U.S. Department of Transportation
Federal Highway Administration

IMPROVED CONSTRUCTION AND MAINTENANCE TECHNOLOGIES

new strategies to enhance the quality and performance of highway systems

Managing Highway Assets: Bridge Preservation

Perform the *right* treatment at the *right* time on the *right* bridge. That's the message proclaimed in the new video, *Pennsylvania Bridges: Maintaining the Past—Preserving the Future.* Produced by the Pennsylvania Department of Transportation (PENNDOT), the video provides an overview of the importance of bridge preservation.

PENNDOT maintains the third largest number of State bridges in the Nation, spending $300 million on 250 bridge projects each year. To keep costs down and ensure safety, PENNDOT has found that it is vital to have both proper and frequent inspections and a good preventive maintenance program. This means taking care of bridge components before they have the chance to break. "Spending a relatively small amount of money today will save us large amounts of money tomorrow," says Gary Hoffman, Chief Engineer of PENNDOT.

Preventive maintenance is defined as a planned strategy of cost-effective treatments applied at the proper time to preserve and extend the useful life of a bridge. Some of the bridge maintenance activities that provide the biggest benefit for the smallest level of investment generally include:

- Eliminating deck joints in old bridges
- Repairing or installing new expansion dams on bridge decks
- Repairing bridge decks
- Maintaining proper deck drainage
- Restoring or replacing bridge bearings
- Repairing or replacing bridge approach slabs
- Repairing bridge beam ends and beam bearing areas
- Bridge painting.

In Pennsylvania, good bridge management starts with good information on bridge conditions. PENNDOT's team of 50 bridge inspectors and numerous other consultant inspectors inspect all of the agency's bridges at least once every 2 years. The bridge data is then stored in a management system, allowing engineers to prioritize the maintenance and rehabilitation needs and make sound decisions as to how to best take care of the bridge infrastructure.

A good system of preventive maintenance can breathe new life into old bridges. This is important for Pennsylvania, as many of its bridges were constructed in the 1960s. However, adequate funding is needed to sustain preventive maintenance efforts. Last winter, an expansion dam came apart on a bridge on Interstate 81 near Scranton. After the metal plate broke loose, more than two dozen cars got flat tires, others sustained damage to their undercarriage, and one car crashed into the guard rail. Fortunately, no one was seriously injured. "But this incident could have been prevented if we had had the money to make the proper repairs before the situation became serious," says Chuck Mattei, District Engineer of PENNDOT's District 4 Office near Scranton. As the video makes clear, failing to provide adequate funding for preventive maintenance and deferring good bridge maintenance practices is a recipe for disaster.

A new source of funding for maintenance and preservation of highway bridges became available in January 2002, when FHWA announced that Highway Bridge Replacement and Rehabilitation Program (HBRRP) funds can be used to perform preventive maintenance on highway bridges. Preventive maintenance activities eligible for funding include sealing or replacing leaking joints; applying deck overlays that will significantly increase the service life of the deck; painting the structural steel; and applying electrochemical chloride extraction treatments to decks and substructure elements.

"No matter how smooth a road feels or how good it looks, ultimately it is only as good as the bridge that will eventually connect it," says Hoffman. "There must be a recognition and willingness to do the maintenance and preservation work with the first available dollars, not the last. With maintenance first as our underlying philosophy, Pennsylvania's bridges will be able to meet the needs of our customers today and in the years ahead."

To obtain a copy of the video or for more information on bridge preservation and Federal aid funding, contact your local FHWA division office or Ray McCormick at FHWA, 202-366-4675 (email: raymond.mccormick@fhwa.dot.gov).

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