

INTERNAL AUDIT REPORT

2019-09

Street Light Billing

Maintenance and Operations Department

December 17, 2019

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Municipality of Anchorage

Ethan Berkowitz, Mayor

December 17, 2019

Honorable Mayor and Members of the Assembly:

I am pleased to present for your review **Internal Audit Report 2019-09, Street Light Billing, Maintenance and Operations Department**. A brief summary of the report is presented below.

In accordance with the 2019 Audit Plan, we have completed an audit of Street Light Billing to the Maintenance and Operations Department. The objective of this audit was to determine if monthly flat-rated street light billings to the Municipality of Anchorage by Municipal Light and Power and Chugach Electric Association were correct. To accomplish our objective, we reviewed engineering drawings, records, and geographic information system databases of street light installations within the Municipality of Anchorage, as well as customer service records and approved tariffs used for billing calculations. Records examined for flat-rated street light billings roughly covered the period of January 2017 through June 2019.

Our audit revealed that flat-rated street light billings to the Municipality of Anchorage need improvement. Specifically, the database used for Municipal Light and Power's flat-rated street light billing did not match the Municipal Light and Power Engineering Division's as-built records for the installed street lights. In addition, Municipal Light and Power's current tariff rates approved by the Regulatory Commission of Alaska for billing flat-rated street lights did not reflect the actual types of lights installed within its service area. Moreover, Chugach Electric Association and Municipal Light and Power billed the Municipality of Anchorage for street lights that did not exist, and the Municipality of Anchorage was billed, and paid for flat-rated street lights which illuminated State of Alaska Rights-of-Way. Finally, some street lights located outside of the Anchorage Roads and Drainage Service Area were paid by the Municipality of Anchorage using Anchorage Roads and Drainage Service Area funds.

There were five findings in connection with this audit. Management was responsive to the findings and recommendations.

Michael Chadwick, CIA, CICA
Director, Internal Audit



Municipality of Anchorage

Ethan Berkowitz, Mayor

December 17, 2019

**Internal Audit Report 2019-09
Street Light Billing
Maintenance and Operations Department**

Introduction.

There are approximately 26,000 street lights on roads within the Municipality of Anchorage (Municipality) to improve vehicle, bicycle and pedestrian safety. These street lights are installed, maintained, and operated by a variety of entities, such as the Municipality, State of Alaska Department of Transportation and Public Facilities (DOT&PF), Chugach Electric Association (CEA), Municipal Light and Power (ML&P), and Matanuska Electric Association. There are also privately-owned systems. Within the Municipality, the ownership, maintenance, and operation of street lights is further divided between various Municipal agencies, such as Street Light Maintenance, Facilities Maintenance, Parks and Recreation Department, and the Public Transportation Department.

Most of these street lights are powered from electrical load centers located along roads and transportation corridors, connected to the various electrical distribution systems within the Municipality. An example of these load centers are those at roadway intersections used to power the signaling devices which control the flow of traffic. Street lights are often co-located on these signaling poles, sharing a connection to the respective electric load center. These load centers are equipped with electric meters to record the actual amount of electricity used (including that to the street light), which is then recorded by the utility companies and billed to the customer of record (owner and operator of the street light).

However, for a smaller subset of street lights owned by the utility companies, a connection to an electric load center is impractical for a variety of geographic or engineering reasons. These lights are called flat-rated street lights and require a direct connection to a power distribution line. With no meter

to record actual electricity usage for these lights, energy usage must be estimated by a formula using the bulb wattage and daily hours of runtime to derive a “flat-rate” for each street light. The flat rate is then reviewed and approved by the Regulatory Commission of Alaska (RCA) as a tariff to be charged by the utility company to the customer. Because of this, precise records of the actual number, location, and wattage of each flat-rated street light installation must be accurately established and maintained to ensure accurate billing to the customers.

Objective and Scope.

The objective of this audit was to determine if monthly flat-rated street light billings to the Municipality by ML&P and CEA were correct. Specifically, we reviewed engineering drawings, records, and geographic information system databases of street light installations within the Municipality, as well as customer service records and approved tariffs used for billing calculations. Records examined for flat-rated street light billings roughly covered the period of January 2017 through June 2019.

We conducted this performance audit in accordance with generally accepted government auditing standards, except for the requirement of an external quality control review. 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. The audit was performed during the period of July through August 2019. The audit was requested by the Administration.

Overall Evaluation. Flat-rated street light billings to the Municipality need improvement. Specifically, the database used for ML&P’s flat-rated street light billing did not match the ML&P Engineering Division’s as-built records for the installed street lights. In addition, ML&P’s current tariff rates approved by the RCA for billing flat-rated street lights did not reflect the actual types of lights installed within its service area. Moreover, CEA and ML&P billed the Municipality for street lights that did not exist, and the Municipality was billed, and paid for flat-rated street lights which illuminated State of Alaska Rights-of-Way (ROW). Finally, some street lights located outside of the

Anchorage Roads and Drainage Service Area (ARDSA) were paid by the Municipality using ARDSA funds.

FINDINGS AND RECOMMENDATIONS

1. **ML&P's Flat-Rated Street Light Database Not Accurate.**

- a. **Finding.** The database used for ML&P's flat-rated street light billing did not match the ML&P Engineering Division's as-built records for the installed street lights. Specifically, we found that the number and wattage of street lights installed did not match the billing charges. As a result, all flat-rated billing calculations made based on specific totals for each category of light were inaccurate. For example, as shown in the following table, ML&P billed the Municipality for 495 150W High Pressure Sodium (HPS) street lights in June of 2019. However, these lights had been replaced with 218 lower wattage Light Emitting Diode (LED) lights during the ML&P LED Street Light Conversion Project completed in 2017. ML&P Engineering Division's as-built drawings showed only 218 of these lights had been installed, not 495. In the same billing cycle, ML&P charged the Municipality for 15 1000W HPS street lights. However, ML&P Engineering Division's as-built drawings showed that these lights did not exist and corresponding LED lights were never installed. According to ML&P Staff, the Engineering and Billing databases have never been reconciled to each other.

Flat-Rated Street Lights Installed Compared to Billed

HPS Lamp Wattage	Converted LED Lamp Equivalent Wattage	Actual number installed in the field per ML&P Drawings	Number used for bill calculation in ML&P Billing Database Records
150W	88W	218	495
250W	139W	2,350	2,149
400W	219W	441	477
1000W	N/A	0	15
	Totals	3,009	3,136

Source: Auditor comparison of ML&P street light billing records to as-built LED Street Light Conversion Project drawings provided by the ML&P Engineering Division.

- b. **Recommendation.** The ML&P General Manager should require that its Customer Service Division and Engineering Division reconcile their databases to ensure correct accounting for the actual number and wattage of all flat-rated street lights.

- c. **Management Comments.** Management concurred and stated, “ML&P acknowledges discrepancies between the Customer Service division database and the Engineering database. The divisions met and as of September 30, 2019, the quantity of streetlights in each rate class has been reconciled between the two databases. They will continue to collaborate to ensure accurate billings.”

- d. **Evaluation of Management Comments.** Management comments were responsive to the audit finding and recommendation.

2. **Tariff Rates Not Updated to Reflect the Savings from LED Conversion.**

- a. **Finding.** ML&P's current tariff rates approved by the RCA for billing flat-rated street lights did not reflect the actual types of lights installed within its service area. Specifically, we found that ML&P tariff rates were based on legacy HPS Lamp wattages, even though all HPS bulbs were replaced with lower wattage LED lamps during the LED Street Light Conversion Project completed in 2017. As a result, the savings from the LED Conversion Project were never passed on to the customer, the Municipality. ML&P estimated a \$400,000 savings per year in combined power, operating, and management costs.

In contrast, CEA filed and received approval for new tariff rates from the RCA for their LED street lights, even though their LED conversion process is still in progress. These new tariff rates are approximately 20-25 percent lower than the original rates based on the legacy HPS Lamps.

- b. **Recommendation.** The ML&P General Manager should direct ML&P Regulatory Affairs Division to file with the RCA to obtain new tariff rates reflecting the type of LED lights existing within ML&P's service area.
- c. **Management Comments.** Management concurred and stated, "ML&P acknowledges that its flat-rate streetlight tariff rate was developed when HPS technology was in place. ML&P's tariff rates for street lights will be updated in its next rate case."
- d. **Evaluation of Management Comments.** Management comments were responsive to the audit finding and recommendation.

3. **Municipality Billed and Paid for Non-Existent Street Lights.**

a. **Finding.** Chugach Electric Association and ML&P billed the Municipality for street lights that did not exist. For example, we found that nine flat-rated street lights were removed by DOT&PF in September 2018 during the Abbott Road electrical underground project. However, CEA billed the Municipality for these street lights until June 2019. The error appeared to have been caused when a CEA Manager for the project failed to inform the CEA Customer Service Department that the lights were removed from service. In addition, we identified four flat-rated street lights that ML&P billed the Municipality for, but these lights do not exist. For example, two street lights were removed as part of the Spenard Road reconstruction project in the Summer of 2017. However, despite being told about these lights, ML&P has not removed them from the customer billing.

b. **Recommendation.** The Maintenance and Operations Department Director should direct the Street Light Maintenance Administrator to continue working with CEA and ML&P to ensure that service billing records are accurate.

c. **Management Comments.** Management (Maintenance and Operations Department) concurred and stated, "Through our own audits, Street Light Maintenance has found the existing billing errors. The Street Light Administrator has been tasked to continue working with CEA and ML&P to ensure that service billings are accurate.

"We are working diligently to correct all billing errors."

Management (ML&P) stated, "ML&P Engineering will work with the street light maintenance administrator to ensure that service-billing records are accurate."

d. **Evaluation of Management Comments.** Management comments were responsive to the audit finding and recommendation.

4. **Street Lights Illuminating the State's Right-of-Way Paid by the Municipality.**

- a. **Finding.** The Municipality of Anchorage was billed for, and paid for, flat-rated street lights which illuminated State of Alaska ROWs. Specifically, we found flat-rated street lights that were not covered by the Transfer of Responsibility Agreement (TORA) between the State of Alaska and the Municipality. The TORA only covers street lights powered by load centers shared with traffic signals. ML&P billed the Municipality for 221 such lights, even though they were not covered by the TORA. Using 2018 annual usage rates, the Street Light Maintenance Administrator estimated that charges for these 221 lights were about \$170,000 per year. In addition, we found CEA billed the Municipality for 21 such lights, even though they were not covered by the TORA.
- b. **Recommendation.** The Maintenance and Operations Department Director should work with the State of Alaska to develop a new comprehensive agreement for flat-rated street lights illuminating state ROWs.
- c. **Management Comments.** Management concurred and stated, "Maintenance and Operations will continue to work with the State of Alaska DOT to either modify the existing agreement, develop a new one, or eliminate paying for lights outside the agreement."
- "Management will work this issue until resolved."
- d. **Evaluation of Management Comments.** Management comments were responsive to the audit finding and recommendation.

5. **Anchorage Roads and Drainage Service Area Funds Used Outside of Service Area.**

- a. **Finding.** Some street lights located outside of ARDSA were paid by the Municipality using ARDSA funds. For example, we found five flat-rated street lights located outside of the ARDSA and outside of any Limited Road Service Areas (LRSA) that were billed to the Municipality, even though they were not funded by a corresponding mill levy taxation designated for Municipal street maintenance.

In addition, we verified other examples of flat-rated street lights located within LRSAs that were billed to the Municipality using ARDSA funds. Specifically, we verified twenty-seven flat-rated street lights located within the various LRSAs, such as Valli Vue, Upper Grove, and Sequoia Estates that were billed directly to the Municipality, even though they were funded by mill levy taxation earmarked specifically to those respective LRSAs.

- b. **Recommendation.** The Maintenance and Operations Department Director should request the Public Works Administration Section to discontinue using ARDSA funds to pay for lighting outside of its service area after giving proper notice to homeowners. In addition, the Maintenance and Operations Department Director should request an opinion from the Municipality's Legal Department to help determine how street lights located in neither an ARDSA nor a LRSA should be paid.

- c. **Management Comments.** Management concurred and stated, "Maintenance and Operations is working with Public Works Administration to resolve these discrepancies. The affected LRSA's are being notified and given until June 30th to resolve the billing issue.

"Management will continue to monitor this finding until resolved."

- d. **Evaluation of Management Comments.** Management comments were responsive to the audit finding and recommendation.

Discussion With Responsible Officials. The results of this audit were discussed with appropriate Municipal officials on September 18 and October 3, 2019.

Audit Staff:
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