



OREGON DEPARTMENT OF TRANSPORTATION

SPR Quarterly Progress Report
July 1, 2008 through September 30, 2008

Research Unit
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Date September 30, 2008

TO: Technical Advisory Committee Members:

Jan Six, ODOT
Tom Braibish, ODOT
Tony Allen, WSDOT
Tim Rogers, FHWA
Naser Abu-Hejleh, FHWA
Steven Soltesz, ODOT

FROM: Steve Soltesz, Research Engineer, phone: (503) 986-2851

1. Project

Calibration of LRFD Resistance Factor for the Wave Equation Analysis Program
SPR # 683

2. Key Dates

Start Date for ODOT: July 2008
Completion Date for ODOT: September 2010

3. Principal Investigator

Trevor Smith, Professor
Civil and Environmental Engineering
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4. Progress

Task 1

- After resolving the ODOT work order (09-01) date exceeding the time limit on the ODOT-PSU Master Agreement #16292 the PSU internal account was issued for expenditures on the project 21st July 2008
- Negotiation was successfully completed with Robert Miner Dynamic Testing Inc., WA, and a subcontract not to exceed \$5000 signed by Mr. Miner August 8th 2008 for his assistance throughout the project
- Some additional load tests have been identified and secured from FL, contacts names provided to the group for CA, LA, IA, ND and SD. Key LRFD researchers are active in LA, SD and IL
- The knowledge base for EOID and BOR procedures to predict capacity has broaden with contributions from FL and FHWA with the 1997 GRL Report on driven pile capacity
- Two graduate researchers, Andy Bannas and Jaesup Jin, were active most of the summer and will be joined next week by two undergraduate research assistants. The research group is then close to full strength.
- Discussions on the Phase 1 and Phase 2 activities were held with the new TAC member, Dr Naser Abu-Hejleh of FHWA. This key link to FHWA structure will be helpful.

Task 2

- A two hour discussion held with Jan Six plus Robert Miner and Tony Allen by teleconference from PSU on 9/4/08 to explore: re-calibration methodology and national issues.
- Following Phase 1 work, additional background from GRL 1997 Report, as well as the ongoing discussions, a draft PSU input case history *Tier Structure and Scorecard*, and draft of *Model Series Strategy* has been developed. This is to be issued soon.

Task 3

- Significant database merging progress has been made. Responding to shortcomings in the NCHRP507 archive a new PSU spreadsheet for project progress and formal archiving is close to completion. This has multiple tabs for DRIVEN, GRLWEAP and SUMMARY information with extensive tabbed notes and will become part of the deliverables. Each entry has double columns -one for EOID and one for BOR
- The 4 Tiers are being used with the Scorecard to assess input quality and quantity. Tier 1 and Tier 2 (with some assumptions) can proceed into analyses, while Tier 3 and 4 cannot until errors, anomalies and missing information is recovered. As of 10/10/08 the identified 156 case history count in Tiers 1 to 4 are 11, 63, 0 and 82 respectively. Once the complete recalibration strategy is approved some may be disqualified (e.g. if BOR < EOID blow count for piles which relax)
- The BOR definition and its application are emerging as vital key components of the case study recalibration using GRLWEAP.

5. Problems

- The late startup of account creation did handicap early recruiting and work progress. This has largely been resolved as the group has now reached full strength, but the new U/G's members do have to complete an orientation to the project needs.
- The FHWA DFLTD is deficient and incomplete when merged to the PDLT2000 case history set, especially around soil data. Of the Tier 4 (82 piles) 70 piles are in that Tier due to their absence in DFLTD- thus no soil data is yet been identified. Retrieving this data is likely to be a time consuming task
- The ODOT internal research team leverage will be needed to improve response from DOT's which hold key information to resolve anomalies and provide missing information.

6. Work Planned for Next Quarter

- Continue and complete the database merging.
- Circulate Tiers document, draft DRIVEN and WEAP Model Strategy document and output categories for discussion, agreement and then to proceed with the Initial Bearing Graph Exercise in task 4.

7. Finances

VENDOR	FY'09	FY'10	FY11	FY'12	TOTALS
ORIGINAL BUDGET	\$ -	\$ -			\$ -
REVISED BUDGET	\$ -	\$ -			\$ -
EXPENDITURES - VENDOR	\$ -	\$ -	\$ -	\$ -	\$ -
BALANCE	\$ -	\$ -	\$ -	\$ -	\$ -
ODOT	FY'09	FY'10	FY11	FY'12	TOTALS
ORIGINAL BUDGET	\$62,500	\$125,000	\$62,500		\$ 250,000
REVISED BUDGET	\$62,500	\$125,000	\$62,500		\$ 250,000
EXPENDITURES - ODOT	\$ 1,124	\$ -	\$ -	\$ -	\$ 1,124
BALANCE	\$ 61,376	\$ 125,000	\$ 62,500	\$ -	\$ 248,876
PROJECT	FY'09	FY'10	FY11	FY'12	TOTALS
ORIGINAL BUDGET	\$ 62,500	\$ 125,000	\$ 62,500	\$ -	\$ 250,000
REVISED BUDGET	\$ 62,500	\$ 125,000	\$ 62,500	\$ -	\$ 250,000
EXPENDITURES - PROJECT	\$ 1,124	\$ -	\$ -		\$ 1,124
BALANCE	\$ 61,376	\$ 125,000	\$ 62,500	\$ -	\$ 248,876