

RESOLUTION R-73-17

**A RESOLUTION APPROVING THE ESTABLISHMENT OF A WHEATON MARKED CROSSWALK POLICY**

**WHEREAS**, the City of Wheaton, Illinois (the "City") is an Illinois Home Rule Municipality pursuant to provisions of Article VII, Section 6 of the Illinois Constitution of 1970, and as such the City may exercise any power and perform any function pertaining to its government and affairs; and

**WHEREAS**, the subject matter of this resolution pertains to the government and affairs of the City and its residents; and

**WHEREAS**, City residents have inquired about the placement of marked crosswalks and on occasion request marked crosswalks at certain locations; and

**WHEREAS**, research has shown, under certain circumstances, marked crosswalks can be detrimental or of no benefit to the safety of pedestrians due to their effects on pedestrian behavior in conjunction with certain roadway conditions; and

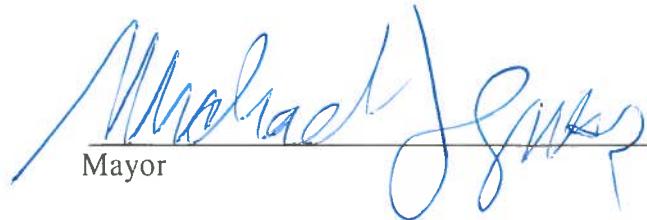
**WHEREAS**, the strategic placement and enhancement of marked crosswalks will better address locations with high volumes of pedestrians, enhance safety, and facilitate the maintenance of preferred walking routes; and

**WHEREAS**, the City Council finds that the public interest is best served by the establishment of a policy that sets forth defined processes and standards for marking crosswalks and provides information to the public from research pertaining to the effective placement and effects of marked crosswalks; and

**WHEREAS**, the City Council has reviewed the Marked Crosswalk Policy and has determined that it is in the best interest of the City and residents to adopt the Marked Crosswalk Policy.

**NOW, THEREFORE, BE IT RESOLVED** by the Mayor and City Council of the City of Wheaton, Illinois, hereby approves the City of Wheaton Marked Crosswalk Policy attached to this Resolution as Exhibit A.

**ADOPTED** this 7<sup>th</sup> day of August, 2017.



Michael J. Hogan  
Mayor

ATTEST:



Alan Bennett Hogan  
City Clerk

Ayes: Roll Call Vote:  
Councilman Rutledge  
Councilman Scalzo  
Councilman Suess  
Councilman Barbier  
Councilwoman Fitch  
Councilman Prendiville  
Mayor Gresk

Nays: None  
Absent: None

Motion Carried Unanimously

# City of Wheaton

## Marked Crosswalk Policy



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# 1. INTRODUCTION

## 1.1 Purpose

The City of Wheaton's crosswalk policy is meant to guide Staff and residents in the responsible and effective application of marked crosswalks. This document describes the minimum requirements for a crosswalk to be considered for marking at controlled and uncontrolled locations. Additionally, relevant research conducted by the Federal Highway Administration (FHWA) and the guidelines set forth by the Illinois Manual on Uniform Traffic Control Devices (IL MUTCD) are summarized here.

## 1.2 The Role of Engineering Judgment

The guidelines set forth in this document strive to maintain a reasonable balance between prescriptive requirements, engineering study, and flexibility based on engineering judgment. In some instances, prescriptive requirements alone cannot determine whether a marked crosswalk should be applied. When prescriptive requirements are insufficient, the Director of Engineering or their designee will exercise engineering judgment or conduct an engineering study to determine whether a marked crosswalk can and should be applied.

## 2. CROSSWALK BASICS AND DEFINITIONS

### 2.1 Function of Crosswalks

Crosswalks serve as paths across the roadway for pedestrians to cross. In Illinois, crosswalks exist by default at those intersections in which a sidewalk intersects the roadway on one or both sides. Crosswalks can be marked with lines or other markings on the surface of the roadway, becoming marked crosswalks. Marked crosswalks are used to clearly identify the crossing path to pedestrians, to alert road users (in conjunction with signs and other measures) of a designated crossing point, and in the case of a mid-block crossing, to legally establish a crosswalk.<sup>1</sup>

Any pedestrian in the process of crossing at a marked or unmarked crosswalk has the right-of-way. Pedestrian and vehicular legal responsibilities are the same at both unmarked and marked crosswalks.<sup>2</sup> Pedestrian responsibilities and right-of-way when in a crosswalk further apply to bicyclists utilizing crosswalks.<sup>3</sup>

### 2.2 Unmarked and Marked Crosswalks

Unmarked crosswalks are those in which no crosswalk markings are present; they are the space across the roadway connecting the lateral lines of the sidewalk(s) on either side of the road. Marked crosswalks exist when markings have been applied to previously unmarked crosswalks to define the path across the roadway for pedestrians, guide them to preferred routes, and, in conjunction with signs and other measures, help in alerting motorists of the crosswalk. At uncontrolled locations or intersections, marked crosswalks may lead to an increased feeling of safety, reduced pedestrian awareness of traffic when deciding to cross and increase the likelihood of pedestrian/vehicle conflicts.

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<sup>1</sup> **625 ILCS Section 5/1-113 – Crosswalk.** (a) That part of a roadway at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway measured from the curbs or, in the absence of curbs, from the edges of the traversable roadway, and in the absence of a sidewalk on one side of the highway, that part of the highway included within the extension of the lateral line of the existing sidewalk to the side of the highway without the sidewalk, with such extension forming a right angle to the centerline of the highway; (b) Any portion of a roadway at an intersection or elsewhere distinctly indicated for pedestrian crossing by lines or other markings on the surface placed in accordance with the provisions in the Manual adopted by the Department of Transportation as authorized in Section 11-301.

<sup>2</sup> **625 ILCS Section 5/11-1002.5 – Pedestrian's right-of-way at crosswalks; school zones.** (a) When traffic control signals are not in place or not in operation the driver of a vehicle shall stop and yield the right-of-way to a pedestrian crossing the roadway within a crosswalk when the pedestrian is upon the half of the roadway upon which the vehicle is traveling, or when the pedestrian is approaching so closely from the opposite half of the roadway as to be in danger. (b) No pedestrian shall suddenly leave a curb or other place of safety and walk or run into the path of a moving vehicle which is so close as to constitute an immediate hazard. (c) Paragraph (a) shall not apply under the condition stated in Section 11-1003 (b). (d) Whenever any vehicle is stopped at a marked crosswalk or at any unmarked crosswalk at an intersection to permit a pedestrian to cross the roadway, the driver of any other vehicle approaching from the rear shall not overtake and pass such stopped vehicle. (e) Whenever stop signs or flashing red signals are in place at an intersection or at a plainly marked crosswalk between intersections, drivers shall yield right-of-way to pedestrians as set forth in Section 11-904 of this Chapter.

<sup>3</sup> **625 ILCS Section 5/11-1512 – Bicycles on Sidewalks.** (c) A person propelling a bicycle upon and along a sidewalk, or across a roadway upon and along a crosswalk, shall have all the rights and duties applicable to a pedestrian under the same circumstances.

## 2.3 Key Definitions

The meaning of these words and phrases when used in this document are as follows:

**Average Daily Traffic (ADT):** The average 24-hour volume, being the total volume during a stated period divided by the number of days in that period. Normally, this would be periodic daily traffic volumes over several days, not adjusted for days of the week or seasons of the year. [minimum three days of data] (IL MUTCD, Section 1A.13)

**Controlled Intersection/Location:** An intersection or location controlled by either traffic signals or stop signs. (FHWA HRT-04-100)

**Critical Gap:** The time in seconds below which a pedestrian will not attempt to begin crossing the street. (NCHRP 562, Appendix A, Table A-1)

**Crosswalk Lines:** White pavement marking lines that identify a crosswalk. (IL MUTCD, Section 1A.13)

**Engineering Judgment:** The evaluation of available pertinent information, and the application of appropriate principles, provisions, and practices as contained in this Manual [IL MUTCD] and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. Engineering judgment shall be exercised by an engineer, or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. Documentation of engineering judgment is not required. (IL MUTCD, Section 1A.13)

**Engineering Study:** The comprehensive analysis and evaluation of available pertinent information, and the application of appropriate principles, provisions, and practices as contained in this Manual [IL MUTCD] and other sources, for the purpose of deciding upon the applicability, design, operation, or installation of a traffic control device. An engineering study shall be performed by an engineer, or by an individual working under the supervision of an engineer, through the application of procedures and criteria established by the engineer. An engineering study shall be documented. (IL MUTCD, Section 1A.13)

**Marked Crosswalk:** A crosswalk identified for pedestrian crossing by lines and other markings on the roadway surface

**Median:** The area between two roadways of a divided highway measured from edge of traveled way to edge of traveled way. The median excludes turn lanes. The median width might be different between intersections, interchanges, and at opposite approaches of the same intersection. (IL MUTCD, Section 1A.13)

**Motorist Compliance:** Percent of motorists yielding or stopping for pedestrians. (NCHRP 562, Chapter 6, Table 15, p 33)

**Multi-Lane:** More than one lane moving in the same direction. A multi-lane street, highway, or roadway has a basic cross-section comprised of two or more through lanes in one or both directions. A multi-lane approach has two or more lanes moving toward the intersection, including turning lanes. (IL MUTCD, Section 1A.13)

**Multiple Threat Crashes:** A multiple-threat crash involves a driver stopping in one lane of a multilane road to permit pedestrians to cross, and an oncoming vehicle (in the same direction) strikes the pedestrian who is crossing in front of the stopped vehicle. This crash type involves both the pedestrian and driver failing to see each other in time to avoid the collision. (FHWA, p. 39)

**Pedestrian:** A person on foot, in a wheelchair, on skates, or on a skateboard [or a person propelling a bicycle upon and along a sidewalk or crosswalk]. (IL MUTCD, Section 1A.13)

**Stop Line:** A solid white pavement marking line extending across approach lanes to indicate the point at which a stop is intended or required to be made. (IL MUTCD, Section 1A.13)

**Traffic Control Device:** A sign, signal, marking, or other device used to regulate, warn, or guide traffic, placed on, over, or adjacent to a street, highway, private road open to public travel, pedestrian facility, or shared-use path by authority of a public agency or official having jurisdiction, or, in the case of a private road open to public travel, by authority of the private owner or private official having jurisdiction. (IL MUTCD, Section 1A.13)

**Traffic Control Signal:** Any highway traffic signal by which traffic is alternately directed to stop and permitted to proceed. (IL MUTCD, Section 1A.13)

**Uncontrolled Intersection/Location:** An intersection, mid-block crossing, or other location not controlled by a traffic signal or stop sign.

**Unmarked Crosswalk:** A crosswalk with no visible markings inferred to be present at an intersection when a sidewalk intersects the roadway on one or both sides.

**Yield Line:** A row of solid white isosceles triangles pointing toward approaching vehicles extending across approach lanes to indicate the point at which the yield is intended or required to be made. (IL MUTCD, Section 1A.13)

**85th Percentile Speed:** The speed at or below which 85 percent of the motor vehicles travel. (IL MUTCD, Section 1A.13)

## 3. REGULATORY, GUIDANCE AND RESEARCH DOCUMENTS

### 3.1 Wheaton City Code

Section 70-65 of the Wheaton City Code directly pertains to crosswalks, identifying staff within the Engineering Department as responsible for the designation and maintenance of crosswalk markings to enhance or address pedestrian safety.<sup>4</sup>

### 3.2 Engineering Guidance Illinois Manual on Uniform Traffic Control Devices (IL MUTCD) 2014

In 2011, Illinois adopted the Federal Highway Administration's 2009 MUTCD, with amendments outlined in the Illinois Supplement to the National Manual on Uniform Traffic Control Devices, as the official manual for the State of Illinois. The Illinois Vehicle Code mandates that traffic control devices, including marked crosswalks, conform with the specifications outlined in the state manual.<sup>5</sup>

The IL MUTCD suggests that engineering judgment is sufficient to determine whether a marked crosswalk can be applied at any location controlled by traffic control signals or by stop or yield signs.<sup>6</sup> The document goes on to suggest that crosswalks should be marked if they are part of school routes where there is substantial conflict between motorists, bicyclists, and student movements. Additionally, the IL MUTCD states that marked crosswalks should not be applied at an uncontrolled location without first conducting an engineering study to determine if appropriate roadway conditions are present.<sup>7</sup>

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<sup>4</sup> **Wheaton City Code Section 70-65 – Designation of marked crosswalks; establishment of safety zones.**

The city traffic engineer is hereby authorized to: (1) Designate and maintain, by appropriate devices, marks or lines upon the surface of the roadway, crosswalks at intersections where, in his opinion, there is particular danger to pedestrians crossing the roadway, and at such other places as he may deem necessary. (2) Establish safety zones of such kind and character and at such places as he may deem necessary for the protection of pedestrians.

<sup>5</sup> **625 ILCS 5/1-154 – Official traffic-control devices.** All signs, signals, markings, and devices which conform with the State Manual and not inconsistent with this Act placed or erected by authority of a public body or official having jurisdiction, for the purpose of regulating, warning, or guiding traffic.

<sup>6</sup> **IL MUTCD Section 3B.18 – Crosswalk Markings** 07 At locations controlled by traffic control signals or on approaches controlled by STOP or YIELD signs, crosswalk lines should be installed where engineering judgment indicates they are needed to direct pedestrians to the proper crossing path(s).

<sup>7</sup> **IL MUTCD Section 7C.02 – Crosswalk Markings** 01 Crosswalks should be marked at all intersection on established routes to a school where there is substantial conflict between motorists, bicyclists, and student movements; where students are encouraged to cross between intersections; where students would not otherwise recognize the proper place to cross; or where motorists or bicyclists might not expect students to cross.

02 Crosswalk lines should not be used indiscriminately. An engineering study considering the factors described in Section 3B.18 should be performed before a marked crosswalk is installed at a location away from a traffic control signal or an approach controlled by a STOP or YIELD sign.

### 3.3 Research – FHWA Study HRT-04-100, Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations

The Federal Highway Administration's study, HRT-04-100, is recognized as one of the most relevant resources for determining appropriate conditions for establishing marked crosswalks at uncontrolled locations. The study analyzed five years of pedestrian crashes at 1,000 marked crosswalks and 1,000 comparable unmarked crosswalks in 30 different U.S cities. Collision rates were compared based on the roadway characteristics of the locations such as quantity of traffic lanes, traffic speed, and traffic volumes.

This study collected information on each of the 2,000 locations regarding: an average of 5 years of pedestrian crash history, daily pedestrian volume estimates, ADT volume, number of lanes present, speed limit, area type, type of median, type and condition of crosswalk marking patterns, location type, and other site characteristics. The following are key findings from the study.

- 2-lane roads showed no significant difference in pedestrian crashes between marked and unmarked crosswalk locations.
- Multi-lane roads with ADT 12,000 or less showed no differences in pedestrian crash rates between marked and unmarked crosswalk sites.
- Multi-lane roads with ADT above 12,000 and no raised median showed marked crosswalks had higher pedestrian crash rates than unmarked crosswalks.
- Multi-lane roads with ADT above 15,000 and with raised medians showed marked crosswalks had significantly higher pedestrian crash rates than unmarked crosswalks.
- The presence of a raised median or raised crossing island was associated with a significantly lower pedestrian crash rate at multi-lane sites with either marked or unmarked crosswalks.
- Multi-lane roads with un-raised, painted medians and center two-way left-turn lanes did not offer significant safety benefits to pedestrians, compared to multi-lane roads with no median at all.
- The following variables had no significant effects on pedestrian crash rates.
  - Area type: residential or central business district.
  - Mid-block versus intersection location.
  - Speed limit: 93% of the study sites had speed limits between 25 & 35 mph.
    - The analysis did show that speed limits of 35mph and higher were associated with a higher percentage of fatal, serious, or incapacitating injuries compared to sites with lower speed limits.
  - One-way vs. two-way road location.
  - Crosswalk condition and crosswalk pattern.
- Multiple threat crashes (where one vehicle stops for the pedestrian but a driver in the adjacent lane does not stop for the pedestrian) constituted 17.6 percent of pedestrian crashes in marked crosswalks. None occurred in unmarked crosswalks.

The primary objective of this study was to determine if marked crosswalks at uncontrolled locations are safer than unmarked crosswalks under various roadway and traffic conditions. The study concluded that marked crosswalks alone are not enough to increase pedestrian safety at uncontrolled locations and in some instances, correlated with an increase in pedestrian crashes.

Appendix A contains a table from HRT-04-100 with suggestions for marked crosswalk application at uncontrolled locations based on factors such as the number of lanes, presence of a median, vehicle ADT, and speed limit.

## 4. EVALUATING UNMARKED CROSSWALKS

### 4.1 Overview

This section details the criteria for identifying and evaluating potential marked crosswalk locations. Factors that influence ideal crossing locations for pedestrians include functions of the roadway network, such as transit stops, and nearby land uses such as the presence of a school, trail, or park. The peak volume of pedestrians and a crosswalk's proximity to existing marked crosswalks should also be considered. When candidate locations are identified, engineering judgment or study will be used to determine if the application of a marked crosswalk is appropriate. Given that pedestrians are the least protected group of road users, at the highest risk of injury, marked crosswalks should only be applied when conducive to pedestrian safety.

### 4.2 Controlled Locations

An unmarked crosswalk at a controlled location will be evaluated by the Director of Engineering or their designee. Staff will evaluate the site and determine if a marked crosswalk is needed using engineering judgment.<sup>8</sup> Staff will then develop and implement a plan to apply a marked crosswalk and, if necessary, supplemental traffic controls.

Controlled locations do not require an engineering study as the presence of traffic signals, and stop or yield signs provide natural breaks in the flow of traffic for pedestrians to cross, lessening the risk of pedestrian/vehicle conflicts.

### 4.3 Uncontrolled Locations

Due to the lack of traffic signals or stop signs at uncontrolled locations, unmarked crosswalks at an uncontrolled location must be thoroughly inspected prior to the application of a marked crosswalk. Unless servicing a special land use, these locations should meet base levels of pedestrian demand and be a sufficient distance from the nearest marked crosswalk.

#### 4.3.1 Base Requirements for Evaluation

An unmarked, uncontrolled crosswalk that directly services or is adjacent to a special land use including but not limited to designated school routes, schools, trails, libraries, or public parks may have the base requirements waived. The two base requirements for evaluation are as follows:

1. **Pedestrian Demand:** Pedestrian volume at the crosswalk shall exceed 20 pedestrians per peak hour or 15 or more elderly pedestrians and children per peak hour. (Equivalent units

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<sup>8</sup> **IL MUTCD Section 3B.18.07 – Crosswalk Markings.** At locations controlled by traffic control signals or on approaches controlled by STOP or YIELD signs, crosswalk lines should be installed where engineering judgment indicates they are needed to direct pedestrians to the proper crossing path(s).

can be used to represent elderly pedestrians and children as follows: 1 elderly pedestrian and/or child = 1.33 pedestrians.<sup>9</sup>

2. **Distance to Nearest Marked Crosswalk:** The crosswalk shall be 350 feet or more from the nearest marked crosswalk.<sup>10 11</sup>

If the analysis of a candidate location determines these requirements are not met, Staff may waive these requirements to address special circumstances such as pedestrian volume higher than the minimum requirement, a lack of nearby marked crosswalks, adjacent land use, or the need to channelize pedestrians toward preferred path(s).

If the base requirements are met or waived, the crosswalk will be evaluated by the Director of Engineering or their designee to determine if the application of a marked crosswalk is appropriate given the location's conditions.

#### 4.3.2 Evaluation of Uncontrolled Locations

An engineering study must be conducted prior to the installation of a marked crosswalk at an uncontrolled location. An uncontrolled location is any intersection or mid-block crossing not controlled by traffic signals or stop and yield signs. An engineering study will analyze traffic variables and road characteristics such as those described in Section 4.3.3.<sup>12</sup> The Director of Engineering or their designee will use the findings of the study to determine if a marked crosswalk alone is an appropriate traffic control for the location or if supplemental traffic control devices or measures would be required.

If a marked crosswalk can be installed without any supplemental device or measures, Staff will develop and implement a plan to apply a marked crosswalk at the location.

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<sup>9</sup> FHWA HRT-04-100 (p.55) – While overuse of marked crossings at uncontrolled locations should be avoided, higher priority should be placed on providing crosswalk markings where pedestrian volume exceeds about 20 per peak hour (15 or more elderly pedestrians and / or children per peak hour).

<sup>10</sup> FHWA HRT-04-100 (p.60) – Marked crosswalks should not be installed in close proximity to signalized intersections (which may or may not have marked crosswalks); instead, pedestrians should be encouraged to cross at the signal in most situations. The minimum distance from a signal for installing a marked crosswalk should be determined by local traffic engineers based on pedestrian crossing demand, type of roadway, traffic volume, and other factors. The objective of adding a marked crosswalk is to channel pedestrians to safer crossing points. It should be understood, however, that pedestrian crossing behavior may be difficult to control merely by adding marked crosswalks. The new marked crosswalk should not unduly restrict platooned traffic.

<sup>11</sup> FHWA HRT-04-100 (p.60) – The spacing of marked crosswalks should be considered so that they are not placed too close together. Overuse of marked crosswalks may breed driver disrespect for them, and a more conservative use of crosswalks generally is preferred.

<sup>12</sup> IL MUTCD Section 3B.18.08 – **Crosswalk Markings**, Crosswalk lines should not be used indiscriminately. An engineering study should be performed before a marked crosswalk is installed at a location away from a traffic control signal or an approach controlled by a STOP or YIELD sign. The engineering study should consider the number of lanes, the presence of a median, the distance from adjacent signalized intersections, the pedestrian volumes and delays, the average daily traffic (ADT), the posted or statutory speed limit or 85th-percentile speed, the geometry of the location, the possible consolidation of multiple crossing points, the availability of street lighting, and other appropriate factors.

If the installation of a marked crosswalk requires supplemental traffic control devices or measures, the Director of Engineering or their designee will reject or approve the project based on the net increase to pedestrian safety and the practicality of improvements given site conditions. Uncontrolled locations that service a special land use can be prioritized for project approval.

#### **4.3.3 Engineering Study**

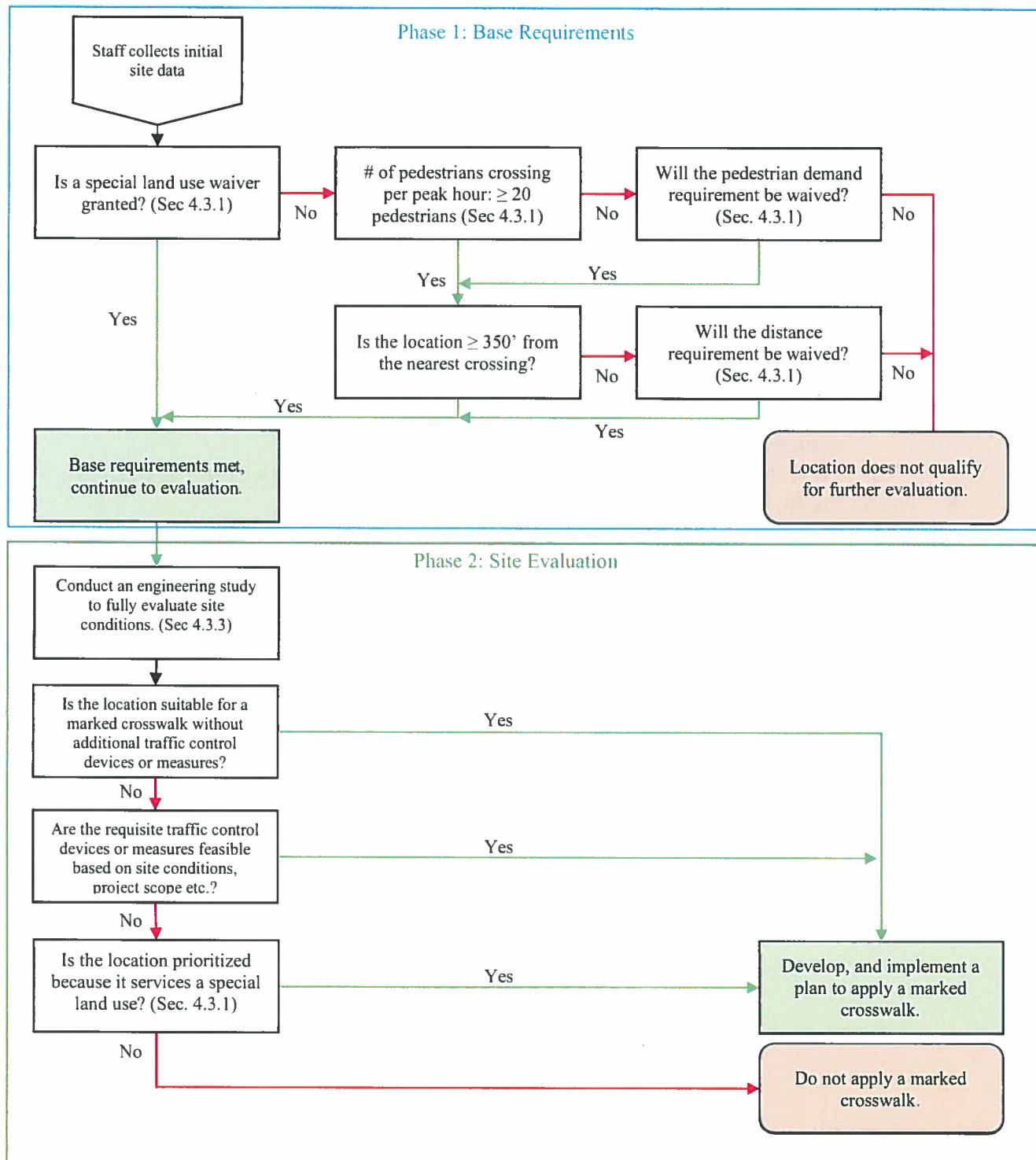
An engineering study requires site review or data collection by Staff or a contracted engineering firm that collects and evaluates information on factors such as:<sup>13</sup>

- Pedestrian volume and delays.
- Distance from signalized intersections and other marked crosswalks.
- Sight distances & obstructions.
- Physical characteristics/road geometry.
  - a. Lane configuration.
  - b. The presence of a median, street lights, sidewalks, curb ramps, driveways, elevation changes, drain inlets, and any other pertinent details.
  - c. Current pedestrian-related improvements (signs, markings, or traffic devices).
- Traffic conditions.
  - a. Posted Speed Limit.
  - b. 85<sup>th</sup> percentile speed study.
  - c. Average daily traffic study (minimum three days of data)

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<sup>13</sup> FHWA HRT-04-100 (p.54)– Marked crosswalks must be installed carefully and selectively. Before installing new marked crosswalks, an engineering study is needed to determine whether the location is suitable for a marked crosswalk. For an engineering study, a site review may be sufficient at some locations, while a more indepth study of pedestrian volume, vehicle speed, sight distance, vehicle mix, and other factors may be needed at other sites.

## 4.4 Uncontrolled Location Evaluation Flowchart



## 5. EXISTING MARKED CROSSWALKS

This section addresses the evaluation of existing marked crosswalks. Specifically providing guidance as to when the city should evaluate existing marked crosswalks, how to evaluate existing marked crosswalks, and determine if an existing marked crosswalk should be removed. This document does not suggest that all existing marked crosswalks need to be or should be evaluated to verify compliance with new guidelines. This is best described by Caltrans' HDM chapter 80 'Application of Design Standards', Topic 82: Application of Standards.

...Because design standards have evolved over many years, many existing highways do not conform fully to current standards. It is not intended that current manual standards be applied retroactively to all existing State highways; such is neither warranted nor economically feasible. However, when warranted, upgrading of existing roadway features ... should be considered, either as independent projects or as part of larger projects.<sup>14</sup>

### 5.1 When Should the City Evaluate Existing Marked Crosswalks?

These guidelines recognize that some existing marked crosswalks and associated traffic control devices may not comply with this document. The City will not evaluate all existing marked crosswalks to check compliance. However, the City may re-evaluate existing marked crosswalks in conjunction with other projects or in response to safety issues including but not limited to:

- As part of a project involving a change in land use (e.g., school closure, school walking routes, development project, etc.).
- As part of a project involving a change in roadway characteristics (e.g., roadway widening, lane reduction, etc.).
- As part of a roadway resurfacing project.
- Based on pedestrian safety related concerns identified during any traffic investigation.

### 5.2 Evaluation of Existing Marked Crosswalks

The Director of Engineering or their designee may evaluate existing marked crosswalks as needed using the guidance presented in Section 4.

### 5.3 Marked Crosswalk Removal

A marked crosswalk evaluated in accordance with Section 5.2 may be designated for removal. Any marked crosswalk designated as such will be maintained until it is removed. It is important to note that removal of a marked crosswalk does not prevent pedestrians from crossing the street at that location unless pedestrian crossing is specifically prohibited.

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<sup>14</sup> Highway Design Manual - California Department of Transportation. Available online at <http://www.dot.ca.gov/hq/oppd/hdm/hdmtoc.h>

## REFERENCES

1. *Illinois Vehicle Code: 625 ILCS 5/*, Illinois Compiled Statutes, Springfield IL, August 2016. Available online at <http://www.ilga.gov/legislation/ILCS/ilcs3.asp?ActID=1815&ChapterID=49#top>
2. *Manual on Uniform Traffic Control Devices for Streets and Highways 2009 Edition*, U.S. Department of Transportation, Federal Highway Administration, Washington, DC, 2009. Available online at <http://mutcd.fhwa.dot.gov/>
3. *Wheaton City Code*, City of Wheaton, IL, March 2016. Available online at: [https://www.municode.com/library/il/wheaton/codes/code\\_of\\_ordinances](https://www.municode.com/library/il/wheaton/codes/code_of_ordinances)
4. Zegeer, C., Stewart, J., and Huang, H., *Safety Effects of Marked versus Unmarked Crosswalks at Uncontrolled Locations: Final Report and Recommended Guidelines, Report No. FHWA-HRT-04-100*, Federal Highway Administration, Washington, DC, September 2005.
5. *Highway Design Manual*. California Department of Transportation. Available online at <http://www.dot.ca.gov/hq/oppd/hdm/hdmtoc.htm>.

## APPENDIX A: FHWA STUDY HRT-04-100 TABLE 11

Table 11. Recommendations for installing marked crosswalks and other needed pedestrian improvements at uncontrolled locations.\*

Roadway Type (Number of Travel Lanes and Median Type)	Vehicle ADT		Vehicle ADT		Vehicle ADT		Speed Limit**	Vehicle ADT >15,000		
	<9,000		>9,000 to 12,000		>12,000-15,000					
	km/h (mi/h)	km/h (mi/h)	km/h (mi/h)	km/h (mi/h)	km/h (mi/h)	km/h (mi/h)				
Two lanes	C	C	P	C	P	C	C	N		
Three lanes	C	C	P	C	P	P	P	P		
Multilane (four or more lanes) with raised median***	C	C	P	C	P	N	P	N		
Multilane (four or more lanes) without raised median	C	P	N	P	P	N	N	N		

\* These guidelines include intersection and midblock locations with no traffic signals or stop signs on the approach to the crossing. They do not apply to school crossings. A two-way center turn lane is not considered a median. Crosswalks should not be installed at locations that could present an increased safety risk to pedestrians, such as where there is poor sight distance, complex or confusing designs, a substantial volume of heavy trucks, or other dangers, without first providing adequate design features and/or traffic control devices. Adding crosswalks alone will not make crossings safer, nor will they necessarily result in more vehicles stopping for pedestrians. Whether or not marked crosswalks are installed, it is important to consider other pedestrian facility enhancements (e.g., raised median, traffic signal, roadway narrowing, enhanced overhead lighting, traffic-calming measures, curb extensions), as needed, to improve the safety of the crossing. These are general recommendations; good engineering judgment should be used in individual cases for deciding where to install crosswalks.

\*\* Where the speed limit exceeds 64.4 km/h (40 mi/h), marked crosswalks alone should not be used at unsignalized locations.

\*\*\* The raised median or crossing island must be at least 1.2 m (4 ft) wide and 1.8 m (6 ft) long to serve adequately as a refuge area for pedestrians, in accordance with MUTCD and American Association of State Highway and Transportation Officials (AASHTO) guidelines.

C = Candidate sites for marked crosswalks. Marked crosswalks must be installed carefully and selectively. Before installing new marked crosswalks, an engineering study is needed to determine whether the location is suitable for a marked crosswalk. For an engineering study, a site review may be sufficient at some locations, while a more in-depth study of pedestrian volume, vehicle speed, sight distance, vehicle mix, and other factors may be needed at other sites. It is recommended that a minimum utilization of 20 pedestrian crossings per peak hour (or 15 or more elderly and/or child pedestrians) be confirmed at a location before placing a high priority on the installation of a marked crosswalk alone.

P = Possible increase in pedestrian crash risk may occur if crosswalks are added without other pedestrian facility enhancements. These locations should be closely monitored and enhanced with other pedestrian crossing improvements, if necessary, before adding a marked crosswalk.

N = Marked crosswalks alone are insufficient, since pedestrian crash risk may be increased by providing marked crosswalks alone. Consider using other treatments, such as traffic-calming treatments, traffic signals with pedestrian signals where warranted, or other substantial crossing improvement to improve crossing safety for pedestrians.

