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3D MODELING FOR LIGHTING VISUALIZATION FOR ENHANCED SAFETY

*USING 3D MODELING AND LIGHTING TECHNIQUES TO ACCURATELY
DISPLAY REAL WORLD LIGHTING FOR A BETTER UNDERSTANDING OF
LIGHTING FOR PEDESTRIAN AND DRIVER SAFETY.*

Proper lighting for highways, tunnels, bridges, and pedestrian ways is an essential element to any well designed transportation project. With computer visualizations becoming main stream in the engineering and architectural professions, it's becoming easier to visualize designs of complex systems without performing physical mockups. Also, as the technology progresses 3D modeling has become integrated into the design process, from seeing exactly how structures will interact with shadow and light to how a system will look after final installation.

Computer generated models can use the actual photometric data from a lighting manufacturer and compute how the lighting will illuminate the surfaces and how the light will reflect onto other surfaces, revealing an accurate representation of a lighting design in any given situation. These models help the designer and owner see flaws in proposed lighting systems. Models can also be generated for daytime conditions showing the impact of shadows and safety issues they may cause. These 3D models can predict shadow locations and conditions for any day and time of the year.

This paper will review how these models are constructed, how accurate lighting designs are included, daylight modeling, and how these models are being validated with before and after comparisons and field tests.

