



# Traffic Situation Detection

# Detect, Observe, Analyse

## REFERENCE

### Traffic Centre Hessen (VZH)

Hessian Regional Authority for Roads and Traffic



## SAMPLE PROJECT

→ Traffic monitoring and intelligent processes to determine level of service and the global traffic situation

The Hessian Traffic Centre ranks amongst Germany's most sophisticated traffic control systems. The system –based on a GIS kernel (Geographic Information System) in combination with a real-time GeoDyn® data middleware – uniquely combines extensibility with scalability.

The TCC already integrates 19 sub-centres, 40 dynamic rerouting sign chains and detects traffic state via some 3,400 induction loop or radar sensors. Apart from its innovative architecture, the system stands out through its combination of various traffic management procedures and traffic models for data fusion, traffic predictions and decision support.

Information on the current level of service, especially about congestion, is presented to the operators to support decision making and situation specific call-up of video images as well as reporting to recipients like, e.g., broadcasters or the Police's traffic alert service.

The traffic control centre soft- and hardware as well as the sub-centres were established under contract with the Hessian Traffic Control Centre of the Hessian Regional Authority for Roads and Traffic.

Control Center of the Hessian Regional Authority for Roads and Traffic.

# Basic Decisions for Optimised Action

## → Basic data processing at the SC and TCC

data acquisition  
plausibility checks  
data completion

## → continued processing of data in the TCC

data fusion  
traffic prediction  
level of service determination  
incident detection



## CHARACTERISTICS

### Acquisition and dissemination of data

- data acquisition through input of data from the roadside sensor systems
- plausibility checks and data completion to mitigate hardware failure

### Traffic statistics and analysis

- persistent storage of traffic patterns in a database for statistical analysis (traffic volumes, speeds, etc.)
- adjust for day of week, public holidays, planned events like fairs, etc.

### Traffic situation detection

- data fusion: merging data from various sources
- prediction of traffic values based on historic traffic data
- traffic situation determination and incident detection for segments of the network based on real-time or predicted sensor and event data
- algorithmically propagate level of service to segments without monitoring
- traffic analysis for the entire, or a part of the network, based on traffic, environment and event data generated with configurable rules using fuzzy logic
- congestion progression analysis with prediction of affected lengths and delay times
- prediction of the traffic situation and propagation of disruptions