Memorandum

To: DISTRICT DIVISION CHIEFS Maintenance

Date: August 2, 2000

File No:

From: DEPARTMENT OF TRANSPORTATION MAINTENANCE PROGRAM

Subject: Deploying Battery Backup Systems at Traffic Signalized Intersections

The intent of this memorandum is to give some guidelines for the use of battery backup systems at traffic signalized intersections on the State Highway System. If these guidelines are followed there will be an organized, standardized approach to the implementation and deployment of these systems. These guidelines are interim until the department adopts a formal policy and standards for statewide use and deployment of these systems.

The current California Department of Transportation (Caltrans) policy on the operation of traffic signals during unplanned power failures is defined in the Maintenance Manual Vol. 1, Section K.09.03 as:

"...It will be Caltrans general policy not to provide power or stop signs at traffic signals during unplanned power outages as described above.

...As with any general policy, there may be extenuating circumstances that requires exceptions to this policy. These exceptions may be approved by the District Division Chief of Maintenance."

Under the current policy, the District Division Chief of Maintenance is given final authority to make decisions surrounding the use of emergency power systems.

Battery backup systems that operate the signal in flashing red mode may be permitted at intersections that have been converted to red Light Emitting Diode (LED) signal modules. The District Division Chief of Maintenance should establish a district plan for installing and operating such systems. The district traffic branch should be consulted when developing the deployment plan. This plan should clearly define signal sites and installation schedules consistent with safety considerations and availability of LED signal modules and funding priorities. Traffic considerations include intersection approach speeds, frequency of power outages and mean time for power recovery, and the difficulty of manual traffic control during a power outage. The District Division Chief of Maintenance may include other circumstances such as the location of signals, time to reach the site, or other conditions deemed fitting. District Division Chiefs August 2, 2000 Page 2

It is critical that the plan delineates the conditions for using battery backup, and the present locations with battery backup be reviewed for compliance with the established criteria. It is the intent to provide battery backup where power outages may occur, and where safety will be enhanced by the use of battery backup power.

Each District Division Chief of Maintenance should maintain each district's plan and ensure its availability for review by Headquarters (HQ) Maintenance Program. A copy of each plan should be made available to the HQ Maintenance Liaison, and Gonzalo Gomez, HM-4 Program Advisor.

The single phase EA 916035 should be used to charge all labor and materials relating to the installation of these systems.

Deployment plans, questions or comments can be directed to Mr. Gomez of the Maintenance Program, at Calnet 464-2461 or (916) 654-2461.

ORIGINAL SIGNED BY

LAWRENCE H. ORCUTT Program Manager Maintenance

Attachments

bc: Rob Marsh, Maintenance Program Kim Nystrom, Traffic Operations Gonzalo Gomez, Maintenance Program Ahmad Rastegarpour, Traffic Operations Theresa Gabriel, Traffic Operations

GG:amc

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Battery Backup System Suggested Deployment Prioritization

Site Selection factors should include:

- 1. high speed approach (over 45 MPH),
- 2. being an isolated rural intersections,
- 3. response time over 40 minutes,
- 4. a history of power outages,
- 5. type of traffic (i.e. how much tourist traffic frequents the area since tourists will not be familiar with the area and could be much more exposed to the hazard of a dark signal).
- 6. Locations that are the approach to a developed, urbanized area from a rural, high-speed highway.

The district could use other selection factors and these should be detailed in the district's deployment plan.

Priorities should be assigned to the locations selected for deployment of the battery backup systems. Suggestions are as follows:

Priority 1: To be installed within one year of finalization of deployment plan Any location that meets three or more of the site selection factors

- Priority 2: Installed within two years from finalization of deployment plan Any location that meets two of the site selection factors
- Priority 3: To be installed after systems have been deployed to locations in priorities 1 and 2 Any location that meets one or less of the site selection factors

Red LED modules must be installed before the battery backup system can be installed. Evaluations of the intersections may require inspection by the district traffic engineer and the electrical maintenance representative.

Other locations, where the district traffic engineer and electrical maintenance representative agree that a battery backup system will greatly enhance the safety of that intersection, should be prioritized according to the estimated safety improvement.

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Units Currently Available

| Electro-Tech's Power Sentinel 200 | 909-734-1812 |
|--------------------------------------|--------------|
| Online Power Signal Saver IPC | 800-227-8899 |
| Clary SP1000 | 800-442-5279 |
| Dimensions Unlimited DUI-12/500BT | 651-653-7000 |