

SMUD Office Memo

TO: Board Members

DATE: April 24, 2018
GM 18-042

FROM: Arlen Orchard
Chief Executive Officer & General Manager

SUBJECT: **SMUD Substations Exterior Appearance Improvement Project**

This memo provides an update on SMUD's ongoing development of a multi-year substation improvement program to improve exterior appearance, meet new security requirements and reduce the use of water and maintenance resources.

Background

A previous memo to the Board ("SMUD Substations Exterior Appearance," dated May 11, 2017) described a high-level assessment that was conducted of 278 SMUD substations located in our service area. The assessment categorized the existing exterior treatment of SMUD substations and the communities where the respective substations are located. The assessment concluded there was no correlation between substation exterior treatment types and the surrounding census tract income levels. However, over time, customer expectations for the appearance of our substations have changed. The assessment also determined that many of our existing exterior treatments are outdated, that treatments no longer meet the intended purpose and are incompatible with our new security requirements, and that existing landscaping requires significant amounts of water and maintenance resources.

The memo also described an assessment approach that would prioritize substations for the proposed upgrades or modifications based on the following:

Substation Assessment Approach	
Category	Criteria
Feasibility	Substation location, availability of land and water at site
Condition	Current condition of existing landscaping, fence and property
Community Impact	Proximity to residences and businesses and visibility
Level of Effort	Ease of improvement
Ability to Reduce Maintenance Requirements	Effort to maintain irrigation, plants, trees and lawn; reduction of trips for maintenance and security issues



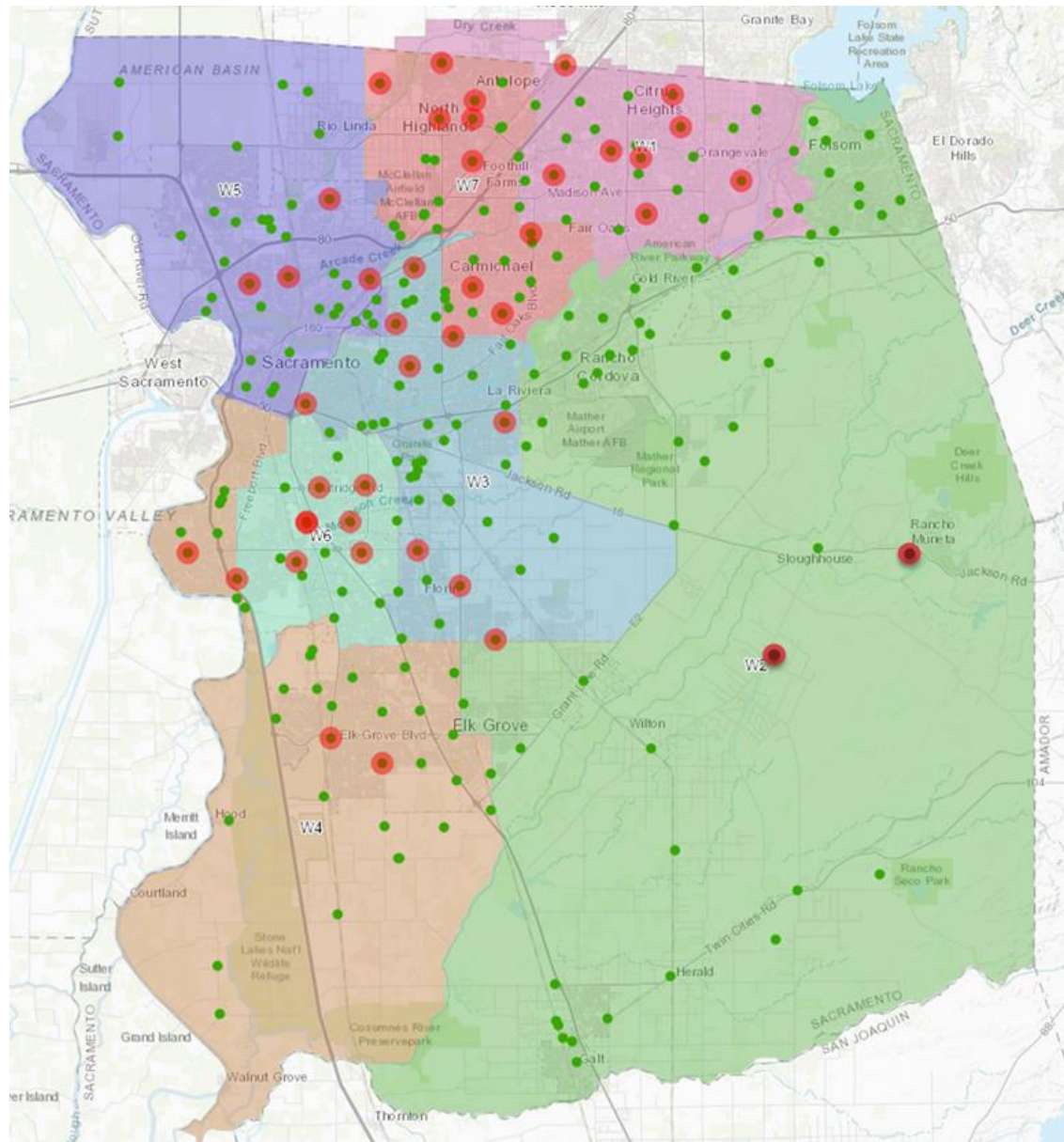
Project Update

A. Substation Assessment

Staff has completed the prioritization assessment of the 278 SMUD substations. Of these, 109 were ranked highest in the categories of feasibility, condition, community impact, level of effort and the ability to reduce maintenance requirements. Staff then determined that 43 of the 109 substations ranked highest in feasibility and visibility to the public. These substations are included in the Substation Short List below. The remaining 66 substations may be candidates for improvements in future years.

Substation Short List		
Ward	Number of Substations	Substation Name
1	8	Twin Lakes – Main, San Simeon – Stefano, Imran – Woods, Wachtel – Oak, Almond – Elm, Greenback – Fair Oaks, Kathywood – Bamboo, Park Oaks – Hill Top
2	2	Lone Pine – Jackson, Dillard – Orange
3	9	Elk Grove Florin – Gerber, Mid City, Edison – Ball, Goethe – Mayhew, Calvin – Waterman, Bell – Cottage, Arden – Watt, Reese – Florin, Northrup
4	4	Havenside – Canal, Meadowview – Freeport, Franklin – Elk Grove, Bruceville – Poppyridge
5	4	Pinedale – Rio Linda, Kathleen – Academy, Truxel, Tenaya – Northgate
6	7	Fruitridge – 44 th , Requa – Fawn, Fruitridge – 64 th , 48 th – Martin Luther King Jr., South City, Pocket, Wire – 48 th
7	9	Carmichael, Q – Watt, Walerga – Antelope, Eastern – Marconi, Walnut, Gilman – Cornelia, Walerga – Galbrath, Elverta – Cherrybrook, Black Eagle – Crystal Ridge

The map below shows the location of the 109 substations (green) and the 43 short-listed substations (red).



B. Pilot Project

Staff plans to move forward with a pilot effort that will evaluate design concepts and construction and maintenance costs for the different substation sizes and the integration of native plants and succulents identified during collaboration with the American River College Horticulture/Landscape program, the UC Davis Arboretum and other groups. In early December 2017, staff issued an RFP for a multi-year landscaping design, construction and maintenance services contract, and proposals

are currently being evaluated. In 2018, the Substation Exterior Appearance Improvement Project will begin with the 10 pilot substations listed below:

2018 Substation Pilot Locations		
Ward	Substation	Classification
1	Park Oaks – Hill Top	Small size, outdated existing landscaping. Decrease maintenance and water usage, utilize rock and drought tolerant plants.
2	Lone Pine – Jackson	Medium size, outdated existing landscaping. Decrease maintenance and water usage, utilize rock and drought tolerant plants.
3	Franklin – Elk Grove	Small size, no existing landscaping and water, high visibility. Utilize rock and drought tolerant plants.
4	Meadowview – Freeport	Small size, limited landscape. Minor upgrades, reduced maintenance.
5	Truxel	Small size, outdated existing landscaping. Decrease maintenance and water usage, utilize rock and drought tolerant plants.
6	Fruitridge – 64 th St.	Medium size, high-maintenance existing landscaping. Decrease maintenance, utilize rock and drought tolerant plants.
7	Elverta – Cherrybrook	Small size, no existing landscape and water. Improve road frontage, utilize rock and drought tolerant plants, install temporary water.
	Walerga – Antelope	Small size, outdated limited existing landscape. Utilize rock and drought tolerant plants.
	Walerga Galbrath	Small size, sparse outdated existing landscape, no water. Utilize rock and drought tolerant plants, install temporary water.
	Gilman – Cornelia	Medium size, regular complaints of illegal dumping, no existing landscape and irrigation. Improve frontage, utilize rock and drought tolerant plants and install temporary water.

These sites were chosen to gain experience with site size, existing water vs. no water and existing landscaping vs. no landscaping. The pilot will establish lists of preferred landscape materials, plants, trees, bushes and grasses and the potential use of rocks, boulders and berms for visual interest, security and standardization.



We will also evaluate temporary water concepts for plant establishment of roots by providing supplemental water in the summer time. For existing irrigated substations, there is little concern for plant establishment, however over 60% of SMUD's substations have no water at the site and therefore will require temporary supplemental water in the hot summer months. Staff has developed a proposed method for plant establishment and will evaluate this method during the pilot.

The pilot will also test maintenance concepts utilizing the warranty period to evaluate maintenance practices and associated costs. In addition, the pilot will address the need to remove existing landscaping that was originally designed to screen the substation but more recently has been used by trespassers to hide or camp between the landscaping and the substation fence or wall. To address this, SMUD maintenance staff, at the request of security staff, has significantly cut back the landscaping, and the shrubs are no longer attractive or useful. The pilot will explore replacing these shrubs with drought tolerant landscaping that is more attractive and not tall enough to hide behind. Finally, staff will explore the use of boulders to discourage illegal dumping and vehicle traffic that could damage the proposed landscaping.

We expect substation improvement costs will range from \$25,000 for a small substation to \$50,000 for a medium substation and up to \$100,000 for a large substation. Project scope will range from utilizing existing irrigation elements combined with replacement of high maintenance and high water usage plants with low maintenance and low water usage plants along with ground cover upgrades. Smaller projects will include utilization of low water usage or no water usage plants along with rock and other low maintenance treatments.

Locations for the next upgrades will be determined based on results of the pilot, while ensuring a balanced approach throughout SMUD's service area. This information will be used to launch a multi-year plan for upgrading the remaining 33 substations as shown in the table below. The plan for 2019 includes several lower cost small substations, while the plan for 2020 includes several more costly medium and large substations.

	Total	2018 Pilot Projects	2019 Projects	2020 Projects
Number of Substations	43	10	16	17
Program Budget	\$1.6 million	\$368,000	\$386,000	\$863,000

C. Irrigation Controllers for Existing Substations

Also included in the previous memo to the Board was the plan to replace existing irrigation controllers at SMUD substations. To date, SMUD staff has replaced 60% of



the existing controllers with the new SMART weather-based controllers, which take into account temperature, rain, evaporation and soil conditions to adjust irrigation schedules. The remaining controllers will be replaced this year. SMUD has already realized a 30% decrease in water usage and, for locations where controllers have been replaced, we are now compliant with local jurisdiction water directives.

Staff will provide additional updates as the pilot project progresses. Please contact me or Frankie McDermott if you have any questions.

cc: Executive Team
Special Assistant to the Board

