



The Commonwealth of Massachusetts
Office of the Inspector General

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Rep. Joseph F. Wagner, House Chairman
Joint Committee on Transportation
State House, Room 443
Boston, MA 02133

Sen. Steven A. Baddour, Senate Chairman
Joint Committee on Transportation
State House, Room 513
Boston, MA 02133

Dear Rep. Wagner and Sen. Baddour,

This correspondence is a response to your request for information concerning the July 10, 2006, partial collapse of the Interstate 90 ceiling. This office has reviewed the obligations of various Commonwealth entities to inspect, maintain, and certify the safety of the tunnel to the federal government, bond holders, and the general public. Those entities include the Massachusetts Turnpike Authority (“MTA”), the Massachusetts Highway Department (“MHD”), the Executive Office of Transportation (“EOT”), and the Executive Office of Administration and Finance (“EOAF”).

The following represents an interim report to you.

BACKGROUND INFORMATION:

- 1) On July 10, 2006, the Interstate 90 (“I-90”) connector was the property of the Commonwealth and MHD, and as such is an asset the Commonwealth is depreciating, as disclosed in the Comprehensive Annual Financial Report published yearly by the Office of the Comptroller.
- 2) MHD is the signatory agency to the construction contract responsible for the assembly of the ceiling support system, 99119, and that contract is still open and active. Daily oversight of that contract, however, falls to MTA via the Central Artery/Tunnel (“CA/T”) project and its management consultant.
- 3) Prior to the official opening of the I-90 connector in January 2003, under M.G.L. c.81A, MHD was to transfer operations and maintenance responsibilities to MTA only after “the chief engineer of the authority and the chief engineer of the highway department, or their designees, jointly determine and certify to the authority and to the highway department that the authority can safely open each such facility or segment thereof to vehicular traffic or that such facility can safely be used for its intended purpose.”

4) On January 14, 2003, the chief engineer of MHD designated the project director of the CA/T project -- a Massachusetts Turnpike Authority employee -- to provide the certification cited in Finding (3).

5) The CA/T project director, on January 17, 2003, provided said certification to MHD. The then-chief engineer for the MTA provided certification on behalf of MTA.

6) Under both M.G.L. c.81A and the "Agreement Between the Massachusetts Highway Department and the Massachusetts Turnpike Authority Governing the Transfer of Certain Element of the Metropolitan Highway System" executed in November 1999 and amended in January 2003, the MTA was "responsible for maintaining the Interstate 90 connector upon turnover of the roadway."

7) In March 2003, the US Department of Transportation ("US DOT") promulgated its "Highway and Rail Transit Tunnel Inspection Manual," which called on owners of such infrastructure to establish timetables of "up-close inspections of the tunnel structure" that, "for new tunnels... could be as great as five years." However, the manual was careful to note that the "up-close inspection is in addition to daily, weekly, or monthly walk-through general inspections."

8) In November 2003, the CA/T's management consultant, Bechtel/Parsons Brinckerhoff ("B/PB"), promulgated the project's "Inspection Manual for Tunnels and Boat Structures." Under the section entitled "Inspection Type and Frequency," B/PB wrote, "The tunnel systems... inspection frequency has not been determined and will be developed in cooperation with the MTA." The B/PB manual also states that "a routine, in-depth inspection should be performed every 3-5 years."

9) Under federal law (23 U.S.C. §129(a)), the Commonwealth of Massachusetts was eligible to receive federal funding for the I-90 portion of the CA/T project as long as the Commonwealth "certifies annually that the tolled facility is being adequately maintained...."

10) Under an "Amended and Restated Agreement Pursuant to 23 U.S.C. §129(a) Relating to the Third Harbor Tunnel Beneath Boston Harbor," which was executed in 1999 by MHD, the US DOT, the Federal Highway Administration ("FHWA"), and MTA, the parties agreed, in part, that "the MTA agrees to certify through MHD annually that the toll facility is being adequately maintained."

11) Under the Trust Agreement executed prior to the sale of \$808,975,000 in special obligation Metropolitan Highway System Revenue Bonds by the Massachusetts Turnpike Authority in 1999, the MTA was required to hire an independent consultant to conduct inspections "of the Accepted Metropolitan Highway System and any Extension" and forward the consultant's inspection report to the Bond Trustee, which is the Bank of New York. Under the terms of the Agreement, the inspection was to take place "at least every three Fiscal Years, or more frequently, if required by law...."

12) From March 17, 2005 until immediately prior to July 10, 2006, the Commonwealth disclosed, both in the Comprehensive Annual Financial Report and in bond prospectuses, that MHD was conducting "an examination of the safety of the tunnel elements of the CA/T Project

that have been opened to traffic.” On March 17, 2005, and afterward, “the tunnel elements of the CA/T Project that have opened to traffic” included the I-90 connector.

13) The initial disclosure of said review made specific reference to water leaks and whether those leaks posed a hazard to “the short and long term safety of the facility.”

14) Beginning in August, 2005, the disclosure language was altered and removed any mention of leaks. Instead, the disclosure said, “On March 15, 2005, the Governor directed the Executive Office of Transportation and the Massachusetts Highway Department to conduct an examination of the safety of the tunnel elements of the CA/T Project open to traffic. This examination is ongoing.”

15) On multiple occasions between August 2005 and the July 10, 2006, collapse, Commonwealth bond counsel specifically asked senior staff at EOAF to update, amend, or delete the disclosure language describing the MHD safety review. No changes were made.

QUESTIONS REVIEWED BY THE OIG:

- a) What responsibility, if any, did MHD and the Commonwealth have, as owners of the I-90 tunnel and the finishes contract responsible for the ceiling, to ensure its ongoing safety for the motoring public? And what were MTA’s responsibilities as the contracted party to operate and maintain the tunnel?
- b) Was the designation of the CA/T project director by MHD’s chief engineer in conformance with M.G.L. c.81A?
- c) On what basis, if any, was the Safety Certification signed by the CA/T project director and the then-MTA chief engineer made?
- d) What maintenance, if any, did the MTA provide on the ceiling system of the I-90 connector?
- e) Did the MTA, through MHD, certify annually to FHWA that the tunnels were being adequately maintained as required by federal law?
- f) Was MTA obligated under the Trust Agreement to have an independent inspection conducted on the I-90 connector prior to the collapse?
- g) Did MTA, in concert with B/PB, develop a formal schedule of tunnel inspections as called for in the November 2003 inspection manual?
- h) Did MHD and EOT conduct a safety review of the “tunnel elements of the CA/T Project open to traffic,” and if so, what were the results of that review?
- i) What reasons were there for editing and amending the language in the bond disclosure to remove references to water leaks?

RESULTS OF REVIEW:

a) The Commonwealth and MHD, as owners of the I-90 connector and signatories to the construction contract that led to the assembly of the ceiling support system, were as a matter of law and contract responsible for the safety of the roadway. However, MHD had contracted out responsibility to maintain the roadway, pursuant to Massachusetts General Laws and to a subsequent “Central Artery/Ted Williams Tunnel Project Management Agreement”, to MTA. Initial findings of the forensic investigation into the collapse point at least in part to a lack of maintenance of the epoxy bolt ceiling suspension system as a significant cause for the

catastrophic incident of July 10, 2006. While the Commonwealth and MHD had every right and reason to expect MTA to fulfill its contractual and statutory obligation to properly maintain the tunnel and its ceiling system, that did not absolve or prohibit the Commonwealth and MHD from actively ensuring the safety of the roadway it continues to own. This is especially true given that MHD was privy to the entire documentary history of the construction of the ceiling, and paid for the bolts as well as their testing as recently as 2003 as part of a “global settlement” with the 99119 contractor.

b) The designation of the CA/T project director, a Turnpike employee, by MHD’s chief engineer to certify the safety of the tunnel to MHD may not have violated the letter of M.G.L. c.81A and the various contracts and agreements executed pursuant to that law.

However, it is clear that the spirit and intent of c.81A was to ensure that the safety of Central Artery/Tunnel project roadways would be vouched for by both MTA and MHD prior to the public gaining access to those facilities. By designating the CA/T project director to certify for the safety of the I-90 connector, MHD abdicated its role as a second set of eyes on this critical piece of infrastructure and, as a result, took away an important level of security envisioned by the law. This is so in large part because, as the 1997 project management agreement also made clear, “the CA/T Project Director shall report directly to the Chairman of the MTA.” M.G.L. c.81a §12(b) also makes clear that MHD has implicit responsibility, along with MTA, to certify the safety of the roadways it transfers to MTA. It stipulates, in part, that both agencies were required to create “a protocol for the certification of *both the highway department and said authority* [emphasis added] that each such facility or segment thereof may be safely opened to vehicular traffic or safely used for its intended purpose.” By designating an employee who reports directly to the chairman of the MTA, then, MHD abrogated its inherent responsibility to certify the tunnel’s safety as outlined by c.81A.

c) The joint certification of the safety of the I-90 connector (and by extension, the ceiling system) signed by the CA/T project director and the MTA chief engineer was based on a quality assurance “walk down” conducted by B/PB; the attainment of “Milestone #5” of the 99119 tunnel finishes contract, which meant receiving a Certificate of Beneficial Occupancy from B/PB and MTA in December 2000; and a variety of other city, state, and federal inspections, permits, and certifications. As a result, it appears that the certification was made in good faith and based on a credible and a mutually agreed-upon series of checks and balances.

However, the bolts in question were never inspected specifically as part of any of these various certifications. Rather, the “pull” tests conducted immediately following the installation of the bolts were the solitary inspection of those items. Those tests took place in mid-1999, records show. That was roughly seven years prior to the July 10, 2006, collapse. [This office did not attempt to discern whether those initial pull tests were indeed adequate, as some have questioned.] Given that some bolts in the Ted Williams Tunnel and the I-90 connector that had initially passed pull tests were later found to have “crept” or loosened, it is remarkable in hindsight that a secondary inspection of the bolts was not conducted, either immediately prior to the tunnel transfer or subsequently.

d) Document requests to MTA and EOT failed to produce a single document indicating that any regular maintenance was ever performed on the I-90 connector ceiling system from its construction in 1999 onward. This demonstrates an alarming lack of stewardship on the part of MTA, which was the party primarily responsible for the infrastructure.

Of particular note is that, on March 6, 2005, a 5.4-magnitude earthquake with an epicenter in Quebec was felt in Boston, but there is no evidence that even a cursory physical examination of the I-90 connector's ceiling (or other tunnel structures) took place afterward. What's more, if MTA had consulted the November 2003 tunnel inspection manual promulgated by B/PB for guidance, the authority would have seen that Section 6.4, Earthquake Damage Inspections, was actually a cut-and-paste twin of Section 6.1, Fire Damage Inspections, and contained no specific directions for earthquakes. (Indeed, the section on Impact Damage Inspections and Flood Damage Inspections are also erroneously cut-and-pasted from the fire damage inspection section.)

Finally, it is also important to note that there is no evidence to suggest that MTA or MHD visually inspected the ceiling system on a daily, weekly, or monthly basis as called for by FHWA's 2003 inspection manual.

e) Neither MHD nor MTA could produce any documents complying with federal laws requiring that MHD, as the recipient of federal Interstate Highway construction funds, certify annually that it is adequately maintaining the facility where the collapse occurred.

f) It is by no means clear, on a legal basis, that MTA was under a specific obligation under its various Trust Agreements to conduct independent inspections of the I-90 connector. On the one hand, the connector tunnel is certainly an "extension" of the Metropolitan Highway System and the Ted Williams Tunnel, both of which are property of the MTA. On the other hand, said infrastructure was not yet the MTA's "accepted" property.

However, given that MTA was in fact conducting just such an inspection via its contractor HNTB Corp. in the summer of 2003, it would have been prudent at a minimum for the authority to expend the funds necessary to ensure the structure's overall safety.

g) There is no evidence to suggest that MTA, in concert with B/PB, developed a meaningful inspection schedule for the I-90 connector tunnel. In regards to the ceiling support system, this is surprising because project records show that B/PB was informed by the operators of the Fort McHenry Tunnel in 1989 that they inspect their bolt-fastened ceiling system annually. The Fort McHenry Tunnel relies upon a similar bolt-fastened ceiling system. What's more, given the documentary evidence of persistent problems with the bolted ceiling, it should have been a primary goal to ensure the ongoing, regular inspection of these elements well before the collapse.

h) Despite repeated assurances to bondholders, MHD and EOT did not conduct a safety review of all CA/T Project tunnel elements open to traffic, and did not inspect the I-90 connector tunnel section where the July 10, 2006, collapse occurred. Rather, documents indicate that MHD conducted a single field inspection on June 16, 2005, within the I-93 tunnel, and its review was focused solely on the potential short- and long-term impacts of water leaks. However, although the administration of Governor Mitt Romney stated to the media in August that the review was completed in July 2005, our inquiry determined that no final version of the report was ever generated and subsequently transmitted to the governor or to the various oversight agencies. It appears true that actual investigatory work by MHD stopped at some point in the summer of 2005, but as recently as February 2006, MHD was consulting with a slurry wall expert to vet a draft of the report. Therefore, it was technically accurate and factual to inform bondholders that the examination was "ongoing," even if the examination at that point was confined solely to the exercise of writing and editing the findings of the previous summer.

Still, that the Commonwealth insisted on providing disclosure of such a review to

bondholders – in effect, making the point that the review was material to investors – and subsequently failed to make good on the terms of the disclosure is deeply disconcerting. This is especially true given that, as the bond disclosure documents state, the CA/T is the single largest element of the Commonwealth's capital spending plan, and thus is an extremely important element of any disclosure exercise. Also, given the prior, unfortunate history of the Central Artery/Tunnel project -- in which assurances to bond investors about the cost and schedule of the project were later revealed to be patently false -- it is paramount that the Commonwealth be as candid and factually accurate as possible in making disclosures relative to the project.

i) On several occasions between March 2005 and the July 2006 collapse, the Commonwealth's bond counsel prodded the Executive Office of Administration and Finance to update, edit, or remove the disclosure language about the MHD safety review. In each instance, bond counsel was told by EOAF staff to retain the language. While the reason for this situation remains unclear to this office, it is clear that casual disregard for the truth was grossly inappropriate in the context of disclosure generally and Big Dig disclosure specifically. Given that bondholders and the general public were uneasy about the safety of the CA/T tunnels following the disclosure of a leak problem and the statement by a renowned tunnel expert that he could not vouch for the safety of the roadways, knowledge of an ongoing safety review would provide comfort and assurance. To learn after a tragedy that, in fact, no review of the I-90 connector was ever conducted, is simply not acceptable.

CONCLUSIONS:

There were repeated and inexcusable lapses by MHD and MTA in their fiduciary and legal duties related to the safety and proper maintenance of the I-90 connector. While initial certifications as to the safety and operability of the roadway appear to have been made based on a thorough array of permits and certifications, there was virtually no follow-through by MHD or MTA to ensure that the tunnel was in safe condition on an ongoing basis. This lack of follow-through appears to have specifically violated, at a minimum, Title 23 of the U.S. Code, various contractual agreements, and potentially, a bond trust agreement.

RECOMMENDATIONS

This office, as a result of this interim inquiry, hereby recommends the following immediate actions:

1) We believe it is paramount that MHD, MTA, and the other agency-owners of large transportation infrastructure in the Commonwealth should forthwith develop inspection schedules and parameters for the state's critical tunnel, bridge, road and railway components. If such schedules and parameters are already in effect, each agency should nevertheless revisit them in light of the July 10, 2006, collapse to determine if the frequency and depth of such inspections is adequate. To ensure compliance with this recommendation, we ask that your committee request of these agencies a full breakdown of any such inspection schedules and parameters in effect or in the process of development. Doing so will guarantee that the Legislature is included in the vital process of protecting our vital infrastructure.

2) MHD and MTA should immediately examine all of their respective fiduciary, contractual, and legal obligations as set forth in various agreements, covenants, laws, and contracts. Doing so will

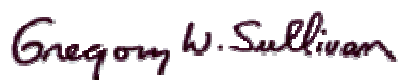
not only ensure that the Commonwealth and its turnpike authority are on the right side of the law, but may help to prevent a future calamity. To ensure compliance with this recommendation, we believe you should consider holding a hearing at some point after the new session begins to hear from whoever runs these agencies how they plan to ensure fiduciary, contractual, and legal compliance relative to inspections.

3) MHD should promptly transfer of ownership of the I-90 connector and I-93 Central Artery segments to MTA to avoid any future confusion and blended liability in the event of future calamities. While this office understands that such transfers cannot commence until construction contracts are closed out, it is our belief MTA and MHD should redouble their efforts to conclude such contracts in order to avoid legal confusion in the event of a calamity. The failure of both MHD and MTA to transfer ownership and operations-and-maintenance responsibilities on the I-90 connector has needlessly confused responsibility for these critical pieces of infrastructure. What's more, it has demonstrated that both the MTA and the Commonwealth failed to uphold the most basic function of government in their stewardship of the I-90 connector: to protect the safety of the public. Perhaps the hearing on fiduciary compliance could also encompass a discussion relative to the ownership question as well.

4) EOAF and EOT should immediately establish a meaningful protocol for information sharing relative to financial disclosure. The publication of false or incorrect information in bond prospectuses and other such documents has needlessly opened the Commonwealth to a US Securities and Exchange Commission inquiry that can only further undermine investor confidence in the Big Dig and our capital spending plan in general. This recommendation may require legislative action, such as a bill making it statutorily required to develop information-sharing protocols among executive agencies. We would, of course, be happy to assist in that effort.

I will endeavor to update you again as our work progresses. In the meantime, if you have any questions or concerns, please do not hesitate to contact me at (617) 727-9140. Thank you very much.

Sincerely,



Gregory W. Sullivan
Inspector General

CC: Transportation Secretary John Cogliano, Attorney General Thomas F. Reilly, Auditor A. Joseph DeNucci, Treasurer Timothy Cahill,