Field experiments to evaluate lighting performance in nighttime highway construction

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Abstract

The utilisation of nighttime highway construction has increased in recent years in order to minimise daytime construction-related service disruptions and traffic congestion. In this type of nighttime construction, lighting arrangements need to be properly designed and implemented in order to enhance safety and productivity on site, and ensure full compliance with the required lighting specifications. A number of field experiments were conducted to evaluate the performance of various lighting arrangements in three typical highway construction zones, namely: activity area, transition and termination areas and flagger stations. In each of these zones, a number of practical lighting arrangements were found to be capable of satisfying all the lighting design criteria required by various Departments of Transportation. The experimental results also confirm that the set-up of lighting equipment on site has a significant impact on lighting performance, and therefore lighting arrangements should be carefully designed and executed on nighttime highway construction projects.

Keywords

- Highway construction,
- workspace,
- nighttime construction,
- computer models, light