



OREGON DEPARTMENT OF TRANSPORTATION

SPR Quarterly Progress Report
October 1, 2011 through December 31, 2011

Research
Section
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Date January 31, 2012

TO: Technical Advisory Committee Members:

Galen McGill, Manager ODOT ITS Unit
Doug Bish, ODOT Traffic Services Engineer
Scott Cramer, ODOT Traffic Signal Engineer
Fraser Groves, ODOT Traffic Operations Coordinator
Roger Boettcher, ODOT Traffic Signal Control Specialist
Tiffany Slauter, ODOT Signal Manager, Region 1
Bill Link, ODOT Traffic Signal Services Unit (TSSU) Manager
Stacy Shetler, Washington County
Nathaniel Price, FHWA
June Ross, ODOT Research Coordinator

1. Project

Criteria for Selection/Application of Advanced Traffic Signal Systems
SPR # 729

2. Project Investigator

Yinhai Wang, Ph.D.
Professor
Department of Civil and Environmental Engineering
University of Washington
Seattle WA 98195-2700

3. Project Coordinator

June Ross, Research Coordinator
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4. Key Dates

Project start date: January 24, 2011
Revised contract end date: September 30, 2012
ODOT completion date: June 30, 2012

5. Project Status

Task 1: Literature Review and Agency Survey

Percent completed reported in last quarterly report: 100%

Percent completed after this quarter: 100%

Task 2: Performance Analysis and Preliminary Framework

Percent completed reported in last quarterly report: 100%

Percent completed after this quarter: 100%

Task 3: Prepare Phase I Final Report

Percent completed reported in last quarterly report: 100%

Percent completed after this quarter: 100%

Task 4: Improved Decision Tree Design for Advanced Signal System Selection

Percent completed reported in last quarterly report: 0%

Percent completed after this quarter: 60%

Key Progress-To-Date

- Modeling methodology determined
- Met with Paul Olson (FHWA), addressed concerns, and received comments

Specific Progress This Quarter

- Input data identification
 - Required and optional geometric data
 - Required and optional traffic data
 - Required and optional signal control data
- Analytical framework
 - Level of detail determination
 - Assumptions (ie arrival pattern(s), headway, etc.)
 - Normalization of data to reduce complexity

Problems

- Small sample size for each field implemented system
- Limited information about details of each proprietary control algorithm

Work Planned for Next Quarter

- Continue network modeling
 - Progression factors
 - Strategy based (phase reservicing, different optimization strategies, etc.) modeling method to address the two problems mentioned above.

Task 5: Simulation Experiments on the Fundamental Intersection and Corridor Types

Percent completed reported in last quarterly report: 0%

Percent completed after this quarter: 20%

Key Progress-To-Date

- Move to strategy based analysis of signal systems on advice of FHWA
 - Use a la carte strategy selection instead of named systems
 - Allows testing of unused system features

Specific Progress This Quarter

- Move to strategy based analysis of signal systems
- Analysis framework construction
- Experimental design for feature testing
- Continued simulation of Voyage features/strategies

Problems

- No major problems identified at this point

Work Planned for Next Quarter

- Simulation experiments for data collection and analysis

Task 6: Cost and Benefit Analysis

Percent completed reported in last quarterly report: 0%

Percent completed after this quarter: 0 %

Key Progress-To-Date

- Not started until March 2012

Specific Progress This Quarter

- None

Problems

- None

Work Planned for Next Quarter

- Collect cost and benefit data for quantitative analysis

Task 7: Decision Tree Development and Testing

Percent completed reported in last quarterly report: 0%

Percent completed after this quarter: 0 %

Key Progress-To-Date

- Not started until March 2012

Specific Progress This Quarter

- None

Problems

- None

Work Planned for Next Quarter

- Testing the decision tree approach

Task 8: Draft and Final Report and Summary Report

Percent completed reported in last quarterly report: 0%

Percent completed after this quarter: 0 %

Key Progress-To-Date

- Not started until May 2012

Specific Progress This Quarter

- None

Problems

- None

Work Planned for Next Quarter

- None

6. Project Coordinator's Comments

This project is on schedule. The research team has made an effort to discuss the project with FHWA which recently completed a related study. This enhances the value of this project. The investigators are working diligently to complete the work by the end of June. A TAC meeting is scheduled for February 29th.

7. Finances

SPR Project Summary

VENDOR	FY11	FY'12	FY'13	FY'14	TOTALS
ORIGINAL BUDGET					\$ -
REVISED BUDGET	\$ 21,951	\$ 132,049			\$ 154,000
EXPENDITURES - VENDOR	\$ 21,951	\$ 37,881	\$ -	\$ -	\$ 59,832
BALANCE	\$ -	\$ 94,168	\$ -	\$ -	\$ 94,168
ODOT	FY11	FY'12	FY'13	FY'14	TOTALS
ORIGINAL BUDGET	\$ 54,000	\$ 108,000			\$ 162,000
REVISED BUDGET	\$ 8,200	\$ 4,000			\$ 12,200
EXPENDITURES - ODOT	\$ 8,200	\$ 6,003	\$ -	\$ -	\$ 14,203
BALANCE	\$ -	\$ (2,003)	\$ -	\$ -	\$ (2,003)
PROJECT	FY11	FY'12	FY'13	FY'14	TOTALS
ORIGINAL BUDGET	\$ 54,000	\$ 108,000	\$ -	\$ -	\$ 162,000
REVISED BUDGET	\$ 30,151	\$ 136,049	\$ -	\$ -	\$ 166,200
EXPENDITURES - PROJECT	\$ 30,151	\$ 43,884	\$ -		\$ 74,035
BALANCE	\$ -	\$ 92,165	\$ -	\$ -	\$ 92,165