

Complete Streets Design Plan



CHARTER TOWNSHIP OF HARRISON
DOWNTOWN DEVELOPMENT AUTHORITY
MACOMB COUNTY, MICHIGAN

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Harrison Township DDA: Complete Streets Design Plan

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Acknowledgments

Board of Trustees

Kenneth J. Verkest, Supervisor
Adam Wit, Clerk
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Lawrence Tomenello

Downtown Development Authority

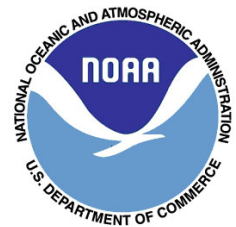
Scott Cortese
Jay Czerwinski
Aimee LaLonde-Norman
Bruce Meek
Amanda Oparka
Scott Palmer
Joseph Solomon
Kenneth J. Verkest

Technical Planning Assistance
Provided By:



500 Griswold
Suite 2500
Detroit, MI 48226
www.WadeTrim.com

With Financial Assistance From:



Project Partner:



Macomb County Department of
Planning and Economic Development
One S. Main Street
7th Floor
Mount Clemens, MI 48043

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Harrison Township DDA: Complete Streets Design Plan

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Introduction

Complete streets are designed and operated to enable safe access for all legal users. Pedestrians, bicyclists, motorists, and public transportation users of all ages and abilities can safely move along and across a complete street. The right-of-way is designed to enable safe access for all users as part of a complete street. There are no strict requirements to qualify as a complete street. The community context must be taken into consideration and therefore each complete street is unique. Some complete streets may include special bus lanes and accessible public transportation stops, while others may have wide paved shoulders with narrower travel lanes. The concept of Complete Streets is not to create the perfect street for every traveler, but rather to design a network of streets that emphasizes different modes of transportation and is accessible by everyone.

Ten Elements of a Complete Streets Policy

Smart Growth America and the National Complete Streets Coalition established ten elements of a comprehensive Complete Streets policy.

An ideal Complete Streets policy:

1. Includes a vision for how and why the community wants to complete its streets.
2. Specifies that “all users” includes pedestrians, bicyclists and transit passengers of all ages and abilities, as well as trucks, buses and automobiles.
3. Applies to both new and retrofit projects, including design, planning, maintenance, and operations, for the entire right of way.
4. Makes any exceptions specific and sets a clear procedure that requires high-level approval of exceptions.

5. Encourages street connectivity and aims to create a comprehensive, integrated, connected network for all modes.
6. Is adoptable by all agencies to cover all roads.
7. Directs the use of the latest and best design criteria and guidelines while recognizing the need for flexibility in balancing user needs.
8. Directs that Complete Streets solutions will complement the context of the community.
9. Establishes performance standards with measurable outcomes.
10. Includes specific next steps for implementation of the policy

Michigan's Complete Streets Policy

Michigan's Complete Streets Advisory Council adopted a vision statement for guiding complete streets development within the state. The Vision Statement promotes:

- A transportation network that is accessible, interconnected, and multi-modal and that safely and efficiently moves goods and people of all ages and abilities throughout the State of Michigan.
- A process that empowers partnerships to routinely plan, fund, design, construct, maintain and operate complete streets that respect context and community values.
- Outcomes that will improve economic prosperity, equity, accessibility, safety and environmental quality.”



Complete Streets Context

Benefits of Complete Streets

Complete streets contribute to livable communities that make getting around easier for people with disabilities, older adults, and children. They also increase safety and contribute to better public health, while decreasing traffic demands.

Safety

Safety is a key concern in designing transportation networks, both for motorists as well as pedestrians and bicyclists. According to a Federal Highway Administration Publication, crashes involving pedestrians are twice as likely to occur in places without sidewalks. European countries that have implemented a Complete Streets type model have been found to have death rates 2 to 6 times lower than the U.S. by kilometer traveled. When walking and biking is encouraged through supportive infrastructure, more people are inclined to use non-motorized forms of transportation. An international study published by *Injury Prevention* found that the larger the number and portion of people bicycling and walking increases, deaths and injuries decline.

Complete Streets design the streets with the pedestrian in mind and engage in comprehensive safety improvements. A study by the Transportation Research Board found that installing pedestrian and bicycle facilities can reduce the risk of crashes by 28 percent. In addition, the installation of some pedestrian features, such as medians and traffic-calming measures, can lead to speed reduction in motorists.

Improved bicycle safety is another result of well-designed Complete Streets. When bicyclists utilize sidewalks, especially when moving in the direction against the flow of traffic, it is more dangerous than riding on the road due to visibility and conflicts at driveways and intersections. Implementing bicycle-specific infrastructure can reduce the risk of injuries and accidents.

Economic Development

An increased level of pedestrian and bicycling activity can improve business and bring revenue to the surrounding area. Complete Streets projects increase foot traffic and have been successful throughout the nation in attracting new businesses. The walkability of a neighborhood can also increase property values. A survey of 15 real estate markets across the country in 2009 found that a 1-point increase in the walkability of neighborhood (as measured by WalkScore.com) resulted in an increase of home values by \$700 to \$3,000. In addition, streetscaping projects, such as planting street trees in the right of way, can increase the selling prices of homes.

When residents take advantage of transit or non-motorized transportation, they are able to save money that comes with maintaining and operating a personal vehicle. This type of savings allows people to spend their money in other ways that further support the local economy.

Public Health

Complete streets support active living habits. The walkability of a neighborhood is directly linked to the health of its residents. A study done by *Social Science & Medicine* found that people who live in walkable neighborhoods participated in 35 to 45 more minutes of physical activity per week and were less likely to be overweight than similar people living in neighborhoods that are less walkable. In addition, a report produced by the *National Conference of State Legislators* concluded the most effective method to encourage bicycling and walking by using policy is to incorporate sidewalks and bike lanes into the community's design.

The alternative to Complete Streets, or those that are designed primarily for automobile use, make it difficult for people to choose more active forms of transportation. The rise of obesity in the United States over the past 40 years is largely attributed to inactivity. Inactivity can also contribute to diseases such as heart disease, stroke and diabetes. Street design can have a large impact on the activity levels of a community.

The Environment

The transportation industry is one of the leading contributors to carbon dioxide emissions in the United States. Non-motorized forms of transportation, such as walking and biking, can have the biggest impact on reducing emissions, but transit is also a lower-emissions mode.

The 2001 National Household Transportation Survey found that 72 percent of trips under one mile are made by automobile. The addition of Complete Streets can encourage people to choose an alternative method of getting from one place to another. By providing infrastructure that supports these choices, communities can work to reduce emissions and pollution.

Accessibility

Many roads are designed to meet the needs of automobiles, however at least one-third of Americans do not drive and use other forms of transportation. These groups include children, adolescents, some older adults, individuals with disabilities, and low-income individuals. Complete Streets aim to allow safe and comfortable travel for everyone, including people in these groups.

Complete streets provide opportunities for children to walk and bike safely in their community. Increasingly, children are taking the bus or other forms of transportation to get to school because the walk to school is considered too dangerous. When children can utilize Complete Streets, their increased physical activity decreases their risk for obesity. Obesity is considered an epidemic among children in the United States, and Complete Streets can support the mission of keeping kids healthy.



People with disabilities often face the frustration of streets that have not been well-designed. For individuals who use their wheelchair for transportation, unpaved surfaces, narrow sidewalks, and the lack of a curb ramp can be especially hazardous. Intersections with signals that use only visual cues are dangerous for individuals with sight impairments. Complete Street policies consider the needs of all users and strive to create streets that can be used by individuals of all abilities.

According to the U.S. Census, by 2025, nearly one in five Americans will be over the age of 65. This growing section of the population will face mobility and independence issues, and implementing Complete Streets addresses some of these needs. Updates to streets that accommodate older adults can include adding benches, decreasing the length of intersection crossings, and ensuring complete sidewalk networks. A lack of mobility can lead to isolation for older adults; planning and designing roads that consider all users can lead to a healthier lifestyle for everyone.

Agency Coordination

As part of Michigan Public Act 135 of 2010, Complete Streets aims to be a transportation planning and design approach that encourages communication between agencies regarding transportation projects. Road commissions, MDOT, and local units of government are required to work together to address Complete Streets policies. MDOT uses a Context Sensitive Solutions (CSS) process when engaging with stakeholders. As part of planning for Complete Streets, a CSS will also be used by MDOT to discuss community context and other land use needs.

Access to Funding

A community that has a Complete Streets policy can be more competitive when applying for transportation grant funding. The Transportation Enhancement (TE) program exists at the federal level to fund a variety of transportation projects. This funding can be used to support walking and bicycling. The TE program review criteria has been updated to give additional consideration to communities that have a Complete Streets policy in place.

In addition to making grant submissions more competitive, a Complete Streets policy can be more cost effective for a community. Complete streets require less pavement per user and thus saves on initial construction costs as well as maintenance costs. Complete Street improvements can also require little to no additional cost to implement. For example, changing pedestrian signal timing at intersections to better accommodate for walking speeds requires no additional cost. The addition of countdown clocks at pedestrian signals can be accomplished for as little as \$2,000 per intersection.

Regional and Local Planning Efforts

An important piece to creating a successful Complete Streets plan is understanding ongoing regional efforts that support similar initiatives. Transportation should be viewed as a regional system, and creating connections that are supportive of neighboring communities improves the overall network. Collaboration with regional efforts promotes safe, efficient, and economically competitive corridors.

Mobilize Macomb

Mobilize Macomb is an ongoing County-wide non-motorized transportation plan. The mission of Mobilize Macomb is to make the County's streets, trails and pathways friendly places for pedestrians and bicyclists of all ages and abilities. The project collected information from Macomb County residents and stakeholders on how to build connections, identify gaps, and prioritize links. One of the prioritized links of the plan is a Shoreline Trail that connects St. Clair Shores to the Freedom Trail and Lake St. Clair Metropark via Jefferson Avenue. This

pathway would extend through the Harrison Township DDA. The recommended treatment is a wide sidewalk or shared-use path that would extend along Lake St. Clair.

Harrison Township Non-Motorized Preliminary Design Study

The Harrison Township Non-Motorized Preliminary Design Study was completed in 2008 and was used to prioritize funding for improving shared use paths, bike lanes, and pedestrian bridges in Harrison Township. Ten areas within the Township were studied, and three are located within the DDA: The Pedestrian Bridge over the Clinton River Spillway/Bypass; Crocker Avenue Between Metropolitan Parkway and Jefferson Avenue; and Jefferson Avenue from Crocker Road to Metropolitan Parkway.

The study found that the Jefferson Avenue bridge over the Clinton River Spillway is not wide enough to accommodate on-street bike lanes or a shared use trail. The report recommended the installation of a 14-foot wide pedestrian bridge that is separate from the vehicular bridge.

Along Crocker, the study found that the existing pavement is not wide enough to stripe out bike lanes. Expanding the current pavement would face utility conflicts. Adding bike lanes to the road was not recommended due to the high speed limit and high average daily traffic counts.

On Jefferson, between Crocker Boulevard and Metropolitan Parkway, the report recommended to add bike lanes when the street is resurfaced and/or when bridges are replaced. An alternative presented was expanding the existing sidewalk on the northern part of the street to become a shared use path that connects to Metro Beach.



Example of a separated pathway bridge (recommended over the Clinton River Spillway near Jefferson Avenue).

Harrison Township Parks and Recreation Plan (2012-2017)

The Charter Township of Harrison Community Park, Recreation, Open Space & Greenway plan was prepared in 2012 to examine the recreation needs of residents and serve as a guide for developing recreation programs and facilities throughout the Township. Tucker Park, located west of Ballard Street and north of Jefferson Avenue, is within the DDA and was reviewed as part of the Park and Recreation Plan. The plan addresses the desire to expand the property by acquiring additional property at the northwest corner of Jefferson and Ballard. The plan also outlines the following recommendations:

- Developing a picnic area and boardwalk with an overlook along the Clinton River Spillway.
- Build an additional ADA compliant parking lot and access drive.
- Expand and modernize playground areas.
- Extend the pedestrian trail and install sidewalks.

Similar to the Mobilize Macomb proposed “Shoreline Trail,” the Township Parks and Recreation Plan also shows Jefferson Avenue within the DDA as a corridor which should accommodate a regional or local pathway connecting to key destinations such as the Lake St. Clair Metropark.



Proposed improvements to Tucker Park

Lake St. Clair Tourism Initiative

The Lake St. Clair Tourism Initiative is a public/private, non-profit association created to increase awareness, protect and develop the rich and diverse assets on and around this fresh water community. The focus of the Initiative is to educate new and existing visitors, advocate for businesses, and develop a long term vision for the sustainable development of Lake St. Clair and its assets.

The Lake St Clair Circle Tour is a key component of the Initiative. The Circle Tour is a signed road route encircling the entire lake and extending through Wayne, Macomb and St Clair counties within Michigan as well as the province of Ontario, Canada. A map/brochure has been published which highlights the Top 99 destinations and attractions along the route. Several of these destinations and attractions are within the DDA including Wilson Marine, Beacon Cove Marina, Terry's Terrace, and Luigi's Original Restaurant. Signage and navigation are components of Complete Streets and the Tour Lake St. Clair campaign should be considered when undertaking transportation improvements within the DDA.



Lake St Clair Circle Tour Map

Clinton River Watershed Council - WaterTowns Green Infrastructure Vision

WaterTowns is an initiative of the Clinton River Watershed Council to support community development by promoting the area's water resource assets, such as the Clinton River and Lake St. Clair. The project studied green infrastructure opportunities for 9 WaterTowns communities, including Harrison Township. Green infrastructure aims to protect water resources by implementing water management strategies that mimic the natural water cycle. On Jefferson Avenue, permeable pavement is recommended in the area near the Campau Lane intersection. On Crocker Boulevard, a bioswale is recommended to remove silt and pollution from surface runoff water. A bioswale is located adjacent to a roadway and has gently sloped sides. It is typically filled with vegetation that is well suited for filtering stormwater.

Green Macomb Initiative

The Green Macomb initiative was created by the Macomb County Department of Planning & Economic Development to support green infrastructure efforts that strengthen the economic vitality, quality of life, and environmental well-being of the region. Green infrastructure is a way of improving water quality and reducing flooding while also providing additional community benefits, including recreation, public health, quality of life, increased property values, improved air quality, and reduced infrastructure costs.

Green infrastructure includes interconnected networks of open spaces, parks, wetlands, and natural areas as well as features intentionally designed to mimic these natural systems, such as rain gardens, bioswales, urban parks, and urban trees. Through diverse partnerships, Green Macomb is working with local municipalities, businesses, private residents, and nonprofit organizations in order to enhance our region's land and water resources.

Recent efforts stemming from the Green Macomb initiative include:

- **Urban Forest Partnership** - This program is building local capacity to manage and grow healthy urban forests in the most urbanized areas of the county, particularly along and below the Clinton River. Harrison Township is one of the twelve



WaterTowns Green Infrastructure Opportunity

communities south of M-59 that is targeted for increased tree cover.

- **Planting and Species Guidance** - Several guides have been developed that include recommended species, environmental and design considerations, and guidance on how to avoid utility conflicts. Notably, a specific guide has been prepared related to plantings within commercial streetscapes.
- **Community Resources** - The Green Macomb initiative provides other resources for local communities, including map packets that are intended to guide local planning and management decisions to help achieve the greatest benefits from urban forestry efforts. Additionally, an urban forestry road map has been prepared which establishes specific goals, strategies and resources to maintain and grow urban tree canopy in Macomb County.

More information on the Green Macomb initiative can be found online at green.macombgov.org.



Existing Conditions

It is important to understand the existing condition of streets in the DDA in order to successfully implement Complete Street strategies. There are likely streets that are already partially or fully complete. There may also be multiple streets segments that are incomplete, but the streets may vary in safety concerns. This knowledge can assist the Township on how and where to focus Complete Street efforts.

Road Inventory

The transportation network within the DDA is shown on **Map 1**, included in the Appendix. There are approximately 4.27 miles of streets within the Harrison Township DDA. 1.78 miles of streets in the district are considered major roads. This includes sections of Jefferson Ave, Ballard St, Metropolitan Pkwy, and L'Anse Creuse St. The remaining 2.49 miles of streets in the district are made up of minor roads. All streets within the DDA are owned and maintained by the Macomb County Department of Roads.

The Southeast Michigan Council of Governments (SEMCOG) performs traffic counts on most major streets in the region. **Table 1** displays average annual daily traffic (AADT) counts for selected major streets within the DDA. Crocker Boulevard, west of Jefferson Ave, had the highest traffic count in 2012 with 5,900 AADT. After Crocker, Jefferson was the most highly traveled street in the DDA, with a range of traffic counts from 4,620 to 5,900.

Table 1
Traffic Counts

Street Name	Limits	Year	Direction	Average Annual Daily Traffic (AADT)
Crocker Boulevard	West of Jefferson Ave	2012	EB	5,900
Jefferson Avenue	North of Ballard St	2012	SB	5,820
Jefferson Avenue	South of Crocker	2012	NB	5,670
Jefferson Avenue	South of Ballard St	2012	NB	5,430
Jefferson Avenue	North of Crocker Blvd	2012	SB	4,620
L'Anse Creuse Street	Metropolitan Pkwy to Jefferson Ave	2012	2-Way	1,410
Ballard Street	West of Jefferson Ave	2012	EB	450
Crocker Boulevard	East of Jefferson Ave	2012	WB	340
Ballard Street	East of Jefferson Ave	2012	WB	130
Acacia Street	East of Crocker Blvd	2011	EB	90

SEMCOG also reports data on traffic crashes throughout the region. They record the number and type of crashes that occur within 150 feet of each intersection. Information is currently available from 2011 through 2015. SEMCOG also assigns a rank to each intersection based on the crashes that occur. The lower the value of the 5-year rank, the higher the frequency of crashes in that location. **Table 2** displays the associated crash data for all intersections within the DDA.

The intersection of Crocker Boulevard and Metropolitan Parkway is a particular concern within the DDA, with a yearly crash average of 9. Very close to this intersection, Acacia Street formerly connected to Crocker Boulevard. Acacia Street was recently reconfigured so that it no longer connects to Crocker Boulevard; however, Crocker and Acacia is still listed in **Table 2** as having a yearly crash average of 5. The main entrance from Crocker Boulevard to the Mariners Pointe shopping center is located approximately 500 feet from the Metropolitan Parkway intersection. This shopping center entrance further contributes to traffic congestion in the vicinity. In particular, left turns from the Mariners Pointe shopping center onto Crocker are problematic, given that traffic along Crocker Boulevard is often backed up from the signal at Metropolitan Parkway. A SMART bus stop is also located near the shopping center entrance; this bus stop may also be a contributor to traffic congestion and safety concerns.

Table 2
Traffic Crash Data

Intersection	Yearly Crash Average	5-Year Rank	Traffic Signal
Crocker and Metropolitan Pkwy	9	1,402	Y
Crocker and Jefferson	8	1,878	Y
Crocker and Acacia	5	3,469	N
Jefferson and Waterway	2	8,440	N
Jefferson and Ballard	1	11,824	Y
Jefferson and Zimmerman	1	15,745	N
Jefferson and Acacia	1	15,746	N
Jefferson and Campau	1	15,746	N
Jefferson and L'Anse Creuse St	1	15,746	N
Jefferson and Clio	1	18,855	N
Jefferson and Beamer	1	23,293	N
Jefferson and Earl	1	23,293	N
Jefferson and Hickory	1	23,293	N
Jefferson and Hickler Lane Rd	0	30,218	N
Jefferson and Moran	0	30,218	N
Jefferson and Riviera	0	30,218	N
Jefferson and Ponchartrain	0	41,921	N
Jefferson and Wisteria	0	41,921	N
Jefferson and Pier Place	0	65,342	N

Several crashes at intersections also involved pedestrians or bicyclists. At the intersection of Crocker and Metropolitan Pkwy, there was a crash involving a pedestrian in 2011, and crashes involving bicyclists in 2011 and 2014. At Crocker and Acacia St, there was a crash involving a pedestrian in 2012. Two pedestrian-involved crashes occurred at Crocker and Jefferson over the 5 year period (in 2012 and 2013). The intersection of Jefferson and Acacia experienced 1 crash that involved a pedestrian in 2012, and the intersection of Jefferson and L'Anse Creuse Street had 1 crash involving a bicyclist in 2011. The crash locations involving pedestrians is shown in **Map 2**, included in the Appendix.

Sidewalks and Trails

There is nearly 10,060 linear feet of sidewalk that is adjacent to streets and provides access for pedestrians. There is an additional 1,060 linear feet of sidewalks that provides access to parks and public areas in the DDA. Many of these sidewalk networks have gaps, which creates a disjointed system for users. For example, Jefferson Avenue runs approximately 5,800 feet within the DDA. North of Jefferson, there is approximately 2,100 feet of sidewalks, including two gaps. On the south side of Jefferson, there is approximately 1,375 linear feet of sidewalks, with 3 gaps. The majority of residential streets that abut Jefferson do not have sidewalks, and many of those that do contain gaps in the sidewalk network. **Map 3** shows the locations (with pictures) of the most critical sidewalk gaps within the DDA.

In addition to the current gaps in the sidewalk network, there are also quality concerns with segments of the existing sidewalk. Repairs and maintenance are needed where the sidewalk is cracking. The sidewalks on the north side of Jefferson lack delineation from driveways and the adjacent road. This lack of separation also creates a safety concern for pedestrians.



An example of deteriorating pathway condition.

Within the Harrison Township DDA, there are two regional trail routes which amount to approximately 6,420 linear feet of trails. Freedom Trail is a non-motorized pathway that runs adjacent to Metropolitan Parkway and connects Sterling Heights to Harrison Township. The Clinton River Trail runs parallel to the Clinton River Spillway and connects the L'Anse Creuse Bay waterfront to Clinton Township and Mt. Clemens. These are well traveled routes that are commonly used by walkers and bicyclists.

Transit

Bus transit is available within the DDA District through the Suburban Mobility Authority for Regional Transportation (SMART). A SMART bus commuter route (#635) extends through the DDA from the southwest along Jefferson Avenue, then turns northeast along Crocker Boulevard and ends at Metropolitan Parkway. This bus route runs south along Lake St. Clair and can connect residents of Harrison Township to downtown Detroit.



Location where the road, sidewalk and driveway are generally undefined.

Wayfinding

Wayfinding elements help people navigate a space while landscaping contributes to the aesthetics of an area. Both are responsible for creating a sense of place that encourage people to want to visit and revisit an area. Current signage in the DDA includes street signs, indicators of pedestrians and bicyclists, and guides on street crossings. However, the area lacks additional signage that could better orient visitors. Signage not currently found in the DDA include destination guides, information kiosks, maps, or trailhead information.



Existing district signage.



Existing district landscaping.

Streetscaping and Landscaping

Landscaping is plentiful in some sections of the DDA and absent in others. The crossing of the Freedom Trail at Crocker, near Metropolitan Parkway, includes landscaping of flower beds, shrubs and shade trees. There are also businesses that have maintain gardens and landscaping features in the DDA.

Along sidewalks, there are many sections that lack a landscaping buffer to delineate pedestrians from automobile traffic. Additional street trees could be used to strengthen the buffer and add shade and aesthetics.



*Examples of locations within the district
in need of landscaping.*

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Creating Complete Streets



Goals, Objectives, & Action Steps

In order to approach the implementation of Complete Streets strategically, it is important to establish clear goals, objectives, and action steps. These elements can be referenced by the DDA to guide transportation network development.

Goals

1. Ensure the safety and convenience of all users of the transportation network are accommodated, including pedestrians, bicyclists, users of mass transit, people with disabilities, the elderly, motorists, emergency responders, and adjacent land users.
2. Create a balanced, comprehensive, integrated, full interconnected, functional, and visually attractive transportation network that supports sustainable development.
3. Promote the latest and best Complete Streets design standards, principles, policies, and guidelines within the context of the community.
4. Incorporate the principles presented in this plan into the transportation project development process, including project identification, scoping procedures, design approvals, and performance measure.

Objectives

1. Provide pedestrian accommodation in the form of sidewalks or shared-use pathways on all major and minor roads within the DDA.
2. Provide bicycle accommodation on all major roads within the DDA.

3. Where physical conditions warrant, plant trees whenever a street is newly constructed, reconstructed, or relocated.

Action Steps

1. Adoption of a Complete Streets Policy by the Charter Township of Harrison DDA

2. Regular gauging and reporting of implementing Complete Streets through the following performance measures:

- User data- bike, pedestrian, transit, & traffic
- Crash data
- Compliments and complaints
- Linear feet of pedestrian accommodations built
- Number of ADA accommodations built
- Number of street trees planted
- Number of cross walks updated and striped
- Number of exemptions from this policy approved.

3. Work with other jurisdictions to create consistent and connected transportation networks.

4. Apply for grants and review feasible funding sources from the Township to implement the ideas presented in this plan.

5. Create a communications campaign with businesses and residents to educate and promote the benefits of Complete Streets.

6. Appoint a resident advisory board to review major infrastructure projects.

Design Recommendations

Given their importance as the key transportation corridors within the Harrison Township DDA, this Complete Streets Design Plan outlines a variety of specific design recommendations for Jefferson Avenue and Crocker Boulevard. Various other design recommendations, which may be applicable to the DDA as a whole or specific portions thereof, are also detailed in this section. Many of these recommendations are highlighted on **Map 4, Complete Streets Opportunities**. Recommendations are also presented in a series of corridor conceptual design plans and street cross-section drawings.

Jefferson Avenue

BETWEEN CROCKER BOULEVARD AND THE NORTHERN DDA DISTRICT LIMITS

Jefferson Avenue, between Crocker Boulevard and the northern DDA District limits, is generally a two-lane road with a narrow right-of-way width (typically 60 feet wide). Many small and narrow lots front this segment of Jefferson Avenue, generally containing small, individual businesses or residences. The density of curb-cuts (driveways) to Jefferson Avenue in this area is significant, as each individual business or residence typically has direct driveway access to Jefferson Avenue.

The recommended street cross-section for this segment of Jefferson Avenue is illustrated in **Figure 1**. With a 60 foot wide right-of-way, it is recommended that Jefferson Avenue accommodate two-way traffic, consisting of two traffic lanes (11 foot wide each), with curb and gutter. On the east side (lake side) of the roadway, a 6 foot wide sidewalk is proposed, separated from the street by a narrow grass/vegetation area of variable width. On the west side of the roadway, a 10 foot wide multi-use path is proposed, separated from the street by a narrow grass/vegetation area of variable width.

Figure 2 applies the recommended street cross-section to Jefferson Avenue between Crocker Boulevard and L'Anse Creuse Street and depicts additional design recommendations. These additional design recommendations are as follows:

- **Pedestrian Refuge Crossing Island** - To ensure both pedestrian safety and facilitate slower traffic speeds, pedestrian refuge crossing islands can be accommodated at strategic locations. **Figure 2** shows such a location near Jefferson Avenue and L'Anse Creuse Street.
- **Streetscaping Treatments** - Streetscaping treatments, including textured sidewalk surfacing, street trees, bicycle racks, benches, trash receptacles, decorative lighting, and decorative walls can be accommodated throughout the corridor.
- **Encourage Pervious Surfacing** - As a means to promote sustainability and reduce surface runoff within the corridor, there exists the opportunity for the DDA to work with private property owners to develop new porous off-street parking lots and/

or retrofit existing parking lots with porous pavement.

- **Shared Access Drives** - Particularly within this segment of Jefferson Avenue, the DDA should seek to promote shared access drives which serve multiple properties, as opposed to individual access drives to each individual property.
- **Rear Access to Businesses** - Numerous small businesses are located on the west side of Jefferson Avenue in this area. To alleviate traffic congestion and eliminate the need for vehicles to back onto Jefferson, a long-term recommendation is to establish a rear vehicular service route extending generally from Crocker Boulevard to L'Anse Creuse Street. Access to this rear service route would occur via the local streets that intersect Jefferson Avenue.
- **Public Off-Street Parking** - **Figure 2** shows the location of a potential public off-street parking lot which would serve existing and future businesses. Jefferson Avenue within the DDA District is generally not conducive to on-street parking; thus, a public off-street parking area is recommended.

BETWEEN THE SOUTHERN DDA DISTRICT LIMITS AND CROCKER BOULEVARD

Jefferson Avenue, between the southern DDA District limits and Crocker Boulevard, is generally a two to three-lane road with a wide right-of-way width (typically 120 feet wide). Whereas the segment of Jefferson Avenue north of Crocker Boulevard features small, narrow lots, this segment of Jefferson Avenue features comparatively larger and wider lots.

The recommended street cross-section for this segment of Jefferson Avenue is illustrated in **Figure 3**. With a 120 foot wide right-of-way, it is recommended that Jefferson Avenue accommodate two-way traffic, consisting of two to three traffic lanes (11 foot travel lanes and 13 foot center turn lane), with curb and gutter. At specified locations, the center turn lane is recommended to consist of a landscaped median/pedestrian crossing island. On the east side (lake side) of the roadway, a 6 foot wide sidewalk is proposed, separated from the street by a wide grass/vegetation area of variable width. On the west side of the roadway, a 10 foot wide multi-use path is

proposed, separated from the street by a wide grass/vegetation area of variable width.

Figure 4 applies the recommended street cross-section to Jefferson Avenue between the Clinton River Spillway and Crocker Boulevard and depicts additional design recommendations. These additional design recommendations are as follows:

- **Traffic Calming Median/Pedestrian Refuge Crossing Island** - To ensure both pedestrian safety and facilitate slower traffic speeds, traffic calming medians and/or pedestrian refuge crossing islands can be accommodated at strategic locations.
- **Streetscaping Treatments** - Streetscaping treatments, including textured sidewalk surfacing, street trees, bicycle racks, benches, trash receptacles, decorative lighting, and decorative walls can be accommodated throughout the corridor.
- **Encourage Pervious Surfacing** - As a means to promote sustainability and reduce surface runoff within the corridor, there exists the opportunity for the DDA to work with private property owners to develop new porous off-street parking lots and/or retrofit existing parking lots with porous pavement.
- **Rear Access to Businesses** - On the west side of Jefferson Avenue, between Ballard and Campau Streets, a rear vehicular service route is proposed as a long-term recommendation to alleviate traffic congestion and eliminate the need for vehicles to back onto Jefferson.
- **Future Shared Driveway** - On the east side of Jefferson Avenue, near Ballard Street, there exists the potential to accommodate a shared driveway that would serve an existing marina and public parkland. This shared driveway would result in the elimination of several existing curb-cuts and instead would filter vehicular traffic to Jefferson Avenue via the stoplight at Ballard Street.
- **Clinton River Trail Crossing** - Presently, the Clinton River Trail regional non-motorized trail crosses Jefferson Avenue just to the north of the Clinton River Spillway bridge. This current crossing location is dangerous, due to high traffic speeds and poor visibility of vehicles coming across the

bridge. Therefore, it is recommended that the existing trail crossing be redirected further to the north, to occur at the signalized intersection of Ballard Street.

- Multi-Use Trail Bridge over the Clinton River Spillway - Given its narrow width, the existing Jefferson Avenue bridge over the Clinton River Spillway cannot safely support non-motorized travel. Therefore, it is recommended that a separated multi-use trail bridge be constructed over the Clinton River Spillway. Alternatively, if the road bridge were to be repaired, a wider bridge could be designed to accommodate a multi-use trail.

Jefferson Avenue at Crocker Boulevard Intersection

Figure 5 illustrates potential design improvements for the key intersection of Jefferson Avenue and Crocker Boulevard. As noted earlier in this document, this is the second-most dangerous intersection within the DDA District. Further, as the “heart” of the waterfront business district, this intersection must receive special attention to ensure that it successfully and safely accommodates all forms of travel, while supporting broader community goals, such as promoting long-term aesthetic appeal. Recommended streetscape enhancements include textured surfacing, decorative walls and landscaping. Recommended vehicular travel improvements include reconfiguring the street design with a reduced turning radius as a means to slow vehicular turning movements. Pedestrian improvements include the installation of textured crosswalks and possible signalization enhancements.

Crocker Boulevard

Crocker Boulevard within the DDA District is generally a two to three-lane road with a wide right-of-way width (120 feet). The north side of the road is generally fronted by small lot, single-family dwellings, while the south side of the road is fronted by large properties containing apartment complexes, a senior living facility, and the Mariners Pointe shopping center.

The recommended street cross-section for Crocker Boulevard is illustrated in **Figure 6**. With a 120 foot wide right-of-way, it is recommended that Crocker Boulevard

accommodate two-way traffic, consisting of two to three traffic lanes (11 foot wide travel lanes with a 13 foot wide center turn lane). Instead of curb and gutter, both sides of the roadway are proposed to be framed by a variable width paved shoulder. To promote the capture, filtering and reduction of surface runoff, bioswales are proposed along both edges of the road. Along the north side of Crocker, a 6 foot wide sidewalk is proposed, separated from the street by a wide grass/vegetation area of variable width. On the south side of the roadway, a 10 foot wide multi-use path is proposed, separated from the street by a wide grass/vegetation area of variable width.

Figure 7 applies the recommended street cross-section to a segment of Crocker Boulevard in front of Mariners Pointe shopping center and Metro Towers Apartments. Additional design recommendations depicted on **Figure 7** include a pedestrian refuge crossing island to allow for a safe, “mid-block” sidewalk crossing and the installation of street trees.

Other Recommendations

Map 4 depicts a variety of opportunities that, if implemented, would positively enhance the overall transportation network within the DDA District. Therefore, these opportunities have been incorporated in this section as complete streets design recommendations. Recommendations which have not already been discussed in this section are more fully described below:

- Intersection Safety/Aesthetic Improvements - In addition to major enhancements proposed for the Jefferson Avenue and Crocker Boulevard intersection, several other intersections are in need of safety and aesthetic improvement. These intersections include: Crocker/Metropolitan; Crocker/Mariners Pointe shopping center; Jefferson/Ballard; and, Jefferson/LAnse Creuse. Typical improvements would include streetscaping, marked crosswalks, and signalization enhancements.
- Multi-Use Pathways - Building from the existing Freedom Trail and Clinton River Trail systems, **Map 4** shows a connected system of multi-use pathways within the DDA District. New multi-use trail segments proposed include: along the west side of Jefferson Avenue (to include a separate pedestrian bridge over the Clinton River Spillway);

along the south side of Crocker Boulevard; and, a potential trail connection from Jefferson Avenue to the Freedom Trail, through an existing Township-owned property.

- **Public Off-Street Parking** - To accommodate the demand generated by existing and anticipated future businesses within the waterfront business district, **Map 4** depicts the potential locations for several new public off-street parking lots. Two of these lots are proposed somewhat outside of the “core” business area, but are within walking distance.
- **Lake Access Opportunities** - As a waterfront business district, this Complete Streets Design Plan also recognizes the opportunity to accommodate water-related transportation activities within the DDA District. It is recommended that the DDA Board explore the implementation of amenities such as boardwalks, water ferries, canoe/kayak launches and other public waterfront spaces or access points.
- **Connection to Mt. Clemens** - Harrison Township’s DDA District is located approximately 2 miles southeast of downtown Mt. Clemens, connected by Crocker Boulevard. Although vehicular access is easily facilitated by Crocker Boulevard, other connections between the two business districts are limited. Therefore, it is recommended that the DDA Board explore the implementation of enhanced connections to downtown Mt. Clemens, such as a transit route, trolley route, and/or improved pedestrian facilities (sidewalks, signage, etc.).

Sources of Funding

There are various sources of federal, state and local funds available for Complete Streets treatments. Eligibility and required match vary depending on the type of improvement and the funding source.

Federal Funding Sources

In order to be eligible to receive federal transportation funds, Townships in Michigan must work with the appropriate transportation agency to sponsor a project. Collaboration between the Macomb County Department

of Roads and Harrison Township could together apply for funding at the federal level. The Michigan Department of Transportation (MDOT) is also able to apply for federal transportation funds.

The Federal Highway Administration (FHWA) National Functional Classification (NFC) provides a hierarchical system of roads; ranging from roads that provide local access to those that support inter-regional travel. In most cases, FHWA must classify roads as collector or arterial to be eligible for federal funds. Within the Harrison Township DDA, the eligible roads include Metropolitan Parkway, Crocker Boulevard, L’Anse Creuse Street, and Jefferson Avenue.

TRANSPORTATION ALTERNATIVES PROGRAM (TAP)

A component of the Surface Transportation Block Grant Program, TAP is a competitive grant program that uses federal transportation funds for specific activities to enhance multi-modal transportation. The goal is to enhance non-motorized transportation options and improve safety of non-motorized systems. TAP funding is split between state transportation departments and metropolitan planning organizations.

NATIONAL PRIORITY SAFETY PROGRAM

The National Priority Safety program is designed to address national priorities for reducing highway deaths and injuries. 5% of these funds are earmarked for non-motorized safety incentive grants. States are eligible for the grant if the annual combined pedestrian and bicyclist fatalities in the state exceed 15 percent of the state’s total annual crash fatalities. States are required to provide a 20% match to procure funding, and funds can be used to support law enforcement training regarding pedestrian and bicyclist safety or public education programs that are meant to make citizens more aware of laws that apply to non-motorized transportation users.

SAFE ROUTES TO SCHOOL

The Federal Highway Administration administers the Michigan Safe Routes To School program. Funding through the program is meant to be used to encourage children to walk and bike to school as part of a healthy lifestyle. Major grants from Safe Routes to School can be used to help communities build sidewalks, crosswalks, and other infrastructure improvements that support stu-

dents' ability to walk, bike, or roll to school. This grant program requires communities to complete a thorough planning process prior to submitting an application that typically takes from 6 months to a year to complete.

State Funding Sources

The State of Michigan also offers grants that local governments and transportation departments can apply for. Funding available at the state level should also be considered when determining how to finance Complete Streets projects.

MICHIGAN TRANSPORTATION FUND (MTF OF ACT 51)

Revenues from the Michigan Transportation fund are collected from highway user taxes, including state gas tax, vehicle registration fees, and other miscellaneous automobile-related taxes. The funding has specific allocations to municipalities and transit agencies. The Macomb County Road Commission is a recipient of Act 51 funds. There are some restrictions for County Road Commissions on how Act 51 funds can be spent. For example, funds used for bridge construction on county roads cannot exceed 75 percent of the cost of bridge construction and requires a match from other sources. Over time, each recipient of Act 51 funds is required by law to spend a minimum 1% of monies on non-motorized transportation improvements. Act 51 funds are also an eligible match for federal funds.

MICHIGAN NATURAL RESOURCES TRUST FUND

The Michigan Natural Resources Trust Fund (MNRTF) provides financial assistance to local governments to purchase land or land rights for public recreation or open space protection. The fund also supports appropriate development of land for public outdoor recreation. The MNRTF often invests on the expansion and improvement of trails throughout the State.

Local Funding Sources

Local funding options can originate from a variety of sources. Utilizing local options can sometimes require high rates of citizen approval, but this can also be an advantage as it ensures significant public support.

GREEN MACOMB INITIATIVE

Funding and other assistance toward green infrastructure improvements within the DDA District may be available through Macomb County's Green Macomb initiative. As an example, during 2017 and 2018, Macomb County is making funding available to local communities to reduce stormwater runoff and nonpoint source pollution impacts through targeted increases in tree canopy. This funding was part of a grant received by the County from the U.S. Forest Service and the Great Lakes Restoration Initiative. Similar funding opportunities and local assistance programs are likely to be made available in the coming years through the initiative.

MILLAGE

A millage is a tax on property owners based on the value of their home. Millages are use-specific and approved by vote of the residents. Examples of some locally enacted millages include the public library millage, and the public safety millage for the Harrison Township Fire Department and Macomb County Sheriff's Office.

SPECIAL ASSESSMENT

A special assessment is a special millage on a subset of a community. Special assessments are placed on adjacent landowners who receive the greatest benefit from a project funded using a special assessment. This taxing option requires a vote or survey of those impacted. Public Act 246 of 1931 has been utilized to address road repair needs in some communities. The Act provides property owners along a public road a means to file a petition seeking improvements through a special assessment.

GENERAL FUNDS

A community's general fund dollars are not restricted from use on non-motorized improvements to trails or roadways. This type of spending would require approval from the Harrison Township Trustees.

PRIVATE

Private funds may be used to construct Complete Streets improvements or be leveraged as Private-Public Partnerships (PPP). These types of funds can originate from private developments or private donations.



Appendix: Maps and Figures

Map 1: Transportation Network

Map 2: Crashes Involving Pedestrians or Bicyclists between 2011-2015

Map 3: Critical Sidewalk Gaps

Map 4: Complete Street Opportunities

Figure 1: Jefferson Avenue Near Hickler

Figure 2: Jefferson Avenue: Recommended Complete Street Design (Crocker to North DDA District Limits)

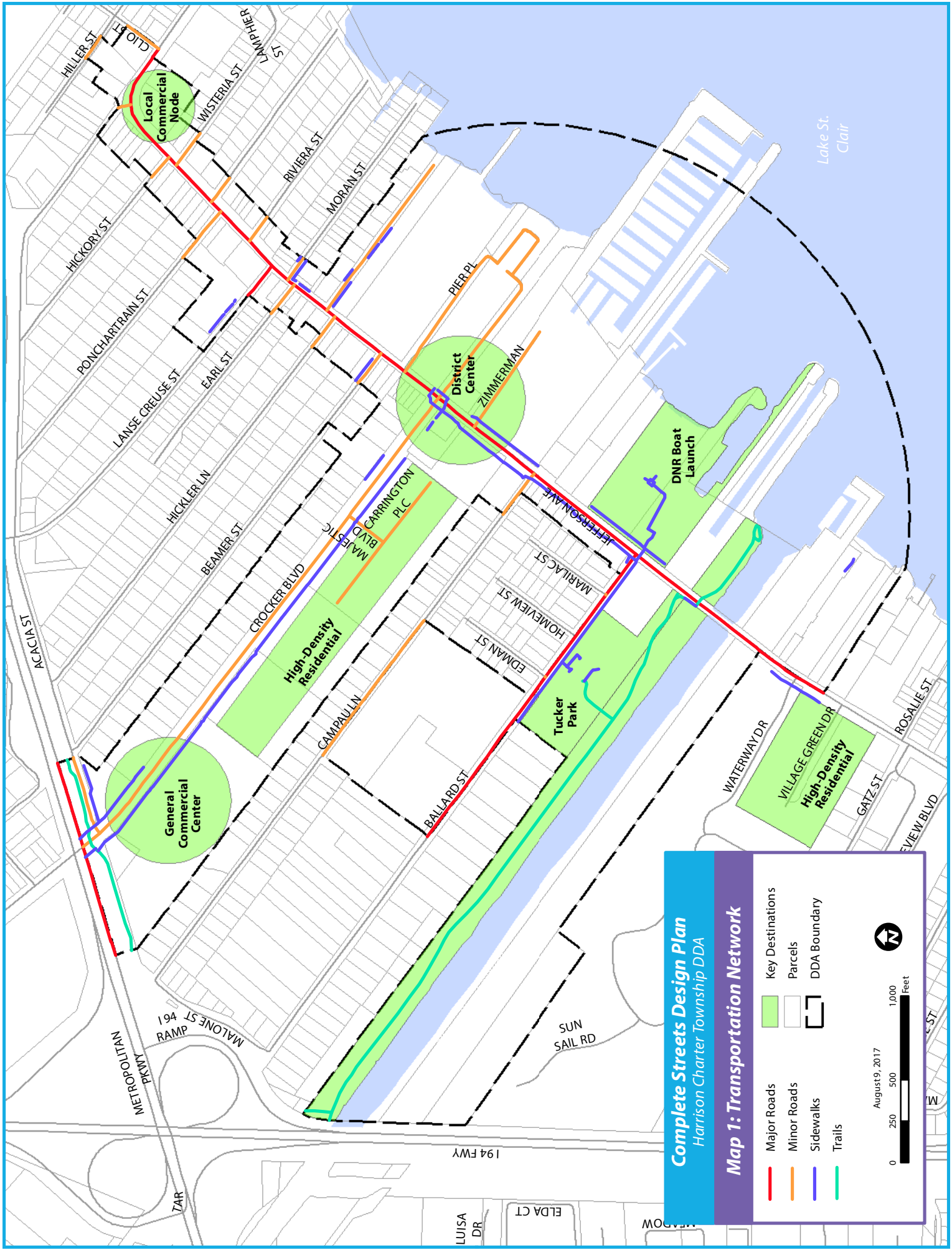
Figure 3: Jefferson Avenue Near Campau

Figure 4: Jefferson Avenue: Recommended Complete Street Design (South DDA District Limits to Crocker)

Figure 5: Jefferson Avenue at Crocker Boulevard: Recommended Complete Street Design

Figure 6: Crocker Boulevard Near Mariners Pointe Shopping Center

Figure 7: Crocker Boulevard: Recommended Complete Street Design



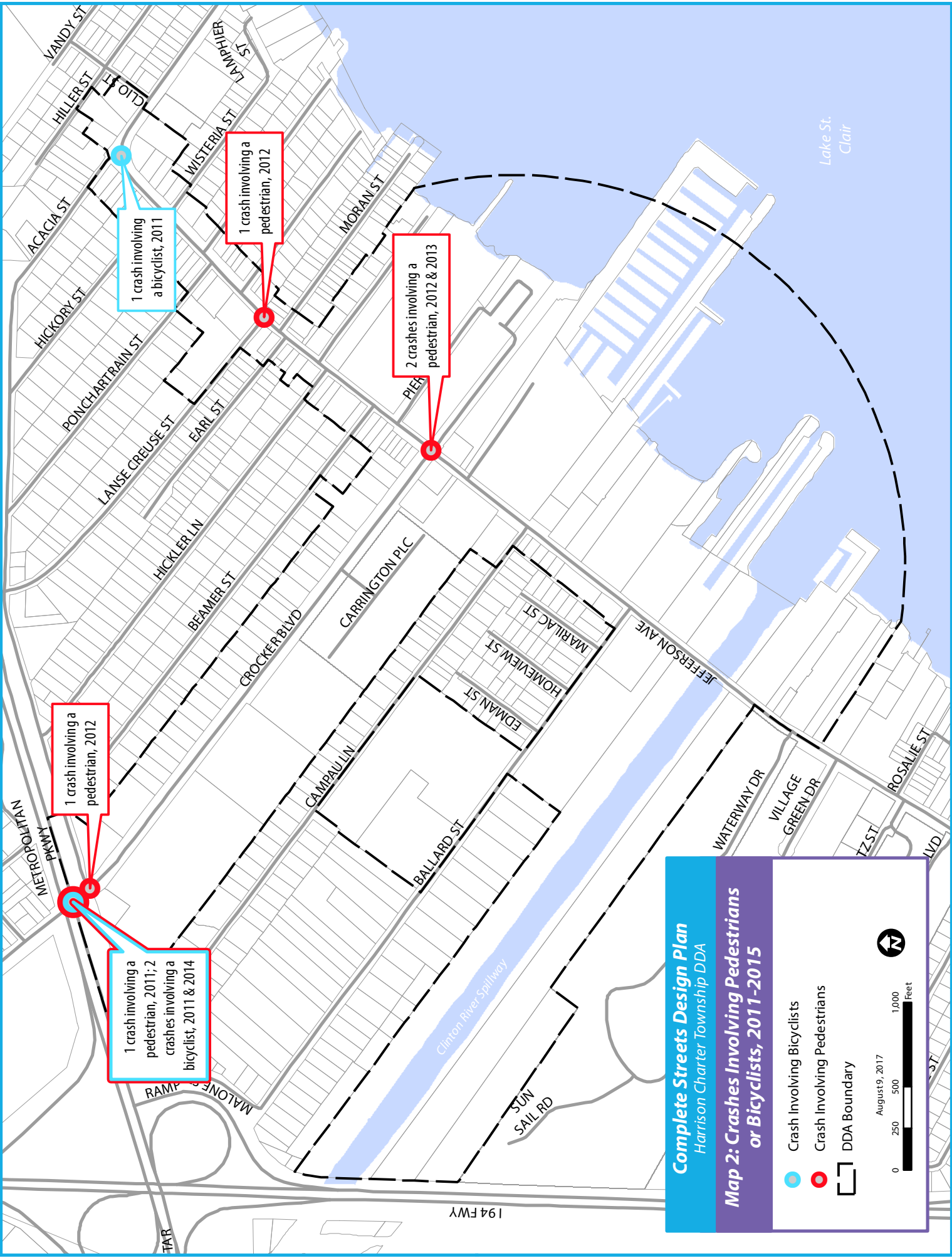
Complete Streets Design Plan
Harrison Charter Township DDA

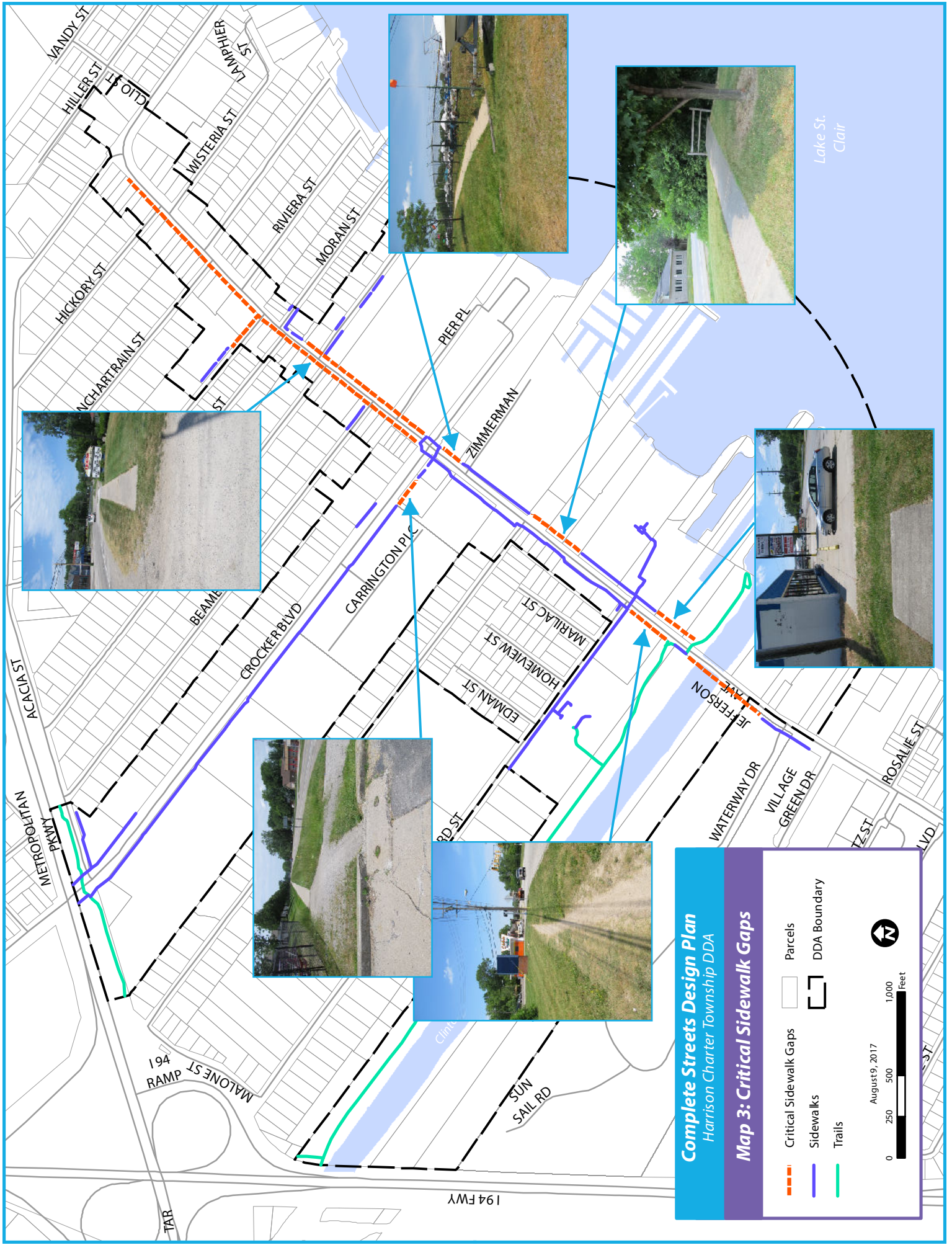
Map 1: Transportation Network

	Major Roads		Key Destinations
	Minor Roads		Parcels
	Sidewalks		DDA Boundary
	Trails		

August 9, 2017

0 250 500 1,000 Feet







Complete Streets Design Plan
Harrison Charter Township DDA
Map 4: Complete Streets Opportunities

Complete Streets Design Plan

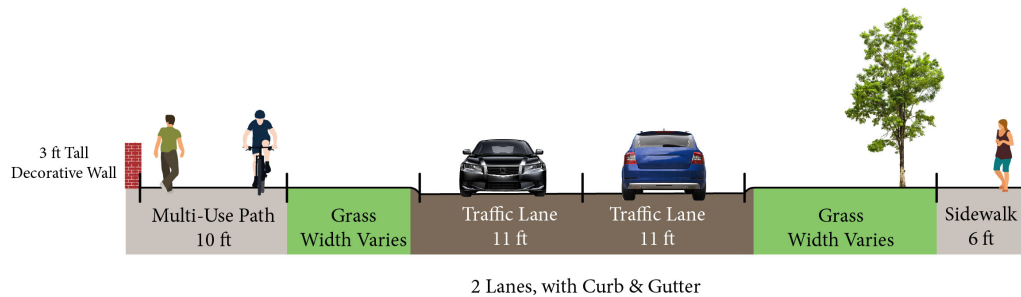
Harrison Charter Township DDA

**Figure 1: Jefferson Avenue (60 ft. R.O.W.)
Near Hickler**

Existing Street Cross-Section



Recommended Street Cross-Section



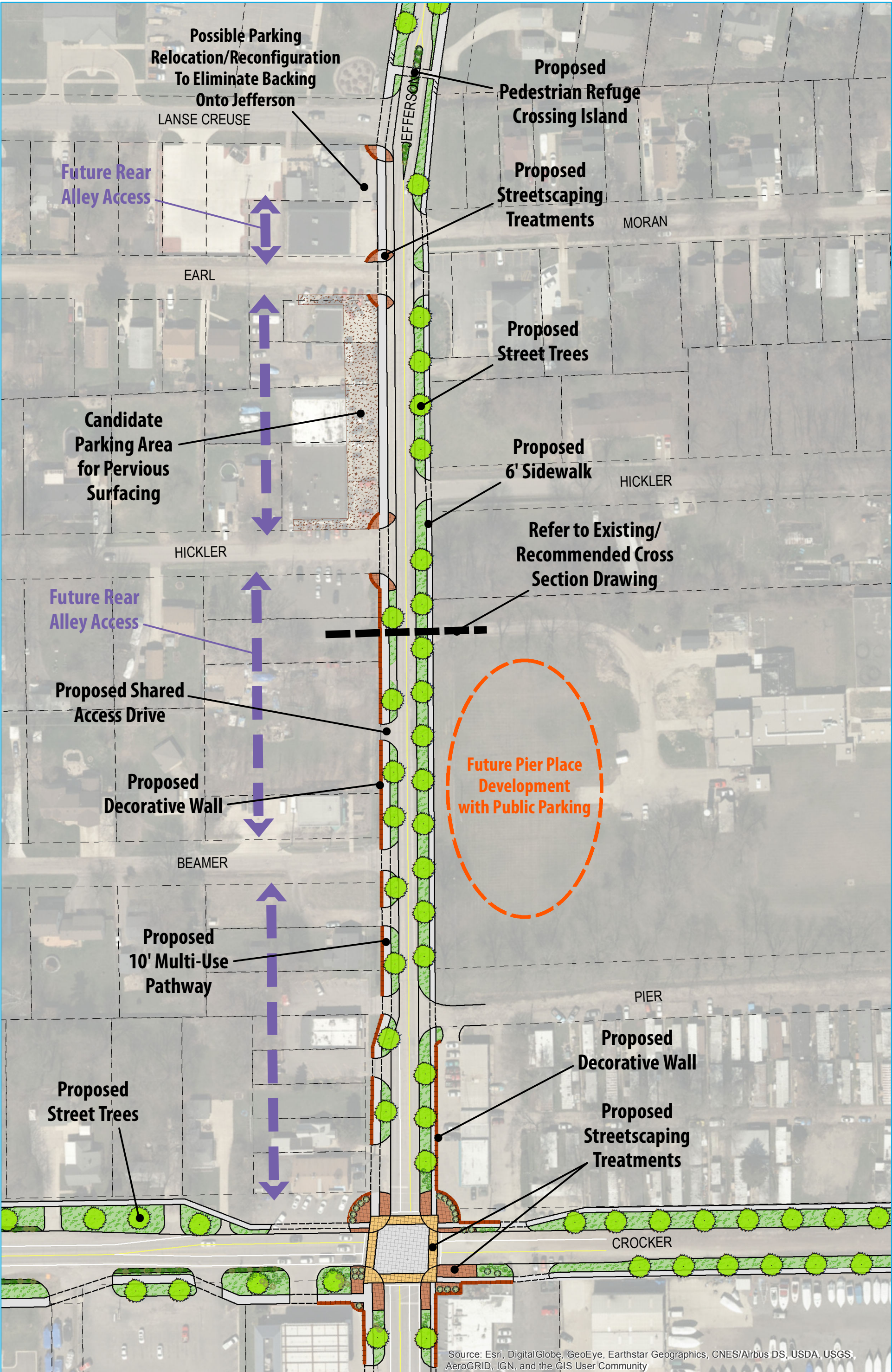


Figure 2: Jefferson Avenue: Recommended Complete Street Design

November 28, 2017

0 50 100 200 Feet

Complete Streets Design Plan

Harrison Charter Township DDA

**Figure 3: Jefferson Avenue (120 ft. R.O.W.)
Near Campau**

Existing Street Cross-Section



Recommended Street Cross-Section



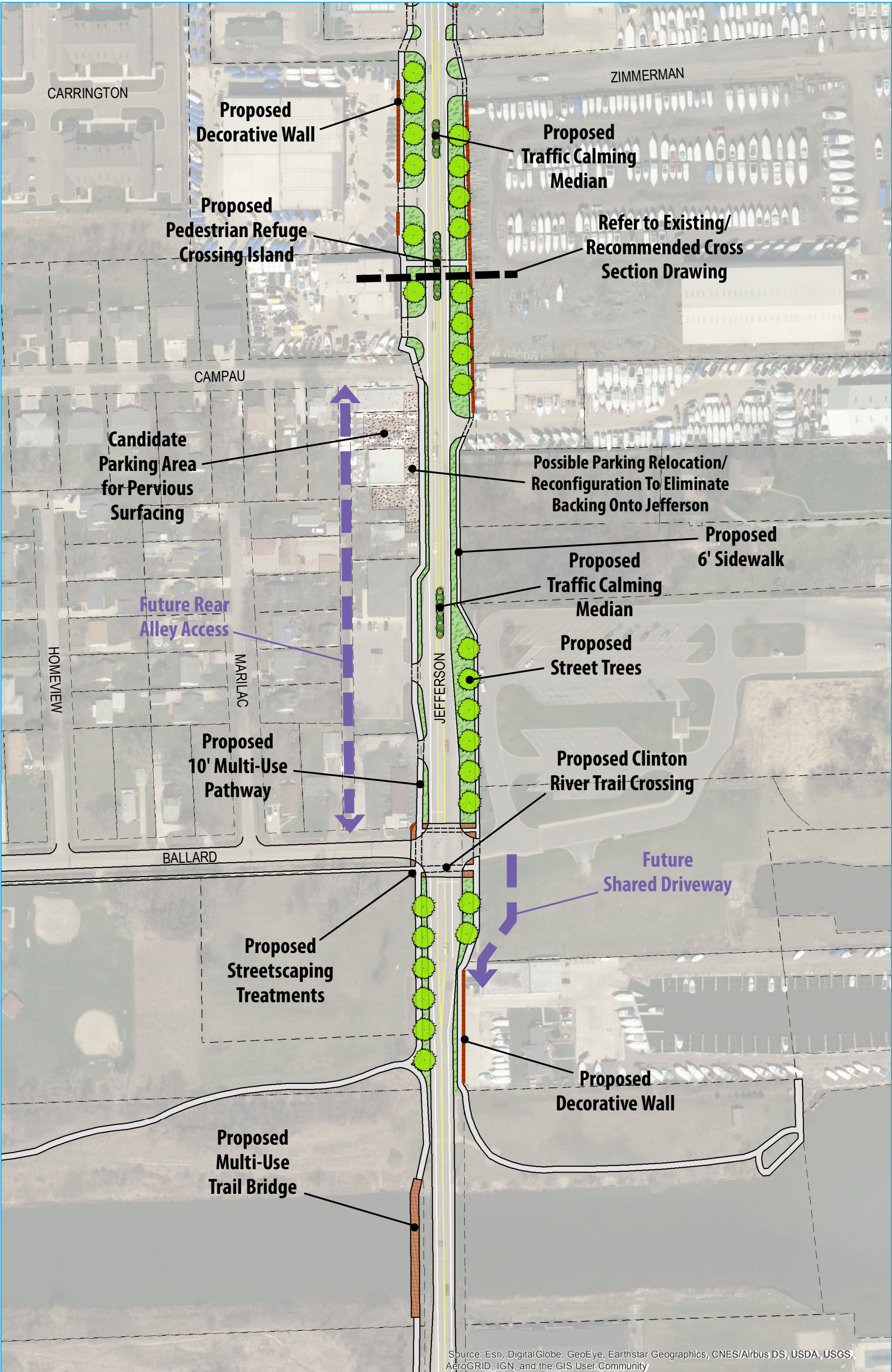


Figure 4: Jefferson Avenue: Recommended Complete Street Design

Existing Condition



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

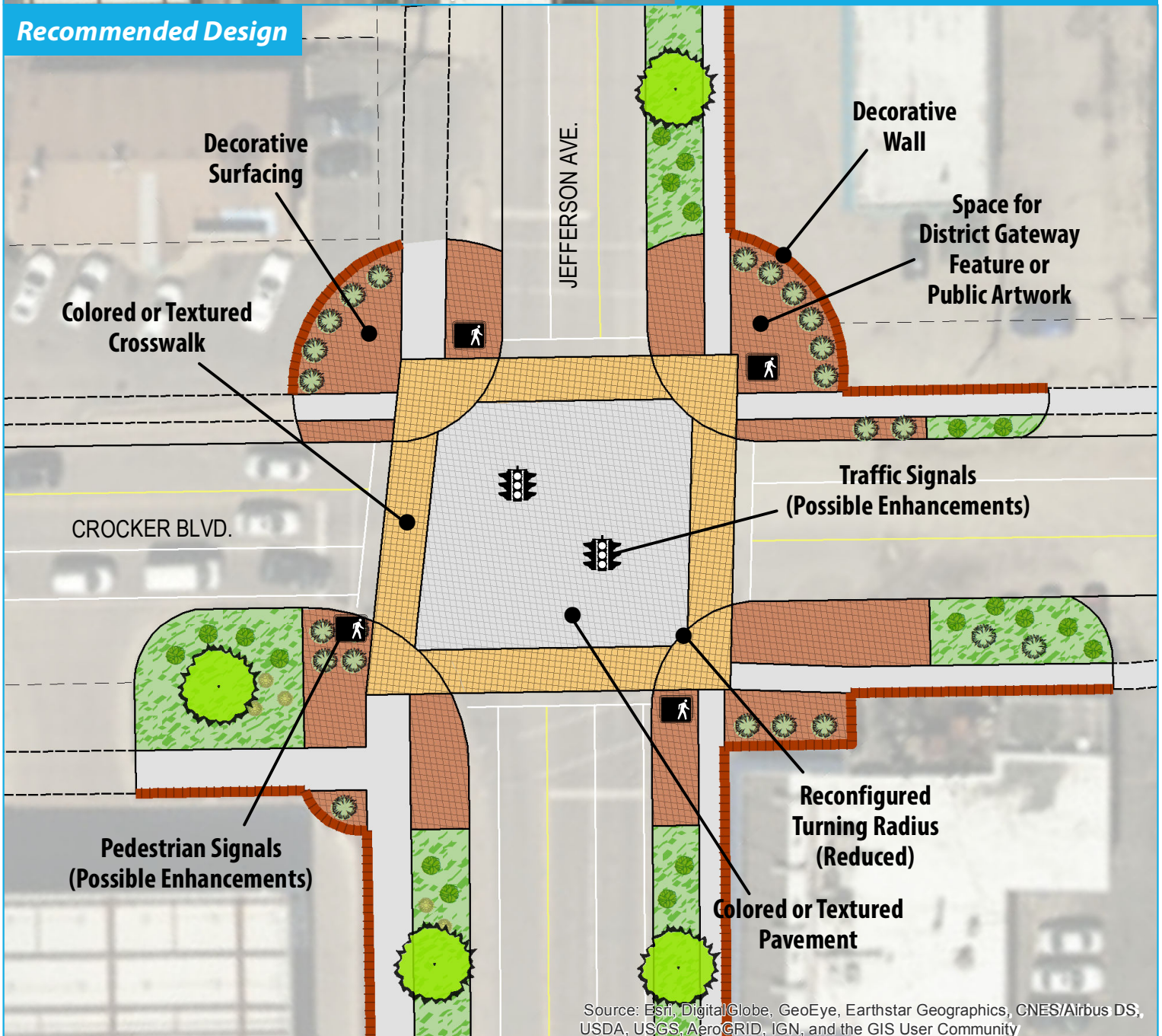
Figure 5: Jefferson Avenue at Crocker Boulevard: Recommended Complete Street Design

November 28, 2017

0 12.5 25 50 Feet



Recommended Design



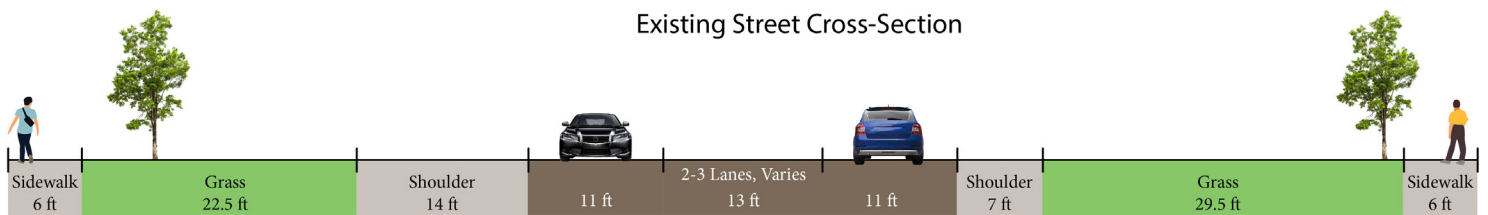
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Complete Streets Design Plan

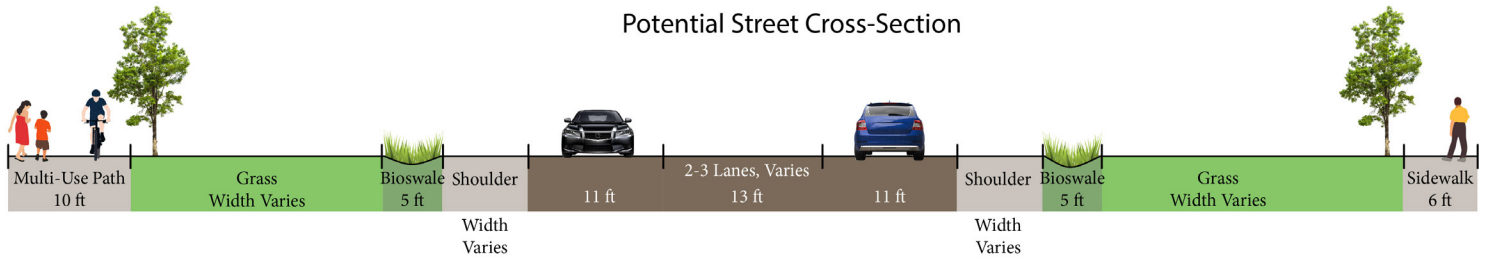
Harrison Charter Township DDA

**Figure 6: Crocker Boulevard (120 ft. R.O.W.)
Near Mariners Pointe Shopping Center**

Existing Street Cross-Section



Potential Street Cross-Section



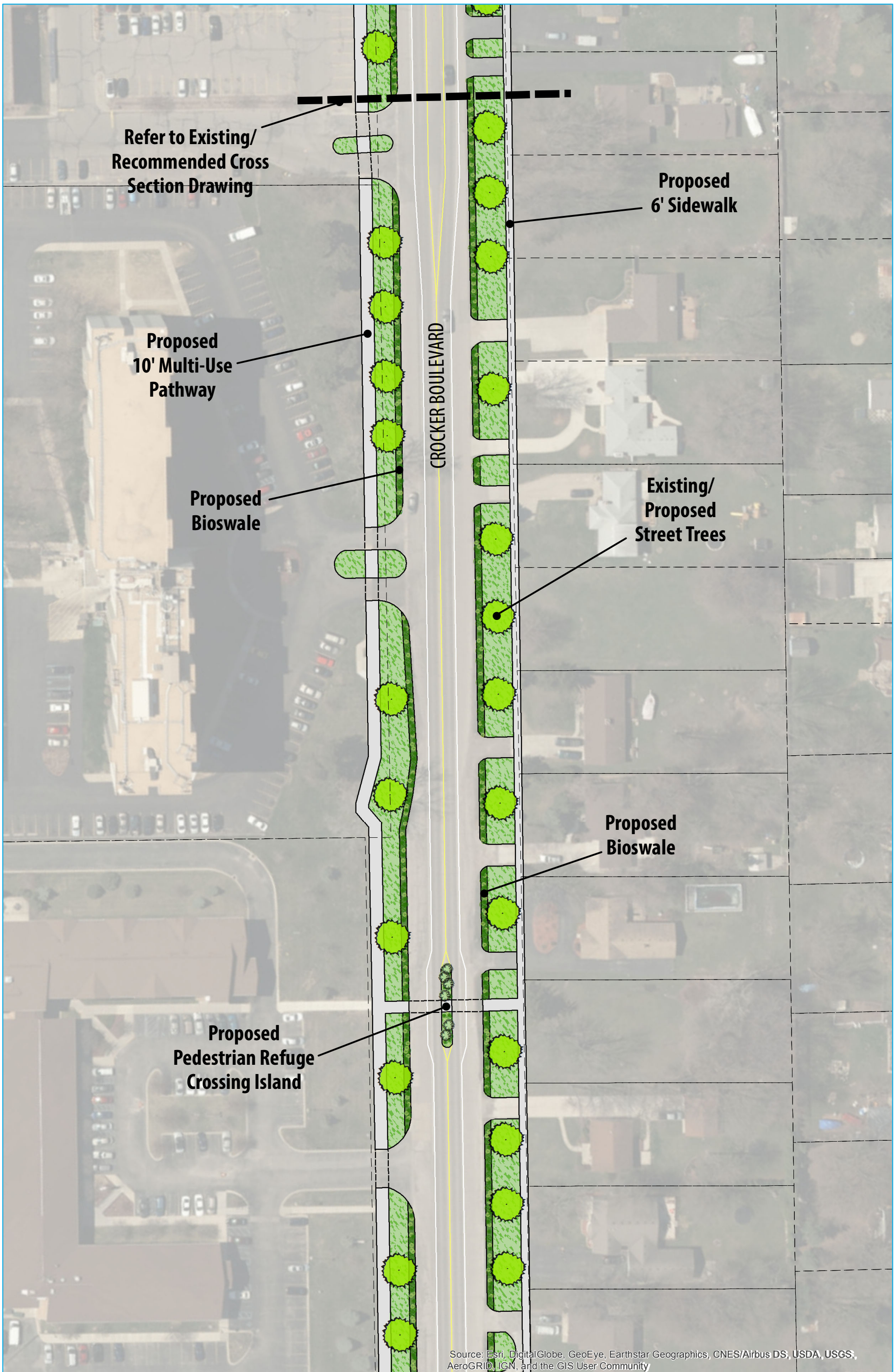


Figure 7: Crocker Boulevard: Recommended Complete Street Design