

Appendices to  
The OIG  
Due Diligence  
Review of  
Miami-Dade County  
Transit Department's  
Program Management  
Consultant (PMC)  
Proposers



**Christopher R. Mazzella**  
Inspector General

**Alan Solowitz**  
Deputy Inspector General

**Patra Liu**  
Assistant Inspector General  
Legal Counsel

November 17, 2004

**VIA FACSIMILE (305) 961-5644**

**Simon Ferro, Esq.**  
Greenberg Traurig, P.A.  
Attorneys at Law  
1221 Brickell Avenue  
Miami, FL 33131

Re: CICC Project No. E03-MDT-01  
Program Management Consulting Services for the PTP

Dear Mr. Ferro,

Please find a copy of the Office of the Inspector General's (OIG) "draft" due diligence review. You have advised me that this correspondence may be directed to you on behalf of your client, Parsons Brinkerhoff Quade and Douglas, Inc. (PBQ&D). This copy, while provided to PBQ&D through another member of your firm by the Miami-Dade County Office of Capital Improvements Construction Coordination (CICC) on November 12, 2004, is being re-issued to you by the OIG under this cover. As you may notice, some formatting changes have been made, however, it is essentially the same report.

In keeping with the scheduled Selection Committee hearing on December 1, 2004 and following the initial due date requested by the CICC letter, the OIG requests that any reply/response/comment(s) that your firm wishes to provide be received by 1:00 noon on November 30, 2004. The reply should be directed to the OIG.

In light of the tight schedule, if this reply/response/comment can be provided earlier than November 30, 2004, it would be appreciated. This response will then be presented to the Selection Committee as an attachment with our completed review.

Yours truly,

Patra Liu  
Assistant Inspector General

cc: Pamela L. Paulk (w/o enclosure)  
A&E, Specifications and Standards Manager

Brice Libhaber (w/o enclosure)  
Assistant County Attorney

  
Acknowledgement of Receipt

11/17/04  
Date



MDC-OFFICE OF THE  
INSPECTOR GENERAL

2004 NOV 30 AM 9: 43

**Parsons  
Brinckerhoff  
Quade &  
Douglas, Inc.**

7300 Corporate Center Drive  
Suite 600  
Miami, FL 33126

November 29, 2004

Mr. Christopher Mazella  
Inspector General  
Office of the Inspector General  
Biscayne Building  
19 West Flagler Street  
Suite 220  
Miami, Florida 33128

Re: CICC Project No. E03-MDT-01  
Program Management Consulting Services for the PTP  
PBQD Comments on Draft Due Diligence Review (Nov. 16, 2004)

Dear Mr. Mazella:

Parsons Brinckerhoff Quade & Douglas, Inc. (PBQD) is in receipt of the draft Due Diligence Review (the "Report") for the Transit Program Management Consulting Services (PMC) contract, Project No. E03-MDT-01.

PBQD appreciates the opportunity to review and comment on the Report. However, we are concerned that the selected sources that the Report relies upon and the manner in which the report's findings are presented create an unrealistically negative impression and characterization of the projects discussed in the Report.

The transmittal memorandum for the Report refers to a search of "relevant databases and jurisdictions" for information related to PBQD, which is the only remaining proposer for the referenced PMC procurement. This appears to be a reference to internet-based searches yielding primarily newspaper or magazine articles, with certain other information available such as limited pleadings or other local public reports. Other sources may have been consulted, but "they did not want to go on the record." Given the short time provided to the Office of the Inspector General ("OIG") to complete its work, it is perhaps understandable that the Report is so severely restricted to these indirect sources.

The Report deals primarily with three projects -- the St. Louis Light Rail Extension, the Boston Central Artery, and a Los Angeles transit project. Our detailed comments are enclosed as Attachment A. Also, by not disclosing a complete list of PBQD's projects over the time covered in the Report, roughly from the early 1990s through the present, the Report leaves the impression that the problems on these selected projects are the norm rather than the exception. In fact, in that same period, PBQD has worked on thousands of projects throughout the United States, and ten projects in Miami-Dade County alone, including:

- North Corridor Alternative Analysis
- MIA New Perimeter Road
- MIC/MIA Connector at Miami International Airport
- Miami-Miami Beach Transportation Corridor Study
- North Corridor BRT FEIS
- MDT Professional Services Agreement
- Cargo Yard Improvements
- Port of Miami Design Seaport
- MPO General Planning Consultant Services



Mr. Christopher Mazella  
Inspector General  
Office of the Inspector General

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- EDP – North Corridor

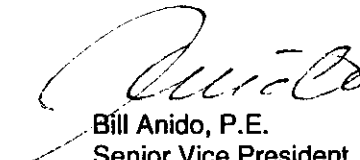
PBQD is proud of what it has accomplished on these numerous projects, including those in Miami, St. Louis, Boston and Los Angeles.

Parsons Brinckerhoff has provided engineering services for nearly 120 years. Today it provides comprehensive infrastructure services on six continents. The firm is recognized for both its engineering skills and professionalism. Integrity is key to our success and is a cornerstone of our corporate culture.

If you have any questions regarding these comments or would like to discuss them further, please contact me at (305) 514-3167.

Sincerely,

PARSONS BRINCKERHOFF



Bill Anido, P.E.  
Senior Vice President

Attachment



**Attachment A**  
**PBQD Comments on Draft Due Diligence Review (Nov. 16, 2004)**

PBQD welcomes the opportunity to respond point-by-point to the issues raised in the OIG's report. Because the issues are numerous and in many cases create impressions that are supported only by one-sided allegations in the press, we want to eliminate any opportunity for confusion. Therefore, we have included, where appropriate, sections of the OIG's summary cover letter (indented and typed in italics) with our response and elaborations inserted immediately after each issue.

*Excerpt from OIG Due Diligence Review:*

*The office of the Inspector General (OIG) is pleased to present you with the results of our Due Diligence Review of the proposers for the Transit Program Management Consultant (PMC) contract, also known as Project No. E03-MDT-01. Those two proposers were Parsons, Brinckerhoff, Quade & Douglas, Inc., and Parsons Transportation Group, Inc. However, Parsons Transportation Group, Inc. is no longer eligible to be considered for the PMC since they have been recommended for award of the North Corridor project. Therefore, we are providing information only on Parsons, Brinckerhoff, Quade & Douglas, Inc. (PBQD).*

There could be some confusion as to who PBQD is. The package of enclosures we received from the OIG included several documents from the LACMTA dealing with denial of pre-qualification for:

- Parsons Engineering Science, Inc.
- Parsons Transportation Group
- Parsons Infrastructure & Technology Group, Inc.

None of these firms is in any way related to Parsons Brinckerhoff Quade & Douglas, Inc. (PBQD).

There were two unrelated Mr. Parsons a century ago and each started his own engineering firm. Those firms and their subsidiaries survive today under a variety of names, independent of each other. Parsons Brinckerhoff and its subsidiaries are the only firms using the PB or PBQD acronym.

*Excerpt from OIG Due Diligence Review:*

*We searched relevant databases and jurisdictions for information related to PBQD. In addition, we received information from PBQD in response to due diligence-related questions that had been submitted to the firm. Overall, we have compiled a significant amount of documentation that is being turned over to you for your ultimate review and classification.*

It should be clear that the only information submitted by PBQD prior to this response was the answers to the general due diligence questionnaire. We were not given the opportunity to comment on, or submit information related to, in the OIG's report.

*Excerpt from OIG Due Diligence Review:*

*The following is a summary of documents, articles, and the databases searched and the results that we found, pertaining to PBQD:*

**The St. Louis MetroLink Extension Project**



Excerpt from OIG Due Diligence Review:

*PBQD participated in a joint venture (known as the Cross County Collaborative or CCC) with three other companies on a \$550 million light-rail extension project for the Bi-State Development Agency of the Missouri-Illinois Metropolitan District (Metro).*

The light rail extension was called the Cross County Extension and was the third segment of the MetroLink system. The previous 39-mile, \$1.1 billion system was completed to the client's satisfaction with management by one or more of our current CCC joint venture partners. PBQD successfully managed the most recent prior segment, the St. Clair County extension. The Bi-State Executive Director said at the time:

- "The St. Clair County Extension is spectacular."
- "I don't know that anyone could have received better service from any consultant than Bi-State got from PB on the build-out of the St. Clair County Extension."
- "PB could not have been more responsive."

The CCC is a joint Venture consisting of :

- Parsons Brinckerhoff Quade & Douglas, Inc.
- Jacobs Civil, Inc.
- STV Inc.
- The Kwame Building Group

Excerpt from OIG Due Diligence Review:

*Metro filed suit against PBQD and the other three companies on August 11, 2004, alleging breach of contract and negligence, and alleging fraud against three of the four companies, including PBQD.*

On November 3, 2004, CCC filed a counter claim seeking \$14 million owed for additional work performed at the direction of Metro. This is only the second time in current memory that PB was involved in a suit against a client. Metro knew that this claim was in preparation when it filed suit and terminated the design and construction management contracts.

Excerpt from OIG Due Diligence Review:

*The contract was for design and management responsibilities including all of the administration, management, reporting and quality functions needed to develop and complete the design and construction of the Cross County MetroLink Project and successfully open the project for revenue services.*

The scope of work originally consisted of a Program Management Contract (PMC) including preliminary engineering on an existing concept design, then final design and construction management services for the 8.5-mile LRT extension, including ten stations, various park-and-ride facilities, systems and track work. The PMC was amended in December 2002 to place the construction management services into a separate contract with CCC.

**Metro formed a Joint Construction Management Team (JCMT) consisting of Metro employees and the CCC to oversee the construction management of the project and most significantly Metro employees – not CCC personnel – held most of the positions of final authority in the JCMT.**

The companies comprising the CCC collectively have a history of successfully collaborating on rail and other transportation projects nationwide for well over a century. In fact, as noted above the CCC companies, including PBQD, also successfully designed and managed the construction of the first two sections of MetroLink.



**Excerpt from OIG Due Diligence Review:**

*Metro believed that the project schedule and budget were at risk if the consultant team continued to manage the project. Therefore, Metro terminated its contracts with the CCC and Metro assumed construction management of the Cross County Metrolink Extension Project on August 11, 2004.*

Only a few weeks prior to the decision to terminate the CCC and to file the lawsuit, Metro met with the principals of the CCC companies and mutually agreed that a new Project plan be submitted that would relieve Metro of ultimate day-to-day responsibility. The plan, which was submitted on Thursday, August 5, 2004, had two objectives - to centralize the construction management of the project back under CCC, as originally planned, rather than Metro, and to achieve completion by the third quarter of 2006 - nearly a year ahead of Metro's current 2007 schedule.

We believe in fact that this project would have come to a timelier and more cost effective completion had the client allowed CCC to provide management oversight of the project as it first contracted to do.

**Excerpt from OIG Due Diligence Review:**

*Please note that since this lawsuit was not filed until August 11, 2004, the lawsuit and the issues involved were not disclosed by PBQD on the Dispute Disclosure Form No. 6 submitted to Miami-Dade County with its proposal on June 4, 2004, nor was it disclosed in PBQD's responses to the due diligence questions. Those responses were provided to Miami-Dade County on July 30, 2004. PBQD has not taken any documented steps to disclose this lawsuit to Miami-Dade County since it was filed.*

PB was not informed, or made aware of, a requirement or interest on the part of the OIG in having PB provide additional information after our submittal on August 9, 2004. As a matter of fact, Mr. Lloyd Graham, PBQ&D's Senior Vice President, Director of Government Contracts, contacted the OIG on at least two occasions after our submittal inquiring if there were any questions, and offering to meet with their staff at their convenience. The OIG never responded nor gave any indication of interest in these offers.

**Excerpt from OIG Due Diligence Review:**

*Articles and documents reviewed include:*

*Metro News Release dated August 11, 2004, stating, in part, that Metro officials announced that the Agency has terminated its contracts with the Cross County Collaborative and has assumed construction management of the Cross County Metrolink Extension Project. The CCC had been under contract with Metro since May 2000 for program management, design, construction management and start-up services for the 8-mile light rail alignment.*

In August 2004, Metro terminated both the design and the construction management contracts. The CCC was surprised at this action since the design work was substantially completed and the construction management was already Metro's ultimate responsibility. In the Design Services Contract, all of the design for the construction packages had been completed and delivered to Metro, which had put out to bid all but three of the packages. In short, there was no substantive performance of pre-construction design services remaining under the original scope to terminate. Any work in progress was additional efforts specifically requested by Metro.



**Excerpt from OIG Due Diligence Review:**

*Post-Dispatch article dated August 11, 2004. This article discusses the lawsuit filed against the four companies. It states in part:*

- *the four companies failed to develop contract and design schedules, provide proper cost estimates, staff the project adequately and coordinate with construction contractors;*
- *details a list of claims that the collaborative's design work was faulty;*
- *the suit also contends the group failed to meet its Disadvantaged Business hiring goal of 26.05 percent;*
- *regarding fraud claims, it states that the companies failed to meet the requirements of the contract and tried to cover it up. They also misled Metro about what they could do that led the transit agency to award them the contract. Three of the companies lied about staffing, designs, construction efforts and right-of-way acquisitions and misled the agency about how much progress they had made in the design of the project.*
- *Metro said those three companies also billed the agency \$1.7 million for work that was never done and shortchanged it 250 construction drawings.*

For all of the projects we perform, including Metro, PBQD develops contract and design schedules, and both engineering and construction cost estimates. These deliverables are reviewed and approved by the client. The documents are also updated at specified milestones in the project and again approved by the client.

The primary complaint leveled by Metro dealt with slippage in the construction schedule, something that we acknowledge had happened. However, we believe most of these delays were attributable to Metro's failure to secure timely relocations of utilities and resolve real estate issues which were primarily Metro's responsibility.

In 2002 Metro decided that utilities would pay for their infrastructure relocation through the City and County based on an April 2002 legal memorandum that concluded, ". . . the Agency can argue that it is not required to pay relocation costs for utilities located in the public right-of-way." The utility companies were not persuaded and refused to commit to any relocation at their cost. Ultimately, Metro abandoned its position and utility relocation negotiations commenced in earnest, but not until after months had been lost on the Project.

The CCC prepared a staffing plan at the beginning of the project that was approved by the client. That plan was implemented and revised as the work scope changed during design. The design phase was completed successfully and the plans and specifications for all construction packages were delivered to Metro for bidding.

During construction, and as a result of Metro assuming responsibility for managing the joint owner/consultant construction management team, Metro had the responsibility for managing the staffing and coordination with the construction contractors. After terminating the contract, Metro hired staff from CCC to oversee construction, the same people they criticized in the suit.

With respect to the statement regarding DBE hiring goals, the DBE goal for the design contract was amended to be 18% and CCC was virtually at that level. The CM contract was terminated before the CCC had the opportunity to achieve the goal.

**Excerpt from OIG Due Diligence Review:**

*A copy of the 34 page lawsuit was provided to the OIG by Metro and is included in the documents provided.*

On November 3, 2004, the CCC filed a counterclaim against Metro for wrongful termination and breach of contract. The CCC is seeking over \$17 million from Metro on the two contracts





that were terminated last August. As explained in the counterclaim, Metro terminated the contracts shortly after the CCC submitted 22 Proposed Change Requests totaling over \$11 million that the CCC had completed at Metro's request. At the same time, Metro was approaching CCC personnel to work directly for Metro on the project, in flagrant violation of Metro's contract with the CCC. The counterclaim also illustrates how Metro directed and oversaw the JCMT. The Project Director – the person with ultimate authority to set management and other procedures – was a Metro employee. The CCC is confident that the Courts will decide in its favor.

### **The Central Artery/Tunnel Project (The Big Dig)**

The Central Artery/Tunnel Project in Boston is among the most complex engineering projects ever undertaken in this country. Highways, bridges and tunnels were built over and under a functioning City. It represents some of the most advanced engineering ever practiced and has noticeably improved how the City of Boston functions. By any standard, the job was monumental:

- 161 lane miles of highway in a 7.5 mile corridor, about half in tunnels, including four major highway interchanges;
- 26,000 linear feet of steel-reinforced concrete;
- the widest cable-stayed bridge in the world;
- a seven-building ventilation system, one of the largest highway ventilation systems in the world;
- 150 acres of new parks and open space;
- 29 miles of gas, electric, telephone, sewer, water and other utilities, relocated for 31 separate companies;
- 144 separate construction related contracts; (25% constructed in poor soil conditions requiring special treatment); and
- 17 million cubic yards of soil excavated (a football field two miles high).

All of this was accomplished while maintaining traffic flow in the heart of Boston. One newspaper noted the traffic moved better during construction than before.

#### **Excerpt from OIG Due Diligence Review:**

*PBQD participated on Boston's "Big Dig" project as a joint venture partner with Bechtel. The partnership is known as B/PB. B/PB was hired in 1985 to manage CA/T design, construction and administration. The project went from an estimated cost of \$2.6 billion in 1982 to a final tally of \$14.6 billion in 2004.*

Virtually all of the OIG's report focuses on the cost escalation. This mirrors the public outcry about the cost and the resulting political drive to blame someone. The suit by the state is a result of this pressure. The following facts should put the issue in better perspective.

**The original estimate of \$2.6 billion was prepared in 1982, by the state, three years before B /PB was placed under contract. That estimate did not include the following final B costs that were initially overlooked or added at the demands of the public and state:**

- \$6.4 billion of inflation over 22 years on the original scope.
- \$2.7 billion of client approved scope increases and traffic management including:
  - \$125 million to rebuild the Dewey Square Tunnels;
  - \$400 million for new interchanges at Logan Airport and Massachusetts Avenue;
  - \$200 million for the Fort Point Channel;



- \$350 million for tunnel roofs (in South and East Boston); and
- \$200 million for temporary ramps and supporting structures.
- \$3 billion of client approved environmental compliance and mitigation including:
  - \$1 billion for the redesigned Charles River Crossing;
  - \$400 million for material disposal on Spectacle Island instead of in the waters of Boston Harbor; and
  - \$550 million to add high-occupancy vehicle lanes to the Interstate 90 and 93 alignments.
- \$600 million of client approved actions to accelerate the schedule by four years.
- \$1.2 billion in client approved accounting adjustments reflecting changes in government guidelines for allocating costs including:
  - \$800 million disallowed insurance credit

Note that the above totals \$16.5 billion, \$1.9 billion higher than the final cost estimate of \$14.6 billion. What accounts for the difference?

- B/P/B cost-control programs have saved the project close to \$1.7 billion including:
  - \$480 million from value engineering such as \$200 million from changes to South Boston interchange alignment.
  - \$750 million from cost-containment actions such as \$60 million from a program for disposing of 17 million cubic yards of excavated material.
  - \$500 million from using an owner-controlled insurance program that eliminated the need for the contractor or consultant to buy commercial insurance.
  - In 2001, in an effort to further reduce costs to the project, B/P/B and MTA renegotiated their agreement, and B/P/B cut its management fee from 10 percent to 7 percent of management consultant labor costs. B/P/B also agreed to implement other significant fee incentives related to safety accomplishments and containing the overall project budget.

In 1994, with only 15% of the construction underway, B/P/B prepared an estimate of the final construction cost. That estimate totaled \$14 billion. We were told by both the client and the Governor that the estimate would not be made public.

The Massachusetts Secretary of Transportation pledged to limit the Big Dig's cost to \$10.4 billion, despite the estimate and professional advice from B/P/B that this would be almost impossible to accomplish. At the time, B/P/B received forceful reminders from the secretary's office that public discussion of such issues rested exclusively with the public officials managing the project, and that the management consultant's contract prohibited B/P/B from making any unauthorized disclosures, although FHWA officials were well aware that B/P/B had expressed its judgment that the eventual cost could far exceed \$10.4 billion.

The State Inspector General released a report in March 2001 – not mentioned in the MDC OIG report – which documented how B/P/B, “provided the governor and state officials with a Big Dig cost estimate of almost \$14 billion, a figure uncannily close to the current \$14.6 billion estimate.”. The IG concluded that B/P/B “disclosed its bona-fide total cost projection to Big Dig officials” and, “shows that B/P/B insisted upon and, in fact, made full disclosure to local FHWA officials in 1994-1995 of each exclusion, deduction, and accounting assumption” constituting the difference between the B/P/B forecast and the publicly announced figure of \$10.4 billion.



The Big Dig is now virtually complete. The cost has escalated from our 1994 estimate of \$14 billion to the final cost of \$14.6 billion. That is a 4% increase over 10 years during which time 80% of the construction was bid and put in place. We consider that a success for a project of this complexity.

Now that the project is near completion, praise is coming in for what it has accomplished and what it represents: Alan A. Altshuler, an urban policy and planning professor at Harvard University and a former state secretary of transportation said to the *Washington Post* (April, 2003), "The project has taken over 30 years, but it is a gem, and a project of a type we will not see for a long time to come."

#### Recent Leaks in the Tunnel

An issue not addressed in the OIG report, but which has attracted attention recently, deals with leakage in some of the tunnel structures. We believe that much of the media comments made related to these leaks reflect a lack of understanding of the engineering that went into the CA/T. All tunnels leak to some extent, especially when under construction. Although the State has opened the Big Dig tunnels to traffic, they are still very much under construction. The September breach, however, was a unique local incident, unlike the routine leaks and seeps. Improper construction of one specific wall panel (out of a total of 4800 such panels) allowed substantial quantities of water to enter the tunnel. While disruptive, such a breach does not threaten the integrity of the tunnel. Initial repairs were quickly completed and a permanent solution is under review. These repairs do not require extraordinary techniques, nor are they especially time-consuming or expensive. The problem will be corrected in a matter of months at no cost to the client. While this type of incident is rare, project teams and an independent consultant are conducting an exhaustive review of records as well as physical inspections to eliminate the possibility of any similar issues in other sections of the tunnel. The tunnel is structurally sound as determined by an independent consultant hired by the client.

#### Los Angeles Transit Project

PB is proud of its performance over the last twenty years on the LA projects. The Red Line, the Blue Line and the Green Line, each with a different technology, are open and carrying passengers in revenue service. The Red Line and Blue Line survived the North Ridge Earthquake (equivalent to the design earthquake) with only brief shut-downs to inspect the track way. The Green Line, under construction at the time, was not damaged by the earthquake. PB was reselected again and again in LA because of its excellent performance, most recently for design of the East LA line.

We believe the OIG's report on this project is a non-issue since the litigation was settled in our favor as correctly reported below.

#### Excerpt from OIG Due Diligence Review:

*On March 24, 1999, Engineering Management Consultant (EMC), a joint venture of Parsons, Brinckerhoff, Quade & Douglas, Inc. and other firms, filed a complaint against the Los Angeles County Metropolitan Transportation Authority (LACMTA) alleging breach of contract, breach of the implied covenant of good faith and fair dealing, and declaratory relief, and asking for damages in excess of \$12,300,000 for amounts owing for work performed.*

*On May 11, 1999, LACMTA filed a cross-complaint against EMC, alleging breach of contract, breach of contract-implied covenant, unfair competition, restitution, breach of contract and declaratory relief, and asking to recoup in excess of \$13,000,000 from the defendants.*



*The complaint and cross-complaint deal with Contract No. E0070 with PBQD and another company effective May 1, 1992, and Amendment No. 1 to that contract entered into with EMC, a joint venture of PBQD and another company, effective May 1, 1997. Under the contract and its amendment, PBQD, EMC and the other company were to provide services including engineering design, engineering management, program and project management, and construction administration in connection with rail and other transit projects.*

*On April 7, 2003, LACMTA and EMC signed an Agreement of Settlement and Mutual Release, settling the issues raised in the complaint and cross-complaint. As a result of the settlement agreement, LACMTA agreed to pay a total of \$1,000,000 with \$638,942.69 going to EMC, and the other \$361,057.31 being withheld pending EMC's negotiations with EMC's Non-Teaming Subcontractors for unpaid cost claims. According to LACMTA's legal counsel, LACMTA decided to proceed with the settlement agreement to avoid a long and drawn-out legal battle in court.*

### **Los Angeles Bus Signal Project**

#### **Excerpt from OIG Due Diligence Review:**

*On December 16, 1997, the Metropolitan Transportation Authority (MTA) of Los Angeles County, denied PBQD pre-qualification for their RFP Number PS-4370—0172, Bus Signal Priority Project. The reasons for the MTA denying PBQD's pre-qualification for this RFP was:*

- 1. Failure to submit material information required on the questionnaire; and*
- 2. Deliberate submission of false information.*

Both allegations discussed above concerned answers to a pre-qualification questionnaire where there was considerable confusion by all firms proposing as to the interpretation of the questions. Not only was PB disqualified, so were the other two firms that submitted a document answering the questionnaire.

#### **Excerpt from OIG Due Diligence Review:**

*The issues dealt with failure to submit information related to the Boston area public works joint venture and undisclosed political contributions to Los Angeles County MTA Board Members.*

The pre-qualification questionnaire asked about:

- Questions #14 & #16 - Corporate or individual ownership or partnership in other firms

We did not interpret this to mean our dozens of Joint Venture projects with other firms so we said no.

- Question #27 - Projects with a "final unsatisfactory performance determination..."

The Boston project was still underway and therefore, was not included. In fact, the Client Program Manager at that time, Peter Zuk, had this to say, "**In my estimation, Parsons Brinckerhoff is the finest program development firm in the country, if not the world.**"

- Questions #31 & 32c – Alleged violations of laws or regulations



PB was never alleged by a government agency to have violated any laws or regulations on the Boston project. Numerous press articles were critical of the cost escalation and reported there were investigations underway. This subject is discussed in full under the Central Artery/Tunnel section of this response

- Question #34 – Undisclosed political contributions to LACMTA employees or board members

All of the contributions PB made were legal and duly reported by local requirements prior to the issuance of the questionnaire. We interpreted the question to mean contributions that had not previously been reported.

Excerpt from OIG Due Diligence Review:

*PBQD formally appealed the denial of pre-qualification on December 22, 1997. The appeal was denied by MTA on February 2, 1998, stating in part: "...the Executive Review Panel determined that sufficient information was not provided regarding why the firm answered question number 34 with 'no' answer. Therefore, based on this item alone, the Panel had no recourse but to deny the appeal..." (Note: Question 34 dealt with the issue of disclosure of conflicts of interest, and whether any contributions had been made.)*

*Please note that PBQD was later granted pre-qualification by MTA on August 25, 1998 on a different procurement action, IFB Number PS-4370-0336, Bus Signal Priority Pilot Project.*

The "different procurement action" noted above, was in fact, a re-compete for the same project because all three firms were denied pre-qualification in the first procurement. PB was pre-qualified and won the second procurement after the confusion was corrected in the response to the questionnaire.

Excerpt from OIG Due Diligence Review:

Other Articles and Documents:

*See the ENR article dated January 21, 2003. The Minnesota Department of Transportation (DOT) tried to shift blame, criticize federal authorities and destroy public documents on a federal light-rail funding issue. The FTA said it would not fund the project unless MnDOT sought new bids for a project management contract. It said that the New York firm Parsons Brinckerhoff Quade and Douglas had been in a position to use inside information to win the job.*

PB was the incumbent consultant for the previous phase of the project. Our competitors complained that as a result we had inside information and an unfair advantage in the subsequent procurement.

If this were a valid argument, no incumbent would ever be able to compete for subsequent work on any project.

The MnDOT conducted a thorough investigation and concluded that by state law and protest procedures, PB was eligible to re-compete and did not benefit from any inside information, and the procurement would stand. The FTA, in spite of their own procedures which stated that local protest procedures hold precedent, insisted that it be re-bid. PB chose not to submit a proposal in the re-bid.

Excerpt from OIG Due Diligence Review:

*December 27, 1994 article in the Los Angeles Times. The article states in part:*



- "...MTA contractors dispense thousands in political gifts..."
- "Parsons Brinckerhoff. The New York-based company leads a consortium of design-engineering firms that have donated more than \$36,000 to MTA members. The group has won about \$300 million worth of contracts, awarded at the discretion of transit board members..."

All PB contributions, in Los Angeles and nationwide, follow to the letter both federal and local requirements. Because we believe that transportation improvements are vital to the efficient functioning of this country, we provide contributions to individuals and organizations that share our belief and are advocates for these infrastructure improvements.

Excerpt from OIG Due Diligence Review:

- The OIG reviewed the responses provided by PBQD to the due diligence questions asked by the OIG as part of the PMC process. Please note the following:
  - A review of the political contributions made by Parsons Brinckerhoff noted the following:
    - On February 24, 1998, contribution of \$200 to John Cosgrove for State Senate race;
    - On November 26, 2003, contribution of \$5,000 to Alex Penelas for Senate race.

As stated above, all PB contributions follow, to the letter, both federal and local requirements.

This concludes the attachment and our response to the OIG report.



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# Nation

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## Big Dig's hole getting even deeper

Advertisement

By Rick Hampson, USA TODAY

**BOSTON** — The Curse of the Bambino is dead. Not the Curse of the Big Dig.



Workers clear water from the Interstate 93 tunnel under Boston - part of the city's Big Dig - on Sept. 15.

By Steven Senne, AP

It leaks.

The Big Dig, the costliest highway project in U.S. history, is a series of tunnels and spans designed largely to handle traffic that once rumbled through town on an ugly, rickety, chronically jammed elevated highway that walled off the waterfront.

The Dig has just 7.8 miles of road, yet it took \$14.6 billion and 13 years to build — \$8 billion and five years more than promised.

And money isn't all it leaks.

That became apparent two months ago, when motorists noticed water seeping through traffic barriers in the northbound tunnel of Interstate 93. Within hours, workers had closed lanes and sandbagged one wall like a porous dike. Traffic backed up for 10 miles.

Now, independent engineers hired to study the problem are telling the rest of the story:

- The Big Dig's tunnels may have more than 400 leaks, most of them small, but several as large as the one responsible for September's fiasco. They could take a decade and untold millions to repair. And *The Boston Globe* reported Wednesday that there are hundreds of additional ceiling and wall fissures.

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- Tunnel drains that were expected to handle 500,000 gallons of water a year got 26 million gallons from December to September.
- The project contractor and the Massachusetts Turnpike Authority apparently knew about the problem in 1999 but did nothing.

The problem developed when sand or clay deposits formed in concrete as it was poured. Over time, those deposits washed away, creating leaks. Engineers agree, however, that the tunnels are sound and in no imminent danger of serious flooding.

#### **Lots of finger-pointing**

Whom to blame? Gov. Mitt Romney has called on the head of the Turnpike Authority to quit. The authority is accusing the construction manager, Bechtel/Parsons Brinkerhoff, which in turn points to the work of a major construction contractor and says the authority knew what was going on.

State Attorney General Tom Reilly has pledged to determine "who knew what and when." Legislative hearings are planned.

Bostonians grudgingly forgave the Red Sox for selling Babe Ruth, the Bambino, to the New York Yankees in 1920 and (possibly as a result) not winning another World Series until last month. They don't have the same tolerance for the Big Dig.

*Boston Herald* columnist Howie Carr calls it "the new Poseidon Adventure." His *Herald* colleague Margery Eagan has told commuters to "start stuffing flippers and snorkels in the minivan. And strap a kayak on the roof. ... We're only one gusher away from The New Atlantis."

Some motorists are anxious about traveling through the troubled tunnel. "It makes you claustrophobic to have to sit there, knowing it's leaking," says Vic Ianniello of Revere, who passes daily through the tunnel, which is 12 stories down in spots.

"A lot of people are saying to themselves, 'This may not be the greatest road to the airport,' " says Harold Hubschman, a motorist and longtime Turnpike Authority critic. "There's a Hollywood industry based on this kind of thing."

The *Globe* has quoted a psychologist as saying that "tunnel anxiety" is normal, but that drivers who find themselves mapping elaborate alternative routes should seek professional help.

Some cope with humor, as in: "I got a free car wash today — I drove through the Big Dig." Others call it "the Big Colander" and say that, as an engineering feat, the project should not be compared to Hoover Dam; it's more like Niagara Falls.

The Big Dig may be getting a bad rap. Even though it required the excavation of enough soil to fill Fenway Park 14 times, the project displaced not a single resident. Traffic continued to flow along the route even as tunnels were dug directly underneath, a feat that required several engineering innovations.

Before the Sept. 15 leak, "there was growing appreciation for the marvels of the project," says Richard Dimino, head of a pro-Dig business group. When the link connecting I-90 with Logan Airport opened, he says, "people were popping champagne."

The project's exotic Zakim-Bunker Hill Bridge, whose inverted-Y-shaped towers echo the Bunker Hill Monument, is a popular success.



And when the site of the former elevated highway (called, because of its paint job and condition, "The Green Monster") becomes a 27-acre green belt, it will create some of the world's most valuable real estate.

But Carr says the Big Dig could doom Romney's presidential aspirations in 2008, much as a polluted Boston Harbor helped sink those of Gov. Michael Dukakis in 1988.

And there's the question of the project's legacy: Does the Big Dig represent the future of public works, or the past?

### **Money dries up**

Advocates describe the Dig as a model for cities that want to replace their aging central highways, remove through traffic from downtown and reclaim the waterfront.

But that takes money. When the Big Dig was proposed in the 1980s, federal interstate system funds paid for up to 90% of highway construction. States could afford to essentially buy off potential opponents under the rubric of "mitigation."

In the Big Dig, mitigation meant paying for everything from mufflers on jackhammers to fall foliage tours for neighborhood residents and \$450 million for temporary streets. But now that Washington has reduced aid for new interstate highway construction, states and localities must come up with more money themselves.

In Seattle, for example, the aging, earthquake-shaken Alaskan Way Viaduct cuts downtown off from the waterfront and badly needs reconstruction or replacement. But since someone else is no longer picking up almost all the tab, how will people in eastern Washington feel about spending billions mostly to benefit the other end of the state?

"The Big Dig proves the worst urban planning mistakes of the postwar years are reversible," *Governing* magazine observed last year. "We can rip them up and start over if we want to badly enough. The question is whether that can be done at an acceptable price. No doubt dozens of cities will decide it can't."

Especially if, like the Big Dig, they could come with huge cost overruns.

But the Dig will continue to fill one local need unrelated to transportation. Now that the Red Sox finally have won the World Series again, Bostonians still will have something to complain about.

*Contributing: Associated Press*

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**Office of the  
Inspector General**

Commonwealth of Massachusetts

**Gregory W. Sullivan**  
Inspector General

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A Big Dig Cost Recovery  
Proposal: Trench Drain Failures  
Led to Cost Increases

November 2004

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The Commonwealth of Massachusetts  
Office of the Inspector General

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November 2004

Dear Chairman Amorello:

I am forwarding for your review the most recent findings from my Office's continuing review of potential Big Dig cost recovery cases. These findings refer to poor design work, design management, and construction management on the part of numerous section design consultants and the joint venture of Bechtel/Parsons Brinckerhoff (B/PB).

Specifically, my Office found that B/PB failed to prepare adequate preliminary designs and specifications for trench drains in East Boston. A fundamental part of the roadway drainage system, trench drains are located throughout the project. Although trench drains have been used since the introduction of the interstate highway system, B/PB has had difficulty making them work on the Big Dig.

B/PB allowed a myriad of trench drain designs to be used on the project. B/PB approved all the designs, many of which subsequently failed. B/PB then took nearly five years to provide the designers and construction contractors with an adequate remedy for these failures. In effect, B/PB charged the taxpayers to reinvent the wheel. Construction costs for these repairs may top \$5 million.

I recommend that this matter be referred to the Turnpike Authority's cost recovery team.

My staff is available to assist you in any continuing examination of this or any other issue. Thank you.

Sincerely,

Gregory W. Sullivan  
Inspector General

cc: Judge Edward Ginsburg

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## ***INTRODUCTION***

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This report is a referral to the Massachusetts Turnpike Authority (Turnpike Authority) from the Office of the Inspector General (Office) concerning a potential \$3 to 5 million cost recovery case against the manager of the Central Artery/Tunnel Project (CA/T Project), Bechtel/Parsons Brinckerhoff (B/PB).

Cost recovery is the process by which owners may file claims against design and construction management professionals for costs associated with possible errors, omissions, or other deficient practices.

This report deals specifically with the B/PB-approved repair and reconstruction of trench drains under three contracts: C07C1 (East Boston Toll Plaza and Facilities), C07D2 (I-90 Airport Interchange), and C08A1 (I-90 Route 1A Interchange). Trench drains are part of a roadway drainage system. In East Boston and elsewhere, these drains have failed apparently because of poor design and inadequate design oversight by B/PB. B/PB compounded the problem through a delayed management response to the drain failures after construction.

Project documents estimated the cost of repairing the East Boston trench drains at more than \$1.5 million. Projectwide, these repairs may cost \$3 to \$5 million. To date, B/PB has not assumed responsibility for these failures nor has B/PB sufficiently investigated the issue to determine responsibility for the wholesale failure of this drainage system component.

The Office brings this matter to the attention of the Turnpike Authority and recommends a further cost recovery investigation.

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## **BACKGROUND**

B/PB has been the project manager for the CA/T Project since 1985. Part of B/PB's management responsibilities included the preparation of preliminary designs for the various sections of the CA/T Project. The preliminary designs for the CA/T Project roadway system included a storm drainage system. These drainage systems collect rainwater and safely remove it from the roadway. Part of the drainage system is a trench drain. Trench drains are channels embedded in a roadway that are covered with a metal grate that allows water to flow into and traffic to pass over the channel. They are installed in areas where roadways dip into a valley and water would pool otherwise.

This Office reviewed a number of contract modifications for construction contracts in the East Boston portion of the project. The East Boston Toll Plaza contract was issued to construct the Ted Williams Tunnel tollbooths. The contract included contract modifications numbers 150 and 175 for "trench drain temporary repair" valued at \$56,513. Additional trench drain related modifications on the I-90 Airport Interchange and the I-90 Route 1A Interchange contracts brought the total value of the trench drain related modifications in East Boston alone to nearly \$1.5 million. Trench drains can be found throughout the project. B/PB documents estimate the cost to correct the projectwide problem to be \$3 million. Other estimates identify a figure closer to \$5 million.

The need for these modifications to repair and eventually replace the trench drains by the three East Boston trench drain contractors appear to stem from:

- 1) B/PB's failure to include standard design details for the trench drains in the project's preliminary design; and
- 2) B/PB's failure to prepare standard construction contract specifications for trench drains.

B/PB left the details and specifications of the trench drains to each of the numerous final designers or Section Design Consultants (SDC) on the project. As a result, no projectwide standard existed and each SDC designed its own version of a trench drain. Some of these designs failed soon after the opening of the roadway. When roadway trench drains fail, the accumulation of water creates a road hazard and possibly flood conditions.

According to project documents, "Virtually all trench drains have failed." These failures may be attributed to the SDCs requiring the wrong trench drain frames and covers for the types of roadways being designed. For instance, in the design of the I-90 Airport Interchange contract, the SDC specified and B/PB approved the use of a grate (trench cover) designed for slow moving traffic like a taxiing airplane.<sup>1</sup> The grate did not include a bolt down feature that would allow the grate to withstand the high impact loads of highway traffic. After installation in the East Boston roadways, these trench drains failed because the impact of traffic dislodged the unbolted grates covering the trench drain. Concrete failure and related anchoring of frames was also problematic.

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<sup>1</sup> Neenah Foundry Airport Trench Drain R-4990 Type Grate.

## ***FINDINGS***

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### **FINDING 1 – Before 1999, B/PB had no projectwide design standard for trench drains.**

B/PB, as project manager, had many contractual responsibilities including the development of preliminary designs and projectwide standards. B/PB did not develop a standard trench drain design until 1999, eleven years after project design began, even though trench drain failures had occurred projectwide. As a result of not having a projectwide standard, approximately 10 SDCs developed their own details and specifications for trench drains. Therefore, each section of the CA/T Project had different trench drain designs and each SDC was paid for its own trench drain designs. Not having a standard design guideline also resulted in B/PB having to review and approve many different trench drain designs at an additional cost to the taxpayers.

The differing designs could create long-term operations and maintenance issues for the Turnpike Authority. The Turnpike Authority will have to deal with ordering and stocking a variety of replacement parts for trench drain repairs and will have to develop various specifications for future repair work.

Not having a standard led to B/PB's approval of some trench drain designs that proved inadequate. These inadequate designs led to the eventual need to repair and replace faulty trench drains and to the creation of a projectwide standard to prevent the further approval of inadequate designs.

A B/PB memorandum pertaining to trench drain issues stated that B/PB did not expect to find the variation in trench drain frames and covers that had become so problematic for the project. The result has been insufficient design work, roadway damage, and added costs.

**FINDING 2 – The first projectwide standard for trench drains issued by B/PB did not specify a standard type of drain.**

In response to what B/PB termed the “premature” failure of certain trench drains in May 1999, B/PB issued the first projectwide design standard for trench drains. The design policy memorandum, DPM 172, directed the SDCs to comply with this new standard for the design and detail of trench drains. B/PB did not specify the type of trench drain to be used other than to note that it should be suitable for interstate highway traffic loads. Fourteen major contracts had already been designed and were under construction. These contracts did not incorporate the new design standard.

The drawing attached to design memorandum was not dated, signed by or stamped by an engineer, nor did it contain any approval signatures. The memorandum also referred to using **two-foot** wide trenches. According to an undated B/PB memorandum, a B/PB investigation of trench drain failures concluded that a width greater than **one foot** led to many failures. In other words, B/PB’s 1999 standard continued to promote failure. [Note: This Office’s review of project files did not find any other reference to a B/PB investigation or evidence that B/PB conducted an investigation.]

**FINDING 3 – B/PB took four years to revise the trench drain standard.**

B/PB issued the first standard for trench drains in 1999. Even though this standard contained an unapproved, undated drawing and continued to allow varied and sometimes ineffective designs, B/PB did not issue a design revision to correct these design problems until 2003 – four years later. This revision came too late to prevent the construction of faulty trench drains or save the taxpayers money.

In 1999, the CA/T Project paid B/PB to issue an ineffective standard. Then, in 2003, the CA/T Project paid B/PB to issue the correct standard. B/PB took so

long to release the corrected standard that the revision had no impact on design work. Design work had been completed thereby rendering the corrected standard almost useless. Interestingly, this corrected standard contained a drawing that engineers had dated, signed, stamped, and approved.

**FINDING 4 – B/PB assigned the trench drain repairs to numerous contractors yet it is unclear whether the repairs have been completed.**

This Office's review of records concerning the trench drain issue indicates that beginning in 2002 - three years after it issued the standard trench drain design memorandum in May 1999 - B/PB assigned trench drain repairs to three contractors working on the East Boston portion of the project. Records do not indicate whether repairs have been attempted or completed.

B/PB first assigned the job to the joint venture of DeMatteo/Flatiron (DeMatteo) on the I-90 Airport Interchange contract in April 2002 for \$125,000. DeMatteo installed the trench frames and grates as part of their original contract. B/PB instructed DeMatteo to fill in the drains temporarily and then install the permanent frames and grates. The contract modification justified the work by calling the trench drain failure a differing site condition. Prior to this, the concrete around the trench drain covers began to chip and degrade from the impact of the traffic. The design had failed. This Office found no evidence that DeMatteo performed the repairs or was paid.

### **Differing Site Condition**

A differing site condition is defined in numerous CA/T Project contracts as existing when actual latent subsurface or physical conditions at the contract site:

[Differ substantially or materially from those shown in the contract documents, or from those conditions ordinarily encountered in work of the nature undertaken. The contractor may be entitled to an equitable adjustment in the contract price if the awarding authority determines that such conditions caused an increase or decrease in the cost of performance.

Given this definition, the failure of the trench drains in East Boston cannot be framed on a differing site condition.

### **B/PB never referred trench drain failures for cost recovery against the designers.**

Prior to 2002, B/PB had full responsibility to refer potential cost recovery matters to the commonwealth for review and possible pursuit. If B/PB believed that SDCs were responsible for the trench drain failures, B/PB should have reported the problem to the commonwealth for cost recovery review. If it was B/PB's failure, the company should have pursued cost recovery against itself. B/PB did neither preferring to issue contract modifications, effectively charging taxpayers to fix the problem.

In May 2003, B/PB revised the design memorandum and directed DeMatteo to cease all related work and began negotiations with Barletta Engineering Corporation (Barletta), the East Boston Toll Plaza contractor, to repair the East Boston trench drains. Barletta proposed a cost of \$642,000. Project records do not indicate what, if anything, came from this proposal.

In October 2003, B/PB requested that the I-90 Route 1A Interchange contractor, Barletta Heavy Construction, (a firm related to Barletta Engineering), repair the trench drains. B/PB estimated \$845,000 for this work - \$720,000 more than the

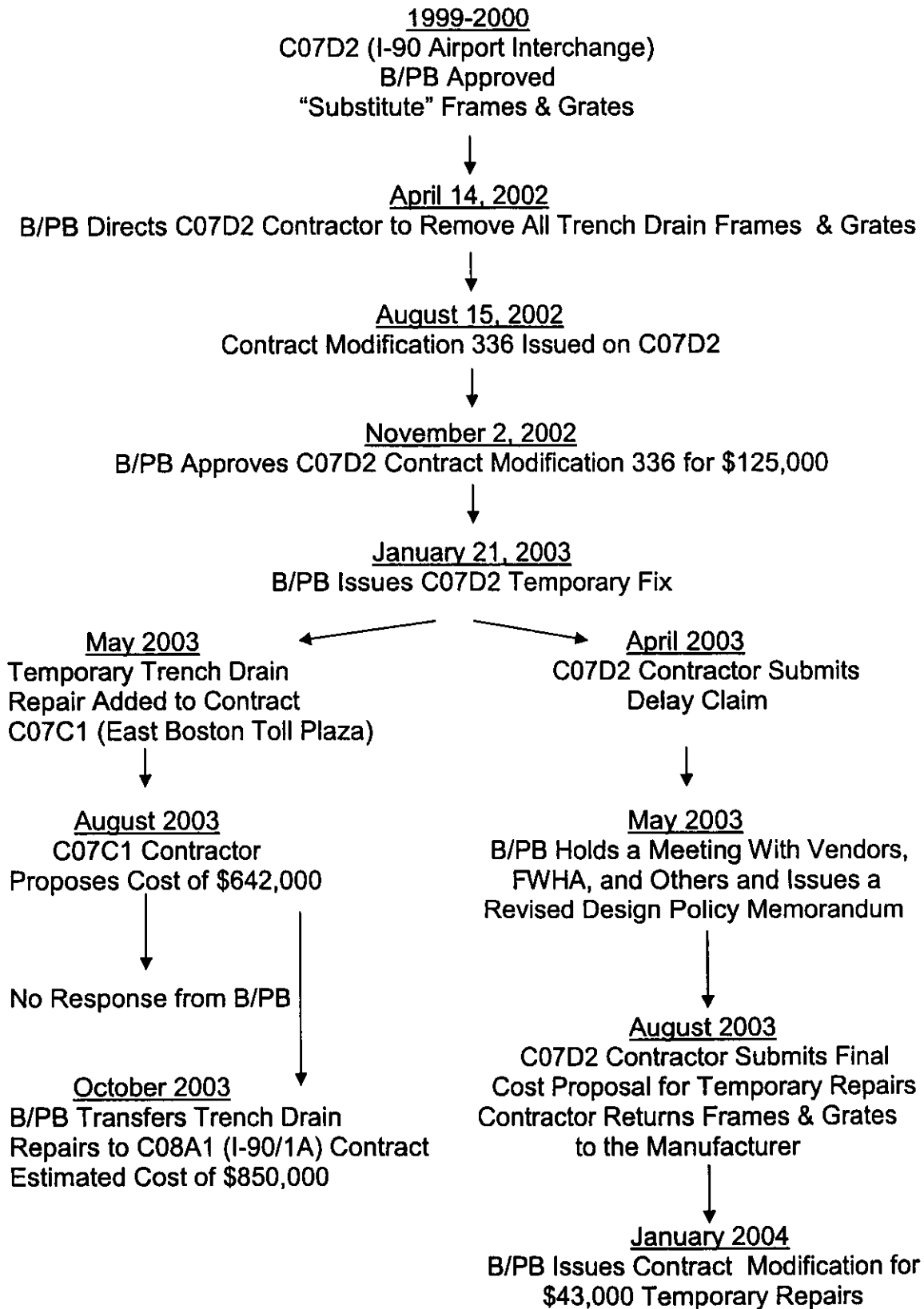
original contract modification with DeMatteo. This Office does not know if this work has been attempted, completed, or paid for. [See Attachment One for chart of East Boston trench drain repairs.]

**FINDING 5 - Taxpayers have paid a high price for trench drain repairs.**

East Boston trench drain failures offer just a quick glimpse of a projectwide problem. Most failures occurred after contractors had completed construction of particular sections of the project. To do the repairs, B/PB sought out the construction contractor working in closest proximity to the failed drain. This contractor received a contract modification to its contract. The contractors who performed this additional work received payment on a time and material basis. This Office and others consider this to be the most expensive form of payment to contractors.

B/PB simply reimbursed the contractors for the work. B/PB based the reimbursement on contractor estimates of the labor and materials used for the repair. As a result, trench drain repairs varied in cost and time. B/PB should have considered price when addressing this projectwide problem.

**Attachment One: The Assignment of Trench Drain Repairs in East Boston**





## ***CONCLUSION***

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The Office of the Inspector General recommends that the Turnpike Authority pursue a cost recovery investigation against B/PB regarding the failure of trench drains in East Boston and projectwide.

B/PB failed to ensure that adequate trench designs were used on the project. When trench drain designs proved inadequate, B/PB failed to take corrective action in a timely manner. B/PB's first attempts amounted to paying contractors to try "band-aid" solutions for the problem.

As a result of B/PB's failings, the taxpayers could pay \$3 to 5 million more in construction costs and a yet unknown amount for added design costs.

<b>Contract</b>	<b>Trench Drain Repair Costs</b>
C08A1 (& C07C1)	\$900,000
C09B2 (I-90 Seaport Access Tunnel Finishes)	\$1,044,000
C09C2 (I-93/I-90 Interchange, Ramps, and Restoration at Albany Street)	\$1,000,000
<b>Total Estimated Costs</b>	<b>\$2,944,000 (Minimal)</b>

What makes the failure of trench drains particularly troubling is that trench drains are a common part of roadway designs. Trench drains have existed since the 1920s and have been used extensively on roadways since the introduction of the interstate highway system in the 1950s. Although the Big Dig is a complex project, trench drains are not. Despite this fact, B/PB took nearly five years to develop a complete and reasonable design standard for trench drains after failures had been reported.

Turnpike Authority cost recovery efforts should include not only the added construction costs but also B/PB's charges for design and construction management related to the trench drain issue. In addition to the multi-year design effort to create a projectwide trench drain standard, B/PB failed at construction management as well. For example, B/PB claimed that it inspected and tested the trench drains along the Central Artery before the roadway opened in 2003. B/PB gave these trench drains passing grades. Yet, shortly after the roadway opened, the trench drains failed as they had done in East Boston.

In an undated and unsigned B/PB document pertaining to the trench drain issue, a section entitled "defense" states that B/PB did not provide specifications or design details for the project's drainage system. The inference here is that B/PB has no responsibility. B/PB's "defense" continues by stating that: "As B/PB became aware of inadequacy in the designs, steps were taken to correct those inadequacies in a timely manner."

This Office believes that a review of the facts will prove otherwise.

## **APPENDIX A:**

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### **Cost recovery related reports:**

- 1) *A Big Dig Cost Recovery Proposal: Poor Contract Oversight by Bechtel/Parsons Brinkerhoff May Have Led to Cost Increases.* February 2004.
- 2) *A Big Dig Cost Recovery Referral: Contract Mismanagement by Bechtel/Parsons Brinkerhoff May Have Increased Big Dig Costs.* December 2003.
- 3) *Proposal to Pursue Big Dig Cost Recovery: Ceiling Installation in the Ted Williams Tunnel.* October 2003.
- 4) *A Recommendation for Cost Recovery Against the Big Dig's Management Consultant: Grout Heave-Related Contractor Claims on the C11A1 Contract.* February 2003.
- 5) *A History of Central Artery/Tunnel Project Finances 1994-2001: Report to the Treasurer of the Commonwealth.* March 2001.
- 6) *A Review of the Central Artery/Tunnel Project Cost Recovery Program.* December 2000.
- 7) *Statutorily Mandated Reviews of Central Artery/Tunnel Project Building Construction Contracts 1997-1999.* December 1999.
- 8) *A Review of the Central Artery/Tunnel Project's use of Anchor Bolts on the C05B1 Tunnel Finishes Contract.* December 1998.
- 9) *Statutorily Mandated Reviews of Central Artery/Tunnel Project Building Construction Contracts 1994 - 1996.* December 1996.



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## Bechtel/Parsons Brinckerhoff Responds to "Big Dig" Tunnel Leak Allegations (11/22/2004)

The Big Dig is safe and sound.

Recent news stories have vastly exaggerated the impact and significance of tunnel leaks in the Central Artery/Tunnel Project. A number of public figures have also rushed to judgment. As a result, unjustified fears have been raised about the safety of the tunnels. Concerns that the public will be stuck with years of costly repairs are also unwarranted. In fact:

- All the experts agree: The Big Dig is structurally safe and sound.
- The tunnels already meet industry norms for water intrusion, even before they are finished.
- The program to seal leaks will be completed within months, not years, generally at the contractors' expense and without jeopardizing the project's budget.

It comes as no revelation to engineers that water is entering the tunnels: they are still under construction and partially open to the weather. For instance, water flows into the tunnels down traffic ramps that are still uncovered. Some roof sections have yet to be installed. There are open holes where beams that used to support the old elevated artery once stood. Manholes and utility conduits are not yet sealed. Covering or sealing such pathways is a scheduled part of finishing the project.

In the meantime, water entering the tunnel is readily managed by permanently installed drains and pumps. The volume is decreasing as work progresses.

All tunnels built below the water table will have some seeps and leaks. That's true of subways and highway tunnels in Boston, New York, London, and elsewhere. We have reduced these leaks by waterproofing portions of the tunnel floors, walls, roofs, and joints. As the project gained experience with local conditions and material performance, waterproofing designs were upgraded over time - but never found defective, as falsely reported.

No waterproofing system is perfect. Chasing water that inevitably seeps through walls and joints is a normal part of construction. We take this job seriously in order to prevent corrosion problems. The spots where water enters are systematically located and sealed, one at a time, by the contractors responsible for each of the various sections of the tunnels or utilities. The work will generally be done at their expense to meet work specifications.

This process was anticipated and built into design, budget, and schedule. It will take months to complete, not years. Any residual seepage will be handled by a normal maintenance program as with all tunnels.

According to the Federal Highway Administration's tunnel maintenance manual, typical tunnel designs assume a continuing trickle equal to about one ordinary garden hose for each linear mile of tunnel. The Big Dig's tunnels already meet this norm for

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fully finished tunnels, even though they are not yet complete. Ultimately, we expect the Big Dig tunnels to perform better than industry norms.

These anticipated leaks and seeps are not unusual in tunnel construction and have nothing in common with the leak that interfered with traffic on September 15, 2004. That was a localized incident. Improper construction of a single wall bay allowed substantial quantities of water to enter the tunnel. We and the state are still investigating why the construction error happened and why it wasn't corrected earlier.

While it seriously delayed rush hour traffic, the September leak in no way threatened the integrity of the tunnel. Initial repairs were quickly completed and engineers have agreed on a permanent solution. The cost of any repairs will be assumed by the responsible parties, not by the project or the public.

Fortunately, this type of issue is rare. The wall bay in question was one of many thousands of tunnel wall bays in the Big Dig. The breach, while disruptive, involved a few square feet out of 3.2 million square feet of tunnel walls.

Nevertheless, to eliminate the possibility that similar issues might arise elsewhere, project teams are conducting extensive physical inspections and a thorough review of records. Four other wall bays may also need remedial work and will be repaired, again at no cost to the public or to the project.

Nothing about any of these leaks represents a threat to the integrity of the Big Dig tunnels. An independent expert hired by the Commonwealth has stated without reservation that the tunnels are safe and structurally sound. We strongly share this assessment.

The people of Massachusetts can drive the Big Dig tunnels with assurance. The Central Artery/Tunnel Project represents an extraordinary engineering and construction achievement, and an outstanding contribution to Boston's civic infrastructure.

## Facts and Allegations

In the interests of correcting the many false or misleading allegations in media reports and public statements, Bechtel/Parsons Brinckerhoff (B/PB) offers the following facts:

**Allegation:** It is unacceptable that the completed tunnels continue to leak.

**Fact:** Although the state has opened several tunnels to traffic, construction is not yet finished.

- The project is not scheduled for substantial completion until September 2005.
- Drivers can use I-90 and northbound I-93 tunnels safely in the meantime.
- Until construction is finished, the tunnels remain partially open to the weather and may take in water through:
  - uncovered ramps

- unfinished roofs
- openings around beams that held up the old artery
- unsealed utility conduits
- A program to locate and seal normal wall and roof leaks and seeps is making substantial progress, and should be substantially complete by next summer, along with the rest of the project.
- This waterproofing program will be accomplished largely at the contractors' expense and does not jeopardize the project's budget.
- All tunnels below the water table have some residual seepage that must be handled through normal maintenance programs. The Big Dig tunnels will have such a program in place.

**Allegation:** Water entering the tunnels makes them unsafe or structurally unsound.

**Fact:** Experts agree the tunnels are both safe and sound.

- The inflow is readily managed by permanent pumps and drains that catch and divert the water safely.
- Today the water flow has been reduced to the equivalent of six garden hoses - already meeting industry norms for water flow in tunnels, as published by the Federal Highway Administration.
- Water inflows during construction were expected and will diminish once tunnels are complete and they are fully closed to the weather.
- Project officials, an independent expert hired by the state, and our engineers confirm the tunnels are safe and sound.

**Allegation:** Fixing the tunnel leaks will take up to a decade.

**Fact:** Proper repairs will take months, not years, to complete.

- Much of the water inflow will end when construction is complete and tunnel openings are sealed.
- The grouting program to seal water leaks is also part of the construction schedule and should be substantially complete, along with the rest of the project, by the summer of 2005. It has already achieved a substantial reduction in leaks.
- The I-93 wall breach was quickly repaired; project engineers and an independent expert hired by the state have agreed on a permanent solution that can be implemented within weeks. Inspecting and making any necessary repairs to the few additional suspect panels should take a few months at most.
- The opened tunnels are perfectly safe to use even while these repairs progress.

**Allegation:** The September 2004 wall breach was indicative of tunnel leak problems.

**Fact:** The problems appear to be very limited in number and do not affect public safety or tunnel integrity.

- The September breach was a localized incident entirely unrelated to the normal leaks and seeps experienced by all tunnels below the water table.
- The September incident in no way compromised the structural integrity of the tunnels, as confirmed by the state's

independent expert.

- It was caused by poor construction on one wall bay out of 20,000 throughout the tunnels.
- The breach measured only a few square feet out of 3.2 million square feet of wall space.
- The project is conducting extensive physical inspections and a thorough review of records to identify any similar problems. To date, we have identified only four wall bays that may need remedial work - all less serious than the one that failed in September 2004.

**Allegation:** B/P/B failed to correct wall construction problems, leading to the breach.

**Fact:** We and the state are still aggressively investigating why the construction defects went uncorrected, and we welcome an objective determination of the facts. The responsible parties, not the public, will pay for repairs.

**Allegation:** B/P/B allowed poor waterproofing to go uncorrected.

**Fact:** B/P/B took the lead in addressing waterproofing issues.

- B/P/B identified issues with the performance of waterproofing systems. We created a task team with state officials in March 1997 to address those issues aggressively.
- As a result, the project took several actions to correct the problems. Among the most important:
  - The project made contractors strictly meet contract specs and adhere to waterproofing manufacturer written requirements.
  - The project eliminated waterproofing systems that contractors had difficulty implementing properly in the field.
  - This task force led to significant improvement in the installation of waterproofing, reflected in the fact the tunnels today meet industry norms, published by the Federal Highway Administration, even before completion.
- The project will hold contractors accountable for the quality of their work - and for grouting and sealing leaks at their expense.

**Allegation:** B/P/B has not acknowledged the extent of the leak problem.

**Fact:** The state has been kept fully apprised of waterproofing issues as they arose.

- From the very beginning, the state chose a state-of-the-art construction method known as "slurry walls" to make it possible to build tunnels within the extremely tight space constraints posed by the existing artery, adjacent buildings, utilities, the subway system, and other obstacles. Concrete walls built this way inevitably leak more than tunnels that are built and sealed in broadly cut trenches.
- State experts joined B/P/B engineers on the Waterproofing Task Force that recommended tough measures to ensure high quality waterproofing throughout the project.

- The Waterproofing Task Force report from 1997, which The Boston Globe cited in claiming that "The Big Dig's tunnel leak problem is far more costly and extensive than Massachusetts Turnpike officials and private contractors have acknowledged," is not confidential and was made available to the state Inspector General's office a year ago.
- As noted, the leak problem is well under control, and does not jeopardize the project's budget.

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