

IntelliDriveSM Pooled Fund Study

Program to Support the Development and Deployment of Infrastructure IntelliDriveSM Applications

University of Virginia Center for Transportation Studies

Progress Report
November 2010

Project Activities/Progress

Project Management

1. Year 2 Program
 - a. Comments on the revised scopes of two selected projects were gathered at the conference call on November 5, 12:00-2:00PM.
 - i. Aftermarket IntelliDriveSM On-Board Equipment
 - ii. Certification Program for IntelliDriveSM
 - b. Final scopes were prepared and distributed on November 16.
 - c. Final scopes were confirmed via email on November 17.
 - d. Requests for proposals for these two projects were prepared based on the final scopes.
 - e. The management team initiated the procurement process for these RFPs on November 18.
2. IntelliDrive PFS Dynamic Mobility Application (DMA) Program
 - a. At the conference call on November 5, 12:00-2:00PM,
 - i. An initial list with seven applications proposed by the management team was discussed.
 - ii. In addition, a need to move the PFS DMA activities more towards actual field testing/demonstration was raised by majority of the PFS members.
 - b. The PFS management team prepared a document describing a new approach (see below) suggested by the PFS members for discussion on November 11.
 - i. PFS members will identify a number of “high-level areas” in which they are interested in developing and field demonstrating/testing dynamic mobility applications.
 - ii. PFS members will volunteer specific locations suitable for field demonstration/testing of IntelliDriveSM applications.
 - iii. The PFS will issue an RFP calling for proposals to develop specific dynamic mobility applications in the areas identified in Step #1, and also demonstrate/test on one or more of the locations identified in Step #2.
 - c. At the conference call on November 12, 12:00-1:30PM, this new approach was discussed.
 - d. The management slightly revised the selection process on November 12.

- e. On November 17, 9:00-10:00AM, the management team has a phone conversation with US DOT (Dale Thompson, Ben Mckeever and Greg Krueger) to discuss the approaches for the PFS DMA program. Some of the issues raised by US DOT were:
 - i. Budget is short to cover the deployment/field testing component.
 - ii. Open source development is required.
- f. At the conference call on November 19, 12:00-1:00PM, the management team updated the PFS members on the discussion with US DOT.

IntelliDriveSM Traffic Signal Algorithms

1. *Task 4 Reports*

- The project team began work on the Task 4 report, which discusses the results from testing the algorithm in the IntelliDrive testbed environment.

2. *Algorithm coding in VISSIM network*

- The coordinated-actuated signal control plan for the four signal system was optimized in Synchro, and implemented and evaluated in VISSIM. This is the signal control plan against which the rolling horizon and vehicle clustering algorithms were tested for final results.

3. *Preliminary Results*

- The rolling horizon algorithm (also referred to as predictive microscopic simulation algorithm, or PMSA) was tested against an optimized coordinated-actuated signal control plan of a modeled four intersection network of Route 50 in Chantilly, VA. Preliminary testing found between 6 and 8% improvement in delay, and a 22% improvement in stopped delay, even at penetration rates as low as 50%. When the network experiences variation in traffic flow, for example a 25% increase in mainline volumes without adjusting the coordinated-actuated timing plan, the PMSA performs much better, with a 25% reduction in delay. Testing was concluded this month.
- The vehicle clustering algorithm was also tested on the four signal model. In testing, the algorithm showed a 20% reduction in delay at only 50% market penetration of vehicles equipped with communication. Testing was concluded this month.

4. *SAE J2735 Standard Review*

- The project team continues to track development of the SAE J2735 standard, the primary standard governing IntelliDrive Message Set Dictionary.

Project Status

The project is on schedule.

Invoice Notes

None