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Audit Report

**AUDIT OF
MONITORING CONTROLS OVER
CAPITAL CONSTRUCTION FOR
STREETS AND THOROUGHFARES**
(Report No. A12-007)

May 18, 2012

City Auditor

Craig D. Kinton

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Executive Summary

The Department of Public Works (PBW) Construction-In-Progress Construction Management Unit's (Unit) capital construction monitoring controls are not operating effectively. The Unit does not have formal policies and procedures which specify monitoring oversight responsibilities and guide the construction inspectors on how to document street and thoroughfare capital construction monitoring activities.

Street and Thoroughfare Capital Improvement Budget

In Fiscal Year (FY) 2011, the capital budget for Street and Thoroughfare was \$142.3 million, or 17 percent, of the City's overall capital budget of \$822.2 million.

Source: FY 2011 Capital Budget

In addition, the project file documentation that supports construction progress and payments was inconsistent, incomplete, or absent. While the Unit does have certain compensating controls, there is a risk that the City of Dallas (City) might unknowingly pay for items and services that were not contractually authorized or adequately supported.

Although no instances were noted where PBW paid an invoice in excess of the authorized contract amounts, including approved change orders, a judgmental sample of 28 projects and 37 associated invoices totaling approximately \$2.1 million showed in:

- Thirty-two of 33, or 97 percent, of the Daily Progress Reports (DPR) that the contractor or the contractor representative's signature, which indicates progress agreement, was missing
- Thirty of 33, or 91 percent, of the DPR did not agree to the monthly invoice
- Twenty-nine of 33, or 88 percent, of the Quantity Verification (QV) sheets did not agree to the DPR
- Nine of 12, or 75 percent, of the Contractor Material Tickets were missing
- Nine of 27, or 33 percent, of the Contractor Time Statements were missing
- Twenty-one of 27, or 78 percent, of the charge days on the DPR did not agree to the Contractor Time Statement

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(Note: Not all attributes, such as DPRs and Contractor Material Tickets, were applicable to all invoices tested. As a result, the sample size per attribute varied as shown on the previous page).

Unit personnel prepare documentation, such as the DPR and QV sheets, to record capital construction monitoring activities. Contractors provide Material Tickets and Time Statements to support the monthly construction activity. These documents collect critical construction information, such as the schedule of contract items completed, lab-test results on soil, concrete, asphalt etc., charge days vs. credit days for the contract work performed, and safety issues, such as code violations. Adequate documentation helps the Unit to judge and determine the contractor's compliance with the contract requirements.

The Unit has updated certain practices and forms included in the audit tests. According to the Unit, other revisions to their practices and forms are under consideration. For example, the Unit has recognized the need to improve monitoring documentation of ongoing capital construction progress and payments. As a result, the QV sheet was introduced to better support construction progress; however, as noted above, this monitoring tool is not operating as intended. The Unit also monitors construction quality and compliance with contract specifications through a contract with an independent third party who provides material testing reports throughout the construction process.

We recommend the Director of PBW establish formal written policies and procedures for the capital construction inspection monitoring activities. These policies and procedures, at a minimum, should address the following:

- Monitoring oversight responsibilities
- Frequency and exceptions to monitoring, if any
- Documentation standards
- Project file organization standards

We also recommend the Director of PBW ensure the Unit's monitoring documentation is accurate, consistent, and complete in accordance with formalized procedures.

The objective of the audit was to review selected capital budget controls over expenditures to determine if monitoring controls are operating effectively. The scope of the audit included transactions occurring from October 1, 2009 through June 30, 2011; however, certain other matters, procedures and transactions occurring outside that period may have been reviewed to understand and verify

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information related to the audit period. As a result, the focus of this report is PBW capital construction inspection monitoring controls from the inception of a street and thoroughfare construction contract to the completion and payment of that contract.

Management's response to this report is included as Appendix III.

Auditor Follow-up Comments

Management's response to Recommendation I states, *"The project sampling utilized in the audit did not capture all of the elements of the overall updating of processes and procedures that began approximately one year ago."* Although the Unit's monitoring activities and the associated documentation were in a state of change during the audit period, the sample results showed that even in areas where processes and procedures had been recently updated, project file documentation that supports construction progress and payments was inconsistent, incomplete, or absent. The majority of the 28 construction projects tested (18 of the 28, or 64 percent), included the new and revised forms and processes such as the QV sheets and updated invoice template. Management's agreement to implement Recommendation I to establish formal written policies and procedures will help ensure that documentation of capital construction monitoring activities are accurate, consistent, and complete.

Management agreed to implement Recommendation II to ensure that monitoring documentation is accurate, consistent, and complete in accordance with formalized policies and procedures. Management's response, however, suggests that auditors did not have a clear understanding of how the Unit used certain documentation to monitor construction activities.

In the absence of formal policies and procedures, auditors must rely on other evidence to design audit tests. Therefore, to gain an understanding of the Unit's construction monitoring practices, the auditors relied on: (1) testimony from Unit personnel; (2) construction forms, including the Daily Progress Reports (DPRs), QV sheets, Contractor Time Statements, and material tickets; and, (3) the content of the construction forms, when applicable, as documented by the Unit and contractors. Based upon the information obtained, the audit test results are a valid representation of the issues noted during the audit period with Unit's construction monitoring process and associated documentation.

Audit Results

Overall Conclusions

The Department of Public Works (PBW) Construction-In-Progress Construction Management Unit's (Unit) capital construction monitoring controls are not operating effectively. The Unit does not have formal policies and procedures which specify monitoring oversight responsibilities and guide the construction inspectors on how to document street and thoroughfare capital construction monitoring activities. In addition, the project file documentation that supports construction progress and payments was inconsistent, incomplete, or absent. While the Unit does have certain compensating controls, there is a risk that the City of Dallas (City) might unknowingly pay for items and services that were not contractually authorized or adequately supported.

Formal Policies and Procedures Are Lacking

The Unit does not have formal policies and procedures which specify capital construction monitoring oversight responsibilities and guide the construction inspectors on how to document street and thoroughfare construction monitoring activities. As a result, inspection monitoring among the inspectors and the associated project file documentation that supports construction progress and payments was inconsistent, incomplete, or absent (see *Monitoring Controls Over Capital Construction Are Not Operating Effectively* on page seven).

Without formal policies and procedures, the Unit cannot ensure that fundamental capital construction monitoring processes are performed in a consistent manner or that the Unit has effective internal controls over the construction inspection process. For example, formal policies and procedures would communicate the required frequency of monitoring activities, file organization standards, how to resolve identified project deficiencies, and the documentation needed before contractor payments are made.

Monitoring Oversight

Oversight is the primary element of stewardship that ensures we get the quality that we are looking for in our projects. In recent testimony by Mary Peters before the House Appropriations Committee, she spoke about the basic requirements of a successful project and said: "*The project must deliver a quality product that meets all the scope and commitment requirements; it must be delivered on time and within budget; and, it must be carried out in a safe manner; and, we must deliver these projects in a manner that justifies public trust and confidence in our ability to be good stewards of the resources entrusted to us.*"

Source: United States Department of Transportation

Recommendation I

We recommend the Director of PBW establish formal written policies and procedures for the capital construction inspection monitoring activities. These policies and procedures, at a minimum, should address the following:

- Monitoring oversight responsibilities
- Frequency and exceptions to monitoring, if any
- Documentation standards
- Project file organization standards

Please see Appendix III for management's response to the recommendation.

Monitoring Controls Over Capital Construction Are Not Operating Effectively

Capital construction inspection monitoring is not always documented accurately, consistently, or completely. While the Unit does have certain compensating controls, there is a risk that the City might unknowingly pay for items and services that were not contractually authorized or adequately supported.

A judgmental sample of 28 projects and 37 associated invoices totaling approximately \$2.1 million showed in:

- Thirty-two of 33, or 97 percent, of the Daily Progress Reports (DPR) the contractor or the contractor representative's signature, which indicated progress agreement, was missing
- Thirty of 33, or 91 percent, of the DPR did not agree to the monthly invoice
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(Note: Not all attributes, such as DPRs and Contractor Material Tickets, were applicable to all invoices tested. As a result, the sample size per attribute varied as shown above).

Monitoring documentation is critical as it is used to validate contractor progress and helps ensure the quality of the construction and that the City only pays for work that has been contracted and completed.

Capital Construction Inspection Responsibilities

Monitoring and documenting ongoing capital construction by completing

- Daily Progress Reports (DPR)
- Quantity Verification (QV) sheets
- Validating contractor invoices

The DPR and QV sheet validate the work completed by the contractor and include, among other information, a schedule of contract items completed; charge days or credit days; materials and quantities used; lab-test results on soil, asphalt, and concrete; safety issues; and, validation of work completed.

Source: PBW

Recommendation II

We recommend the Director of PBW ensure the Unit's monitoring documentation is accurate, consistent, and complete in accordance with formalized procedures.

Please see Appendix III for management's response to the recommendation.

Background, Objective, Scope and Methodology

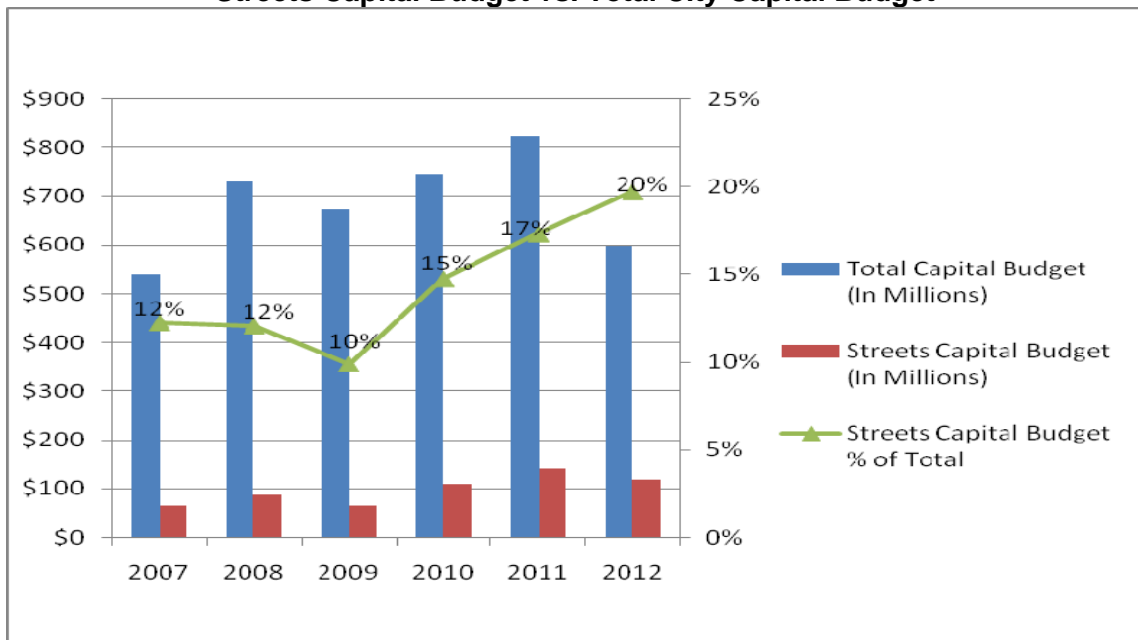
Background

According to the Fiscal Year (FY) 2011 Adopted Capital Improvement Budget, Street and Thoroughfare capital improvements seek to enhance the overall transportation system in the City of Dallas (City) to provide safe and efficient movement of people, goods, and services throughout the City. These projects include transportation systems management, participation with other agencies for improvements of intersections, thoroughfares and alternative modes of transportation, as well as street resurfacing, street petitions, street reconstruction, local collectors, sidewalks, thoroughfare improvements, alley petitions and reconstruction, and bridge repair and modification.

The Street and Thoroughfare Capital Improvement Budget increased substantially for FY 2010 and FY 2011 both in dollars as well as in the percentage of the total proposed Capital Improvement Program Budgets. In FY 2010, the Street and Thoroughfare Capital Improvement Budget was \$109.7 million, or 15 percent, of the overall \$744.9 million capital budget. In FY 2011, the Street and Thoroughfare Capital Improvement Budget was \$142.3 million, or 17 percent, of the overall \$822.2 million capital budget.

Chart I

Streets Capital Budget vs. Total City Capital Budget



Source: Adopted Capital Improvement Budgets

The Department of Public Works (PBW) Construction-In-Progress Construction Management Unit's (Unit) is responsible for the City's capital construction inspection of Street and Thoroughfare projects. Currently, this Unit has approximately 32 employees, including six Construction Inspection Supervisors and 19 inspectors. According to PBW personnel, PBW follows the North Central Texas Council of Governments (NCTCOG) Public Works Construction Standards. Also, *"the 2010 addendum to the NCTCOG sets forth exceptions or requirements of the City of Dallas Public Works and Transportation, and thereby takes precedence over any conditions or requirements of the Standard Specifications with which it may be in conflict"*. In addition, in 2009, the Unit introduced the Quantity Verification (QV) sheet as an additional tool to improve monitoring controls.

Construction Inspection Responsibilities

According to the Unit, PBW currently manages approximately 70 to 75 capital construction Street and Thoroughfare projects at any given time. The team of Inspectors and Supervisors use certain templates/documents to monitor and record the progress of these projects. These documents are the invoice template, Daily Progress Report (DPR), Quantity Verification (QV) Sheets, Time Statement Report, Material Tickets, and Lab-Tests Reports.

According to PBW Construction Inspection personnel, the process is as follows:

- 1) Inspectors make visits to the project work sites daily monitoring progress, verifying completed quantities, signing-off/receiving material tickets, reviewing lab-test reports, and communicating and acknowledging project information with contractors.
- 2) Contractors enter the quantity of items used in the construction for the month in the invoice template (all other cells in this template are locked to ensure all other data and formulas are not changed) and sends it to the inspectors along with a Time Statement Report for the period.
- 3) Inspectors agree/disagree to the contractor's quantity based on the document/template information that has been collected for the project.
- 4) Invoice approval by Inspection Supervisors/Manager, Project Engineer/Manager approval and PBW Finance for account coding and processing.
- 5) The PBW Accountant processes contractor invoices in the City's financial system based on the availability of funding or budget.

- 6) The PBW Finance Department sends the contractor invoices to the City Controllers' Office (Accounts Payable Department) for payment along with other required documents.

Objective, Scope and Methodology

The objective of the audit was to review selected capital budget controls over expenditures to determine if monitoring controls are operating effectively. The scope of the audit included transactions occurring from October 1, 2009 through June 30, 2011; however, certain other matters, procedures and transactions occurring outside that period may have been reviewed to understand and verify information related to the audit period. As a result, the focus of this report is PBW construction inspection monitoring controls from the inception of a street construction contract to the completion and payment of that contract.

This audit was conducted under authority of City Charter, Chapter IX, Section 3 and in accordance with the Fiscal Year 2011 Audit Plan approved by the City Council. This performance audit was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

To achieve the audit objective, we performed the following procedures:

- Reviewed and analyzed Administrative Directives (AD) 6-01, *Control of City Property*; AD 4-05, *Contracting Policy*; and AD 2-51, *Records Management*
- Reviewed and analyzed the following: (1) City Contract Management Process documents; (2) A capital construction contract from the City Secretary's Office; (3) Capital Fund Unit Summary report which showed the schedule of all capital projects, including streets; (4) Prior audit reports issued by the Office of the City Auditor which were related to capital projects; and, (5) PBW organization chart dated March 2011
- Performed Internet research and review of various capital project audits
- Interviewed personnel from the following City Departments: (1) Office of Financial Services (OFS); (2) Dallas Water Utilities (DWU); (3) Public Works – Engineering Services, Construction Inspection, and Finance; and, (4) City Controller's Office – Accounts Payable

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- Conducted a walk-through process on a Capital Construction Street Project with PBW personnel
- Obtained and analyzed data files from the Department of Communication and Information Services (CIS) personnel. The data files identified 21,143 capital construction street invoice line items, totaling \$233,435,522, which were paid within the scope of the project.
- Selected a judgmental sample of 28 projects and 37 associated invoices totaling approximately \$2.1 million a sample of invoices for testing using ACL software
- Tested the following attributes for each of the 37 invoices included in the project files: (1) Current invoice calculated agreed to amount paid; (2) Contractor signature present on DPR; (3) The DPR quantity agreed to invoice quantity; (4) Daily QV sheet quantity agreed to DPR quantity; (5) Material tickets quantity agreed to invoice quantity; (6) Quality Inspection Report present in project file; (7) Charged days on DPR agreed to Time Statement prepared by Construction Inspection Supervisors; (8) Construction Inspection Supervisor/Manager signature on invoice; and, (9) Construction Project Manager/Engineer signature on invoice
- Summarized testing results and presented observations to PBW management

Major Contributors to This Report

Carol A. Smith, CPA, CIA, CFE – Audit Manager

Kevin Hannigan, CIA – Project Manager

Prince Zacharia, CPA – Auditor

Theresa Hampden, CPA – Quality Control Manager

Management's Response

Memorandum

RECEIVED

MAY 01 2012

City Auditor's Office



DATE: April 24, 2012

TO: Craig D. Kinton, City Auditor

SUBJECT: Response to Audit Report:
Audit of Monitoring Controls Over Capital Construction for Streets and Thoroughfares

Our responses to the audit report recommendations are as follows:

Recommendation I:

We recommend the Director of PBW establish formal written policies and procedures for the capital construction inspection monitoring activities. These policies and procedures, at a minimum, should address the following:

- Monitoring oversight responsibilities
- Frequency and exceptions to monitoring, if any
- Documentation standards
- Project file organization standards

Management Response / Corrective Action Plan

Agree Disagree

Several new or revised processes, procedures, and forms have been implemented in the monitoring process and are being put into practice as new projects begin construction. The project sampling utilized in the audit did not capture all of the elements of the overall updating of processes and procedures that began approximately one year ago. Once fully implemented, the processes and procedures will address all the items recommended above.

Implementation Date

Full implementation of the written processes and procedures is targeted to be completed by January 2013.

Responsible Manager

Patrick A. Diviney, P.E., Senior Program Manager - Construction

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Recommendation II:

We recommend the Director of PBW ensure the Unit's monitoring documentation is accurate, consistent, and complete in accordance with formalized procedures.

Management Response / Corrective Action Plan

Agree Disagree

The Daily Progress Reports (DPRs) are prepared daily by the inspection staff and denote the inspector's account of what and where activities occurred on site or if no work occurred and the reasons why. This report is not intended to be a collaborative effort between the inspector and the contractor; therefore, contractor signatures have not been required on these forms. The DPR will be updated to remove the contractor's signature block and add the signature of the inspector's supervisor to provide a level of monitoring for consistency on the forms.

The DPRs include the basic limits of the items constructed each day but are not intended to represent the agreed upon, field measured quantity for each bid item. The agreed upon quantities installed are shown on the Quantity Verification (QV) sheets prepared by the contractor and agreed to by the inspector. The QV sheets are totaled for the month's work, and those quantities are utilized in the Monthly Invoice for the project. This is an important part of how daily activities are reconciled with those quantities to be paid on a monthly basis.

Material tickets are only required for bid items paid for by weight. Most items are paid by a measured quantity such as linear, square or cubic feet. Although some inspectors collect and retain material tickets for items such as, concrete, sod or reinforcing steel, these tickets are not required to determine or verify the quantity of the items for invoicing purposes. Items paid by weight, like temporary asphalt and lime, are required to have weight tickets and are included in the QV documentation.

The DPR accounts for each day's activities on the project and tracks the project time. It should be noted the current practice for contract time is to utilize calendar days, instead of the previously utilized working days. This method of tracking allows for a more defined completion date. Final time charges are agreed upon on the Contract Time Statement and usually vary some from the DPR once agreement is reached between the Contractor and the City. Contract Time Statements, signed by the City and Contractor, are submitted each month and included in the project file.

It should be noted that Street Resurfacing projects have a date-specific completion time; therefore, time monitoring is not tracked by utilizing Contract Time Statements.

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To summarize, the DPR is not intended to be the final accounting for quantities or time. Final quantities and time for each Monthly Invoice are reviewed and agreed upon between the Contractor and the City and are recorded on the QV sheets and Monthly Time Statement. Therefore, the DPR quantities and time will often not match the Monthly Invoice quantities paid and the Monthly Time Statement time charges. The new or revised processes and procedures will detail the differences in purpose the various documents are intended to serve.

Implementation Date

Full implementation of the written policies and procedures is targeted to be completed by January 2013.

Responsible Manager

Patrick A. Diviney, P.E., Senior Program Manager - Construction

Please let me know if you need additional information.



Rick Galceran, P.E., Director
Public Works Department

c. Jill A. Jordan, P.E., Assistant City Manager

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