



OREGON DEPARTMENT OF TRANSPORTATION

Research Unit
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SPR Quarterly Progress Report
January 1, 2009 through March 31, 2009

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Date: April 2, 2009

TO: Technical Advisory Committee Members:

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1. Project

Work Zone Design and Operations Enhancements
SPR # 669

2. Key Dates

Start Date for ODOT: November 2007
Completion Date for ODOT: June 2009

3. Principal Investigator

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4. Progress

- Task 1: Project Initiation
 - Completed; see April 2008 interim report.
- Task 2: Literature Review

- Completed; see April 2008 interim report. Publications and article databases are periodically being monitored during the course of the study to collect newly published literature on the topic. Any new literature found is being incorporated into the research and will be included in the final report where applicable.
- Task 3: Survey ODOT Personnel and Consultants
 - Completed; see July 2008 interim report for preliminary results. Final results to be referenced when working on Tasks 6 and 7 (data analysis and development of guidelines for implementation) and included in final report.
- Task 4: Develop Sample of Study Projects
 - Completed; see March 2009 interim report.
- Task 5: Collect Project Data
 - The table provided at the end of this report indicates the approximate amount of data from each case study project that has been collected to date. The data collection efforts include: surveys of the main project participants, determining the number of crashes that occurred during the project, reviews of the traffic control plans, collecting the work zone tour scores, and reviews of inspection and Traffic Control Supervisor reports.
 - Crash data on the projects was obtained from two different sources: the OTMS crash database and the TripCheck database. Additional data from the CAD database is being pursued to validate the data from the other databases.
 - This task is continuing in an effort to obtain more responses from those involved in the case study project (higher response rate), collect additional crash data (some of the projects are on-going and all of the crashes that occurred during these projects have not yet been recorded), and conduct a more detailed analysis of the Traffic Control Supervisor reports.
- Task 6: Analyze Data
 - As project data is being collected, the data is being reviewed. In depth analyses will be conducted once the data collection task is further along. The data will be analyzed to determine: the TCP features (both design and implementation) that were contributing factors to work zone crashes; potential revisions to the TCP design and review process to improve safety; and the impacts of ODOT's TCP design practices on the quality and consistency of TCPs with respect to design standard compliance, staging methods, device usage, and drafting similarities.

5. **Problems**

- While the data available in the TripCheck database is up-to-date within approximately 6-10 days, the data available in the crash database lags the project timeline by approximately 6-8 months. As a result, for on-going projects and for some recently completed projects, we will not be able to get all of the crash data for all of the projects from the crash database. Other efforts, including using the TripCheck data, may be needed to "fill in" the gaps in crash data. The completion date for the project is in the process of being delayed until fall/winter 2009 in

order for more case study projects to end and allow for the collection of more crash data.

6. **Work Planned for Next Quarter**

- Task 5: Collect Project Data
 - Gather additional crash data from the on-going case study projects.
 - Continue to locate contact information, send out surveys to the case study participants, and receive survey responses while waiting to collect the crash data.
 - Finish the review and analysis of the inspection and TCS reports.
- Task 6: Analyze Data
 - Analyze the TCP documentation and work zone data.
- Task 7: Develop Guidelines for Implementation
 - Prepare draft of guidelines for implementation of the study results.
- Additional Tasks
 - Send out a short survey to personnel at other state DOTs to ask about their TCP processes and the impact of different process features on the quality of TCP design and implementation. A survey with a couple questions is being prepared for distribution via a listserv of DOT research office personnel.
 - Collect bid tabulation data for the case study project from the ODOT website. The bid tabulations show the amount of budget assigned to traffic control activities on each project. This value will be used in the determination of the complexity/size of the TCP and for possible comparison with crashes in the analysis.

7. **Finances**

SPR Project Summary

VENDOR	FY'08	FY'09	FY'10	FY11	TOTALS
ORIGINAL BUDGET	\$ 50,000	\$ 81,716	\$ -		#####
REVISED BUDGET	\$ 15,770	\$ 115,946	\$ -		#####
EXPENDITURES - VENDOR	\$ 15,770	\$ 57,635	\$ -	\$ -	\$ 73,405
BALANCE	\$ -	\$ 58,311	\$ -	\$ -	\$ 58,311

ODOT	FY'08	FY'09	FY'10	FY11	TOTALS
ORIGINAL BUDGET	\$ 2,500	\$ 5,000	\$ 2,000		\$ 9,500
REVISED BUDGET	\$ 5,234	\$ 15,000	\$ 2,000		\$ 22,234
EXPENDITURES - ODOT	\$ 5,234	\$ 14,630	\$ -	\$ -	\$ 19,864
BALANCE	\$ -	\$ 370	\$ 2,000	\$ -	\$ 2,370

PROJECT	FY'08	FY'09	FY'10	FY11	TOTALS
ORIGINAL BUDGET	\$ 52,500	\$ 86,716	\$ 2,000	\$ -	#####
REVISED BUDGET	\$ 21,004	\$ 130,946	\$ 2,000	\$ -	#####
EXPENDITURES - PROJECT	\$ 21,004	\$ 72,265	\$ -		\$ 93,269
BALANCE	\$ -	\$ 58,681	\$ 2,000	\$ -	\$ 60,681

Work Zone Case Study Update - 1.30.09

Work Zone Case Study Update - 1.30.09			Surveys		Crash Data				TCP	Work Zone Scores	Inspection Reports
Project Number	RTE Number	Project Name	Sent (10)	Responses	Crashes/Month	Crashes/Month (previous year)	% Complete	Expected Completion Date	TCP's	Work Zone Tour Score	Inspection Reports
1	I-205	Willamette River Bridge – Pacific Hwy. (Unit 3) Sec.	8	4	12.1	10.8	100%	4/1/2008	yes - H	7.3/7.8	tcs reports
2	I-5	Marquam Bridge – Capitol Hwy. Sec.	4	1	24.4	19.8	100%	2/28/2005	yes -E	N/A	
3	OR-219	Hillsboro-Silverton Hwy. at Farmington Road	7	3	1.1	1.1	100%	12/31/2007	yes - E	N/A	
4	US-26	Langensand Rd. – Cherryville Dr. Sec.	7	3	0.8	3.0	100%	10/19/2007	ask pm	8.5	
5	I-5	Sodom Ditch-Calapooia (Bundle 216 (08233 and 08235))	8	4	0.5	0.2	68%	9/30/2009	yes - H	N/A	
6	OR-18	Fort Hill – Wallace Bridge	9	3	0.0	1.6	45%	1/1/2010	yes - H	7.4	
7	OR-18	Oregon Coast HWY – Oldsville Road (megapave)	7	1	10.8	9.4	100%	10/31/2007	yes - E	7.1/6.8	
8	OR-213	Lone Pine Corner – Hwy. 214	4	1	need cons. dates	need cons. dates			yes - H	N/A	
9	OR-219	Springbrook Road - Wyooski Road (Newberg)	7	2	no data available	no data available	100%	10/29/2008	yes - H	N/A	
10	OR-22	Sublimity Interchange	7	3	no data available	no data available	43%	1/1/2010	yes -E	7.8	
11	US-101	Jetty Creek Fish Passage	6	1	no data available	no data available	100%	11/29/2008	yes -E	7.8	

12	US-101	Latimer Road	6	2	no data available	no data available	100%	11/30/2008	yes - E	8	
13	US-101	Meda Loop Road - Redburg Road	5	2	no data available	no data available	46%	9/26/2009	yes - H	7.3	
14	US-101	New Youngs Bay Bridge	8	1	1.6	0.6	86%	4/28/2009	yes - E	8.4	
15	US-101	Newport Signal Upgrades	9	3	need cons. dates	need cons. dates			yes - E	N/A	
16	US-101	Otis Junction – Boiler Bay Sec.	7	1	10.1	9.6	100%	11/1/2006	yes - E	7.6	
17	US-30	John Day River Bridge	7	3	0.0	0.0	100%	11/15/2008	yes - H	N/A	
18	I-5	Azalea – Glendale Reconstruction	5	2	0.3	0.2	100%	9/30/2007	yes - E	8.3	daily reports
19	I-5	Louse Creek US 199 (Bundle 304(08018))	8	4	3.2	1.6	39%	7/1/2010	yes - E	7.8	
20	I-5	S. Wolf Creek (Bundle 303-Bridge 08333)	5	3	need cons. dates	need cons. dates			yes - H	8.1	
21	I-5	Seven Oaks Interchange (Bundle A06)	3	0	need cons. dates	need cons. dates			yes - H	8.2	
22	I-5	South Medford Interchange	4	0	0.7	0.8	64%	7/29/2010	yes - E	6.9	
23	OR-42	Lookingglass Creek - Glenhart	4	2	0.9	1.0	100%	10/31/2006	yes - E	7	daily reports
24	OR-62	Corridor Solutions - Medford	4	1	need cons. dates	need cons. dates			yes - E	7.9	
25	OR-58	US 97 Overcrossing (Bundle 221 (07984))	6	1	need cons. dates	need cons. dates			yes - E	7.3	
26	US-126	MP 97 – Rimrock Way	3	1	no data available	no data available	100%	10/23/2008	yes - E	7.6	
27	US-97	Re-route Phase 1, Unit 2	7	2	7.5	7.3	100%	1/31/2009	yes - E	N/A	
28	US-97	Re-route Phase 1, Unit 3	6	3	no data available	no data available	73%	4/30/2009	yes - E	8.1	
29	I-84	Burnt R. (Dixie Cr)-Lime Interchange (Bundle 203,	7	6	0.7	0.0	48%	1/1/2010	yes - E	7.9	

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30	I-84	Cabbage Hill Chain-up – Meacham	6	0	0.2	0.0	100%	9/30/2007	yes - E	7.4	
31	I-84 connection	Grande Ronde R./UPRR U'Xing Upper Perry Arch	6	1	0.0	0.0	61%	8/30/2009	yes - H	7.6	
32	I-84 & OR207	MP214 Mission and OR-207: MP26.5 Madison VMS	7	2	need cons. dates	need cons. dates			yes - H	N/A	
33	I-84	North Ontario Interchange	4	1	5.1	4.4	100%	10/31/2008	yes - E	N/A	
34	I-84	Pendleton - North Powder (Bundle 205, 07292)	10	5	2.5	3.2	65%	10/31/2009	yes -E	N/A	
35	I-84	Pleasant Valley - Durbin Creek	8	5	no data available	no data available	0%	11/30/2010	yes -E	6.8	
36	I-84	Pleasant Valley Interchange Bridges Section	9	1	0.4	0.2	100%	10/31/2006	yes - E	8.5	
37	I-84	Stanton Blvd - Snake River (Bundle 202, 08397)	6	3	need cons. dates	need cons. dates	0%		yes -E	8.3	
38	OR-244	Irrigon Jct - Hilgard Interchange (Bundle 206, 08502)	8	4	0.0	0.0	100%	12/31/2008	yes - H	N/A	
39	US-20	Riley Jct. - Warm Springs Rd/US 395 Chip seal	5	1	2.5	2.5	100%	10/31/2008	yes	N/A	

Total Number	247	86
Percent of Total	63%	22%

23
59%

38	26	3
97%	67%	8%

