

Section 5: RECOMMENDATIONS



Because East 2nd Street's highest and best use at the regional level is its continued function as a high-volume arterial, it is important to minimize interruptions that driveways and accesses can cause to the safe and efficient flow of traffic. Conversely, as a city street, it is important to keep speeds and traffic patterns safe for non-motorized users.

Results from this study indicate there are no immediate or looming issues which threaten the capacity or operational efficiency of the East 2nd Street corridor, and it appears the roadway's current design is more than adequate for meeting regional mobility needs now and into the future. With that said, it is clear there's limited right-of-way available for any future expansion or alterations and that the further addition of new accesses along the roadway will increasingly compromise the operational integrity of the corridor in the future. As such, it is the principal recommendation of this study that the City of Superior restrict the creation of unnecessary accesses and seek to consolidate existing accesses when such opportunities arise.

Access to lands adjacent to the roadway cannot, of course, be denied. But the City of Superior does retain the right to regulate conditions on its public streets and has within its powers the ability to direct the evolution of land use patterns through both alterations in road design and adjustments to its land use ordinances. To this end, it is recommended that the City of Superior amend both its subdivision and zoning ordinances so as to identify US Hwy 2/53 as a specially designated corridor within the city limits that calls for a set of unique standards and requirements tailored to ensure the use of best practices in site design and construction and thus mitigate the impacts that future development can have on the operations and safety of the roadway.

However, because the capacity and operations of East 2nd Street do not appear to be threatened in the near future under existing conditions, the bulk of recommendations that follow are related to making conditions safer throughout the corridor, especially for non-motorized users. In fact, it is because of no looming operational issues that many of the recommendations are aimed at helping to slow, or "calm" vehicle speeds on East 2nd Street so as to increase the overall safety of the facility for motorists and non-motorists alike. Ideally, this would be done through a redesign of the roadway that provides pedestrians refuge in a median at the center of the roadway. But reconstruction of East 2nd Street is more than a decade away, and treatments in the interim will need to be lower cost treatments strategically tailored to conditions unique to each context zone identified in this study.

General Recommendations:

There are a number of improvements or activities that could be implemented to improve safety and operations corridor-wide on East 2nd Street. These include the previously mentioned changes that the City of Superior could make to its land use ordinances to mitigate the effects further development can have on the operations and safety of the roadway. But they also include strategies such as increasing the number and visibility of pedestrian caution signs and speed limit signs throughout the corridor, as well as increasing enforcement of the speed limit. Together, these strategies would reinforce drivers' attention to conditions along the roadway and ultimately lead to reduced speeds on the corridor overall. These and other general recommendations are listed in Table 5.1 along with the proposed timeframes for their implementation and the entities responsible for implementing them.

Zone-specific Recommendations:

Ten distinct context zones have been identified along East 2nd Street in which transitions in land use and traffic patterns present drivers and non-motorized users with varying conditions as they move along the corridor. It is understood that such differences in land use context will often require different approaches to management; and the various inventories and analyses of this study were done with that in mind. The maps which follow on pages 5.6 through 5.24 show the locations of both the existing features in each zone and recommended improvements. Recommendations are labeled with identifiers (example: 3-a), which are also referenced in the text. It should be mentioned that these locations are general depictions, not accurate for engineering or cartographic purposes. The locations of proposed improvements are likewise as uncertain and will require additional planning and engineering to determine their exact placement, spacing and/or alignments. Tables 5.2 through 5.11 list the various improvements shown in the maps of each individual context zone. They also include cost estimates, proposed timeframes for implementation, and those entities responsible for implementing them.

“General” vs. “Zone-Specific” recommendations:

Some recommendations such as “increase enforcement of posted speed limits” are suitable corridor-wide, while some recommendations of this study call for unique treatments at specific locations.

Timeframes for implementation:

Recommended improvements have been identified as “Short-range” (2015-2020), “Mid-range” (2020-2025), and “long-range” (2025-2035) based on the amount of planning, engineering and funding anticipated.

***WisDOT's "Connecting Highways"
Classification:***

East 2nd Street is a city street that connects US Highway 53 with US Highway 2. Although not officially part of Wisconsin's STH system, WisDOT shares in managing the facility to ensure consistency in signage and design.

Roadway Jurisdiction & Implementation:

East 2nd Street (STH 53/US Hwy 2) is a shared facility between the State of Wisconsin and the City of Superior. Although it is not officially part of the State Trunk Highway System (STH), it carries the WisDOT designation of "Connecting Highway" because it provides an important link for that system. This designation ensures that markings and signage remain consistent, for the sake of travelers, with the rest of the STH system.

When it comes to the maintenance and operations of the East 2nd Street corridor, the City of Superior is the principal jurisdiction. WisDOT is ostensibly responsible for maintaining the roadway's through lanes as well as pavement markings and certain signage, while the city is responsible for maintaining any signals, parking lanes, and sidewalks within the city limits. The city is also responsible for all signs related to local ordinance, such as the corridor's speed limit signs and "Trucks Use Left Lane" signs.

When it comes to funding infrastructure improvements along the corridor, project costs are generally shared in the following way:

- The 2 principal through lanes; markings & signage - WisDOT 100%
- The 2 outer through lanes - WisDOT 75% / City of Superior 25%
- Turn lanes; additional through lanes - WisDOT 50% / City of Superior 50%
- Signals; parking lanes; sidewalks; centerline ped refuges - City of Superior 100%

The tables of recommended improvements presented in the following pages identify the "Implementing Agency" responsible for each improvement based on the above criteria.

Study Recommendation	Implementation Timeframe	Implementation Agency
(1) Amend existing City of Superior zoning and subdivision ordinances to include special criteria for the US Hwy 2/53 corridor that are aimed at: <ul style="list-style-type: none"> Restricting and reducing unnecessary accesses Optimizing the spacing of access points Requiring preferred practices in site design of adjacent development. 	Short Range (2015—2020)	City of Superior
(2) Fill in existing sidewalk gaps to ensure a continuous separated path for pedestrian movements along the corridor.	ongoing	City of Superior
(3) Install additional speed limit signs to meet the recommended spacing of 1,500 ft for the posted speed of 35mph ¹	Short Range (2015—2020)	City of Superior
(4) Install more signs denoting lane designation for heavy truck traffic.	Short Range (2015—2020)	City of Superior
(5) Increase enforcement of posted speed limits and “ <i>Trucks Use Left Lane</i> ” ordinance.	ongoing	City of Superior
(6) Conduct a more extensive analysis of operations and safety at key intersections.	Short Range (2015—2020)	WisDOT/ City of Superior

Recommendations: Context Zone 1



Centerline medians can be designed to provide non-motorized users refuge from traffic. They are recommended as part of a future redesign of East 2nd Street.

Existing Conditions:

Vehicle speeds in Zone 1 tend to be higher than in other segments of the East 2nd Street corridor. This is due in part to the transition from a posted speed of 45 mph to 35 mph for those vehicles entering the corridor from the northeast. The zone's land use context is also a factor. Flanked on one side by suburban-style lots set back far from roadway and parkland on the other, the zone's "wide-openness" does little to calm speeds. This wide roadway also tends to act as a barrier for non-motorized users. Furthermore, the designated crossings which do exist are insufficiently spaced throughout the zone, and a lower utilization of the Harbor View Park and Osaugie Trail are the suspected consequence. Zone 1 also contains more vehicle crashes than any other zone in the corridor, which are primarily attributed to its two high-volume, signalized intersections. While neither intersection has crash rates or severity rates that exceed critical thresholds, they remain the highest in the corridor.

Short and Medium Range Recommendations:

Treatments for the short and mid-range planning horizons will need to focus on calming speeds, increasing drivers' awareness, and making crossings safer. A more frequent placement of speed limit signs would help remind drivers to continue checking their speeds **(1-a)**. Similarly, high-visibility crosswalk markings and signage would aid in driver awareness of designated crossing areas **(1-b)**. More in-depth study of signal operations at the Belknap Street and 18th Avenue E intersections may lead to modifications that can also help to reduce crashes, while the signal at 18th Avenue E in particular should be modified to include "Walk/Don't Walk" signal heads, countdown timers, and ped-actuated buttons **(1-d)**.

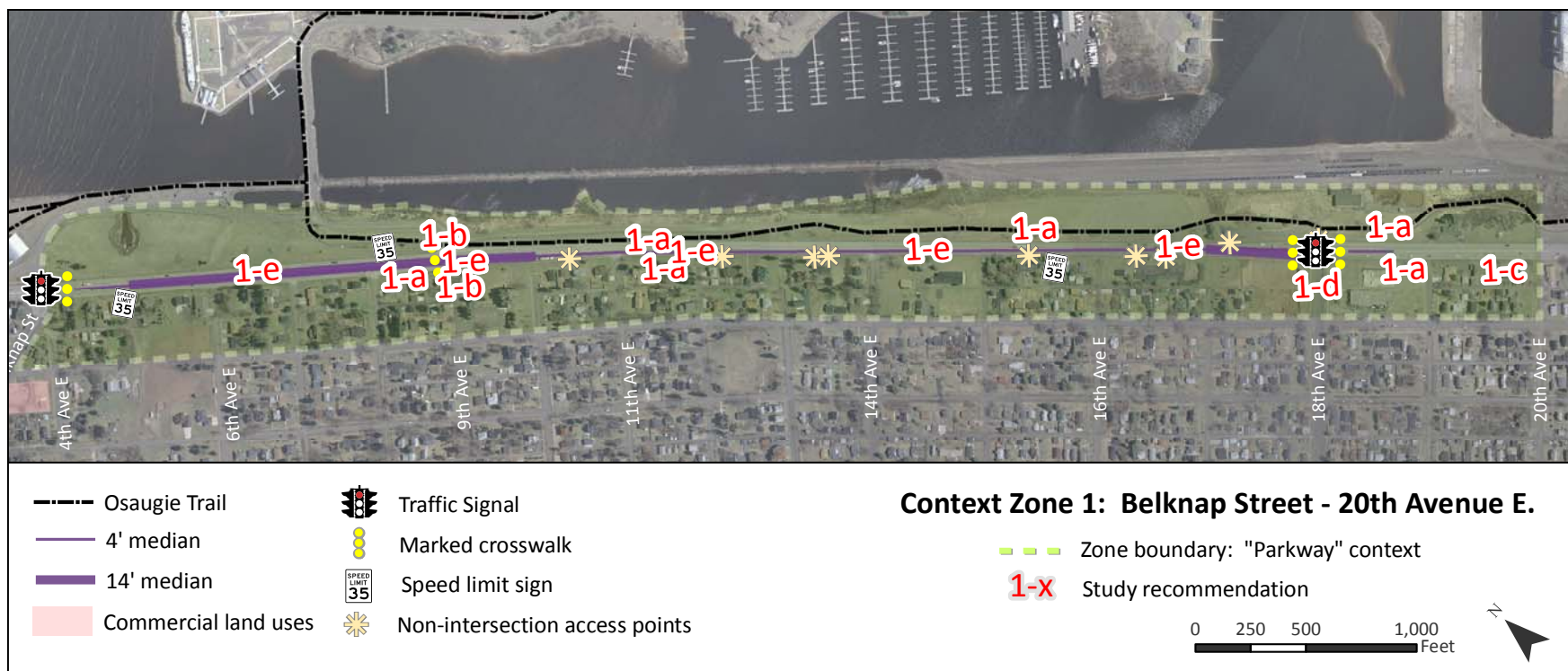
Long Range Recommendations:

Zone 1 is an ideal segment for a raised centerline median designed with mid-block pedestrian refuges **(1-e)**. Not only would this treatment shorten crossing times and provide protection, but would also make the thru-way appear narrower and influence slower vehicle speeds.

Table 5.2: Implementation Matrix for Context Zone 1 (Belknap St. to 20th Ave. E.)

Study Recommendation	Implementation Timeframe	Cost Estimate ¹	Implementation Agency	Potential Funding Sources (described on page 63)
(1-a) Install speed limit signs (6 signs)	Short Range (2015—2020)	\$1,800	City of Superior	STP, HSIP, CHA, GTA
(1-b) Install high-visibility Ped Crossing signs (2 signs)	Short Range (2015—2020)	\$800	City of Superior	STP, HSIP, CHA, GTA
(1-c) Install “Trucks Use Left Lane” sign	Short Range (2015—2020)	\$300	City of Superior	STP, CHA, GTA
(1-d) Install pedestrian push button treatments and crosswalk countdown timers	Mid Range (2020—2025)	\$8,000	City of Superior	STP, HSIP, CHA, GTA
(1-e) Install mid-block pedestrian refuge islands and crosswalk treatments (signs and markings) every 1/4 mile - with next road reconstruction	Long Range (2025—2035)	\$110,000	WisDOT/ City of Superior	STP, HSIP, TE, CHA, GTA

1. Estimates in 2010 dollars; does not include costs associated with planning, engineering, or continued maintenance.



Recommendations: Context Zone 2



Using high-visibility pedestrian caution signs in combination with arrows and ladder-styled crosswalks can better attract the attention of both motorists and non-motorists to designated crossing areas.

Existing Conditions:

The high trip attraction and access density found in Zone 2 leads to a large number of vehicles entering and exiting the roadway at many different locations. This leads to frequent disruptions in the flow of traffic and a higher potential for crashes. If and when additional development occurs along the roadway, increasing the number of daily trips to this zone, operational issues will likely begin to manifest. Zone 2 is also not conducive to non-motorized crossings, yet the high trip demand generated by its uses would logically include higher ped attraction too. The pedestrian warning signs that are present are easily lost within the array of commercial signage and the overall busyness of the zone.

Short and Medium Range Recommendations:

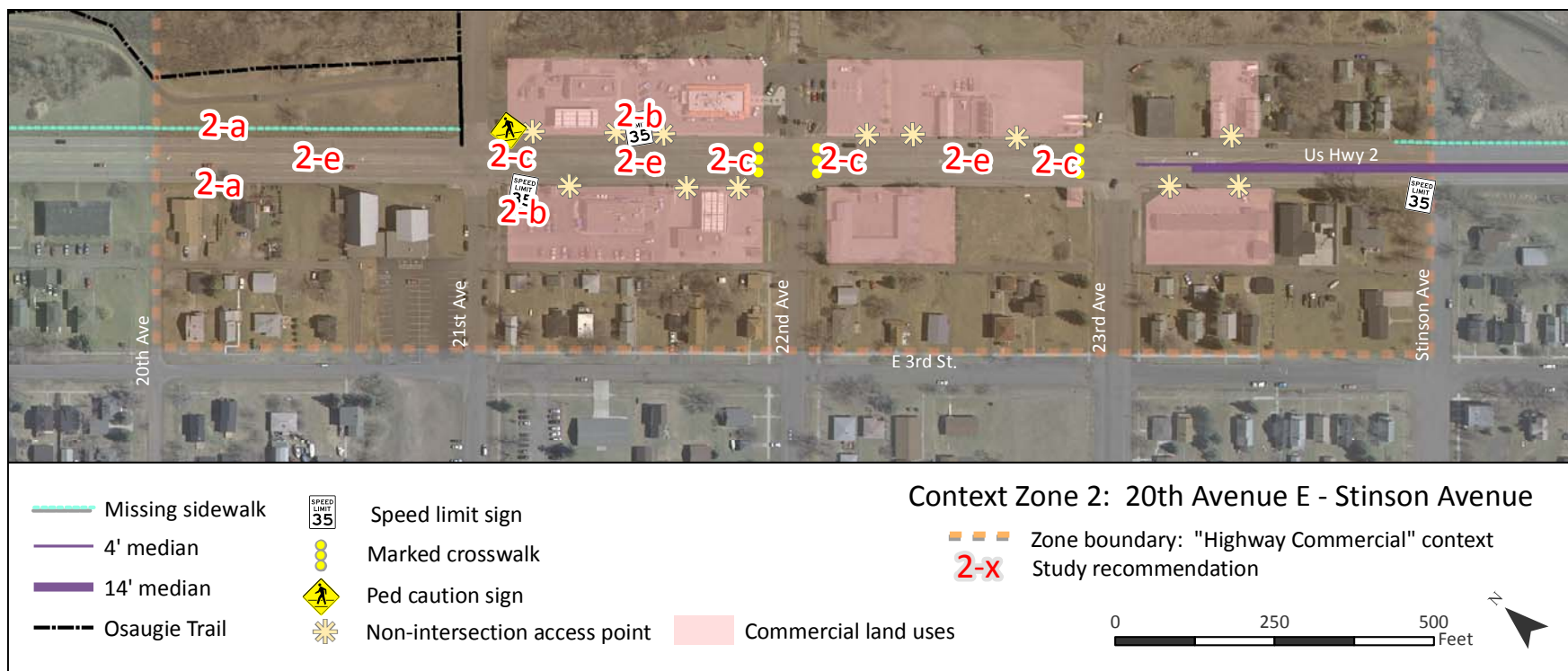
In the short term, improvements should be made to traffic signs and markings within Zone 2. Existing speed limit signs should be relocated further away from commercial accesses (2-a; 2-b), and a series of high-visibility pedestrian crossing signs, along with wider ladder-style crosswalks, should be installed between 21st Avenue E and 23rd Avenue E (2-c). A traffic impact analyses (TIA) should be done prior to any development projects that have the potential of further increasing trip-attraction to the area (2-d), and opportunities to combine or remove accesses as part of a development project should be pursued.

Long Range Recommendations:

Because of all the turning movements produced by the many accesses that exist in Zone 2, a future redesign of the roadway should at a minimum include raised islands in the center of the roadway to help articulate the crossings, shorten the crossing distances, and provide refuge for pedestrians (2-e). But such raised delineation could also be incorporated into longer centerline medians that are strategically designed to direct left turns to a few select locations, thus reducing the potential for delay and collisions.

Study Recommendation	Implementation Timeframe	Cost Estimate ¹	Implementation Agency	Potential Funding Sources (described on page 63)
(2-a) Install speed limit signs (2 signs)	Short Range (2016—2020)	\$600	City of Superior	STP, HSIP, CHA, GTA
(2-b) Remove speed limit signs (2 signs)	Short Range (2016—2020)	NA	City of Superior	STP, CHA, GTA
(2-c) Install high-visibility crosswalk (4 crosswalks) and high-visibility Ped Crossing signs (8 signs)	Short Range (2016—2020)	\$6,000	City of Superior	STP, HSIP, CHA, GTA
(2-d) Conduct a traffic impact studies for any development projects that increase trip generation in this zone.	ongoing	\$15,000—\$40,000	WisDOT/City of Superior	STP, CHA, GTA
(2-e) Install mid-block pedestrian refuge islands, crosswalks treatments (signs and markings), and necessary sidewalk - with next road reconstruction	Long Range (2026—2035)	\$66,000	WisDOT/ City of Superior	STP, HSIP, TE, CHA, GTA

1. Estimates in 2010 dollars; does not include costs associated with planning, engineering, or continued maintenance.



Recommendations: Context Zone 3



Building trail connections between East 2nd Street and the Osaugie Trail spur at 26th Avenue E would provide non-motorized users the protection of a grade-separated crossing.

Existing Conditions:

The majority of Zone 3's 1,500 ft length is a bridge span that crosses the railroad tracks between Stinson Avenue and 26th Avenue E. A spur trail that links the Osaugie Trail to a parking area at 4th Street E also runs beneath the bridge there, but there are no paths that connect this trail with the sidewalks along East 2nd Street. The arch of the bridge creates a small hill that reduces drivers' sight distances. Regardless of this, free-flow speeds appear to approach 50 mph in zone 3 (based on the travel times collected during this study). This is attributed to a combination of the absence of development but also the hill's small size; drivers accelerate to ascend the incline, but quickly descend it. This phenomenon is more concerning with regards to the northbound traffic that will be entering the Zone 2's high-access commercial area.

Short and Medium Range Recommendations:

As part of the broader recommendation to increase the frequency of speed limit signs throughout the corridor, a sign should be installed along the northeastern side of the roadway (**3-a**) and in accordance with the recommended spacing of 1,500 feet between signs. This would have the benefit of reminding drivers of the speed limit as they may be pressing the accelerator to ascend the incline of the bridge.

Long Range Recommendations:

Taking advantage of an already existing grade-separated crossing, paved connections should be created to link the sidewalks along East 2nd Street with the spur trail that passes underneath the roadway near 26th Avenue E (**3-b; 3-c**). Design options may be limited for these connections due to issues with slope, but solutions that include Universal Design principals in addition to meeting standards established by the Americans with Disabilities Act (ADA) will ensure that these connections provide the opportunity of a protected crossing for the broadest range of users.

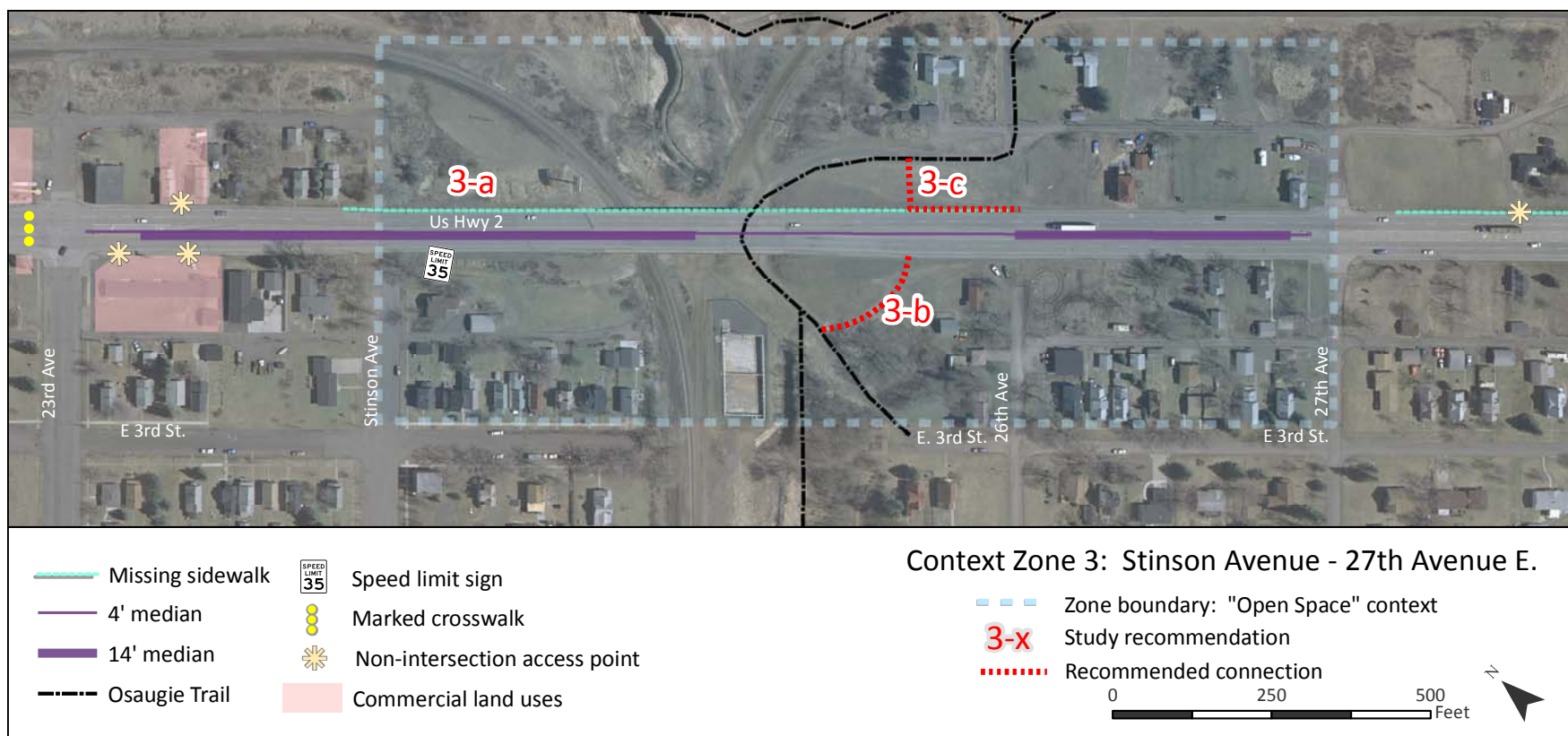
Table 5.4: Implementation Matrix for Context Zone 3 (Stinson Ave. to 27th Ave. E)

Study Recommendation	Implementation Timeframe	Cost Estimate ¹	Implementation Agency	Potential Funding Sources (described on page 63)
(3-a) Install speed limit sign	Short Range (2016—2020)	\$300	City of Superior	STP, HSIP, CHA, GTA
(3-b) Install 200' x 10' asphalt trail connection	Mid Range (2021—2025)	\$10,000 ²	City of Superior/ Developer	STP, TE, RTP, BFPF
(3-c) Install 195' x 6' sidewalk and 83' x 10' asphalt trail connection	Mid-Long Range (2021—2035)	\$12,000 ³	City of Superior / Developer	STP, TE, RTP, BFPF

1. Estimates in 2010 dollars; does not include costs associated with planning, engineering, or continued maintenance.

2. Based on a per linear-foot estimate of \$50

3. Based on a per linear-foot estimate of \$40 for sidewalk with curb and gutter; \$50 per foot for asphalt trail.



***Recommendations:
Context Zone 4***

Existing Conditions:

Zone 4 represents a 0.38 mile segment of low-density commercial activity with modest trip attraction. It's estimated 1,754 daily trips are attributed primarily to the BP gas station near the intersection of 31st Avenue E. Most of the buildings in the zone are set way back from the roadway, giving this segment a somewhat open feel. Despite this, free-flow speeds do not appear to exceed 40 mph, and the zone's crash rates are low relative to other commercial zones in the East 2nd Street corridor. Sidewalk is absent from the northeast side of the roadway, and the auto-oriented land use patterns give the impression that pedestrians and cyclists would rarely be encountered in this area. There is, however, a significant amount of residential development just beyond Zone 4's southwestern boundary, and 31st Avenue E has been identified as a designated connection to the Osaugie Trail in previous trail maps, even though the intersection is presently does not have a crosswalk or crossing signs. The intersection is also a bus stop for the No. 16 bus route, which enters East 2nd Street at this location.

Short and Medium Range Recommendations:

Speed limit signs should be located within Zone 4 to be in accordance with the spacing of 1,500 ft that is recommended for the entire corridor **(4-a; 4-b)**, and a high-visibility crosswalk and pedestrian crossing signs should be installed at 31st Avenue E to highlight it as a designated crossing location **(4-c)**. Since a significant amount of land remains available for infill development in this zone, opportunities should be sought to install missing sidewalk **(4-d)** and consolidate accesses as future development projects come before the planning commission.

Long Range Recommendations:

Pedestrian refuge islands should be installed as part of a future reconstruction of East 2nd Street **(4-e)**. This should be done even if reconstruction of the roadway occurs before further development has arrived, because subsequent development would likely take form in response to the presence of such crossings.

Table 5.5: Implementation Matrix for Context Zone 4 (27th Ave. E to 31st Ave. E)

Study Recommendation	Implementation Timeframe	Cost Estimate ¹	Implementation Agency	Potential Funding Sources (described on page 63)
(4-a) Install speed limit signs (3 signs)	Short Range (2016—2020)	\$900	City of Superior	STP, CHA, GTA
(4-b) Relocate speed limit sign approximately 900 ft northwest	Short Range (2016—2020)	NA	City of Superior	STP, CHA, GTA
(4-c) Install high-visibility crosswalk and high-visibility Ped Crossing signs (2 signs)	Short Range (2016—2020)	\$1,500	City of Superior	STP, HSIP, CHA, GTA
(4-d) Install missing sidewalk segment on East 2nd and 31st Ave E.	Mid Range (2021—2025)	NA	City of Superior/ Developer	STP, TE, CHA, GTA
(4-e) Install mid-block pedestrian refuge islands and crosswalk treatments (signs and markings) with next road reconstruction	Long Range (2026—2035)	\$44,000	WisDOT/ City of Superior	STP, HSIP, TE, CHA, GTA

1. Estimates in 2010 dollars; does not include costs associated with planning, engineering, or continued maintenance.



***Recommendations:
Context Zone 5***

Existing Conditions:

Zone 5's 0.48 mile length consists almost entirely of a bridge crossing over the Nemadji River. Very little land is available for development in this segment, and the absence of accesses, along with the presence of a raised centerline median, means virtually no turning movements occur in this zone. Thus, the numbers of crashes are low and the free flow speeds high. Vehicle speeds were not surveyed in this zone, but free flow speeds appear to be around 50 mph based on recorded travel times. These speeds are concerning with respect to the shared boundary of zones 4 and 5 (31st Avenue E) which marks a transition to a commercial area, a bus stop location, and pedestrian crossing that is presently not signed or marked.

Short Range Recommendations:

Install speed limit signs **(5-a)** and an additional "Trucks Use Left Lane" sign **(5-b)** in this zone.

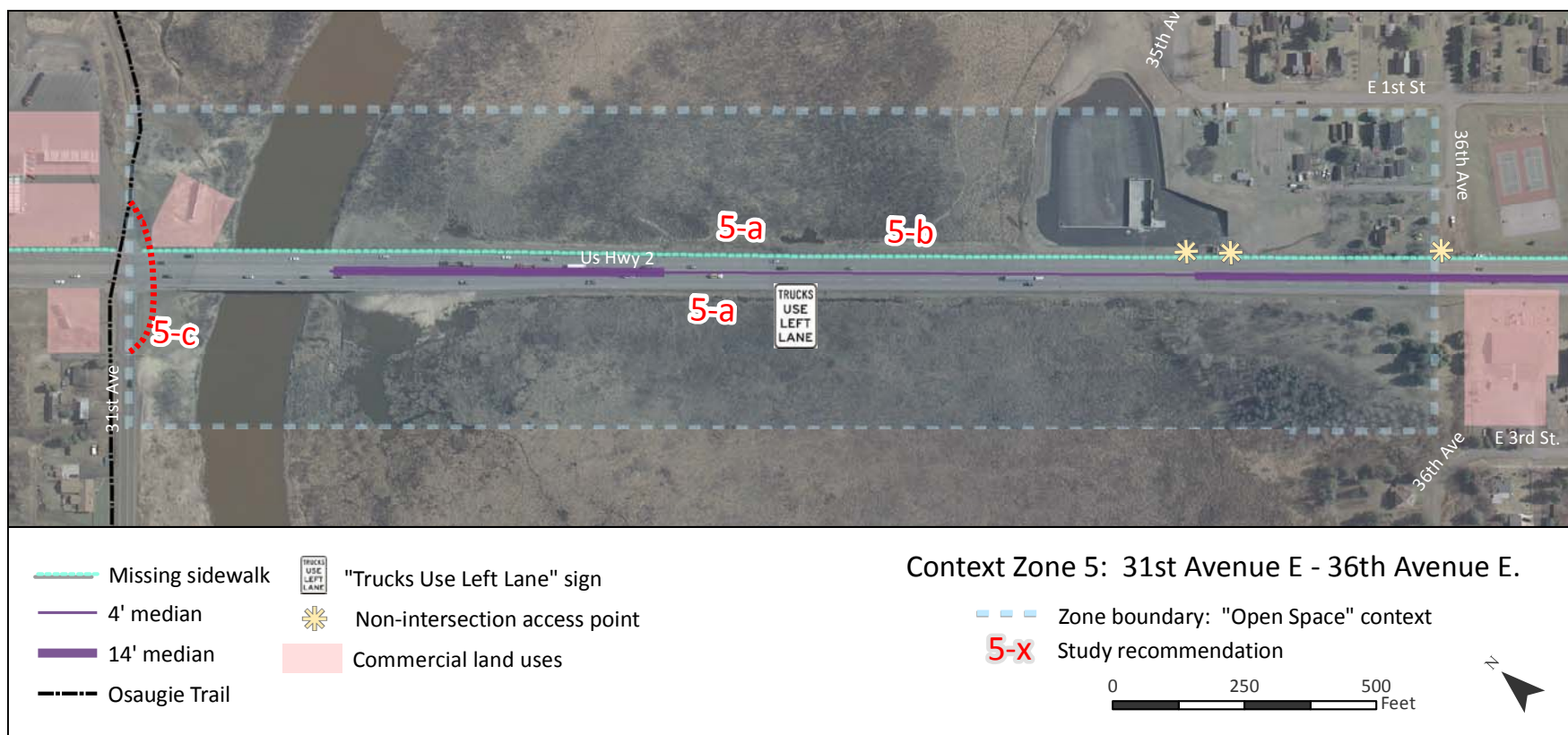
Medium-Long Range Recommendation:

31st Avenue E has been previously identified as a designated crossing for accessing the Osaugie Trail in this area. It is also the northernmost bus stop in the East 2nd Street corridor. Land at the base of the bridge may allow for a grade-separated protection for non-motorized users in this zone of higher traffic speeds **(5-c)**. A study should be done to determine the suitability of this land to support a paved multi-use trail.

Table 5.6: Implementation Matrix for Context Zone 5 (31st Ave. E to 36th Ave. E)

Study Recommendation	Implementation Timeframe	Cost Estimate ¹	Implementation Agency	Potential Funding Sources (described on page 63)
(5-a) Install speed limit signs (2 signs)	Short Range (2016—2020)	\$600	City of Superior	STP, CHA, GTA
(5-b) Install "Trucks Use Left Lane" sign	Short Range (2016—2020)	\$300	City of Superior	STP, CHA, GTA
(5-c) Install underpass connection	Mid to Long Range (2016—2035)	NA	WisDOT/ City of Superior	STP, TE, RTP, BFPF

1. Estimates in 2010 dollars; does not include costs associated with planning, engineering, or continued maintenance.



***Recommendations:
Context Zone 6***

Existing Conditions:

Zone 6 represents a 0.38 mile mixture of commercial and residential uses directly adjacent to the roadway. With its narrower context, multiple points of access, and a traffic signal at 39th Avenue E, this zone contains the widest spread of vehicle speeds and the slowest travel times in the corridor. Travel times were observed to be particularly slow during the P.M. peak hour of traffic, and this raises the question of whether the signal at 39th Avenue E could be reprogrammed to move traffic more efficiently during this time of day.

Zone 6 ranks 2nd in terms of crash and severity rates along the corridor, and it had two pedestrian related crashes between the years 2004 and 2008, when all the other zones had none. Because of its dense mix of commercial and residential uses, Zone 6 may receive the most non-motorized crossings per day, an assumption that is supported by the fact that its bus stops represent half of all the corridor's daily transit boardings.

Short and Medium Range Recommendations:

Installing high-visibility crosswalks and pedestrian crossings at the southeastern legs of the 37th Avenue E and 38th Avenue E intersections **(6-b)**, as well as sidewalk between 36th Avenue E and 37th Avenue E **(6-c)** would improve conditions for non-motorized users. The signal at 39th Avenue E should be studied to see if adjustments can be made to reduce delay during the P.M. peak hours of traffic.

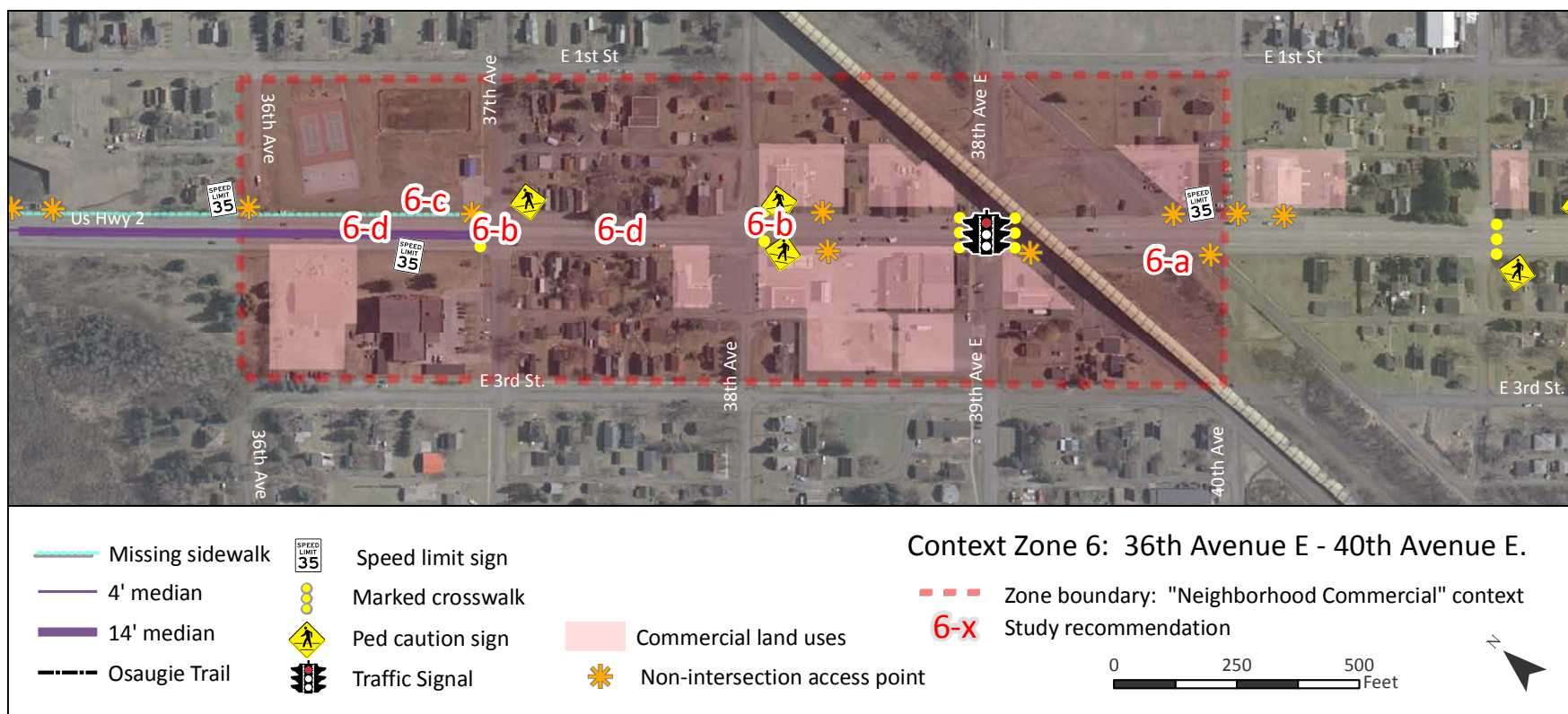
Long Range Recommendation:

Because Zone 6 likely receives more non-motorized crossings than any other zone in the corridor, and because it has had pedestrian crashes in the past, mid-block pedestrian refuge islands should be installed at every block northeast of the 39th Avenue traffic signal **(6-d)**.

Table 5.7: Implementation Matrix for Context Zone 6 (36th Ave. E. to 40th Ave. E)

Study Recommendation	Implementation Timeframe	Cost Estimate ¹	Implementation Agency	Potential Funding Sources (described on page 63)
(6-a) Install speed limit sign	Short Range (2015—2020)	\$300	City of Superior	STP, CHA, GTA
(6-b) Install high-visibility crosswalks (2 crosswalks) and high-visibility Ped Crossing signs (4 signs)	Short Range (2015—2020)	\$3,000	City of Superior	STP, HSIP, CHA, GTA
(6-c) Install missing sidewalk segment	Mid Range (2020—2025)	\$20,000 ²	City of Superior	STP, TE, CHA, GTA
(6-d) Install mid-block pedestrian refuge islands and crosswalk treatments (signs and markings) with next road reconstruction	Long Range (2025—2035)	\$44,000	WisDOT/ City of Superior	STP, HSIP, TE, CHA, GTA

1. Estimates in 2010 dollars; does not include costs associated with planning, engineering, or continued maintenance.
 2. Based on a per linear-foot estimate of \$40 for sidewalk with curb and gutter.



***Recommendations:
Context Zone 7******Existing Conditions:***

Zone 7 is a high-density residential area in the corridor. Lots are small and homes are located close to the roadway. Besides the regularly spaced intersections, there are not many direct points of access in this zone, and since there is not a lot of commercial uses in the area, there are not a lot of turning movements. This may factor into the free flow speeds of 45 mph and higher observed there. This raises concerns for the safety of non-motorized crossings in the area, as has been expressed by residents living there. There have also been complaints from residents about heavy truck traffic, and the level of compliance with the city's "Trucks Use Left Lane" rule in this area remains in question.

Short and Medium Range Recommendations:

Due to the higher speeds through this residential area, efforts should be made to more effectively communicate the presence of pedestrians in the area. Existing pedestrian warning signs should be upgraded for higher visibility and paired with wider ladder-style crosswalks to create designated crossing areas at 41st Avenue E and 43rd Avenue E (7-b).

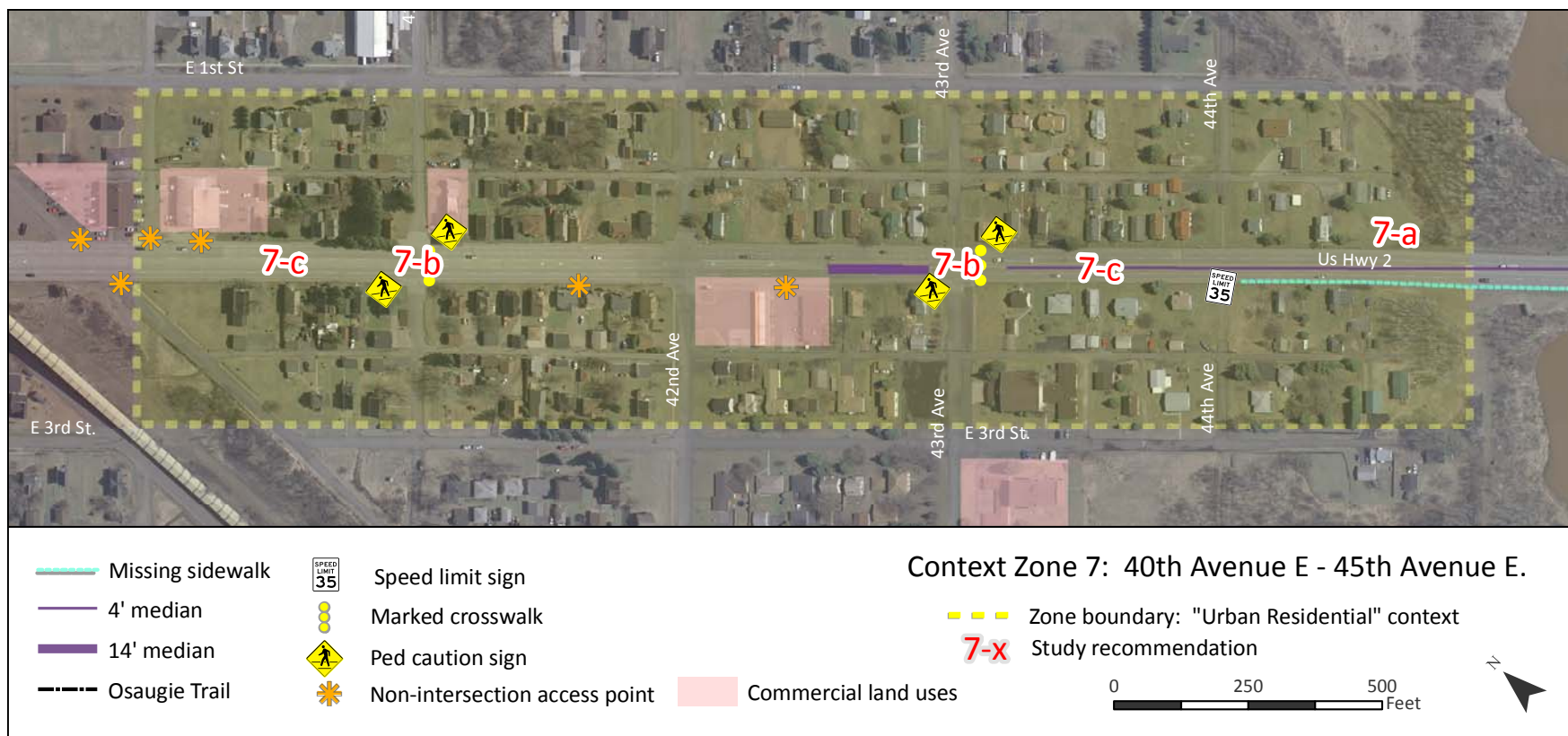
Long Range Recommendation:

During the next reconstruction of East 2nd Street, the roadway design should include mid-block pedestrian refuge islands in this zone (7-c). If pedestrian refuges were designed as part of longer and wider centerline medians, vegetation could be included to create a "narrower" context and help calm speeds.

Table 5.8: Implementation Matrix for Context Zone 7 (40th Ave. E to “45th Ave. E”)

Study Recommendation	Implementation Timeframe	Cost Estimate ¹	Implementation Agency	Potential Funding Sources (described on page 63)
(7-a) Install speed limit sign	Short Range (2016—2020)	\$300	City of Superior	STP, CHA, GTA
(7-b) Install high-visibility crosswalks (2 crosswalks) and high visibility Ped Crossing signs (4 signs)	Short Range (2016—2020)	\$3,000	City of Superior	STP, HSIP, CHA, GTA
(7-c) Install mid-block pedestrian refuge islands and crosswalk treatments (signs and markings) with next road reconstruction	Long Range (2025—2035)	\$44,000	WisDOT/ City of Superior	STP, HSIP, TE, CHA, GTA

1. Estimates in 2010 dollars; does not include costs associated with planning, engineering, or continued maintenance.



***Recommendations:
Context Zone 8***

Existing Conditions:

Much of Zone 8 is undeveloped. Its northern half contains a bridge segment over Bear Creek, and there's a significant amount of railroad property at its southern corner. Speeds are higher in this segment due to the absence of turning movements and the wide-open feel of the corridor there. Sidewalk exists only at the northeastern side of the roadway.

Short Range Recommendations:

The "emptiness" of this corridor means signage is less likely to be drowned out by its surroundings. So, in addition to a couple speed limit signs **(8-a)**, it's recommended that another "Trucks Use Left Lane" sign be installed at the southwestern end of the roadway to remind truckers of the rule before they enter the access-dense commercial area of Zone 9 **(8-b)**.

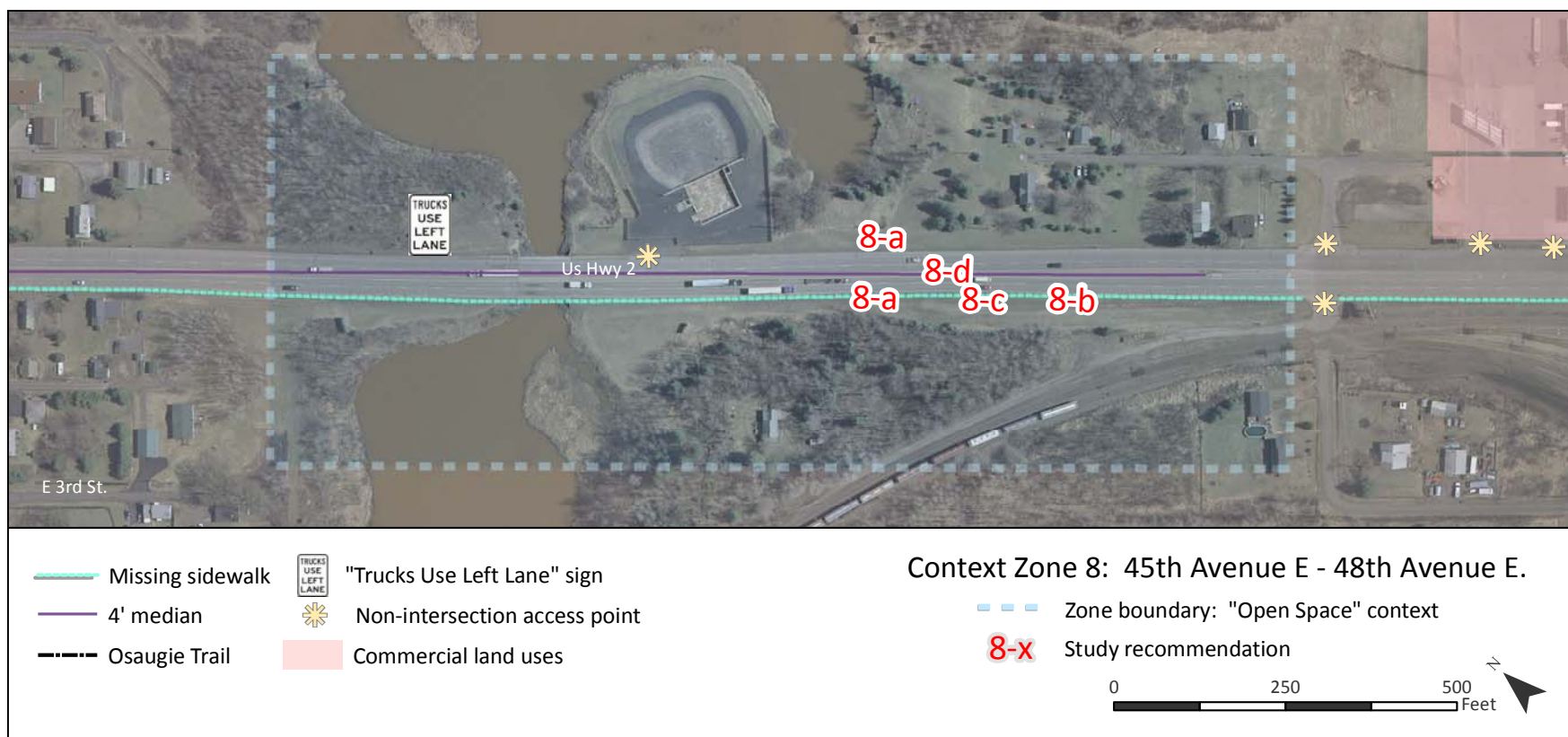
Medium to Long Range Recommendation:

There is little demand for corridor crossings in this area, but denser redevelopment is a future possibility. And in the event that such development were to occur along the southwestern edge of the corridor, sidewalk should be included in the design and construction **(8-c)**, and the centerline median should be redesigned to provide pedestrian refuge **(8-d)**.

Table 5.9: Implementation Matrix for Context Zone 8 ("45th Ave. E" to "48th Ave. E")

Study Recommendation	Implementation Timeframe	Cost Estimate ¹	Implementation Agency	Potential Funding Sources (described on page 63)
(8-a) Install speed limit signs (2 signs)	Short Range (2016—2020)	\$600	City of Superior	STP, CHA, GTA
(8-b) Install "Trucks Use Left Lane" sign	Short Range (2016—2020)	\$300	City of Superior	STP, CHA, GTA
(8-c) Match any development with sidewalk	Mid/Long Range (2021—2035)	NA	City of Superior/ Developer	STP, TE, CHA, GTA
(8-d) Retrofit or install median to include pedestrian refuge and high-visibility crosswalks and ped crossing signs.	Mid/Long Range (2021—2035)	\$22,000	City of Superior/ WisDOT	STP, HSIP, TE, CHA, GTA

1. Estimates in 2010 dollars; does not include costs associated with planning, engineering, or continued maintenance.



***Recommendations:
Context Zone 9***

Existing Conditions:

Two-thirds of the crashes occurring in Zone 9 are related to its commercial accesses, which are spaced less than 200 feet apart. The various turning movements associated with this dense collection of accesses significantly increases the risks of collision. Having the highest access density in combination with the fastest average speeds in the entire corridor, Zone 9 is not just the segment of East 2nd Street that has the highest probability of crashes, but also the most severe.

Short Range Recommendations:

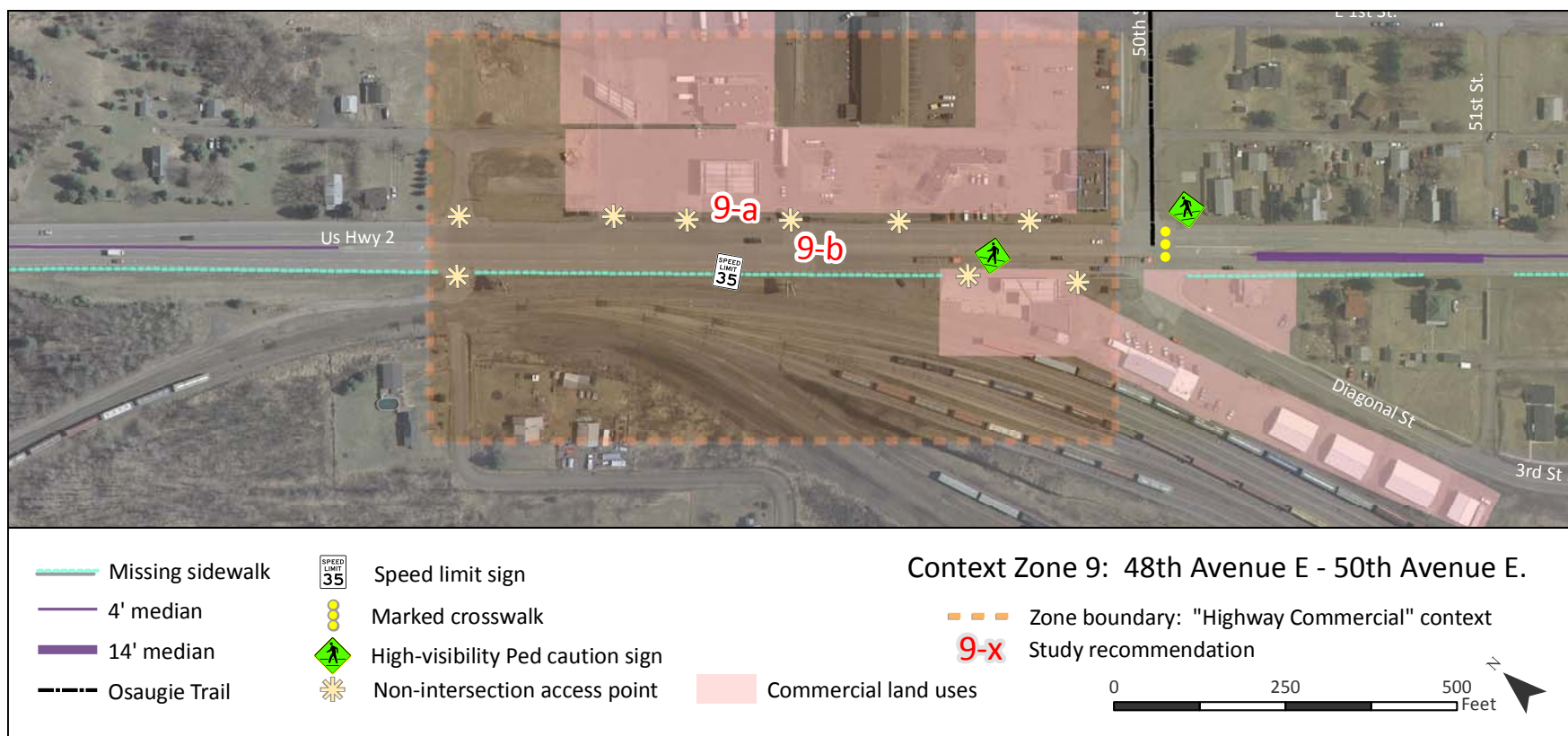
There are no short term improvements recommended specifically for this segment.

Medium to Long Range Recommendation:

An effort should be made to consolidate access points along the northern edge of the roadway **(9-a)**. An alternative approach to removing accesses would be to restrict left-turns to a number of them by installing a raised centerline median, and thus require vehicles to enter and exit at designated accesses near the ends of the zone **(9-b)**. If designed properly, a median could also be used to influence slower speeds through this area. Either approach, access consolidation or raised median, would require coordinating the circulation of internal traffic between businesses via alterations to existing entrances and parking areas.

Study Recommendation	Implementation Timeframe	Cost Estimate ¹	Implementation Agency	Potential Funding Sources (described on page 63)
(9-a) Consolidate access points with future road reconstruction	Mid/Long Range (2021—2035)	NA	WisDOT/ City of Superior	STP, HSIP, TE, CHA, GTA
(9-b) Install raised centerline median designed to calm speeds	Long Range (2026—2035)	\$100,000 - \$150,000	WisDOT/ City of Superior	STP, HSIP, TE, CHA, GTA

1. Estimates in 2010 dollars; does not include costs associated with planning, engineering, or continued maintenance.



***Recommendations:
Context Zone 10******Existing Conditions:***

Zone 10 is an urban residential neighborhood at the southern end of the corridor. Traffic entering the zone from the southeast is transitioning from the higher speeds of US Highway 2, while vehicles exiting the zone are, conversely, accelerating to those speeds. A raised centerline median divides the roadway and restricts left-turn movements in this zone, helping to keep crash rates low. Nevertheless, speeds are high for this residential area, and non-motorized crossings are challenging. There are two designated crossings in Zone 10: one at 50th Avenue E and another at 52nd Avenue E. The crossing at 50th Avenue E is important because it is the only bus stop in this zone and attracts pedestrians from the neighborhood as well as from apartments and trailer homes to the northwest. Presently, this is the only intersection on East 2nd Street that is paired with high-visibility signage, but this treatment would also be suitable for the crossing at 52nd Avenue E since it connects to a playground area and is the first crossing that northbound vehicles encounter as they enter the East 2nd Street corridor.

Short to Medium Range Recommendations:

At a minimum, the crossing signs at 52nd Avenue E should be upgraded to improve visibility. It's also recommended that the crossing signs near 50th Avenue E be moved to the intersection, modified to include arrows, and aligned with a wide, ladder-style crosswalk **(10-b)**. This arrangement would more directly identify the intersection as a designated crossing. If conditions at 50th Avenue E are found to meet warrants in the Manual of Uniform Traffic Control Devices (MUTCD), alternative crossing systems, such as HAWK signals, should also be considered **(10-d)**. Also, in order to minimize unnecessary crossings in this zone, opportunities should be sought to install the missing sidewalk segments at the eastern edge of the roadway **(10-c)**.

Long Range Recommendation:

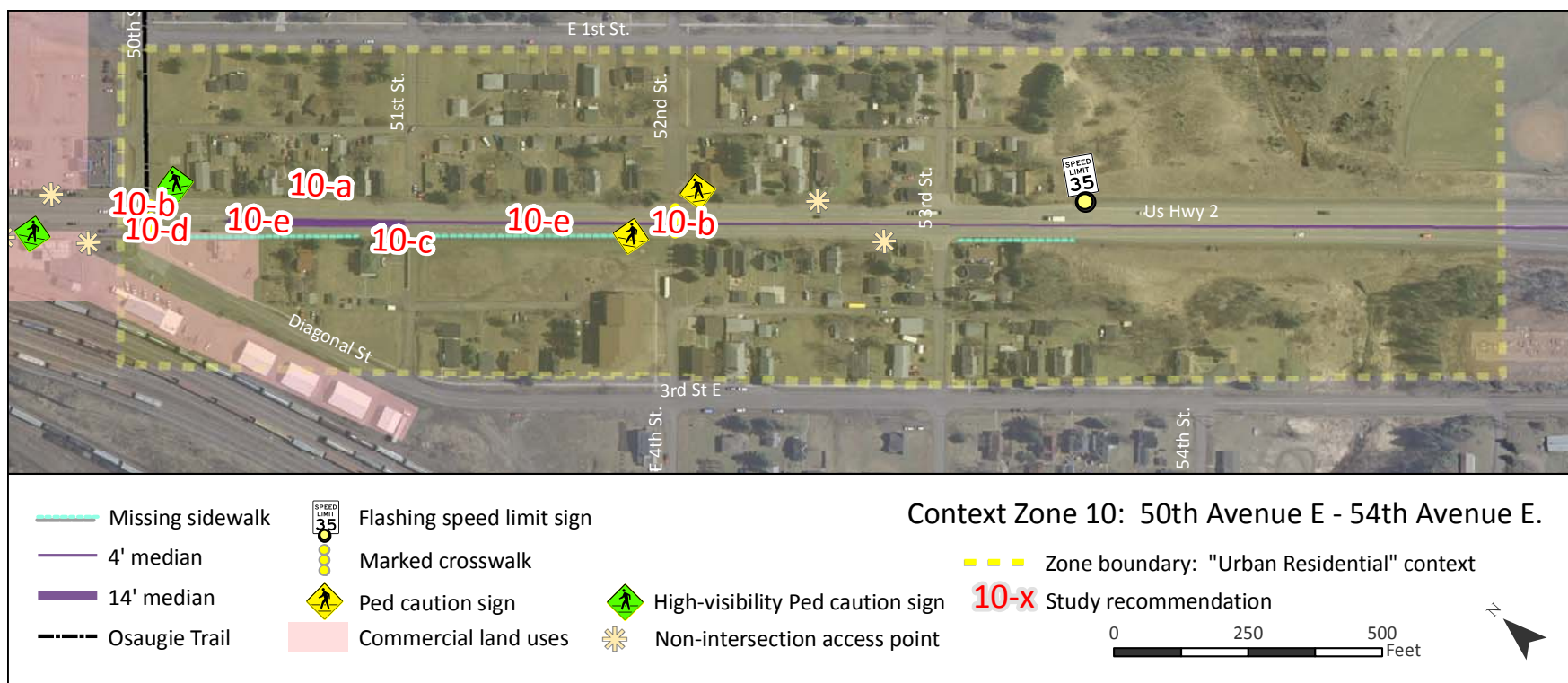
Pedestrian refuge islands should be included as part of the next reconstruction of East 2nd Street. This would both provide protection for non-motorized users and calm traffic **(10-e)**.

Table 5.11: Implementation Matrix for Context Zone 10 (50th Ave. E to 54th Ave. E.)

Study Recommendation	Implementation Timeframe	Cost Estimate ¹	Implementation Agency	Potential Funding Sources (described on page 63)
(10-a) Install speed limit sign	Short Range (2016—2020)	\$300	City of Superior	STP, CHA, GTA
(10-b) Install high-visibility crosswalks (2 crosswalks) and high visibility Ped Crossing signs (2 signs)	Short Range (2016—2020)	\$2,100	City of Superior	STP, HSIP, CHA, GTA
(10-c) Install missing sidewalk	Mid Range (2016—2020)	\$36,000 ²	City of Superior	STP, TE, CHA, GTA
(10-d) <i>If warranted</i> , install ped-activated warning signal or “HAWK” signal	Mid Range (2021—2025)	\$50,000 - \$150,000	City of Superior	STP, HSIP, CHA, GTA
(10-e) Install mid-block pedestrian refuge islands and crosswalk treatments (signs and markings) with next road reconstruction	Long Range (2026—2035)	\$44,000	WisDOT/ City of Superior	STP, HSIP, TE, CHA, GTA

1. Estimates in 2010 dollars; does not include costs associated with planning, engineering, or continued maintenance.

2. Based on a per linear-foot estimate of \$40 for sidewalk with curb and gutter.



Potential Federal Funding Sources

Federal Surface Transportation Urban Program (STP-U)

Federal formula funds designated for the maintenance and improvement of roads and streets in urban areas that are eligible for federal aid (functionally classified as a “collector” or higher). Funding is allocated annually and can be used for a wide range of transportation-related activities. At present, the City of Superior receives an annual STP-U allocation of approximately \$220,000.

The Highway Safety Improvement Program (HSIP):

Formerly known as HES (Hazard Elimination) program, this funding program is designed to support projects that decrease the potential for crashes on public roadways and ultimately reduce the number and severity of crashes. HSIP funding involves a 90% federal/10% local match. Typical HSIP projects could include such improvements as stand-alone beam installations and end treatment, larger or additional signing, pavement marking, pedestrian countdown timers. Local units of government are encouraged to conduct corridor or system-wide safety studies to identify hazardous locations to support an application for HSIP funding.

Transportation Enhancement Program (TE)

TE funds represent a 10% set-aside of STP funding that’s dedicated for the purpose of expanding transportation choices or enhancing the transportation experience. Both state agencies and local units of governments can apply for TE funding. Activities eligible to receive TE funds include construction of pedestrian and bicycle facilities (including sidewalk), as well as landscaping and scenic beautification. Federal funds will provide up to 80% of project costs. Wisconsin appropriates \$6,200,000 annually for funding TE-eligible projects.

Recreational Trails Program (RTP)

Federal funding provided to states to develop and maintain recreational trails and trail-related facilities. Eligible projects include maintenance and restoration of existing trails, development of trail linkages, acquisition of property or easements for trails and the construction of new trails facilities. Wisconsin has received approximately \$32,500,000 of RTP funding since 2001, which it’s administered through the Wisconsin Department of Natural Resources.

General Transportation Aids (GTA)

The primary source of State transportation funding for Wisconsin's counties and municipalities. GTA funding is meant to provide local governments with partial reimbursement of costs associated with road construction, maintenance, traffic operations and police costs. GTA funds can also be used to fulfill match requirements for federal transportation funding for projects. Funding is distributed quarterly based on local road miles and aid-able local costs. The City of Superior currently receives \$1,285,000 annually.

Connecting Highway Aids (CHA)

State funds designated to assist municipalities with the costs associated with the maintenance and improvements of local roads that connect segments of Wisconsin's State Trunk Highway (STH) System. Funds are distributed to municipalities quarterly on a per lane-mile basis, with funding rates based on population size. Currently, the City of Superior receives approximately \$306,000, based on a rate of \$8,525 per lane-mile (prorated at approximately 85.6%).

Bicycle and Pedestrian Facilities Program (BFPF)

Federal and State funds made available to local units of government for the planning and construction of bicycle or bicycle/pedestrian facilities. Pedestrian-only facilities such as sidewalks or streetscaping are not eligible for BFPF funding. A project receiving BFPF funding must have a project sponsor that is responsible for a 20% match of the funding. The sponsor is required to fund the entire project upfront and then seek reimbursement from the state. WisDOT appropriates \$5,220,000 annually in federal and state funds to be awarded to BFPF-eligible projects.

***Potential State
Funding Sources***