



Use LED Units Within a Regulatory or Warning Sign

The embedding of light emitting diodes (LEDs) within a sign's symbol, legend, or border to increase its conspicuity.

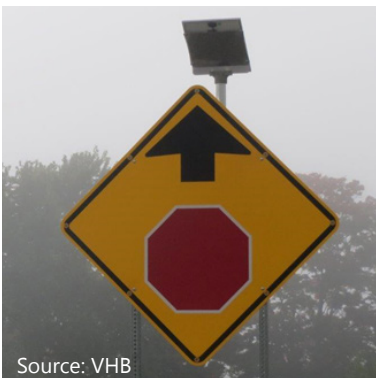


Source: Terry Berends (WSDOT)



Source: City of Olathe, KS

The borders of the STOP sign and Intersection Warning sign above are enhanced with LEDs, with both assemblies powered via the solar panel above the sign.



Source: VHB

The conspicuity of this Stop Ahead sign is enhanced with LED units, which are particularly valuable during foggy conditions.



Targeted Crash Types

- Right-angle
- Rear-end (major road)
- Rear-end (minor road)
- Pedestrian
- Bicyclist

Problems Addressed

- Inadequate visibility of intersection or intersection traffic control devices
- Non-compliance with intersection traffic control devices
- Vehicle conflicts with non-motorists
- Speeding

Conditions Addressed

- Crash history or observed vehicle conflicts caused by non-compliance with traffic control device or lack of awareness of intersection traffic control.
- Existing sign is not conspicuous in its current surroundings.
- Poor sign visibility during low-light conditions.

Considerations

- LEDs can be set to flash or steady mode.
- LEDs have low power requirements and are typically powered by standalone solar panel units.
- Can be activated by vehicles or be on continuously throughout the day.
- Take care not to overuse LEDs in signs, as drivers may become accustomed to their presence and fail to respond as desired.
- Can be applied in conjunction with other treatments to increase sign conspicuity.
- LEDs must be red or white if used with STOP (R1-1) or YIELD (R1-2) signs, white if used with other regulatory signs, and white or yellow if used with warning or school signs

Select Examples

- [Ohio 303 & Indian Hollow Rd., LaGrange, OH](#)
- [Eber Rd. & US 20A, Monclova, OH](#)

Other Resources

- [Embedded LEDs in Signs, FHWA](#)
- [Innovative Operational Safety Improvements at Unsignalized Intersections, Florida DOT](#)

Industry Standard

- MUTCD*
- [Section 2A.07: Retroreflectivity and Illumination](#)
- [Section 2A.15: Enhanced Conspicuity for Standard Signs](#)