CITY OF LAKE ELMO

PEDESTRIAN CROSSWALK POLICY

PREPARED BY:

CITY OF LAKE ELMO
PUBLIC WORKS DEPARTMENT

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PURPOSE

Pedestrian safety is a top priority for the City of Lake Elmo. With an increasing number of distractions for both pedestrians and drivers, it is important to understand that it is everyone's responsibility to ensure pedestrian safety.

Pedestrian crosswalks are an integral part of our transportation infrastructure. To be effective and promote safety, marked crosswalks should be limited in use and must be installed only after careful consideration and review. The review shall be done with adherence to accepted guidelines and good engineering practice. The City of Lake Elmo has developed this Policy to determine when a crosswalk will be marked or remain unmarked throughout the City.

BACKGROUND

Whether marked or unmarked, legal crosswalks exist at all legs of all intersections where sidewalks normally exist, including T-intersections, except where closed and appropriately signed. Marking a crosswalk will not necessarily increase the safety for pedestrians crossing the roadway. Some studies have found that crosswalk markings can create a false sense of security in a pedestrian, and markings do not necessarily result in higher compliance with vehicles stopping for pedestrians. Therefore, the City carefully reviews each request for crosswalks to determine if installing a crosswalk is appropriate for that intersection.

As defined in Minnesota State Statute Chapter 169, motorists are required to stop for pedestrians who have entered a legal crosswalk at any intersection, regardless of whether crosswalk markings are present, until the pedestrian has passed the lane in which the vehicle is stopped. Pedestrians are also permitted to cross the street between intersections, provided they yield right of way to vehicles, and they do not cross between adjacent intersections with traffic signals.

CROSSWALK MARKING POLICY

This policy applies to streets owned and maintained by the City of Lake Elmo. Roadways not owned by the city must be addressed by the appropriate jurisdictional authority.

A marked crosswalk is any crosswalk that is delineated by markings placed on the pavement for the purpose of directing pedestrians to use a particular location to cross the street. Marked crosswalks should connect to established sidewalks/trails at both ends. ADA accessible ramps should be included at both ends of marked crosswalk installations unless there are engineering reasons they cannot be provided. Street lighting should be considered at all crosswalk locations. The provisions of the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD) shall be followed.

ALL WAY STOP CONTROL AND SIGNALIZED INTERSECTIONS

At locations controlled by a traffic signal or all way stop, it is the City Policy that crosswalks should be marked at all legs if a sidewalk or shared use path exists at the intersection.

Although no explicit industry standard exists for all way stop control and signalized intersections, many local agencies mark crosswalks at all legs when such a crossing is warranted due to existing walking/biking connections at the intersection. This is further supported by guidance from the National Association of Transportation Officials (NACTO) advising the marking of a crosswalk at all legs when warranted.

SIDE-STREET STOP CONTROL INTERSECTION

At locations across a stop-controlled leg of a side street stop-controlled intersection, it is the City Policy that crosswalks will remain unmarked, unless the crossing directly serves a key destination as defined in the "Criteria Definitions" section.

ROUNDABOUTS

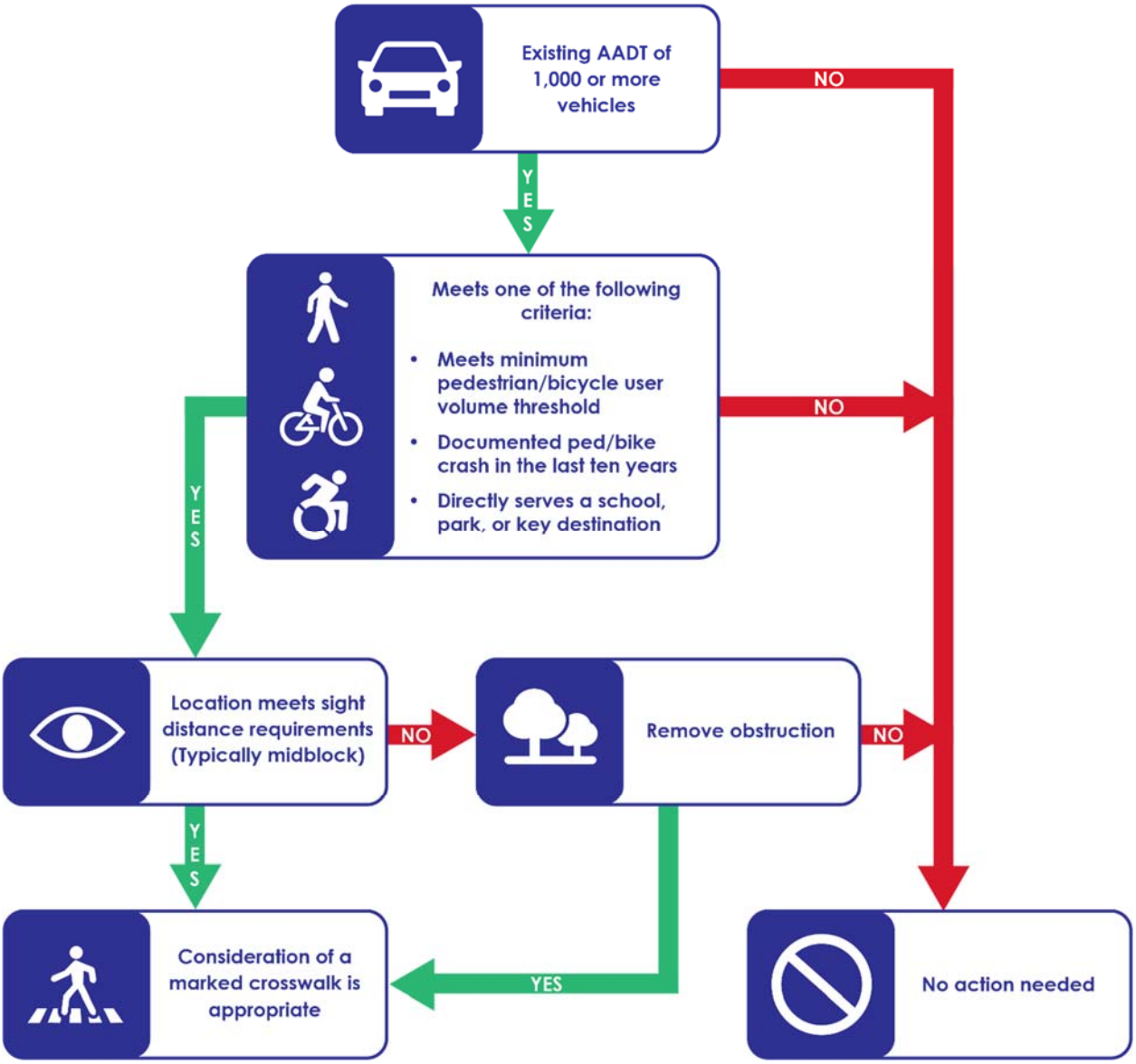
It is the City Policy that crosswalks at roundabouts should be marked in accordance with roundabout engineering design.

MID-BLOCK CROSSINGS

The use of mid-block, uncontrolled crosswalks is generally discouraged unless an engineering study determines a specific need for this type of crosswalk. If permitted and established by the City, mid-block crosswalks will be marked and may include additional safety features and enhancements as determined by an engineering evaluation and the Public Works Director.

UNCONTROLLED INTERSECTION

Marked crosswalks at uncontrolled locations must be carefully selected and designed to ensure that they enhance, rather than reduce, pedestrian safety. Each uncontrolled crossing location requires staff review and engineering evaluation in accordance with criteria outlined in this Policy and the following flowchart.



Criteria Definitions

- Minimum vehicle volume threshold: Marked crosswalks should generally not be considered for roadways with less than 1,000 average annual vehicles per day (AADT) unless as part of a designated school walking route.
- Minimum pedestrian/bicycle volume threshold: The pedestrian and bicycle crossing demand during a 24-hour period meets one or more of the following criteria. The count hours do not need to be consecutive. Follow this process to complete the criteria:
    1. Collect a total of 24 hours of pedestrian and bicycle counts that are broken down by 1-hour increments.
    2. Select the 4 highest, 1-hour increment pedestrian/bicycle counts from the 24-hour period of collected data.
    3. The minimum pedestrian/bicycle volume threshold must meet one or more of the following criteriay:
        - 20 pedestrian/bicycle crossings in 1 of the 4 hours
        - 15 pedestrian/bicycle crossings in 2 of the 4 hours
        - 10 pedestrian/bicycle crossings in 3 of the 4 hours
        - 5 pedestrian/bicycle crossings in 4 of the 4 hours
- Pedestrian or bicycle involved crash in the last ten years: ≥1 crash involving a pedestrian or bicyclist at the existing point crossing under review over the last 10 years. A crash not addressable by engineering design (e.g., impaired driver, etc.) does not count.
- Location directly serves a key destination: For this Policy a key destination includes a school or public park immediately adjacent to the crossing location, and established school route, or the crossing location is along a designated walking/bicycle route to/from the Old Village in a plan that has been formally adopted by the City of Lake Elmo.
- Sight distance requirement: The required sight distance for a vehicle to come to a complete stop at the point of crossing per AASHTO's guidance using the roadway's design speed.
- Remove obstruction: If an obstruction is present (e.g., sign, tree, utility pole, etc.), reviewing if the obstruction can be removed to meet the specific crossing sight distance requirement.

REMOVAL OF CROSSING INFRASTRUCTURE

Conditions that contribute to the need for a crossing enhancement may change over time, or a crossing may no longer be needed. When a roadway surface is to be impacted by reconstruction or resurfacing, a review should be performed to determine their use and need. If a crosswalk or crossing meets the criteria outlined in this assessment, it should be maintained. If it does not meet the criteria, it should be brought to the City Engineer and Public Works Director for consideration of removal. In lieu of a removal, a crossing may also be reviewed for changes to align with the latest guidance or changing conditions.

APPENDIX

CROSSING EVALUATION PROCESS

The following steps are guidance for reviewing each uncontrolled crossing location. This process is intended to help guide the reviewer through a methodical and data driven process such that engineering judgment can be effectively applied.

1. Performing field review and preliminary data collection to understand existing conditions and potential issues. Preliminary data collection includes existing, easily accessible data that the reviewer may use to determine if the crossing is acceptable for additional review performed by steps 2, and 3.
2. Collect data to complete the review using recommended data points. The process includes the following steps:
    a. Identify crossing location
    b. Collect traffic volumes
    c. Collect pedestrian and bicycle volumes
3. Evaluate the point of crossing using the flowchart and perform a high-level review to understand if a location is appropriate for consideration of an enhanced crossing.

DATA COLLECTION

Data collection is a key component of this analysis. It is critical that all data points identified below are collected and properly organized to ensure the uncontrolled crossing location is successfully reviewed for potential improvements. Sometimes staff may be very familiar with the location and have a good understanding which may allow some of the data to be "approximated", though it is important that all data inputs are completed to maintain the integrity of the process.

Crossing Identification

- Major Street: Name of the street crossed by the location under review.
- Minor Street or Crossing Location: The connecting street of an intersection or specific location identified for the mid-block crossing.
- Key Destination: Review if the crossing is: 1) immediately adjacent to a school or public park, 2) along a designated school walking route, or 3) along a city-approved walking/biking route to/from the Old Village Area.

Traffic Data

- Traffic Control: If a crossing under review is at an intersection, identify the traffic control present (side-street stop control, all-way stop, or traffic signal).
- Existing AADT: The most recent average annual daily traffic (AADT) available at the point of crossing.

Multimodal Data

- Sidewalk: Identify if a sidewalk directly connects to the crossing under review.
- Shared-use Path: Identify if a shared-use path/multiuse trail directly connects to the crossing under review.
- Crosswalk Lighting: Identify if lighting is present that would illuminate the crossing and specifically note if that lighting is pedestrian-scale.
- Pedestrian and Bicycle Volume: Record the four peak hour totals for pedestrians and bicyclists. A best practice is collecting data between 6 a.m. and 7 p.m. during warmer months (i.e., April-June or September-October) and when school is in session. Collecting both a weekday and weekend count is also recommended. Previously collected count data within two years of this assessment can be applied if location conditions have not changed significantly.
- Pedestrian Crashes: The total number of pedestrian-involved crashes that are recorded at the point of crossing in the last ten years. Highlight serious injury or fatal crashes and remove preventable crashes (e.g., driver impaired, etc.) if present.
- Bicycle Crashes: The total number of bicycle-involved crashes that are recorded at the point of crossing in the last ten years. Highlight serious injury or fatal crashes and remove preventable crashes (e.g., driver impaired, etc.) if present.

MINNESOTA STATE STATUTE

Minnesota State Statute Chapter 169 defines a crosswalk and pedestrians, as well as the rights of pedestrians and motorists regarding when and where to yield right-of-way. The definitions and legal language detailed in this section provide a foundation for how pedestrian crossings are viewed in Minnesota and considered by this assessment.

169.011 Definitions

Subdivision 20. Crosswalk.

"Crosswalk" means (1) that portion of a roadway ordinarily included with the prolongation or connection of the lateral lines of sidewalks at intersections; (2) any portion of a roadway distinctly indicated for pedestrian crossing by lines or other markings on the surface.

Subdivision 20. Pedestrian.

"Pedestrian" means any person afoot or in a wheelchair.

169.21 Pedestrian

Subdivision 2. Rights in absence of signal.

(a) Where traffic-control signals are not in place or in operation, the driver of a vehicle shall stop to yield the right-of-way to a pedestrian crossing the roadway within a marked crosswalk or at an intersection with no marked crosswalk. The driver must remain stopped until the pedestrian has passed the lane in which the vehicle is stopped. No pedestrian shall suddenly leave a curb or other place of safety and walk or run into the path of a vehicle which is so close that it is impossible for the driver to yield. This provision shall not apply under the conditions as otherwise provided in this subdivision.

(b) When any vehicle is stopped at a marked crosswalk or at an intersection with no marked crosswalk to permit a pedestrian to cross the roadway, the driver of any other vehicle approaching from the rear shall not overtake and pass the stopped vehicle.

(c) It is unlawful for any person to drive a motor vehicle through a column of school children crossing a street or highway or past a member of a school safety patrol or adult crossing guard, while the member of the school safety patrol or adult crossing guard is directing the movement of children across a street or highway and while the school safety patrol member or adult crossing guard is holding an official signal in the stop position. A peace officer may arrest the driver of a motor vehicle if the peace officer has probable cause to believe that the driver has operated the vehicle in violation of this paragraph within the past four hours.

(d) A person who violates this subdivision is guilty of a misdemeanor. A person who violates this subdivision a second or subsequent time within one year of a previous conviction under this subdivision is guilty of a gross misdemeanor.

Subdivision 3. Crossing between intersections.

(a) Every pedestrian crossing a roadway at any point other than within a marked crosswalk or at an intersection with no marked crosswalk shall yield the right-of-way to all vehicles upon the roadway.

(b) Any pedestrian crossing a roadway at a point where a pedestrian tunnel or overhead pedestrian crossing has been provided shall yield the right-of-way to all vehicles upon the roadway.

(c) Between adjacent intersections at which traffic-control signals are in operation pedestrians shall not cross at any place except in a marked crosswalk.

(d) Notwithstanding the other provisions of this section every driver of a vehicle shall (1) exercise due care to avoid colliding with any bicycle or pedestrian upon any roadway and (2) give an audible signal when necessary and exercise proper precaution upon observing any child or any obviously confused or incapacitated person upon a roadway.

CROSSWALK MARKING DEFINITIONS

- Unmarked crosswalk: A legal crosswalk that does not feature any crosswalk striping or markings per state statute.

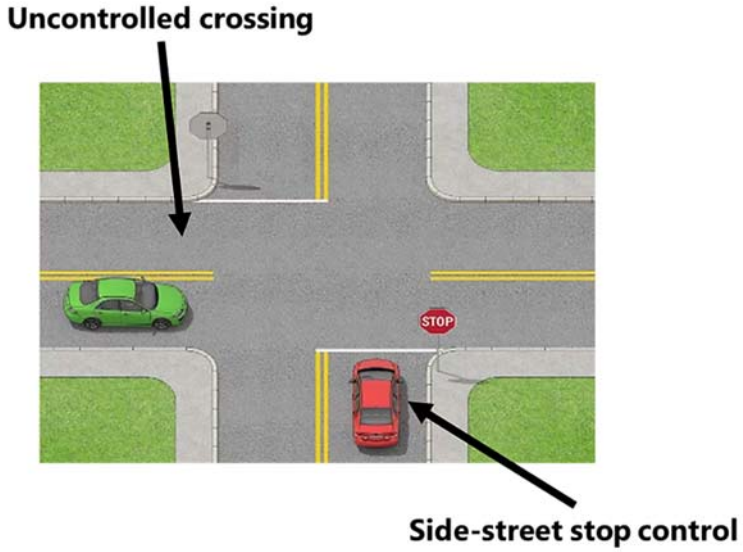
- Marked crosswalk: A legal crosswalk that features crosswalk striping or pavement markings.

Left: Example of crosswalk visibility enhancements (crosswalk marking, signage, and lighting). Source: Federal Highway Administration

Above: Example of a continental crosswalk marking which is a industry recognized best practice. Source: Kittelson & Associates

CROSSING CONTROL DEFINITIONS

- Uncontrolled crossing: A legal crossing of a roadway intersection approach or mid-block crossing of a roadway between two intersections with no traffic control at the point of crossing.



- Controlled crossing: A legal crossing of a roadway intersection approach or mid-block crossing of a roadway between two intersections controlled by a stop sign or traffic signal.

CROSSING INFRASTRUCTURE TREATMENTS

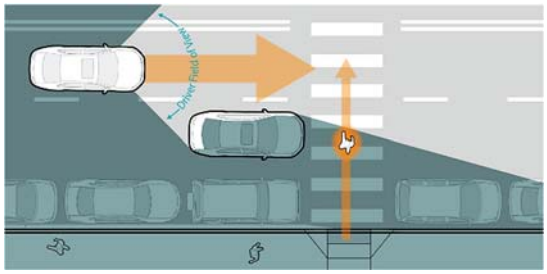
Any location reviewed for a crosswalk should in tandem have a detailed engineering review completed to determine if additional crossing infrastructure enhancements should be implemented.

TRAFFIC VOLUME REVIEW

Review the number of lanes at the point of crossing to ensure that the total number of lanes (travel and turn lanes) at the point of crossing is adequate for the traffic volumes. Right sizing the crossing distance is critical to all modes of travel, but particularly important to pedestrians and bicyclists, as the goal is to minimize their time in the hazard zone.

- Engineering review of right- and left-turn lanes if applicable at the point of crossing to verify if they are necessary or if they can be removed.
- If roadway design or turn lanes are not appropriate, consider lane reductions or turn lane removal before proceeding.

The overall objective of this is to eliminate the multilane threat by removing lanes to improve visibility. When one car stops for a person crossing the roadway, the second car may not be visible to the person crossing nor is that person visible to the second driver.



ROADWAY GEOMETRIC TREATMENT ASSESSMENT

The following process reviews opportunities to slow speeds, reduce crossing distance, and improve visibility of people crossing the roadway.

1. Narrow Travel Lanes: MnDOT identifies the following lane width best practices per the *Performance-Based Practical Design – Process and Design Guidance*. These are superseded by MnDOT's own design standards though used as an example for consideration by the City of Lake Elmo. Studies have credited tighter lane widths by neutrally or positively impacting safety without affecting traffic operations.
    - Rural Roadways: 11- or 12-foot-wide lanes
    - Urban and Suburban Roadways: 10-foot-wide lanes (≤35 mph and turn lanes), 11-foot-wide lanes (suitable for all other typologies), 12-foot-wide lanes (≥50 mph and/or non-motorized traffic is absent).

2. **Reduce Conflict Points:** Consider moving the crossing to a location with the least number of conflict points depending upon engineering judgement. This could include an intersection leg with lower turning vehicles or overall traffic, as well as moving a crossing entirely out of an intersection and to a mid-block location.
3. **Crossing Lighting:** Ensure lighting is present that illuminates the entire crossing (curb ramp to curb ramp) per state and federal guidance.
4. **Geometric Improvements:** Context-specific traffic calming measures using geometric improvements should be considered. Each item is further defined in the section below.
    - Curb Radius: Review the turning curb radius to understand if a reduced radius can be achieved based upon context-specific needs and design vehicles. Reducing the radius to as small as practical can create significant benefits via reduced crossing distance and vehicle turning speeds.
    - Curb Extension: An extension or bump out of the curb into the roadway and typically a minimum of six-feet-wide though design is context specific. This could include removal or narrowing of a roadway shoulder to reduce the crossing distance. Special attention should be given to existing on-street bicycle infrastructure (e.g., bike lane) to ensure it does not remove space at the intersection for that connection.
    - Pedestrian Refuge Island: A raised median that is a minimum of eight-feet-wide though ten-feet or greater is preferred to ensure it is wide enough to accommodate bikes.
5. **Signage Improvements:**
    - Pedestrian Warning Sign: Static sign used at marked crosswalks following the MN MUTCD.
    - Rectangular Rapid Flashing Beacon (RRFB): A crossing enhancement that is activated by a pedestrian or bicyclist and uses two rapid and alternate flashing yellow rectangular beacons. RRFBs are applicable on roadways with higher pedestrian demand, traffic volumes, and traffic speeds. Use MnDOT guidance to determine if a location is appropriate.