



Enhanced Traffic Management Procedures

Connected and Autonomous Vehicles in Transition Areas

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Situations in which (C)AVs may struggle





Main observations about state-of-the-art for traffic management



- General approaches
 - Coordinated network-wide traffic management
 - Using KPIs, hierarchical controls via layered architectures, TMaaS
- Cooperative systems
 - V2X / VANETs / C-ITS
- Machine learning techniques (AI)
 - Traffic light control and congestion / queue length predictions
- Conclusion
 - No (readily available) implementations of more advanced TM schemes
 - Focus on solving partial problems with specific measures

Sequence of events when AD disengages



- Take-over request (TOR) issued by the car
- Transition of Control (ToC) from car to driver
- Minimum-Risk Maneuver (MRM) by the car
- Driving at the boundary of the **ODD**

SSS 1



Developing TransAID's services for traffic management in transition areas



- Solutions take the form of these actions:
 - Prevent ToC/MRM
 - Manage or support ToC/MRM
 - **Distribute** (in time and space) ToC/MRM
- Assess solutions based on impacts measured by **KPIs**:
 - Traffic efficiency
 - Network-wide: average speeds and throughput
 - Local: tempo-spatial diagrams
 - Traffic safety
 - Number of events with time-to-collision < 3 sec
 - Environmental impact
 - CO₂ emissions

Services and use cases

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Simulating the impact of traffic management



Example use case 5.1 (Distribute the TORs within a dedicated TOR area)





With traffic management



Example use case 1.3 (queue spillback at motorway exit ramp)



With traffic management Space-mean speeds [km/h]



THE CONVERSATION CONTINUES

Measuring the impact (e.g., travel times, number of lane changes, ...)

SSX 1







Questions? Let's stay in touch!

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