

Department of Legislative Services
Maryland General Assembly
2011 Session

FISCAL AND POLICY NOTE
Revised

Senate Bill 458

(Senator Pipkin, *et al.*)

Finance

Environmental Matters

Maryland Department of Transportation and Maryland Transportation
Authority - Enhanced Inspection of Bridges - Adoption of Regulations

This bill requires the Maryland Department of Transportation (MDOT), in consultation with the Maryland Transportation Authority (MDTA) and by July 1, 2012, to adopt regulations governing the inspection of all bridges in the State to augment the current visual inspection policies and practices. The regulations must include policies and practices that (1) support expanded research and development for nondestructive evaluation technologies for bridge inspection; (2) ensure that measurement techniques are safe and reliable; (3) are cost-effective and practical for use in the field for bridge inspection; and (4) encourage bridge owners to use newly developed technology, policies, and practices to enhance visual bridge inspection. MDOT and MDTA may supplement or revise any policies or practices adopted under the regulations to enhance safety.

The bill takes effect June 1, 2011.

Fiscal Summary

State Effect: Any future impacts from the adoption of bridge inspection regulations cannot be reliably estimated at this time; however, to the extent regulations are adopted establishing costly bridge inspection requirements, Transportation Trust Fund and nonbudgeted expenditures could increase, potentially significantly, in FY 2012 and future years. Revenues are not affected.

Local Effect: None.

Small Business Effect: None.

Analysis

Current Law/Background: The bridge inspection process is regulated by the Federal Highway Administration (FHWA) and guided by National Bridge Inspection Standards (NBIS). NBIS regulations apply to all publicly owned highway bridges longer than 20 feet located on public roads. **Exhibit 1** provides information on federal requirements for inspections as well as standards used by the State Highway Administration (SHA) and MDTA.

Exhibit 1 Bridge Inspection Standards

	<u>Inspection</u>	<u>Underwater Inspection</u>	<u>Who Conducts Inspections?</u>
Federal Requirements	At least every two years.	At least every five years.	Consultants or in-house inspectors are acceptable. Statewide program managers are required and must complete the Federal Highway Administration bridge inspection training.
State Highway Administration (SHA)	Every two years; certain bridges are designated for annual inspection.	Every four years.	Primarily SHA inspectors, supplemented by technicians/consultants.
Maryland Transportation Authority	Annually (per trust agreement).	Every four years.	Independent professional engineer consultants.

Source: State Highway Administration and Maryland Transportation Authority

There are a total of 5,114 bridges in the State. Although the State is ultimately responsible for bridge inspections of all publicly owned bridges, it allows the counties or municipalities that own bridges to perform inspections on them. Accordingly, SHA is responsible for 2,584 bridges, and MDTA is responsible for 253 bridges. Since much of the transportation infrastructure was built 50 years ago in conjunction with construction of the Eisenhower Interstate Highway System, many of these bridges are approaching 50 years old. Furthermore, two MDTA bridges, the Governor Harry W. Nice Memorial Bridge in Southern Maryland and the Thomas J. Hatem Memorial Bridge in northeastern Maryland, are approximately 70 years old.

Bridge Inspection Policies and Procedures

A variety of bridge inspection techniques are used in the State. Teams of trained technicians conduct visual inspections looking for anything that may indicate a structural concern such as cracks, concrete or steel deterioration from salt or corrosion, vehicle damage, settlement, or erosion. SHA performs destructive testing such as taking core samples from old bridge decks to determine appropriate rehabilitation possibilities. SHA also utilizes nondestructive techniques on a variety of bridge elements on a regular schedule. For example, SHA uses qualified consultants to conduct nondestructive:

- truss pin testing every six years to locate any excessive corrosion or cracking;
- parapet tie down bolt inspections every six years to locate any excessive corrosion or broken bolts; and
- post tensioned pier cap inspections every six years to check tension levels.

Whenever there is evidence of a crack in steel, SHA employees conduct (1) dye penetrate testing, which shows if a crack exists in steel members and welds; and (2) magnetic particle testing, which locates cracks in a precise manner. Whenever there is evidence of more extensive defects that may be hidden from visual inspection, SHA researches and performs appropriate nondestructive evaluation techniques.

MDTA advises that nondestructive testing is done on bridges when an engineer conducts a hands-on inspection and suspects further testing/investigation is required. MDTA uses nondestructive ultrasonic testing on pins and parapet anchor bolts to identify potential cracks. Also, MDTA uses nondestructive ground penetrating radar to check for voids within concrete structures.

MDTA Peer Review Panel

In September 2008, Governor Martin O'Malley announced the establishment of a peer review panel, composed of nationally recognized experts, to examine MDTA's bridge and tunnel inspection program and identify and evaluate best practices used throughout the United States. In June 2009, the panel completed its review and concluded that, with the annual inspections of its facilities, the MDTA inspection program is in compliance with NBIS that require inspections every two years. The panel also stated that current MDTA tunnel inspection practices are comparable to the practices of other agencies. The panel recommended that MDTA's inspection program, among other things:

- hire additional in-house staff to manage the inspection program, oversee follow-up actions on findings, and perform quality assurance inspections of consulting teams;

- use nondestructive evaluation techniques (*i.e.*, ground-penetrating radar and ultrasonic testing) where appropriate to address specific inspection concerns;
- prepare and maintain a systemwide bridge inspection manual;
- provide more detailed, quantitative data in inspection reports along with additional photographs; and
- strive for more transparency to strengthen public confidence.

Additional Information

Prior Introductions: None.

Cross File: None.

Information Source(s): Maryland Department of Transportation, Maryland Transportation Authority, Department of Legislative Services

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