



# Traffic Guidelines Manual

ORIGINATOR State Traffic Engineer		2-1-8
CHAPTER 2	Signing	
SECTION 1	Regulatory	
SUBJECT 8	LED's (Blinker Signs)	

## A. Purpose

The 2009 MUTCD, [section 2A.07](#) provides standards and options for the usage of Light Emitting Diode (LED) units within the face of a sign and in the border of a sign to improve conspicuity and increase the legibility of sign legends and borders. This policy provides requirements and guidance on the proper use of the LED (commonly referred to as blinker) signs on state maintained highways. Per the MUTCD, these blinker signs *may* be used on STOP signs, Warning signs and other Regulatory signs such as speed limit sign or school signs. This policy provides guidance and requirements for usage on state maintained highways.

## B. Background

The MUTCD, Wisconsin Supplement includes language in [Section 2A.07](#) which provides guidelines for the proper use of these devices. They are considered similar to flashing beacons in section [4L](#) of the MUTCD. The limiting guidelines under which they are considered in the Wisconsin Supplement are:

- Guideline 1: Demonstrated crash problem
- Guideline 2: Visibility restrictions
- Guideline 3: Unusual geometrics
- Guideline 4: Poor conspicuity – sign blending in with the environment

These 4 guidelines apply to all public highways and streets, including those not under state jurisdiction. The policy statements below pertain specifically to state maintained highways.

## C. Definitions and MUTCD requirements (if LED's used)

1. LED's **shall** have a maximum diameter of ¼ inch and **shall** be the following colors based on the type of sign:
  - a. White or red, if used with STOP or YIELD signs.
  - b. White, if used with regulatory signs other than STOP or YIELD signs.
  - c. White or yellow, if used with warning signs.

2. If flashed, the LED units **shall** flash simultaneously at a rate of more than 50 and less than 60 times per minute.
3. The uniformity of the sign design **shall** be maintained without any decrease in visibility, legibility, or driver comprehension during either daytime or nighttime conditions.
4. A module of multiple LED units used as a closely-spaced, single light source **shall** only be used within the sign face for legends or symbols.

#### D. Policy

The usage of any illumination methods for traffic signs, including LED's, is strictly limited to situations with documented safety concerns.

1. Local authorities **shall not** be allowed to install LED units on State Maintained highways.
2. Blinker signs **shall** only be considered at existing locations. A conversion from a two to four way stop is also considered an existing location. New locations **shall not** be considered until such time as a minimum of one-year crash data, volume data and other traffic data is available for a traffic evaluation safety study **shall** be submitted to the State Safety Engineer for review.
3. For blinker STOP and STOP AHEAD signs, at a minimum, consider at intersections that meet both of the following criteria:
  - a. Crashes due to failure to stop (i.e. running the stop sign) not failure to yield the R/W (i.e. stopping and then proceeding)
  - b. At least 2 documented failures (crash reports ) to stop in a most recent 12 month period or 3 documented failures to stop within the past five years.
4. Other countermeasures *should* be considered first, prior to installation of blinker STOP and STOP AHEAD signs, to address safety concerns such as:
  - a. Clearing vegetation
  - b. Double marking STOP AHEADS or STOP signs
  - c. Flags on signs
  - d. Rumble strips
  - e. Increasing sign sizes
  - f. Flashing Beacons
  - g. Others
5. Side-by-side ramps are common at partial cloverleaf interchanges where entrance and exit ramps operate directly adjacent to one another at the interchange ramp terminal. Geometric design techniques to discourage wrong way maneuvers *should* be considered at side-by-side ramps.

Where design constraints exist, blinker WRONG WAY signs *may* be utilized at side-by-side interchange ramps, provided there are documented wrong way movements noted by law enforcement or the Department. Blinker WRONG WAY signs **shall** not be used at locations other than side-by-side interchange ramps. WRONG WAY blinker signs shall only be used downstream of the ramp termini.

6. To maximize the effectiveness of the blinker WRONG WAY signs, vehicle actuated and time-of-day usage **shall** be considered by the Region. Some examples of time-of-day usage would include:
  - Operation during periods when wrong way drivers are prevalent.
  - Operation during periods of low visibility or darkness, which may include a photocell operation.
7. In order to avoid a proliferation of blinker signs, at this time they **shall** only be used for STOP, STOP AHEAD, and WRONG WAY signs (at side-by-side ramps). These are considered the more important of the regulatory and warning sign series. There is the longstanding concern that overuse of the blinker signs will diminish their effectiveness.

\*There have been requests to utilize different types of blinker signs. To address these requests, the Bureau of Traffic Operations is in the process of coordinating the evaluation of different types of blinker signs, and the evaluation results will determine the potential expansion of use per statewide policy. Presently, blinker signs are currently being evaluated on chevron signs in the SE and SW Regions, where there is dynamic (vehicle actuated) system.

Any requests for additional blinker sign evaluations **shall** be approved by the Bureau of Traffic Operations.

8. Blinker STOP AHEAD signs **shall** be furnished and installed by WISDOT on State Highways based on the criteria noted above.
9. Do not install blinker STOP signs and STOP AHEAD signs on the same approach. If used, where there is a curve or hill approaching a STOP sign use blinker on STOP AHEAD sign rather than STOP sign.
10. Do not mix beacons and blinker signs with STOP and STOP AHEAD signs on the same approach.

A cost comparison analysis *should* be done to determine where beacons or blinker sign is more appropriate. Studies have not been performed to determine if one device is more appropriate than the other.