



## Chapter 6: Transportation

### Introduction

This Chapter describes the various transportation modes in the City including their organization, condition, issues to address and policy goals upon which the recommendations are based. In some cases, the City has primary authority to initiate changes, such as most of the streets and the non-motorized system. In some situations, authority to make decisions on improvements lies elsewhere, such as the State for its trunkline routes (“M” and “U.S.” roads). Still, the City recognizes its role to provide input on all the transportation-related decisions so improvements can be coordinated. Refer to the five transportation maps at the end of this chapter for further clarification of the text.

### Roadway and Street Functional Classifications

Functional classification is the process by which streets and highways are grouped into classes or systems according to the character of service they are intended to provide. All of the public streets and roadways within the Midland City limits fall within one of the standard functional classifications defined by the Federal Highway Administration and also used by MDOT. The classifications are used as a planning tool by roadway agencies throughout the State to organize and prioritize street hierarchy. The functional classification is based on factors including nationally recognized street spacing standards, the number of lanes of travel, the speed limit, and volumes of a roadway.

As the term infers, all streets are classified according to their primary transportation function. The general classifications and the description of each are outlined in the following sections. The Functional Classification Map in the back of this chapter illustrates the updated classifications in Midland. It should be noted that several street segments differ slightly from the MDOT National Functional Classification map due to more current information regarding traffic volumes and new roadway links.

### Principal Arterials - Freeways

The major arterial system, also known as principal arterial system, carries the major portion of trips entering and leaving the Midland area. Freeways are at the top of the principal arterial category, and are limited access facilities that have a primary function of transporting people and goods between cities and urban areas throughout the State. US-10 and the section of M-20/US-10 Business Route (US-10 BR) east of Washington Street are the only two freeway sections in the MUGA.



### Other Principal Arterials



Other principal or major arterials can typically accommodate over 20,000 vehicles daily and include surface streets that serve traffic moving through the City, connect major destinations, and provide freeway access across Midland. These streets also provide continuity between rural and urban arterials which meet along the urban boundary.

In Midland, the key surface street sections that are defined as principal arterials include the US-10 Business Route (Patrick/Lyon, Indian/Buttles, Eastman), M-20/Isabella Road, and Eastman Avenue between US-10 and Joe Mann Boulevard. These segments are illustrated on the Current Functional Classification Map.

## **Minor Arterials**

The minor arterial street system includes all arterials not classified as major arterials. It includes facilities that place more emphasis on land access than major arterials, while offering a lower level of traffic mobility. Minor arterials provide connections within the community between different neighborhoods and also to major arterials. They may carry local bus routes and should also connect rural collector roads where they meet the urban boundary. Minor arterial streets in Midland typically handle 5,000 to 20,000 vehicles daily.

Key street segments classified as minor arterial include Saginaw Road, Jefferson Avenue, Waldo Avenue south of US-10, Bay City Road, and Eastman Road north of Joe Mann Boulevard. These segments are illustrated on the Current Functional Classification Map.

## **Collector Streets**

The collector street system provides both local land access service and traffic circulation within residential, commercial, and industrial areas. It differs from the arterial system in that facilities on the collector system may penetrate residential neighborhoods, distributing trips from the arterials through the local area to the ultimate destination. Collector streets also collect traffic from local streets in residential neighborhoods and channel it into the arterial system. In highly developed areas, the collector system often includes a grid system to facilitate efficient traffic circulation.



Numerous roads in Midland are classified as collectors. Collector streets, which typically handle 3,000 to 6,000 vehicles daily in Midland, are illustrated on the Current Functional Classification Map.

## **Local Streets**

The local street system comprises all facilities not included in the higher classification systems. It serves primarily to provide direct access to abutting land (typically single family residential) and access to the higher order systems.



## Existing Traffic Conditions

Evaluating the existing transportation system provides the foundation for recommendations in this Transportation Plan. The evaluation includes a review of current traffic volumes on major streets and a discussion of recent growth history.

### Traffic Volumes and Recent Growth

Daily traffic volumes on the major surface street system are as high as 32,000 vehicles on Eastman Avenue near the Midland Mall and over 27,000 vehicles on North Saginaw Road just east of Eastman. Collector and arterial streets with daily volumes of approximately 5,000 vehicles and higher are highlighted on the Existing Traffic Conditions map according to the change in traffic volumes over the last four years.

Analyses of the current traffic volumes in the City indicated that most of the major streets have experienced a decrease in traffic volumes during the last five years. Several sections that have experienced the most growth are located around the growing commercial areas north of US-10. The table on page 6.5 outlines recent traffic growth figures on selected key street sections.



*The Eastman/U.S. 10 interchange area has some of the highest traffic volumes in Midland.*



**Figure 6.1: Average Annual Traffic Volume Changes**

Street	Cross street	2001	2006	2011	5 year change	10 year change
Ashman	NE of Pine	8,436	5,498	5,525	0.49%	-34.51%
E. Ashman	W of Swede	9,231	8,258	7,822	-5.28%	-15.26%
Buttles	SE of State	14,487	12,353	12,341	-0.10%	-14.81%
Eastman Ave.	N. of Meijer	11,030	10,053	9,781	-2.71%	-11.32%
Eastman Ave.	S of Wackerly	28,962	26,753	25,560	-4.46%	-11.75%
Eastman Ave.	N of US-10	31,329	na	27,952	na	-10.78%
Eastman Ave.	S of Saginaw	19,447	19,309	18,852	-2.37%	-3.06%
Eastman Ave.	N of St. Andrews	21,492	20,362	20,665	1.49%	-3.85%
Indian	SE of State	17,966	11,762	12,459	5.93%	-30.65%
Isabella	SW of Main	22,931	23,613	20,476	-13.29%	-10.71%
Jefferson	N of Wackerly	18,005	14,477	15,836	9.39%	-12.05%
Jefferson	S of Wheeler	13,439	12,249	12,567	2.60%	-6.49%
Joe Mann	E. of Eastman	8,697	9,862	11,966	21.33%	37.59%
W. Main	S of Saginaw	6,560	6,330	5,243	-17.17%	-20.08%
E. Patrick	W of Washington	14,936	12,201	12,559	2.93%	-15.91%
N. Saginaw	W of Sturgeon	10,095	9,909	9,727	-1.84%	-3.65%
N. Saginaw	W of Eastman	26,196	22,246	22,561	1.42%	-13.88%
N. Saginaw	SE of Sugnet	19,724	17,455	16,687	-4.40%	-15.40%
Saginaw, S.	N. of Patrick	21,859	19,039	20,389	7.09%	-6.72%
Sturgeon Ave.	N of Airport	5,304	4,157	4,803	15.54%	-9.45%
Sturgeon Ave.	N of Saginaw	6,568	5,512	5,132	-6.89%	-21.86%
W. Sugnet	E of Orchard	6,485	5,107	4,971	-2.66%	-23.35%
Swede Rd.	S of Wheeler	9,045	8,317	8,075	-2.91%	-10.72%
W. Wackerly	W of Eastman	12,150	13,372	13,006	-2.74%	7.05%
W. Wackerly	E of Eastman	11,923	11,667	11,524	-1.23%	-3.35%
E. Wackerly	E of Jefferson	6,726	6,957	8,112	16.60%	20.61%
Waldo Rd.	N of Ashman	12,567	12,401	11,635	-6.18%	-7.42%
Waldo	N. of Patrick	12,910	12,795	11,843	-7.44%	-8.26%
Washington	N of Sugnet	6,082	4,944	4,682	-5.30%	-23.02%
E. Wheeler	E of Jefferson	8,501	7,848	7,915	0.85%	-6.89%
E. Wheeler	E of Swede	5,626	5,550	5,049	-9.03%	-10.26%

Volume Data Source: City of Midland Engineering Department, MDOT



## Goals and Objectives

The long-term Transportation Plan for the City of Midland is based on primary goals that will keep the City's residential, commercial and public areas vibrant. The following are goals and objectives for Midland's transportation network

### **Goal 1: Maintain and improve safety and efficiency in the transportation system to support land use patterns and ensure that Midland remains an attractive place to live, work, and visit.**

#### Objectives:

- A. Maximize the function of City streets through transportation system management techniques (such as intersection signalization or other intersection improvements, control, and access management) and transportation demand management techniques (such as ride-sharing, multiple occupancy vehicle preferred parking, etc) that allow the system to operate at a Level of Service (LOS) of D or better (Level of Service is a standard traffic operation rating that ranks the level of delay into six categories, with A being best and F being worst).
- B. Preserve, and obtain when possible, adequate rights-of-way to accommodate future transportation needs, especially in areas where significant development is planned to occur (north Eastman Avenue, north Waldo Avenue, Stark Road, etc).
- C. Continue to make land use decisions that direct intense commercial and industrial land uses (and their related truck traffic) to areas where capacity is available and related traffic impacts to residential areas can be minimized.
- D. Through a traffic impact study process, make sure that street capacity can accommodate anticipated traffic generated by a development before it is approved. Because funds from road agencies often lag behind demand, funding for improvements needed to offset anticipated impacts should be secured from the developer or accounted for locally as early as possible. Maintain LOS D or better for movements at all affected intersections.
- E. Make good use of the new Midland transportation model that has been developed by MDOT for the Bay Region communities. This traffic volume-based transportation model is a powerful tool (using computer software) in transportation planning and is most often used to forecast future traffic volumes by testing land use growth scenarios and new or upgraded roadway sections throughout a community or region.
- F. Pursue development of access management policies and plans for the City, especially along existing and future commercial corridors to help preserve capacity and increase safety.
- G. Pursue development of traffic calming policies and plans for residential and school problem areas.



---

**Goal 2: Provide and pursue multi-modal transportation alternatives that can improve connectivity between neighborhoods, schools, parks, businesses and other activity areas.**

Objectives:

- A. Continue development of a continuous system of pathways and sidewalks as an alternative mode of travel and improvement to the City's quality of life.
- B. Promote alternative modes of transportation (pedestrian, bicycle, ride-sharing, etc) through capital investment, including dedicated bike lanes, carpooling facilities, bike shelters, and other public stations with amenities such as restrooms, showers, and rental lockers.
- C. Require new development, through the site plan review and approval process, to be pedestrian friendly and transit oriented by including links between external and on-site pedestrian systems

**Goal 3: Continue to improve the aesthetic appearance of the City's transportation corridors.**

Objectives:

- A. Maintain and expand improvement efforts along the Lyon Road/Patrick Road/US-10 Business Route corridor.
- B. Consider the character of the surrounding area's land use as part of the design of any new or upgraded street projects.
- C. Upgrade the aesthetic appearance of major streets through the use of streetscape improvements, retrofit access management improvements, tree preservation, and improved site design standards.
- D. Use traffic calming measures to address speed and cut-through problems in residential areas and also to provide opportunities within low speed areas for additional aesthetic improvements.

**Goal 4: Endorse the Complete Streets Program**

Objectives:

- A. Sidewalks, shared use paths, street crossings, including under and over passes, pedestrian signals, signs, transit stops and other facilities will be designed, constructed, operated and maintained so that pedestrians including those with disabilities, can travel safely and independently.
- B. The Complete Streets Program will address the need for bicyclists and pedestrians to cross and travel on streets even where there is infrequent use. Therefore, the design policy of intersections and interchanges will be to accommodate and to consider the Complete Streets Program for bicyclists and pedestrians in a manner that is safe, accessible and a benefit to the entire community.



- C. The Complete Streets Program will consider as a part of any new or reconstruction of designated streets and right of ways the above policy guidelines for the benefit of the entire community and non-motorized transportation.



---

## Transportation Issues and Recommendations

Based on substantial public input, including focus groups, planning commission meetings, staff and officials input, and Meetings-in-a-Box, several areas of traffic-related issues and concern in the City's transportation network were identified since 2007 when the plan was first written. The following pages clearly identify these issues and provide a number of specific, or alternative, transportation improvements for these locations.

### Corridors and Intersections

In addition to the issues and projected needs outlined below, the City should continue to monitor potential problem intersections and corridor segments throughout the City. The City's ongoing traffic count program is a useful tool in that process and should be expanded to include the growing areas in the City and MUGA.

#### North Eastman Sub area

**Issues:** Based on public input and extensive evaluation, freeway entrances were modified in 2006. The modifications included building access ramps from Wackerly Street at Schade Drive and prohibiting left turns from south bound Eastman Avenue onto eastbound US 10. The north Eastman Avenue subarea includes the US-10 interchange and the Midland Mall. Incremental commercial development over the years has resulted in poor traffic operations at several roadway segments and intersections. As the areas north and east of the Midland Mall continue to develop, the situation is expected to worsen.

**Recommendations:** To address the significant concerns regarding Eastman Avenue around US-10 and the Midland Mall, the City undertook an extensive analysis of the area (including Joe Mann Boulevard) in 2005-06 with the goal of identifying a set of roadway improvements that would address current deficiencies and projected traffic conditions. Three primary alternatives emerged; a boulevard cross section on Eastman Avenue with traffic signal control (at indirect left turns), a boulevard cross section with roundabouts, and development of a one-way pair (existing Eastman Avenue as northbound, new parallel facility to the west as southbound). The summary analysis of these three alternatives did not clearly indicate a preferred choice. Additional meetings and public input in early 2006 did not result in a consensus on a preferred alternative.

However, subsequent discussions and analyses (Eastman Avenue Design Series – EADS) completed in fall of 2006 have resulted in a decision by City Council to pursue a revised indirect left-turn boulevard alternative, with interim or phased steps over the next 10 years. The final recommendations also included long term consideration of a smart signal system and access management measures.

In addition to Eastman Avenue, providing an additional east/west transportation link and intermittent additional "mid-block" north/south links on the City's north side will become a key element for effectively dispersing development traffic to corridors other than Eastman Avenue. Letts Road was constructed to connect Elisinal and Jefferson, completing one phase of the missing links, illustrated on the Transportation Plan graphic.



### Intersection of Eastman Avenue and North Saginaw Road

**Issues:** Based on reported and observed traffic problems, an evaluation of peak-hour traffic at the intersection of Eastman Avenue and Saginaw Road was completed. The confluence of these two major arterials creates significant congestion during peak hours. The evaluation indicated movements currently experiencing the most delays during peak hours are the southbound Eastman and eastbound Saginaw left turns.

**Recommendations:** Develop/construct second southbound left turn lane (and corresponding widening on the south side of the intersection). Related signal operation changes will provide additional green time to the eastbound left-turn movement.

### Ashman Street and Rodd Street One-Way Pair

**Issues:** the potential conversion of Ashman Street and Rodd Street from a one-way pair to two-way operation was also identified for potential consideration. These streets were converted from two-way operation to the one-way pair operation many years ago when traffic patterns and volumes between Downtown and the Circle were significantly different.

**Recommendations:** The City should periodically evaluate the impacts of returning both of these streets to two-way operation, and carefully weigh the potential advantages and disadvantages of doing so. How such a conversion would be handled at each end of these corridor sections will be a key issue. The MDOT transportation model may be an important tool in monitoring traffic in this area and testing operational changes.

### Intersection of Jefferson and Wackerly

**Issues:** This intersection is located at the east end of the major commercial district of the City and has traffic issues related to congestion during certain times of the year and certain times during the week. With a major church located north of the intersection, traffic congestion occurs during Sunday morning as a large volume of traffic enters the intersection at the same time that the Midland Mall opens. This creates conflicts for northbound left turns that must wait for southbound traffic from the church. Also during major events and regular season of the Midland Soccer Club which is located east of the intersection, major traffic congestion is seen during game and tournament times, when parents are entering and exiting the area for soccer games. During shopping times for the Holiday season, there are many traffic back-ups from Joe Mann Boulevard and Cinema Drive that cause long waiting times for entering and exiting the shopping district.

**Recommendations:** A future roundabout is proposed for the intersection of Joe Mann Boulevard and Jefferson Avenue. The roundabout would allow for all turning movements at the intersection without the disruption of a traffic signal. This would be in conjunction with a boulevard section on Joe Mann Boulevard from Eastman Avenue to Jefferson Avenue, to separate traffic and prohibit left hand turns from businesses, except at designated locations. The boulevard section would provide two lanes in each direction with a landscaped boulevard between the four traffic lanes.



---

### Ashman/Saginaw/Jefferson

**Issues:** The Ashman Circle area has been the focus of attention and comment for some time, both in regard to traffic operations and pedestrian and business accessibility. However, current capacity analyses indicate that the intersection itself is operating within acceptable levels, even during peak hours.

**Recommendations:** The Ashman Street/Saginaw Road/Jefferson Avenue intersection should be periodically reviewed for potential physical and operational improvements that retain or may improve traffic flow and increase safety and accessibility for pedestrians and vehicles to/from the adjacent businesses.

### Center City Authority Area

**Issues:** The Center City area extends primarily on Saginaw Road from the Circle on the north end to Patrick Road. This area has developed as a strip, without a coordinated appearance or plan for better access to businesses.

**Recommendations:** A Development Plan was adopted in 2012, outlining proposed improvements to the area including street scaping, a roundabout at the Circle, boulevards, facades, and sign changes. A Tax Increment Financing Plan has been adopted by City Council for the Authority area and will begin collecting taxes to fund proposed improvements in January of 2013.

### West Side River Crossing/Connector

**Issues:** Lack of a good north/south arterial along the city's west side results in longer drive times and poor circulation for drivers oriented to and from this side of the city. This existing issue will worsen as the area around the Stark Road interchange with US-10 develops with commercial, industrial, and higher density residential.

**Recommendations:** Pursue analyses and funding for development of a new Tittabawassee River crossing, between M-20 and Saginaw Road. The alternatives should include (at a minimum) the Stark Road/Lambert Road/Sandow Road and Dublin Avenue/Vance Road corridors, each of which has its advantages and disadvantages that need to be explored in detail. Significant local/private funding will need to be obtained to support city and state funding of any alternative for this to move forward in the near future.

### Stark Road at US-10

**Issues:** Future development in the area of this interchange is expected to result in the need for additional roadway improvements to maintain acceptable capacity and/or sound access.

**Recommendations:** As development continues in this area, traffic impact studies should be evaluated to determine when improvements are needed. Stark Road from Saginaw to the northern edge of the MUGA will need to be expanded to a three-lane cross section.



### Other Intersections

**Issues:** Several additional intersections throughout the City were identified as needing further evaluation and ongoing counts. These intersections included:

- Sturgeon/Wackerly
- Sturgeon/Airport
- Isabella/Vance
- Sugnet/Swede
- Saginaw/St. Andrews

**Recommendations:** These additional intersections were found to be operating within acceptable levels. The two projected deficient intersections, Sturgeon Avenue/Wackerly Street and Sturgeon Avenue/Airport Road, should both be considered for left-turn lanes and intersection capacity improvements in the future, with the possibility of signalization. The City will continue to encourage MDOT to install an actuated signal at Isabella Street and Vance Road. Monitor Sugnet Road and Swede Avenue intersection for possible signalization.

### **Freeway Interchanges**

#### Waldo Avenue Interchange with US-10

**Issues:** One potential project to be considered is the reconstruction of existing US-10/Waldo Avenue partial interchange to a full interchange. Currently, freeway access is only provided to and from the west. A full interchange would provide for better access for residents and businesses in that area as well as provide an alternative to the congested Eastman Avenue interchange. For a full interchange to be effective, local collector and arterial streets that feed into the interchange area must be in place to provide access. In anticipation of a potential full interchange, the City has constructed a connector corridor (Joe Mann Boulevard/Joseph Drive/Diamond Drive) to provide better access from the Eastman Avenue and Jefferson Avenue corridors to Waldo Avenue. MDOT commissioned a study in 2003 to address this issue and develop a set of potential interchange alternatives (discussed below).

*Above: One potential interchange configuration.*

**Recommendations:** One of the areas planned for significant commercial and higher density residential is along Waldo Road just north of the existing US-10/Waldo partial interchange. Completion of a full interchange could support development of planned commercial and higher density residential uses in this area.

MDOT's potential interchange alternatives defined a preferred design based upon cost and footprint (right-of-way needs). Although the preliminary alternatives ranged from a standard four-quadrant interchange to a single point urban interchange (SPUI), the findings supported a more standard layout (shown on the previous page). If the full interchange project proceeds, additional environmental and traffic studies would be needed to lead the final design.



---

Based on planned development, by 2020 Waldo Road could experience daily volumes of 15,000 to 20,000 vehicles (1,200 to 1,800 peak hour vehicles) in this area. Waldo will need to be widened to at least three lanes, with the potential need for five lanes in the short section just north of an upgraded interchange.

Based on these projections, the City should continue to pursue this upgrade with MDOT. Ample right-of-way should be reserved along Waldo Road through site plan review or other processes. If the Waldo Avenue/Road interchange is upgraded, improvements to Wheeler Street and Waldo Avenue around the interchange will be needed to manage the traffic in the area. It should be noted that under current funding constraints, it is likely that significant local or private funding will be needed in order to put an interchange upgrade on MDOT's project list(s) and to eventually get the improvements constructed.

#### Lyon Road-to-Patrick Road Crossover

**Issues:** The Lyon Road to Patrick Road crossover, located immediately west of the grade-separated freeway portion of M-20/US-10 BR, has been an area of concern for some time (see Existing Conditions Map). This intersection has been the site of numerous crashes related to poor visibility, limited reaction time, and relatively high-speed traffic. The City and MDOT have conducted an analysis of this intersection to identify potential alternatives.

**Recommendations:** The Lyon Road to Patrick Road crossover issue has been addressed in part by the analyses commissioned by the City and MDOT. Although the primary goal is eliminating the crossover, this will require development and implementation of improvements to accommodate the diverted traffic.

An MDOT study conducted to evaluate this interchange area evaluated several alternatives, some of which called for increased use of James Savage Road to S. Saginaw Road. Given the recent closure of Bay City Road/Austin Street/Washington Street, it appears that any alternative calling for increased use of James Savage is not practical. An alternative explored as part of this master plan process is the potential use of a high-volume roundabout located near the Washington Street/Patrick Road/Lyon Road area. In any case, the City should continue to pursue elimination of the current safety issues related to the existing crossover but make sure that the future alternatives and the ultimate design takes into account the street closure elements to the south.



## Other Traffic Issues, Recommendations, and Opportunities

In addition to potential improvements to major streets noted above, there are some scattered problem areas identified by the public and through the review of data. While several physical and operational improvements to the transportation system are recommended, there are also several programs and procedures that may improve traffic and safety, especially in areas where road or intersection expansion is not feasible.

### Public Transportation

**Issues and Conditions:** Public transportation is provided to Midland residents by Dial-A-Ride Transportation (DART). DART provides demand-response transportation to destinations within the City limits. Demand-response service requires users to schedule rides a minimum of 60 minutes in advance or residents can schedule standing order service, meaning a consistent time and location. DART is available for use by all residents.

**Recommendation:** As Midland continues to grow, the feasibility and ridership of a fixed-schedule route or route network should be periodically evaluated. Connecting the City's residential areas with the Circle, Saginaw, Downtown, and Minor League Ballpark areas would provide a great community service and encourage use of alternate modes of transportation.

### Access Management

**Issues:** The proliferation of driveways along commercial corridor segments causes confusion, congestion, and crashes. Both of these predominantly commercial areas need retrofit access management plans and additional policies and regulations in place to address this issue and improve the long-term health of these corridors.

**Recommendations:** Access management is a set of techniques whose goal is to maintain efficient traffic flow, preserve the street's capacity, and reduce the frequency and severity of crashes while maintaining reasonable access to adjacent land uses. Careful placement (or relocation in the case of retrofit areas) of access points reduces conflicts with traffic using other access points and traffic flowing through intersections. The City should pursue a pilot access management plan for a select segment of street in the City. Saginaw and Eastman are two candidates that would have the biggest potential benefit of a corridor-specific access management plan. Access management usually involves tools to appropriately space access points or restrict problematic turning movements. These tools include the following items:

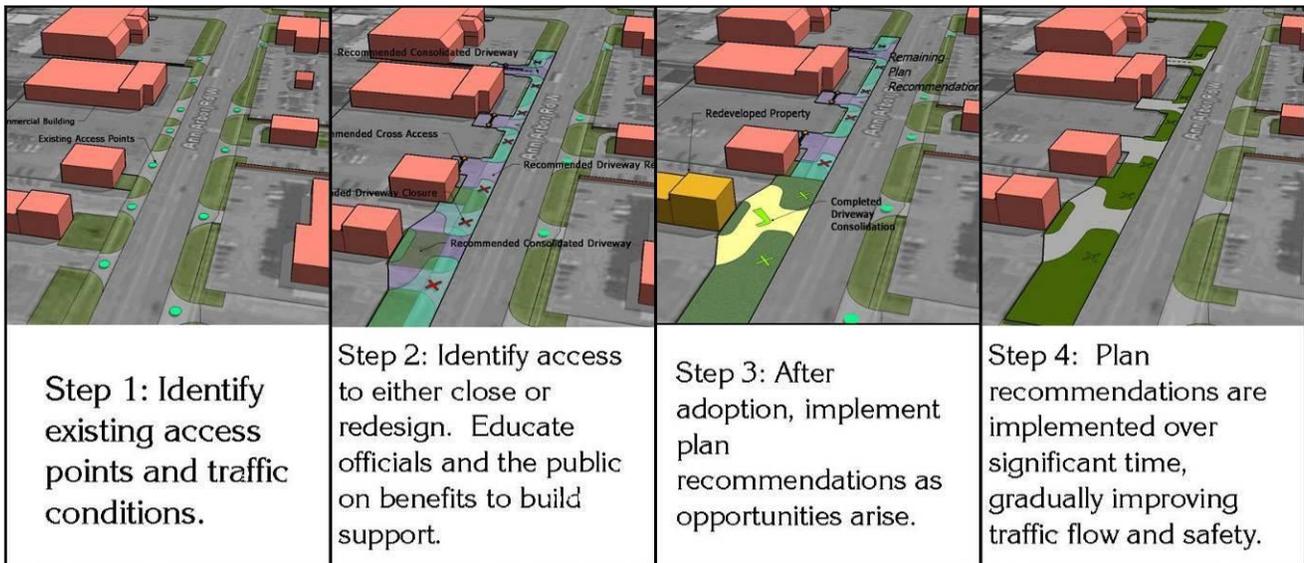
- Adequate spacing of access points along the same side of the street
- Alignment or spacing from access points on the opposite side of the street
- Placing commercial driveways a sufficient distance from intersections to minimize impact to intersection operations
- Geometric design such as channelized right turns to restrict certain turning movements (usually left turns) by use of a raised island,
- Location/spacing of traffic signals



- Shared access systems (connections between land uses, shared driveways, frontage roads or rear service drives)

The Access Management Plan and implementation process are illustrated in the graphic below.

**Figure 6.2: Access Management Plan**



Application of access management plans and regulations can provide several benefits to motorists, land uses, and non-motorists in the City of Midland. These benefits are most obvious if applied in a retrofit manner to corridor sections such as S. Saginaw Road and north Eastman Avenue (see specific recommendations on the Transportation Plan Map). The following is a list of benefits often resulting from an effective access management plan and ordinance language.

- Reduce crashes and crash potential
- Preserve or increase roadway capacity and the useful life of roads
- Decrease travel time and congestion
- Improve access to and from properties
- Ensure reasonable access to properties (though not necessarily direct access nor the number of driveways preferred by the landowner/developer)
- Coordinate land use and transportation decisions
- Improve environment for pedestrians and bicyclists (less driveways to cross)
- Improve air quality by reducing congestion and delays
- Maintain travel efficiency and related economic prosperity

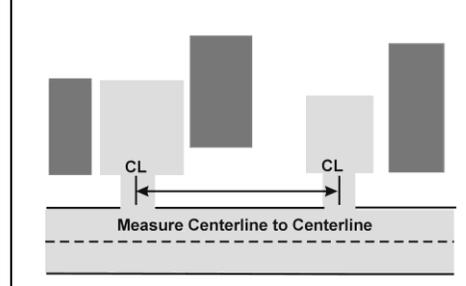
Driveway spacing standards commonly used in local communities and State and county agencies in Michigan are noted in the table below (MDOT guidelines). Flexibility is encouraged only in retrofit areas, where meeting spacing standard would be difficult. The main goal of the plan and



ordinance is to improve safety and traffic flow by reducing the number of driveways in built-up areas regardless of the resulting driveway spacing.

<u>Posted Speed limit</u>	<u>Along arterials</u>	<u>Along other Roadways</u>
35 mph or less	245 ft.	150 ft.
40 mph	300 ft.	185 ft.
45 mph	350 ft.	230 ft.
50 mph	455 ft.	275 ft.
55 mph	455 ft.	350 ft.

**Figure 6.3: Minimum Driveway Spacing Measurement**



The Transportation Plan Map and Sample Area Map illustrates some specific recommendations for the two corridors identified as access management problem areas. The City should consider and incorporate the preceding standards into its regulations to help improve access conditions throughout the City.

Traffic Calming

**Issues:** The problem area is the perceived cut-through traffic and inappropriate high speeds for residential neighborhoods.

**Recommendations:** Traffic calming refers to roadway design features and strategies intended to reduce vehicle speeds and through traffic volumes on a street. Traffic calming measures can range from minor modifications of an individual street to comprehensive redesign of a street network. Only minor modifications of individual streets are needed to address the problem areas identified through the Master Plan process, but comprehensive standards for future developments are encouraged. The objectives of a traffic calming project typically include one or more of the following:

- Reduce traffic speeds
- Reduce cut-through traffic
- Increase safety
- Reduce traffic-related noise
- Enhance aesthetics of the street
- Consider needs of all residents and business owners
- Redefine the image of a neighborhood

Strategies or measures that can be part of a traffic calming toolbox include:

- Median islands
- Speed humps (not bumps) or speed tables
- Mid-block chokers (narrowing of the street)
- Chicanes
- Roundabouts
- Small Traffic Circles
- Pavement treatment



- Bike lanes
- Street trees
- Partial or full street closures

A successful traffic calming program involves educating staff planners and engineers about calming strategies. In addition, policies and guidelines for implementing traffic calming projects must be established and funding sources developed. Specific projects may be initiated by neighborhood requests (may be by petition), traffic safety programs, or as part of a community redevelopment project.

Due to the large number of neighborhoods in Midland with through roads, Midland should develop a traffic calming program to maintain safety and aesthetics of neighborhoods.

Based upon master plan input, a pilot traffic calming program should include portions of Dilloway at/near its approaches to Eastman Avenue and/or at Chapel near the school where speed and safety are a concern.

#### *New Transportation Model*

The City should take full advantage of the new transportation model (computer/software driven) that has been developed for the Midland area's major street system.—The model calibration has been updated. MDOT worked with City staff to ensure that the existing conditions model matches known street characteristics. Now, the City can request testing of various land use and roadway improvement alternatives and identify potential street system impacts. This model is an excellent tool to supplement and improve upon existing long-term traffic projections.



## Non-Motorized Transportation

### Introduction

Promoting non-motorized transportation and access through the City and to the region will yield many benefits and add value to the area in many ways. The following section discusses the different types of non-motorized facilities, identifies benefits, and provides recommendations for improving the existing system.

The Midland Non-Motorized Transportation Advisory Committee (NMTAC) was formed by the City Planning Department on July 17, 2008 as recommended by the 2007 City of Midland Master Plan which outlined the need for a comprehensive multi-year non-motorized transportation plan.

Creating a safe and welcoming alternative to our current automobile-centric transportation system can have profound and positive effects on the quality of life of Midland's children and citizens and encourage more visitors to the city as shown by the success of the Pere Marquette Rail Trail. The Midland community can realize significant health, environmental, social and economic benefits by becoming more pedestrian and bicycle active to fulfill both recreational and transportation needs. To enable this change a more pedestrian and bicycle friendly infrastructure is required.

The vision of the NMTAC is that within a 5 to 10 year time horizon, more elementary and middle school children will walk or bike to school and that its' citizens will increasingly walk or bike to and from their recreational and transportation destinations in the city. The NMTAC has identified 5 areas of focus necessary to achieve the vision:

- Education & Encouragement: Develop and implement programs that educate and encourage children and citizens of the benefits of non-motorized transport, to develop the skills required, and to take advantage of the NMT infrastructure.
- Engineering: Implement projects that transform the current infrastructure to a more pedestrian and bicycle friendly infrastructure.
- Enforcement: See that a Governance system is put in place that manages the NMT infrastructure, standards and compliance.
- Evaluation: Maintain a consistent program to measure the success, challenges and future needs of NMT efforts.

<http://www.midland-mi.org/government/departments/planning/Planning/NMTCommittee.htm>

### Non-Motorized Pathways

Non-motorized pathways generally refer to any physical facility such as a wide paved pathway, widened road shoulders and trails along natural rivers that can be used by walkers, joggers, roller bladders and cyclists. Commonly referred to as a bike path, bike route or rail-trail, these non-motorized pathways are typically designed for cyclists, although they are just as often used by pedestrian walkers, joggers and families with strollers. Several non-motorized pathway examples include:

- Bike Routes
- Wide Curb Lanes
- Separated Pathways



- Bike Lanes
- Paved Shoulders
- Sidewalks

### Benefits of Pathways

Pathways benefit residents and improve communities by providing direct recreation and transportation opportunities. Specifically, benefits provided by pathways include:

- **Recreation Opportunities.** An increase in pathways is one important response to the increased demand for recreation. Walkers, joggers, hikers, runners, cyclists, rollerbladers, cross country skiers, and horseback riders all take advantage of trails. Pathways provide an opportunity for residents to enjoy their community and take in the natural and cultural features of Midland at their own pace.
- **Transportation Alternatives.** A network of non-motorized pathways in Midland will ensure that residents can travel safely without the use of an automobile. The Plan identifies pathways linking residential neighborhoods, schools, recreation facilities, and commercial nodes.
- **Environmental Protection.** Reduced reliance on the automobile leads to reduced pollution and traffic congestion.
- **Enhanced Economics.** Pathways tend to reduce crime and increase property values. Experience nationwide has shown that well-planned trails attract families, local residents, and other friendly, responsible people, whose presence on the trails serves as a neighborhood watch, driving troublemakers away. Access to pathways is an amenity that many homebuyers appreciate. Close proximity to pathways may improve property values
- **Improved Health.** Pathways help people of all ages and health incorporate exercise into their daily routines by providing safe and easy access to the places they need or want to go.
- **Outdoor Education.** Pathways traverse a wide range of environments and can be used as an outdoor classroom. The installation of interpretive signage can describe natural, cultural or historic aspects of community.





- **Quality of Life.** A good quality of life makes a community attractive to visitors and residents alike. Areas with a high quality of life often include parks, ample open space, and good schools with a safe and walkable environment.



**Regional Attractions**

Pere Marquette Rail Trail

The Pere Marquette Rail Trail is an old railroad line that was turned into a pathway. It is a separated twelve-foot wide asphalt path that begins at the Farmers Market in Downtown Midland, at the end of Ashman Street at the base of the Tridge. Within the City limits, the trail runs 3 miles. It extends over 27 miles west to the City of Clare. The trail leads recreational enthusiasts through Midland’s Emerson Park, the Dow Museum and the Bradley House.



City Forest Trail

Located on the northern edge of the City, the City Forest has over 520 acres of woods and nature paths for area residents to explore. Summer months bring mountain biking and hiking, while winter activities include cross country skiing and an iced toboggan run. Working with the Michigan Mountain Biking Association, the City of Midland has developed over eight miles of natural terrain in the City Forest for off road bicycle enthusiasts.



Chippewa Nature Trail

As an environmental education center, the Chippewa Nature Center (CNC) provides several opportunities for non-motorized activities. Area residents can walk, bike, or in-line skate from the Nature Center to downtown Midland on a paved 3.5 mile pathway. Access is gained through a parking area near the Tridge to the CNC Visitor Center.



**Existing City Pathways**

Midland has several posted bike routes that run through the City, such as those along Washington Street. Local street right of way widths of 66 feet allow for on-street parking with space for marked bike routes along the existing paved area. A sidewalk system exists throughout Downtown streets and along most of the streets within the City. Midland’s Department of Public Services follows a sidewalk maintenance program. As new developments occur, sidewalks and lighting are required within the City Limits. Wider, asphalt pathways located farther from the road than typical sidewalks are in place in several areas of the City. These trails provide connections to Downtown shopping and sidewalks and City parks. The three main segments of these pathways are the Pere Marquette Trail, a trail that follows M-20 from the Farmer’s market east past Waldo Road, and a trail on the north side of US-10 east of the





Midland Mall. The City plans to connect these existing segments to form a continuous pathway loop around the City in the future. See Map 6.5: City Pathway Network, for an approximate future alignment of a pathway loop.

### City Park System

Trails at many parks in the City provide an internal system of pathways for active recreation. Midland's numerous public parks are located throughout the City and offer both paved and nature trails.

### Greenways

Midland has a system of natural corridors along the riverfront that could support an expanded network of trails. These corridors represent excellent opportunities to provide connections to the existing pathway network while expanding the City's recreational offerings.



### Recommendations

- Develop linkages between neighborhoods, schools and parks for non-motorized travel.
- Encourage new businesses to include dedicated space for bike racks and bicycle parking areas on site plans.
- Evaluate and encourage increased bicycle-oriented facilities at City parks, including bike stations with bathrooms and rental lockers.
- Establish minimum design standards for future pathway connections and consider adding appropriate signage and striping for bike lanes as part of street improvements.
- Clearly identify staging areas where people can park and begin their trips on area pathways and the Rail Trail.
- Consider the benefits and costs of constructing pedestrian overpasses across Eastman near the US-10 interchange.
- Educate the public about awareness and tips to maintain personal safety on the paths at all times.
- Improve signage and directional maps for bikers ending their Pere Marquette Rail Trail trip in Midland to encourage day trips to Downtown destinations through pathways and sidewalks.
- Work with area interest groups, such as Safe Trails and Roads for Pedestrians and Cyclists, to obtain user-based feedback about proposed pathway and cycling improvements.

The following is a summarized list of the physical improvements the committee considered critical to the success of NMT in Midland. Prioritization by the City & NMT Committee should be based upon annual evaluation of available funding and the continuance of projects already underway.



	<b>2009-2010</b>	<b>2011-2012</b>	<b>2013-2014</b>	<b>2015 +</b>
<b>Multi-Use Paths</b>				Patrick Road to Stratford Park  Stratford to Eastman  Eastman to Dublin City Forest
<b>Bike Lanes</b>	Ashman Street & Rodd Street (completed 2010)	Swede Avenue (completed 2011)	Sugnet Road Eastlawn Avenue (2012/2013)	
<b>Designated Bicycle Routes</b>	Completed 2011			
<b>Sidewalks</b>	Various locations	Various locations	Various locations	Various

**Accomplishments**

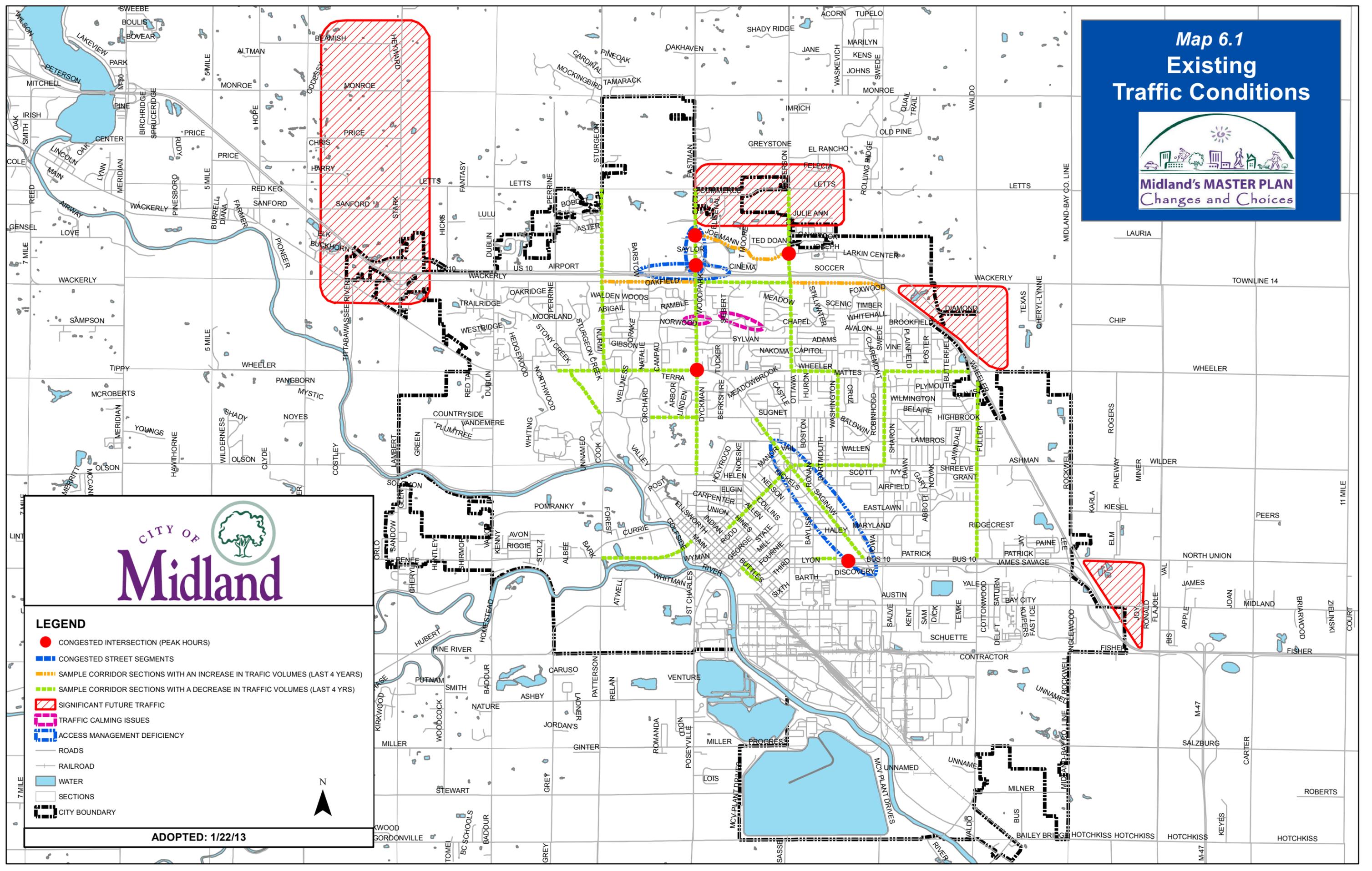
Ashman Street, Rodd Street and Swede Roads are now marked as bicycle routes with signage. The City-wide bike route as shown on the map in this chapter is also completed with signage and stenciling on the road.

The City has been recognized with an Honorable Mention as a Bicycle Friendly Community by the League of American Bicyclists. An application has been submitted for further recognition and is pending.

**Implementation**

The Midland City Pathway Loop Map shows the general route a loop path could take. It is not intended to define the exact route the pathway, as well as additional key pathways segments to connect the City’s key cultural and recreational facilities. Further research and negotiations with property owners will determine the final alignments. The City-wide pathway system should conform to established national standards for safety while reflecting the unique character of Midland. Pathways should be convenient, aesthetically pleasing, and beneficial to the general quality of life in Midland while complementing the motorized transportation system.

# Map 6.1 Existing Traffic Conditions



## CITY OF Midland

**LEGEND**

- CONGESTED INTERSECTION (PEAK HOURS)
- CONGESTED STREET SEGMENTS
- SAMPLE CORRIDOR SECTIONS WITH AN INCREASE IN TRAFFIC VOLUMES (LAST 4 YEARS)
- SAMPLE CORRIDOR SECTIONS WITH A DECREASE IN TRAFFIC VOLUMES (LAST 4 YRS)
- SIGNIFICANT FUTURE TRAFFIC
- TRAFFIC CALMING ISSUES
- ACCESS MANAGEMENT DEFICIENCY
- ROADS
- - - RAILROAD
- WATER
- SECTIONS
- ▬ CITY BOUNDARY

ADOPTED: 1/22/13

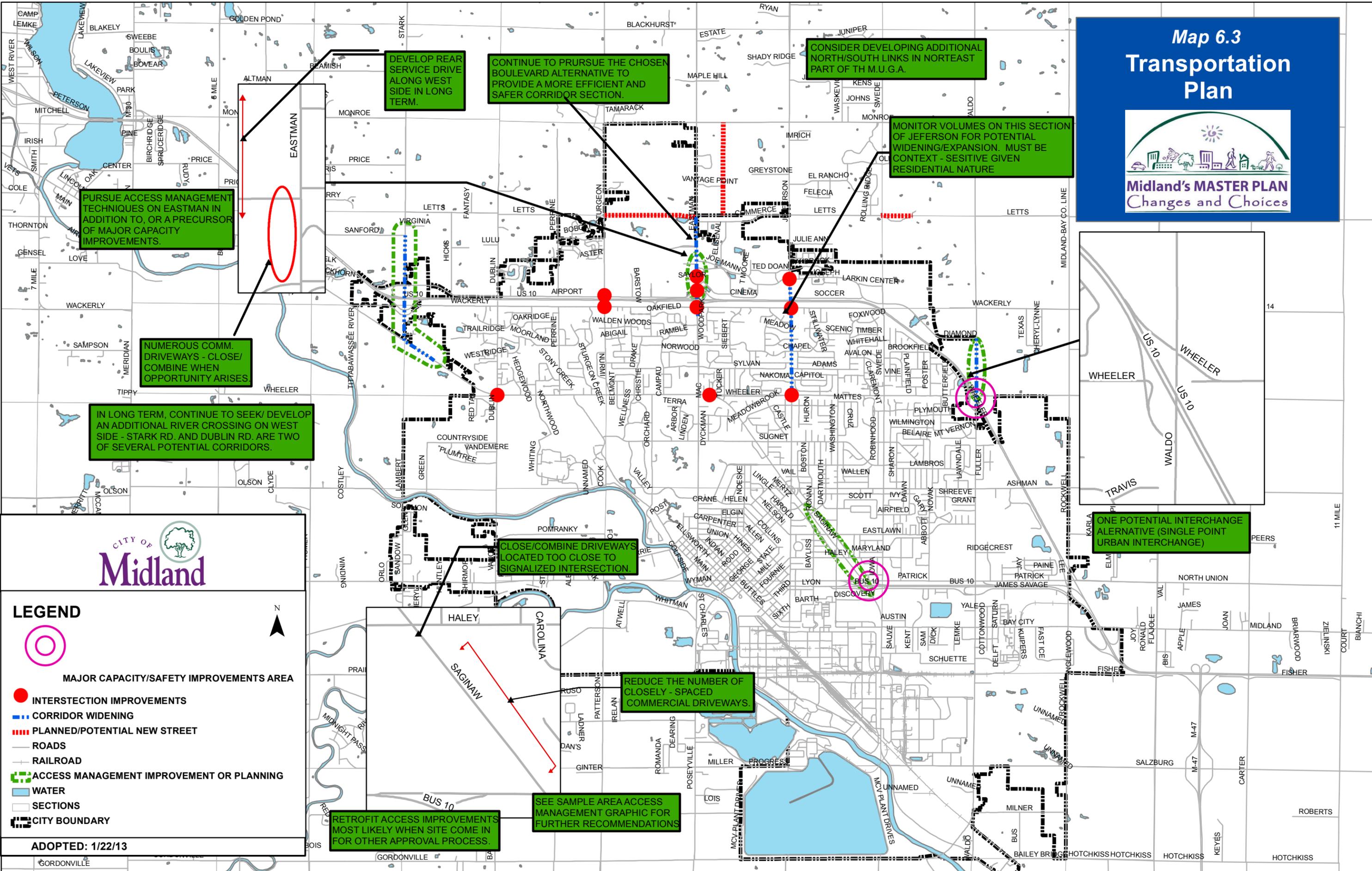
11 MILE

7 MILE

7 MILE



# Map 6.3 Transportation Plan

PURSUE ACCESS MANAGEMENT TECHNIQUES ON EASTMAN IN ADDITION TO, OR A PRECURSOR OF MAJOR CAPACITY IMPROVEMENTS.

DEVELOP REAR SERVICE DRIVE ALONG WEST SIDE IN LONG TERM.

CONTINUE TO PURSUE THE CHOSEN BOULEVARD ALTERNATIVE TO PROVIDE A MORE EFFICIENT AND SAFER CORRIDOR SECTION.

CONSIDER DEVELOPING ADDITIONAL NORTH/SOUTH LINKS IN NORTHEAST PART OF TH M.U.G.A.

MONITOR VOLUMES ON THIS SECTION OF JEFFERSON FOR POTENTIAL WIDENING/EXPANSION. MUST BE CONTEXT - SENSITIVE GIVEN RESIDENTIAL NATURE

NUMEROUS COMM. DRIVEWAYS - CLOSE/ COMBINE WHEN OPPORTUNITY ARISES.

IN LONG TERM, CONTINUE TO SEEK/ DEVELOP AN ADDITIONAL RIVER CROSSING ON WEST SIDE - STARK RD. AND DUBLIN RD. ARE TWO OF SEVERAL POTENTIAL CORRIDORS.

CLOSE/COMBINE DRIVEWAYS LOCATED TOO CLOSE TO SIGNALIZED INTERSECTION.

ONE POTENTIAL INTERCHANGE ALTERNATIVE (SINGLE POINT URBAN INTERCHANGE)

REDUCE THE NUMBER OF CLOSELY - SPACED COMMERCIAL DRIVEWAYS.

RETROFIT ACCESS IMPROVEMENTS MOST LIKELY WHEN SITE COME IN FOR OTHER APPROVAL PROCESS.

SEE SAMPLE AREA ACCESS MANAGEMENT GRAPHIC FOR FURTHER RECOMMENDATIONS



**CITY OF Midland**

---

**LEGEND**

-  MAJOR CAPACITY/SAFETY IMPROVEMENTS AREA
-  INTERSECTION IMPROVEMENTS
-  CORRIDOR WIDENING
-  PLANNED/POTENTIAL NEW STREET
-  ROADS
-  RAILROAD
-  ACCESS MANAGEMENT IMPROVEMENT OR PLANNING
-  WATER
-  SECTIONS
-  CITY BOUNDARY

ADOPTED: 1/22/13



LEGEND

-  CLOSE/CONSOLIDATE DRIVEWAY
-  RELOCATED DRIVEWAY
-  TRAFFIC SIGNAL
-  24-HOUR VOLUME (2006)
-  INTERNAL CONNECTION

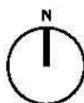


NOTE: MOST 'RETROFIT' ACCESS MANAGEMENT IMPROVEMENTS ON DEVELOPED CORRIDORS ARE LONG TERM AS MOST OFTEN THE CITY WILL NEED TO WAIT FOR THE PROPERTY OWNER/BUSINESS TO REQUEST SOME OTHER APPROVAL (SITE EXPANSION, LAND USE CHANGE, ETC) BEFORE THESE ACCESS IMPROVEMENTS CAN BE IMPLEMENTED (AS A CONDITION OF REQUESTED APPROVAL)

# SAMPLE AREA ACCESS MANAGEMENT RECOMMENDATIONS

S. SAGINAW AREA - MIDLAND MASTER PLAN

SCALE 1"=60'



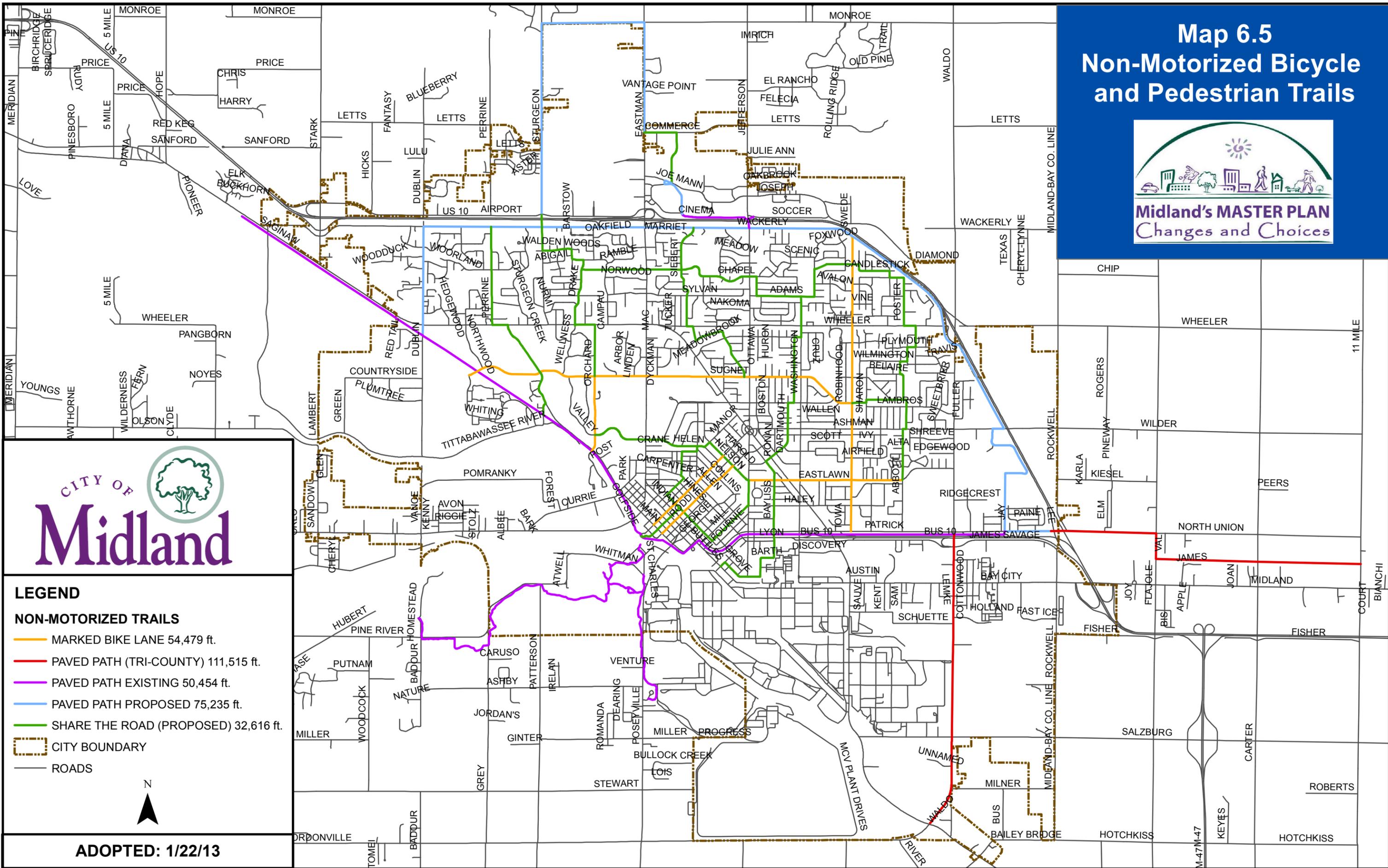
AERIAL PHOTOGRAPHY PROVIDED BY CITY OF MIDLAND  
DATE OF PHOTOGRAPHY: 2006

**Map 6.4**  
**Sample Area Access Management Recommendation Plan**



Midland's **MASTER PLAN**  
Changes and Choices

# Map 6.5 Non-Motorized Bicycle and Pedestrian Trails



- LEGEND**
- NON-MOTORIZED TRAILS**
- MARKED BIKE LANE 54,479 ft.
  - PAVED PATH (TRI-COUNTY) 111,515 ft.
  - PAVED PATH EXISTING 50,454 ft.
  - PAVED PATH PROPOSED 75,235 ft.
  - SHARE THE ROAD (PROPOSED) 32,616 ft.
  - CITY BOUNDARY
  - ROADS

N  
▲

**ADOPTED: 1/22/13**