NO. 2003-0510-3C3

INDEPENDENT STATE AUDITOR'S REPORT ON

CERTAIN ACTIVITIES OF THE

MASSACHUSETTS TURNPIKE AUTHORITY'S

CENTRAL ARTERY/THIRD HARBOR TUNNEL

CONTRACT C22A1

JANUARY 1994 THROUGH DECEMBER 2004

OFFICIAL AUDIT
REPORT
FEBRUARY 17, 2005

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The Central Artery/Third Harbor Tunnel (CA/T) Project is a major, 7.5-mile interstate highway project designed to significantly reduce traffic congestion in downtown Boston through the construction of the eight- to 10-lane underground Central Artery, a four-lane underwater tunnel that crosses Boston Harbor, and a commercial traffic bypass road through South Boston. CA/T Project construction, which began in 1991, was about 95% complete as of October 2004. Construction extends from the Interstate 93 Massachusetts Avenue interchange in the south, to beyond the Leonard P. Zakim Bunker Hill Bridge in the north, and from the Massachusetts Turnpike interchange by the Fort Point Channel in the west, to Logan International Airport and Route 1A via the Ted Williams Tunnel in the east.

In 1989, CA/T Project management estimated that the project, as then configured, would cost $4.4 billion and be completed in 1998. The project's cost- and completion-date estimates have been the subject of some controversy over the years due to the number of revisions. In the October 1, 2004 Finance Plan, CA/T Project officials estimate the total cost of the project to be $14.625 billion. The current estimated completion date is betweeen May and September, 2005.

Our interim review examined the added costs associated with the CA/T Project's attempts to obtain the rights to use software and related materials developed by the contractor for the preliminary, or "early-build," version of the Integrated Project Control System (IPCS) for the Ted Williams Tunnel. The CA/T Project must provide the software and related materials to the follow-on contractor to further develop IPCS for the remainder of the CA/T Project.

To date, OSA's 19 interim reports have identified $588 million in inaccurate, unnecessary, excessive, and avoidable project costs and available savings opportunities.

   CA/T Project officials failed to secure undisputed rights to the software source code developed for the "early-build" version of IPCS for the Ted Williams Tunnel. A follow-on contract was to develop and deliver a "full-build" version of IPCS capable of monitoring and controlling the entire CA/T highway, tunnel, and bridge system. Because of a delay in providing the software source code material to the follow-on contractor, CA/T Project cost increases due to additional software licensing costs and lost productivity could amount to approximately $3.1 million and $7.2 million, respectively.

INTRODUCTION

Background

The Central Artery/Third Harbor Tunnel (CA/T) Project is a major, 7.5-mile interstate highway project designed to significantly reduce traffic congestion in downtown Boston through the construction of the eight- to 10-lane underground Central Artery, a four-lane underwater tunnel that crosses Boston Harbor, and a commercial traffic bypass road through South Boston. CA/T Project construction, which began in 1991, was about 95% complete as of October 2004. Construction extends from the Interstate 93 Massachusetts Avenue interchange in the south, to beyond the Leonard P. Zakim Bunker Hill Bridge in the north, and from the Massachusetts Turnpike interchange by the Fort Point Channel in the west, to Logan International Airport and Route 1A via the Ted Williams Tunnel in the east.

In 1984, the Massachusetts Highway Department (MHD) awarded a management consultant contract to the joint venture of Bechtel/Parsons Brinkerhoff (B/PB) to manage CA/T Project design and construction activities. The management consultant had responsibility for project management, preliminary design, final design management, procurement, construction management, and environmental services. The Massachusetts Turnpike Authority (MTA) assumed ownership and management of the CA/T Project under state law enacted in March 1997.

In 1987, the United States Congress passed the Surface Transportation and Uniform Relocation and Assistance Act, which made the CA/T Project eligible for a maximum of 90% federal reimbursement, depending on the roadway classification and the availability of funds, with the Commonwealth bearing the remaining costs. In 1991, Congress passed the Intermodal Surface Transportation Efficiency Act (ISTEA), which extended the federal government's financial support of the CA/T Project through 1997. In January 1998, Congress passed the Transportation Equity Act for the 21st Century (TEA-21), under which Massachusetts will receive federal funding through fiscal year 2003. In fiscal year 2001, federal funding for the project was capped at $8.549 billion.

In 1989, CA/T Project management estimated that the project, as then configured, would cost $4.4 billion and be completed in 1998. The project's cost- and completion-date estimates have been the subject of some controversy over the years due to the number of revisions. In the October 1, 2004

Finance Plan, CA/T Project officials estimate the total cost of the project to be $14.625 billion. The current estimated completion date is between May and September, 2005.

This interim report addresses the estimated added costs associated with the CA/T Project's attempts to obtain the rights to use software and related materials developed by the contractor for the Interstate 90 Integrated Project Control System (IPCS). The software and related materials was to be used by the follow-on contractor to develop IPCS for the remainder of the CA/T Project.

To date, our 19 interim reports have identified $588 million in unnecessary, excessive, and avoidable project costs and available savings opportunities.

Integrated Project Control System

IPCS provides traffic surveillance, incident detection, roadway control, facilities control, and fire and security systems for the CA/T Project. IPCS continually monitors for carbon monoxide levels, fire in tunnels and supporting buildings, and hydrocarbons in storm water drainage. Additionally, the system provides police, fire, and emergency rescue service communication throughout the tunnels. IPCS recognizes traffic congestion or stoppage, through embedded induction loops, permitting the dispatch of tow trucks within five minutes. The system also includes various message signs and highway advisory notices to guide motorists around problems and special conditions.

The contract for the first phase of IPCS (the "early-build" version) was awarded to Perini/Powell Joint Venture (PPJV) under contract C22A1. Transdyn, Inc., a wholly owned subsidiary of Powell Industries Inc., was the prime software developer of IPCS for the Ted Williams Tunnel. MTA later advertised the C22A2 contract for the "full-build" completion of IPCS for the remainder of the CA/T Project. Both Transdyn and Allied Signal[1] bid on the contract. Honeywell, the low bidder, was awarded the contract for $104 million. Honeywell was given notice to proceed on June 10, 1999. As discussed on page 8, contract change orders have significantly altered the amount of the contract.

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[1] Allied Signal bought Honeywell and changed its company name from Allied Signal, Inc. to Honeywell Technology Solutions, Inc. after the purchase. Henceforth, we refer to the contractor for contract C22A2 as Honeywell.

Audit Scope, Objectives, and Methodology

Our audit examined the IPCS contract (C22A1) to determine the principal reasons for the delays in completing the work under contract. We discussed the contract delays with CA/T, Bechtel, and follow-on contractor (Honeywell) officials to obtain their views on the matter. We examined correspondence related to the software turnover issue and two lawsuits filed in Suffolk Superior Court as a result of the dispute between the parties over what materials Transdyn was required to turn over to MHD/MTA for release to Honeywell:

- One suit was filed by the Commonwealth of Massachusetts (MHD and MTA) against Perini Corporation and Powell Industries. Inc., a joint venture (PPJV), and Transdyn Controls, Inc.

- The other suit was filed by PPJV and Transdyn Controls, Inc. against MHD and MTA

The lawsuits were withdrawn on October 19, 1999 when the parties entered into an agreement to resolve the dispute. This report should not be construed as an endorsement of either lawsuit's position. We also reviewed the agreement between MHD and MTA and PPJV and Transdyn Controls, Inc. that allowed MHD/MTA to use the software and related materials that were eventually provided to Honeywell for use by it on contract C22A2. Our examination was made in accordance with applicable generally accepted government auditing standards for performance audits.

AUDIT RESULTS

FAILURE TO SECURE TIMELY ACCESS RIGHTS TO SOFTWARE SOURCE CODES COULD RESULT IN ADDED COSTS OF $10.3 MILLION

CA/T Project officials failed to secure undisputed rights to the software source code developed for a preliminary, or "early-build," version of the Integrated Project Control System (IPCS) for the Ted Williams Tunnel. The CA/T Project anticipated from the outset the need for a follow-on contract to develop and deliver a "full-build" version of IPCS to monitor and control the entire CA/T highway, tunnel, and bridge system. The CA/T Project also anticipated the need for access to the source code from the initial contract. However, the CA/T Project failed to secure the contractor's consent regarding access rights to the code, despite early indications of access issues. Because of a delay in obtaining the contractor's agreement to provide the software source code needed for the second phase of IPCS, increased CA/T Project costs due to additional licensing costs and lost productivity could amount to approximately $3.1 million and $7.2 million, respectively.

Contracts for IPCS

In early 1994, a joint venture consisting of the Perini Corporation and Powell Industries, Inc. (PPJV) was awarded a $51,613,770 contract (C22A1) to develop IPCS for the Ted Williams Tunnel, a two-way stretch of roadway connecting Interstate 90 to Logan International Airport. The contract was signed on January 31, 1994, and a notice to proceed (NTP) was issued on February 18, 1994. Transdyn, a wholly owned subsidiary of Powell Industries, furnished the software under the contract. The system developed under contract C22A1 was to be the "early-build" version of IPCS for the CA/T Project's entire system. A follow-on contract was to be awarded at a later date to develop the "full-build," project-wide version of IPCS.

In 1998, MHD solicited bids for the follow-on contract (C22A2), and Honeywell Technology Solutions, Inc. (Honeywell) was the low bidder. It was awarded the contract on June 2, 1999. A group led by Transdyn was the unsuccessful bidder for the follow-on contract. The contract was awarded for $104 million, and the NTP was issued on June 10, 1999. The C22A2 contract called for a modified and enhanced IPCS. Under the C22A2 contract, Honeywell was to develop a system to monitor and control all seven miles of the CA/T Project. This system was to include software for several complex interchanges at Logan International Airport and Storrow

Drive/Leverett Circle, the Central Artery North Area tunnel, and the Sumner/Callahan tunnels, and it was to complete the system for the Ted Williams Tunnel and the Prudential tunnel facilities. As discussed on page 8, subsequent contract change orders have significantly altered the amount of the contract.

Part of the contract cost increase involved legal problems associated with Transdyn's turning over of the source code[2] for DYNAC software, which was used for the C22A1 contract work. The system, according to Transdyn, has been used for more than 70 highway projects throughout the world, including 50 in the United States. Transdyn claimed that DYNAC is proprietary and forms the cornerstone of a portion of its business. The company also claimed that it would be placed at a competitive disadvantage if its system were provided to competitors, such as Honeywell, without proper safeguards. When asked by MHD to provide the source code for DYNAC, Transdyn refused; it claimed that the material was proprietary and denied that turning over the source code was required under its contract, because DYNAC is commercial off-the-shelf (COTS) software.

A dispute between Honeywell and the CA/T Project regarding various aspects of the turnover of the software includes the following issues: the date by which the source code should have been turned over[3], the quality or usability of the source code once turned over, and the added costs associated with these issues.

According to Honeywell, the company received the first deliveries of contract C22A1 Central Computer Software on July 12 and 19, 1999 but was unable to commence its review because the data was proprietary to Transdyn and, accordingly, required a license agreement. Honeywell notified the Massachusetts Highway Department (MHD) on July 23, 1999 that it could not process the software due to the proprietary rights issue and requested that action be taken to permit it to proceed. According to Honeywell, the failure to ensure access to needed licensing agreements prevented it from examining the IPCS "early-build" software and starting its work.

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[2] Initially a programmer writes a program in a particular programming language. This form is known as the source program, or more generically the source code, and is the only format readable by humans. When a program is purchased, it is in a machine language that allows execution of the program by a computer but cannot be read or modified.

[3] Contract Access Restraint 254 provided that the follow-on contractor would have access to the source codes no later than 153 days after the NTP or by November 11, 1999. According to Project officials the source code was delivered on that date without any proprietary data restrictions.

MHD stated that although DYNAC was used in the development of IPCS, it had been modified to such an extent that it became custom software for the CA/T Project's IPCS; accordingly, it was no longer COTS and should have been turned over to MHD in accordance with the terms of the contract, which required source code for custom software developed under the contract to be turned over to the CA/T Project. Furthermore, CA/T Project officials told us that "regardless of whether DYNAC was COTS or custom software, the software supplied by Transdyn did not meet the performance specifications without the source code to the software." MHD also noted, in sworn statements to the court, that without the source code, the follow-on contractor would face costly delays because it needed the DYNAC source code for its portions of IPCS.

Early Indications of Problems with Source Code Rights

The buyer of custom-built software has access rights to source code along with the right to use the software without license restrictions and fees. In the case of COTS software, however, license restrictions and fees apply. The CA/T Project, knowing that more than one vendor could be involved in IPCS, should have definitively established, early on, ownership and/or licensing rights for all software used to develop IPCS.

In a January 28, 1994 memo (prior to the NTP date for the C22A1 contract), a Transdyn official stated that Bechtel/Parsons Brinkerhoff (B/PB) officials and the Resident Engineer were apprised of Transdyn's plan to base IPCS on DYNAC and other COTS software. In a June 6, 1994 Preliminary Software Design submittal, PPJV stated that "DYNAC is considered a Commercial Off-The Shelf (COTS) software product which will be used as-is to implement most of the functional requirements of the specification." The Software Development Plan prepared for the Project by PPJV, dated September 29, 1994, describes substantial portions of IPCS as a "COTS DYNAC" product that will be licensed to MHD. In a Software Development Plan submitted to the CA/T Project in May 1995, PPJV stated, "All [Transdyn Controls Inc.] developed software is proprietary and will be handled in accordance with the appropriate licensing agreement."

Despite the above indications of PPJV's referring to substantial portions of the IPCS software as proprietary, CA/T Project officials did not assert ownership rights to the software until May 21, 1999, shortly before the awarding of the C22A2 contract to Honeywell. This attempt was in

response to a May 12, 1999 Transdyn letter notifying the CA/T Project that the project did not have rights to DYNAC either for its own use or for transfer to a third party. In the May 21, 1999 letter, the CA/T Resident Engineer claimed title to the modified DYNAC software and instructed PPJV to respond by June 18, 1999. PPJV did not respond by that date, and on August 27, 1999 the CA/T Project served notice of its intention to levy liquidated damages against PPJV for its failure to turn over the software.

The CA/T Project's failure to establish unfettered access to IPCS software in the C22A1 contract, or to respond to several indications that access would be an issue, resulted in an approximately 120-day delay in productivity between July 12 and November 11, 1999.

Transdyn's refusal to turn over the sought-after materials resulted in a civil action filed in Suffolk Superior Court (Civil Action No. 99-4845-A) by MHD/Massachusetts Turnpike Authority (MTA). The filing called for the court to make an immediate decision to require Transdyn to turn over the source code, and it cited delays and increased costs to the taxpayer resulting from Transdyn's failure to do so. PPJV and Transdyn in turn filed a civil action (Civil Action No. 99-4868-C) in Suffolk Superior Court on October 8, 1999. In the filing, Transdyn cited the proprietary nature of the DYNAC source code and stated that Transdyn never turned over source code for projects in the United States without obtaining an agreement to protect and restrict the use of the source code. The suits were subsequently withdrawn, on October 19, 1999, when PPJV, Transdyn Controls, Inc., and MHD and MTA entered into an agreement to resolve the dispute. The agreement included a sublicensing agreement, dated November 11, 1999, that permitted MHD/MTA to sublicense the source code to Honeywell under certain safeguards.

Added Project Costs

Under the terms of the agreement reached on October 19, 1999, MHD paid Transdyn $350,000 for the licenses and use of the source code, and it waived liquidated damages of $2.72 million for Transdyn's failure to turn over the source code on time. Moreover, in a deposition made in connection with the civil action case, a Project official estimated that a delay in opening the Interstate 93 northbound segment could cost the CA/T Project $1.8 million per month. If in fact the Project lost the opportunity to productively use the 120 days associated with the

software turnover delay, the resulting cost could amount to $7.2 million—or a total of $10.3 million for the above-noted two factors.

The follow-on contractor, Honeywell, filed a claim against MTA for over $125 million. Because the claim had not been settled at the conclusion of our audit fieldwork, it is not covered in this report. Subsequent to the conclusion of our audit field work, we learned that Project Officials prematurely ended the contract with Honeywell after a year of mediation to resolve outstanding disputes. The total contract price, including change orders, has been capped at $188 million, an 81% increase over the original contract price of $104 million. Transdyn Inc., the developer of the software used for the "early-build" version of the IPCS, has been assigned responsibility to complete the remaining software development for the "full-build" system.

Conclusion

Despite several statements by PPJV/Transdyn officials at the time of contract award and shortly thereafter referring to the COTS nature of the DYNAC system and its importance in the development of IPCS, CA/T Project officials did not secure unquestionable rights to use the DYNAC source codes until five years later. This oversight is especially difficult to understand because it was clear that a follow-on contract would be needed to complete IPCS.

Recommendation

The CA/T project Director should take action to identify the party or parties responsible for the estimated $10.3 million in added costs to the CA/T Project as a result of the delay in obtaining access rights to the DYNAC source code. The actual additional cost should be determined and provided to the MTA Cost Recovery Program Team so that they can initiate actions to recover the funds.

Auditee's Response

In responding to our report, the CA/T Project Director expressed concern about the factualness of the report, noting that:

> . . . .the software delivered on July 12 and July 19, 1999 had Transdyn's proprietary statement on it. But this delivery is before the AR 254 due date of November 11, 1999.

> The July 12 and July 19, 1999 deliveries referenced in the draft audit report relate to MHD's delivery of source code listings in an electronic form. The C22A2 contractor had

already received the source code listings in a paper form through the bid documents. The C22A2 contractor has not shown how the licensing dispute had any material affect on its ability to progress software development with source code listings in a paper form rather than in an electronic form. Thus, the draft audit report is factually in error by assuming that the July 12 and July 19, 1999 delivery of software concerns the AR 254 delivery date. It does not.

Despite the licensing dispute, the source code was delivered on November 11, 1999 without any proprietary data restrictions. Thus there is no delay caused by the licensing dispute in so far as AR 254 is concerned. Project personnel in affidavits issued as part of the licensing dispute litigation projected potential damages from the C22A1 contractor's failure to deliver the source code without the proprietary legend. However, after the affidavits were filed, the source code was delivered on November 11, 1999 as promised under AR 254. Thus the potential damages referenced in the affidavits simply were not incurred as a result of the licensing dispute.

Auditor's Reply

The fact that the Project met the AR 254 access constraint is commendable, but not the point of our concern. What Project officials have not recognized is that the Project's productivity was impacted between July 12 and November 11, 1999 because the Project failed to obtain unfettered access to the data that they provided Honeywell bearing proprietary restrictions.

In a July 23, 1999 letter to the CA/T Resident Engineer, the Honeywell Contract Manager stated that:

. . . .[Honeywell] acknowledges receipt of the C22A1 Central Computer System Software provided by Massachusetts Highway Department (MHD) on July 12, 1999 and July 19, 1999 for use on the C22A2 contract. Please be advised that [Honeywell] has not begun to review this data as the software is marked as proprietary to Transdyn Controls, Incorporated, requiring a license from Transdyn.

Whether the material was in electronic or paper form was not the issue. The follow-on contractor's concern involved being put in a potentially illegal position of using proprietary data without a license.

It is obvious from the statements below that prior to the November 11, 1999 source code delivery date, the lack of access to the proprietary data had an impact on productivity.

On October 7, 1999 the Project Director stated that:

. . . .[Honeywell] has been unable to perform under its contract because of PPJV's failure to provide the CA/T Project with the complete and updated source code for the "early build" IPCS

In an October 20, 1999 letter to Honeywell, The CA/T Resident Engineer stated that:

> *As you know, the Massachusetts Highway Department and the Massachusetts Turnpike Authority have entered into a Settlement Agreement with Transdyn Controls, Inc. and the [PPJV Joint Venture] with regard to the C22A1 IPCS Software. . . .The terms of the Settlement Agreement require Transdyn to license the ICPS software and source code to MHD. *** The license also allows MHD to sublicense to entities such as [Honeywell]. . . Effective immediately [Honeywell] should commence work on the C22A1 software received on July 12 and 19, 1999 (emphasis added).*

It is apparent from these statements that the Project's productivity was impacted between July 12 and November 11, 1999.

Auditee's Response

The Project's Director advised us that the report fails to address:

> *. . . . what actual costs, if any, were incurred by the C22A2 contractor because of the licensing dispute. Also, . . .that the report incorrectly assumes that $2.7 million in liquidated damages were waived because of the licensing dispute as opposed to other commercial considerations [and] that the report incorrectly assumes that $7.2 million in actual costs were actually incurred by the project due to the licensing dispute. They were not.*

Auditor's Reply

Regarding the CA/T Project Director's comment that the report fails to address the actual costs incurred by the C22A2 (follow-on contractor) because of the licensing dispute, we direct your attention to page 8 of the report where we state that Honeywell's $125 million claim was not covered in our report because it was the subject to ongoing negotiations. Our focus was on the added costs associated with the C22A1 (early-build) contract because the software access rights had not been fully resolved and unfortunately, did not get resolved until about 5 years later. These costs include the additional $350,000 license agreement cost and the waiver of $2.7 million in liquidated damages owed by the C22A1 contractor.

The Project did not dispute the $350,000 license agreement cost. Regarding the $2.7 million, we believe that the waiver of liquidated damage was substantively related to the ownership / license dispute for the following reasons:

1. The focus of the Settlement Agreement cited only the following 2 disputes:

    a. The rights and obligations of the parties with respect to the ownership and use of the IPCS Software; and

b. Whether Transdyn has confidential trade secrets or commercial information, which is the property of Transdyn with respect to all or part of the IPCS Software.

2. Excerpts from a MHD letter dated August 27, 1999 that threatens to exercise liquidated damage rights for Transdyn's failure, since March 24, 1998, to turn over the custom software and source code for Dynac which should have been provided prior to System Availability Acceptance Testing:

> *. . . . The Project needs PPJV's response by June 18, 1999 including a statement of PPJV's intent as to turn over of title to the custom software, including source code and executables for the modified version of Dynac, which it prepared for Project use.*
>
> *. . . . As you know, the C22A1 Contract requires PPJV among other things, to "submit Source Code listings and executable code in accordance with Section 733.550 prior to Availability Acceptance Tests... Section 733.550 requires that the source code developed by the Contractor be supplied as a contract deliverable. The System Availability Acceptance Test was scheduled to begin on 24 March 1998 and PPJV is delinquent in its obligation to provide the Project with the required IPCS custom software, source code and executables.*
>
> *. . . . The continuing failure of PPJV to comply with the Contract terms and the Project's related directives constitutes an unacceptable breach of PPJV's obligations under the C22A1 Contract and the Project now insist on your prompt resolution of this matter.*
>
> *. . . . If PPJV fails to perform in the manner set forth above, the Project intends to exercise all of its rights under the Contract to mitigate against or pursue any damages, including but not limited to assessment of <u>liquidated damages</u> (emphasis added) and the recovery of all additional costs that the Project may be required to incur in order to cure and accommodate PPJV's default.*

In summary, in order to settle the license dispute, the record indicates that the Project paid $350,000 to Transdyn for the right to sublicense the C22A1 software to Honeywell and waived $2.7 million in liquidated damages that the Project associated with the ownership/license dispute.

Given the above statements and terms of the Settlement Agreement, we reiterate our position that the failure to obtain full access rights to the C22A1 software had a significant time and cost impact on the Project.

We also included a $7.2 million estimate for lost Project productivity during the 4-month period (July 12 – November 11, 1999) and quantified the estimate based on the $1.8 million per month escalation cost reported by a Project official in his deposition relative to the case. Pertinent quotes from the deposition follow:

> *On June 10, 1999, MHD issued a Notice to Proceed to [Honeywell] under the C22A2 Contract, in order to maintain the CA/T Project schedule for opening its roadway and tunnels. To date [October 1999, Honeywell], has been unable to perform under its contract because PPJV's failure to provide the CA/T*

Project with the complete and updated source code for the "early build" IPCS. Without the C22A2 software for the IPCS, these scheduled openings for the CA/T Project will be seriously delayed.

As one example of cost escalation due to delays in completing the full build IPCS, delay in construction of Project components otherwise dependent on the I-93 northbound mainline opening will result in an increase of approximately $1.8 million per month to the cost of the Project. There may be additional contract-specific costs resulting from contractor delay or impact claims that could go beyond the escalation costs calculated on the bases of Project-wide percentages.

Based on the above statements, a delay of 4 months could equate to $7.2 million in escalation costs excluding any contract specific costs such as the Honeywell claim.

Had the Project resolved the ownership/licensing issue before the time of award of the C22A2 contract, four months of unnecessary delay could have been avoided and that time more productively used by the Project to implement the IPCS and/or offset later delays that contributed to the following conditions:

. . . .The C22A1 contract, originally scheduled for completion in July 1998 at a cost of about $50.8 million, was scheduled to by completed in July 2004 at a cost of $68.3 million, a 34% increase.

. . . .The C22A2 contract originally estimated to cost about $104 million is currently capped at $188 million, a 81% increase. . . .

. . . .Due to software delays, Project officials installed a functionally scaled-back version of the IPCS in order to maintain scheduled opening dates. The Minimal Operating Elements for a Minimally Acceptable System (MOE/MAS) is an initiative that permits the contractor to temporarily provide a less functional IPCS system. While Project officials have stated that this initiative will not require additional funds to implement, the full benefits of the originally planned system will not be realized until the "full-build" system becomes operational.

. . . .Due to Project delays and in an attempt to maintain its current schedule, a new initiative estimated to cost about $9 million was awarded to design and install an interim IPCS system for I-93 South. The Project never intended that an interim system would have to be installed. The temporary system will not be integrated into the "full-build" IPCS version.

As the Project Director pointed out in his response, only after all claims have been settled can actual costs be determined. For that reason, we recommend that once all claims are settled, the Project Director quantify the additional costs incurred relative to the IPCS system and with the assistance of the Cost Recovery Team, identify the responsible party or parties and take the necessary action to recover the funds. Factors to be considered should include system design deficiencies, contract change orders, delays, access problems, and contract management responsibilities.

The Project Director advised us on January 11, 2005 that the Global Settlement on the C22A2 contract has been referred to the Cost Recovery Team to determine whether certain amounts paid are recoverable by the Commonwealth and he intends to refer the Global Settlement of the C22A1 contract as soon as the contract modification has been negotiated and executed. We commend this action and encourage the Cost Recovery Team to recognize in its deliberations the impact that the four months of unnecessary delay had on the contract as well as the Project as a whole. Obviously, that time could have been more productively used by the Project to implement the IPCS, which is still not fully implemented, and/or help offset later delays that contributed to the above stated conditions.