



CITY AUDITOR'S OFFICE

Fire Stations Construction Contracts

March 24, 2021

AUDIT REPORT NO. 2107

CITY COUNCIL

Mayor David D. Ortega

Tammy Caputi

Tom Durham

Vice Mayor Betty Janik

Kathy Littlefield

Linda Milhaven

Solange Whitehead



March 24, 2021

Honorable Mayor and Members of the City Council:

Enclosed is the audit report for *Fire Stations Construction Contracts*. An audit of a selected construction contract or type of contract was included on the Council-approved FY 2020/21 Audit Plan. The audit objective was to review contract administration, compliance and cost-effectiveness. *Fire Stations Construction Contracts*, funded by the 2015 voter-approved bond, were selected for this audit. Specifically, this audit included contracts related to the construction of fire stations 603, 613 and 616, but did not include fire station 605, which was a renovation project.

Our audit found that construction phase service contracts could be more consistently managed to minimize unnecessary costs. Further, updated and more complete department policies and procedures would help ensure contract terms are consistently applied. Example areas for clarification and guidance include defining the Force Account and its use, aligning substantial completion practices with contract terms, and documenting contractor time extension requests.

If you need additional information or have any questions, please contact me at (480) 312-7867.

Sincerely,

A handwritten signature in blue ink that reads "Sharron Walker".

Sharron E. Walker, CPA, CFE, CLEA
City Auditor

Audit Team:

Lai Cluff, CIA – Sr. Auditor
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TABLE OF CONTENTS

AUDIT HIGHLIGHTS	1
BACKGROUND	3
Figure 1. Capital Project Management Organizational Structure	3
Figure 2. Design Bid Build Delivery Method.....	4
Figure 3. Capital Project Management’s Construction Administration.....	6
Table 1. Land Acquisition, Design and Construction Costs	7
Figure 4. Project Timelines for Stations 613, 603, and 616	8
OBJECTIVES, SCOPE, AND METHODOLOGY	9
FINDINGS AND ANALYSIS	11
1. Construction phase service contracts should be more consistently managed to minimize unnecessary costs.....	11
Table 2. Construction Phase Consultant Services	12
Table 3. Split Contract for Construction Phase Consulting Services.....	15
2. Updated and more complete policies and procedures would help ensure contract terms are consistently applied.....	16
Table 4. Construction Contract Change Orders	17
MANAGEMENT ACTION PLAN	23



AUDIT HIGHLIGHTS

Fire Stations Construction Contracts

March 24, 2021

Audit Report No. 2107

WHY WE DID THIS AUDIT

An audit of a selected construction contract or type of construction contract was included on the City Council-approved fiscal year 2020/21 Audit Plan. This audit reviews the *Fire Stations Construction Contracts* related to the construction of fire stations 603, 613, and 616, which were funded by the 2015 voter-approved bond. The audit objective was to review contract administration, contract compliance, and cost-effectiveness.

BACKGROUND

The Public Works division's Capital Project Management (CPM) department, in collaboration with the Fire Department, managed the fire station construction projects. The department used a Design Bid Build project delivery method with the Purchasing department conducting a competitive procurement for construction services. CPM procured the Architectural and Design services.

CPM project managers perform project coordination and contract administration, and its Inspection group monitors construction quality. The Design Consultant also monitors to ensure construction is completed according to design plans and specifications.

Station 613 was completed in July 2018 and Station 603 in January 2021. Station 616 is expected to be completed in March or April of 2021.

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WHAT WE FOUND

Construction phase service contracts should be more consistently managed to minimize unnecessary costs.

- Some design consultant construction phase services may be unnecessary and some tasks may duplicate work performed by CPM staff.
- When change orders exceeded 25% of the contract amount, City Manager approval was not obtained. In one instance, a change was split, avoiding Procurement Code requirements.
- Including these services in design contract negotiations would be more transparent and may more effectively control costs.

Updated and more complete policies and procedures would help ensure contract terms are consistently applied.

Overall, the CPM inspection team was thorough in monitoring construction quality and progress. However:

- Construction contracts and CPM policies and procedures do not define "Force Account" contingency funds and their uses, resulting in inconsistencies.
- Substantial Completion certificates were not issued, and actual practices differ from the contract requirements.
- Contractor time extension requests were not required to be submitted when delays occurred.
- Design process monitoring activities may not have been performed or were only partially performed.
- Department policies and procedures are outdated and project documentation is not consistently maintained.

WHAT WE RECOMMEND

We recommend Capital Project Management:

- Establish guidelines for construction phase services.
- Clarify policies and procedures to align with Procurement Code and the substantial completion contract terms.
- Clarify contract terms and policies and procedures relating to Force Account funds and their use and the design monitoring procedures.

MANAGEMENT RESPONSE

The department agreed with most recommendations and plans to implement changes by December 31, 2021.

BACKGROUND

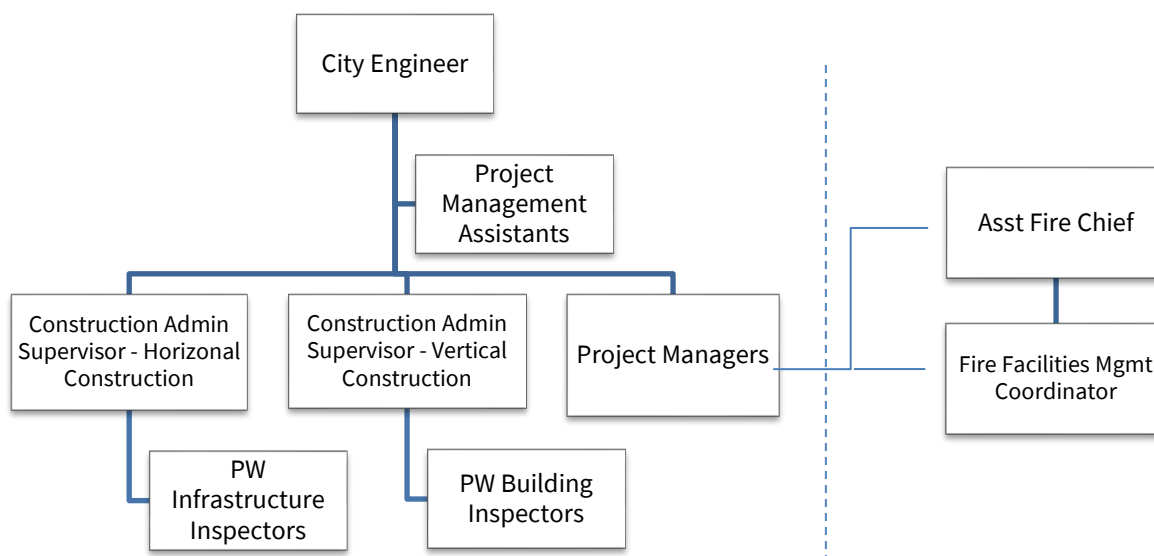
In November 2015, Scottsdale voters approved a \$16.35 million capital improvement bond to design, acquire, construct, reconstruct, improve, furnish and equip, and, if necessary, acquire land for fire stations, including:

2015 Bond Fire Station Projects	Area	Bond Amount	Completion
603 – Construct at new location	McCormick Ranch	\$6,750,000	Jan 2021
605 – 75 th Street & Shea Blvd (Renovate existing)	Shea	\$800,000	Mar 2018
613 – Jomax Road & Hayden Road	Desert Foothills	\$5,100,000	Jul 2018
616 – 110 th Street & Cave Creek Road	Desert Mountain	\$3,700,000	Ongoing

In addition to design and construction of fire stations 613, 603, and 616, the bond funded the land acquisition for station 603.¹ Stations 613 and 616 replaced existing temporary facilities, while Station 603 in McCormick Ranch was relocated from Scottsdale and McDonald Roads to Indian Bend Road, east of Hayden. The relocation was expected to improve coverage and response times in the area. The bond also renovated Station 605, an existing facility. However, this audit was limited to reviewing the construction and related contracts for stations 613, 603, and 616.

In collaboration with the Fire Department, the fire stations construction projects were managed by the Capital Project Management (CPM) department within the Public Works Division.

Figure 1. Capital Project Management Organizational Structure



SOURCE: Auditor analysis of department organizational structure.

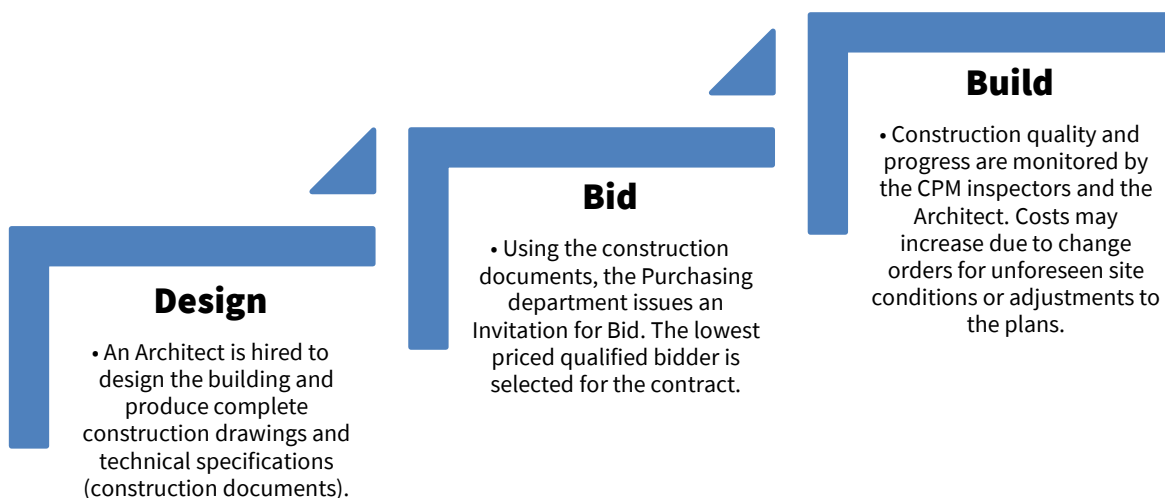
¹ Land acquisitions for fire stations 616 and 613 were completed in 2009 and 2015, respectively, and were funded by General Fund and a previous capital bond.

An assigned senior Project Manager coordinates the project from early planning through construction and administers all related contracts. The assigned Construction Administration Supervisor along with the Building Inspectors oversees quality of building construction. Project Management Assistants provide administrative support, such as processing payment requests.

Design Bid Build

The three fire station projects used the traditional construction delivery method typically referred to as “Design Bid Build.” With this delivery method there are three distinct project phases, as illustrated in Figure 2.

Figure 2. Design Bid Build Delivery Method



SOURCE: Auditor analysis of City Procurement Code, CPM policies and procedures, and project documentation.

In contrast to alternative delivery methods, the Design Bid Build (DBB) design and construction documents are complete before the construction contractor is selected. Also, with DBB, the Architect/Design Consultant works directly for the City and is responsible for design, construction plans and specifications. In alternative delivery methods, such as Construction Manager at Risk or Design Build, the contracted construction firm participates during pre-construction design or provides all design services.

With Design Bid Build, since the construction documents are completed first, the Purchasing department uses a competitive procurement process to select the qualified contractor with the lowest bid. Though providing less flexibility for changes in design or project schedule, Design Bid Build can be simpler to administer and more cost effective when the project is not complex and has a well-defined scope.

Alternative Delivery Methods for Construction Projects

CMAR – Construction Manager at Risk

DB – Design Build

JOC – Job Order Contract

Architectural & Design Services

For a Design Bid Build project, CPM conducts the design services procurement, making a qualifications-based selection. Interested firms submit a Statement of Qualification based on the department's preliminary project information included in the Request for Qualifications (RFQ).

After selecting the design firm, CPM works with the City department to identify the required project elements. With this information, the architectural firm creates a fee proposal for the City's review and approval. Once staff approves the firm's fee proposal, CPM submits the proposed architectural and design services contract for City Council approval, and formal project design begins.

Typical architectural and design service costs include Pre-Design/Programming, Schematic Design, Design Development, Construction Documents, Bidding, and Construction Administration. For the Fire Station projects, the architectural firms were the "Prime" consultants responsible for the overall project design, who then engaged subconsultants, such as civil engineers, landscape architects and structural engineers, to complete specialized work.

Construction Contract

Once the design phase is completed and construction documents prepared, the City's Purchasing department issues an Invitation for Bid to procure construction services through a competitive bidding process. In contrast, Purchasing delegated to CPM the procurement authority for design services and construction contracts using alternative delivery methods.

The Invitation for Bid (IFB) documents contain all terms and conditions, construction drawings and technical specifications necessary for bidders to estimate construction costs. In addition, the Purchasing and CPM departments hold a pre-bid conference to answer questions and potential bidders may also submit questions to Purchasing. The Purchasing department sends out IFB Addendums with any resulting construction document clarifications to all potential bidders. On the bid opening date, designated Purchasing staff open and read the submitted sealed bids.

For the Fire Station projects, the IFB asked bidders to submit one lump-sum price for the construction work. The City then adds a "Force Account" of \$250,000 to each bidder's submitted amount to equal the "base bid." According to CPM staff, the Force Account funds are a City contingency to cover costs for unforeseen site conditions and minor design changes that may have been missed. The City's contract terms allow changes in cost or completion time to be authorized by written change order.

After Purchasing confirms that licensing, insurance, and bonding requirements are met, the lowest bidder is recommended for contract award.

Architectural & Design Services Contracts

Station 603: Fucello Architects LLC, Contract 2017-019-COS

Station 613: Arrington Watkins Architects LLC, Contract No. 2015-108-COS

Station 616: Breckenridge Group Architects/ Planners, Contract 2016-136-COS

Construction Services Contracts

Station 603: Stratton Builders, Contract 19PB016

Station 613: Danson Construction LLC, Contract 17PB014

Station 616: MACO Construction Services, Inc., Contract 20PB009

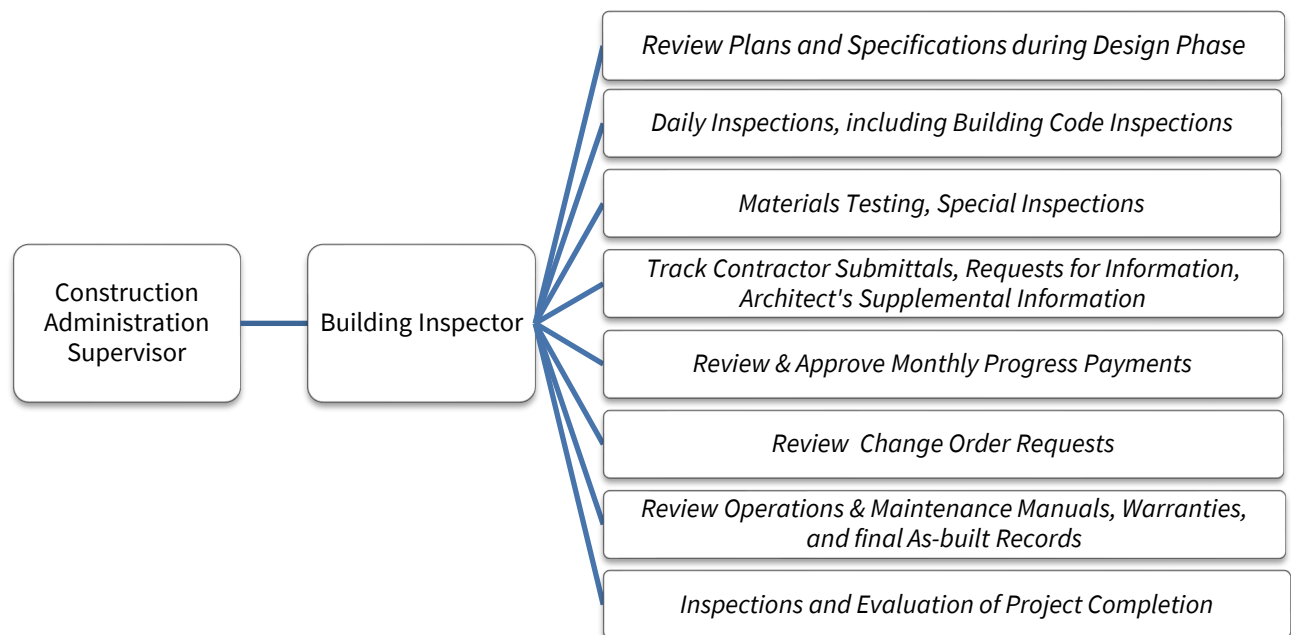
Contract Administration and Quality Control

Within CPM, the Project Manager is responsible for the overall project management and contract administration, while the Construction Administration Supervisors and Inspectors monitor construction quality and progress. Because the Construction Administration Supervisor (CAS) and Building Inspectors are certified to perform building code inspections, City projects do not require separate inspections from the Development Services department.

Quality Control – A Building Inspector monitors onsite construction progress daily. The Inspector's Daily Inspection Report documents the weather and site conditions, the various trades working onsite, the work being performed, communications with the Contractor, and any issues observed. Building inspectors are responsible for scheduling materials testing and special inspections, as required by the plans and building code. CPM contracts testing and special inspections through a third-party vendor, which the Building Inspector schedules as needed. They continuously monitor for compliance with the construction documents and building code.

Figure 3 summarizes the CAS and Building Inspector's responsibilities relating to construction administration.

Figure 3. Capital Project Management's Construction Administration



SOURCE: Auditor analysis of construction administration responsibilities based on staff interviews and review of documentation.

In addition to its own construction oversight staff, CPM contracts with the architectural and design services contractor (Design Consultant) for construction phase services to provide clarifications about

the construction plans and specifications. The Design Consultant also reviews and approves the construction contractor's submittals and performs regular field inspections to ensure construction work is being completed in accordance with the plans and specifications.

Monthly Progress and Pay Applications – For a lump-sum construction contract such as these, the contractor submits monthly pay applications based on work progress. To facilitate the City's pay application review, the Construction Administration Supervisor first requires the contractor to provide a Schedule of Values breaking the project down into smaller logical work units and assigning a cost to each work unit. Then, based primarily on daily project inspections, the Building Inspector evaluates whether the contractor's billed amounts are consistent with the observed progress. Once the Inspection staff has approved the contractor's pay application, the CPM Project Manager authorizes payment to the contractor.

Project Timeline and Costs

Fire Station 613 was the first Bond 2015 fire station to be constructed, moving from its previous location at a water booster pump station north of Pima Road and Jomax Road. As shown in Table 1, land acquisition costs for the three stations varied significantly. The City purchased State land for Fire Station 613 in 2015 and purchased private land for stations 616 and 603 in 2009 and 2016, respectively.

Table 1. Land Acquisition, Design and Construction Costs

	Land Acquisition	Design Services ¹	Construction Contract ¹	Total Square Ft	Design & Construction Costs per sq ft
Station 613: 3 Apparatus Bays, 8 Bunk Rooms	\$715,936	\$548,444	\$3,759,000	9,841	\$438
Station 603: 3 Apparatus Bays, 8 Bunk Rooms	\$2,569,576	\$448,892	\$4,243,000	10,822	\$434
Station 616: 2 Apparatus Bays, 6 Bunk Rooms	\$1,140,579	\$487,841	\$4,131,038	7,068	\$653

¹ These Design and Construction costs are the contract amounts. They do not include CPM charges, furniture and equipment, third-party testing and inspection fees, or other project-related costs.

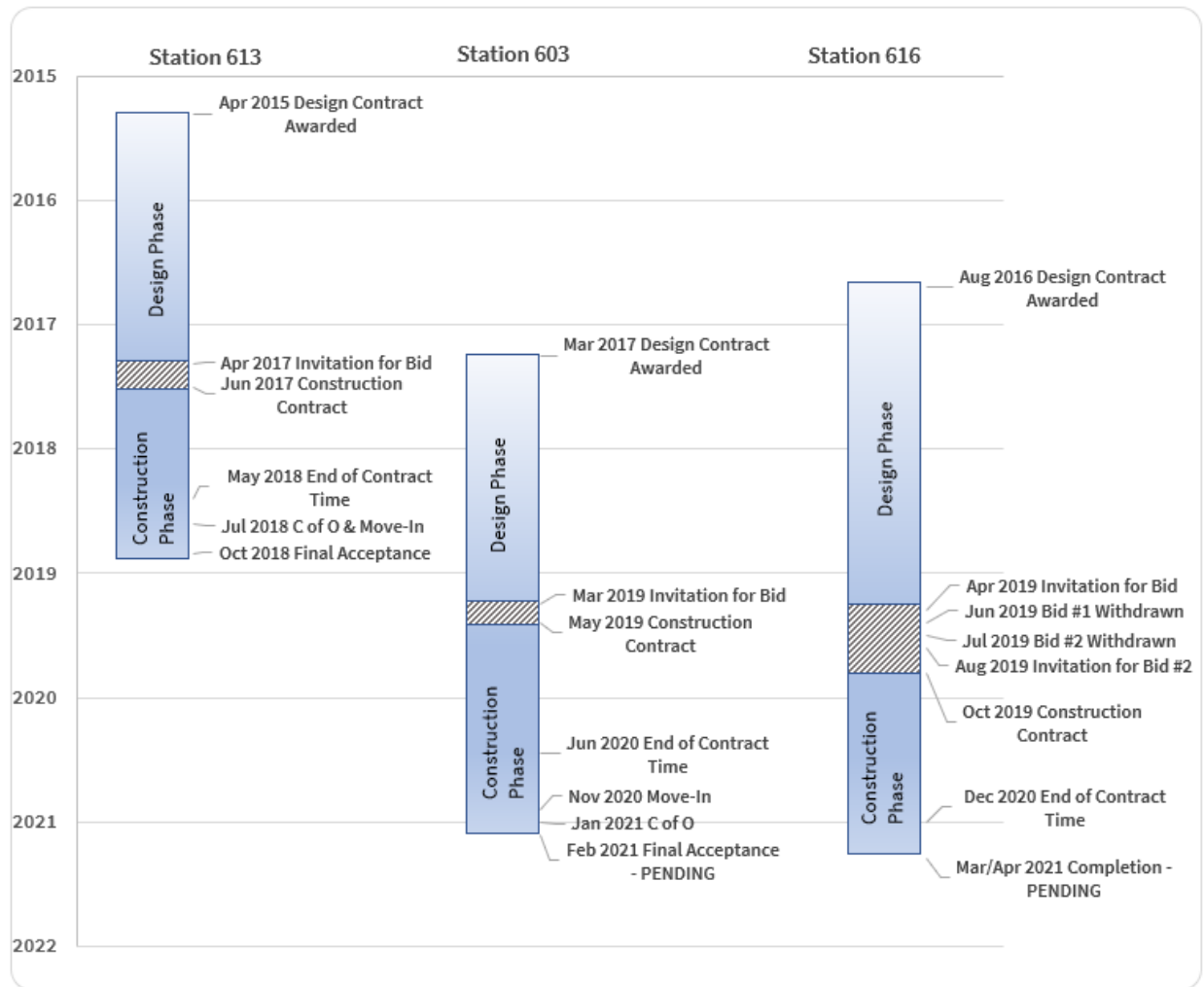
SOURCE: Auditor analysis of contract documents and accounting records.

Figure 4 on page 8 summarizes the timing of major project phases for the three stations: design, procurement, and construction phases. During the Design phase, the City's development review and approval processes also take place, including approval of a Municipal Use Master Site Plan and plan review.

As shown, Station 616's procurement of construction services took about six months while the other two stations procurements took two to three months. Bid withdrawals by the two lowest bidders caused the City to reissue the Invitation for Bid to solicit new bids.

Certificates of Occupancy were issued for Fire Station 613 in July 2018 and Fire Station 603 in January 2021. Fire Station 616 was still under construction with completion estimated for March or April of 2021.

Figure 4. Project Timelines for Stations 613, 603, and 616



C of O is the Certificate of Occupancy that is issued once City building and fire code requirements have been satisfied.

End of Contract Time is the substantial completion deadline stipulated in the construction contract.

Final Acceptance occurs when all work has been verified as completed.

SOURCE: Auditor analysis of contract documents and department-reported status of completion.

OBJECTIVES, SCOPE, AND METHODOLOGY

An audit of a selected construction contract or type of contract was included on the City Council-approved fiscal year 2020/21 Audit Plan. The audit objective was to review effectiveness of contract administration, compliance and cost-effectiveness for a selected construction contract or type of contracts. After identifying the larger projects completed within the past few years, we selected the *Fire Stations Construction Contracts* for this audit. Specifically, this audit includes contracts related to the construction of fire stations 603, 613 and 616, which were funded by the 2015 voter-approved bond. The audit did not include fire station 605, which was also funded by the same bond but was a smaller scale renovation project.

To understand the elements of the selected construction projects, we reviewed the following agreements:

- Contract No. 2015-108-COS and Contract No. 18CR014 with Arrington Watkins Architects LLC, *Architectural Services Contract* and related change orders for the design of Fire Station 613.
- Contract No. 2016-136-COS with Breckenridge Group Architects and Planners, *Architectural Services Contract* and related change orders for the design of Fire Station 616.
- Contract No. 2017-019-COS with Fucello Architects LLC, *Architectural and Design Services Contract* and related change orders for the design of Fire Station 603.
- Contract No. 17PB014 with Danson Construction LLC, *Fire Station 613 Construction*.
- Contract No. 19PB016 with Stratton Builders, *Construction of Fire Station 603*.
- Contract No. 20PB009 with MACO Construction Services Inc., *Construction of Fire Station 616*.

To gain an understanding of existing requirement and standards relating to contract procurement and contract administration, we reviewed the following laws, policies and procedures:

- Relevant sections of Arizona Revised Statutes Title 34 (Public Buildings and Improvements), particularly Chapter 6 pertaining to *Architect Services, Assayer Services, Construction Services, Engineering Services, Geologist Services, Landscape Architect Services and Land Surveying Services*.
- Relevant sections of the City of Scottsdale Procurement Code, effective February 1, 2016.
- City Administrative Regulations (AR) including AR 214 *Purchasing Requirements, Methods and Procedures*; AR 215 *Contract Administration*; and AR 216 *Contract Change Orders and Contract Modifications*.

To gain an understanding of construction administration policies and controls and the project team's roles and responsibilities, we interviewed a Senior Project Manager and the Construction Administration Supervisor. We also reviewed past City Auditor audits of CPM's construction contracts, the CPM Project Management Guide and the CPM Construction Administration Guide.

To evaluate contract administration, compliance and cost-effectiveness, we:

- Reviewed design contract administration policies and documentation.
- Reviewed contractor pay applications through December 2020 for these three fire station projects for accuracy, review and approval.

- Reviewed change orders and related documentation to determine whether the changes were adequately supported and authorized.
- Identified construction quality assurance controls performed by the department and its consultants and selected a judgmental sample of required inspections and tests from each project to determine whether the quality control procedures were performed and documented.
- Evaluated closeout procedures and available documentation to determine if the contracts and City practices were effectively protecting the City's interests.
- Reviewed procurement documentation to evaluate compliance with the City's Procurement Code.
- Evaluated City oversight of third-party construction administration. Specifically, we reviewed project files and consultant invoices to determine whether contract tasks and deliverables were completed.

Our audit found that construction phase service contracts should be more consistently managed to minimize unnecessary costs. Further, updated and more complete department policies and procedures would help ensure contract terms are consistently applied.

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 work took place from September 2020 to January 2021.

FINDINGS AND ANALYSIS

1. Construction phase service contracts should be more consistently managed to minimize unnecessary costs.

CPM adds construction phase services to the Architectural and Design Services contract at the end of the project design phase rather than including them in the original contract. For the fire station projects, these added services accounted for 20% to 36% of the Design Consultant's total fees and incorporated potentially unnecessary tasks, including some that duplicate work CPM inspectors perform. Also, CPM did not consistently follow Procurement Code requirements on design contract change orders.

A. The scope of the three Design Consultants' construction phase services varied and may duplicate some of CPM's construction administration work.

At the end of the design phase, each Design Consultant submitted a fee proposal for construction-phase services. As summarized in Table 2 on page 12, the scope of work and related pricing varied significantly between the three Design Consultants.

(continued on next page)

Table 2. Construction Phase Consultant Services

	Consultant A	Consultant B	Consultant C
Approved construction phase fee proposal	\$108,790	\$96,251	\$176,981
Respond to Contractor Requests for Information	✓	✓	✓
Issue Architect's Supplemental Instructions	✓	✓	✓
Review/approve submittals, shop drawings, samples, etc.	✓	✓	✓
Field Observations and Reports	<i>Observations only, biweekly</i>	✓ weekly	✓ weekly
Subconsultant Site Visits/Observations	13	"As requested"	26
Evaluation of Substantial Completion	✓		
Punchlist preparation and inspections	✓	✓	✓
Attend construction meetings	50% (biweekly)	✓	✓
Meeting minutes			✓
Review Contractor Pay Applications		"As requested"	✓
Review Change Orders		✓	
Review Contractor's construction schedule			✓
Review/approve Contractor's Schedule of Values			✓
Review Contractor's Value Engineering suggestions			✓
Assist with claims and disputes			✓
Develop and administer a quality control program			✓
Review Contractor's As-Built plans		✓	
Produce final As-Built plans			✓
Review Operations & Maintenance manuals		✓	✓
Other			✓

SOURCE: Auditor analysis of construction phase services fee proposals.

The three construction phase services scopes of work outlined quite different levels of effort, and some tasks may be unnecessary and may inflate the contract price.

Despite the fire station construction projects being very similar in nature, task variations included:

- The number of field visits to be conducted, and whether field visit reports would be produced. One Design Consultant proposed to provide field reports at an added cost; 33 reports were provided for an unspecified cost. Another Design Consultant included weekly field visits and reports in its fee but had only provided 3 field reports during the first 13 months of construction.

- The number of construction meetings to be attended.
- Whether the Design Consultant would review, or update and produce a final version of the construction contractor's as-built plans.
- Whether the Design Consultant would review proposed change orders. While CPM project managers asked each Design Consultant to perform this task on occasion during the projects, one fee proposal specifically excluded this task from the scope of work and another fee proposal did not state whether the task was included.
- The level of responsibility for determining substantial completion or final project completion. Although evaluating work completion is commonly a responsibility of the Design Consultant, for City projects, the Design Consultant typically assists with punch list preparation and inspections. The City's inspection team that has monitored construction progress and quality throughout the project typically determines whether construction work is completed. This responsibility is not clarified in two of the three consultant contracts, and the perceived higher risk level may have resulted in higher fees.

Further, some contract tasks potentially duplicate services typically performed by CPM staff. For example:

- CPM did not have the Design Consultants review the contractor's pay applications, schedule of values, or construction schedule. The CPM construction administration staff and project managers perform these tasks. Consultant C, with the highest cost and broadest scope of work as shown in Table 2 on page 12, has not been required to perform tasks such as reviewing contractor pay applications, construction schedule, or schedule of values, indicating that these services were not necessary to be obtained from the Consultant.
- The CPM building inspectors review the final as-built plans and Operations and Maintenance Manuals submitted by the construction contractors. Having the Consultant also review these may be a duplication of effort and should be evaluated to determine whether these are necessary. The department indicated this review provides a second check to ensure that the City has received the equipment, machinery, and project documentation in accordance with the design. However, only two of the three consultants included one or both of these tasks in their scope of work.
- One consultant's task to "develop and administer a quality control program" is vague and unnecessary as CPM assigns staff to oversee construction quality. The Project Manager agreed that such a task is not typically included in construction-phase services but thought it could have been referring to the Consultant's own program.
- Tasks such as reviewing contractor's value engineering recommendations or assisting with claims and disputes are only needed in limited circumstances. These added services could be added when needed rather than built into the fee proposal.

Requiring detailed proposals and limiting services to necessary tasks could aid CPM in negotiating the services and fee proposal.

- B. For one consultant, design phase costs were added with the construction phase services change order.

For Consultant C, supporting documentation for the construction phase services change order listed about \$9,000 of subconsultant design fees. This work included tasks such as “Design of site retaining wall” or “Re-bid plans.” According to the Project Manager, these costs related to construction document updates for missed items and the need to re-issue the documents for a second solicitation. The City Engineer also explained that he directed the Consultant to include retaining wall redesign work into this change order due to timing of the change. However, the description on the change order did not indicate that design work had been included with construction phase services, and the department’s direction was not documented.

C. Procurement of these construction phase services did not follow relevant Procurement Code requirements.

1. CPM did not submit construction phase services change orders for City Manager review and approval. Procurement Code section R2-200.1 requires that change orders for professional services that exceed 25% of the original contract amount require approval from the Executive Director or designee. Section P2-200.1(c) further requires that if these change orders are for Design and Construction contracts, they also require City Manager approval.

For all three projects, the construction phase services change orders exceeded 25% of the original Architectural and Design Services contracts. Although approved by the Public Works Director, the change orders were not submitted for City Manager review and approval.

	Original Contract	Total Change Orders	% of Original
Consultant A	\$398,554	\$126,620 *	32%
Consultant B	\$352,641	\$96,251	27%
Consultant C	\$310,860	\$176,981	57%

* - This total includes \$41,200 from other design change orders for offsite improvements in addition to the construction phase services change order.

CPM’s Project Management Guide is not consistent with the City’s Procurement Code as it only states that the Public Works director’s approval is required.

2. For one Design Consultant, the department split construction phase services costs into a separate contract totaling just less than the formal procurement threshold of \$25,000. This action avoided obtaining the additional authorizing signatures.

As summarized in Table 3 on page 15, when this Design contract’s change orders reached 25% of the original contract, the Project Manager issued a separate direct-select contract to add a portion of the construction phase services cost. Procurement Code allows professional services contracts totaling less than \$25,000 to be directly awarded without formal solicitation. However, the Design Consultant’s fee proposal for Change Order 4 and the direct-select contract had the same date and were both for construction phase services. A later change order further increasing the Design Consultant’s construction phase services cost was subsequently submitted for the Public Works Director’s authorization, but not the City Manager’s.

Table 3. Split Contract for Construction Phase Consulting Services

	Proposal Date	Amount	Notes
Original Design Contract	3/26/2015	\$398,554	
CO#1 - Additional Design work	5/5/2015	\$25,600	= \$99,620 or 25% of Design contract
CO#2 - Additional Design work	1/3/2017	\$4,860	
CO#3 - Additional Design work	10/2/2017	\$10,740	
CO#4 - Construction phase services	11/7/2017	\$58,420	
Direct Select contract: Construction phase services	11/7/2017	\$23,270	Signed by Contract Administrator
CO#5 - Construction phase services	2/18/2019	\$27,000	Signed by Public Works Director

CO – Change Order

SOURCE: Auditor analysis of contract records and consultant fee proposals.

- D. Including construction phase services during the initial contract negotiations may more effectively control costs and produce more transparent design costs.

Construction and post-construction services are common components of the design process and typically included in the American Institute of Architects' standard contract as "Basic Services." However, CPM did not include these services in the design contract submitted for Council approval. Instead CPM adds the costs later through contract change orders.

Given that construction phase services accounted for 20 to 36% of the total design costs for these projects, waiting until two-thirds of the cost has been incurred before contracting for these services places the City in a poor negotiating position. Also, this practice delays knowing what the design costs will total.

According to the department, they do not include these services because design projects do not always proceed to construction. Also, consultants have not wanted to price construction phase services in advance as they can sometimes occur a couple years later.

However, we noted that design contracts include the production of detailed construction documents and procurement phase services, which also would not be needed if the project is not proceeding to construction. Additionally, one of these three design consultants provided construction phase services pricing with its design proposal, but the department excluded this from the contract. The department later added the consultant's construction phase services as a change order for about \$100,000 more than originally proposed. Approving the scope of work with contingency provisions for the event of the project not being constructed may help better control design costs.

Recommendations:

The Public Works Director should require CPM to:

- A. Review construction phase services acquired through the Design Consultant to evaluate which services are necessary to be contracted rather than performed internally and the level of the

services required. Also, establish guidelines to ensure required services are consistently covered from project to project.

- B. Ensure the scope of work described in change orders is consistent with the supporting details.
- C. Revise department policies and procedures to align with Procurement Code requirements for the authorization of large change orders and clarify policies to ensure contracts are not split to avoid requirements.
- D. Evaluate the design contracting process to include construction phase services in the contract's scope of work, rather than adding it later as a change order.

2. Updated and more complete policies and procedures would help ensure contract terms are consistently applied.

Overall, the CPM inspection staff was thorough in monitoring construction quality and progress. However, project management was at times inconsistent in handling change orders, substantial completion, time extensions, the design review process, and project documentation. Expanded internal policies and procedures in these areas could help ensure contract terms are followed and contract administration files are retained.

- A. CPM's policies and procedures do not specifically address changes funded by the City's "Force Account" contingency funds already authorized in the contract total. As a result, these changes were inconsistently handled.

The department's policies and procedures describe the requirements for authorizing and documenting change orders that increase the contract price or time. However, because construction contracts now routinely include a City contingency amount in the contract price, construction change orders seldom require a contract price adjustment. In these three fire station projects, we observed the following inconsistencies:

- 1. For one project, change order authorizations increasing construction costs by \$50,745 were reportedly verbally communicated. CPM provided the contractor's change order requests for all but \$2,150 of the total. However, the available documentation did not confirm whether the project manager approved the requests exactly as submitted. In contrast, for the other two projects, the project manager emailed the contractor and other relevant stakeholders confirming approval or denial of each change order request, attaching the request with its supporting cost estimates.

The contract states that a change to the work required by the contract documents and increases to the contractor's compensation will be authorized by written change order. Contingency fund uses in these instances met this definition and should have been formally approved.

- 2. All change orders included additional payment and performance bond charges, and some included added insurance costs, although it is unlikely that the contractor incurred these increased costs.

When originally awarded, the contract required the contractor to obtain payment and performance bonds covering the full base bid, which includes the \$250,000 contingency, or

force account. As well, contractor's insurance coverage is typically purchased in large increments, usually of \$1 million or more.

As Table 4 shows, the fire station projects' change orders were for small amounts, not resulting in the need for added coverage.

Table 4. Construction Contract Change Orders

	FS 613	FS 603 ^a	FS 616 ^a
Approved Change Orders ^b	15	21	10
Total Change Order Amounts	\$50,745	\$72,144	\$113,141
Bonds ^c	0.6%	1.10%	1.0%
Insurance ^c	0.6%	Not charged	1.0%
Overhead & Profit	10%	15%	10%

^a Quantity and amounts are based on change orders approved as of December 2020.

^b "Approved" change orders includes the change order requests the department indicated were approved.

^c Bond and insurance rates as stated on contractor change orders. The rates were sometimes applied to different cost components.

SOURCE: Auditor analysis of change order documentation.

3. Approved contractor overhead and profit rates varied between projects. The City's contract terms did not specify an allowable rate that may be charged for contractor overhead and profit on change order work. As shown in Table 4, two of the 3 contractors added a 10% markup, and one of them also charged additional hourly rates for administering the change order. The third contractor charged a 15% markup on change orders.

While the department has not established internal guidelines for contractor markups, the Maricopa Association of Governments (MAG) applies a tiered approach when the price for extra work cannot be negotiated, paying contractors 10% overhead and profit markup on subcontracted work for the first \$10,000 in change order work, and 5% for change order work in excess of \$10,000. For change order work totaling \$3,000 or less, the contractor is paid \$300 for administration and supervision.² For work self-performed by the contractor, MAG allows overhead and profit rates of up to 15%. However, about 95% of the change order work on these projects was subcontracted work.

4. Additionally, contract language does not define the term "Force Account" or describe its allowable uses. Force Account is only used on the bid submittal page where the City added \$250,000 to each proposer's bid price.

The term Force Account can have different meanings depending on the particular construction contract. Often it means a payment method, such as time and materials, for extra work that the contractor is required to perform without an agreed-upon change order

² Maricopa Association of Governments (MAG) *Standard Specifications for Public Works Construction*, Section 109.4, Compensation for Alterations of Work, and Section 109.5, Actual Cost Work.

cost. CPM uses the Force Account as added contingency funding to allow for additional requested work or unforeseen site conditions.

- B. Substantial Completion certificates were not issued, and actual practices differ from the contract requirements.

By contract, the City is to issue a Substantial Completion certificate when construction work is determined to be “sufficiently complete so that the City can occupy and use the Project for its intended purpose.” The fire station contracts listed substantial completion requirements and detailed the information to be documented on the Certificate of Substantial Completion (see text box). Specifically, any remaining minor “punch list” items are to be recorded on the Substantial Completion certificate, and the City would continue to retain up to 2.5 times their value.

Construction Services Contract Special Terms and Conditions
Sect. 58 – Substantial Completion

Substantial Completion means when the Work, or when an agreed upon portion of the Work is sufficiently complete so that the City can occupy and use the Project or a portion of it for its intended purpose. This may include, but is not limited to:

- (a) approval by the City Fire Marshall and local authorities (Certificate of Occupancy),
- (b) issuance of elevator permit,
- (c) demonstration to the City that all systems are in place, functional, and displayed to the City or its representative,
- (d) installation of all materials and equipment,
- (e) City review and acceptance of all systems,
- (f) City review and acceptance of draft O&M manuals and record documents,
- (g) City operation and maintenance training completed,
- (h) HVAC test and balance completed ...,
- (i) completed landscaping and site work, and
- (j) final cleaning, and
- (j) any other criteria in the Notice to Proceed.

...

- D. If the Work is substantially complete, the City will prepare and issue a Certificate of Substantial Completion that will establish:
- i. the date of the Substantial Completion of the Work or portion of the work,
 - ii. the remaining items of work that have to be completed within 30 calendar days before Final Acceptance,
 - iii. provisions (to the extent not already provided in the Contract Documents) establishing the City’s and the Contractor’s responsibility for the Project’s security, maintenance, utilities, and insurance pending Final Acceptance, and
 - iv. an acknowledgment that warranties commence to run on the date of Substantial Completion, except as may otherwise be noted in the Certificate of Substantial Completion.

SOURCE: Contracts 17PB014, 19PB016, 20PB009.

Substantial completion is also a contractual milestone representing the end of the Contract Time and triggers the release of retained payments for completed work. The City may assess

liquidated damages if the project is not completed within the specified contract time. However, for fire stations 613 and 603, which reached this stage, CPM's actual practices differed from the contractually described process. Also, department policies and procedures were not available to guide the process.

- Rather than issuing a separate Substantial Completion certificate, the department based its project completion on the issuance of the Certificate of Occupancy (C of O). A Certificate of Occupancy is issued after a building has passed all building code inspections and is, therefore, considered suitable for occupancy. The Substantial Completion certificate more comprehensively addresses the contractor's contractual obligations, such as listing punch list work and other items that remain to be completed before Final Acceptance can occur.
 - CPM approved Fire Station 603 for occupancy in November 2020, and Fire Department staff moved in. However, due to delays with exterior panel installation and other punch list work, CPM did not issue the Certificate of Occupancy until January 2021.
 - The department requires certain items, such as the City's review of draft operations and maintenance manuals and record documents, lock and key changes, operation and maintenance training, and final cleaning, to be completed before Final Acceptance. However, the contract requires their completion before the Substantial Completion certificate.
 - Contract terms are inconsistent regarding the warranty commencement date. Contract section 58 (as shown in the text box on page 18) indicates that, except where specifically noted, warranties commence on the date of Substantial Completion. But contract section 51, regarding punch list preparation procedures, indicates that warranties commence on the date of Final Acceptance.
- C. Despite all three projects exceeding their contractual completion dates, CPM staff did not document the causes or formally approve time extensions. Yet they also did not assess liquidated damages for untimely completion.

Construction delays may occur for various reasons, and the contract describes them as excusable, non-excusable, compensable or non-compensable. Non-excusable delays may result in actual or liquidated damages being assessed against the contractor.

According to CPM staff, if a project is progressing without cause for concern, the department's practice is to document delays at the close of the project. For example, the project manager stated Fire Station 603's seven-month delay included rain days, subcontractor non-performance, change orders, and pandemic-related supply delays. However, the contractor was not required to submit time extensions requests as these events occurred. As the following summary shows, the fire station projects' delays ranged from 3 months to 7 months.

Types of Delays:

Excusable – unforeseeable, caused by event beyond the control and without the fault or negligence of the Contractor (including its suppliers and subcontractors).

Non-excusable – within the control of the Contractor, its suppliers and subcontractors, or resulting from a risk taken by the Contractor under the terms of the contract.

Compensable – result from the City's actions or inactions. Time extensions or delay damages may apply.

SOURCE: Contracts 17PB014, 19PB016, 20PB009; Construction Special Terms & Conditions, Section 26.

Project	End of Contract Time	Certificate of Occupancy
Fire Station 613	May 8, 2018	July 11, 2018
Fire Station 603	June 7, 2020	January 7, 2021
Fire Station 616	December 1, 2020	<i>est. March/April 2021</i>

D. The design schedule is not being consistently monitored and enforced. The Project Management Guide requires that project managers monitor the Design Consultant's performance to ensure that tasks and deliverables are completed on schedule and on budget, including monitoring the timeliness of design submittals, critical path schedules, and resolution of design review comments. Project documentation indicates that these monitoring activities may not have been performed or were only partially performed, and clarifications to procedures may improve the effectiveness of monitoring activities.

- For one project, the Design Consultant provided updated schedules every few months and completed the design process close to the scheduled timeline. The other two projects' actual design completion dates were much later than the Consultants' scheduled deadlines and the few revised schedules in the Project files did not reflect the extended deadlines or the department's approval of the delays.
- At the 30%, 60%, 90%, and 100% phase of the design process, the department sends the design documents to various other City stakeholders, such as Transportation, CPM Engineering, Planning, and the Fire Department, for review and comment. The project manager collects and sends these review comments to the Design Consultant to be addressed. Although CPM's project managers provided reviewers with a tracking document to note review comments, reviewers seldom used it to record their comments. Further, the project managers did not use the document to compile the review comments and track the Design Consultant's responses. Instead, these matters were often communicated via meetings or email. As a result, ensuring review comments were addressed timely without having to be repeated is more difficult.

E. Internal policies and procedures need to be updated and documentation requirements clarified.

- CPM's Construction Administration Guide and portions of its Project Management Guide contain outdated information. The Construction Administration Guide, which provides guidance for inspectors, has not been updated since 1998. Portions of the Project Management Guide also need to be revised, such as outdated references to the 2008 Procurement Code. As well, the department has transitioned to storing its records electronically in the City's Document Management (DM) system, but the manual still contains procedures for paper filing and record storage.
- Further, project managers were not consistently adding key project documents relating to construction and contract administration to the City's Document Management system. While the project managers were able to provide many of the needed documents from email or other file locations, the department does not have complete, organized project files readily available when needed. The separately retained records included construction meeting minutes, pay application and change order review

comments, and project closeout documents. Further, the project managers did not download and retain certain documents, such as contractor submittals and consultant reports, that contractors provided through online portals. Also, we noticed two Consultant change orders that were scanned in were missing pages, apparently resulting from copying errors.

Although the project closeout checklist includes checking that “Electronic Project Files” exist, more specific project file quality control steps would help ensure consistency and completeness of the department’s records retention.

Recommendations:

The Public Works Director should require CPM to:

- A. Establish approval and communication procedures for change orders funded by force account or contingency funds. Also, work with Purchasing and the City Attorney’s Office to clarify contract language to define the term “force account” along with its allowable uses and to limit allowable change order add-ons.
- B. Establish department policies and procedures to ensure substantial completion contractual requirements are consistently applied and evaluate whether adjustments to contractual requirements may be needed.
- C. Establish policies and procedures for project managers to document causes for delays as they occur, including communications with the contractor regarding the causes and length of delays.
- D. Clarify and/or enforce policies and procedures related to the design process, including monitoring deadlines and tracking review comments.
- E. Update department policies and procedures clarifying records retention requirements and establishing quality control steps to ensure project files are complete at project closeout.

MANAGEMENT ACTION PLAN

1. Construction phase service contracts should be more consistently managed to minimize unnecessary costs.

Recommendations:

The Public Works Director should require CPM to:

- A. Review construction phase services acquired through the Design Consultant to evaluate which services are necessary to be contracted rather than performed internally and the level of the services required. Also, establish guidelines to ensure required services are consistently covered from project to project.
- B. Ensure the scope of work described in change orders is consistent with the supporting details.
- C. Revise department policies and procedures to align with Procurement Code requirements for the authorization of large change orders and clarify policies to ensure contracts are not split to avoid requirements.
- D. Evaluate the design contracting process to include construction phase services in the contract's scope of work, rather than adding it later as a change order.

MANAGEMENT RESPONSE: Partially Agree

PROPOSED RESOLUTION:

Public Works Director will require CPM to resolve items A-C. For Item D, CPM will continue to add construction administration services at the time of construction to ensure:

- 1) The consultant has the availability to provide the services.
- 2) The consultant has performed in a satisfactory manner that justifies retaining them to provide the additional services.
- 3) To understand the entire scope of the building and the extent of the required services.
- 4) To prevent consultants from attempting to bill against construction administration services prior to the time the services are rendered.

RESPONSIBLE PARTY: Dave Lipinski, City Engineer

COMPLETED BY: 8/31/2021

2. Updated and more complete policies and procedures would help ensure contract terms are consistently applied.

Recommendations:

The Public Works Director should require CPM to:

- A. Establish approval and communication procedures for change orders funded by force account or contingency funds. Also, work with Purchasing and the City Attorney's Office to clarify

contract language to define the term “force account” along with its allowable uses and to limit allowable change order add-ons.

- B. Establish department policies and procedures to ensure substantial completion contractual requirements are consistently applied and evaluate whether adjustments to contractual requirements may be needed.
- C. Establish policies and procedures for project managers to document causes for delays as they occur, including communications with the contractor regarding the causes and length of delays.
- D. Clarify and/or enforce policies and procedures related to the design process, including monitoring deadlines and tracking review comments.
- E. Update department policies and procedures clarifying records retention requirements and establishing quality control steps to ensure project files are complete at project closeout.

MANAGEMENT RESPONSE: Agree

PROPOSED RESOLUTION: City Engineer will work to update policies and procedures.

RESPONSIBLE PARTY: Dave Lipinski, City Engineer

COMPLETED BY: 12/31/2021

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