RECOMMENDED PRACTICE FOR DESIGN AND MAINTENANCE OF ROADWAY AND PARKING FACILITY LIGHTING
Recommended Practice for Lighting Roadway and Parking Facilities

Publication of this Recommended Practice has been approved by the IES. Suggestions for revisions should be directed to IES.

Prepared by:
The Roadway Lighting Committee
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**Acknowledgment:**

The IES acknowledges and thanks the Transportation Association of Canada (TAC) for its significant contribution to this Standard.

**Dedication:**

This roadway lighting Recommended Practice is dedicated to the memory of Jon Hart, whose many contributions to the committee and the IES are greatly appreciated.
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Introduction to This Recommended Practice

ANSI/IES RP-8-18 is a substantial revision to previous versions of ANSI/IES RP-8 in that it is an aggregation of several IES Standards covering roadway and parking facility lighting. This document supersedes the following IES Standards:

- RP-8-14, Roadway Lighting
- RP-20-14, Lighting for Parking Facilities (revised 2016)
- RP-22-11, Tunnel Lighting
- DG-4-14, Design Guide for Roadway Lighting Maintenance
- DG-19-08, Design Guide for Roundabout Lighting
- DG-23-14, Design Guide for Toll Plazas
- LM-50-13, Photometric Measurement of Roadway and Street Lighting Installations
- LM-71-14, Photometric Measurement of Tunnel Lighting Installations
- TM-10-00(R2011), Addressing Obtrusive Light (Urban Sky Glow and Light Trespass) in Conjunction with Roadway Lighting

This Recommended Practice is a compilation of lighting design techniques and criteria, all offered for quality roadway lighting solutions. Each chapter should not be taken in isolation but used as a whole for quality lighting design for roadways and other environments where vehicles are present, such as tunnels, intersections, and parking lots.

A lighting designer will often simplify the design criteria to lighting level and uniformity. However, impacts on visual quality go beyond these simple criteria and encompass minimizing glare and providing spectral contrast on pedestrians, hazards, and other vehicles. All design criteria are important in order to achieve these goals:

1. Improve motorist visual quality
2. Provide quality light and increased contrast for seeing hazards
3. Illuminate conflict areas
4. Minimize environmental impacts of light at night
5. Employ lighting systems that are easily maintained and minimize energy use

This Standard was prepared with the objective of providing lighting design guidance for most kinds of roadway and roadway-related applications. The recommendations contained in this document, however, may not reflect specific local factors or situations that are not typical and require special treatment. The contents of this Standard are based upon consensus of roadway lighting experts. It has no legislative authority unless adopted by an authority having jurisdiction. This Recommended Practice is not intended to establish a basis for civil liability.

This Standard is intended to be a single source of reference for roadway lighting; however, additional documents such as electric codes, transportation design guides and other codes and standards are often required design references.

History of the Document

This Recommended Practice is a compilation by IES staff and the Roadway Lighting Committee's Special Task Group of documents authorized by several lighting organizations and authorities. The majority of topics are from the 12 roadway lighting documents of the Illuminating Engineering Society listed in the Introduction to This Recommended Practice, along with the Transportation Association of Canada (TAC) Guide for the Design of Roadway Lighting and the TAC Roadway Lighting Efficiency & Power Reduction Guide.
During the review and compilation, the Roadway Lighting Committee revisited practices on design, installation and maintenance methods of roadway lighting systems. The team incorporated new or revised methodologies, design concepts and procedures, and included advancements in international research on lighting concepts.

In preparing this Standard, the team sourced Standards from around the world and applied the most applicable proven practices. It is important to note that new innovative design methods and products are being developed and will affect the future of roadway lighting. Some of these new design concepts and products are touched on in the Standard. Because much change is anticipated in the roadway design and technology, it is the responsibility of lighting designers and administrators to stay current with new technologies and concepts.

How to Use This Recommended Practice
This Recommended Practice may be used as a basis for the design and installation of roadway lighting and associated systems. This can be accomplished by selecting the appropriate sections and following the recommended procedures, including applying the recommended criteria. The document presents criteria that are recommendations derived through an American National Standards Institute (ANSI) consensus process. It may also be used as a basis for understanding roadway lighting design, as well as the underlying theories and criteria for reviewing designs.

Fundamental information upon which roadway lighting designs are based is provided in Part 1 – Fundamentals. This includes information on lighting theory, calculations, obtrusive light, the design process, system components, standards and codes, the use of computer software in roadway lighting design, and maintenance and operations.

Part 2 – Design applies the principles and information presented in Part 1 to specific circumstances that may benefit from roadway lighting. Lighted facilities may include roadways, interchanges, intersections, tunnels, and toll plazas. Off-roadway facilities are also included, such as pedestrian and bicycle pathways that are adjacent to the right of way, weigh scales, rest areas, and roadway signs.

Each chapter of Part 2 – Design is related to a particular type of roadway application and is arranged in a consistent fashion to allow the reader to easily assimilate new material. Design examples and, where applicable, step-by-step narratives are presented to assist the reader in understanding the design process.

In addition to the Table of Contents at the beginning of this Standard, each chapter has its own Table of Contents.

The Annexes at the end of the document contain supplemental information of interest to roadway lighting professionals.

References are provided at the end of each chapter and annex as applicable.