

M E M O R A N D U M

Final Contract Audit Report with Recommendations

Contract Audit No. OIG-08-025



Subject: Review of Issues and Concerns on **Date:** April 29, 2008
ERG Contract

From: OIG – Helen Lew /s/

To: CFO – H. Charles Woodruff, II

This **Final Audit Report** entitled, *Review of Issues and Concerns on ERG Contract*, presents the results of our audit. The objectives of the audit were to determine (1) the cause of the project delays and (2) the current status of the ERG contract.

Background

In 1997, the Regional Mobility Panel¹ recommended that the transit agencies in the greater Washington/Baltimore region embark on a regional fare collection program based on the Washington Metropolitan Area Transit Authority's (WMATA) SmarTrip® smartcard.² The objective of a regional fare collection program was to achieve a seamless, regional integration in fare payment to improve passenger convenience. WMATA awarded three contracts to implement the Regional Automatic Fare Collection System. A contract (FJ5872) was awarded to Cubic Transportation Systems (Cubic) for the replacement of WMATA bus fare boxes with fare boxes that would accept cash and Smartcards. In addition, this contract included specific language to allow the Regional Partners to separately contract with the same supplier for functionally compatible equipment. A second contract (CO5034) was awarded to ERG Transit Systems (USA), Inc. (ERG) for the operation of the Regional Customer Service Center (RCSC) and is the

¹ The Regional Mobility Panel was appointed by the WMATA Board of Directors in January 1997 and charged with addressing the concerns expressed by Congress about the rising costs and fragmentation of regional bus services. The panel was made up of members from the regional governments, business, labor, and citizen leaders. The panel's report was accepted for implementation in cooperation with the local jurisdictions of the Washington, DC metropolitan area by the WMATA Board of Directors on October 9, 1997.

² SmarTrip® is a memory logic smartcard utilizing chip technology developed by Cubic and Ramtron International Corp. The objective of the SmarTrip® program is to provide a universal payment tool that crosses all operators and modes of transportation in the Metropolitan Baltimore/Washington, DC area.

subject of this report. A third contract (C44444) was awarded to Cubic for hardware and software upgrades to the smartcard and fare collection equipment to enable additional customer and business features. We have reviewed this Cubic contract, and the results are the subject of a separate audit report.³

On May 30, 2003, contract CO5034 was conditionally awarded to ERG to provide RCSC operations; clearing,⁴ settlement⁵ and financial management;⁶ and a Point-of-Sale (POS) Network⁷ for the transit agencies in the greater Washington/Baltimore region to embark on a regional fare collection program. Portions of the ERG contract are dependent upon deliverables from WMATA and hardware and software from Cubic.

On July 21, 2003, a notice to proceed was issued in the amount of \$19,958,471, with a base period of five years (one year of development and four years of operation) and two additional one-year options. As of May 24, 2007, 13 modifications, totaling \$3,710,756, have been processed bringing the contract value to \$23,669,227. The contract modifications were the result of ERG claims being settled by WMATA for additional RCSC staff (\$1.8 million); delays (\$1.4 million) and scope-of-work changes (\$.5 million). Additional claims for delays and scope-of-work changes have been submitted by ERG and are under review by the Office of SmarTrip® Operations (Program Office).

ERG contract requirements include the design, implementation, and operation of a RCSC; clearing, settlement, and financial management services; and establishment and management of a POS Network. The ERG contract originally provided for a two-phase implementation approach scheduled to be complete in December 2004. Phase one was for transfer of the existing operations which were the smartcard management and customer service functions from the prior contractor⁸ to ERG's RCSC. This transition was completed in June 2004, one month early. Phase two includes clearing, settlement and financial management services that will be provided by the RCSC.

³ Review of Issues and Concerns on Cubic Contract (Contract Audit No. 08-053) dated February 19, 2008.

⁴ Clearing is defined as the processing of all SmarTrip® transactions to determine the regional partners' end-of-day account position based on the transactions provided by regional partners by the end-of-day cut-off.

⁵ Settlement occurs monthly and is the actual movement of funds among regional partners' bank accounts. The regional partners will develop a regional cost-sharing formula which will be provided to the Contractor for use in clearing and settlement.

⁶ Financial management is the management of revenues accrued through SmarTrip® operations for direct operating expenses related to the generation of revenue.

⁷ Point-of-Sale network consists of Point-of-Sale devices and a Point-of-Sale Network controller. The Point-of-Sale devices are equipped with a SmarTrip® target to increase the value of the card at multiple merchant locations. The Point-of-Sale network controller will consolidate all data from the Point-of-Sale Network devices.

⁸ Affiliated Computer Systems (ACS)

Phase two of the contract (clearing, settlement and financial management) was subsequently divided into two pieces. The first piece relates to SmarTrip® functionality of the RCSC and clearing and settlement of WMATA and the Regional Partners' SmarTrip® transactions through ERG's Multi-Application Smartcard Solution (MASS) system. The second piece relates to the functionality of passes, products, transit benefits, autoloading, and web applications for customers to access and update their smartcard information. Roll-out of the first piece of phase two was completed in July 2007 (three years past due). It is not certain when the second piece will be completed, since it is dependent on the delivery schedule from Cubic's contract (C44444).

At the time of contract award, there was concern regarding ERG's financial condition. As a result, the contract with WMATA included a \$2 million performance guarantee in the first year, and Northrop Grumman (ERG's subcontractor) agreed to complete the contract through their teaming agreement with ERG, if ERG were unable to complete the contract. According to the news media, ERG continues to be a going-concern risk.

Results of Audit

Our review showed that the requirements outlined in the May 2003 contract with ERG were not met in December 2004. The delays were caused for the most part by WMATA and Cubic not realizing the full functionality and implementation of the Automatic Fare Collection system upgrades and POS devices. These delays impacted ERG's ability to implement all functions of the RCSC. We identified the following issues of concern relating to the ERG contract:

- ERG contract requirements have not been completed,
- The level of staff required to meet the RCSC contract performance requirements was underestimated, and
- The contract does not include software licensing and software maintenance agreements.

These issues and the current status are discussed below.

In the Chief Financial Officer's April 21, 2008 response to a draft of this report, he concurred with our findings and recommendations. The complete text of the response is included as Attachment 1 to this report.

Finding 1 - ERG contract requirements have not been completed.

Due to a number of unanticipated delays, ERG has not implemented all the requirements in its contract, including clearing, settlement and financial management, and establishment and management of a POS Network. WMATA did not have a mitigation plan to address the risks associated with the Cubic contract and their impact on the ERG contract.

Delay in Cubic Deliverables. The ERG deliverables were dependent on the completion of requirements in WMATA's contract with Cubic (C44444) for rail upgrades, including autoloading capabilities, improved hot card list functionality and the ability to program additional bus and rail passes. Implementation of the Cubic contract requirements was significantly delayed. Specifically, Cubic informed WMATA in September 2003 that the work called for in its contract involved out-of-date software that Cubic would no longer support. Cubic provided WMATA with an unsolicited proposal, recommending the use of its NextFare4 family of products. WMATA and Cubic took approximately three years to complete negotiations regarding upgrades to the Automatic Fare Collection System.

Further, Cubic was contracted to provide POS devices for the RCSC to deploy throughout the region. Development of the POS Network has been delayed because the POS units are not yet available for use. When the Request for Proposals for Contract CO5034 was issued, WMATA anticipated that Cubic would provide the card readers and the RCSC contractor would develop and build the units. However, because Cubic has proprietary rights to the components, the Request for Proposal had to be amended to use WMATA-furnished equipment developed by Cubic for the POS network. Cubic did not provide POS devices to the RCSC by January 2005, as stated in the contract modification. WMATA has initiated quality assurance testing of the POS devices. A pilot program is expected to be launched at the Metro Center Sales Office during the month of April 2008 for approximately four weeks. If the pilot program is successful, WMATA plans to start deployment of the POS Network.

Failure to implement the POS Network on time has delayed improvements to customer service. The POS Network is intended to provide bus customers a convenient way of purchasing and loading a smartcard. Currently, the options available include loading the card with cash at a bus fare box, which can delay boarding and departure of the bus or using one of the fare vending machines at a WMATA rail station. Once the POS devices are available to outside vendors, bus patrons will have the ability to increase the value of their smartcard, using credit/debit cards or cash.

The above delays also have resulted in several claims from ERG to WMATA. To date, WMATA and ERG have settled approximately \$1.4 million in delay claims. WMATA is reviewing additional delay claims in the amount of \$915,000 from ERG.

SIRS Development Delay. Our review noted that an additional delay resulted from WMATA's decision to modify ERG's scope to include participation in the development of the SmarTrip® Interoperability Regional Specification (SIRS)⁹. Subsequent to contract award, ERG was asked to participate in collaboration with WMATA and Cubic to develop the SIRS. WMATA was to provide the contractor with the SIRS, 30 days after the notice to proceed. WMATA anticipated using the Regional Interface Specification that the American Public Transportation Association (APTA) was developing for the Port Authority of New York and New Jersey. However, delays in finalizing the Regional Interface Specification made it necessary for WMATA to develop the SIRS for the smartcard activity. It took WMATA approximately one year (October 2003 through January 2005) to complete the SIRS. The additional work was provided for in Contract Modification numbers 001 and 006 and cost \$50,166.

The United States Government Accountability Office (GAO) prescribes *Standards for Internal Control in the Federal Government*. These standards can also be applied by other levels of government. One of the five standards relates to Risk Assessment. "Internal control should provide for an assessment of the risks the agency faces from both external and internal sources." According to these standards, "a preconditioned risk assessment is the establishment of clear, consistent agency objectives." They further state: "Management needs to comprehensively identify risks and should consider all

⁹ SIRS is the document that describes how data transfers between WMATA's Fare Collection System and ERG's computer system for clearing and settlement of transactions.

significant interactions between the entity and other parties as well as internal factors at both the entity wide and activity level.” Finally, “once risks have been identified, they should be analyzed for their possible effect” to decide “how to manage the risk and what actions should be taken.”

Some of the delays and resulting impact on the SmarTrip® program might have been avoided if WMATA had developed a risk assessment and a risk-mitigation plan. A risk assessment would help promote well-informed, objective investment decisions, manage contract-related risk and establish measurable criteria for evaluating the cost, benefits and risk of various alternatives. A risk-mitigation plan would contain information on how to address delays caused by the contractor and/or others, personnel turnovers, funding issues, etc., as well as help ensure accurate results are delivered on time and within projected costs.

Recommendations

We recommend that the Chief Financial Officer instruct the SmarTrip® Program Project Manager to:

- 1.1. Assess the risks associated with completing the remaining ERG contract requirements, especially those dependent upon Cubic deliverables, to determine if the ERG deliverable is achievable to avoid any further delays and claims against WMATA.
- 1.2. Develop a comprehensive plan to mitigate the risk and effect of future delays as they relate to ERG. The plan should address contractor on-time performance, deliverables and associated penalties for delays.

Management Comments

The Chief Financial Officer agreed with our recommendation and will take the following action to address our recommendation.

As part of a WMATA-wide effort, a comprehensive, independent assessment of this program will be undertaken that will examine the impacts of prior decisions and staging issues between ERG and Cubic. The independent assessment will examine alternative

pathways to achieve key functionality by certain dates. Additionally the independent assessment will outline certain contracting options to complete the program and will include a risk assessment for each option under consideration. Depending on the pathway forward, this finding may be superseded by events.

Finding 2 – The level of staff required to meet the RCSC contract performance requirements was underestimated.

At the time of our review, the only portion of the contract completed by ERG was the work relating to the RCSC. However, unanticipated changes caused ERG to have insufficient staffing to meet the RCSC contract performance requirements.

One of the unanticipated changes related to WMATA's implementation of cashless parking at the rail stations shortly after the RCSC was launched. When the contract with ERG was executed in July 2003, WMATA had approximately 400,000 registered Smartcards in circulation. Implementation of the cashless parking program on July 1, 2004, resulted in a substantial increase in the number of active smartcards. This prompted an increase in the number of calls to the RCSC, which increased the wait time for customers, as well as the number of lost calls. WMATA's Assistant General Manager for Communications asked the contactor to correct this problem immediately.

The RCSC staff was increased to handle the additional number of calls received. As of March 31, 2007, the total number of active smartcards was 1,117,213 and the total number of cards sold was approximately 2.3 million. There have been five contract modifications to the contract totaling \$1,788,969 to increase Customer Service Representative staffing at the RCSC [redacted].

Good business practice would have suggested having an assessment of staffing levels completed in order to assess the adequacy of strategies to manage increases in the number of calls and requests for Smartcards and to explore alternative actions to ensure appropriate staffing levels in the future. Some of the problems resulting from the decision to implement cashless parking might have been avoided if a staffing level assessment had been performed.

Recommendation

We recommend that the Chief Financial Officer direct the SmarTrip® Program Project Manager to:

- 2.1. Conduct an assessment of the expected trends of RCSC workload. The assessment will benefit the budget process and also help alleviate surprises when fluctuations in workload occur or changes are made to SmarTrip® functions or fare card policies.

Management Comments

The Chief Financial Officer agreed with our recommendation and will take the following action to address our recommendation.

They will conduct an assessment of trends on key performance indicators to map out potential impacts resulting from either shifts in fare policy or program expansion/improvements to SmarTrip's functionality, as both are factors that could drive the number of cards in circulation and increase requirements in the customer service center.

Finding 3 – The contract does not include software licensing and software maintenance agreements

The contract currently does not include software licensing and software maintenance agreement provisions. WMATA purchased ERG's MASS base product which ERG configured and customized for WMATA's use in clearing and settlement of SmarTrip® transactions.

A software license is an agreement between the software developer and end user, which provides the latter with rights to use and operate a software program for a fixed period of time. A software license agreement can also provide the end user with the ability to hire third party developers to modify the software in accordance with the agreement. A software maintenance agreement provides for upgrades and support services, such as a help desk, as agreed to by the purchaser and vendor.

WMATA would benefit from having software licensing and software maintenance clauses in its contract with ERG. A benefit of the software licensing agreement to WMATA would be that the specific rights of WMATA regarding the use of the software including modification of the software if an open source license is negotiated will be clearly identified in the document. In addition, software licenses typically spell out the responsibility of the parties including limitations of liability, warranties and warranty disclaimers.

Benefits of a software maintenance agreement include ease in budgeting for future expenses, no additional costs for upgrades, maximization of product reliability and performance since upgrades include the newest features and enhancements, and the ability to keep up with technological advancements.

The lack of a software license agreement has resulted in WMATA being at risk if the original developer is unable or unwilling to modify the software to accommodate changes in WMATA's software requirements. The lack of a software maintenance agreement could result in WMATA paying excessive support service charges as problems with the software are encountered. In addition, lack of a software maintenance agreement could result in WMATA paying a significant charge for new features or as new versions are developed.

Recommendation

We recommend that the Chief Financial Officer direct the SmarTrip® Program Project Manager to:

- 3.1. Explore modifying the contract to include software licensing and maintenance agreements for the MASS product. The agreements should cover the remaining term of the contract, including any extensions that may be exercised.

Management Comments

The Chief Financial Officer agreed with our recommendation and will take the following action to address our recommendation.

They have secured both a software license agreement and software maintenance agreement for ERG's MASS software product that covers the remaining term of the contract and also possible extensions. This negotiation resulted in a draft memorandum of understanding developed between WMATA and ERG, which has not been implemented as yet. Contingent upon the recommendations set forth by the independent consultant and the policies adopted by WMATA, this option is available for implementation at any time WMATA deems necessary.

Scope and Objectives

The objectives of the audit were to determine (1) the cause of delays and, (2) current status of the contract.

We began our field work on December 1, 2006 and concluded our initial interviews on May 8, 2007. We interviewed WMATA staff from the Offices of SmarTrip® Operations and Chief Engineer Systems and Department of Information Technology. We also interviewed the subcontractor on the contract. Due to logistics, the interview questions were electronically forwarded to the contractor, and a written response was provided to us in December 2006. Follow-up discussions to clarify specific issues were held with WMATA staff through August 24, 2007. We reviewed the documentation pertaining to actions by the WMATA Board of Directors, contract award, contract modifications, and contract performance. We also reviewed overall project management, quality assurance issues, project milestones and budget, and issues/concerns relating to contractor performance, subcontractor's performance and consultant performance.

We held an exit conference with the Director of SmarTrip® Operations on February 26, 2008.

Administrative Matters

Corrective actions proposed (resolution phase) and implemented (closure phase) by your office will be monitored and tracked through the Office of Inspector General's Audit Accountability and Resolution Tracking System. Department policy requires that you develop a corrective action plan (CAP) for our review and entry into the automated

system within 30 days of the issuance of this report. The CAP should set forth the specific action items, and targeted completion dates necessary to implement corrective actions on the findings and recommendations contained in this report.

If you have any questions pertaining to this draft report, please contact Andrew Clemmons, Assistant Inspector General for Audit, on (202) 962-1014 or me on (202) 962-2515.

/s/

Helen Lew
Inspector General

cc: CFO - Greg Garback
CHOS – Shiva Pant
COUN – Carol O’Keeffe
CSAC – Sara Wilson

M E M O R A N D U M



SUBJECT: Draft OIG Report; Review of
Issues and Concerns on ERG
Contract

DATE: April 21, 2008

FROM: CFO - H. Charles Woodruff, II

TO: OIG - Helen Lew

This memorandum is in response to the draft audit report dated April 7, 2008 entitled "Review of Issues and Concerns on ERG Contract." In the body of the draft report, there are three findings with follow-on recommendations offered and our comments are outlined below.

Finding 1 - ERG contract requirements have not been completed. **Recommendations:** We recommend that the Chief Financial Officer instruct the SmarTrip Program Project Manager to: 1.1 Assess the risks associated with completing the remaining ERG contract requirements, especially those dependent on Cubic deliverables, to determine if the ERG deliverable is achievable to avoid further delays and claims against WMATA; and 1.2 Develop a comprehensive plan to mitigate the risk and effect of future delays as they relate to ERG. The plan should address contractor on-time performance, deliverables and associated penalties for delays. **Response:** We concur with the recommendations.

The Authority will undertake a comprehensive independent assessment of this program and examine the impacts of prior decisions, and staging issues between ERG and Cubic. The independent assessment will examine alternative pathways to achieve key functionality by certain dates. Additionally, the independent assessment will outline certain contracting options to complete the program and will include a risk framework for each option under consideration. Depending on the pathway forward, this finding may be superseded by events.

Finding 2 - The level of staff required to meet the RCSC contract performance requirements was underestimated. **Recommendation:** We recommend that the Chief Financial Officer direct the SmarTrip Program Project Manager to: 2.1 Conduct an assessment of the expected trends of RCSC workload. The assessment will benefit the budget process and also help alleviate surprises when fluctuations in workload occur or changes are made to SmarTrip functions or fare card policies. **Response:** We concur with your recommendation.

Washington
Metropolitan Area
Transit Authority

Excellent and reliable customer service is critical to the success of the SmarTrip program overall. To that end, Staff will conduct an assessment of trends on key performance indicators to map out potential impacts resulting from either shifts in fare policy or program expansion/ improvements to SmarTrip's functionality, as both are factors that could drive the number of cards in circulation and increase requirements in the customer service center.

Finding 3 - The contract does not include software licensing and software maintenance agreements. **Recommendation:** We recommend that the Chief Financial Officer direct the SmarTrip Program Project Manager to: 3.1 Explore modifying the contract to include software licensing and maintenance agreements for the MASS product. The agreements should cover the remaining term of the contract, including any extensions that may be exercised. **Response:** We concur with your recommendation.

Staff secured both a software license agreement and software maintenance agreement for ERG's MASS software product, and covers the remaining term of the contract and also possible extensions. This negotiation resulted in a draft memorandum of understanding developed between Metro and ERG, which has not been implemented as yet. Contingent upon the recommendations set forth by the independent consultant and the policies adopted by Metro, this option is available for implementation at any time Metro deems necessary.

Again, thank you for taking the opportunity to review this very complex program with its challenging contracts and we value your review.

Copies to:
Shiva Pant
Carol O'Keeffe