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16. Abstract <p>This report covers several key subjects related to the generation of IntelliDriveSM probe vehicle data and use of this data in application of interest to state departments of transportation and local public transportation agencies. The evaluations conducted as part of this project are primarily based on the probe vehicle data collection system that was deployed by the U.S. Department of Transportation (USDOT) around Novi, Michigan, in 2008 for its Vehicle-Infrastructure Integration (VII) Proof-of-Concept (POC) test program. This system was designed around the use of the 5.9-GHz Dedicated Short Range Communication (DSRC) wireless protocol to enable vehicles to communicate with Roadside Equipment (RSE). The generation of snapshots further followed the protocols defined within the SAE J2735 DSRC Message Set standard.</p> <p>Following a general introduction in Chapter 1, Chapter 2 briefly reviews the protocols that were used to generate and retrieve probe vehicle snapshots, while Chapter 3 presents a general evaluation of the POC test data that were accumulated during the 2008 test program. This is followed by a presentation in Chapter 4 of the evaluation framework of the current project. This presentation includes an overview of the envisioned DUAP system and descriptions of project stakeholders, potential data sources, supporting technologies, applications of interests, and potential operational constraints. Chapter 5 then presents a general description of the Paramics IntelliDriveSM virtual simulator that is used to conduct some of the subsequent evaluations. While the initial POC test program aimed to evaluate data collection capabilities across a range of application, this program was significantly shortened due to various technical issues. This resulted in incomplete data collection and partial application designs that were insufficient to complete the initial project deliverables associated without rely on simulation. Chapter 6 then examines the effects of snapshot generation protocols and privacy policies on data latency, data quality, and the ability to track vehicles over short distances. Chapter 7 follows with a mapping of application data needs and general descriptions of processes required to convert raw probe data into useful information, while Chapter 8 evaluates how basic traffic flow performance measures (flow rates, flow density, travel times, speed profiles, queue parameters) can be estimated from probe data in systems featuring full and partial proportions of probe vehicles. Chapter 9 further develops a concept of operations for an enhanced traffic monitoring system incorporating probe vehicle and other data sources, while Chapter 10 investigates various issues that must be considered when developing application deployment plans. Chapters 11, 12 and 13 presents a summary of primary findings, lessons learned and recommendations for future work. A finally, Chapter 14 outlines the national outreach effort through publication of IntelliDrive newsletters.</p>			
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