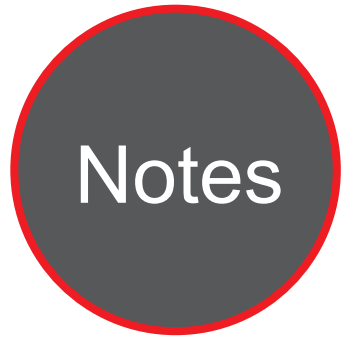




Caltrans Division of Research,
Innovation and System Information

Research



Planning,
Policy,
Programming

JUNE 2020

Project Title:
Development of Operations Analysis
Tools

Task Number: 3294

Start Date: April 1, 2019

Completion Date: December 31, 2020

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Development of Operations Planning Toolbox (OPT) Software

The objective of this research is to produce a practical tool with a simple interface that can accept multiple data sources.

WHAT IS THE NEED?

This project will support the development of the Operations Planning Toolbox (OPT), a user-friendly, well-documented, open-source, multi-modal transportation modeling software for quick quantitative assessment of operational scenarios, provided as a desktop application developed and supported by the University California (UC) Berkeley Partners for Advanced Transportation Technology (PATH) program.

WHAT ARE WE DOING?

The OPT will be free of charge. It is designed within the Transportation Open Environment for Data and Simulation (TOEDS) paradigm that enables easy sharing and exchange of input and simulation data between transportation practitioners. TOEDS ensures that OPT is fully extensible and scalable.

Deliverables for this project will include:

1. OPT 1.0 (describing its capabilities);
2. An openly available user guide;
3. Instructional videos; and
4. A hands-on demonstration of OPT 1.0 at an open webinar.

Details are as follows:

1. OPT 1.0 will have a clean, accessible, and self-explanatory user interface.
2. OPT 1.0 will provide an easy and efficient way of building and modifying road networks.
3. OPT 1.0 will provide calibration capability for easy and



DRISI provides solutions and
knowledge that improves
California's transportation system

efficient tuning of simulation parameters (e.g. freeway capacities) according to established criteria.

4. OPT 1.0 will be based on TOEDS – an open and extensible environment for processing heterogeneous traffic data and building hybrid transportation simulation models. TOEDS will include procedures for dealing with gaps and inaccuracies in data sources.
5. The user group will include Traffic Operations engineers and Transportation Planners from the California Department of Transportation (Caltrans), engineers and/or planners from Caltrans's partner agencies, transportation researchers from UC Berkeley and practitioners from the consultant - System Metrics Group.

WHAT IS OUR GOAL?

This is a study to improve operational analysis tools. The goal is to produce a practical tool with a simple interface that can accept multiple data sources.

WHAT IS THE BENEFIT?

OPT 1.0 will be a revolutionary new product, developed with input from the transportation community, leveraging UC Berkeley's previous work effort with Caltrans and taking emerging transportation technologies into account. It will be a fully open source, allowing for community support and upgrades, and UC Berkeley PATH has made a strong commitment to work with public agency users to ensure overall support.

WHAT IS THE PROGRESS TO DATE?

Preliminary Investigator (PI) conducted one-on-one meetings with engineers from Caltrans District 3, District 5, and District 7. PI collected information about their projects involving modeling. District 4 operations also expressed interest in the software. Specific emphasis was on the types of traffic control used in districts and performance metrics of interest. The idea is to help districts jump-start their

corridor planning projects using OPT. To that end, a dedicated person on the UC Berkeley team will be working on OPT model development starting in June 2020. This effort will also be directed at testing the software. The first OPT release with functional simulation is expected by the end of May. That is when the next hands-on webinar is planned for.

A no-cost time extension (NCE) was executed later than anticipated due to hold ups at The Department of General Services. The NCE was finally executed in early April 2020, so the PI has resumed work.

Present work entails:

- Route management;
- Simulation engine
- Simulation data acquisition and display

User Group session is planned for June 17.

As of June 2020, the OPT has simulation capability! A webinar is scheduled for Tuesday, June 23rd to show how OPT can be used in Caltrans' projects. The topics being presented are as follows:

- Simulation in OPT and reporting results
- What we be developed by September 2020
- OPT features
- Simulation models for districts
- Q&A