

Focus on Research

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*"Focus on Research updates engineers and technicians on items of interest
upcoming in active research projects."*

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DISPOSAL OF HAZARDOUS WASTE MATERIALS FROM TXDOT ACTIVITIES

Study 0-1318 includes developing estimates and inventories of hazardous materials use by TxDOT, identifying modifications and waste management alternatives, and developing management strategy tools. The researchers have been tracking TxDOT's activities, and have developed a list of hazardous materials used by the department. Currently, the researchers are developing a list of about 30 materials

"Researchers are developing a list of about 30 materials that are easy to detect and are hardest to dispose."

that are easy to detect and are hardest to dispose of for TxDOT. Uses for these 30 materials identified as the most important to TxDOT are being looked into. At present, collection of existing databases is being investigated and will help develop software management tools to aid TxDOT in

completing required hazardous materials storage, handling, and accident reporting forms. Study 0-1318 ends in 1995.

**Area 1 — Technical Panel Chairman: Otis Jones, District 8
Researchers: D. Little, W. Stallard, M. Corapclogler, A. Yeung, TTI**

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ELASTOMERIC BEARINGS SUBJECT TO "WALKING" OUT OF POSITION

Texas has used elastomeric bearing pads in bridge construction for over 20 years. Up to about five years ago, manufacturers used neoprene almost exclusively. Recently, the bearing manufacturers have been using natural rubber (a response to the falling costs of this natural product). About the same time natural rubber bearings reached the field, bridge inspectors in several areas of the state began reporting that elastomeric bearings were "walking" out of position on new and rehabilitated bridges, sometimes before the bridge was opened to traffic. Since the National Cooperative Highway Research Program (NCHRP) Project 10-20 had recommended a field survey of existing bearing installations to document actual performance anyway, TxDOT and FHWA funded Research Study 0-1304.

The research concentrates on the effect of beam end rotations and of materials on bearing design. The researchers are looking into the feasibility of using tapered bearings, which are not allowed in current AASHTO guidelines. Study 0-1304 will recommend practical design procedures for elastomeric bearings and improved inspection and evaluation techniques for elastomeric

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bearings. Implementation of Study 0-1304's improved designs should cost less than those specified by AASHTO.

An interim report documents the field data collected at Slaughter Creek bridges in Austin and Bridge 142 at Alanreed near Amarillo. Researchers found bearing movement to be very unpredictable and not easily replicated. The movement of the natural rubber pads may be related in part to the fact that they contain a higher percentage of a waxy substance used to prevent the pads from oxidizing and degrading. This smooth, waxy residue left on bearing surfaces by natural rubber pads may be responsible for the movement of replacement neoprene pads.

The researchers have developed, and are in the process of refining, a simple analysis procedure that can describe the overall behavior of laminated elastomeric bearings and can approximate the state of stress in the rubber. Study 0-1304 ends in 1994.

Area 4 — Technical Panel Chairman: Bryan Wood, Division 5
Researchers: J. Yura, R. Klingner, J. Tassoulas, and E. Becker, CTR

Focus on Research

The purpose of *Focus on Research* is to update engineers and technicians on items of interest upcoming in active research projects. The contents of the various articles do not necessarily reflect the official views of the FHWA or TxDOT.

Contact Kathleen M. Jones, D-10 Research, (512) 465-7947 or Tex-An 241-7947 if you need more detailed information on any of these projects.



LEASING OF TxDOT RIGHTS-OF-WAY

Study 0-1329 objectives are to examine TxDOT's right-of-way leasing policies in relation to other state agencies, identify and analyze the potential users of highway right-of-way in Texas, and to examine the staffing levels of other DOTs relative to the number of leases and dollar amounts generated. With data collected from several sources, researchers have identified several states and one Texas agency suitable for closer analysis and examination. The data of interest are currently being gathered from telephone contacts and will be elaborated on this month in on-site data collection trips. This study will end in September 1993.

Area 1 — Technical Panel Chairman: Carlton Bernard, Division 15
Researcher: Steve Roop, TTI

IMPACTS OF TRAFFIC SIGNAL INSTALLATION AT MARGINALLY WARRANTED INTERSECTIONS

The Texas Manual on Uniform Traffic Control Devices (MUTCD) provides a series of warrants to aid engineers in determining whether traffic flow and safety can be improved by installing traffic signals. What the MUTCD does not provide is a way of explaining to the general public that a signal is not warranted. Individuals often fail to understand that a traffic signal will not necessarily solve perceived traffic problems at their local intersection; thus, they are upset if the engineer decides not to install one. Often, the average citizen does not realize that a traffic signal may actually cause more problems than it solves at a marginally warranted site. TxDOT engineers need effective ways to communicate their decisions to the local residents.

Research Study 0-1350 is identifying criteria for determining impacts of signal installation at marginally warranted locations, as well as preparing detailed procedures for evaluating marginally warranted locations and producing guidelines covering safety aspects for local officials. Researchers have completed several field studies and an accident analysis to develop the guidelines' database. The research study will provide brochures (in lay-person terms), a video suitable for public meetings that shows how traffic signals affect intersections, and a regular final report.

D-10 Research will coordinate with the Local Technical Assistance Program (LTAP) of the Texas Engineering Extension Service (TEEX) to provide education for public officials on the subject. The TxDOT administration may be able to draft a policy statement based on this research.

Study 0-1350 ends August 30, 1993. Study deliverables may be ready for distribution in the winter.

Area 3 — Technical Panel Chairman: Tom Newbern, District 23
Researchers: J. C. Williams and S. A. Ardekani, UTA