

SECTION 1000 LIGHTING

1001 ROADWAY LIGHTING

1001.01 GENERAL

The main function of roadway lighting is to improve driver visibility. A well illuminated roadway increases safety by allowing drivers to identify potential hazards or conflicts. Well designed lighting allows the driver to quickly recognize roadway features such as alignment, delineation, intersections, ramps, traffic signs, traffic signals, and pedestrian crossings. The improved driving environment in turn improves traffic operations, capacity and safety.

Lighting continuity is recommended for esthetic and functional reasons. Lighting continuity helps drivers identify roadway facilities and acts as a unifying design element.

Lighting design responsibility generally encompasses entire roadways within the project limits. However, at the time of concept planning, the design responsibility may be reduced or expanded by the Municipality. The designer should consult the Road Section as to any variation in the design requirements.

1001.02 LIGHTING DESIGN CONSIDERATIONS

Freeways and Expressways

Because freeways and expressways are wide and have higher traffic speeds, general street lighting requirements are inadequate for freeway and expressway lighting. High lumen lamps in conjunction with high mast poles are used to illuminate large roadway areas and reduce glare.

Interchanges

High mast lighting is ideal for illuminating interchanges and other large areas, because the illumination pattern is not confined to the basic driving lanes. High mast lights illuminate the entire interchange, creating the same overall view of the area as that perceived in daylight. High mast poles can be installed in suitably wide medians on multiple-lane roadways. This type of

lighting enhances traffic safety through high visibility, the need for fewer poles, and greater flexibility in their location.

Arterials and Frontage Roads

Arterials serve moderately high volumes of traffic at lower speeds than freeways and expressways. Although their primary function is to move and maintain uninterrupted traffic flow, they frequently have busy at-grade intersections requiring traffic control devices. These at-grade intersections require greater visibility for traffic signals, signs and the resulting crossing and turning conflicts.

Also, increased commercial development along arterials means increased pedestrian movements and possibly the need to accommodate public transportation (taxicabs and buses). Adequate lighting for pedestrian movements and public transportation's frequent stopping, loading and unloading of passengers is vital to safety along arterials. Arterial lighting must also blend with commercial development lighting to avoid combinations which detract from the overall lighting or result in poor visibility.

Sector Roads

A sector roads primary function is to provide direct access to adjacent properties. Although traffic speed is low, traffic volume can be heavy and frequently interrupted especially in residential and commercially developed areas. Because of increased access to commercial and private property, sector roads, compared to arterials, must accommodate an even heavier volume of pedestrian movement. Lighting considerations are much the same as for arterials.

Intersections and Pedestrian Crossings

Lighting intersection and pedestrian crossings is of particular concern and must be adequate for traffic and pedestrian security, as well as meeting environmental objectives. If necessary for traffic safety, pedestrian security, or to enhance appearance, the lighting color should be varied to define the various elements more clearly. Generally, the illumination level at an intersection of two at-grade roadways is the sum of the illumination of the two roadways.