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# Construction Change Orders Audit

March 4, 2022



### City of Fort Worth Department of Internal Audit

200 Texas Street Fort Worth, Texas 76102

### Audit Staff

John Riggs, Interim City Auditor Brian Burkland, Assistant City Auditor Faith Urban, Senior Auditor





The Construction Change Orders Audit was conducted as part of the Department of Internal Audit's Fiscal Year 2020 Annual Audit Plan.

### Audit Objectives

The objectives of this audit were to:

- evaluate whether controls related to the justification and approval of change orders were adequate;
- determine whether change order pricing terms (unit prices) were consistent with the original contract; and,
- ensure that the scope of work detailed within change orders did not duplicate the scope of work in the initial contract.

### **Audit Scope**

Our audit included a review of construction change orders approved during the period October 1, 2019 through June 30, 2020.

### **Opportunities for Improvement**

Evidence of pricing review for added items

Improved guidance for permitting additional days to complete projects

### **Executive Summary**

As part of the Fiscal Year 2020 Annual Audit Plan, the Department of Internal Audit conducted an audit of construction contract change orders.

The Internal Audit Department confirmed that change order requirements are specified within construction contracts. We concluded that change orders were approved as required and they complied with State law, as they did not exceed 25% of the original contract price.

The City has a Capital Delivery Project Management Manual (Project Manual) for capital projects that includes the management of change orders. The Transportation and Public Works Department (TPW) prepared the manual which includes procedures related to the management of TPW, Water and Park & Recreation Department projects.

Internal Audit found that there were no policies or procedures requiring a documented review of prices for pay items (e.g., 7" concrete paving, 6" curb and gutter) added by change order that were not included in the original bid/contract pay items. Unlike pay items included in the original bid, these added pay items are not subject to competitive bidding so long as their addition does not cause the entire contract to exceed the 25% cap on increases via change orders

We reviewed change order pay items that matched original bid/contract items and found that all were priced the same as in the bid as required. However, for the pay items added that were not included in the original bid/contracts, there was not documentation of a pricing review for 17 of the 18 pay items.

The Project Manual and contract requirements did not provide sufficient guidance for allowing additional days to complete projects. In addition, existing requirements were not followed when adding "days to complete" to projects. Days were added to extend contracts via Construction Allowance Requests, which are not permitted for contract time extensions.

These audit findings are discussed in further detail within the <u>Detailed</u> <u>Audit Findings</u> section of this report.

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### Background

Construction projects are used to build, reconstruct, improve or maintain City infrastructure assets. Unanticipated issues that develop during projects may result in the need for change orders that authorize an addition, deletion or revision of the contract price and/or contract time (days to complete).

### Legal Requirements

Change orders are subject to State and City legal requirements.

- Texas Local Government Code Section 252.048 limits contract price increases to 25% of the original contract price.
- City Code Section 2-9 (2) states that the Mayor & Council must approve changes to a contract's price that exceed \$100,000.00 in City funding.
- City Code Section 20-371 states that Minority Business Enterprise (MBE) subcontracting requirements apply to change orders.
- City Charter Chapter XXVII (Miscellaneous), Section 14 (b) states that changes must be agreed upon in writing by both parties and payment must be made using appropriated available funds upon authorization by the Mayor & Council when required.

### **Contract General Conditions**

The City's *Standard General Conditions of the Construction Contract* (General Conditions) are included within construction contracts to serve as a common set of terms and conditions. The General Conditions outline specific requirements for contract changes, and state that a change order is required to modify a contract's terms (scope of work, contract price or contract time).

### **Capital Delivery Project Management Manual**

A manual prepared by Transportation & Public Works Department (TPW) staff provides guidance for capital project management. The 89-page Capital Delivery Project Management Manual (Project Manual) includes instruction for the administration of TPW, Water Department (limited) and Park & Recreation Department projects from the planning phase through project closeout. The manual repeats the type of changes that require Mayor & Council approval for change orders such as a lack of sufficient funding, changes that exceed \$100,000, etc.

### **Contract Change Funding**

The CFW uses Construction Allowance pay items and contingency funds to budget for potential risks and issues that may develop during projects. Additional funds may be also be appropriated when required. Construction Allowances, when used, are included in the bid/contract as a separate pay item. Contingencies are funds established as a reserve (within the project allocated funds) to cover any additional or unexpected costs that may be required during the project.

### **Contract and Change Order Pricing**

Changes to a contract's total price require a change order. The use of a Construction Allowance, when included in the contract pay items, does not require a change order, because the total price does not change. The following examples illustrate that adding a work item to the contract via a change order (using available contingency or additional funds) without a reduction of other items increases the total contract price, whereas adding an item via a Construction Allowance request does not increase the total contract price.



Change Order									
Contract Cost Prior to change: \$2,250,000.00						\$2,250,000.00			
Add/	Contract	Spec.							
Delete?	Item #	Section	Item #	Item Description	Dept	Qty	Unit	Unit Cost	Total
Add	26	32 16 13	3216.0101	6" Concrete Curb & Gutter	TPW	3,500.00	LF	\$ 32.00	\$ 112,000.00
	Contract Cost After change: \$2,362,000.00								
Allowa	nce Rec	uest							
						Contr	act Cost P	rior to change:	\$2,250,000.00
Add/	Contract	Spec.							
Delete?	Item #	Section	Item #	Item Description	Dept	Qty	Unit	Unit Cost	Total
Deduct	25	99 99 00	9999.1003	Construction Allowance	TPW	1.12	LS	\$100,000.00	\$ (112,000.00)
Add	26	32 16 13	3216.0101	6" Concrete Curb & Gutter	TPW	3,500.00	LF	\$ 32.00	\$ 112,000.00
Contract Cost After change: \$2,250,000.00									

Per the Project Manual, Project Managers are responsible for verifying that the change order proposal is "reasonable for the additional scope of work."

- Pay items listed on change orders that were included in the initial bid/contract must use the same unit prices for additional quantities of the same item with limited exceptions.
- Pay items not included in the original contract are to be priced at a mutually agreed upon price. If the City and the contractor cannot reach an agreement on pricing, the General Conditions stipulate that the unit price will be calculated on the basis of the contractors cost of work, plus a fee for overhead and profit. There is no requirement to document the review or approval of the reasonableness of pricing for added pay items. The Project Manual does not provide criteria for assessing reasonableness.

### **Days to Complete (Contract Time)**

Contracts specify the number of days allowed for completion of the work. Neither the contract General Conditions nor the City Project Construction Manual provide adequate specific guidance for the management of time extensions. Additional days to complete a project may result from delays that are considered:

- beyond the control of the contractor such as weather, unforeseen utility line conflicts, etc. as specified in the contract General Conditions; or,
- controllable by the contractor and therefore subject to charges described as "liquidated damages" that are assessed at a daily rate for each day that the work exceeds the number of days specified in the contract plus change orders.



The objectives of this audit were to:

- evaluate whether controls related to the justification and approval of change orders were adequate;
- determine whether change order pricing terms (unit prices) were consistent with the original contract; and,
- ensure that the scope of work detailed within change orders did not duplicate the scope of work in the initial contract.

### Scope

Our audit included a review of construction change orders approved during the period October 1, 2019 through June 30, 2020.

### Methodology

To achieve the audit objectives, the Department of Internal Audit performed the following:

- reviewed applicable sections of Texas Local Government Code, City of Fort Worth Charter, Fort Worth Code of Ordinances, Finance Directives, Contract General Conditions, the Capital Delivery Project Management Manual, departmental policies and procedure documents, process flows, etc. to identify specific requirements for construction change orders;
- interviewed staff involved in construction contract monitoring, project management, and approval of construction contract change orders;
- reviewed relevant prior audit reports (internal and external) to identify common practices as well as issues commonly presented with change orders;
- reviewed best practice documentation to identify industry standards;
- performed a risk assessment to identify high risk areas within the change order process;
- sampled change orders for appropriateness/reasonableness, justification, approval/authorization, compliance (to contract, departmental policies, state and local requirements), duplication of scope of work, and fairness and reasonableness of pricing;
- reviewed contracts for change order requirements, and;
- evaluated internal controls related to construction change orders.

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.



We are independent per the generally accepted government auditing standards requirements for internal auditors.

Chapter XXVIII of the Fort Worth City Charter established the City of Fort Worth's Department of Internal Audit independent of management, reporting directly to the Fort Worth City Council. We utilized the Committee of Sponsoring Organizations of the Treadway Commission (COSO) framework when evaluating internal controls. The following internal control components and corresponding principles were considered significant to the audit objectives. COSO is dedicated to providing thought leadership through the development of frameworks and guidance on enterprise risk management, internal control and fraud deterrence.

Internal Control Component	Principles
Control Environment	Managerial oversight, integrity, ethics and responsibility; established organizational structure to achieve objectives; staff recruitment, development, retention, performance and accountability
Risk Assessment	Clearly-defined objectives to identify risks, define risk tolerances and respond to significant changes
Control Activities	Designed control activities, information systems and policies to achieve objectives and mitigate risks
Information and Communication	Communication of necessary quality information
Monitoring	Monitoring and evaluating the effectiveness of internal controls



Internal Audit found that the City construction contracts and manuals include provisions for the management of change orders that are adequate with the exceptions noted in this report. Mayor & Council approval was obtained for the change orders we reviewed when required.

For the pay items on change orders that matched original bid/contract items, we found that change order unit prices matched the original bid/contract prices. The change orders reviewed complied with MBE subcontracting requirements. Change orders did not include apparent duplication of work. However, we found that documentation of the review of pricing for pay items added by change orders was not required. We also found there to be insufficient guidance for allowing additional days to complete projects.

### **Change Order Pay Item Pricing**

The City's Capital Delivery Project Management Manual (Project Manual) and the contract General Conditions include requirements for the management of capital projects including change orders. While these documents include guidance for change orders, and a general requirement that change orders be "reasonable for the additional scope of work," there is no requirement to document that additional pay item prices were reviewed for reasonableness.

We tested 44 pay items – 26 that correspond to pay items included in the original bid and 18 pay items that were added after having not been included in the original bid. We were able to confirm that change order prices matched the original contract/bid pricing for the 26 pay items tested that were included in the original bids/contracts. Only one of the 18 items that were added after not having been included in the original bid were supported with documentation of a pricing review. There was no documentation provided from project files to support a review of the pricing for the other 17 pay items that were not included in the original bid/contract items but were added later. These 17 added pay items represented \$270,077.10 of the \$735,516.55 total for the change orders reviewed. Documentation could include unit price comparisons to other contracts, average prices or contractor cost computation data (labor, materials, equipment, overhead, profit).

### **Contract Time Extensions**

Extensions to the number of days allowed to complete projects were granted by an Allowance Request or at the end of projects reviewed. Contract days were extended using Construction Allowance requests rather than the required change orders for three projects reviewed. The Project Manual has limited coverage of time extension requirements.

### **Change Order Funding**

Internal Audit found that Change Order Request forms did not always include details about the specific additional funding used for the change order. Specifically, change orders did not always state that funds were available from already appropriated contingency funds or other sources when that was the case.



# **Overall Risk Evaluation**

High	Medium	Low
	<u>Change order pricing review</u> process lacks guidance and <u>documented evidence of</u> pricing review not required	
	Project time/days extension process lacks adequate guidance	



### **Detailed Audit Findings**

### 1. Documentation is not required to support a review of pricing for pay items added to projects.

Internal Audit found that there were no policies or procedures requiring the documentation of a review of pricing for the pay items added to projects via change order that were not original bid/contract pay items. Although staff indicated that they are required to review change order pricing for appropriateness, the reviews were not documented, nor was documentation of the pricing review required. The pay items included in the original bid/contracts are subject to competitive bidding, but any new pay items added by change orders are not competitively bid so long as their addition does not cause the entire contract to exceed the 25% cap on increases via change orders. As a result, pay items added through change orders do not receive the same price validation as pay items included in the original bid, and could include pricing that is not in the City's best interest.

We evaluated the change orders to determine whether unit prices:

- matched the initial contract prices for pay items that were included in the initial bid/contract pay items; and,
- were reasonable and consistent with prices for the same or similar items on other CFW contracts where similar items could be identified and/or had documented evidence of review of prices.

We were able to trace 26 of the 44 pay items (59%) for change orders reviewed to pay items in the original bids/contracts without exception. For the remaining 18 pay items that were not included in the original bids, documentation supported a review of pricing for one (1) of the items. The documentation included email records of the Project Manager questioning the contractor's proposed unit price as compared to other City project pricing. For the 17 other items, there was no documentation to support the review of prices for reasonableness. These 17 items represent a \$270,077.10 increase to the respective contracts. It should be noted that higher prices for items via change orders might be reasonable due to the unforeseen nature of the additional work. As a result, judgement would be required in assessing reasonableness.

We identified other organization's construction management practices that support the documentation of a pricing review for change orders such as a checklist and/or price comparison.

<b>Best Practices for Change Orders</b>	Current City Practice
<ul> <li>An entity's procurement policy should address its expectations with regard to change orders.</li> <li>Guidelines should exist for: <ul> <li>Assessing whether CO pricing is fair and reasonable.</li> <li>Document how to verify fair and reasonable (comparative analysis, etc.)</li> </ul> </li> </ul>	<ul> <li>The City's General Conditions – Items already in the contract should be at the same price in the CO.</li> <li>No guidelines in place for assessing pricing for items not in the original contract.</li> <li>No requirement to document change order pay item pricing review.</li> </ul>

Sources: <u>TXDOT Change Order Checklist</u>, Washington State Auditor's "Best Practices for Change Orders" CFW construction contract General Conditions



We were unable to conclude that prices for pay items added by change order were reasonable, because descriptions and/or item numbers for pay items were not used consistently.

Without adequate documentation of the review of pricing for pay items added through change orders, there is no way to confirm whether staff responsible for evaluating change orders ensured that change order prices charged to the City were reasonable. Furthermore, the lack of documentation of the price justification could prevent the City from holding staff accountable.

**Recommendation 1:** The Transportation and Public Works Department, Water Department, and Park and Recreation Directors should require documentation of the review of prices for pay items added via change order for reasonableness. Documentation requirements could include:

- acceptable sources to validate proposed prices (e.g., pricing from recent comparable projects, *CFW's average index pricing document, current market rates, etc.); and,*
- evidence required for the pricing review.

**Auditee's Response:** Concur. A Standard Operating Procedure for Construction Change Order Management will be drafted and include guidance on verifying proposed unit prices prior to routing the change order for execution. This verification process will involve the Project Manager's review of the most recently bid City of Fort Worth projects and/or the most recently completed change orders for City of Fort Worth projects. All documents reviewed in this process and supporting information will be stored in the project folder along with a statement documenting the process the Project Manager performed to determine the reasonableness of the change order.

### Target Implementation Date: May 2, 2022

**Responsibility:** The respective Assistant Directors from the Transportation and Public Works, Water, or Park and Recreation Department

Applicable Department Heads: William Johnson, Transportation and Public Works Director Chris Harder, Water Department Director Richard Zavala, Park and Recreation Department Director

Applicable Assistant City Managers: Dana Burghdoff and Valerie Washington

### 2. Sufficient guidance is not provided regarding adding days to contract time.

Review of 10 randomly selected contracts in our sample found that project extensions were not always consistent with contract terms resulting in days added:

- via Construction Allowance requests instead of the required change orders; and,
- without adequate supporting documentation.

### Days Added via Construction Allowance Requests

Section 12.02 of the City's contract General Conditions state that contract time may only be changed by a Change Order. The contracts in our sample had a total of 125 days added via Construction Allowance requests. City Attorney's Office staff stated that during the audit period, the form used to process Construction Allowance requests erroneously included a field that allowed users to add time to contract, but noted that the field has since been removed from the form.



			were Extended 1,0	<b>JJ</b>	
Sample Item #	Original Contract (Days)	Change Orders (Days)	Allowance Requests (Days)	Total* (Days)	Percent Change
1	270	564		834	208.9%
2	300	360	60	720	140.0%
3	n/a	n/a	n/a	n/a	n/a
4	365	25	39	429	17.5%
5	270	45		315	16.7%
6	480	140		620	29.2%
7	180	151	26	357	98.3%
8	540	45		585	8.3%
9	425	30		455	7.1%
10	330	150		480	45.5%
TOTAL	3,160	1,510	125	4,795	
		·	% change	52%	

Source: City Secretary's Office Contract and Project files

#### **Untimely Notification and Insufficient/Inconsistent Documentation:**

Two change orders from a sample of ten added a significant number of days to projects at the end of the project work.

- A time-only (no change in project cost) change order added 444 days to a project and was created and approved two months after the project's final acceptance letter had been issued. The reported cause of the delay, relocation of gas mains, appears to have supported the need for additional days; however, there was no documentation in the file supporting the timeline for the relocation.
- A project had 136 days added for various delays (weather, scope change, rework, etc.). City staff noted that support was lacking for 27 of the days.

Unless the project cost increases by the required amounts, policy does not require changes to project days to be approved by the Mayor & Council.

The City has permitted additional days without documentation of timely notification. TPW staff stated that although project schedule changes are discussed with the construction team the review does not follow a formal process, nor is there a requirement that it be documented. The project manual has limited coverage for time extensions such as procedure steps or requirements.

An insufficient review prior to approval of adding to the number of days to complete projects could result in time extensions granted that are not adequately supported and result in a lack of urgency on the part of contractors. The motivation provided by the cost of liquidated damages to the City might also be lost.



**Recommendation 2:** The Transportation and Public Works, Water and Park and Recreation Department Directors should evaluate whether contract terms and the project management manual provide adequate guidance for contract time extensions including documentation required, timely notification of delays, etc. to extend a project's length.

**Auditee's Response:** Concur. A Standard Operating Procedure for Construction Change Order Management will be drafted and include guidance on determining the reasonableness of additional contract time associated with a change order request. This process will include a review of weather conditions, consideration of lead times for ordering materials and/or equipment and the anticipated duration for the construction of the additional scope of work included in the change order. All documents reviewed in this process and supporting information will be stored in the project folder along with a statement documenting the process the Project Manager performed to determine the reasonableness of the change order.

### **Target Implementation Date:** May 2, 2022

- **Responsibility:** The respective Assistant Directors from the Transportation and Public Works, Water, or Park and Recreation Department
- Applicable Department Heads: William Johnson, Transportation and Public Works Director Chris Harder, Water Department Director Richard Zavala, Park and Recreation Department Director

Applicable Assistant City Managers: Dana Burghdoff and Valerie Washington



The Department of Internal Audit would like to thank the Transportation & Public Works, Water and Park & Recreation Departments for their cooperation and assistance during this audit.



# Exhibit I – Texas Department of Transportation Change Order Checklist

Tenas Digastroer of Transportation	* Change Ord	ler Checklist	Form 2146 (Rev. 9/19) Page 1 of 2
Change Order	Number:	Area Engineer:	
Project:		Contractor:	
CSJ:		Orig. Cont. Amt.:	
Highway:		CO Amount:	
County:		Level of Approval:	
General			
Yes No NA	Has the CO type been verified? Has the CO reason code been verified? Does the CO Description include statements with the fe • What, where and why? • Price justification containing fair and reasonable sta • Plan sheets (new, removed or modified) • Environmental clearance • Time impact analysis or time extension letter if time Supporting documentation included? Does this work change the scope of the project? (Ch7 C Does this CO increase or decrease the original contract <i>The summation of all CO's is recommended to be less that</i> Does this CO increase or decrease the project limits? (C If so, has the DE or appropriate Division given their app	e extension needed CAM) within the acceptable district limits? 15% of the original contract. h7&16 CCAM)	
Funding			
Yes No NA	Federal Funded Project - Participating CO? Federal Funded Project Non -Participating CO or State Has FHWA been notified? (required for PoDI, coordinat	unding window in SM? ment? iC-CSS reviewed the agreement? AFA) been sent and signed by the 3rd party? (coordinate with DCC Funded Project?	D)
Yes No NA			
	Is CO receiving materials into stock? Has the AO coordinated with Maintenance to create St If received from Contractor, have materials been set up		
TDLR Yes No NA			
	Note: Ensure review comments are addressed prior to (	w plan sheets and provide TDLR registration. (Ch7 CCAM)	
Environmenta			
Yes No NA	Is the work within the scope of the original environmer Does the added work disturb additional soil? If added soil disturbance is required, has the CO been r commitments by the District Environmental Specialist / Have the necessary clearances or permits been obtaine Does the added work increase the total disturbed area If so, does the project have an SW3P or is it added with CO? Does the added work increase the total disturbed area If so, has the AO submitted a NOI request and has the D	eviewed and/or approved for environmental considerations, oblig DEQC? d to address any increased impacts? greater than 1 acre threshold? greater than 5 acres?	jations or

FORT WORTH.
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Form 2146 (Rev. Page 2 of 2	2.9/19)
Signatures	
Yes No NA	Is CO signed by the Contractor? Is CO signed and sealed by correct signature authority (Area Engineer/DOC/DE/ADM)?
Other Yes No NA	Is Form 1 295 required for CO? If so, ensure form is attached. Has CO been Adknowledged by TxDOT on Texas Ethics Commission web site? Has signed CO packet been e-mailed to DCO/ CST/Stakeholders and etc.?
Dates	
Notes	<ul> <li>Date CO reviewed by DCO?</li> <li>Date CO given to District Environmental Quality Coordinator (DEQC) for review/approval?</li> <li>Date CO reviewed by DEQC</li> <li>Date CO reviewed and approved by appropriate signature authority (Area Engineer/DOC/DE/ADM)</li> </ul>