



CITY AUDITOR'S OFFICE

Northsight Boulevard Extension Contract

September 14, 2016

AUDIT REPORT NO. 1615

[October 14, 2016: Management Action Plan revised.]

CITY COUNCIL

Mayor W.J. "Jim" Lane
Suzanne Klapp
Virginia Korte
Vice Mayor Kathy Littlefield
Linda Milhaven
Guy Phillips
David N. Smith



September 14, 2016

Honorable Mayor and Members of the City Council:

Enclosed is the audit report for the *Northsight Boulevard Extension Contract*, which was added to the Council-approved FY 2015/16 Audit Plan with approval of the Audit Committee. Completion of this added construction contract audit was included on the Council-approved FY 2016/17 Audit Plan.

Our audit found that contractor cost proposals, pay requests and changes were not adequately reviewed by staff, resulting in overpayments of about \$147,000 and questionable costs of nearly \$647,000. Contract terms regarding cost structure are not always enforced, and some may need further clarification. For example, some items with uncertainties were accepted as lump sum, but would have been more appropriate as allowances based on actual costs. Additionally, specific guidance for contract documentation would improve consistency of contract administration and records retention.

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 - Senior Auditor
Brad Hubert - Internal Auditor

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AUDIT HIGHLIGHTS

Northsight Boulevard Extension Contract

September 14, 2016

Audit Report No. 1615

WHY WE DID THIS AUDIT

With the Audit Committee's approval, this audit was added to the Council-approved FY 2015/16 Audit Plan after completion of a prior construction contract audit. Subsequently, completion of this audit was included on the Council-approved FY 2016/17 Audit Plan.

This contract represents the \$7.3 million construction phase of a project totaling \$15.5 million.

BACKGROUND

In December 2012, the City contracted with Achen-Gardner Construction, LLC for construction of the Northsight Boulevard Extension project. The project replaced the existing traffic signal at Hayden Road and Northsight Boulevard with a two-lane roundabout and extended the existing Northsight segment from Hayden Road to Frank Lloyd Wright Blvd. The project also included waterline and Intelligent Transportation System (ITS) improvements.

The Public Works Division, Capital Projects Management (CPM), manages the City's capital projects. CPM used a Construction Manager at Risk (CMAR) contract to build these improvements.

A CMAR contract establishes a Guaranteed Maximum Price (GMP) consisting of Subcontractor, Construction Fee, Self-performed work, Project Requirements, General Conditions and Owner's Contingency components in addition to the required bonds, insurance and sales taxes. These components are defined in Figure 3.

CPM deemed this project complete in March 2014.

City Auditor's Office

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WHAT WE FOUND

Contract terms regarding cost structure are not always enforced, and some may need further clarification.

Specifically, we found:

- Certain costs were negotiated as lump sum, although allowances for actual costs would have been more appropriate due to uncertainties. So the City paid nearly \$318,000 more for traffic control and \$48,300 more for construction water than the CMAR's actual costs.
- Billings treated subcontracted work as unit price and CPM did not consistently require the CMAR to submit subcontractor payment documentation.
- CPM approved markup on General Conditions costs, increasing construction fees and related taxes, insurance and bonds by an additional \$58,000.

Closer review is needed for certain types of costs.

We found overpayments of about \$147,000 and questionable costs of about \$647,000. In addition to amounts noted in the first finding:

- The CMAR did not adjust its pay applications to reflect a sales tax rate reduction, resulting in a \$38,000 overcharge.
- Labor costs were overstated through excessive billing rates.
- Supporting cost documentation was not submitted for some allowances.

Specific guidance for contract documentation would improve consistency of contract administration and records retention.

We found:

- Project documents were maintained in various locations, and some electronic files have been lost.
- Field inspection, change order and closeout documentation were not consistently maintained.
- Contract elements added by the CMAR to alter the standard terms were not submitted for City Attorney review.

WHAT WE RECOMMEND

We recommend the Public Works Division Director require CPM to:

- A. Follow established contract guidelines for verifying certain types of costs and seek reimbursement of any overpayments.
- B. Evaluate clarification of contract language regarding subcontracted work and establish procedures for verifying payment applications.
- C. Establish guidelines for evaluating cost proposals and obtain legal review of CMAR documents that contradict standard terms.
- D. Establish policies and procedures for maintenance and retention of contract-related documents, including procurement, inspections, changes and project close-out.

MANAGEMENT RESPONSE

The Department partially agreed with the recommendations.

BACKGROUND

In December 2012, the City contracted with Achen-Gardner Construction, LLC for the construction of the Northsight Boulevard Extension project. The project involved replacing the existing traffic signal at the Hayden Road and Northsight Boulevard intersection with a two-lane roundabout and extending the existing public street segment of Northsight Boulevard from Hayden Road to Frank Lloyd Wright Boulevard. The project also included waterline improvements and Intelligent Transportation System (ITS) connection to the 101 freeway.

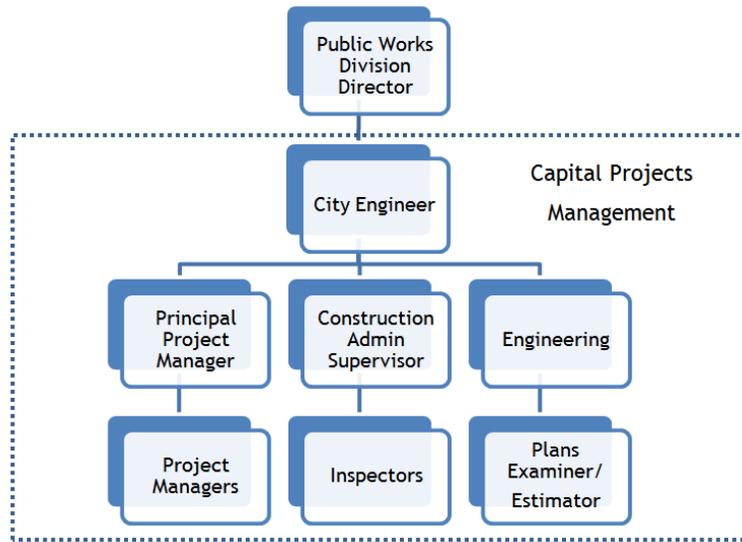
Figure 1. Project Overview and Hayden/Northsight Intersection Improvements



SOURCE: City Land Information System (left) and Achen-Gardner Construction, LLC website (photos on right).

The Capital Project Management (CPM) department within the Public Works Division manages the City’s capital projects. A Project Manager is assigned to manage the project and administer contracts associated with the project. As shown in Figure 2, the Project Manager reports to a Principal Project Manager and the City Engineer. A Construction Admin Supervisor monitors construction progress by having an Inspector onsite during construction to inspect progress. As well, an Estimator assists during the design phase of the project.

Figure 2. Organization Chart for Capital Projects Management



SOURCE: Auditor analysis of department hierarchy and responsibilities.

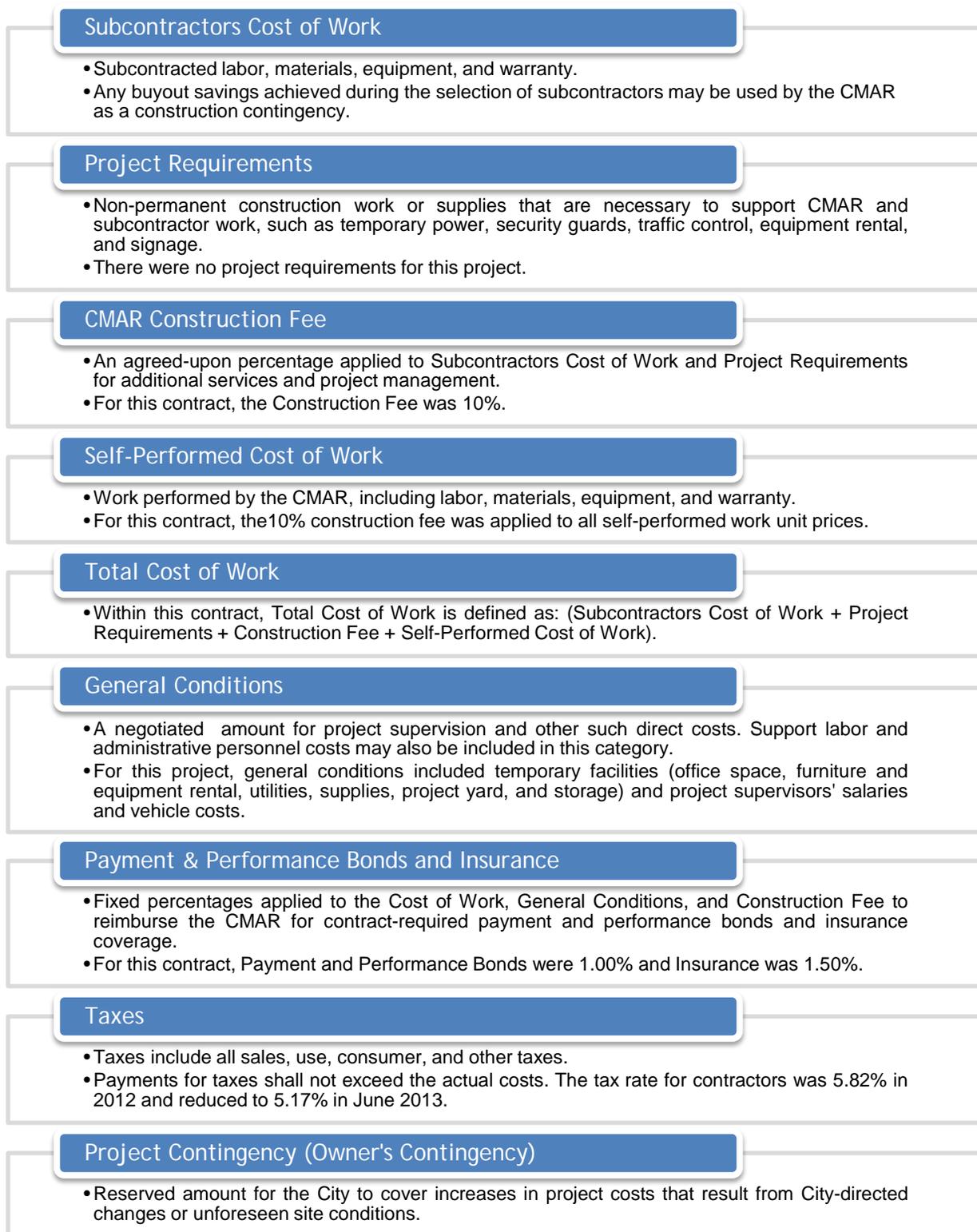
Construction Manager at Risk

For this project, CPM elected to use a Construction Manager at Risk (CMAR) delivery method. With this method, the owner (the City) contracts with an architectural or engineering firm to produce the project designs and separately contracts for construction management services through a Pre-Construction agreement to obtain constructability input during the design phase. During this pre-construction period, the CMAR reviews the design plans, creates a construction plan and project schedule, and produces cost estimates. The CMAR proposes a Guaranteed Maximum Price (GMP), to complete the project. If the proposed GMP is accepted by the owner, a construction contract is awarded and the CMAR assumes the risk of delivering the construction project on-time and within the agreed-upon GMP.

In January 2012, CPM solicited Statements of Qualifications for pre-construction services on the Northsight Extension Project. Six companies responded and in April 2012, CPM awarded the CMAR contract for Pre-construction services to Achen-Gardner Construction, LLC at \$159,964.90. Several months later, in December 2012, CPM finalized a CMAR construction contract with Achen-Gardner Construction for the Northsight Boulevard Extension Project, with a GMP of \$7,881,147.75. Subsequently, two approved change orders revised the video detection system, added five additional traffic cameras nearby, and made other minor changes. The final GMP increased by about \$66,827, to a maximum of \$7,947,975. Final contract payments, net of the unused allowances and unit quantities, totaled \$7,321,214.

Figure 3, on page 5, summarizes the GMP components and their key contract terms.

Figure 3. GMP Components



SOURCE: Auditor analysis of contract 2012-156-COS

Payment Process

The CMAR submits monthly payment applications based on the work completed. Table 1 illustrates a portion of the Schedule of Values and the monthly application for payment format.

Table 1. Example Schedule of Values and Application for Payment

Schedule of Values:

Item No.	Description	Qty.	Unit of Measure	Unit Cost	Subcontracted Amount	CMAR Self-Performed Amount	Total Cost
51	Adjust Valve Box & Cover, COS 2270	28	EA	\$237	\$6,636		\$6,636
52	Survey Monument	9	EA	\$100	\$900		\$900

Monthly Application for Payment:

No.	Task Description	Qty	UNIT PRICE	CONTRACT AMOUNT	PRIOR BILLINGS		CURRENT BILLINGS		TOTAL TO DATE	
					QTY	AMT	QTY	AMT	QTY	AMT
51	Adjust Valve Box & Cover, COS 2270	28	\$237	\$6,636	6	\$1,422	14	\$3,318	20	\$4,740
52	Survey Monument	9	\$100	\$900	2	\$200			2	\$200

SOURCE: Auditor analysis of Schedule of Values and Application for Payments submitted by the CMAR.

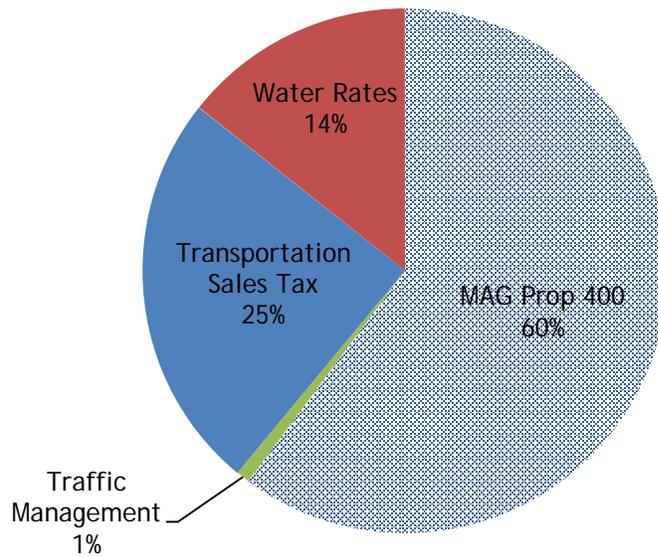
Each unit of work item is billed as it is completed, and the pay applications are initially reviewed by the department's onsite Field Inspector. The Inspector and CMAR resolve any questions on the quantities completed before the pay application is reviewed and approved by the Construction Admin Supervisor and the Project Manager. Until 50% of the work is completed, 10% of each pay application is retained by the City. Once 50% of the work is complete, half of the retained amount is released to the CMAR and retention is reduced to 5% for future payments. All retained payments are released at the end of the project.

Construction Funding

The majority of funding for this construction contract was initially provided by the City's Transportation Sales Tax, including a small portion for the related Intelligent Transportation Systems for traffic management. The Maricopa Association of Governments (MAG), as part of its Arterial Life Cycle Program, reimbursed 70% of the Transportation Sales Tax project (including Right of Way costs not shown here) with Proposition 400 funds.¹ As shown in Figure 4 on page 7, this amounted to 60% of this contract's total cost. The City's water department provided about 14% of the contract funding for work involving water lines.

¹ Proposition 400, passed in 2004, extends the 0.5% transportation excise tax to 2025 to fund the Maricopa County Regional Transportation Plan.

Figure 4. Northsight Boulevard Extension Contract, Funding Sources



Note: Traffic Management work was also funded through the Transportation Sales Tax, but charged to a separate project budget.

SOURCE: Auditor analysis of contract funding.

OBJECTIVES, SCOPE, AND METHODOLOGY

The City Council Audit Committee approved adding another construction contract audit to the Council-approved FY 2015/16 Audit Plan. Subsequently, completion of this audit was included on the Council-approved FY 2016/17 Audit Plan. The audit objective was to review the procurement, compliance with contract terms and contract administration of a selected construction contract. After identifying the larger projects that had been completed within the past two years, we ranked specific risk elements including budgeted and actual amounts spent, cost type or delivery method, use of change orders and available documentation. After evaluating the inherent risk involved in these elements, we selected the *Northsight Boulevard Extension Contract* for this audit.

To understand the elements of the selected construction project, we reviewed the following agreements between the City and Achen-Gardner Construction LLC, the Construction Manager at Risk (CMAR):

- Contract No. 2012-023-COS, Pre-Construction Contract Design Phase Services, *Northsight Boulevard Extension Project*
- Contract No. 2012-156-COS, CMAR Construction Services, *Northsight Boulevard Extension Project*

To gain an understanding of existing requirements and standards, 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*.
- City Procurement Code Section P2-180.2(B) *Procurement Delegation to CPM for the Procurement of Architects, Engineers, and Construction Managers* and Section 2-192(B) *Selection Procedures for Professional Services*.
- City Administrative Regulations (AR) including *AR 215 Contract Administration* and *AR 216 Contract Change Orders and Contract Modifications*.
- *CPM Project Management Guide*

To gain an understanding of Capital Project Management (CPM) operations, policies and practices, we interviewed the Project Manager and updated information obtained during the recent *Audit No. 1509 - Scottsdale Road Improvements, Phase 1*.

To determine whether payment requests were appropriately supported, we reviewed all pay applications and supporting documentation, including change orders and uses of owner's contingency. We also reviewed the CMAR's related job cost reports and vendor invoices to verify certain costs billed to the City. To evaluate the accuracy of these reports, we selected a random sample of transactions to verify supporting invoices or other documentation. We also requested and reviewed the CMAR's related subcontracts and subcontract change orders. We reviewed the noted discrepancies with the CMAR to ensure completeness of the documents provided to us.

To evaluate contract administration and compliance with various contract terms, we reviewed CPM's project documentation, including change orders, allowance logs, pay requests

and supporting documents, email and written communications, meeting minutes, inspection reports, and close out documents.

Our audit found that contractor cost proposals, pay requests and changes were not adequately reviewed by staff, resulting in overpayments of about \$147,000 and questionable costs of nearly \$647,000. Some elements with uncertainties were accepted as lump sum, but would have been more appropriate as allowances based on actual costs. Also, final subcontractor cost verification can ensure charges are reasonable. Additionally, specific guidance for contract documentation would improve consistency of contract administration and records retention.

We conducted this audit in accordance with generally accepted government auditing standards as required by Article III, Scottsdale Revised Code §2-117 et seq. 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 May to August 2016.

FINDINGS AND ANALYSIS

1. Contract terms regarding cost structure are not always enforced, and some may need further clarification.

As described in the Report Background on page 5, the CMAR contract details the various cost components that should be included in the related GMP cost structure. However, our audits of both the Northsight Boulevard Extension and the Scottsdale Road Improvements Phase 1 GMPs found that the intended cost structure is sometimes not applied. As well, the compensation methods for various CMAR construction elements should be further clarified.

A. In their proposed GMPs, the audited CMARs have not classified certain costs as Project Requirements. For the Northsight project, these costs included traffic control, construction water and dust control and preconstruction video.

1. Traffic control costs have been included in the Cost of Work categories of both audited GMPs and paid as either unit price or lump sum, rather than at cost. Yet the CPM project manager indicated that traffic control and signage needs may change as a project progresses, so an allowance is typically established when the GMP is set.

Project Requirements

“Non-permanent construction work that is necessary to support CMAR and sub-contractor’s work. Examples are temporary power, security guard, traffic control, rental equipment (paid for by CMAR) and signage. It is an Allowance to be verified by billed expenses at end of construction.” (emphasis added)

Contract 2012-156-COS, §4.3 (C.2)

For the Northsight project, traffic control costs were paid as lump sum fees totaling \$525,000 (including taxes and markups). But the CMAR’s actual subcontractor payments totaled about \$207,000, which was about \$318,000 less than was paid by the City.

Part of the traffic control cost estimate included using off-duty police officers to direct traffic at intersections during work on the signals. Although the GMP line item for off-duty police was labeled as an allowance, the CMAR listed it as a lump sum payable in its own “GMP Clarifications and Assumptions” document and billed the work item as lump sum.

The CMAR’s number of paid police hours was significantly lower than estimated. Further, at the City’s request, the cost estimates were based on Scottsdale’s off-duty officer rate, but the CMAR contracted with a company charging slightly lower rates. Due to these factors, the City paid an additional \$80,000 (including markups and taxes) for off-duty police than would have been necessary if contracted as an allowance.

Table 2, on page 12, summarizes the traffic control amounts included in the GMP and billed to the City and the related CMAR payments.

Table 2. Comparison of CMAR's Traffic Control Costs

Item	Description	Qty	Unit Cost	Cost Type
GMP Items for Traffic Control				
08	OFF DUTY POLICE OFFICER (<i>Traffic Control during work at intersections</i>)	1	\$ 111,350	<i>Subcontracted</i>
06	TRAFFIC/PEDESTRIAN CONTROL	1	290,940	<i>Subcontracted</i>
179	TRAFFIC CONTROL FOR APS WIRE CREWS	1	20,000	<i>Subcontracted</i>
05	VMBs (<i>Variable Message Boards</i>)	1	18,048	<i>Subcontracted</i>
Subtotal, Traffic Control Items			440,338	
10% Construction Fee			44,034	
Taxes/Insurance/Bonds			41,005	
Total Traffic Control Items in GMP			\$ 525,377	
Subcontractor Payments for Traffic Control				
Payments to traffic control subcontractor			\$ 129,273	
Payments for Off-Duty Police			44,468	
Total Traffic Control payments			173,741	
10% Construction Fee			17,374	
Taxes/Insurance/Bonds			16,179	
Actual Cost Plus Markups			\$ 207,294	
GMP (City Cost) exceeded CMAR's Actual by			\$318,083	

SOURCE: Auditor analysis of GMP and the CMAR's project cost records.

2. Construction Water and Dust Control was negotiated as a lump sum fee of \$185,443. Because this work is not easily measurable in units, it should have been categorized as a Project Requirements allowance and paid based on actual cost.

For example, the recorded construction water costs (including taxes and markup) totaled about \$48,300 less than the estimated water costs in the GMP.

3. A Project Preconstruction Video, to document field conditions prior to the start of construction, was included in the General Conditions cost. This cost type was charged as a lump sum monthly amount. By being included as a monthly General Conditions cost, the project's 2-month schedule delay resulted in the City paying approximately \$400 (with taxes and markup) more for this video.

Further, while the City paid about \$2,800 (including taxes and markup) for the video over nearly 13 months, the CMAR's project cost records showed the CMAR made one payment, a cost of about \$450.

- B. Contract language regarding payment for subcontracted work needs further clarification.
1. For both audited contracts, the CMARs have treated all construction work as being based on negotiated unit prices. This has occurred even though the contract distinguishes between Subcontractor work and the CMAR's Self-Performed work in several different places, including:
 - Buyout savings from subcontracts become construction contingency
 - The Construction Fee percentage is to be applied only to Subcontractor Cost of Work and Project Requirements (both cost-reimbursable categories)
 - The CMAR Cost of Work should include labor, materials, equipment, warranty, and profit within the unit prices

Figure 5 presents the cost breakdown in the GMP Summary of Contract 2012-156-COS.

Figure 5. GMP Summary in the Northsight Boulevard Extension Contract

GMP Summary		AMOUNT
A	Sub-Contractors Cost of Work (Labor, Materials, Equipment, Warranty)	\$2,400,908.36
B1	Project Requirements (Allowance)	\$
B2	CMAR Construction Fee	3.05% \$ 240,090.84
C	CMAR Cost of Work (Labor, Materials, Equipment, Warranty, Profit)	\$3,959,015.84
D	Total Cost of Work	\$6,590,015.04
INDIRECT COSTS		RATE
E	General Conditions (Allowance)	% \$ 511,120.11
F1	Payment and Performance Bond	1.00% \$ 71,011.35
F2	Insurance	1.50% \$ 106,517.03
G	Sales Taxes (includes waterline material sales tax credit)	5.82% \$ 402,484.22
H	CMAR INDIRECT COST	\$ 1,091,132.71
I	PROJECT CONTINGENCY	\$ 200,000.00
J	TOTAL GMP	\$7,881,147.75

Note: Although line B2 of this schedule states a Construction Fee rate of 3.05%, the amount is calculated at 10%, the rate described in the contract. A separate GMP detailed schedule shows additional Construction Fees included within the CMAR Cost of Work and the General Conditions amounts summarized here.

SOURCE: Contract 2012-156-COS

2. Subcontractor invoices or payments were not required to be submitted for review.

For the CMAR's major subcontractors, we compared amounts charged to the City through the GMP to the CMAR's paid invoices. The CMAR paid six subcontractors approximately \$1.27 million, which was about \$65,500 less than the CMAR billed to the City. Most of this variance related to the quantity of work completed, with

quantities charged to the City sometimes exceeding quantities billed by the subcontractors. In some instances, the CMAR included greater quantities in the GMP than the quantities in its subcontractor bids and their later subcontracts. Inflating estimated GMP quantities would not have been necessary since a separate allowance was set up for such increases. Also, some change order estimated quantities exceeded the final actual quantities, which apparently were not verified by City field inspectors.

In addition, one of these subcontractors was paid about \$10,000 for change orders that were not approved by the City.

The construction fee on these amounts represents another \$7,600.

3. While CPM requires the CMAR to identify subcontractor costs in the GMP, some were not consistently categorized. This can make verifying subcontractor costs more difficult.

- The GMP included about \$212,500 as subcontracted work related to storm drain pipelines. However, this work was self-performed by the CMAR rather than subcontracted. The related costs were not clearly identified in the CMAR's cost records for comparison to the GMP costs.
- The GMP did not identify subcontracted work for hauling and dumping concrete, asphalt, dirt, and other construction debris. In fact, the CMAR's cost breakdown reports provided the month prior to GMP approval estimated about \$256,000 for self-performed hauling and dumping. However, the CMAR's subcontractor payments for these activities totaled about \$96,000, or \$160,000 less than in the GMP.
- Pavement work was not identified in the CMAR's subcontractor selection plan or in the GMP as subcontracted work. As well, the CMAR did not submit subcontractor bids to CPM for review. Yet the CMAR paid several vendors for pavement work, totaling about \$144,000. The pavement work estimate was not identifiable within the GMP Self-Performed costs for comparison to actual costs.

- C. Proposed construction fees should be more closely reviewed.

The Northsight contract provided a 10% construction fee (including overhead and profit markups), which was to be applied to all Cost of Work. However, this fee was not consistently applied in accordance with the contract's guidelines and the CMAR apparently included overhead and profit in other items.

1. The markup was also applied to General Conditions costs although the contract directs the CMAR to apply the Construction Fee to the Cost of Work. As illustrated in Figure 5 on page 13, General Conditions costs are listed separately in the GMP after the Cost of Work section. However, the detailed breakdown of the GMP shows the CMAR applied markup to the General Conditions costs. As a result, the City paid an additional \$58,700 in construction fees (with taxes, insurance and bonds).
2. In its own "GMP Clarifications and Assumptions," the CMAR states each GMP unit price includes "the costs associated with the risk of delivering the work" which represents additional markup.

This additional markup was most evident in a comparison of labor burden rates to a sample of timesheets with base rates. The labor burden that the CMAR used when estimating self-performed work averaged nearly 70%, much higher than the 30 to 50% burden costs within the CMAR's cost records. (Finding 2B(2) provides an example illustration of this practice.)

Labor "burden" is added to employee base pay rates to recover employee-related expenses, such as payroll taxes, health benefits, life insurance and similar employer-paid benefit costs.

3. There do not appear to be guidelines for evaluating proposed fees or markups when negotiating contracts. For example, while the construction fee for the Northsight contract was 10% for both subcontracted and self-performed work, in the Scottsdale Road Improvements, Phase 1 contract, subcontracted work was marked-up by 5% but self-performed work was marked-up by 10%.

Recommendations:

The Public Works Division Director should direct CPM to:

- A. Follow established contract guidelines for verifying certain types of costs.
- B. Evaluate current contract language regarding payment for subcontracted work and establish policies and procedures for approving payment.
- C. Establish guidelines for evaluating proposed fees when negotiating contracts.

2. Closer review is needed for certain types of costs.

CPM could have avoided overbillings and excessive contract costs through closer review of CMAR pay applications, change orders, use of allowances, and cost estimates.

- A. Some overbillings occurred that appear to be recoverable, including sales tax rate error and bond cost overpayments.
 1. The CMAR did not adjust the sales tax rate on pay applications when the rate was reduced in 2013. The transaction privilege tax rate for contractors decreased from 5.82% to 5.17% in June 2013. As a result, the CMAR overcharged the City by about \$38,000.
 2. The CMAR did not adjust the Payment and Performance bond cost for decreased construction quantities and unused allowances.

The GMP sets the bond cost at 1% of the Cost of Work and General Conditions. This cost is often billed up-front in the first pay application. After including change order adjustments, some of the Northsight project's final quantities and allowance items were less than estimated in the GMP. However, the bond cost was not adjusted, resulting in an overpayment of about \$4,000.

Moreover, while this contract classified the bond cost as a negotiated rate, but the CMAR's actual bonding rate was about 0.56% rather than 1%. Therefore, the City could have saved an additional \$22,000 by requiring cost verification.

B. Labor amounts charged in allowances and change orders appear to be overstated.

For contract allowances and for certain additional work in change orders, the CMAR's labor costs may be billed to the City based on hourly pay rates. The Northsight project included two such work items: labor in the construction site sweeping allowance and overtime charges in a change order to expedite the project schedule. We found discrepancies in the labor charged for these two items.

1. For construction site sweeping, the GMP included \$140,800 as an allowance and the CMAR billed about \$62,000.
 - Although the GMP proposal stated that sweeping would be subcontracted, about \$40,000 was charged for the CMAR's self-performed labor and equipment charges.
 - The majority of the self-performed work, \$26,700 in labor charges, was billed at above-cost rates. The CMAR's burdened hourly pay rates for this work, which consists of keeping the construction site swept or cleared, ranged from as low as \$22.15 to as high as \$57.94 per hour, which seemed excessive for the task. Further, there were differences between the billed hourly rates and those reflected in the CMAR's cost records. In fact, even for the same employee, the variance grew larger over an 8-month period.

Figure 6. Increasing Differences in Actual vs. Billed Labor Rates for Sweeping



Note: The labor rates in this table and the related descriptions are burdened labor rates.

SOURCE: Auditor analysis of the CMAR's pay applications and cost records.

For example, in June 2013 the actual hourly labor rates matched those billed to the City. But in July 2013, the average cost was \$27.83 while the CMAR billed an average hourly rate of \$28.41, or 58 cents more per hour. By February 2014, the average cost was \$26.46 per hour while the average rate billed was \$38.40 per hour, or almost \$12 more per hour. Had rates

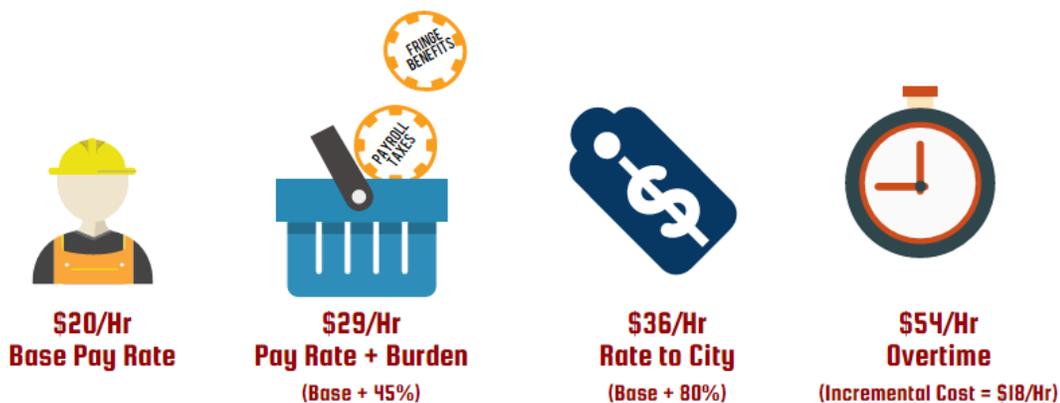
recorded in the cost ledger been used, the sweeping allowance's labor costs (with taxes and markups) would have been almost \$4,700 lower.

As well, the contracted sweeping labor cost about \$13 per hour, or \$21 less per hour than the CMAR's self-performed work. If all 770 self-performed hours had been subcontracted, the labor cost would have been about \$16,700 less.

2. Through a change order, the CMAR added about \$8,000 in overtime costs to meet the City's request to expedite the construction schedule over several weeks. Since additional work was not being performed, the CMAR correctly included only the additional half-time pay cost of completing the work faster. However, in the change order cost calculation, the CMAR used hourly burdened rates that were much higher than those reflected in the CMAR's project cost records.

Figure 7 illustrates an example of the labor rate variances observed.

Figure 7. Example of CMAR's Base, Burdened and Billed Labor Rates



Note: We did not audit the CMAR's detailed records to determine the accuracy of burdened pay rates recorded in its project cost ledger.

SOURCE: Auditor analysis of pay rates recorded in timesheets, job cost ledger, and pay applications to the City for one employee.

Using the rates recorded in the CMAR's cost ledger, we estimate overtime was overcharged by about \$2,500, including taxes and markups.

However, this estimated overcharge does not include the additional effect of the CMAR's overtime burden rate or inclusion of exempt positions.

- While the CMAR applies the full burden rate to overtime, a large portion of these employee-related expenses are fixed and do not increase due to overtime payments. For example, medical benefits cost the same whether

an employee is paid for 40 hours per week or 50 hours per week.² Therefore, the overtime burden rate should be lower.

- Overtime-exempt employees, such as the project Superintendent or Foreman, were not paid overtime. Therefore, the overtime charges should exclude exempt employees' salaries. Also, the full salaries for these positions are recovered through General Conditions costs.
- C. Although they are to be based on actual cost, supporting documentation was not submitted or available for some allowances.
1. The CMAR billed about \$7,000 of a \$12,000 allowance for locating parking lot light electrical work, but had no supporting documentation. Including taxes and markups, this unsupported cost totaled about \$8,300.
 2. The CMAR submitted invoices for about \$16,000 of the \$24,400 charged to an allowance for removing and relocating business signs. Subsequently, the CMAR provided additional documentation to auditors. For several other allowances, which auditors were also able to verify, some final invoices had not been submitted for CPM's review.

Recommendations:

The Public Works Director should direct CPM to:

- A. Seek reimbursement for any overpayments.
- B. Seek reimbursement for overcharges in sweeping and overtime labor costs, and consider seeking reimbursement for the additional cost incurred by self-performing sweeping work.
- C. Establish procedures for verifying amounts spent through allowances.

(continued on next page)

² Certain expenses, such as the employer's portion of Social Security and Medicare taxes, which are based on the pay amount, are typically a much smaller portion of the labor burden costs.

Table 3. Summary of Overpayments

	GMP	Overpayments Identified	Finding
Subcontracted Work	\$2,400,908	\$(75,518)	1B(2)
Construction Fee	240,091	(7,552)	1B(2)
Project Requirements	0		
CMAR Self-Performed Work	3,590,014	(10,929)	2B(1), 2C(1)
CMAR Self-Performed Mark-up	405,467	(1,093)	2B(1), 2C(1)
Total Cost of Work	\$6,636,481		
General Conditions ¹	\$464,655		
Payment & Performance Bond	106,517	(4,931)	1B, 2A(2), 2B(1), 2C(1)
Insurance	71,011	(1,426)	1B, 2B(1), 2C(1)
Sales Taxes	423,618	(43,263)	1B, 2A(1), 2B(1), 2C(1)
Tax Credit for Waterline materials	(21,134)		
Indirect Costs	\$1,044,667		
Owner's Contingency ²	\$200,000	(2,481)	2B(2)
Original GMP	\$7,881,148		
Change Order #1, Aug 2013	47,050		
Change Order #2, Dec 2013	19,777		
Revised GMP	\$7,947,975		
Total Overpayments		\$(147,192)	

¹ The CMAR's GMP Summary included mark-up in the CMAR Self-performed Cost of Work and General Conditions lines. Amount reclassified as Self-Performed Mark-up in this Table.

² Some portions of subcontractor overpayments were paid from Owner's Contingency; however, for simplicity, these are included in the Subcontractor "cost type" category rather than split into the "funding" category.

SOURCE: Auditor analysis of CPM's project files and the CMAR's provided job cost records.

Table 4. Questionable Cost Types

	GMP (City Paid)	CMAR Cost + Markup, Ins, Bond, Taxes	Difference	GMP Cost Type
Traffic Control	\$ 525,377	\$ 207,294	\$ 318,083	Lump Sum
Construction Water	52,825	4,523	48,303	Lump Sum
Preconstruction Video	2,780	452	2,327	General Conditions
Haul and Dump construction waste ¹	305,683	114,164	191,519	Self-Performed
Payment and Performance Bond	71,585	43,735	27,849	Fixed Percentage
General Conditions 10% Markup	\$ 58,710	\$ 0	\$ 58,710	General Conditions

¹ GMP (City-paid) amounts for Haul and Dump were combined with other work within various unit prices. The GMP amount shown here is from original cost estimates for Haul and Dump only.

SOURCE: Auditor analysis of CPM’s project files and the CMAR-provided job cost records.

3. Specific guidance for contract documentation would improve consistency of contract administration and records retention.

Our two recent construction contract audits have illustrated the need for consistent contract administration and records retention practices.

A. Guidance is needed for retention media use as consistency can encourage retention and make documents easier to locate.

1. Some contract-related documents in print form are retained and archived, while others are scanned into the City’s Document Management system. Some electronic files are added to the Document Management system, but many other electronic files that were received via email are left on the project manager’s computer.
2. Files maintained on the network or in the Document Management system are routinely backed up. For both audited construction contracts, the project managers have also stated that some electronic files on their computers were lost due to hardware problems that occurred.

B. Guidance should require documentation supporting contract administration activities to be retained.

1. Project managers are inconsistent in documenting the contractor procurement process. Our audit of Scottsdale Road Improvements, Phase 1 project commented on the lack of evidence of individual proposal evaluations, the make-up of the evaluation team, the interview evaluation, and competing proposals. At the time, the department responded that the limited documentation was acceptable and consistent with the minimum required by law. However, for the Northsight project

which occurred approximately during the same time, these procurement documents were retained.

2. Similar to conditions identified by the Scottsdale Road audit, the Northsight contract field inspection reviews of the invoiced quantities were not retained. For the Northsight project, there is indirect indication that the field inspector was reviewing and adjusting the CMAR's construction quantities because final paid quantities were sometimes lower than the originally billed quantities. This was not evident in the Scottsdale Road project because only the final pay application was retained. According to the department, new procedures have been implemented to document field inspection measurements.
3. Documentation is needed for changes to design or scope, showing when the change was requested, by whom, and for what reason, as well as the authorized City staff approving the change. The CMAR maintained a change log but it did not include the dates of the changes and who approved the change. At least one email noted that some changes were approved onsite by the field inspector.
 - Approximately \$152,400 in changes were paid through a Minor Scope Variation allowance, but details were not maintained regarding the timing or approval of the changes.
 - Use of Owner's Contingency paid for about \$225,000 in changes, but CPM's acceptance of these cost proposals was not formally documented. Additionally, the Owner's Contingency was budgeted at \$200,000, so the related sales taxes and markups for this work were billed to the related original GMP items. When these costs are correctly categorized, the Owner's Contingency budgeted amount was exceeded by about \$25,000.

Further, approximately \$66,800 in contract change orders were not approved by the City Engineer until after work had been performed.

The department should establish policies for maintaining its own change logs and related documentation rather than solely relying on the contractor's log.

4. Certain closeout documentation, such as substantial completion certification, final walk-through, and final acceptance, and settlement affidavits were not retained in the CPM project management files. While there are indications that substantial completion occurred and the final walk-through scheduled, documentation of the results should be retained as it may be needed for future warranty claims.
- C. Some of the CMAR's GMP related documents were not incorporated into the construction contract but intended to alter its terms.

CPM did not attach the CMAR's full GMP proposal, which includes the Schedule of Values and the CMAR's Clarifications and Assumptions, to contract 2012-156-COS. The "General Clarifications and Assumptions" document contained the following statement that was not subjected to the City Attorney's legal review:

"Clarifications and/or Assumptions included in this Exhibit and/or any other GMP Exhibits shall take precedence over all Contract Agreements, Plans and Specifications and City General Conditions articles and/or provision."

This statement contradicts the construction contract's definition of contract documents, which lists supplementary conditions and other construction documents after contract modifications and the contract in order of precedence. Even though the

additional documents were not formally executed by both parties, CPM and the CMAR appeared to operate under these terms.

Recommendations:

The Public Works Director should require CPM to:

- A. Establish policies and procedures for the maintenance and retention of contract-related documents.
- B. Establish guidelines for documenting procurement processes, changes to project scope, and project close-out.
- C. Attach all relevant GMP proposal documents into the construction contract. At a minimum, all statements that intend to contradict the contract's terms and conditions should be submitted for legal review.

MANAGEMENT ACTION PLAN

There are several instances in the audit report that reference an earlier audit (Audit Report 1509) on a different contract and a different project, Scottsdale Road Improvements Phase 1, which was under construction largely concurrently with the Northsight Extension project. Examples of these references include statements in findings sections 1, 1.A, 1.B.1, 3, 3.B.1, and 3.B.2. Some of these statements may create the impression that issues are reoccurring or uncorrected. This is not the case; process changes we implemented as a result of the earlier audit were not in effect for the Northsight project, as the two projects were done concurrently. In this response I restrict my comments to the Northsight project, and do not address references to the Scottsdale Road Phase I audit.

1. Contract terms regarding cost structure are not always enforced, and some may need further clarification.

Recommendations:

The Public Works Division Director should direct CPM to:

- A. Follow established contract guidelines for verifying certain types of costs.
- B. Evaluate current contract language regarding payment for subcontracted work and establish policies and procedures for approving payment.
- C. Establish guidelines for evaluating proposed fees when negotiating contracts.

MANAGEMENT RESPONSE: Partially Agree

While the Public Works Division and CPM does not agree with all the assumptions used to determine \$403,000 of “questionable cost types” associated with findings 1.A.1 and 1.A.2., we do agree that contract 2012-156-COS section 4.3.C.2 includes one of these items, traffic control, as a “project requirement” that is to be charged as an allowance. The final GMP negotiated with the contractor, however, included traffic control as a lump sum. This inconsistency will be corrected in future CMAR contracts.

We agree with finding 1.A.3 regarding the potential savings of \$2,327 the City would have obtained if we characterized the preconstruction video differently.

Finding 1.B.2 adds up subcontractor invoices paid by the contractor to six subcontractors and compares them to the amounts paid by the City to the contractor. The difference between these totals is about \$75,500, which the report characterizes in table 3 as an overpayment. In each case, there was work associated with the work item in the subcontract which the contractor self-performed and therefore CPM disagrees with the premise that this was an overpayment to the value stipulated in table 3. Each of these items was completed, invoiced and paid based on field-verified quantities at the unit cost rate in the GMP. CPM will request additional information from the contractor on this self-performed work.

Finding 1.B.3 refers to three items of work in which the contractor chose a different method to accomplish work than the method they identified in their GMP proposal. In one case, storm drain work, the GMP showed the work as subcontracted, but the contractor self-performed the work instead. In the other two cases, the contractor elected to subcontract portions of

work they had identified in the GMP as self-performed. We disagree with the cost comparison for self-performed work, due to the limited information available on this cost. CPM will request additional information from the contractor on this self-performed work.

We agree with finding 1.C regarding the application of mark-ups to the contractor's general conditions costs.

PROPOSED RESOLUTION:

- A. City Engineer will clarify instances in the CMAR contract document and CPM procedures in which there are conflicts or undesirable lack of specificity in designating types of costs.
- B. City Engineer will develop procedures to review changes to types of costs from those identified in the original GMP proposal.
- C. The City Engineer has already worked with the City Attorney's office to update the standard CMAR contract document to address this issue.

RESPONSIBLE PARTY: City Engineer

COMPLETED BY: 6/30/2017

2. Closer review is needed for certain types of costs.

Recommendations:

The Public Works Director should direct CPM to:

- A. Seek reimbursement for any overpayments.
- B. Seek reimbursement for overcharges in sweeping and overtime labor costs, and consider seeking reimbursement for the additional cost incurred by self-performing sweeping work.
- C. Establish procedures for verifying amounts spent through allowances.

MANAGEMENT RESPONSE: Partially Agree

We agree with finding 2.A.1 regarding the adjustment in the sales tax rate for contractors during the course of the project. This represents an overcharge of about \$38,000 we will seek to have reimbursed.

We agree with finding 2.A.2 regarding the adjustment of the cost of the contractor's bond to reflect actual adjusted construction costs. We will seek reimbursement of this item in the amount of about \$4,000.

We agree with finding 2.B.1 regarding labor costs for sweeping, which results in an apparent overpayment of about \$4,700.

Finding 2.C.1 asserts that \$8,300 of costs billed for locating parking lot electrical work is unsupported, and this amount is included in table 3 as an "overpayment." While we do not have documentation to support the total amount billed (which was 42% less than the allowance for this item), CPM did verify the work was done. Given that the work was done, it

is not reasonable to state that the entire amount paid for the work is an overpayment. CPM will request additional records from the contractor.

PROPOSED RESOLUTION:

A & B. CPM will seek reimbursement where applicable.

C. CPM has already established procedures for verifying allowance items. Adoption of these procedures occurred following the completion of the Northsight project.

RESPONSIBLE PARTY: Project Manager

COMPLETED BY: 9/8/2017

3. **Specific guidance for contract documentation would improve consistency of contract administration and records retention.**

Recommendations:

The Public Works Director should require CPM to:

- A. Establish policies and procedures for the maintenance and retention of contract-related documents.
- B. Establish guidelines for documenting procurement processes, changes to project scope, and project close-out.
- C. Attach all relevant GMP proposal documents into the construction contract. At a minimum, all statements that intend to contradict the contract's terms and conditions should be submitted for legal review.

MANAGEMENT RESPONSE: Agree

PROPOSED RESOLUTION:

- A. City Engineer has already established policies and procedures for the maintenance and retention of contract related documents.
- B. City Engineer has already established guidelines for documenting procurement processes, inspection measurements, changes to project scope, and project close-out.
- C. City Engineer will ensure future CMAR construction services contracts include the full GMP proposal, including schedule of values and clarifications and assumptions. All contracts currently undergo legal review.

RESPONSIBLE PARTY: City Engineer

COMPLETED BY: Complete.

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