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 are being implemented during the prototyping work. Furthermore, the specification work has defined the enhancements to existing Local Dynamic Map (LDM) standards and cooperative networking/application protocol standards for the support of cooperative automated driving.

This deliverable (D3.3) is the **final system design specification for automated driving support. It is based on the deliverable D3.1 which is now significantly updated with inputs and feedback derived from the implementation phase (WP4)**. We have thus defined the (final) functional architecture of the system that corresponds to the requirements identified earlier in WP2. As the latter covers a very broad range of automated driving use cases, a certain portion of this work does not directly correspond to the actual AutoNet2030 implementation and is here-in presented for the sake of completeness.

In terms of the document's structure, the first part provides a brief introduction on the AutoNet2030 context together with clear distinctions (and justifications) on the parts that are specified but not implemented. Chapter 2 provides a tracking record for changes between D3.3 and D3.1. In chapter 3, we present an overview of the proposed system from different viewpoints: namely, the system viewpoint, the communication and the information viewpoint. We separate the AutoNet2030 system into three major subsystems, respectively: chapter 4 *Onboard Subsystem*, chapter 5 *Roadside Subsystem* and chapter 6 *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 7 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.