

Establishment of a National Center for Wood Transportation Structures (NCWTS) – Phase I

Since 1988, the USDA Forest Service Wood in Transportation Program involved research through the Forest Products Laboratory (FPL) in Madison, WI, and demonstration and technology transfer through the National Wood in Transportation Information Center in Morgantown, WV. This national program included all types of wood transportation structures, including vehicle, pedestrian and railroad bridges, marine facilities, and noise barriers. The program funding ended in FY 2004, leaving significant voids in research capability, technology transfer, and research assistance.

To fill this need, an effort was initiated to re-establish a national center for wood transportation structures to provide leadership in these areas to governmental agencies, industry, and research institutions.

Background

Recognizing the need for a national wood in transportation program, the FPL and the Iowa State University (ISU) Bridge Engineering Center developed a partnership to establish a National Center for Wood Transportation Structures (NCWTS) located on the ISU campus. To support a national demonstration and technology transfer program, this Center will integrate university and FPL research programs and staff. This proposed partnership effort is particularly timely and valuable because:

- No federal program exists for wood transportation structures.
- Federal government-university partnerships leverage government funding and provide greater program efficiency.
- More than 25% of our nation's bridges are structurally deficient or functionally obsolete. The problem is especially critical on rural and agricultural road systems where wood bridges provide an excellent alternative for economical and durable bridge systems.
- Wood bridges represent more than 27% of the nation's bridges and affords an opportunity to efficiently use small-diameter and underutilized-secondary wood species.



Modern timber bridge on a county highway.

The FPL was established in 1910 as the national wood utilization research laboratory and all FPL personnel and facilities have been centralized in Madison, WI. This arrangement has worked well, facilitating both interdisciplinary interactions among FPL scientists and engineers and cooperative research with partners nationwide. However, the changing forest resource base and advances in technology have prompted more recent examination of FPL organizational and programmatic strategies to improve efficiency and better focus research programs to meet the needs of the American public. Two promising strategies are (1) long-term

Partners of the National Center for Wood Transportation Structures



partnerships with universities, industry, and other government agencies, and (2) stationing FPL research units on university campuses.

The ISU Bridge Engineering Center has been a significant partner in the national wood in transportation program since its inception and an active research partner with FPL for over 20 years. This longstanding relationship identifies ISU and FPL as strong and appropriate partners in the proposed NCWTS. While the necessary scope for establishing the Center in its entirety is not possible without adequate annual funding, the research project described herein establishes a project scope that will provide initial implementation of a reduced objective and scope that will lead to broader implementation of a full program in the future.

Objective

The objective of this project is to establish the foundation for a National Center for Wood Transportation Structures as a partnership between FPL and the ISU Bridge Engineering Center.

Approach

This project will include the following tasks: (1) Develop a plan to facilitate the NCWTS development coordination between the FPL, ISU, the USDOT Federal Highway Administration, and the recently disbanded National Wood in Transportation Information Center in Morgantown, WV, (2) Provide support personnel, space, and technical support to implement Task 1, and (3) Establish a NCWTS library, web site, demonstration bridge database, and other functional features.

Expected Outcomes

The expected outcome will be to establish the preliminary stages of a National Center for Wood Transportation Structures at the ISU Bridge Engineering Center, in cooperation with FPL. This will provide a foundation for the eventual establishment of a comprehensive NCWTS, which will have a positive impact on bridge owners and the rural transportation infrastructure.

Timeline

It is anticipated that this project will be completed by early 2009 with information synthesis occurring throughout the research period.

Cooperators

Iowa State University, Bridge Engineering Center
USDA Forest Service, Forest Products Laboratory

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