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**CONTRACT MANAGEMENT AND CHANGE ORDER
PERFORMANCE AUDIT**

NOVEMBER 2012

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AUDIT SERVICES DEPARTMENT

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To: Audit Services Oversight Committee
From: Germaine Brewington, Director
Audit Services Department
Date: **November 20, 2012**
Re: Contract Management and Change Order
Performance Audit

The Department of Audit Services completed the report on the Contract Management and Change Order Performance Audit dated November, 2012. The purpose of the audit was to determine the adequacy of the controls over contract management and change orders at the Departments of General Services and Public Works. The audit period covered contracts that were open during FY 2012.

This report presents the observations, results, and recommendations of the Contract Management and Change Order Performance Audit. City management concurs with the recommendations made. Management's response to the recommendations is included with the attached report.

The Department of Audit Services appreciates the contribution of time and other resources from employees of the Departments of Public Works and General Services in the completion of this audit.

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BACKGROUND INFORMATION

Effective contract management is important to achieving good contract outcomes. In this audit, we sought to determine the quality of contract management by the Department of General Services and the Department of Public Works in particular with respect to large-scale projects. The General Services Department and Public Works Department were selected based on a risk assessment performed by the audit staff.

The following contracts were judgmentally selected at the two departments.

General Services Department:

Contract Number	Contractor	Description	Amount
1558	Skanska	CMAR Preconstruction Services	\$32,103,262
5232	Balfour Betty Construction	CMAR Preconstruction Services	\$5,341,703
77100	Heery International	Architectural and Engineering Design Services	\$2,388,535
7195	Dixie Lawn Services Inc.	Right of Way Mowing and Litter Debris Removal	\$1,068,839
3837	R & D Architects	Professional Services Agreement	\$849,749
9570	Southern Boundaries	Southern Boundaries Athletic Courts Renovation	\$291,394

BACKGROUND INFORMATION

Public Works Department:

Contract Number	Contractor	Description	Amount
9641	Blythe Construction, Inc.	Contract SW-24; American Tobacco Trail (ATT) Construction	\$8,965,024
3267	NCDOT (NC Department of Transportation)	Municipal Agreement for American Tobacco Trail	\$7,497,057
6252	Triangle Grading & Paving Inc.	ST-234; 2009 Street Repairs & Resurfacing	\$7,117,693
8349	Barnhill Contracting Co.	Contract ST-250; Street Repairs & Resurfacing	\$6,099,378
8334	Triangle Grading & Paving Inc.	Contract ST-252; 2011 Street Repairs & Repaving	\$6,035,137
8347	FSC II LLC.	Contract ST-253; 2011 Street Repairs & Repaving	\$5,800,913
8336	The Lane Construction Corporation	Contract ST-251; 2011 Street Repairs & Repaving	\$4,793,220
7916	Park Construction Corporation	WS-81; 2010 Water & Sewer Improvement Projects	\$3,392,661
8387	Brown & Caldwell	Northeast Creek & Crooked Creek Watershed Management	\$1,287,000
6140	Tetra Tech Inc.	Third Fork Creek Watershed Planning Services	\$1,280,735
8133	Lanier Construction Company, Inc.	Contract ST-243; City Hall Plaza Streetscape Construction	\$1,162,599

The process of managing contracts is distinct within each department depending on the nature and type of contract.

BACKGROUND INFORMATION

In addition to effectiveness of the contract management process, the Audit Staff reviewed the process of approving change orders related to the selected contracts. Audit staff reviewed the following City regulations to understand the approval authority for change orders.

- Resolution # 9673 “ Resolution delegating authority to the City Manager with respect to making and executing contract, lease and grant instruments and to allow the City Manager to delegate certain authority and to allow the City Manager to take actions regarding bids proposals and bonds”.
- City of Durham Contract Procedures (Green Book Strikes Back)

The process of approving change orders is unique to the individual departments. At the Department of General Services the contractor, architect and the project manager are required to sign off on the change orders before it is enacted. The staff primarily rely on the expertise of the architect to ensure the cost of each change order is reasonable. In addition, the project manager, team lead, assistant director and the financial manager also review the change orders for reasonableness.

At the Department of Public Works, a formal process for approving change orders is not in place.

EXECUTIVE SUMMARY

Purpose

The purpose of the audit was to determine the adequacy of the controls over contract management and change orders at the Departments of General Services and Public Works. The audit period covered contracts that were open during FY 2012.

We conducted this performance audit in accordance with generally accepted governmental auditing standards. Those standards require that we plan and perform the audit to obtain sufficient and appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Effective Practices

- The Departments of General Services and Public Works have:
 - Effective contract monitoring practices in place to monitor the performance of the Contractors, although opportunities for improvement were identified for the Department of Public Works;
 - An adequate payment approval process, although opportunities for improvement were identified for the Department of General Services.
- The Department of General Services has adequate controls over the change order process.

Areas for Improvement

- The Department of Public Works does not have a formal approval process for processing change orders.

OBJECTIVES, SCOPE AND METHODOLOGY

Objectives

The objectives of the audit were to:

- Determine if adequate controls exist over contract management, including compliance monitoring, performance monitoring, and payment monitoring; and
- Determine if adequate controls exist over the approval process for change orders.

Scope

The audit period covered contracts that were open during FY 2012 at the Departments of General Services and Public Works. The scope of the audit did not include an assessment of the reasonableness of the cost of the change orders.

Methodology

In order to achieve the objectives of the engagement, audit staff performed the following steps and procedures:

1. Obtained and reviewed policies pertaining to contract management and change orders at the selected departments;
2. Judgmentally selected a sample of contracts to audit at the Departments of General Services and Public Works;
3. Interviewed project managers to determine their role in the contract administration and change order processes;
4. Interviewed departmental staff overseeing the work of the contractor to determine the level of interactions with the various contractors;
5. Determined if the selected project managers monitored their respective contactors for contract compliance;

OBJECTIVES, SCOPE AND METHODOLOGY

6. For the selected sample of contracts, staff tested whether project managers conducted performance monitoring as well as:
 - a. Verified documentation to validate performance monitoring was conducted (site visits, review of reports, status update etc);
 - b. Reviewed monitoring reports and determined the adequacy of those reports;
 - c. Reviewed the adequacy of other department specific system reports as well as performance measures created internally to provide management information on the status of the contracts;
 - d. Inquired about the process for contract disputes;
 - e. Determined the process for closing out contracts and reviewed documentation that validated that the City received the proper service/outcomes/product from the each contractor reviewed;

7. Verified controls to ensure proper approval of payments by performing the following:
 - a. Documented the payment process to the contractor as stated in the contract;
 - b. Documented the payment approval process for the contract;
 - c. Selected a sample of invoices paid per contract and
 - Verified proper approval
 - Verified if adequate information was included in the payment applications
 - Verified if payment was in accordance with contract requirements;
 - d. Verified the costs incurred on the project in the general ledger;
 - e. Verified reports to monitor that the project was within budget;

OBJECTIVES, SCOPE AND METHODOLOGY

8. Judgmentally selected a sample of change orders and determined the following:
 - a. Change orders are adequately approved;
 - b. Request for change orders are clear and sufficient information is included in the change order;
 - c. Change orders are properly justified;
 - d. An adequate monitoring process by management exists.

During the audit, staff also maintained awareness to the potential existence of fraud.

Effective Practices

The Department of General Services has effective contract monitoring practices in place to monitor the performance of the contractors.

Audit staff examined the management of six contracts at the Department of General services. The department has a project manager assigned to each contract. Each project manager reports to a team lead, who in turn reports to the Division Head/Assistant Director. Audit staff reviewed the evidence to support the monitoring efforts of each project manager for the six projects. For each of the projects sampled, appropriate documentation existed to support the adequacy of management's monitoring efforts. The project managers were in constant contact with the contractors. Meeting minutes were maintained in addition to email correspondence between the project managers and the contractors. Photographs of the work in progress were maintained as proof of site visits performed by the project managers. In addition, there was adequate reporting to and oversight from senior management. A weekly Project Status Report was prepared by the project managers to be reviewed by the team leads. These individual status reports were rolled into a Weekly Project Management Update Report outlining the status of each project, which was used as a monitoring tool to keep the Assistant Director and the Director abreast of on-going issues with the contracts.

Overall, the General Services Department has an adequate payment approval process. Opportunities for improvement were identified.

Audit staff selected a sample of payment applications and verified proper approval of the payments and adequacy of the information included in the payment applications. A cover sheet was used to document the approval of the payment application by the project manager, team leader and Assistant Director/Division Head.

AUDIT RESULTS

The payment application along with the cover sheet was subsequently entered into MUNIS for processing. Additional levels of approval were required in MUNIS before payment processing occurred. For the selected projects, the highest level of approval in MUNIS resided with the Senior Business Services Manager who verified the availability of funds and compliance with contract terms before approving the payment application. Audit staff examined forty-seven pay applications. Some exceptions were noted. Ten of the payment applications did not have the Division Head's signature (Assistant Director is the Division Head for the Project Management Division). Three of the payment applications did not have both the team leader and the Assistant Director's signatures. All payment applications were properly approved in MUNIS. According to the department's Standard Operating Procedures the project manager, team lead and the division head should approve the payment applications. The Department can explore the possibility of including the division head as an approval authority in MUNIS.

The Department of General Services has adequate controls to ensure proper approval of change orders.

Change Orders were processed for three of the six projects selected for review at the General Services Department. The General Services Department initiated the majority of the change orders for these three projects. Before a change order was enacted, the contractor, the architect and the project manager had to approve the change order.

Audit staff selected a sample of 13 change orders and verified that the change orders were properly approved. No exceptions were noted. Audit staff examined seven change orders to determine if adequate documentation to justify the change order existed. No exceptions were noted. Project managers discussed change orders and cost proposals during their weekly meetings between the contractor and the architect. Some of the discussions are reflected in the meeting minutes.

AUDIT RESULTS

Project managers also maintain emails between them and the architect or the contractor discussing the specifics of the change orders. For the sample population of change orders, Audit Staff reviewed meeting minutes between the contractor, architect, and the project manager (if provided), while for some change orders the Audit Services staff reviewed emails provided by the project manager to the contractor or the assistant director explaining why the change order was justified. Recently, the General Services Department implemented a practice to include a scope paragraph explaining the justification for the change order as part of the change order approval documentation. This is an effective practice and provides transparency in the change order process.

The Department of Public Works has effective contract management practices in place to monitor the performance of the contractors. However, opportunities for improvements were identified.

Audit staff examined the management of eleven contracts administered by the Department of Public Works. The Department used the Primavera Contract and Project Management system. The system consists of three software tools, namely:

- A. Contract Manager for Contract Managing
- B. P6 Project Management
- C. PDRx for daily reports

The PDRx workflow review and approval process works as follows:

1. Once a contractor created a daily report the City Inspector assigned to the project reviewed the daily report and either approved it if it was satisfactory or sent the report back to the contractor with notes indicating the areas of disagreement. The contractor and City Inspector worked together to come to consensus on the daily reports so the reports could be approved prior to the payment process.

AUDIT RESULTS

2. Once a daily report was approved, the quantities were sent directly from the PDRx component to the contract manager to monitor progress of each contract and maintain comparisons to estimates of the programs.

Audit staff interviewed the inspectors responsible for approving the daily reports and verified the approval process in PDRx. Audit staff also examined project minutes and email correspondence between the City of Durham and selected contractors to support the monitoring efforts undertaken by the project managers. Adequate documentation existed to ensure that project managers were adequately monitoring contracts. In addition, the supervisor(s) of the project managers as well as the Director received weekly status reports to keep them abreast on the ongoing issues.

While reviewing documentation maintained on cost overruns, Audit Services Department staff noted that even though documentation existed to explain the cost overruns, the information was not easily accessible. The Director acknowledged that even though documentation to justify cost overruns was retained and used in the preparation of new design projects and contracts, the reasons for the variances were not documented in one uniform fashion or in a central location. Maintaining the documentation was the responsibility of the project managers. The project managers have been charged with keeping track of overruns and contract deficiencies. According to the Director, “The Department is in the process of creating a uniform system to gather and store historical information on cost overruns and lessons learned into the new Construction Specifications Project that is currently being prepared by a consultant (Appian Engineering). The application platform for the creation of new contracts across all projects, water/sewer, repaving, sidewalks, street construction, etc., is being designed to incorporate logic to look back at the history of contract performance and provide suggestions for missing or under budgeted pay items.

AUDIT RESULTS

This system and the incorporation of uniformly documenting the reasons behind cost overruns in one central location (along with the re-write of the current construction and street specifications) will result in the next series of contracts that we release for bids to come closer to the estimates that we generate.” The department was in the initial stages of researching the application platform.

Areas for Improvement

The Department of Public Works does not have a formal approval process for processing change orders when the contract modification does not exceed the Department Director’s authority.

The project managers do not consistently use change orders. In some instances, change orders are used to describe exclusions of pay items from the Project Management System. In other cases, change orders are used for undisclosed conditions that necessitate a need to deviate from the original plan. The Department does not have a standard operating procedure for approving change orders when the contract modification does not exceed the Department Director’s authority. While reviewing change orders to verify proper approval, no standardized format for approving change orders was evident. Audit staff reviewed documentation in the form of emails between the project manager and contractor regarding the change orders. In a few instances, a letter from the architect approving the change order existed. The Department should standardize the approval process for change orders and the documentation necessary to support any change order.

Conclusion

The Department of General Services had adequate controls over contract management, including compliance monitoring, performance monitoring, and payment monitoring. The project managers interacted with the contractor and maintained adequate documentation to support monitoring efforts. In addition, proper management oversight existed over the project

AUDIT RESULTS

managers. The Department also had adequate controls over approving change orders.

The Department of Public Works had adequate controls over contract management, including compliance monitoring, performance monitoring and payment monitoring. The documentation currently maintained to identify cost overruns is not maintained in a standardized format or in a central location. The Department would benefit from ensuring that reasons for cost overruns and project performance are documented in a standardized format and are easily accessible. Maintaining this documentation would provide historical information in case of staff turnover. The Department also does not have standard operating procedures governing the Change Order Approval Process. Internally, they need to ensure that change orders are used consistently and that the proper approval authority resides with the appropriate personnel. Management should also consider using OnBase to track and approve all change orders.

RECOMMENDATIONS

Recommendation 1

The Department of Public Works should develop standard operating procedures to govern the Change Order Approval Process. The procedures should define the following:

- When to use a change order
- The approval authority when the contract modification does not exceed the Department Director's authority
- Documenting the justification for the change order as part of the change order documentation

The Department should explore the option of using OnBase to track change orders that do not exceed the Department Director's authority.

Recommendation 2

The Department of Public Works should continue its efforts to create a uniform system to gather and store historical information on cost overruns and lessons learned. In the interim, while the Department determines the feasibility of the system that they are considering, they should develop a Project Performance Evaluation document. The document would:

- Capture the reasons for cost overruns, and contractor deficiencies
- Capture any additional information vital to the contract

The Department should at least complete the Project Performance Evaluation document at the completion of the project/end of contract.

Recommendation 3

The Department of General Services should ensure that the current standard operating procedure is followed when approving pay applications. Management should also consider adding the Division Head/Assistant Director as an approval authority in MUNIS.

MANAGEMENT'S RESPONSE



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Memo to: Germaine F. Brewington, Director of Audit Services
Through: Keith Chadwell, Deputy City Manager
From: Marvin G. Williams, Director of Public Works
CC: Tasha N. Johnson, Assistant Director of Public Works
John J. Scott, Business Services Manager
Date: December 20, 2012
Subject: Management's Response
**Contract Management and Change
Order Performance Audit (November 2012)**

The following is the management's response to the Contract Management and Change Order Performance Audit dated November 2012.

Recommendation 1:

The Department of Public Works should develop standard operating procedures to govern the Change Order Approval Process. The procedures should define the following:

- When to use a change order
- The approval authority when the contract modification does not exceed the Department Director's authority
- Documenting the justification for the change order as part of the change order documentation

The Department should explore the option of using OnBase to track change orders that do not exceed the Department Director's authority.

Management's Response:

We concur. DPW management is in full agreement with the recommendation.



MANAGEMENT'S RESPONSE

The contract management unit of DPW will begin to prepare a draft standard operating procedure (SOP) for Contract Change Orders (CCO's) which will address:

- The need for CCO's
- The approval process, sign-off authority and document flow for CCO's within DPW
- Documenting the reason for a CCO for a project

A preliminary SOP is anticipated to be completed by March 2013; with a finalized SOP in-place by June 2013.

Recommendation 2:

The Department of Public Works should continue its efforts to create a uniform system to gather and store historical information on cost overruns and lessons learned. In the interim, while the Department determines the feasibility of the system that they are considering, they should develop a Project Performance Evaluation document. The document would:

- Capture the reasons for cost overruns, and contractor deficiencies
- Capture any additional information vital to the contract

The Department should at least complete the Project Performance Evaluation document at the completion of the project/end of contract.

Management's Response:

We concur. DPW management is in full agreement with the recommendation.

As stated in the response to recommendation #1, the contract management unit of DPW will begin to prepare a draft SOP for CCO's during early 2013. The documentation that will be generated to justify the need for a COO will include the reasons for a cost overrun and any relevant contractor deficiencies. In addition, DPW is still in the process of implementing the Primavera and PDRX contract management software; which will provide DPW with the ability to capture historical data for future contracts that we manage within the Engineering division. While the implementation of this software will continue through the calendar year 2013; DPW will establish an interim method to capture this information by June 2013.

MANAGEMENT'S RESPONSE

Date: January 15, 2013
To: Germaine F. Brewington, Director of Audit Services
From: Joel V. Reitzer, Jr., Director, General Services Department
Subject: **Management's Response – Contract Management and Change Order Performance Audit, November 2012.**

Recommendation 3:

The Department of General Services should ensure that the current standard operating procedure is followed when approving pay applications. Management should also consider adding the Division Head/Assistant Director as an approval authority in MUNIS.

Management's Response:

We concur. General Service's management is in full agreement with the recommendation.

The Department will implement procedures at the administrative level to comply with the Audit recommendations. The department's Sr. Business Services Manager will ensure compliance by February 28, 2013.

