

# An eyes-on-road approach to reducing lane departure crashes



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**M**ohave County's cumulative traffic engineering work on traffic crash evaluation and safety audits suggests driver psyche factors into the recreation of traveling and time sensitivity in reaching destinations. Such phenomena erode driver focus and awareness and weigh on exposure to lane departure, wildlife collision, and vehicle conflict risk. Driver psyche forms a causal factor and emerging consideration in traffic safety analysis as it characterizes a driver's state-of-mind less focused on the driving task. Speed coupled with said phenomena amplifies the effect or potential effect on crash likelihood by most road- and environment-based traffic impacts.

Mohave County, Arizona operates Boundary Cone Road, a two-lane rural highway serving tourist traffic to the popular Historic Route 66 Town of Oatman. In July 2017, two separate fatal lane departure crashes occurred in the same month and in the same curve of transitioning alignment and elevation.

Mohave County Public Works responded with an in-house initiative to install solar-powered LED raised pavement markers (RPMs) through the subject curve and adjacent tangent sections for a distance equal to the stopping sight distance to slow from the highest approach 85th percentile speed to the posted advisory speed. For additional emphasis, RPMs were equally spaced at 40 feet, which corresponds to the value of N denoting the

length of one broken line segment plus one gap between broken lines.

Mohave County Public Works installed the steadily illuminated LED RPMs through the subject curve in July 2018. Its eyes-on-road appearance exuded a heightened sensory response by drivers to the transitioning roadway. An extended before-versus-after engineering study found the LED RPMs achieved statistically significant crash rate reduction and effective speed management through the subject curve.

## LED Raised Pavement Marker Effectiveness Evaluation

Parameter	Before Installation	After Installation
Evaluation Period	2.5 years	2 years
Crash Rate	17.6 crashes per MVMT	2.8 crashes per MVMT
WB (Downhill) 85th Percentile Speed	11% speed reduction into curve	20% speed reduction into curve

MVMT = million vehicle-miles traveled

Mohave County has applied this success toward the new and expanded installation of over 350 LED RPMs on priority curves countywide in 2024 through a 100-percent Federal Highway Safety Improvement Program funding opportunity.

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