STATE OF CALIFORNIA• DEPARTMENT OF TRANSPORTATION

POLICY DIRECTIVE

TR-0011 (REV 9/2006)

TRAFFIC OPERATIONS POLICY DIRECTIVE	NUMBER: **12-01**	PAGE: 1 of 8
ROBERT COPP, DIVISION CHIEF (Signature)	DATE ISSUED: March 28, 2012	EFFECTIVE DATE: March 28, 2012

SUBJECT:

Change the Pedestrian Clearance Time to a Maximum Walking Speed of 3.5 feet per second, and Install Accessible Pedestrian Signal (APS) System and Pedestrian Countdown Timers at Signalized Intersections and Signalized Pedestrian Crossings on the State Highway System.

DISTRIBUTION

- ☒ All District Directors
- ☒ All Deputy District Directors - Traffic Operations
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- ☒ Publications (California MUTCD Website) www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/ca_mutcd.htm
- ☐ Headquarters Division Chiefs for:

_____

DOES THIS DIRECTIVE AFFECT OR SUPERSEDE ANOTHER DOCUMENT? ☐YES ☒NO	IF YES, DESCRIBE
WILL THIS DIRECTIVE BE INCORPORATED IN THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES ☐YES ☒NO	IF YES, DESCRIBE:

DIRECTIVE

A maximum walking speed of 3.5 feet per second for pedestrian clearance time shall be used at all signalized intersections and signalized pedestrian crossings.

The APS system and pedestrian countdown timers shall be installed at all new signalized intersections and signalized pedestrian crossings. At modified signalized intersections or pedestrian crossings, if more than 50 percent of the existing pedestrian signals or pedestrian pushbuttons are being replaced, then both the APS system and pedestrian countdown timers shall be installed at these locations.

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IMPLEMENTATION OF THE WALKING SPEED OF 3.5 FEET PER SECOND

All signalized intersections and signalized pedestrian crossings on the State Highway System shall use the maximum walking speed of 3.5 feet per second for the pedestrian clearance time by December 31, 2014.

If it is determined that the use of the walking speed of 3.5 feet per second is not feasible due to the complexity of intersection geometry, traffic volumes, arterial coordination, etc., then District Traffic Signal Operations is responsible for documenting the engineering reasons and maintaining the file for deviation.

If it is determined that there are pedestrians who walk slower than 3.5 feet per second, or pedestrians who use wheelchairs, routinely use the crosswalk, a walking speed of less than 3.5 feet per second should be considered. The California Manual on Uniform Traffic Control Devices (CAMUTCD) 2012 provides the option to use a walking speed of as low as 2.8 feet per second in determining the pedestrian clearance time.

The following priority list can assist the Districts with the implementation of the walking speed of 3.5 feet per second:

1. New and modified signalized intersections should be the highest priority.
2. Intersections adjacent to those using the walking speed of 3.5 feet per second to maintain consistency in signal operation.
3. Intersections with significant pedestrian volumes.

The District signal operation engineer shall implement the maximum walking speed of 3.5 feet per second for the pedestrian clearance time at all existing locations according to Table 1 shown below:

Table 1: Timetable for Implementing Maximum Walking Speed of 3.5 feet per second

Percent of Signalized Locations Using the Walking Speed of 3.5 feet per second	Date
30%	December 31, 2012
70%	December 31, 2013
100%	December 31, 2014

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IMPLEMENTATION OF THE APS SYSTEM AND PEDESTRIAN COUNTDOWN TIMERS

The APS system and pedestrian countdown timers shall be installed at all new signalized intersections and signalized pedestrian crossings on the State Highway.

At modified signalized intersections or pedestrian crossings, if more than 50 percent of the existing pedestrian signals or pedestrian pushbuttons are being replaced, then both the APS system and pedestrian countdown timers shall be installed at these locations.

Upon completion of the APS installation, if there is no immediate need for APS function, then the system will be disabled until such need is determined.

The area traffic engineer in consultation with the District Americans with Disabilities Act (ADA) engineer and signal operation engineer will determine when to enable and configure the APS function at each location. They shall collaborate with the local visually impaired stakeholders in the implementation of the APS function.

In situations where the local agencies are operating and maintaining the traffic signal system on the state highway, the local agencies shall collaborate with the local visually impaired stakeholders for the implementation of the APS system.

Installation of the APS system and the pedestrian countdown timers is not required at locations where pedestrian crossings are prohibited.

Installation of the APS system is not required at any signalized intersection or pedestrian crossing that is determined to be not feasible due to the complexity of intersection geometry, uncontrolled vehicular movements, and traffic signal phasing. District Traffic Operations is responsible for documenting the engineering reasons for not installing APS system and maintaining the file for deviation. The District ADA engineer and Headquarters Traffic Liaisons shall review and approve any findings reported by District Traffic Operations.

It is recommended that the District ADA engineer use the attached Intersection Worksheet on page 8 that has been developed as part of the National Corporate Highway Research Program (NCHRP) Project 3-62 to produce ratings for all existing signalized intersections. These ratings will establish priorities for APS installation at existing signalized intersections. The District ADA engineer shall complete APS ratings for all signalized intersections according to Table 2 shown below. The District ADA engineer should collaborate with signal operation engineer to collect the necessary information in the Intersection Worksheet pertaining to each location.

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Table 2: Timetable for Completing APS Ratings

Percent Completion of APS Ratings for Existing Signalized Intersections	Date
30%	December 31, 2012
70%	December 31, 2013
100%	December 31, 2014

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BACKGROUND OF THE WALKING SPEED

The Federal Highway Administration's (FHWA) Office of Safety has published "How to Develop a Pedestrian Safety Action Plan" dated February 2006, that recommends the walking speed of 3.5 feet per second or even 3 feet per second at locations with substantial number of older pedestrians.

The Federal Manual on Uniform Traffic Control Devices (MUTCD) 2009 states that traffic signal operations should use the walking speed of 3.5 feet per second instead of the current 4 feet per second to calculate the pedestrian clearance time at signalized intersections. The NCHRP 562, dated 2006, recommends the adoption of the new walking speed of 3.5 feet per second.

The Highway Capacity Manual (HCM) recommends the use of slower walking speed, such as 3.5 feet per second or even 3 feet per second when the percentage of walkers over the age of 65 represents 20 percent or more of the pedestrian population using the crossing.

The Complete Streets Implementation Action Plan dated February 1, 2010, recommends that the Department improves safety, access, and mobility for pedestrians as integral elements of the transportation system. It also states that "in routine work on traffic lights, the timing can be changed to better accommodate pedestrians walking at a slower speed."

The Federal Highway Administration (FHWA) recognizes that the recommended walking speed of 3.5 feet per second might reduce the vehicular capacity of intersections, where longer pedestrian intervals would reduce the available green time for vehicles or could necessitate using a longer cycle length. The walking speed of 3.5 feet per second could negatively impact intersections in a coordinated signal system and could require considerable time and effort to retime signals and implement in large systems.

The CAMUTCD 2012 establishes a baseline of between 3.5 feet per second and 4 feet per second for the pedestrian walking speed. Notwithstanding the potential impacts to vehicular capacity, the department has decided to use the walking speed of 3.5 feet per second for the pedestrian clearance time at all of its signalized intersections and signalized pedestrian crossings to enhance safety and mobility for pedestrians.

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BACKGROUND OF THE APS SYSTEM AND PEDESTRIAN COUNTDOWN TIMERS

The APS system provides confirmation that a WALK signal request has been received and provides unambiguous indications of which crosswalk at a signalized intersection has the WALK signal. The APS system will enable pedestrians who are blind or visually impaired to safely and efficiently cross at signalized intersections or pedestrian crossings.

The FHWA has published new APS standards in the MUTCD 2009. The installation of pedestrian countdown timers is mandated in the MUTCD 2009. The Department has adopted the MUTCD 2009 under the CAMUTCD 2012. Although the installation of the APS system is not mandated in the MUTCD 2009, the Department plans to install both pedestrian countdown timers and APS system at new and modified signalized intersections and signalized pedestrian crossings.

The primary technique that pedestrians who have visual disabilities use to cross streets at signalized intersections is to initiate their crossing when they hear the traffic in front of them stop and the traffic alongside them begin to move, which often corresponds to the onset of the green interval. The existing environment is often not sufficient to provide the information visually impaired pedestrians need to cross a roadway at a signalized intersection.

The APS provides information in non-visual formats, such as audible tones, speech messages, and/or vibrating surfaces. APS improves pedestrian orientation to their travel direction and provides guidance to pedestrians who are visually impaired when crossing the signalized location.

The APS system consists of electronic control equipment, mounting hardware, pushbuttons, and signage to provide accessible walk indication. Functionalities include audible speech message, pushbutton locator tones, tactile arrow, vibrotactile indications, tactile map of the crosswalk, pushbutton information message, etc.

The NCHRP project 3-62 as well as the work of the Public Right-Of-Way Access Advisory Committee has demonstrated that APS system improves the safety for all visually impaired pedestrians crossing signalized intersections. The Intersection Worksheet in the APS Prioritization Tool has been developed as part of the NCHRP Project 3-62. It provides the District ADA engineer with the means to take observable characteristics of a location and produce a rating that reflects the relative crossing difficulty for pedestrians who are visually impaired, thus enabling prioritization of locations for installation of APS. The full instruction manual and Prioritization Tool forms can be found at the following web links:

http://www.apsguide.org/chapter5_tool.cfm and http://www.apsguide.org/appendix_d.cfm

ATTACHMENT

Prioritization Tool for Installation of Accessible Pedestrian Signals

Intersection Worksheet

Location:

Configuration (select one)	Points	Score
4-leg	0	
4-leg offset	3	
3-leg (T or Y)	3	
5 or more legs	12	
Midblock location	14	
Signalization (select one)	Points	Score
Pre-timed	0	
Actuated (Semi or fully)	2	
Split phasing	6	
Exclusive ped phase	8	
Transit Facilities within a block (~ 1/8 mile) of the intersection - all legs (select one)	Points	Score
No transit facilities	0	
Single bus route	1	
Multiple bus routes	3	
Transit mall/rail station	5	
Distance to Facility for Visually Impaired (select one)	Points	Score
> 2600 ft (~1/2 mile)	0	
< 2600 ft (~1/2 mile)	4	
< 1300 ft (~1/4 mile)	6	
< 650 ft (~1/8 mile)	8	
< 300 ft	10	
Distance to Major Pedestrian Attraction (select one)	Points	Score
> 2600 ft (~1/2 mile)	0	
< 2600 ft (~1/2 mile)	2	
< 1300 ft (~1/4 mile)	3	
< 650 ft (~1/8 mile)	4	
< 300 ft	5	
	Intersection Worksheet Score: (sum of scores on this page)	

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