

# MEMORANDUM

# State of Alaska

Department of Transportation and Public Facilities  
Statewide Design and Engineering Services Division

TO: DISTRIBUTION

DATE: March 9, 2001

FILE NO:

TELEPHONE NO: 465-2960

FAX NUMBER: 465-2460

TEXT TELEPHONE: 465-3652

FROM: Michael L. Downing, P.E.  
Chief Engineer

SUBJECT: LED Traffic Signal  
Indications, Backup Power  
Supplies, LED Maintenance

## LED Signal Indications.

Please see that the following directive regarding LED application and standards is complied with on all DOT&PF projects that install new signal indications (this supersedes my August 9 memo on this topic).

## Application.

The following traffic signal indications shall be illuminated by light emitting diodes (LEDs).

1. Circular Red \*
2. Circular Green \*
3. Red and Green Arrows
4. Pedestrian Indications

\* These indications are excepted from the LED requirement when programmed visibility heads are used.

Yellow circular and arrow indications shall be illuminated with incandescent bulbs unless the signal is equipped with a battery backup power supply, in which case LED indications may be used.

## Standards.

Circular red and green LED indications shall comply with the Institute of Transportation Engineers "Vehicle Traffic Control Signal Heads", Part 2, 1998.

If yellow LEDs are used, the region shall adopt a specification, such as California's (attached), that existing yellow LEDs comply with.

When the difference between yellow LED brightness and the brightness required by the ITE specification is resolved (hopefully in the near future), the department will adopt the resulting

specification for statewide application. Regions that use yellow LEDs should be aware that, if previously installed yellow indications do not meet that specification, those indications might then need to be replaced.

### **Backup Power Supplies for Traffic Signals.**

The department incurs greater liability for installed backup power supplies that fail due to lack of maintenance than at intersections without backup. For this reason, backup power supplies should not be installed unless the Regional M&O Chief commits to maintaining them in future years, including the costly replacement of worn-out batteries and failed electronics.

### **Note to M&O on Maintenance of LED Signal Heads.**

Unlike incandescent signal indications, LED indications will dim far below acceptable brightness levels before burning out. Consequently, we need a method to ensure that LEDs are replaced before they become too dim. This can be done by either:

1. using an instrument to measure LED brightness, or
2. establishing a replacement interval based on known light depreciation rates.

Maintenance personnel should have an LED quality control method in place.

Attachment

#### **DISTRIBUTION:**

Steven Horn, P.E., Preconstruction Engineer, Central Region D&ES  
Pat Kemp P.E., Preconstruction Engineer, Southeast Region D&ES  
David McCaleb, P.E., Preconstruction Engineer, Northern Region D&ES

cc: Gail Gardner, P.E., Traffic and Safety Engineer, Northern Region D&ES  
Gary Hayden, P.E., Director, Construction, Maintenance & Operations, Southeast Region  
Gary Hogins, P.E., Chief, Design & Construction Standards, HQ D&ES  
Chris Kepler, P.E., Chief, Maintenance & Operations, Central Region  
James Little, P.E., Director, Maintenance & Operations, Northern Region  
Michael Lukshin, P.E., Traffic and Safety Engineer, Southeast Region D&ES  
Frank Richards, P.E., Statewide Maintenance Engineer, HQ  
Kurt Smith, P.E., State Traffic Engineer, D&C Standards, HQ D&ES  
Scott Thomas, P.E., Traffic and Safety Engineer, Central Region D&ES