

Design Standards Letter

Letter Number: G-1964-48

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Effective Date: 09/21/1964

Section/Plan No.: None

Subject: Highway Lighting Warrant Form SP-21

Body

ALL DIVISION, DISTRICT AND URBAN ENGINEERS AND CHIEF COUNSEL

Enclosed are several copies of Lighting Warrant Form SP-21, revised as of September 1, 1964, to bring it up-to-date with Department policy as stated in Sections 15.1.2 and 15.1.3 of the Design Manual.

Form SP-21 with Form T-13 is required for all projects when highway lighting is proposed. Form SP-21A is used to justify basic interchange lighting by percent of design capacity and when so justified, such lighting will also be warranted by "Conditions" and 'ADT Traffic" on Form SP-21 when properly completed.

The following explanation is to correlate Form SP-21 with the policy and with Form SP-21A. Section references are to the Design Manual.

1. CONDITIONS

Existing and proposed conditions affect the extent of lighting to be installed and certain conditions are warrants in themselves.

Urban or Rural area conditions will affect Cases H and J which are for Main Office use. There is no intermediate suburban classification so far as Form SP-21 is concerned and, unless the area is distinctly Urban, the Rural classification should be checked.

Freeway lighting is covered by Section 15.1.2, Other than Freeway by Section 15.1.3. The crossroads at an interchange with a freeway is covered by Section 15.1.2.2, not 15.1.3.

Interchange warrants for basic lighting are the same for freeways and expressways under Sections 15.1.2 and 15.1.3.

Channelized Ramp Connections are justification for basic lighting at those connections. If this is the only lighting proposed, Form SP-21A is not submitted.

Existing Lighting on Crossroads is justification for the replacement or adjustment of such lighting, and no other warrant is required.

Channelized-Signalized Road Intersection justifies basic lighting at the intersection, and has no application to interchange lighting.

Street Widening or Reconstruction and Existing Lighting justifies the adjustment of the existing lighting.

Outer Roadway and Existing Lighting justifies lighting on an outer roadway when it is a replacement of an existing street or is necessary to provide for traffic circulation on dead ended streets which are lighted.

2. PROPOSED DESIGN

Basic Lighting at Ramp Connections to Thruway is warranted at all ramps along a freeway or expressway by Form SP-21A when peak hour traffic on the thruway or any one ramp reaches 0.9 design capacity.

Basic Lighting at Ramp Connections to Crossroads is warranted by channelization with no other justification required. Basic lighting is also warranted at all ramps along the crossroads by Form SP-21A when peak hour traffic on the crossroads reaches 0.75 design capacity.

Basic Lighting at Road Intersection is warranted when both channelization and signalization are proposed.

Continuous Lighting on Thruway to an average maintained intensity of 0.6 foot-candle may be installed on freeways if warranted by Case A, B, or C under Section 15.1.2.1.2.2.1 when an agreement between the Commission and the local political subdivision is in effect at the time providing for the State to assume 90% of the installation costs where Interstate Funds are available, and 50% at other locations and for the political subdivision to assume the remainder of the installation costs and all costs of operation and maintenance.

Replace or Adjust Existing Facilities is justified where existing lighting is indicated under "CONDITIONS". Where existing lighting is replaced, the design intensity is equal to that being replaced, and operation and maintenance are at the expense of the local political subdivision.

The remainder of the "PROPOSED DESIGN" section requires no explanation.

3. COSTS

Where the Design Manual provides for operation and maintenance at state expense there is no objection to a local political subdivision assuming these costs.

4. ADT AT TIME OF COMPLETION., YEAR

Districts specifically request, (1) the ADT, (2) peak hour traffic, and (3) the percent of truck

traffic, all for the year of completion, from the Division of Highway Planning. This information will be furnished on Form T-13. Only the ADT is applicable to Form SP-21. Peak hour traffic and percent of truck traffic are used with Form SP-21A, the preparation of which will be covered by separate letter.

The volume shown on Form SP-21 for thru traffic lanes on the freeway or crossroads at an interchange is the traffic which proceeds straight through the interchange in opposite directions. One of these volumes would be the sum of the N to S and the S to N movements and the other, the sum of the E to W and the W to E movements as listed on Form T-13. The sum of all the other movements would be the ramp traffic entering and leaving the freeway.

When continuous freeway lighting is to be justified by Case C, only the volume of traffic on the freeway between control points is shown.

5. WARRANTS

Warrant Cases A, B and C are covered by Section 15.1.2.1.2.2.1. Continuous freeway lighting includes complete interchange lighting in accordance with Section 15.1.5.2.2.

L. V. McLaughlin
Engineer of Surveys and Plans