

High-Mast Lighting for Highway Construction

For a highway construction project along Interstate 90 in Albany, New York, the contractor for the New York State Department of Transportation (NYSDOT) requested and received permission to use semi-permanent high-mast lighting in the nighttime work zone. Sixty-foot poles containing floodlight luminaires were installed along the three-mile work zone at the start of the project and were removed following the completion of the construction project.

NYSDOT contracted the LRC to evaluate the novel lighting system and to compare it to the conventional approach using trailer-mounted portable light towers, which have been recognized as being problematic for glare control and providing uniform illumination in a work area. The evaluation considered visibility, glare, economics, and environmental effects such as light pollution.



Trailer-mounted light towers introduce unwanted glare and sharp shadows, raising safety concerns in nighttime highway construction zones.



High-mast lighting provides better visibility and safety for road crews. Below, guard rails are replaced under the improved conditions.



The LRC project team found that the high-mast system:

- Provided uniform illumination with few shadows, resulting in improved visibility.
- Produced substantially less glare than a conventional system.
- Was initially more expensive than a conventional system using light towers; however, over the entire project cycle, the system reduced costs for labor, transportation, wiring, generator-rental, and fuel.
- Eliminated the need to set up and take down the lighting each night, allowing the project to be completed sooner than expected.

Based on its evaluation, the LRC developed a preliminary warranting procedure for determining when this new approach might be suitable for other roadway construction projects.

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