

Section VI. Special Applications – Cont'd

C. Bicycle Signal Phases

Signalized intersections may be operated with phases specifically intended for bicyclists. These bicycle phases are used in combination with an intersection traffic control signal to control the movements of bicycles through an intersection. While less restrictive means of handling conflicts between bicyclists and motorists should be considered first, bicycle signal phases can be a useful tool to improve the safety or service of bicyclists through an intersection. Bicycle signal phases shall direct bicyclists to take specific actions and may be used to improve an identified safety or operational problem involving bicyclists.

Alternative means of reducing or eliminating the bicycle-motor vehicle conflicts may include:

- Striping to direct a bicyclist to a lane adjacent to a traffic lane such as a bike lane to the left of a right-turn-only lane.
- Redesigning the intersection to direct a bicyclist from an off-street path to a bicycle lane at a point removed from the signalized intersection.

1. Basis for Installation

A bicycle signal phase should only be considered for use when an engineering study finds that a significant number of bicycle/motor vehicle conflicts occur or may be expected to occur at the intersection and that other less restrictive measures would not be effective. Proximity to schools, parks, and popular bike routes should be considered. Additional delay to all roadway users should be considered. One of the following criteria below should be met:

- a. Two or more reported bicycle/vehicle collisions of types susceptible to correction by a bicycle signal have occurred over three years.
- b. Geometric factors are present that are best mitigated through the use of a bicycle signal phase.
- c. An approach to a signalized intersection is intended for bicycles only and it is desirable to signalize that approach.

Examples of geometric configurations that might benefit from the use of a bicycle signal phase include:

- a bike lane to the right of a high volume right turn; and,
- a multi-use path that comes into the intersection in such a way that motorists may not see or yield to bicyclists approaching the intersection.

2. Standard Practice

The bicycle signal phase indications shall use the special bicycle symbol as described below. Only green, yellow and red lighted indications shall be used to implement bicycle signal phases at a signalized intersection. A bicycle signal phase may be operated exclusively or in conjunction with other compatible vehicle or pedestrian phases.

The primary bicycle signal head should utilize eight or twelve-inch displays. Near-side or supplemental heads may utilize smaller displays. The bicycle symbol should closely resemble the figure shown in sign W11-1 as depicted in the current MUTCD and the FHWA Standard Highway Signs manual.



The bicycle signal indications should be placed to maximize visibility for bicyclists and minimize visibility for motorists. The bicycle signal indications may need to be shielded or programmed to reduce visibility to conflicting motorists.

3. Optional Practices

- a) A near-side display may be added to improve bicyclist compliance with the bicycle signal.
- b) The bicycle signal head may be designated as a bicycle-specific signal with a sign posted above or below the signal head. A bicycle signal head may also be designated by placing a bike symbol directly on the signal backplate.
- c) On approaches where more than one bicycle signal head is used to direct different bicycle movements through an intersection, an arrow may be marked on each back plate or sign below the green (bottom) display to indicate the intended direction of bicycle movement.
- d) A full or part-time restriction of right turns on red may be posted to prevent motor vehicles from turning right on red when bicyclists have a green indication.
- e) A bicycle signal may be used to implement a leading bicycle interval.

Sample pictures

The installations pictured below would all meet the intent of the above policy



Davis, CA



Portland, OR



Switzerland