OK | 0 | 5 | 16 | 102 | 5 |
| 2 | OK | 0 | 7 | 17 | 103 | 6 |
| 3 | OK | 0 | 4 | 9 | 101 | 4 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Summary | | 0 | 16 | 14 | 102 | 5 |

Close

# *Thank you!*

**ITS Workshop**

**Nicosia, 3 April 2008**