

Fort Worth



1964 • 1993 • 2011

**Mayor**

Mattie Parker

**Council Members**

Carlos Flores, District 2<sup>††</sup>

Michael D. Crain, District 3

Alan Blaylock, District 4<sup>††</sup>

Gyna Bivens, District 5

Jared Williams, District 6<sup>††</sup>

Leonard Firestone, District 7<sup>†</sup>

Chris Nettles, District 8

Elizabeth M. Beck, District 9

<sup>†</sup> Audit Committee Chair

<sup>††</sup> Audit Committee Member

# Street Light Repairs and Maintenance

August 26, 2022



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

200 Texas Street  
Fort Worth, Texas 76102

**Audit Staff**

John Riggs, Interim City Auditor  
Brian Burkland, Assistant City Auditor  
Vanessa C. Martinez, Audit Manager  
Akia Terry, Sr. Auditor





**The Street Light Repairs and Maintenance Audit was conducted as part of the Department of Internal Audit’s Fiscal Year 2021 Annual Audit Plan.**

**Audit Objectives**

The objectives of this audit were to:

- determine whether the City has a street lights inventory listing and whether that listing is accurate/up-to date;
- evaluate the process by which repairs are identified/prioritized;
- determine whether street light repairs and maintenance are completed in a timely manner;
- determine whether there is a clear line of responsibility regarding light repairs over City versus state owned roads and highways;
- evaluate the process by which the City gets reimbursed for repairs to state-owned street lights; and,
- evaluate the controls over inventory used to maintain street lights.

**Audit Scope**

Our audit included a review for the period of October 1, 2019 through June 30, 2021. Activity beyond this period was reviewed as deemed necessary.

**Opportunities for Improvement**

- Implement revised repair timelines
- Create comprehensive policies or procedures
- Timely street light inventory update
- Improve “burn rate” survey data accuracy

---

**Executive Summary**

---

As part of the Fiscal Year 2021 Annual Audit Plan, the Department of Internal Audit conducted an audit of Street Light Repairs and Maintenance. The Transportation Management Division, which is part of the City of Fort Worth’s Transportation and Public Works (TPW) Department, is responsible for traffic engineering services, the oversight of traffic safety programs, municipal parking, and the planning, maintenance and operation of street lights and traffic signals, among other services. Based on our audit results, TPW manages street light repairs and maintenance adequately with the exceptions noted in this report.

Internal Audit Department found that the 60-day street light repair goal in effect during the audit period was higher than the comparable goals for other cities. We noted that other large cities in Texas (e.g., Austin and San Antonio) have repairs performed primarily by electric transmission and delivery companies. The City performs the majority of repairs in-house with specific types of repairs or projects performed by contractors. Approximately 12% of 50 randomly selected service requests did not meet the 60-day (or 2-day for emergencies) goal.

Policies and procedures regarding the prioritization of street light repairs and maintenance, handling of obsolete inventory, and other functions were not sufficiently detailed to provide adequate guidance. Service Level Agreements (SLAs) are in place for emergencies, non-emergencies, underground cable locate services and other services, but there were no written policies or procedures to provide direction about how to achieve the goals.



Based on our audit results, as of March 2022, there were at least 48 street lights not yet recorded in the City’s inventory for 9 of 30 randomly selected new developments in the City.

The documentation provided to Internal Audit regarding the number of working lights along arterial streets (known as a ‘burn rate survey’) was incomplete and appeared to contain errors.

These audit findings are discussed in further detail within the [Detailed Audit Findings](#) section of this report.

Additionally, Internal Audit communicated an additional finding to management that is excluded from this report because of possible security concerns. Management concurred with the audit finding, and audit follow-up will be conducted at a later date to ensure full implementation of the related audit recommendations.

# Table of Contents

---

Background..... 1

Objectives ..... 5

Scope..... 5

Methodology..... 5

Audit Results..... 6

Overall Risk Evaluation..... 8

Detailed Audit Findings..... 9

Acknowledgements..... 17



## Background

The Transportation Management Division, which is part of the City of Fort Worth’s Transportation and Public Works (TPW) Department, is responsible for activities including but not limited to traffic engineering services, the oversight of traffic safety programs, municipal parking, and the planning, maintenance and operation of street lights, traffic signals, traffic signs, and roadway markings.

During our audit, there were 54,659 (54,594 + 65) street lights in “active status” listed as owned by the City of Fort Worth, as noted in the table below. The inventory also included 10,000 street lights listed as belonging to other agencies including Texas Department of Transportation (TxDOT), Oncor and Tri-County Electric, excluding one street light which did not have an owner listed. The City is listed as being responsible for maintaining 4,945 of those 10,000 street lights.

**Active Street Lights in TPW Inventory as of June 30, 2021**

Street Light Owner (Active Lights Only)	Total Street Lights Owned by the Listed Agency	Maintained by TPW	Maintained by CFW PARD*	Maintained by the Third-Party Agency	Maintained by Other or Not Listed
City of Fort Worth	54,594	54,591	0	0	3
City of Fort Worth - PARD*	65	1	64	0	0
TxDOT	4,942	3,787	0	1,155	0
Tri-County	2,731	589	0	2,142	0
Private	783	0	0	783	0
Tollways	641	562	0	79	0
Adjacent City	500	0	0	500	0
ONCOR	301	5	0	294	2
Tarrant County	84	0	0	84	0
Other	16	0	0	0	16
State	2	2	0	0	0
Not Listed	1	0	0	0	1
<b>Grand Total</b>	<b>64,660</b>	<b>59,537</b>	<b>64</b>	<b>5,037</b>	<b>22</b>

\*City of Fort Worth’s Park and Recreation Department

Source: Auditor Generated from GIS Data Provided by TPW

The City spent \$3,548,450.72 in FY2020 and \$3,528,332.72 in FY2021 from the General Fund for street light maintenance and repairs. Additionally, per project descriptions in the City’s GL, the amounts that TPW spent on street light capital projects during FY2020 and FY2021 were approximately \$2.2 million, and \$2.8 million, respectively, including PayGO funding.

The City has entered into municipal maintenance agreements with the State of Texas. The stated purpose of the municipal maintenance agreements reviewed was to define the authority and responsibility of both parties for maintenance and operation of State highways within the City. The contracts indicate that with proper approval, the City is allowed to install highway lighting. The contracts further indicate that the City is responsible for all cost of installation, maintenance, and operation except in instances specifically covered by separate agreements between the City and State. We did not identify contracts where the State agreed to fund repair or maintenance costs.

### Street Light Inventory & Repair Software

The TPW department began using VUEWorks software in 2018 to manage street light repair work orders, from intake to completion. Based on information provided by TPW staff, the City’s street light inventory is maintained in a geographic information system (GIS) database, which is integrated with VUEWorks.



TPW staff indicated that they update the inventory listing monthly, based on new street lights installed and other changes.

### Citizen Street Light Reporting

City residents may report street light outages or request a new street light installation using the following methods, each method is recorded to the City’s Customer Relationship Management (CRS) system which directly interfaces with VUEWorks.

- Calling: [817-392-1234](tel:817-392-1234)
- Emailing: [1234@fortworthtexas.gov](mailto:1234@fortworthtexas.gov)
- Submitting a request via City website:  
<https://www.fortworthtexas.gov/departments/tpw/services/street-lights>
- Submitting a request via the “MyFW App.” The App is available on the App Store and Google Play



Source: City of Fort Worth website

### Identifying and Prioritizing Maintenance and Repairs

The Transportation Management Division has three main forms of identifying maintenance and repairs needed:

- 1) City resident service requests;
- 2) an annual “burn rate survey” along arterial streets and freeway; and
- 3) field identification while working on other requests.

The “burn rate survey” consists of TPW staff driving the City’s arterial streets, and counting the total number of street lights and the number of street lights working (“burning”). The results are then reviewed by TPW management, and work is prioritized based on several factors (e.g., age of infrastructure). TPW management indicated that the repairs that result from the “burn rate survey” are funded with pay-as-you-go (PayGo) funds. These are considered special projects and not part of the day-to-day repairs, for which General Fund sources are used. Based on documentation provided to Internal Audit, the PayGo funding for FY2020 and FY2021 was budgeted for LED conversion, wire, electrical and fixture repairs, the backlog and other projects.

### Repair Goals

TPW staff provided Internal Audit a listing of goals for responding to resident’s service requests, which are detailed as Service Level Agreements.



## Transportation Management Division’s Service Level Agreements (SLAs)

Service Request Type	TPW Group Assigned	Response Time (Service Level Agreement)
New Street Light	Field Engineering	60 Business Days
Street Light Out	Street Light Maintenance	60 Business Days
Street Light Out Emergency	Street Light Maintenance	2 Days
Street Light Locates	Street Light Maintenance	30 Business Days

Source: TPW staff

It should be noted that after the completion of the audit testing, TPW staff informed Internal Audit that a proposal to improve repair goals to 30 days was under consideration and may occur within the next 12 months.

### Assigned Staffing

During the audit, the Transportation Management Division had approximately 20 employees assigned to the maintenance and repair of street lights, and two employees assigned to conduct utility locates. The Transportation Management Division generally assigns the maintenance and repair work in three different categories:

- series outages (5 or more lights on a given street block), for which there are two crews assigned;
- construction (if it includes minor excavation, installing embedded steel and wood poles and installing poles on existing concrete foundations), for which there are two crews assigned; and,
- street light maintenance zone crews. The City has been divided into five (5) different geographical zones, with one maintenance crew assigned to each zone.

In some instances, the City of Fort Worth utilizes outside contractors for repairs. The outsourced services include most freeway street light work, underground wire repairs if they involve trenching and directional boring, or installing new concrete foundations for steel light poles. Furthermore, the City has entered into contracts with Bean Electrical, Inc. for project management and assessments for street light installation services, LED conversion, repairs, and other services.

### Inventory Management

The street light construction and repair parts inventory is stored at TPW’s James Avenue warehouse facility and maintained within PeopleSoft. Inventory for traffic signals and street lights are maintained together. TPW staff indicated that the reason for this practice is that the same division manages both functions and many of the items (e.g., wire, conduit, poles) are commonly used for both street lights and signals. Per the CFW GL, the inventory balance of parts and materials for both street lights and signals totaled \$1,676,213.83 as of September 30, 2020 and \$1,359,300.86 as of September 30, 2021.

### Citizen Survey

The City’s community survey dated 2021 had different responses to questions about streetlights depending on the context, but satisfaction with street lights was generally lower than for other City services. The survey was based on a random sample of 1,858 households. The report indicates that a minimum of 200 households were surveyed in each of the City’s Council districts.



### **LED Conversion Project**

One of TPW's Key Performance Indicators (KPI) is to proactively upgrade residential area lighting by installing LED fixtures and replacing damaged components of old infrastructure, at a rate of 275 lights per year in areas with 75% MMA (Majority Minority Areas).

Based on GIS data provided to Internal Audit by TPW, 17,531 of the 54,659 CFW-owned street lights were listed as LEDs, as of June 30, 2021, and 19,643 LED lights, as of June 2022.

## Objectives

---

The objectives of this audit were to:

- determine whether the City has a street lights inventory listing and whether that listing is accurate/up-to date;
- evaluate the process by which street light repairs are identified/prioritized;
- determine whether street light repairs and maintenance are completed in a timely manner;
- determine whether there is a clear line of responsibility regarding light repairs over City versus State owned roads and highways;
- evaluate the process by which the City gets reimbursed for repairs to state-owned street lights; and,
- evaluate the controls over inventory used to maintain street lights.

## Scope

---

Our audit included a review for the period October 1, 2019 through June 30, 2021. Activity beyond this period was reviewed as deemed necessary. We did not test electricity billing for street lights, as it did not fall within the scope of the audit objectives.

## Methodology

---

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

- interviewed Transportation and Public Works staff;
- reviewed service requests and work orders obtained from VUEWorks;
- recalculated response times on a sample of service requests and compared to SLAs;
- performed tests to verify completeness of street light inventory;
- reviewed CFW Transportation Engineering Manual;
- physical observation of warehouse where street light and traffic signals are maintained;
- reviewed general ledger accounts related to repairs and maintenance and potential reimbursements;
- traced service requests for street light outages from the City's call center system to VUEWorks;
- reviewed related contracts with Texas Department of Transportations and other agencies; and
- evaluated internal controls related to street light maintenance and repairs.

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 objective.





## Audit Results

---

Based on our audit results, the Transportation and Public Works Department (TPW) manages street light repairs and maintenance adequately with the exceptions noted in this report.

### Street Light Inventory

Although the City maintains an inventory listing of street lights (owned and not owned by CFW) within GIS (and VUEWorks) we found that the inventory was not updated promptly. Internal Audit selected a random sample of (30) new housing development projects (with permits “finaled” in FY2020) to review. Based on the audit results, at least 48 street lights installed in nine of the 30 tested areas had not been updated in the City’s inventory listing as of March 2022.

Based on a report provided by ONCOR, there were approximately 4,700 LED lights out of the total approximately 44,500 reported. An email from ONCOR indicated that updated numbers were needed. Although this audit scope did not cover billing of electricity, we believe this was important to communicate to management because there is a potential for billing for incorrect wattage.

We noted that the number of lights was overstated in the non-audited section of the City’ Annual Comprehensive Financial Reports (ACFR) in prior years. We noted that after two years with the same number of street lights reported, the number was corrected in the FY2021 ACFR. We did not consider this an audit finding, however, we believe it was important to mention to City management.

### Street Lights Reported on the ACFR as Compared to Street Lights in Inventory

FY ACFR	No. Street Lights Reported in ACFR	Number of Active, City Owned Streetlights per Inventory Listing Reviewed by Internal Audit (as of June 30, 2021)
2018	67,237	
2019	69,527	
2020	69,527	
2021	59,956	

Source: CFW Annual Financial Reports and street light inventory data obtained from TPW staff

### Identifying and Prioritizing

Based on our review of 50 randomly selected service requests in “closed” status (46 non-emergencies and 4 emergencies), 41 (82%) were responded to within the City’s established repair goal; while six (12%) were responded to after the repair goal; and three (6%) did not have a response date recorded, therefore we could not calculate the response timeliness.

TPW provided documentation of the Q1 FY2020 and Q3 FY2021 “burn rate survey” results. We noted that the records maintained by TPW related to the annual “burn rate survey” appeared to contain errors, and did not show evidence of management review and potential corrections. For instance, some arterial streets showed more operating lights than there were in total, and there were some blank fields on the spreadsheet.

### Repair Parts Inventory

Per the City’s GL, the combined inventory of street light and signals parts was \$1,676,213.83 as of September 30, 2020, and \$1,359,300.86 as of September 30, 2021. [REDACTED]

### **Clear Line of Responsibility and Reimbursement**

Per Section 3.4.3.6 of TPW's Transportation Engineering Manual, "all street lights installed in a dedicated public right-of-way shall become the property of the City upon final acceptance of a project."

Internal Audit reviewed copies of several agreements between the City and TxDOT and Tri-County Electric. These agreements identified the area in which street lights were located along with the responsibility for repair and maintenance. Per those agreements, the City is responsible for maintenance of street lights constructed by the City on roadways maintained by TxDOT. The City is also responsible for maintenance of lights constructed by the City in areas managed by Tri-County electric.

We did not see evidence of the City receiving reimbursement for repairs of street lights owned by other agencies. However, as noted in the previous paragraph, contracts and agreements reviewed specify that maintenance of any light constructed by the City is the responsibility of the City.

Internal Audit staff noted that the City of Dallas City Council recently (April 13, 2022) approved agreements with TxDOT where the State agreed to pay a portion of operation and maintenance cost.

### **City Website**

Internal Audit noted that the TPW webpage for street light lists content regarding traffic signs rather than street lights. We communicated this to TPW staff, however, as of the end of audit work the website had not been corrected. Although this does not rise to the level of a finding, we thought it was important to communicate to City management, as the website is one of the main sources of public information. Upon further inquiry, TPW management indicated that they are currently working with the City's Communications and Engagement Department to restructure the TPW website, to make it more user-friendly.

## Overall Risk Evaluation

High	Medium	Low
<a href="#">Sixty-day repair time goal</a>		
<a href="#">Absence of formalized policies and procedures for identifying and prioritizing repairs and maintenance</a>		
<a href="#">Inventory of street lights not updated timely</a>		
	<a href="#">Insufficient Burn Rate Documentation</a>	



## Detailed Audit Findings

### 1. The street light repair time goal was longer than other large cities.

During the audit period, the City had a 60 business-days [service level agreement](#) (i.e., goal) in place for non-emergency repairs and a two-day emergency service request goal. Other goals for non-repair tasks are included in the table in [Background](#) section of this report. Internal Audit did not identify an industry standard for street light repair times, but the City’s 60 business-days goal exceeded the timelines of other cities by a significant margin.

#### Response Time Comparison with Other Cities

City	Response Time Goal (per City website)	Population Per 2020 Census	Land Area in Sq. Miles Per 2020 Census
Dallas, TX (Outsourced to Oncor)	15 Days response by Oncor; with escalation process to City staff, for an additional 10 days	1.3 million	339.58
Austin, TX (Local Electric Delivery Provider)	3 Working Days	961,855	319.94
El Paso, TX	15 to 20 Days for Update or Resolution	678,815	258.41
Arlington, TX	2 Days for routine repairs 10 working days for underground maintenance	394,266	95.87
Fort Worth, TX	60 Business Days <sub>1</sub> 2 Days for emergencies	918,915	347.27

Source: Auditor generated from corresponding City websites and April 2020 U.S. Census from website [www.census.gov](http://www.census.gov)

<sub>1</sub> After the completion of fieldwork for this this audit, TPW staff informed Internal Audit that a proposal to improve repair goals to 30 days was under consideration.

TPW staff indicated that the other Cities’ websites repair goal numbers were too low, however, we were not provided with and did not find information contradicting the goal numbers listed on the websites.

Most other large Texas cities including Austin, Houston and San Antonio used the local electric delivery provider for repairs, which may help with repair timelines. While most standard repairs, such as the replacement of a lamp “head” did not require 60 business-days to complete, we noted that there was significant variation in the repair timeline for the same type of repair, as illustrated in the table below, with examples of common response types. These counts were based on the text documented in the ‘response’ field in VUEWorks data, and they were confirmed with TPW staff.

#### Common Service Requests Responses - Days to Complete

Days to Repair	Replace Head		New LED Install		Replaced Lamp		No Problem Found	
	FY2020	FY2021	FY2020	FY2021	FY2020	FY2021	FY2020	FY2021
0 to 5 days	383	497	238	348	52	70	164	82
6 to 11 days	124	106	91	102	10	19	79	18
12 to 20 days	91	27	46	45	3	7	66	9
21 to 30 days	52	12	42	3	5	0	43	5
31 to 60 days	45	11	74	2	1	4	86	10
Over 60 days	16	11	10	2	0	2	147	18
<b>Total</b>	<b>711</b>	<b>664</b>	<b>501</b>	<b>502</b>	<b>71</b>	<b>102</b>	<b>585</b>	<b>142</b>

Source: Service request data obtained from VUEWorks for period October 1, 2019 – September 30, 2021



Internal Audit noted a significant decrease in the number of responses indicating “no problem found” from FY2020 to FY2021. Upon inquiry, TPW management stated multiple factors for the change. One factor was that management required staff to observe street lights near the one reported, because the reporting could have identified a nearby light by mistake. Another reason stated was changes implemented by management to improve customer service.

Based on our review of 50 randomly selected service requests (46 non-emergency, 4 emergency) in “closed” status, 41 (82%) were responded to within the SLA timeline; six (12%) were responded to after the SLA timeline; and three (6%) did not have a response date recorded in VUEWorks, therefore we could not calculate timeliness.

### Service Requests Response Timeliness

Four Priority 1 (Emergency) Service Requests with a 2-Day SLA	3	Timely Response
	1	Late Response
46 Priority 2 (Non-Emergency) Service Requests with a 60-Day SLA	38	Timely Response
	5	Late Response
	3	Response Date Was Not Recorded in VUEWorks, Unable to Calculate Service Request Response Timeliness

Source: Service Request Data obtained from VUEWorks, for period 10/1/2019 – 06/30/2021

The current SLA for non-emergency repairs could give the impression that the City does not have a good customer service standard for services as critical as street light repairs and maintenance. Furthermore, the extended SLA may have negative impact on neighborhood safety and could also lead to lower customer service satisfaction. It should be noted that after the completion of the audit testing, TPW staff informed Internal Audit that a proposal to improve repair goals to 30 days was under consideration and may occur within the next 12 months.

**Recommendation 1:** *The Transportation and Public Works Department Director should consider whether the timeline for repairs could be reduced by contracting a greater percentage of the work or using additional in-house resources.*

**Auditee’s Response:** Concur. Transportation and Public Works currently has a 60-day Service Level Agreement (SLA) for investigation and repair of street light outages. TPW has submitted a FY 23 decision package for three additional crews, \$1 million in funding for contract work, and a Sr. Professional Engineer position to assist with consultant street light design, contract management, street light assessments, and TxDOT agency coordination. If approved, the proposed decision package funding will enable TPW to reduce the SLA from 60 to 30 business days.

**Target Implementation Date:** Pending approval of FY 23 decision package, achieve 30-Day SLA by June 2024

**Responsibility:** Tanya Brooks, Assistant Transportation and Public Works Director

**Applicable Department Head:** Lauren Prieur, Interim Transportation and Public Works Department Director

**Applicable Assistant City Manager:** William Johnson, Assistant City Manager

**2. The written policies and procedures for identifying and prioritizing repairs and maintenance or addressing inventory were considered insufficient.**

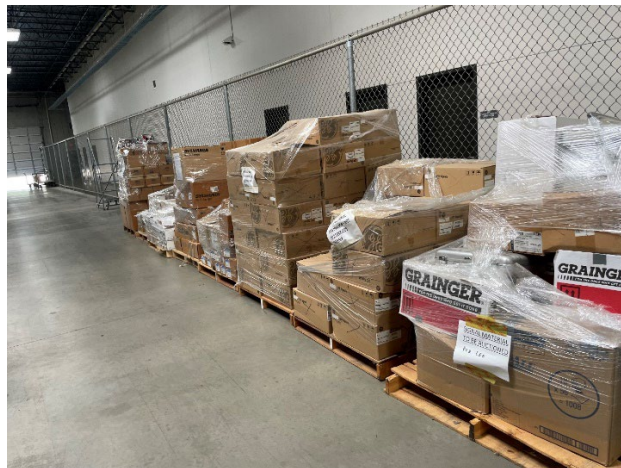
During our audit, TPW staff provided Internal Audit some written documentation of processes including the creation, assignment and completion of service requests and work orders. The documentation also included mention of priority levels and a flowchart for closing a work order. TPW staff indicated that there are processes and practices established, including SLAs (priority goals set for street light repairs). However, these documents were not formalized into written policies and procedures.

***Burn Rate Survey Process***

Furthermore, written policies and procedures or any written guidance were not available regarding the process of conducting, documenting or reviewing of “burn rate surveys.”

***Obsolete Inventory***

There was no written policy or procedure related to the classification and management of obsolete inventory of parts used for street light maintenance and repairs. During our physical observation of TPW’s warehouse, we noted boxes set to the side and marked as obsolete. Upon inquiry, staff indicated that those items had been there for a few years and they were set for auction. Staff described a process for the identification and disposal of obsolete inventory, however, that process was not documented.



Source: Auditor Generated, September 2021

The lack of comprehensive and formalized written policies and procedures, increases the likelihood of inconsistency throughout the division which could lead to inefficient processes, frustration and lower productivity.

As a best practice, the Government Finance Officers Association (GFOA) recommends that management document policies and procedures in order to provide guidance, improve accountability and provide a training tool for employees.

It is worth noting that TPW has a written Transportation Engineering Manual, which is a comprehensive guide that establishes design requirements for transportation infrastructure in the City of Fort Worth, however, this document did not reference maintenance and repairs.



**Recommendation 2A:** *The Transportation and Public Works Department Director should ensure that written policies and procedures be developed, formalized and/or updated, and that those policies and procedures address burn rate survey, street light inventory, identifying and removing from inventory of obsolete inventory, identification and prioritization of street light maintenance and repairs, etc.*

**Auditee’s Response:** Concur. Transportation and Public Works has initiated development of standard operating procedures for routine street light repair activities. Additional SOP’s will be created to address development, review, and use of burn rate surveys, identification and prioritization of maintenance and repair activities, and asset updates in VueWorks.

A FY 23 decision package was submitted for a full-time position with responsibility for establishing a safety and compliance program. If approved, the proposed decision package will enable TPW to develop a mature safety focused program in which processes and procedures are regularly created, maintained, evaluated, and updated.

**Target Implementation Date:** August 2023 – Complete and formalize SOPs for all street light areas; Pending approval of FY23 decision package, hire safety and compliance position by January 2023.

**Responsibility:** Tanya Brooks, Assistant Transportation and Public Works Director

**Applicable Department Head:** Lauren Prieur, Interim Transportation and Public Works Department Director

**Applicable Assistant City Manager:** William Johnson, Assistant City Manager

**Recommendation 2B:** *The Transportation and Public Works Department Director should ensure that obsolete inventory be evaluated for possible disposal.*

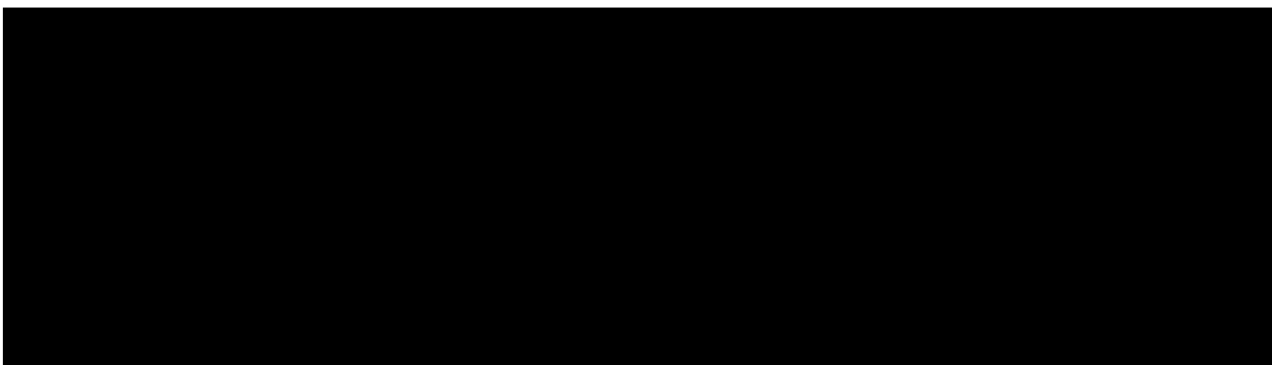
**Auditee’s Response:** Concur. TPW will work with Purchasing to develop a standard operating procedure for identifying obsolete inventory and will follow Purchasing’s processes for disposal.

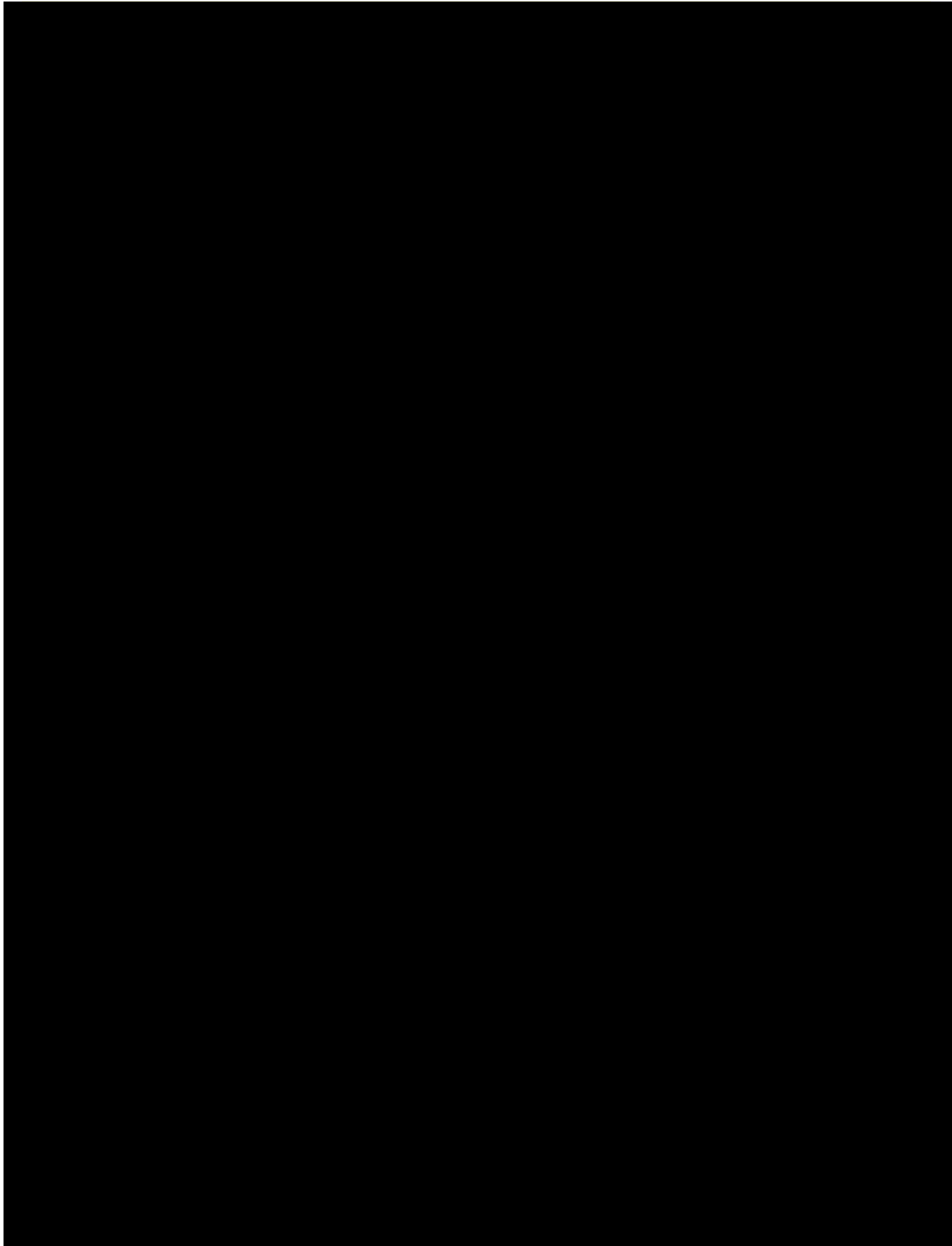
**Target Implementation Date:** November 2022

**Responsibility:** Tanya Brooks, Assistant Transportation and Public Works Director

**Applicable Department Head:** Lauren Prieur, Interim Transportation and Public Works Department Director

**Applicable Assistant City Manager:** William Johnson, Assistant City Manager







#### 4. The street light inventory was not updated timely.

Internal Audit reviewed a random sample of 30 new housing developments with a City building permit in “finaled” status sometime during FY2020. Based on our audit results, as of March 2022, street lights were not yet recorded in the City’s inventory for nine (9) of the 30 sampled areas. Internal Audit confirmed the existence of street lights using Google Maps Street and Aerial View, however, the street lights were not recorded in the City’s street light inventory.

Based on our review of Google Maps, Internal Audit approximates that at least 48 lights were installed but had not been added to the inventory. TPW staff confirmed that street lights exist in those nine areas and should be entered into the City’s street light inventory. It should be noted that TPW staff explained that the reason for this lag in updating the inventory was because the step in the development process that triggers TPW to update the inventory had not occurred for most (seven) of the nine areas. TPW staff explained that they do not record new assets without a plan set unless they are required to do so in specific circumstances. Furthermore, TPW staff indicated that in some instances, they lack the adequate resources to update the assets timely, specifically in the context of new construction. TPW staff indicated that they are planning to add more staff to their GIS team in order to update infrastructure and database within six months of installation.

Section III.E.1 of the City’s Capital Assets Financial Directive indicates that capital assets must be properly recorded.

By not updating the street light inventory timely, there is a risk that inventory and capital asset numbers could be misreported, and it would make it more difficult to provide appropriate customer service.

**Recommendation 4:** *The Transportation and Public Works Department Director should determine whether the process for updating street lights inventory after new construction is appropriate and should ensure that the street light inventory be updated as applicable.*

**Auditee’s Response:** Concur. Currently there is a process for updating the street light inventory for new construction from plans. However, the process of getting plans is not always consistent or timely. TPW is committed to reviewing and updating the GIS/Vault process for new development with the goal of having all streetlight additions in GIS within 6 months of contract green sheet being executed.

Additionally, funding for periodic inventories/data review of the street light data are necessary for ensuring street light data accuracy. A new inventory is underway and will be complete by October 2022. Depending on the pace of new development, it may be necessary for future street light inventories to be planned on a three-year cycle rather than a five-year cycle.

**Target Implementation Date:** March 2023 – Process Review and Documentation.  
August 2026 – Pending funding availability, initiate new street lighting inventory.



**Responsibility:** Elizabeth Young, Business Process Manager and Monty Hall, Assistant Transportation and Public Works Director

**Applicable Department Head:** Lauren Prieur, Interim Transportation and Public Works Department Director

**Applicable Assistant City Manager:** William Johnson, Assistant City Manager

## 5. The Burn Rate Survey records contained errors.

The records maintained by TPW related to the annual “burn rate survey” appeared to contain errors, and did not show evidence of management review and corrections.

Based on information provided by TPW staff, most of the repairs and maintenance are reactive (e.g., based on residents’ requests). Additionally, every year, TPW staff drive through the City’s arterial streets and quantify the number of “burning lights” or lights that are working. That number is then compared to the number of street lights available to determine the “burning rate.” It should be noted that, per TPW staff, prior to FY2020, “burn rate surveys” were conducted every quarter.

We reviewed burn rate records dated Q1 FY2020 and Q3 FY2021 and noted six (6) instances when the number of burning lights was greater than the number of street lights available (i.e., over 100% burn rate), without documentation of newly added street lights or other changes. Upon inquiry, TPW management indicated that those percentages were probably due to data entry mistakes and would be corrected.

Furthermore, there were instances when an area was noted to have a low percentage of working lights. For example, an arterial street reported 35 of 220 lights burning in Q1 2020, but survey results are not recorded in the subsequent “burn rate survey” in Q3 FY2021.

We also noted that of the 177 arterial streets listed on the “burn rate survey” in Q1 FY2020, 146 showed no variance in the number of burning lights from one year to the next (Q1 FY2020 to Q3 FY2021), while 21 showed more burning lights and 10 streets had less lights from year to year. It should be noted that of the 21 of the 177 arterial streets that showed improvement in the number of burning lights, 19 had anywhere from 60% to 100% burning street lights.

The stated purpose of the “burn rate survey” is to determine the number of working lights on arterial streets and to identify lights that need repairs. Without proper documentation of the results of the survey, there is potential for missed opportunities to perform trend analysis, to properly prioritize repairs and maintenance, and to update the street light inventory based on physical observation.

**Recommendation 5:** *The Transportation and Public Works Department Director should require that the burn rate survey documentation be redesigned to include comments by staff and managers with follow-up regarding low percentages or over 100% percentages, documentation of managerial review, etc.*

**Auditee’s Response:** Concur. TPW will create SOP’s to address development, review, and use of visual burn rate surveys for identification and prioritization of maintenance and repair activities. SOP’s will detail processes for quality assurance/quality control. A long-term strategy for the department is to reduce reliance on visual burn rate surveys by implementing smart street light technology (i.e., sensors) that will alert staff to outages. TPW will pilot street light smart technology starting one of the Neighborhood Improvement areas and then implement a full program in areas funded through the 2022 Bond street light category.



**Target Implementation Date:** October 2022 – visual burn rate survey SOP

**Responsibility:** Tanya Brooks, Assistant Transportation and Public Works Director

**Applicable Department Head:** Lauren Prieur, Interim Transportation and Public Works Department Director

**Applicable Assistant City Manager:** William Johnson, Assistant City Manager



## Acknowledgements

---

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