



## 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

**SUBJECT:** Receive Report and Recommendations Regarding the Status of the Streetlight Outage in Crestmoor Neighborhood

### **BACKGROUND:**

The City currently owns and maintains approximately 2,100 streetlights. The majority of the City's streetlights are on the currently 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 shares a single power source similar to holiday lights. 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 that neighborhood.

The Crestmoor neighborhood RO has 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 and receives power from the high voltage power lines above the transformer. A photo cell is connected to the transformer and turns it on at night so power is supplied to the streetlights. The 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 connect 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, 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 and testing the wire to determine if there's 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.

The City has closely coordinated with PG&E on this issue. Their staff has assisted the City with de-energizing and re-energizing the system so the City crews can safely work to assess the issues. As of November 6<sup>th</sup>, 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 crew also began preparing to install a new transformer. Staff will continue to assess the issue.

Although staff has completed numerous investigation and replacement of existing wiring with the Crestmoor neighborhood, it's difficult to estimate when all the streetlights will be back online. Staff has explored the possibility of providing temporary flood lights within the neighborhood. Although the flood lights will be operated using diesel powered engines and are susceptible to high noise level, it can be considered an option to provide a temporary illumination for pedestrian and cars travelling through the neighborhood. The estimated cost to rent 25 flood lights is approximately \$22,000 per month and requires a minimum of two weeks lead time.

In order to prevent similar streetlight outage in the future, the streetlights within the RO circuit can be converted to 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 approximately 2 years. The cost to convert all the RO circuit 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 and there is no fiscal impact associated with this update.

#### **ALTERNATIVES:**

1. None – this report is presented for information only.

#### **RECOMMENDATION:**

Receive Report and Recommendations Regarding the Status of the Streetlight Outage in Crestmoor Neighborhood

**ATTACHMENTS:**

1. Streetlight Outage Map

**DISTRIBUTION:**

None

**DATE PREPARED:**

November 9, 2015

**REVIEWED BY:**

\_\_\_\_\_ CM