

For example:

A two-lane roadway under an airport taxiway with a design speed of 30-mph may be as short as 180 feet. However, due to the small portal size (28 feet across, and 14 feet in height), and the north-south orientation of the roadway, very little daylight passes beyond the tunnel entrance, the tunnel is thus classified as a short tunnel. There is no need to taper the lighting in the tunnel since the driver's eyes never have a chance to adapt to the darkness.

The AASHTO criteria for tunnel lighting provide a range of **illuminance** values and uniformity ratios. The IESNA RP-22 recommendations provide a range of **luminance** values and ratios. Recent advancements in the AGI32 lighting design software allow the designer to consider reflectance of the tile walls within a tunnel and calculate the resultant luminance of the tunnel's roadway surface. The luminance method is much preferred over using a simple illuminance model.

3.10.6 Lighting for Other Streets and Highways

Lighting levels and uniformity ratios for local streets and urban arterial roadways are contained in IESNA RP-8. The lighting designer should fully understand the unique requirements of the municipality and pay close attention to the lighting levels at intersections.

3.10.7 Lighting at Intersections or Other Isolated Traffic Conflict Areas

Luminaires should be placed on or near prominent decision points. Intersection lighting should be provided from the signal pole using a luminaire bracket arm to avoid excessive poles at an intersection. Additional light poles may be necessary when the intersection has channelization or has complex turning lanes.

Luminaires on traffic signal poles may be powered from the traffic signal service point and will require a photocell for day/night control. Additionally, luminaires on MP-1 Combination Signal Poles may be powered from a local power company feeder. In this situation, the feeder is routed into a fused safety switch located on one of the signal poles. Branch circuits are then run from the fused safety switch to each luminaire/signal pole.

Lighting at isolated intersections or other traffic conflict areas serve to alert the driver approaching the conflict area. These situations are discussed in detail in the IESNA RP-8 section, Situations Requiring Special Consideration. Intersections, such as a remote fire station entrance, have no continuous roadway lighting leading to them. The lighting designer should make an effort to taper the lighting levels leading up to and away from the brighter intersection. Providing too much illumination, without tapering the lighting near this intersection, will cause excessive glare, and will reduce the contrast between the traffic signal and the background lighting. Effectively, the driver will require more time to notice a changing traffic signal.