

LegendViz™ Sign Legibility Study



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TEXAS A&M TRANSPORTATION INSTITUTE FINDS LEGENDVIZ™ BLINKERSIGNS INCREASE LEGIBILITY DISTANCE BY UP TO 267 PERCENT

SUMMARY

A nighttime, closed-course study by the Texas A&M Transportation Institute (TTI) involving standard traffic signs, traditional BlinkerSigns and new LegendViz™ BlinkerSigns revealed there was “strong statistical evidence” that the LegendViz™ BlinkerSigns increased sign legibility distance. They were also the most favored by participants in the study.

***The lit up letters helped
with reading angled signs.***

- A study participant

SITUATION

Low light conditions can negatively impact the legibility of traffic signs, reducing sign awareness and compliance. A 2018 survey of state and local traffic engineers revealed that 45 percent of respondents were seeking improved legend visibility at night.

This spurred us to develop the LegendViz™ Traffic Sign, which features a non-flashing, LED-illuminated legend, and the LegendViz™ BlinkerSign®, which features that same technology paired with flashing perimeter LEDs. The objective of these signs is to improve sign legibility without the need for retroreflectivity or headlights, increasing situational awareness and enhancing transportation safety.

To quantify the effectiveness of this latest traffic sign innovation, sought the research expertise of TTI. TTI conducted a closed-course, nighttime study to assess the legibility of the new LegendViz™ BlinkerSign® in comparison to traditional types of signs.

STUDY

TTI conducted the study at the Texas A&M University System RELLIS Campus in Bryan, Texas with 31 participants. The study included three basic sign types:

- Standard retroreflective static sign (standard)
- Flashing red perimeter LED retroreflective sign (BlinkerSign®)
- Flashing red perimeter LED and non-flashing white LED illuminated legend retroreflective sign (LegendViz™ BlinkerSign®)



Standard



BlinkerSign®



LegendViz™
BlinkerSign®

These three sign types were then divided into nine treatments, which were positioned differently to simulate real-life roadway circumstances.

The first six treatments were mock stop signs – a mix of standard signs, BlinkerSigns and LegendViz™ BlinkerSigns – with varying legend texts. Through previous sign studies, TTI determined that participants often identify a red octagon as a stop sign before they read the legend. To ensure participants were truly reading the sign legend, a mix of TOPS, POST and POTS was used rather than STOP.

These mock stop signs were placed on either side of a simulated two-lane road 12 feet from the edgeline and mounted at a height of seven feet, replicating a standard

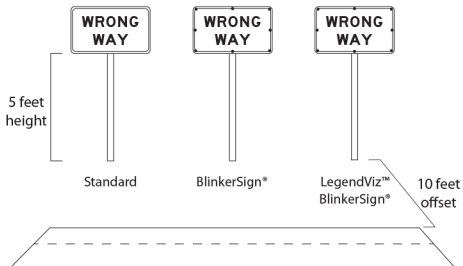
***The lit up letters helped
me read the text.***

- A study participant

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The last three treatments were wrong-way signs – one of each sign type – set up parallel to the simulated two-lane road 10 feet from the edgeline and mounted at a height of five feet, replicating a standard wrong-way sign layout (parallel to participants). The course also included distractor signs and numerous control sign installations.

Participants drove through the course at 30 mph at night, verbally announcing the text on each sign as soon as they could read it. Researchers documented the drivers' specific GPS coordinates upon successful comprehension of each sign. Additionally, after driving through the course, participants were asked two questions:

- Which type of sign do you feel helped you to best see the sign text?
- Which type of sign do you feel helped you the least to see the sign text?

RESULTS

TTI concluded with “strong statistical evidence” that participants had increased legibility distances when approaching LegendViz™ BlinkerSigns compared to the other sign types.

When placed on the left side of the road from the driver's point of view, LegendViz™ BlinkerSigns provided a 207 percent increase in legibility distance over BlinkerSigns and a 90 percent increase over standard signs. When placed on the right side of the road from the driver's point of view, LegendViz™ BlinkerSigns provided a 117 percent increase over BlinkerSigns and a 267 percent increase over standard signs.

In addition, sixty percent of participants responded that the LegendViz™ BlinkerSigns helped them best read the signs, especially the older participants.

The results of this closed-course, nighttime study supported our original objective for the LegendViz™ BlinkerSign®: offer better sign legibility in low light conditions and/or when vehicles' headlights and retroreflectivity are absent. Our BlinkerSigns have also been previously determined to increase conspicuity.

The two technologies paired together increase nighttime sign legibility by over 100 percent and, ultimately, improve safety for all road users.

87%
of participants 55 years and older said the LegendViz™ BlinkerSign® helped them **best** see the sign text

WRONG WAY

0%
of participants said the LegendViz™ BlinkerSign® helped them the **least** to see the sign text