



REVIEW

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Research Bulletin

New Research Projects Approved for the FY 2005 R, D&T Program

Two new research projects have been added to the NDOT FY 2005 Research, Development and Technology Transfer (R, D&T) program. The purpose and scope of these two projects are as follows:

1) Seismic Performance of Integral Connections Between Substructures And Precast Concrete:

The proposed research will develop details that can be used by NDOT for connecting precast girders to cast-in-place bent caps. Four of the most promising details for "U" shaped girders will be tested for their seismic resistance on a shake table (Figure 1 and 2). Four conventional single columns with cap beams and four "U" shaped girders will be constructed. At the end of the project, a design guideline will be established for using precast/prestress structures for widening existing structures and new construction. Dr. David H. Sanders at the University of Nevada, Reno will be the principal investigator for this research.

2) Evaluating the Effectiveness of Continuous Shoulder Rumble Strips in Reducing "Run-off-Roadway" Single-vehicle Crashes:

The focus of the proposed research is to evaluate the effectiveness of different types of continuous shoulder rumble strips used in Nevada and to study the correlation between "run-off-roadway" single-vehicle crashes, types of continuous shoulder rumble strips, and the

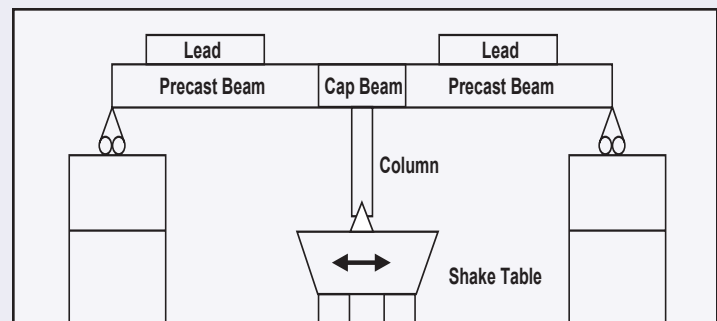


Figure 1. Shake Table Setup

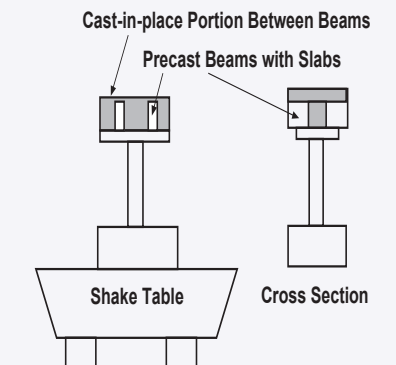


Figure 2. Cross Section

design specifications. The proposed research includes the following tasks: A) Literature review; B) Data collection; C) Identifying test locations; D) Analysis of single-vehicle crashes at test locations; E) Statistical analyses; F) Preparing final report and recommendations. Dr. Srinivas S. Pulugurtha at the University of Nevada, Las Vegas will be the principal investigator for this research.

The agreements for the above two projects are being processed and both projects are expected to start on January 1, 2005.

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FY 2006 Research Program: Off To A Good Start

On October 1, 2004, a new fiscal year for the research program started. With support of NDOT executive management, the Research Division is reaching out for more researchers to participate in the NDOT research program. The solicitations for research problem statements have been sent out to NDOT employees, Nevada universities and other interested parties. Several meetings between NDOT and the University of Nevada at Reno (UNR) and the University of Nevada at Las Vegas (UNLV) have been held and are scheduled to be held to bridge the gap between NDOT research needs and researchers' expertise so that the potential researchers can develop research problem statements that address specific NDOT needs.

On October 8, 2004 at UNR, Susan Martinovich, NDOT Deputy Director/Chief Engineer, and Tie He, Research Division Chief, met with Dr. Marsha Reed, UNR Interim Vice President for Research/Dean of the Graduate School; Dr. Glenn Miller, UNR Director of Environmental Sciences and Health Graduate Program; Mike Collopy, UNR Chair of Natural Resources and Environmental Sciences Department; and Ms. Maria Ardila-Coulson, Director of Transportation Technology Transfer Center. The NDOT research program was presented and research needs were discussed.

On October 21, 2004, a brainstorm session was held between UNR research staff and NDOT management/staff. Many NDOT needs were discussed and ideas for research were suggested. The attendees from UNR were Dr. Alan Gertler, Dr. John Hallett, Dr. Kent Hoekman, Dr. Wally Miller, Dr. Glenn Miller, Dr. Zong Tian, and Dr. Manos Maragakis. The attendees from NDOT were Susan Martinovich, Deputy Director/Chief Engineer; Ruedy Edgington, Assistant Director for Engineering; Fred Drees, Chief Traffic/Safety Engineer; Jim Souba, Assistant Chief Roadway Design Engineer; Daryl James, Environmental Services Division Chief; Frank Taylor, Chief Maintenance Engineer; Theresa Jones, Hydraulics Staff Engineer; Reed Gibby, Research Coordinator; and Tie He, Research Division Chief.

On October 27, 2004, at the request of Dr. Gorge Bebis, Director of Computer Vision Laboratory in the Department of Computer Science at UNR, the Research Division held a meeting with him and NDOT's Traffic/Safety Division. Besides the research division staff, Fred Drees, Chief Traffic/Safety Engineer; Tom Moore, ITS Manager, and Mike Quintero, ITS Planner, attended the meeting. Some potential applications of computer technologies such as vehicle detection at intersections, rural communications, ice detection on roadway or bridges, and dust detection were discussed.

On November 2, 2004, at the suggestion of Rick Nelson, Assistant Director for Operations, Tracy Larkin-Thomason, Assistant District II Engineer, coordinated a meeting with the Research Division, the UNR Department of Mechanical Engineering, District II and District III personnel. Discussions were focused on some potential research on concept vehicles and NDOT snowplow operations. Besides Dr. Yanyao Jiang and Dr. Cahit Evrensel from UNR, the attendees from NDOT included Rick Nelson, Thor Dyson, Mike Stair, Tracy Larkin-Thomason, Steve Williams, Terry Norcutt, Val Nance, Reed Gibby and Tie He.

On November 12, 2004 at UNLV, Rudy Malfabon, Deputy Director (Southern Nevada), Kent Cooper, Assistant Director for Planning and the Research Division staff met with Dr. Mark Rudin, UNLV Associate Vice President for Research Services, Dr. Eric Sandgren, UNLV Dean of College of Engineering; Dr. Mel Jameson, UNLV Associate Dean of College of Business; and Dr. Shashi Nambisan, UNLV Director of the Transportation Research Center. The NDOT research program was presented and further development of the partnership between NDOT and UNLV was discussed.

In addition, more meetings have been scheduled between the Research Division, NDOT Districts, and UNLV faculty/staff to brainstorm additional ideas for research. Through these meetings and brainstorm sessions, many research ideas and problem statements are expected. They will be prioritized in the next step of the research process based on the departmental selection criteria.

— Product Evaluation Committee (PEC) Meeting Recap —

APPROVED

Anti-graffiti coating standards and a QPL

Based on the immediate operational need for such products, and the need to improve contract specifications through the establishment of standards for this product category, the PEC approved establishment of standard specifications and a QPL for anti-graffiti coatings. Standardization will help to reduce problems during preparation of contract documents and construction.

Previously the PEC raised this issue in the past in response to a 2002 memo from the Bridge Division which stated that the use of anti-graffiti coatings should be discussed and acceptance criteria be developed for anti-graffiti products. However, a decision regarding establishment of specifications and a QPL for this product category was postponed at that time.

To date, this problem has been dealt with by painting over graffiti. However, because of NDOT's

considerable investment in highway aesthetics, these investments should be protected. Also, it is believed that application of permanent anti-graffiti coatings would simplify and improve maintenance operation and is preferable to current practices that leave ghosts or incompatible paint marks. Various studies show that once the "taggers" know graffiti will be removed quickly and without paint cover-ups they don't tag protected sites as often as when graffiti is painted over with paint. The use of solid color paint to cover graffiti frequently invites more graffiti. Once the specifications are in place and the QPL established, manufacturers seeking approval of their anti-graffiti products will be directed to submit a proposal for product acceptance under current specifications. Based on recommendations from the affected divisions, a product can be added to the respective QPL.



VANDALIZED--As soon as this railroad bridge was erected over I-15 in Las Vegas in early 2004, graffiti vandals went to work, defacing the structure. NDOT has a full-time crew of 10 plus two supervisors who paint out graffiti, pick up trash and assist in landscaping projects.

Research Division Welcomes New Research Coordinator

In October Reed Gibby joined our Research Division staff as our Research Coordinator/ Project Manager. After graduating with a BS degree from BYU in 1967 as a Civil Engineer, he accumulated 15 years of transportation experience with state, regional and local agencies in several states; namely, Washington, Oregon, California and Alaska. This experience included highway design, traffic operations and maintenance, and multimodal transportation planning and programming. He also earned a MS degree in Transportation Engineering from UC Berkeley in 1970. He decided to change his career in 1984 and joined the Civil Engineering faculty at California State University, Chico where he taught mostly transportation courses and conducted transportation research. While at the university, Reed earned a PhD from UC Davis in Transportation Engineering and was involved with more than two dozen research projects. In 2003, he retired from his faculty position and moved to Sparks where he accepted employment with Solaegui Engineers.



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If you have comments or need additional information regarding any of the topics discussed in this issue please contact the Research Division at (775) 888-7223.

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