How public transport can benefit from cooperative systems

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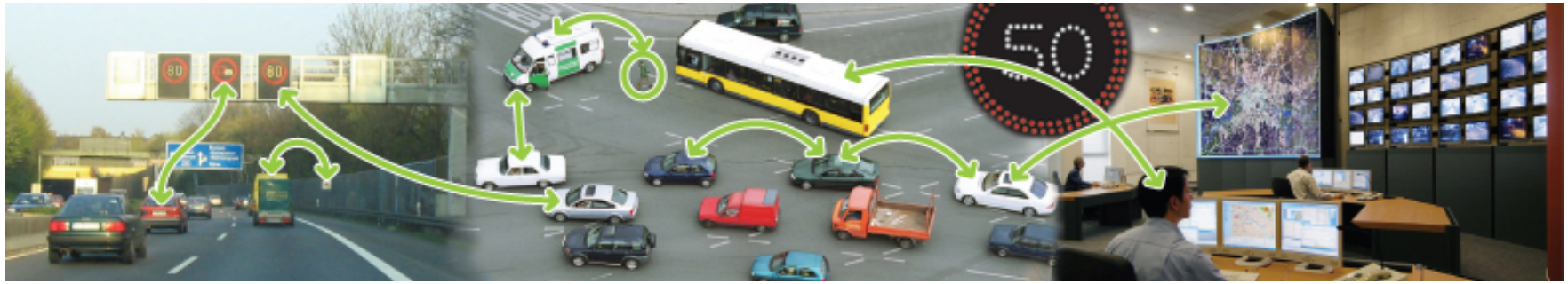
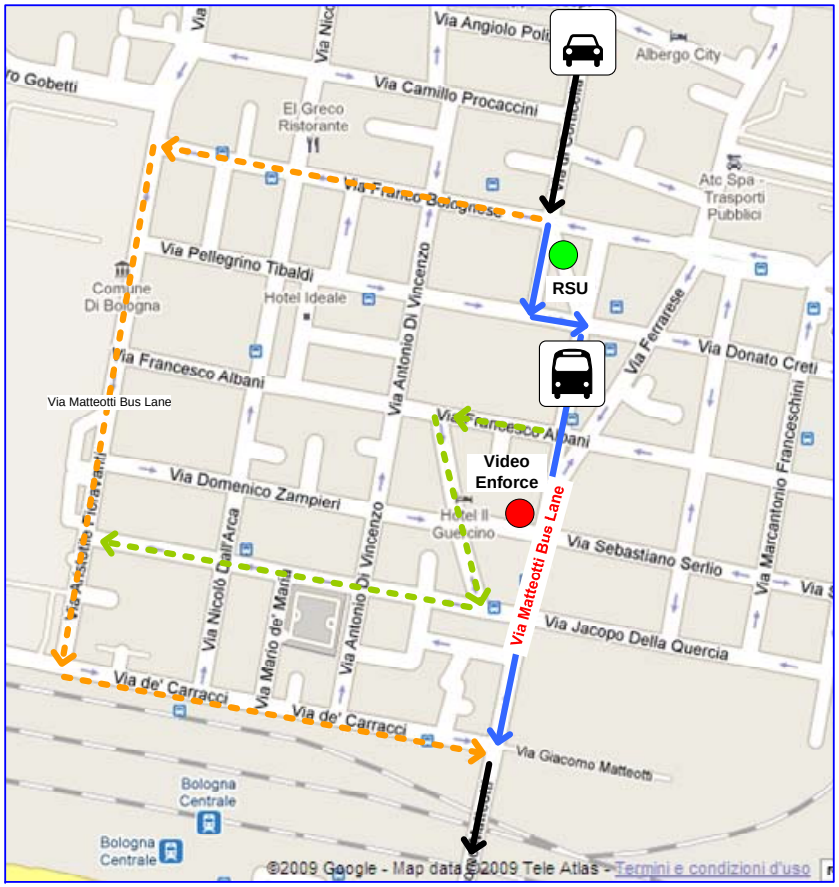


Flexible Bus Lane Application

- The idea:
  - Allow pre-identified vehicles to access the bus lane
  - Vehicles are equipped with CVIS technology which *uniquely* identifies them
  - Bus lane is fitted with cooperative roadside unit (RSU)
  - Permits handed out and monitored
  - Video enforcement

Test site in Bologna

- Tests take place along Via Matteotti
  which connects the North of Bologna with the city centre
- Via Matteotti is reserved only to buses in the direction of the city centre
  it forces private vehicles to a much longer trip
- One ATC operational vehicle has been equipped with CVIS on board system
- The road side unit has been installed onboard a vehicle parked in Piazza dell'Unità close to the BL entrance (due to authorization problems)
- Interfaces with legacy systems
  - ATC Public Transport Management System which monitors the entire bus fleet
  - Video enforcement system (through update of the white list)



Field tests: results

- **Measurements**
  (average travel time)
  - Using BL — 107 seconds
  - Normal route — 245 seconds
    (more than 300 sec in peak hours)
  - Leave BL scenario 170 seconds

- **Application performance**
  - Tests show significant reduction in travel time
  - No impact on public transport
  - No significant impact on vehicle travel time when following a bus (despite bus stops)
  - Network topology has a high impact on the application performance
  - Co-operative technology is essential: public transport performance suffers from random insertion of vehicles on the bus-lane

Ensuring undisturbed passage of buses

- The Flexible Bus Lane Application can only be implemented in certain networks, dependent on:
  - Type of bus lane
  - Type of bus stops
  - Traffic situation in the vicinity of the start and end of the bus lane
- *Based on simulation studies: this application shows reasonable results even at low penetration rates*

FBL - Benefits

- Better use of bus lane capacity *while ensuring undisturbed passage of buses*
- Increased road capacity by providing temporary access to bus lanes (better network performance) + individual gain (travel time)
- Better network performance will also benefit public transport
- Investment in bus lanes can be considered more effective by general consent
- Bus lane access (if not provided for free) can be used to partly recoup costs of bus lane investments
- Local authority can have control of which section of general traffic can access the bus lane and prioritise relevant policy objectives
- Flexibility of bus lane use can support implementation of new bus lanes (at the moment opposition of shop owners, inhabitants)

Other possibilities for public transport

- Priority Application, RTTI…
- The cooperative systems open platform allows for

… increased flexibility, extensibility, and the possibility of two-way communication.

More info:

www.cvisproject.org

soon: CVIS publication:

Cooperative urban mobility

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