11-1-1 Initial System Approval **April 2024**

PURPOSE

This policy describes the requirements for approval to install WisDOT owned and maintained roadway lighting facilities on the Wisconsin State Highway System.

POLICY

All lighting on the State Trunk Highway system that is owned and maintained by WisDOT **shall** require approval in accordance with this policy.

PROCEDURAL REQUIREMENTS

The State Lighting Systems Engineer in the Bureau of Traffic Operations **shall** approve all proposed new roadway lighting system installations on the State Trunk highway system except for systems as described in FDM 11-50-60 that do not require approval. When there is a possibility a project *may* include the installation of roadway lighting, the WisDOT project manager for design **shall** work with the Region Lighting Engineer in the traffic section to submit a DT1198 Roadway Lighting System Approval Request, supported by an investigation report, to the State Lighting Systems Engineer. These documents **shall** be submitted and approved before any commitments are made concerning the installation of roadway lighting systems. Roadway Lighting Systems Approval Requests *should* be completed and approved prior to the 60% design level of completion and the submittal of the Design Study Report (DSR) for a project.

The investigation report provides an objective description and analysis of the roadway/project for the State Lighting Systems Engineer to use in recommending installing and maintaining a roadway lighting system.

The report **shall** include (as applicable):

- DT1198 Roadway Lighting System Approval Request.
- Description/discussion of the project and plan drawing(s) of the roadway project under consideration.
- Data pertinent to determine the need for roadway lighting that includes, but not limited to:
    - Traffic volumes minimally broken down into day vs. night, but more specific time periods when pertinent to the investigation.
    - Crash history on the existing road including type of crash and if darkness was a pertinent factor.
    - Evaluation of other crash avoidance measures (geometric, signing, striping, etc.) being considered and/or implemented and how roadway lighting relates to this overall safety evaluation.
    - Analysis based on the minimum warranting conditions as minimum thresholds for further consideration of roadway lighting as described in the current AASHTO Roadway Lighting Design Guide.
    - Other factors such as pedestrian and bike use, adjacent land uses, environmental conditions, and other pertinent aspects of the project area for determining whether roadway lighting is appropriate.
- Installation cost and maintenance/energy costs.
- Discussion, correspondence, recommendations from local jurisdictions, and any written agreements relating to roadway lighting on the project.
- Preliminary design criteria, classification data, and recommended lighting levels.
- Alternative analysis *may* be appropriate if multiple layout configurations are being considered.
- A recommendation with supporting discussion based on the above evaluation.

Roadway lighting warrant thresholds established by AASHTO and IES have been classified based on geometric, operational, environmental conditions, and accident history, which address existing facilities only. Roadway lighting warrants do not provide sufficient guidance for determining the requirement for roadway lighting on new facilities. Designers **shall** apply engineering judgement when using warrants to justify installing roadway lighting.

The State Lighting Systems Engineer will evaluate the proposal based on the information in the investigation report along with consideration of any additional items pertinent to the specific project and provide approval for acceptable projects.

Regardless of the need for approval, all WisDOT maintained roadway lighting systems **shall** follow the design process described in other TEOpS sections.

EXEMPTIONS

Roadway lighting on connecting highways and permitted roadway lighting maintained by local municipalities on State Trunk highway system are exempt from submitting a DT1198 request for approval. However, in these cases a separate approval process *may* be required, and the project manager **shall** work with the Regional Lighting Engineer to accommodate coordination and oversight of the design.

APPLICABLE FORMS

- DT1198 – Roadway Lighting System Approval Request

11-1-2 Roadway Lighting System Design Approval April 2024

PURPOSE

The purpose of this policy is to prescribe guidelines and procedures that will help ensure consistent roadway lighting system designs statewide and clarify the review requirements.

POLICY

All WisDOT maintained Roadway Lighting System designs **shall** follow the process described in this document.

PROCEDURAL REQUIREMENTS

For all Projects covered under this policy, after receiving the necessary Roadway Lighting System Approval described in TEOpS 11-1-1.

The designer **shall** send a copy of all submittals to the Regional Lighting Engineer.

LOCALLY OWNED ROADWAY LIGHTING SYSTEMS

All locally owned and maintained roadway lighting systems on the State Trunk Highway system **shall** be based on Connecting Highway agreements, or otherwise will require a permit in accordance with TEOpS 11-2-1.

APPLICABLE FORMS

- DT1886 – Continuous Lighting Illumination Application
- Signalized Intersection Illumination Form (see TEOPS 11-4-2)
- Roundabout Illumination Form (See TEOPS 11-4-3)

CONTINUOUS LIGHTING ILLUMINATION APPLICATION

DT1886 4/2015 s.84.02(4)(c) Wis. Stats.

Wisconsin Department of Transportation
State Project Number

Submit to the Regional Office of the Wisconsin Department of Transportation, including:

- ☐ This completed DT1886 Continuous Lighting Form. Provide additional forms as necessary when there are multiple Roadways and/or Roadway Types.
- ☐ Engineering drawing of the Roadway Plan, or typical section, showing edge of pavement, curb lines, shoulders, etc.
- ☐ Brief description of the project

Design Information (Provide additional forms as necessary for multiple roadways and/or roadway types)

Highway	Lighting Limits

Project Lighting Engineer Name, Mailing Address and Telephone

County	Posted Speed Limit mph	ADT	Cross Section Rural / Urban	Roadway Width ft

Road Class		Area Class		Pavement Class	
☐ Major	☐ Minor Arterial	☐ Commercial	☐ Residential	☐ R1	☐ R3
☐ Collector	☐ Other	☐ Intermediate		☐ R2	☐ R4

Based on Roadway information above, provide Design Criteria Values in accordance with AASHTO 2005 Roadway Lighting Guide, Table 3-5a.

Luminaire LED Category	Mounting Height Above Pavement

Target Illuminance Values		Target Luminance Values			
Average FC	Uniformity Ave/Min	Average cd/m sq	Veiling Luminance Ratio Lv(max)/Lavg	Uniformity Ave/Min	Max/Min

The designated engineer requests permission to begin the design of highway lighting within the limits of the right of way of the state trunk highway, all as described above.

X _____
(Lighting Engineer) (Date – m/d/yy)

APPROVAL

Permission is granted to begin the highway lighting design as described above and per the attached drawings and specifications.

CONTINUOUS LIGHTING

Approved for Division of Transportation System Development

X _____
(Signature) (Date Reviewed – m/d/yy)