



**City Council Agenda Item
Staff Report**

CITY OF SAN BRUNO

DATE: November 10, 2015

TO: Honorable Mayor and City Council Members

FROM: Connie Jackson, City Manager
Jimmy Tan, Acting Public Services Director

SUBJECT: Receive Report on Crestmoor 1 Neighborhood Streetlight Outage and Provide Direction to Develop Options for Temporary and Permanent Solutions

BACKGROUND:

The City currently owns and maintains approximately 2,100 streetlights. The majority of the City's streetlights are on parallel circuitry which is the current industry standard. However, the City's streetlight system also includes approximately 322 lights that are on nine (9) regulated output (RO) circuits. The streetlights within the RO circuit are connected in series and they share a single power source. The RO circuit requires a transformer and provides a higher voltage so there is enough voltage to light all the streetlights within the circuit. Failure in any one location along the RO series circuit will cause the entire circuit to fail resulting in streetlights outage within the entire neighborhood. Within the RO circuit, PG&E owns and is responsible for maintenance and operation of the transformer, the photo cell and the switch. The City is responsible for the conduits and wiring, and the streetlight poles and fixtures.

The Crestmoor 1 neighborhood is served by an RO that includes a total of 57 streetlights which were installed during the 1950s. The RO transformer is located near the intersection of Trenton Drive and Crestmoor Drive. The transformer receives power from the high voltage power lines above the transformer. A photo cell is connected to the transformer that turns it on at night so power is supplied to the streetlights. This particular transformer supplies 6.6 amperage at up to 30,000 Watts. The circuit network consists of a single electrical wire that begins at the transformer and connects to each individual streetlight in the grid and returns to the transformer. Any issues within the RO circuit will cause the entire streetlight network to fail. For the Crestmoor neighborhood, the failure within the RO circuit has caused the streetlight outages along the following streets: Alpine Way, Crestmoor Drive (north of San Bruno Ave.), Dover Court, Essex Court, Hamilton Avenue, Kingston Avenue, Lexington Way, Madison Avenue, Markham Avenue, Princeton Drive, Trenton Drive, Whitecliff Avenue, and Whitman Way.

DISCUSSION:

On October 23, 2015, the City received a report from a resident within the Crestmoor neighborhood regarding the streetlight outage. City staff mobilized to the site and noticed the streetlight at 130 Alpine Way was sparking at the fixture head. Staff coordinated with Pacific Gas & Electric (PG&E) who owns and operates the RO to de-energize (disconnect) the system to allow the City's electrical contractor, Flower's Electric, to perform the work.

The extent of the streetlight outage was larger than initially anticipated. Staff found other streetlights along Princeton and San Bruno out of service and began performing an assessment starting on October 26, 2015 to determine the cause. Since the RO circuit is in series, the approach to determining failure location is by performing an excavation to expose the underground wiring and then testing the wire to determine if there is voltage. Flower's Electric and City staff began testing the voltage on the wires at locations where the lights were off. Excavations at Lexington Drive were performed as staff believed there were burned or broken wires within the area. The existing wires were removed and replaced at three locations along Lexington Drive. Additional areas were excavated along Rosewood Drive between Madison Avenue and Markham Avenue. The existing wires were also removed and replaced at three locations along Rosewood Drive.

In order to facilitate troubleshooting the electrical circuit, staff has coordinated closely with PG&E whose services are required to de-energize and re-energize the system so the City crews can safely work to assess the issues. As of November 6th, the City completed replacement of approximately 700 feet of electrical wiring, repaired 50 splices, removed and replaced two fixtures that showed possible failure, bypassed five poles that have grounded or burned, and removed three lights on Alpine Way from the RO circuit due to burned wires. PG&E crews installed a new transformer on November 9th. Unfortunately when the system was re-energized, the lights did not come on.

Given this very recent disappointing result, although staff has worked continuously and diligently to identify and resolve various problems on the system, staff and PG&E have not been able to conclusively identify and resolve the problems and there is no current estimate when all the streetlights will be back on-line. Staff recommends that additional trouble shooting assistance may be needed to complete an assessment of the system and to provide the information needed to develop a plan for repair and/or replacement of the existing circuitry. In addition, as it now appears that the timeline for reliable repair or replacement of the system could extend for as long as 6 months to 2 years longer, staff has initiated evaluation of alternative ways to provide temporary neighborhood street lighting. Staff will provide a status report on the work that has been completed to date, the status of the analysis, and recommendations moving forward.

As the City Council is aware, one long term option may be to consider conversion of the RO circuit to a parallel circuit. The conversion requires the entire circuitry to be replaced by performing detailed design of the new electrical network, installing new conduits and wires, and working closely with PG&E to design the new connections. The estimated cost for design and construction for the Crestmoor neighborhood is approximately \$500,000 with an anticipated schedule of as long as 2 years. The cost to convert all the RO circuits within the City is approximately \$3.5M - \$4M. Funding is currently unidentified at this time.

FISCAL IMPACT:

This report is presented for City Council and community information. Staff is continuing to develop recommendations as outlined in this report and will provide additional information at the next City Council meeting.

ALTERNATIVES:

Alternatives are being developed as troubleshooting this situation continues to evolve and will be presented separately.

RECOMMENDATION:

Receive Report on Crestmoor 1 Neighborhood Streetlight Outage and Provide Direction to Develop Options for Temporary and Permanent Solutions

ATTACHMENTS:

1. Streetlight Outage Map

DISTRIBUTION:

None

DATE PREPARED:

November 9, 2015

REVIEWED BY:

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