

Solar Delineator Trial Project

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Introduction

The Kansas Department of Transportation (KDOT) partnered with the Pittsburg State University School of Construction to assess the installation of solar pavement lights at two intersections in southeast Kansas.

Solar pavement lights have been used in several places throughout the United States but have not had favorable results; either they did not stand up to traffic/snow plows or their renewable solar power gave out in 2 to 3 years and went dark. Research as to why these problems existed had not been adequately analyzed. KDOT saw three major concerns with using solar pavement markers: cost, proper installation, and longevity. We hoped to address these concerns with this research project.

Project Description

Six hundred solar pavement delineators were installed at two different locations along US-169 in southeast Kansas in the fall of 2013. Yellow and white lights were installed in both asphalt and concrete pavements. Six different installations methods were evaluated to determine the best practice for installation. A public survey was conducted to obtain the opinion of highway users.



Example of Solar Delineator Installation

Project Results

The solar delineation lights were evaluated after being exposed to two winter seasons. Overall the lights have worked very well in concrete, with all the pull out and damaged lights coming from the asphalt areas. Only 1.2% (seven out of 602) were damaged or pulled out.

Overall the public seemed to respond favorably to the utilization of the solar delineators. While one of KDOT's original hopes was that the lights would offer an effective and efficient alternative to the use of overhead lighting, the fact is that the overhead lights offer a superior illumination area when compared to the solar lights that illuminate the edge of pavement. From a safety point, the overhead lights are superior in illuminating the entire intersection or area, however, in adverse conditions this can lead to washing out of the pavement markings. The solar lights do a superior job of illuminating the pavement markings in adverse weather, such as rain and fog events.

In general, the solar delineators work very well to delineate the roadway and provide adequate direction to motorists. They are well suited for locations that would not currently meet our overhead lighting policy based on traffic volumes, geometrics, etc., and from the responses received could be a potential solution to the issues that present themselves on these rural exits.

KDOT will continue to monitor the delineators to evaluate their longevity.

Project Information

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