Developing Guidance for Use of Lighting on Rural Roadways

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ABSTRACT

Nighttime driving has proven to be particularly challenging. For example, the U.S. Department of Transportation reports that 45% of all fatalities occur during dark conditions. Another study shows that the nighttime fatality rate is three times the daytime fatality rate. Crashes during dark conditions are more common than during light conditions. In an effort to limit the dark conditions at intersections, roadway lighting may be installed. This strategy can be effective, as long as the lighting levels and configuration allow the light to be useful.

Overhead lighting is often requested by the public whether or not it is warranted. While lighting at rural intersections has been shown to provide a positive safety benefit, it can be costly for rural agencies to install and maintain. As a result, in some cases agencies install the lowest cost configuration, such as a single light on a utility pole some distance from the intersection. Less-than-optimum lighting configurations may have little or no safety or lighting benefit because they may not illuminate the areas of the intersection where lighting is beneficial.

This paper details the development of guidelines to assist agencies in Iowa in deciding when good lighting is the appropriate countermeasure to address safety concerns at rural isolated intersections. The guidelines define what “good” lighting is; provide examples of common lighting configurations used in Iowa, with an assessment as to whether they provide adequate lighting using TarVIP (an overhead luminaire configuration program); and present other nonlighting countermeasures to rural intersection crashes.

Key words: lighting configuration—roadway lighting—TarVIP