



**National Park Service
U.S. Department of the Interior**

NOTICE OF INTENT TO AWARD

This Funding Announcement is not a request for applications. This announcement is to provide public notice of the National Park Service's intention to fund the following project activities without full and open competition.

ABSTRACT	
Funding Announcement	P14AS00259
Project Title	Analyzing Existing Covered Bridge Floor Systems
Recipient	National Society for the Preservation of Covered Bridges
Principle Investigator / Program Manager	William Caswell
Total Anticipated Award Amount	\$150,000.00
Cost Share	none
New Award or Continuation?	Continuation of Cooperative Agreement P14AC01002
Anticipated Length of Agreement	From date of award until 12/30/2015
Anticipated Period of Performance	From date of award until 12/30/2015
Award Instrument	Cooperative Agreement
Statutory Authority	16 USC 1(g)
CFDA # and Title	15.946 Cultural Resource Management
Single Source Justification Criteria Cited	(2) Continuation
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OVERVIEW

Cooperative Agreement Number P14AC01002 was entered into by and between the Department of the Interior, National Park Service (NPS) and the National Society for the Preservation of Covered Bridges (NSPCB) for the purpose of executing a research project for the National Historic Covered Bridge Preservation Program. Unless otherwise specified herein, the terms and conditions as stated in the Cooperative Agreement will apply to this Task Agreement.

The project's research objective is to establish a correspondence between measured stresses in the components of actual bridge decks and supporting beams under actual truck loads and the several ways of calculating the same values. This is viewed as important information to enable improved design procedures. The working hypothesis is that the bridge deck, when fastened to the supporting beams, strengthens those beams in ways that current design methods do not adequately address. It is further hypothesized that the amount of strengthening will vary with the quality and number of the fasteners (spikes or screws). As a result, if the composite structural behavior of timber decks and floor beams is better understood, the actual strength of the floor system for load rating purposes will probably increase. Better understanding of behavior could lighten the floor beams and deck, which increases the capacity of the main trusses to carry vehicles. User safety would not be decreased, but should be increased as a result of a combined experimental + analytical research project into the topic. The results will probably help local (county and park) workers replace decks with locally produced, historically correct decks. These should also be more economical than more drastic modifications

RECIPIENT INVOLVEMENT

1. Re-use the salvaged Town lattice trusses from the historic Bartonsville Covered Bridge, which was swept away in tropical storm Irene, and is available for use for research purposes by the NSPCB. The remains of this bridge would be used to investigate the interaction of the Town lattice system to carry and distribute loads, because their observed performance greatly exceeds the calculated strength.
2. Fabricate and install floor systems comprised of solid-sawn lumber. Construct temporary back walls and approaches to facilitate live load testing and experimentation. Alternate approaches will be considered.
3. Perform a literature search for previous investigations bearing on the present research subject.
4. Install strain gages on deck boards, floor beams and truss members. Install data capture equipment and software. Rent a suitable design vehicle (truck) and drive over bridge while recording the structural response. Repeat for different deck thicknesses and different methods and degrees of attaching deck to floor beams.
5. Real-world engineering testing will study and record bending moments in the floor plank and floor beams, moment in floor system and truss. NSPCB will be responsible for writing a testing plan, collecting data, and producing a final report comparing actual testing versus analytical analysis.

The primary goal will be to develop a model for the composite floor system behavior of covered bridges that agrees better with observed real-world behavior. This could lead to a new methodology to better calculate the strength of these bridge systems. The work would also

attempt to develop guidelines for retrofitting shear fasteners (additional spikes or other means) to ensure that desired composite action of floor planks and floor beams is achieved.

NATIONAL PARK SERVICE INVOLVEMENT

Substantial involvement on the part the National Park Service is anticipated for the successful completion of the objectives to be funded by this award. In particular, the National Park Service will be responsible for the following:

- Provide funding and facilitate coordination for the task agreement. HAER will produce quarterly progress reports for FHWA.
- 2. Provide opportunities for student and professionals in engineering and other relevant disciplines to learn and develop architectural, engineering, and historical documentation skills, and to observe directly the administration and management of a national historic engineering documentation program. (See detailed Scope of Work appended to agreement);
- 3. Share resources, facilities, information, and expertise of its AutoCAD and engineering documentation knowledge to enhance the ability of NSPCB to advance its expertise in these areas;
- 4. Disseminate information and knowledge among public officials, private organizations, and individuals working with the Secretary of the Interior's *HABS/HAER Standards of Documentation*, and *Standards for the Treatment of Historic Properties*.

SINGLE-SOURCE JUSTIFICATION

DEPARTMENT OF THE INTERIOR SINGLE SOURCE POLICY REQUIREMENTS
Department of the Interior Policy (505 DM 2) requires a written justification which explains why competition is not practicable for each single-source award. The justification must address one or more of the following criteria as well as discussion of the program legislative history, unique capabilities of the proposed recipient, and cost-sharing contribution offered by the proposed recipient, as applicable.
In order for an assistance award to be made without competition, the award must satisfy one or more of the following criteria: (1) Unsolicited Proposal – The proposed award is the result of an unsolicited assistance application which represents a unique or innovative idea, method, or approach which is not the subject of a current or planned contract or assistance award, but which is deemed advantageous to the program objectives; (2) Continuation – The activity to be funded is necessary to the satisfactory completion of, or is a continuation of an activity presently being funded, and for which competition would have a significant adverse effect on the continuity or completion of the activity;

- (3) Legislative intent – The language in the applicable authorizing legislation or legislative history clearly indicates Congress' intent to restrict the award to a particular recipient of purpose;
- (4) Unique Qualifications – The applicant is uniquely qualified to perform the activity based upon a variety of demonstrable factors such as location, property ownership, voluntary support capacity, cost-sharing ability if applicable, technical expertise, or other such unique qualifications;
- (5) Emergencies – Program/award where there is insufficient time available (due to a compelling and unusual urgency, or substantial danger to health or safety) for adequate competitive procedures to be followed.

The National Park Service did not solicit full and open competition for this award based the following criteria:

(2) CONTINUATION

SINGLE SOURCE JUSTIFICATION DESCRIPTION:

THIS IS A NOTICE OF INTENT TO AWARD

This is a Task Agreement (P14AC01504) under Cooperative Agreement (P14AC01002) in the amount of \$150,000.00 with a period of performance from date of award until 12/31/2015.

STATUTORY AUTHORITY

16 U.S.C. §1g authorizes the NPS to enter into cooperative agreements that involve the transfer of NPS appropriated funds to state, local and tribal governments, other public entities, educational institutions, and private nonprofit organizations for the public purpose of carrying out National Park Service programs.