

Executive Summary

The aim of the EU co-funded AutoNet2030 research project is to develop and test a cooperative automated driving technology, based on a decentralized decision-making strategy which is enabled by mutual information sharing among nearby vehicles. The project results are supposed to be deployed during the 2020-2030 time horizons, taking into account the expected preceding introduction of cooperative communication systems and sensor based lane-keeping/cruise-control technologies.

In the previous work package (WP2), we have defined use cases as well as the functional and operational requirements for the planned cooperative maneuvering automation system. Based on the use cases and collected requirements, the current work package (WP3) is focusing on specifying the algorithms, components, communication protocols and interfaces which will be subsequently implemented during the prototyping work. Furthermore, the specification work will define the enhancements to existing LDM standard and cooperative networking/application protocol standards for the support of cooperative automated driving.

This deliverable (D3.1) encompasses the preliminary work carried out in the first part of WP3 for **initial system design specification for automated driving support**. We define the functional architecture of the system that responds the requirements identified in WP2.

In the first part of this document, a brief introduction on the AutoNet2030 context is presented. In chapter 2, we present an overview of the proposed system from different viewpoint: system viewpoint, communication viewpoint and information viewpoint. We separate AutoNet2030 system into three major subsystems, respectively: chapter 3 *Onboard Subsystem*, chapter 4 *Roadside Subsystem* and chapter 5 *Central Subsystem*. In every major subsystem we characterize the functionalities of the major components, and we describe the model interfaces between components. Finally, in chapter 6 we conclude this deliverable.

In the appendices, some peripheral information is presented for the purpose of completeness. The major scientific outcomes are listed. The reference physical architecture design is briefly discussed. And the technical terms are described.