

AB1581 Subcommittee

Bicycle and Motorcycle Detection

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Overview

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- AB1581 Subcommittee
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- Subcommittee's Recommendation to CTCDC
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CVC 21450.5

- CVC 21450.5 requires that Caltrans, in consultation with other public agencies, establish uniform standards, specifications, and guidelines for the detection of bicycles and motorcycles and related signal timing at new or upgraded signalized intersections

Subcommittee Members

On January 31, 2008, CTCDC requested Caltrans to form a subcommittee to identify the requirements to detect bicycle and motorcycles at signalized intersections. The members of the AB1581 Subcommittee are:

- Robert Shanteau Consulting Traffic Engineer
- Damon Curtis SFMTA
- James Lombardo ABATE
- David Roseman City of Long Beach
- Sean Skehan LADOT
- Kai Leung Caltrans
- Ken McGuire Caltrans
- Richard Haggstrom Caltrans
- Ahmad Rastegarpour Caltrans



Subcommittee Meetings

- The AB1581 Subcommittee met on March 4th, April 2nd, and July 9th to identify the requirements to detect bicycles and motorcycles at signalized intersections in accordance with CVC section 21450.5

Subcommittee's Recommendation to the CTCDC

- Bicycle/motorcycle detection shall be performance based and technology-independent
- There are existing detection systems that detect bicyclists and motorcyclists
- Compatible and future detection technologies that meet the same performance requirements are acceptable

Proposed CAMUTCD Language for Bicycle/Motorcycle Detection

- The subcommittee has prepared the following language for inclusion into the CAMUTCD:

Proposed CAMUTCD Language

Section 4A.02 Definitions Relating to Highway Traffic Signals

15. Detector – a device used for determining the presence or passage of vehicles, bicycles or pedestrians. [added “bicycles”]



All New CAMUTCD Language

50A. Reference Bicycle-Rider – a minimum 4' tall person, weighing minimum 90 lb, riding on an unmodified minimum 16" wheels bicycle, with non-ferromagnetic frame, aluminum rims, stainless steel spokes, and head light. Such bicycle-rider combination when properly placed in an approved detection system, shall be detected at least 95% of the time. The Reference Bicycle-Rider shall be considered adequate for testing motorcycle detection. Functional equivalent of the Reference Bicycle-Rider would be allowed for certification.



CAMUTCD Language

29A. Limit Line Detection Zone – a 6'x6' area immediately behind the limit line, centered in the lane, anywhere within which the Reference Bicycle-Rider shall be detected at an accuracy level of 95 percent or better under all weather and lighting conditions. If the lane is wider than 12', then the left edge of the detection zone shall be 3' from the lane line.



CAMUTCD Language

Delete existing 4D.105 (CA) Bicycle Detectors in its entirety and substitute:

Section 4D.105 (CA) Bicycle/Motorcycle Detection

Standard:

All new detector installations and modifications to the existing limit line detection shall provide a Limit Line Detection Zone.



CAMUTCD Language

Support:

CVC Section 21450.5(b) states that upon the first placement of a traffic-actuated signal or replacement of the loop detector of a traffic-actuated signal, the traffic-actuated signal shall, to the extent feasible and in conformance with professional traffic engineering practice, be installed and maintained so as to detect lawful bicycle or motorcycle traffic on the roadway.



CAMUTCD Language

Option:

Where the full 6'x6' Limit Line Detection Zone cannot be established, a Bicycle Detector Symbol (BDS) shall be installed to indicate the best possible detection area for bicyclists/motorcyclists to stop.



CAMUTCD Language

Guidance:

Where a BDS is installed, the following standards should apply:

1. The BDS should be in the center of the bicycle lane
2. The BDS should be installed to the left for the right-most through lane when a bicycle lane is absent
3. The BDS should be installed to the right for the right-most left turn lane

CAMUTCD Language

4. Where multiple left turn lanes are present and U-Turn is allowed, the BDS should also be installed to the left for the left-most left turn lane
5. The BDS should be at least 30” from the nearest travel lane
6. The BDS should be at least 18” from the center of the lane to avoid oil slick

The Limit Line Detection Zone is not required for phases that are on permanent recall or fixed time operation.



CAMUTCD Language

Standard:

The Reference Bicycle-Rider shall be used to confirm the accuracy level of 95 percent or better under the following situations:

- 1. A new detection system has been installed**
- 2. The detection configuration has been modified**
- 3. A complaint has been made about lack of detection by bicyclists/motorcyclists**



CAMUTCD Language

Guidance:

Signalized intersections may use multiple detection technologies (hybrid systems) to detect bicycles and motorcycles

CAMUTCD Language

Standard:

Bicycle push buttons shall be used in areas where it is not feasible to establish detection, permanent phase recall, or fixed time operation.

Option:

Bicycle push buttons may be used to supplement bicycle/vehicle detection.



CAMUTCD Language

Standard:

The BDS shall not be used in any lanes that lead to facilities where bicyclists are prohibited.

Guidance:

Safety and detection of the bicyclists/motorcyclists should be considered in the placement of the BDS.



CAMUTCD Language

Section 9C.05 Bicycle Detector Symbol

Option:

If the Reference Bicycle-Rider is not detected in the full Limit Line Detection Zone, then a Bicycle Detector Symbol (see Figure 9C-7(CA)) shall be placed on the pavement indicating the optimum position for a bicyclist to actuate the signal.



CAMUTCD Language

An R10-22 sign (see Section 9B.12 and Figure 9B-2) may be installed to supplement the pavement marking.

Support:

Section 4D.105 (CA) and Figure 4D-111 (CA) contain information on bicycle detectors and their locations.



