

STATE OF NEW HAMPSHIRE
OFFICE OF LEGISLATIVE BUDGET ASSISTANT
AUDIT DIVISION

**PROPOSED PERFORMANCE AUDIT SCOPE STATEMENT
DEPARTMENT OF TRANSPORTATION, BRIDGE MAINTENANCE**

In December 2015, the Fiscal Committee of the General Court adopted a joint Legislative Performance Audit and Oversight Committee recommendation to conduct a performance audit of the Department of Transportation's (DOT) bridge maintenance practices. We held an entrance conference with DOT management in January 2016.

Background

Bridges are a critical component of any transportation system, and constitute two-thirds (approximately \$7.8 billion) of the total replacement value of the State's transportation system. In 2015, there were 3,847 State- and municipally-owned bridges, 2,160 (56.1 percent) of which were State-owned.

The DOT, Division of Operations, Bureau of Bridge Maintenance was responsible for in-house bridge maintenance, repair, and rehabilitation, and certain amounts of related design work. The Division of Project Development, Bureau of Bridge Design planned, designed, and prepared plans for contracted bridge maintenance, rehabilitation, and replacement projects, and inspected and rated State and municipal bridges. The DOT issued the State's first Transportation Asset Management Implementation Plan in June 2014, and reported program outcomes, including bridge metrics, using a balanced scorecard at least back to 2011. Preserving existing assets was a core issue and system goal. Asset management is a strategic, systematic process for operating, maintaining, and improving assets relying on engineering and economic analyses to sequence maintenance, preservation, repair, rehabilitation, and replacing assets to achieve or sustain a state of good repair over the asset's lifecycle, and at minimum practical cost. Asset management relies upon structured decision-making to make tradeoffs between alternatives at the strategic, tactical, and operational levels. Asset management was intended to improve upon existing State management practices and facilitate data-based, strategic decision-making. Previously, asset management was less structured and secondarily focused on preservation.

Inspection, Classification, And State Owned Red List Bridges (Red List)

Ongoing inspections are a key function in monitoring bridge condition, and inform budget projections and preservation, maintenance, and replacement efforts. The State's bridges were routinely inspected and assessed at varying intervals depending upon their condition and construction. Inadequate structures may have been classified as "structurally deficient" or "functionally obsolete" under federal standards.

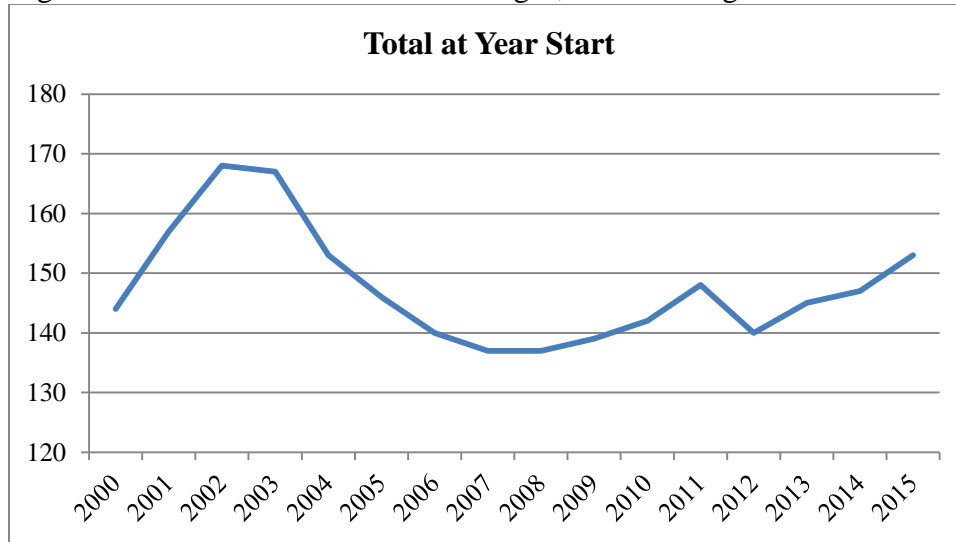
The DOT was required to include structurally deficient bridges on the *Red List*. The *Red List* included bridges in- and out-of-service, such as historic structures. A small number will always remain on the *Red List* and be kept in service. Red-listed bridges required twice-yearly inspections due to known deficiencies, poor conditions, weight restrictions, or type of construction. The 2014 *Red List* included 153 deficient State-owned bridges (7.1 percent of the 2,160 State-owned bridges). The DOT was required to number and prioritize bridges based on need for repair or replacement. All but 24 red-listed bridges were scheduled for some form of maintenance, repair, or rehabilitation. The unscheduled bridges were awaiting action, were

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unfunded and low priority, or needed only increased monitoring. An additional 791 State-owned bridges were on the informal “Yellow List:” one or two condition steps away from the *Red List*.

The DOT projected that the overall upward trend in red-listed bridges after 2008, depicted in Figure 1, would continue for several reasons.

Figure 1. State Owned Red-Listed Bridges, 2000 Through 2015.



Source: DOT *State Owned Red List Bridges*, April 2015.

Preservation, Maintenance, And Replacement

Bridges have a designed useful life and are designed based on the prevailing standards at time of design. Climate, structure age, materials, funding, and management practices can affect the frequency and extent of preservation, maintenance, and replacement needs. Bridge preservation includes maintenance, repair, and rehabilitation actions or strategies that prevent, delay, or reduce deterioration; restore functionality; keep bridges in good condition; and extend useful life. Proper prioritization and scheduling of bridge work were keys to maintaining appropriate levels of service. Ongoing, routine maintenance is necessary throughout a bridge’s lifecycle; can delay the need for rehabilitation and replacement; can extend a bridge’s useful life; and is generally considered cost-effective. Rehabilitation involves repairs beyond maintenance to sustain an appropriate level of service, can also delay the need for replacement, and is generally considered a moderate cost. Replacement involves construction of a new structure or significant reconstruction of an existing structure, is often inevitable, and is generally considered high-cost. The DOT had programs to preserve, maintain, and replace bridges as a component of its asset management strategy.

Audit Scope

Our audit will be designed to answer the following question:

How efficient and effective were the Department of Transportation’s bridge maintenance and preservation practices during State fiscal years 2014 and 2015?

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To address this question, we plan to:

- review relevant State laws, budgets, administrative rules, policies, procedures, plans, and guidelines;
- interview key DOT personnel and external stakeholders;
- review relevant audits, reviews, evaluations, and guidance from other states, academia, professional associations, and the federal government;
- observe relevant DOT field operations and office practices;
- review relevant DOT performance data and records; and
- compare DOT practices to relevant guidelines and accepted practices.

We do not expect to examine railroad or non-State bridges, or other management controls not directly related to bridge preservation and maintenance, such as information technology system controls.

We anticipate completing this project in May 2016 and presenting the final report to the Fiscal Committee at its June 2016 meeting.