



**AU15-002**  
**Public Works Department**  
**Engineering Services Department**  
**Street Construction**

**City Auditor's Office**  
**Arlena Sones, CPA, CIA, CGAP**  
**City Auditor**

**November 9, 2016**

## Executive Summary

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In accordance with the 2015 Annual Audit Plan, we conducted an audit of the Public Works Department of the City of Corpus Christi (City). The City has committed \$259,105,000 to street construction through its 2008, 2012 and 2014 bond packages.

### **Audit Objective**

Due to scope limitations, the original audit objective was modified to determine if the Public Works Department performed its due diligence on contractor requests for change orders on the Waldron Road project.

### **Audit Conclusion**

In general, the Public Works Department did perform its due diligence on contractor requests for change orders totaling \$57,784 for the Waldron Road project.

The Engineering Services Department has well documented procedures for its Project Management and Quality Assurance/Quality Management functions, but we believe management could strengthen its written procedures.

Management of the Public Works Department agrees with this report. See management's responses following each issue and in its entirety in Appendix C.

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## Introduction

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In accordance with the 2015 Annual Audit Plan approved by City Council, we conducted an audit of the Public Works Department (Public Works) of the City of Corpus Christi (City).

### Background

The City has pursued an aggressive street improvement program as evidenced by its financial commitment through the sale of bond covenants approved by voters in 2008, 2012, and 2014. Each bond package identifies street segments to be constructed plus generalized categories of improvements such as overlays, street lighting, or traffic signals. Voters approved \$259,105,000 for bonds related to street construction as shown below:

- Bond 2008, Proposition No. 1      \$104,610,000
- Bond 2012, Proposition No. 1      \$ 55,000,000
- Bond 2014, Proposition No. 1      \$ 55,000,000
- Bond 2014, Proposition No. 2      \$ 44,495,000<sup>1</sup>

The Public Works Department provides oversight to the Street Operations Department and Engineering Services Departments. Street construction is coordinated through the Engineering Services Department on behalf of the Streets Operation Department.

The Engineering Services Department provides engineering and technical support for the City's bond and capital improvement programs. The mission of Engineering Services is to assist City departments in support of new projects and maintenance of existing infrastructure.

Management of the Public Works Department and Engineering Services Department are actively involved and passionately committed to the success of the City's street improvement program.

Engineering Services Department has created process workflow mapping and written procedures for each step of its project management process, and it regularly reports the status of project change orders to City Council. The department has also developed procedures for its annual Quality Assurance/Quality Management function.

### Audit Objectives and Conclusions

The original audit objective approved by City Council was revised due to the work performed by others prior to the start of this audit, specifically the Ad Hoc Residential Streets

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<sup>1</sup> We did not include certificates of obligation or Bond 2012, Proposition 8 in this audit.

Infrastructure Advisory Committee and the Engineering Competitive Assessment performed by consultant, Frank Brogan. Due to significant scope limitations described in Appendix A, the audit objective was revised to:

Did the Public Works Department perform its due diligence on contractor requests for change orders on the Waldron Road project?

In general, the Public Works Department did perform its due diligence on contractor requests for change orders on the Waldron Road project; however, we make recommendations for more detailed instructions in its written procedures. With the limited size of testwork, it is possible that the results may not reflect management efforts on other street construction projects.

Management responses to the issues are included in the body of this report for the readers' convenience and in Appendix B.

### **Management and Auditor Responsibility**

City management is responsible for establishing and maintaining a system of internal controls to ensure assets are safeguarded, financial (and non-financial) activity is accurately reported and reliable, and management and employees are in compliance with laws, regulations, and agreements with other entities.

This audit report provides independent, objective analysis, recommendations, and information concerning the activities reviewed. The report is a tool to help management discern and implement specific improvements. The report is not an appraisal or rating of management.

We conducted this performance audit 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 objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Audit steps were developed to provide sufficient evidence to answer the objectives of this audit. Our methodology can be found in Appendix A - Audit Scope and Methodology.

### **Staff Acknowledgement**

Arlena Sones, City Auditor  
Sarah Arroyo, Assistant Auditor

## Audit Results and Recommendations

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### A. Change Orders

Condition: In general, Public Works performed its due diligence related to contractor requests for change orders for each of the five change orders for the Waldron Road project (totaling \$57,784). Testwork was designed to determine: if proper approval was obtained, if a valid need existed, if the change order duplicated work contained in the contract, if pricing and the number of additional work days granted appeared reasonable, and if the project team negotiated with the contractor when proposed costs were not in line with contract prices. We also looked for evidence that the work was performed.

All change orders were appropriately approved and filled a valid need, and the negotiated pricing and number of additional workdays appeared to be reasonable. There was sufficient evidence that work was performed for all but change order #2.

Per the contract, the existing sanitary sewer line was to be removed for a cost of \$19,610. During construction, change order #2 authorized the contractor to leave the existing line in place and fill it with grout instead of removing it. This action saved the City \$10,700. Engineering could provide no proof (other than the word of the field inspector) that the work had been performed, and the contractor, Berry Contracting LP, dba Bay Ltd. of Corpus Christi did not respond to our request for additional documentation.

Criteria: Local Government Code Section 252 prohibits paying for an item prior to it being constructed (as does the contract).

Per Local Government Code 252.048 and City Ordinance 18, the City Manager's designee is granted authority to approve change orders under \$100,000.

The State of Texas Contract Management Procedures requires state agencies to design a monitoring program (field inspection) that focuses on items that are most important and reports on the outcomes of those items (e.g. the square footage and depth of sidewalks built). The City has no obligation to follow this state procedure; however, the document is an excellent model the City could adopt.

Cause: The Public Works Department relies on its field inspectors to provide assurance that work is performed in accordance with the contract and change orders; however, the written procedures for field inspector daily reports (E15. Construction Inspection Procedure) do not require measurements or descriptions of the outcomes of the work performed by the contractor. Additionally, the department procedures do not require supervisory review or periodic monitoring of the field inspector's daily reports.

Per management, existing staff is stretched thin, with one field inspector assigned to multiple projects at any given point in time. The field inspector on the Waldron Road Project was assigned to two other projects during a portion of the Waldron Road project.

Effect: Inspector field notes are a critical piece of project management. This is especially true for underground work. While it is more likely than not that the work was performed, if the sanitary sewer line was not filled, there is an increased risk of road failure in the future.

Examples of field notes and photographs taken by the field inspector are provided in Exhibits 1, 2, and 3. Example 1 contains the quantity of material delivered (inputs), but not the outcome of the work (i.e. square feet of sidewalk built). Exhibit 2 does not include input or outcome of the day's work (square yards of hot mix asphaltic concrete laid). Without sufficient documentation of outcomes, there may be no other evidence of work performed.

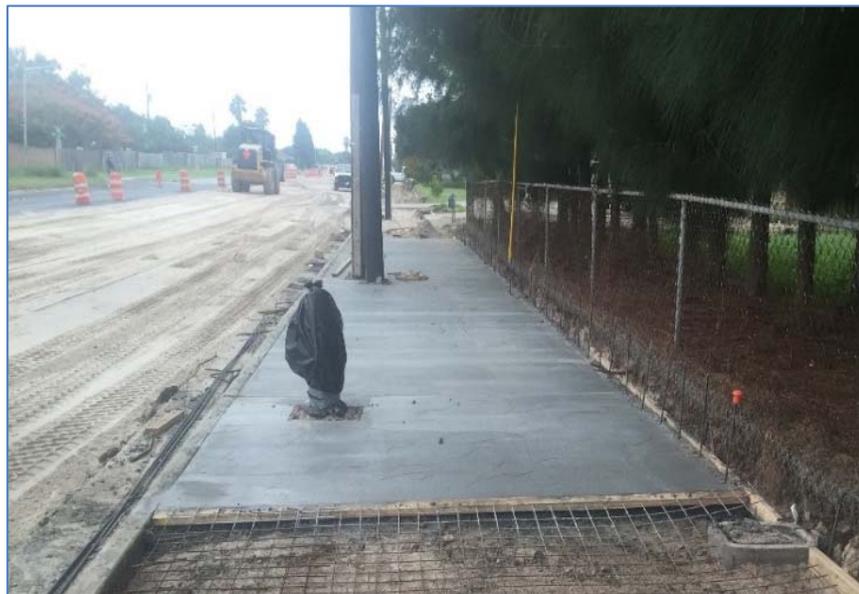
**Recommendation:** Field inspectors protect the City's interest (financially and otherwise) through their daily inspection efforts. The Engineering Services Department could strengthen its procedures by requiring more detail of the outcomes in the field inspector's daily report. The department would then have more evidence of the work that was completed.

Timely supervisory review of field inspectors' daily logs would allow the department to detect deficiencies in an inspector's documentation process, and would allow for additional training to be provided to its field inspectors during the life of the project.

**Exhibit 1**  
Photo and excerpt  
from Field Inspector's  
Daily Activity Report,  
11/6/15

**“Concrete crew  
poured 16 CY” \***

\*cubic yards



**Exhibit 2**

Photo and excerpt from  
Field Inspector's Daily  
Activity Report, 1/12/16

**"Installed HMAC 3"  
first course" \***

\*hot mix asphaltic  
concrete



<i>Agree/Disagree</i>	<i>Responsible Party, Title</i>	<i>Completion Date</i>
Agree	Aurora Parlamas, Assistant Director of Support	January 31, 2017

*Action Plan:*

Engineering Services documents department-wide processes in EPM Live, our Department electronic processes management software. Construction Inspection Procedures have been documented in EPM Live/PAL document library, E15. - Construction Inspection Procedures. Our Department also conducts internal quality audits at the project level, and depending on the phase of the project, the quality audit may include Construction Inspections. Construction Inspection Procedures were updated in March 2015. In August 2016, Engineering started conducting weekly Construction Inspections Leadership Team Meetings to immediately address Division needs and project demands. In effort to efficiently document and retrieve daily project related information, Management tasked staff to develop Electronic Daily activity reports (DARs) and a query to retrieve information by project by date. These items were successfully completed. Inspection staff were trained in the new electronic process in September and October 2016. In addition, Management reviewed the current procedures and we agree that enhanced written procedures documenting more inspection related details would greatly improve the outcome of information in the inspector's daily activity reports (DARs). Management will implement biweekly supervisory review of field inspector's daily activity reports (DARs); and implement quarterly DARs training to ensure field inspectors are documenting appropriate and comprehensive project related information. These additional procedures will be written and updated in the EPM Live/PAL document library.

**B. Requests for Progress Payments and Change Order Funding**

Condition: We tested each of the ten (monthly) requests for progress payments for mathematical accuracy and to determine the if the unit costs agreed to the contract costs. Generally, the requests for progress payment were correct (minor errors were caught and corrected by Engineering Services Department support staff); however, we did see inconsistency with the way change orders were billed and funded. For example:

- Change order #1 authorized changes in the traffic control plan (TCP) at a cost of \$11,406, but the amount was not added to the total contract cost (see Exhibit 3). It appears the intent was to allocate this cost to the “unanticipated contingency allowance” line item.
- Change order #4 authorized more changes to the TCP at a cost of \$6,746, and this amount was added to the contract cost (see Exhibit 3).

**Exhibit 3** Excerpt from the Waldron Road Acceptance Memorandum, dated 8/17/16, shows change order (CO) activity.

Waldron Road Acceptance Memorandum dated 8/17/16						
CO#	CO Amount	Previous Contract Amount	New Contract Amount	CO Days Added	Total Contract Days	Approved Date
1	\$0.00	\$2,580,631.90	\$2,580,631.90	30	210	09/23/15
2	(\$10,700.40)	\$2,580,631.90	\$2,569,931.50	0	210	12/03/15
3	\$30,722.00	\$2,569,931.50	\$2,600,653.50	5	215	01/29/16
4	\$6,746.47	\$2,600,653.50	\$2,607,399.97	1	216	03/16/16
5	\$0.00	\$2,607,399.97	\$2,607,399.97	32	248	08/12/16

Cause: The Engineering Services Department has no written procedures detailing its accounting for change orders or the use of the “unanticipated contingency allowance” line items. Per management, it is left to the discretion of the program manager how to account for a change order.

Effect: While the negotiated price was billed by the contractor and paid by the City for change order #1, the “total contract amount” reported on the Acceptance Memorandum dated 8/17/16 was understated by \$11,406 (the cost of change order #1). Because change orders are a sensitive issue with City Council and the public at large, consistency in accounting is especially important.

Criteria: The Texas Contract Management Guide says state agencies should have an effective change management process in place. It recommends agencies to develop a plan for how draws against a contingency allowance account will be requested and approved. It recommends documenting all changes, no matter how small.

**Recommendation:** Written accounting procedures for change orders and unanticipated contingency allowance line items will provide assurance to management that its budgetary goals are being achieved, and will provide staff with direction to produce a consistent work product.

**Exhibit 4**

Photo and excerpt from Field Inspector’s Daily Activity Report, 1/12/16

**“The TCP is to be reinstalled after school starts on August 31, 2015” \***

\*traffic control plan



Agree/Disagree	Responsible Party, Title	Completion Date
Agree	Aurora Parlamas, Assistant Director of Support	January 31, 2017

**Action Plan:**

Engineering Services documents department-wide processes in EPM Live, our Department electronic processes management software. Construction Change Order Procedures have been documented in EPM Live/PAL document library, E16. - Change Order Procedures. Our Department also conducts internal quality audits at the project level, and depending on the phase of the project, the quality audit may include Change Orders. Construction Change Order Procedures were updated in July 2016. While not documented in the current procedures, in April 2016, Management implemented an “overrun worksheet” documenting work performed per estimate line item including overruns and unanticipated contingency allowance line items deductions to ensure overall quantities accountability and budgetary/fiscal responsibility. The worksheet is attached to each pay estimate, as needed. In May 2016, Management also developed a Request for Information (RFI) template designed to help determine the need for a change order and establish the documentation required to formally request a change order,

if necessary. Management reviewed the current procedures and we agree that enhanced written procedures documenting the accounting for change orders and unanticipated contingency allowance will provide documentation consistency and ensure budgetary goals are achieved. These additional procedures will be written and updated in the EPM Live/PAL document library.

## Appendix A – Audit Scope and Methodology

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The audit scope included street construction projects that were near completion and those that had been completed since 2013.

A judgmental sample selection method was used to select three bond-funded street construction projects based on: 1) projects recently completed (or near completion), and 2) projects with a different general contractor. We selected the following projects/ contractors:

- Kostoryz Road Phase I (#6489) –Texas Sterling Construction Co.
- Chaparral Street (#6510) – Reytek Construction Resources, Inc.
- Waldron Road (E13099) – Berry Contracting LP, dba Bay Ltd. of Corpus Christi.

We faced significant constraints in conducting this audit because the department does not maintain supporting records at the level needed to audit the contractor's requests for progress payment. Further, we could not obtain access to contractor records as provided by contract. This will be reported to the Audit Committee for consideration and possible action.

Due to these scope limitations, our test of the contractor requests for progress payment was limited to verification of mathematical accuracy and a comparison of unit pricing to contract pricing for the Waldron Road project.

We also tested each of the five change orders issued for the Waldron Road project for the following attributes: evidence of the work performed, proper approvals, valid need within the context of the contract, negotiation in pricing and number of additional workdays granted.

The scope for the Waldron Road project was August 10, 2015 (date of notice to proceed) through August 17, 2016 (project acceptance). We relied on change order documentation provided by the contractor and the Engineering Services Department in conducting our test work.

The following authoritative guidelines served as criteria for the audit:

- Waldron Road contract
- Engineering Services Department Procedures
- State of Texas Contract Management Procedures

We conducted this audit from February 2016 to September 2016. We believe this test work provides sufficient and appropriate evidence for our audit conclusions and findings.



Date: October 26, 2016

Arlena Sones, CPA, CIA, CGAP  
City Auditor  
Corpus Christi, Texas

**ENGINEERING  
SERVICES**

PO Box 9277  
Corpus Christi  
Texas 78469-9277

1201 Leopard Street  
3<sup>rd</sup> Floor  
Corpus Christi  
Texas 78401

Phone 361-826-3500  
Fax 361-880-3501  
www.cetexas.com

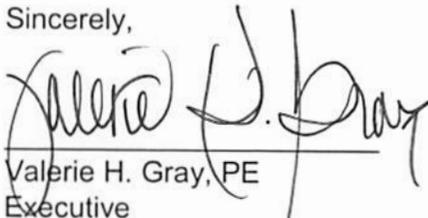
Re: AU15-002 Public Works Department, Street Construction Audit

We have carefully reviewed the issues presented in the audit report referenced above, and our plans to correct the issues are described on the following pages.

We are committed to correcting the issues in the audit report by implementing the action plans in a timely fashion.

*Construction Inspection*  
4917 Holly Rd., Bldg. 5  
Corpus Christi  
Texas 78411  
Phone 361-826-3555  
Fax 361-826-3520

Sincerely,

  
\_\_\_\_\_  
Valerie H. Gray, PE  
Executive  
Director Public Works Department

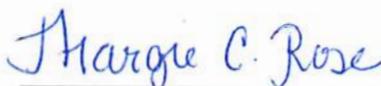
10/26/16  
Date

  
\_\_\_\_\_  
Jeffrey Edmonds, PE  
Director  
Engineering Services Department

10/26/16  
Date

  
\_\_\_\_\_  
Mark Van Vleck  
Assistant City Manager

10/26/16  
Date

  
\_\_\_\_\_  
Margie C. Rose  
City Manager

10/31/16  
Date

**A. Change Orders**

**Recommendation:** Field inspectors protect the City's interest (financially and otherwise) through their daily inspection efforts. The Public Works Department could strengthen its procedures by requiring more detail of the outcomes in the field inspector's daily report. The Public Works Department would then have more evidence of the work that was completed.

Timely supervisory review of field inspectors' daily logs would allow the department to detect deficiencies in an inspector's documentation process, and would allow for additional training/direction to be provided to its field inspectors during the project.

<i>Agree/Disagree</i>	<i>Responsible Party, Title</i>	<i>Completion Date</i>
Agree	Aurora Parlamas, Assistant Director of Support	January 31, 2017
<p><b>Action Plan:</b>                      Engineering Services documents department-wide processes in EPM Live, our Department electronic processes management software. Construction Inspection Procedures have been documented in EPM Live/PAL document library, E15. - Construction Inspection Procedures. Our Department also conducts internal quality audits at the project level, and depending on the phase of the project, the quality audit may include Construction Inspections. Construction Inspection Procedures were updated in March 2015. In August 2016, Engineering started conducting weekly Construction Inspections Leadership Team Meetings to immediately address Division needs and project demands. In effort to efficiently document and retrieve daily project related information, Management tasked staff to develop Electronic Daily activity reports (DARs) and a query to retrieve information by project by date. These items were successfully completed. Inspection staff were trained in the new electronic process in September and October 2016. In addition, Management reviewed the current procedures and we agree that enhanced written procedures documenting more inspection related details would greatly improve the outcome of information in the inspectors daily activity reports (DARs). Management will implement biweekly supervisory review of field inspector's daily activity reports (DARs); and implement quarterly DARs training to ensure field inspectors are documenting appropriate and comprehensive project related information. These additional procedures will be written and updated in the EPM Live/PAL document library.</p>		

**B. Progress Payment Requests**

**Recommendation:** Written procedures for accounting for change orders and unanticipated contingency allowance line items will provide assurance to management that its budgetary goals are being achieved, and will provide staff with direction to produce a consistent work product.

<i>Agree/Disagree</i>	<i>Responsible Party, Title</i>	<i>Completion Date</i>
Agree	Aurora Parlamas, Assistant Director of Support	January 31, 2017
<p><b>Action Plan:</b>                      Engineering Services documents department-wide processes in EPM Live, our Department electronic processes management software. Construction Change Order Procedures have been documented in EPM Live/PAL document library, E16. - Change Order Procedures. Our Department also conducts internal quality audits at the project level, and depending on the phase of the project, the quality audit may include Change Orders. Construction Change Order Procedures were updated in July 2016. While not documented in the current procedures, in April 2016, Management implemented an “overrun worksheet” documenting work performed per estimate line item including overruns and unanticipated contingency allowance line items deductions to ensure overall quantities accountability and budgetary/fiscal responsibility. The worksheet is attached to each pay estimate, as needed. In May 2016, Management also developed a Request for Information (RFI) template designed to help determine the need for a change order and establish the documentation required to formally request a change order, if necessary. Management reviewed the current procedures and we agree that enhanced written procedures documenting the accounting for change orders and unanticipated contingency allowance will provide documentation consistency and ensure budgetary goals are achieved. These additional procedures will be written and updated in the EPM Live/PAL document library.</p>		