

Focus on Research

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

Study Aims To Streamline Overweight Permit Rules

The Texas Department of Transportation currently issues approximately 20,000 permits each month for the passage of overweight loads and vehicles over Texas highways and bridges. Some of these overweight permits are for "super-heavy" loads, which require analysis of each structure along the proposed route. This analysis is a very time-consuming process, one that results in delays both for TxDOT and for the company requesting the superheavy permit.

Project 0-1443, *Overweight Permit Rules*, is a continuation of Study 0-1266, which developed formulas for AASHTO class H15 and HS20 bridges. These formulas either output the maximum load for a given axle configuration and bridge type, or classify a given axle grouping and load as an equivalent AASHTO vehicle loading configuration (very useful in nonstandard, superheavy load analysis). Study 0-1443 is building on the efforts of 0-1266 by developing formulas for those bridges on the Texas highway system that were designed for other than AASHTO H15 or HS20 loading.

The results of this study will enable the Central Permit Office to issue or deny permits in most instances without having TxDOT bridge engineers perform individual structural analyses of bridges. Such streamlining will reduce the time currently required to process a superheavy permit load request, thus allowing TxDOT to better serve its customers. The TxDOT Research Project Director will work closely with the Central Permit Office applying the rules developed and identifying any special limitations that the rules might have.

The project runs from September 1993 through August 1994.

Area 4 — Research Project Director: John Holt, P.E., Design Division
Researcher: Dr. Peter Keating, TTI

UTA Inventory of IVHS Efforts Will Enhance TxDOT Planning

As a traffic management strategy, intelligent vehicle highway systems (IVHS) have caught the attention of many in the transportation industry. The Texas Department of Transportation, for example, has devoted considerable resources to this effort. What TxDOT has learned is that the effective pursuit of IVHS requires a comprehensive plan that includes not only a consideration of all projects being developed by TxDOT, but also a consideration of how TxDOT's work complements what is being done by other agencies.

Thus the objective of Project 0-1346, *A Comprehensive IVHS Plan for Texas*, is to inventory IVHS efforts undertaken by various other agencies and to compile this material in a comprehensive planning document.

This project will also determine which IVHS technologies may be available in the near future, along with the feasibility of applying these technologies to better manage and operate traffic management systems in Texas. Finally, IVHS technologies for commercial vehicle operations will be studied to determine their potential application to TxDOT operations and planning.

The researchers will identify specific IVHS technologies available for integration into city and state traffic management systems. Preliminary research has already identified a number of productivity, safety, and regulatory improvements for commercial vehicle operations.

Implementing these advanced vehicle control technologies will make our highways safer and will have a significant impact on the regulation of commerce. A comprehensive plan will also help Texas compete effectively for federal IVHS funds.

The project runs from December 1992 through August 1994.

Area 3 — Research Project Director: Al Kosik, P.E., Traffic Operations Division
Researchers: J. Williams and S. Ardekani, UTA



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Study To Provide Statewide Specifications for Asphalts

Current TxDOT asphalt specifications are the traditional "cook book recipe" type. Such "cook book" specs are limited in that they inhibit contractor innovation and exclude the use of advanced materials. Implementation of Strategic Highway Research Program (SHRP) performance-based specifications for hot mix asphalts will make current TxDOT specifications for hot mix grade asphalts obsolete. However, TxDOT needs performance-based specifications for seal coat grade materials as well, since the recipe method produces seal coat grade asphalts whose properties vary widely (a result of the variability of crude oil source and polymer chemistry). In the case of polymer-modified asphalts, performance-based specs would allow the department to eliminate specifying polymer type and content, leaving the field open for the development of newer, better materials and methods that obviate the task of rewriting the specifications to include the new items.

The objective of Project 0-1367, *Performance-Based Seal Coat Grade Asphalt Specifications*, is to produce generic, performance-based specifications for seal coat grade asphalts, including emulsions and cutbacks, both modified and unmodified with polymer additives. To accomplish this objective, the researchers will perform laboratory testing and monitoring of field test sections. The researchers need at least three sites scheduled for seal coat application to be constructed as field tests during the summer of 1994. TxDOT districts wishing to volun-

teer projects should contact Darren Hazlett, P.E., Materials and Tests Division, (512) 465-7352.

The findings will allow TxDOT to establish statewide, performance-based specifications for seal coat grade asphalts, rather than specifying a recipe for their formulation. The project runs from September 1993 to August 1995.

Area 2 — Research Project
Director: Darren Hazlett, P.E.,
Materials and Tests Division
Researcher: Dr. Thomas W. Kennedy, CTR

Eagle Habitat Focus of Short-Term Emergency Study in Lufkin District

In Lufkin District, bald eagles forage below Lake Livingston Dam. Concerned that TxDOT bridge construction project A3198-2-3 might adversely affect our endangered national symbol, the Audubon Society requested that the department study the problem before the end of May when the eagles migrate.

researchers have not observed anything that would indicate that the eagles are being disturbed by the bridge construction. However, if they do discover a negative impact, they will recommend mitigation methods in the final report. This project runs from March 1994 through May 1994.

TxDOT used Study 7-1990, *Small Task Projects*, as an emergency instrument to get the project underway as Task 19, *Nesting of Bald Eagles in Lufkin District*. So far,

Area 1 — Research Project
Director: Eric Starnater, Lufkin District.
Researcher: Dr. Keith Arnold, TTI

Focus on Research

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

Contact Kathleen M. Jones (512) 465-7947, Office of Research and Technology Transfer, P.O. Box 5051, Austin, TX 78763-5051, if you need more detailed information on any one of these projects.



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