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**Water Main
Extensions Replacements &
Relocations**

May 27, 2016



**City of Fort Worth
Department of Internal Audit**

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Fort Worth, Texas 76102

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The audit of a unit price construction contract for Water Main Extensions, Replacements, and Relocations was conducted as part of Internal Audit's Fiscal Year 2016 Annual Audit Plan.

Audit Objectives

The objective of this audit was to determine whether water projects are being completed in accordance with contract terms, and to follow-up on prior audit recommendations.

Audit Scope

Our audit covered the period from June 10, 2014 (contract award) through September 1, 2015.

Opportunities for Improvement

Improved accuracy in the preparation of construction cost estimates

Executive Summary

The Department of Internal Audit conducted an audit of the City of Fort Worth's Water Main Extensions, Replacements, and Relocations Contract 2013A with Conatser Construction. Our audit covered the period from June 10, 2014 (contract award) through September 1, 2015.

The City contracted with Conatser Construction in the amount of \$2 million for water main extensions, replacements, and relocations at various locations. On September 29, 2015, a \$450,000 change order was approved to provide additional funding and to extend the contract an additional 264 calendar days. Conatser Construction was paid \$1,555,996.83 through September 1, 2015 for the completion of 87 separate projects. The average cost of the completed work orders was \$17,807, with a maximum of \$172,654 and a minimum of \$4,400. ([See Exhibit I](#)).

Since a prior audit completed by our office, (Internal Audit Project #2014.007 - Miscellaneous Sewer Main Extensions, Replacements & Relocations, Water Main Extensions, Replacements, and Relocations Contract) included findings that also pertained to the subject of this audit, the Department of Internal Audit followed-up to determine whether audit recommendations made in the prior audit had been implemented. We concluded that the one recommendation, for which enough time had elapsed to allow implementation, had been fully implemented.

During this audit, we identified work order cost estimates with unit prices that were inconsistent with those included in the vendor's bid. Since payments were based on correct prices, the cost estimate errors (totaling less than \$2,500) did not result in overpayment.

We also identified work performed on the same street, by the same vendor, but under separate contracts. While the contracts contained some of the same pay line items, the unit prices bid for those pay line items sometimes differed. The vendor's replacement of water mains and service lines, under the miscellaneous contract, resulted in the work being performed at a higher cost. The Department of Internal Audit concluded that the City might have realized savings if the water mains and service line replacement had been performed under the contract with lower unit prices.

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Background

On June 10, 2014, the Mayor and City Council authorized the execution of a \$2 million unit price contract between the City of Fort Worth (CFW) and Conatser Construction. On June 18, 2014, the CFW entered into a contract with Conatser Construction for water main extensions, replacements, and relocations. The contract, which consisted of various projects that were undefined at the time of contract award, provided a method for performing various “small-scoped” projects without the need for individual bid solicitation and contract award by the Mayor and City Council.

The initial contract was to be completed in 365 calendar days. However, on September 29, 2015, (subsequent to the 365 calendar days) the Mayor and City Council approved a change order to add \$450,000 to the project funding and an additional 264 calendar days.

Objectives

The objective of this audit was to determine whether water projects are being completed in accordance with contract terms, and to follow-up on prior audit recommendations.

Scope

Our audit covered the period from June 10, 2014 (contract award) through September 1, 2015.

Methodology

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

- reviewed the contract between the CFW and Conatser Construction;
- interviewed key personnel within the CFW Water Department regarding work order documentation and construction management procedures;
- conducted field visits to a selection of project locations;
- reviewed supporting documentation to ensure compliance with insurance requirements;
- traced unit prices on cost estimate and payment request documents to unit prices bid by the contractor; and,
- compared cost estimates and completed work order costs to payments made to the contractor.

We conducted this audit in accordance with generally accepted government auditing standards, except for peer review¹. 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.

¹ Government auditing standards require audit organizations to undergo an external peer review every three years. A peer review is planned in 2017 for the three-year period ending December 31, 2016.

Audit Results

- On August 14, 2015, the Department of Internal Audit released a similar audit of the Miscellaneous Sewer Main Extensions, Replacements & Relocations Contract (awarded to William J. Schultz, Inc., dba Circle “C” Construction Company). Since this prior audit [Audit Project #2014.007] identified findings that were pertinent to our current audit, the Department of Internal Audit did not repeat audit testing. We did perform tests to determine the implementation status of audit recommendations made in the previous audit report. We also determined which previously reported audit findings pertained to the current audit.

Based on our audit results, one of the eight recommendations made in the previous audit report was fully implemented. Sufficient time had not elapsed for management to fully implement the remaining seven recommendations. The Department of Internal Audit was therefore, unable to verify implementation status of those remaining recommendations.

- In reference to the current audit (City contract #45678 with Conatser Construction), unit prices listed in two of the 25 sampled project cost estimates did not agree with unit prices listed in the vendor’s bid. In addition, immaterial mathematical errors were noted in two cost estimates. Since payments were based on bid prices, these cost estimation errors (totaling less than \$2,500) did not result in overpayments to the contractor. However, these errors indicate potential weaknesses within the construction project management process.

When physically observing work performed on Fairway Drive, we noticed a recently placed manhole and concluded that sewer work may have also been performed. Audit follow-up revealed that Conatser Construction also replaced the sewer main on Fairway Drive. The sewer work was performed under a change order to a different contract (City water and sanitary sewer replacement contract #45508) between the CFW and the contractor.

Unit prices for several contract pay items were lower under City contract #45508, than under City contract #45678. As a result, having the vendor replace a water main and service line under the miscellaneous contract resulted in the work being performed at a higher cost (approximately \$33,553), as noted in the following chart.

Description	Quantity	Qty Desc	Unit Cost		Item Total Contract 45678	Item Total Contract 45508	Difference
			Misc Contract- Contract 45678	Other Contract- Contract 45508			
6" PVC Water Pipe	45	Lf	\$38.00	\$30.00	\$1,710.00	\$1,350.00	\$360.00
8" PVC Water Pipe	1,206	Lf	\$47.00	\$32.00	\$56,682.00	\$38,592.00	\$18,090.00
6" Gate Valve	2	Ea	\$1,000.00	\$950.00	\$2,000.00	\$1,900.00	\$100.00
8" Gate Valve	2	Ea	\$1,250.00	\$1,050.00	\$2,500.00	\$2,100.00	\$400.00
Remove 8" Water Valve	1	Ea	\$200.00	\$110.00	\$200.00	\$110.00	\$90.00
Ductile Iron Water Fitt	0.440	Ton	\$6,000.00	\$3,000.00	\$2,640.00	\$1,320.00	\$1,320.00
Fire Hydrant	2	Ea	\$3,700.00	\$2,500.00	\$7,400.00	\$5,000.00	\$2,400.00
Traffic Control	1	Mo	\$500.00	\$1,000.00	\$500.00	\$1,000.00	(\$500.00)
Temporary Asphalt Pavement	1,599	Lf	\$16.00	\$9.00	\$25,584.00	\$14,391.00	\$11,193.00
Salvage Fire Hydrant	1	Ea	\$300.00	\$200.00	\$300.00	\$200.00	\$100.00
Subtotal					\$99,516.00	\$65,963.00	\$33,553.00
Items without price differences					\$73,138.00	\$73,138.00	

Sources: Buzzsaw (Contract bid results); Water Department Work Order files (Work Order #49 item quantities)



Unit prices for miscellaneous projects are usually higher because the work performed is typically for small projects, at unspecified locations where site conditions are unknown at the time the projects are bid.

The Department of Internal Audit concluded that the City might have been able to realize savings if both projects had been performed under the contract with lower unit prices. The Water Department concurred that doing work under the other contract may have saved money, based strictly on a unit price analysis of the two contracts. However, the Water Department did not feel that Internal Audit's analysis addressed the urgency of the work to be performed, potential delays or claims that might have arisen on the other contract (while working through the administrative processes for an unfunded contract), or the fiscal realities the department faced while determining the best contracting approach. Water Department management believes that this set of circumstances is rare. However, if faced with the same set of choices/circumstances, the Water Department indicated that they might recommend proceeding the same way.



Acknowledgements

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



Exhibit I – Work Orders Completed as of September 1, 2015

Work Orders Listed as Complete

W.O.#	Address	Actual Cost
1	7500 Old Denton Rd	\$34,681.00
2	3845 E Loop 820 S	\$8,807.50
3	3237 NE Loop 820	\$21,088.00
4	9001 Heron Dr	\$24,171.00
5	1055 NE 23rd St	\$12,389.00
7	1701 River Run Rd	\$21,944.00
8	2424 Porter Creek Dr	\$5,555.00
9	11210 N Frwy	\$18,558.00
10	4265 N Main St	\$41,559.60
11	821 Longhorn Dr	\$27,894.00
12	1502 E Lancaster Ave	\$12,232.20
13	2855 S. University Dr	\$9,680.00
14	1414 W Rosedale St	\$12,523.80
15	15101 Grand River Rd	\$7,714.50
16	3501 N Tarrant Pkwy	\$43,301.28
18	2671 Avondale-Haslet Rd	\$10,522.00
19	6025 Quebec St	\$11,790.00
20	6601 Plaza Pkwy	\$26,122.00
21	8801 N Frwy	\$30,968.75
23	4351 Centeport Dr	\$21,408.00
24	4917 Briarhaven Rd	\$5,980.00
25	9604 N Riverside Dr	\$7,664.40
26	3425 E. Vickery Blvd	\$6,242.00
27	301 Commerce St	\$6,956.60
28	10113 First Chapel Dr	\$7,005.00
29	4901 N Main St	\$5,886.00
30	3199 E Rosedale St	\$12,903.00
31	4916 Camp Bowie Blvd	\$15,122.00
32	2828 White Settlement Rd	\$11,254.00
33	9800 Hillwood Pkwy	\$14,045.00
34	13901 FAA Blvd	\$21,687.00
35	2525 Cullen St	\$6,225.00
36	1414 W Rosedale St	\$6,800.00
37	1329 College Ave	\$6,790.20
38	2820 Bledsoe St	\$7,902.00
39	7310 Calmont Ave	\$23,653.00
40	2906 W 6th St	\$19,195.00
41	6200 Cromwell Marine Creek Rd	\$14,465.50
42	3290 Prairie Vista Dr	\$29,796.97
43	111 Boland St	\$17,256.00
44	6100 Oak Bend Tr	\$12,102.00
45	2510 White Settlement Rd	\$7,835.00
46	3351 Texas Sage Trail	\$6,275.00
47	7016 Bryant Irvin Rd	\$15,941.00

W.O.#	Address	Actual Cost
48	10740 Old Denton Rd	\$66,210.50
49	2700 -2825 Fairway Dr	\$172,654.00
51	101 Stockyards Blvd	\$12,254.00
52	10950 Old Denton Rd	\$5,444.00
55	4945 Gage St	\$18,261.60
56	6549 South Frwy	\$26,325.00
57	2601 N Tarrant Pkwy	\$7,957.00
58	6301 N Frwy	\$13,788.00
59	2310 Avondale Haslet Rd	\$49,589.00
60	6901 Granbury Rd	\$6,455.00
61	4301 N Main St	\$4,400.00
62	501 N Main St	\$9,475.00
65	2671 Avondale Haslet Rd	\$15,496.00
66	14805 Trinity Blvd	\$7,564.75
67	151 Texas Way	\$16,317.00
68	2721 Whitmore St	\$24,251.00
69	5355 Granbury Rd	\$35,231.00
70	3600 N. Crump St	\$10,845.00
71	2217 Midtown Lane	\$8,109.00
72	2800 W. Lancaster Ave	\$9,013.00
73	5500 Victory Lane	\$7,892.00
75	11300 North Frwy	\$11,230.00
76	6317 Harris Pkwy	\$12,507.00
79	6901 Ridgamar Meadow Dr	\$9,771.00
80	1751 Gravel Dr	\$24,067.00
81	4500 Liberty Way/13550 Park Vista	\$16,192.00
82	3529 Bellaire Dr	\$13,576.00
83	929 Lipscomb St	\$15,769.00
84	3317 Burnett Tandy Dr	\$15,229.00
85	9801 N Beach St	\$52,020.98
86	308 E Seminary Dr	\$7,922.00
89	2620 Cherry Lane	\$25,324.00
91	1301 Oak Grove Rd	\$6,634.00
92	2240 Jacksboro Hwy	\$19,566.00
95	5503 S Hulen St	\$5,985.00
96	2224 Jacksboro Hwy	\$10,790.00
97	4201 N Main St	\$20,428.00
100	7251 Stoneway Dr	\$9,391.00
102	6100 Ermine Cir	\$9,118.00
104	1401 Morrison Dr	\$6,260.00
106	3237 NE Loop 820	\$9,537.00
107	8825 North Frwy	\$17,559.00
108	3201 Sufflok Dr	\$10,919.00

Note: Gaps in the work order number sequence indicate incomplete work orders.

Average work order	\$ 17,807.10
Minimum work order	\$ 4,400.00
Maximum work order	\$ 172,654.00

Source: Water Department work order files