CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Memorandum

TO: HONORABLE MAYOR AND CITY COUNCIL

FROM: Matt Cano
John Ristow

SUBJECT: **FACILITY LIGHTING AND STREETLIGHT OUTAGE STATUS**

DATE: January 31, 2020

Approved [signature] Date 1/31/2020

INFORMATION

This report provides an annual status on the inventory and maintenance of outdoor city lighting, including streetlights, parks, community centers, libraries and other city owned facilities. This report also provides an update on the upgrade of outdoor city lights to Light Emitting Diode (LED) illumination.

The Department of Public Works (DPW) and the Department of Transportation (DOT) typically report to the City Council on lighting outages in separate memorandums. This memorandum consolidates those reports to serve as a comprehensive update on citywide lighting.

City Facilities Lighting Inventory, Outages, and Repairs

DPW is responsible for more than 500 facility locations and approximately 7,500 exterior lighting fixtures. Facilities include City Hall, community centers, cultural facilities, fire stations, libraries, park buildings, police buildings, radio sites, service yards, and sanitary and storm pump stations. DPW does not maintain lighting at the Airport, Regional Wastewater Facility, Team San Jose managed facilities, SAP Center, or street and pedestrian lights in the City right of way.

Highlights of DPW lighting maintenance and repair work for FY 2018-2019 includes:

- 1,043 lighting-related work orders were completed, consisting of 599 exterior fixtures and 444 interior fixtures, including scheduled preventive maintenance and repairs, and replacements for light bulbs, fixtures, and ballasts.
- At the end of the fiscal year, there were 200 pending work orders, primarily for burned-out ballasts, LED drivers, and damaged fixtures.
- Completed repairs and restored power at four locations due to wire theft. The current backlog of outages associated with wire theft consists of six light poles at one location, representing 0.08% of all exterior light poles.

- 100% of Priority 1 work was responded to within 24-hours. This work is considered a health and safety issue, such as stolen and exposed wire, and large lighting outages in parking lots.
- 52% of Priority 2 work (such as lighting at outdoor restrooms at City parks) was responded to within 3 days, with an average completion time of 17 days.
- 55% of Priority 3 work (such as interior lighting repairs at libraries and community centers) was completed within 7 days, with an average completion time of 34 days.
- 87% of Priority 4 work was responded to within 6 days, with an average completion time of 10 days. This work includes singular lighting outages at indoor facilities, City Hall, City parks, and parking lots. A majority of this work occurs at City Hall and involves bulb replacements which are replaced within one week.

The completion times for Priority 2 and 3 work were impacted by several vacancies in the DPW Electrical Shop, redirection of staff to address outages related to stolen wire, and newer facilities that require longer lead times for replacement parts as they consist of more sophisticated electrical equipment. The DPW Electrical Shop has incrementally added critical electrical parts to their warehouse to alleviate this aspect.

Streetlight System, Outages and Repairs

DOT operates, maintains, and improves San Jose's 2,400 miles of streets and related infrastructure. Streetlight repairs and maintenance are a critical component of DOT's services, ensuring adequate night-time visibility at street intersections and along major streets. Highlights of the City's extensive and varied streetlight system is summarized below:

- There are approximately 64,400 active streetlights citywide.
- Approximately 28,400 streetlights have been upgraded to LED technology.
- 10,913 outages were repaired in FY 2018-19, a 7% increase from the previous year.
- 71% of reported streetlight outages were caused by burned out bulbs, fuses, and malfunctioning photo cells, for which the typical repair timeline ranges from 7-14 days.
- The leading causes of the current open streetlight outage backlog are repairs requiring external resources such as special equipment or PG&E assistance (16%), fixture or wire malfunction (27%), and vehicular crashes (16%). The time to complete these repairs can take longer, sometimes six months or more, because they are more complex and often require a high level of internal or external coordination.
- As of October 31, 2019, the open streetlight outage backlog is 796, a 21% decrease from the backlog at the same time last year (1,005), and significantly lower than the peak of 1,672 in February 2016.
- Copper wire theft currently accounts for 3% of the streetlight outage backlog (27 out of 796). DOT typically restores lights affected by wire theft within 30 days of notice.

Throughout the late fall and winter, with longer nights, DOT generally experiences up to a 15% increase in repair requests due to heightened public awareness of streetlight outages. The number of bulb replacement repairs that can be completed within seven days typically drops during this time of year because of the surge in repair requests.

Citywide Wire Theft

With continued installations of locking metal pull-box lids and other security measures and strategies, incidents of wire theft at City facilities and at streetlights has decreased substantially. Both DPW and DOT will continue to install these theft prevention devices and strategies to further reduce the incidence of wire theft.

Facilities

Since DPW started tracking stolen wire incidents in January 2013, 175 locations have been affected at a projected cost to the City of over $2 million. Most incident repairs have a cost under $15,000, though some sites can be much more expensive. The number of locations affected by wire theft (multiple light poles at each location) has significantly reduced, from 50 in 2013 to 4 in 2019.

To date, over 1,600 locking metal pull-box lids have been installed at 171 locations. In some locations, additional measures are needed such as concrete collars, vandal-resistant cabinets, and welded anti-theft lock protectors. These security measures have significantly slowed down repeat incidents of wire theft by approximately 93%. Of the locations enhanced with security measures, only 12 have experienced repeat incidents. Currently, there is one location with six light fixtures that needs wire replacement; DPW expects to restore power at this location by February 2020.

Streetlights

The total number of streetlight outages due to wire theft as of October 31, 2019 was 27 compared to a high of over 1,000 six years ago. Monthly incidents have decreased from approximately 50 to an average of less than 3 per month through 2019. In addition to installing metal pull-box lids at over 7,400 streetlight wire junction boxes in targeted areas of the City since 2014, DOT has aggressively replaced stolen streetlight wire to deter future theft. There have been very few instances of recurring wire theft at locations with metal locking lids.

Reporting Outages

While DPW and the Department of Parks, Recreation, and Neighborhood Services (PRNS) are proactively identifying outages in park facilities, most outages are reported by the public. All park related issues can be reported to the Park Concerns number at 408-793-5510 or by email to Park.Concerns@sanjoseca.gov with the name of the park and the location of the outage. Members of the public can report lighting outages at branch libraries and community center facilities to site staff, who in turn submit work orders to Public Works for the repair or replacement of the fixtures. Additionally, residents have been using the ***My San Jose***

smartphone application to report facility lighting outages as well. DOT relies on the community to report streetlight outages as soon as possible. Streetlight outages should also be reported to DOT by using the ***My San Jose*** smartphone application.

To submit a request using this application, users should administer the following:

1. Login to My San Jose application
2. Select *New Request*
3. Select *Streetlight Outage or General Request*
4. Complete the service request by providing the location of the streetlight or exterior facility light, indicating if there are multiple lights out, providing the pole number that is painted on the streetlight pole at eye level facing the street or other lighting descriptor, and providing a description of the problem, e.g. the light is out, damaged, flickering, etc. Including a picture if there is damage is helpful.

The community may also report a streetlight outage by calling and leaving a message at (408) 794-1903, submitting a service request through the City internet site (www.sanjoseca.gov), or by sending an email to street.lights@sanjoseca.gov. When reporting a streetlight outage using these methods, it is important that the public provide the location, streetlight pole number, nature of the problem, and contact information should follow-up be necessary.

LED Lighting Conversions

In November 2018, the voters of San Jose passed ballot Measure T – The Disaster Preparedness, Public Safety and Infrastructure Bond. Measure T funds will allocate $20 million to the conversion of streetlights and outdoor lighting in parks and city facilities to LED technology. Additionally, in June 2019, City Council authorized the City Manager to negotiate and execute agreements with PG&E for the financing and installation of up LED streetlights and LED lights at parks and City facilities. Under the agreements, PG&E would fund, procure and install new LED lights, dispose of the old lights, and finance the entire effort at 0% interest. PG&E costs would be paid back over time through energy-savings. City staff is working to execute the streetlight agreement with PG&E by February 2020. The exact number of lights in the system as well as the number that will be converted through a combination of Measure T funding and PG&E on bill financing, will be finalized by Spring 2020.

The agreements with PG&E will enable Measure T funds to be used to fund smart controls for streetlights citywide, and for LED light upgrades and smart controls at targeted parks and facilities. Smart controls allow for more effective monitoring and management of the lights, allowing operators to know when lights turn on and off, which lights night be out or "dayburning", dim lights during certain times to save energy, and provide notice of potential copper wire theft. Updates on the LED lighting conversions will be reported on in the bi-annual Measure T updates to City Council.

Facilities
To date, 42 sites have been upgraded with LED lights, totaling 1,097 lights or approximately 15% of the 7,500 facility exterior lights Citywide. DPW has another 600 LED fixtures available, which includes wall pack and pole light fixtures, to respond to burnouts at facilities that have been identified by Measure T funds for retrofit. At this time, it is uncertain what percentage of the outdoor facility lights will be converted using Measure T dollars; however, staff is focused on ensuring that all park lights are converted. Staff is also in coordination with PG&E to determine eligibility for some conversions through the PG&E On-Bill Financing program. Lighting upgrades at parks and City facilities will take approximately four years to complete, with retrofit work to begin after the award of the smart controls procurement contract.

Streetlights
Staff anticipates PG&E will begin the conversion process by summer 2020, with completion targeted the following year. Measure T funds will be used to provide smart control upgrades throughout the City. DOT developed a plan to get a head start on the LED conversion process because Low-Pressure Sodium lamps (LPS) are being discontinued. DOT has already converted 1,156 conventional streetlights to LED as the LPS lamps burn out, and will convert over 5,000 of these lights while the PG&E conversion process gets underway in the coming year. DOT will also convert an additional 5,000 non-LED lights comprised of underpass lighting, decorative/ ornamental lights, and lights on pedestrian over crossings. Work is needed to identify the appropriate LED alternatives for these unique lighting features.

/s/
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/s/
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For questions regarding streetlights, please contact Eric Hon, DOT Division Manager at (408) 794-1987.

For questions regarding City facilities, please contact Walter Lin, DPW Deputy Director at (408) 535-1298.