



Bicycle and Pedestrian Advisory Committee, Monthly Meeting
Thursday, October 21, 2010, 5:30-7:30 p.m.
Oakland City Hall, Hearing Room 4, Second Floor

AGENDA

Time	Item #	Topic	Topic Type *
5:30	1	Introductions, Appointment of Note Taker (5 minutes)	Ad
5:35	2	Approval of Meeting Minutes (consent item) (5 minutes) Vote on motion to adopt September meeting minutes.	A
5:40	3	Draft crosswalk policy Attachment (30 minutes)—Supervising Transportation Engineer Joe Wang will describe the City's new draft crosswalk policy, and take comments from the committee.	A
6:10	4	53rd St Bikeway Alternatives Analysis Link (30 minutes)—Based on public comments received on the proposed 53 rd St bikeway from Adeline St to San Pablo Ave, staff analyzed possible alternatives. Staff will share the results of the analysis and request feedback on proposed changes to the bikeway alignment.	A
6:40	5	Bicycle detection: Prioritizing traffic signals for upgrades (20 minutes)—Staff will explain the detection status of traffic signals on the Proposed Bikeway Network, and take comments on the prioritization of upgrades to ensure that bicyclists are detected.	A
7:00	7	Annual bike projects status update Link (20 minutes)—Staff will provide an update on the status of bikeway projects and request input on which projects should be scheduled for design review.	A
7:20	8	Announcements, suggestions for next meeting topics (10 minutes)	A

*** Topic Types:**

I=informational; A=action item; Ad=administrative



DEPARTMENT OF ENGINEERING AND CONSTRUCTION STANDARD

No: [Issued by DCSD Administrative Support Services]

Approved: [Approved date by Deputy Director]

Subject: City of Oakland Crosswalk Policy

Supersedes: N/A

Policy Purpose

The City of Oakland has made decisions regarding the placement and design of marked crosswalks based on established nationwide standards and prevailing traffic engineering practice. As these standards often fall short of addressing specific situations and prevailing practice evolves, the City recognizes the need to create its own, more detailed crosswalk policy that can satisfy conflicting interests and opinions. More importantly, having a more detailed policy will help the City maintain a consistent practice that provides the safest walking environment for its citizens. For these reasons, the City has created the *City of Oakland Crosswalk Policy*. While the *Policy* was written with the specific needs of Oakland in mind, it is rigorously based on the principles of the *California Manual on Traffic Control Devices (CAMUTCD)*¹ and the results from the latest research conducted by the Federal Highway Administration (FHWA).

Crosswalk Definition

It is legal for pedestrians to cross the street perpendicularly at any intersection with or without a marked crosswalk, and drivers must yield right-of-way to them (*California Vehicle Code (CVC) Section 21950*). Therefore, a marked crosswalk is not required at every intersection. Marking a crosswalk serves primarily to guide pedestrians to use a preferred path and, secondarily, alert drivers of pedestrians. Typically, a marked crosswalk consists of two parallel, 12-inch white lines (yellow in school zones) spaced no less than 6 feet apart installed in the pedestrian's direction of travel. Marked crosswalks are typically installed in alignment with the sidewalk providing the same direction of travel.

According to the *CAMUTCD*, "Crosswalks should be marked at all intersections where there is substantial conflict between vehicular and pedestrian movements. Marked crosswalks also should be provided at other appropriate points of pedestrian concentration, such as at loading islands, mid-block pedestrian crossings, or where

pedestrians could not otherwise recognize the proper place to cross. Crosswalk lines should not be used indiscriminately. An engineering study should be performed before they are installed at locations away from highway traffic signals or stop signs.”

Previous Studies

A study first of its kind conducted by the City of San Diego in 1970² concluded that pedestrians are twice as likely to be struck by a car when crossing in marked crosswalks compared to unmarked crosswalks. The reaction by some in the engineering community to remove or discontinue the installation of crosswalks in response to this study has been proven to be ineffective and deemed unacceptable by the general public. Furthermore, newer studies have offered refinements and clarification for the original study suggesting that other factors like traffic volume, street width, and lane configuration play a significant role in collision likelihood and, in some cases, features like signs, refuge islands, high-visibility markings, and traffic control devices may be better amenities to marked crosswalks than the mere absence of them.

Since the initial San Diego study in 1970, many government agencies from local to federal have conducted their own studies to compare the safety of marked versus unmarked crosswalks. They include the FHWA study in 1983, the Long Beach study in 1986, the Transportation Research Board study in 1988, the Caltrans' study in 1996, and the Santa Ana study in 1998.³

FHWA's *Safety Effects of Marked versus Unmarked Crosswalks at Uncontrolled Locations*⁴, published in 2005, summarizes what is considered the authoritative study on the marked versus unmarked crosswalk topic. Data for this study were collected from 2,000 locations from 30 cities nationwide including Oakland. As the title of this document suggests, the study compares empirical data on the likelihood of auto-pedestrian collisions within marked versus unmarked crosswalks. The primary conclusion of this study is that as vehicle volume, speed, and number of traffic lanes increase, crosswalks should be enhanced beyond transverse striping and not avoided or removed.

The Transportation Research Board's (TRB) national Cooperative Highway Research Program (NCHRP) published a report in 2006. *NCHRP Report 562*⁵ examines crosswalk treatments at uncontrolled locations in more detail than the FHWA's 2005 report. It provides recommendations for safe practice at uncontrolled crossings.

State Standards

Most local jurisdictions in the U.S. have used and continue to use the *MUTCD* as the guiding document for their crosswalk and other traffic engineering practice. Cities and counties in California had used their state's own *Traffic Manual*⁶ for many years. Though a different document, the *Traffic Manual* held the same principles on where and how to mark a crosswalk as did the *MUTCD*. In 2000, the *MUTCD* was updated from its previous 1988 edition to a new millennium edition. With input from the engineering

community, it was updated again in 2003. California added a supplement to the 2003 edition and recognized both documents as one. In 2006, the two documents were merged to form the *CAMUTCD*, now the State's official traffic engineering guide.

Crosswalk Policy

The attached *Crosswalk Location Decision Matrix* establishes the decision process on whether or not to mark a crosswalk at a given location. It takes into account the surrounding environment, pedestrian volume, pedestrian age, field conditions, and viable physical improvements that are necessary before advising the public that it is safe to cross the street at a particular location. It reflects what studies have shown that, in many instances, the mere marking of a crosswalk without other enhancements that have been proven effective does not improve pedestrian safety, in which case the crosswalk should not be marked and pedestrians should be directed to cross at the nearest marked or protected crosswalk.

The location matrix is intended to be applied to locations that do not have a marked crosswalk currently and are in request of one. It is not intended to be applied gratuitously to remove marked crosswalks that already exist. Only when a situation questions the necessity of an existing marked crosswalk will this location matrix be applied for its possible removal.

The attached *Crosswalk Treatment Options Chart* establishes the decision process on what type of treatment to use once a location has been determined appropriate for a marked crosswalk. It provides guidance on the use of crossing enhancements such as signs, striping color and pattern, pavement legends, etc., in accordance to the *CAMUTCD*. It takes into account the location (intersection or mid-block), right-of-way (controlled or uncontrolled by a stop sign or signal), and proximity to school (along a school route or not) for a crosswalk that has been determined appropriate for marking.

The following policies address additional crossing enhancements that are not mentioned or defined in the treatment chart:

Decorative Crosswalks

Giving a crosswalk a more distinguished appearance by applying different colors and/or materials between the two transverse lines may highlight the crosswalk as part of a high pedestrian-concentration area. These decorative crosswalks may not necessarily be more visible depending on their color and/or material. The City of Oakland allows the installation of decorative crosswalks across approaches controlled by a stop sign or traffic signal based on the recommendation of its engineering staff. They shall be installed only in pedestrian-concentrated areas and display a consistent design within that area.

Pedestrian Scramble Signals

Crosswalks at Pedestrian Scramble Signals shall conform to CAMUTCD standards. The color, internal pattern, and material may take on a decorative design. See “Decorative Crosswalks” above.

Parking Restrictions

Restricting parking within a certain distance from a crosswalk/intersection improves sight distance between drivers and pedestrians. Subject to engineering judgment which takes into account AASHTO⁷ stopping-sight-distance standards or uniform standards in the Oakland Municipal Code⁸, parking may be restricted if safety is determined to be an issue greater than the impact of parking loss on adjacent residences or businesses.

Median Refuge Islands and Sidewalk Bulbouts

Median refuge islands and sidewalk bulbouts are effective engineering measures that improve crossing safety. The most common obstacles to their installation are roadway width, bicyclist safety (potentially for medians), and cost (potentially for bulbouts). The City of Oakland allows their installation based on the recommendation of its engineering staff.

In-Street Yield-to-Pedestrian Signs

In-Street Yield-to-Pedestrian signs may be used to remind road users of laws regarding right-of-way at uncontrolled marked crosswalks. Their installation shall meet the criteria below:

1. shall not be installed at a traffic signal or stop sign; and
2. shall not be installed without crosswalk lines, signs, and markings; and
3. may be installed at a school crosswalk, or at a mid-block crosswalk, or at a crosswalk where pedestrians cannot be seen by drivers within the design-speed stopping sight-distance.

Approved for Distribution:

Deputy Director, Public Works Agency
Department of Engineering and Construction

Attachments

¹ *California Manual on Uniform Traffic Control Devices (CAMUTCD)*, Federal Highway Administration (FHWA), California Department of Transportation (Caltrans), 2006.

² *Pedestrian Crosswalk Study: Accidents in Painted and Unpainted Crosswalks*, Transportation Research Record No. 406, Transportation Research Board, 1972.

³ *Citywide Crosswalk Safety Study*, City of Santa Ana, September 1998.

⁴ *Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations*, FHWA Publication Number HRT-04-100, September 2005.

⁵ *Improving Pedestrian Safety at Unsignalized Crossings*, Transportation Research Board, National Cooperative Highway Research Program Report 562, 2006.

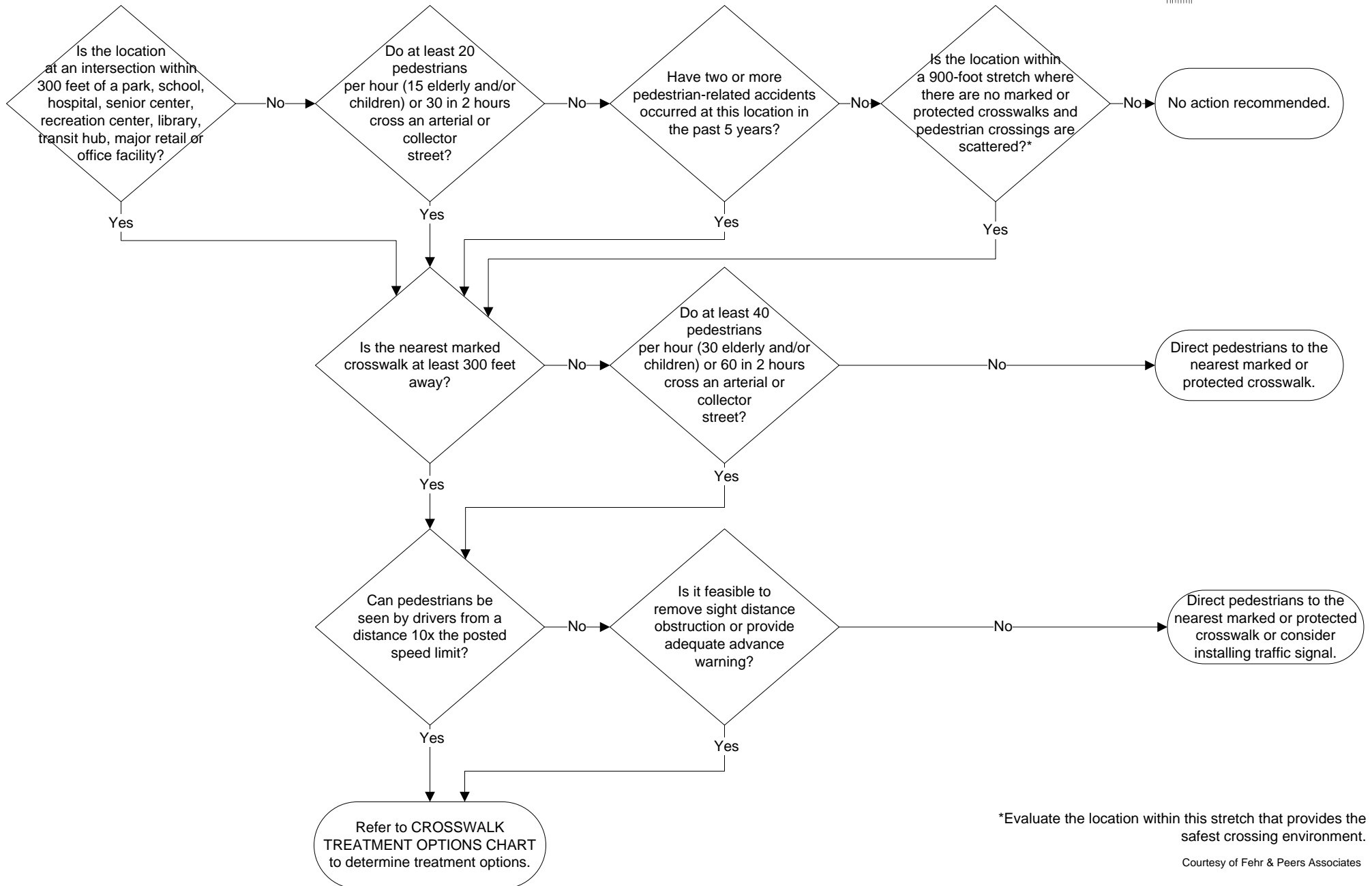
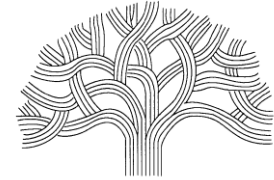
⁶ *Traffic Manual*, Latest Edition, California Department of Transportation (Caltrans), November 1996.

⁷ *A Policy on Geometric Design of Highways and Streets*, American Association of State Highway and Transportation Officials, 2004.

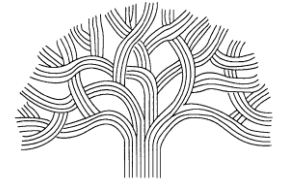
⁸ *Oakland Municipal Code*, <http://search.municode.com/html/16308/index.html>.

City of Oakland Crosswalk Policy

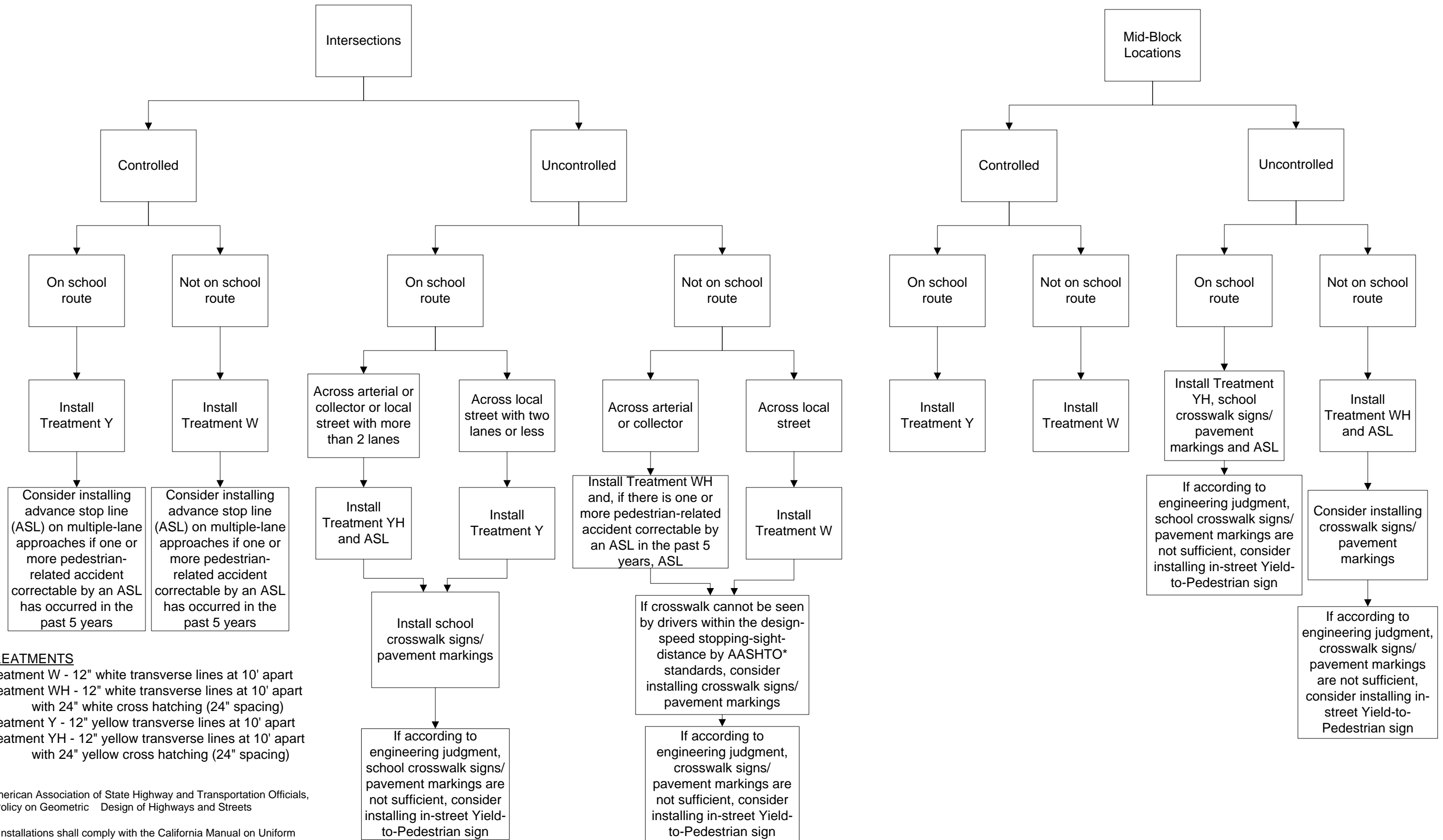
CROSSWALK LOCATION DECISION MATRIX



*Evaluate the location within this stretch that provides the safest crossing environment.



CROSSWALK TREATMENT OPTIONS CHART



TREATMENTS

- Treatment W - 12" white transverse lines at 10' apart
- Treatment WH - 12" white transverse lines at 10' apart with 24" white cross hatching (24" spacing)
- Treatment Y - 12" yellow transverse lines at 10' apart
- Treatment YH - 12" yellow transverse lines at 10' apart with 24" yellow cross hatching (24" spacing)

*American Association of State Highway and Transportation Officials, A Policy on Geometric Design of Highways and Streets

All installations shall comply with the California Manual on Uniform Traffic Control Devices