

QUARTERLY PROGRESS REPORT

Fiscal Year 2015/16, Quarter 4

Caltrans Task Manager: Asfand Y. Siddiqui Task ID/Project ID (for Caltrans use only):

Task Order No.: 004

Contract No.: 65A0529

1. Task Title: Modeling and Control of HOT Lanes
2. Describe last quarter's tasks/deliverables:

This quarter was dedicated to (1) literature review on the subject of modeling of managed lanes (Task 1); (2) development of the HOV/T model (Task 2); (3) Implementation of the HOV/T simulation model (Task 4). At this stage we developed a multi-commodity traffic model of HOV/T gate and the local traffic assignment problem. The local traffic assignment problem is about HOV traffic at the gate, which decides what lane to take – HOT or general purpose (GP) – and chooses the lane with lesser traffic density. Presently we are in the process of implementing this model in the traffic simulator. As a result we will have a fully functional HOV model that works with both gated and full access HOV configurations. Currently we are preparing a methodological paper describing the modeling approach. This paper will also contain a critical literature review.
3. Describe next quarter's tasks/deliverables and their due dates:

On top of the HOV model we will build an HOT controller that admits vehicles into the HOT lane based on the readiness to pay, which in turn is to be calibrated from the dataset containing historic vehicle counts and pricing values. As in the case of HOV model, the HOT model will be suitable for both gated and full access HOT configurations. We will also analyze toll data collected through the calendar year 2014 on I-10 and I-110 HOT lanes in Southern California with the objective to extract vehicle counts by type, HOV-2, HOV-3, SOV, with tolls they paid and distance traveled; calculate price per mile per toll segment by time of day; and correlate these data with PeMS congestion contours and travel times. The ultimate goal is to estimate the value of time (VoT) curve. The traffic simulator mentioned in this report is called Berkeley Advanced Traffic Simulator (BeATS) and we plan to make it publicly accessible at Github during Q2. The next due date is September 30, 2015.
4. Describe Project Status:
 - Are you on time with your schedule?
 YES
 NO
 - Are you on budget?
 YES
 NO

- Are you on scope?
 YES
 NO

If the answer to any of the above is NO, please explain below:

5. Estimated percent of work completed: 20 %
 Estimated percent of budget expended: 17 %

6. What are your expenditure projections for the next four (4) quarters?

\$ 20,000	\$ 35,000	\$ 35,000	\$ 29,817
FY 15/16; Q 1	FY 15/16; Q 2	FY 15/16; Q 3	FY 15/16; Q 4

Use this area for additional information. Clearly identify which Section this information applies to.

Submitted By: Alex Kurzhanskiy

Date: July 31, 2015