Florida Department of Transportation

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ANANTH PRASAD
SECRETARY

ROADWAY DESIGN BULLETIN 13-12
DCE MEMORANDUM NO. 23-13
MAINTENANCE MEMORANDUM 07-13
(FHWA Approved: 10/10/2013)

This Memo Has Expired

DATE: October 11, 2013

TO: District Directors of Transportation Development, District Design Engineers, District Consultant Management Engineers, District Construction Engineers, District Maintenance Engineers

FROM: Michael Shepard, P. E., State Roadway Design Engineer
David A. Sadler, P.E., Director, Office of Construction
Tim Lattner, P.E., Director, Office of Maintenance

COPIES: Brian Blanchard, Tom Byron, Duane Brautigam, Tim Lattner, Rudy Powell, Bob Burleson, Chad Thompson, Rafiq Darji, Nick Finch, Ben Gerrell

SUBJECT: **EXTERNAL SIGN LIGHTING ON OVERHEAD SIGNS**

REQUIREMENTS

- New Overhead Signs – Overhead Signs will no longer require external lighting unless the sign is located along a horizontal curve with radii of 880 feet or less in rural areas and radii of 2500 feet or less in urban areas.
- For Existing Overhead Signs with External Sign Lighting - Continue to light the sign until the lighting fixture/system or sign panel requires replacement or major repairs. Then replace existing panel with new panel meeting the current MUTCD requirements and with Type XI sheeting and remove the existing lighting system (including fixtures, support brackets, conduit, hardware, etc.). However, if the sign is located along a horizontal curve with radii of 880 feet or less in rural areas and radii of 2500 feet or less in urban areas replace the mercury vapor fixtures with approved energy efficient alternatives such as induction or LED fixtures.
- Existing Overhead Signs Without Lighting - Replace existing panel when it no longer meets reflectivity requirements with new panel using Type XI sheeting.

COMMENTARY

It was determined by the Department that for new signs the external sign lighting will be eliminated and the use of more retroreflective type sheeting will be used. It was also determined for consistency that existing signs, that are currently using external lighting, will be upgraded to the more retroreflective sheeting when the external lighting system is in need of major repair or replacement.

DESIGN IMPLEMENTATION

New overhead signs on projects with letting dates after January 1, 2014 will no longer require external sign lighting unless the signs are on horizontal curves with radii of 880 feet or less in rural areas or horizontal curves with radii of 2500 feet or less in urban areas.

CONSTRUCTION IMPLEMENTATION

Existing construction contracts may be modified to use Type XI sign sheeting in lieu of external sign lighting on new overhead signs. This contract change will result in a credit to the Department. This memorandum serves as a blanket approval to process a contract change and should be attached to the Work Order or Supplemental Agreement. The contract change shall include:

- Modifying Subarticle 700-2.5 or 700-2.6 by adding the following language, or replacing Subarticle 700-2.5, exception b. (as applicable) with the following:

  Use Type XI sheeting for all overhead signs.

- Adding the following language to the end of Article 994-3:

  Application of Type XI Sheeting for Overhead Signs: Apply retroreflective sheeting to the base panels with mechanical equipment in a manner specified for the manufacture of traffic control signs by the sheeting manufacturer. For sheeting that has been identified as rotationally sensitive, apply white sheeting for cut-out legends, symbols, borders and route marker attachments within the parent sign face at the optimum rotation angle according to the identification markings. Apply all background sheeting at a uniform rotational angle. The retroreflective sheeting for each sign will be from the same roll or lot number. Apply consecutively alternate successive width sections of either sheeting or panels to ensure that corresponding edges of sheeting lie adjacent on the finished sign. If the sign cannot be constructed from retroreflective sheeting from the same roll or lot number, the fabricator may color match from a different lot; the color between the rolls cannot exceed three ΔE's using test method ASTM D 2244. The Engineer will not accept nonconformance that may result in non-uniform shading and an undesirable contrast between adjacent widths of applied sheeting or non optimum retroreflectivity in the finished sign and installation.

  Sheeting is to be trimmed at 45 degree angle from the edge of each panel. Finish signs by sealing sheeting splices and sign edges according to sign manufacturer recommendations.

MAINTENANCE IMPLEMENTATION

For Existing Overhead Signs with External Sign Lighting - Continue to light the sign until the lighting fixture/system or sign panel requires replacement or major repairs. Then replace existing panel with new panel meeting the current MUTCD requirements and with Type XI sheeting and remove the existing lighting system (including fixtures, support brackets, conduit, hardware, etc.). However, if the sign is located along a horizontal curve with radii of 880 feet or less in rural areas or radii of 2500 feet or less in urban areas replace the mercury vapor fixtures with approved induction or LED fixtures.

Existing Overhead Signs Without Lighting – Replace existing panel when it no longer meets reflectivity requirements with new panel using Type XI sheeting.

DOCUMENT IMPLEMENTATION

1) *Plans Preparation Manual* - The last paragraph of Section 7.2.1 Design Criteria will be revised. The proposed language is as follows:
   External sign lighting is only required when signs are on horizontal curves with radii of 880 feet or less in rural areas or on horizontal curves with radii of 2500 feet or less in urban areas. The designer shall determine the lighting requirements for overhead signs requiring external lighting. Only induction or LED lighting fixtures shall be utilized for sign lighting unless otherwise specified. The sign lighting requirements shall be shown in the plans on the Guide Sign Worksheet for each sign. Sign lighting calculations shall be included in the Lighting Design Analysis Report.
2) *Construction Specifications* - Section 700 (Implementation Date 1/14) was rewritten to reflect changes in sign lighting revisions. Revisions were also made to Section 994 (Implementation Date 1/14) to reflect changes in sheeting application.
3) *Basis of Estimates Manual* – BOE has been revised to reflect sign lighting revisions.
4) *CADD* - No changes required.
5) *Design and Analysis Software* - No changes required.
6) *CPAM* - No changes required.

CONTACTS

For design related issues, contact: Chester Henson at 850-414-4117
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For construction related issues, contact: Stefanie Maxwell at 850-414-4314
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CAH/hh

ADDITIONAL DETAILS FOR USE WITH DCE MEMO 23-13

Use the following to calculate the overall credit to the Department for deleting external lighting from overhead signs (Specification 700 Highway Signing, and Index 17505 – External Lighting for Signs):

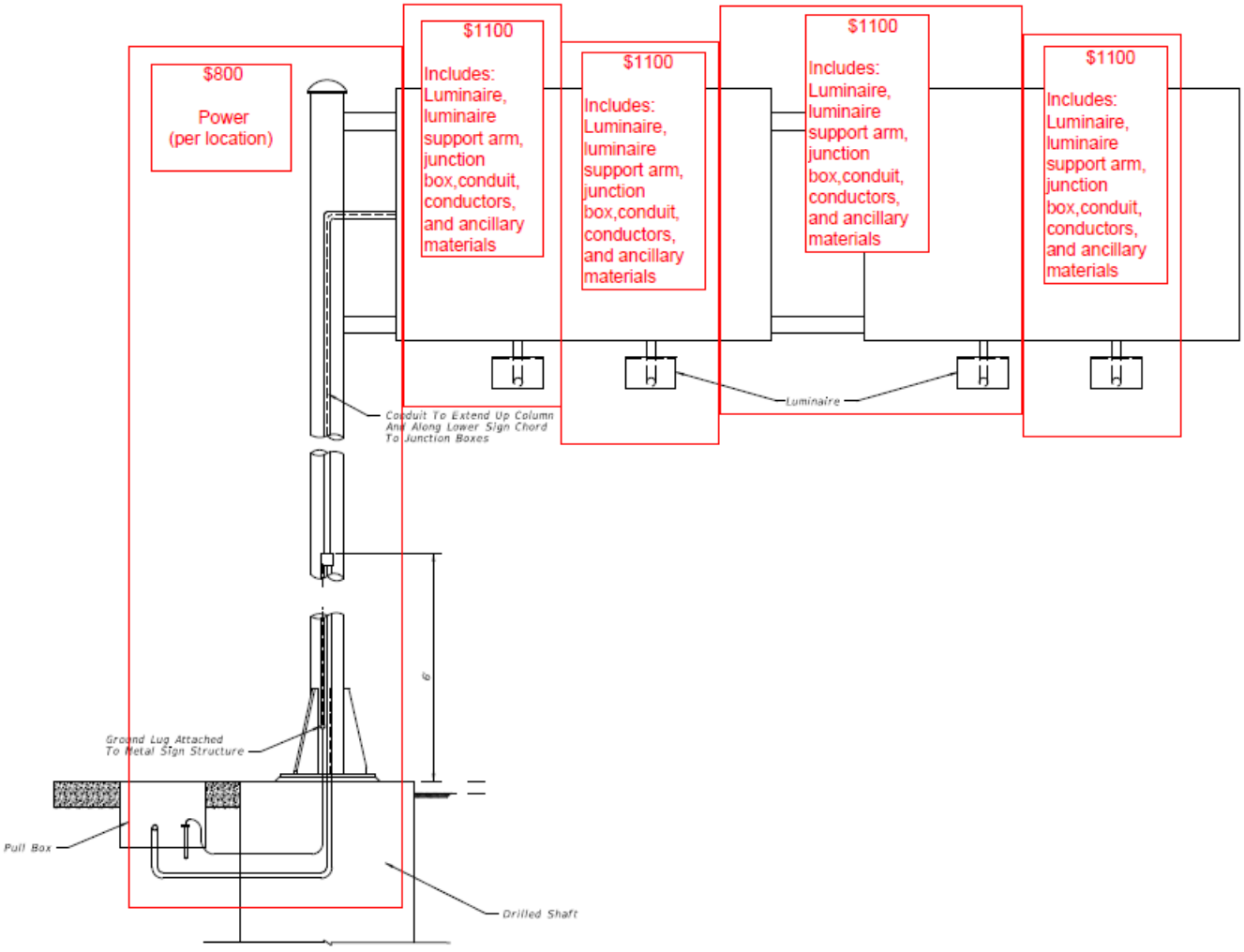
- For sign lighting where the power <u>is</u> provided by the roadway lighting circuit, a reduction is required for power and luminaires, and an increase is required for Type XI Sheeting. The reduction for power is for each location where power is provided to the sign structure (i.e. a span truss may provide power at both supports or 2 locations) and includes the disconnect, conductors, and conduit. The reduction for each luminaire includes the luminaire, luminaire support arm, junction box, conduit, conductors, and other ancillary materials.

  Power Location: (-)$800
  Each Luminaire: (-)$1100
  Type XI Sheeting: (+)$2.70/SF

  Example to calculate the removal of external lighting from a 12'x 24' (288 SF) overhead sign, with 3 luminaires, where the power was provided at one location, by the roadway lighting circuit:
  (-)800(-)1100(-)1100(-)1100 +2.70(288) = (-)$3322.40 Credit to the Department

- For sign lighting where the power <u>is NOT</u> provided by the roadway lighting circuit, in addition to the credit above, delete the work associated with providing the power from the service point location to the sign location (i.e. electrical power service (pay item 639-1-AB), conduit, conductors, and pull boxes). Use statewide averages for contracts without pay items, to determine the additional credit.

- For projects where the number of luminaires is unknown (Design Build, Lump Sum, etc.), use one luminaire for every 9' of sign width.



EXTERNAL LIGHTING FOR SIGNS