



CITY OF OWATONNA CROSSWALK POLICY

BACKGROUND:

Marked crosswalks at unsignalized locations are used in many/most cities; however, few cities have conducted comprehensive studies on their effectiveness or rely on this form of traffic control to secure pedestrian safety. Pedestrian crossings are most often installed to meet a unique pedestrian safety concern or to provide a positive response to public concerns. A search of information on “marked crosswalks” found no compelling study providing the effectiveness of crosswalks, and some evidence that “marked crosswalks” could have a negative influence on pedestrian safety. This search found no city with a policy for “marked crosswalks” with universal application that could be used as model for crosswalks warrants or procedure for crosswalk installation. This policy will establish warrants for “marked crosswalks” installations based on the best information currently available. This policy provides for the installation of “marked crosswalks” at locations, which meet established warrants, to provide effective pedestrian protection.

An unmarked crosswalk is defined as follows:

Unmarked crosswalk: In the absence of signs, lines or markings, that part of a roadway, at an intersection, which is included within the transverse lines which would be formed on such roadway by connecting the corresponding lateral lines of sidewalks on opposite sides of such roadway or, in the absence of a corresponding sidewalk on one side of the roadway, that part of such roadway which is included within the extension of the lateral lines of the existing sidewalk across such roadway at right angles to the center line thereof, except in no case does an unmarked crosswalk include any part of the intersection and in no case is there an unmarked crosswalk across a street at an intersection of such street with an alley.

State statute prohibits parking closer than 20 feet to the near limits of a crosswalk. It is the policy of the City of Owatonna to convey and enforce this parking prohibition through use of no

parking signage adjacent to unmarked crosswalks in areas where violations of this statute commonly occur.

Marked crosswalks can consist of several types, which include:

- I. Pavement markings (used only at stop controlled intersection legs)
- II. Signs and pavement markings
- III. Signs and pavement markings with ground level warning flashers
- IV. Signs and pavement markings with overhead warning flashers
- V. Signal controlled crosswalks

Each of these types provides a varying level of pedestrian protection and a significant variation in capital costs. Accordingly, this policy establishes "crosswalk warrants" for each type consistent with the needs of the location.

The need for "marked crosswalks" occur at intersections and, under some conditions, in the mid-block area. This policy provides warrants for each type of location. Note that it is desirable that mid-block "marked crosswalks" include a pedestrian flasher.

Crosswalks are requested for many purposes. Listed below are those purposes for which "marked crosswalk" installation is most effective:

1. Marked crosswalks can clarify and define pedestrian routes across complex intersections.
2. Marked crosswalks can channelize pedestrians to the least exposure to traffic.
3. Marked crosswalks can position pedestrians to be seen better by motorists.
4. Marked crosswalks can direct pedestrians to the shortest path.
5. Marked crosswalks can increase motorist awareness to concentrations of pedestrian traffic.
6. Marked crosswalks can legalize mid-block pedestrian crossing where justified.

POLICY:

I. WARRANTS – MARKED CROSSWALKS (signs and paint only)

The following warrants provide a means of evaluating whether marked crosswalks should be installed at intersections. The warrants consist of two parts: (A) Basic Warrants; and (B) Point Warrants.

In order to qualify for a crosswalk, an intersection must (a) meet all of the Basic Warrants and (b) achieve the minimum points listed in the following table under a Point Warrant system.

Distance to nearest crosswalk based on type				Point Warrants Required
Type II	Type III	Type IV	Type V	
Less than 200'	Less than 400'			Marked crosswalk not allowed *
200'-600'	400'-800'			16
Greater than 600'	Greater than 800'			12

*Does not apply to crosswalks at stop-controlled legs of intersections.

A. Basic Warrants

1. Pedestrian Volume Warrant

Pedestrian volume must be equal to or greater than ten pedestrians per hour during peak pedestrian hour. Children under 15, elderly over 64 years, and/or disabled persons increases to 2.0 pedestrians.

2. Approach Speed Warrant

The 85th percentile approach speeds must be less than 45 mph. The approach speeds shall be determined by approved engineering speed study techniques.

3. Visibility Warrant

If the 85th percentile speed is 25 mph or less, the motorist must have an unrestricted view of all pedestrians at the proposed crosswalk site for a distance greater than 150 feet approaching from each direction. The distance shall be 225 feet for 35 mph. Sites with grades, curves, and other slight restrictive features will require special attention. Parking shall be prohibited in areas where a parked vehicle would reduce this minimum site distance.

4. Illumination Warrant

Proposed crosswalk must have adequate crosswalk lighting in existence or scheduled for installation prior to the installation of the crosswalk.

B. Point Warrants

1. Pedestrian Volume Warrants

Note: Children under 15 years, elderly over 64, and disabled persons count as 2.0 pedestrians.

Note: The count period will be limited to 8 hours as specified in request or determined by City Engineer.

Criteria

The pedestrian volumes will be assessed as total volumes for an 8-hour period and a peak volume for 1 hour during that period. The "Pedestrian Total" will reflect pedestrian volumes crossing the intersection on only approaches which the proposed marked crosswalk will protect.

Point Assignment

a. 8-Hour Period Pedestrian Total	Points
0-40	0
41-120	2
121-180	4
181-240	6
241-300	8
Over 300	10
Maximum Points = 10	

b. Peak Hour Pedestrian Total	Points
0-10	0
11-30	2
31-60	4
61-90	6
91-120	8
Over 120	10
Maximum Points = 10	

2. Gap Time Warrant

Criteria

The total number of gaps between vehicular traffic (that are equal to or exceed the required pedestrian crossing time) recorded during an average five-minute period in the peak vehicular hour.

$$\text{Pedestrian Crossing Time} = \frac{\text{Curb to Curb Street Width}}{3.0 \text{ feet per second}}$$

$$\text{Average Number of Gaps per Five-Minute period} = \frac{\text{Total Usable Gap Time (sec/hr)}}{\text{Pedestrian Crossing Time} \times 2}$$

<u>Average Number of Gaps/5 Minute Period</u>	<u>Points</u>
Less than 1.00	10
1-1.99	8
2-2.99	6
3-3.99	4
4-4.99	2
5 or over	0

Maximum Points = 10

Assumptions

The gap time warrant takes into account street width, pedestrian crossing time (3 ft. per second), traffic volume (gaps), and the observation that pedestrians are much more cautious when crossing in heavy traffic. Points are assigned if there are less than five (5.0) useable crossing gaps per average five-minute period during the peak vehicle hour.

- a. The criteria utilizes data based on a one-hour field survey during the peak vehicle hour.
- b. All roadways having a raised median (6-foot minimum width) or a painted median (12-foot minimum width) will be considered as having two separate roadways, if the pedestrian has a protected place to stand out of the path of traffic.
- c. Roads over 42' wide, face of curb to face of curb, shall be designed with provisions for center refuge area. This provision does not apply to signal controlled crosswalks.

II. MARKED CROSSWALKS WITH WARNING FLASHERS

The following warrants are provided as a means of evaluating whether a pedestrian crossing with flashers should be installed. There are two types of flasher configurations, ground level flasher and overhead flasher. The following will establish the warrants for each type of flasher.

A. Marked Crosswalks with Warning Flasher – Warrants

1. Intersection must meet warrants for marked pedestrian crosswalks as indicated above, and

2. Major street must have a 1-way or 2-way peak hour traffic volume greater than 500 vehicles per hour, and
3. The average pedestrian crossing delay greater than 2 minutes (6 or more points in the Gap Time Warrant above), and

B. Marked Crosswalk with Overhead Flasher – Warrants

1. Intersection or mid-block locations meet warrants for marked pedestrian crosswalks as indicated above, and
2. The roadway has four (4) marked traffic lanes, or
3. The roadway is greater than 40 ft. wide, or
4. The adjacent/proximate traffic controls are overhead, or
5. The 85th percentile speed is 35 mph or greater.

III. MARKED CROSSWALK INSTALLATION AND OPERATION

A. Pavement Marking

1. Standard marking for crosswalks shall be Type A marked with two 6-inch (min) solid white lines spaced 6 ft (min) apart. At locations such as downtown areas, school zone areas and at mid-block crossings, where added visibility is desired as determined necessary by the City Engineer, crosswalks shall be Type B marked with two 6-inch (min) solid white lines with 12" (min) wide diagonal lines or 90 degrees longitudinal lines spaced 24" (max) apart.
2. At intersections on State Aid Highways, usually classified as arterials or collectors, the standard marking for crosswalks shall be Zebra Type marked 3 ft (max) width by 6 ft (min) length solid white spaced 3 ft apart.

Note: The City Engineer has the authority to decide which type of marked crosswalk is appropriate for each location.

B. Signing

1. Advance warning and crossing signing shall be installed at all marked crosswalk locations that are not at a stop controlled leg of an intersection.
2. Additional paddles and flags will be installed for the initial 60-day adjustment period.

C. No Parking Zones

1. Parking prohibition signs will be installed as appropriate for sight distance. A 75-foot clearance will be considered the minimum standard restriction.

D. Flasher Installation

1. In all cases, warning flasher installation shall be activated and signed "To Cross, Push Button." Actuation is required to increase driver awareness of immediate presence of pedestrian and to reduce impact of flashing light on nearby residences.
2. Flashers will have two-side exposure, single beacon ground level, and double beacon overhead.
3. Overhead flasher installation shall not interfere with the visibility of any existing traffic control devices.

IV. IMPLEMENTATION

This policy will be implemented over a period of time in accordance with the following:

- A. All new requests for marked crosswalks shall be evaluated based upon application of this policy.
- B. All new requests to modify marked crosswalks shall be evaluated based upon application of this policy.
- C. Evaluation of existing marked crosswalks shall be prioritized for evaluation based upon application of this policy in the following order:
 1. Marked crosswalks on Principal Arterials
 2. Marked crosswalks on Minor Arterials
 3. Marked crosswalks on Collectors
 4. Marked crosswalks on Local Streets.

V. COSTS

Subject to City Council approval, the installation and maintenance costs for crosswalks, signs, warning flashers, and study/count costs shall be the responsibility of the Community Association, Business, other interested party, or City of Owatonna, by agreement prior to crosswalk study.

Adopted: November 2002

Revised: January 2007