OSHTEMO MASTER STREETS PLAN

The Master Streets Plan was prepared by Oshtemo Charter Township, with support from the consultant team at Progressive Companies.

The project team extends their sincere thanks to the individuals and organizations who made this plan possible, including the Oshtemo residents whose input is reflected in this Plan.

We acknowledge the people who have been killed or seriously injured while traveling within Oshtemo since the beginning of this planning effort. This Master Streets Plan, as well as the resources identified to implement it, is dedicated to ensuring that everyone can move along and across our streets, roads, and paths without being harmed.

CHARTER TOWNSHIP OF OSHTEMO
KALAMAZOO COUNTY, MICHIGAN

Adoption of the Oshtemo Charter Township Board Approving the Oshtemo Master Streets Plan & the Oshtemo 2045 Comprehensive Plan

May 19, 2026

WHEREAS, the Planning Commission, pursuant to Section 39 of the Act, sent notices by first class mail of its intent to prepare a new Master Streets Plan and Oshtemo 2045 Comprehensive Plan to the designated entities listed in Section 39 of the Act on or about June 27, 2023; and

WHEREAS, the Planning Commission sought and received the Township Board's approval to commence development of the Master Streets Plan and Oshtemo 2045 Comprehensive Plan under the Michigan Planning Enabling Act, located at MCL 125.3801 et seq (hereinafter referred to as the "Act") on or about May 23, 2023, and

WHEREAS, the Planning Commission completed a proposed Master Streets Plan and Oshtemo 2045 Comprehensive Plan and submitted the same to the Township Board seeking authorization to distribute the same on or about November 13, 2025, and the Township Board at a Board meeting of December 9, 2025, pursuant to Section 41 of the Act, approved the distribution of the Master Streets Plan and Oshtemo 2045 Comprehensive Plan, in the manner prescribed by Section 39 of the Act, to the designated entities listed under Section 41 of the Act for comment; and

WHEREAS, the proposed Master Streets Plan and Oshtemo 2045 Comprehensive Plan was distributed, a notice of public hearing was prepared pursuant to Section 43 of the Act, and the same was served upon all of the designated entities in a manner prescribed by Section 39 of the Act and the same was properly published in a newspaper of general circulation on or about April 28, 2026, pursuant to Section 43 of the Act; and

WHEREAS, the Planning Commission held its public hearing pursuant to Section 43 of the Act and passed a resolution recommending adoption of the Oshtemo Master Streets Plan & the Oshtemo 2045 Comprehensive Plan to the Township Board.

WHEREAS, after initial rejection by the Township Board to correct minor revisions to the Oshtemo Master Streets Plan & the Oshtemo 2045 Comprehensive Plan, the Planning Commission met again, after public notice, and by resolution recommended the adoption of the revised and finalized Oshtemo Master Streets Plan & the Oshtemo 2045 Comprehensive Plan to the Township Board.

WHEREAS, the Township Board has reserved to itself the right to exercise final authority of the Oshtemo 2045 Comprehensive Plan pursuant to Section 68.100 of its zoning ordinance.

NOW, THEREFORE, BE IT HEREBY RESOLVED by the Oshtemo Charter Township Board that the Master Streets Plan and Oshtemo 2045 Comprehensive Plan, including the Appendices, all the maps, tables, figures and legends are hereby adopted.

A motion was made by Zak Ford, seconded by Dusty Farmer, to adopt the foregoing Resolution.

The following voted "Aye": Michael Chapman, Zak Ford, Neil Sikora, Cheri Bell, Dusty Farmer, & Clare Buszka

The following voted "Nay": None

The following were absent: Kristin Cole

The Oshtemo Charter Township Clerk declared that the Resolution has been adopted.

Dusty Farmer, Clerk
Oshtemo Charter Township

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CERTIFICATE

I hereby certify that the foregoing constitutes a true and complete copy of an Excerpt of the Minutes of a meeting of the Oshtemo Charter Township Board, held on May 19, 2026, at which meeting 6 members were present and voted upon the same as indicated in said Minutes; that said meeting was held in accordance with the Open Meetings Act of the State of Michigan.

Dusty Farmer, Clerk
Oshtemo Charter Township

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LIST OF MAPS

KEY TERMS

Active Transportation Modes of transportation that involve physical exertion, such as walking, bicycling, scootering, or using public transportation.

Area of Persistent Poverty A census tract with 20% or more of its residents with household incomes below the poverty line for all years between 1989 and 2019.

Average Daily Traffic (ADT) The number of vehicles traveling along a certain street or road during a 24-hour period.

Bus Rapid Transit (BRT) A public transit system that utilizes dedicated lanes, signal priority, and station ticketing to enhance bus operations and decrease travel times.

Canopy Tree Large trees with significant amounts of foliage and leaf coverage.

Fixed-Route Transit Service A public transportation system where vehicles, such as buses or trains, operate according to a predetermined schedule and route.

Functional Area The area around the physical intersection of two or more streets or roads, including the space where drivers make decisions, maneuver, and stop.

Manual of Uniform Traffic Control Devices (MUTCD) A compilation of national standards for all traffic control devices, including road markings and traffic signals, synthesized and updated by the Federal Highway Administration (FHWA)

Mid-Block Crossing A location where people walking decide to cross a road or street. Design elements, such as markings, signage, or refuge, may or may not be provided.

NACTO National Association of City Transportation Officials.

Precise Plat A map that is drawn to scale and indicates the exact boundaries of a piece of land.

Right-of-Way (ROW) Publicly-owned space that is used for transportation, defined by adjacent property limits.

Shared Use Path Paved facilities located outside of a street or road designed for use by people walking, running, bicycling, or scootering.

Sharrow Otherwise known as shared-lane markings. Pavement markings that indicate the appropriate location for people to ride bicycles on low-speed, low-volume streets that function as 'neighborhood greenways.'

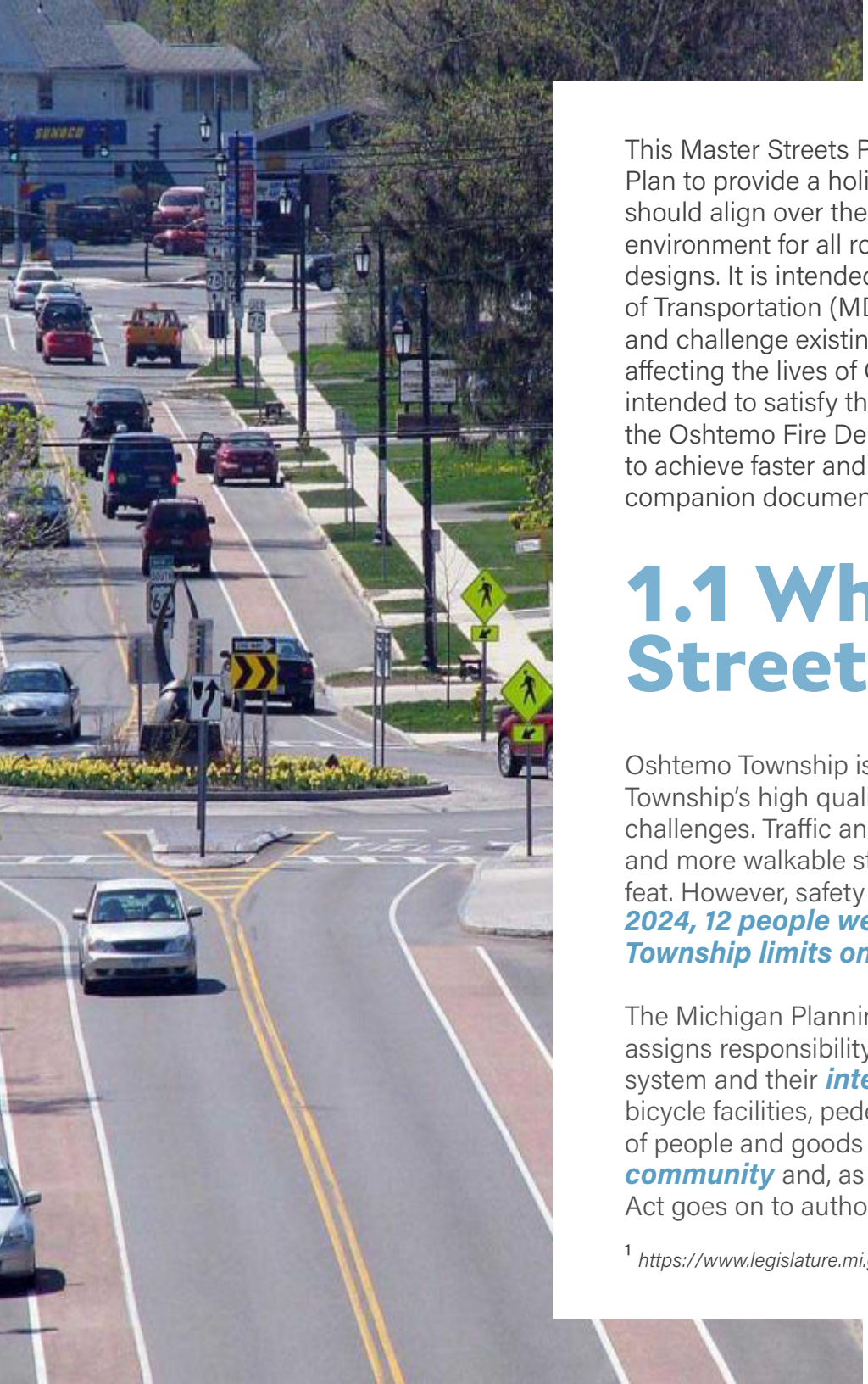
Vehicular Cyclists A person riding a bicycle in the same manner as driving a vehicle, generally sharing lanes with drivers.

Vision Zero A strategy to eliminate all traffic fatalities and serious injuries, typically over a defined period of time

Vulnerable Road Users People who are more likely to be injured in crashes, including those walking, using a mobility device, bicycling, the elderly, or the young.

1

INTRODUCTION



This Master Streets Plan works in tandem with the Oshtemo 2045 Comprehensive Plan to provide a holistic perspective on how growth, development, safety, and mobility should align over the next 20 years. This plan aims to advance the creation of a safe environment for all road users by implementing multimodal context-sensitive street designs. It is intended to inform and guide the decisions of the Michigan Department of Transportation (MDOT) and the Road Commission of Kalamazoo County (RCKC) and challenge existing standards and practices that produce unacceptable outcomes, affecting the lives of Oshtemo residents and visitors. The Master Streets Plan is intended to satisfy the requirements of the Safe Streets for All program. In addition, the Oshtemo Fire Department Strategic Plan, and the strategies identified therein to achieve faster and more efficient emergency response times, is considered a companion document to this Master Streets Plan.

1.1 Why is a Master Streets Plan Needed?

Oshtemo Township is flourishing. With a growing and well-educated population, the Township's high quality of life is a point of pride for its residents. Growth also creates challenges. Traffic and congestion are increasing, and there is a rising demand for trails and more walkable streets. Creating a safe community for cars and people is no small feat. However, safety for all remains under realized in Oshtemo. ***Between 2020 and 2024, 12 people were killed and 64 people were seriously injured within Township limits on non-highway streets and roads.***

The Michigan Planning Enabling Act[1] (PA 33 of 2008, Section 33, Subsection (2)(b)(i)) assigns responsibility to the Township to consider ***all components*** of a transportation system and their ***interconnectivity*** including streets and bridges, public transit… bicycle facilities, pedestrian ways…to provide for the ***safe*** and efficient movement of people and goods in a manner that is ***appropriate to the context of the community*** and, as applicable, considers all legal users of the public right-of-way. The Act goes on to authorize the Township to create a ***master street plan.***

[1] *https://www.legislature.mi.gov/documents/mcl/pdf/mcl-Act-33-of-2008.pdf*

Why the "S"?

The MPEA names it a "Master Street Plan." Oshtemo's naming of a Master Streets Plan is intentional, signifying there are important distinctions between types of streets and their contexts that need to be considered in design to create safe streets for all users and modes.

- **There were 560 non-freeway crashes in Oshtemo Township in 2024. The entire RCKC network experiences about 1,700 crashes per year (per their SS4A plan), so crashes in Oshtemo make up about one-third (32%) of all crashes in the county (not including Kalamazoo), despite having just 10% of the population.**
- **About 20% of the severe (fatal and serious injury) crashes on RCKC roads in 2024 occurred in Oshtemo, again despite having just 10% of the population.**
- **Of the ten intersections with the highest amounts of crashes in Kalamazoo County, seven are located in Oshtemo.**

Community leaders recognize that the level of traffic violence is unacceptable. Township residents have consistently held that they desire walkable places and a range of mobility options. Yet, the Township lacks local control over the streets within its municipal boundaries. MDOT and RCKC determine road improvements, traffic management, and design decisions. The Master Streets Plan is needed to ensure that investments, both public and private, within the township are coordinated and supportive of the Oshtemo 2045 Comprehensive Plan's vision, goals, and desired future context.

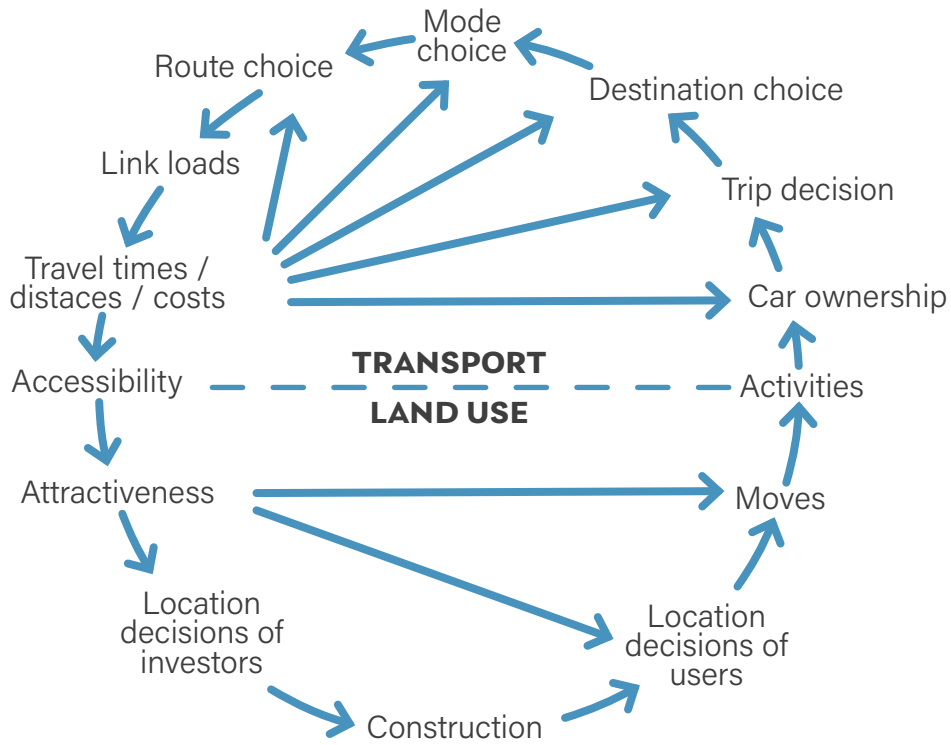
1.2

Relationship Between Transportation and Land Use

Transportation and land use comprise a complimentary system. Individuals and households make decisions daily related to the location of their residence, job, shopping, recreation, etc.; they consider the amount of time they have, the mode of transportation they use, and the distance they must travel.

The objective of addressing transportation and land use together is to define and manage the township's growth in alignment with the Comprehensive Master Plan's vision to ensure that ***"Oshtemo is a community designed for everyone – we are connected, adaptable, and diverse, creating opportunities for shared experiences and recreation. Future decisions will support balanced growth and quality of life for residents, visitors, and businesses alike."***

If your home is near your job, goods and services, and other amenities, your household will save time and money due to a shorter travel times. Conversely, if there is a significant separation between land uses, then you must travel longer distances to accomplish those things. As Oshtemo grows, the Comprehensive Plan and Zoning Ordinance will dictate where, how, and when land uses change. Unfortunately, oftentimes, transportation infrastructure is not approached in the same way.



Source: "Overview of Land Use Transport Models," by M. Weneger, in Hensher, D.A., Button, K.J., Haynes, K.E. and Stopher, P.R.

Without a coordinated transportation and land use strategy, a number of unintended consequences can result, including, but not limited to:

- Large blocks of residential neighborhoods that are miles away from the nearest store or place of employment, precluding the use of other modes of transportation, such as walking and biking.
- Dozens of cul-de-sacs that load onto a single road, which place thousands of cars on one road and few intersections, requiring road widening to accommodate more vehicles at higher travel speeds, which increases crash severity.
- The exclusion of nearly a quarter of the population (who are too old, young, poor, disabled, or otherwise unable to drive) from living independently because a private vehicle is required to accomplish daily tasks.
- Lacking investment in sidewalks, bicycle facilities, or transit because of auto-reliant development patterns, which de-emphasize our community as a place for people.

Oshtemo Township's current success may threaten its future as traffic volumes and travel times have increased, in part due to the ***traditional form of suburban development*** and a lack of connectivity between neighborhoods and land uses. This Master Streets Plan emphasizes the need for ***connectivity to shorten travel distances***, making it more possible for all residents to ***conveniently*** get to where they are going, regardless of their mode of transportation. Better connectivity also reduces reliance on arterial routes, which have the greatest rate of adverse safety outcomes.

Transportation demand management strategies can be implemented to align with land use and infrastructure development decisions, reducing the amount of 'unnecessary' driving trips and improving the experience for those who do need to drive. Holistic planning ensures smart future growth: prioritizing compact, mixed-use development, diverse housing options, walkable neighborhoods, preserved natural areas, accessible transportation options, and a high quality of life for the residents of Oshtemo.

What is Transportation Demand Management (TDM)?

This approach seeks to:

Maximize Existing Infrastructure Instead of widening roads, TDM seeks to make the most of what already exists.

Promote Alternatives Encourage the use of walking, cycling, public transit, and other options as a viable alternative to driving.

Shift Travel Behavior Influence how and where people travel to optimize the transportation network's performance.

Additional routes and ways to travel increases safety, improves health, saves money, provides opportunity, and expands choices for Oshtemo residents.

1.3

Oshtemo 2045 Comprehensive Plan Goals and Objectives

Goals described in the Comprehensive Plan point to the interrelationship of transportation and land use in building a strong community.

As it pertains to the Master Streets Plan, the following Comprehensive Plan goals are particularly relevant:

GOAL 1 - Cultivate a strong sense of place and belonging.

Create a vibrant and inclusive community where belonging is felt by all; opportunities for shared experiences are prioritized, welcoming interactions are fostered, and connections throughout the community are enhanced.

Why: *Human interaction can occur in public parks, at the library, during events, through the arts, and at programmed events. It can also occur on a person's daily journey to school or work and running errands...if that person is walking or bicycling. Eye contact builds human connection and is something that cannot occur in a fast-moving vehicle.*

GOAL 2 - Prioritize housing for all.

Develop a well-rounded, robust housing stock to meet the wide-ranging housing needs of community residents.

Goal 2 does not directly apply to the Master Streets Plan recommendations; however, land use and street typologies inherently work in partnership with one another.

GOAL 3 - Foster a connected, accessible, and resilient transportation system.

Develop a comprehensive transportation network that provides safe and accessible travel for all. Multi-use trails, sidewalks, and streets will create a community where everyone can reliably access desired destinations.

Why: *A lack of mobility options excludes people from being contributing members of the community. Given that the only way to truly travel in Oshtemo is by car, many people are being left behind. According to the US Census, 18% of Oshtemo's residents are aged 65 or older, 23% percent of the population is under the age of 18, and more than 12% of Oshtemo residents under 65 years of age have some form of disability. While some people may be able to independently drive, many are unable to. These numbers also do not consider those people who cannot afford the expense of automobile ownership. Therefore, a range of transportation options are required to serve the people of Oshtemo. Alongside a lack of mobility options, safety was cited as a primary concern during community engagement. The data provided in the Existing Conditions section of this Plan provide the reasons why this is a critical issue.*

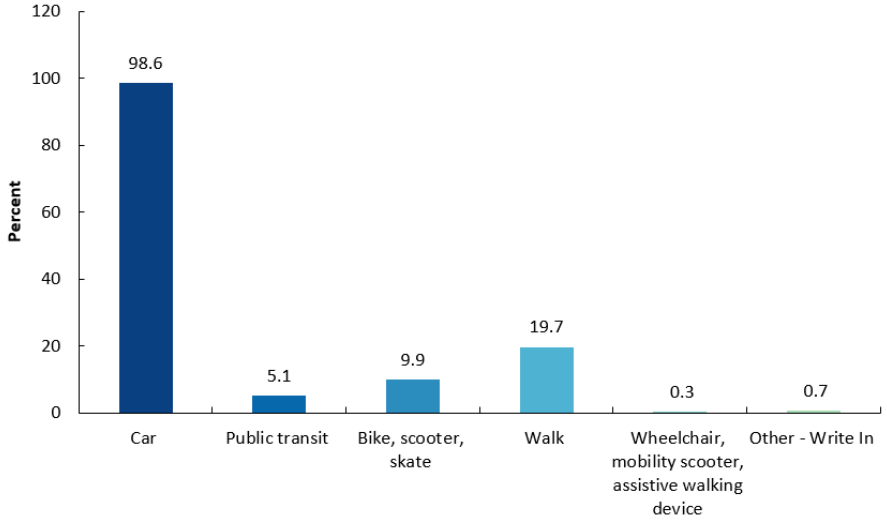
GOAL 4 - Facilitate balanced growth and economic vitality.

Shape Oshtemo's future by creating purposeful development that aligns with clearly defined Place Types, supports a strong local economy, and preserves the community's countryside character. Encourage adaptable spaces for living, working, shopping, and recreation, ensuring the efficient use of infrastructure while fostering innovation and diverse business opportunities.

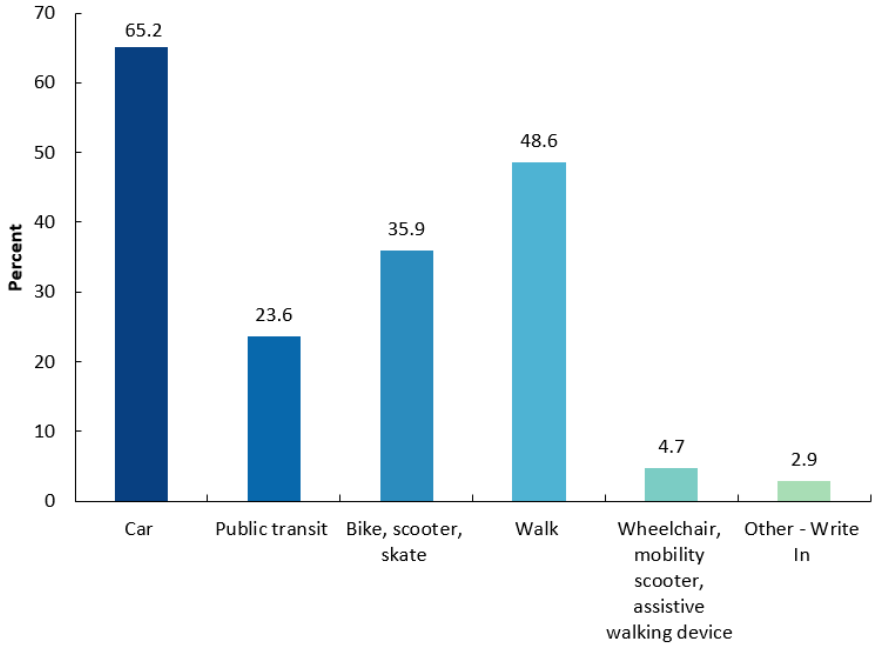
Why: *Context matters, both in land use and transportation. Rural road designs that encourage high-speed travel and lack sidewalks and/or shared-use paths deny the presence of people. The City of Kalamazoo directly abuts Oshtemo's eastern boundary. These communities share regional shopping destinations, high-density housing, transit, and other characteristics of an urbanized place that current street design practices fail to acknowledge, to the detriment of the public's safety and quality of life, and the long-term economic viability of locations where suburban sprawl has occurred.*

TRAVELING IN OSHTEMO

When asked how residents ***currently*** travel through Oshtemo, the following results were gathered. Respondents could select multiple options.



However, residents ***wish*** they had more non-motorized travel options based on their below responses; again, respondents could select multiple options:



Respondents would be more inclined to ***walk*** in the Township if:

There were more sidewalks, safe walking paths, and connected trails that linked neighborhoods to key destinations. Many want separation from fast-moving traffic, safer ways to cross busy roads, and better pedestrian infrastructure, such as wider roads with bike/walk lanes, working crossing signals, and complete sidewalk networks. More natural spaces, community trails, and well-lit, attractive paths would also encourage walking. Additionally, some would walk more if businesses and amenities were within closer walking distance or if safety concerns, like high traffic speeds, were addressed.

Respondents would be more inclined to ***bike*** in the Township if:

There were more bike lanes, dedicated paths, and better connectivity between key destinations. Safety is a major concern, with many wanting protected bike lanes, sidewalks, wider shoulders, and safer intersections. Some mention the need for slower speeds, better signage, and increased enforcement to improve road conditions. Improved infrastructure on primary roads, especially those with high speed limits, would make biking more feasible. Better connections between neighborhoods, trails, and services would encourage more biking, as would bike-friendly amenities like repair stations and air pumps. Seeing more people biking would increase awareness and reinforce the perception of safety.

The cost of personal vehicle ownership has also significantly risen over time.

The average cost of owning, operating, and maintaining one vehicle has increased from $8,500 per year in 2017 to $12,000 in 2024 – a 40% change. [2] This cost represents just under 20% of the average pre-tax household income in Oshtemo Township. [3] With an average household size of just over two persons, and assuming a ratio of one car per person, vehicle operation and maintenance costs may consume approximately 35% to 40% of a typical household's pre-tax income. Transportation expenditures for households that own a vehicle are also significantly higher than those for households that do not own a vehicle. In 2022, households in the median income quintile (annual incomes between $54,500 and $90,000) that owned one or more vehicles spent approximately 20% of their post-tax income on transportation expenditures. Households that did not own or lease a vehicle in the median income quintile spent just 5% of their post-tax income on transportation expenditures. [4]

Reducing the level of vehicle ownership necessary to accomplish day-to-day tasks can help realize significant cost savings for interested township residents.

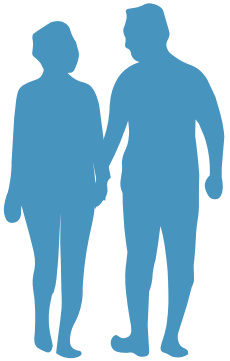
[2] *https://www.bts.gov/content/average-cost-owning-and-operating-automobilea-assuming-15000-vehicle-miles-year*

[3] *https://www.census.gov/quickfacts/fact/table/oshtemochartertownshipkalamazoocountymichigan/INC110223#INC110223*

[4] *https://data.bts.gov/stories/s/v67s-yiqd*

The average household in Oshtemo has

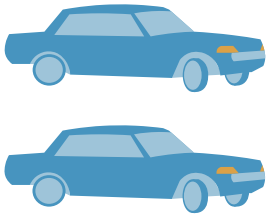
2.3 people



The median household income in Oshtemo is **$66,120**

These households often have at least

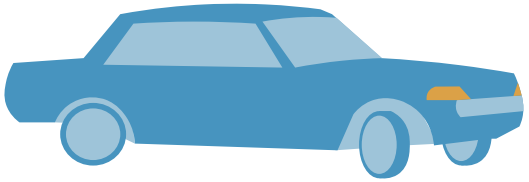
2 vehicles



Each vehicle costs an average of

$12,000

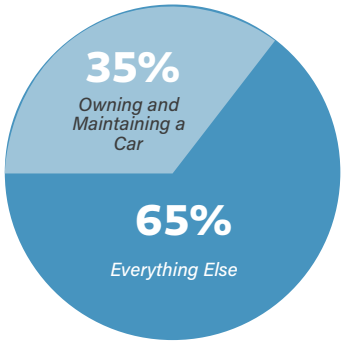
to fuel, insure, and maintain every year



This means that the average household with two cars is paying between

35% - 40%

of their income on fueling, insuring, and maintaining their vehicles every year!



Some people view this cost as part of the equation for a suburban or rural lifestyle. For others, this cost can be a substantial burden.

1.4
Oshtemo Master Streets Plan Guiding Principles

The primary intent of the Master Streets Plan is to establish mobility-related values, policies, and maintenance practices that collectively serve to advance the vision for Oshtemo Township and its transportation system.

Additional guidance regarding design elements and standards is provided and intended to serve as a framework for future design decisions. These future decisions may occur either while roadways are under RCKC or MDOT jurisdiction or under potential future township control. In addition to the stated Comprehensive Plan objectives, the Master Streets Plan further refines key elements into the following guiding principles:

Safety
Oshtemo Township will work to promote a culture of traffic safety and prioritize transportation projects that address the needs of vulnerable road users.

- Promote functional safety for vulnerable road users, particularly pedestrians, as the primary "design vehicle."
- Advance access management strategies that connect communities and support safe and reliable travel.
- Implement design interventions to reduce severe and fatal crashes.

Connectivity
Oshtemo Township will work to develop a connected transportation network.

- Plan for and develop connected facilities for all road users through strategic investments, private development, and/or partnerships with other public entities.
- Provide direct and connected motorized and/or non-motorized facilities as the township redevelops and builds out.

Complete Streets
Oshtemo Township will encourage the incorporation of Complete Streets design elements in all roadway reconstruction projects.

- Consider the needs of all relevant road users during roadway design processes.
- Align street typologies and design elements with Place Types.

Economic Vitality
Oshtemo Township's transportation network will encourage economic growth and fiscal sustainability.

- Focus on providing a state of good repair before making investments in new projects or capacity additions.
- Advance Transportation Demand Management strategies before expanding motorized facilities.
- Align land use development with adjacent or planned transportation facilities.

GOAL 3

Foster a Connected, Accessible, and Resilient Transportation System

Develop a comprehensive transportation network that provides safe and accessible travel for all. Multi-use trails, sidewalks, and streets will create a community where everyone is able to access desired destinations reliably.

Goal 3 is a key connecting element of the Comprehensive Plan to the Master Streets Plan. These are the Plan's Objectives and Strategies:

OBJECTIVE 3.1

Establish and improve links between neighboring developments through meaningful connections with a focus on safety, access, reduced travel distances, and modal choice.

A. Prioritize these connections in the Neighborhood Residential, Neighborhood Mixed Use, and Regional Corridor Place Types to help foster a sense of community and promote safe traffic flow.
B. Consistently require street and multimodal connectivity of private and public streets between adjacent developments to improve residential mobility options, access for deliveries, essential public services, maintenance, and emergency vehicles in accordance with the Master Streets Plan.
C. Enact traffic calming strategies to reduce cut-through traffic, manage speeds and ensure safe streets.

OBJECTIVE 3.2

Maintain and regularly review the Township's Transportation and Mobility Ordinance to mandate new developments and infrastructure improvements that appropriately accommodate all modes of transportation in alignment with the established Place Types.

A. Continually enhance community understanding of the safety, accessibility, and quality-of-life benefits provided by Complete Streets through education and outreach initiatives.
B. Identify funding sources, such as federal or state transportation grants, as well as local funding sources to support Complete Streets improvements and incentivize compliance for private developments.
C. Partner with regional transit agencies and neighboring jurisdictions to align infrastructure improvements across boundaries.

OBJECTIVE 3.3

Cooperatively work with MDOT and RCKC to ensure the roads in Oshtemo fit the context of the area, allowing people to travel safely in the township at appropriate speeds using self-enforcing design techniques, traffic calming, and other safety countermeasures.

A. Continue to foster professional relationships with all transportation officials and agencies to increase Oshtemo's role in future transportation decisions impacting land use in the township.
B. Utilize guidance from the Master Streets Plan, including recommendations for non-motorized infrastructure and Complete Streets Policy to properly locate and design new streets, trails, and sidewalks based on context.
C. Utilize a Safe Systems Approach focusing on building safety at a systemic level, rather than retrofitting spot locations after crashes have occurred.
D. Establish a shared goal of reducing the number of fatal and severe injuries in the township by a minimum of 30% by 2035 through the redesign of prioritized streets and intersections.
E. Advocate for context-sensitive design standards appropriate for an urban/suburban setting in Kalamazoo County that follows new American Association of State Highway and Transportation Officials (AASHTO) Green Book guidance and Transportation Research Board recommendations.

OBJECTIVE 3.4

Establish consistent and connected sidewalk and biking networks that exceed the minimum Americans with Disabilities Act (ADA) standards, ensuring reliable and safe facilities for all.

A. Increase the township's sidewalk network within Neighborhood Residential areas by 20% by 2035.
B. Prioritize the connection of existing bike facilities where appropriate, utilizing the Non-Motorized Plan.
C. Obtain funding to upgrade ADA locations as identified by the 2023 Asset Management Plan and complete implementation by 2035.

Example: Shared use path with bike infrastructure

1.5

Community Context

The 2045 Comprehensive Plan uses Place Types to describe the varied physical environments and development patterns that exist, or are envisioned, in Oshtemo. Streets, roads, sidewalks, and shared-use paths knit Place Types together. Design of these transportation facilities will be thoughtfully aligned with their place through clear application of Street Types defined in this Plan.

Place Types provide a clear framework for defining factors like building types, scale and placement of structures, density, street layout, greenspace, and so on. They are summarized in this document, with additional detail provided in Chapter 4: Place Matters of the Oshtemo 2045 Comprehensive Plan.

REGIONAL CORRIDOR

Large-scale, heavily traversed commercial; mixed-use corridors serving a broad regional audience.

NEIGHBORHOOD MIXED-USE

Mix of different housing types, retail amenities, services, cafes, and gathering spaces that promote walkability, community, and access to amenities in a connected setting.

NEIGHBORHOOD RESIDENTIAL

Residential areas with opportunities for social interaction and connectivity to local amenities.

COUNTRYSIDE RESIDENTIAL

Large-lot, private residential areas that preserve natural surroundings.

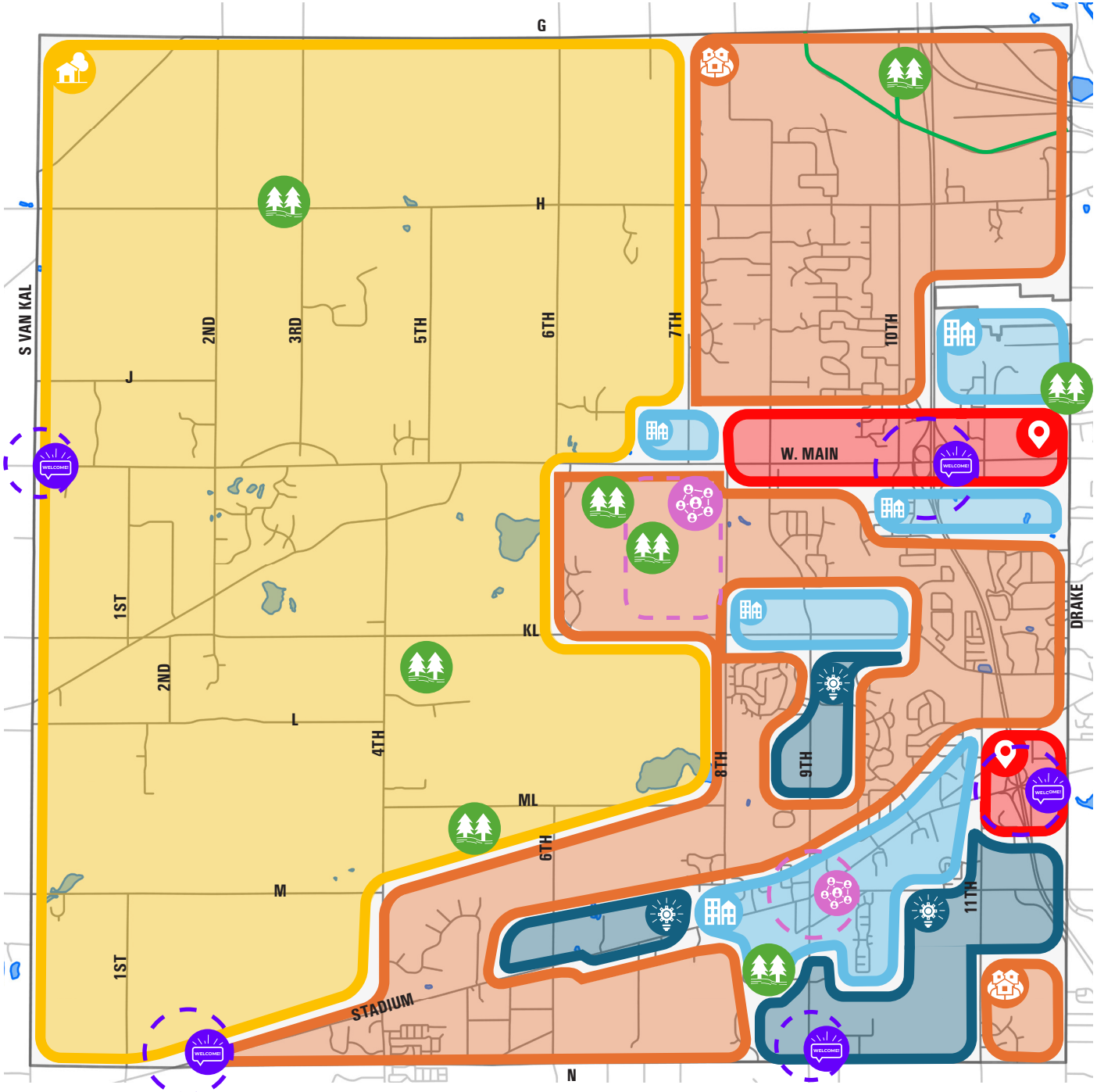
INNOVATION & INDUSTRY

Diverse mix of industrial, research, educational, office, and technology-driven uses - serving as centers of innovation and forward-thinking economic development.

PARKS & PRESERVATION

Natural areas, parks, and green spaces for recreation and conservation.

MAP 1.1: OSHTEMO'S FUTURE PLACE TYPES



PLACE TYPES

- Regional Corridors
- Neighborhood Mixed-Use
- Neighborhood Residential
- Countryside Residential
- Innovation & Industry
- Parks & Preservation

SPECIFIC TYPES

- Gateways
- Oshtemo Centers

The arrangement of Place Types is purposeful, based on the desires clearly expressed by township residents, land use characteristics, and transportation function. Development located in the eastern half of the township is intended to be more compact, utilizing and optimizing the infrastructure and amenities that are present or planned, while the western half of the township is to remain more rural in character. The Street Typologies described in this Master Streets Plan align with the Place Types to define each street's appropriate context and characteristics, while also serving all legal road users of the right-of-way. Place Types require context-sensitive design. What this means is that a "one size fits all" design approach for streets in Oshtemo Township is no longer acceptable.

- Streets in the Neighborhood Mixed-Use, Neighborhood Residential, Innovation & Industry, and Regional Corridors will be comprised of an interconnected multi-modal transportation network, with facilities that appropriately accommodate pedestrians, bicyclists, transit users, those in private vehicles, and freight at speeds of no greater than 35 miles per hour (MPH).
- Roads in the Countryside Residential portion of the township will be comprised of an interconnected transportation network that provides separated multi-use paths and facilities that accommodate private vehicles and freight at appropriate speeds.

It is important to note that the seventh edition of the AASHTO Green Book, published in 2018 [5], included a significant change by incorporating context classifications alongside traditional functional classifications, like arterials and collectors, and placing a greater emphasis on multimodal transportation. The context classifications, which include rural, rural town, suburban, urban, and urban core, provide tailored design standards that better align with Oshtemo Township's needs.

A new, important paradigm shift in the 2018 Green Book calls upon design engineers to consider the "transportation of people" rather than the movement of vehicles. The upcoming eighth edition of the Green Book will focus extensively on multimodal and performance-based context-sensitive design. This shift is important because AASHTO guidance is based on extensive research and vetting and serves as the authoritative guide for street geometric design. Oshtemo's Place Types can assist MDOT and RCKC in understanding what context-sensitive design standards should apply to different areas of the township, both today and into the future.

[5] *MDOT Design Advisory DA 2022-03*

1.6

Related Township Documents

In alignment with the Township's 2045 Comprehensive Master Plan, the 2019 Go! Green Oshtemo Plan, and the Non-Motorized Plan, this Master Streets Plan is intended to provide a framework for future growth and development that fosters safe and equitable opportunities for all users of the transportation network.

There are several relevant planning and ordinance documents that demonstrate a consistent commitment to shaping the future of mobility in the township. In general, these efforts set forth a vision for a safe and multi-modal Oshtemo Township and Kalamazoo County region. Key themes across these documents include:

- Foster safe outcomes for all road users, including pedestrians, bicyclists, public transportation users, motorists, and commercial vehicle operators
- Create a connected transportation system that serves all travel modes
- Ensure that all residents have access to affordable and reliable transportation options for their daily needs
- Design transportation systems that fit the unique characteristics of the community, while respecting its identity
- Encourage walking, biking, and other transportation methods, support economic growth, and promote public health

Oshtemo Township Master Plan (2011) promoted connectivity and efficient design of the local street network. Further emphasis was given to connecting and expanding the existing non-motorized network and coordinating with RCKC to ensure complete street provisions are included on all roadways within the township.

Go! Green Oshtemo (2019) defined community desires for active recreation opportunities, preservation of existing natural and rural spaces (including parks, non-motorized paths, and natural landscapes), and improved community health and quality of life outcomes. Go! Green Oshtemo committed local leaders to consider equity, sustainability, and fiscal stewardship in infrastructure investments.

Transportation and Mobility Ordinance (2024) is intended to promote connectivity and safety within private developments and the general public road network by defining standards for access management and requiring the incorporation of complete streets design elements. Consideration is also given to the alignment of private development with existing infrastructure facilities. It is expected that the ordinance will be updated to align with the recommendations contained in this Plan.

2

EVALUATION OF EXISTING CONDITIONS

Oshtemo's transportation network consists of facilities for motorized (cars, trucks, and buses) and non-motorized (pedestrians, bicyclists, and other micro-mobility) modes of transportation. In transportation planning, it is understood that there is limited space to accommodate every mode of transportation. Budgets, too, must be considered. ***Choices must be made about where and how to invest, what to maintain and reconstruct, and how facilities will be designed.***

To date, MDOT and RCKC have focused almost exclusively on infrastructure for motorized vehicles[6]. Thus, the emphasis of Existing Conditions is largely based on streets for cars. Chapter 3, Building a Safe, Resilient Network, seeks to challenge the existing modal hierarchy of cars and trucks being first when we design for the future. Instead, outcomes that focus on people and their safety, access to opportunities, and modal choice could provide a different path forward. ***This chapter provides a snapshot of what exists today.***

[6] *Based on community input, Oshtemo Township leaders have made a concerted effort to install shared-use paths in coordination with the road agencies.*

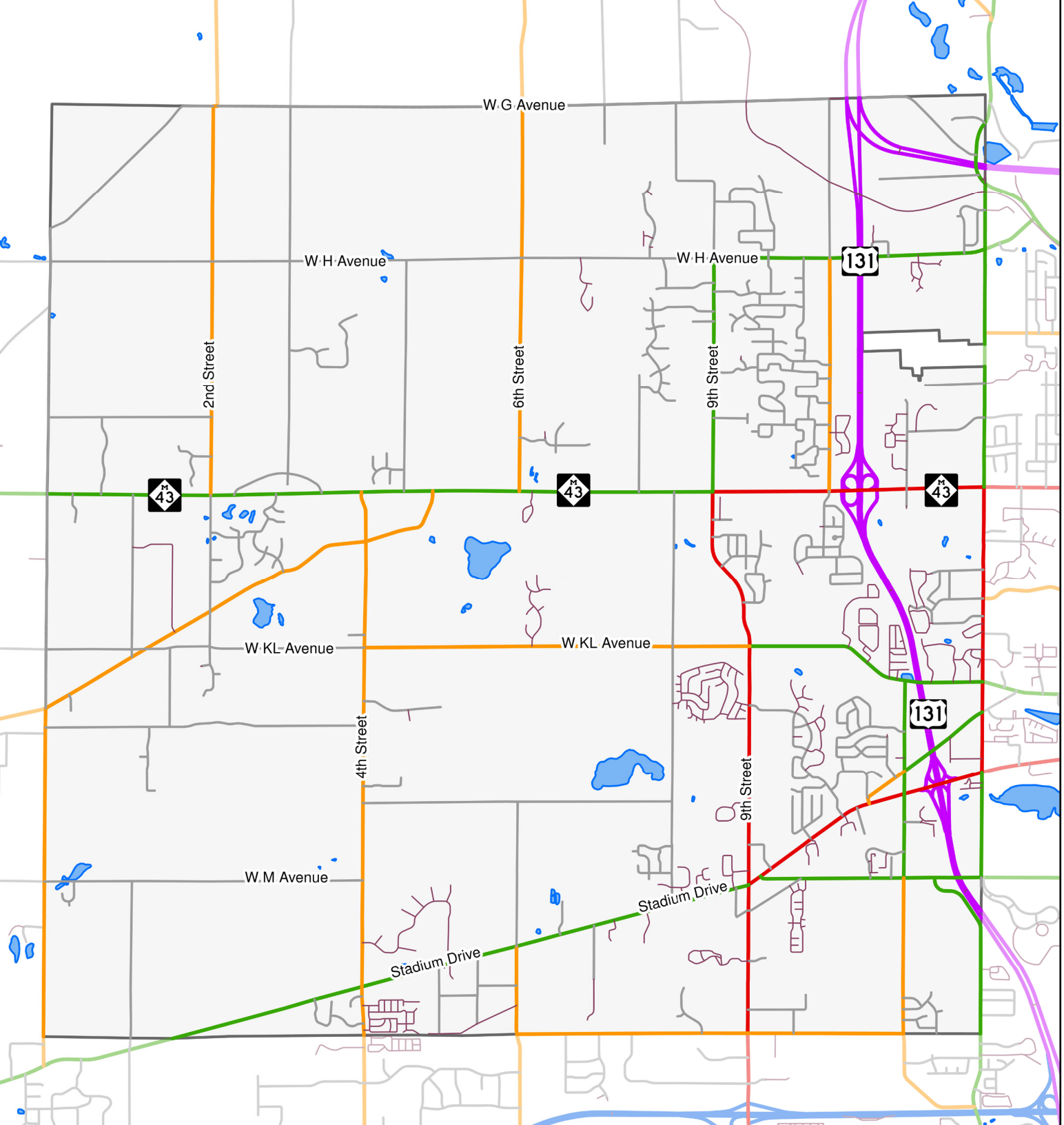
2.1

Existing Street Network and Traffic Volumes

The Kalamazoo Area Transportation Study (KATS), Road Commission of Kalamazoo County (RCKC), and Michigan Department of Transportation (MDOT) categorize roadways according to Federal Highway Administration (FHWA) definitions. These definitions are used to determine federal funding eligibility through a formula-based procedure in accordance with Public Act 51 of 1951 in Michigan.

FUNCTIONAL CLASSIFICATION	EXAMPLE ROADWAY
Interstate	I-94
Principal Arterial - Freeway	US-131
Principal Arterial	M-43 (Main Street)
Minor Arterial	Parkview Avenue
Major Collector	W N Avenue
Minor Collector	N/A
Local / Private	Coddington Lane

Functional classifications of roadways within Oshtemo Township are shown on Map 2.1 on the following page.



MAP 2.1

National Functional Roadway (NFC) Classifications

Oshtemo Township

LEGEND

- Interstate
- Other Freeway
- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local Roads
- Private Roads

N

0 0.5 1 Miles

Data Source: Oshtemo Township, 2024. Michigan Geographic Data Library, 2024. Progressive Companies, 2024.

Continuous high-capacity routes within the Oshtemo Township region include:

Interstate and freeway. US-131, a state trunkline freeway, provides the most robust and continuous north-south connection in the region. The grade-separated freeway physically divides the township. I-94 is located just to the south of Oshtemo, in Texas Township, connecting Detroit to Chicago. Interchanges influence traffic patterns in Oshtemo; there are three on US-131 and two on I-94 that have a direct effect. Both the I-94 and US-131 freeway facilities move between 50,000 and 60,000 vehicles per day through this area as of 2025.

Principal arterials. High-capacity surface streets primarily provide east-west connections and include M-43 (Main Street), which, as of 2025, carries approximately 25,000 to 30,000 vehicles per day in the vicinity of the US-131 interchange, and Stadium Drive, which carries roughly 20,000 vehicles per day between 9th Street and US-131. Traffic volumes on Main Street decrease to approximately 20,000 vehicles per day between 4th Street and 9th Street and 13,000 vehicles per day west of 4th Street.

Minor arterials and major collectors. Section roads, such as West KL Avenue, M Avenue, and H Avenue provide continuous routes through the township and are under RCKC's jurisdiction. As the township has grown, these corridors have been pressured to accommodate the traffic generated by new homes and businesses. If this trend were to continue without the addition of new routes to distribute the burden, these roads will need to be widened for additional capacity.

Coddington Lane: Local Street, Oshtemo

M-43 (West Main Street): Principal Arterial, Oshtemo

N Avenue: Major Collector, Oshtemo

RCKC DESIGN STANDARDS

The current RCKC design standards require the following for a road to be dedicated for public use. Although road types, as defined by RCKC, do not correlate exactly with NFC classifications, the purpose of a road segment can largely be generalized and categorized in accordance with the NFC system.

ROAD TYPE	ASSOCIATED NFC CLASS.	ROW	PAVEMENT WIDTH
Residential Development	Local Minor Collector	66′	28′ with a mountable curb; 36′ with curb and gutter (back to back)
Commercial Development	Minor Collector Major Collector	66′	36′
County Local Road	Minor Collector Major Collector	100′	11′ lanes with a 1′ paved/2′ gravel shoulder for roads
County Primary Road	Minor Arterial Principal Arterial	100′	11′ or 12′ lanes with a 3′ paved/3′ gravel shoulder for roads

Notes:

- A residential boulevard requires 100′ of ROW and a commercial boulevard requires 120′ of ROW.
- County local and county primary pavement width numbers are for roads with more than 750 Average Daily Traffic (ADT) volumes
- 12′ travel lanes are generally required on county primary roads with 10,000 ADT or more

Minimum design dimensions for residential and commercial streets per RCKC standards are shown below.

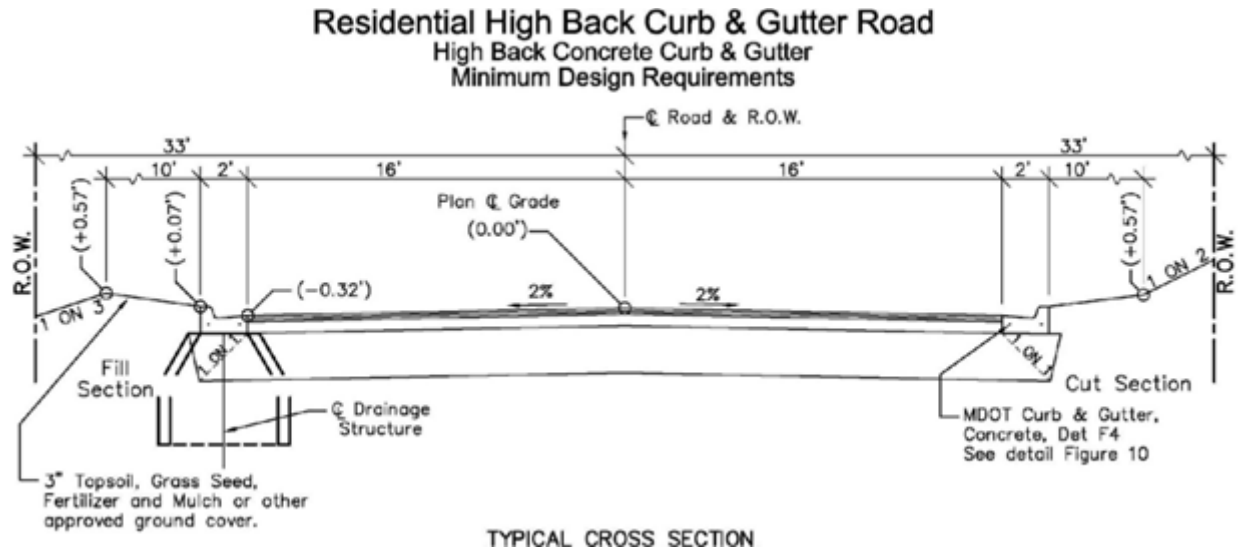


Figure 2: RCKC Residential Street Cross-Section

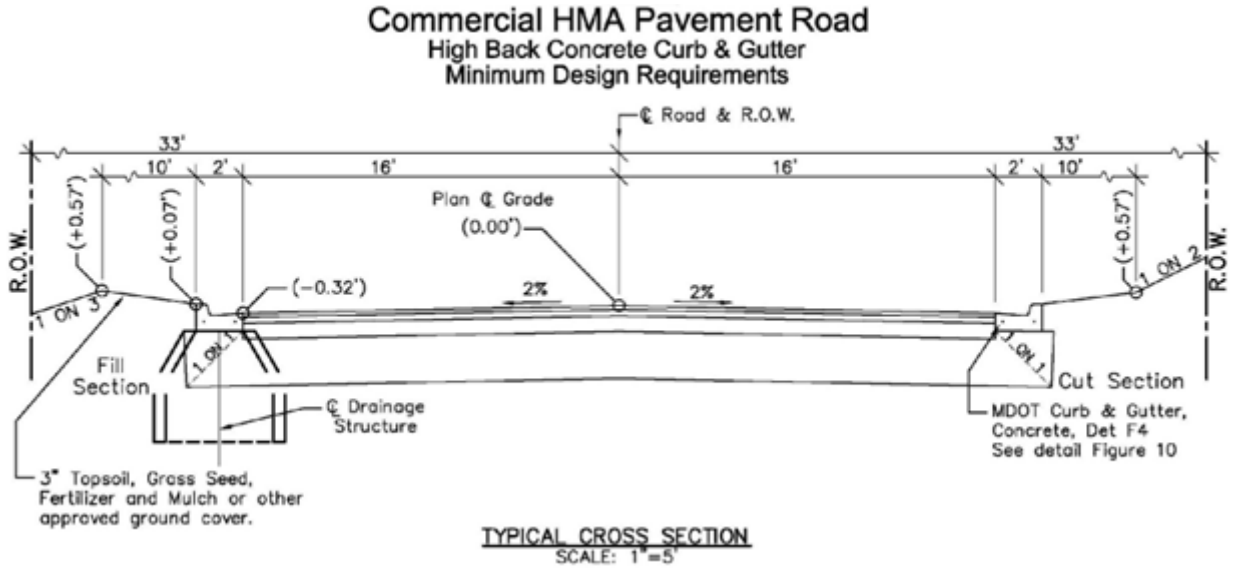


Figure 3: RCKC Commercial Street Cross-Section

Other policies include:

- Sidewalks and non-motorized paths are not required along roads. They are allowed to be 1 foot inside the right-of-way (ROW) line. Sidewalks and non-motorized pathways shall be at least 6.5 feet off the curb or edge of a gravel shoulder.
- Mid-block crossings are prohibited.
- A minimum 10-foot clear area from the back of curb or edge of paved shoulder shall be clear of all woody vegetation. Roadside vegetation within the full ROW and overhead branches within 20 feet above the roadway shall be pruned.
- Encroachments are prohibited in the ROW including, but not limited to, plantings, rocks, berms, irrigation systems, privately owned utilities, and fences.

Additional detail can be found on RCKC's standards at: kalamazoocountyroads.com. These road standards are universal for all roads within Kalamazoo County, regardless of context. This means that the same road standards apply to the east of US-131 in the Neighborhoods Place Type as a road near 2nd Street, in Oshtemo's Countryside Place Type. Two exceptions are allowed:

1) Downtown Development Authorities

RCKC "may consider the following elements within a designated DDA area:" curb extensions, sidewalk adjacent to the curb, and decorative street lights that are at least 6 feet from back of curb. On roads of 30 MPH or less, on-street parking is allowed as well as street furniture and trees that are located at least 6' from back of curb.

2) Neighborhoods Neighborhood groups may petition for speed humps and tables, traffic circles, roundabouts, or other measures to be installed at resident or township cost along residential plat streets with speed limits of 25 MPH or less. These traffic calming measures can be installed if a point system is met based on 85th percentile speed, cut-through traffic, traffic volume, crash history, proximity to schools and pedestrian generators, and the presence of sidewalks.

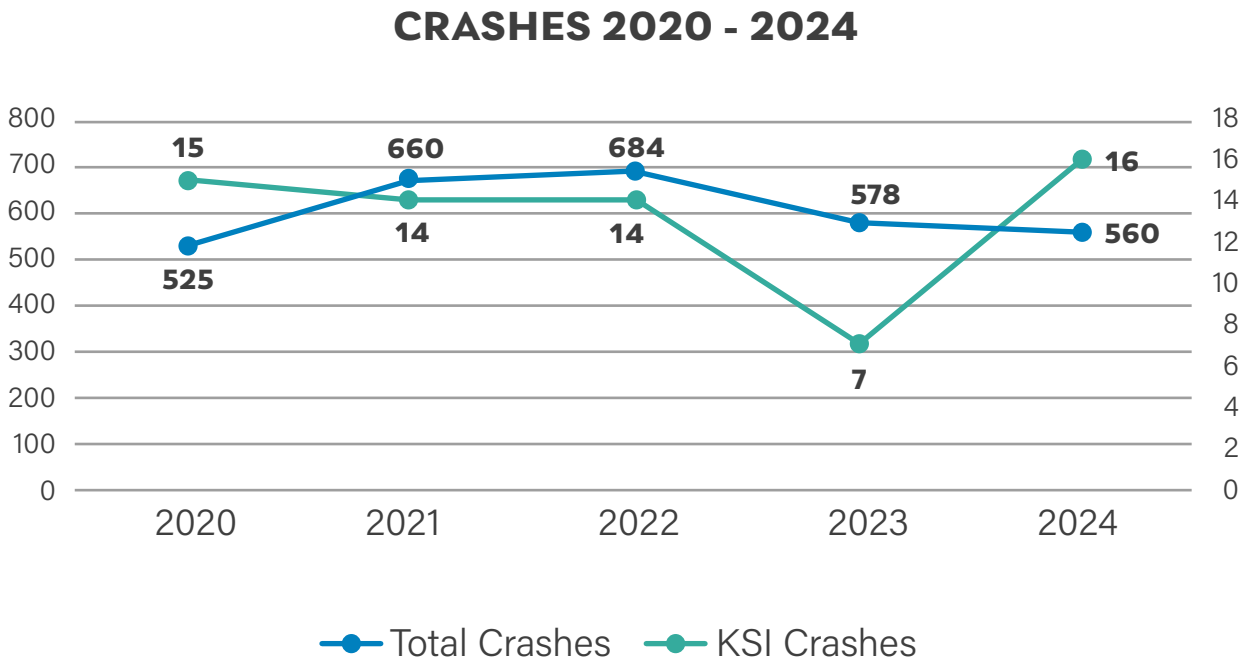
2.2

Crash History

Why do we say “crashes” instead of “accidents”?

Many, if not all, vehicle collisions are preventable. When cars first became abundant, automakers and other industry groups, like the National Automobile Chamber of Commerce, sought to dispel the notion that motor vehicles were dangerous killing machines and instead reframed incidents as “accidents”... making it sound as if the crash could not be avoided. However, we know that distracted, drunk, or impaired driving, excessive speed, poor street design, and other causes are avoidable. Osthemo leaders want to significantly reduce the number of crashes in their community.

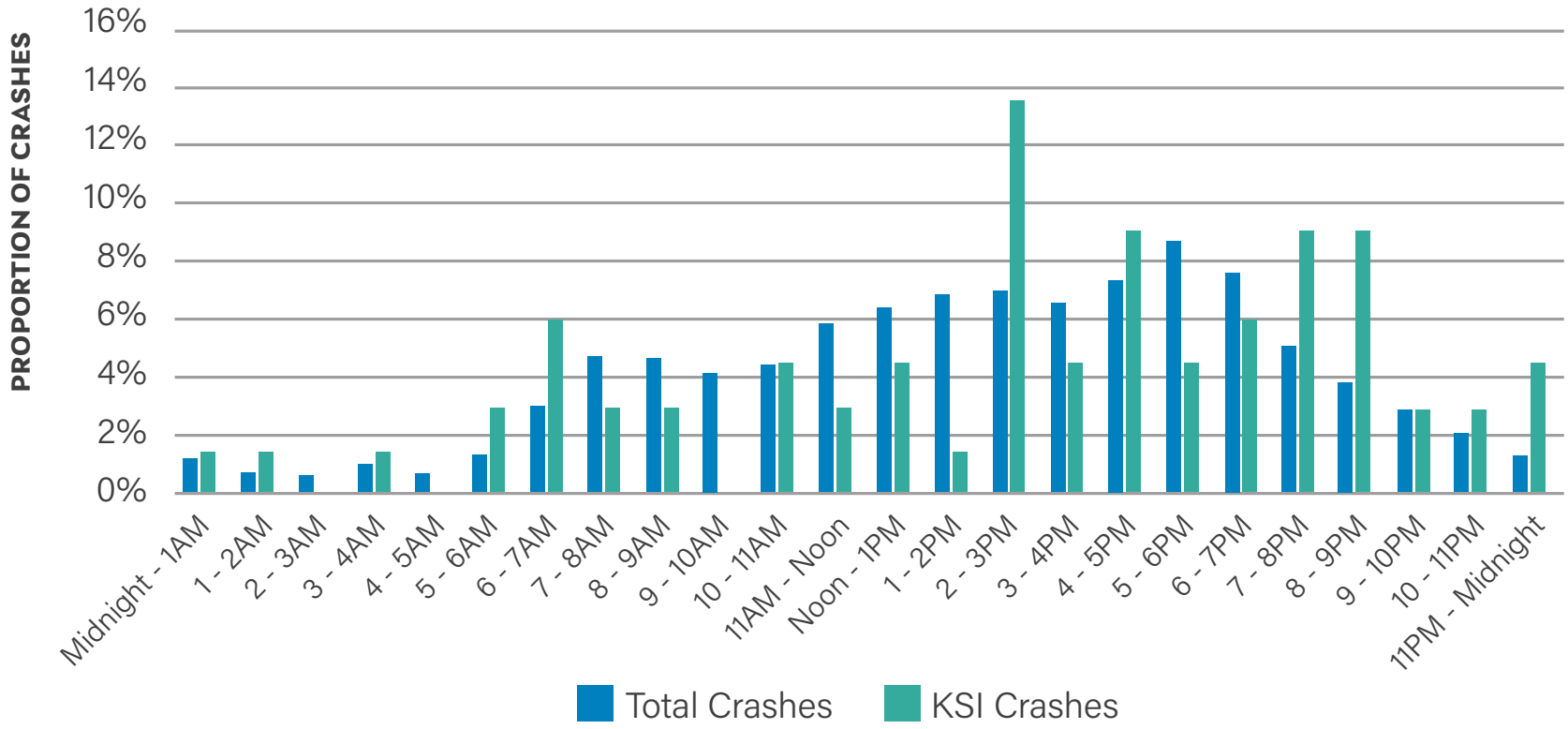
Between 2020 and 2024, just over 3,600 crashes occurred within Oshtemo Township. Of these, approximately 600 were along the US-131 trunkline – leaving 3,059 crashes that occurred on surface streets under state or road commission jurisdiction. Non-freeway crash frequencies have fluctuated over the past five years, with 525 occurring in 2020 during the COVID-19 pandemic, 660 in 2021, 684 in 2022, 578 in 2023, and 560 in 2024. Fluctuations in ***killed or serious injury (KSI)*** crashes were also noted across the same period, with a substantial decrease occurring in 2023, but an increase to the highest number of crashes in 2024. It is also noted that the number of total crashes is significantly lower in 2020, when traffic activity was lower during the COVID-19 pandemic, but the number of KSI crashes remained relatively consistent, mirroring nationwide trends. This is partially attributable to reductions in traffic volumes and congestion within the Oshtemo area, which, in turn, may have contributed to higher driver operating speeds and increased severity of crashes that did occur.

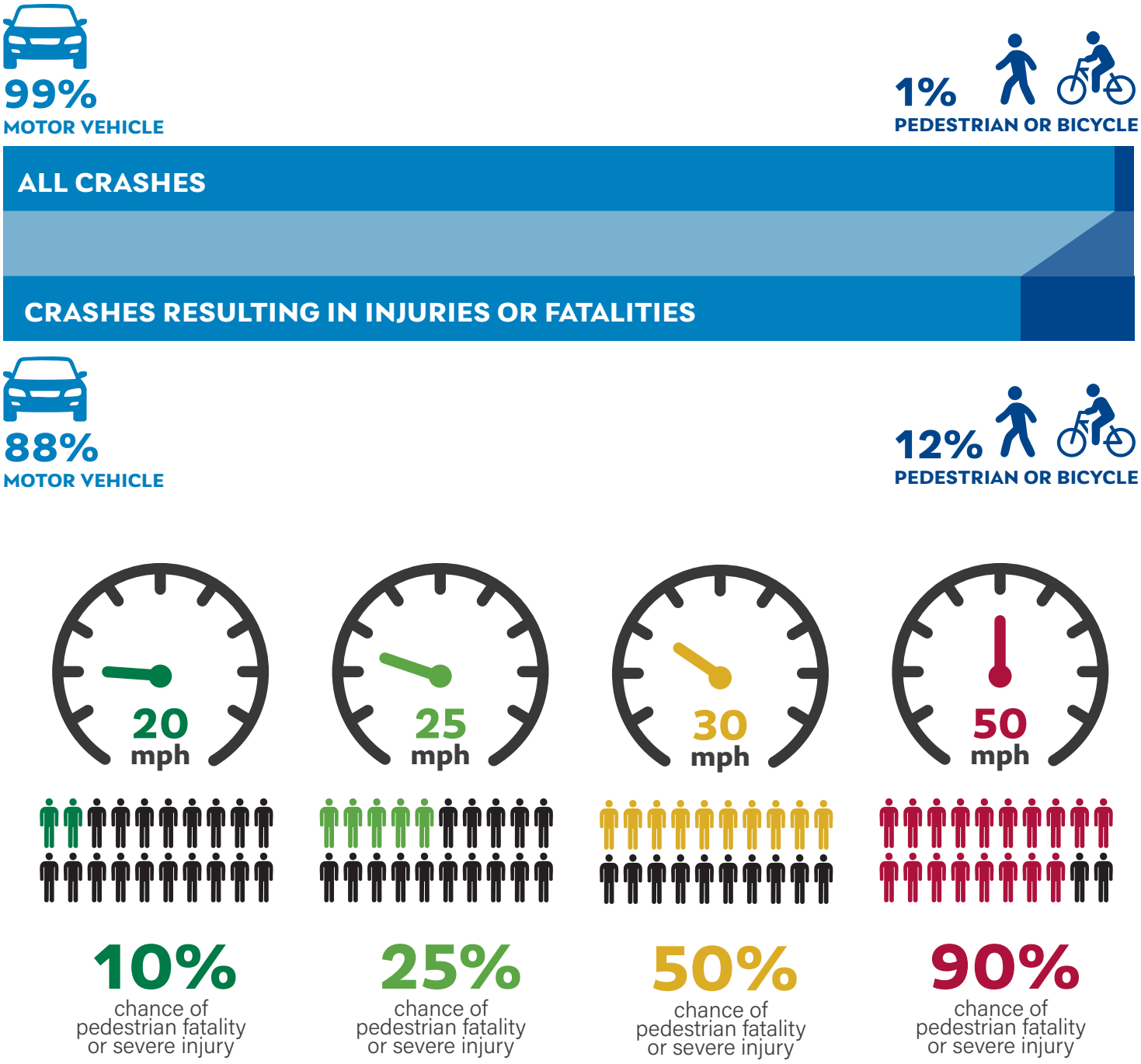


An analysis of crash time-of-day also revealed similar trends. KSI crashes were overrepresented during off-peak hours, when traffic volumes were lower and speeds were likely higher. 27% of KSI crashes occurred between 8 PM and 6 AM, compared to 17% of all crashes. In contrast, 38% of all crashes occurred during morning and afternoon peak hours (7 – 10 AM and 4 – 7 PM, respectively), compared to 26% of KSI crashes. Severe and fatal crashes were more likely to occur during time periods when traffic volumes and congestion were lower, which is partially attributed to increased operating speeds during periods of lower congestion.

Of the 3,059 crashes that occurred on non-freeway facilities within the township in the past five years, 54 crashes resulted in severe, or incapacitating, injuries, and 12 resulted in fatalities. Vulnerable road users (VRU), including people walking or bicycling, were also overrepresented in serious crashes. 12% of severe or fatal crashes involved a person walking or bicycling, despite being involved in just 1% of all crashes. 75% of crashes involving a vulnerable road user resulted in an injury, with only 17% of vehicle-only crashes resulting in injury.

CRASH SEVERITY BY TIME OF DAY



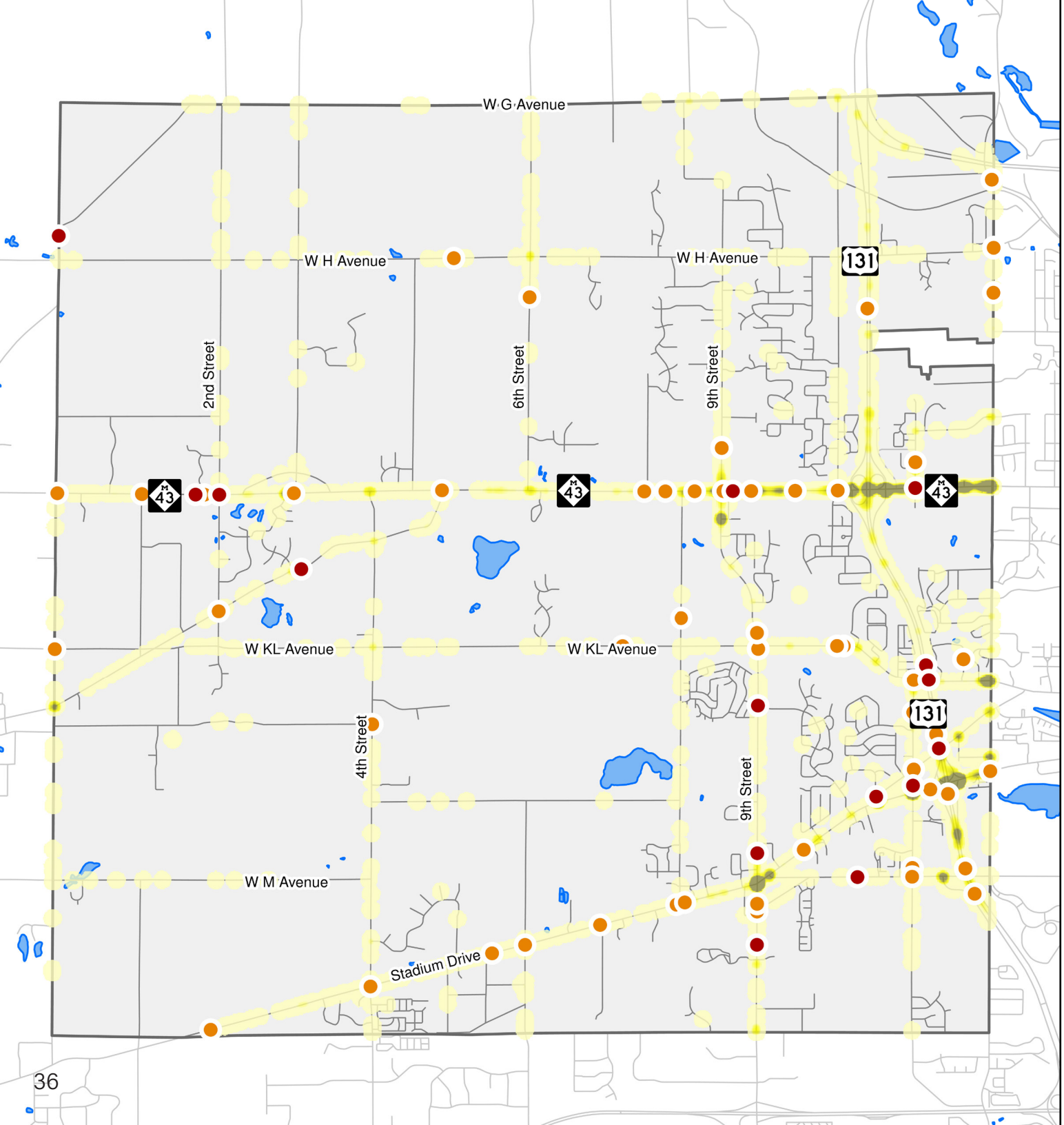


Vehicle Speed and Pedestrian Injuries: AAA Foundation for Traffic Safety

Rear-end crashes were the most prevalent crash type, with 919 (31%) crashes occurring during the last five years of available data. Single motor vehicle crashes were the next most frequent, with 815 (27%) crashes, followed by angle crashes, with 515 (17%). However, rear-end crashes were less likely to result in fatalities or serious injuries, with 10 (15%) rear-end KSI crashes. Angle crashes and head-on, left-turn crashes were significantly overrepresented in KSI outcomes. Angle and head-on, left-turn crashes comprised 36% of all KSI crashes, compared to 21% of all crashes. Each of the KSI crashes involving a person walking or bicycling was a single motor vehicle, in which a driver struck a pedestrian or bicyclist either within the roadway or along the sidewalk or non-motorized path.

Crash locations are shown on the following page. Crashes are largely concentrated along arterial routes, including West Main Street, Stadium Drive, and 9th Street. Crash concentrations along these routes are attributable to several factors, including relatively high traffic volumes and speeds, proximity and access provision to adjacent destinations, utilization of the facility by drivers, pedestrians, and bicyclists, and street design elements such as lane widths and sight distances.

CRASH TYPE	NUMBER OF CRASHES	NUMBER OF KSI CRASHES	NUMBER OF VRU KSI CRASHES
Rear-End	919	10	0
Single Motor Vehicle	815	21	8
Angle	515	18	0
Sideswipe - Same Direction	315	2	0
Other	125	2	0
Head-On - Left-Turn	118	6	0
Sideswipe - Opposite Directions	59	2	0
Head-On	36	4	0
Rear-End - Left-Turn	33	0	0
Rear-End - Right Turn	27	0	0
Backing	25	0	0
Unknown	20	0	0



MAP 2.2

2020-2024 Traffic Crashes

Oshtemo Township

LEGEND

- Fatal Injuries (K)
- Serious Injuries (A)
- All Crashes

0 0.5 1 Miles

N

Data Source: Oshtemo Township, 2024. Michigan Geographic Data Library, 2024. Progressive Companies, 2026.

All crashes, severe injury crashes, and fatal crashes have occurred at greater frequency and at higher rates on urban arterial roadways than any other type of facility within Oshtemo Township. Controlling for both traffic volumes and distance, ***severe and fatal crashes are over 20 times more likely to occur on principal and minor arterial roads, such as West Main Street, than on US-131.***

The total number of crashes and the associated crash rate for each type of roadway classification in Oshtemo Township is shown below.

NFC CLASSIFICATION	TOTAL NUMBER OF CRASHES	TOTAL NUMBER OF KSI CRASHES	AVERAGE CRASH RATE [7]	AVERAGE KSI CRASH RATE [8]
Freeway	600	9	31	0.46
Principal Arterial	1,188	16	409.6	5.52
Minor Arterial	832	25	186.6	5.61
Major Collector	347	8	82.8	1.91
Local and Private	40	8	9.73	1.95

[7] *Total number of crashes per 100 million vehicle-miles traveled*
[8] *Total number of severe injury and fatal crashes per 100 million vehicle-miles traveled*

2.3

High-Injury Network

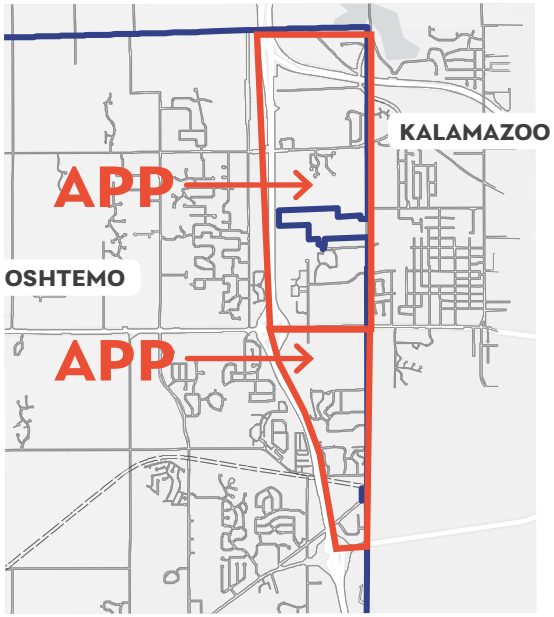
Further analysis was conducted in order to develop a high-injury network (HIN) – a key component of Safe Streets for All (SS4A) Safety Action Plans.

A high-injury network is a geolocated network of street and roadway segments and intersections with ***higher killed or seriously injured (KSI) crash risks*** relative to the overall transportation system. In order to develop the segment HIN, historical crash data was paired with high-risk roadway characteristics. Crashes were geolocated in ArcGIS software and assigned to a roadway segment. KSI crash rates were then calculated for each roadway segment, normalizing crash outcomes by accounting for variations in traffic volumes and segment lengths. Scores were then assigned to each roadway segment according to the following parameters:

- 1 point for segments with a KSI crash rate between 0 and 5
- 2 points for segments with a KSI crash rate between 5 and 10
- 3 points for segments with a KSI crash rate between 10 and 15
- 4 points for segments with a KSI crash rate between 15 and 20
- 5 points for segments with a KSI crash rate greater than 20

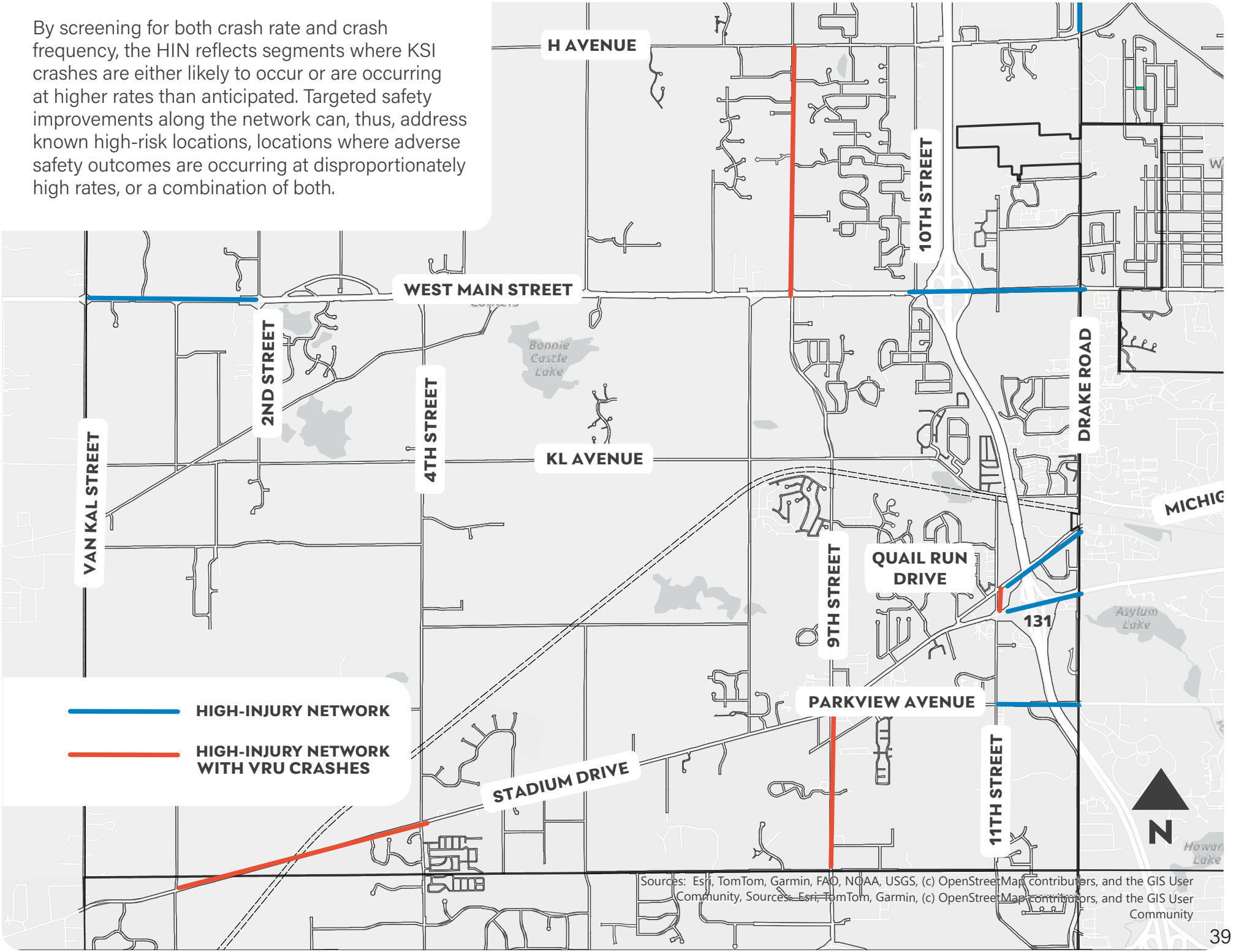
In order to mitigate the effects of outlier crashes on shorter street segments with lower traffic volumes, additional points were assigned to roadway segments with higher frequencies of KSI crashes.

- One point was assigned to each segment for each KSI crash experienced.
- Two additional points were assigned for KSI crashes that involved a person walking or bicycling.
- Finally, a 2X multiplier was assigned to segments located within an Area of Persistent Poverty **(APP)** as defined by the United Stated Department of Transportation (USDOT).[9] An equity screening indicates that two census tracts within Oshtemo Township are currently designated as an APP as of September 2025.



[9] *https://maps.dot.gov/BTSGrantProjectLocationVerification/*

By screening for both crash rate and crash frequency, the HIN reflects segments where KSI crashes are either likely to occur or are occurring at higher rates than anticipated. Targeted safety improvements along the network can, thus, address known high-risk locations, locations where adverse safety outcomes are occurring at disproportionately high rates, or a combination of both.



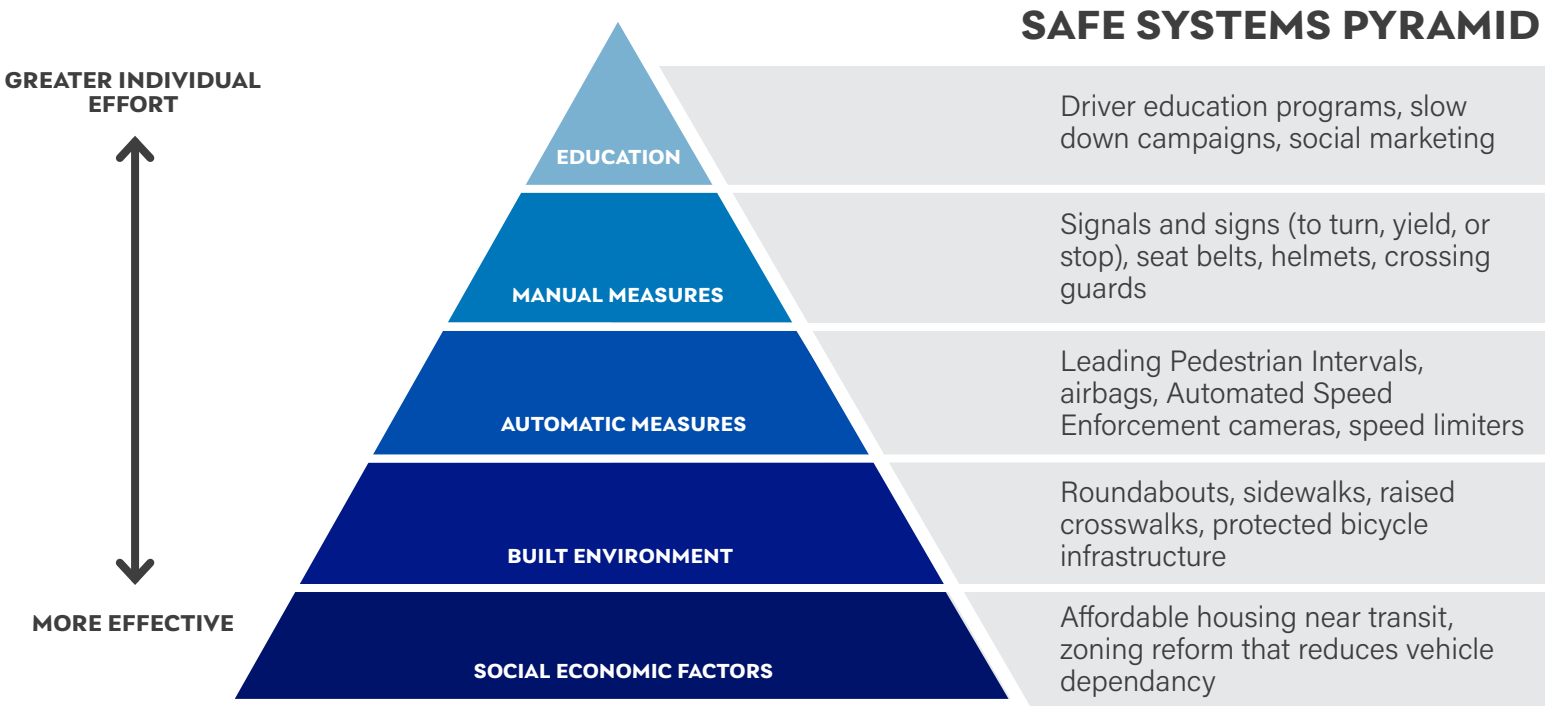
HIGH-INJURY NETWORK (HIN), 2020 - 2024 CRASH DATA

SEGMENT	FROM	TO	NUMBER OF KSI CRASHES	KSI VRU CRASHES	SCORE
9th Street	H Avenue	West Main Street	2	2	18
Drake Road	Ravine Road	H Avenue	3	0	16
M-43 (Main Street)	10th Street	Drake Road	5	0	14
Parkview Avenue	11th Street	Drake Road	1	0	10
9th Street	Stadium Drive	N Avenue	3	1	10
Stadium Drive	11th Street	Drake Road	2	0	9
Stadium Drive	N Avenue	4th Street	2	1	8
11th Street	Michigan Avenue	Stadium Drive	1	1	8
West Main Street	Van Kal Street	2nd Street	4	0	8
Michigan Avenue	11th Street	Drake Road	1	0	8

Modifications to street design are one key strategy to reduce or eliminate fatal or severe injury crashes, in accordance with RCKC's goal of meeting Vision Zero by 2050. Managing conflict points between drivers and vulnerable road users, aligning vehicular operating speeds with desired target speeds, connecting the existing non-motorized network, and enhancing street crossings are each critical design components that serve to improve transportation safety outcomes over time.

However, it is also important to recognize and understand the importance of land use and social factors in transportation safety. Lower-density residential and commercial development connected by a hierarchical network of collectors and arterials encourages greater rates of private vehicle usage, increases the distance needed to travel, and maximizes exposure to high-speed, high-volume arterials that exhibit worse safety outcomes relative to traffic volumes than other road types.

Improving safety outcomes is, therefore, not only a function of safer geometric design, innovative vehicle technologies, or broad educational campaigns, but also ***exposure – or how long and how far one must travel*** - to the transportation network, whether driving, walking, bicycling, or using transit. Land use reforms that encourage compact development minimize the actual distance needed to travel to access a variety of destinations. Reducing the number of miles a person needs to drive, or the number of intersections they need to cross, will inherently improve safety outcomes by reducing the frequency of potential conflicts the person will encounter.



In order to better illustrate the safety improvements realized by reducing both the distance needed to access a destination and the types of routes that may be utilized, the following hypothetical scenario is provided.

Every day, approximately 1,500 customers travel to Meijer at the intersection of Main Street and 9th Street to purchase groceries, supplies, and other essential items. The average customer travels 10 miles from their residence or other origin to Meijer. It is assumed that a negligible number of customers walk, bicycle, or use transit to access the store and that the average vehicle occupancy rate is 1.5 persons. This equates to 30,000 round-trip vehicle-miles traveled per day, or 10,950,000 vehicle-miles traveled per year. Of these annual vehicle miles, it is assumed that 70% are along principal or minor arterials, 10% are along major collectors, and the remaining 20% are along local or private streets. Using the calculated crash rate per functional classification calculated, this distance traveled would result in approximately 19 crashes per year. Severe or fatal crashes involving a person traveling to Meijer would be anticipated to occur once every two years.

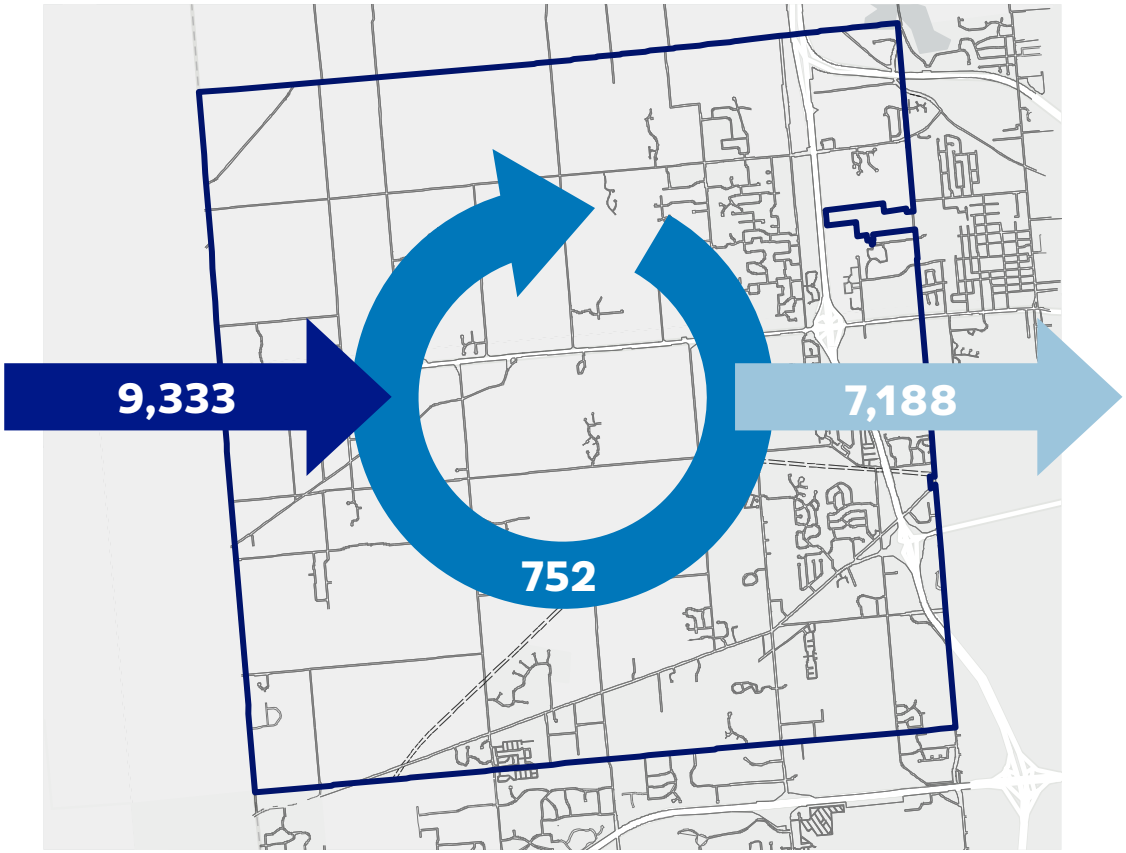
Now assume that the number of customers remains the same, but the average distance traveled is reduced to five miles through an increase in residential development in the vicinity of the commercial corridor that is coupled with improved connectivity through existing and future neighborhoods. It can also be assumed that an increase in network connectivity results in the average driver being able to use local and private streets for 40% of their trip, major collectors for 20% of their trip, and arterial corridors for 40% of their trip. In order to maintain consistency, it is again assumed that each customer accesses the store by vehicle, although this development scenario will likely encourage a higher number of trips completed on foot, bicycle, or by transit, which would likely affect safety outcomes in the absence of further infrastructure improvements. Under this scenario, this reduced distance traveled to access Meijer would result in approximately seven crashes per year, with severe or fatal crashes anticipated to occur once every seven years.

2.4

Mobility Patterns

Oshtemo Township is primarily a bedroom community for the Kalamazoo region. Significant numbers of workers exit and enter the township to and from destinations outside of its limits.

Approximately 9,000 workers enter Oshtemo Township from other places, with approximately 8,900 Oshtemo residents exiting to go to their place of employment. Just 760 people both live and work in Oshtemo Township, representing only 8% of employee inflows and outflows.[10]

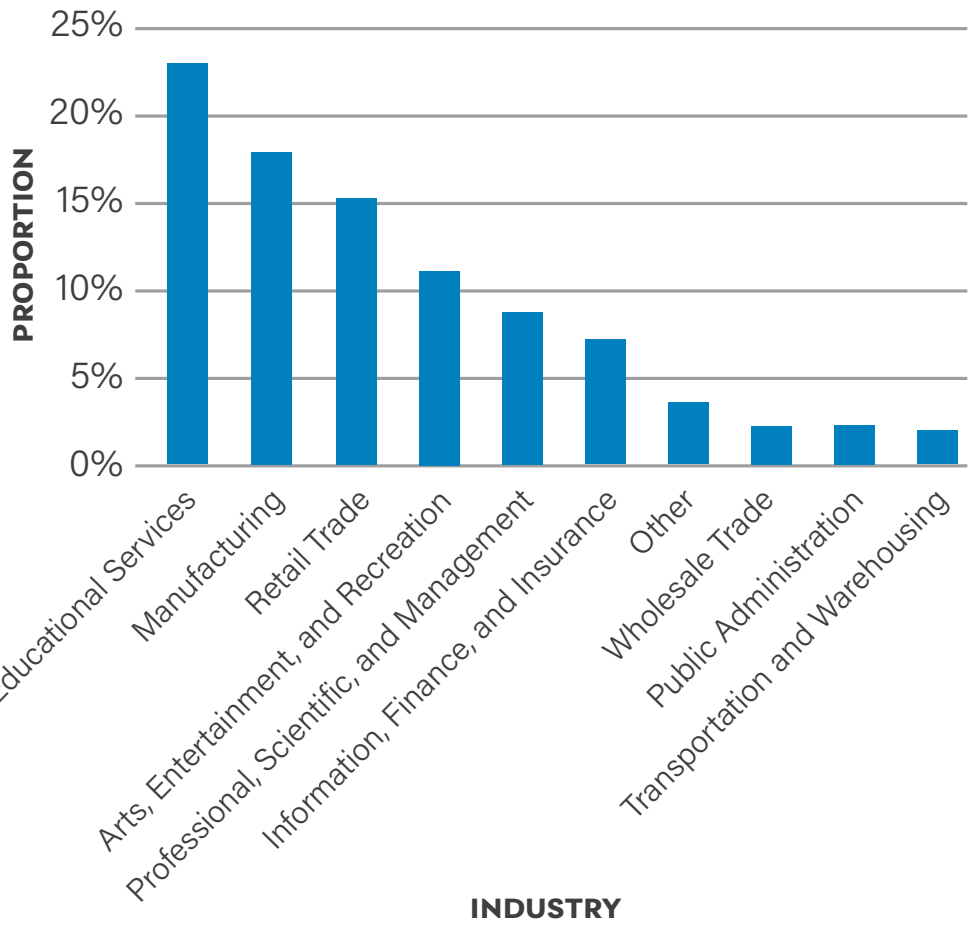


Source: American Community Survey, 2021

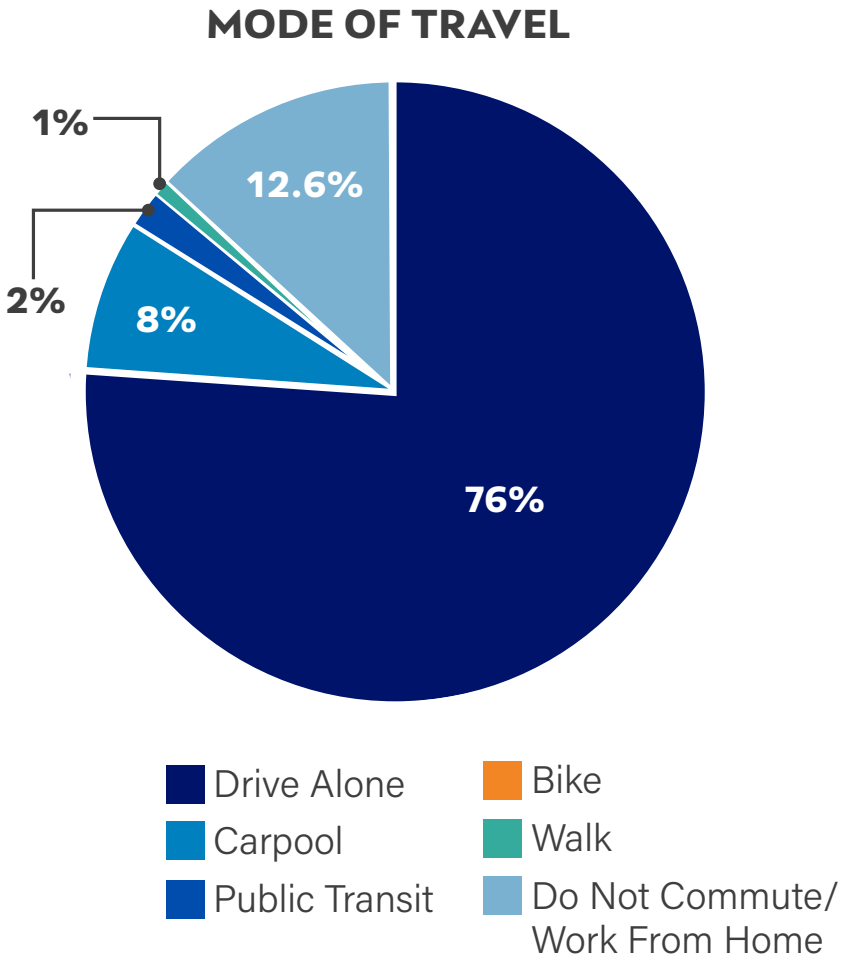
Mobility patterns within Oshtemo Township and the wider region are dictated primarily by east-west movements between residential locations, commercial destinations along Drake Road such as Costco and Trader Joe's, and employment destinations in Kalamazoo, particularly Western Michigan University.

[10] *https://onthemap.ces.census.gov/*

Approximately 23% of the workforce population in Oshtemo Township serves the educational services sector – the highest proportion of workers.



Per the 2023 American Community Survey (ACS), approximately 11,000 workers aged 16 years and over reside in Oshtemo Township. Of these, approximately 76% use a single-occupant vehicle as their primary means of commuting to work, with 13% working from home, 8% carpooling, and 2% using public transportation.[11] These values align with county-wide and state-wide averages.

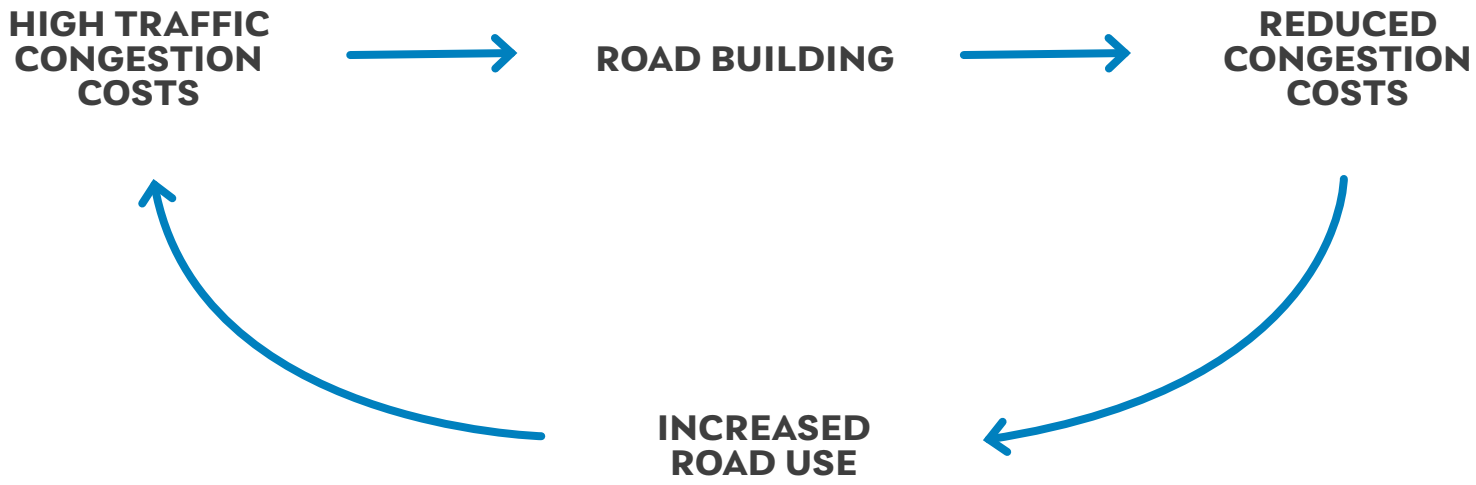


[11] *https://data.census.gov/table/ACSST5Y2023.S0802?q=commuting+in+oshtemo+township*

Non-motorized commuting options, such as walking and biking, are underutilized or inaccessible. Only 1% of residents walk and there are no self-reported bicycle commutes. Community members have reported barriers to using non-motorized transportation, whether due to gaps in infrastructure, safety concerns, or the distance between residential areas and workplaces.

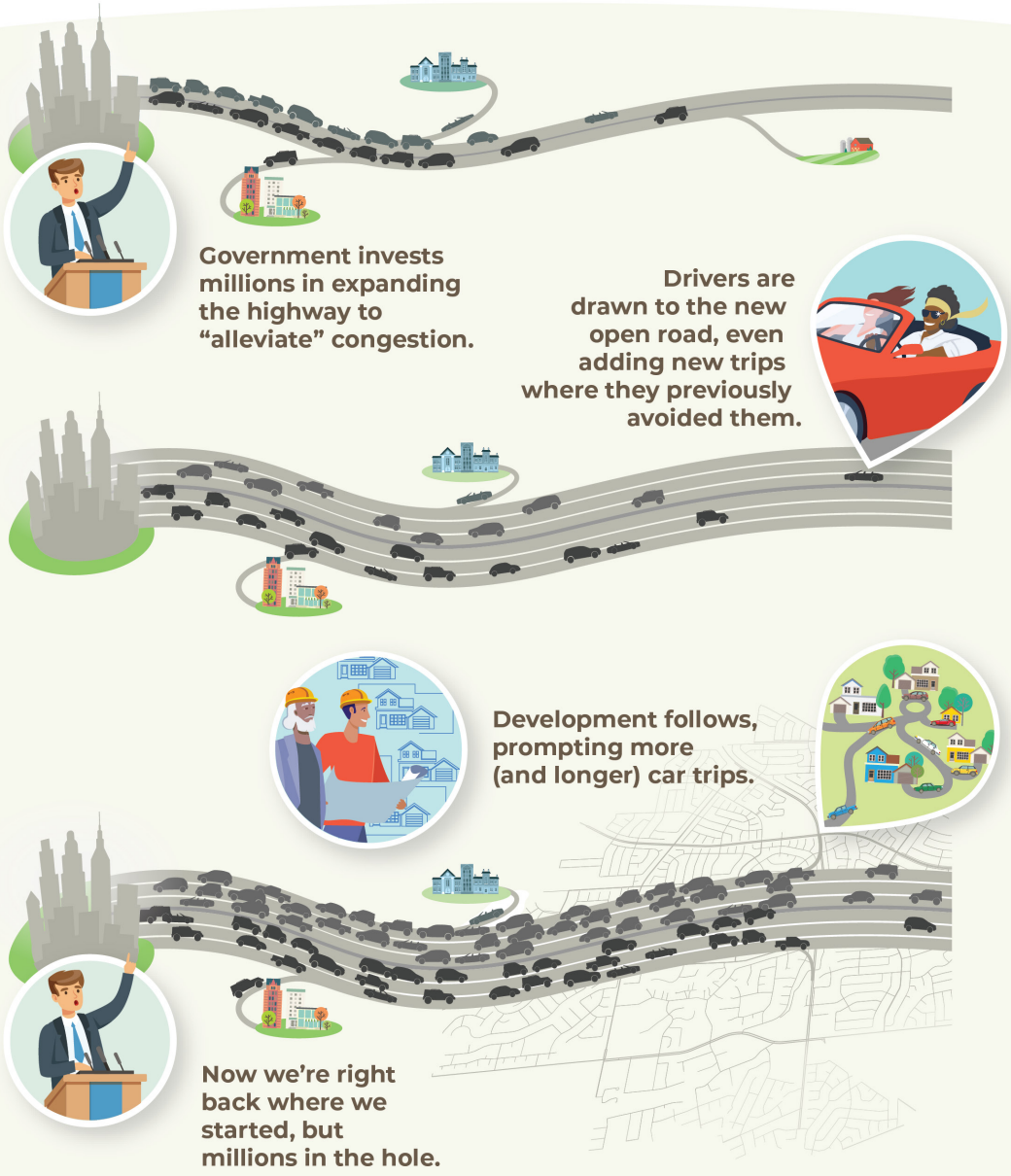
The average travel time to work was just over 20 minutes, with 10% traveling less than 10 minutes and 5% traveling more than an hour.

As Oshtemo Township grows, mobility-related challenges will increase. For example, MDOT is currently widening West Main Street by the Maple Hill Pavilion Mall to the US-131 interchange. However, increasing the street's capacity for vehicles to align with increased demand makes it more difficult for any other road user (pedestrian, cyclist, transit rider) to cross the street and safely move throughout the corridor. Street widening also creates a counterintuitive effect - it increases the number of vehicles on the road over time in a cycle called "the law of induced demand".



Induced demand

How highway expansion actually creates more traffic



With induced demand, drivers are attracted to the road because it is easy to get around and there is available space and it takes less time. As more vehicles use up the "extra" space created by the new travel lane, eventually congestion-related issues return, creating a vicious cycle of continued congestion, dampened opportunities for economic growth, increased exposure for vulnerable road users (who will then choose to drive if they can), and more taxpayer investment to address road congestion. In order to break the cycle, other modes of transportation must play a critical role in Oshtemo's future to provide additional capacity in the transportation system and a more balanced set of mobility choices to serve all people in the township and region.

2.5

Transit Access

The Metro provides existing fixed-route service within the region, with Routes 3, 11, 14, and 16 serving regional connector routes in Oshtemo Township. It serves routes such as West Main Street, Stadium Drive, 9th Street, and Drake Road.

Routes 11, 14, and 16 operate with 30-minute headways on weekdays and 60-minute headways on weekends, with Route 3 operating with 60-minute headways at all times. Each of the four routes is underutilized within Oshtemo relative to the rest of the route, with minimal boarding and alighting activity compared to the Kalamazoo area.

Route 3 (West Michigan) This route connects the Western Michigan University campus to the various apartment complexes and commercial shopping centers along Drake Road. This route features a daily weekday ridership of roughly 260 riders, making it the transit route with the lowest average ridership in Oshtemo Township.

Route 11 (Stadium/KVCC) This route connects downtown Kalamazoo to the Kalamazoo Valley Community College campus in Texas Township via Stadium Drive. This route features a daily weekday ridership of roughly 600 riders. Many riders use this route to access industrial businesses along 9th Street, businesses and offices around Stadium Drive and 11th Street, and the commercial shopping center at Drake Road and Stadium Drive.

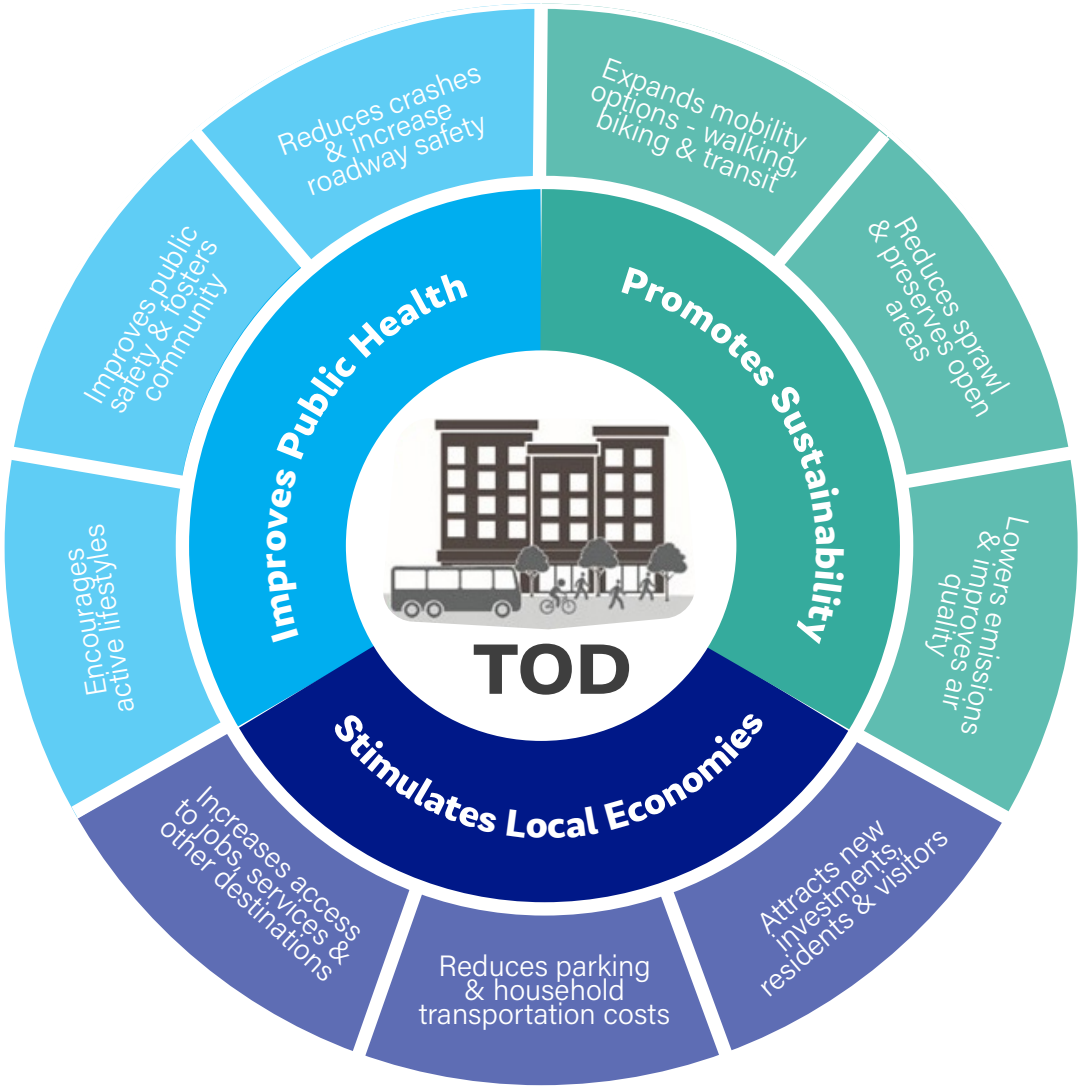
Route 14 (West Main) This route connects downtown Kalamazoo to Oshtemo Township Hall and library branch via West Main (M-43). This route features a daily weekday ridership of roughly 600 riders. Many riders use this route to access the commercial shopping centers concentrated along West Main Street and Drake Road.

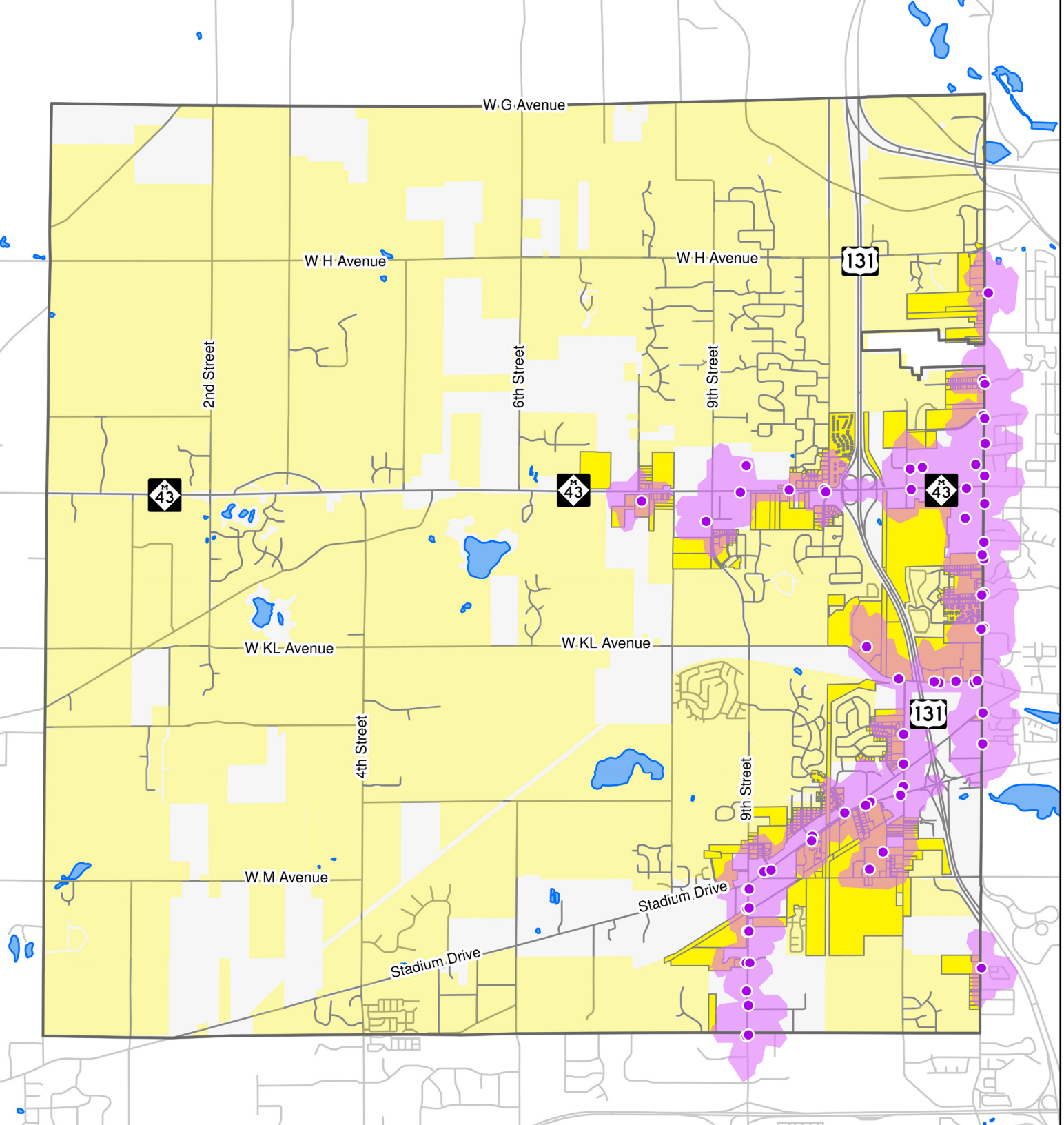
Route 16 (Lovell) This route connects downtown Kalamazoo to the Western Michigan University campus and numerous apartment complexes located along KL Avenue. This route features a daily weekday ridership of roughly 1,000 riders, making it the transit route with the highest ridership in Oshtemo Township. This is largely attributed to the many apartment complexes the route services along with its direct connection to Western Michigan University, making it a convenient route for students and university employees.

Low-density development, dispersed employment and destination locations, transit frequencies, and public perceptions of safety and comfort have posed an ongoing challenge to having robust transit operations within the township. However, there are opportunities under existing and planned future conditions to facilitate the viable use of transit in the eastern portion of the township.

Just under 10% of all residential parcels within the township are within a 1/4 mile, or a 10-minute walk, of an existing fixed-route transit stop. These routes provide access to the West Main commercial corridor and the broader Kalamazoo region. The 2045 Comprehensive Plan encourages mixed-use development in the Regional Corridor and Neighborhood Mixed-Use Place Types, and a range of housing choices and densities in the Neighborhood Residential Place Type. These land use strategies allow the opportunity to increase the amount of residential development and jobs in the vicinity of the fixed-route transit system; providing both additional "heads in beds" to increase the number of potential transit riders as well as development to attract people to the area.

Compact, mixed-use development integrated with transit is called ***Transit-Oriented Development*** (TOD). This approach makes better use of public resources because it optimizes existing infrastructure and land into a development pattern that is self-sustaining fiscally for the community and individuals, improves public health, and promotes the preservation of green space, better air quality, and safer streets.





MAP 2.3

Residential Parcels Within Quarter-Mile Walk of a Transit Stop

Oshtemo Township

LEGEND

- Transit Stops
- Quarter-Mile Transit Stop Walk Radius
- Residential Parcels Within Quarter-Mile of Transit Stop
- All Residential Parcels

Total Residential Parcels = 17,749.6 Acres

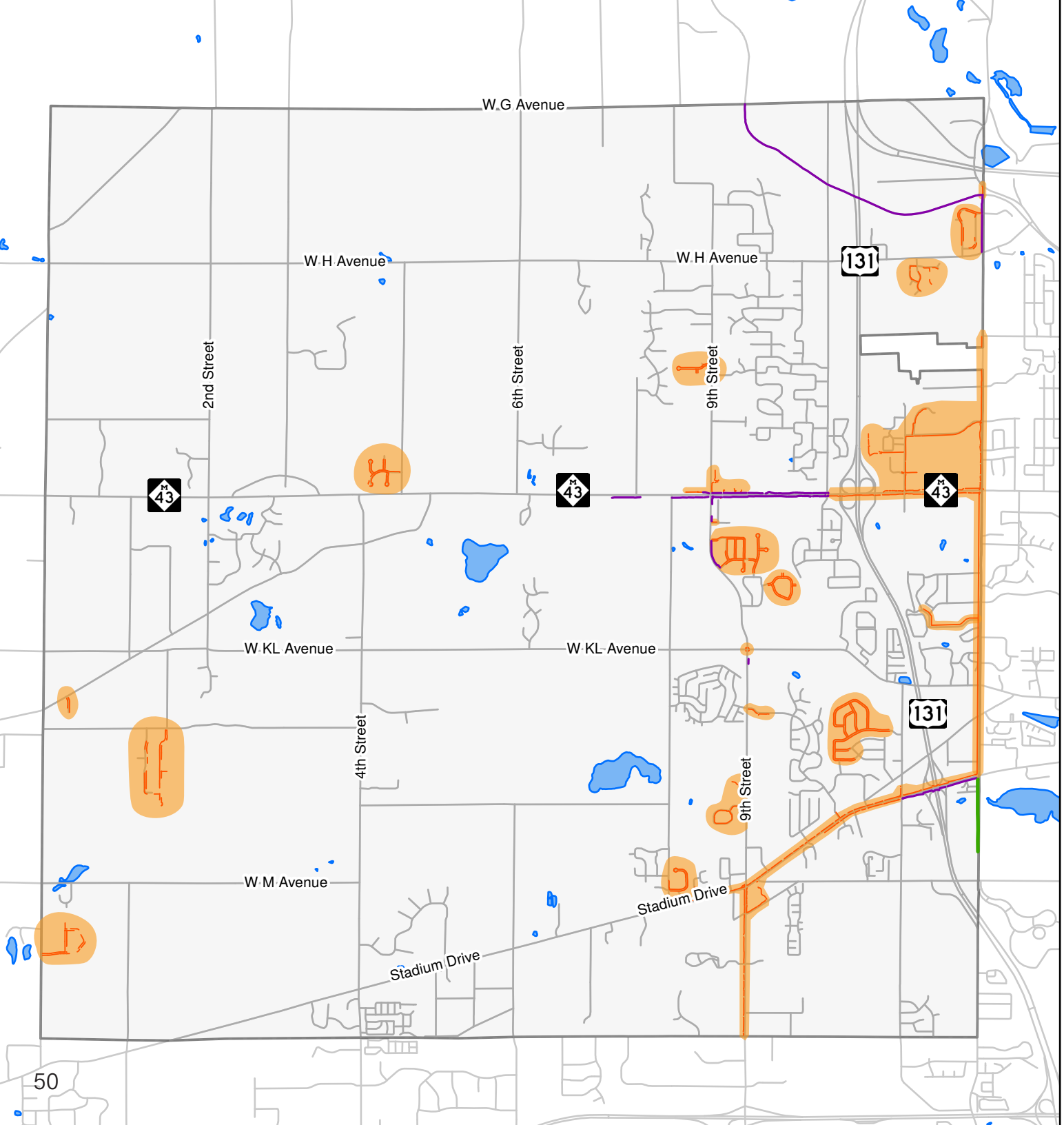
Residential Parcels Within Quarter-Mile Walk of Transit Stop = 1,528.1 Acres

8.6% of Residential Parcels in Oshtemo Township are within a Quarter-Mile of a Transit Stop

N

0 0.5 1 Miles

Data Source: Oshtemo Township, 2024. Michigan Geographic Data Library, 2024. Progressive Companies, 2024.



MAP 2.4

Existing Non-Motorized Network

Oshtemo Township

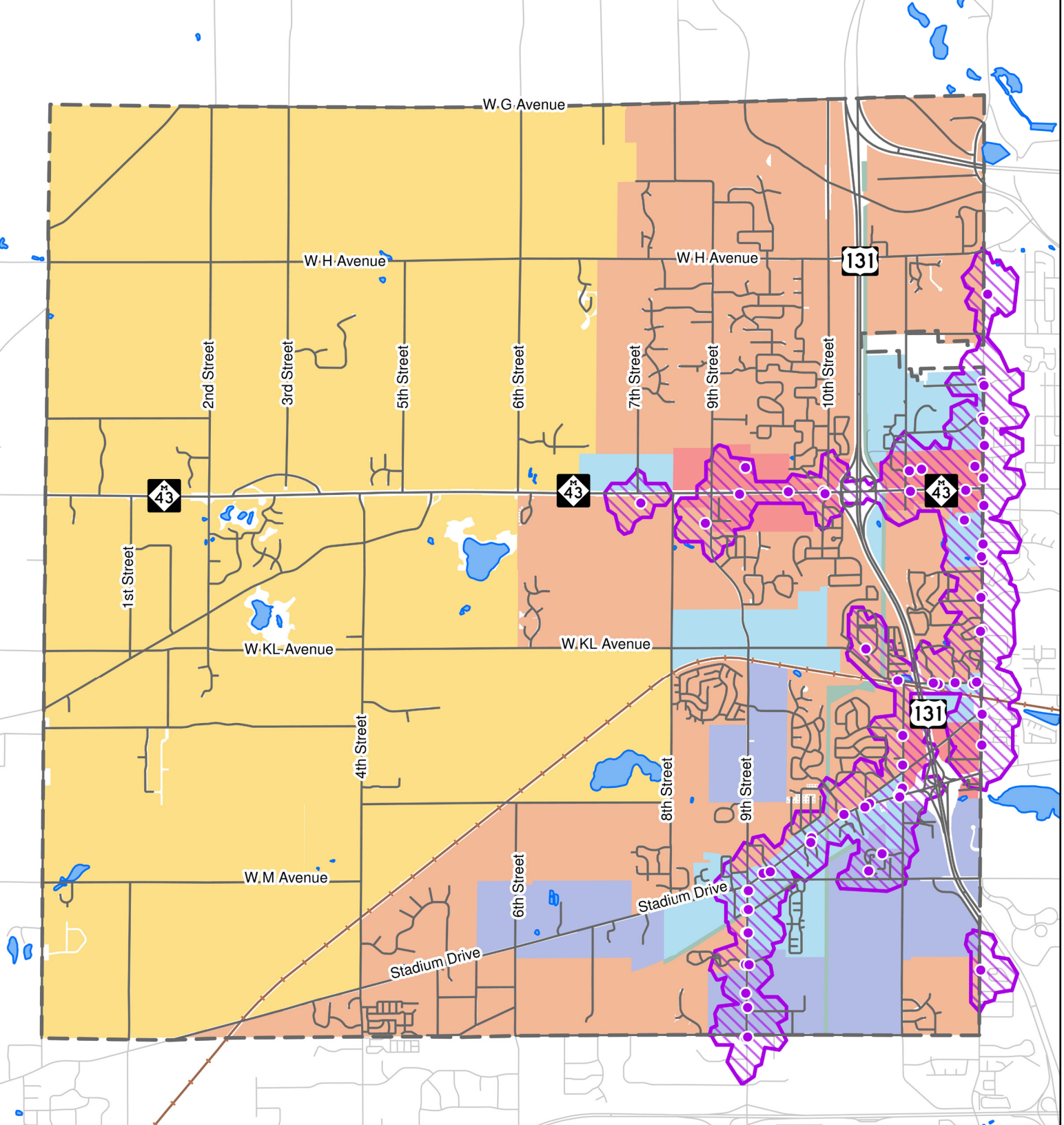
LEGEND

- Sidewalk
- Separated Sidepath + Non-Motorized Pathway
- On-Street Bicycle Lane
- Sidewalk Areas

N

0 0.5 1 Miles

Data Source: Oshtemo Township, 2024. Michigan Geographic Data Library, 2024. Progressive Companies, 2025.



MAP 2.5

Place Types + Transit Stops

Oshtemo Township

LEGEND

- Transit Stops
- Quarter-Mile Transit Stop Walk Radius

Place Types

- Regional Corridors
- Neighborhood Mixed Use
- Neighborhood Residential
- Countryside Residential
- Innovation and Industry
- Parks & Preservation

0 0.5 1 Miles

N

Data Source: Oshtemo Township, 2024. Michigan Geographic Data Library, 2024. Progressive Companies, 2025.

2.6

Non-Motorized Network

Oshtemo Township and RCKC have been working to expand and connect the pedestrian and bicycle network throughout the township. Over 12 miles of sidewalk network, 4 miles of 10' – 12' shared-use pathways, , approximately 50 crosswalks, and 18 miles of wide paved shoulders provide some access to and from local destinations for those outside of a vehicle.

Crosswalks are largely provided across principal arterials, but are absent from much of the remaining street network. Most streets lack a complete sidewalk on both sides and sidewalks often terminate at a development's limits.

The ability to walk and bicycle in the township is significantly affected by the following major corridors: US-131, West Main Street, Stadium Drive, and 9th Street. The highest need for vulnerable road users in Oshtemo is to safely cross these corridors with appropriate non-motorized facilities. These corridors and their intersections serve as significant barriers for pedestrians and cyclists because of the following:

- Travel speeds of moving vehicles typically exceed 50 mph;
- Crossing distances exceed 80 feet or more to get to the side of the street[12];
- There are no protected areas, such as median islands, separated lanes, or other interventions designed to provide additional space;
- Lanes that encourage continuous flow, such as right-hand turn lanes and long tapers, reduce the visibility of pedestrians and cyclists;
- Spacing between controlled crossings is upwards of 1,500 feet, which precludes direct access to destinations; and
- Few signalized intersections provide very few crossing locations, generally.

[12] *The crossing distance at the intersection of W Main St and N 9th Street is 100'; and at Stadium Drive/S 9th Street and West Main St/Drake it is 90'.*

There is one mile of connected, continuous shared-use pathway in Oshtemo, which allows bicyclists to travel along West Main Street between 8th Street and 10th Street, on a separated route for approximately five minutes.[13] This West Main corridor is a wide, fast-moving street. Clearly, pedestrians and cyclists should not be traveling directly along the side of the road, but the implementation requirement of being one foot off the public ROW also creates significant implementation challenges in terms of cost, appearance, and practicality with driveway crossings.

The shared-use paths serve to provide separated facilities for bicyclists; there are no on-street bicycle facilities in the township. The Kal-Haven Trail is located in the northeastern portion of the township, providing a regional connection to Kalamazoo and South Haven. As part of the Go! Green Oshtemo Plan, the community envisioned expanding greenways and trail connections to link active and passive recreation areas and improving accessibility by incorporating universal design principles to accommodate people of all ages and abilities.

[13] *Assuming an average cycling speed of 15 miles per hour*

The 2025 Community Survey Says:

A community survey asked Oshtemo residents what was important to them. More than 700 people reported they would like to see more of the following:

73% of survey respondents value trail systems and paths connecting parks and residential areas

69% of survey respondents value tree-lined streets

3

BUILDING A SAFE, RESILIENT NETWORK

Safety, connectivity, and accessibility are vital for all roadway users, especially pedestrians and bicyclists.
The future of transportation in Oshtemo is aligned with the Safe System Approach, a human-centered philosophy embraced by the Federal Highway Administration and MDOT to work towards the goal of zero deaths and serious injuries for all road users. The approach is based on five key areas:

1. Safer People: Enhancing education and awareness about road safety.

2. Safer Roads: Improving infrastructure to protect all road users, including pedestrians and cyclists.

3. Safer Vehicles: Promoting the use of advanced vehicle technologies.

4. Safer Speeds: Implementing measures to manage vehicle speeds effectively.

5. Post-Crash Care: Improving emergency response and care for crash victims.

A sixth area, recognized by the State of Washington's Department of Transportation (WDOT) and Speed Management Cooperative (SMAC) [14] is:

6. Safer Land Use: Reducing exposure to crashes by shortening distances between where people live, learn, work, and play so that a vehicle does not have to be the default option for transportation and so that non-drivers have safe access to their destinations.

[14] *In January 2024, the Speed Management Cooperative (SMAC) was established to develop policies, recommendations, and a statewide speed management plan. SMAC is the first State Highway Safety Office and Department of Transportation in the US to add a safe land-use policy to their Safe System Approach.*

The addition of Land Use to the Safe System Approach reinforces the interrelatedness of transportation and land use and seamlessly comports with Oshtemo's efforts to simultaneously align its 2045 Comprehensive Plan and Master Streets Plan. How Oshtemo grows and what types of infrastructure investments occur come with a set of choices that elected and appointed township officials, township staff, and other public entities, such as RCKC, can make - providing the opportunity to proactively decide upon a different, more resilient future for Oshtemo.

3.1

Buildout Scenarios with Infrastructure & Development

To better inform Place Type boundaries, which in turn informed recommended Street Typologies (Chapter 4), several development scenarios were modeled to understand the fiscal sustainability of infrastructure costs and the amount of land that could be potentially developed over time.

Residential lot sizes served as the common unit of measurement to understand housing yield. It is important to examine how the number of dwelling units per acre (based on required lot size) will influence the amount of infrastructure required to support future development and the amount of land required.

Infrastructure The Township can provide reasonable estimations and quantitative evaluation for system-wide costs of water, sanitary, and roadway infrastructure to determine the appropriate long-term taxpayer commitment necessary to provide for adequate maintenance and replacement.

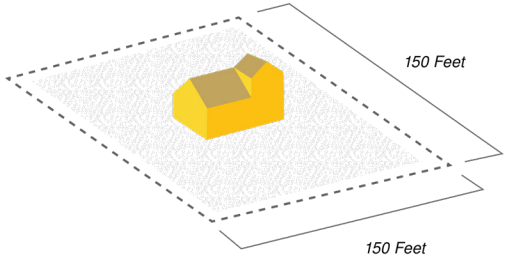
Land Understanding the amount of land that could be consumed, depending on required lot sizes by various housing types, can assist in weighing whether Oshtemo Township desires portions of the township to have large or small lot sizes, what types of housing, and how greenspace will be allocated.

Modeled housing densities ranged from half-acre lots (22,000 square feet) to compact traditional neighborhood development lots (3,000 square feet). The "Status Quo" scenario was based on Oshtemo's current zoning requirements.

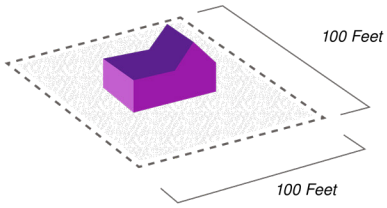
DEVELOPMENT SCENARIOS - INFRASTRUCTURE

Each neighborhood started off with a curbed, 26 feet paved roadway, sidewalk, water, and sewer. Future maintenance obligations were then measured against property tax capture over a 30-year period to provide an indication of how each development pattern 'pays for itself.' In an ideal scenario, the township would receive sufficient property tax revenue over time to fund the cost of replacing road, curb, sidewalk, water, and sewer infrastructure at the end of its useful life. Development patterns that require extensive infrastructure, but do not generate sufficient revenue to fund their eventual replacement, will constrain the Township's future capital programming (meaning that larger increases in tax dollars will be required to cover the cost)[15].

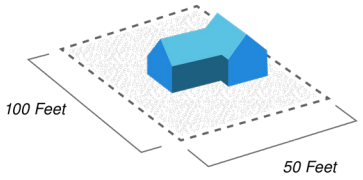
[15] *The four development scenarios account for variations in property value across different lot sizes. For purposes of this analysis, it is assumed that township, roads, and county operating millages can be utilized for future maintenance obligations (although this is likely a conservative approach).*



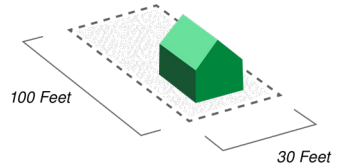
SUBURBAN STATUS QUO
750 Housing Units
Developed at Half-Acre Lot Standards
(22,000 sq. ft. lots)



COMPACT SUBURBAN DEVELOPMENT
750 Housing Units
Developed at Current Minimum Lot Standards
(10,560 sq. ft. lots)



SMALLER COMPACT SUBURBAN DEVELOPMENT
750 Housing Units Developed at 5,000 sq. ft. lots



TRADITIONAL NEIGHBORHOOD DEVELOPMENT
750 Housing Units
Developed at Townhome-Style Lot Standards
(3,000 sq. ft. lots)

**Current Oshtemo Zoning*

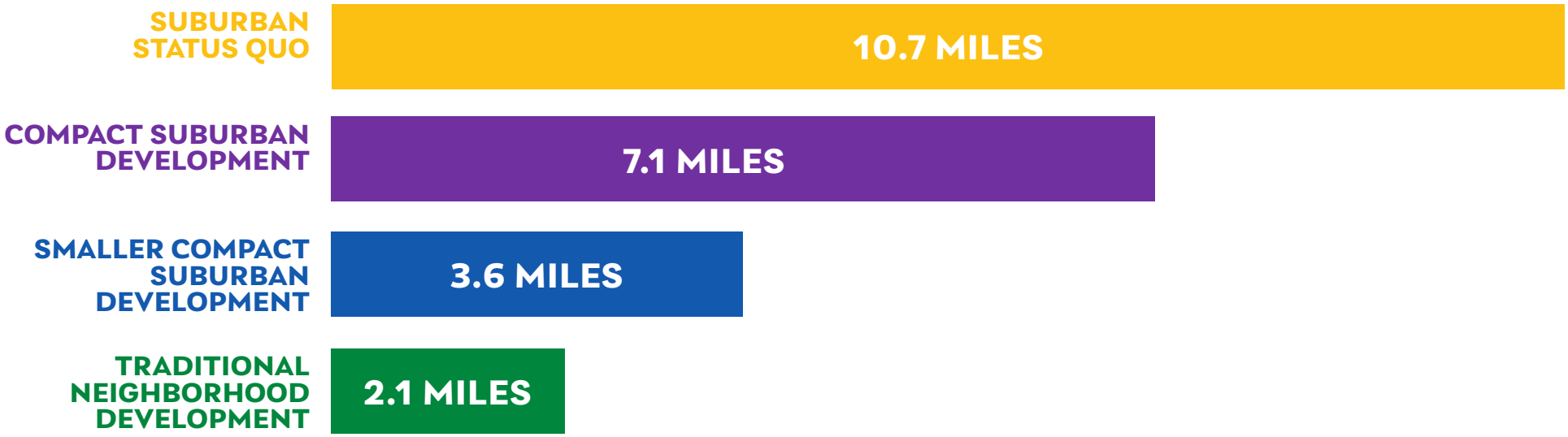
The scenario exercise found that:

- The Suburban Status Quo development pattern has the lowest ratio of revenues to expenditures. In the long run, low-density residential served by high-quality infrastructure is not fiscally sustainable.
- The Traditional Neighborhood development pattern, which increases residential density, features the highest ratio of revenues to expenditures.
- The future maintenance obligation for a house developed in the suburban status quo scenario is approximately $206,500, while the property tax revenues generated over time is approximately $78,000. In other words, the township would face a revenue deficit of approximately $128,000 per house when the time comes to replace road, water and sewer, and sidewalk infrastructure.

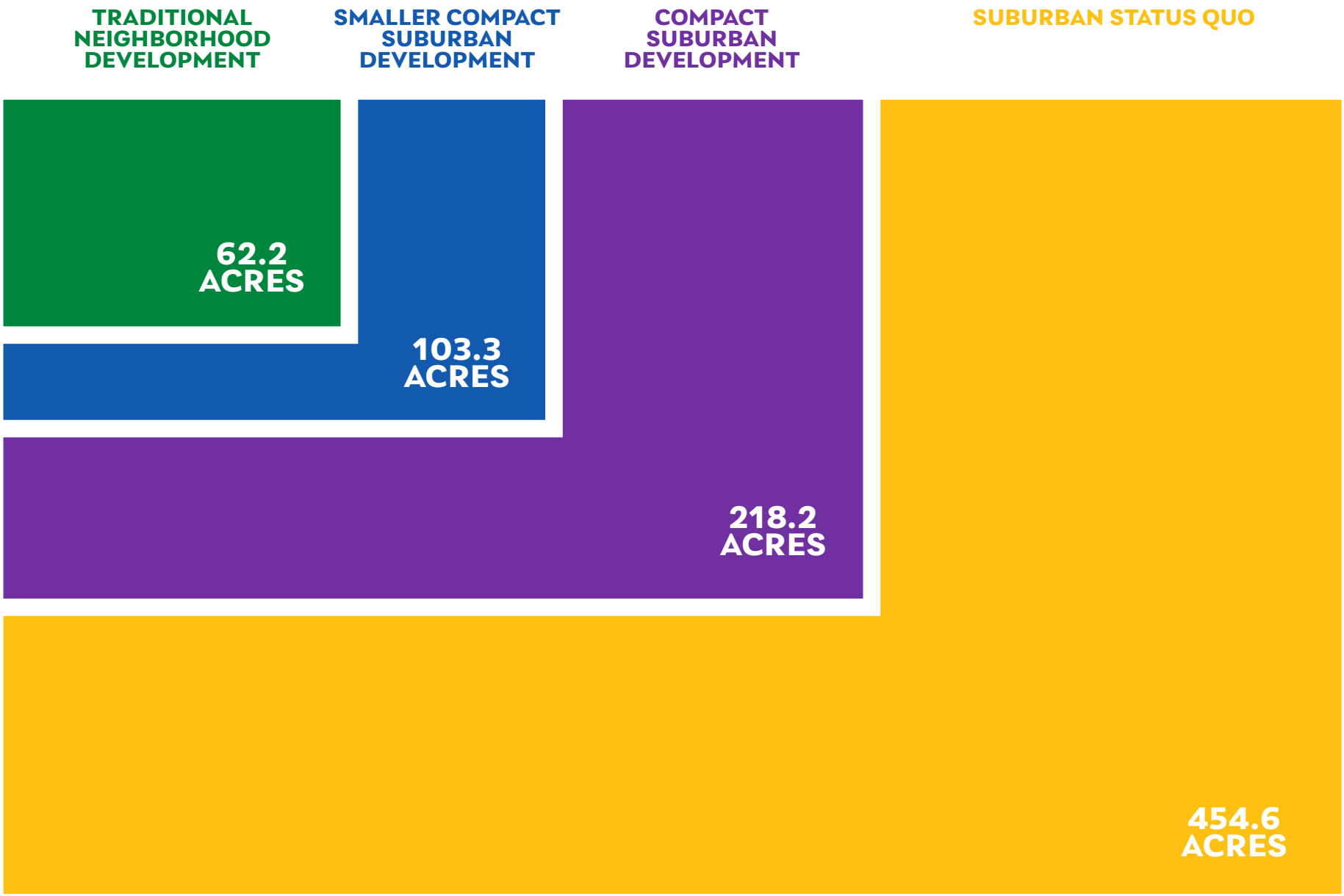
Compare this to a house developed in the traditional neighborhood development pattern, whose future maintenance obligation is just $42,000. With approximately $34,000 in tax revenue generated over time, this deficit is reduced to just $7,500 per house. Put simply, building more houses in less space significantly reduces the future tax increases needed to adequately fund the replacement of roads, pipes, and sidewalks – or lessens the likelihood of infrastructure not being maintained due to funding constraints.

INFRASTRUCTURE REQUIRED BY SCENARIO

(Includes Roads, Sidewalks, and Pipes)



ACREAGE REQUIRED BY SCENARIO



INFRASTRUCTURE COST BY DEVELOPMENT TYPE - ENHANCED SUBURBAN DEVELOPMENT

		SUBURBAN STATUS QUO	COMPACT SUBURBAN DEVELOPMENT	SMALLER COMPACT SUBURBAN DEVELOPMENT	TRADITIONAL NEIGHBORHOOD DEVELOPMENT
ROAD	Included?	Y	Y	Y	Y
	Width (ft.)	26	26	26	26
	Cost ($/l. ft.)	$390	$390	$390	$390
CURB	Included?	Y	Y	Y	Y
	Cost ($/l. ft.)	$100	$100	$100	$100
SIDEWALK	Included?	Y	Y	Y	Y
	Width (both sides of street) (ft.)	10	12	12	12
	Cost ($/l. ft.)	$80	$100	$100	$100
WATER	Included?	Y	Y	Y	Y
	Cost ($/l. ft.)	$450	$450	$450	$450
SEWER	Included?	Y	Y	Y	Y
	Cost ($/l. ft.)	$500	$500	$500	$500
Total		$1,520	$1,540	$1,540	$1,540
Average Frontage (ft.)		150	100	50	30
Average Frontage Responsible For (ft.)		75	50	25	15
Present Value of Infrastructure Responsible For ($/unit)		$114,000	$77,000	$38,500	$23,100
Future Value of Infrastructure (30-Year Period) ($/unit)		**$206,495**	**$139,475**	**$69,737**	**$41,842**
Property Tax Generated ($/unit)		**$78,611**	**$49,832**	**$34,732**	**$34,357**
Differential between Revenue and Expenditures ($)		**-$127,885**	**-$89,643**	**-$35,006**	**-$7,485**
Ratio of Revenue to Expenditures		**0.4**	**0.4**	**0.5**	**0.8**

The numbers were run again if only road infrastructure were provided to the Suburban Status Quo scenario (no curbing, sidewalk, water or sewer). Due to the large lot size, a well and septic could be privately supplied. It was found that this, too, is a financially-solvent scenario, generating sufficient tax revenue to support future maintenance obligations. Simply put, forgoing infrastructure forestalls future maintenance.

The results of this analysis indicate that two approaches to residential development are the most financially prudent: compact residential development paired with full-service infrastructure, or low-density residential lots served by only a road, because the development pattern does not generate sufficient revenue to appropriately fund future maintenance obligations for sidewalks and pipes. Building in a low-density development pattern serviced by infrastructure without new sources of funding will eventually lead to reductions in service, higher taxes, or deferred maintenance. None of these options place the township on a path towards fiscal resiliency.

Strong Towns, led by Charles Marohn, argues the prevailing pattern of suburban sprawl in North America resembles a "Growth Ponzi Scheme", consisting of:

Short-Term Gains, Long-Term Liabilities: Municipalities benefit from the initial influx of tax revenue generated by new developments, particularly sprawling suburban areas.

Infrastructure Costs Outweigh Revenue: However, these new developments often come with a substantial cost in terms of infrastructure (roads, utilities, etc.) and ongoing maintenance that far exceed the tax revenue they generate over the long term.

The Need for Constant Growth: To cover these widening deficits, communities are forced to pursue even more growth and development, attracting new residents and businesses to create an illusion of wealth and generate the immediate revenue needed to maintain existing infrastructure.

Unsustainable Cycle: This creates an unsustainable cycle, similar to a Ponzi scheme, where the system relies on ever-increasing rates of growth to pay off past obligations. When the rate of growth slows, the system becomes fiscally unstable.

DEVELOPMENT SCENARIOS - LAND

The other side of the coin is understanding what development patterns will preserve Oshtemo's greenspaces, support walkability, provide amenities, and meet the strong demand for housing, with the need for at least 750 units to be built in order to accommodate new residents and households.[16] New housing units are designed and constructed in accordance with existing zoning ordinance requirements, including lot size and setback regulations. Those standards determine the number of units, their location, and the amount of infrastructure needed.

[16] *https://research.upjohn.org/reports/311/*

A preliminary analysis was performed to visualize land usage and infrastructure demand to accommodate at least 750 new housing units within the Oshtemo Township over the next five years. The scenario exercise found that:

- New residential development constructed according to the Suburban Status Quo development pattern would require approximately 455 acres of open space to be converted to residential lots and serviced by ***10.7 miles of streets.***
- Building in the Traditional Neighborhood Development pattern would require just 62 acres and ***2 miles of streets.***

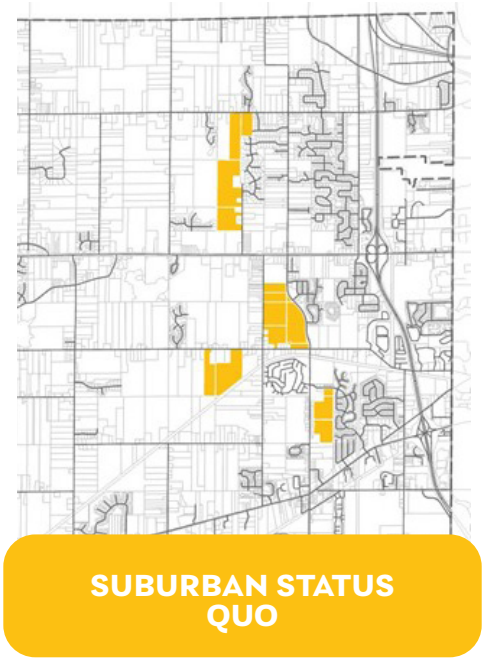


Figure 6: Suburban Status Quo Land Consumption

Figure 7: Compact Suburban Development Land Consumption

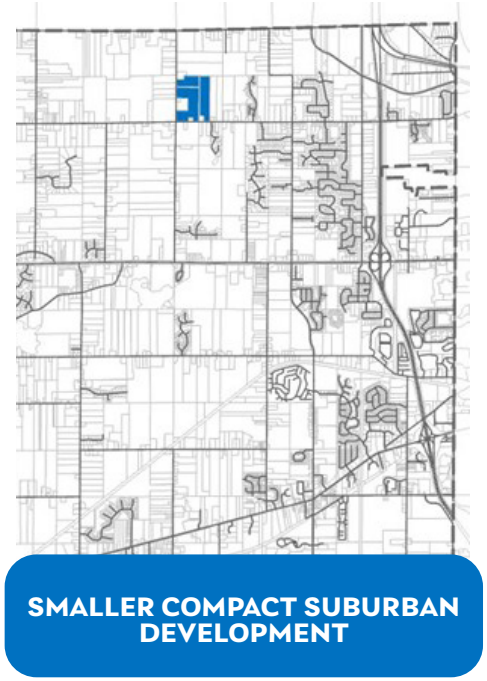


Figure 8: Smaller Compact Suburban Development Land Consumption

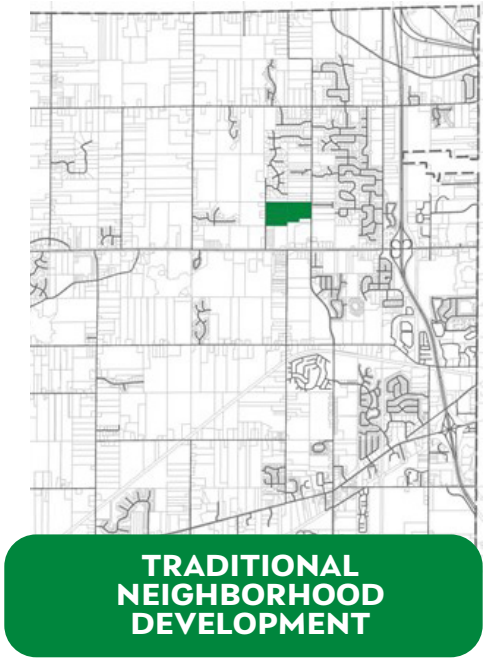
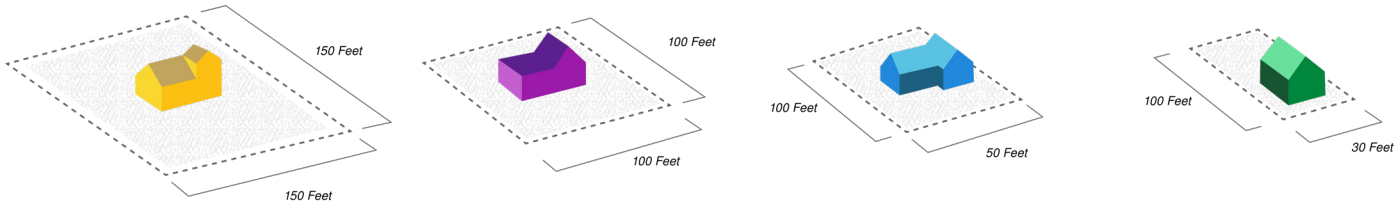


Figure 9: Traditional Neighborhood Development Land Consumption

Compact residential development maximizes the tax revenue per acre generated for the Township. When accounting for variations in property values across lot sizes, residential development in the Suburban Status Quo pattern generates approximately $2,900 per acre, compared to $9,400 per acre in the Traditional Neighborhood Development pattern.

Of course, a mix of lot sizes and development types are likely to occur in Oshtemo Township over the next 20 years. Future maintenance obligations and desired levels of service when regulating land use are important considerations that can be addressed with intentional plans, policies, and ordinances. To mitigate a potential future in which maintenance obligations outpace revenue streams and maintaining the existing infrastructure service becomes difficult, the 2045 Comprehensive Plan and Master Streets Plan are predicated on the conclusions of the infrastructure and land scenarios:

- More compact residential development will maximize revenue generated to the township and spread the infrastructure maintenance burden across more taxpayers.
- Low-density residential areas will be served by the lowest levels of public infrastructure and areas where the most public infrastructure is provided will consist of compact development, of various densities.



	SUBURBAN STATUS QUO	COMPACT SUBURBAN DEVELOPMENT	SMALLER COMPACT SUBURBAN DEVELOPMENT	TRADITIONAL NEIGHBORHOOD DEVELOPMENT
Average Lot Size (sq. ft.)	22,000	10,560	5,000	3,000
Average Frontage (ft.)	150	75	50	30
Average Frontage Responsible For (ft.)	75	37.5	25	15
Number of Developable Lots	125	260	555	925
Property Tax Generated ($/unit)	$1,855	$1,175	$820	$811
Total Developoment Revenue	$231,865	$305,720	$454,845	$749,900
Development Revenue per Acre	$2,900	$3,820	$5,685	$9,375

3.2

Proximity to Places

The form of the built environment can significantly impact connectivity, accessibility, and modal choice for township residents and visitors.

There are a number of significant benefits to individuals, communities, and even the environment when the Place Types described in the Oshtemo 2045 Comprehensive Plan are applied. The benefits associated with proximity include:

1. Reduced travel and transportation costs.

Shorter commutes Living closer to work, school, or frequent destinations drastically cuts down on travel time, allowing for more time for other activities or simply unwinding after a long day.

Lower fuel costs Less driving directly translates to lower expenses on gas, oil changes, and overall vehicle maintenance.

Reduced reliance on transportation Being able to walk, bike, or use public transportation for everyday errands or commutes promotes healthier lifestyles and less dependence on cars.

2. Improved health and well-being.

Increased physical activity Proximity to parks, green spaces, or walkable neighborhoods encourages more physical activity, which can lead to better overall health, reduced obesity rates, and improved mental health.

Reduced stress and anxiety Less time spent commuting, enjoying quiet natural areas, or having easy access to social gatherings can significantly lower stress levels and enhance mental well-being.

Better access to healthcare Living closer to hospitals and healthcare facilities provides quicker access to emergency care, routine check-ups, and specialized treatments, improving health outcomes and offering peace of mind.

Opportunities for community engagement and social connection
Neighborhoods with amenities like parks, libraries, and cafes encourage social interaction and stronger community bonds, combating loneliness and fostering a sense of belonging.

3. Enhanced productivity and efficiency

More time and energy Short commutes free up time and energy that can be directed towards work or personal pursuits.

Increased focus and engagement A less stressful start and end to the day can lead to improved focus and engagement at work or in studies.

Flexibility and convenience Living close to work or school provides more flexibility for managing personal and professional responsibilities, including attending appointments or running errands during breaks.

4. Stronger Communities and Neighborhoods.

Increased social interaction and trust
Proximity to neighbors and community amenities promotes a stronger sense of belonging and greater trust among residents.

Enhanced safety and security When neighbors know and look out for each other, it can lead to improved public safety and quicker response times in case of emergencies or suspicious activities.

Greater community pride and civic engagement Active participation in neighborhood associations, events, and initiatives can foster community wellness and pride.

5. Economic and environmental benefits.

Reduced carbon footprint

Less driving and increased reliance on walking, biking, or public transit lowers greenhouse gas emissions and promotes environmental sustainability.

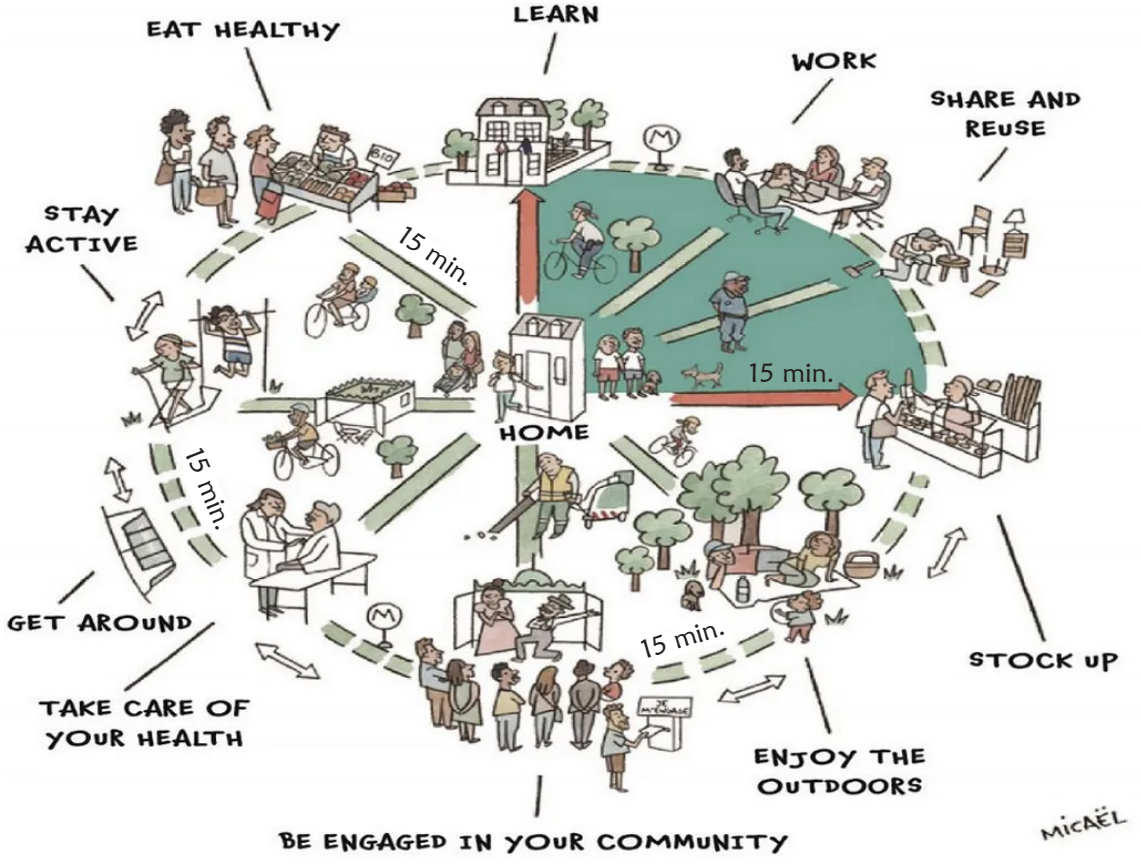
Lower infrastructure costs

Compact, mixed-use developments that encourage proximity require less infrastructure per capita, easing the financial burden on communities.

Economic resilience and local support

Strong local economies and social networks can act as a buffer during times of economic hardship, with neighbors sharing job leads, resources, and mutual aid.

Prioritizing proximity to essential places and amenities can have a significant impact on well-being, community vibrancy, and environmental sustainability. Shorter travel distances and easier access to resources can create more livable, healthier, and more connected communities.



3.3

Connectivity & Accessibility

Increasing connectivity reduces reliance on high-speed, high-traffic arterial routes that often have worse safety outcomes for drivers, pedestrians, and bicyclists relative to other streets and highways within the Oshtemo network.

In the context of transportation and mobility, connectivity can be defined as "the measurement of 'a system of streets with multiple routes and connections serving the same origins and destinations.'" [17] In other words, places with higher degrees of connectivity provide more ways to access a destination from a set starting point.

To build a safe, resilient road network in Oshtemo Township, it is important to have a comprehensive strategy to address connectivity for public and private streets, internal circulation roads, and non-motorized facilities. The level of difficulty increases exponentially to create new connections once land development occurs. The content of this section provides the rationale and methodology for the requirements contained in the Oshtemo Transportation and Mobility Ordinance (TMO).

Gridded road networks expand the number of routes a traveler can choose, providing greater accessibility for drivers, pedestrians, transit users, or bicyclists. This reduces the volume of vehicle traffic on one particular route, shortens travel distances and travel time, and improves air quality and emergency response times.

[17] *https://www.dot.state.pa.us/public/pubsforms/Publications/PUB%20731.pdf*

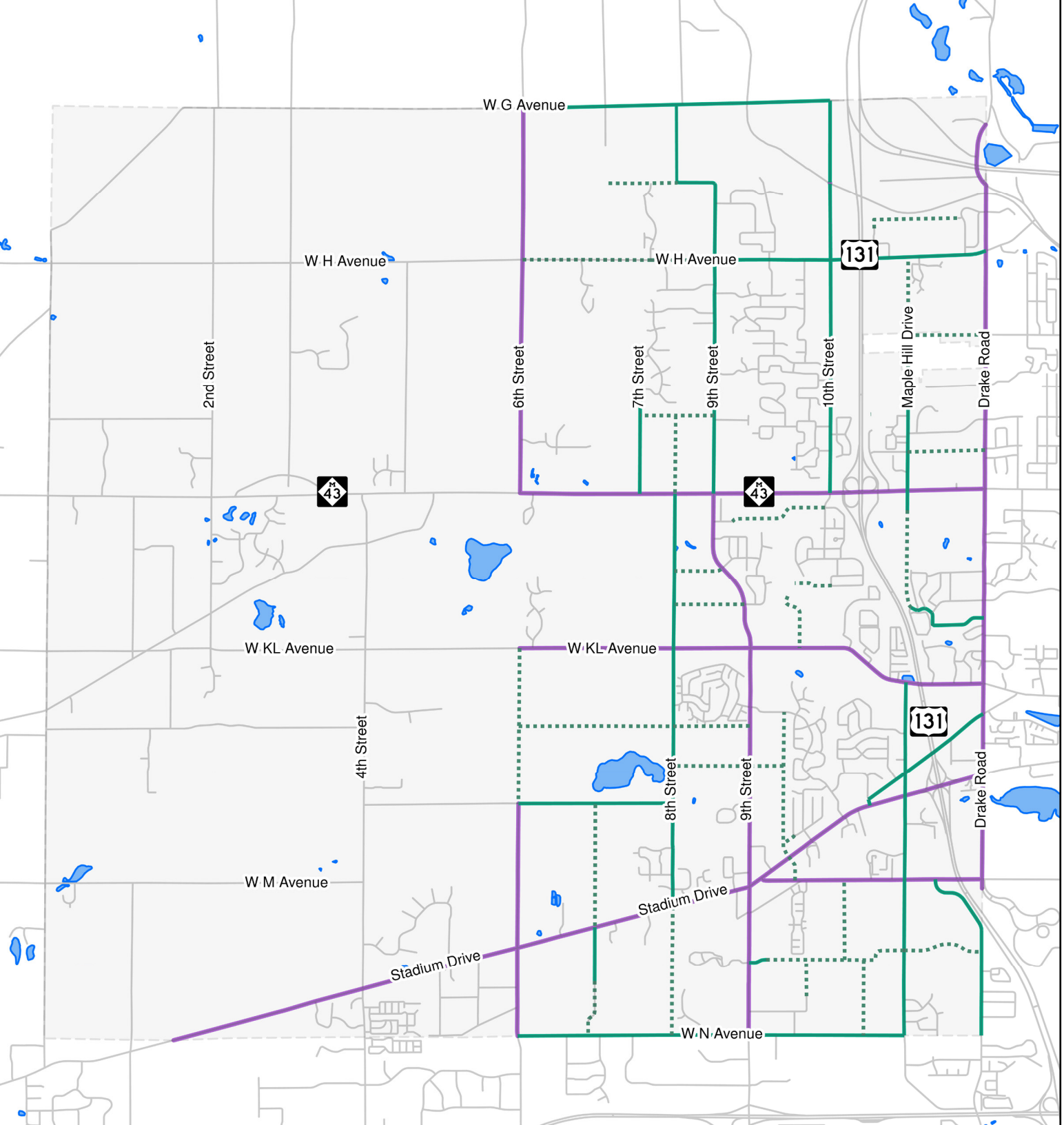
Hierarchical road networks, which consist of dead-end or cul-de-sac residential streets that feed into arterial corridors, reduce accessibility and safety for pedestrians and bicyclists by increasing their exposure to high-volume, high-speed arterial roadways. Although vehicle speeds are generally higher in hierarchical networks, travel times may be comparable to or longer due to the increased distances between places.

What is "Exposure"?

In the context of traffic safety, exposure means the amount (frequency) of opportunity for a crash to occur. The greater the number of vehicles and the more a person travels or spends time in traffic, the higher their risk of being involved in a crash is. For pedestrians and cyclists, it means the amount of contact with vehicle traffic that can increase the crash risk for vulnerable road users.

KEY CONNECTIONS

As explained in Chapter 4, MDOT and RCKC recognize street types based on their National Functional Classification (NFC). Arterial and Collector streets are intended to move large volumes of traffic. These streets are public streets. As part of the process to analyze existing land use patterns, future development, and infrastructure needs, the "Key Connections" map was developed to identify key corridors where land acquisition and development of new public streets should occur in Oshtemo Township. Key connections may be classified as an arterial, collector, or local facility, and can be either publicly- or privately-owned, but are all segments that improve network resiliency and overall functionality.



MAP 3.1

Key Connections

Oshtemo Township

LEGEND

- Key Major Connector
- Key Minor Connector
- Proposed Key Minor Connector
- Other Roadways

Proposed connections are intended to provide a high-level framework for future development and regional circulation patterns. Specific street alignment will be determined during the site development process as applicable and will be subject to all appropriate design considerations, including site topography, sight distances, and historical safety concerns. Neighborhood street connections are not included due to site design constraints that influence their specific alignment.

0 0.5 1 Miles

N

Data Source: Oshtemo Township, 2024. Michigan Geographic Data Library, 2024. Progressive Companies, 2025.

These key streets are officially identified as part of the Master Streets Plan and 2045 Comprehensive Plan. These street segments can be acquired proactively by the Township and/or RCKC or as development occurs. It is recommended that new street sections be prioritized by Township staff based on the amount of anticipated development pressure in a given area. In addition to the map, these locations are named here:

Key Connections

- West GH Avenue Extension (8th Street to 6th Street)
- Northfield Trail – Boyce Drive Connector
- Maple Hill Drive Extension (Summer Ridge Lane to West H Avenue)
- Grand Prairie Road – Westgate Drive Connector
- Maple Hill Drive – Westgate Drive Connector
- Silk Road Extension (Canterbury Avenue to Maple Hill Drive)
- Maple Hill Drive Extension (West Main Street to Green Meadow Drive)
- Club View Drive Extension (Lodge Lane to Seeco Drive)
- Scenic Way Drive Extension
- W Ridge Circle Extension
- Sabrina Trail Extension
- W KL Avenue – Sabrina Trail Connector
- Buckham Woods Drive Extension (9th Street to 8th Street)
- Lexy Lane Extension (9th Street to 8th Street)
- Quail Run Drive – Parkview Avenue Connector
- East-West Connector between 8th Street and Proposed North-South Connector (North of Prairie Ridge Elementary School)
- North-South Connector between Quail Run Drive and Parkview Avenue
- 8th Street – Quail Run Drive & Parkview Avenue Connector (North of Prairie Ridge Elementary School)
- 8th Street Extension (Stadium Drive to W N Avenue)
- 7th Street Extension (Stadium Drive to W N Avenue)
- 6th Street Extension (W ML Avenue to W KL Avenue)
- 6th Street Extension – 9th Street Connector
- 6th Street – 9th Street Connector
- 8th Street Extension (West Main Street to 6th Street – 9th Street Connector)
- 7th Street Extension (West Main Street to W H Avenue)
- 6th Street to 7th Street Connector (south of Willane Drive)
- Valley Industrial Drive Extension (9th Street to 12th Street)
- Valley Industrial Drive Extension – Parkview Avenue Connector
- Valley Industrial Drive Extension – Industry Drive Connector
- Valley Industrial Drive Extension – W N Avenue Connector

The outside lines of a public street should be identified in a defined, precise plat. It should have a legal description, be made available to the public in the office of the Township Clerk and be adopted as an ordinance. The purpose of defining the precise plat roadway is to allow for an enhanced, more connected street network that provides a multitude of benefits to the public, as described in this Chapter.

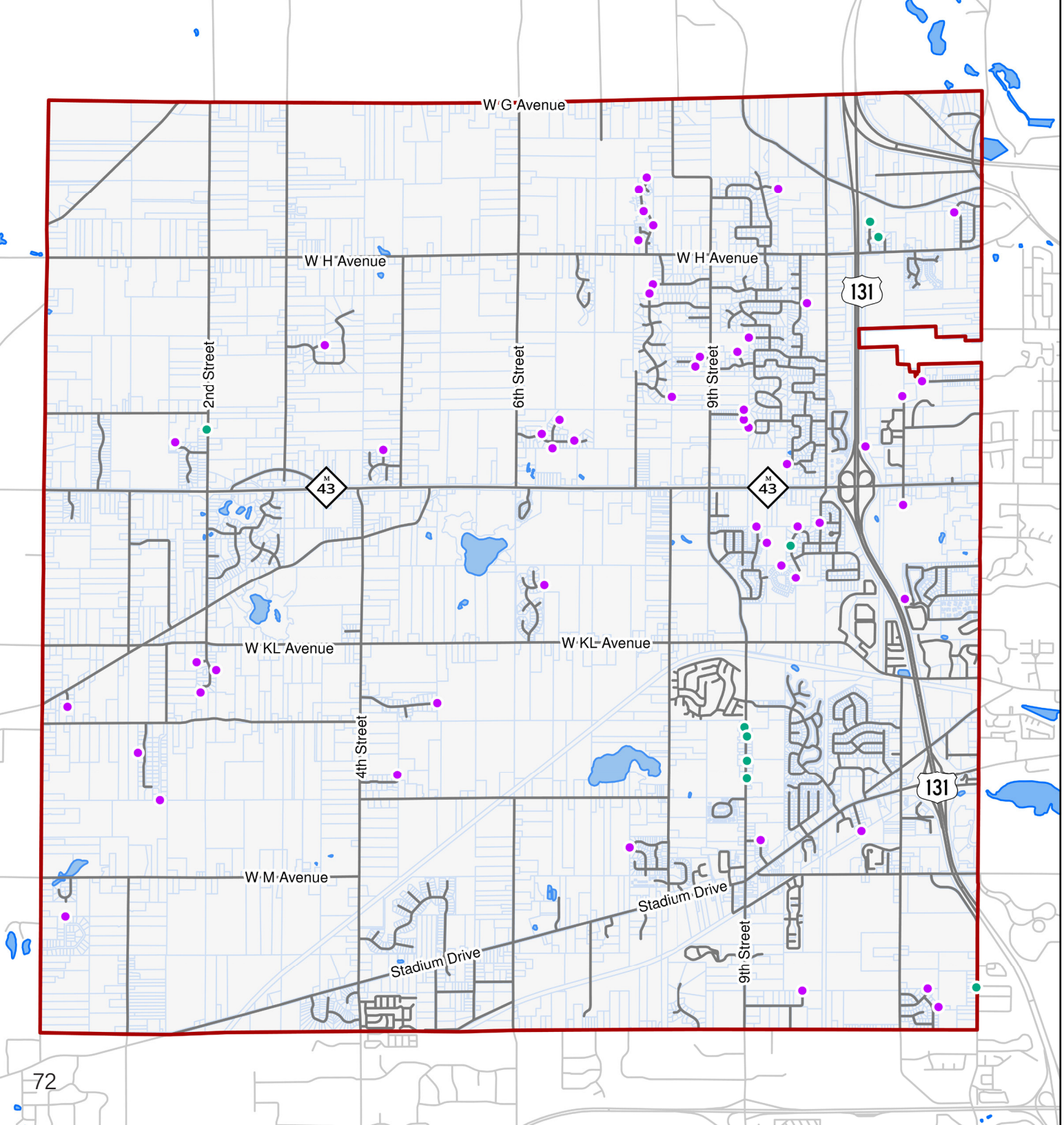
The Township and/or RCKC may fund the compensation to acquire dedicated ROW through special assessment, general funds, grants, or other methods. Alternatively, easements granting public use may be allowed. The Township may wish to consider density bonuses as part of a development agreement, offsetting what may have been developable land to create the public street. Creation of a new street should be viewed as a public-private partnership; the development potential of the property and the public's mobility are both substantially increased.

EXISTING STREETS

There are a number of existing streets within Oshtemo that have road ends, also known as stub streets, temporary cul-de-sacs, or outlots, that were put in place when a residential or commercial project was created. It has been a long-standing policy of Oshtemo Township that neighborhoods and commercial business areas should connect wherever feasible.

It is acknowledged that neighbors who live on these streets, particularly next to a road end, have enjoyed a higher degree of privacy and space than they may have otherwise if a connecting road had been developed immediately. However, it is also important to recognize that a connected network benefits everyone in the community. Shortening travel distances and trip time, dispersing traffic to lessen congestion and exposure at intersections, and improving emergency response times are clear public safety benefits.

This Existing Road Ends map illustrates the location of identified stubs. This map may not be all-inclusive of every location in the township where connections are possible. It is an expectation that new development which abuts a road end will connect at that location.



MAP 3.2

Existing Road Endings

Oshtemo Township

LEGEND

- Parcels
- Potential Outlot Connections
- Existing Street Ends

N

0 0.5 1 Miles

Data Source: Oshtemo Township, 2024. Michigan Geographic Data Library, 2024. Progressive Companies, 2024.

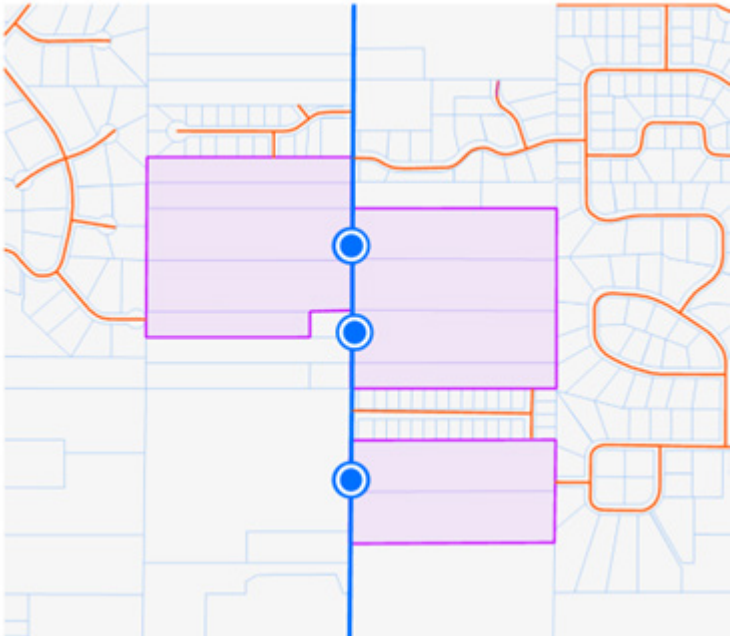
HOW TO BUILD A STREET NETWORK

1 Orientation Towards Arterial and Connector Roadways

The proposed street network for a new development should feature adequate connectivity to Oshtemo Township's arterial road network. The development should account for frontage along these roadways, ensuring the development has adequate access points.

LEGEND

- Arterial Roadway
- Proposed Road Connection

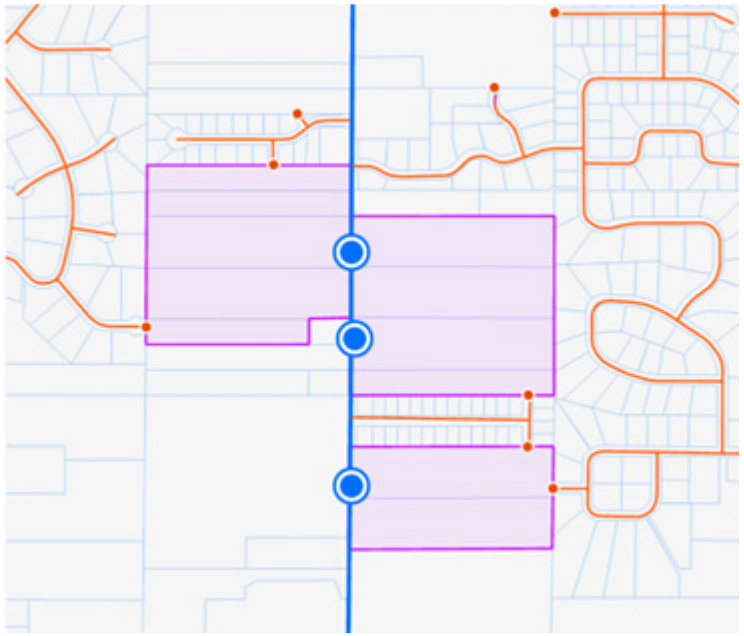


2 Orientation Towards Adjacent Developments

The proposed street network should feature connectivity to street ends of adjacent developments. In locations with no developed adjacent land uses, street ends should be constructed to facilitate this connectivity for future development.

LEGEND

- Arterial Roadway
- Proposed Road Connection
- Current Street Endings

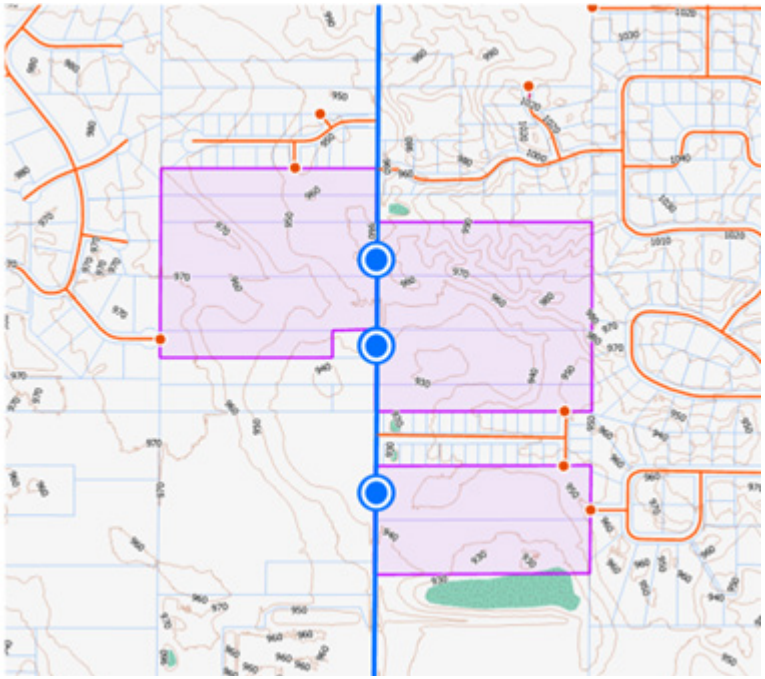


3 Accounting for Natural Features

The proposed street network should be shaped by the site's unique natural features, including topography, wetland, and water features.

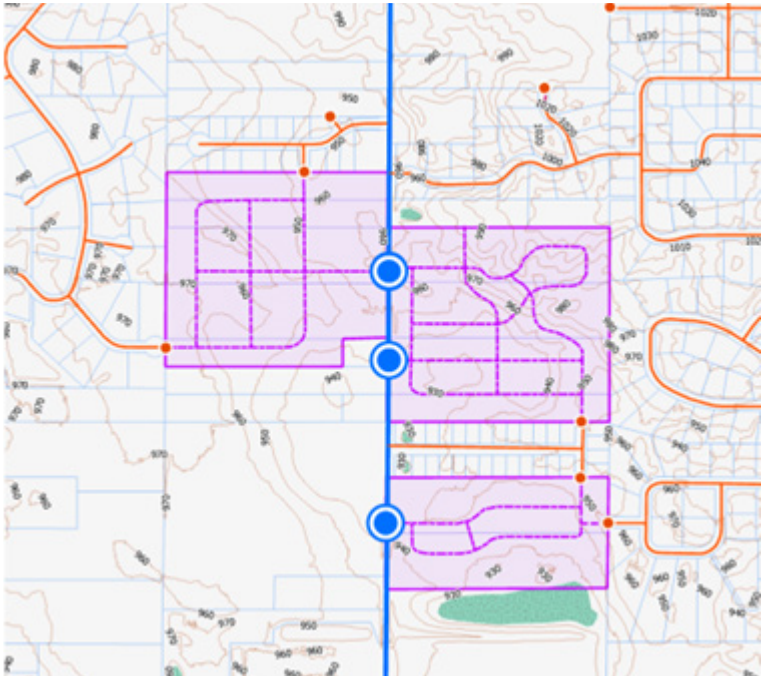
LEGEND

- Arterial Roadway
- Proposed Road Connection
- Current Street Endings
- Topographic Lines
- Wetland Features



4 Proposed Development Street Network

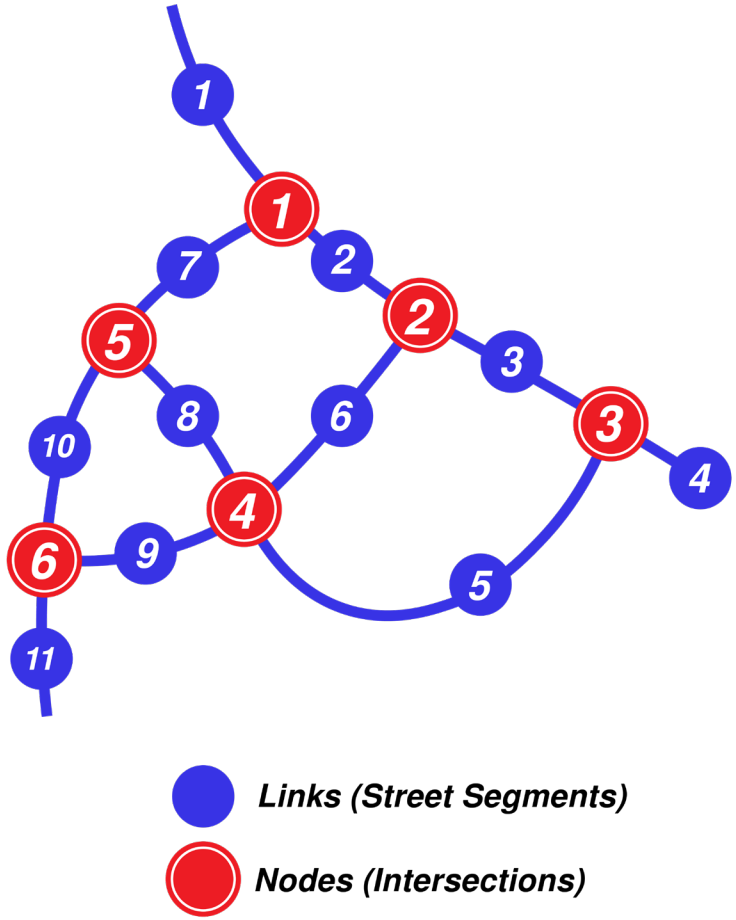
Following this three-step design process should result in a highly-connected street network that satisfies the Township's Street Connectivity Requirements.

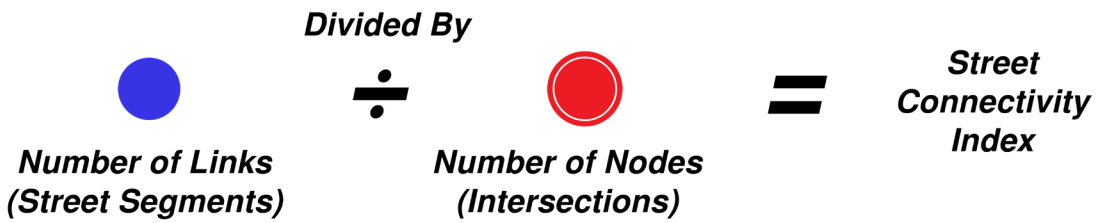


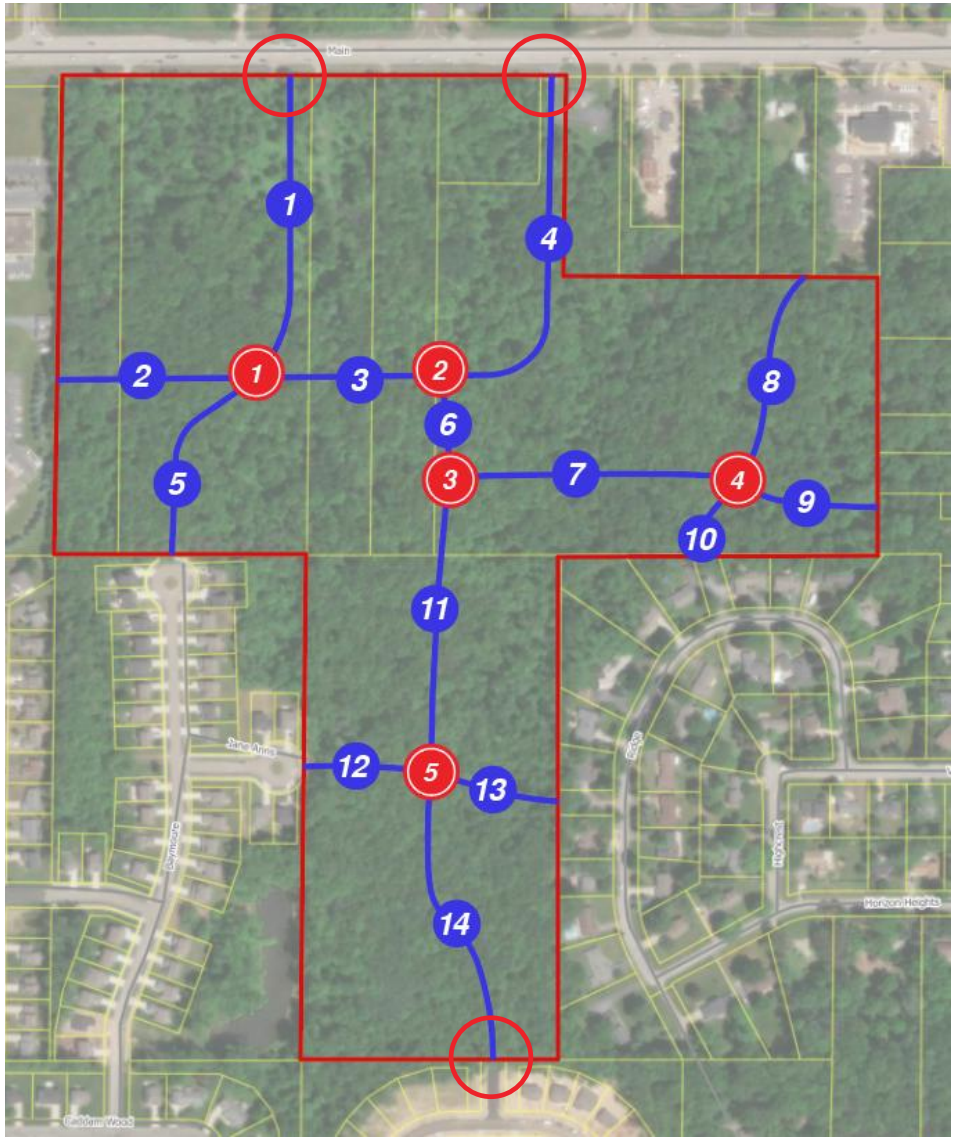
NEW STREETS

Important determinants that influence the site layout of a parcel of land include access points, topography, the presence of wetlands, and utility locations. Therefore, street layout should be one of the first elements to be evaluated when a development project is proposed.

Oshtemo Township will use a Street Connectivity Index to evaluate how well a proposed development project meets the goal of having an interconnected network. Connectivity indices are calculated as the ratio of the number of links, or street segments to the number of nodes, or intersections within a development network. Dead-end and cul-de-sac streets reduce the amount of route choice and accessibility within a development and result in lower index values.







POTENTIAL DEVELOPMENT SCENARIO

Assuming all connections are made

Example Connectivity Index

14 ÷ 5 = **2.80**

Links (Street Segments) | Nodes (Intersections) | Street Connectivity Index

High value does not account for compactness of development – only denotes high connectivity between existing neighborhoods/future development

Assuming only three (3) connections are made

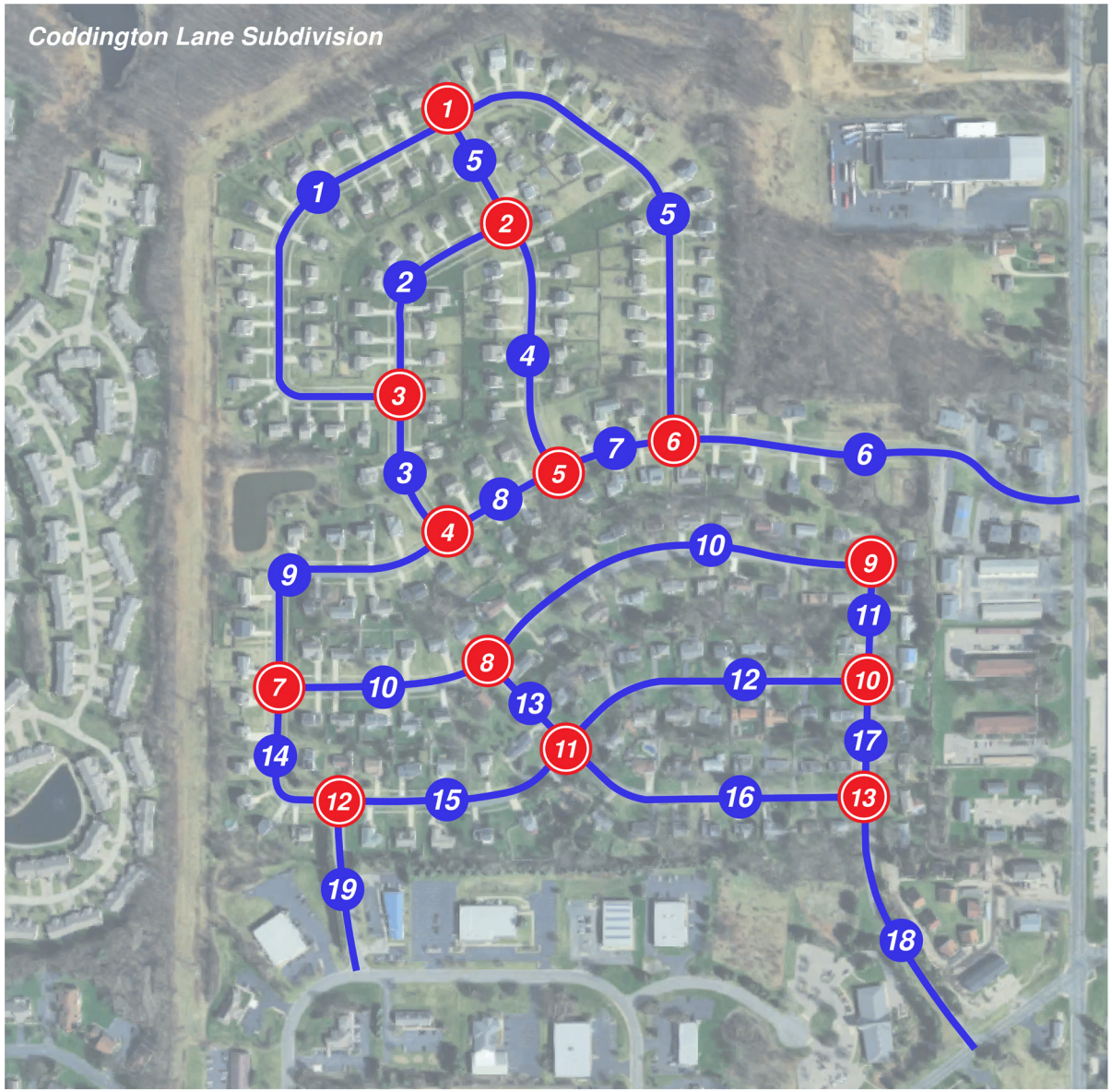
Example Connectivity Index

14 ÷ 12 = **1.17**

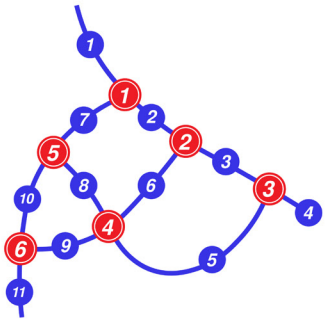
Links (Street Segments) | Nodes (Intersections) | Street Connectivity Index

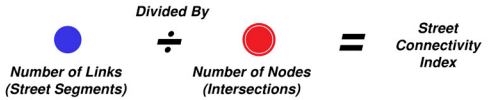
Low value resembles cul-de-sac development; low connectivity

An example calculation of connectivity index for the Coddington Lane subdivision is shown below.



Calculating Connectivity Index





Example Connectivity Index

19 ÷ 13 = 1.58

Links (Street Segments) | Nodes (Intersections) | Street Connectivity Index

Municipalities across the country have adopted a minimum required connectivity index of 1.2 for new residential developments. [18] Best practices also indicate that the minimum connectivity index required for a 'walkable' community, or a place in which day-to-day trips can reasonably be accomplished conveniently on foot, is 1.4. [19] A higher score indicates more route choices and shorter travel distances.

Using the Oshtemo's Place Types, two minimum required connectivity index scores are recommended. As illustrated in the Key Connections Map, a high degree of connectivity is not anticipated in the Countryside Residential Place Type. This is because development is expected to be low-density in nature and without a significant amount of infrastructure to maintain a healthy tax base. Conversely, the Neighborhood Residential Place Type is planned to be highly walkable and connected.

PLACE TYPE	MINIMUM REQUIRED CONNECTIVITY INDEX
Neighborhood Residential	1.6
Countryside Residential	1.2

Table 5: Potential Connectivity Index Requirements

[18] *https://perma.cc/9737-UBJ8*
[19] *https://www.vtpi.org/tdm/tdm116.htm*

A second method to ensure walkability is block size. Smaller block sizes can offer multiple different routes to reach a destination. Small blocks are typically more human-scaled and offer a greater amount of perimeter that can be activated with retail and residential buildings to add visual interest, vibrancy, and a higher yield of square footage (which will, in turn, add positively to the tax base).

Recommended block sizes for the eastern portion of the township should be within the ranges described by Place Type in the table below. The established block sizes in Countryside Residential are expected to remain largely the same as today, with no or minimal changes.

For the Neighborhood Mixed-Use and Neighborhood Residential Place Types, block sizes should be no larger than 4.0 acres. Motor vehicle accommodations do not necessarily need to be assumed; non-motorized facilities for pedestrians and bicyclists could be provided without the construction of a full street.

PLACE TYPE	RECOMMENDED BLOCK SIZE	LOTS PER BLOCK FACE
Regional Corridor	2.0 - 6.0 acres	3
Neighborhood Mixed-Use	1.5 - 3.0 acres	3 - 9
Neighborhood Residential	1.2 - 2.0 acres	10 - 12

Table 5: Potential Block Size and Lots

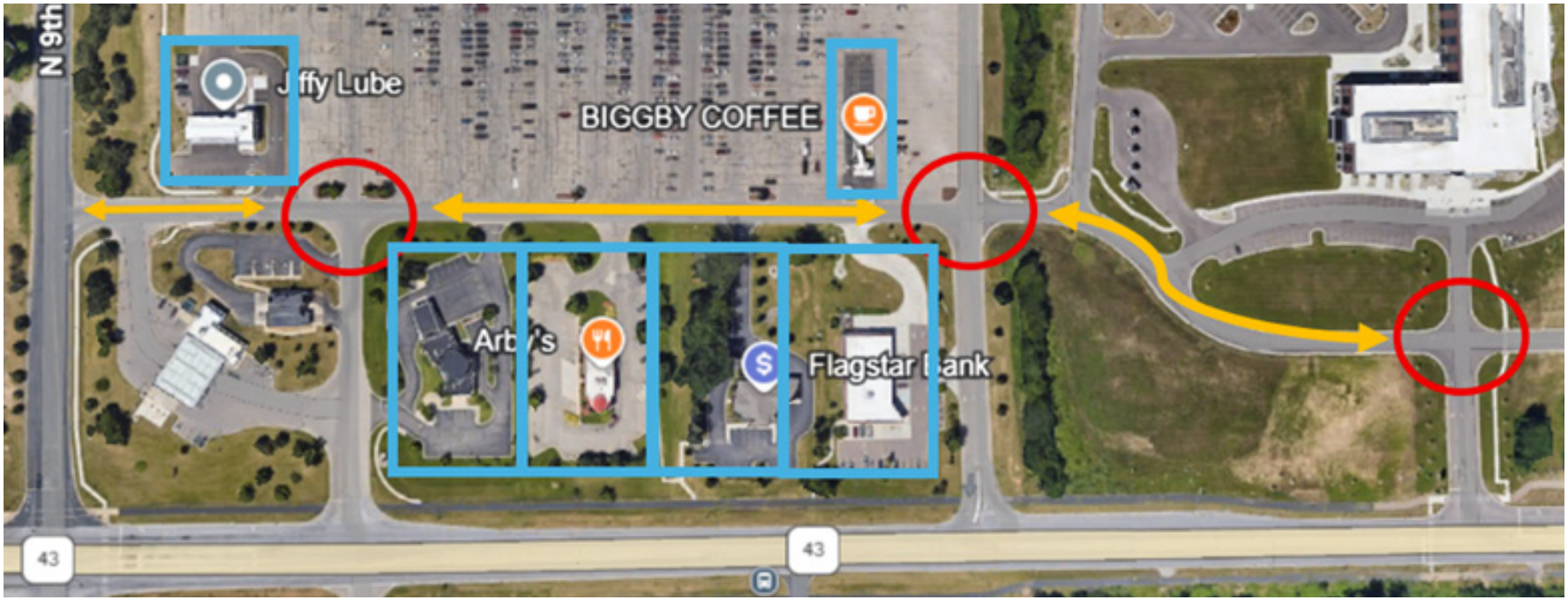
It is important to note that lot width and lot depth can be even better predictors of walkability. Private land development regulations must work alongside block size during a project's conceptual design phase to try to achieve the best scale. Smaller lot frontages (40 feet – 100 feet) and depths (100 feet - 200 feet) with more parcels on a block improve pedestrian accessibility. In an area with very large lots, reducing block size is not always as beneficial. Street widths, too, play a role and are addressed in Chapter 4 Street Typologies. [20]

INTERNAL CIRCULATION

The internal circulation system of a private development project is a component of the township's street network. Frontage roads and service drives should be considered as private local streets, like public alleys.

As the developed areas of Oshtemo mature, the function of frontage roads and service drives becomes more important. They assist in ensuring access to parcels, managing turning movements, and alleviating congestion on major arterial roads by accommodating the final trip segment.

As large parcels are divided into smaller pieces, also known as outlots, the opportunity to retrofit internal circulation roads into a more meaningful part of the network can occur. For example, changes at the Meijer store with the addition of Jiffy Lube and Biggby Coffee, and the site's connection to Advia Credit Union, illustrate how the service drive is evolving into a street. These changing conditions may require new interventions, such as the addition of traffic control devices (e.g. stop signs or traffic calming measures) to better manage traffic flow and speed, as well as sidewalks to improve pedestrian safety.

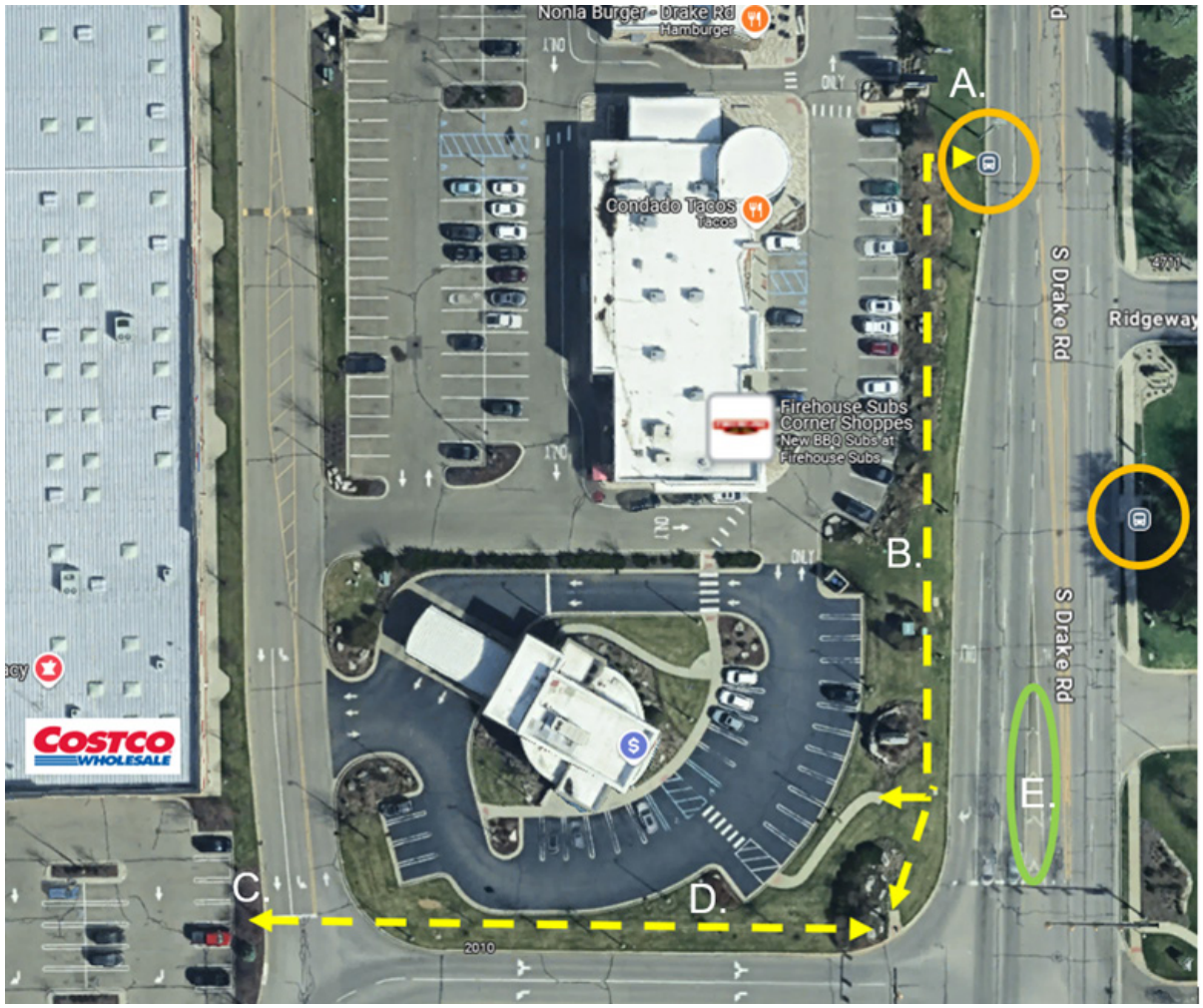


[20] *https://journal.urbanform.org/index.php/jum/article/view/4056/3367*

A more proactive approach was taken with the construction of The Corner@Drake, the location where Trader Joe's and Costco are located. Century Ave was constructed as a street, with curb and gutter, sidewalk on one side, and street trees. This was built as a private street due to the constraints imposed by RCKC for additional right-of-way, sidewalk setbacks, and a prohibition on street trees.

Proactive planning for every mode of transportation is critical if Oshtemo's 2045 Comprehensive Plan vision of ***"a community designed for everyone"*** is to be realized.

A key consideration in design is how people who may be sight-impaired and those in a wheelchair will travel. Direct routes with minimal curb ramps and interactions with vehicles are desired. The pedestrian connection made between Century Ave and the front door of Trader Joe's is a good example of what should be done for every project. However, a number of opportunities were lost that could have made The Corner@Drake project much more transit- and pedestrian-friendly.



A. Transit stop – concrete pad, bus shelter
B. Sidewalk – continuous sidewalk connected to the traffic signal and bank
C. Crossing – well-marked pedestrian crossing and additional sidewalk to Costco's front door
D. Sidewalk – connection between service drive and Drake Rd
E. Pedestrian refuge island – protected location for pedestrians crossing the 6-lane roadway

Transit stop on grass, no concrete pad and sidewalk connection to make the stop wheelchair accessible.

Landscaping with boulders at the intersection of Drake and Century, where a sidewalk should be located. Other obstructions, such as utility boxes and a monument sign, would make sidewalk installation difficult and expensive along Drake.

See also the Maple Hill Pavilion Mall Special Study as an example of how internal circulation drive could become a street.

CASE STUDY: ATLANTIC AVENUE EXTENSION

Oshtemo is advancing a significant connectivity project to extend Atlantic Avenue while permanently closing Parkview Avenue to the west. This street extension aims to improve circulation, access, and safety in the area for people walking, bicycling, driving, or using transit. In addition, the proposed street extension supports future mixed-use development that aligns with its location in the Neighborhood Mixed-Use Place Type.

The Atlantic Avenue extension should be designed in accordance with the Neighborhood Connector street typology, with dedicated sidewalks and shared-use paths, landscaping, and access-controlling medians that provide opportunities for safe and comfortable mid-block crossings.

The street extension provides an opportunity to realize the integration of mobility with land use in Oshtemo Township. By improving proximity to places through the introduction of residential, retail, and commercial spaces within a currently-undeveloped area, and connecting these places with high-quality infrastructure that supports all modes, the Atlantic Avenue extension represents a tangible implementation of the township's visions and goals.

High-level transportation analysis has been conducted, indicating that vehicular operations are anticipated to continue performing at acceptable levels following the modifications to Stadium Drive and Parkview Avenue. Further analysis and coordination with local agencies, including RCKC and KATS, will be necessary to fully evaluate site circulation, access, and safety outcomes.

NON-MOTORIZED CONNECTIONS

Connectivity is important across all modes of transportation; however, pedestrians' and bicyclists' vulnerability to death or serious injury accentuates the need for these legal road users to have access to a network designed to protect them from high-speed cars and trucks. As part of the Safe Systems Approach, creating Safe Roads involves spatially separating users and creating roads that increase attentiveness and awareness.

As mentioned earlier, Oshtemo Township does not control its roads, which fall under the jurisdiction of RCKC and MDOT. Because of this, along with the township's history as a predominantly rural area transitioning into a suburban community, roadways in Oshtemo are designed to facilitate high-speed vehicular travel with little consideration for the non-motorized network. This approach to roadway design, while appropriate in rural townships with smaller populations spread farther apart, is ill-suited to the developed, eastern portion of Oshtemo Township. These roads create barriers between neighborhoods, limit children from safely walking or biking to school, and discourage residents from walking or biking as part of their daily routines. They are also deadly.

Van Norden Street, Washington, NC

The proposed redesign at Van Norden allows bicyclists and pedestrians to cross 15th Street safely, connecting neighborhoods and providing access to destinations already afforded to cars. Source: Stantec

High-speed, high-traffic roadways (US-131, West Main Street, Stadium Drive, and Drake Road in particular) all pose challenges regarding how best to balance regional vehicle travel with the desire for Oshtemo Township to be a walkable, connected community. In some cases, a sidewalk may be present in portions of these corridors, but gaps in the non-motorized network can endanger users by forcing people to use an indirect or unsafe route to complete a trip. Instead, if the person has a choice, that trip might be made by private vehicle – further increasing traffic volumes and the potential for congestion along roadways.

Completing the sidewalk and bicycle network within the Regional Corridor, Neighborhood Mixed-Use, and Neighborhood Residential place types ensures residents truly have a choice when, where, and how to travel. Increased connectivity provides greater route choice for people walking or bicycling and assists in mitigating the frequency of exposure to vehicle traffic on arterial routes.

To accomplish a safe, connected, and accessible network, we must:

Connect existing non-motorized segments by filling gaps between them. These gaps may exist as discontinuous sidewalks, bike lanes, multiuse paths, or intersections without appropriate pedestrian crossing opportunities.

Think "door to door" ...how a person will travel from their front door to that of a business, place of employment, health care, or other destination, whether they are traveling by car, foot, bike, or bus.

Emphasize connecting the east and west sides of the township bisected by US-131 via bike paths and/or sidewalks, especially through coordination with MDOT when bridges crossing US-131 are rehabilitated.

Provide well-designed crosswalks to alert drivers to the presence of pedestrians, with the addition of traffic signals (as warranted) or a "head start" interval to allow pedestrians to enter an intersection before vehicle movement is allowed.

Replace and/or provide better north-south connections via sidewalks and bike paths between the roadway network (especially at 9th and Stadium) and the Kal-Haven Trail.

Provide connections to Oshtemo's parks, neighborhoods, schools, and major areas of activity (such as the Township Hub envisioned in the Master Plan) through neighborhood greenways and bicycle and pedestrian-focused corridors.

Coordinate non-motorized planning efforts with neighboring communities.

Design and implement complete safety improvements at crash hot spot locations, including Stadium Drive and 9th Street, West Main Street and 9th Street, and 9th Street and KL Avenue.

Ensure appropriate maintenance of existing pedestrian facilities, including vegetation trimming and the identification and elimination of trip hazards or locations that are not currently compliant with the Americans with Disabilities Act (ADA) requirements.

- Consider coordinating with RCKC to implement a policy defining appropriate placement for temporary construction signage that does not impede pedestrian or bicycle travel.

The "Trick-or-Treat Test" is one way to evaluate safety and walkability in neighborhoods. Key elements of a good trick-or-treating neighborhood include:

Good street design Narrower streets, lower speed limits, and traffic calming measures like speed bumps and raised crosswalks improve safety for pedestrians.

Connected streets or paths Easy direct routes to go from one block to the next, which do not require going on to an arterial street or traveling a long distance to reach a nearby destination.

Well-maintained pedestrian infrastructure Continuous sidewalks, clear of obstacles, and adequate street lighting enhance walkability and visibility, especially at night.

Safe crossings Clearly marked crosswalks, pedestrian signals, and sufficient time to cross for all users (including children and older adults) are crucial.

Non-motorized connections do not always need to be associated with a street. In the example, if a path were provided that connected the two neighborhoods, a person would only need to travel 650' to from their house to see a friend. Assuming the yards have fences and it is not possible to simply walk through the yards, then the that distance would be greater than a mile.

3.4

New Paradigm for Streets

As residential and commercial development continues to occur within Oshtemo, regulating standards and policies can create a safer environment for all road users by advancing fiscally responsible development, proximity to places, and improving connectivity.

It is understood that increased connectivity improves safety and accessibility for all residents and encourages sustainable modes of transportation, but also requires additional infrastructure to accommodate a wide range of network users. [21] ***The good news is that the investment required for non-motorized transportation is a fraction of what it costs per lane mile to build larger streets for cars*** (which will only generate greater levels of induced demand).

(PAST) INDIVIDUAL TRANSPORT

PASSENGER CARS

Infrastructure built for individual transport.

(PRESENT) INDIVIDUAL TRANSPORT & PUBLIC TRANSIT

PEDESTRIANS & CYCLISTS

PUBLIC TRANSPORT

PASSENGER CARS

Infrastructure built for individual transport and public transit.

(FUTURE) INDIVIDUAL TRANSPORT & PUBLIC TRANSIT

PEDESTRIANS & CYCLISTS

PUBLIC TRANSPORT

PASSENGER CARS

Infrastructure built for people transport.

[21] *https://sustainablecitycode.org/brief/street-connectivity-minimums-4/*

Future development in Oshtemo will:

Integrate land use and transportation planning Walkable neighborhoods with mixed land use, where residences, shops, schools, and workplaces are within walking distance, are crucial for reducing car dependence.

Focus on accessibility over mobility Instead of prioritizing the speed and convenience of cars, the new paradigm emphasizes providing easy access to destinations through various modes, including walking, cycling, and public transit.

Prioritize sustainable modes This involves shifting focus from private cars towards active and public transport options like walking, biking, and robust public transit systems.

Rethink street design Designing streets to be safe and inviting for all users, including pedestrians, cyclists, and those with disabilities, is a key component.

Increase equity and inclusion Accessible public transportation and pedestrian infrastructure ensure that everyone, regardless of age, ability, or socioeconomic status, can access essential services and opportunities.

To be able to achieve this vision, which will ultimately reduce the number of fatal and severe crashes that occur in Oshtemo Township as it grows, it will be necessary to encourage MDOT and RCKC to overcome decades of prioritizing cars at the cost of all other modes. Car-centric planning has not assured safety for all users on Oshtemo's roads, not even among motorists themselves. Choosing to invest in sidewalks, shared use paths, bike lanes, and public transit is truly a choice – one that must be shared by those entities and the Township if change is to occur. Oshtemo voters and leaders have supported additional funding to provide non-motorized facilities. The opportunity arises every fiscal cycle for Oshtemo's transportation agencies to choose to examine their policies and practices, and partner on creating a better transportation network than exists today to best serve everyone in the community, as the MPEA directs.

4

STREET TYPOLOGIES

Different transportation facilities, from local streets to interstate freeways, accommodate different needs. Many cities and jurisdictional agencies classify streets by 'type' to provide engineers, planners, and designers with high-level guidance on appropriate cross-sections, dimensions, engineering details, and maintenance responsibilities.

The Michigan Department of Transportation (MDOT), which operates and maintains US-131 and West Main Street, utilizes the national functional classification system (NFC) to identify facilities as 'arterials,' 'collectors,' and 'local' streets.

Functional classifications are used to identify the total amount of available right-of-way for each transportation facility, provide an indication of anticipated and desired vehicular utilization, and provide maintaining agencies with a system to evaluate and distribute capital funding through a formula-based approach.

Although functional classification systems are useful when evaluating vehicular operations, they provide limited information regarding the intent and accommodations for other road users, such as pedestrians, bicyclists, and transit users. Functional classification systems also do not distinguish road types by adjacent land uses and context. For example, Stadium Drive serves significantly different access-related needs and accommodates a wider range of road user types east of 6th Street than it does to the west, yet both street segments are classified as 'minor arterials.'

ARTERIALS A major street of significant continuity, which is intended to serve higher volumes of traffic for both the Township and the region, and which forms the basis around which the circulation system is designed. Typical traffic volumes are more than 10,000 vehicles per day. Arterials in Oshtemo Township include, but are not limited to, West Main Street, Stadium Drive, KL Avenue, South 9th Street, Parkview Avenue, and Drake Road (north of Parkview).

COLLECTORS A street that provides shorter distance movements within the Township, collects traffic from Local Streets and connects them with Arterials. Major collectors distribute and channel trips between locals and arterials, have fewer access points, and may have more travel lanes and higher speed limits. Examples of Major Collectors include streets such as North 9th and 10th Streets (West Main Street to H Avenue), South 6th Street (South of Stadium Drive), and West Michigan Avenue (Venture Park Drive to Drake Road). Minor Collectors typically have greater access and lower speeds such as Quail Run Drive and Lodge Lane.

LOCAL STREETS Streets that provide direct access to homes, businesses, parking, and other land uses abutting the street right-of-way and serve short travel distances. Most subdivision streets fall in the Local Street classification.

In order to better align desired transportation facilities with existing and proposed land uses, six street typologies were identified. Particular consideration was given to aligning street design elements with adjacent land use context and prioritization of various design elements based on a modal hierarchy assigned to each street typology. Street typologies are fundamentally similar to functional classifications, but provide additional guidance for the provision of various types of transportation facility based on surrounding land use and place type.

NFC ROAD CLASSIFICATIONS

Interstate
(Ex: I-94; I-196)

Major Collector
(Ex: 6th Street)

Other Freeway
(Ex: US-131)

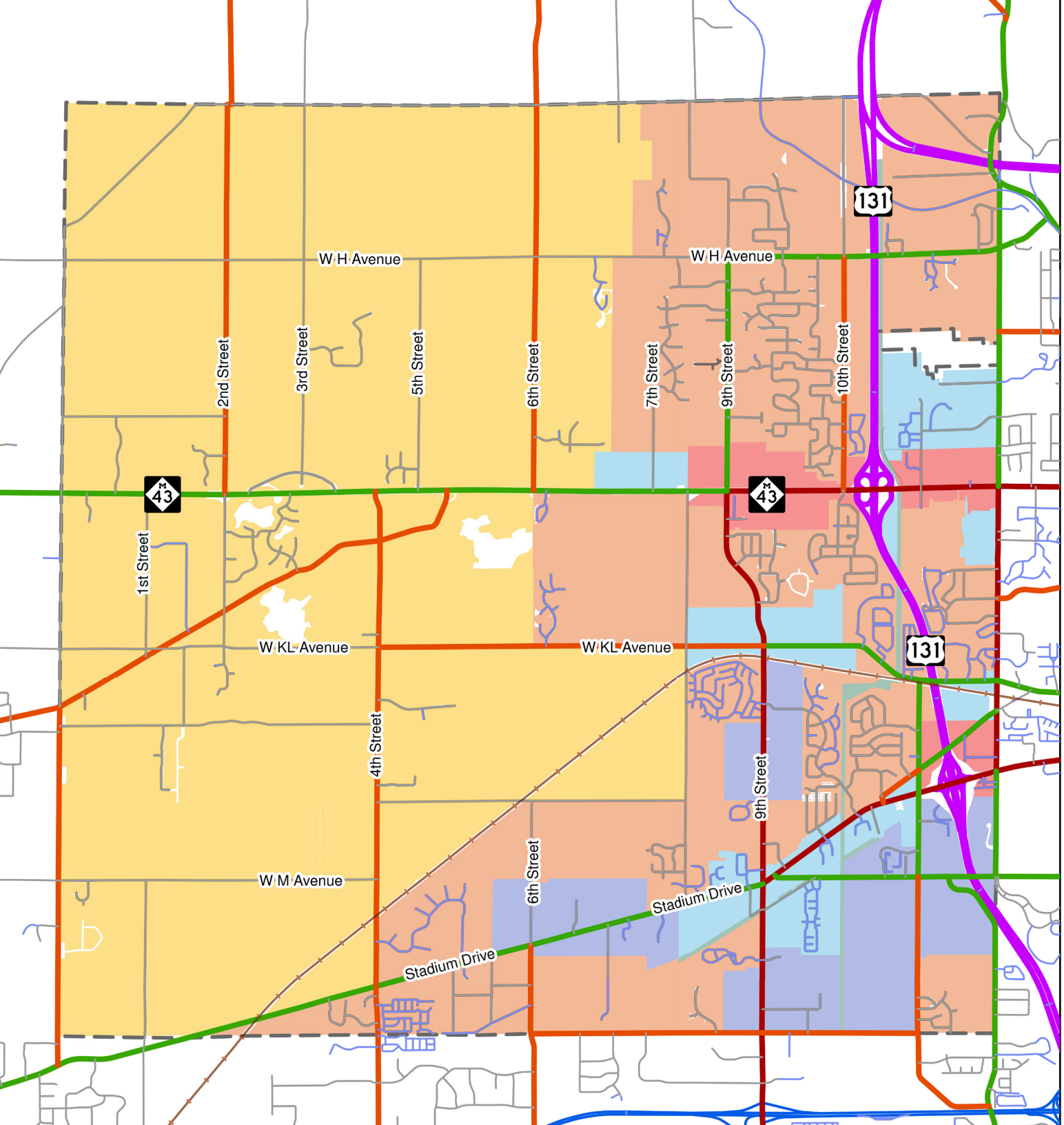
Minor Collector
(N/A in Oshtemo Township)

Principal Arterial
(Ex: M-43; 9th Street)

Local Roads
(Ex: Ellington Drive)

Minor Arterial
(Ex: W H Avenue)

Private Roads
(Ex: Jefferson Commons Drive)



MAP 4.1

NFC Road Classifications + Place Types Map

Oshtemo Township

LEGEND

NFC Road Classification

- Interstate
- Other Freeway
- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local Roads
- Private Roads

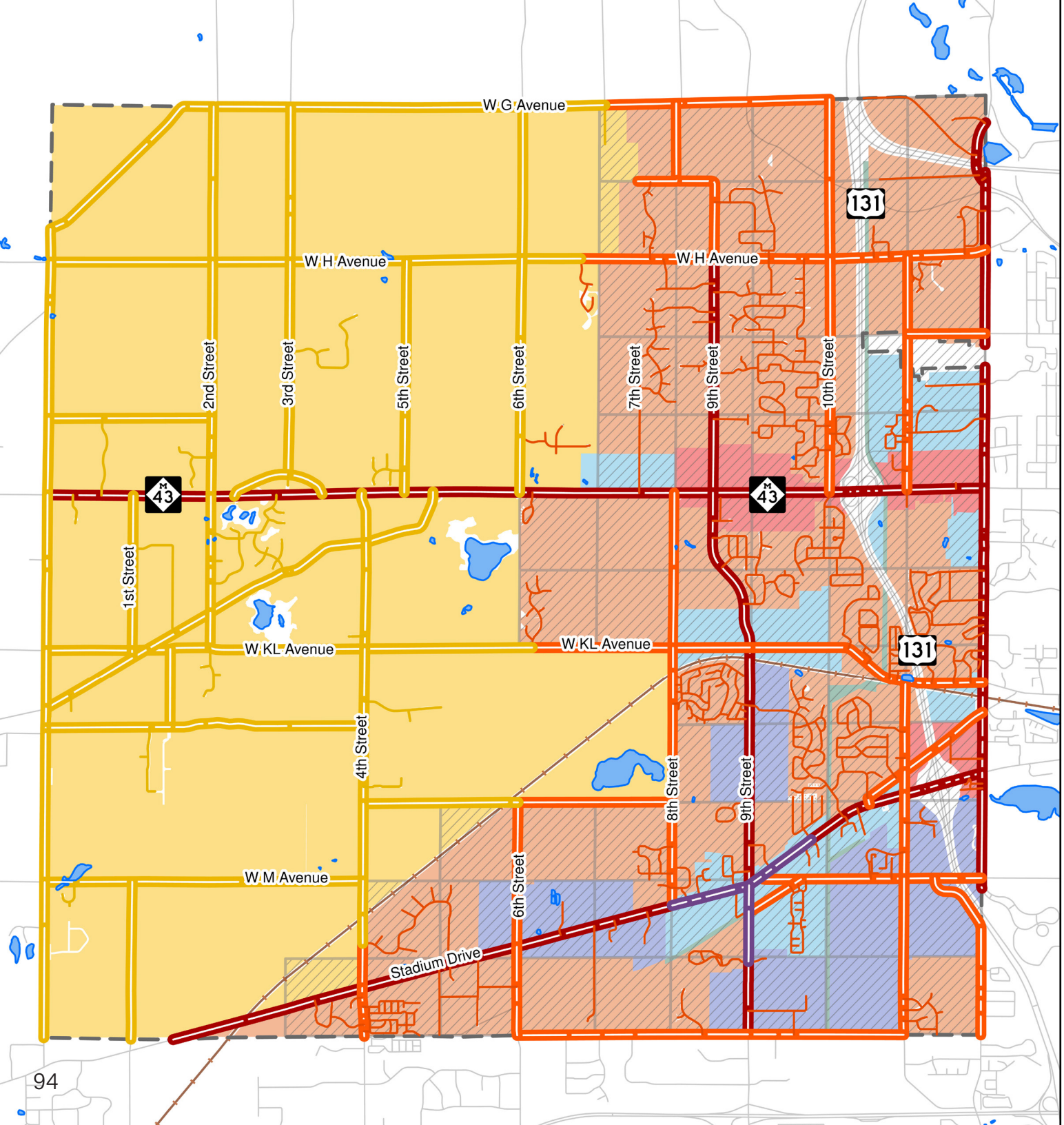
Place Types

- Regional Corridors
- Neighborhood Mixed Use
- Neighborhood Residential
- Countryside Residential
- Innovation and Industry
- Parks & Preservation

N

0 0.5 1 Miles

Data Source: Oshtemo Township, 2024. Michigan Geographic Data Library, 2024. Progressive Companies, 2025.



MAP 4.2

Street Typology Map

Oshtemo Township

LEGEND

- Regional Connector
- Neighborhood Connector
- Neighborhood Street
- District Main Street
- Countryside Connector
- Countryside Street

Quarter Section Requiring Adjacent Connectivity

Place Types

- Neighborhood Mixed Use
- Regional Corridors
- Neighborhood Residential
- Countryside Residential
- Innovation and Industry
- Parks & Preservation

N

0 0.5 1 Miles

Data Source: Oshtemo Township, 2024. Michigan Geographic Data Library, 2024. Progressive Companies, 2025.

STREET TYPOLOGY	DESCRIPTION	APPLICABLE PLACE TYPE	NFC CLASS.
Regional Connector	Connects regional destinations Medium to high traffic volumes Serves varying densities and land uses	Regional Corridors Neighborhood Mixed-Use Research & Office Industrial Park	Principal Arterial, Major Collector
District Main Street	Serves areas of highest density and mixed-use activity; Includes accommodations for pedestrians and bicyclists	Neighborhood Mixed-Use	Varies
Neighborhood Connector	Serves and connects residential destinations; Accommodates pedestrians, bicyclists, and vehicles; Provides access to regional connectors	Neighborhood Residential, Neighborhood Mixed-Use	Minor Arterial, Minor Collector
Neighborhood Street	Provides access to local residences; Serves as a shared space for drivers and bicyclists; Provides dedicated space for sidewalks	Neighborhood Residential	Local
Countryside Connector	Connects low-density places marked by open space; Medium to high traffic volumes; Minimal pedestrian and bicyclist utilization	Countryside Residential	Major Collector
Countryside Street	Provides access to local residences; Serves as a shared space for drivers, bicyclists, and pedestrians	Countryside Residential	Local

4.1

REGIONAL CONNECTOR

Throughout Oshtemo Township, several regionally important roads move high volumes of vehicle traffic and serve important destinations, such as big-box commercial stores and shopping centers. These roads also accommodate transit routes, pedestrians, and bicycle traffic. Connecting open spaces to the west to locations in Kalamazoo and beyond, these corridors are vital to the regional travel network.

Regional connectors generally feature significant vehicle and truck volumes, but are also utilized by fixed-route transit services, pedestrians, and bicyclists.

Maintaining safe pedestrian and bicyclist mobility is imperative; however, the high vehicle volumes and rates of speed will hamper comfortable utilization of these corridors by those outside of a vehicle.

Sidewalks and other non-motorized facilities should be provided along both sides of regional connectors located in the Regional Corridor and Neighborhood Mixed-Use Place Types, and may be considered in the Research and Office Place Type. Green space, landscaped with grasses, shrubs, or trees as appropriate, should be provided to buffer pedestrians using the sidewalk from moving vehicles. In Neighborhood Mixed-Use and Regional Corridor Place Types, where higher volumes of people walking or bicycling is anticipated, vehicle speeds should be limited to 35 MPH or less through thoughtful design elements and signal timing operations. The use of alternative tools for context-sensitive speed limit setting, such as the Federal Highway Administration's (FHWA) USLIMITS2 tool or NACTO's City Limits tool, is encouraged on Regional Connectors in the Neighborhood Mixed-Use and Regional Corridor Place Types. It is noted that recent updates to the Manual of Uniform Traffic Control Devices (MUTCD) provides jurisdictional authorities with greater flexibility in speed limit setting, while Michigan Public Act 33 of 2024 allows agencies to set speed limits below the existing 85th percentile speeds in certain locations.

Existing Example Road

West Main Street

Prioritized Users

1. People driving through
2. People traveling on foot, on bicycle, or using transit
3. People accessing destinations along the corridor by driving, on foot, by bicycle, or by transit

Anticipated or Desired Uses

- Heavy vehicle through travel
- Access to significant regional destinations, such as commercial shopping centers
- Safe access for those outside of a vehicle

Design Intent

4. Improve safety outcomes for all road users through geometric and operational modifications.
5. Maintain important connectivity for through trips.
6. Accommodate adjustments in activity and road user type due to transitions in land use.

Typical Design Elements and Treatments

- Minimum lane width necessary to facilitate heavy vehicle, truck, and transit utilization while minimizing the crossing distance needed for pedestrians.
- Center landscaped medians and pedestrian refuge islands to provide more comfortable crossings between signalized intersections in the Regional Corridor and Neighborhood Mixed-Use Place Types.
    - Marked crosswalks and refuge islands should be provided at all transit stop locations.
- Continuous shared-use paths on both sides of the road in the Regional Corridor and Neighborhood Mixed-Use Place Types.
- Dedicated bicycle facilities, if provided, should be located behind the curb.
- Key intersections are signal-controlled.
- Access is consolidated and driveways are shared between commercial properties.
- Transit use is promoted, with dedicated stops featuring benches and shelters.

4.2

DISTRICT MAIN STREET

As Oshtemo Township continues to grow and evolve, "Main Streets" will serve places that are recognized as Oshtemo's walkable mixed-use business districts. Adjacent to popular local destinations, these streets support varied and unique dining, shopping, housing, and employment opportunities.

Future places within Oshtemo Township are envisioned to serve as neighborhood centers, concentrating activity around existing local destinations and future developments.

District Main Street types are intended to align with existing and future states of the Neighborhood Mixed-Use Place Type.

As these place types are envisioned to be more compact, transportation options should be provided across a wide variety of modes to facilitate higher amounts of activity within a limited space. These streets should prioritize access for people arriving to the neighborhood place on foot, by bicycle, on transit, or in personal vehicles, as well as delivery vehicles, and lessen focus on providing quick movement through the space for people driving vehicles.

Example Streets

Stadium Drive, 9th Street, Atlantic Avenue

Prioritized Users

1. People walking to destinations along the street
2. People arriving to destinations along the street by bicycle or transit
3. People driving to destinations along the street
4. Delivery vehicles
5. People driving through

Example: Live/work mixed-use buildings

Design Intent

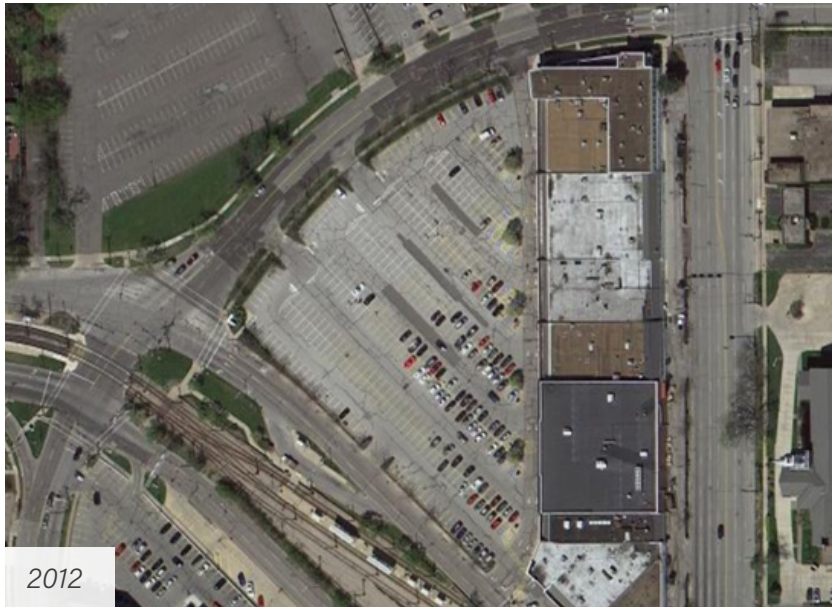
1. Supports and strengthens economic productivity and activity
2. Facilitate access by all modes, including walking, bicycling, transit, and driving
3. Accommodate high amounts of short-duration commercial activities

Typical Design Elements and Treatments

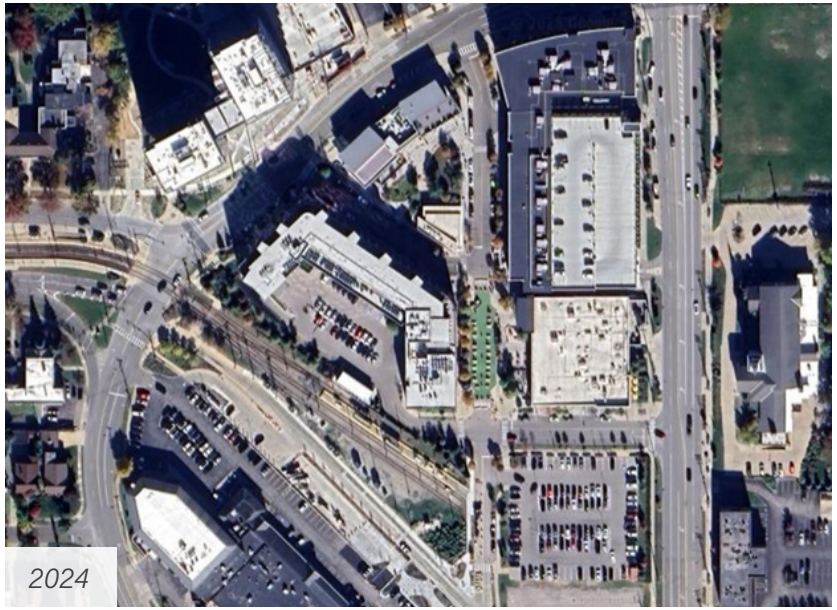
- Narrowed travel lanes to slow traffic speeds and minimize crossing distances for people on foot.
- Two-way operations for vehicles.
- On-street parking on one or both sides of the street.
    - Parking should be managed so as to maximize occupancy while simultaneously providing continuous available access. 85% curb occupancy may be used as an indication of optimal utilization.
- Continuous sidewalk on both sides of the street.
- Sufficient and frequently-spaced bicycle parking.
- The space adjacent to the curb should be used for on-street parking, bicycle parking or repair facilities, parklets, or 'daylighted' clear zones to support adjacent businesses, improve visibility at intersections or crosswalks, and provide access for emergency vehicles.
- Pedestrian crossings along the length of the street segment should be anticipated. Streets with traffic volumes below 10,000 vehicles per day as well as posted and operating speeds less than 25 MPH should accommodate pedestrian crossings along the length of the street segment. For streets with higher traffic volumes and speeds, mid-block crossings should be provided so as to minimize circuitous travel for people on foot. All signal- and stop-controlled intersections should provide marked crosswalks.
- Transit service should be accommodated, through the strategic use of bus pullouts, shelters and benches at stop locations, and additional amenities as appropriate.
- Frequent curb cuts should be discouraged. Access should instead be provided through the use of service drives or alleys. Access points to several destinations should be consolidated.
- Large canopy trees are desired between the roadway and pedestrian space. Compliance with road commission clear zone requirements may be required in the short term.
- Public art, wayfinding, and other placemaking elements are desired.

Case Study: The Van Aken District in Shaker Heights, Ohio

The Van Aken District is a vertically mixed-use, transit-oriented redevelopment consisting of residential, retail, and office, that sits at the terminus of the Blue Line light rail, in the heart of Shaker Heights, Ohio. The project has transformed an existing underutilized strip shopping center into a dense and vibrant neighborhood. The heart of the development, the centrally located 'Living Room', provides an internal park element that is supportive of adjacent uses and provides space for seasonal community special events. *Courtesy of MKSK.*



2012



2024

Providing a high-quality pedestrian environment is paramount. Comfortable and inviting sidewalk spaces correlate positively with higher retail sales and property values along commercial corridors. The pedestrian zone should be separated, or buffered, from roadway traffic by curbside parking or landscaping to maximize comfort for people walking. Pedestrian-scaled street lighting and landscaping also help to improve the perceived safety and attractiveness of the corridor during night hours.

Vehicle speeds should be slowed and managed appropriately through geometric design, traffic calming techniques, traffic signal timing and operations, and speed limit enforcement. Slower vehicle speeds should permit people walking to comfortably cross the street at controlled intersections and designated midblock crossings. On streets with sufficiently low traffic volumes, people on foot should be able to cross the street from an on-street parking location or the sidewalk at any place along a block face.

It is imperative that all streets, especially District Main Streets, foster safe access and mobility for all users, regardless of mode of transportation. Aligning street design with the intended land use and anticipated utilization mitigates conflicts across a wide range of street users. Where major arterial streets (such as Stadium Drive) are acknowledged, an alternative parallel street may be created in the future to segregate "to" and "through" functions as an area redevelops or becomes more dense, such as a large shopping center.

The Van Aken District, Shaker Heights, Ohio

The Van Aken District, Shaker Heights, Ohio

4.3

NEIGHBORHOOD CONNECTOR

Neighborhood connectors serve local areas while also providing connectivity to the broader street network. These streets should be designed to support traditional neighborhood activity, such as active use of sidewalks and the accommodation of young or less experienced bicyclists.

Although these streets may accommodate medium to higher vehicle volumes, particularly during morning and evening peak travel hours, they should be designed to encourage modest vehicle speeds of 25 MPH or below through traffic calming interventions. Neighborhood residential links may feature some level of transit service or serve as links in the regional non-motorized network.

Existing Example Street

11th Street between KL Avenue and Parkview Avenue

Prioritized Users

1. Vulnerable road users, including people walking or bicycling on the roadway or on sidewalks within a residential area
2. People driving to a destination within the residential area
3. People driving through the residential area

Anticipated and Desired Uses

- Moderate to high pedestrian volumes
- People using transit
- Utilization by 'interested but concerned' and 'enthused and confident' bicyclists
- Significant local travel by drivers
    - Moderate regional vehicle travel

Design Intent

- Facilitate safe and comfortable access and trips both within the residential area and across the township.

Typical Design Elements and Treatments

- Narrow travel lanes to slow vehicle speeds.
- Additional traffic calming elements, such as traffic circles or chicanes to maintain appropriate speeds for a residential environment. Speed humps or cushions could be used on streets that provide limited connectivity to the broader street network.
- Two-way vehicular operation, with one lane per direction. Marked centerlines or center medians are generally provided.
- Intersections are primarily stop-controlled, although intersections with regional connectors may be signal-controlled.
- Continuous sidewalks on both sides of the street. Landscaped buffer space should be provided between the road and sidewalk.
- Marked crosswalks should be provided at all signalized intersections.
- Curb cuts and access points should be minimized to the extent possible.
- Large canopy trees should be provided in the buffer space between roadway and sidewalk, to the extent possible.

4.4

NEIGHBORHOOD STREET

To the east, neighborhoods within Oshtemo Township are characterized by quiet local streets that provide residents with access to housing. Many of these existing streets have limited connections to the broader street network, and several minimize the possibility of cut-through traffic with cul-de-sacs or other street terminations.

Adjacent land use along these street types is generally low- to moderate-density, primarily featuring single-unit detached housing, although there are also several condominium and apartment buildings served by these streets. In similar fashion to neighborhood connectors, these streets should be designed to support traditional neighborhood activity, such as active use of sidewalks, use of yards for play, and the accommodation of young or less experienced bicyclists.

Neighborhood Streets typically do not feature transit service or commercial truck traffic, and dedicated bicycle facilities may not be provided on lower-volume segments. Typology guidance for Neighborhood Streets are intended to align with existing design guidelines for private streets under Township jurisdiction.

Existing Example Streets

Valley View Drive, Horizon Heights Drive, Linden Trail

Prioritized Users

1. Vulnerable road users, including people walking or bicycling
2. People driving to destinations within the residential area
3. People using the street for recreation and exercise

Anticipated and Desired Uses

- Access to housing and other destinations for people driving, walking, or bicycling
- Low-stress travel for people on foot or bicycling, including 'interested but concerned' bicyclists

Typical Design Elements and Treatments

- Narrow street widths. Some neighborhood streets may function as 'yield streets,' where drivers must find a gap in on-street parking to allow an oncoming vehicle to pass. Two-way yield streets are generally appropriate in residential areas with moderate on-street parking utilization.
- Traffic calming elements, such as speed humps, or other speed management strategies may be necessary for neighborhood streets that provide higher levels of connectivity to the broader street network. Diverters or modal filters may be provided to mitigate cut-through vehicle traffic.
- Intersections are generally stop- or yield-controlled.
- Marked crossings are generally not provided. Pedestrians may cross the street comfortably at any point along a segment.
- Frequent access points to houses or other developments are provided to the street or a rear alley.
- Continuous sidewalks should be provided on both sides of the street.
- Separate non-motorized facilities, such as bicycle lanes or cycle tracks, are generally not provided. Vehicle speeds and volumes should be sufficiently low to provide for shared street functionality, where all road users utilize a single travel way. Drivers are required to yield to people walking or bicycling within the street.

Example: Neighborhood Street

What is "Traffic Calming"?

Traffic Calming is the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior, and improve conditions for non-motorized street users to achieve the objectives of slower vehicle travel speeds, reduced collision frequency and severity, reduced cut-through traffic, increased safety and the perception of safety, and enhancing the street environment. Examples of traffic calming is included in the Countermeasure Toolbox later in this Chapter.

4.5

COUNTRYSIDE CONNECTOR

Much of the western half of Oshtemo Township is currently characterized by natural areas for agriculture and recreation, water features, and residential houses spaced far apart across open spaces. Understanding the community's desire to maintain these natural areas, intense land use and development should be restricted, preserving the existing open spaces and continuing a low-density development pattern.

Countryside connector roads provide access to housing, farmland, and open spaces across the rural portion of Oshtemo Township.

The character of a countryside connector may vary, but generally feature high-speed vehicle operations, low to moderate traffic volumes, and minimal non-motorized utilization. Trucks and other commercial vehicles may utilize these roads. If bicycle facilities are to be provided, they should be separated from the roadway, although some 'vehicular' cyclists may choose to use the roadway shoulder to ride. Provision of safety elements such as rumble strips should be coordinated with known bicycling routes so as not to preclude shoulder utilization.

Example Streets

Almena Drive, KL Avenue, 2nd Street

Prioritized Users

1. People driving to a destination within the countryside residential place
2. People driving through the countryside residential place
3. Commercial truck traffic, such as delivery services, school buses, and waste management
4. People riding bicycles or walking

Anticipated and Desired Uses

- Vehicle trips through the area at higher rates of speed
- Adjacent low-density commercial and residential development
- Commercial and agricultural truck and vehicle utilization
- Some shoulder utilization by 'strong and fearless' cyclists

Design Intent

- Improve safety outcomes for all road users, with a particular focus on drivers.
- Maintain connectivity through the township.
- Provide access to housing and other destinations along the road.

Typical Design Elements and Treatments

- Minimum lane width necessary to facilitate heavy vehicle and truck utilization and higher rates of speed.
- High visibility lane markings.
- Two-way vehicle operations with a marked or dashed centerline.
- Widened paved or gravel roadway shoulders.
- Large canopy trees along the roadway edge to help provide a sense of enclosure to the road.

4.6

COUNTRYSIDE STREET

The western portion of Oshtemo Township features large-lot residences dispersed across winding low-volume streets and cul-de-sacs. Due to the limited number of houses they service, relative lack of connectivity, and the resulting low traffic volumes, street design for these areas differs from that of Neighborhood Streets further east.

These streets will generally lack on-street parking, curbs, and sidewalks as low-traffic speeds and volumes can make the streets a comfortable shared use space for people walking and cycling.

Typology guidance for countryside streets is intended to align with existing design guidelines for private streets under Township jurisdiction.

Example Streets

Highland View Drive

Prioritized Users

1. Local residents accessing their houses by walking, cycling, or driving
2. Vulnerable road users and local residents using the street for recreational activities

Anticipated and Desired Uses

- Access to housing and connectivity to greater street network
- Low-stress travel for people on foot or bicycling

Design Intent

- Improve safety outcomes for all road users, with a particular focus on drivers
- Provide access to housing and other destinations along the road

Typical Design Elements and Treatments

- Narrow street widths
- Separate non-motorized facilities, such as sidewalks or bicycle lanes, are generally not provided. Vehicle speeds and volumes should be sufficiently low to provide for shared street functionality, where all road users utilize a single travel way. Drivers are required to yield to people walking or bicycling within the street

SUMMARY TABLE

A summary of recommendations for each street typology are shown below, with additional consideration given to design element provision and widths in the cross-sections section.

STREET TYPOLOGY	ADJACENT LAND USE	SIDEWALK ELEMENTS		ROADWAY ELEMENTS			
		BUFFER ZONE	SIDEWALK ZONE	VEHICLE LANES	TRANSIT ELEMENTS	ON-STREET PARKING	BICYCLE ELEMENTS
Regional Connector	▪ Mixed-use ▪ Low- and medium-density residential	Shrubs, bushes, or street trees where appropriate	Continuous sidewalks on both sides of the street	One to two lanes in each direction	▪ Marked bus stops ▪ Shelter and benches provided where feasible	Generally not provided, but could be considered in neighborhood mixed-use areas	If provided, facilities should be separated
District Main Street	Commercial corridors	Street trees Bicycle parking Benches Trash containers Person-scaled lighting Outdoor seating	▪ Continuous sidewalks on both sides of the street ▪ Minimal curb cuts ▪ Curb extensions at key intersections	One lane in each direction	Marked bus stops with shelters and benches	▪ Provided ▪ Could be metered if desired	If provided, facilities should be separated unless traffic volumes and speeds are sufficiently low
Neighborhood Connector	▪ Low- and medium-density residential ▪ Commercial or mixed-use	Street trees where appropriate	Continuous sidewalks on both sides of the street	One lane in each direction	▪ Marked bus stops ▪ Shelters and benches provided where feasible	Desired, but should be sensitive to adjacent land use	If provided, facilities should be separated unless traffic volumes and speeds are sufficiently low
Neighborhood Street	Low- and medium-density residential	Street trees where appropriate	Continuous sidewalks on both sides of the street	One lane in each direction	None	Provided	▪ Shared street ▪ Signage, wayfinding, or other traffic calming elements could be provided as appropriate

STREET TYPOLOGY	ADJACENT LAND USE	SIDEWALK ELEMENTS		ROADWAY ELEMENTS			
		BUFFER ZONE	SIDEWALK ZONE	VEHICLE LANES	TRANSIT ELEMENTS	ON-STREET PARKING	BICYCLE ELEMENTS
Countryside Connector	Low-density residential	▪ Shrubs and grasses ▪ Street trees where appropriate, considering clear zone guidance	▪ If provided, combined with bicycle facilities on shared-use path ▪ Natural edges	One to two lanes in each direction	None	Not provided	If provided, facilities should be separated
Countryside Street	Low-density residential	Street trees where appropriate	▪ Generally not provided ▪ Natural edges or lawn	One lane in each direction	None	Provided	Generally not provided

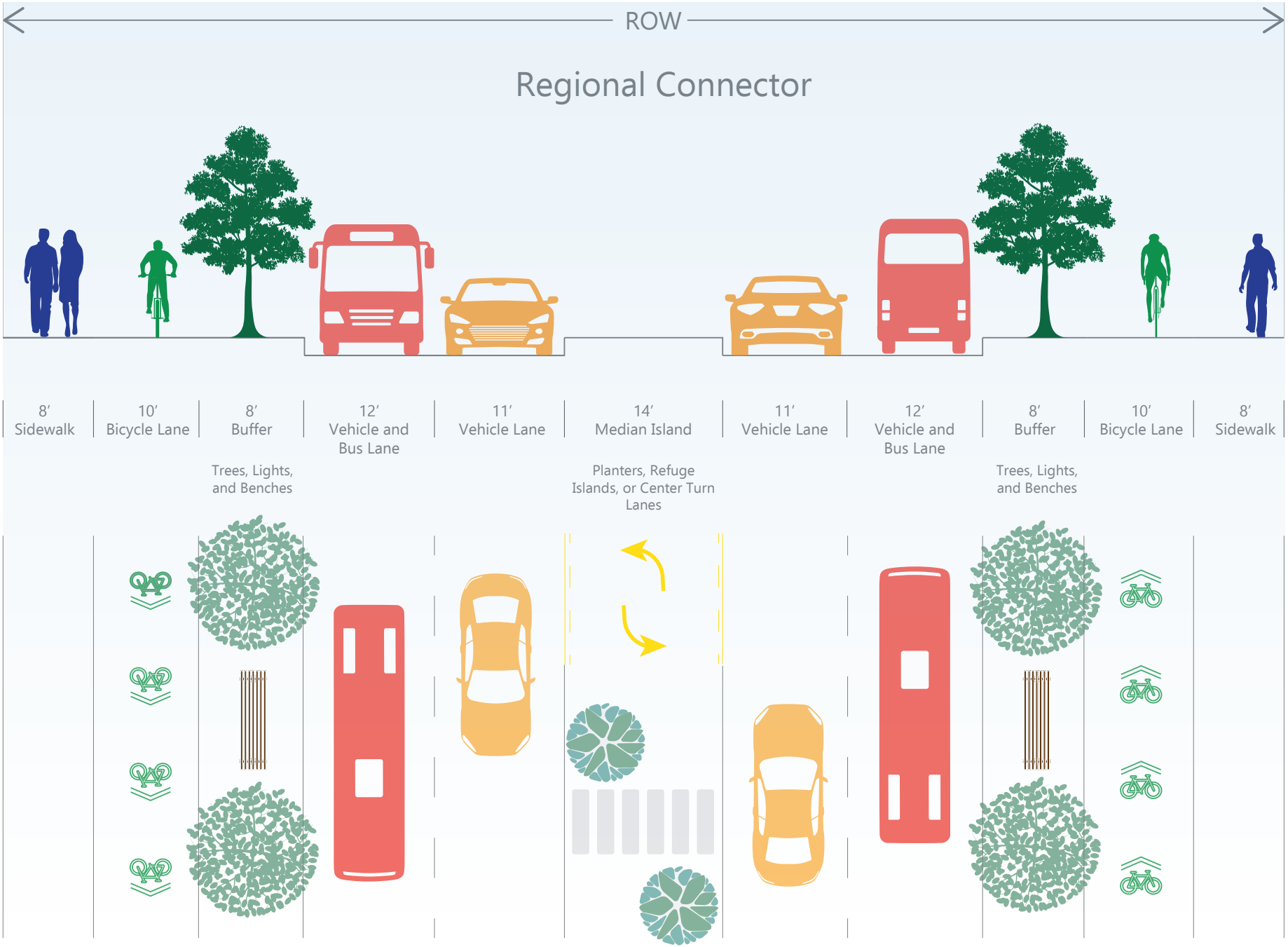
4.7

Street Cross-Sections by Typology

Recommended street and road cross-sections by typology are presented on the following pages. Each cross-section adheres to the available right-of-way for each related functional classification.

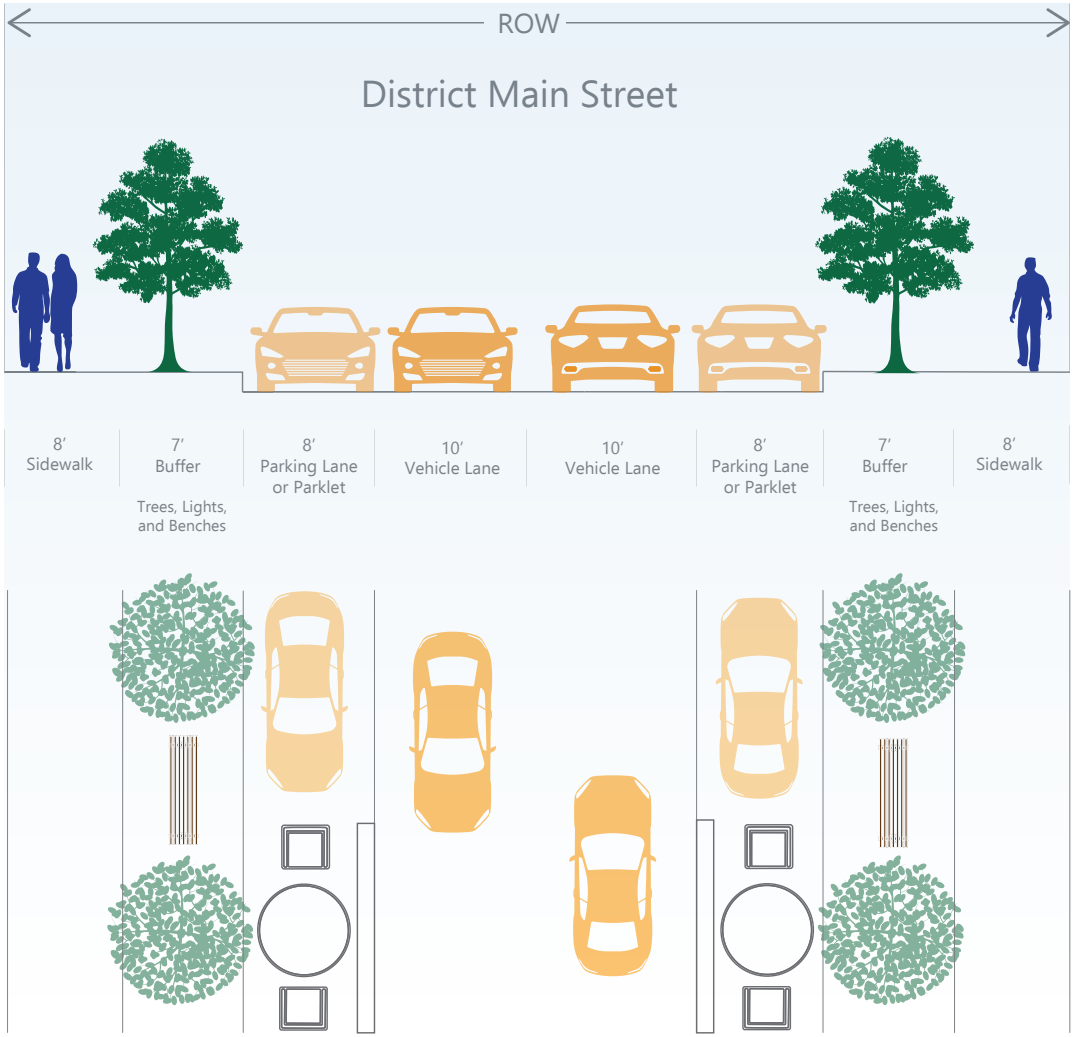
REGIONAL CONNECTOR

- Up to 120' of available ROW.
- One or two lanes may be provided in each direction, dependent on available ROW and vehicular demand.
- Continuous sidewalks should be provided on both sides of the road, or a sidewalk and a shared use path.
- Separated bicycle facilities should be provided behind the curb (no on-street facilities), if the road is on the proposed non-motorized network.
- Curb and gutter is accommodated within buffer width.
- Bus stops and shelters should be provided within the buffer space between road and bicycle facility or sidewalk. A concrete pad should be provided, and a connection between the sidewalk and pad.
- Center lane can be used as a hardened or landscaped center median or center two-way left turn lane (TWLTL), with width ranges varying. As a TWLTL, widths may range between 10-12'.
    - If Bus Rapid Transit (BRT) implementation is pursued, maintaining a continuous center left turn lane would provide the greatest level of flexibility, as it can more easily be converted to center-running BRT operations.


ROW
Regional Connector
8′ Sidewalk
10′ Bicycle Lane
8′ Buffer
12′ Vehicle and Bus Lane
11′ Vehicle Lane
14′ Median Island
11′ Vehicle Lane
12′ Vehicle and Bus Lane
8′ Buffer
10′ Bicycle Lane
8′ Sidewalk
Trees, Lights, and Benches
Planters, Refuge Islands, or Center Turn Lanes
Trees, Lights, and Benches

DISTRICT MAIN STREET

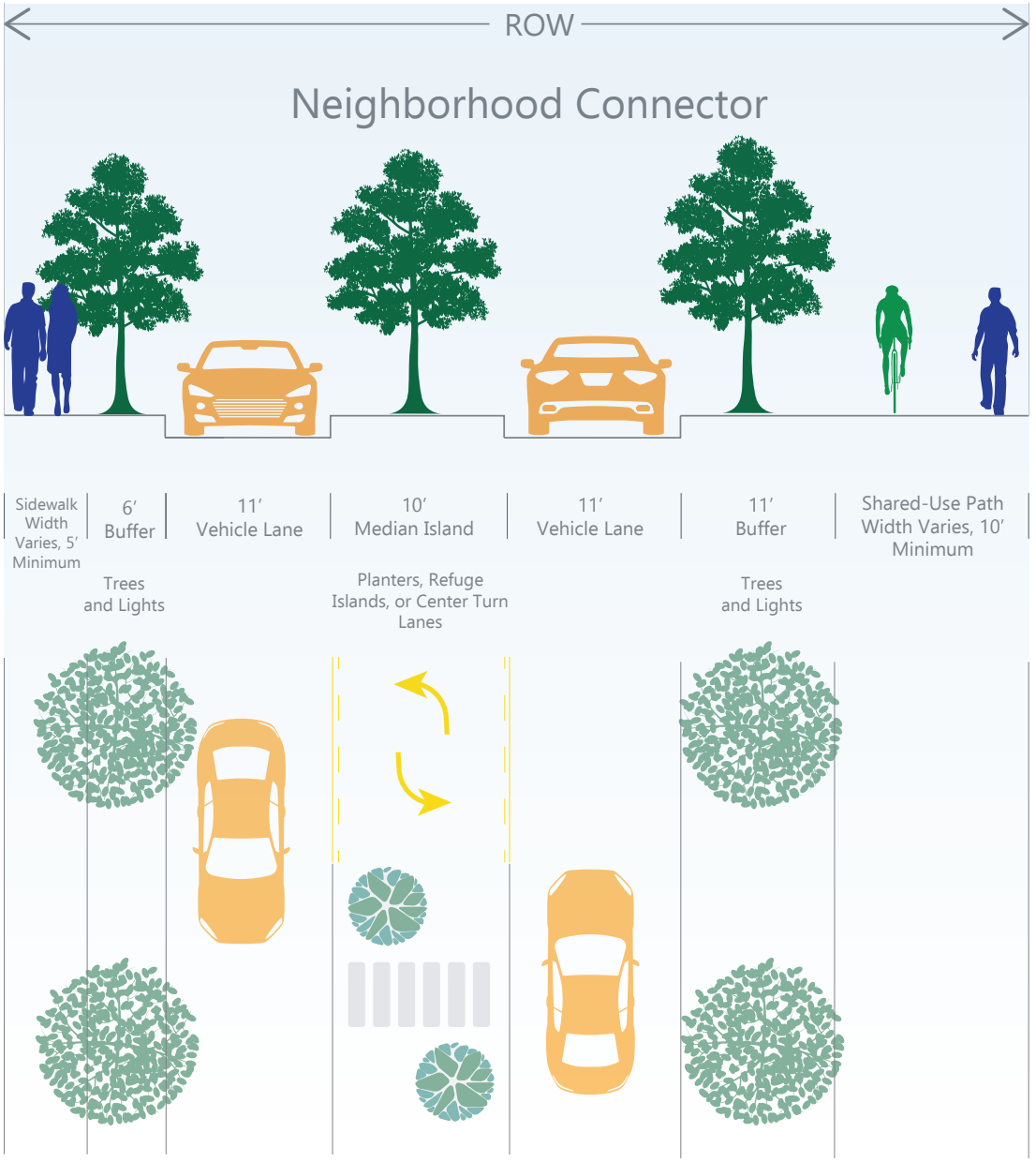
- 66′ ROW generally available.
- On-street parking is desired. With travel lanes proposed at 10′, parking lanes at 8′ are suggested.
- The width of the gutter pan is included as part of the parking or bicycle lane, while the width of the curb is included as part of the buffer space.
- If the street is on the proposed non-motorized network, separated bicycle facilities may be provided in lieu of on-street parking. On-street facilities, such as buffered or protected bicycle lanes, are appropriate for streets with traffic volumes less than 7,000 vehicles per day and speeds less than 35 MPH.
- Where on-street parking is present, a minimum of 12′ between the back of curb and face of building should be provided. Where no on-street parking exists, a minimum of 18′ between the back of curb and face of building should be provided to allow for pedestrian comfort and outdoor seating.
- Continuous sidewalks to be provided on both sides of the street with clearly demarcated sidewalks.
- Canopy trees should be planted, with structural soils.
- Transit stops and shelters should be provided in the landscaped buffer space between sidewalk and curb.




ROW
District Main Street
8′ Sidewalk
7′ Buffer
Trees, Lights, and Benches
8′ Bicycle Lane
10′ Vehicle Lane
10′ Vehicle Lane
8′ Bicycle Lane
7′ Buffer
Trees, Lights, and Benches
8′ Sidewalk

NEIGHBORHOOD CONNECTOR

- 66′ ROW generally available.
- If the street is on the proposed non-motorized network, bicycle facilities should be provided.
  - A combination of a sidewalk on one side and shared use path on the other should be used to provide pedestrian and bicycle facilities.
  - On-street bicycle facilities are appropriate for streets with traffic volumes less than 7,000 vehicles per day and operating speeds less than 35 MPH.
  - Space between travel lane and curb can be used for on-street parking if non-motorized facilities are not desired and parking will be well-used.
- Continuous sidewalks should be provided on both sides of the street. Crosswalk locations to be clearly demarcated.
- Center lane can be used as a hardened or landscaped center median or center TWLTL. As a TWLTL, widths may range between 10-11.
- Vehicle lane width is inclusive of the gutter pan. Buffer width is inclusive of the curb.
- Sidewalk and shared-use path widths may be adjusted if additional ROW is available. Minimum sidewalk width should be 5' and the minimum shared-use path width should be 10'.
- Consideration should be given to placement of transit stops or shelters on roads with limited ROW. A concrete pad should be provided, and a connection between the sidewalk and pad.



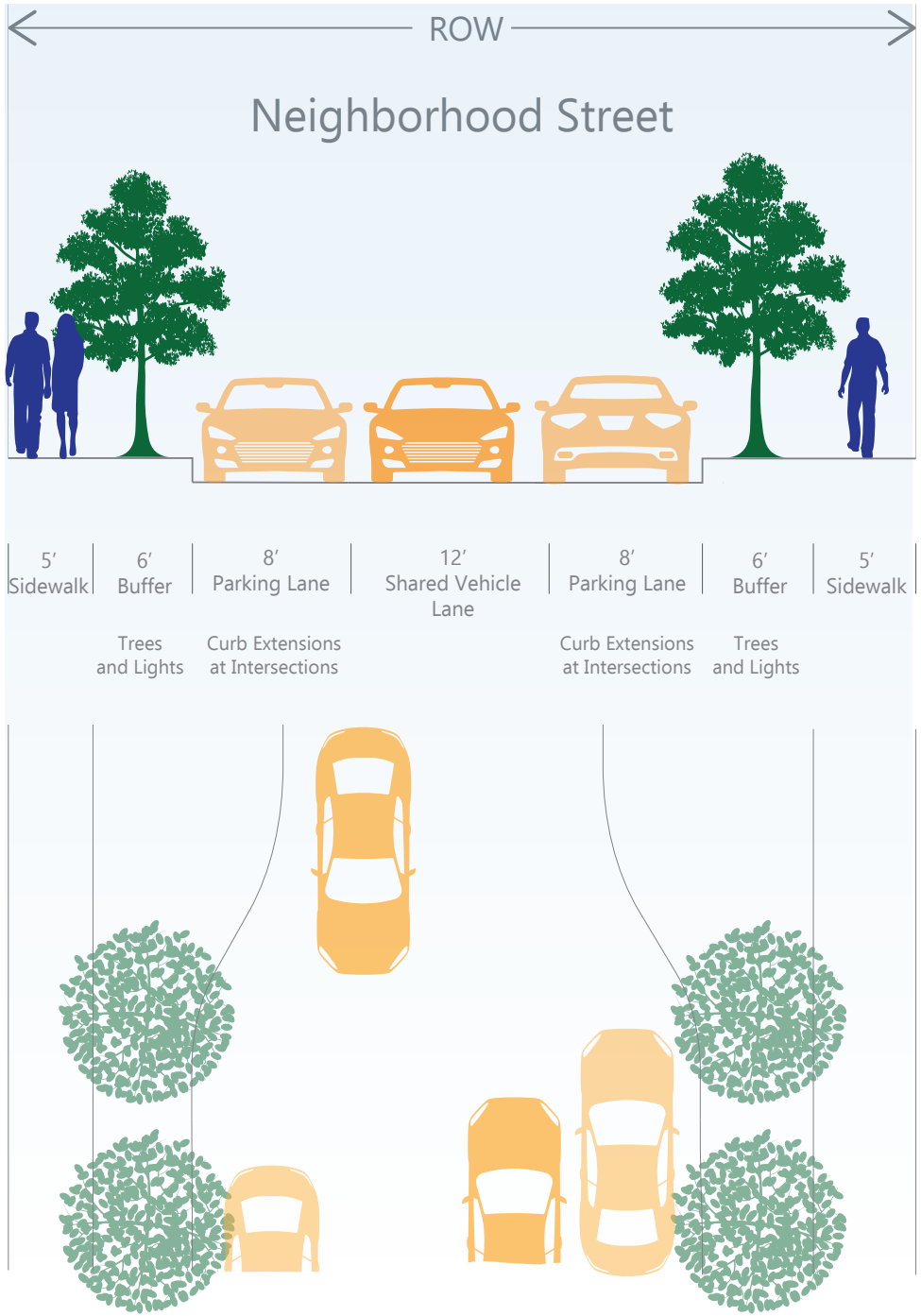
NEIGHBORHOOD STREET

- 66′ ROW generally available, however, on intentionally designed walkable streets for projects where a variety of different housing types are proposed in a traditional neighborhood pattern (urbanist) with rear-loaded parking or shared parking arrangements, 50′ ROW may be appropriate.
    - Where ROW is lower than 50', the soil width of the planting strips may be reduced but be no less than 4' wide to ensure a healthy tree canopy. Curb-to-curb and sidewalk widths should be maintained.
    - Parking lane width is inclusive of the gutter pan. Buffer width is inclusive of the curb.

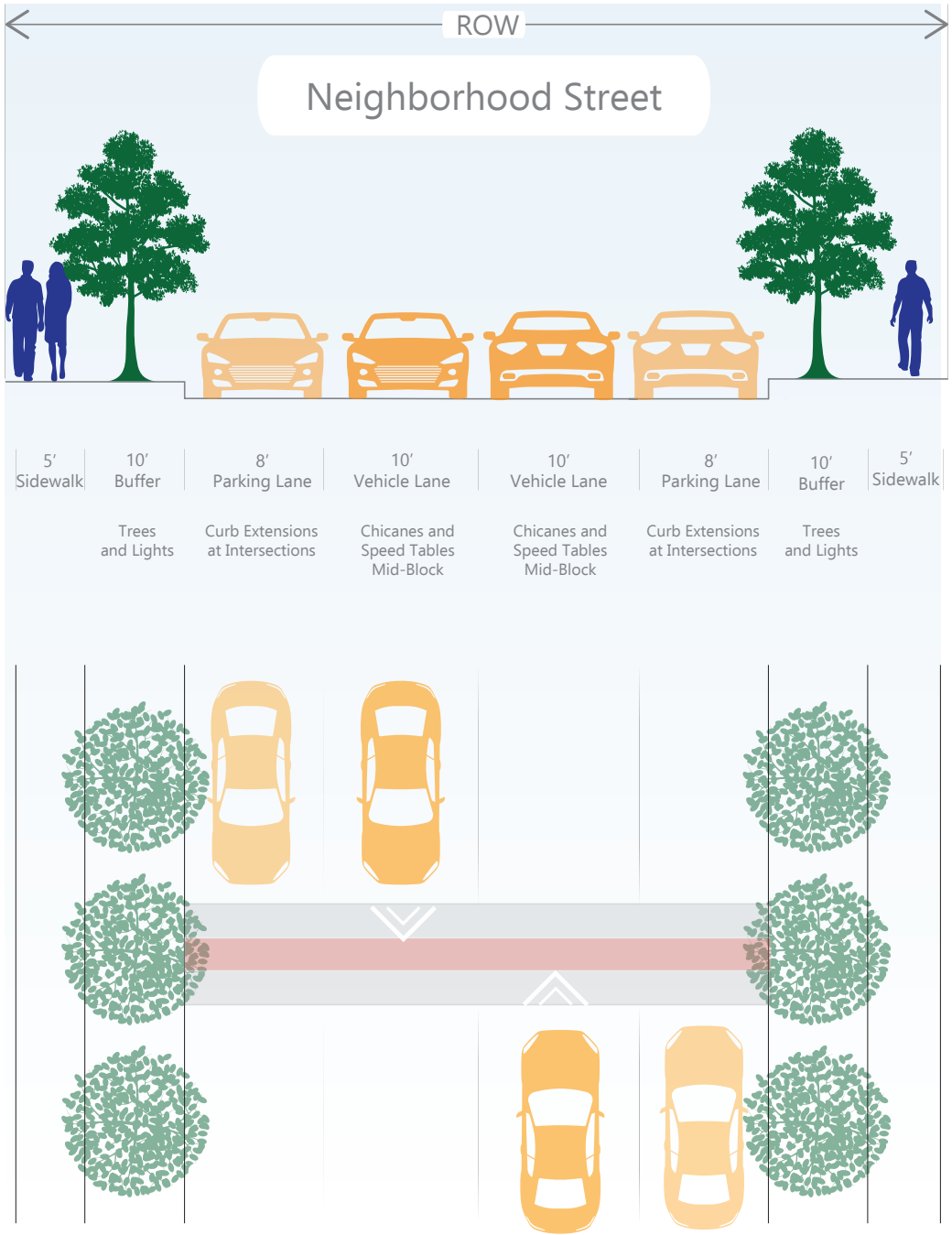
- On a residential street that is more suburban in character, a yield street or street with 10′ travel lanes and no on-street parking, may be considered. In all cases, where front-loaded parking is allowed, a minimum of 25′ must be maintained from the back of curb to the garage doors to provide for one parking space that does not encroach upon the sidewalk.

- If a street is on the proposed non-motorized network, sharrows, other pavement markings, or signage may be used to mark the route.
    - On streets with operating speeds less than 25 MPH and traffic volumes less than 3,000 vehicles per day, the neighborhood street may function appropriately as a 'shared street' or 'bicycle boulevard,' where bicyclists would share the general-purpose travel lanes with drivers. [22]

- Continuous sidewalks should be provided on both sides of the street.

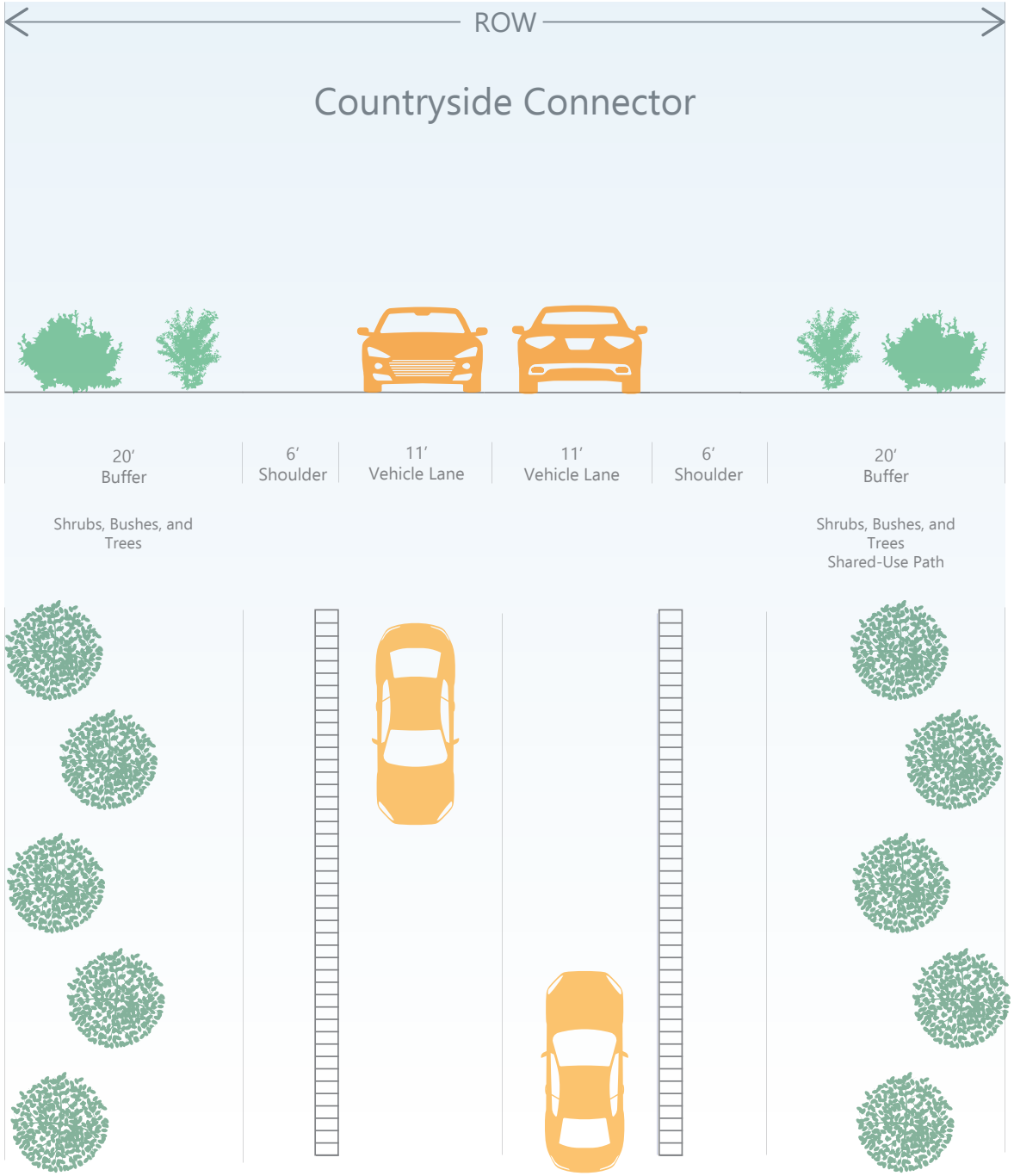


[22] *https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-07/fhwasa18077.pdf*


ROW
Neighborhood Street
5′ Sidewalk
10′ Buffer
Trees and Lights
8′ Parking Lane
Curb Extensions at Intersections
10′ Vehicle Lane
Chicanes and Speed Tables Mid-Block
10′ Vehicle Lane
Chicanes and Speed Tables Mid-Block
8′ Parking Lane
Curb Extensions at Intersections
10′ Buffer
Trees and Lights
5′ Sidewalk

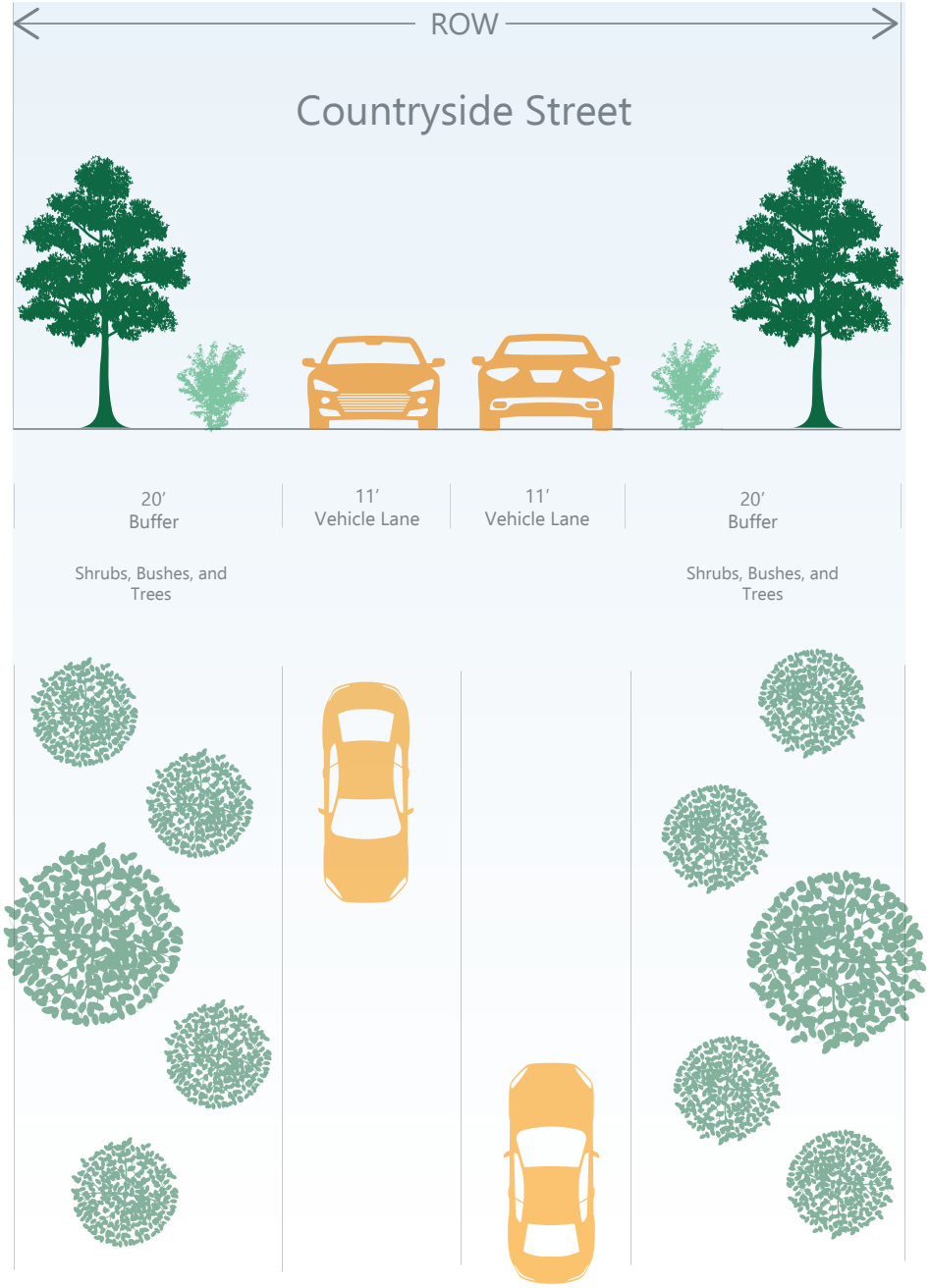
COUNTRYSIDE CONNECTOR

- 66′ ROW generally available.
- Landscaping, such as street trees, should be provided as appropriate
  - Consideration should be given to clear zone distances on roads with higher operating speeds.
  - Natural edges may be more context-appropriate.
- Roadway shoulder provided on both sides.
  - Shoulder may be used by ‘vehicular’ cyclists. A minimum of 2′ clear and 3′ shoulder should be provided without rumble strips in the 3′ clear shoulder area for cyclists.
- A separated shared-use path, for use by people walking or bicycling, may be provided if desired.
  - Appropriate landscaping should be used to buffer or protect vulnerable road users along the shared-use path.



COUNTRYSIDE STREET

- 66′ ROW generally available.
- Landscaping, such as trees or shrubs, may be provided where appropriate.
- Separated non-motorized facilities, such as sidewalks or shared-use paths, are generally not provided due to the relatively low vehicle traffic volumes and speeds and the long-term cost of infrastructure maintenance.
- A rolled curb is suggested.



5

MULTI-MODAL TOOLBOX

The following section provides ***high-level guidance for the selection, design, and implementation of various design elements and facility types*** as defined by the street typologies and proposed non-motorized network. As roadway projects occur over time, opportunities to leverage construction funding and cross-section reconfigurations should be coordinated with RCKC in the short-term and internally in the long-term.

Elements intended to provide opportunities for non-motorized travel or manage observed vehicle speeds that are incongruent with adjacent land use or posted limits are outlined below. Each element is not intended to be applied across all typologies and in all places; rather, engineering judgment and local expertise should be considered during final design.

"Soft" elements are addressed – how do people feel when they are traveling? – along with "hard" elements – those physical changes that can make a difference in how people use transportation facilities. ***Both affect human behavior, the choices we make, and ultimately the fiscal, environmental, and quality of life consequences.*** Oshtemo residents have described a different future than the status quo – one where the characteristics of a place matter. Poor safety outcomes on Oshtemo's roads support the public's intuition that traffic is too fast and dangerous. All of it boils down to intentional policy decisions that are then supported by thoughtful design.

5.1 Walkable

Oshtemo residents resoundingly desire a "walkable" community. What does that mean? ***The "five Ds"*** describe the elements important to creating a walkable community.

Density A concentration of people and buildings in an area which provides choice, access, and opportunity.

Diversity The variety of land uses in the area, the greater the mix the more a person can access in a short distance.

Design The physical layout of streets and buildings, and the features that accompany them (such as crosswalks), which allow a pedestrian to feel safe.

Destinations The presence of community assets that provide a reason to walk, such as to the grocery store, school, or a friend's house.

Distance to Transit Proximity to transit stops to provide modal choice.

Other important components include safety and security (observable, well-lit streets and trails, slow traffic), comfort (shade trees and seating) and aesthetics that can make a walk interesting.

The Oshtemo 2045 Comprehensive Plan clearly addresses a great deal on this list. In combination with this Master Streets Plan, the physical design of Oshtemo Township is fully described. Current regulatory measures and policies must be amended to effectuate the vision of creating walkable places. The Comprehensive Plan describes zoning recommendations for land use and place types. So, too, RCKC standards must be reviewed and adjusted. Rural road designs do not support mixed-use environments, multiple modes, and the presence of pedestrians. These roads are built for people in cars, not all people.

5.2

Bikeable

Creating a bicycle-friendly community relies on how safe, easy, and convenient it is for people to cycle in Oshtemo.

Installing shared-use paths along West Main Street is a significant first step towards a more walkable and bikeable community. There are several key components that, when joined together, create a more bicycle-friendly community. These components include:

Infrastructure Cycling facilities that are separated from traffic, either through physical barriers or fully separated facilities, are desired to accommodate the greatest number of users – to ensure Oshtemo "is a community designed for everyone".

Connected Network Convenient routes to destinations and neighborhoods shortens travel distances and makes cycling a more practical and attractive option.

Low-Stress Routes Prioritizing the development of low-stress cycling routes that avoid busy roads or heavy traffic can encourage a broader range of people to cycle, particularly those who are less confident or experienced.

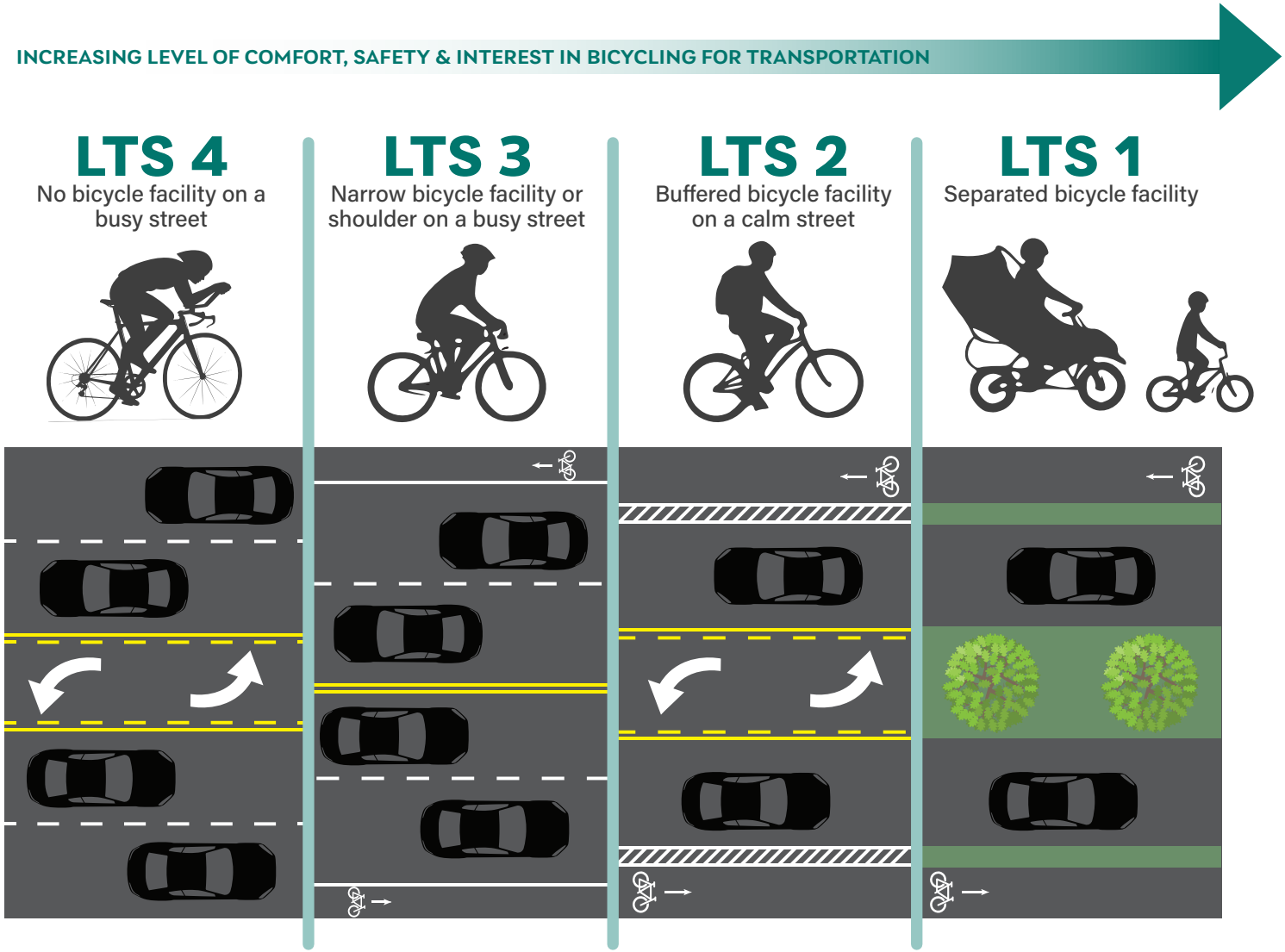
Visibility and Signage Clear markings and signage assist with wayfinding and reduce stress to cyclists who may be unfamiliar with available routes.

Education and Awareness Campaigns and educational programs can increase awareness among both cyclists and drivers, promoting safer interactions.

Cycling Promotion Community events, initiatives, and the promotion of cycling as a positive and accessible activity can foster a stronger cycling culture.

In non-motorized network planning, a low-stress network is desired. The "stress" of a network is based on the perceived stress level that a person would feel riding in that environment. Roadway design, traffic volumes, and motor vehicle speeds alongside an individual's perception of comfort all come into play.

LEVEL OF TRAFFIC STRESS



An "all ages and all abilities" low-stress network does not mean that every street must accommodate protected cycling facilities; it instead acknowledges that a network is made up of different facilities with enough route redundancies, empowering residents to choose their desired route based on their own personal confidence and comfort level with cycling. More people will bike if options are provided.

BICYCLIST DESIGN USER PROFILES

Interested but Concerned	Somewhat Confident	Highly Confident
51-56% of the total population	**5-9%** of the total population	**4-7%** of the total population
Often not comfortable with bike lanes, may bike on sidewalks even if bike lanes are provided; prefer off-street or separated bicycle facilities or quiet or traffic-calmed residential roads. May not bike at all if bicycle facilities do not meet needs for perceived comfort.		

LOW STRESS TOLERANCE **HIGH STRESS TOLERANCE**

Bicycling is efficient and environmentally friendly, which supports some people's interest in living more sustainably. It is also a very cost-effective and accessible mode of travel, which can help more residents reach destinations without needing a car.

People also use it to stay healthy, recreate, and create their own community with a shared passion. No matter what the reason is, bicyclists are legal road users and should be able to travel safely in Oshtemo Township without fear of a high-speed collision with a driver in a car.

5.3

Non-Motorized Plan

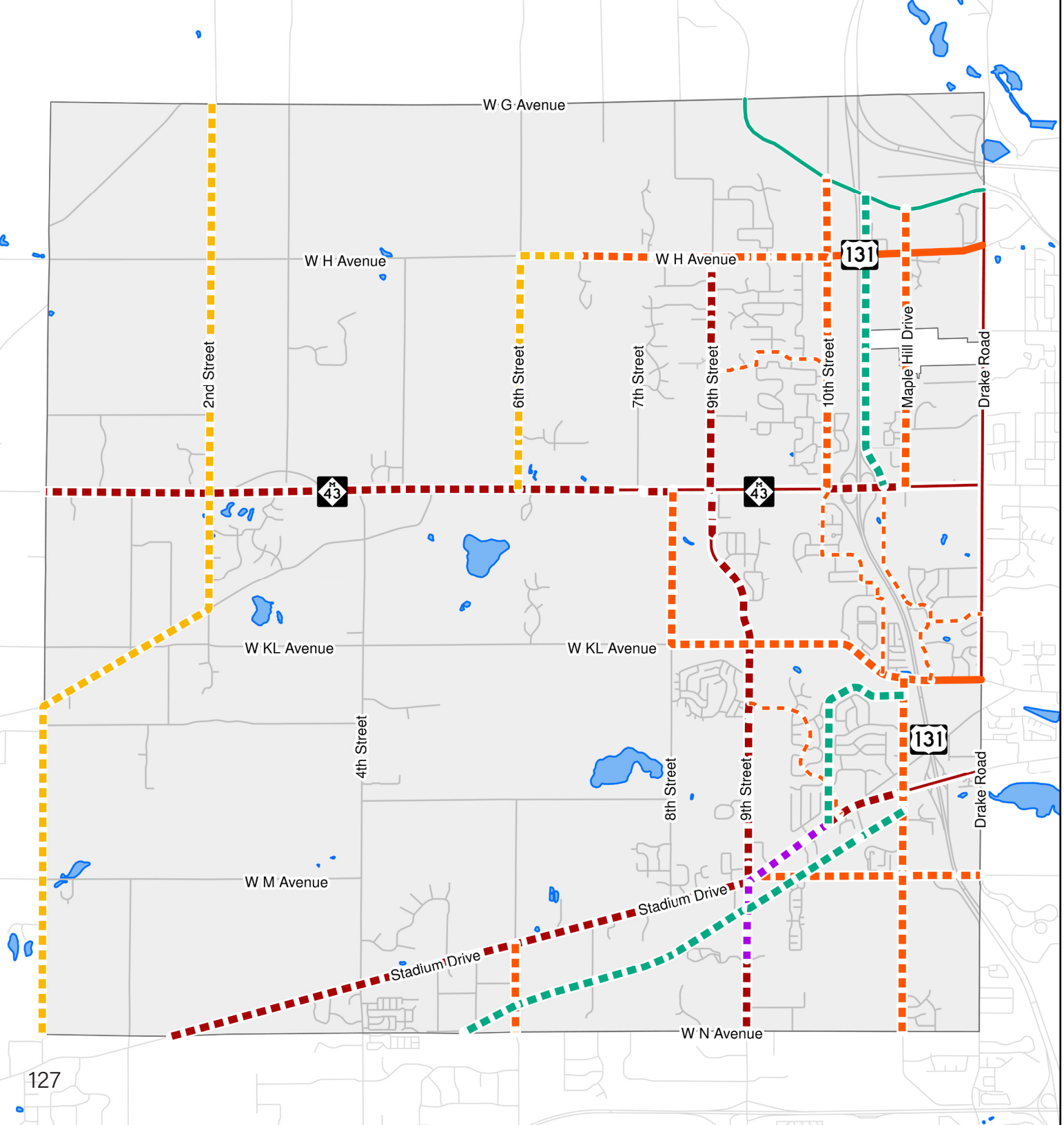
Oshtemo Township's non-motorized network will be developed incrementally by referencing the Place Types Map, the Street Typologies Map, and the Non-Motorized Network Map.

The intent of the Non-Motorized Network Map is not to prescribe specific facility types but to indicate appropriate routing to develop an "all ages and all abilities" network throughout the township.

"All ages and abilities" means exactly as it sounds: Oshtemo Township residents - from the 10-year-old middle school student riding home after band practice to the group of friends training for their upcoming triathlon race to the elderly couple who are simply looking for a low-impact way to stay active - all should feel safe, dignified, and empowered to walk and ride their bicycles through the community.

The Proposed Non-Motorized Network Map is focused on creating a network that addresses existing gaps and safety concerns. The proposed network facility recommendations were developed based on the following:

- Input received from the public during the public engagement process for the 2045 Comprehensive Plan;
- Go! Green Oshtemo recommendations; and
- Staff and consultant analysis of system needs, gaps, and opportunities.



MAP 5.1

Proposed Non-Motorized Network

Oshtemo Township

LEGEND

- Existing Regional Connector
- Existing District Main Street
- Existing Neighborhood Connector
- Existing Neighborhood Street
- Existing Countryside Connector
- Existing Countryside Street
- Existing Greenway Trail
- Proposed Regional Connector
- Proposed Neighborhood Connector
- Proposed Neighborhood Street
- Proposed District Main Street
- Proposed Countryside Connector
- Proposed Countryside Street
- Proposed Greenway Trail

This Proposed Non-Motorized Network Map represents a high level planning guide for implementing the Township's network over time. Facility routing, facility type, location, and location priority are subject to change as proposed projects move towards implementation.

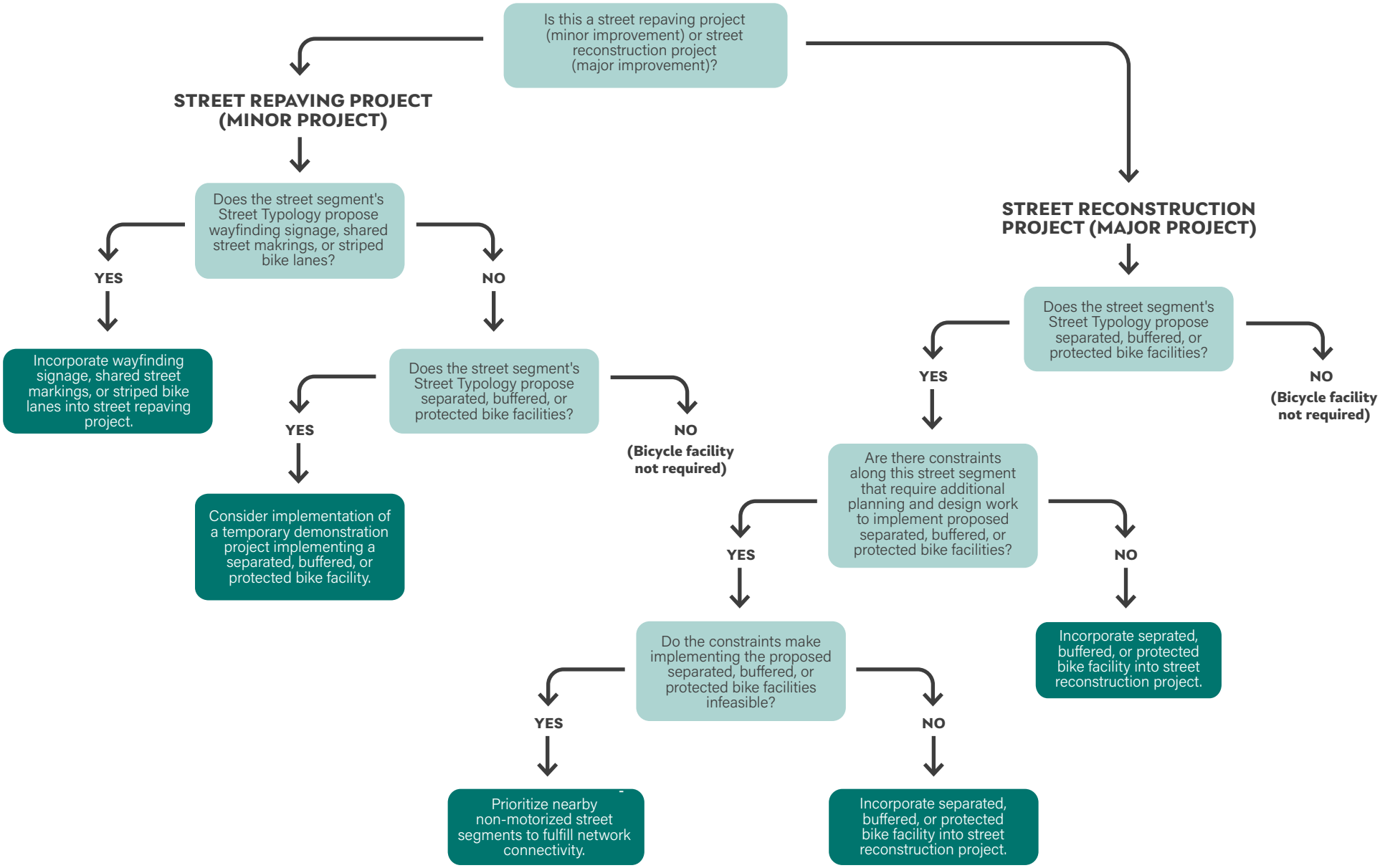
N

0 0.5 1 Miles

Data Source: Oshtemo Township, 2024. Michigan Geographic Data Library, 2024. Progressive Companies, 2026.

NON-MOTORIZED DECISIONS MATRIX

Specific facility selection and intersection designs should be evaluated on a case-by-case basis and are subject to change as adjacent land use, roadway function, and daily vehicle traffic volumes evolve over time.



5.4

Facilities Selection

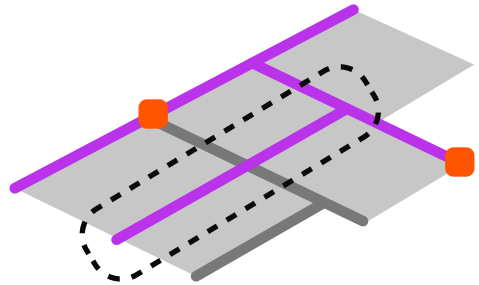
Selecting the appropriate facility type when restriping or reconstructing a roadway when a private development is being designed requires much thought and consideration. The following matrix outlines how Township staff will utilize the Non-Motorized Network Map, Place Types Map, and Street Typology Map to identify appropriate non-motorized facilities, resulting in an "all ages and abilities" network.

OSHTEMO TOWNSHIP NON-MOTORIZED FACILITIES MATRIX

1 **Is the street segment included on the Non-Motorized Network Map?***

**Refer to Non-Motorized Network Map*

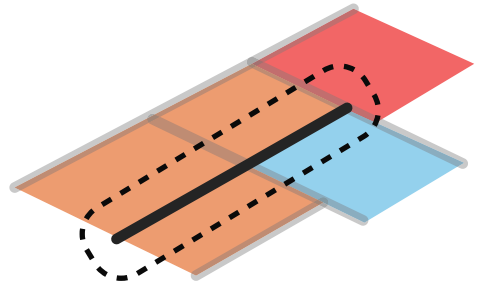
EX: Yes, the street segment is included on the Non-Motorized Network Map



2 **What Place Type* is the street segment located in?**

**Refer to Place Types Map*

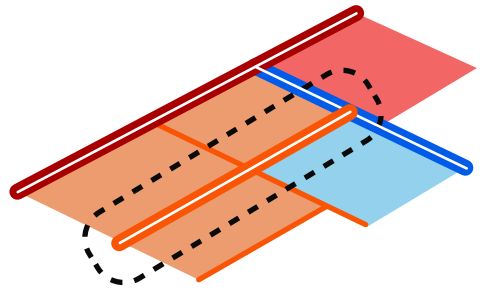
EX: The street segment is located within the Neighborhood Residential Place Type



3 **What is the street segment's Street Typology?***

**Refer to Street Typology Map*

EX: The street segment is identified as the Neighborhood Connector street type

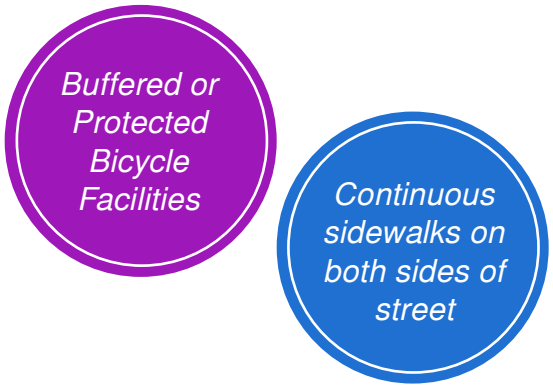


4 What type of non-motorized facilities* does the street segment's Street Typology list as appropriate?

*Refer to Master Streets Plan

EX: The Neighborhood Connector street type notes that: "If the street is on the proposed non-motorized network, ***buffered or protected bicycle facilities*** *should be provided and* ***continuous sidewalks should be provided on both sides of the street."***

The Master Streets Plan Calls for:



5 What constraints exist on implementing these non-motorized improvements on this street segment?

EX: Some constraints can include:

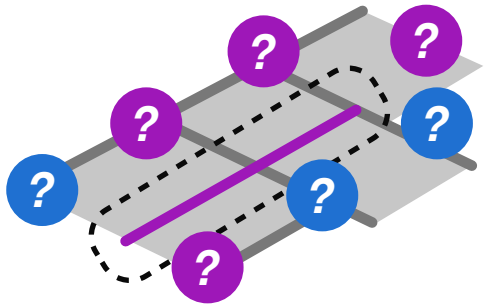
Will curbs or road geometry be impacted?

Are there utilities that need to be relocated?

What is the condition of underground infrastructure?

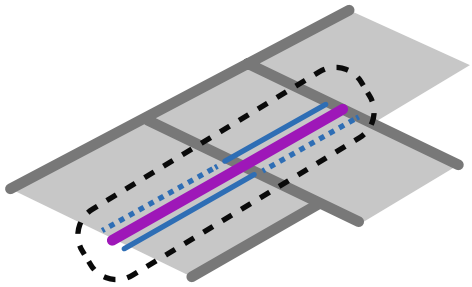
What are the right-of-way constraints?

Are there known safety issues along this segment?



6 After studying the street segment and understanding its unique constraints, the Township will choose a facility type design that addresses these constraints and is consistent with the Master Streets Plan.

EX: "Based on all of these factors, this facility type design is best-suited for this segment."



EASTERN OSHTEMO

The eastern portion of Oshtemo Township is a combination of the Regional Corridor, Neighborhood Mixed-Use, Neighborhood Residential, and Innovation and Industry Place Types. Residents of this area may not have reliable vehicle access (or may choose not to rely on motorized vehicles for all their travel). The need for a variety of non-motorized options, as well as support for connections to public transit, is important here so that people can meet their daily needs.

The context here is suburban and urbanizing. The contrast is notable in this area for what transportation facilities were designed for (cars), instead of who (people). Road infrastructure for cars is substantial, with few accommodations provided for other modes. Sidewalk connectivity, separated facilities, and the ability to safely cross roadways are of great importance. The following treatments would be appropriate to consider:

- Sidewalks
- Marked crosswalks
- Pedestrian signal timing (leading interval)
- Audible pedestrian-activated signals
- Bus shelter with landing pad and sidewalk connection
- Intersection lighting
- Medians
- Pedestrian refuge islands
- Midblock crossings with rectangular rapid flashing beacons (RRFBs)
- Protected bicycle facilities
- Shared use paths

Speed limits should be lowered and roadway widths narrowed to visually affect driver perceptions of the area. Street trees can also contribute to the perception of a narrower road. Road widenings should be substantially discouraged, including the addition of right-turn-only lanes, which can be dangerous where pedestrians are present. Subdivisions and developments should be connected with pedestrian and bicycle paths.

WESTERN OSHTEMO

The western portion of the Oshtemo Township area has a desired rural character as the Countryside Residential Place Type, and it is likely that most, if not all, residents in this portion have reliable vehicle access. The need for non-motorized options in this area is far more likely to be for recreational purposes, rather than daily travel. To this end, roadway design standards, zoning standards, etc. should be used to encourage this rural character, and the addition of substantial infrastructure is not desired.
Non-motorized accommodations should not be excluded, but are more appropriate as trails, multi-use paths, and broad road shoulders. Ideally, some sort of physical buffer is provided between non-motorized users and vehicles on higher-volume, higher-speed roadways. Low-volume rural roads could be designated as shared use and posted with appropriate signage and speed limits.

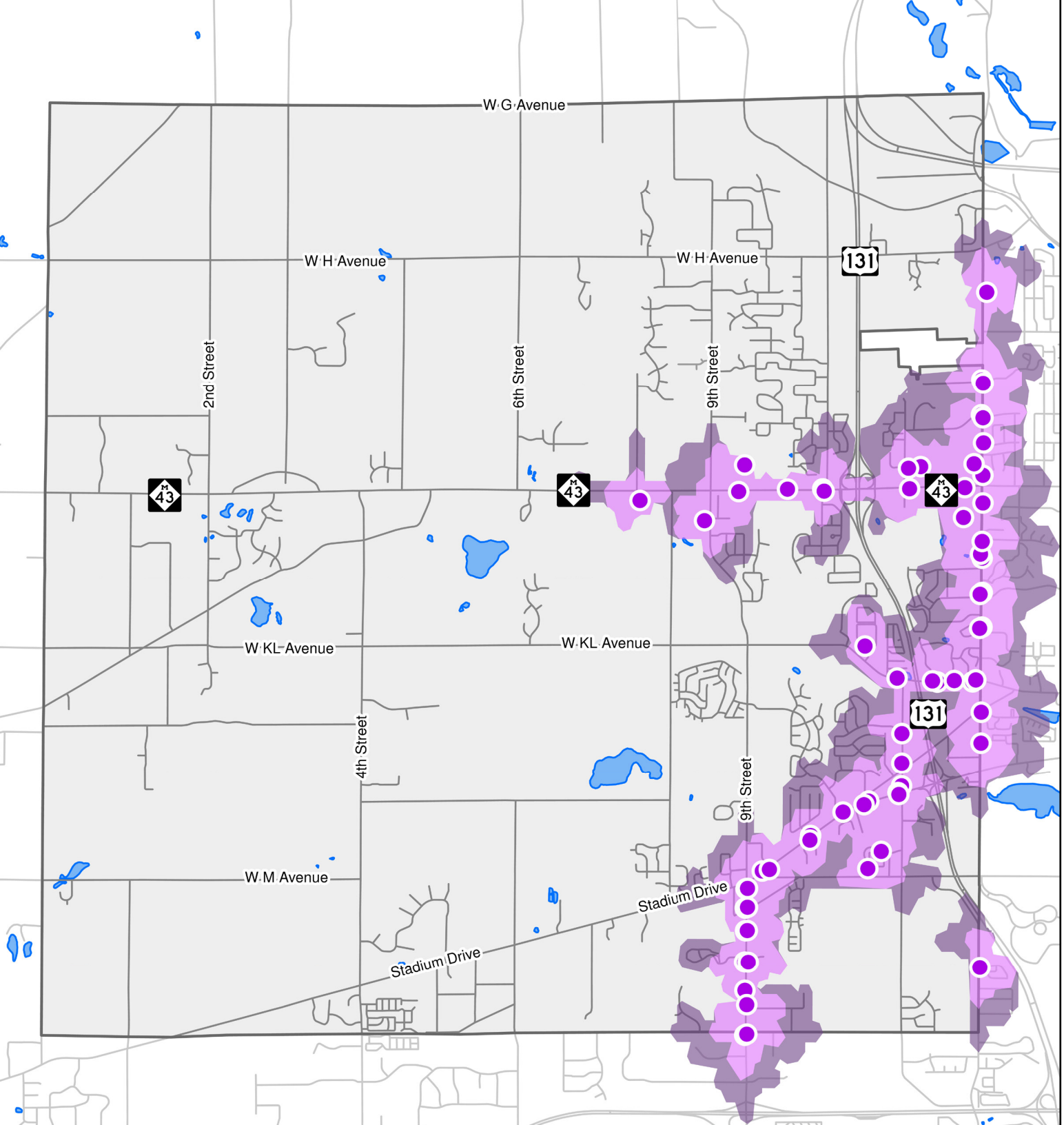
5.5

Transit - Supportive

By integrating transit planning with land use, transit-supportive development can act as a catalyst for development, contributing to the overall growth and development of the region.

Compact mixed-use development is most effective when combined with high-quality transit service. Buildings should be designed to create a walkable environment and occupied by active uses. ***Transit-supportive or transit-oriented development (TOD) maximizes place while minimizing space.*** Because transit services operate within the existing transportation footprint, the physical area necessary for the movement or storage of vehicles is limited. More people can live, access, and connect from places oriented around frequent mass transit operation when compared to development that largely requires a vehicle to access or travel from. TOD is fiscally smarter, more environmentally sustainable, and has lower barriers to entry than auto-oriented development. Residents of a residential place oriented around transit services are less likely to own personal vehicles, contribute fewer emissions, and spend less in transportation-related costs than residents of traditional suburban developments.

This approach is particularly effective when applied to the 1/4- to 1/2-mile radius around a transit stop or station, where the average person can walk in about 15 minutes. The goal is to support clustered and compatible development around existing centers and to encourage mixed-use developments that create walkable, sustainable communities in existing suburban areas lacking a downtown, like Oshtemo.



MAP 5.2
Proximity to Transit Stops

Oshtemo Township

LEGEND

- Half-Mile Transit Stop Walk Radius
- Quarter-Mile Transit Stop Walk Radius
- Transit Stops

N

0 0.5 1 Miles

Data Source: Oshtemo Township, 2024. Michigan Geographic Data Library, 2024. Progressive Companies, 2025.

5.6

Access Management

Access management includes determining "how much" vehicular access to a site is appropriate. This includes the number, frequency, and locations of driveways or access points, as well as whether an individual driveway will be allowed "full movement" for entering and exiting vehicles.

Each street type has characteristics that influence how access will be regulated. Generally, arterial street types at either end of the spectrum from "most auto-oriented" to "most pedestrian-oriented" will have the highest access restrictions for operational and/or safety purposes. Sites located in higher intensity Place Types will also have more access restrictions, to ensure safe multimodal access. Access Guidelines, provided on the following page, describes the expected form and amount of access based on the street type and additional context-based characteristics.

STREET TYPOLOGY	PREFERRED ACCESS LOCATION (In order of priority)	ACCESS AMOUNT AND SPACING	ACCESS RESTRICTIONS
Regional Connector	1. Side or parallel street ('service drive') 2. New street 3. Shared or combined driveway with adjoining property ('cross-access') 4. Individual driveways are not desired	1. Amount: One to two access points 2. Minimum Spacing for individual driveways: [23] ≤45 MPH: 245' ≥45 MPH: 440' 3. Minimum Spacing for individual driveways (without median): [24] ≤45 MPH: 440' ≥45 MPH: 660'	1. Full vehicular movement considered if access point is signalized 2. Non-signalized vehicular access to Regional Connector should be restricted to right-in, right-out only 3. Access should be restricted within the functional area of signalized intersections, which varies based on the operating speed of the corridor
District Main Street	1. Side or parallel street ('service drive') 2. New street 3. Shared or combined driveway with adjoining property ('cross-access') 4. Individual driveways are typically not allowed	1. Amount: One rear-loaded access point 2. Spacing: Access to District Main Street is typically not allowed, in order to preserve high-quality access for people walking and bicycling	1. Full vehicular access provided to service drive, new street, or shared driveway
Neighborhood Connector	1. Side or parallel street ('service drive') 2. New street 3. Shared or combined driveway with adjoining property ('cross-access') 4. Individual driveway	1. Amount: One 2. Minimum Spacing for individual driveways: a. 25 MPH: 130' b. 30 MPH: 185' c. 35 MPH: 245'	1. Full vehicular access generally provided to individual driveway 2. Access should be provided from a service drive or alley for residential areas developed with lot widths less than the minimum required spacing for a street with a 25 MPH posted speed limit
Neighborhood Street	1. Shared or combined driveway with adjoining property ('cross-access') 2. Individual driveway	1. Amount: One 2. No minimum spacing requirement	1. Full vehicular access generally provided to individual driveway
Countryside Connector	1. Shared or combined driveway with adjoining property ('cross-access') 2. Individual driveway	1. Amount: One 2. Minimum Spacing for individual driveways: a. 30 MPH: 185' b. 35 MPH: 245' c. 40 MPH: 300' d. 45 MPH: 350' e. 50 MPH: 455'	1. Full vehicular access generally provided to individual driveway
Countryside Street	1. Shared or combined driveway with adjoining property ('cross-access') 2. Individual driveway	1. Amount: One 2. No minimum spacing requirement	1. Full vehicular access generally provided to individual driveway

[23] *FDOT Multimodal Access Management Guidebook (2023); https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/systems/systems-management/document-repository/access-management/08-29-2025_fdot-multimodal-access-management-guidebook_oct2023.pdf?sfvrsn=73527800_3*

5.7

Recommended Safety Countermeasures

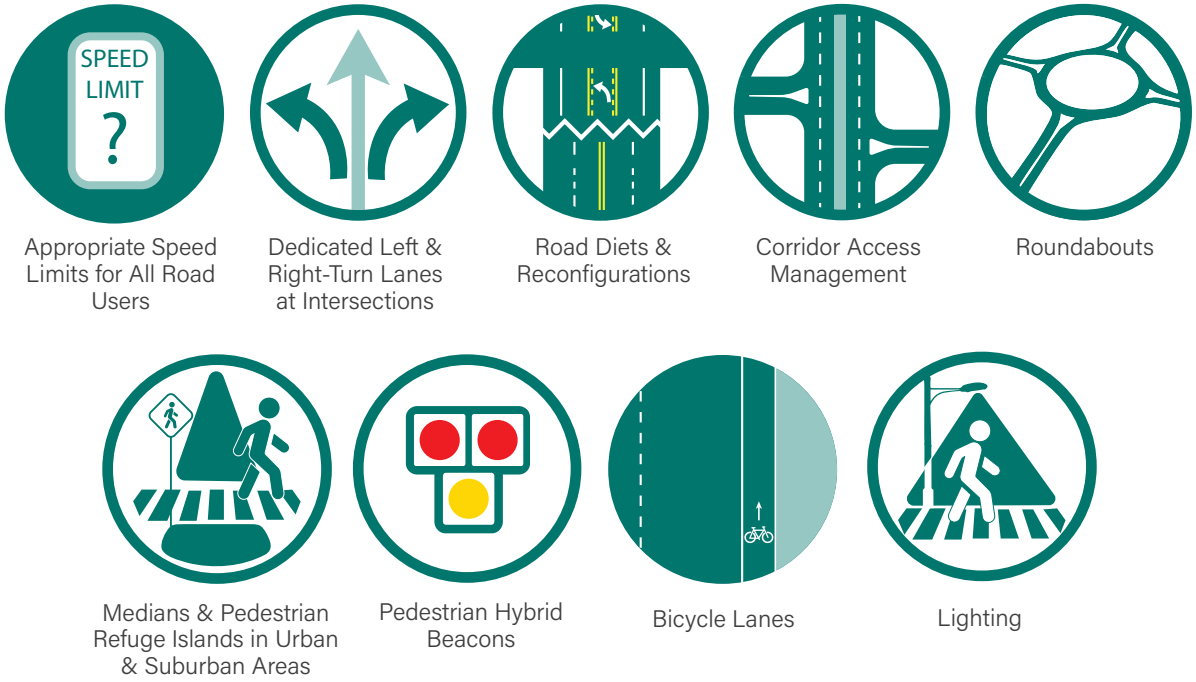
The Federal Highway Administration provides guidance on a number of Proven Safety Countermeasures that road agencies and local communities should consider [24]. The measures most likely to be relevant to Oshtemo Township have been identified.

[24] *Proven Safety Countermeasures | FHWA*

While it is acknowledged that RCKC has a Transportation Safety Action Plan (2023), and that substantial funds were received as part of a Safe Streets and Roads for All (SS4A) grant, it should be noted that the context of Oshtemo Township's urbanizing eastern portion is not well-suited for the recommended interventions of clearing vegetation and installing rumble strips.

As noted on RCKC's website: "RCKC's project, focused on proven safety treatments that could be quickly and efficiently constructed on our highest priority ***rural roadways*** where roadway departure crashes typically exist and are most severe." (emphasis added) The RCKC Safety Action Plan generally fails to recognize context and the needs of vulnerable road users. It is recommended that Township leaders and staff advocate for a revision of RCKC standards not only to ensure that the recommended ends of this Plan can be achieved, but also to prevent road deaths and serious injuries. The Federal Highway Administration's Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE) [25] is an additional resource for contextually appropriate safety measures.

[25] *Pedestrian Safety Guide and Countermeasure Selection System*



LANE NARROWING

On roadways where there are safety and speeding problems, and vehicle lane widths are greater than the recommended minimums, narrowing lane widths (i.e. lane diet), can help improve safety and comfort for pedestrians, bicyclists, transit riders, and motor vehicles. Lane diets provide multiple benefits, including lowering vehicle speeds, reducing crossing widths and pedestrian exposure to motor vehicle traffic, and redistributing roadway space for other users (such as bicycle facilities).

Lane narrowing can be achieved in several different ways, depending on the type and scope of a project. During all projects, there are opportunities to reduce lane widths to the recommended minimums (See the 2018 AASHTO Green Book for further information):

- 9-foot lanes on rural roadways
- 10 feet for most vehicular travel lanes
- 10 feet for turn lanes
- 11 feet for lanes to accommodate large volumes of trucks, buses, or larger vehicles (typically where volumes of large vehicles are greater than 8 percent)

With the additional space created from narrowing travel lanes, space can be redistributed for the following uses:

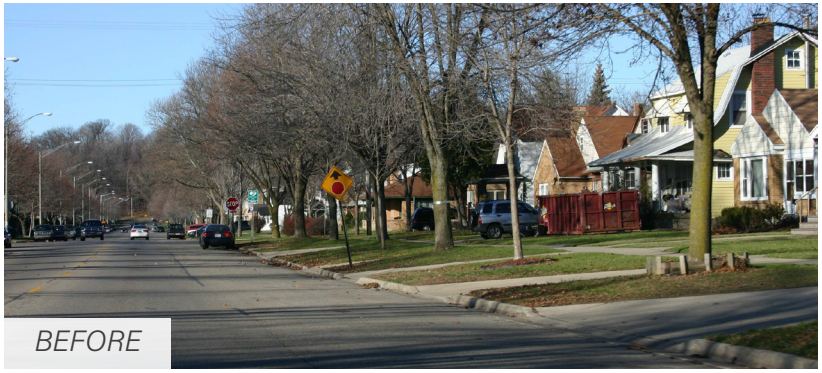
- Bicycle lanes or cycle tracks, parking lanes, or transit lanes
- Widened sidewalks, landscaped buffers with street trees, and curb extensions at crossings where on-street parking is present

Example

This treatment could apply to any streets in Oshtemo. If prioritization is needed for locations, it is recommended that lane widths be narrowed on Oshtemo's east side first due to the need to reduce speeds to reduce the severity of crashes and given the presence of pedestians, bicyclists, and transit riders.

Applicable Typologies

- Regional Connector
- District Main Street
- Neighborhood Connector
- Neighborhood Street



BEFORE

AFTER

ROUNDABOUTS

Roundabouts can promote slower vehicle speeds, reduce the number of places where collisions can occur between vehicles within an intersection, and improve operational outcomes. Roundabouts are not only a safer type of intersection; they are also efficient in terms of keeping people moving. Even while calming traffic, they can reduce delay and queuing when compared to other intersection alternatives. Furthermore, the lower vehicular speeds and reduced conflict environment can create a more suitable environment for walking and bicycling.

However, roundabouts – especially multi-lane roundabouts – may create new challenges for pedestrians and bicyclists, particularly those with vision or hearing impairments. The Township should coordinate with MDOT and RCKC to ensure potential roundabout conversion is context-sensitive and considers the needs of all existing and anticipated roadway users. Particular consideration should be given to intersections within neighborhood mixed-use place types in order to mitigate the potential deleterious effects of roundabout conversion on walkability within a place.

Example

The application of this treatment is recommended at Stadium Drive and South 9th Street, as well as Drake Road and KL due to the amount and severity of crashes at these locations.

Applicable Typologies

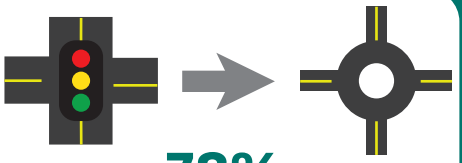
- Regional Connector
- Countryside Connector

SAFETY BENEFITS

Two-Way Stop Controlled Intersection to a Roundabout

82%
reduction in fatal & injury crashes

Signalized Intersection to a Roundabout



78%
reduction in fatal & injury crashes

TRAFFIC CIRCLES

Neighborhood traffic circles reduce vehicle speeds at intersections. They encourage people driving to slow down at key crossing locations while also providing a space to plant trees or other plants. Traffic circles have been found to reduce motor vehicle crashes by an average of 90 percent in Seattle, WA. [26]

Neighborhood traffic circles are an intersection improvement as well as a traffic-calming device and can take the place of a signal or four-way stop sign. People driving must stop and watch for people crossing in the crosswalk or oncoming vehicles first before entering the circle. Traffic circles do not require adjustments in the paved surface area of an intersection. Traffic circles may be installed on neighborhood street and neighborhood connector typologies. Further coordination with RCKC is necessary to determine feasibility of traffic circle installation in the short-term, as they present additional maintenance challenges.

Applicable Typologies

- Neighborhood Street
- Neighborhood Connector

[26] *https://onlinepubs.trb.org/Onlinepubs/trr/1985/1010/1010-009.pdf*

MEDIANS

Crossing islands are traffic-calming devices that provide people with a safe place to pause while crossing multiple traffic lanes. Crossing islands also reduce vehicle turning speeds by preventing people driving from taking fast, shallow turns.

A median is the area between opposing lanes of traffic, excluding turn lanes. Medians in urban and suburban areas can be defined by pavement markings, raised medians, or islands to separate motorized and non-motorized road users.

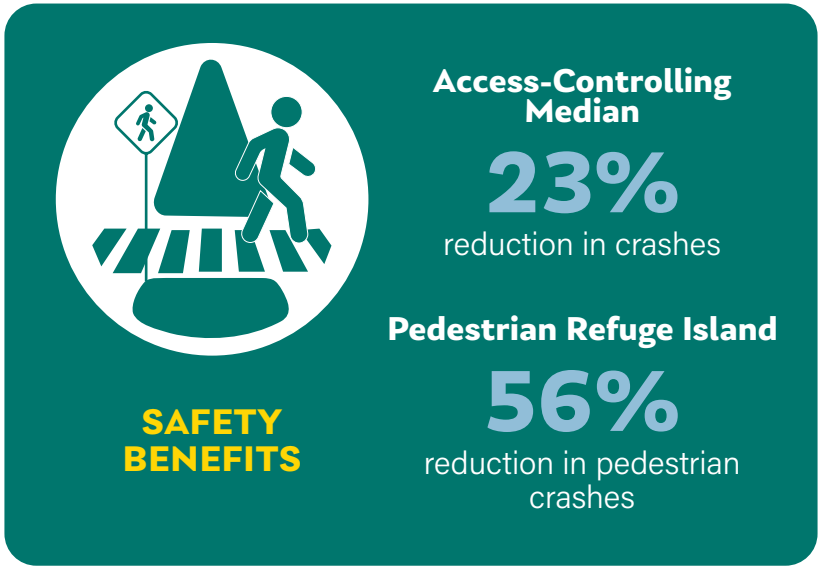
A pedestrian refuge island (or crossing area) is a median with a refuge area that is intended to help protect pedestrians who are crossing a road.For pedestrians to safely cross a roadway, they must estimate vehicle speeds, determine acceptable gaps in traffic based on their walking speed, and predict vehicle paths. Installing a median or pedestrian refuge island can help improve safety by allowing pedestrians to cross one direction of traffic at a time.

Medians or pedestrian refuge islands should be considered in curbed sections of urban and suburban multilane roadways, particularly in areas with a significant mix of pedestrian and vehicle traffic, traffic volumes over 9,000 vehicles per day, and travel speeds 35 MPH or greater. Medians/refuge islands should be at least 4 feet wide, but preferably 8 feet for pedestrian comfort. Some example locations that may benefit from medians or pedestrian refuge islands include:

- Mid-block crossings.
- Approaches to multilane intersections.
- Areas near transit stops or other pedestrian-focused sites.

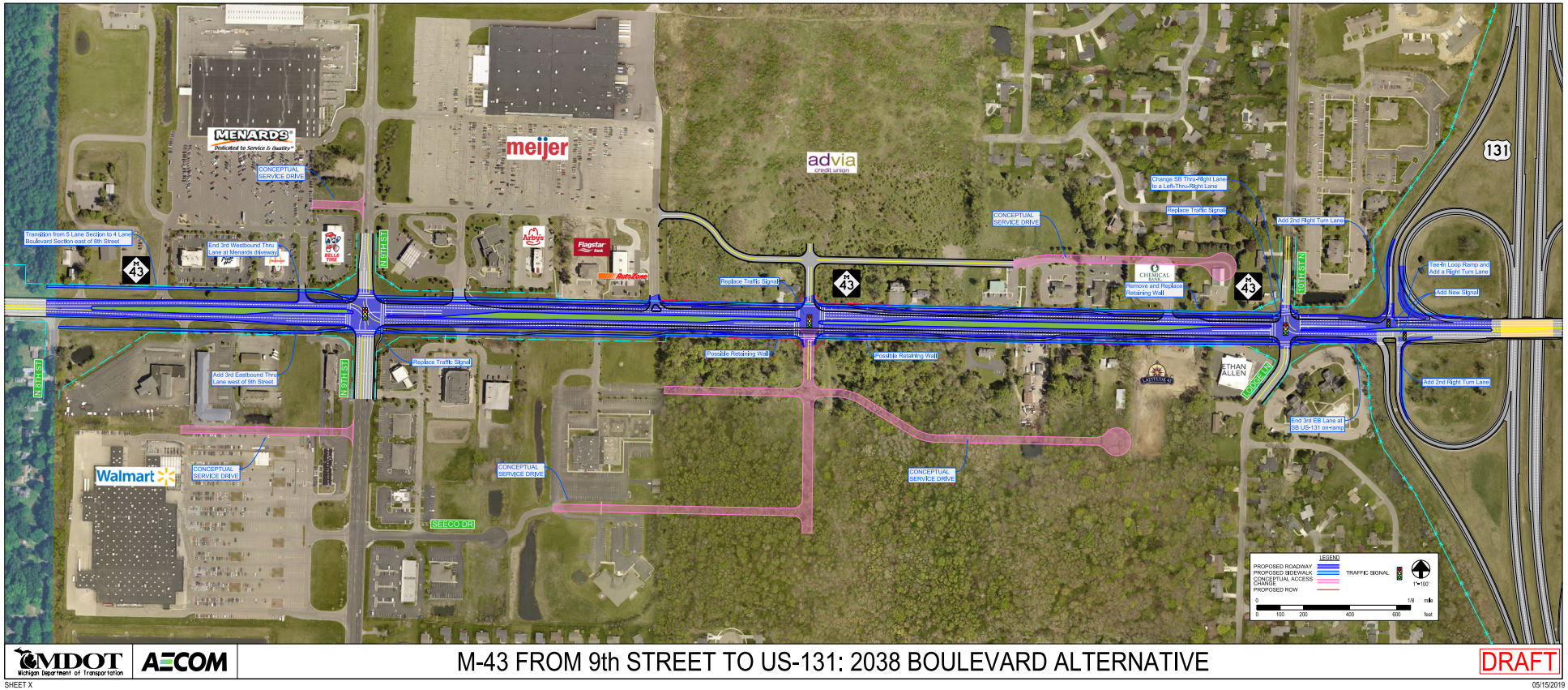
Applicable Typologies

- Regional Connector
- District Main Street
- Neighborhood Connector



Example

The application of this treatment is planned by MDOT along West Main Street, west of US-131. The addition of medians will not only make the street safer, but they will also provide an exciting opportunity to create a gateway into the township and add landscaping to soften the wide roadway.



CROSSWALK VISIBILITY ENHANCEMENTS

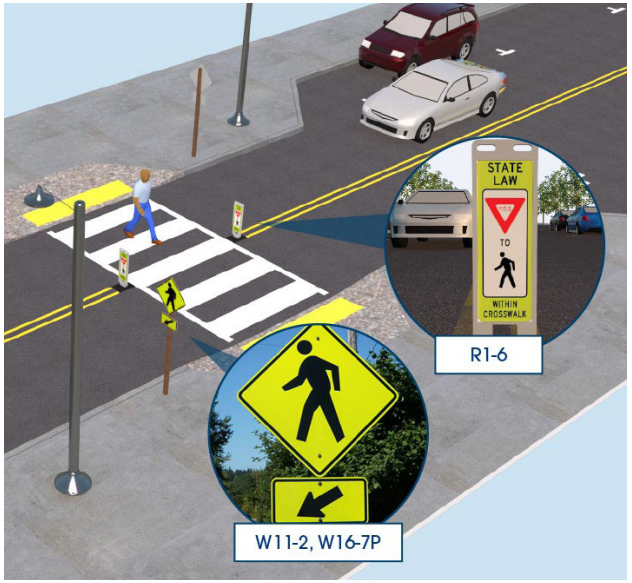
For multilane roadway crossings where vehicle volumes are in excess of 10,000 Average Annual Daily Traffic (AADT), a marked crosswalk alone is typically not sufficient. Under such conditions, more substantial crossing improvements could prevent an increase in pedestrian crash potential.

Three main crosswalk visibility enhancements help make crosswalks and pedestrians, bicyclists, wheelchair and other mobility device users, and transit users using them more visible to drivers. These include high-visibility crosswalks, lighting, signing and pavement markings. These enhancements can also assist users in deciding where to cross. Agencies can implement these features as standalone or combination enhancements to indicate the preferred location for users to cross.

- High-visibility crosswalks use patterns (i.e. bar pairs, continental, ladder) that are visible to both the driver and pedestrian from farther away compared to traditional transverse line crosswalks.
- Crosswalk lighting should be to illuminate with positive contrast to make it easier for a driver to visually identify the pedestrian.
- On multilane roadways, agencies can use "YIELD Here to Pedestrians" or "STOP Here for Pedestrians" signs.
- On multilane roadways, agencies can use "YIELD Here to Pedestrians" or "STOP Here for Pedestrians" signs if the Uniform Traffic Code is adopted or if the township establishes a local ordinance providing pedestrians with the right-of-way at marked crosswalks.

Example

The application of this treatment at all major intersections is recommended, including but not limited to: West Main Street and North 9th Street, West Main Street and Maple Hill Drive, West Main Street and North Drake Road, and Stadium Drive and South 9th Street.



Applicable Typologies

- Regional Connector
- District Main Street
- Neighborhood Connector

SAFETY BENEFITS

High-visibility crosswalks can reduce pedestrian injury crashes by up to

40%

Intersection lighting can reduce pedestrian crashes by up to

42%

Advance yield or stop markings and signs can reduce pedestrian crashes by up to

25%

PEDESTRIAN HYBRID BEACON

The pedestrian hybrid beacon (PHB) is a traffic control device designed to help pedestrians safely cross higher-speed roadways at mid-block crossings and uncontrolled intersections. Nearly 74% of pedestrian fatalities occur at non-intersection locations, and vehicle speeds are often a major contributing factor. As a safety strategy to address this pedestrian crash risk, the PHB represents an intermediate option between a flashing beacon and a full pedestrian signal because it assigns right-of-way and provides positive stop control. It also allows motorists to proceed once the pedestrian has cleared their side of the travel lane(s), reducing vehicle delay.

In general, PHBs are used where it is difficult for pedestrians to cross a roadway, such as when gaps in traffic are not sufficient or speed limits exceed 35 MPH. They are very effective at locations where three or more lanes will be crossed or traffic volumes are above 9,000 AADT. Installation of a PHB must also include a marked crosswalk and pedestrian countdown signal. Guidance from agencies across the country, such as the Ohio Department of Transportation's Multimodal Design Guide, indicates that PHB implementation is applicable for roadways with posted speeds greater than 40 MPH and daily traffic volumes of 15,000 vehicles or more.

SAFETY BENEFITS

55%
reduction in pedestrian crashes.

29%
reduction in total crashes.

15%
reduction in fatal and serious injury crashes.

Example

The application of this treatment at the intersection of West Main Street and North 7th Street, in front of the Township Hall, Fire Station, and Library would allow people to connect from the Township Park to the Kal Haven Trail.

Applicable Typologies

- Regional Connector
- Neighborhood Connector

SPEED HUMPS

Vertical traffic calming elements, such as speed humps or raised crosswalks, encourage reduced vehicle speeds and can increase pedestrian visibility. Several types of vertical elements may be provided, depending on street typology, road user composition, and inclusion of a street on the proposed non-motorized network.

Speed humps are raised pavement that extends across the full width of the street. Speed humps are generally compliant with maintenance requirements, such as snow plows traversing the hump.

A variant of speed hump, known as speed cushions, can also be provided. Speed cushions provide space on the roadway without vertical deflection, spaced the length of a larger vehicle's wheelbase, that allow certain vehicles, such as fire trucks or ambulances, to proceed through without reducing speed. Speed cushions can also improve the mobility experience for bicyclists by providing space to proceed through without deflecting vertically.

Applicable Typologies

- Neighborhood Street
- Neighborhood Connector

RAISED CROSSWALKS (SPEED TABLES)

Raised crosswalks make crossing the street safer and more comfortable for everyone. Since they are elevated (roughly to sidewalk height), people driving must slow down as they approach the crossing. Because they are sidewalk height, they enable people using wheelchairs and other mobility devices to cross more easily. This countermeasure can reduce pedestrian crashes by 45%.

Raised crosswalks, or speed tables, provide both the vertical deflection and traffic calming benefits of speed humps and improved visibility for pedestrians crossing the street.

Raised crosswalks maintain a perpendicular sidewalk at-grade across the roadway, reducing vehicle speeds, providing a consistent non-motorized experience, and improving sight lines between drivers and pedestrians. Raised crosswalks are most compatible in denser, more walkable areas. Raised crosswalks are typically installed on two-lane or three-lane roads with speed limits of 30 MPH or less and AADT below about 9,000.

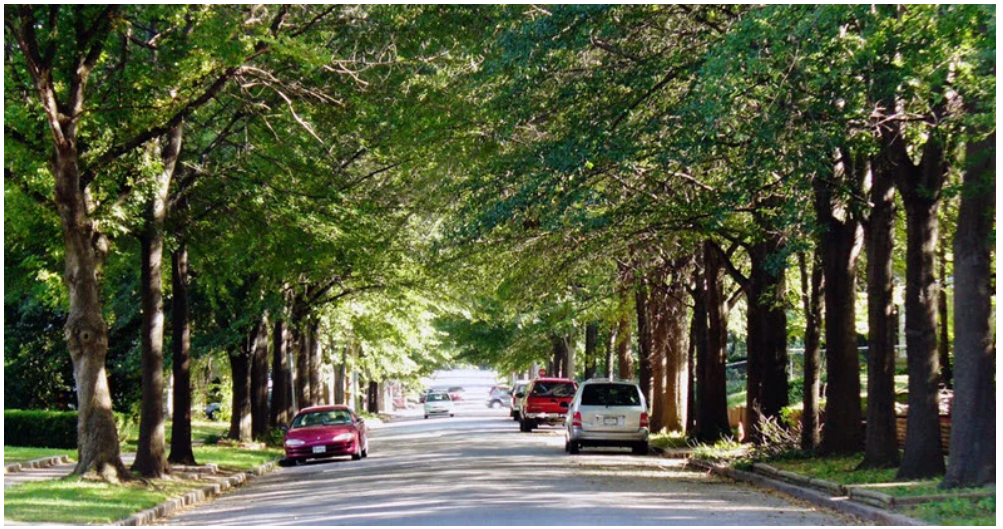
Applicable Typologies

- District Main Street
- Neighborhood Connector
- Neighborhood Street

LANDSCAPING

According to FHWA, planting alongside the road can communicate a change in the character of the roadway from rural to urban. The roadway appears narrower to the driver; the "optical width" of the road is narrowed as opposed to the "physical width." A "tunnel effect" is created and the driver's field of view is narrowed. Although the introduction of landscaping in isolation is not anticipated to generate significant changes in vehicle speeds, implementation in conjunction with other traffic calming elements, such as vertical or horizontal deflection, can be used to foster reduced and consistent speeds along a corridor.

Slowing down is particularly critical in the transition zone from rural to urban. [27] For example, visual narrowing could be introduced on Stadium Drive or West Main Street as one travels from west to east in the township, where the largest decrease in speed is sought. Trees are generally the most effective form of landscaping in terms of traffic calming, due to the fact that they can grow large enough to provide the "optical narrowing" effect that should, in turn, reduce traffic speeds. While care must be taken to not create driving hazards, particularly in clear zones and sight distance triangles, it is also noted that additional landscaping may limit the severity of crashes that do occur by reducing average driver speeds.



[27] *A study of Texas urban roads compared accident records before and after planting over 3-to-5 year time spans. Analysis showed a 46% decrease in crash rates across the 10 urban arterial and highway sites after landscape improvements were installed. The number of collisions with trees were reduced by 71%. All types of roadside treatments - roadside landscaping, median landscaping, and sidewalk widening with tree planting - positively affected vehicle safety outcomes. A marked decrease in the number of pedestrian fatalities was also noted – from 18 to 2 after landscape improvements.*

5.8

Intersection Treatments for Non-Motorized Facilities

Design elements that enable users of existing and proposed non-motorized facilities to safely cross intersections or turn from one facility to another should be provided at intersections. However, the level of infrastructure provision should be evaluated in conjunction with the types of facilities provided along street segments.

Facility types are primarily dictated by a street's typology. Streets located in higher-density residential and commercial areas are expected to feature greater levels of non-motorized infrastructure provision. High-level guidance for potential design solutions to introduce at intersections, in accordance with the anticipated levels of non-motorized infrastructure provision, are defined for various intersection types.

REGIONAL CONNECTOR INTERSECTIONS

Intersections where at least one approach is classified as a Regional Connector, and each approach includes dedicated non-motorized facilities, should include the following improvements:

Dedicated non-motorized approaches. Along Regional Corridors, District Main Streets, or Neighborhood Connectors with sidewalk-level bicycle facilities, a dedicated bicycle approach should be maintained up to and through the intersection. The bicycle approach should not be dropped, nor should vehicles be permitted to merge into the bicycle lane, prior to the intersection. The bicycle approach may be lowered to street level at the intersection to better distinguish between bicycle and pedestrian space. Approaches that are maintained through the intersection reduces exposure for people bicycling while simultaneously fostering reduced driver turning speeds.

Intersection control. Generally, the intersection should be controlled with a traffic signal, which provides people bicycling with an opportunity to perform a two-stage left-turn onto an intersecting facility. Roundabout implementation may also be considered along Regional Connectors, although special consideration should be given to ensuring that non-motorized facilities are maintained through the intersection, and that left-turn movements can be made comfortably.

Two-stage left-turn bicycle boxes. A two-stage left-turn bicycle (or queue) box allows people bicycling to perform a left-turn comfortably by first proceeding through an intersection in their original direction of travel, pivoting within the turn box, and then proceeding through an intersection with the opposing vehicular movement. Two-stage turns are more comfortable than turns that require merging maneuvers in advance of the intersection – particularly when more than one vehicular lane is provided – but increase bicyclist delay, as a left-turn movement can require the person riding to utilize two green lights. Protected intersection treatments, such as raised concrete islands, may also be considered in place of two-stage left-turn boxes.

Dedicated phasing. At locations where turning volumes – particularly left-turning volumes – are significant, signal phasing should be used to separate through bicycle movements and right-turn vehicle movements. Protected-only left-turn phasing should be provided at Regional Corridor intersections to minimize conflicts between drivers and people bicycling, although it is noted that protected-only phasing generally increases vehicular delay.

Continuous pavement markings ('crossbikes'). The footprint of the bicycle crossing through an intersection should be indicated with green pavement markings, or 'crossbikes.' Crossbikes may be used at all places where turning conflicts exist, especially intersections, but can also be used at driveways or other access points.

NEIGHBORHOOD CONNECTOR INTERSECTIONS

Intersections between two Neighborhood Connector typologies, or a Neighborhood Connector and Neighborhood Street typology, should include the following improvements:

Dedicated approaches along Neighborhood Connectors. On streets with separated or buffered bicycle facilities, the non-motorized approach should be maintained up to and through the intersection. The bicycle approach should not be dropped, nor should vehicles be permitted to merge into the bicycle lane, prior to the intersection. The bicycle approach may be lowered to street level at the intersection to better distinguish between bicycle and pedestrian space.

Intersection control. The intersection should be controlled with a traffic signal, all-way stop, or two-way stop control. Traffic circle implementation can be considered, particularly at the intersection of Neighborhood Streets where people bicycling are anticipated to share the travel lane with drivers between intersections.

Intersection diverters. At the intersection of Neighborhood Connectors and Neighborhood Streets where it is desired to mitigate the frequency of high-speed cut-through traffic, intersection diverters may be introduced. Intersection diverters allow people bicycling to proceed through a minor approach or to turn left from a major approach but restrict vehicular movements. Coordination with emergency response services is essential prior to implementation.

NEIGHBORHOOD STREET INTERSECTIONS

Intersections of two Neighborhood Street typologies generally represent the lowest-stress intersection type for non-motorized users. As such, specific design elements do not always need to be considered; however, particular elements can be evaluated on a case-by-case basis where vehicle volumes or speeds are relatively high compared to the rest of the Neighborhood Street network.

Raised intersections. Raised intersections help to create a safer, more comfortable crossing environment by reinforcing the need for drivers to travel slowly and to yield to people crossing on foot or on bicycle. Raised intersections are flush with the sidewalk and are appropriate for streets with speeds of 25 MPH or less and volumes of 3,000 vehicles per day or less. Implementation may cause drainage impacts, and should be coordinated with emergency response services.

Traffic circles. Traffic circles help to foster slower driver speeds by introducing horizontal deflection at intersections, and are appropriate for low-speed streets where people bicycling share the travel lane with drivers. Traffic circles improve safety for all users by modifying the angle at which crashes may occur to reduce severity.

COUNTRYSIDE CONNECTOR INTERSECTIONS

The intersection of two Countryside Connector typologies, or the intersection of a Countryside Connector with a Countryside Street, are not anticipated to exhibit high rates of non-motorized utilization. High vehicle speeds and lack of non-motorized user expectation are likely to continue to contribute to utilization by only the most confident riders, while non-motorized infrastructure investment should be concentrated in places where proximity is maximized. As such, systemic safety improvements should be limited to locations where historical crash patterns demonstrate a need for modification.

Intersection lighting. Unlit intersections in countryside areas represent significant hazards for non-motorized users during periods of low natural light. Intersection lighting improvements can greatly improve visibility for people bicycling through and across intersections. Intersection lighting improvements can leverage solar technology to limit the need for wired connections.

6

RECOMMENDATIONS & IMPLEMENTATION

Oshtemo Township is becoming a dynamic destination. Home to over 23,000 residents and growing at a rate over twice the statewide average, the township will be challenged in the future to balance growth pressures with the preservation of natural and open spaces, while also fostering a high quality of life for its residents. ***To that end, the Master Streets Plan provides the mobility vision that prescribes how transportation infrastructure in Oshtemo should be developed, evaluated, and prioritized alongside the land use recommendations contained in the Oshtemo 2045 Comprehensive Plan.***

6.1 Moving Forward

Residents desire to live in a safe and active community with a diverse range of transportation choices. Multi-modal options and a connected network can make the transportation system more efficient, resilient, and meet a broader range of user needs. This Plan's approach minimizes the amount of expensive infrastructure capital investments needed to move cars and improves safety outcomes for people by limiting exposure [28] to the mobility network.

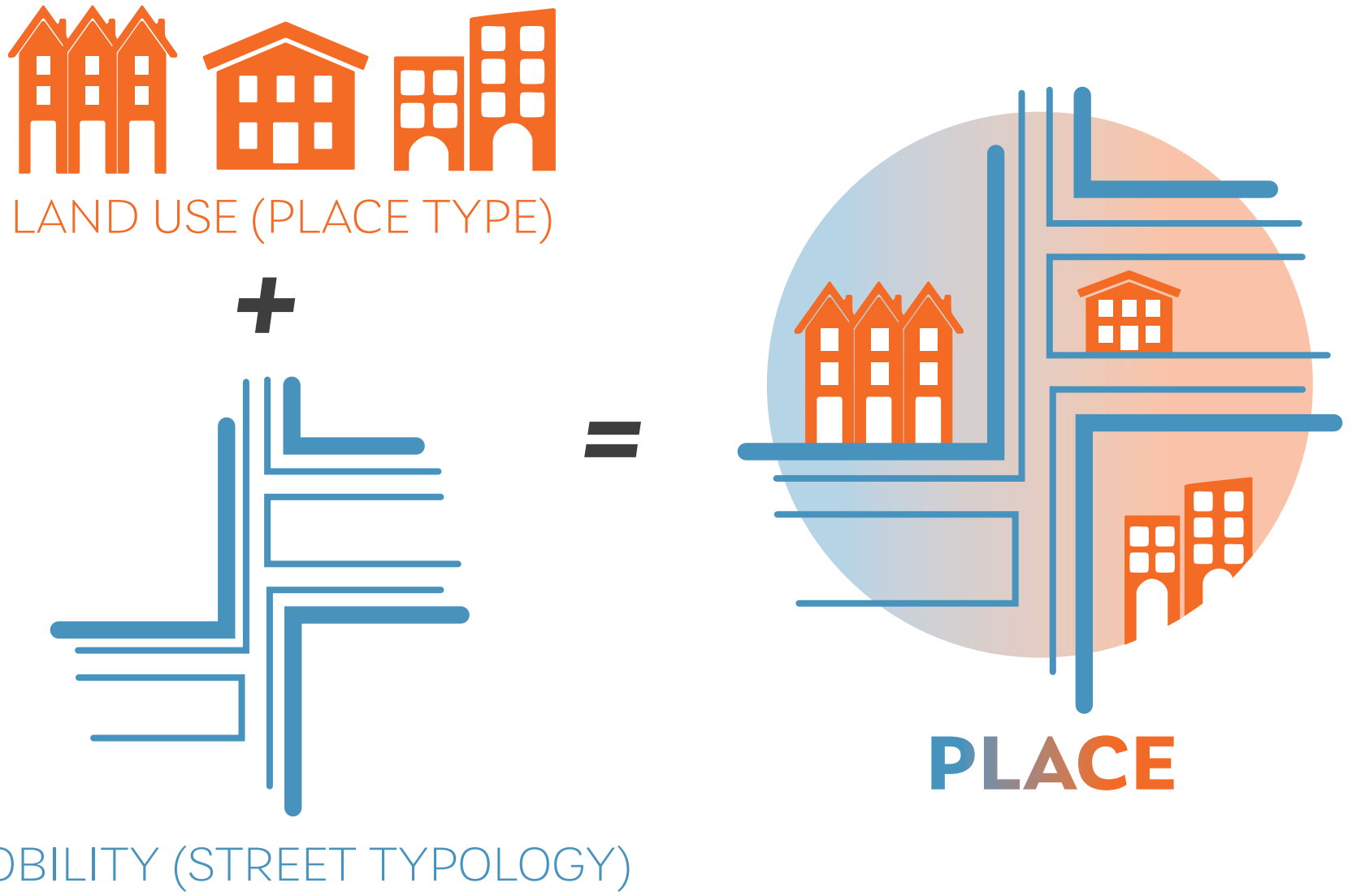
To achieve these goals, planning and implementation will occur for all facility types to connect people to where they want to go. [29] Oshtemo's transportation facilities must feel safe and comfortable for people of all ages and abilities.

[28] *The time a person is using to travel, the distance they are traveling, and the types of routes they must utilize.*

[29] *The eastern portion of Oshtemo in the "Regional" and "Neighborhood" Place Types will have a greater emphasis on transportation infrastructure than the western portion to retain the "countryside" character of the area for as long as possible.*

DIFFERENT PLACES NEED DIFFERENT KINDS OF DESIGN

*Choosing the correct kinds of **land uses** and pairing them with the correct kinds of **transportation facilities** is crucial in creating well-planned spaces. It is for this reason that the Comprehensive Plan and Master Streets Plan are designed to work with one another as future decisions are made in the township.*

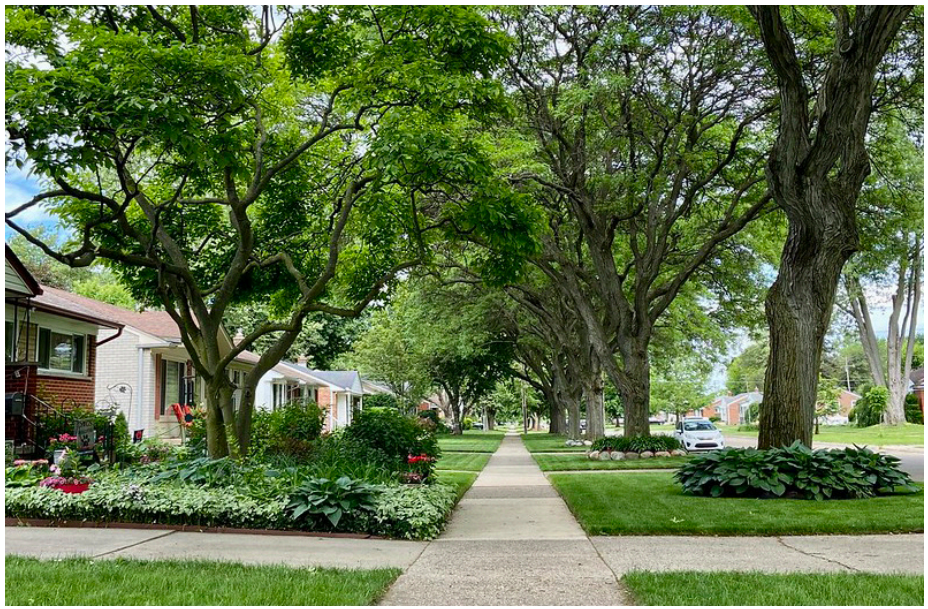


When implementing improvements, best practices include paying specific attention to three key elements:

Reducing vehicle speeds Reducing vehicle speeds is key to decreasing collisions among roadway users and minimizing the severity of injuries if a crash occurs. This is especially true for people walking and biking, as they travel slower and are more vulnerable than people driving.

Providing context Infrastructure consistently designed for different contexts provides visual cues that prompt road users into predictable behavior patterns. For example, a narrow tree-lined street with sidewalks and on-street parking compared to a wide, curbless street with no trees, sidewalks, or parking will elicit different driving behaviors.

Minimizing conflicts Conflict points occur where drivers, pedestrians, and bicyclists cross paths, such as at intersections, midblock crossings, and driveways. The potential for conflict may be mitigated by addressing points of interaction, providing signs and pavement markings that clearly convey locations for various user types, and following modern design practices to make facilities more intuitive. Clearly marked, well-lit, and appropriately timed crossings near transit stops, where non-motorized routes cross major streets, and near parks, schools, and other community destinations are important.



Which street would you let your child be near?

6.2

Collaboration with MDOT & RCKC

The means of implementing this Master Streets Plan should be done "in cooperation with the county road commission and the state transportation department," according to the Michigan Planning Enabling Act (PA 33 of 2008).

Oshtemo Township acknowledges the authority and respective powers and duties of the Michigan Department of Transportation (MDOT) and Road Commission of Kalamazoo County (RCKC) over the transportation facilities within the Township's municipal boundaries, and that written agreements between Oshtemo Township, MDOT, and RCKC may exist that could affect the recommendations contained herein.

It is also true that the MPEA requires the Township to include transportation components in its Master Plan. The standards and policies of RCKC, in particular, are inappropriate for eastern Oshtemo and severely impede the Township's ability ***"to provide for the safe and efficient movement of people and goods in a manner that is appropriate to the context of the community and, as applicable, considers all legal users of the public right-of-way."*** Township leaders have determined that the price being paid in the loss of life and severe injuries on the streets of Oshtemo is unacceptable. Crashes are preventable and those that relate to street designs that facilitate high speeds are within the control of the road authority to mitigate.

Between 2020 and 2024, 12 people have been killed and 64 severely injured in the past five years while traveling within Oshtemo Township. Current RCKC road design standards and project priorities will not seriously mitigate the continued prevalence of severe and fatal crash occurrences in Oshtemo in the foreseeable future, particularly as residential and commercial contexts continue to change and evolve. For example, in RCKC's SS4A Plan, the installation of rumble strips and vegetation removal has received substantial funding. These are strategies for high-speed rural roadways, not for suburban and urbanizing contexts. [30]

[30] *Safety measures should be both reactive to historical crash outcomes—for which the installation of rumble strips in rural high-crash locations is applicable in other places in Kalamazoo County—and proactive and in response to the future state of urbanizing townships such as Oshtemo, where significant change is required to introduce proactive safety countermeasures in the street network.*

RCKC

Significant change is required to introduce proactive safety countermeasures along Oshtemo's street network. The previous chapter identified examples of these measures. The Road Commission leaves these unaddressed, both by policy and practice, which is why, in part, this Master Streets Plan was created. Maintaining an entire transportation system is a significant challenge, which is generally mitigated by broadly applying similar design standards across all places in Kalamazoo County. However, proactive safety improvements can also be made that align with the desired land use and development in the eastern portion of Oshtemo.

Current national best practices utilize the AASHTO Highway Safety Manual process to determine locations and segments most at risk, then determine the most appropriate countermeasures using the calculation process, including the use of the FHWA Crash Modification Clearinghouse. The way in which RCKC operates for the west portion of the township, in the Countryside Residential Place Type, are sufficient for a rural context.

This is not the case for the eastern portion of Oshtemo. The Road Commission's practices are seriously outdated and do not reflect modern best practices for the identification and implementation of appropriate pedestrian-scale countermeasures [31] in suburban and urban contexts (where people are present). It is recommended that RCKC:

- Generalize the RCKC Downtown Development Authority (DDA) Policy to encompass the Regional Corridors, Neighborhood Mixed-Use, Neighborhood Residential, and Innovation & Industry Place Types for eastern Oshtemo.
- Refine the DDA Policy to allow narrower lanes, the planting of street trees, sidewalks, and/or non-motorized paths to be placed in locations typical of suburban/urban contexts.
- Design, fund, and implement Complete Streets safety improvements at crash "hot spot" locations, including Stadium Drive and 9th Street, M-43 (Main Street) and 9th Street, and Stadium Drive and KL Avenue; partnering with MDOT where necessary.
- Prioritize areas around elementary and middle schools, recreation centers, senior living facilities, high-density apartment complexes, and other regional destinations for traffic calming to help protect the most vulnerable people.
- Accommodate the provision of proper roadway transit and bicycle facilities, connect non-motorized paths and sidewalks to transit stops, and extend existing bike lanes and widened shoulders through intersections to provide sufficient room for cyclists.
- Provide proper roadway transit and bicycle facilities, connect non-motorized paths and sidewalks to transit stops, and extend existing bike lanes and widened shoulders through intersections to provide sufficient room for cyclists.
- Collaborate with Oshtemo Charter Township to implement the contents of this Master Streets Plan in alignment with Michigan's Planning Enabling Act.
- Leverage the flexibility granted in speed limit setting by the 2023 version of the MUTCD and Michigan Public Act 33 to appropriately align roadway speeds with the land use context and road user composition.

[31] *Every location of concern should be examined individually, as appropriate countermeasures may significantly vary. Attention should also be paid to the safety-related impacts of exposure to the transportation network. Traditional safety-based methodologies seek to reduce the likelihood of crashes occurring at intersections or along corridor segments. However, by considering land use policies that reduce the distance between destinations, users of the transportation system are also inherently exposed to fewer places where crashes may occur, beyond merely filling in gaps in discontinuous trails, sidewalks, etc. such as along corridors, at intersections, for mid-block crossings, etc.).*

- Ensure appropriate maintenance [32] of existing non-motorized facilities, including vegetation trimming and the identification and elimination of trip hazards or locations that are not currently compliant with the Americans with Disabilities Act (ADA) requirements.

MDOT

The Michigan Department of Transportation has shared ideas to improve safety along the West Main Street corridor to the west of US-131, including the installation of landscaped center medians. The Township supports this and considers it a good beginning to a broader discussion about efforts to install sidewalks, shared-use paths, streetscapes, and other related improvements to maximize safety, efficiency, and cost effectiveness. It is recommended that MDOT:

- Support the Township's desire to maintain West Main Street with no more than two through lanes in each direction and a center turn lane where appropriate. No additional roadway widening should occur beyond the ongoing work in 2025. [33] Although existing traffic volumes are significant, it is noted that volumes would need to grow at a rate of 0.8% per year, a typical growth rate used by MDOT, for the next 20 years before the roadway exceeds the assumed capacity of 36,800 vehicles per day for a five-lane urban arterial corridor. This assumed growth rate is not consistent with historical realities. In fact, historical traffic counts taken along West Main Street between Maple Hill Drive and Drake Road in 2002 are higher than traffic volumes measured in 2024. [34]
- Support the Township's desire to reduce speeds along the corridor, either through intentional design or with alternative methods for speed limit setting that consider land use and context.
- Improve pedestrian accessibility to transit stops, signalized crossings, and non-motorized facilities by addressing gaps, limiting the use of dedicated right-hand turns, and providing time and space for users to move (e.g. leading pedestrian intervals).
- Work cooperatively with the Township and corridor stakeholders on access management to implement a parallel service drive system that allows drivers traveling to a commercial destination to utilize a 'shadow' street, rather than utilizing West Main Street to complete a trip.
- Communicate the importance of safe and comfortable connections for all users along and across MDOT facilities. State facilities, including West Main Street and US-131, act as barriers between residents' destinations. Efforts should be made to provide safe and comfortable crossings across West Main Street, spaced at distances that people can reasonably be expected to walk (no more than 500 feet).

[32] *A policy defining appropriate placement for temporary construction signage that does not impede pedestrian or bicycle travel should go alongside this.*

[33] *Roadway widening will increase future maintenance obligations, increase crossing distances, and decrease comfort levels for people walking or bicycling by placing high-speed vehicle traffic closer to non-motorized users.*

[34] *https://mdot.public.ms2soft.com/TDMS.UI_Core/TrafficViewer/hourly/39-0508/2-WAY/2021/5/18*

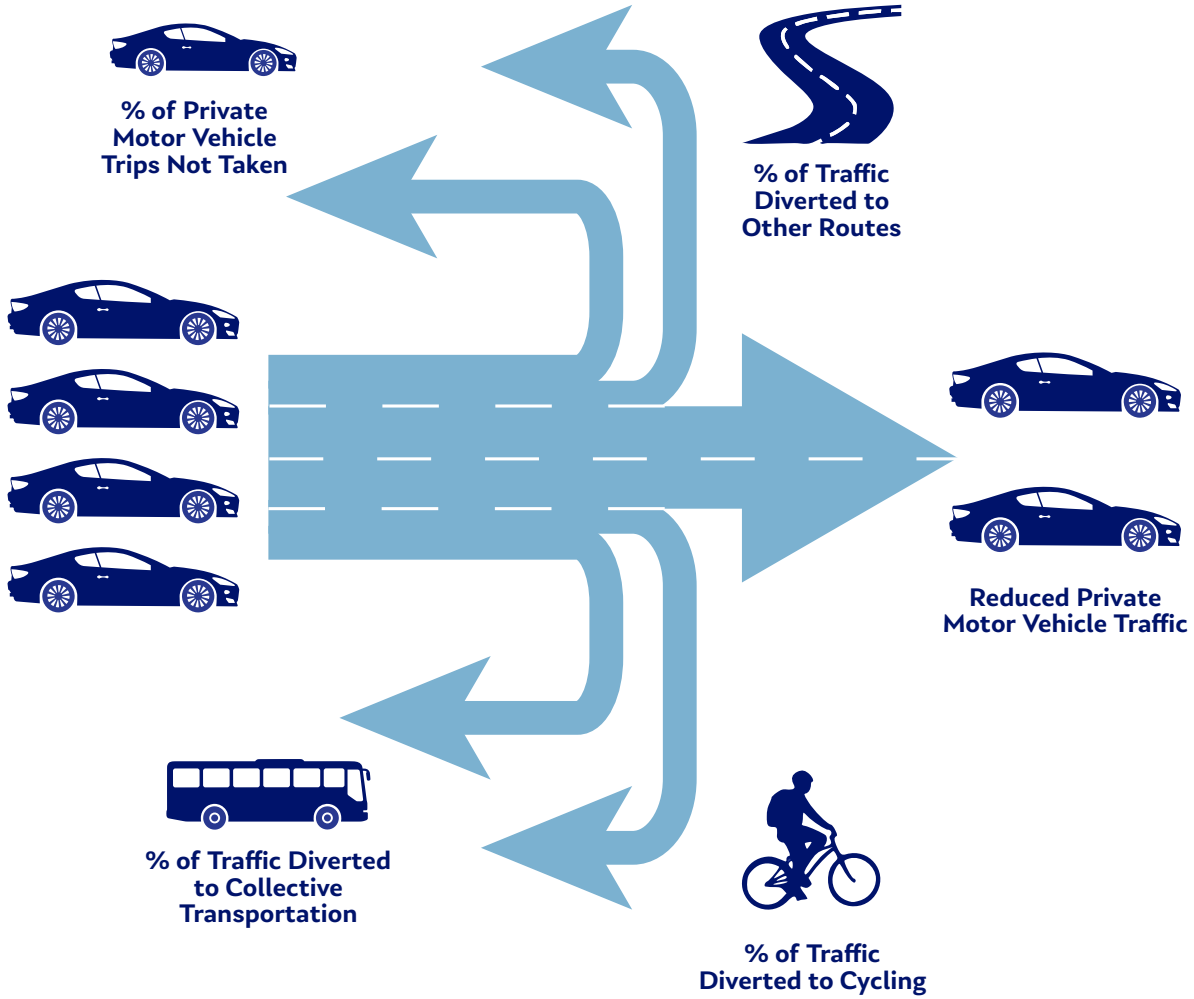
6.3

Managing Mobility

Change to the transportation system requires an iterative process. As Oshtemo Township evolves, change will be dependent on the intensity and frequency of private development, existing and planned future ownership of streets and roads, and public and political priorities.

Recommendations for appropriate next steps may vary in their implementation depending on timeframe and roadway jurisdiction. Several strategies may be accelerated or modified if Oshtemo Township is incorporated into a city, thereby gaining regulatory control over all streets and roads currently under RCKC jurisdiction, for example.

TRAFFIC EVAPORATION



Utilization of the transportation network, and the resulting congestion it may cause, is perhaps best understood as an economic concern – a case of mismatched supply and demand. Put simply, congestion is a necessary result of a dynamic ***place***, where economic opportunities are plentiful. The best means by which to support a growing economy is to increase efficiency for all types of road users.

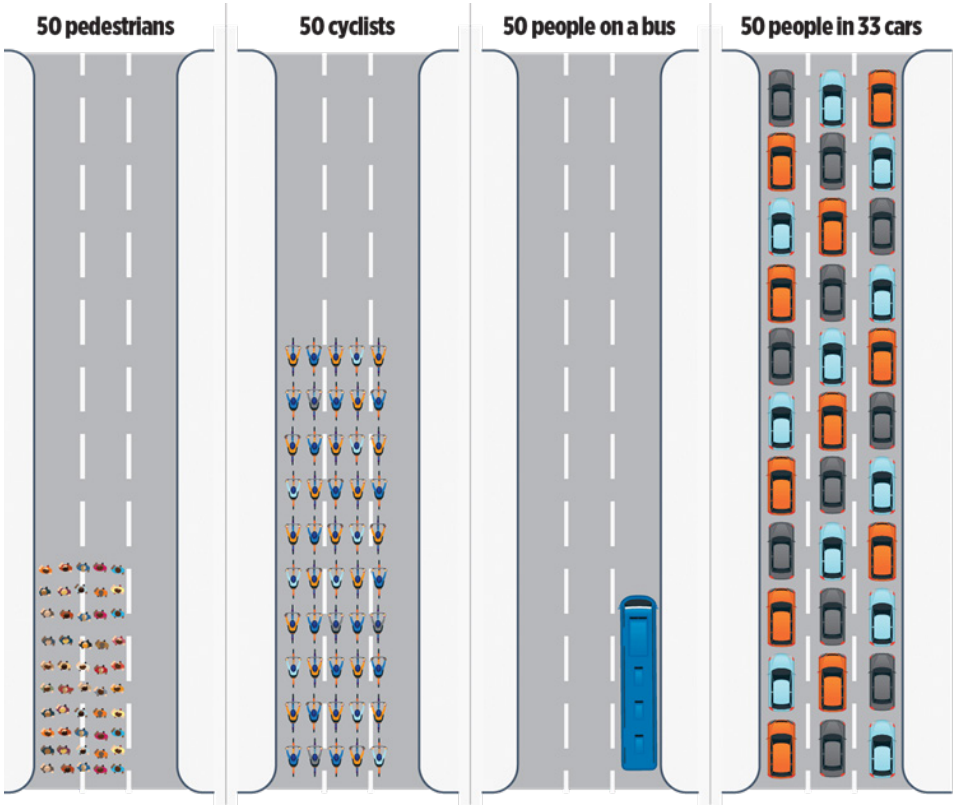
A region's transportation system can support a higher volume of users by dispersing trips across a wider range of modes. Small changes can make a big difference. Although it may seem counterintuitive, one of the best ways to improve the driving experience for those who need to drive is to improve the non-driving experience for those who can choose a different mode.

In growing areas, traffic congestion is not something that can be 'built out of.' Instead, congestion and activity should be viewed as a feature, not a bug, of a successful place. Thoughtful and comprehensive investment in a multi-modal transportation system will not only help to relieve congestion-related concerns, but also increase the quality of life for township residents, help achieve better public health outcomes, and aid in conserving the existing natural features of the region.

Vehicles may provide the most convenient form of transportation in suburban environments, but they are also the least space-efficient, ***needing approximately 10 times as much paved surface area to move one person when compared to people walking, bicycling, or using public transportation.*** Additional space is also needed to store private vehicles at destinations, contributing to greater amounts of stormwater runoff during rain events when compared to preserved open, natural spaces.

Space Occupied by 50 People

While a bus needs three times as much space as a car, its carrying capacity per lane is unrivaled among other on-street modes. As land in urban areas becomes increasingly scarce, use the space within the street most efficiently to serve the largest number of people.



6.4

Transportation Planning Methodologies - Old and New

Broadly speaking, conventional transportation planning methodologies seek to improve the safety and efficiency of trips made by personal vehicles using the following metrics or standards: [35]

- Maximize traffic operating speeds, as a means to reduce travel times;
- Minimize traffic congestion through capacity expansions, again as a means to reduce travel times; and
- Reduce crash rates over specified distances through infrastructure modifications.

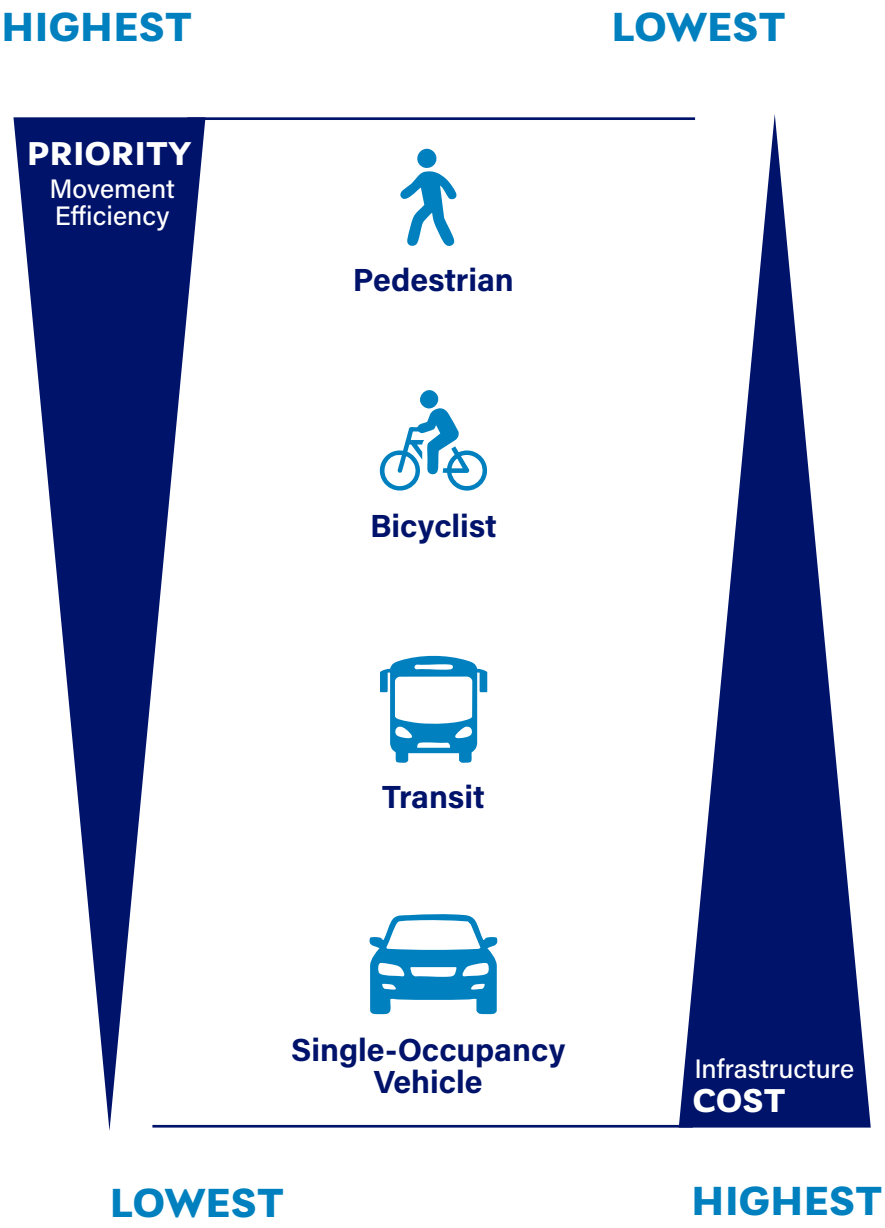
As a result, most ***developed*** communities – particularly those developed according to the traditional suburban expansion pattern – now feature roadway systems that provide drivers with the opportunity to travel to destinations relatively efficiently and safely. However, these traditional methodologies assume personal vehicular travel as the ***default mode of transportation*** – thereby creating a self-fulfilling prophecy, in which vehicular utilization is high because it represents the only viable means of travel and no other modes are optimal.

However, this approach overlooks the needs of a significant proportion of the local population. More than one in five people are unable to use a personal vehicle to accomplish daily tasks. A greater number of people still would like to use modes of transportation other than a personal vehicle, either all or some of the time.

The broader, modern perspective of transportation planning recognizes the benefits inherent in a multi-modal system. Realizing efficiencies in modal choice can improve residents' quality of life by reducing traffic congestion, minimizing parking needs, lowering costs of living by reducing transportation-related expenditures, and improving mobility outcomes for those who cannot or choose not to drive.

[35] *https://www.vtpi.org/multimodal_planning.pdf*

Significant coordination is necessary to ensure the desired approach to transportation planning is undertaken across all relevant stakeholders, including RCKC, MDOT, the Kalamazoo Area Transportation Study (KATS), and developers. Introducing metrics, such as Quality/Level of Service and modal hierarchy into the project prioritization and decision-making framework, presented in Section 6.6, represents a tangible means by which to implement a holistic approach to transportation planning across corridors and facilities within the township. A gradual and incremental approach to implementing multi-modal implementation strategies is required to foster shifts in the existing mobility culture.



6.5

Metrics

What gets measured gets managed; therefore, it is important to measure what matters to provide Township and regional staff with a framework for tracking progress over time.

To advance the mobility vision in Oshtemo Township, the following goals and metrics are offered to provide a starting point for conversations amongst Township staff, MDOT, RCKC, KATS, regional decision makers, and the general public about how best to track success in implementing Oshtemo's community vision. The measures are separated into objectives to provide direction towards specific implementation strategies.

GOAL 1 - Ensure safety for all road users.

Use self-enforcing design techniques and recommended safety countermeasures to reduce crashes across all modes.

Performance metrics used to assess changes in safety outcomes include:

Measure and evaluate changes in crash rates on state-owned and county-owned roadways over time.

- Identify the locations, frequency of types, and rates at which crashes occur on roadways under township and RCKC jurisdiction.
- Utilize standard crash rate methodology to identify potential areas where safety improvements should be prioritized. [36]
- Particular consideration should be given to crashes involving vulnerable road users, including pedestrians and bicyclists, as well as the locations of historical severe and fatal crashes.
- Coordinate with RCKC, KATS, and MDOT to understand recommended safety countermeasures outlined in the Safe Streets and Roads for All (SS4A) Action Plan, developed in 2024, and provide amendments that align with reducing fatal and severe crashes in Oshtemo Township. [37]

Measure vehicle travel speeds on priority roadways.

- Assess vehicle speeds along priority routes within the township, including West Main Street, 9th Street, Stadium Drive, and Drake Road to determine alignment between operating, posted, and target speeds. Coordinate with RCKC to understand traditional data collection techniques or leverage innovative mobility analysis platforms to understand and communicate vehicular operations.

[36] *https://highways.dot.gov/safety/local-rural/intersection-safety-manual-local-rural-road-owners/3-safety-analysis*

[37] *https://www.kalamazoocountyroads.com/upload/resources/91/RCKC%20Transportation%20Safety%20Action%20Plan%202023.pdf*

GOAL 2 - Develop a connected transportation network.

Increase connectivity between residential neighborhoods and nearby non-motorized facilities to connect residents to commercial areas, places of employment, recreation, and public transportation.

Performance metrics used to assess changes in network connectivity include:

Monitor the connectivity of residential and commercial developments using existing stub streets and the guidelines described in Section 3.3.

Refine Oshtemo's Transportation and Mobility Ordinance to align with this Plan. The following represent best practices for the development of a connected network, although it is understood that site-specific conditions and other regulations may preclude full application of each practice:

- Encouraging average intersection spacing for local streets of 300 feet to 600 feet.
- Spacing between non-motorized connections should be between 300 to 400 feet, which may require mid-block crossings.
- Require multiple access points between the local street network and key arterial routes.
- Incorporate 'stub' streets, which utilize easements to provide connectivity when future development occurs.

Pursue right-of-way, easements, and other private lands to allow for expansion of the street network and/or non-motorized facilities. Review existing water and sewer easements to identify opportunities to upgrade the easements for nonmotorized facilities. Evaluate travel times between destinations across various modes of transportation.

- Monitor average travel times between destinations for people walking, bicycling, or driving relative to average travel speed. A disconnected street network imposes greater travel distances on network users and precludes efficient utilization of multiple modes of transportation.

Maintain an emphasis on connecting the east and west sides of the township bisected by US-131 via bike paths and/or sidewalks, especially through coordination with MDOT when bridges crossing US-131 are rehabilitated or replaced.

GOAL 3 - Build Complete Streets facilities across the transportation network.

Rebalance the street network to allow modal choice, route options, and the opportunity for the people of Oshtemo to access destinations safely with minimal exposure.

Performance measures used to analyze changes in transportation facilities include:

Evaluate the proportion of roadway reconstruction projects that incorporate Complete Streets elements, such as sidewalks, bicycle facilities, and crosswalks.

Monitor changes in vehicle lane-miles provided over time and compare against changes in centerline miles of accessible pedestrian and bicycle facilities over time.

Identify connectivity gaps for pedestrians and bicyclists, such as sidewalk gaps, and prioritize connections through reconstruction or development projects.

Apply desired Street Typologies and design elements during roadway rehabilitation and reconstruction as well as site development projects through coordination with MDOT and RCKC.

Ensure identified areas with existing and desired non-motorized utilization provide connected and accessible routes.

GOAL 4 - Encourage economic growth and fiscal sustainability.

Align land development with the creation of walkable places in a manner that optimizes the use of infrastructure to reduce long-term financial liabilities.

Performance measures used to analyze changes in economic development and fiscal sustainability include:

Coordinate with RCKC to evaluate the proportion of its capital budget dedicated to maintenance. Compare maintenance obligations to investments in system improvements and capacity expansion.

Establish assessment districts for routine and capital maintenance within private development for consistency and quality (snow removal, pothole repair, etc.) for safety, efficiency, and level of service.

Measure increases in taxable value in locations adjacent to walkable, pedestrian-oriented places and those that are not.

6.6

Project Prioritization Framework

In order to analyze and prioritize potential future projects, a prioritization framework was developed. This framework is primarily intended for Oshtemo Township decision makers following a jurisdictional transfer of the street and road network from RCKC; however, it may be utilized prior to a transfer to inform the efficacy of non-motorized projects, for example.

The prioritization framework is intended to ensure that community challenges are met and mobility-related values are addressed. An overview of the prioritization framework is provided below.

CRITERIA	SCORING PROCEDURE	MAX. SCORE
Connectivity Does the project fill a gap in the sidewalk network or connect low-stress bicycle facilities?	▪ Five points for projects that connect gaps in the sidewalk network ▪ Five points for projects that connect bicycle facilities	10
Accessibility Does the project improve access to key destinations?	▪ Five points for projects that improve access to a key destination, including schools, parks, the town center, or commercial destinations West Main Street for people walking, bicycling, or using transit ▪ Three points for projects that improve access to a key destination solely for people driving	5*
Safety Is the project located on a street, road, or intersection with a demonstrated history of crashes?	▪ Five points for safety-focused projects located along the high-injury network and use proven safety countermeasures to address demonstrated safety concerns	5
TOTAL		**20**

Table 6: Project Prioritization Framework

**The maximum score for this criterion is 5 points. Projects that improve access to a key destination for all modes of transportation, including walking, bicycling, using transit, and driving, will receive the maximum score of 5.*

The prioritization framework is intended to inform locations that would benefit the most from transportation network improvements. A phasing framework, shown below, is necessary to inform when those improvements should occur. The maximum possible score for a potential project is 80 points. The prioritization and phasing framework may be utilized to evaluate projects beyond those identified in this plan.

CRITERIA	SCORING PROCEDURE
Feasibility Can the project be incorporated into a project already listed in RCKC's or the township's Capital Improvement Program? Can the project feasibly be incorporated into the existing right-of-way (ROW)?	▪ 2X multiplier for projects that can be incorporated into existing capital improvement projects and incorporated into the existing ROW ▪ 1.5X multiplier for projects that can be incorporated into the existing ROW
Funding Is there a high likelihood of grant funding for the particular project (including CMAQ, HSIP, SRTS, or TA)?	▪ 2X multiplier for projects that can likely be accommodated within the existing capital program ▪ 2X multiplier for projects that are eligible for grant funding and highly likely to be awarded

Table 7: Project Phasing Framework

6.7

Project List

Recommended improvements for the mobility network are provided throughout this Plan. The following project list summarizes the most critical mobility projects and is not intended to be exhaustive. The project list may be refined and modified following further review with Township staff during capital improvements planning.

Preliminary analysis for representative projects was also performed using Smart Growth America's Benefits of Complete Streets tool. This tool is intended to provide an approximate measure of anticipated outcomes if certain projects were to be implemented. The tool quantifies outcomes across four categories:

Safety Estimates the reduction in mobility-related fatalities and serious injuries across modes following the implementation of a project.

Environment Estimates the environmental impact of projects, particularly non-motorized projects. Reductions in vehicle miles traveled (VMT) and the benefits of mode shift are quantified.

Health Estimates the public health benefits of a project, considering metrics such as VMT and increased physical activity.

Economy Estimates the economic impact of a project, based on national studies that evaluate changes in business revenue following the implementation of a Complete Streets project.

Representative metrics for a sampling of identified projects are included to provide further information regarding the potential impact and aid in quantifying, communicating, and understanding the tradeoffs inherent in the design and implementation of a regional mobility network.

Provide signal preemption along key corridors to achieve faster and more efficient emergency vehicle responses.

Project Score: 48

This project is planned in conjunction with the Oshtemo Township Fire Department.

Introduce non-motorized shared-use paths in accordance with recommendations from Go Green! Oshtemo at the following locations:

West edge of Drake Road, between West Main Street and Stadium Drive

Project Score: 30

Both sides of 9th Street, between Erie Street and West Main Street

Project Score: 39

Both sides of Stadium Drive, between 11th Street and 8th Street

Project Score: 39

North edge of KL Avenue, between Drake Road and Copper Beach Boulevard

Project Score: 39

This project is programmed for construction in 2026.

Complete the sidewalk network on both sides of the road along 9th Street between KL Avenue and Stadium Drive.

Project Score: 39

This project is anticipated to improve pedestrian safety, encourage greater resident walking and bicycling activity, and reduce local VMT by providing opportunities for trip shifts.

Complete the sidewalk network on both sides of the road along Stadium Drive between 8th Street and Drake Road.

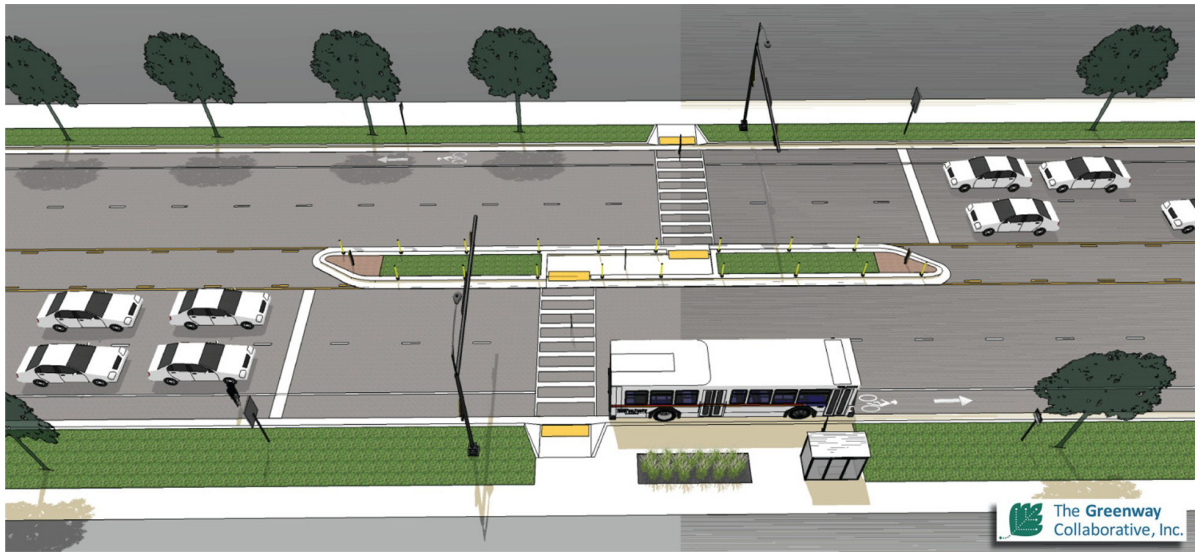
Project Score: 30

This project is programmed for construction in 2028 through a Transportation Alternatives (TA) grant.

Provide enhanced crossing facilities, including pavement markings, signage, and pedestrian hybrid beacons and refuge islands, as appropriate, at several locations along West Main Street to reduce the distance people need to walk to cross the street. Coordinate a reduction in the posted speed limit through design and alternative methods for speed limit setting.

Consideration should first be given to the addition of safer and more comfortable crossings at transit stops, including, but not limited to, the following locations:

- The transit stop adjacent to 5313 West Main Street (First National Bank)
- The transit stop adjacent to 5119 West Main Street (Panera Bread)
- The transit stop adjacent to 6289 West Main Street (Catherine Nails)
- The transit stop adjacent to 6660 West Main Street (Meijer)

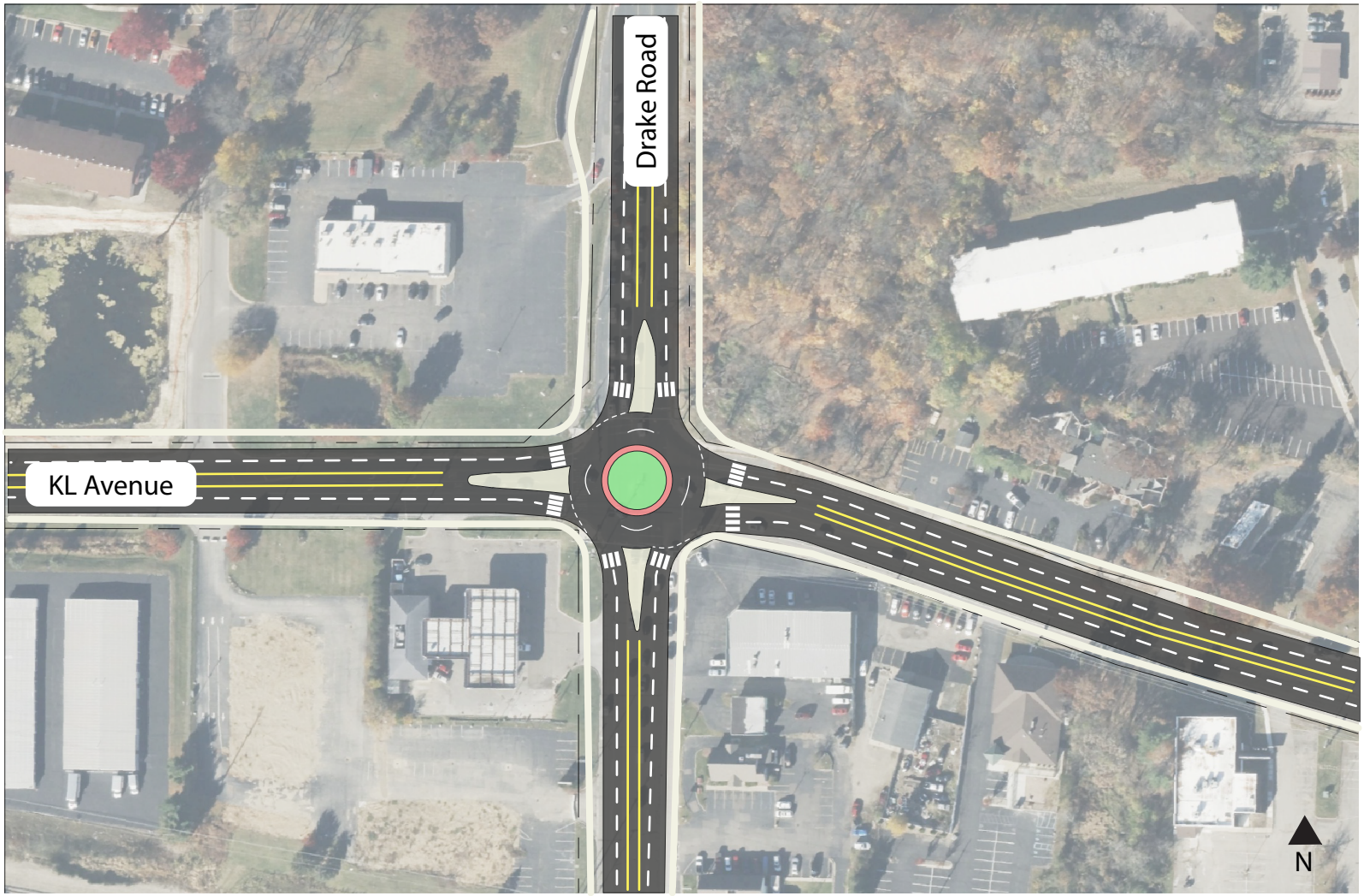


Project Score: 24

Explore the feasibility of roundabout implementation at the signalized intersection of Drake Road and KL Avenue.

This intersection is the most dangerous intersection under RCKC jurisdiction, with nearly two fatal and almost 50 severe crashes occurring per year. Funding is likely available through the state's Highway Safety Improvement Program (HSIP).

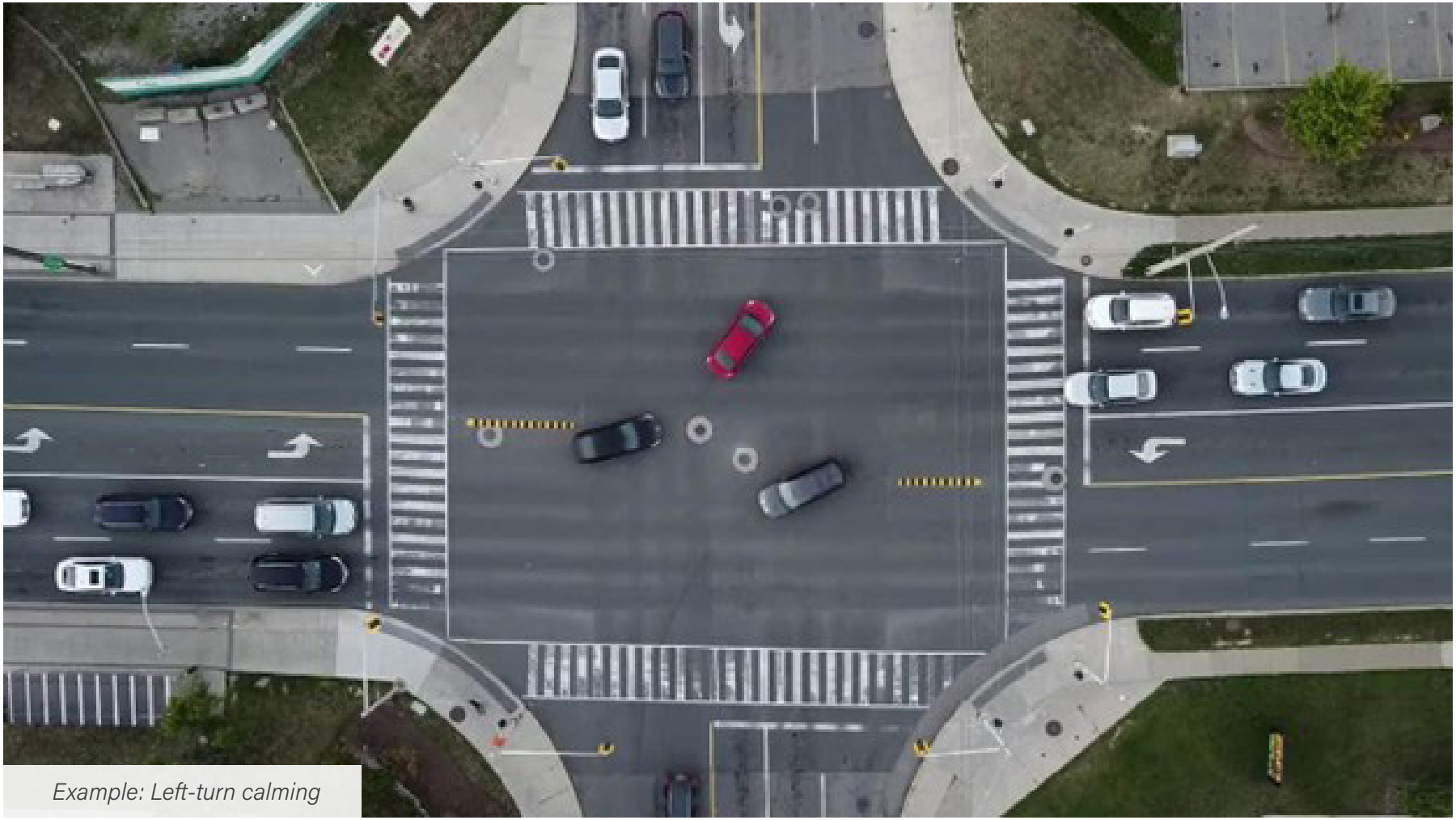
Project Score: 24



Introduce low-cost, quick-build improvements at major signalized intersections within the township.

Improvements may include left turn calming or modifications to signal operations that restrict permissive left-turn movements, for example. Left-turn calming utilizes rubber curbs, bollards, and delineators to visually 'harden' the road's centerline. It is intended to discourage left-turning drivers from cutting a turn short over the centerline, reduce driver turning speeds, and improve a driver's visibility of people crossing.

Project Score: 24

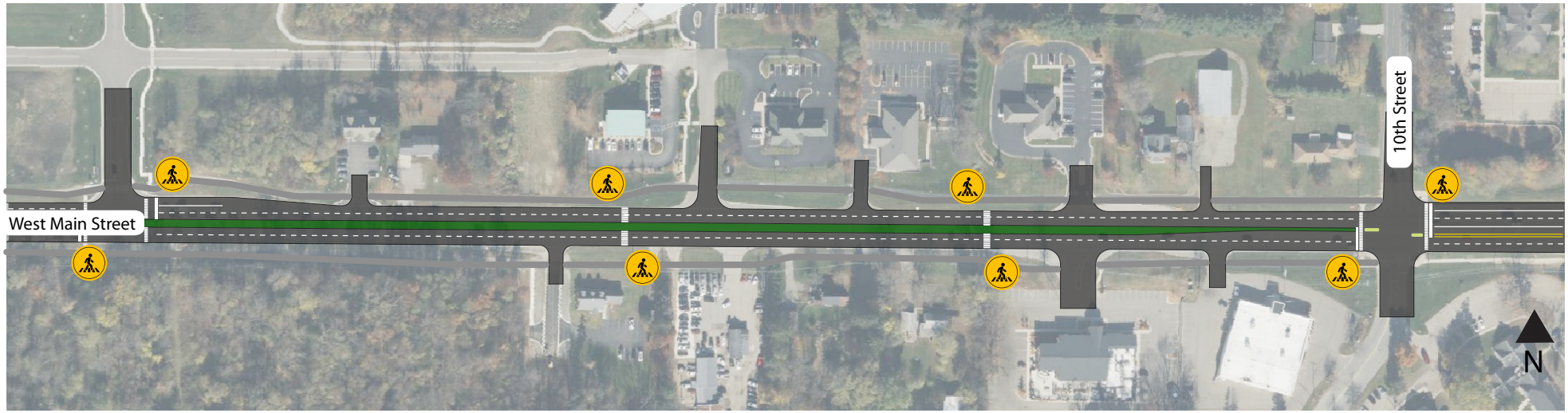


Example: Left-turn calming

Extend the landscaped center median on West Main Street between 7th Street and Drake Road.

Median implementation should be performed in accordance with driveway management recommendations identified through a comprehensive access management planning process. The center median may be utilized as a pedestrian refuge island at designated mid-block crossing locations, particularly near transit stops.

Project Score: 24



Segment shown is a preliminary, representative section of the desired design and is not intended to be final.

Explore the feasibility of roundabout implementation at the signalized intersection of Stadium Drive and 9th Street.

Funding is likely available through the state's Highway Safety Improvement Program (HSIP).

Project Score: 15

Tremont Street at Pottery Avenue, Port Orchard, WA

Explore the feasibility of a lane repurposing on Stadium Drive between 6th Street and 9th Street to include on-street parking or dedicated bicycle facilities.

Average annual daily traffic volumes within this segment range between approximately 12,000 and 17,000 vehicles per day – well within the traditional range for a successful lane repurposing. Modifications to this segment can serve as an indicator of the feasibility of future modifications to Stadium Drive between 9th Street and 11th Street, where traffic volumes are higher.

Lane repurposing should be coupled with the addition of access-controlling landscaped medians in the center turn lane to reduce conflict points and serve as refuge islands for mid-block crossings. Particular consideration should be given to the provision of mid-block crossings at existing transit stops along Stadium Drive.

Project Score: 15

Main Street, Huntsville, AL

Lancaster Boulevard, Lancaster, CA

Explore the feasibility of lane repurposing on West Main Street between 9th Street and Drake Road for the exclusive use of Kalamazoo Metro (i.e. Bus Rapid Transit, or BRT).

Particular consideration would need to be given to the timing of potential improvements, especially if an access-controlling median is implemented in the center lane. Implementation would need to be coordinated with the City of Kalamazoo and MDOT.

Project Score: 12

6.8

Funding

Commitment can be leveraged during the pursuit of funding from multiple sources, including federal, state, and local funding mechanisms as well as grants, partnerships, and other privately sourced opportunities.

Non-motorized facilities identified in this Plan may also be incorporated into programmed street or road construction projects, which minimizes ancillary costs associated with trail design or construction mobilization. Street or road construction projects can generally be associated with two categories, as defined below:

1. Mill and Overlay (Rehabilitation) Projects

The rehabilitation (or resurfacing) process is a construction project in which the existing roadway surface is removed and replaced with new pavement or asphalt. During these projects, pavement markings are removed, which provides an opportunity for cross-section reconfigurations that may change road cross-sections from 4-lanes to 3-lanes, narrower lanes, and/or possibly protected or buffered bicycle lanes. Rehabilitation projects may offer the opportunity to implement a planned bicycle facility in conjunction with a broader project, although these facilities are constrained to within the existing curb lines.

2. Street Reconstruction

Complete reconstruction of a corridor represents the most cost-efficient opportunity to implement separated non-motorized facilities. During a full reconstruction project, the entire transportation facility – inclusive of curbing, drainage structures, pavement markings, sidewalks, driveway aprons, and street lighting – is removed and replaced. The cost to incorporate a separate non-motorized facility is often relatively minimal, since existing structures can be removed and replaced more easily.

In some cases, funding for streetscape, non-motorized, or other safety improvements can be combined with funding programmed for a corridor rehabilitation or reconstruction project. In other cases, funding can be used to implement improvements on segments outside of programmed construction projects. In all cases, funding can – and often must – be sourced from a variety of federal, state, local, or private programs and should include costs associated with the network's entire lifecycle, from design and construction to ongoing maintenance and eventual replacement.

POTENTIAL FUNDING SOURCES FOR MULTI-MODAL TRANSPORTATION FACILITIES

Federal (some programs are administered at the state level)

GRANT PROGRAMS	ELIGIBLE PROJECT TYPES	COST-SHARE STRUCTURE	LIKLIHOOD OF SECURING FUNDING	MAX. GRANT AWARD
Better Utilizing Investments to Leverage Development (BUILD)	*Surface transportation projects with significant local or regional impacts.*	80% federal / 20% local if the project is not located within an Area of Persistent Poverty, otherwise up to 100% federal	Low	$25,000,000
Congestion Mitigation and Air Quality Improvement Program (CMAQ)	*Projects, including bicycle and pedestrian projects, that improve air quality. Projects must be located in a nonattainment area.* [39]	80% federal / 20% local	Low	N/A
Highway Safety Improvement Program (HSIP)	*Projects that improve transportation safety. 15% of federal aid in Michigan must be spent on projects that improve safety for people walking or bicycling.*	90% federal / 10% local	Medium	$2,000,000
Active Transportation Infrastructure Investment Program	*Projects that provide safe and connected active transportation facilities.*	80% federal / 20% local if the project is not located within an Area of Persistent Poverty as defined by USDOT, otherwise 100% federal	Low	$15,000,000 (Construction)
Surface Transportation Block Grant Program (STBG)	*Projects that preserve or improve the condition of existing facilities, including pedestrian or bicycle facilities. Funding is formula-based, not discretionary.*	80% federal / 20% local	Low	N/A (Construction)
Recreational Trails Program (RTP)	*Trail maintenance or construction projects.*	N/A	Low	
Safe Routes to School (SRTS)	*Projects that improve non-motorized accessibility to educational centers.*	N/A	Medium	$15,000 (Mini Grant)

State

GRANT PROGRAMS	ELIGIBLE PROJECT TYPES	COST-SHARE STRUCTURE	LIKLIHOOD OF SECURING FUNDING	MAX. GRANT AWARD
Michigan Natural Resources Trust Fund (MNRTF)	*Projects that provide outdoor recreation. Project area must be within an area covered by a DNR-approved 5-year recreation plan.*	N/A	Medium	$400,000

Local

GRANT PROGRAMS	ELIGIBLE PROJECT TYPES	COST-SHARE STRUCTURE	LIKLIHOOD OF SECURING FUNDING	MAX. GRANT AWARD
Community Development Block Grants (CDBG)	*Construction of sidewalks or other public non-motorized facilities.*	N/A	High for low- to moderate-income areas	$1,500,000
Transportation Alternatives Set-Aside Program (TA)	*Projects that enhance the intermodal transportation network and provide safe alternative transportation options. Distributed at the MPO level.*	80% federal / 20% local	High	N/A
Downtown Development Authority (DDA) and Corridor Improvement Authority (CIA)	*Tax increment captured in a downtown or neighborhood business district can be used for infrastructure investment inside the Authority's designated "Development Area".*	N/A	Medium	N/A
Brownfield Redevelopment Program	*Private development projects are allowed to use part of their tax capture towards public infrastructure in areas abutting a project.*	N/A	Lo	N/A

Private

GRANT PROGRAMS	ELIGIBLE PROJECT TYPES	COST-SHARE STRUCTURE	LIKLIHOOD OF SECURING FUNDING	MAX. GRANT AWARD
Michigan Health Endowment Fund	*Projects that promote active lifestyles through the construction or maintenance of non-motorized facilities.*	N/A	Medium	$500,000
Michigan Trails Fund	*Projects that provide regional non-motorized facilities.*	N/A	Medium	N/A

6.9

Additional Tools

This Master Streets Plan provides recommendations on how to create a comprehensive, safe, and connected transportation network that will serve the long-term mobility needs of Oshtemo Township residents. Some additional "softer" tools will be useful companions to the construction of facilities. These include ordinance amendments and education.

TRANSPORTATION AND MOBILITY ORDINANCE (TMO) UPDATE

The Transportation and Mobility Ordinance was adopted by the Oshtemo Township Board on February 20, 2024. The TMO addresses connectivity, access management, internal circulation, street design, and other concepts expressed in this Plan, which augments and explains the logic behind the regulations. It is recommended that the following areas of the TMO be amended to align with the Master Streets Plan:

- Narrative for Relationship to Adopted Plans (Section 1.06)
- Requirements for Traffic Impact Studies to include robust analyses of non-motorized conditions (Section 3.09)
- Complete Streets language referencing the "Regulating Plan" (Section 4.05)
- Connectivity indices for development as well as connectivity requirements to adjacent parcels and precise plat streets (Article 5)
- Minimum driveway spacing requirements to align with Street Typologies. (Section 6.07)
- Context zones updated to Place Types, text and map (Section 8.02)
- Types of Streets to Street Typologies (Section 8.03)
- Public and private street references to urban and rural contexts to Place types, review dimensions (Sections 8.05 - 8.07)
- Add a section to provide guidance on the Americans with Disabilities Act (ADA) and Public Right-of-Way Accessibility Guidelines (PROWAG).

PRECISE PLATS

The Township, in collaboration with RCKC or on its own, should work to acquire additional rights-of-way, permanent easements, and/or the donation of private lands in order to expand the street network. Key connections were identified in Section 3.3.1 of this Plan as future streets. To do this, a precise plat for each desired street segment is recommended. A precise plat is a detailed map or plan, prepared by a licensed land surveyor, that typically includes:

- The proposed street's center line, right-of-way width, and the boundaries of adjacent properties that abut or are within the proposed right-of-way.
- Dimensions and layout of the street.
- Any other expected easements, such as for utilities (water, sewer, power, etc.)
- Distinct features such as topography and curvature.
- New streets should be prioritized by Township staff based on the amount of anticipated development pressure in a given area due to the expense associated with the preparation of a precise plat. Ordinance language adopted by the Township Board alongside the precise plat will specify that buildings cannot be constructed in that area and include a time window for consideration.

EXISTING PUBLIC EASEMENTS

Existing public easements for water and sewer and private easements for other utilities should be reviewed to identify the potential for modification to include non-motorized facilities. Provisions in the site plan approval process (requiring sidewalks or side paths along roadway frontage) can also expand the network.

NON-MOTORIZED EDUCATION

No plan is successful without support and ownership from the residents, township staff, and stakeholders tasked with implementing it. Increasing awareness of the benefits and encouraging the use of non-motorized transportation, encouraging the linking of alternative modes of transportation, and providing information regarding safe integration of non-motorized modes into the transportation system are all critical to the success of building a multi-modal network. To this end, the Township should develop:

- Strategies to educate the community on the benefits of nonmotorized transportation, key safety issues, and traffic laws.
- A branding strategy to establish the Township as a non-motorized-friendly community.
- Partnerships with regional organizations in order to promote bicycling, running, and walking activities.

CAPITAL IMPROVEMENTS PLAN (CIP)

A regular maintenance program for non-motorized facilities should be updated as part of the Township's multi-year capital plan. It is recommended that the Goals and Metrics contained in Section 6.5 augment the CIP to assist in capturing progress, guide long-term planning, and leverage public investments.

TRAFFIC IMPACT STUDIES

Traditional transportation analysis methodologies try to capture the impact of new developments on the street network. Modelers use trip generation estimates according to the size and type of land use, distribute vehicle trips to the existing roadway network, and analyze impacts to roadway segments or intersections. However, these studies rarely seek to identify or encourage the potential for trips to be completed by a mode other than a private personal vehicle. If non-motorized infrastructure is analyzed, it is usually related to internal site circulation (i.e. after someone has gotten out of their car and is walking to their destination).

The Township may consider modifying its requirements for traffic impact studies to include analyses of non-motorized conditions during the development process to ensure a holistic evaluation of the entire transportation network, including non-motorized infrastructure. For example, Montgomery County, Maryland, has developed a review process that analyzes pedestrian level of comfort, ADA compliance, sidewalk lighting, bicycle level of comfort, and transit accessibility for new developments anticipated to generate 30 vehicle trips or more during a weekday peak hour. [40]

Currently, MDOT and RCKC ask developers to partially or fully finance improvements to the vehicular transportation network to offset anticipated adverse traffic impacts, often based on vehicle level of service. However, this practice is rarely extended to include non-motorized improvements. Modifying development requirements to include a comprehensive evaluation of all transportation modes can leverage public-private partnerships to improve the network quality for all users. The Township could consider using tax credit programs and/or density bonuses awarded to the developer for enhanced facilities.

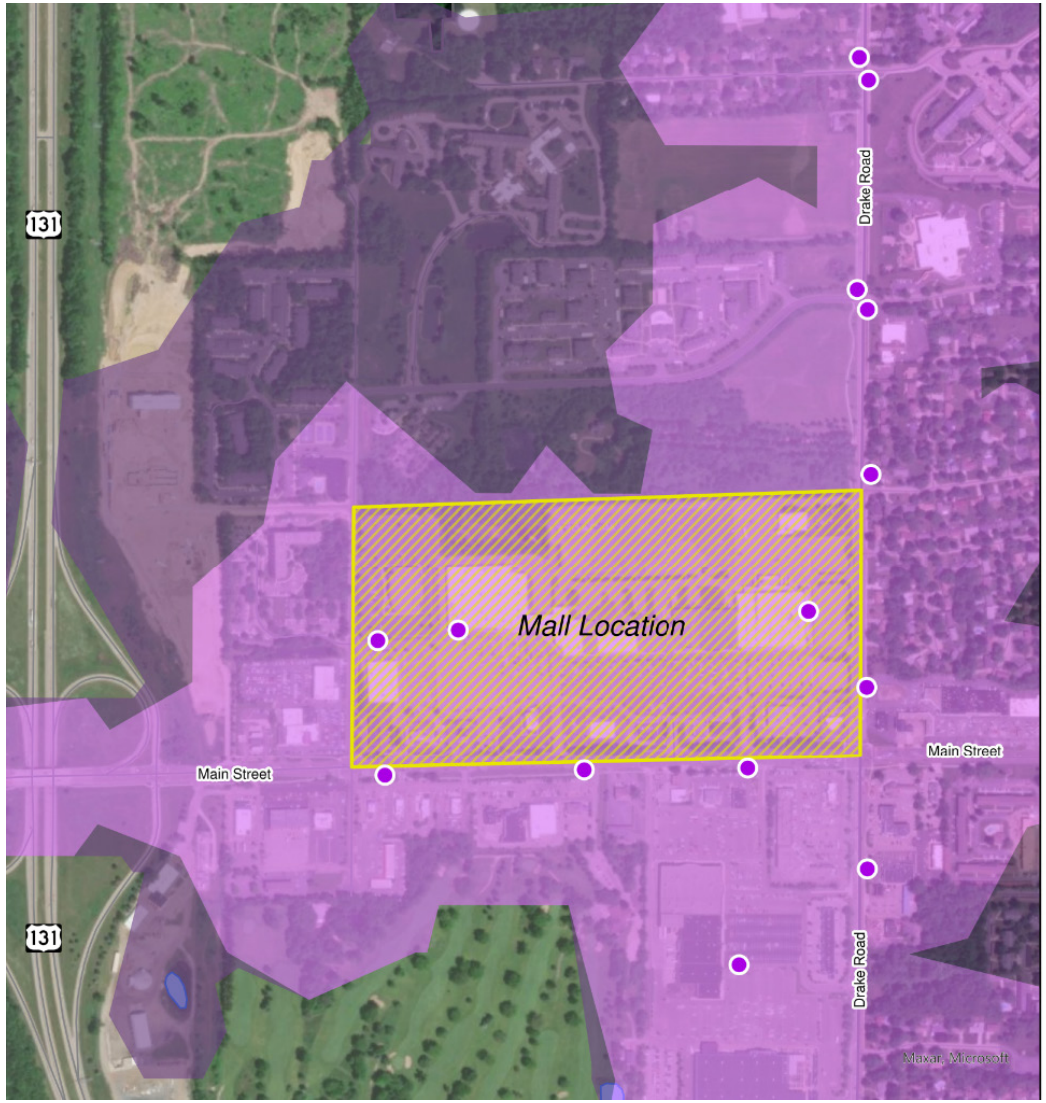
[40] *https://montgomeryplanning.org/wp-content/uploads/2025/01/LATR-Guidelines-01.16.25.pdf*

STREET TYPOLOGIES & ZONING

Aligning Place Types and Street Typologies, as described in Chapter 4, provides a consideration of how development densities may be situated along corridors that carry more cars and/or have transit service. The Oshtemo 2045 Comprehensive Plan suggests having a limited number of zone districts to improve the ease of zoning administration and make development processes clearer. Instead of having separate zone districts, Street Typologies can be used to provide more nuanced development regulations that reflect and respond to the established transportation-land use relationship.

For example, a neighborhood area may be located adjacent to a busy street that is identified as a "Connector." While it may not make sense to allow a small 8-unit apartment building to be placed in the middle of the neighborhood, that edge which fronts on the Connector may be a great spot for that building type (bonus if there is a transit stop). There could be one zoning district that applies to the entire area, but a special exception to allow a variety of housing types on parcels near the Connector may be allowed to support walkability, transit, and nearby businesses.

Density bonuses could be applied in the same way. Transit-oriented development considers an area's "walkshed" according to the location of transit routes and stops. Areas located within a transit walkshed could be allowed an additional number of residential units and/or reduced parking requirements to support transit ridership. The Maple Hill Mall area on West Main Street is a good example where transit can be leveraged as an amenity alongside redevelopment.



MAP 6.1

Maple Hill Mall Transit Proximity

Oshtemo Township

LEGEND

- Half-Mile Transit Stop Walk Radius
- Quarter-Mile Transit Stop Walk Radius
- Transit Stops

N

0 0.1 0.2 Miles

Data Source: Oshtemo Township, 2024. Michigan Geographic Data Library, 2024. Progressive Companies, 2025.

6.10

Next Steps

The Master Streets Plan is part of the Oshtemo 2045 Comprehensive Plan. As a policy document, the values, metrics, prioritization framework, and project list identified in this Plan will provide guidance for future infrastructure changes within the township.

The Transportation and Mobility Ordinance is the regulating document that will effectuate this Plan's recommendations, just as the Zoning Ordinance is rooted in the Comprehensive Plan.

Future steps that are recommended to advance the Plan's recommendations, beyond those that have already been mentioned, include meeting with other suburban and urbanizing townships in Kalamazoo County to advocate for changes to RCKC's road standards, meeting with RCKC to share this Plan document and the concept of Place Types with context-appropriate street standards, coordinating with MDOT to advance changes on West Main Street, and continued education and advocacy about how to make Oshtemo's streets safer for the community.

In addition, this Plan provides an amazing launching point for robust multi-modal conversations in the region. There have been discussions about the possibility of a Bus Rapid Transit (BRT) system that could connect eastern Oshtemo to downtown Kalamazoo. Having a vision, a plan, and regulations that are transit-supportive helps to influence Federal decision-making about what transit systems should receive investment. Regional non-motorized investments, too, will benefit.