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.

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
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 signifi-
cant 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 fund-
ing, 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 founda-
tion 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) De-
velop 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 Informa-
tion 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 Engineer-
ing Center, in cooperation with FPL. This will provide
a foundation for the eventual establishment of a com-
prehensive 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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