U.S. Department
of Transportation
**Federal Highway
Administration**

JAN 25 2013

1200 New Jersey Ave., SE
Washington, D.C. 20590

In Reply Refer To:
HOTO-1

Mr. William M. Marshall
Chief Executive Officer
Electrotechnics Corporation
1310 Commerce Street
Marshall, TX 75672

Dear Mr. Marshall:

Thank you for your letter of January 6 requesting an official interpretation regarding the dimming of flashing beacons during daytime conditions.

As you mention in your letter, Paragraph 6 of Section 4L.01 provides an option to use an automatic dimming device to reduce the brilliance of the flashing yellow signal indications in flashing beacons during night operations. Similarly, Paragraph 13 of Section 4D.06 recommends using some form of automatic dimming to reduce the brilliance of the signal indications of a traffic control signal if the signal indications are so bright that they cause excessive glare during nighttime conditions.

Neither Paragraph 13 of Section 4D.06 nor Paragraph 6 of Section 4L.01 extend that recommendation or option to daytime conditions when the full brightness of a signal indication is needed. Paragraph 10 of Section 4D.06 recommends that the intensity of traffic control signal and flashing beacon (see Paragraph 2 of Section 4L.01) signal indications comply with the provisions of two publications from the Institute of Transportation Engineers (ITE) entitled "Vehicle Traffic Control Signal Heads" and "Traffic Signal Lamps." Because there are no options in the MUTCD to dim signal indications during daytime conditions, the provisions of these two ITE publications should be met during daytime conditions.

Thus, while nighttime dimming can be a reasonable approach if the flashing beacon signal indications are so bright that they cause excessive glare during nighttime conditions, it is not acceptable to dim the signal indications of flashing beacons (or traffic control signals) during daytime conditions. The effectiveness of the signal indications depends upon the light output meeting the provisions of the two ITE publications mentioned in Paragraph 10 of Section 4D.06 at all times during daytime conditions.

Flashing beacons should be designed for sufficient autonomy under normal use. Accordingly, agencies should require power systems that will provide full service, day and night, for typical operating times, even with several days of limited power generation. For example, five days autonomy would mean that the system would generate and store sufficient energy during one day

so that the power demands of the system can be met for five days. Depending on typical insolation values, agencies might ask for greater or lesser autonomy. Monthly tables of typical insolation values for locations within the United States are available and should be used to determine the minimum size of the power generation system. For example, a solar-power system in Seattle, Washington will need to be larger than one in Phoenix, Arizona for equal power demands.

It is the FHWA's official interpretation that it is not acceptable to dim the signal indications of flashing beacons (or traffic control signals) during daytime conditions and that the light output from the signal indications should meet the provisions of the ITE publications entitled "Vehicle Traffic Control Signal Heads" and "Traffic Signal Lamps" during daytime conditions.

For recordkeeping purposes, we have assigned the following official ruling number and title: "4(09)-28 (I) – Dimming of Flashing Beacons during Daytime Conditions." Please refer to this number and title in any future correspondence regarding this topic.

Thank you for your interest in improving the clarity of the provisions contained in the MUTCD.

Sincerely yours,

Mark R. Kehrli
Director, Office of Transportation
Operations