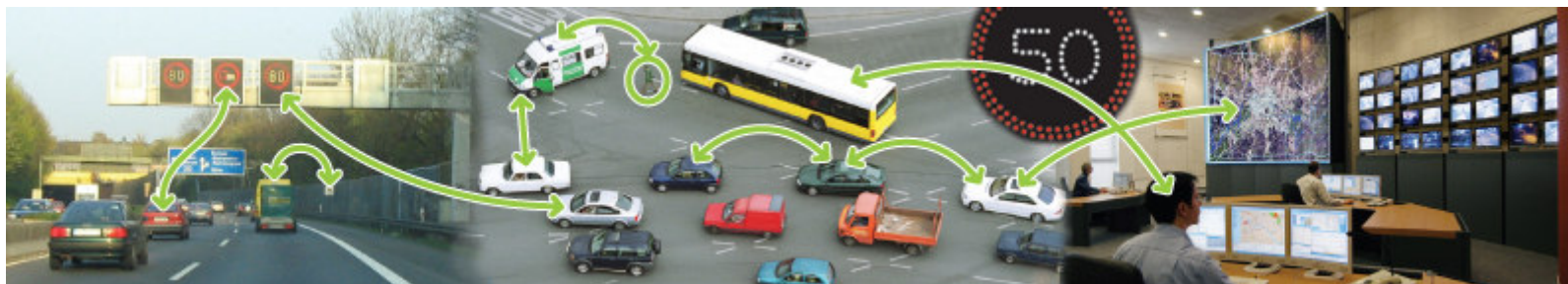




# Cooperative URBan Applications



CVIS Requirements Workshop  
Frans van Waes





# Topics



- State of art
- Goals
- Added value
- Benefits
- Applications



# State of art

- Complex mobility pattern
- Oversaturated infrastructure
- Lack of information about actual urban traffic situation
- Stand alone traffic management measures





# Goals



- Improve urban road traffic efficiency, safety and roadside environment by making use of intensive exchange of real time information between vehicles and infrastructure
- Traffic optimization effective at network level while maintaining high local response to current traffic situations
- Efficient use of available road space by dynamic allocation of lanes reserved for certain user groups



# CURB added value

- Detailed travel data collection
- Improved management of traffic
- Personalised travel information
- Promote efficient use of road space





# Benefits

- Data fusion
- Extension of network models
- Vehicle based traffic control
- Urban traffic information
- Better use of existing infrastructure





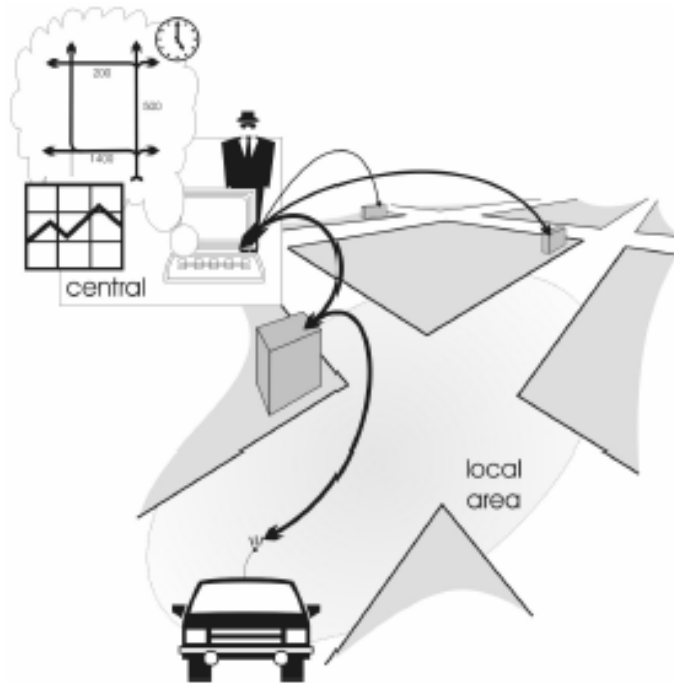
# CVIS Innovation



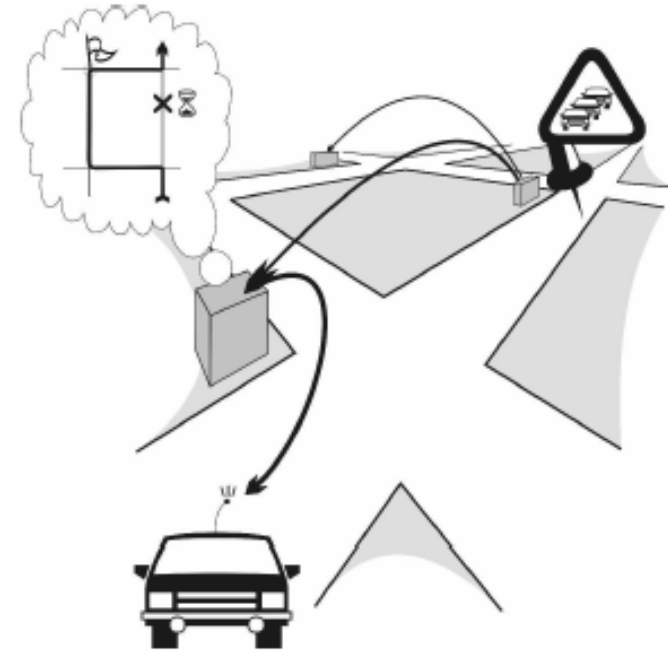
- Based on data collection and data exchange between vehicles, road side equipment and traffic management centre CURB provides applications to improve efficiency of urban traffic at local, area and network level



# CURB – applications 1/2



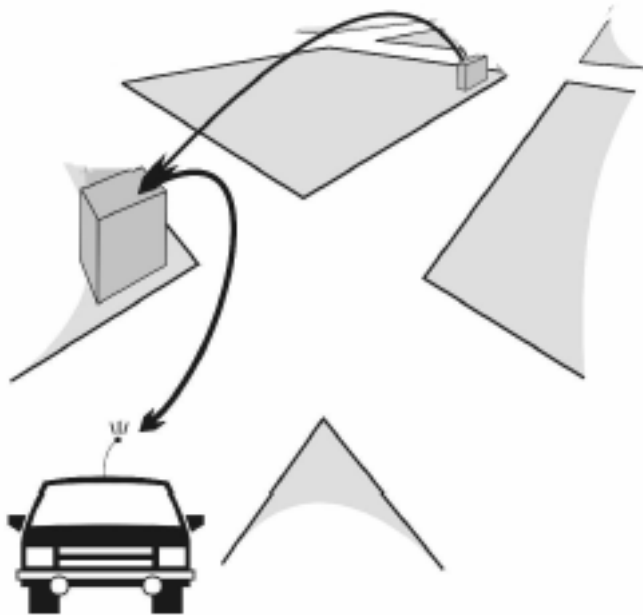
- Cooperative Network Management



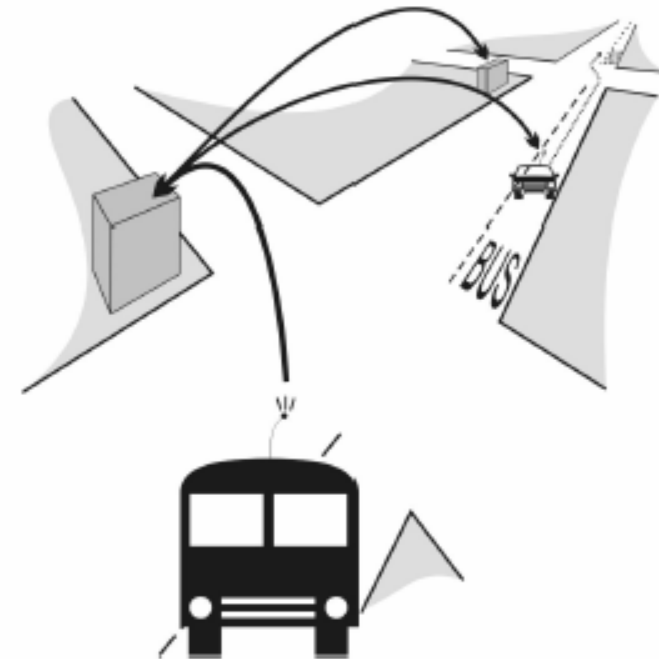
- Cooperative Area Routing



# CURB – applications 2/2



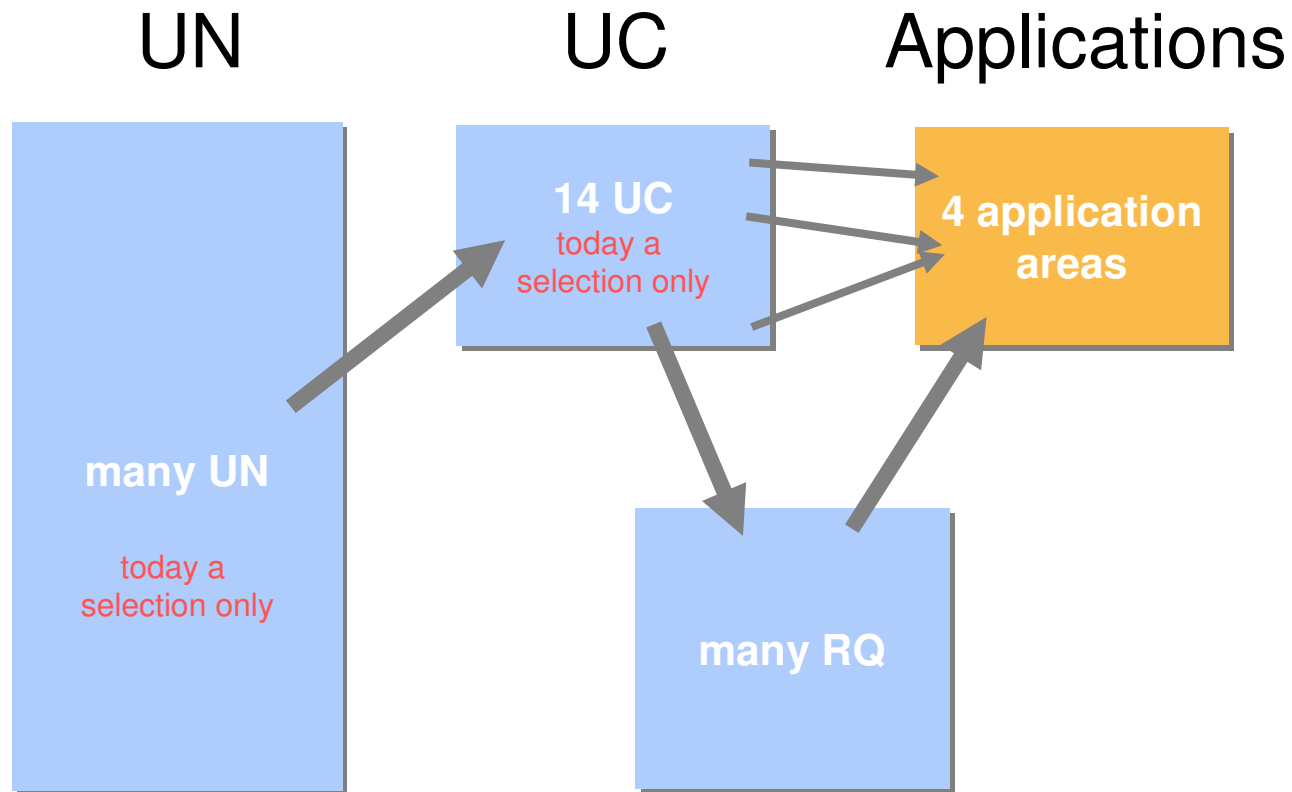
- Cooperative Local Traffic Control



- Dynamic Bus Lanes



# Process summary





# User Needs

urban area and network level

## 0048 - Provide routing service for small urban sub areas

Road operator / Driver - Provide a fast reacting routing service to offer alternative partial routes based on local traffic state and incident detection

## 0050 - Implementation of cooperative traffic management strategies

Road operator - Possibility to implement cooperative traffic management scenarios referring to the current traffic state, in order to optimize traffic flow and reduce congestion

## 0051 - Driver to receive optimal routing advices and route updates

Driver - Optimal routing advices based on high quality traffic information. In case of incidents the driver wants to receive updated routing advice and information why the intended route has changed





# Use Case

## 0013 Speed profiles

*GOAL: increase efficiency of an intersection, and combining that with optimal comfort for the driver*

- Local controller receives relevant data from all approaching CVIS vehicles
- Controller calculates speed profiles per direction
- Controller broadcasts speeds profiles to approaching CVIS equipped vehicles.
- Speed profile is interpreted by the vehicles' on-board unit
- Speed profile is presented to the driver





# Requirements



- System Requirements Classes
  - Functional
  - Communication
  - Information
  - Performance
  - Driver interaction
  - User Acceptability
- Output:
  - Main concepts
  - Main requirements
  - Risk and consideration



# Dynamic Bus Lane application

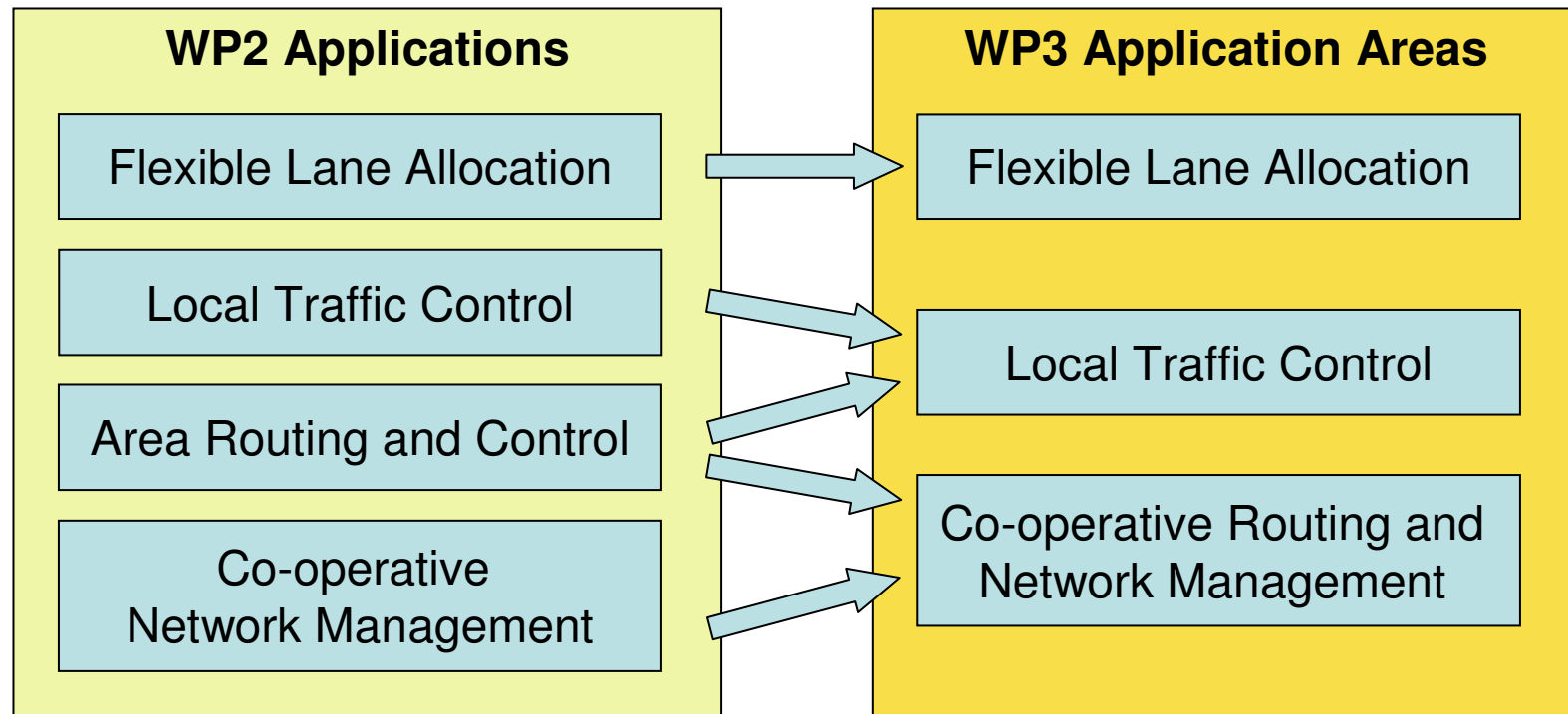


- Main Concepts:
  - Prevent disturbances to Public Transport Vehicles
  - Provision of licenses to use the bus lane
- Main Requirements:
  - Bus allocation system shall know the current position of the Public Transport Vehicles
  - ...
- Risk and consideration
  - Fit with heavily congested area



# CURB Applications

## WP2 -> WP3





Thanks for your attention

[www.cvisproject.org](http://www.cvisproject.org)

