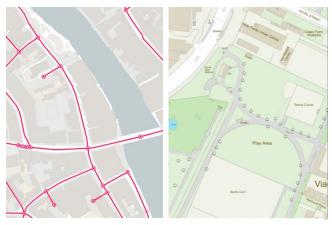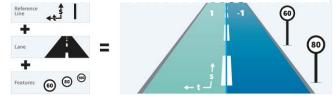# Development of an Automated Transformation Method of GB Road Network Data for Connected and Automated Mobility Applications

MasterMap Products of Ordnance Survey

Elements of OpenDRIVE by ASAM

Connected and Automated Mobility (CAM) will substantially disrupt the global transportation sector over the next two decades. In this context, simulation plays a central role: Driving simulation is needed for the development of automated driving systems and traffic simulation is required for the analysis or optimization of overall traffic. For such simulation applications, the standard OpenDRIVE developed by the Association for Standardization of Automation and Measuring Systems (ASAM) has established itself in the last years. Since the data model of OpenDRIVE does not adhere to the concepts from the GIS domain, the derivation of OpenDRIVE datasets from real data constitutes an open research question.

The task of this Master's Thesis is to research and develop methods to prepare the geodata of Ordnance Survey (OS), the National Mapping Agency of Great Britain, for simulation applications in the connected and automated mobility domain. First, an in-depth analysis of the available OS datasets and the OpenDRIVE standard shall be conducted. Based on the results, transformation methods shall be prototypically implemented, whereby experience in FME and coding (esp. Java/Kotlin) are beneficial. The method potentially includes several processing steps: preprocessing and structuring of geodata, assumptions on missing information and the transformation to OpenDRIVE. Different paths for deriving OpenDRIVE data from the available GIS datasets should be explored and discussed. This may include generating OpenDRIVE data from the available data directly or taking intermediate processing steps via CityGML. Finally, a systematic evaluation between the OpenDRIVE features and the necessary geodata shall be carried out.

This Master's Thesis is conducted in cooperation with OS. It includes a research visit to the UK with travel and accommodation expenses covered.

Ordnance Survey Products: https://www.ordnancesurvey.co.uk/business-government/products

ASAM OpenDRIVE standard: https://www.asam.net/standards/detail/opendrive/

OpenDRIVE→CityGML converter r:trån: https://rtron.io/

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