



Our Legacy of Neglect:
The Longfellow Bridge and the Cost of Deferred Maintenance

Written Testimony
Prepared for

Massachusetts Legislature
The Joint Committee on Transportation

Senator Steven Baddour, Co-Chair
Representative Joseph Wagner, Co-Chair

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Founded in 1988, Pioneer Institute is a non-partisan public policy think tank committed to keeping Massachusetts economically competitive and to strengthening the core values of an open society. To inspire market-driven policy reforms, Pioneer promotes individual freedom and responsibility and limited, accountable government. The Institute has changed the intellectual climate in Massachusetts by commissioning timely and rigorous academic studies from leading scholars. Pioneer injects new ideas into the public debate through forums and lectures, transcripts, the media and outreach to legislators, business groups and the general public.

Introduction

Chairman Baddour and Chairman Wagner, and members of the Committee, we would like to thank you for this opportunity to offer our thoughts on the condition of our state's assets and some potential solutions for solving the problem of deferred maintenance and subsequent deterioration of infrastructure.

In our recent White Paper – *Our Legacy of Neglect: The Longfellow Bridge and the Cost of Deferred Maintenance*, we focused on a particular aging bridge to introduce readers to the problems of deferred maintenance and then we provided a statewide look at the backlog of deferred maintenance and state agencies' attempts to provide maintenance for their assets.

We found that the responsibility for asset management is scattered across state government, idiosyncratic in form and execution and riddled with redundancies and ambiguities, particularly regarding the practical responsibilities of the Division of Capital Asset Management (DCAM) and the various executive branch agencies.

The Longfellow Bridge

The Longfellow Bridge was opened at a dedication ceremony on July 31, 1907. Our report was released 100 years to the day on the anniversary of the dedication of the Longfellow Bridge, July 31, 2007. There was a significant amount of media coverage around the release of the paper with newspaper editorials, television interviews and a session on talk radio. However with the collapse of the I-35W Interstate Highway bridge in Minneapolis the following day, there was renewed interest in the content of the paper and what it meant for Massachusetts.

In the 100 year life of the current Longfellow Bridge, there have been two repair projects, a \$2 million project in 1959 and a second \$3.2 million project to rectify safety concerns and remove graffiti in 2002. Those two projects, equivalent to a little over \$23 million in 2007 dollars, are the extent of maintenance over the life of the bridge. A regular maintenance program of painting, deck replacement, and waterproofing was never adhered to and the bridge over the years has fallen into decay and suffers from the loss of ornamental irons, cracked and leaning towers, potholes at the expansion joints and some minor loss of structural integrity.

The bridge has also suffered from institutional neglect caused by the changing hands of government agencies. Originally constructed by the cities of Cambridge and Boston, the bridge became the property of Metropolitan District Commission (MDC). Following the merger of the MDC with the Department of Environmental Management, the bridge is now

“owned” by the Division of Conservation and Recreation (DCR). DCR has an agreement with MassHighway to provide technical assistance on the bridge restoration project.

The current cost to repair the bridge was discussed at a May 2006 public meeting on the proposed rehabilitation project. The estimated cost was \$180M but recently has been re-estimated at \$200M.

Potential Savings from Regular Maintenance

Three possible historic scenarios were evaluated in the paper. A first scenario invested one percent (1%) of the capital cost of the bridge into a maintenance fund which would be used to make repairs and perform routine maintenance on the bridges each year. A second scenario increased the investment to two and a half percent (2.5%) each year. And a third scenario was the actual case where no investment was made in the bridge and the two repair projects occurred in 1959 and 2002 respectively.

We found that with a 1% investment an approximate condition, based on the literature, would have maintained the Longfellow at about 60% of its original condition and that with a 2.5% investment the bridge would be at about 80% of its original condition. Using construction cost indexes to update historical costs, we found the savings for a 1% investment in maintenance, based on the current repair costs was \$80.8M and that for a 2.5% investment the savings was \$26.7M.

General Savings from Maintenance

DeSitter's “Law of Fives” estimates that if maintenance is not performed, then repairs equaling five times the maintenance costs are required; if repairs are not made, the rehabilitation costs will be five times the repair costs. Thus the compounding effects of deferring maintenance are dramatic.

State-wide Maintenance Backlog

Moving beyond the bridge itself, our report compiled the publicly available estimates of maintenance backlogs for state assets. We found that the maintenance backlog for the Commonwealth was at least \$17 billion. We should emphasize that this is a conservative figure, based only on what had been publicly disclosed. The true total of deferred maintenance is inevitably higher.

This \$17 billion figure is also a current estimate of our maintenance backlog and differs from the Transportation Finance Commission's number, which is based on the gap over 20 years of operation.

Within the \$17 billion figure, transportation maintenance plays a significant role. The cost to bring our pavement up to excellent condition was estimated to be \$6.2 billion, based on Massachusetts Highway Department's ("MHD") 5 Year Condition tables. The cost to repair MHD's bridges was \$1.1 billion, an amount that is probably too conservative – this amount would only reduce the number of structurally deficient bridges from 500+ to a bit less than 450 in five years. For the MBTA, the current maintenance backlog is estimated at \$2.7 billion.

Other transportation backlogs include a portion of DCR's \$1.3 billion backlog and \$400 million for the Massachusetts Turnpike Authority's bridges. In addition, we were not able to determine backlog figures for Massport, the Steamship authority, or regional transit authorities.

Without belaboring the point, we can all agree that our maintenance backlog for transportation, and our other assets, is massive in scope.

What Caused the Problem?

A \$17 billion backlog does not happen because of a single or simple set of reasons. Rather, it's the result of an interrelated set of problems, which have been allowed to fester for a very long time.

The major causes of our maintenance backlog are:

- 1) The Prioritization of New Projects Over Maintenance – Without regard for party or ideology, new, expansionary projects hold a political appeal that maintenance cannot match. There are no photo opportunities or ribbon cuttings for changing the gaskets on a boiler or cleaning bird excrement off a bridge.
- 2) Diffuse Jurisdictions and Accountability – As the story of the Longfellow illustrates, our assets are held by a number of different entities. There is currently no comprehensive means to monitor their condition and determine which managers are properly maintaining their assets.
- 3) Perverse Budgetary Incentives – Particularly with the state's vertical assets, the use of operating funds to pay for maintenance is viewed as diverting scarce resources from programs. An agency that allows its assets to run down to catastrophic failure frequently becomes eligible for repairs funded out of DCAM's budget. Our current system punishes the good and rewards the bad.
- 4) Maintenance Is Not A Priority – Funds for maintenance are among the first cuts during the formal and informal budgeting process. We currently have no mechanism

in place to hold ourselves and agencies accountable for properly funding maintenance.

Potential Solutions

While the situation appears to be rather bleak, we should first note pockets of excellence here in the Commonwealth to address maintenance needs. DCAM's Office of Facilities Management is one such area, with its implementation of the CAMIS asset management system. On the transportation side, the PONTIS bridge management system is another such area, but it can't fix and fund bridge repair, only report on it.

But our own internal efforts are not enough. We should look to other states which have begun to address their infrastructure maintenance backlogs. In Missouri, the legislature established a Facilities Maintenance Reserve Fund which was initially funded at 0.1% of the states' general fund. The funding increase 0.1% per year until 2007 when it reached full funding at 1% of the general fund. Missouri withdraws money from the fund on an as-needed basis which requires each department to review the condition of their facilities and estimate the costs for repairs or needed upgrades.

Utah has been working on its problem of deferred maintenance for 15 years. The state contracted with ISES Corp to do an initial condition assessment of all state facilities. Legislation was passed that established standards for evaluating condition and funding for capital improvements. The law prohibits the Legislature from funding design or construction of any new capital development projects until they have appropriated 1.1% of the replacement cost of existing state facilities to capital improvements.

The State of Washington has implemented an accountability program, called the Gray Notebook, that measures and communicates the Department of Transportation's maintenance performance in a clear and concise manner.

The City of Chicago and the State of Indiana have both entered into concession agreements to lease out pieces of their transportation systems, providing a substantial infusion of funds as well as putting maintenance responsibilities on an outside party. There is obviously a robust public debate about the utility of different contractual forms to shift risk, cost, and control from the public sector onto the private sector, with significant concerns about loss of control.

However, it is our hope that an honest debate occurs about this potential option, that conscientiously reviews the range of options in innovative finance, all of which the potential to embed life-cycle costs into every project, ensuring that maintenance is planned and funded. It should also be noted that most of these contracting methods would require the suspension or amendment of several state laws, including sections of the public construction, procurement, and public works laws.

Based on these findings and others, our report recommends that the Commonwealth:

- 1) Develop a single, comprehensive report on the condition of its assets, maintenance efforts, and maintenance plans, modeled on the Gray Notebook.
- 2) Consider the implementation of the GASB 34 modified method of financial reporting, which would require comprehensive usage of asset management systems.
- 3) Create a new State Infrastructure Bank (SIB) could be used to make needed repairs and improvements to transportation facilities. Utilizing user fees, betterments and other innovative financing methods would provide much needed funding for our infrastructure backlog. Many other states have an existing SIB and are competitively ahead of Massachusetts in making their transportation infrastructure up to date and congestion free. See current House Bill H 3673 for more information.
- 4) Work to reverse the existing disincentives that discourage the use of operating funds for maintenance and actively reward those agencies that are working diligently to remove maintenance backlogs. Reward agency managers for good maintenance practices.
- 5) Establish a Commonwealth Facilities Maintenance Reserve Fund, beginning with only 0.1% of the general fund the first year and rising 0.1 percent per year to 1% of the general fund in the 10th year.
- 6) Include an amount of 2% of the replacement value of capital assets in each agency budget for maintenance.

In addition to the recommendations in the report, Pioneer Institute has published a separate policy brief that has complementary recommendations. It is our position that a simple call for more revenues, be it in the form of a gas tax, toll increases or some other form, is not good policy and not good politics. In order to be credible, we must reform our maintenance practices first, before injecting more funds, so as to avoid the potential of expanding the pool of assets without improving their condition.

These additional recommendations include:

- 1) Clean Off the Bond Cap - The current bond cap, set at \$1.5 billion for the upcoming year, contains at least \$200 million in spending on items inappropriate for the capital budget, such as payroll, vehicles, computer equipment, and software. These expenditures should be paid for out of the operating budget and the newly freed-up \$200 million should be dedicated to maintenance.
- 2) Spend the Surplus on Maintenance - State government often ends the year with surplus funds. A significant portion of these funds should go towards maintenance of public assets, rather than funding new state programs that create a recurring expense and exacerbate the structural deficit. For individual agencies with year-end surpluses, maintenance should be exempted from public construction laws to allow greater flexibility in contracting.
- 3) Budget for Maintenance -- The state accounting system allows budget staff to allocate funds for maintenance and to ensure that it is not transferred for other purposes. Budget staff should begin allocating funds for maintenance, preventing transfers, and measuring agency spending on maintenance. In addition, the identification of maintenance staff in the state payroll system will allow greater precision in the measurement of maintenance expenditures.
- 4) Use Life-Cycle Costs When Selecting Projects - New capital projects are analyzed based on their cost of construction. They should be assessed and

- appropriations made on the basis of their total life-cycle cost, which considers construction as well as maintenance. Agencies should incorporate the life-cycle cost of new assets into their budgets.
- 5) Fund DCAM - DCAM, which has responsibility for a great deal of the state's vertical assets, has no budget for operations, outside of bond funds. The Legislature should adequately fund DCAM out of the operating budget, increase their funding for maintenance activities, and support their efforts to enforce maintenance standards.
 - 6) Divest Useless Assets - The Commonwealth currently owns thousands of square feet of outdated and abandoned buildings that it is forced to spend money on security and nominal maintenance. Legislation regarding the sale of surplus assets has been stalled for several years. Surplus assets should be sold as soon as possible and the resulting funds should be spent on maintenance.
 - 7) Add Maintenance to General Obligation Bond Covenants - Surprisingly, many of the Commonwealth's authorities have assets in good condition, particularly those assets which generate revenues. Most of this revenue is utilized to back revenue bonds and each bond agreement contains covenants that mandate funding of maintenance. Bond buyers are guaranteed that revenue-generating assets will be kept in good condition. In other words, bond buyers have a greater guarantee of good maintenance than citizens of the Commonwealth.

In summation, there are significant reforms needed to our current maintenance practices. Right now, we do not do an adequate job of measuring, budgeting, or executing on maintenance. Putting additional funding in place may be a piece of the solution but it will only exacerbate the problem without meaningful, comprehensive reform.

Conclusion

Thank you for the time you have given us for consideration of potential solutions to the problems of deferred maintenance. As we move forward on this issue we feel that our potential solutions can be used as tools to fix many of the problems at hand. We especially would like to thank Co-Chairmen Wagner and Baddour for calling for this oversight hearing and bringing the problem of deferred maintenance to the forefront. Thank you for the opportunity to present our findings.