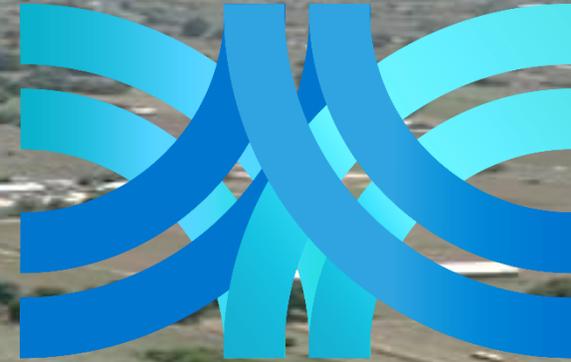


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47TH ASECAP STUDY & INFORMATION DAYS

Tomorrow's Mobility...Is Here Today!

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47TH ASECAP STUDY & INFORMATION DAYS

Tomorrow's Mobility...Is Here Today!



Transition Areas for Infrastructure-Assisted Automated Driving (TransAID)

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TransAID is funded by the EC Horizon 2020 Research and Innovation Framework Programme, under Grant Agreement No. 723390





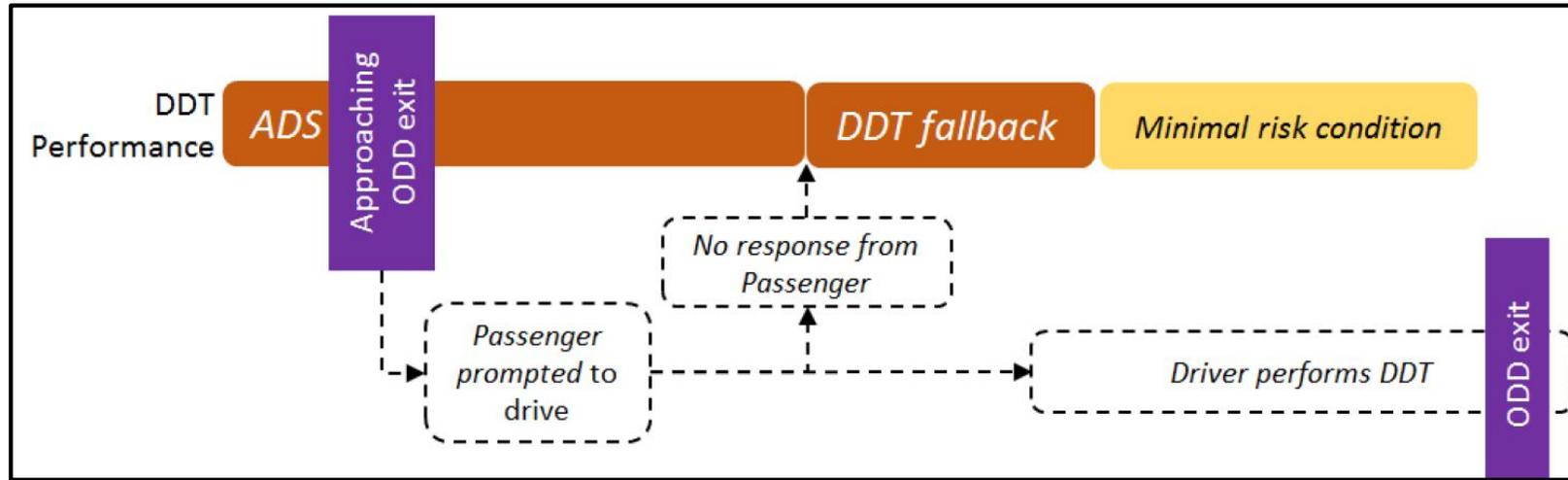
Project Overview

□ TransAID (ART-05)

- ✓ Transition Areas for Infrastructure-Assisted Driving
- ✓ 01-09-2017 ~ 31-08-2019
- ✓ Budget: EUR 3.836.353,75
- ✓ Seven partners from 6 countries: DE, UK, BE, NL, EL, ES



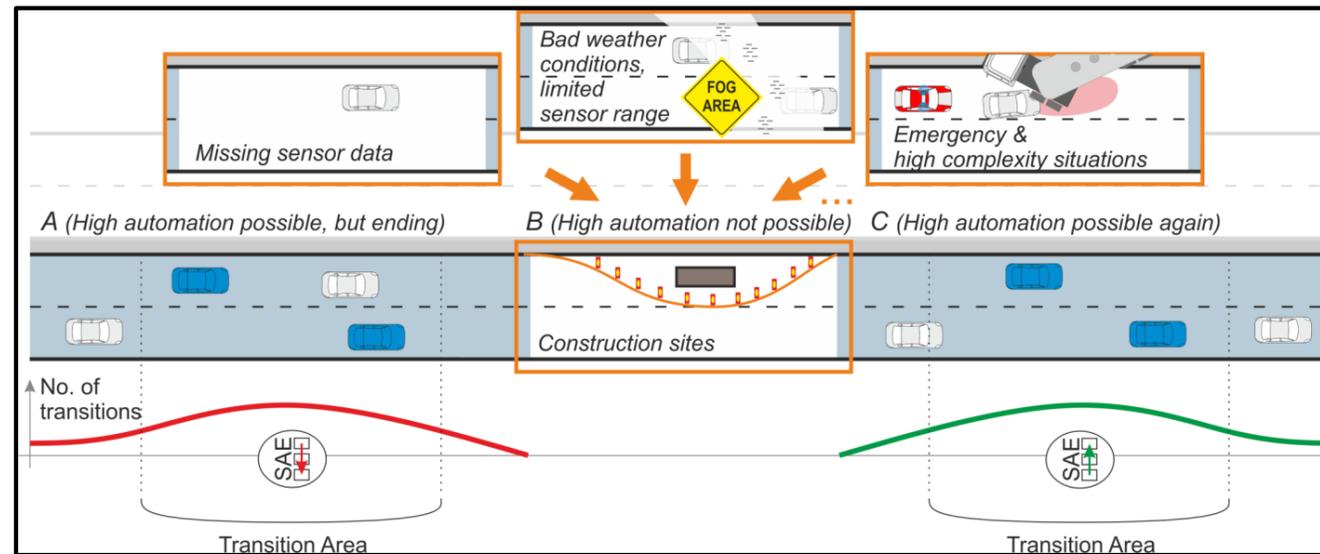
AV Disengagements



- ❑ Case: Level 4 automated vehicle
- ❑ DDT: Dynamic Driving Task
- ❑ ADS: Automated Driving System
- ❑ Minimum risk condition: stop safely

Transition of Control Areas

- ...what if the automated vehicle cannot deal with upcoming situation?
 - ✓ ...what, if this happens not to single vehicles only, but to several?
 - ✓ ...what, if it always happens on the same spot?





Project Objectives

To develop and demonstrate **infrastructure-assisted traffic management procedures, protocols and guidelines** for smooth coexistence between automated, connected and conventional vehicles especially at Transition Areas.

Evaluation and modelling of **current automation prototypes** and their drivers' behaviour.

Assessment of the **impact** of Transition Areas on **traffic safety and efficiency**. Generate requirements on enhanced traffic management procedures.

Development of **infrastructure-assisted management procedures and protocols** to control connected, automated and conventional vehicles at Transition Areas.

Definition of **V2X message sets and communication protocols** for the cooperation between connected/automated vehicles and the road infrastructure

Development of procedures to enhance the **detection of conventional vehicles** and obstacles on the roads and to inform/influence conventional vehicles.

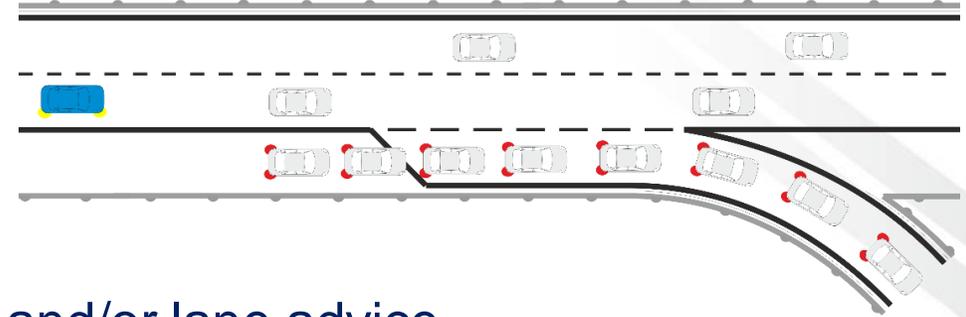
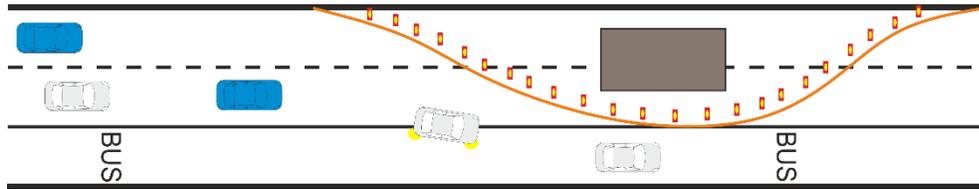
Integration, test and evaluation of the TransAID infrastructure-assisted traffic management protocols and procedures in a simulation environment. **Validation and demonstration** of them by means of real world prototypes at test sites.

Provision of a guideline/roadmap to stakeholders regarding the requirements on traffic infrastructure and traffic management in order to cope with Transition Areas considering mixed traffic.

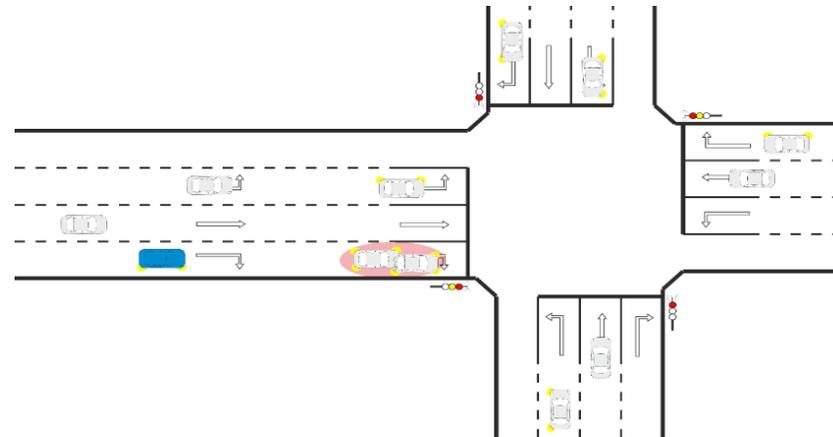
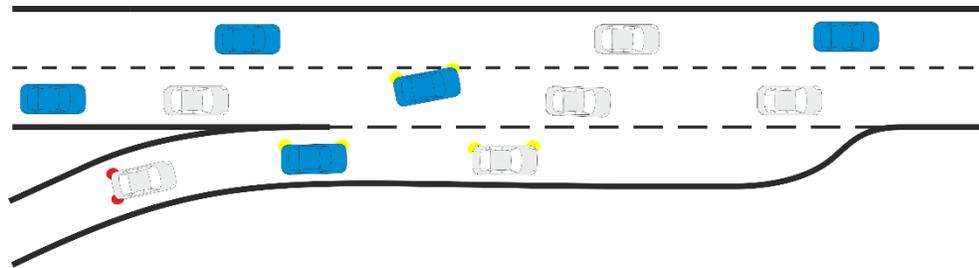


TransAID use cases (1/3)

1. Prevent ToC/MRM by providing vehicle path information

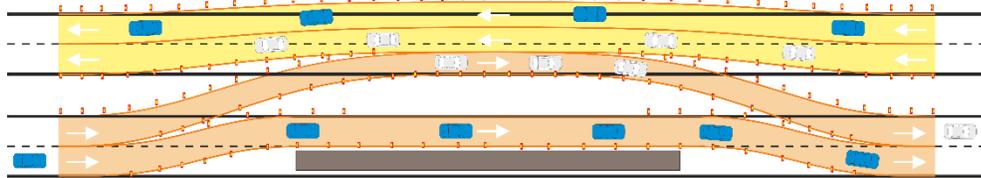


2. Prevent ToC/MRM by providing speed, headway and/or lane advice

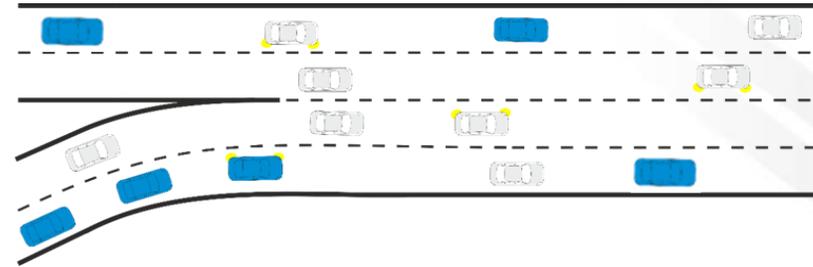
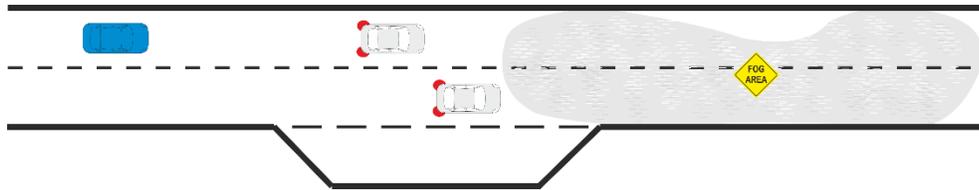


TransAID use cases (2/3)

3. Prevent ToC/MRM by traffic separation

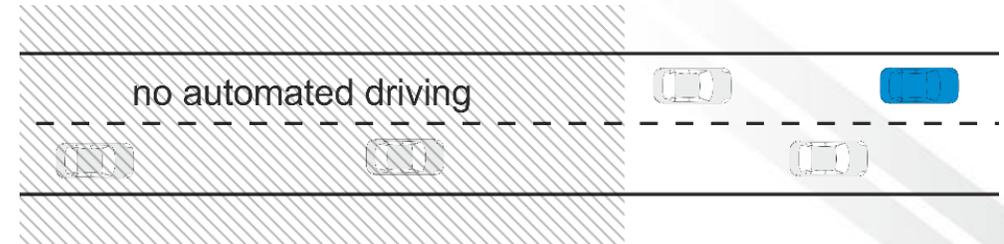
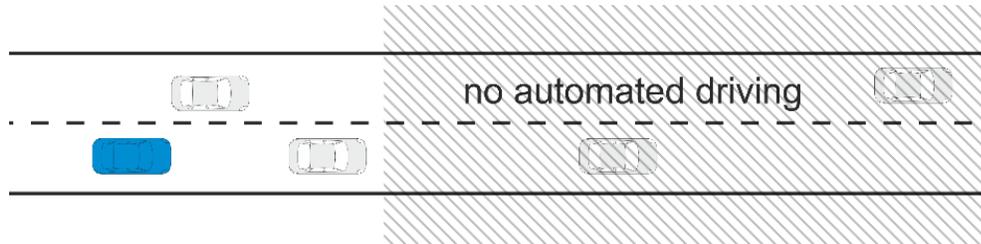


4. Manage MRM by guidance to safe spot



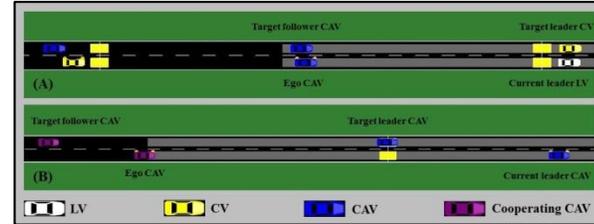
TransAID use cases (3/3)

5. Distribute ToCs upstream of no AD zone



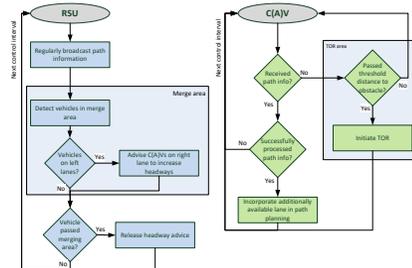


Simulation Activities

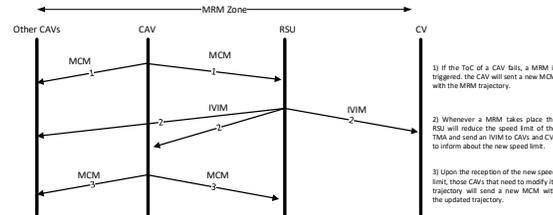


Vehicle models

Applications



TM measures



Comm. protocols

- 1) If the ToC of a CAV fails, a MRM is triggered, the CAV will send a new MCM with the MRM trajectory.
- 2) Whenever a MRM takes place the RSU will reduce the speed limit of the TMA and send an IVIM to CAVs and CVs to inform about the new speed limit.
- 3) Upon the reception of the new speed limit, those CAVs that need to modify its trajectory will send a new MCM with the updated trajectory.



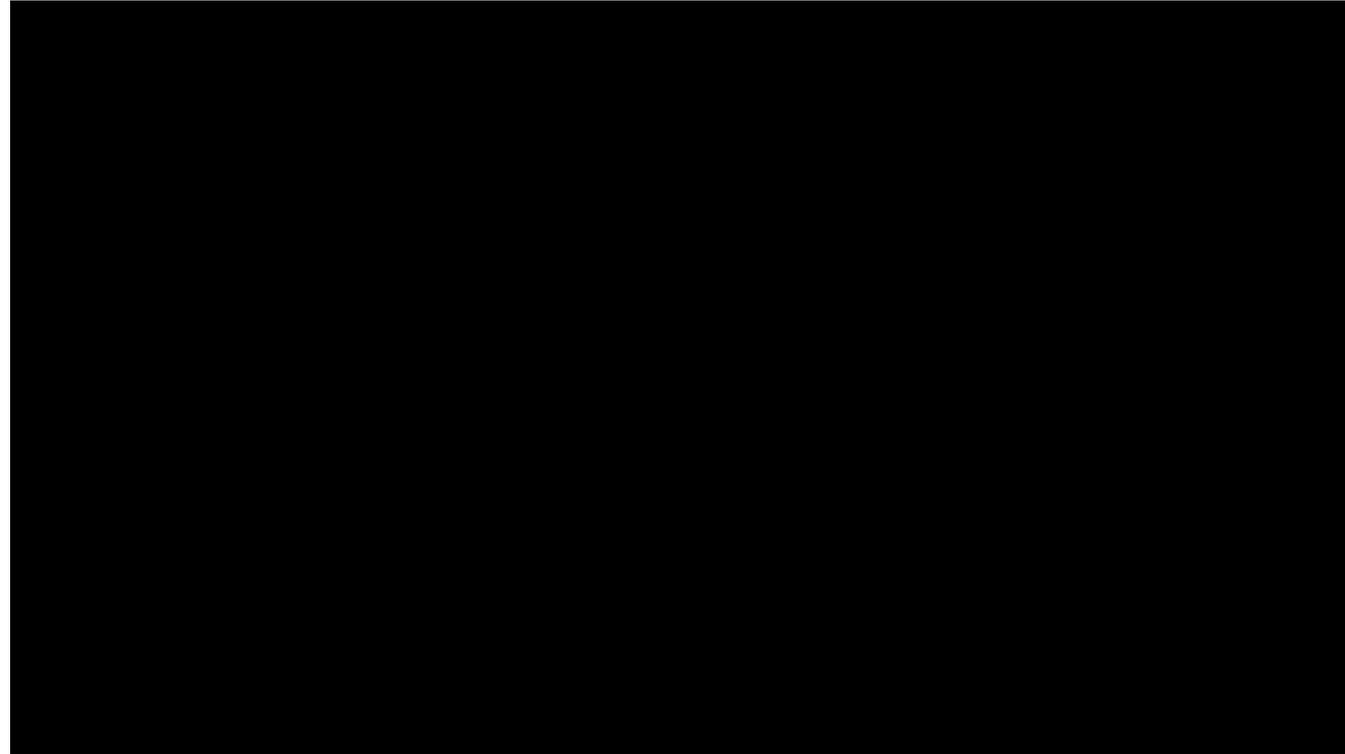
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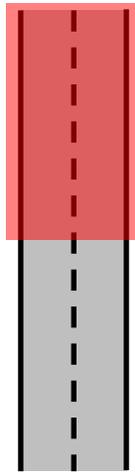
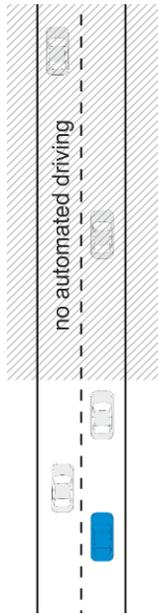


UC5.1 Demonstration

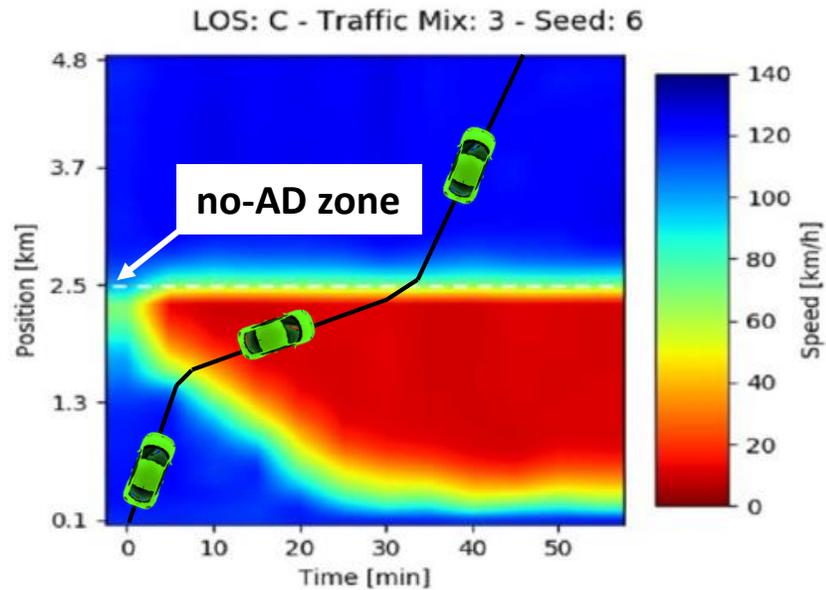
- Distribute ToCs upstream of no AD zone



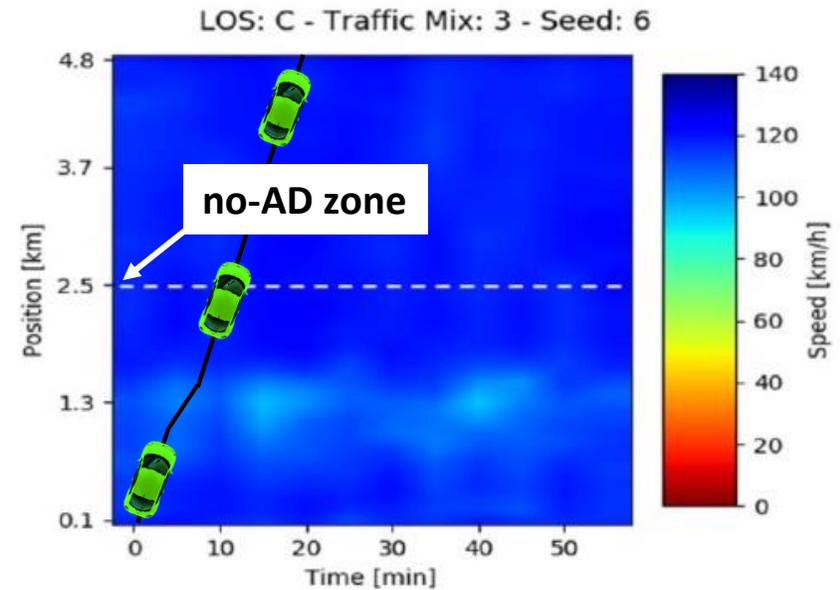
UC5.1 Preliminary Results



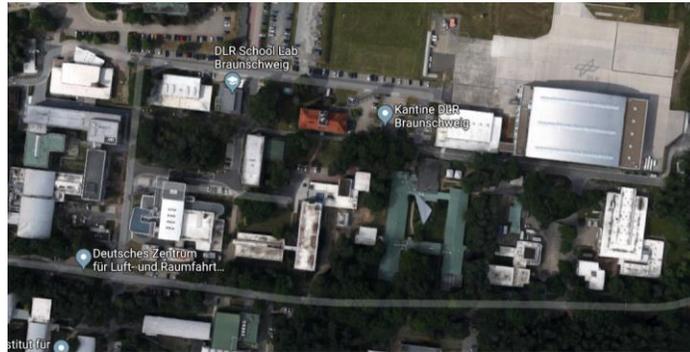
Without traffic management



With traffic management



Real World Prototype





Questions - Remarks?

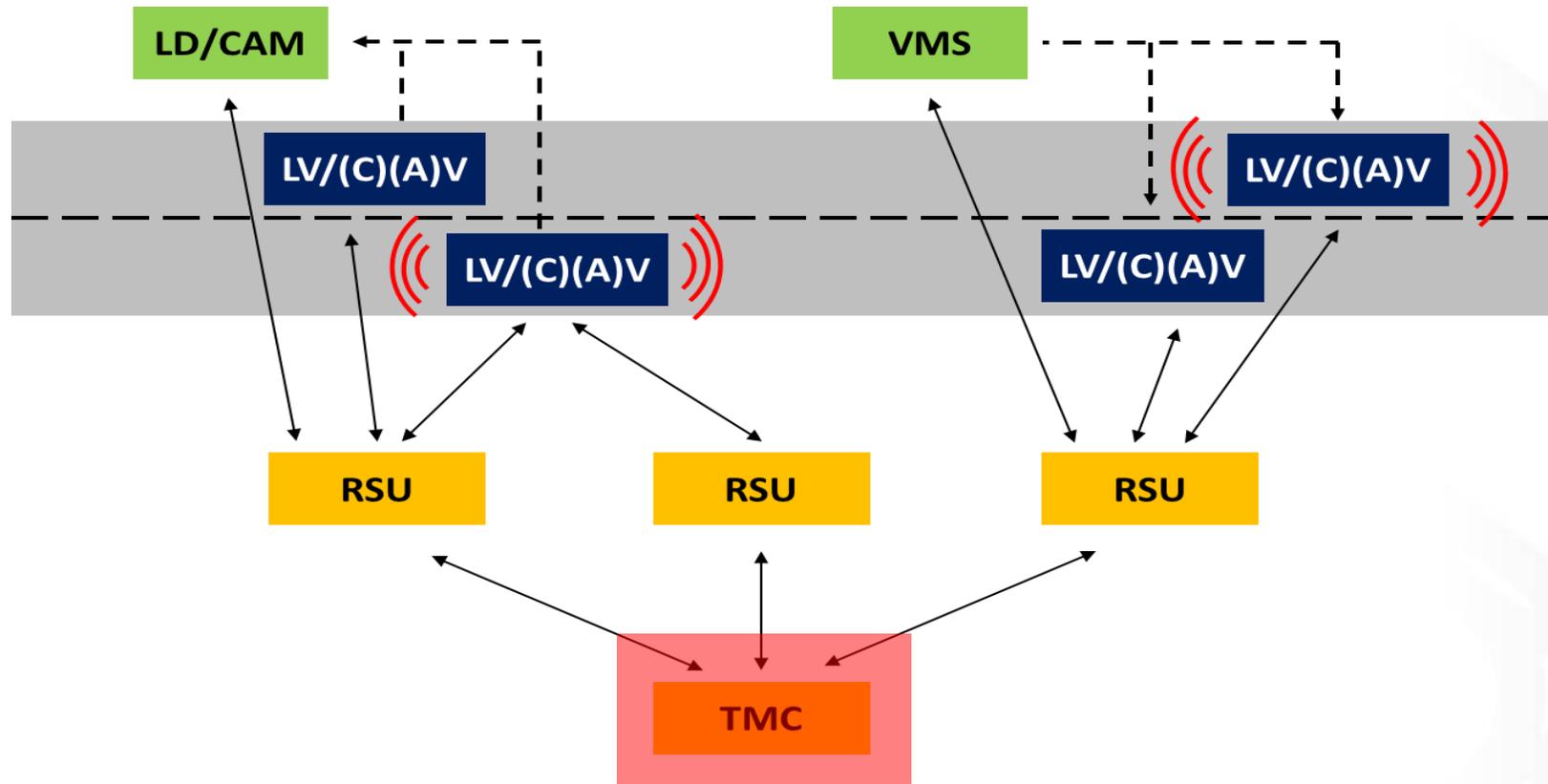
Simulation Videos: <https://www.transaid.eu/videos/>

 www.transaid.eu
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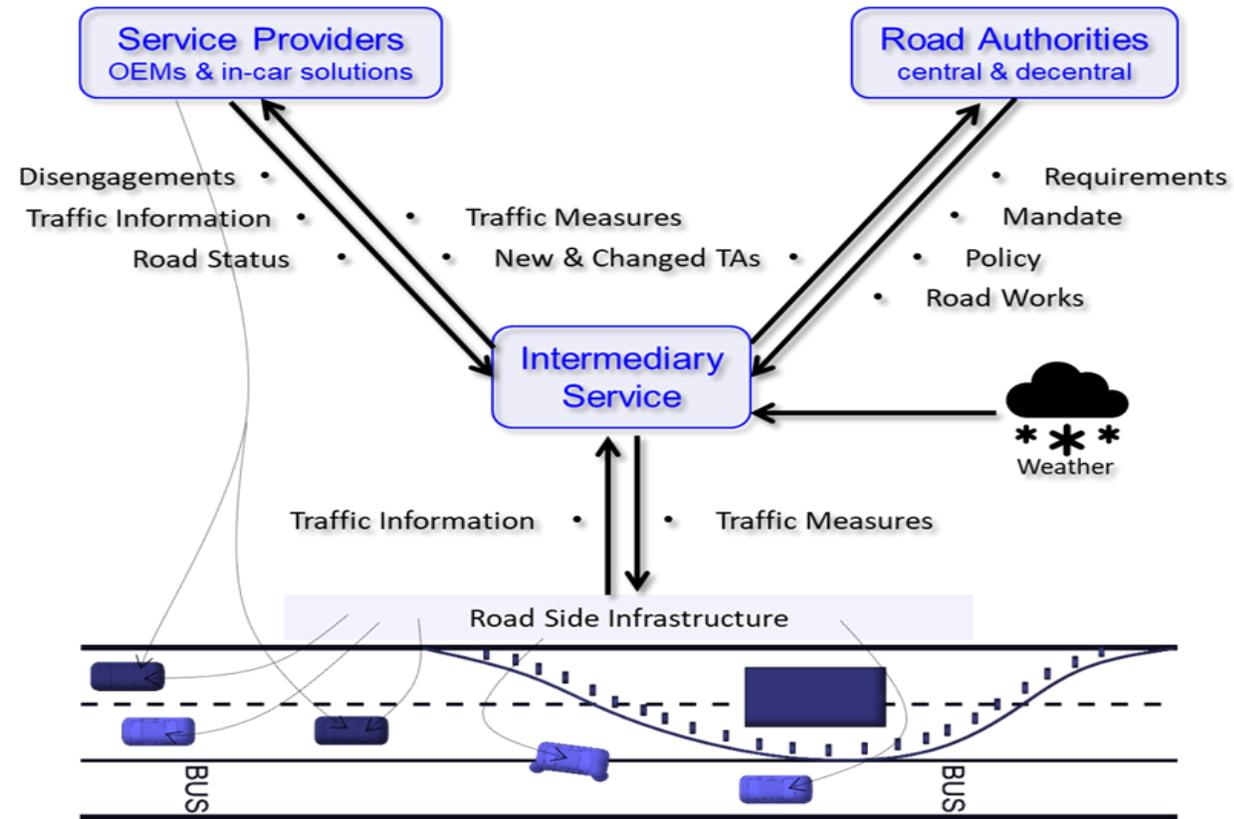
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Hierarchical traffic management



Intermediary service provider



V2X Message Set

TransAID interim message set



Approach: standard-compliant, backward compatibility and interoperability.