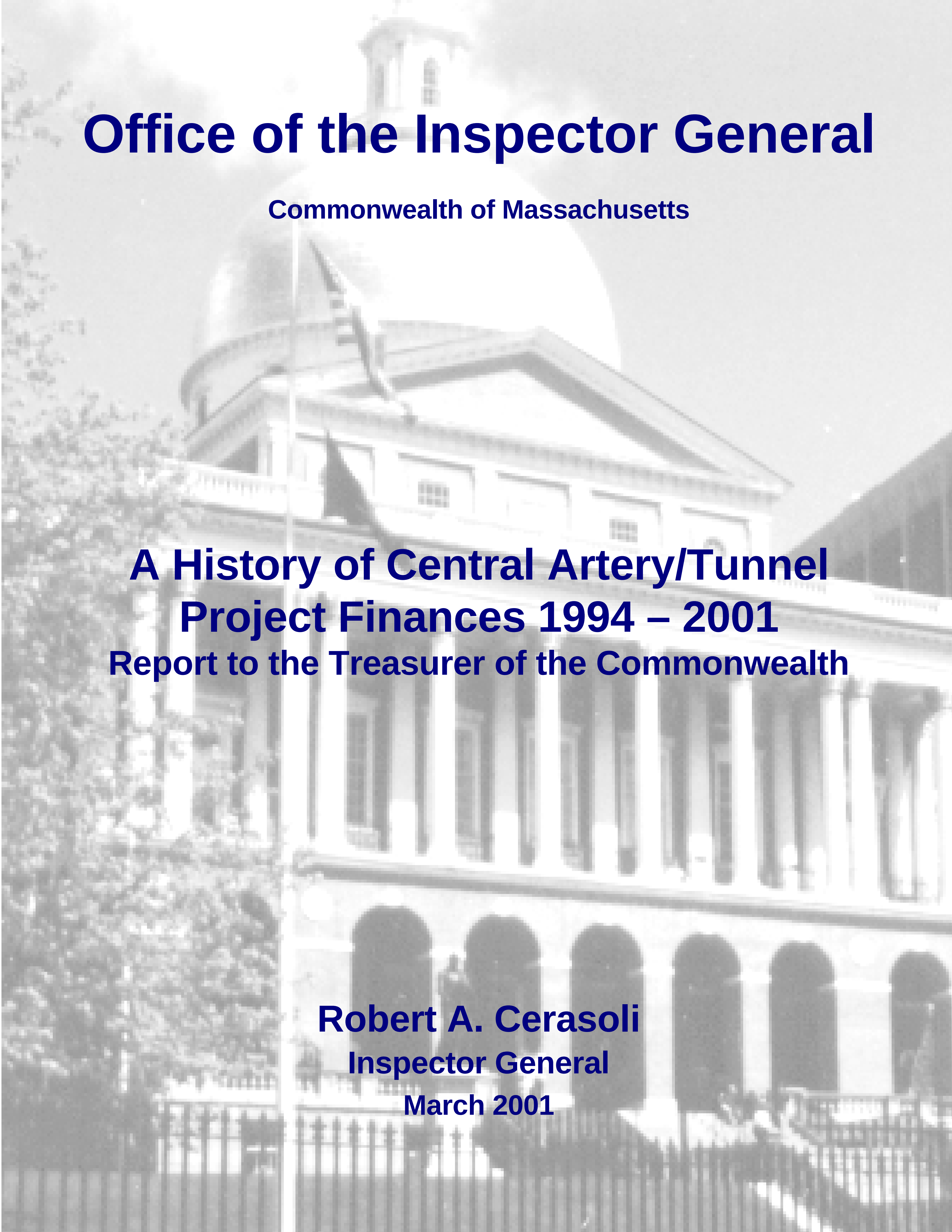

Office of the Inspector General

Commonwealth of Massachusetts

A History of Central Artery/Tunnel Project Finances 1994 – 2001

Report to the Treasurer of the Commonwealth

Robert A. Cerasoli

Inspector General

March 2001

The Commonwealth of Massachusetts

Office of the Inspector General

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March 20, 2001

The Honorable Shannon P. O'Brien Treasurer and Receiver General
of the Commonwealth of Massachusetts
State House; Room 227
Boston, Massachusetts 02133

Omnibus ad quos praesentes literae pervenerint, salutem.

Dear Treasurer O'Brien:

I submit to you today the initial results of this Office's yearlong review of the Central Artery/Tunnel Project's (also known as the Big Dig) financial history from 1994 to the present. Based on this review, this Office concludes that the imposition of the federal funding cap for the Big Dig is unjustified and that the Federal Highway Administration (FHWA) should reinstate the Commonwealth's funding status for Big Dig expenses. This review also reveals many troubling facts about Big Dig finances, including the following:

- In 1994, Bechtel/Parsons Brinckerhoff[1] (B/PB) provided the Governor and state officials with a Big Dig cost estimate of almost $14 billion, a figure uncannily close to the current $14.1 billion estimate. B/PB's $14 billion estimate in 1994 starkly contradicted the $8 billion estimate (more exactly $7.998 billion) offered publicly by Big Dig officials[2] at that time. After B/PB presented its $14 billion estimate in 1994, state managers directed state and B/PB staff to undertake a cooperative effort to maintain the fiction of an "on-time" and "on-budget" $8 billion project. Records show that they did so by applying a largely semantic series of exclusions, deductions, and accounting assumptions that covered-up the $6 billion difference.

[1] B/PB is the state's management consultant responsible for administering the Big Dig.

[2] "Big Dig officials" refers to senior Massachusetts Highway Department and Massachusetts Turnpike Authority managers, including the Turnpike Chairman and Project Director, charged with the administration of the Big Dig and the Commonwealth's contract with Bechtel/Parsons Brinckerhoff. These officials made the management, policy, and fiduciary decisions that led the Big Dig to its current financial situation.

- Internal FHWA records reviewed by this Office show that in 1995, B/PB officials disclosed to local FHWA officials all budget assumptions that Big Dig officials had used to shrink its Big Dig cost estimate from $14 billion to $8 billion. Records show that local FHWA officials acted in partnership with state officials to downsize the Big Dig cost estimate for public relations purposes. In early 2000, federal officials investigated the cause of the Big Dig cost overrun; they concluded that state officials had deceived local FHWA officials. FHWA records contradict this conclusion.

- Big Dig and local FHWA officials shirked their fiduciary responsibilities by not disclosing all relevant financial facts to the public, the State Legislature, or as required by law - the bond markets.

- The Governor, the Chairman of the Massachusetts Turnpike Authority (Turnpike), and the Commonwealth's Secretary of Transportation and Construction failed to fulfill their responsibility to implement the reporting requirements of M.G.L. Chapter 3, Section 17 of the Acts of 1997. The Legislature required semi-annual Big Dig Finance reports that disclosed the true nature of Project costs and Project finances.

- Big Dig files are reportedly missing, computer hard drives have allegedly been destroyed, and many documents continue to be shielded from the public by attorney-client privilege.

- The Lieutenant Governor in 1994 served as the head of the administration's Big Dig Oversight Task Force when B/PB disclosed the $14 billion estimate.

- The Turnpike's outside counsel[3] sent a fax to Big Dig officials describing the exact components of a $1.4 billion overrun on the eve before the Governor met with Wall Street analysts about the Commonwealth's bond rating. This illustrates the administration's awareness of the overrun at least seven days before the December 9, 1999 bond issuance that failed to disclose this overrun to the bond markets.

- The current administration has yet to tell the full Big Dig budget story.

Since the publicly announced $14.1 billion cost figure from February 2000 excludes debt repayment, including both bonds and interim borrowing, the real cost of the Big Dig will be far greater. Including interest on debt, interim borrowing, principal repayment, and possible future growth of the bottom line for construction and support contracts, the cost

[3] "Outside Counsel" refers to an attorney from a private law firm under contract with the Turnpike. According to material released by the law firm, this attorney developed and implemented bond issue strategies and authored landmark financing legislation for the "nation's largest transportation construction project."

will likely total more than $18 billion.[4] If the approximately $9 billion federal cap remains in place, the Commonwealth's taxpayers and toll payers will foot a bill for the remaining $9 billion over the life of the bonds. This sum is equivalent to $1,500 for each of the Commonwealth's six million citizens.

This report contains previously undisclosed facts that reveal a wide discrepancy between what the Governor and his appointees have told Congress, the State Legislature, and investigators about the history of Big Dig costs since 1994, and what the administration has known. It shows that since 1994 local FHWA officials knew about and cooperated with what amounts to a public relations downsizing of Big Dig cost estimates, and that this fact has been effectively hidden from public disclosure.

This report discloses for the first time that, in 1994, B/PB forecast with uncanny precision a total Big Dig cost of more than $13.8 billion. There is less than a three-percent difference between this estimate and the current $14.1 billion estimate. The report discloses that Bechtel Corporation's president and a senior partner flew to Boston in December 1994 to inform the Governor and his senior advisors about B/PB's real cost forecast. It also shows exactly how Big Dig managers decreased the $13.8 billion estimate to $8 billion for public relations purposes in 1994-1995 by applying a series of exclusions, deductions, and accounting assumptions. This reduced the estimate by $6 billion. The report shows that B/PB insisted upon and, in fact, made full disclosure to local FHWA officials in 1994-1995 of each exclusion, deduction, and accounting assumption comprising the $6 billion difference, and that local FHWA officials used these assumptions in their own internal analyses.

These facts show that local FHWA officials knew of the continuing use of these underlying assumptions during the following five years and, significantly, that local FHWA officials did not feel deceived when Big Dig officials announced the $1.4 billion overrun in February 2000. The report shows that after local FHWA officials accepted the use of these underlying assumptions in 1995, the assumptions became a built-in, tacit feature thereafter in all Finance Plans. This helps to explain why Big Dig officials reacted angrily when federal investigators claimed that Big Dig officials had shown a "breach of faith" in not disclosing the overrun. This report concludes that federal agencies had acknowledged and relied on the assumptions for years. Given the role of local FHWA officials in the downsizing of Big Dig estimates, this Office concludes that the federal funding cap should be lifted.

This Office presents this report to the Office of the State Treasurer for two reasons. First, because it contains facts essential to the preservation of the Commonwealth's integrity in its dealings with Wall Street and the municipal bond community. Second, because my Office's review has shown that the Office of the State Treasurer ultimately forced Big Dig officials to disclose the cost overrun through its due diligence review of February 2000.

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[4] The approximately $18 billion consists of the $14.1 billion cost estimate, $3 billion in revenue bond interest, and $750 million in Grant Anticipation Notes (GANS) interest.

This Office's review also shows that in preparation for a December 1999 bond issuance, the Office of the State Treasurer conducted a similarly extensive due diligence review. The Office of the State Treasurer was probably not aware that during the pre-sale period for those bonds, the Turnpike's top outside bond counsel acknowledged to B/PB officials, but not publicly, that the Big Dig faced an almost $1.4 billion overrun. The counsel stated: "these are hard figures, not worse case #'s [numbers]." Despite this acknowledgement seven days before the sale of the bonds, Big Dig officials failed to disclose it to the Office of the State Treasurer in preparation of the final bond disclosure documents. The Turnpike administration initially withheld this disclosure document from this Office under a purported claim of attorney-client privilege. This Office brought this document to the attention of the Turnpike Chairman in June 2000. However, this Office has observed no changes in the public dialog.

This Office also reviewed a series of documents marked "confidential" in which top level Big Dig officials weighed the "pros" and "cons" of disclosing an overrun in excess of one billion dollars to the Office of the State Treasurer during its due diligence review for the December 1999 bond issuance. This pro/con analysis resulted in Big Dig officials apparently not disclosing the facts because of possible negative political reactions and press reports, and the potential for increased scrutiny of the Big Dig. Political considerations played such a prominent role in Big Dig decision-making that Big Dig officials included the dates of both state and federal elections as milestones for the progress of work and the release of information.

Most significantly, the report concludes that Big Dig officials and local FHWA officials knew and jointly failed to disclose to Congress, the State Legislature, and the public the true history of the Big Dig cost estimate evolution, dating back to their joint state-federal 1994-1995 bottom-to-top budget review. Two conclusions emerge from the evidence of this 1994-2001 period:

- B/PB disclosed its *bona-fide* total cost projection to Big Dig officials; and

- In 1995, B/PB *disclosed* to local FHWA officials all deductions, exclusions, and assumptions that Big Dig officials used to define the $8 billion budget.

Within the coming weeks, I hope to meet with you and establish a process for my staff to present detailed records to your staff to facilitate your continued oversight over the Commonwealth's total debt obligations. If I may be of any further assistance, please do not hesitate to contact me. Thank you.

Sincerely,

Robert A. Cerasoli
Inspector General

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Publication No. 18284-75-750C-3/01 IGO, approved by Philmore Anderson III, State Purchasing Agent

Printed on recycled paper

Executive Summary

Introduction

This report is based on this Office's initial review of Central Artery/Tunnel (CA/T) Project (commonly known as the Big Dig) internal documents and internal Federal Highway Administration (FHWA) documents relating to the $1.4 billion Big Dig cost overrun announced by Big Dig officials in February 2000. In October 2000, Big Dig officials announced a revised estimate for the overrun of $2.5 billion.[5] Staff from this Office reviewed more than 100,000 pages of documents related to the period 1994 to the present and internal FHWA documents related to a detailed budget review conducted in 1995 by FHWA officials. The comments and conclusions contained in this report are the result of a financial review of documents conducted by this Office. The completion of our review has been hindered because Big Dig officials have withheld documents under a claim of attorney-client privilege. In addition, public data and documents have reportedly been destroyed and other public documents have been reportedly removed from Massachusetts Turnpike Authority (Turnpike) offices in early 2000.

From interviews and a review of those public documents available to this Office, this Office is persuaded to call for an independent federal investigation by Congress into FHWA's role in downsizing the Big Dig cost estimate. This Office also calls for a re-examination of the FHWA-imposed funding cap that has harmed the citizens of Massachusetts by saddling them with billions of dollars in added debt.

Asked whether Big Dig management knew earlier than they have admitted about the approximately $2.5 billion cost overrun, a former Project Manager for Bechtel/Parsons Brinckerhoff (B/PB) said in a press interview in mid-2000: "Some day the story will come out . . . ." This report attempts to fill in many pieces of the previously undisclosed story about the Big Dig overrun. Among the key points in this report are the following:

[5] The difference between the current $14.1 billion estimate and the former estimate of $10.8 billion is $3.3 billion. The Project has reported an overrun of $2.5 billion. The difference between the $3.3 billion and $2.5 billion is explained by the reversal of the almost $900 million insurance offset credit that had been used to maintain the $10.8 billion estimate since 1997.

- ***The Bond Issuance***

Documents show that Big Dig officials knew about large cost overruns long before they submitted to Wall Street inaccurate bond disclosure documents now under investigation by the Securities and Exchange Commission (SEC).[6] This is contrary to what Big Dig officials told Congress, the State Legislature, and regulatory agencies. Big Dig officials continue to represent that they did not begin to sense budget problems until late 1999 and did not verify the problem until after a so-called bottom-to-top review that concluded in early 2000. Documents refute this official explanation offered by Big Dig officials and the administration to justify their failure to disclose the overrun in bond disclosure documents published in December 1999.

Records show that on December 2, 1999 the Turnpike's top outside bond counsel/strategist sent a fax to a Big Dig official specifically identifying 12 components of a $1.35 billion budget overrun with the written warning: "these are hard figures, not worst case #s [numbers]." The attorney sent this fax following a day of meetings with top Big Dig officials, and on the night before the Governor and the Secretary for Administration and Finance met with key Wall Street bond analysts to establish the Commonwealth's bond rating for the upcoming bond sale. A detailed analysis dated November 28, 1999 by B/PB staff included the exact components of the $1.35 billion overrun later described by the Turnpike's outside counsel in his fax.

Records show that before this same December 1999 bond issuance, Big Dig officials weighed the "pros" and "cons" of disclosing the overrun to the State Treasurer or waiting until December 2001. Based on consideration of many explicitly described factors in their pro/con analysis -- marked "Confidential" -- Big Dig officials opted *not* to disclose the overrun at that time. Factors cited in the pro/con analysis included political considerations, the negative reaction of the State Legislature, and avoidance of "brutal press scrutiny."

[6] According to press reports from May 16, 2000, a spokesperson for the State Treasurer said: " I can confirm that the SEC has advised our office that they are now conducting a formal investigation, and we will continue to assist them as they move forward."

The pro/con analysis also *explicitly acknowledged* the fiduciary obligation of Big Dig officials to make disclosure under bond disclosure rules.

Records also indicate that Big Dig officials and the administration knew about large cost overruns before they submitted inaccurate bond disclosure documents for bond issues between 1996 and 1999, and not just the one in 1999 currently under SEC investigation.

- ***Missing Documents and Destroyed Public Property***

This Office's investigation has determined that thousands of pages of documents are missing. When asked by an investigator from this Office about the whereabouts of the missing documents, the Turnpike Chairman stated that after his arrival at the Turnpike, in April 2000, file cabinets had been emptied and computer hard drives had been "sand blasted so data could never be recovered from them, and so that the computers wouldn't even turn on." According to the Communications Security Systems Directorate of the U.S. Army, computer hard drives are "sand blasted" for data security reasons as follows: "[the] equipment is taken completely apart and the hard drive disk is literally sandblasted with a sandblaster so as to render the disk permanently unreadable."

The Chairman also informed an investigator from this Office that after the Chairman's arrival at the Turnpike, a former MassHighway staff person was caught on video surveillance tapes removing boxes of material from Turnpike offices at Ten Park Plaza in Boston. This removal of material occurred during four trespasses or break-ins over a three-day period. The purpose of the trespass was presumably to remove files from Turnpike offices.

- ***Big Dig Officials Knew About a $14 billion Cost in 1994***

Records and interviews reveal a Big Dig cost history at odds with publicly disclosed information. Most significantly, records show that B/PB presented Big Dig officials with an excruciatingly detailed total cost forecast of $13.79 billion in November 1994, a figure close to the $13.8 billion revised estimate announced by Big Dig officials in October 2000. Under its contract with the Commonwealth, B/PB must provide a detailed estimate of

Project costs. B/PB has been paid more than $50 million to-date for its forecasting, estimating, and cost tracking services.

Records show that B/PB arrived at this November 1994 $13.79 billion forecast following a review prompted by senior B/PB management. B/PB documents show that the Board of Control that oversees the joint venture of B/PB established a senior management review team in December 1993 after B/PB managers warned top corporate officers that, according to their calculations, the Big Dig could exceed publicly reported amounts by $4 billion or more – nearly doubling the estimate reported in 1992.[7] The resulting management review, issued in February 1994, pointed out that:

> [D]ifferences existed between the official MHD [MassHighway] cost which, had been announced to the public, but which may not correspond to the latest Project cost estimate provided to MHD by B/PB. . .this could lead to a misunderstanding within the Project as to what the current target budget is, and at worst, could lead to public misunderstanding and skepticism as to the credibility of cost and schedule information available to the public.

The report recommended that B/PB management undertake a comprehensive, in-depth review of all capital cost estimates.

- ***B/PB Told the Governor***

Records and testimony also indicate that Bechtel Corporation's president and a key senior partner flew to Boston for a December 1, 1994 meeting to ensure that the Governor and his advisors "were hearing the real numbers that B/PB had forecast." According to an interview with B/PB's former Project Manager who briefed the Bechtel officials at the Boston Harbor Hotel immediately before their meeting with the Governor, B/PB's forecast then exceeded $14 billion. In a June 2000 news article, the former Governor stated that Bechtel officials warned him about soaring costs. Internal B/PB documents show that B/PB officials worried about the reputations of B/PB and the Commonwealth in light of the multi-billion dollar discrepancy between what B/PB told the client and what the client told the public and the press about costs. Shortly after this meeting, the tensions that existed

[7] Before 1994, the 1992 official cost estimate was the last that had purportedly resulted from a bottom-to-top review of costs.

between B/PB and Big Dig officials regarding public disclosure led Big Dig officials to ask that the Project Manager be replaced. The Secretary of Transportation and Construction stated: “We need a manager who exhibits a can-do attitude both publicly and privately.” The B/PB Manager, who was replaced, told this Office recently: “I know I can sleep well at night but I don’t know if others can.”

- ***Disclosure Occurred Under the Lieutenant Governor’s Watch***

Records indicate that in 1992, the Governor appointed the Lieutenant Governor to serve as the head of the Governor’s Big Dig Oversight Task Force and the Lieutenant Governor therefore likely knew of B/PB’s December 1994 disclosure and B/PB’s concerns about the public disclosure of costs. According to press accounts from 1993 to 1995:

> Weld and his top aides are suddenly waking up to the fact that his administration’s handling of the $6 billion Central Artery/Third Harbor Tunnel Project could make or break the Republican governor, both in Massachusetts and on the national scene. Weld staff members, worried that the governor’s inner circle is not on top of the Project, have set up a schedule for regular briefings at which Lt. Gov. Paul Cellucci will preside. (Boston Globe 10/22/92)
>
> So concerned were Weld administration officials about securing Artery and Tunnel Project funding, a source said, that Lt. Governor Paul Cellucci has begun holding weekly meetings on the subject. (Boston Globe 4/5/93)
>
> Weld has put Cellucci in charge of the administration’s. . . transportation task force, which focuses on the Artery-Tunnel Project . . . . (Boston Globe 7/11/93).
>
> [Cellucci heads up a number of administration efforts and he] heads up an Artery/Tunnel Project oversight effort. (Boston Globe 5/15/95).

- ***The Beginning of the Cover-Up***

Anxious to avoid the sticker shock effect of B/PB’s estimate, Big Dig officials undertook a nine-month initiative between June 1994 and March 1995 to decrease B/PB’s total cost estimate from $13.8 billion to $8 billion. At this time, the Secretary of Transportation and Construction publicly announced that the on-time and on-budget figure would not exceed $8 billion. Documents cite a directive from Big Dig officials telling B/PB to “hit the target” of

$7.98 billion. To hit the target, state, B/PB, and local FHWA officials began an extensive cost reduction initiative that consisted of the following:

- Reducing every B/PB "to-go"[8] contract estimate across the board - including material, labor and overhead - by a 13 percent "market discount" despite the recommendation of B/PB officials by letter from the home office in San Francisco not to do so.
- Reducing the post-contract award Potential Change Allowance (PCA) from 26 percent to seven percent - a 19 percent discount for every to-go estimate. B/PB refused to reduce the PCA estimate until Big Dig officials asked for permission from local FHWA officials to use the lower estimate and for B/PB to stop tracking PCA percentages.
- Reducing every to-go contract estimate by eliminating the 18 percent contingency allowance for construction growth during design.
- Excluding all management costs from the estimate after the year 2002.
- Excluding eminent domain costs (right-of-way) above the initial state payment (or *pro tanto*[9]*)*.
- Excluding more than $1 billion in costs defined as "non-Project costs."
- Stating all estimates in 1994 dollars and excluded to-go escalation (inflation costs) from the total cost. Later, they insisted that the budget exclude all escalation **since 1988**.
- Applying a myriad of other deductions and assumptions to the official cost estimate.

Cumulatively, *these deductions had the effect of reducing the final cost estimate by approximately $6 billion dollars*, from $13.8 billion to $8 billion.

- ***Big Dig Officials Gave FHWA Full Disclosure***

B/PB managers insisted that local FHWA officials be told about all deductions, assumptions and exclusions that had been used to reduce B/PB's cost projection. Records show that B/PB and Big Dig officials did so. A key local FHWA official recently confirmed in an interview with this Office that B/PB and Big Dig officials made local FHWA

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[8] To-go costs refer to future costs that the Project is not yet contractually committed to pay for.

[9] Black's Law Dictionary 1000 (5th Edition 1979): *Pro-tanto* refers to a partial payment or claim. Commonly used in eminent domain cases to describe a partial payment made for the taking by the government.

officials aware of such assumptions and exclusions in detail. Records confirm that in 1995, local FHWA officials knew about all the assumptions that had been used to reduce the total cost estimate. When asked if he felt deceived by the announcement of the overrun in February 2000, the local FHWA official told this Office that "through regular Project reporting we were shown the assumptions" and that he did not feel deceived.

- ***What FHWA Knew***

To review the state's Cost and Schedule Update - Revision 6 (CSU-Rev.6) budget of $8 billion in 1995, FHWA assembled an eight-member team of agency specialists. This team published a report that concluded that the Big Dig had prepared a well-documented and reasonable CSU-Rev.6 budget.[10] This Office's review of the report and FHWA back-up material shows that local FHWA officials knew about the "assumptions" cited previously. FHWA records did not include B/PB's original $14 billion estimate but they did identify all exclusions, deductions and other accounting assumptions.

As a result of their 1995 review, local FHWA officials directed Big Dig officials to add back: approximately $1 billion in exclusions to the CSU-Rev.6 estimate; $315 million in future escalation; $255 million for an air rights credit;[11] $90 million as a 10 percent design contingency; and to raise the change order estimate from seven percent to 10 percent. These add-backs raised the estimate from $8 billion to $10.4 billion. Aside from these changes, however, local FHWA officials allowed the other exclusions, deductions, and accounting assumptions to remain.

- ***FHWA Responsibility for the Overrun***

Once local FHWA officials learned of, modified, and sanctioned the use of these multi-billion dollar accounting assumptions during the 1994-1995 CSU-Rev.6 budget review

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[10] The same month that FHWA released its budget review, the U.S. General Accounting Office (GAO) released its first report concerning the Big Dig budget. Both reports commented on some of the budget assumptions. However, neither report identified the extent to which the budget assumptions had masked the true cost of the Big Dig.

[11] Officials stated that they planned to pay for some Project costs by selling state land and building rights on or above state property (also known as air rights.)

process, the accounting assumptions became a permanent, ***tacit*** feature of the budget. In February 1995, the Project Director stated: "There is not one action taken by Massachusetts and identified [by the General Accounting Office (GAO)] that was not taken without the review and approval of the FHWA." Big Dig officials never again expressly spelled out these accounting assumptions in subsequent Finance Plans because, according to Big Dig officials, all cognizant federal agencies had already acknowledged the use of these assumptions. The record bears out this conclusion. According to records and statements, local FHWA officials knew that the assumptions continued to underlay the definition of total costs for to-go contracts. Local FHWA officials did not question these assumptions despite the historical results of post-1994 contract awards disproving the validity of these assumptions. FHWA officials here and in Washington, D.C. reviewed all Finance Plans issued after December 1994 and had 15 local staff assigned to the Big Dig.

Local FHWA officials knew that the to-go assumptions had failed to live up to expectations because FHWA officials literally signed off on all contract awards and post-award contract change orders as part of its oversight responsibility. For example, although B/PB's estimate had been fully documented by hundreds of pages of detailed back-up cost data during the CSU-Rev.6 review, local FHWA officials knowingly agreed to downsize B/PB's cost estimates on four future construction contracts by $553 million. When the Big Dig awarded the four contracts shortly thereafter - for almost exactly the cost estimated by B/PB - the results should have demonstrated to local FHWA officials the fallacy of the CSU-Rev.6 assumptions. But instead of requiring Big Dig officials to stop using the assumptions altogether, local FHWA officials allowed Big Dig officials to continue using the to-go assumptions for remaining contracts. Local FHWA officials informed this Office that they knew the assumptions continued to be used for to-go contracts.

While FHWA required Big Dig officials to include actual bid results for *awarded* contracts in the total cost figure, it never stopped Big Dig officials from continuing to use the minimizing accounting assumptions on to-go contracts. The record also shows that FHWA knew that the total cost figure did not include exclusions such as management costs after 2002. In fact, in January 1996, the FHWA Administrator (and future U.S. Secretary of Transportation) told Big Dig officials to add these management costs back into the total cost figure. The remaining assumptions shrunk the CSU-Rev.6 budget by $3 billion dollars from B/PB's 1995 official estimate. By 1999, following the award of billions of dollars in contracts, the assumptions still affected remaining contracts by $2 billion.

Put another way, once local FHWA officials gave their approval to the use of these accounting assumptions in 1995, they became part of the "semantic" definition of the Big Dig's total cost. The accounting assumptions became a multi-billion dollar minimizing factor for every cost estimate that followed.

- ***The Federal Position***

This Office reviewed the March 2000 FHWA Task Force Report concerning the causes of the overrun; the report ultimately led to the FHWA imposing a $8.55 billion administrative funding cap on the Big Dig. FHWA took this action with the acquiescence of the State's elected officials and the Turnpike Chairman.

One of the conclusions of the Task Force report is that local FHWA officials failed to adequately perform their duties because they acted more as partners with Big Dig officials than overseers. This Office concurs with this conclusion, but disagrees strongly with the other opinions of the Task Force and FHWA officials that Big Dig officials committed a "breach of faith," "tarnished" the federal-state partnership, and demonstrated disrespect for the federal oversight process by failing to make full disclosure to FHWA officials about the overrun. The U.S. Secretary of Transportation stated in March 2000: "This stands as one of the most flagrant breaches of the integrity of the Federal/State partnership in the history of the Federal-aid highway program."

This Office concludes that this finding is inaccurate. This Office concludes that local FHWA officials performed an extensive review of Big Dig costs in early 1995. As stated earlier, according to FHWA documents, a FHWA team with substantial engineering, finance, and administrative experience in FHWA contract administration issued a report in May 1995 accepting the CSU-Rev.6 budget. The team's report stated: "Emphasis was directed to the engineering aspects of the estimate development. But attention was necessarily focused on the basis, assumptions and exclusions that are relevant." This report, and its back-up material, shows that FHWA officials knew in 1995 that the cost estimate included more than two hundred minimizing assumptions. As partners in the process, local FHWA officials had little incentive to question the assumptions.

When asked by this Office, **a senior FHWA staff person who participated in the 1995 review of CSU-Rev.6 stated that he had informed members of the March 2000 FHWA Task Force about the 1995 review**. He further stated that he did not feel deceived when Big Dig officials announced the budget shortfall. Moreover, the FHWA Division Administrator for Massachusetts stated in February 2000 press reports that FHWA had not been "kept in the dark" and always had access to data and Big Dig officials.

This Office concludes that the FHWA Task Force omitted a significant aspect of the story when it conducted its investigation. Specifically, it failed to investigate, or chose to gloss over, the role of FHWA officials themselves in the overrun scandal. Records clearly show that Big Dig officials did not keep FHWA officials in the dark before 1998, as the Task Force concluded. Local FHWA officials remained aware of and condoned the low cost estimates beginning in 1995 thereby assisting Big Dig officials soften the sticker shock effect of the budget for public relations purposes. This Office concludes that the FHWA Task Force should have disclosed to Congress what it knew about FHWA's 1995 review of CSU-Rev.6. Instead, the Task Force stated that: "Prior to the enactment of TEA-21 [Transportation Equity Act for the 21st Century] in 1998, the role of the FHWA did not include a review of the aggregate construction cost of projects." Most significantly, this Office concludes that the Task Force failed to tell Congress and the public about the set of disclosures made by Big Dig officials to local FHWA officials in 1994-1995.

This Office calls for a re-examination of the funding cap that has harmed the citizens of Massachusetts by saddling them with billions of dollars in additional debt. According to a recent assessment by Moody's Investor Services: "The Commonwealth's credit strengths are tempered somewhat by a heavy debt load. Debt levels rank third highest among the 50 states . . . Debt burden will remain high, given continued large capital commitments and construction risks associated with the Central Artery Project."

In November 1999, the U.S. Department of Transportation's Inspector General (DOTIG) issued a draft report estimating that the cost of the Big Dig could be as high as $12.7 billion – a figure approximately $1.4 billion less than the currently-announced $14.1 billion figure. In 1999, the Project Director wrote a now-infamous letter responding to the DOTIG. The letter stated that the DOTIG's report contained "factual errors, misstatements and misleading calculations." The letter also stated that the report espoused "a backward looking management technique that is unworkable and shows a fundamental lack of understanding of how a multi-billion megaproject needs to be managed." But the most telling line of his letter states:

> Needless to say, it is surprising that you now choose to critique the Project's finance plan methodology and the cost/funding assumptions **after all other cognizant federal agencies have acknowledged and relied on them for several years**. [Emphasis added in bold].

In an April 2000 press release, Big Dig officials also stated that the "budget has consistently followed accounting practices accepted by FHWA" and that all costs had been clearly shown in the Finance Plans and in the Project Management Monthly Reports. In light of the overwhelming documentary evidence, this Office concludes that the Director's rebuttal – while universally derided at the time by federal investigative agencies – remained well-founded to the extent that the record clearly shows that FHWA officials and the GAO did in fact know of and authorized use of the Project's *finance plan methodology and the cost/funding assumptions* – that is, the accounting assumptions — beginning in 1995. For example, GAO reported as early as June 1995 that actual budget growth remained higher than planned and that zero cost growth for design had been assumed for construction contracts.[12] In 1996, GAO began reporting that costs could increase significantly if the accounting assumptions in CSU-Rev.6 failed to meet expectations. In 1996 and 1997, GAO reported that some of the failed assumptions could increase costs as high as $12.8 billion. This is nearly the figure offered by the DOTIG in its November

[12] GAO stated that it performed this audit in accordance with generally accepted government auditing standards (GAGAS).

1999 report. GAO also reported that cost growth continued to far exceed CSU-Rev.6 growth estimates. Clearly, GAO and FHWA remained aware of a looming budget crisis.[13]

- ***Big Dig Officials Failed to Obey Their Statutory Mandate***

Big Dig officials failed to inform the State Legislature of the true cost of the Big Dig. The Legislature established a reporting requirement in 1997: "We believe this bill answers the challenge set forth by the Federal Highway Administration to implement a strategy for payment of the Commonwealth's share of future CA/T Project costs. . ." M.G.L. Chapter 3, Section 17 of the Acts of 1997 states:

> The secretary of the executive office of transportation and construction and the chairman of the authority shall submit a report to the joint committee on transportation and the house and senate committees on ways and means. . . every six months. . . which shall include, but not be limited to, the status and schedule of the construction of the central artery tunnel project; an analysis of the commonwealth's ability to fund the state's share of the central artery tunnel project; the amount of federal funds available for the central artery tunnel project and the statewide program, so-called; the effect of this chapter in meeting the operation, administration and financial needs of such central artery tunnel project and statewide program; the financial status of the turnpike, including all revenues generated and the cost of maintenance and operation and any special legislation, recommendations or resources required to meet the needs of the metropolitan highway system, the turnpike and the statewide program.

Big Dig officials could not have prepared these mandated reports without B/PB's assistance. Therefore, Big Dig officials included these reports as a contract deliverable for B/PB under its contract with the Commonwealth. B/PB prepared the information in the semi-annual Finance Plans pursuant to the Legislative mandate.

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[13] The Director of Transportation Issues for GAO, in 1994, who managed the early GAO audits of the Big Dig, later became the Inspector General for the U.S. Department of Transportation (DOTIG). As the Inspector General, he has been one of the most vocal critics of the state's purported failure to disclose true costs. During his tenure at both agencies, the GAO had released five reports and the DOTIG 13 reports concerning the Big Dig.

- ***The Discovery of the Overrun***

Big Dig officials have stated publicly that the discovery of the overrun in late 1999 resulted from a bottom-to-top review of costs and they were as shocked as the public by the discovery of a significant cost overrun. However, the evidence clearly shows that Big Dig officials knew about the overrun long-before the budget crisis of late 1999.

By early 1999 Big Dig officials knew that they faced a serious cash-flow crisis. When a new Project Director took charge in January 1999, B/PB officials immediately presented him with a highly confidential document entitled “Estimate Evolution Chart.” In this document, B/PB detailed the history of its cost estimates. The earliest estimate described on the chart is one B/PB had presented to Big Dig officials in December 1994 for $13.25 billion, excluding change orders of more than 11 percent. Related documents explained that B/PB estimated that change orders in excess of 11 percent at that time would be $526 million. Thus, according to the Estimate Evolution Chart and back-up materials, *B/PB demonstrated that it had presented an estimate of almost $13.8 billion in December 1994*. Later, B/PB also presented to the Director a table of “key budget development assumptions” that had been imposed on them by Big Dig officials in 1995 for the CSU-Rev.6 budget. This table showed how the assumptions had been proven wrong and explained their net budget effect, which by 1999 had become more than $2.1 billion.

A June 1999 draft letter written by the Project Director to his predecessor, details his reaction to B/PB’s briefings:

> I can’t tell you how disappointed I am. Many of the cost exposures go back to unrealistic assumptions made during the development of the Rev.6 Project Master Schedule of 1994. You had four years to work with the Chairman to find additional revenue sources or introduce reasonable options to reduce the scope of the project. That opportunity has now virtually been eliminated. I will continue to work to contain project costs but we have been left a tool bag[14] that is virtually empty.

In another document, he details the adverse effects of the inaccurate accounting assumptions: “In summary, we are facing forward-looking challenges that could exceed

[14] Tool bag refers to the mechanisms used by Project officials to lower the official cost estimate.

$1.3 billion." He concludes: "I will continue to watch for my retirement date when I can leave the problems of the project to others as my predecessor did to me."

- ***Big Dig Cost Disclosure***

Between 1995 and the beginning of 1999, B/PB and Big Dig officials followed a very consistent pattern in their financial reporting. Each month they reported overruns on bid results and likely increases in yet-to-be-awarded contracts in the Project Management Monthly (PMM) report. By 1999, for example, Big Dig officials had disclosed **$1 billion in actual overruns and $750 million in** likely over-runs. Month after month, the total cost figure stayed about the same at $10.8 billion in the PMM reports because Big Dig officials used disclosed offsets, like expected insurance rebates and estimated future savings from announced cost-savings initiatives, to balance the bottom line. The bottom line remained balanced at $10.8 billion even with the aforesaid billion-dollar increase in contracts.

Big Dig officials did *not* disclose in the PMM reports, however, that the accounting assumptions still underpinned all to-go contract costs. By 1999, these assumptions no longer had the $3 billion impact they had in 1995 because the accounting assumptions applied only to to-go contracts and by 1999 many contracts had already been completed or awarded. But by 1999, the effect of the accounting assumptions still added up to a huge sum. Interestingly, the cost offsets disclosed in the PMM reports did *not* conform to the accounting assumptions applied to to-go costs. For example, when adding right-of-way costs to the budget, Big Dig officials used the initial state payment (*pro-tanto*). But when taking a credit for the future sale of 185 Kneeland Street (state property), officials used a full market value estimate for Boston office space as provided by a real estate firm.

By 1999, the cumulative effect of these accounting assumptions - including excluded management costs and land-taking costs – added up to nearly $2 billion in costs not shown in the PMM reports. In effect, the real baseline for costs starting in late 1994 had been $14 billion. *The application of credits and offsets to increasing costs between 1995 and 1999 merely prevented costs from burgeoning beyond the $14 billion estimate.*

Conclusion

Measured against B/PB's $13.78 billion **1994 estimate**, the Big Dig, ironically, has been constructed on time and on budget. B/PB has been paid almost $3 million in incentive fees for maintaining the Project on-time and on-budget based on the old "official" estimate of $10.8 billion. This Office concludes that the most recent Chairman and top Big Dig officials have long been aware of the facts presented in this report. This Office derived the findings for this report from Big Dig records. Documents indicate that B/PB has consistently made detailed disclosures to successive Big Dig managers. Based on these records and the disclosure of these facts in 1994 to the former Governor and his chief advisors, this Office concludes that the current Governor and his appointees have not disclosed the real Big Dig budget story to federal investigators, Congress, the State Treasurer, and the State Legislature.

There is also a continuing failure to disclose by federal authorities about the role played by local FHWA officials in establishing the 1995 Big Dig budget. Internal FHWA records reveal that local FHWA officials assisted in downsizing the 1995 Big Dig budget through the application of billions of dollars worth of accounting assumptions. Based on the evidence, this Office concurs with the response of the former Project Director to a November 1999 DOTIG report:

> Needless to say, it is surprising that you now choose to critique the Project's finance plan methodology and the cost/funding assumptions after all the other cognizant federal agencies have acknowledged and relied on them for several years.

This Office's review of internal FHWA records indicated that local FHWA officials acknowledged and relied on the cost assumptions and finance plan methodology that semantically defined the Big Dig total cost estimate.

In 1995, FHWA conducted an in-depth, multi-disciplinary review of the publicly reported Big Dig budget. Through this review, FHWA gave a seal of approval to hundreds of exclusions, deductions, and accounting assumptions used in the 1995 budget estimate. However, the March 2000 FHWA Task Force report failed to address the role that local

FHWA officials played in affirming the downsized 1995 budget. When the Task Force conducted its investigation, it concluded that: "Prior to the enactment of TEA-21 in 1998, the role of FHWA did not include a review of the aggregate construction cost of projects." A local FHWA official informed this Office that he told the Task Force about the 1995 FHWA Big Dig budget review entitled *Process Review on Cost Estimate Rev# 6*. The *Process Review* concluded, after a two-month multi-part review, that:

> FHWA review of this documentation determined that the total dollars as presented in the Rev 6 estimate for Design and Construction contracts is an accurate and reasonable depiction of total cost.

Since the FHWA Review Team made this conclusion, this Office was surprised to find in local FHWA documents that state officials had disclosed more than 218 exclusions and assumptions with a multi-billion dollar impact during this 1995 review. Based on this discovery, this Office concludes that local FHWA officials assisted state officials in the public relations downsizing of the Big Dig cost estimate and that FHWA was cognizant of the cost/funding assumptions that were built into the 1995 Big Dig cost estimate.

This Office believes that local FHWA officials bear great responsibility for the fiscal policies that led to the overrun. For this reason, this Office believes that the FHWA funding cap is an injustice that serves to divert blame away from local FHWA officials. As a result, FHWA should eliminate the Big Dig funding cap. When the State Legislature adopted Chapter 3 of the Acts of 1997 establishing a state funding mechanism for potential Big Dig budget overruns it did so in the absence of critical information. The Legislature was not told that the cost estimates in the federally accepted Finance Plans included assumptions that excluded billions of dollars. Therefore, the Legislature agreed to fund a potential Big Dig shortfall based upon incomplete and inherently erroneous information.

Financial History

Big Dig Overview

The $14.1 billion[15] Big Dig Project involves constructing a new tunnel across Boston Harbor, placing the Central Artery underground, and constructing a new Charles River crossing. Until recently, the FHWA had been slated to fund approximately 80 percent of the cost,[16] but the recent furor over cost overruns has caused the federal government to impose a funding cap. As currently projected the FHWA will now only fund less than $9 billion or about 65 percent of total costs. The Big Dig is scheduled for completion in early 2005. As of January 31, 2001, Big Dig officials reported that approximately 68 percent of construction and more than 99 percent of design have been completed.

Since the early 1980s, the Massachusetts Highway Department (MassHighway) has had the responsibility for planning and overseeing the Big Dig for the Commonwealth. In 1985, MassHighway hired the joint venture of Bechtel/Parsons Brinckerhoff (B/PB) to manage the design, construction, and day-to-day administration of the Big Dig. B/PB is contractually obligated to MassHighway. B/PB prepares preliminary design documents, manages final design contracts and construction, provides administrative and technical support, and prepares cost estimates and budget forecasts. B/PB also prepares the semi-annual Finance Plans and a myriad of other reports.

Chapter 3 of the Acts of 1997 shifted operational control of the Big Dig from MassHighway to the Turnpike. This legislation established a plan for operating and financing a network of roadways, including the Central Artery and the Ted Williams Tunnel, called the Metropolitan Highway System (MHS). The law, codified as M.G.L. c. 81A, empowers the Turnpike to “own, construct, maintain, repair, reconstruct, improve, rehabilitate, finance, refinance, use, police, administer, control and operate” the MHS. Since the enactment of this law, the Turnpike has had effective control over Big Dig operations. However, much of

[15] The cost as last reported by Big Dig management.

[16] Earlier in Big Dig history, officials had hoped that the FHWA would fund 90 percent or more of total costs.

MassHighway's management team simply shifted over to the Turnpike. This included the former Turnpike Chairman who had previously held the position of Secretary of Transportation and Construction of the Commonwealth. MassHighway, however, is still the recipient of federal funding for the Big Dig and continues to be the agency of record.

The Cost Overrun

Since late 1999, the $1.4 billion overrun has increased to $2.5 billion bringing the total estimated Big Dig cost to $14.1 billion. Big Dig officials claimed that they first identified the deficit when they conducted a bottom-to-top review of costs in late-1999 when costs appeared to be increasing beyond the budget.

Documents reviewed by this Office reveal a far different story, at odds with the public statements made by the Governor and his appointees to Congress, the State Legislature, and others. Contrary to what has been previously disclosed, records show that B/PB presented MassHighway officials with a cost forecast of nearly $14 billion in 1994. This is far greater than the $8 billion figure (unescalated) presented to the public at that time. When asked by this Office, a former B/PB Project Manager stated that B/PB had presented a $14 billion forecast (including inflation) to Big Dig officials in 1994.

Records and testimony indicate that Bechtel Corporation's president and a key senior partner flew to Boston for a December 1, 1994 meeting to inform the Governor - "face-to-face" - of B/PB's forecast. In a June 2000 news article, the former Governor stated that Bechtel officials warned him about soaring costs. Shortly, after this 1994 meeting, the existing tensions between B/PB and Big Dig officials regarding the forecast led Big Dig officials to ask that B/PB replace the Project Manager. The Secretary of Transportation and Construction stated in December 1994: "We need a manager who exhibits a can-do attitude both publicly and privately." In a February 2001 interview, the Project Manager, replaced by B/PB, told this Office: "I know I can sleep well at night but I don't know if others can." And: "When the cash register closes in 2005, the truth will be known."

According to Big Dig records and the former B/PB Project Manager's testimony, in late 1994 B/PB officials insisted that FHWA be fully informed of all accounting assumptions, exclusions, and deductions used to define the publicly announced downsized estimate.

When Big Dig officials claimed in February 2000 to have recently discovered a $1.4 billion overrun, many critics of Big Dig management expressed doubt that B/PB could have truly been "surprised" by a budget overrun of such magnitude, given B/PB's elaborate financial tracking system and worldwide reputation as a manager of megaprojects. Indeed, the state has paid B/PB more than $50 million dollars to forecast and track Big Dig spending. In fact, one of B/PB's strongest selling points in 1985, when trying to win this lucrative management contract, dealt with cost tracking. B/PB's 1985 proposal stated: "Because accurate estimates are the cornerstone for budget/cost control and cash flow/financial analysis, B/PB uses the most reliable estimating techniques." The proposal continued: "Reliance must be placed on maintaining up-to-date realistic estimates and budgets . . . . all . . . estimates include contingency and escalation analysis to provide the MDPW [now MassHighway] with the best possible projection of the final program costs."

Internal documents contradict the claims of Big Dig officials and the Governors' appointees that officials had discovered the overrun in late 1999. Big Dig officials also stated that they could not confirm the overrun until after the now controversial December 9, 1999 bond sale. Documents from the preceding five years discredit such claims, as follows:

1) A confidential document prepared by B/PB in early 1999, entitled "Estimate Evolution," traces the real history of B/PB's cost projections, starting with a $13.8 billion estimate[17] in December 1994. [See Appendix One]. B/PB presented this tell-all analysis, marked "Confidential," to the state's newly installed Project Director in January 1999. The document details precisely how the $13.8 billion figure had been reduced to $8 billion, the figure publicly announced in early 1995. The document also traces how Big Dig officials later adjusted the figure after FHWA directed that some costs be added back.

[17] The $13.8 figure is comprised of a $13.3 billion estimate coupled with back-up documents showing that B/PB had forecast post-contract award change order expenses $526 million higher than the amount included in the "official" estimate by state officials.

2) A document prepared in November 1994 by B/PB entitled "*apples-to-apples comparison of the Rev 6* estimate *to April 1993 estimate to June 1994 estimate"* [See Appendix Two] details the precise components of B/PB's total cost estimate at each respective date. Records also show that the $13.8 billion estimate underestimated costs by excluding hundreds of millions of dollars of escalation for future contracts, such as B/PB's management contracts.

3) Thousands of pages of internal documents from 1994 and early 1995 record the elaborate efforts of Big Dig and B/PB officials to assemble a list of deductions, exclusions and accounting assumptions used to shrink the total cost estimate from B/PB's $13.8 billion figure to the $8 billion publicly announced budget.

4) Records obtained by this Office from FHWA show that Big Dig officials fully informed local FHWA officials of the more than 200 assumptions, exclusions and deductions used to downsize B/PB's estimate in 1994-1995. These assumptions, exclusions, and deductions are presented later in this report. [See Pages 34 - 38]. In fact, after a review of FHWA work papers, this Office could not identify any significant exclusion, deduction or accounting assumption used by Big Dig officials to downsize B/PB's total cost estimate from $13.8 billion to $8 billion that Big Dig and B/PB officials had not disclosed to local FHWA officials.

5) A December 22, 1999 B/PB document spells out in detail how several key accounting assumptions that had been built into the 1995 CSU-Rev. 6 budget and had proven by 1999 to be inaccurate resulting in the existence of a $2.1 billion overrun. [See Appendix Three].

6) By a fax dated December 2, 1999 the Turnpike's top outside bond counsel/strategist sent a message to a Big Dig official specifically identifying the details of a $1.35 billion budget overrun [See Appendix Four.] This message included a written warning: "these are hard figures, not worst case #s [numbers]." This Office obtained this document from the Turnpike only after it had been withheld from this Office under a purported claim of attorney-client privilege. Significantly, the outside counsel sent this fax seven days before the December 9, 1999 bond sale. Equally troubling is that this communication occurred on the night before the Governor and Secretary of Administration and Finance met with Wall Street analysts about the Commonwealth's bond rating.

7) Also troubling is a document from the same period that shows Big Dig officials overtly weighing two options: the first, to disclose a budget overrun in excess of one billion dollars immediately, the second, to wait until December 2001 to do so. [See Appendix Five]. The Securities and Exchange Commission (SEC) is investigating whether state officials failed to disclose the $1.35 billion overrun for this bond sale. The document overtly acknowledged the legal obligation to make disclosure, but expressed the fear that Big Dig officials had about being "exposed to brutal

> scrutiny" by the media and of becoming the "central controversy of the year . . . with our management under fire."

In February 2000, the State Treasurer forced Big Dig officials to reveal the real numbers when she presented them with a series of probing due diligence questions. When Big Dig officials announced a $1.4 billion overrun, they characterized the overrun as an unexpected discovery made during a 1999 bottom-to-top review that could not be confirmed until after the December bond issuance.

Since that time, Big Dig officials, including B/PB managers, have continued to maintain a united public relations front to defend the now infamous $10.8 billion cost estimate and to fend off all criticism and inquiries about why the overrun went unreported for so long. This united front involves using public funds to pay attorney fees for former Big Dig officials who actively managed the cover-up during their tenure. The present Big Dig officials have a vested interest in continuing to maintain this unity and to sticking to their public position that the Big Dig overrun was not discovered until late 1999.

Methodology and Constraints

To conduct this review, staff from this Office interviewed high level Big Dig officials and reviewed well over 100,000 pages of documents provided by the Big Dig to the SEC. This Office has also reviewed internal FHWA documents and interviewed FHWA staff.

In the course of our investigation, this Office discovered that Big Dig officials withheld many documents from the SEC under attorney-client privilege. This Office requested all these documents from the Turnpike, but only received a portion of those held under the privilege claim. The privilege claim continues to shield many documents from the public.

This Office's investigation has determined that thousands of pages of documents are missing. When asked by an investigator from this Office about the whereabouts of the missing documents, the Turnpike Chairman stated that after his arrival at the Turnpike, in April 2000, file cabinets had been emptied and computer hard drives had been "sand blasted so data could never be recovered from them, and so that the computers wouldn't even turn on." According to the Communications Security Systems Directorate of the U.S. Army, computer hard drives are "sand blasted" for data security reasons as follows: "[the] equipment is taken completely apart and the hard drive disk is literally sandblasted with a sandblaster so as to render the disk permanently unreadable."

The Chairman also informed an investigator from this Office that after the Chairman's arrival at the Turnpike, a former MassHighway staff person was caught on video surveillance tapes removing boxes of material from Turnpike offices at Ten Park Plaza in Boston. This removal of material occurred during four trespasses or break-ins over a three-day period. The purpose of the trespass was presumably to remove files from Turnpike offices.

Background

This Office's review of documents shows clearly that since 1994, the publicly announced budgets did not reveal the true magnitude of Big Dig costs known to high-level Big Dig officials. By the end of 1994, Big Dig officials reported a total cost estimate of approximately $8 billion. Big Dig officials based their publicly reported cost estimates on budget targets mandated by the Turnpike Chairman. A review of documents by this Office revealed that since 1994 B/PB, has prepared detailed estimates of total costs. In 1994, B/PB provided Big Dig officials with an "installed" cost figure of $14 billion.

In 1994, B/PB prepared a "bottom-to-top" review in preparation for the budget submittal to the FHWA. During the budget submittal process, state, FHWA, and B/PB officials assembled an array of more than 200 accounting assumptions that effectively reduced the amount of the total cost forecast by billions of dollars. Internal FHWA documents show that local FHWA officials knew, in 1995, that Big Dig officials based the total cost forecast upon the assumptions disclosed to FHWA during the budget review.

Big Dig officials have claimed that in late 1999, B/PB performed a bottom-to-top review (reportedly the first since 1994) in order to identify the magnitude of increasing cost trends. By February 2000, after five years of reporting a cost estimate minimized by many FHWA-sanctioned assumptions, Big Dig officials acknowledged a $1.4 billion overrun.

Confidential documents expressly attribute the overwhelming proportion of the multi-billion dollar budget overrun to the accounting assumptions instituted during the CSU-Rev.6 budget. Subsequently, a FHWA Task Force arrived in Boston to examine the new estimate and determine why the overrun occurred.

The Task Force recommended that B/PB "submit a certified letter to [FHWA] describing B/PB's role in Project management. This description should include whether either company raised questions regarding escalating cost exposure and/or the decision to withhold material information from the FHWA." Recently, the current B/PB Project Manager "certified" to the FHWA that:

> Under the successive work programs, B/PB regularly provided MHD/MTA [MassHighway/Turnpike] with information about the cost and schedule status and forecasts of the CA/T Project . . . All decisions on how to use this information, and whether or how to share it with the FHWA, rested exclusively with the MTA . . . [I]t was part of B/PB's responsibilities to keep the MTA apprised of . . . potential cost increases, as well as potential offsetting costs decreases, to allow the MTA to determine how to proceed within its budgetary constraints. We believe B/PB has consistently performed and fulfilled its obligations to the MTA . . . .

Chronology of Key Events

December 1993 – B/PB managers expressed concern to the managing body of their joint venture - the Board of Control - about the forecasted completion date and cost of the Big Dig. The corporate presidents of both Bechtel and Parsons Brinckerhoff attended this meeting. Consequently, the Board of Control chartered a Senior Management Review Team made up of B/PB senior managers to review the schedule and estimated costs.

February 1994 – The Board of Control receives the *B/PB CA/T* [Central Artery/Tunnel] *Senior Management Review Team Draft Report*. The review team interviewed more than 45 B/PB managers and reviewed specific cost, schedule and related information. The report stated that: "The preliminary revised schedule presented at the December 1993 Board of Control Meeting showed Project completion in 2007 with associated program cost of . . . $12.297 billion [approximately $4 billion higher than publicly disclosed] when escalation was added to reflect the true projection of final Project cost**."** The report pointed out that "differences existed between the official MHD cost which had been announced to the public, but which may not correspond to the latest Project cost estimate provided to MHD by B/PB." The report continued: "At the very least, this could lead to a misunderstanding within the Project as to what the current target budget is, and at worst, could lead to public misunderstanding and skepticism as to the credibility of cost and schedule information available to the public." The report recommended that B/PB management "undertake a comprehensive, in-depth review of all capital cost estimates." The report also recommended that B/PB managers prepare a "Project Cost Evolution Summary" identifying the reasons for the cost evolution from the Project's inception to the present. The report recommended further that B/PB managers discuss the "Project Cost Evolution Summary" with MassHighway and that it be "updated from time to time to ensure that it achieves and maintains high visibility." This report prompted a yearlong review of costs that led to inflation projections derived by the use of logarithmic functions and the inclusion of a 15 percent construction contract contingency.

June 1994 – After conducting a comprehensive, in-depth review of all costs, B/PB managers presented to MassHighway a total forecast of $13.3 billion, supported by thousands of pages of detailed back-up data.

September 1994 to November 1994 – In September 1994, the Secretary of Transportation and Construction publicly announced that the Big Dig would stick to a $7.7 billion budget. B/PB's Project Manager publicly questioned this commitment by stating: "These by definition are very, very unpredictable numbers, and you just don't know." B/PB staff told this Office that the Project Manager had expressed discomfort with the budget estimating process and that it put him in "an ethical dilemma."

December 1994 – After six months of continued analysis, B/PB managers presented an even larger "aggressive but achievable" forecast to MassHighway: $12.6 billion expressed in 1994 dollars or **$13.8 billion** when escalated in accordance with GAO standards. Documents also show that Big Dig officials directed B/PB to "hit a target" of $8 billion. The following chart illustrates B/PB's forecast of $13.8 billion, which excluded certain identified costs, such as the escalation of B/PB's management costs. With those costs included, the B/PB estimate exceeded $14 billion, according to B/PB's former Project Manager.

B/PB's December 1994 Forecast (in million of dollars)

Final Design	$679	
Other Consultants	116	
Force Accounts	356	
Right of Way	94	
Program Management	1,712	
Police Details	63	
PCA (Potential Change Allowance)	831	
Construction Contingency	651	
Ft. Point Channel	1,268	
Central Artery Area (11,17,18)	1,206	
Area North of Causeway (15,19)	1,228	
Insurance Program	635	
Other Construction	2,189	
SUBTOTAL		**11,028**
Prior to ICE (Interstate Cost Estimate)	255	
Air Rights Credit	225	
Contract C08A1 Rt. 1A (deferred)	135	
Metropolitan District Commission agreement	85	
Excluded scope items	261	
Mitigation agreements	61	
PCA over 11 percent	526	
Total EXCLUSIONS		**1,548**
To-go escalation 8/94 to completion		1,215
		=============
TOTAL "Apples-to-Apples" BIG DIG forecast September 1994		**$13,791**

Source: Prepared by Massachusetts Office of the Inspector General staff from various Big Dig documents

During this period, Big Dig and B/PB officials assembled a "Cost Containment Team" made up of 15 senior managers and an engineer from FHWA's local office. According to team records, its members aggressively worked to identify means of reducing the total cost estimate. In many cases, the team identified semantic cost reductions such as the exclusion of hundreds of millions of dollars of contracts from the total cost estimate that had previously been included in the total Big Dig cost estimate.

Records and testimony also indicate that Bechtel Corporation's president and a key partner flew to Boston for a December 1, 1994 meeting to tell the Governor and his advisors in a three-hour long three part meeting about B/PB's cost forecast. According to B/PB's former Project Manager, B/PB's forecast then exceeded $14 billion.

December 1994 to March 1995 – B/PB hit the target of $8 billion (expressed in 1994 dollars) in accordance with the Secretary of Transportation and Construction's public statements that costs would be less than $8 billion. This $8 billion, however, was $6 billion less than the $14 billion total cost estimate prepared by B/PB. At the request of Big Dig officials, Bechtel Corporation replaced the Project Manager.

March 1995 to June 1995 - A FHWA review team performed an extensive examination of the CSU-Rev.6 estimate [See Appendix Seven] in early 1995 to assess the reasonableness of the estimate.[18] The team subsequently issued an internal report in May 1995 entitled, *Task Force CA/THT Process Review on Cost Estimate Rev. #6*. This report, and its back-up material as provided to this Office by FHWA, indicated that local FHWA officials knew in 1995 that the cost estimate included more than 200 minimizing accounting assumptions, that local FHWA officials had actually participated alongside Big Dig and B/PB officials to help prepare the list of assumptions, and that FHWA officials had had unlimited access to B/PB's database information. The resulting report called for some of the accounting assumptions to be added-back into the total cost estimate, which FHWA officials calculated as more than $10.3 billion.

April 1995 – Big Dig officials released CSU – Rev.6, which reported a total estimated cost of $8 billion.

October 1995 – GAO conducted a review of Big Dig costs using Generally Accepted Government Accounting Standards (GAGAS). GAO criticized the financial reporting for improperly excluding $1 billion in costs. GAO also cited the failure to include more than $1 billion in to-go escalation in cost estimates, as required by federal standards. The GAO also concluded that MassHighway had failed to include any contingency estimates for "construction growth during design" citing this assumption as unreasonable given the Big Dig's history to date in this area.

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[18] GAO also performed a cost review during this same period.

January 1996 – Big Dig officials released an amended Finance Plan that acknowledged FHWA and GAO reviews and reflected their comments. Big Dig officials estimated a total worst case cost of nearly $10.4 billion.

October 1995 to October 1998 – The official cost estimate increased to $10.8 billion in 1997. As the Big Dig awarded more construction contracts and as contract modifications (change orders) developed for existing contracts, cash pressures increased. Information prepared for B/PB's Board of Control in mid-1997 indicates that B/PB staff estimated a cost exposure that could reach $1.3 billion.[19]

During this time, the Big Dig had experienced $352 million in over-runs from the failed 13 percent "market discount" assumption. However, with the knowledge of the FHWA, Big Dig officials continued to use the 13 percent discount and to report total costs using all the CSU-Rev.6 assumption methodology. [See Appendix Eight].

During this time, Big Dig officials also used a seven-percent contingency fund rate for contract modifications although the actual rate consistently exceeded this estimate and B/PB had recommended a rate of twenty-six percent. By October 1998, records show that increasing contract modification costs would add $340 million[20] above what had already been budgeted. Big Dig officials held firmly to the seven-percent estimate.

In a *State of the Big Dig Report* drafted for the Project Director in October 1997, B/PB identified an $810 million cost exposure including $100 million in costs originally deleted from the 1995 CSU-Rev.6 budget.

Even as costs continued to exceed the rate predicted by B/PB in 1994, Big Dig officials continued to publicly use to the $10.8 billion estimate. They did so by using several principal methods, explained as follows:

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[19] In January 1997, the State Legislature passed the Metropolitan Highway System bill that transferred ownership and management of the Big Dig to the Turnpike from MassHighway. Transportation officials claimed at the time that this would allow for the more efficient administration and financing of the Project.

[20] This number did not reflect the total increase to the budget from contract modifications. This only reflects a budget "exposure" or potential cash need.

- Big Dig officials continued to use CSU-Rev.6 assumptions for purposes of predicting to-go costs although they had been proven overly optimistic.

- The Big Dig, with FHWA sign-offs, paid out hard dollars exceeding the optimistic estimates for management costs, construction costs, and contract modifications. The Big Dig used $865 million in “insurance off-sets” during this period against known cost increases thereby maintaining the $10.8 billion total cost figure. However, internal documents show that B/PB analysts valued the present value of the insurance offset at between $200 and $350 million. Unbeknownst to the public, Big Dig officials during this period began using **$1.5 billion in insurance program offsets** against identified cost exposures. Big Dig officials only reported publicly $865 million in insurance offsets. During the May 2000 U.S. Senate hearings, the Turnpike Chairman characterized the insurance offset as “fictional.”

- Top-level B/PB and MassHighway managers recognized how unrealistic the official budget estimates had become. Documents show that the Big Dig’s public relations staff began differentiating **internally** between “admitted” and actual costs. In mid-1997, B/PB staff suggested to management that the Big Dig increase its estimate from $10.4 billion to $10.8 billion because of the “hard-trending” cost exposures. Staff explained that “acknowledging this less than four percent growth now puts a more reasonable Project cost value in play . . . .” Staff also offered that increasing the estimate then, would allow Big Dig officials to “use external factors [such as FHWA requiring reversal of air rights credit, changing economic conditions, and increasing mitigation demands] as the cause” thereby deflecting a “negative political reaction.”

- In early 1998, Big Dig managers constructed what have been referred to as “up/down” charts [See Appendix Nine] and in early 1999 these charts evolved into what Big Dig officials called “Armageddon” charts [See Appendix Ten.] These Armageddon charts illustrated worse case cost figures to high-level managers. Project management only made selected staff privy to these charts. The up-down charts identified what the “potential” cost increases could be (i.e., change orders, non-awarded contracts, final design work, etc.) The chart also identified possible offsets for these increases (i.e., sale of air rights, changes to insurance assumptions, transfer of scope items.) In effect, Big Dig officials created a tiered reporting system illustrated by the following:

Official

"Official" estimate publicly disclosed. Estimate prepared by B/PB to meet budget target set by Big Dig officials.

Confidential but available

Project Management Monthly (PMM) Report detailed "official" exposure above the budget. Confidential document with limited release.

Highly Confidential - unavailable

"Up/down" and "Armageddon" charts detailing cost exposures not yet "officially" reported. Referred to as "soft-trends." Closely held confidential documents.

October 1998 – A report by the DOTIG criticized the use of future insurance rebates to offset current budget increases. The DOTIG cited that these rebates remained speculative, and would not come due until the year 2017. The report also noted that the rebate estimate must be "discounted" to reflect the current value of money in the year 2017. The DOTIG stated that these rebates could not be used as cost offsets. As a result, federal agencies begin to use a total cost estimate of $11.6 billion. At this time as well, the Big Dig began using contradictory financial assumptions such as lowering forecasted inflation rates for future costs but increasing expected returns from the insurance trust fund above what the Big Dig's financial advisors had predicted.

February 1998 to October 1999 - As spending continued to run close to B/PB's December 1994 estimate, the elaborate cost offsetting program and the use of accounting gimmickry began to unravel. [See Appendix Eleven]. Without the ability to "officially" offset costs with "insurance proceeds" or "scope exclusions," Big Dig officials began preparing worst case scenarios to illustrate how serious the situation had become. In April 1999, Bechtel Corporation assigned two trouble-shooters to assist Big Dig officials in dealing with the crisis. This led to the development of options for the disclosure of the overrun. In July 1999, the Project Director drafted a letter to his predecessor, excoriating his predecessor for rejecting B/PB's construction contingency, consultant cost, construction change order, and waste disposal estimates. The Director also drafted an evaluation of the first six months of his tenure. The evaluation outlined many of the reasons for the Project's financial woes [See Appendix Twelve.] The Director had to decide whether to publicly reveal the truth about Big Dig costs during his watch.[21]

Big Dig officials continued to maintain their public position that the Big Dig remained "on-time" and "on-budget." In September 1999, these Big Dig officials expressly weighed the pros and cons of eliminating any reference to the estimated total Big Dig cost, the single most cogent fact from the October 1999 Finance Plan,[22] provided to the FHWA and the State Legislature. Instead, Big Dig officials, including the Turnpike Chairman, told the State Legislature: "Project costs are stable at $10.8 billion." Privately, Big Dig officials identified $1.3 billion in current overruns. In desperation, these officials included offsets in the up-down charts that federal authorities had previously disallowed.

December 1999 – Big Dig officials held meetings deliberating whether to publicly disclose the overrun. Also at this time, records show that a week before the December bond sale, the Turnpike's top outside bond counsel/strategist informed them that "hard figures, not worst case #s [numbers]" composed the estimated $1.35 billion budget overrun. The outside counsel made this communication following a day of meetings with top Big Dig officials, on the night before the Governor and the Secretary for Administration and Finance met with key Wall Street bond analysts to establish the Commonwealth's bond rating for the upcoming bond sale. Information released by the outside counsel's office stated that the Turnpike's top outside counsel performed the following:

> Developed and implemented legal, legislative, and public relations strategies for two major revenue bond issues designed to rebuild the Boston Harbor tunnels and Massachusetts Turnpike infrastructure.
>
> Developed innovative mechanisms for the transfer of the new Third Harbor Tunnel from the Massachusetts Highway Department to MassPike [the Turnpike].
>
> Supervised multi-disciplinary approach to resolving complex legal and related issues in a short, sharply defined timeframe.

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[21] The Big Dig changed Project Director's in January 1999. In April 2000, the Turnpike Chairman replaced the Director who started in January 1999.

[22] The semi-annual Finance Plan is a contract deliverable for B/PB. It is a FHWA requirement and has been required by state law since 1997 (Section 17 of Chapter 81A of the Acts of 1997.)

> Principal author of landmark legislation to establish the statutory framework for the operation, maintenance and financing of the nation's largest transportation construction project of this decade.

This Office also reviewed a series of confidential documents in which top level Big Dig officials weighed the "pros" and "cons" of disclosing an overrun in excess of one billion dollars to the State Treasurer during a due diligence review for the December 1999 bond issuance. As a result of this pro/con analysis, Big Dig officials apparently decided not to disclose the facts to the State Treasurer.

January 2000 – The State Treasurer's Office, through its due diligence review for a February 2000 bond issuance, forced Big Dig officials to publicly disclose the overrun.

February 2000 – Big Dig officials announced a $1.4 billion cost overrun. The Big Dig hired the firm of O'Brien Kreitzberg (OBK) to validate the reasonableness of the $1.4 billion overrun estimate. The Big Dig paid OBK approximately $50,000 for a two-week review of the overrun. OBK determined that, for the portions of the overrun they reviewed, the cost estimate "is a realistic assessment of additional exposure . . . ."

March 2000 – Following the OBK analysis, a FHWA Task Force offered a revised cost estimate. Big Dig officials then increased the overrun estimate by another $600 million. The FHWA Task Force announced that costs could be as high as $13.6 billion. The Turnpike Chairman insisted on "standing by" the $1.4 billion overrun figure, but stated: "From past experience, I think that [drawing a line in the sand] would be a mistake for me to do." He continued by stating that Big Dig officials planned to reveal the overrun when they had "accurate figures and a game plan." This echoes what he wrote in an op-ed piece for the Boston Globe in early March 2000:

> I believe that when you have a problem, you must find solutions before you present the problems to others . . . we have made a Herculean effort to manage the budget. In 1994 and 1995 I established the Project budget at $10.8 billion. I let everyone know that I intended this to be a hard number and that any impacts or unforeseen events would have to be managed within the number.

The Governor asked the Turnpike Chairman to resign and names a replacement that assumed office in April.

June 2000 – The June 2000 Finance Plan announced that the overrun had increased from $1.4 billion to nearly $2 billion. The resulting estimate became $13.7 billion.

August 2000 – A report by Deloitte & Touche, under contract to the state's Department of Administration and Finance, identified a total cost of $14.1 billion.

February 2001 – The PMM report for January 2001 reported a budget of nearly $14.1 billion and a $268 million contingency fund. Big Dig officials announced a three-month schedule delay that could further increase costs. The new Turnpike Executive Director stated that the budget will hold at $14.1 billion and that this estimate has been verified by numerous independent sources.

Findings

Finding 1. FHWA officials in Massachusetts knew about and assisted with the multi-billion dollar downsizing of the Big Dig estimate in 1994-1995.

FHWA records clearly show that local FHWA officials knew about, condoned, and assisted in the downsizing of the total cost estimate during their review of the CSU-Rev.6 budget. Records show that many of the accounting assumptions condoned by local FHWA officials in 1994-1995 became part of the semantic definition of the Project cost estimate thereafter, effectively masking the true cost of the Big Dig to Congress, the State Legislature, and the public.

A FHWA Review Team performed a review of the Big Dig to assess the reasonableness of the 1995 cost estimate. The Team members consisted of representatives of the Washington, D.C., Region One and Massachusetts Division office with, according to FHWA, substantial engineering, financial, and administrative experience in FHWA contract administration. The Team released a report entitled *Process Review on Cost Estimate Rev # 6*. The review team concluded that: "the methodology used to establish the state's cost estimate was generally adequate." And that: "the estimate has been prepared using a rational approach and sound judgment . . . ."

In his now infamous letter ridiculing the DOTIG's report on Big Dig costs, the Project Director in late 1999, cited FHWA's condoning of the use of the accounting assumptions during the 1995 process review. The Director stated in his letter:

> Needless to say, it is surprising that you now choose to critique the Project's finance plan methodology and the cost/funding assumptions after all other cognizant federal agencies have acknowledged and relied on them for several years.

This Office's review of FHWA documents, reports, and records shows that local FHWA officials knew that the $8 billion CSU-Rev.6 estimate included the following 218 accounting assumptions. Each item on this list was culled from contemporaneous internal FHWA records by investigators from this Office. These items helped reduce the cost estimate to $8 billion. The following is the list of the reported assumptions:

List of 218 Items that Local FHWA Officials Knew Were Excluded from the 1995 Total Big Dig Cost Estimate

- All Big Dig costs prior to 1992 excluded.
- Included scope as of January 1995.
- Budget calculated in August 1994 dollars.
- To-go escalation costs from August 1994 through Big Dig completion excluded.
- Management Consultant costs beyond 2002 excluded.
- Future construction contract costs included a 13 percent market discount adjustment.
- Change order contingency carried at 7 percent while actual rate running more than 20 percent.
- No design growth contingency included.
- $255M in costs incurred before 1990 excluded.
- Budget included a $255M credit for the future sale of air rights.
- Budget included $30M for the sale or lease of Parcel 7.
- No maintenance and operations costs included.
- C19A1 contract costs excluded.
- C19A5 contract costs excluded.
- C07B1 contract – Massachusetts Water Resources Authority (MWRA) work excluded.
- C01A2 contract surface streets and west service road excluded.
- C11A1 contract – Massachusetts Bay Transportation Authority (MBTA) Transitway work excluded.
- C15A3 contract MBTA improvements excluded.
- C01A3 contract Summer Street Bridge and Surface Street excluded.
- C01B1 contract costs excluded.
- C09A1 contract costs for Broadway Bridge excluded.
- C09A3 contract costs excluded.
- C09B1 contract costs excluded.
- C09C1 contract costs for I-93 southbound and High Occupancy Vehicle lanes excluded.
- C09D1 contract costs excluded.
- C09E1 contract costs excluded.
- C15C1 contract costs excluded.
- C18A2 contract costs excluded.
- C19B9 contract costs excluded.
- C21A8 contract costs excluded.
- C21C1 contract costs excluded.
- C21F1 contract costs excluded.
- C21F2 contract costs excluded.
- C21H1 contract costs excluded.
- C21R1 contract costs excluded.
- C22A5 contract costs excluded.
- C22A6 contract costs excluded.
- C22A7 contract costs excluded.
- C22A8 contract costs excluded.
- C24A3 contract costs excluded.
- C24B1 contract costs excluded.
- Emergency Platform No. 3 costs excluded.
- Emergency Platform No. 4 costs excluded.
- Emergency Platform No. 5 costs excluded.
- C26A2 contract costs excluded.
- Emergency Platform No. 8 costs excluded.
- Emergency Platform No. 9 costs excluded.

- Emergency Platform No.10 costs excluded.
- Certain M025A contract costs paid by Massport and MBTA excluded.
- M025B contract costs excluded.
- M025C contract costs excluded.
- M026G contract costs excluded.
- M025J contract costs excluded.
- M025K contract costs excluded.
- M025M contract costs excluded.
- Community training program costs excluded.
- Interim Operations Control Center costs excluded.
- M025Q contract costs excluded.
- M025R contract costs excluded.
- M025W contract costs excluded.
- M025X contract costs excluded.
- M025W Part 2 contract costs excluded.
- M025X Part 2 contract costs excluded.
- C23A1 contract costs excluded.
- C23A2 contract costs excluded.
- C23A3 contract costs excluded.
- C23A4 contract costs excluded.
- C23C4 contract costs excluded.
- C23E2 contract costs excluded.
- C23E3 contract costs excluded.
- Certain C2307 contract costs paid by Massport excluded.
- Certain South Boston Interchange right-of-way costs excluded.
- Certain I-90 right-of-way costs excluded.
- No Toll Plaza right-of-way costs included.
- East Boston Interchange right-of-way costs excluded.
- Certain I-90/I-93 Interchange right-of-way costs excluded.
- Utility relocation right-of-way costs from North Street to Causeway Street excluded.
- Certain I-93 right-of-way costs excluded.
- Parcel 7 right-of-way costs excluded.
- AT&T Force Account costs excluded.
- Certain Boston Edison Force Accounts excluded.
- Certain Boston Gas Company Force Account costs excluded.
- Certain Trigen Force Account costs excluded.
- Certain Boston Water and Sewer Commission Force Account costs excluded.
- Commonwealth Electric Force Account costs excluded.
- Certain Conrail Force Account costs excluded.
- Certain MBTA Force Account costs excluded.
- Massport Force Account costs excluded.
- Certain Amtrak Force Account costs excluded.
- Certain Cablevision Force Account costs excluded.
- C10A1 contract costs excluded.
- Certain NYNEX force account costs excluded.
- Management Consultant costs for off-budget items excluded.
- Wrap-up insurance program costs for off-budget items excluded.
- C15A1 contract costs shifted to Turnpike.
- C19C1 contract costs excluded.
- Future state-funded scope items (Account 9117) excluded.

- Certain D007A design contract costs excluded.
- Certain D007D design contact costs paid by Massport.
- Certain D011A design contract costs paid by MBTA excluded.
- Certain D014C design contract costs excluded.
- Certain D017A design contract costs excluded.
- D019C design contract costs excluded.
- Certain G023A contract costs paid by Massport excluded.
- D007C design contract costs excluded.
- D007E design contract costs excluded.
- D008A design contract costs excluded.
- D009D design contract costs excluded.
- D009E design contract costs excluded.
- D015C design contract costs excluded.
- D019A design contract costs excluded.
- D021C design contract costs excluded.
- D021F design contract costs excluded.
- D021H design contract costs excluded.
- D021R design contract costs excluded.
- D024B design contract costs excluded.
- D026A design contract costs excluded.
- Initiate cost variance program.
- Initiate Big Dig trend program.
- Use value engineering program.
- Use contractor incentive program.
- Initiate continuous Big Dig improvement program.
- Apply use of advanced technology.
- Use Disputes Resolution Boards.
- Continue use of critical path method scheduling.
- Continue to use pre-bid conferences.
- Attempt to increase Federal financial participation to 90%.
- Transfer Big Dig management/owner-ship to Turnpike in 1996.
- Attempt to dedicate portion of state fuel taxes to Big Dig after July 2000.
- State can fully fund remaining Big Dig costs including inflation.
- Continued Federal funding at 1996 level will be sufficient to cover worst case cost increases.
- Explore innovative financing ideas.
- Minimize tunnel finishes in some areas.
- Use jet fans for ventilation in some areas.
- Evaluate architectural design details.
- Seek alternative soil disposal locations.
- Modify fire-rating criteria for structural steel.
- Using inflation factor of between 2% and 3.35%.
- Shoreline restoration costs excluded.
- South Station Bus Terminal ramp costs excluded.
- Utility agreements/Force accounts includes undefined assessment of future costs.
- Hazardous material removal included only where need identified.
- Third Harbor Tunnel First Phase Early Opening acceleration costs excluded.
- Materials handling facility will handle soil disposal.
- Non-River Tunnel configuration for Charles River Crossing.
- Artery surface restoration costs excluded.

- Temporary Dorchester Avenue Bridge costs excluded.
- Harrison Avenue costs excluded
- Berkeley Street ramp costs excluded.
- Minot Street steam plant to be demolished.
- Temporary East Boston toll facility costs excluded.
- Costs recognize traffic commitments to City of Boston.
- Assumes extended immersed tube tunnel option for Fort Point Channel.
- Use of "mini-deck" for C17A6 construction contract.
- Use of I-90/I-93 Interchange "chute."
- Completion of "IVAS" before "chute" construction.
- City of Cambridge Memorandum of Understanding not included.
- Research and Development program costs not included.
- South Station track modification/relocation not included.
- Massachusetts Bay Transportation Authority scope including ramps not included.
- Regional transit mitigation costs excluded
- State funded Big Dig components excluded.
- North/South Rail link costs excluded.
- State staffing and overhead expenses excluded.
- Federal staffing and overhead expenses excluded.
- Certain environmental mitigation issues not considered part of scope excluded.
- City of Boston interagency agreement costs excluded.
- Office of the Inspector General interagency agreement costs excluded.
- Massachusetts Bay Transportation Authority interagency agreement costs excluded.
- Other interagency agreement costs excluded.
- Logan Airport Route 1A interchange design and construction costs excluded.
- Big Dig support costs excluded.
- Joint development costs excluded.
- Emergency and police facility costs excluded.
- Toll facility interface costs excluded.
- Right-of-way costs for the Spaulding Hospital excluded.
- Demolition costs for the Spaulding Hospital excluded.
- West Virginia Tunnel Fire Testing Program costs excluded.
- Right-of-way costs for the Registry of Motor Vehicles excluded.
- Demolition costs for the Registry of Motor Vehicles excluded.
- Use of Dewey Square “No-Build” scheme.
- Overtime allowance of 5 percent – under current schedule.
- Sales tax expenses for Management Consultant excluded.
- Betterment and enhancement costs for traffic functions excluded.
- Police details for excluded and deferred scope items excluded.
- High Occupancy Vehicle (HOV) lane costs excluded.
- Weather delay costs in excess of 30 days a year excluded.
- Right-of-way costs reduced to include costs to achieve best end use of property.
- Temporary Loop Ramps excluded.

- Right-of-way mitigation impact and damage costs excluded.
- Demolition and/or reuse of bascule bridge costs excluded.
- Amtrak electrification costs excluded.
- Use of C15A3 parking garage for parking mitigation.
- Artery Arts Program construction costs excluded.
- Commitment to keep 3 full I-93 southbound lanes open during construction.
- Commitment to keep 7 North Station tracks open during construction.
- Production rates adjusted for downtown conditions.
- Parcel 7 construction costs excluded.
- Use “design-to-cost” program.
- Aggressively manage design budgets.
- Funding will be available when needed.
- More than $1 billion in costs will be paid by other state agencies and authorities.
- Includes temporary facilities needed to maintain schedule.
- Statewide infrastructure program will continue to average $400M per year.
- Assumes labor shift premiums.
- Reduce the change order cycle.
- Reduce the contract bid cycle.
- Reduce or eliminate mitigation requirements to reduce cost and schedule impacts.
- Landscaping costs excluded.
- Management consultant costs consistent with 1992 values.
- Lower insurance premiums with decrease in loss ratio.
- Aggressive cost containment program will continue.
- Third Floor of Operations Control Center excluded.
- Satellite maintenance facility costs excluded.
- Utility relocations relating to surface restoration not included.
- Spectacle Island surface restoration costs excluded.
- Temporary police facility costs excluded
- Central Artery demolition costs excluded.
- Police details not included in construction cost estimates.
- Final design costs recognize contract values with an allowance.
- Right-of-way includes to-date appraisals with a to-go allowance.
- No schedule contingency allowance included in the budget.
- Assumes use of Purchase Street bypass.
- Assumes existing ramp movements will be curtailed.
- Assumes gate structure in lieu of cofferdam for graving basin

Finding 2. **Local FHWA officials disallowed some - but not all - of the 218 state-disclosed accounting assumptions when FHWA modified the CSU-Rev.6 budget in 1995. By failing to disallow the balance of the accounting assumptions, local FHWA officials sanctioned the use of the accounting adjustments in the total cost estimate. For the next five years, Big Dig officials and local FHWA officials used this FHWA-approved CSU-Rev.6 definition of total cost to minimize the public disclosure of costs.**

The 1995 FHWA "Process Review" report raised issues about some but not all of the accounting assumptions included in the CSU-Rev.6 budget. FHWA recommended that Big Dig officials reverse some of the assumptions as follows:

Budget Exclusions Recommended for Add-Back by FHWA in 1995

Original 1995 Cost/Schedule Update – Revision 6 (CSU-Rev6) Estimate:	**$ 7.9 Billion**
Air Rights Credit - Reversed	$ 255 Million
Pre-1991 Project Costs	$ 255 Million
Excluded Scope Items	$ 822 Million
State-funded Scope Items	$ 169 Million
Committed Escalation	$ 136 Million
Future Design Growth	$ 90 Million
Future Construction Contingency	$ 321 Million
To-Go Escalation Costs	$ 315 Million
Total Added Back	**$ 2.363 Billion**
Revised Budget Total	**$10.361 Billion**

Source: Prepared by Massachusetts Office of the Inspector General staff from various Big Dig documents

FHWA recommended that a new Big Dig cost estimate of $10.3 billion be used that included the items listed in the above chart. However, Big Dig officials maintained the $8 billion estimate. For the February 1996 Finance Plan, Big Dig officials did disclose some of the assumptions and did disclose, albeit indirectly, a $10.8 billion potential total cost. FHWA's acceptance of the Plan ensured continued federal funding, but Big Dig officials did not officially disclose a $10.8 billion estimate until 1997.

FHWA's acceptance of the February 1996 Finance Plan marked the beginning of the FHWA-sanctioned "public relations" downsizing of the budget. Records clearly show that when local FHWA officials accepted the 1996 total cost figure, they knew that it included significant adjustments made by Big Dig officials thereby excluding hundreds of cost elements. Specifically, Big Dig officials made the following significant adjustments:

- Reduced the construction contract contingency estimate for each to-go construction contract from 26 percent to seven percent;
- Reduced the design contingency estimate from 18 percent to 10 percent;
- Reduced each to-go construction contract estimate by 13 percent;
- Excluded all management costs beyond the year 2002;
- Based all land-taking costs on the state's initial payment;[23]
- Reduced the contingency for design growth during construction from 18 percent to zero percent. [See Appendix Thirteen].

An example of how FHWA allowed the total estimate to be lowered by $553 million by applying accounting assumptions to four contracts in 1995.

The following analysis demonstrates how in 1995 FHWA knowingly allowed the total cost estimate to be lowered far below B/PB's forecast. During its CSU-Rev.6 review, local FHWA officials reviewed the cost estimate for a sample of four unawarded contracts. Records show that local FHWA officials reviewed hundreds of pages of detailed back-up material for these four contracts. By applying the Big Dig's accounting assumptions to

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[23] CSU-Rev.6 estimated $322 million for right-of-way costs. Current estimates peg these costs at $572 million – a $250 million difference.

these estimates, FHWA accepted the under-reporting of total costs by $553 million for these four contracts. The compounded effect of three assumptions (design contingency, market discount, and Potential Change Allowance (PCA) for contract change orders) had a huge minimizing effect on the total amount of the four reviewed contracts, reducing B/PB's undiscounted recommendation by $553 million, as follows:

<u>An Example of How FHWA Applied Accounting Assumptions to Future Contracts</u>

	(a) 1995 B/PB Total Cost Est. (including PCA)[1]	*(b) 1995 FHWA Total Cost Est. (including PCA)*[2]	*(c) 2001 Total Cost Est. (including PCA)*[3]
7D2	$233,752,849	$153,286,514	$178,478,000
9B1	481,016,396	265,647,931	451,892,000
15A1	441,728,435	291,830,826	471,785,000
15A2	<u>329,823,482</u>	<u>221,979,387</u>	<u>339,197,000</u>
Total	1,486,321,161	932,744,659	1,441,352,000
Difference		(a)-(b) = $553,576,502	(a)-(c) = $44,969,161

NOTES:
1. These figures represent B/PB's estimate of total cost for four contracts, as indicated by budget data submitted by B/PB to FHWA in 1995. FHWA reviewed these four contracts during their CSU-Rev. 6 Process Review in 1995. The dollar figures in this column depict B/PB's fully-escalated construction cost estimate, adjusted to reverse a 13 percent "market discount" that Big Dig officials applied to B/PB's estimate for all material, labor and overhead costs (a discount that B/BP disclosed to FHWA, according to FHWA internal records). These figures are also adjusted to include B/PB's 18 percent construction growth contingency estimate that Big Dig officials eliminated from B/PB's 1994 cost estimate for each construction contract (another discount that B/BP fully disclosed to FHWA, as demonstrated by FHWA's internal records). These figures are also adjusted to include B/PB's 25 percent future construction change order contingency estimate that Big Dig officials reduced to seven percent for all to-go construction contracts, with FHWA concurrence.

2. This column represents FHWA's 1995 estimate of total cost for the four reviewed contracts, including adjustments that FHWA analysts incorporated into FHWA's total Big Dig cost estimate during its 1995 CSU- Rev. 6 Process Review. These figures reflect FHWA's incorporation of a 13 percent "market discount" that reduced B/PB's construction cost estimate for all materials, labor and overhead. These figures also attribute a proportionate share to each contract of FHWA's project-wide $315 million escalation estimate presented in its 1995 CSU-Rev. 6 Process Review, an estimate computed by FHWA analysts. These figures also attribute a proportionate share to each contract of FHWA's project-wide design growth contingency estimate of $90 million. (FHWA substituted a $90 million project-wide construction growth contingency estimate for B/PB's 18 percent per contract construction growth contingency estimate.) These figures also attribute a proportionate share to each contract of FHWA's project-wide $320.7 million future construction change order contingency. (FHWA's substituted its $320.7 million project-wide construction growth contingency estimate in place of B/PB's 18 percent per-contract construction growth contingency.) Notice that B/PB's estimate of expected total cost -- after adding back the aforementioned, disclosed accounting assumptions-- for these four contracts was $553,576,502 higher that FHWA's estimate ($1,486,321,161 - $932,744,659 = $553,576,502).

3. This column represents the current Project estimate of cost exposure for each of the four contracts, as disclosed to this Office by Big Dig officials in January 2001. Note that the current estimate is very close to B/PB's 1995 estimate (approximately 3 percent less): $44,969,161 less. ($1,486,321,121 - $1,441,352,000 = $44,969,161).

Source: Prepared by Massachusetts Office of the Inspector General staff from various Big Dig and FHWA documents.

As indicated by these figures, B/PB's 1994 estimate for the four-contract sample remains quite close to the current estimate for these four contracts.

FHWA eliminated $430 million from the budget by not applying an 18 percent design growth contingency.

Records show that local FHWA officials knew that B/PB had forecast an 18 percent design growth contingency for each construction contract. Big Dig officials wanted to eliminate this 18 percent contingency entirely in order to reduce the total cost estimate. A letter *in FHWA files* shows that a B/PB official in San Francisco ardently complained about the elimination of the 18 percent contingency from a construction cost estimate. Likewise, B/PB officials argued, in a letter obtained by this Office *from FHWA files*, that additional amounts should be added to the contract for soil disposal. Records indicate that local FHWA officials instead agreed to eliminate the 18 percent contingency from the contract estimate and did not include the soil disposal increase recommended by B/PB officials. In its review, local FHWA officials added an overall figure of $320 million to the Project estimate as "10 percent contingency." B/PB forecast that the 18 percent contingency would add $750 million to the budget. FHWA therefore eliminated $430 million ($750 million minus $320 million) from the recommended budget forecast.

Reduction of $640 million through a 13 percent reduction for all to-go construction contracts.

Records show that local FHWA officials knew that B/PB had forecast exact dollar amounts for each construction contract. At the same time, Big Dig officials had reduced B/PB's estimates by applying a 13 percent "market discount." The records indicate that Big Dig officials hoped that they could achieve bid results 13 percent below B/PB's estimates because the results of some early contracts showed that several contracts had been bid at 13 percent below B/PB's low bid estimate *excluding contingency*. Nevertheless, B/PB's estimate, as disclosed to FHWA, listed hundreds of pages of prices for virtually every component, cubic yard of concrete, and hour of labor for each contract. Despite the fact that FHWA had in its possession B/PB's exact item-by-item estimates, records show that local FHWA officials included in their own analyses a 13 percent discount. In this way, FHWA overrode B/PB's detailed estimate at the request of Big Dig officials, to reduce total costs. B/PB forecasted that the 13 percent discount would reduce costs by $640 million.

B/PB reduced the post-contract award change order contingency from 26 percent to seven percent.

Records show that local FHWA officials agreed to lower B/PB's official PCA estimate from 26 percent to seven percent during its CSU-Rev.6 process review. Records indicate that federal agencies, including FHWA, knew that Big Dig PCA rates had been running in the mid-20 percent range through 1994. Big Dig officials wrote to the FHWA's Division Administrator on January 23, 1995 requesting that the Big Dig be allowed to apply an overall PCA rate of 11 percent, reflecting the actual 26 percent rate on awarded contracts and Big Dig official's *goal* of seven percent for to-go contracts. [See Appendix Fourteen]. The letter also asked for FHWA's approval for B/PB to discontinue tracking PCA percentages since Big Dig officials had mandated a fixed PCA estimate (seven percent to-go) and because, according to another letter, B/PB's time could be better spent on other functions. Records show that FHWA did not object to this arrangement, and that the Big Dig adopted the seven percent rate, which remained in effect until Big Dig officials announced the cost overrun in February 2000. During FHWA's review of the CSU-Rev.6 budget in 1995, local FHWA officials applied a 10 percent PCA figure for to-go contracts. Local FHWA officials independently derived this 10 percent PCA estimate and added it to the total Big Dig total cost estimate as a line item. This had the effect of underestimating the total cost of the Big Dig for two reasons: 1) because the 10 percent PCA estimate remained 16 percent less that B/PB's forecast and; 2) because FHWA did not apply the 10 percent forecast to the more than $1 billion dollars in "excluded" scope items. The minimization of PCA rates lessened the total cost figure by hundreds of millions of dollars.

Finding 3. In January 1999, B/PB informed the newly appointed Project Director, in writing, of the history of B/PB's cost estimates, including its $13.8 billion December 1994 estimate. B/PB informed the newly appointed Director that unrealistic accounting assumptions had been built into the CSU-Rev.6 budget, effectively lowering B/PB's estimate.

When the Turnpike Chairman appointed a new Project Director in January 1999, B/PB immediately presented him with a series of documents that explained the real history of the Big Dig budget, since 1994. The following chart details the information provided by B/PB to the Director (See also Page 25):

Information Provided By B/PB to the Project Director in Early 1999

1994 B/PB Estimate (in millions of dollars)		**$13,791**
REDUCTIONS:		
Escalation for 1988 to 1992	$255	
Air Rights credit	255	
Exclude Route 1A (C08A1)	135	
Transfer scope to Metropolitan District Commission	85	
Excluded Scope Items	261	
Exclude Interagency Agreements	61	
Other exclusions	481	
Cost Containment exclusions	112	
Reduce PCA from 25 percent to 11 percent	526	
Reduce PCA from 11 percent to 7 percent	130	
Market discount –13 percent	640	
Added management consultant	455	
Construction growth during design	490	
Construction phase design services	45	
Peer review estimate refinements	160	
Force account reductions	14	
Other Cost Containment Items	113	
OCIP – Insurance Program	80	
Dewey Square design changes	55	
Designer costs	75	
Pricing assumptions for construction contracts	150	
To-go escalation	1,215	
TOTAL REDUCTIONS		**($5,793)**
OFFICIAL CSU-REV.6 MARCH 1995 ESTIMATE		**$7,998**

Source: Prepared by Massachusetts Office of the Inspector General staff from various Big Dig documents.

B/PB also presented the Project Director with explanations of the long-term effects of the accounting assumptions that B/PB officials included in the 1995 CSU-Rev.6 budget. In a draft letter prepared by the Director as a summary of his first six months on the job he spelled out this difficult situation. The tone of this draft letter indicates that he had a concern about being the scapegoat for the latest cost increase. His summary acknowledged: "We are facing forward, looking at cost challenges that could exceed $1.3 billion." According to the draft, the $1.3 billion exposure included:

- $300 million for cost increases to unawarded contracts. The draft stated:

  > The budget has not been changed to include these changes because there is not sufficient room in the $10.8B [billion] to cover the increase and the Project is trying to manage the exposures down.

- $120 million for loss of competitive market. The draft stated:

  > Since the Project budget was established in the winter of 1994 . . . it has been the policy of the Project to 'squeeze' all estimates by 13 percent. This discount factor anticipates that the low bid will be 13 percent less than a reasonably priced estimate.

- $330 million for change orders. The draft stated:

  > Contained within the $10.8B is an allowance of 11.6 percent for identified and potential construction change orders . . . [including] an allowance of 7 percent for all to be awarded contracts . . . . In 1994, when the 7 percent was developed, the Project was experiencing a percentage change in the mid-twenties . . . . [B/PB] performed a risk assessment that concluded the to-go value should be 15 percent. **Due to budget strain and the need to hit an overall budget target** the 15 percent value was lowered to 11 percent and subsequently to 7 percent target . . . . If the Project experiences an overall change order rate level of 14 percent for all active and to-go contracts the budget impact would be approximately $330 million.[24] [Emphasis added in bold].

- $175 million for schedule maintenance costs. The draft stated:

  > Surprisingly, the Project schedule contains no contingency for unexpected events. This was deleted during the development of the baseline schedule [in 1994].

[24] The Project is currently experiencing a rate closer to 20 percent.

- $225 million for management consultant costs. The draft stated:

  > The M/C [management consultant] budget direction provided in 1994 was to develop a budget that represented no increase from the previous budget although the overall Project cost and schedule had been extended. This was accomplished by assuming that many functions performed by the joint venture would be either deleted or performed by another party. **The budget was knowingly slim in the outer years** . . . In addition the M/C was only budgeted through December 2002. I was surprised that an aggressive transition plan had not been implemented in light of these aggressive assumptions. [Emphasis added in bold.]

- $200 million for other costs including material disposal, right of way, design support during construction, and force accounts.

<u>A Comparison of B/PB's Disclosure to the Project Director vs. the Public Disclosure</u>

(In millions of dollars)

Cost Item	**Director's June 1999 Letter**	**February 2000 Disclosure**
Unawarded Contracts	$300	$321
Market Discount Exposure	120	Not Listed
Change Orders	330	302
Schedule Maintenance	175	292
Administration Costs	255	Included in "Other"
Other	200	485
Active Contracts & Schedule Risk	Not Listed	Not Listed
Total	$1.4 billion (rounded)	$1.4 billion

Source: Prepared by Massachusetts Office of the Inspector General staff from various Big Dig documents.

These items total close to $1.4 billion. The letter also clearly identifies 1994 as the starting point for many of these increases.

Finding 4. Big Dig officials knew of an overrun of more than $1.35 billion before the Commonwealth submitted its due diligence disclosure for the December 1999 bond issuance.

Documents show that Big Dig officials knew about large-scale cost overruns long before they submitted to Wall Street inaccurate bond disclosure documents now reportedly under investigation by the SEC. This is contrary to what Big Dig officials told Congress, the State Legislature, and regulatory agencies. Big Dig officials continue to represent that they did not begin to sense budget problems until late 1999 and did not verify the problem until after a bottom-to-top review that concluded in early 2000. Documents refute this official explanation offered by these officials to justify their failure to disclose the overrun in official bond disclosure documents.

Records show that a week before the bond disclosure, the Turnpike's top outside bond counsel/strategist informed Big Dig officials about a $1.35 billion budget overrun composed of "hard figures, not worst case #s [numbers]." The attorney communicated this information by fax on December 2, 1999 at 11:30 p.m., following a day of meetings with top Big Dig officials, and on the night before the Governor and the Secretary for Administration and Finance met with key Wall Street bond analysts to establish the Commonwealth's bond rating for the upcoming bond sale. A detailed B/PB analysis dated November 28, 1999 detailed the same information about the $1.35 billion overrun.

Records show that before the same December 1999 bond issuance, Big Dig officials weighed the "pros" and "cons" of whether to disclose the overrun to the State Treasurer and Receiver General. Big Dig officials opted *not* to disclose the overrun. Factors cited in the pro/con analysis included political considerations, the negative reaction of the Legislature, and avoidance of "brutal press scrutiny." Interestingly, the pro/con memorandum *explicitly acknowledged* the fiduciary obligation of Big Dig officials to make disclosure under bond disclosure rules.

Plan A of the pro/con analysis called for the Big Dig to withhold disclosure of the overrun until after January 1, 2001 when cash flow problems would leave the Big Dig with no other choice but to seek immediate financing. Plan A also stated that the benefits of waiting included the “excellent press” that would be received from “dramatically better traffic conditions” after completion of more portions of the Big Dig and waiting would “give us more time to find money . . . .” The downside of waiting according to Plan A would be the “public beating” Big Dig officials would take for not meeting the $10.8 billion budget.

Plan B called for the full disclosure of the overrun. According to Plan B, the benefits to full disclosure included ending a “death of a thousand cuts over the last four years of the Big Dig. Unresolved financial problems could dominate and overshadow what should be a success.” Plan B also states that the Big Dig would not be “publicly seeking money in an election year” with disclosure in early 2000 and “we solve our problem” allowing the Big Dig to proceed. Plan B identified the downside or cons to disclosure as follows:

- The sheer size of the number [overrun] itself could lead to public, political backlash costing us allies and fomenting opposition to the toll hike at the highest levels.
- We will be exposed to brutal scrutiny – Eye [*sic*] Team, Spotlight Team, etc. We could become the central controversy of the next year in Massachusetts with our management under fire.
- Any more money will be virtually impossible to meet because of promises made during bonding.

The entire notion of a Plan A and Plan B is an example of bureaucratic arrogance. Big Dig officials sought self-preservation at the expense of the public interest. These officials created policy options ***not*** for the purpose of achieving a public good, saving the taxpayers money, or improving transportation. Rather, Big Dig officials developed these plans, in total disregard of the taxpayers, to avoid bad press, avoid negative issues during an election year, save management from excessive scrutiny, and preserve the bureaucracy from its inability to perpetuate itself through toll increases. The plans also sought to protect the bureaucracy from having to explain “promises made during bonding.”

Finding 5. The Governor, the Turnpike Chairman, the Secretary of Transportation and Construction, and B/PB failed to inform the State Legislature of the impact that the accounting assumptions had on the total cost forecast.

With B/PB's full and active cooperation, and FHWA's informed consent for the use of built-in, cost-minimizing accounting assumptions, Big Dig officials managed to minimize the true cost of the Big Dig for nearly six years. With the collapse of this elaborate scheme, the public's trust and confidence in the management of the Big Dig has been undermined, the reputation of Massachusetts has been compromised and financial support of the Big Dig has been cut. In addition to the state's managers and local FHWA officials, the Governor and B/PB management must share in the blame.

B/PB must share the blame because it abided by the instructions of a select few Big Dig officials to report costs in a less than forthcoming manner. Of course, local FHWA officials accepted the use of the accounting assumptions in defining the CSU-Rev.6 cost forecast in 1994-1995 and in 1994 B/PB did apparently disclose its true $13.8 billion forecast to the Governor and his key staff. But B/PB knew that the public, the press, and the State Legislature had not been told that Big Dig officials based the estimate on a deceptively downsized definition approved by FHWA in 1995. The State Legislature should have been given the same facts as the FHWA. The fear of "adverse" political reactions is not a legitimate reason for Big Dig and administration officials to withhold information.

The most serious failure committed by B/PB was its participation in the production of misleading Finance Plans for the State Legislature beginning in 1997. B/PB produced these semi-annual reports as deliverable products under its contract with the Commonwealth. The Big Dig produced these reports in response to a direct mandate of the State Legislature set forth in Chapter 3 of the Acts of 1997. The Legislature stated: "We believe this bill answers the challenge set forth by the Federal Highway Administration to implement a strategy for payment of the Commonwealth's share of future CA/T Project costs by April 1, 1997." M.G.L. Chapter 3, Section 17 of the Acts of 1997 states:

> The secretary of the executive office of transportation and construction and the chairman of the authority shall submit a report to the joint committee on transportation and the house and senate committees on ways and means . .

> . every six months . . . which shall include, but not be limited to, the status and schedule of the construction of the central artery tunnel project; an analysis of the commonwealth's ability to fund the state's share of the central artery tunnel project; the amount of federal funds available for the central artery tunnel project and the statewide program, so-called; the effect of this chapter in meeting the operation, administration and financial needs of such central artery tunnel project and statewide program; the financial status of the turnpike, including all revenues generated and the cost of maintenance and operation and any special legislation, recommendations or resources required to meet the needs of the metropolitan highway system, the turnpike and the statewide program.

Legislators included this provision in Chapter 3 so that they could more closely monitor the Big Dig financial picture. When the U.S. Department of Transportation required the State Legislature to approve a long-term finance plan for the Big Dig no later than April 1, 1997, the Legislature enacted Chapter 3, the Metropolitan Highway System bill. Chapter 3 transferred all Turnpike property inside Route 128 to the Metropolitan Highway System and granted the Turnpike the following: 1) ownership of all Big Dig and Turnpike property inside Route 128; 2) ability to issue revenue bonds and other debt to pay for the Big Dig and the Turnpike; and 3) ability to set fees and tolls sufficient to pay for those bonds. In effect, Chapter 3 gave the Turnpike the ability to pay for any Big Dig overrun.

The Governor signed this legislation calling for financial disclosure on March 20, 1997. By signing this legislation, the Governor accepted a fiduciary responsibility for the executive branch of the state government. This responsibility included implementing the provisions of M.G.L. Chapter 3, Section 17 of the Acts of 1997 by providing the State Legislature with true and accurate Big Dig Financial reporting. The Governor and his appointees, namely the Turnpike Chairman and the Secretary of Transportation and Construction, failed to fully implement this statutory mandate. Therefore the Governor and his appointees failed to meet a fiduciary responsibility they had to the State Legislature. The current Governor and his appointees have a continuing duty to disclose true and accurate facts to the Legislature. The Governor and his appointees continue to fail to meet this fiduciary responsibility by not disclosing the full and complete story of Big Dig finances to the Legislature and the public.

When asked why Big Dig officials did not provide the Legislature with complete information, B/PB officials told this Office that the State Legislature "only wanted a copy of the finance reports given to FHWA." The express language of Chapter 3 contradicts this assertion because it provides that the Turnpike must provide semi-annual reports to the State Legislature (the FHWA mandates annual federal reports.) While B/PB can argue with credibility that FHWA knew about the underlying accounting assumptions, it cannot reasonably make the assertion, based on the evidence of this case, that B/PB or Big Dig officials ever made the State Legislature aware of the full implications of these assumptions. B/PB had a duty to do so under its contract with the Commonwealth. In addition, B/PB in its position as Big Dig administrator was and still is acting as the Commonwealth's agent. In 1993 B/PB claimed it was an agent of the Commonwealth in a petition to the state's Department of Revenue (DOR) in order to obtain a sales tax exemption. Further, DOR assumed, without issuing a ruling that an agency relationship existed.

Notwithstanding the fact that B/PB clearly informed Turnpike officials, the FHWA, and the former Governor about the disparity between its "installed" total cost forecast and the CSU-Rev.6 definition of total Big Dig cost, it failed to provide this critical information in straightforward reports to the State Legislature. B/PB's current Project Manager stated during a May 2000 U.S. Senate hearing that: "We presented all information to the client . . . . I think we made the best estimate as we saw it from a project management standpoint . . . . **When rules change, costs change**." [Emphasis added in bold.] This Office concludes that this failure to disclose to the State Legislature is a serious breach of B/PB's contractual responsibilities.

Under its contract with the Commonwealth, B/PB is responsible for cost estimating and budget forecasting. In February 1985, B/PB responded to MassHighway's request for management consultant service proposals by submitting a proposal that extolled B/PB's skills, professionalism, and vast experience[25] managing large projects. B/PB included the following statement in its proposal:

> [During the] past two decades with the advent of many large, complex, multi-billion dollar projects these [control] systems [used by B/PB] have been refined, and our managers and control specialists have gained the experience to use them effectively . . . . The goals are to assist the Department in meeting its objectives and obligations, particularly the completion of the project on schedule and within budget.

The proposal continued by stating: "because accurate estimates are the cornerstone for budget/cost control and cash flow/financial analysis, B/PB uses the most reliable estimating techniques."

B/PB has remained virtually immune from any criticism or blame for this crisis facing the Big Dig and Massachusetts taxpayers. In the press, the Governor's staff stated that he did not fault B/PB. The closest criticism of B/PB occurred during the May 2000 U.S. Senate concerning the cost overrun. During the hearing, the DOTIG stated:

> I am disappointed that I did not hear anything from Bechtel about these cost increases. With 600 people, I would assume that some of them must have had a clue as to where the costs are going . . . . They are a contractor to the Project, and I would like to know whether they protested what was being disclosed by the Artery.

What has remained unspoken is B/PB's active participation in the promulgation of misleading reports to the State Legislature. Big Dig officials would never have been able to perpetrate the inaccurate presentation of such detailed information without the active collaboration of B/PB – the entity that gathered, controlled, and manipulated all Big Dig cost data. B/PB did not participate passively. B/PB took control soon after Big Dig officials decided to obscure the true costs and after FHWA accepted the accounting assumptions. In fact, documents reviewed by this Office illustrate B/PB's efforts to develop and maintain the mechanisms used to obscure Big Dig costs.

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[25] During recent congressional testimony, B/PB staff stated that their joint venture has almost 200 years of experience between them.

Appendices

Estimate Evolution **Appendix One** CONFIDENTIAL

$ millions *(Normalized for semantic differences between Then and Now)*
e.g. air rights, to be funded by others, etc.

12/5/94 Draft Rev. 6 Estimate — 2008 — 13,250

- Construction Peer Review Estimate Refinements ($160M)
- Incorporate 13% market conditions adjustment ($640M)
- Refine M/C support requirements (2 yr. schedule reduction to 2006) ($80M)
- Reduce Construction Phase Services Allowance/Refine SDC Costs ($45M)
- Reduce Force Account Costs ($14M)

1/12/95 Draft Rev. 6 Estimate — 2006 — 12,300

- Remove Construction Growth During Design Contingency ($490M)
- M/C reductions to "Rev. 5" through scope cuts/MHD transition strategy, cut off at 2002 ($375M)
- Incorporation of scope/cost reductions ($225M) - S. Page program
- Reduce PCA from 11% to 7% for to be awarded contracts ($130M)
- Lower OCIP costs ($80M)
- Miscellaneous other reductions ($280M)
  Dewey Square No Build ($55M); SDC Costs ($75M); Pricing, Quantity and assumption changes in FPC and ANOC areas ($150M)

3/95 Accepted Estimate CSU R6 — 2004 — Support — 10,725

- Reduction in OCIP loss ratio/Insurance Refinements ($320M)
- Anticipated insurance collections ($50M)
- Dewey Square minimum Build $45M
- Ramp D-D addition $40M
- Miscellaneous ($10M)

* Note: To-go Escalation - 1215; Prior to ICE - 255; Reverse Air Rights Credit - 255

Finance Plan 10/95 & 10/96 — 2004 — 10,430

- Reduction in OCIP loss ratio to 50% ($465M)
- Revisions to OCIP Interest Investment Guidelines and Split ($58M)
- Reduction in Anticipated Insurance Collection $39M
- Reduced Force Account Costs ($33M)
- Unrealized Market Conditions $352M
- Additional PCA Requirements $149M
- Mitigation/Noise/Traffic Requirements $85M
- M/C Scope $111M
- Right of Way Increases, including Settlements $77M
- Other Scope, Pricing, and Quantity Changes $154M

Finance Plan 10/97 & 10/98 — 2004 — 10,841

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( ) = reductior

January 22, 1999

CENTRAL ARTERY/TUNNEL

Computation Sheet

Subject: Comparison of CSU6 to Apr 93 & Jun 94 Forecasts

Page ____ of ____

Made by ____

Date ____

Checked by ____

Date ____

Appendix Two

	CSU6	APR 93	JUN 94
Project Forecast:	11,028 M	9,077 M	11,541 M
Deductions for Exclusions:			
- Prior-to-ICE	—	(255) M	(255) M
- No Air Rights Credit	—	(225) M	(225) M
- O/M THT	—	(60) M	—
- 8A1 Constr Costs	—	(112) M	(135) M
- MDC MOU	—	(85) M	(85) M
- E** for (Maint Facs, Temp Facs, Ramp Demol Restr, Artery lots, etc)	—	(237) M	(261) M
- ISA's: Cambridge	—	(1) M	(30) M
Boston	—	(4) M	(19) M
USPS (ROW)	—	—	(12) M
- PCA over 11%	—	—	(526) M
Subtotal		8,098 M	9,993 M
Escal from 10/92 - 8/94	—	497 M	497 M
Total "Apples-to-Apples" Fcst	11,028 M	8,595 M	10,490 M

0037716

Appendix Three

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The following table summarizes key budget development assumptions.

Category	*Key Issues*	*CSU Rev 6 Budget (12/94)*	*Project Experience as of 12/94*	*Current Forecast*	*Current Forecast less CSU Rev 6 Budget ($)*
Bid Variance	Construction Growth during Final Design	0%	18%	13 %	437 M
Bid Variance	Marketplace Competition	-13%	-13%	-9 %	280 M
PCA	% Change from Original Contract Value	10.7% overall 7% to go	25%	17.9%	510 M
Schedule	Schedule Acceleration	- 0 -	Not quantified	2.2%	200 M
Management Consultant thru 2002	At Rev 5 level through 2002	1,482 M	1,636 M *	1,749 M	267 M
Management Consultant beyond 2002	At Rev 5 level 2002 – 2004	- 0-	128 M *	100 M	100 M
Design Construction Phase Services	% of Construction Costs	1.26 % - 99 M	2.15 % - 195 M	217	118 M
Final Design Costs	No Contingency	688 M	Not quantified	721 M	32 M
ROW	In Excess of Pro Tanto	- 0 -	Not quantified	175	175 M
				Total	2,119 M

* Joint Venture '94 Staffing Assessment

0018503

Appendix Four

(#3) DESCRIBE THE COMPONENTS OF THE "DELTA".

$339 M in additional I-90 related costs
$551 M " " I-93 " "
$260 M " management consultant costs through 2004
$198 M in additional "to go" expenditures
→ THESE ARE "HARD" NUMBERS – NOT WORSE CASE #S

(#4) COST BREAKDOWN (ADDITIONAL)

THE REASONS BEHIND THE ADDITIONAL COSTS

I-90 —
- PCA
- BID ALLOWANCE
- Schedule Acceleration

I-93 – etc.

(#5) GO TO NEXT PAGE

Craig
781 674-2111

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PLAN A:
GET PAST THE TUNNEL CONNECTION

NEED approximately $950M needed to continue work through the opening of I-90 on Dec. 31, 2001.

Pros:

- Opening I-90 means excellent press, dramatically better traffic and most significant sign yet we are heading toward project completion. Softens the blow of a toll increase by improving toll road.

Cons:

- We cannot raise enough guaranteed money to make it through 01 and here is not enough left in the project in design or construction to allow any further significant cuts or offsets.
- Even if we succeed, we will NOT be in a position politically for a toll hike – not in an election year.
- We must still disclose entirety of problem publicly when seeking Massport or Mass Pike money because of bond disclosure issues.

PLAN B:
IMMEDIATELY SEEK RELIEF FOR ENTIRE PROBLEM

Potential Sources of Funding:
- Toll Acceleration/Increase: $840M
- Mass Pike: $200M
- Mass Port: $100M to $200M or Take Over 8A
- Liquidate Insurance Trust in 03: $240M

Pros:

- We solve our problem.
- Full disclosure ends prolonged fiscal focus in project's final years. Unresolved financial problems could dominate and overshadow what should be a success.
- Offsets: We pursue revenues – air rights, naming rights, OCIP if not liquidated – that will offset toll hikes and keep $10.8B.
- Not publicly seeking money in election year.

Cons:

- The sheer size of the number itself could lead to public, political backlash costing us allies and fomenting opposition to the toll hike at the highest levels.
- We will be exposed to brutal scrutiny – Eye Team, Spotlight Team, etc. We could become the central controversy of the next year in Massachusetts with our management under fire.
- Any need for more money will be virtually impossible to meet because of promises made during bonding.

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Re: For Discussion

The following are two scenarios for resolving our problem, with potential pluses and minuses. $ is roughed.

PLAN A: GET PAST THE TUNNEL CONNECTION

Begin laying the groundwork immediately to raise approximately $500M to $600M needed to keep us running through the opening of I-90 on Dec. 31, 2001.

Potential Sources of Funding:
- Mass Pike: $200M
- Mass Port: $100M to 200M—Or Take Over 8A
- Insurance Trust Liquidation: $200M

Pros:

- The opening of I-90 guarantees us excellent press, dramatically better traffic and the most significant sign yet that we are heading toward project completion. That will help soften the blow of a toll increase needed to fund remainder of the project.
- Gives us time to find more money whether it's from air rights, naming rights, etc. before seeking higher tolls.
- The number is manageable – i.e.: Not in the billion range.

Cons:

- Margin is razor-thin. We could go down this road, publicly commit to this strategy, and enough funds do not materialize. Are these numbers realistic and concrete? Not like those from a toll hike.
- If we do succeed, we will be in immediate need of more funds post-I-90 opening. But we will NOT be in a position politically to get that money through a toll hike – not in an election year.
- We WILL take the public beating for seeking the money, for losing $10.8B, etc., but it is not OVER. We must come back again for more money.
- We must still disclose entirety of problem because of disclosure issues.

PLAN B: IMMEDIATELY SEEK RELIEF FOR ENTIRE PROBLEM

Potential Sources of Funding:

- Toll Increase: $600M
- Mass Pike: $200M
- Mass Port: $100M to $200M or Take Over 8A
- Liquidate Insurance Trust: $200M

Pros:

- We solve our problem.
- Full disclosure ends potential death of a thousand cuts over the last four years of the project. Unresolved financial problems could dominate and overshadow what should be a success. Get it over with.
- We build in the prospect of us raising revenues – air rights, naming rights, adopt-a-tree – that will offset toll hikes and prevent realization of high-end scenario.
- We do not have to be publicly seeking money in election year.

Cons:

- The sheer size of the number itself could lead to public, political backlash costing us allies and fomenting opposition to the toll hike at the highest levels.
- We will be exposed to brutal scrutiny – Eye Team, Spotlight Team, etc. We could become the central controversy of the next year in Massachusetts with our management under fire.
- Any need for more money will be virtually impossible to meet because of promises made during bonding.

Appendix Six

Dear Peter:

I have now completed my first six months as your successor as the Project Director at the CA/T. My primary objectives during this time were to keep the progress of construction on a steady course in order to meet the established milestones, to take some time to better understand the details of the scope of the project and to assess the abilities of the key personnel. Coming to the CA/T, I was aware that the Project used the Project Management Monthly (PMM) to monitor the vital signs of the Project, particularly as it relates to cost and schedule. It was my understanding that the goals which were established for the budget ($10.8 billion) and schedule (ILCC – 10/99, I-90 – 12/01, I-93NB – 7/02 , I-93SB – 7/03, project completion – 12/04) were aggressive but achievable. In fact, the PMM for December 98, the last prepared before my arrival, indicated a potential cost exposure of about $168 million and schedule initiatives that would eliminate any slip in Project milestones. I recognized that maintaining the schedule goals and reducing the cost exposure would not be easy but relative to the total project budget, the magnitude of the exposure was not overly alarming. I felt that there would be an opportunity, with a tight belt, to trim this much out of the exposure on the go forward.

Based on this understanding, I was shocked to learn at an early briefing by senior Project staff that the Management Consultant had prepared an evaluation of cost exposure much greater than what had been presented in the PMM. I was even more disturbed to learn that this information had been presented to you well in advance of your departure. I immediately began a detailed review to assess the likelihood of the Project ever realizing these exposures and to develop an action plan in the event that some or all exposures would have to be accommodated. Two categories of exposure that were of particular concern were unawarded contracts and management consultant costs. These totaled more than $500 million in unaccounted costs. Even with an aggressive cost containment program, elimination or measurable reduction of these costs at this time is not practical. You must have known this. Your failure to inform the Chairman of these exposures or more importantly to identify offsetting savings earlier has put the Project, the Turnpike Authority and the Commonwealth in a very difficult position.

Peter, I can't tell you how disappointed I am. Many of the cost exposures go back to unrealistic assumptions made during the development of the Rev. 6 Project Master Schedule of 1994. You had four years to work with the Chairman to find additional revenue sources or introduce reasonable options to reduce the scope of the Project. That opportunity has now virtually been eliminated. I will continue to work to contain project costs but we have been left a tool bag that is virtually empty. Please provide me with some insight in to your plans for addressing these issues so that the Project can continue with a sound and credible financing plan.

Sincerely,

PJM

Cost Update Rev. 6 Summary

Description	Cost Update Rev. 6 (x $1000) (Aug 1994 $)
DESIGN ENGINEERING	
SDC FINAL DESIGN	496,550
AREA GEOTECHNICAL CONSULTANTS	18,881
UTILITY AGENCY DESIGN	38,318
OTHER CONSULTANTS	98,928
SDC CONSTRUCTION SERVICES	93,416
TOTAL DESIGN ENGINEERING	746,093
RIGHT OF WAY	
RIGHT OF WAY	321,768
SALE OF AIR RIGHTS	(255,000)
TOTAL RIGHT OF WAY (including sale of air rights)	66,768
CONSTRUCTION	
CONSTRUCTION CONTRACTS	4,739,811
UTILITIES CONSTRUCTION	305,916
POTENTIAL CHANGE ALLOWANCE	551,802
POLICE DETAILS	63,315
SUBTOTAL W/O INSURANCE	5,660,844
INSURANCE *	537,000
TOTAL CONSTRUCTION RELATED	6,192,844
PROGRAM MANAGEMENT	1,293,000
COMMITTED ESCALATION ADJUSTMENT	(136,224)
ACCOUNT 9117 ADJUSTMENT	(164,478)
TOTAL	7,998,003

Note: Costs on unobligated scope are present day and are not escalated. All other costs are carried at committed/obligated values, with a "bottom line" negative adjustment for committed to-go escalation.

Appendix Seven

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Assessment of Estimate Risks

TO-GO CONTINGENCIES IN C/SU REV. 6

	Design Change	Construction Growth during Final Design (Design Development)	Market Condition Adjustment	Cost Changes to Low Bid Estimate	
Rev. 6	10%	0%	-13%	7%	Unawarded contracts
Rev. 5	20%	0%	0%	7%	Unawarded contracts
Actual	40%	18%	-13%	25%	Active contracts

EXPOSURES ABOVE TO-GO COMMITMENTS

without Third Party

($ MILLIONS)

Appendix Nine

	TO-GO COMMITMENTS (as of 12/31/98)	RANGE OF EXPOSURES ABOVE COMMITMENTS	
CONSTRUCTION CONTRACTS		[illegible]	
- AWARDED	350	100 - 240	Pc4 - 14
- UNAWARDED	1,000	290 - 490 [illegible] % - [illegible] %	Pc4 [illegible] - [illegible] [illegible]
FORCE ACCOUNTS	16	45	
JOINT VENTURE	230	100 - 275	
ROW	3	0 - 85	
SDC	3	50	
OTHER EXPOSURES incl. Mat'l Disposal, Sched Initiatives, Artery Arts	-	75	
TOTAL	1,602	660 - 1260	

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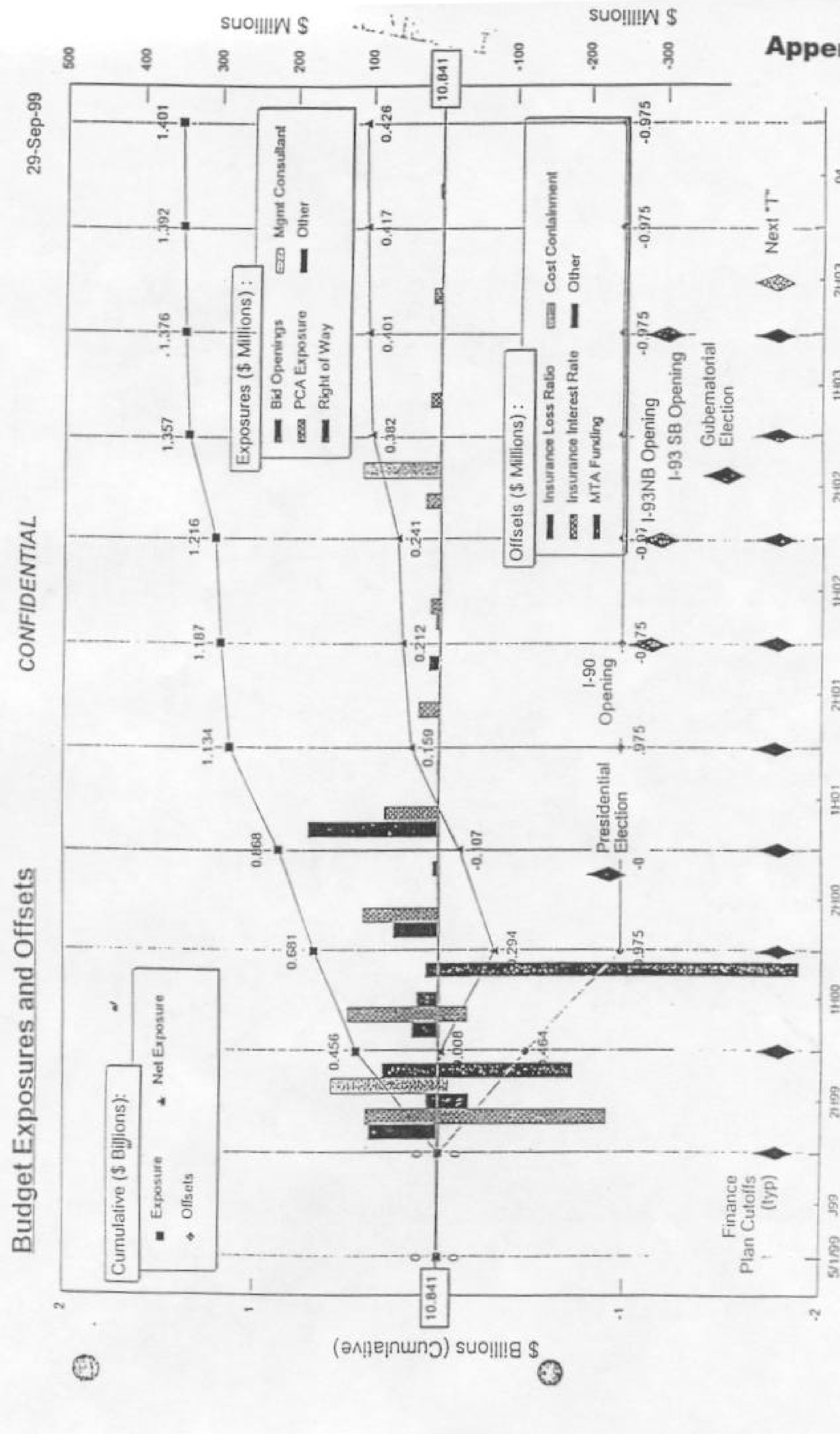
Appendix Ten



Major Budget Assumptions Summary

Attachment B
Confidential

	Rev 6 Assumption $10.4B	4/99 Status (contained in current $10.8B forecast)	Potential Add'l Variance	Comments
Potential Change Allowance (PCA)	Reduce from 15% to 7% on to-go or 10.7% overall ($300M)	12.1% overall +$100M	If 16.6%, $330M	14% on active and to be awarded, 16.5% overall
Market Conditions	13% less than Office Estimate ($640M)	6.9% less than Office Estimate +$286M	If 0% less than Office Estimate on to-go bids. $125M	
Construction Cost Growth during Final Design	Remove 18% historical experience ($490M)	Achieved 8% of 18% reduction +$220M	If awarded at current Discounted office Estimate $300	Major Scope elements added: temporary Dorchester Ave. Bridge, Dewey Square rebuild, provisions for S. Boston air rights development, Artery Arts Program, noise, traffic and workhour constraints, Russia Wharf transitway scope.
Cost Reductions	Remove scope/cost reductions ($225M)	Removed additional scope/cost reductions ($150M)	Less than ($50M)	
JV Costs	Meet the "Rev 5" estimate ($375M)	Through WP14 +$110M	If December 04, $225M	Changed Assumptions: Implementation IPO in 1/97; Stop 5/95 legal support; Stop 5/95 Public Affairs; stop 5/95 City support; stop field survey mid 1998; lab by others beyond 1996.
Air Rights	Include as cost offset ($255M)	No cost offset +255M		
Right of Way	Remove all allowances for adverse Court settlements or abutter demands ($100M)	+$90M	$70M	

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Major Budget Assumptions SummaryPage 2	Rev 6 Assumption $10.4B	4/99 Statt (contained in current $10.8B forecast)	Potential Add'l Variance	Comments
SDC Costs	Remove design allowance and target aggressive construction phase services support ($150M)	$80M	$40M	
Schedule Related Costs	Eliminate time contingency in schedule		$175M	Results of maintaining current schedule milestone study.
Total	($2,535M)	$990M	$1,215M	

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Draft of memo from P. Moynihan to the Chairman re: 6 month CA/T project evaluation.

After close to six months as the Project Director, my bottom line conclusion when it comes to summarizing the projects cost and schedule is that the project has an assertive definition of 'aggressive but achievable.' This conclusion is predicated on the following aggressive assumptions that were made at the time the current schedule and budget was developed during the winter of 1994/1995:

Include NO time or cost allowances in the schedule or budget.

Assume the inclusion of a purchase street viaduct that saves two year of schedule but has since been deleted because of significant community opposition.

Delete the Post Office's Dorchester Avenue access/egress saving 9 months of I-90 schedule. Unfortunately the Post Office could not support this objective.

Target a 7% to-go potential change allowance value when the project was experiencing a 20+% rate.

Assume a to-go competitive market dynamic that averages 13%, the then current experience.

Develop a management consultant estimate that allowed no increase from the previous budget even though the estimate and schedule of the project had been extended.

As noted in Attachments 1 and 2 these aggressive assumptions reduced the projects' costs by over $2B and saved over 4 years of schedule. Impressively, even though several of these assumptions were over-optimistic, the project has been able to maintain the budget since the winter of 94/95 and stay within a three to six month window of the project milestones. However, as the scope and rate of production has become clearer over the years it is evident that the budget and schedule may begin to deviate from this plan in the short term.

The future presents challenges that need to be addressed immediately.

There is a strong possibility that the budget may be lean by approximately $1B. 40% of this variance may surface during the last 6 months of 1999 (Attachment 3). There is potential to offset the $10.8B budget variance through the use of more insurance credits but cash requirements will grow by $400M. We need to rapidly develop collectively a strategy that eliminates this 1999 funding shortfall. Furthermore we need to put in place a strategy that manages the to-go potential $1B variance.

The project will meet the October 15, 1999 ILCC project milestone. The remaining project milestones are at risk, currently 3-6 months askew, losing about one week per month. In all likely-hood it will be practically impossible to support a full opening of either I-90 or I-93 as planned without expending huge amounts of money. Even with these expenditures, it may still be impossible.

The near term key event for I-90 is the initial concrete tubes float-out. To have any chance of meeting the milestone this should occur no later than September 30, 1999. Currently we are projecting November/December of 1999 leaving very little optimism for recovery. I have therefore directed the project to explore alternate interim openings of the I-90 corridor that would facilitate meeting an event as scheduled, but limited in scope. This approach would minimize costly schedule recovery expenditures but allow the project to deliver a traffic movement as planned.

I-93 contains multiple critical paths to its project milestones. It is too early to plan for limited I-93 openings until we can better gauge the progress of each of these multiple contracts. Several of them are just beginning mass excavation and we need to observe that progress before altering the course. Because of the current sheer magnitude of critical contracts, my feeling is that alternate opening schemes for this corridor will be necessary.

But my short stint on the project has taught me to embrace the impossible and aggressive results will be achieved. I will continue to manage according.

Cost/Schedule Revision 6

Major Assumptions, Required Actions
(Little opportunity for reductions)

- No Contingency for To-go Design Changes.
  - To Date: 40% changes to SDC contracts.
  - To Go: Need to enforce "design to contracted" value.

- No Contingency for Construction Growth During Design.
  - To Date: 18% change experienced.
  - To Go: Need to enforce "design to target construction cost".

- Original Estimates for to be awarded Construction Contracts reduced 13% across the board.
  - To Date: 13% underbid due to current market competiveness.
  - To Go: Have reduced remaining estimates 13%.

- Potential Change Allowance for Unawarded Contracts 7%.
  - To date: 25% changes for active contracts.
  - To Go: Applying lessons learned, used 12% overall, 7% for unawarded contracts.

- Reduce Joint Venture Staffing .

  To Go Assumptions:
  - Reduction of 15% by Dec 95.
    Construction Management up 10%.
    Balance of Staff down 25%.
  - Transition of services starting immediately, complete by 2002.
  - Move seconded and Operations/Maintenance staff to off-project cost center beginning October 1995.

- 35% of to-go activities on critical path.
  - Normal range 15 - 20%.
  - Assumes three shifts at 6 days/week for critical path activities.

- Assumes design freeze at 75%.

- Assumes funding will be available as needed.

- Pushes environmental/community commitments to the edge. (e.g. trucking and barging, temporary downtown viaducts, etc.)

Massachusetts Highway Department
Central Artery/Tunnel

January 23, 1995

Mr. Donald E. Hammer
Division Administrator
Federal Highway
Administration
55 Broadway, 10th Floor
Cambridge, MA 02142

Attention: Mr. Daniel J. Berman, CA/T Project Manager

Subject: Central Artery/Tunnel Project
<u>Potential Change Allowance For</u>
<u>Construction Contracts</u>

References: B/PB Letter 94-6702-A dated December 30, 1994

Dear Mr. Hammer:

Currently, B/PB spends approximately 20 jobhours to develop the contingency value for each major construction contract prior to advertising a contract. This value is used for FHWA funding purposes and establishes the anticipated potential change allowance (PCA) that is necessary to cover cost increases after contract NTP.

Recognizing that the PCA value has been mandated by the Project to be no more than 11%, we believe that it is no longer necessary to prepare a rigorous assessment of contingency needs for each contract. Instead, a flat 11% will be included for each package. The job hours saved could be better applied to other estimating activities.

Please contact us if this approach to establishing a funding contingency value is unsatisfactory to you. My point of contact on this is John Henderson.

Sincerely,

MASSACHUSETTS HIGHWAY DEPARTMENT

Peter M. Zuk
Project Director

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