

# DLR – Institute of Transportation Systems

## Traffic Management Research

### Traffic Management

Research works in the field of traffic management can help to rise efficiency of transport systems by applying new concepts of traffic organization, operation and control. To

achieve this goal it is of absolute importance to ensure a reliable base and create the data collection on the current state of traffic and vehicle flow.

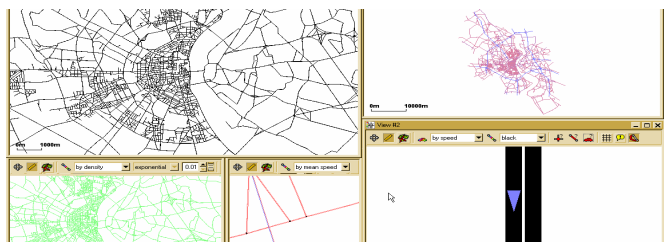


### Traffic Surveillance

Our institute develops new approaches and methods to supervise and detect traffic in huge areas such as conurbations.

Two of our main fields are image processing techniques for object tracking and data fusion of different sensors. These sensors may be mounted either on stationary premises, e.g., the DLR Urban Road Research Laboratory, or on mobile platforms, e.g., the DLR measuring vehicles or manned and unmanned flying objects.

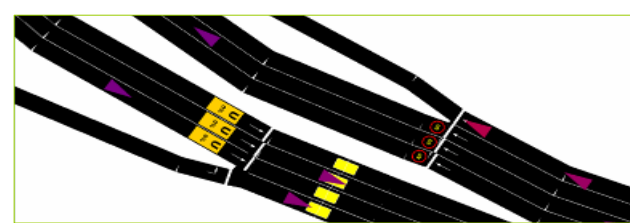
On the other side we concentrate on time accurate positioning of vehicle fleets applying the Floating Car Data (FCD) technology. FCD uses already existing dispatching systems of commercial vehicle fleets which deliver data for travel time estimations. To achieve this, hardly any other method is available.



### Traffic Simulation and Prediction

Traffic simulation is valued as an important tool to assess traffic management measures as well as to predict future traffic states. The institute has developed the microscopic traffic flow simulation package SUMO which allows simulation of large road networks, including complete cities and conurbations.

Another way to predict traffic states is relying on recognized behavioral archetypes. This is possible since the system behavior repeats itself on similar time slots, what can be quantified by mathematical investigations.

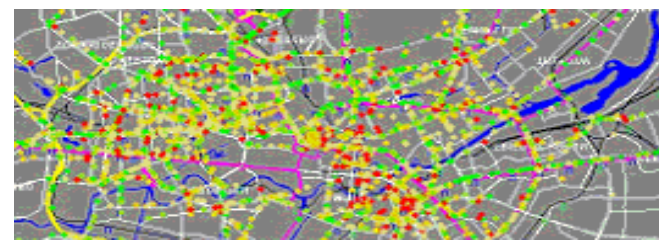


### Traffic Control

In this field our institute mainly concentrates on controlling and managing traffic systems in huge areas and during atypical situations like disasters and major events. Thereby a special emphasize is put on the cooperation with the Boards and Organizations with Safety tasks (BOS).

Further on the optimized control of whole networks and technology basing on individual vehicle-to-vehicle or vehicle-to-infrastructure communication is implemented in our projects.

DLR's TrafficTower as a virtual traffic management center serves as a test bed and validation possibility of these concepts.



### Quality Assurance

Nowadays the guarantee of a good quality of traffic flow is demanded, mainly meaning less jams and low overall system journey times. Our institute supports the thereby arising tasks by assessments and estimation of consequences of traffic management measures with detailed Before and After comparisons. For these analysis methods and software tools are newly created.

The other task is broadening the range of the data base to evaluate the quality. In particular Floating Car Data (FCD) can serve as an all-area covering means to detect the traffic state and quality.

