



City of Corcoran Pedestrian Crossing Policy

Pedestrian Crossing Policy and Selection
Process for Streets within the City of
Corcoran, Minnesota

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Introduction and Purpose

1.0 INTRODUCTION AND PURPOSE

The City of Corcoran is a growing community that continues to see urbanized growth along the eastern portions of town. As development continues, one of the challenges the City has identified is the planning and management of interactions between its growing pedestrian facility needs and its roadway network. Corcoran does not currently have a policy in place to address pedestrian crossings. City staff have been managing crossing requests and concerns by residents on a case-by-case basis. The City typically reviews each situation and engages in discussions on what, if any, pedestrian treatments may adequately address concerns. While this approach has been sufficient to handle these requests and concerns to date, it is anticipated that continued growth will result in increasing requests. Following a work session to discuss management strategies going forward, the City Council has requested staff to develop a policy addressing pedestrian crossings to evaluate both resident concerns and future areas of need.

2.0 AUTHORITY

The City may consider the installation of marked pedestrian crossing facilities where potential conflicts between vehicular and pedestrian/bicycle movements are present and where enhancement of the crossing is determined to be appropriate on local roadways. The crossing facility should be designed in accordance with State Statute and the guidelines contained herein.

This policy is based on the administrative implementation of policy and *Minnesota State Statute §169*, and therefore several provisions govern. This policy is administered under the direction of the Director of Public Works and applies to roadways under the City's jurisdiction and was reviewed and approved on _____, 2023 by City Resolution # _____.

3.0 RELEVANT STATUTES

Minnesota State Statute §169 describes several relevant provisions that define terminology related to pedestrian facilities and inform pedestrian and driver responsibilities.

3.1 SECTION 169.011; SUBD. 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.

3.2 SECTION 169.011; SUBD. 53 - PEDESTRIAN

“Pedestrian” means any person afoot or in a wheelchair.



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Relevant Statutes

3.3 SECTION 169.011; SUBD. 68 – ROADWAY

“Roadway” means that portion of a highway improved, designed, or ordinarily used for vehicular travel, exclusive of the sidewalk or shoulder. During periods when the commissioner allows the use of dynamic shoulder lanes as defined in subdivision 25, roadway includes that shoulder. In the event a highway includes two or more separate roadways, the term “roadway” as used herein shall refer to any such roadway separately but not to all roadways collectively.

3.4 SECTION 169.21 - PEDESTRIAN

3.4.1 Subdivision 1 – Obey traffic-control signals.

“Pedestrians shall be subject to traffic-control signals at intersections as herefore declared in this chapter, but all other places pedestrians shall be accorded the privileges and shall be subject to the restrictions stated in this section and section 169.22.

3.4.2 Subdivision 2 – Rights in absence of a 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. The provision shall not apply under the conditions as otherwise provided in the 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.*
- (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.*



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Relevant Guidance And Policies

3.4.3 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.*

4.0 RELEVANT GUIDANCE AND POLICIES

The following guidance and policies from other municipalities in Minnesota were used to help inform the development of this policy.

4.1 MNDOT PEDESTRIAN CROSSWALK POLICY DEVELOPMENT GUIDELINES

In May 2020, the Minnesota Department of Transportation (MnDOT) Local Road Research Board (LRRB) developed guidelines to help local agencies develop pedestrian crossing policies. This improves consistency in the methods and approaches local agencies use to address crossings on streets within their jurisdiction. These guidelines address how crossings may be enhanced by countermeasures based on roadway type, vehicle volumes, and posted speed limit. These guidelines also discuss resources developed by various agencies related to pedestrian crossing policy and pedestrian facilities.

4.2 MINNESOTA'S BEST PRACTICES FOR PEDESTRIAN/BICYCLE SAFETY

In September 2013, MnDOT published a document to provide a resource to assist agencies in their effort to accommodate pedestrians and bicyclists more safely on their roads and highways. The document discusses available proven, tried, and experimental strategies and provides a description and definition to each in addition to their safety characteristics.



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Relevant Guidance And Policies

4.3 BEST PRACTICES FOR TRAFFIC CONTROL AT REGIONAL TRAIL CROSSINGS

In 2011, several Minnesota metro road and trail managing agencies came together to provide clarification on Minnesota State statutes regarding crossing locations and to provide a general set of principles and options to consider when evaluating traffic control configurations at trail crossings. A chart was developed to provide consistency along regional trails for crossing treatments based on roadway type, vehicle ADT, and vehicle speeds.

4.4 MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

The 2023 Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD) contains information on the design and implementation of some pedestrian facilities including crosswalk markings, signage, and signal treatments, however it does not provide complete guidance for what countermeasures should be considered when evaluating specific locations.

4.5 HENNEPIN COUNTY PEDESTRIAN PLAN

The Hennepin County Board of Commissioners adopted the Pedestrian Plan in September 2013. The purpose of the plan is to guide the implementation of improved opportunities for walking within Hennepin County, while remaining consistent with adopted policies and improving health outcomes. The plan does not address crossing guidelines but discussed a need to develop guidelines for Leading Pedestrian Intervals (LPI), Rectangular Rapid Flashing Beacons (RRFB), and PHBs across County Roads.

4.6 CITY OF ALBERT LEA, MN CROSSWALK POLICY

The City of Albert Lea's policy, published as part of their policy and procedures manual, establishes the guidelines and considerations for the installation of marked crosswalks. The policy requires an engineering study to determine if the criteria is met for a marked crosswalk. The criteria include minimum vehicle volumes, minimum peak hour pedestrian volumes, inadequate gaps, and distance from other crossings.

Once the decision is made to mark a crosswalk, the policy identifies a chart based on AADT, vehicle speeds, and roadway configuration to determine the proper treatment needed.

4.7 CITY OF MANKATO, MN CROSSWALK MARKING POLICY

Adopted by the City Council in May 2011, the City of Mankato's policy outlines a process that can be taken for a citizen to request a marked crosswalk. If a location is to be marked, it requires 20 or more pedestrians within a 2-hour period, in addition to sufficient stopping sight distance. Crosswalks are not allowed on arterial roadways or on streets with a speed limit greater than 30 mph unless the intersection is signalized. The policy also provides a list of locations where conditions may warrant a crosswalk (school routes, parks, trails, etc.). The policy states that in all cases, the City Council will make the final decision.



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Evaluation Process

4.8 CITY OF BLAINE, MN CROSSWALK POLICY

In November 2014, the Blaine City Council adopted a policy very similar to the City of Mankato's policy from 2011. If a location is to be marked it must have over 5 pedestrians per hour during a 10-hour period. Crosswalks are not allowed on arterial roadways or on streets with a speed limit greater than 30 mph unless the intersection is signalized. The policy also provides a list of locations where conditions may warrant a crosswalk (school routes, parks, trails, etc.). This policy has a process for a citizen to make a request for a crosswalk and states that in all cases, the City Council will make the final decision to mark a crosswalk.

5.0 EVALUATION PROCESS

5.1 IDENTIFYING LOCATIONS

Due to the recent and anticipated residential and commercial development within Corcoran, identifying the location of needed/future pedestrian crossing treatments is an important first step in identifying potential improvements. This can be achieved in several ways, which may include:

- Requests by residents – Current resident requests for crossing enhancements will be documented and evaluated against the procedures outlined in this policy. The City will make the final decision regarding what treatments, if any, are appropriate for the location.
- Assessing multimodal city planning documents – The city will examine the multimodal elements of their planning documents including the Parks and Trails Plan within the City of Corcoran 2040 Comprehensive Plan or other multimodal plans. The city can then identify locations where designated trails cross roadways or where pedestrian/bicycle generation is expected between trails/parks and nearby residences or commercial areas. The city will evaluate and recommend crossing improvements at locations that are identified in accordance with this policy.
- Assessing pedestrian circulation within and around proposed developments – When a new development is proposed, the developer must assess the site for pedestrian access and circulation needs and determine reasonable pedestrian routes.. Locations external to the site where pedestrian traffic is expected to access the public pedestrian network shall be identified. Based on factors including adjacent land uses or proximity to nearby parks/trails, the city will determine if pedestrians crossing city roadways are possible adjacent to the proposed development. The city will evaluate potential crossing locations in accordance with this policy and make the final decision on treatments required for the development. This process may include scenarios where parcels of a development are divided by a city roadway and pedestrian trips are anticipated to be generated between the parcels.



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5.2 MULTIMODAL ASSESSMENT

Once a crossing location has been identified, a multimodal assessment shall be performed to determine if criteria are met for a marked pedestrian crossing facility and to determine the appropriate treatments. The level of detail required for the multimodal assessment will vary depending on the location being evaluated. The multimodal assessment may include:

1. Vehicle traffic characteristics such as vehicle speed and traffic volume
2. Roadway geometric characteristics including grades, curvature, roadway width, lane configuration, and medians
3. Pedestrian/bicycle volume, age, and level of mobility as well as future volume associated with developments
4. Location of adjacent land uses/pedestrian and bicycle generators and crossing patterns including parks, trails, and recreation areas
5. Designated school walking routes
6. Existing sidewalk network and sidewalk ramps
7. Sight distances and sight obstructions
8. Location of adjacent driveways
9. On-street parking
10. Street lighting
11. Location of drainage structures
12. Distance to nearest protected/marked pedestrian crossing including at traffic signals, stop-controlled intersections, or grade separated facilities
13. Traffic signal progression
14. Vehicle and pedestrian/bicycle crash history and risk

5.3 GUIDELINES

The City shall take into consideration the following general guidelines during the multimodal assessment and when selecting the appropriate crossing facility:

1. Facility selection based on engineering judgement
2. Pedestrian crossings connecting established sidewalks/trails at both ends
3. Inclusion of Americans with Disabilities Act (ADA) accessible ramps at both ends of pedestrian crossing installations
4. Adequate street lighting at crossings



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Criteria For Implementation

5. Restricted street parking adjacent to pedestrian crossings to allow for adequate sight lines for both drivers and pedestrians/bicycles
6. Provisions from the MN MUTCD

6.0 CRITERIA FOR IMPLEMENTATION

The following criteria should be considered during the evaluation of the identified pedestrian crossing location. It should be noted that the following criteria act as guidance and meeting any of the criteria may warrant consideration of a pedestrian crossing facility. The City will make the final decision of what treatments, if any, are appropriate.

6.1 MINIMUM TRAFFIC VOLUME

Pedestrian crossings should generally not be considered for roadways with less than 1,000 vehicles per day unless as part of a school walking route.

6.2 PEDESTRIAN VOLUMES

According to Chapter 13 of the MnDOT Traffic Engineering Manual (TEM), consideration is typically given to pedestrian crossings if there is a minimum of 20 pedestrian/bicycle crossings during the pedestrian/bicycle peak hour, or 15 in the peak hour if the proposed location is part of a school walking route, is adjacent to senior housing or assisted living facilities, or is adjacent to other destinations that are frequented by children or seniors such as parks, playgrounds, athletic facilities, and community centers. According to the guide on 'Pedestrian Crossings: Uncontrolled Locations' published by MnDOT LRRB, the threshold can be lowered to 14 crossings in the peak hour if the speed of the road crossed is greater than 35 mph, the community population is less than 10,000, or the crossing serves a major transit stop.

6.3 TRAFFIC GAPS

Consideration should be given to pedestrian crossings if there is less than one adequate crossing gap in traffic per minute during the peak hour. A crossing gap is measured as the time (in seconds) between vehicles crossing (regardless of direction of travel) the proposed crossing location. An adequate gap is determined by dividing the roadway width (in feet) by a walking rate of 3.5 feet per second (may be slower for a crossing location serving mobility-impaired pedestrians) and adding 3 seconds of perception/reaction time.

6.4 CRASH DATA

Consideration should be given to pedestrian crossings if there is a history or risk of pedestrian/bicycle or vehicle crashes that indicate safety concerns for crossing pedestrians or other non-motorized users. A review of the Minnesota Crash Mapping Analysis Tool (MnCMAT2) should be performed as part of the multimodal assessment to determine if crashes occurred recently at the potential crossing location.



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Criteria For Implementation

6.5 PEDESTRIAN CROSSING SPACING

According to Chapter 13 of the MnDOT TEM, pedestrian crossings should be spaced a minimum of 300 feet from an adjacent protected or marked crossing. The spacing of crossings should generally align with the desired density/intensity of land uses in a particular location; More dense, urban land uses may warrant a shorter spacing of crossing opportunities to provide a higher level of service to pedestrians/ bicycles.

6.6 MID-BLOCK PEDESTRIAN CROSSINGS

The use of mid-block pedestrian crossings is generally discouraged unless engineering judgement determines a specific need for this type of crossing. Installation of new mid-block crossings should include provisions for adequate street lighting, supplemental signage, parking restrictions, and curb modifications/ extensions as determined to be appropriate.

6.7 PEDESTRIAN CROSSING CONTROL

Control for a pedestrian crossing, including signing, pavement marking, traffic signals, flashing beacons, and other warning devices should conform to the MN MUTCD.

6.8 TRAFFIC SIGNALS

Marked crosswalks should be installed at signalized intersections in accordance with the traffic signal design, which should also include pedestrian phases and accessible pedestrian signal (APS) push buttons and may feature LPI.

6.9 CENTRAL BUSINESS DISTRICT

Pedestrian crossings should be considered in the Central Business District of the City and in areas of concentrated pedestrian/bicycle activity such as dense housing developments and commercial or mixed-use areas.

6.10 ROUNDABOUTS

Marked crosswalks should be installed at roundabouts in accordance with the roundabout engineering design. The roundabout may warrant enhanced crossing facility treatments such as RRFBs depending on the characteristics of the roadway/traffic and the expected level of pedestrian/bicycle crossing activity.

6.11 NEARBY MULTIMODAL FACILITIES

The proximity of a proposed crossing location to other multimodal, non-motorized facilities such as trails, shared-use paths, sidewalks, or bike lanes may increase the potential for crossing activity. The enhanced crossing may provide a benefit to the overall multimodal network in the community and thus may be considered.



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Treatments

6.12 EXISTING AND FUTURE LAND USE

The proximity of a proposed crossing location to existing and future land uses that are expected to generate pedestrian/bicycle trips between each other including residential areas, commercial areas, schools and other community facilities, event centers, and parks and recreation areas may increase the potential for crossing activity. An assessment of adjacent proposed developments, existing zoning, and future land use outlined in the City's Comprehensive Plan should be considered in the multimodal assessment.

7.0 TREATMENTS

Once a decision is made to implement a pedestrian crossing facility at a particular location, the appropriate crossing treatments should be selected based on the characteristics of the roadway being crossed.

7.1 SELECTION MATRIX

A selection matrix was developed to help choose the appropriate pedestrian crossing treatment or treatments based on roadway characteristics, including AADT, posted speed limit, and lane configuration. The matrix was developed using treatment selection guidance in Chapter 13 of the MnDOT TEM and the Federal Highway Administration's (FHWA) *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations*. **Table 1** shows the roadway characteristics and the corresponding recommended treatments.

It is important to note that some treatments should always be considered at a crossing but are not mandated or required, and some treatments are dependent on others being implemented concurrently. Also, the absence of a listed recommended treatment means it is generally not appropriate to implement, however exceptions based on engineering judgement may be considered.



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Table 1 – Selection Matrix for Pedestrian Crossing Treatments

Roadway Configuration	AADT AND POSTED SPEED LIMIT								
	Vehicle AADT <9,000			Vehicle AADT 9,000 - 15,000			Vehicle AADT > 15,000		
	≤ 30 mph	35 mph	≥ 40 mph	≤ 30 mph	35 mph	≥ 40 mph	≤ 30 mph	35 mph	≥ 40 mph
2 LANES (1 LANE IN EACH DIRECTION)	① ② ③ ④ 5 7 ⑧ 9	① ② ③ ④ 7 ⑧ 9	① ② ③ ④ 7 ⑧ 9	① ② ③ ④ 7 ⑧ 9	① ② ③ ④ 7 ⑧ 9	① ② ③ ④ 7 ⑧ 9	① ② ③ ④ 7 ⑧ 9	① ② ③ ④ 7 ⑧ 9	① ② ③ ④ 7 ⑧ 9
3 LANES WITH RAISED MEDIAN (1 LANE IN EACH DIRECTION WITH TURN LANES)	① ② ③ ④ 5 6 7 ⑧	① ② ③ ④ ⑥ 7 ⑧	① ② ③ ④ ⑥ 7 ⑧	① ② ③ ④ 5 7 ⑧	① ② ③ ④ ⑥ 7 ⑧	① ② ③ ④ ⑥ 7 ⑧	① ② ③ ④ ⑥ 7 ⑧	① ② ③ ④ ⑥ 7 ⑧	① ② ③ ④ ⑥ 7 ⑧
3 LANES WITHOUT RAISED MEDIAN (1 LANE IN EACH DIRECTION WITH A TWO-WAY-LEFT-TURN)	① ② ③ ④ 5 6 7 ⑧ 9 10 12	① ② ③ ④ ⑥ 7 ⑧ 9 10 12	① ② ③ ④ ⑥ 7 ⑧ 9 10 12	① ② ③ ④ 5 7 ⑧ 9 10 12	① ② ③ ④ ⑥ 7 ⑧ 9 10 12	① ② ③ ④ ⑥ 7 ⑧ 9 10 12	① ② ③ ④ ⑥ 7 ⑧ 9 10 12	① ② ③ ④ ⑥ 7 ⑧ 9 10 12	① ② ③ ④ ⑥ 7 ⑧ 9 10 12
4+ LANES WITH RAISED MEDIAN (2 OR MORE LANES IN EACH DIRECTION)	① ② ③ ④ ⑥ ⑧ 10 11 12	① ② ③ ④ ⑥ ⑧ 10 11 12	① ② ③ ④ ⑥ ⑧ 11 12	① ② ③ ④ ⑥ ⑧ 10 11 12	① ② ③ ④ ⑥ ⑧ 10 11 12	① ② ③ ④ ⑥ ⑧ 11 12	① ② ③ ④ ⑥ ⑧ 10 11 12	① ② ③ ④ ⑥ ⑧ 11 12	① ② ③ ④ ⑥ ⑧ 11 12
4+ LANES WITHOUT RAISED MEDIAN (2 OR MORE LANES IN EACH DIRECTION)	① ② ③ ④ ⑥ ⑧ 9 10 11 12	① ② ③ ④ ⑥ ⑧ 9 10 11 12	① ② ③ ④ ⑥ ⑧ 9 11 12	① ② ③ ④ ⑥ ⑧ 9 10 11 12	① ② ③ ④ ⑥ ⑧ 9 10 11 12	① ② ③ ④ ⑥ ⑧ 9 11 12	① ② ③ ④ ⑥ ⑧ 9 10 11 12	① ② ③ ④ ⑥ ⑧ 9 11 12	① ② ③ ④ ⑥ ⑧ 9 11 12

Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.
 ① Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgement at a marked uncontrolled crossing location.
 ① Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.

- 1 High-Visibility Crosswalk Markings
- 2 Crossing Warning Signs
- 3 Parking Restrictions on Crosswalk Approach
- 4 Adequate Nighttime Lighting Levels
- 5 Raised Crosswalk
- 6 Advance Yield Here To (Stop Here For) Pedestrians Sign & Yield (Stop) Line
- 7 In-Street Pedestrian Crossing Sign
- 8 Curb Extension
- 9 Pedestrian Refuge Island
- 10 Rectangular Rapid-Flashing Beacon (RRFB)
- 11 Road Diet
- 12 Pedestrian Hybrid Beacon (PHB)

7.2 PAVEMENT MARKINGS

Pavement markings shall be placed in accordance with the MN MUTCD.

7.2.1 Crosswalks

Marked crosswalks may be considered at locations that are not protected by a stop sign or a traffic signal. Crosswalks should not be used indiscriminately and should be justified by engineering judgement. Crosswalks shall be a minimum of 6 feet and may be the same width as the approach walkway if the



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walkway is wider than 6 feet. Different crosswalk styles may be used, including (A) transverse, (B) longitudinal bar, and (C) diagonal/zebra as shown in **Figure 1**. Longitudinal bar crosswalk markings may be used where visibility of the crosswalk is important, such as crossings of multi-lane roadways and roadways with speed limits equal to or greater than 35 mph. Longitudinal bar crosswalks have the added benefit of allowing space for wheel paths, increasing lifespan.

The use of decorative materials by themselves does not designate a crosswalk. Crosswalks are legally designated at intersections and no markings are needed. At mid-block crossings, standard crosswalk markings as shown in **Figure 1** shall be used for legal designation as a crosswalk. In specific areas of the city, the crosswalk materials and patterns at intersections may be adjusted.

For crossings on the minor street approaches with stop-control at intersections, crosswalks may be raised to be level with the adjacent sidewalk/trail to provide a higher level of service for crossing pedestrians/ bicycles. A raised crosswalk may also act as a traffic calming measure, functioning similarly to a speed hump, slowing vehicles as they approach the intersection and reducing their maneuver speed.

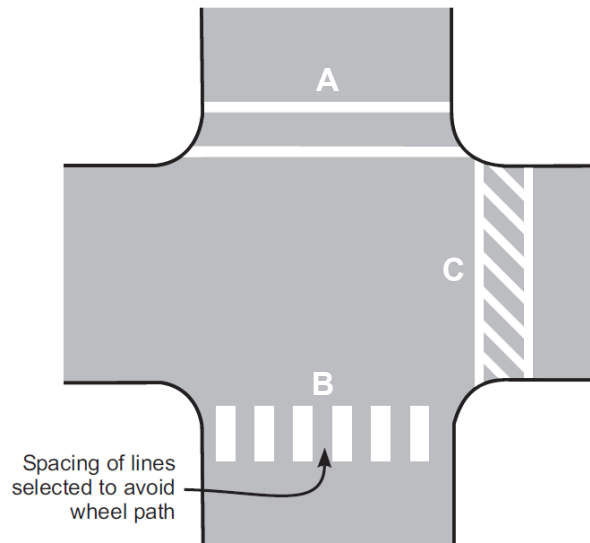


Figure 1 – Examples of Crosswalk Markings

7.2.2 Stop Lines

Stop lines should be considered on multi-lane roadways in advance of mid-block crossings in conjunction with “Stop Here for Pedestrian” signs (R1-5b or R1-5c) as shown in **Figure 2**. Parking should be restricted within the zone between the crossing and the stop lines.



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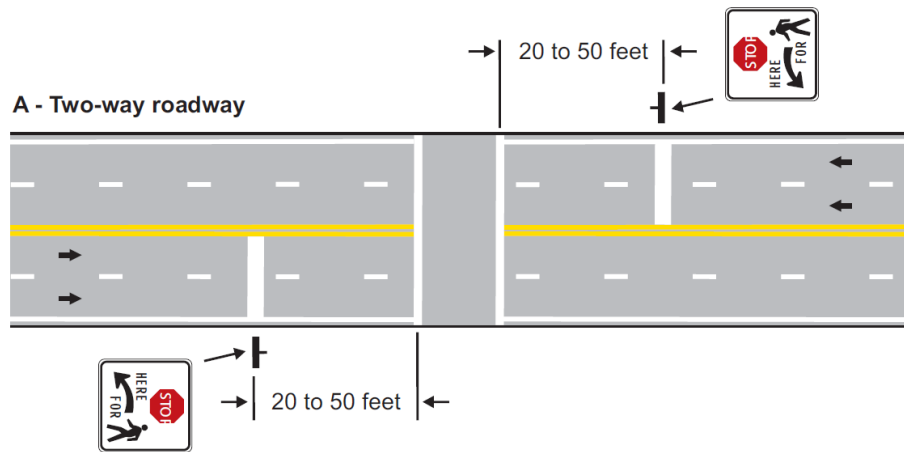


Figure 2 – Example of Stop Lines at Unsignalized Midblock Crosswalks

7.3 TRAFFIC SIGNING

Traffic signing shall be installed in accordance with the MN MUTCD.

The W11-2 'Pedestrian Crossing' sign shall be used at mid-block crossings and other crossings as indicated by engineering judgement. W11-15 or 15a may also be used if the crossing is designated as a trail.



W11-2



W11-15a



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The S1-1 'School Crossing' sign should be used at marked school crossings.



S1-1

When a W11-2, W11-15(a), or S1-1 sign are used, a W16-7p arrow plaque shall also be used.



W16-7p

The W11-2, W11-15(a), and S1-1 signs shall also be used as advance warning signs for crossings as established by the MN MUTCD. When used as an advance warning sign, a W16-9p "Ahead" plaque shall also be used.



W16-9p

The R1-5b or 5c "Stop Here for Pedestrians" sign shall be used if stop lines are used in advance of a marked crosswalk to indicate where vehicles must stop and wait for pedestrians to cross.



R1-5b



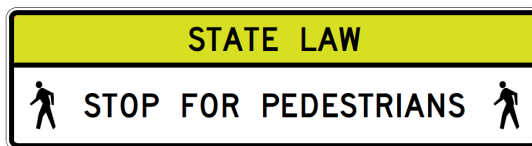
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Treatments

The R1-6a, 6b, or 6c 'In-Street Pedestrian Crossing' sign and the R1-9a 'Overhead Pedestrian Crossing' sign may be used to remind road users that pedestrians that have entered the crosswalk have the right-of-way. The R1-6(a, b, c) in-street sign may be used as a temporary enhancement for a new crossing and should only be used where there are a high number of pedestrian crossings to avoid overuse. The use shall be in accordance with the MN MUTCD.



R1-6a



R1-9a

Other signage and/or enhancements may be considered based on engineering judgement and future revisions to the MN MUTCD.

7.4 TRAFFIC SIGNALS AND BEACONS

7.4.1 Traffic Signal

A traffic signal may be installed at an intersection when signal warrants are met in accordance with the MN MUTCD. A traffic signal offers the opportunity for adding marked crosswalks and other pedestrian signal features to create a pedestrian crossing.

7.4.2 Rectangular Rapid Flashing Beacon

RRFBs may be used to increase visibility at the crossing and alert vehicles of crossing pedestrians/bicycles. When used, they shall be actuated, only operating when pedestrians/bicycles are present to avoid complacency by vehicles. RRFBs may also be used for crossings at roundabouts.

7.4.3 Pedestrian Hybrid Beacon

PHBs (commonly known as High-intensity Activated Crosswalk or HAWK beacons) may be installed when warrants are met in accordance with the MN MUTCD. PHBs are commonly used at mid-block crossings and can provide protected pedestrian/bicycle movements for crossings at multi-lane and higher-speed roadways.



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References

7.5 ROADWAY FEATURES

7.5.1 Curb Extensions

Curb extensions, or bump-outs, may be used to shorten the length of the pedestrian crossing, improve the sight distance for pedestrians/bicycles, and improve sight distance for vehicles, which reduces exposure and increases visibility of pedestrians/bicycles. Curb extensions also create a visual effect of narrowed lanes, which may help reduce vehicle speed at the crossing. Curb extensions can be installed at intersections or at mid-block crossings. Parking should be restricted adjacent to the curb extension based on engineering judgement.

7.5.2 Pedestrian Refuges

Pedestrian refuges, installed as part of a median, may be used on streets with two-way traffic flow to allow pedestrians to cross one direction of traffic at a time and provide safe refuge in the roadway. The minimum median width for a pedestrian refuge is 6 feet, but the design should be based on the pedestrian demand.

7.6 STREET LIGHTING

Street lighting should be considered at all pedestrian crossing locations, based on engineering judgement and according to the City's street light practices.

8.0 REFERENCES

Blackburn, Lauren, Charles Zegeer, and Kristen Brookshire. (2018). *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations*. Vienna, VA and Chapel Hill, NC: USDOT FHWA - https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/docs/STEP-guide-improving-ped-safety.pdf

CH2M Hill and MnDOT. (2013). *Minnesota's Best Practices for Pedestrian/Bicycle Safety*. St. Paul: MnDOT LRRB - <http://www.dot.state.mn.us/research/TS/2013/201322.pdf>

City of Albert Lea. *City of Albert Lea Policy and Procedure Manual - 4.10 Albert Lea Crosswalk Policy*. Albert Lea, MN: City of Albert Lea - https://cityofalbertlea.org/wp-content/uploads/CROSSWALK_POLICY.pdf

City of Blaine. (2014). *City of Blaine Crosswalk Policy*. Blaine, MN: City of Blaine - <https://www.blainemn.gov/DocumentCenter/View/386/Crosswalk-Policy-PDF?bidId=>

City of Mankato. (2011). *City of Mankato, MN Crosswalk Marking Policy*. Mankato, MN: City of Mankato



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References

- Gustafson, Joe et al. (2011). *Best Practices for Traffic Control at Regional Trail Crossings*. Stillwater, MN: Washington County - <https://streetsmn.s3.us-east-2.amazonaws.com/wp-content/uploads/2013/02/SafeCrossingsDocument-FinalDraft.pdf>
- Hennepin County. (2013). *Hennepin County Pedestrian Plan*. Minneapolis: Hennepin County - <https://www.hennepin.us/-/media/hennepinus/residents/transportation/documents/pedestrian-plan.pdf>
- Miner, Kate and Tim Arvidson. (2020). *Pedestrian Crosswalk Policy Development Guidelines*. Burnsville, MN: MnDOT LRRB - <https://www.dot.state.mn.us/research/reports/2020/2020RIC01.pdf>
- Minnesota Department of Transportation. (2023). *Minnesota Manual on Uniform Traffic Control Devices (MnMUTCD)*. St. Paul: MnDOT - <https://www.dot.state.mn.us/trafficeng/publ/mutcd/>
- Minnesota Department of Transportation. (2023). *Traffic Engineering Manual – Chapter 13*. St. Paul: MnDOT - <https://www.dot.state.mn.us/trafficeng/publ/tem/index.html>
- Minnesota Local Road Research Board. (2014). *Pedestrian Crossings: Uncontrolled Locations*. St. Paul: MnDOT - http://www.mnltap.umn.edu/publications/handbooks/pedcrossingguide/documents/ped_guidebook.pdf



PROPOSAL



**DESIGN
ELECTRIC INC.**

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PROPOSAL SUBMITTED TO: CITY OF CORCORAN		PHONE 612-741-6548	DATE JUNE 26, 2023
STREET 8200 COUNTY ROAD 116		JOB NAME CORCORAN RRFB	
CITY, STATE AND ZIP CODE CORCORAN, MN 55340		JOB LOCATION STIEG ROAD & ELM LANE, CORCORAN, MN	
FAX/EMAIL	DATE OF PLANS	ATTN: STEVE HEGLUND	JOB PHONE

We hereby submit specifications and estimates for:

INSTALL ONE RRFB (TAPCO) PED FLASHER SOLAR POWERED, AND TWO ADVANCED WARNING PED CROSSING SIGNS, AT THE INTERSECTION ON STIEG ROAD AND ELM LANE

MATERIAL:	\$15,788.00
LABOR:	\$ <u>4,889.00</u>
TOTAL	\$20,677.00

NOTES:

- NO TRAFFIC CONTROL, STAKING, SURVEYING, GPS AS BUILTS OR FINAL RESTORATION INCLUDED**
- PRICE INCLUDES SALES TAX, INSPECTION FEES**
- WE ACKNOWLEDGE THE RECEIPT OF ADDENDUM #**
- NO SPECIAL INSURANCE INCLUDED**
- STANDARD AGC SUBCONTRACT**
- DESIGN WILL REMOVE THE CONCRETE SIDEWALK, BUT CITY TO REPLACE WALK.**

We propose hereby to furnish material and labor - complete in accordance with the above specifications, for the sum of: **Twenty thousand six hundred seventy-seven and no/100----- Dollars \$ 20,677.00**

Payment to be made as follows: **Upon completion, Net 30 days**

All material is guaranteed to be as specified. All work to be completed in a professional manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Worker's Compensation Insurance. Price above is based on standard AGC contract and insurance limits.

We reserve the right to charge for any attorney fees that would be associated with collecting any money owed on this contract. **There is no bond included unless noted otherwise.**

Authorized Signature:


ORLYNN MUELLER

Note: This proposal may be withdrawn by us if not accepted within 30 days.

Acceptance of Proposal - The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payments will be made as outlined above.

Signature: _____

Date of Acceptance: _____

Signature: _____