DESIGN BULLETIN 88/2017

Adoption of Light Emitting Diode (LED) Luminaires for New Lighting Systems Along Provincial Highways

Summary

This Bulletin is issued to inform practitioners and department staff that Alberta Transportation adopts energy efficient Light Emitting Diode (LED) luminaires for use on all new lighting systems installed along provincial highways. This action is due to significant drop in pricing for LED luminaires and also supports the Alberta Government's Climate Leadership Plan.

Background

LED lighting technologies and luminaire options for roadway applications have advanced significantly in recent years. LED luminaires for roadway applications are recognized as having economic and environmental advantages over other types of luminaires through energy and maintenance cost saving, extended life cycle, reduced carbon emissions, reduced light pollution and improved lighting quality.

There are many examples of successful trials and large scale rollouts of LED lighting for both urban streets and rural highways that have shown dramatic energy saving and direct economic benefits. Jurisdictions such as the Province of British Columbia, the Province Nova Scotia, the City of Edmonton and the City of Calgary have fully adopted the use of LED luminaires as a policy for their new roadway lighting installations and have been retro-fitting existing lighting systems through budget program funding.

Alberta provincial highway lighting systems use about 2.4 million Canadian dollars on energy consumption per year which is approximately 90% of the department's utility power consumption. To take advantage of the potential savings that LED luminaires may bring and the reduction on carbon emissions, Alberta Transportation will take this opportunity to start using LED luminaires on new lighting systems and to retro-fit existing lighting systems as opportunity arises.

Key Changes

- LED luminaires shall be used on all new lighting systems installed along provincial highways including lighting systems for Highway Safety Rest Areas, Truck Staging Areas, and private developments along provincial highways warranting access and egress lighting for improving traffic operations and safety.

- All new lighting systems using LED luminaires must be designed to meet lighting level requirements for the roadway class and its application, taking into consideration of light loss factors, grid spacing, average luminance, maximum uniformity ratios, and maximum glare.

- Retro-fitting existing highway systems using LED luminaires should be assessed on an individual case basis. The lighting system's age, pole conditions, and other factors such as highway geometrics and/or traffic operational changes should be

taken into consideration when determining LED luminaire conversion.

- All LED luminaires must meet specifications as posted on the following documents:
  - Alberta Transportation LED Luminaire Selection/ Appraisal Specification
  - Alberta Transportation Products List

- All new and retro-fitted lighting systems with LED luminaires shall have the installation date, wattage, and make and model recorded. This is to ensure that future replacement of the luminaires is carried out within their appropriate designed life span.

This Bulletin is implemented immediately.

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References
Alberta Transportation Highway Lighting Guide

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