Transportation
Research
Board

Preservation Notes

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Historic Culverts? Small Structures on Maryland Roadways

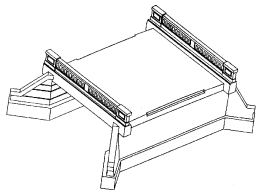
Margaret Slater
Parsons Brinckerhoff, Nashville

While the significance and National Register eligibility of the nation's historic bridges are being comprehen- sively addressed, there's little guidance on assessing the significance of small roadway structures or culverts. No programs or federal funds exist to replace or upgrade small structures, yet larger road improvement projects often affect them.

To smooth Section 106 review of projects that may affect small structures, the Maryland State Highway Administration (SHA) commissioned the development of a historic context. The SHA defines "small structures" as roadway structures less than 20 feet long that span narrow waterways or subsurface drains.

The study traced the history of the state's small structures from the early 19th century through the late 1940s and identified two periods of significance – the first halves of the 19th and 20th centuries.

Maryland's extant small structure types were examined using the SHA inventory and inspection files of more than 3,700 small structures and information from city and county road departments. To assist in the analysis, structures were classified into five



Isometric view of a standard plan concrete slab for 6- to 18-foot spans from 1930 state of Maryland standard plans.

categories – masonry, concrete, metal, timber, and pipes.

The study then describes and illustrates known structure types in each category, addresses individual eligibility and inclusion in historic districts, and provides further guidance to assess integrity.

The guidance includes character-defining elements of each structure, which must be original and unaltered for it to be considered eligible for the National Register.

Character-defining elements of a standard plan concrete slab, for example, would include the slab, the parapet or bridge rail, and abutments or wingwalls.

The study concluded that only certain structure types with construction dates in the first halves of the 19th and 20th centuries would be considered eligible, and that they must possess a high degree of integrity. For example, masonry arched structures built before 1850 are potentially eligible for their association with the state's early turnpike development and the National Road, and as examples of masonry arched construction.

(See *Small Structures*, page 2)

A1F05 Sessions Set for 1998 TRB Meeting

The 77th annual TRB meeting will be held in Washington, D.C., January 11-15. A1F05 has space for one poster session and three panel sessions.

The A1F05 Committee meeting is set for January 12, 1:30 - 5:30 p.m., *Conserv-atory*, and the Native American Subcommittee for January 14, 2:30 - 5 p.m., *Edison*.

See page 4 for session descriptions and host hotels.

(Small Structures)

Because of their limited numbers and high level of

significance, integrity is less an issue and alterations are acceptable.

Concrete arches and arched culverts built between 1900 and 1910 were found to exemplify experimentation with concrete for roadway structures – which is significant in structural engineering in Maryland – and could be eligible if they retain a high level of integrity.

Concrete structures built according to the state's standard plans (1912-1933) that possess a high degree of integrity are also potentially eligible as examples of standardized design for small structures. Standard plan small structures include concrete slabs and girders, and metal and timber beam structures.

The study found the box culvert, although a standard plan structure, to be individually ineligible because of its nondescript design, difficulty in dating, and large number of extant structures.

Pipes will never be eligible for the National Register and can be quickly written off in Section 106 reviews.

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This issue of Preservation Notes was prepared for the Wisconsin Department of Transportation by Mead & Hunt, Madison, Wisconsin.

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A1F05 Summer '97 Workshop Draws Rave Reviews

Gail D'Avino, Historian
Georgia DOT

I attended my first TRB meeting this past July – what a great experience! This committee is an ideal forum for cultural resource professionals working for transportation agencies.

We're one small segment of a larger group but have specific concerns few membership organizations can address. Most deal with specific resource types or geographical areas. While they might be involved in identifying cultural resources, they're rarely concerned with differentiating eligible from ineligible properties for National Register listing – an important distinction for regulatory work.

And rarely do these organizations deal with the regulatory issues of Sections 106 and 4(f). Because few state agencies deal with Section 4(f), it's difficult to gain perspective outside one's own state department of transportation.

The meeting provided me the opportunity to discuss Section 4(f) concerns with professionals from other states and regions, and I look forward to future TRB meetings.

George Ballo
Florida DOT

I recently attended the TRB summer meeting and workshop, where the majority of the 126 participants were from transportation departments, state historic preservation offices, and private-sector consulting firms.

There were also representatives from the National Trust for Historic Preservation, the Advisory Council on Historic Preservation, the Federal Highway Administration and other agencies. In all, 33 states and the District of Columbia were represented at this important, informative meeting.

The meeting was a huge success. The efficient planning and hard work that went into it were obvious in the smooth functioning of the agenda, the quality of the speakers, and the excellence of the presentations. This resulted in a productive atmosphere for participants, which fostered attentiveness and increased communication.

The organizers, presenters, and others who supported this effort deserve the highest praise.

Looking for information about A1F05? Call Kathleen Quinn at 212-466-3483.

Lying Lightly on the Land: Building America's National Park Roads and Parkways

Exhibit on display until January 11, 1998, at the National Building Museum, 401 F Street, NW, Washington D.C., (202) 272-2448.

Eric Deloney
National Park Service

Since its creation in 1916, the National Park Service has encouraged automotive tourism. First director, Stephen Mather, knew that the success of the new national parks depended on the American public's support – which meant the parks must be accessible.

The automobile was the vehicle for achieving that goal, as Mather knew Americans would follow any road into the "wilderness" – as long as it was paved. Today, millions tour America's national parks, but few stop to think about infra-structure, the roads and bridges that link campground and vista.

Lying Lightly on the Land reveals a remarkable engineer-ing epic: Park Service landscape architects working with Bureau of Public Road (BPR) engineers to integrate pristine wilderness with infrastructure over thousands of miles of roads.

Going-to-the-Sun Road

At the time, the park service lacked an engineering corps capable of carving out a whole new road system, so Mather turned to the BPR for help. The bureau took over construction of Glacier's Going-to-the-Sun Road, a challenging route over the Continental Divide in the Rocky Mountains of north Montana. Pleased with that effort, he negotiated an agree-ment in 1926 under which BPR engineers would oversee all major road construction, subject to Park Service design review.

> *...Mather knew Americans would follow any road into the "wilderness" – as long as it was paved.*

Blending Pavement and Wilderness

The challenge was building roadways that "lay lightly on the landscape," following natural contours rather than "curves laid with mathematical precision."

The engineers and landscape architects reduced sensory deprivation between pavement and wilderness by sculpting and replanting the berms, cuts, and fills of the new road systems. They created scenic vistas by selective clearing and bored tunnels to alleviate the excessive cuts that would scar a moun- tain's majesty. They designed bridges and retaining walls to harmonize with their surround- ings. Though most actually are of modern reinforced-concrete or steel-girder construction, they've been finished in a rustic style, overlaid with native timber and stone.

Careful attention to color, texture, and scale created the visual harmony between bridge and setting often lost on bridges designed today. These tech- niques represent a manipula- tion, rather than preservation or restoration, but the results are "natural," offering visitors respite from the rigors of contemporary society.

This shared responsibility continues. Like all roads, park roads and bridges are under-going major repairs engineered jointly by NPS and the Federal Highway Administration. From the creation of Yellowstone in 1874 to rebuilding flood-ravaged roads in Yosemite, *Lying Lightly on the Land* shows how roads were built.

The Historic American Engineering Record, an NPS bureau established in 1969, has documented the road infrastruc- ture of the parks for nearly a decade. Based on nine years of work, the exhibit features artwork, historic photographs, films, engineering drawings, models, and construction memorabilia about this heroic endeavor.

A1F05 Sessions
77th Annual TRB Meetings
January 11-15, Washington, D.C.

Geographic Information Systems and Models Applied to Archaeology and Historic Preservation in Transportation, Parts I and II, Jan. 12, 8 a.m. - noon, Cabinet

Topics: incorporating consideration of archaeology and historic structures in NEPA through GIS and model development; case studies from Pennsylvania using GIS and models for archaeology and historic properties: Monfayette Project, Route 220, Tunckahonnock Bypass; developing a database and GIS for management of archaeological resources in transportation: Minnesota Department of Transportation model; Minnesota historic bridge survey and management plan and GIS. *A1F05 is co-sponsoring Part II with the Committee on General Structures, Donald Fleming, Chair, Minnesota DOT.*

Innovative Cultural Resource Mitigation Techniques, Jan. 12, 7:30-9:30 p.m., Cabinet

Topics: the 18th Century King of Prussia Inn, Route 202, Pennsylvania; minimization and mitigation on U.S. Route 50, Athens County, Ohio; historic preservation and community impacts, Danville Riverside Bridge, Pennsylvania.

Poster Session, Rural, Cultural and Historic Landscapes and Districts in Transportation Decisions, Jan. 13, 8 a.m. - noon, Exhibit Hall

This session will provide information to transportation professionals on the three phases (identification, effects, and mitigation) of dealing with rural, historic districts and landscapes listed or determined eligible to be listed on the NRHP. State highway agencies are now faced with the challenges of (1) identifying historic districts and landscapes in transportation project study areas; (2) defining the resource (what the boundaries are and why they're significant); (3) assessing the proposed transportation project's impacts on the significant property; and (4) mitigating impacts. Rural historic cultural landscapes and districts are challenging because they typically include large areas of the landscape. This poster session provides examples from different states to help professionals begin to deal practically with the problems and issues. Topics include case studies from Pennsylvania, New Jersey, California, Delaware, Texas, and Georgia.

Tribal Sovereignty - Tribal Roads, 1930s - 2000 and Beyond, Jan. 14, 7:30 - 9:30 p.m., Cabinet

Topics: tribal sovereignty: the legal basis for tribal jurisdiction; the Indian Reservation Roads Program: self determination and self-governance in transportation planning and infrastructure development; empowerment of a tribal voice to formulate and express the vision of tribal transportation; meeting the challenge of "government to government" supporting tribal tourism development.

Host Hotels

If you're planning to attend, make your reservations as soon as possible. We anticipate that more than 7,000 people will attend the TRB meetings:

Sheraton Washington Hotel (202) 328-2983
Washington Hilton Hotel (202) 483-3000*
Omni Shoreham Hotel (202) 234-0700
Renaissance Mayflower Hotel (202) 347-3000.

** Likely site of the committee-sponsored sessions.*

Kansas Initiates GIS for CRM

Condensed from author's article in Kansas Preservation, Vol. 19, No. 2, (March/April 1997)

Barry Williams, Archeologist
Kansas State Historical Society

In 1996, the Kansas DOT, the Kansas State Historical Society, and the Kansas State University at Salina began a project to implement a comprehensive statewide cultural resources geographic information system (GIS).

The Natural Resources Conservation Service developed a pilot project and expanded it statewide through funding from the DOT's Transportation Enhancement Program (ISTEA). The historical society cooperated with DOT's Environmental Services Section to propose applying ISTEA funds to the project. By using information on known archaeological sites – based on more than forty years of investigations – to develop probability models that predict likely locations of unknown sites, projects can be designed to minimize potential impacts. Completion of the GIS will enable the DOT and other state and federal agencies to better preserve cultural resources in Kansas.

The system's development is a cooperative effort between the GIS coordinator in DOT's Bureau of Transportation Planning and the NRCS state office. The GIS is scheduled for completion late in 1997, and the historical society will maintain it. The GIS now under development for Kansas's cultural resources will include about 11,000 recorded archaeological sites, all areas that have been surveyed for archaeological sites, GLO map information (including significant trails, farmsteads and prehistoric villages), and national and state register property locations.

The university digitizes the information into ARC/INFO coverages, which are maintained on a Sun SPARC server. The historical society will also provide the university with a relational database consisting of specific archaeological site and bibliographical information on the sites and surveys maintained at the historical society. That data will be related to the spatial data through the GIS.

The Kansas DOT is now planning Phase 2 of the project, which will include inventories of the built environment, cemeteries, 19th and early 20th century county atlases, and recorded "unmarked burial sites."

Draft Agenda Items
A1F05 1998 Workshop
Native American Issues in Transportation

1. Native American roads: design standards and materials.

2. Rural ITS applications for solving Native American transportation problems.

3. Native American games: transportation logistics and game planning.

4. Transportation planning for tribes.

5. Native Americans and public involvement on transportation rojects: traditional cultures.

6. Social and economic impact analysis for transportation projects: diversity of geographic characteristics of Native Americans: the challenges for transportation professionals and Native Americans potentially affected by transportation projects.

7. Tourism initiatives among Native Americans: transportation issues and solutions.

8. Intergovernmental relationships on transportation projects - Section 106 and Section 4(f) coordination: tribal governments, BIA, National Forest Service, National Park Service, Federal Highway Administration, and state highway agencies.

Profiles: HAER Programs and Initiatives

The ***Pennsylvania Historic Bridges Recording Project-I, Harrisburg****, Pennsylvania*, continues HAER's award-winning, historic bridge program, a long-range initiative to document and, when possible, save historic U.S. bridges.

In 1975, HAER began an effort to sensitize preservationists, engineers, federal officials, state DOTs, and the public to appreciate the significance old bridges have for American technological history and the cultural landscape. The idea was to capture the bridges visually and verbally before all evidence disappeared.

Massive state and federal programs to upgrade the country's primary and secondary road system threatened bridges dating from the last half of the 19th and first quarter of the 20th centuries. One result of the HAER efforts was that bridges were one of the first structures to be comprehensively evaluated.

In 1986, HAER began working with state DOTs, the FHWA, and preservation officials to document outstanding bridges identified by the inventories for the national collection at the Library of Congress. Pennsylvania is the tenth state to have its bridges documented, after Ohio, Wisconsin, New York, Arkansas, Massachusetts, Oregon, Washington, Iowa, and Texas. HAER expanded the program 11 years ago to document not only bridges, but also the road and its associated features and landscape, particularly in the National Parks.

– *Co-sponsored by the Pennsylvania DOT and Pennsylvania Historical & Museum Commission; Robert Gryzwacz, Supervisory Architect; Elizabeth Milnarick, Architect, University of Illinois; Jonathan Cherry, Architect, Rice University; Slavica Bubic, ICOMOS Architect (Croatia); Michael Falser, ICOMOS Architect (Austria); Dr. Mark Brown, Project Historian; Philip Gruen, Historian, University of California-Berkeley; Dr. David Rotenstein, Historian; Blythe Semmer, Historian, Middle Tennessee State University; Dr. Dario Gasparini, Engineer (Consultant), Case Western Reserve University; Stephen Buonopane, Engineer (Consultant), Cornell University; Professor Joseph Elliott, Photographer, Muhlenburg College.*

The ***Mariscal Quicksilver Mine & Smelter Recording Project, Big Bend National Park, Texas****,* continues HAER's hard-rock mining initiative, another long-range program to document outstanding remains of the mining industry, especially in the West.

Like bridges, what little remains of America's historic mining industry is threatened by ambitious new ventures, made possible by the steadily increasing price of gold and advanced technologies that justify reworking the traditional mining fields.

Working with the states, parks, and the mining industry, HAER has documented hard-rock mining resources in the Keweenaw Copper Region of Michigan's Upper Peninsula, the Southern California gold fields in Joshua Tree National Park, and South Dakota's Black Hills gold fields. This year's project documents the extractive and smelting operations of the Terlingua Region, one of the few places in the country where natural outcroppings of cinnabar abound.

– *Co-sponsored by Big Bend National Park and Intermountain Cultural Resources Center, National Park Service; Andrew Johnston, Supervisory Architect, University of California-Berkeley; Christopher Brown, Architect, University of Washington; Jose Lopez, ICOMOS Architect (Spain); Art Gomez, Project Historian, Intermountain Cultural Resources Center; Robert Spude, Historic Mining Consultant, Intermountain Cultural Resources Center; Bruce Harms, Photographer, Louis Berger & Associates.*

The ***Hull-Oakes Lumber Company Recording Project, Monroe, Oregon***, begins yet another program to document the vanishing remains of the U.S. lumber industry. Hull-Oakes claims to be the last steam-powered sawmill capable of cutting trees up to 4 feet in diameter and 85 feet long.

Hull-Oakes' market niche is the restoration and maritime industry, cutting large timber for historic structures and ship spars and masts. A mainstay of the operation is lumber for railroad trestles. A long-range dream of the owner, Mr. Ralph Hull, is to keep the mill operating using steam, but also to allow the public the opportunity to visit Hull-Oakes as a working museum. – *Co-sponsored by the Hull-Oakes*

A1F05 1998 Summer Workshop
Draft Agenda Topics
July 1998 A1F05 Summer Workshop
San Diego, California

Topics, dates and hotel information will be finalized at the committee meeting during the January 1998 TRB annual meeting.

1. Interagency coordination on Section 106 and Section 4(f) on Federal Agency Transportation Projects. (National Forest Service, National Park Service, Bureau of Land Management, Bureau of Reclamation, Bureau of Indian Affairs). How to resolve differences in agency approaches, rules, and regulations.
2. Cultural resource issues and airports. Airports as cultural resources and FAA and airport sponsor compliance with Section 106 and Section 4(f).
3. Bridges: bridge surveys, historic bridge management plans, historic bridge rehabilitation and design standards.
4. Innovative mitigation for cultural resource impacts.
5. Significance and eligibility of 20th century architectural and archaeological resources.
6. Native American Grave Protection and Repatriation Act: case studies of transportation projects on tribal lands.
7. Coordination with tribal governments on Section 106 for transportation projects: relationship with TPOs and SHPOs - roles.
8. Section 106 and public involvement workshop.
9. Transportation enhancement projects and Section 106.
10. Section 106, Section 4(f), NEPA - integration, timing and scheduling of activities.
11. Incorporating Section 106 in the planning process: major investment studies, implementation of models, GIS.
12. Traditional cultural properties and transportation projects.
13. Cultural, historic, and rural landscapes and transportation projects.
14. Historic roads and other linear corridors.
15. Intergovernmental relationships and Section 106: FHWA, MPO's, local governments.
16. Public information and public benefits of Section 106 on transportation projects.
17. Sparse lithic scatters - prehistoric site significance.
18. Site protection methodologies.
19. Historic archaeology and significance: research questions and the historic record - how much digging do we need to do? standards for historic archaeological research questions - what benefits?
20. 19th century historic buildings and archaeological sites: ranch complexes and farmsteads.

Lumber Company; George Wisner, Historian; Gary Tarleton, Photographer.

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