

DEPARTMENT OF
PUBLIC WORKS

TRAFFIC ENGINEERING
SERVICES

CITY OF SACRAMENTO
CALIFORNIA

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July 17, 2001

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City Council
Sacramento, California

SUBJECT: BATTERY BACK-UP SYSTEMS FOR TRAFFIC SIGNALS

LOCATION AND COUNCIL DISTRICT:

Citywide, All Districts

RECOMMENDATION:

This report provides a status of the installation of battery back-up systems (BBS) for traffic signals and seeks direction from the City Council on possibly expanding BBS implementation and/or light emitting diodes (LED's).

CONTACT PERSONS: Marty Hanneman, City Traffic Engineer, 264-7508

FOR COUNCIL MEETING OF: July 31, 2001

SUMMARY:

The Department of Public Works has installed BBS units at twenty-five signalized intersections (Attachment A). These locations were selected based on the intersection having red light emitting diodes (LED's) installed, traffic volumes, safety history and Police experience.

Although, rolling blackouts were predicted this summer, the City of Sacramento has not experienced one since March 19, 2001. Furthermore, because many new energy producing plants are being built or planned, the likelihood of future rolling blackouts has decreased.

COMMITTEE/COMMISSION ACTION:

None

BACKGROUND INFORMATION:

To date, Public Works has retrofitted 375 of the City's 620 signalized intersections with red LED's lenses with an additional 100 in process. Red LED's lenses are required to operate a signal in flashing red mode during a power outage with BBS units. The cost to retrofit the remaining 145 signalized intersections with red LED's is estimated at \$160,000.

The Department of Public Works has recently installed BBS units at 25 signalized intersections (Attachment A) and during a power outage, these locations will operate in flashing red mode for up to eight hours.

In order to maintain full signal operations for up to three hours during a power outage with a BBS unit, all signal indications (red, yellow, green and pedestrian) need to be LED's. The estimated cost to retrofit the 25 intersections with BBS units, (not including red LED's) with green, yellow, arrows, and pedestrian indications is \$70,000.

The advantages of LED's to incandescent bulbs are:

- Use about 1/10th the wattage of an incandescent bulb,
- Expected life is five to seven years vs. 18 months for bulbs,
- Same brightness as incandescent bulbs,
- Expected four year pay back due to energy savings,
- Compatible with BBS units,
- Maintenance labor cost savings

The disadvantage of LED's to an incandescent bulb is:

- Initial cost is much higher (\$2 per bulb compared to average of \$90 per LED lens).

The average cost to install a BBS unit is \$3,000 per intersection.

Public Works is tracking a proposed State Senate Bill (SB 84) for possible additional funding for BBS units.

Staff Recommendation:

- Direct staff to reallocate existing signal related CIP funds to install all LED indications at the 25 intersections with BBS units to ensure full operation during a power outage.

FINANCIAL CONSIDERATIONS:

The twenty-five BBS units with installation cost of \$75,000 were funded with CIP SL26– Traffic Signal Safety Upgrade.

The funds (approximately \$420,000) to retrofit 475 traffic signal red lenses with LED's came from CIP DB31-Energy Conservation Program (\$260,000), grants from the California Energy Commission (\$117,000), and SMUD (\$45,000).

ENVIRONMENTAL CONSIDERATIONS:

There are no environmental considerations with this report.

POLICY CONSIDERATIONS:

This project is consistent with the City's goals of reducing energy consumption and maintaining Public Safety.

ESBD CONSIDERATIONS:

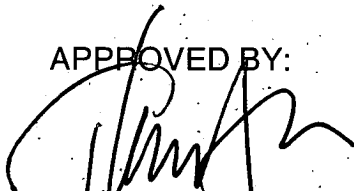
Any goods and services will be procured in accordance with established City policy.

Respectfully submitted,



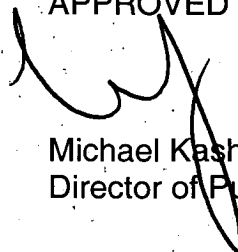
Martin W. Hanneman
City Traffic Engineer

APPROVED BY:



ROBERT P. THOMAS
City Manager

APPROVED BY:



Michael Kashiwagi
Director of Public Works

LOCATIONS WITH BBS UNITS

1. Pocket and Greenhaven
2. Franklin and 21st Ave.
3. Franklin and Fruitridge
4. Franklin and Mack
5. Franklin and Valley Hi
6. Mack and Valley Hi
7. Heritage and Response
8. Arden and Exposition
9. Arden and Heritage
10. Arden and Challenge
11. Arden and Del Paso
12. Del Paso and El Camino
13. Florin and 24th
14. Florin and Greenhaven
15. West El Camino and Azevedo
16. Arden-Garden and Northgate
17. 65th and Folsom
18. 65th and Broadway
19. Stockton and Broadway
20. Fair Oaks and Howe
21. Howe and University
22. Del Paso Blvd and Truxel Rd
23. Sutterville and Franklin Blvd
24. Truxel Rd. and Gateway Park Blvd
25. Marysville and Grand Ave.