In 2012 33,561 people were killed on U.S. roads with 2.36 million people injured (NHTSA). As the number of roadway accidents remains such a high cause of death and injury globally, there is always a need for new and more effective road marking systems in the transportation industry. Illuminated Pavement Markers (IPMs) have been used by International transportation departments in every climate and in numerous different configurations for the past decade. These agencies report 75% reduction in nighttime accidents and 95% reduction in fatalities with the use of IPMs. Their users also consistently give positive reports after using IPM systems. However, IPM use in the U.S. has been very limited with only a dozen individual cases existing currently nationwide. As Utah has worked to become recognized as an innovator in transportation in recent years, it seems very appropriate that potential IPM use in Utah would identify concerns that other similar U.S. transit systems would likely encounter.

This review determined a baseline for this new technology and the questions to ask for its potential use on Utah roads. What IPM devices are available and do they consistently perform as reported? What traffic applications would benefit most from IPM systems? And what barriers exist for IPM use to be considered and implemented on Utah roads? A preliminary 3 month study was conducted in spring 2014. Seven typical IPM devices were reviewed for basic functionality and performance. The results of this study were positive enough to warrant further study of the higher potential IPM devices.

Further evaluation and research show that while many of these devices are available the feasibility and effectiveness of LED lighted IPMs stands out, with wired systems having the highest reliability. IPMs have been most effective for systems with pedestrian crossings, lane delineation needs, and other accident-prone concerns (intersections, curves, hills, and low-light areas). Major concerns in Utah of climate durability, repaving, maintenance, and snow plowing damage appear surmountable with the newest technology and are mostly limited by perception rather than performance. A Utah field test is being sought prior to the impending global acceptance of IPM devices.