

CITY OF LAPEER
NON-MOTORIZED
MASTER PLAN



February 2012

CITY OF LAPEER

NON-MOTORIZED MASTER PLAN

City Commission

Honorable William J. Sprague, Mayor
Thomas (Mike) Robinet, Mayor Pro-Tem
Deborah Marquardt, Commissioner
Catherine Bostick-Tullius, Commissioner
John Lyons, Commissioner
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City Staff

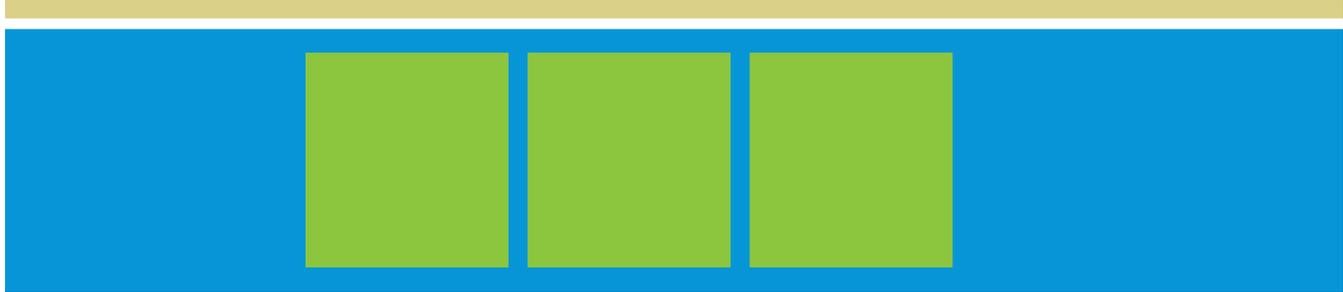
Dale Kerbyson, City Manager
Ray Turczyn, Parks, Recreation and Cemetery Director
Linda Jackman, Planning Director
Todd Alexander, Chief of Police
Pam Reid, Director of Public Works

Assistance Provided by:



Adopted by City Council: February 6, 2012

Printed: February 2012



PLAN PURPOSE..... 3



EXISTING FRAMEWORK..... 7

- The Emerging Network
- Related Initiatives and Efforts
- Existing Conditions



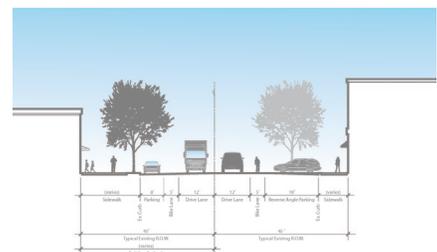
NON-MOTORIZED VISION 23

- Planned Network and
- Typical Designs and Treatments



IMPLEMENTATION STRATEGY..... 33

- Recommended Actions
- Catalyst Project: Riverwalk
- Probable Cost Estimates
- Potential Funding Sources



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PLAN PURPOSE

The City of Lapeer has an existing non-motorized system (off-road trails and a sidewalk network) that has begun to connect regional anchor institutions, residential neighborhoods, key commercial districts, the traditional downtown and riverfront, and several parks and protected lands. As the trail system has emerged, the City desired to have a long-term vision for a walkable and bikeable community. This Non-Motorized Master Plan has been developed in order to provide a vision for how people, schools, businesses, parks, natural resources, and cultural and historic landmarks can be connected. The plan outlines the non-motorized facilities and improvements that are desired within the community including elements such as sidewalks, trails, crossings, on-street bike lanes, shared use routes, bridge improvements, and pedestrian connections. This plan is intended to serve as a guide to non-motorized and complete street planning, design and construction into the future.

In order to accomplish the outcomes noted above, the following tasks were completed and documented within this report:

- **Existing Framework**

An existing conditions analysis was completed using existing data and source material, supplemented with field work, to review and document existing on-road and off-road trails and non-motorized transportation systems within the City. This initial task evaluated, analyzed, and identified off-road trail systems, the pedestrian network, as well as on-road opportunities for bike lanes and bike routes.

In addition to identifying and documenting existing non-motorized systems within the City, this task included documenting likely points of connection with neighboring communities and the emerging regional system. Related plans and initiatives that impacted the non-motorized vision for the City of Lapeer are also documented.

Non-motorized transportation includes walking, bicycling, small-wheeled transport (skates, skateboards, push scooters and hand carts) and wheelchair travel. These modes provide both recreation (they are an end in themselves) and transportation (they provide access to goods and activities), although users may consider a particular trip to serve both objectives.

Source: Victoria Transportation Policy Institute

Complete Streets are streets for everyone. They are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists, and public transportation users of all ages and abilities are able to safely move along and across a complete street.

Source: National Complete Streets Coalition

- **Non-Motorized Vision**

Based on discussions with City staff, and the results of the Existing Framework, preliminary route and corridor alternatives were mapped to create the City's long-term Non-Motorized Vision. The system is envisioned to be comprised of a network of various types of non-motorized facilities and

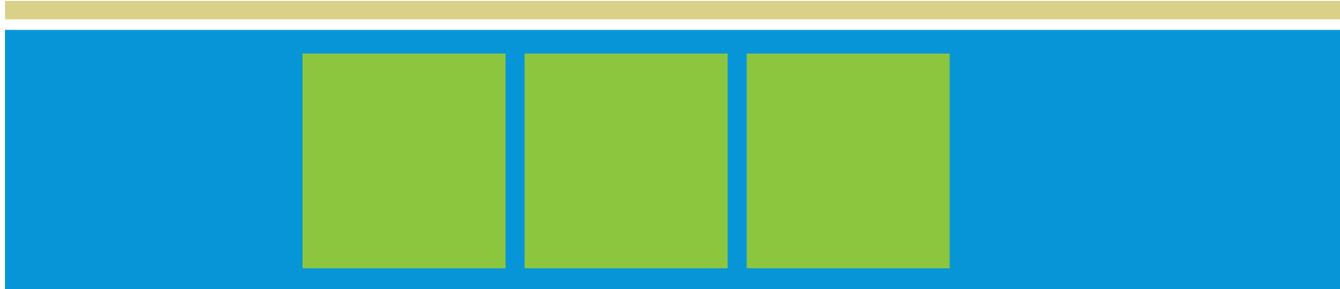
complete street improvements in order to establish a connected and comprehensive system.

- **Implementation Strategy**

Once the non-motorized vision was established, a strategy to move forward with implementation of priority improvements was developed and documented. This includes priority projects, cost estimates, and potential funding sources.

- **Catalyst Project: Riverwalk**

During development of the Master Plan, a number of priorities were identified. However, in order to move forward with implementation of key projects and/or connections, a catalyst project - the Riverwalk, was developed in more detail.



PLAN PURPOSE..... 3



EXISTING FRAMEWORK..... 7

- The Emerging Network
- Related Initiatives and Efforts
- Existing Conditions



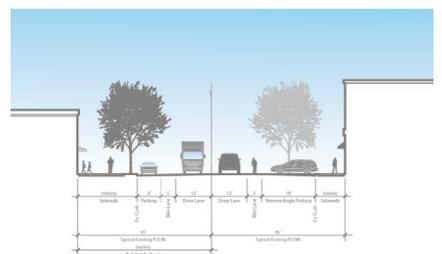
NON-MOTORIZED VISION 23

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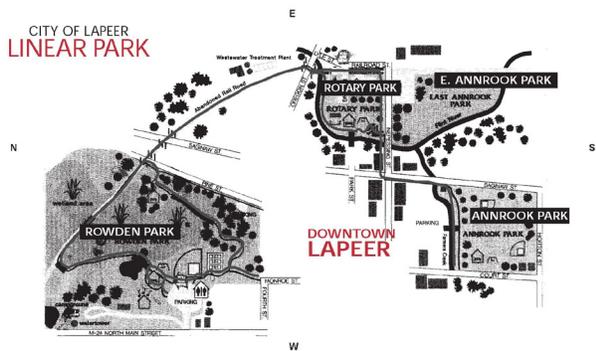
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EXISTING FRAMEWORK

The Emerging Network

The City of Lapeer has been working to build and extend an off-road, linear pathway system utilizing abandoned rail corridor and park property. The emerging non-motorized trail system currently connects Rowden Park, Rotary Park and Annrook Park together. In addition, on the west side of the City there are trails that connect the schools with Prairies and Ponds, the new river trail, and commercial property along DeMille. It is a tremendous asset within the community and adds to the quality of life in Lapeer. The existing trail system and the desire to extend it has been a high priority within the community for many years. The existing Linear Park is the backbone and foundation for the development of this Non-Motorized Master Plan.



The off-road trail system began in 1992 with the purchase of the abandoned rail corridor between Main Street and Nepessing. Construction of the system began in 1994 with additional sections and amenities built over the years. Total cost to date for the off-road system is approximately \$1.4 million paid primarily with grants and donations.

As is illustrated on the map on the following page, in addition to the emerging trail network within the City of Lapeer, there are 2 regionally significant non-motorized trail systems within Lapeer County - the Southern Links Trailway and the Polly Ann Trail.

The Southern Links Trailway is a 10.2 mile, 10' wide-paved trail within a former railroad corridor. Currently, the trail links the communities of Columbiaville, Otter Lake and Millington. The Trail is to the northwest of the City of Lapeer and is managed by the Southern Links Trailway Management Council.



The Polly Ann Trail is also within a former railroad right-of-way. The corridor in Lapeer County, from Bordman Road to Kings Mill, is owned by the Michigan Department of Natural Resources and is directly east of the City of Lapeer. The Polly Ann Trail within Lapeer County is approximately 20 miles and connects into the Oakland County Polly Ann Trail segment which is an additional 14 miles. The Lapeer Polly Ann Trail is in various states of improvement with a paved portion, cleared and mowed regularly in sections, and some sections are unimproved and rarely mowed.

Regional Trails Map

-  Southern Links Trail
-  Polly Ann Trail

-  State Trunklines
-  Other Major Roads
-  Railroads
-  Water Features
-  Water Bodies
-  Municipal Boundaries
-  City of Lapeer
-  Other Cities and Villages

Source: Michigan Geographic Data Library and Wade Trim;

Non-Motorized Plan

City of Lapeer
LAPEER COUNTY, MICHIGAN

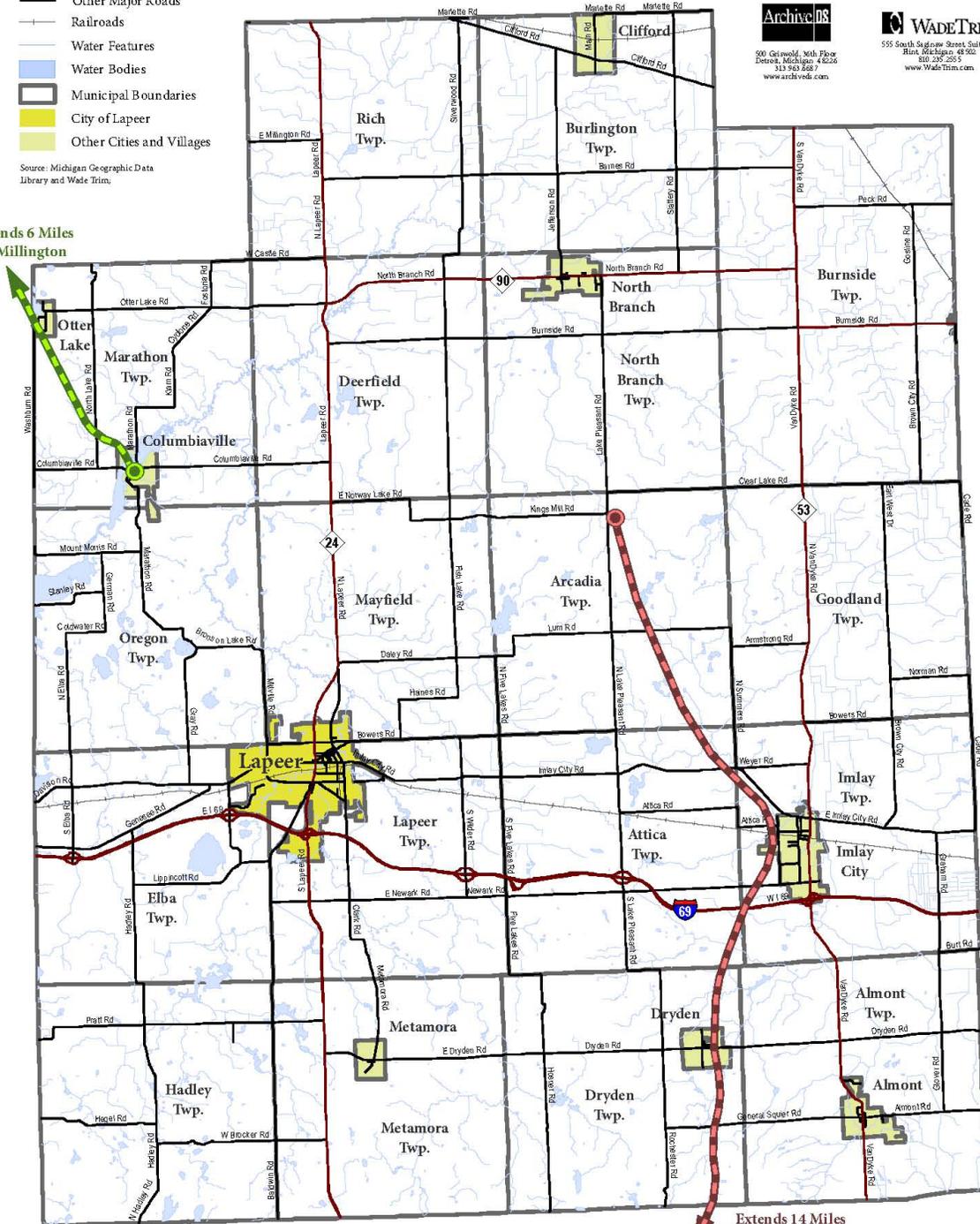


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Extends 6 Miles
to Millington



Extends 14 Miles
into Oakland County
trail system



April 2011

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Related Initiatives and Efforts

Several significant planning, design and construction efforts exist or are planned that relate to or have a direct affect on the emerging non-motorized system in the City of Lapeer.

Lapeer County Non-Motorized Scoping Study

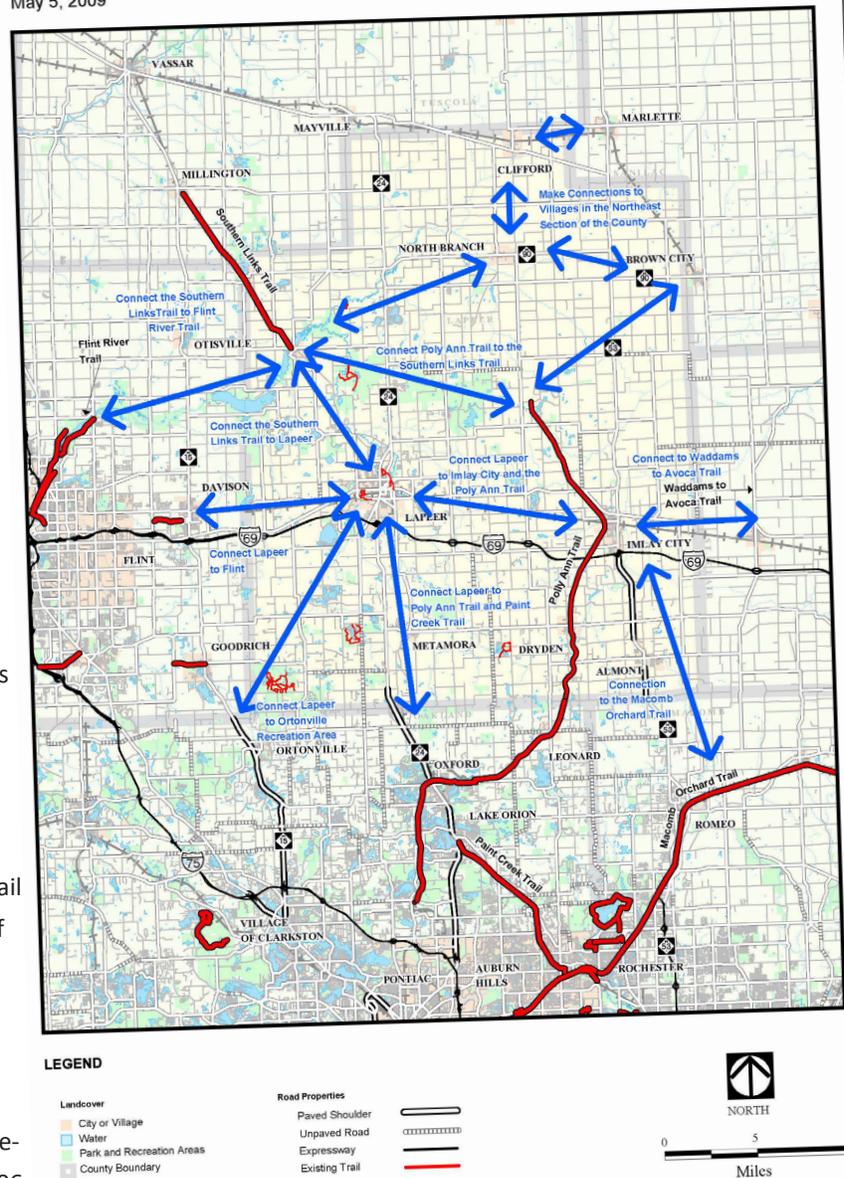
The Lapeer County Non-Motorized Scoping Study was completed in 2009 by the Center for Applied Environmental Research University Outreach at the University of Michigan - Flint. It is a Green-Links publication funded by the Ruth Mott Foundation. The goal of the scoping study was to summarize community wants, existing amenities, and potential for connections for alternative, active transportation routes in Lapeer County.

The Scoping Study includes 2 maps that illustrate on a conceptual level the potential for non-motorized connections within the county and to adjacent counties. The overall message of the Scoping Study, as it relates to the City of Lapeer is the desire to provide connections to and from downtown Lapeer and the emerging regional trail systems including the Flint River Trail, the Southern Links Trail and the Polly Ann Trail via a system of both on- and off-road facilities.

Lapeer County Comprehensive Development Plan

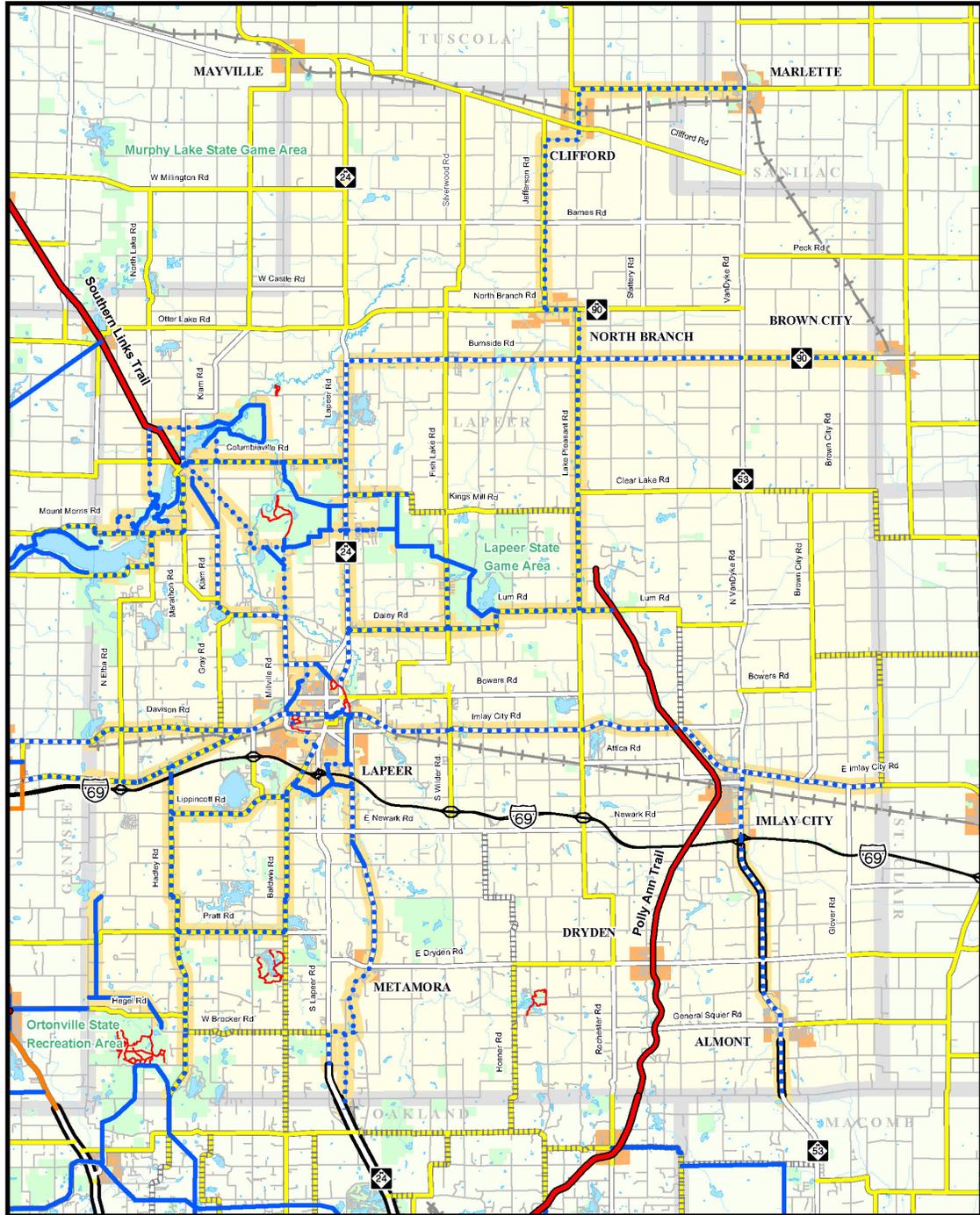
The Lapeer County Comprehensive Development Plan was completed in 2006. Lapeer Land Use Master Plan. The purpose of the plan was to provide guidance for future

Lapeer County Trails - Conceptual Links
May 5, 2009



Lapeer County Trails - Potential Corridors

May 5, 2009



LEGEND

Landcover

- City or Village
- Water
- Park and Recreation Areas
- County Boundary

Potential Corridors

- Potential Corridor

Road Properties

- Expressway
- Major Roads
- Paved Shoulder
- Low Volume Road (<5,000 ADT)
- Unpaved Road
- Local Roads

On-Road Facility

- Existing
- Planned
- Potential

Off-Road Facility

- Existing
- Planned
- Potential



NORTH

0 5 10

Miles

Note: Traffic Volumes (ADT) not available for all primary roads

policies affecting land use, infrastructure, and support services within the County’s jurisdiction. The plan also includes seven Community Goals and corresponding objectives. A number of the goals and objectives in the plan support non-motorized transportation and trail development on a county-wide and regional basis. Specific objectives in the plan include:

- Take a role in assisting local governments in issues that cross community borders, i.e. corridor planning, state sponsored programs, road improvements, bike paths and park improvements.
- Promote all alternative methods of transportation.
- Work with the communities and townships to encourage an interconnecting non-motorized bike path or trail system for County residents

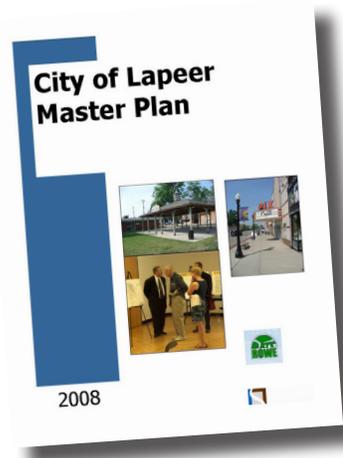
City of Lapeer Master Plan

The Lapeer Master Plan was completed in 2008 to guide the growth and development of the community. The Master Plan includes several goals and objectives including:

- Participate in implementation of regional greenway systems.
- Link open spaces through a comprehensive pathway system.

In addition, the Master Plan documents a number of issues related to specific areas within the City. Some of these that directly relate to the Non-Motorized Plan include:

- There is a need to improve links to Farmers Creek and there is “a lack of clearly defined pedestrian links to Nepessing Street”.
- A portion of redeveloped parking lots immediately adjacent to the north edge of Farmers Creek should be converted to open space. The addition of paths along the creek would invite greater use of this



Lapeer Master Plan Goal No. 3:

Provide alternatives to the automobile through multi-modal transportation options which connect neighborhoods, schools, the library, businesses and other activity areas in accordance with the City’s Comprehensive Pathway Plan established by the Parks and Recreation Department.

Objectives:

- Promote alternative modes of transportation (such as pedestrian, bicycle, ridesharing and forms of mass transit) through capital investment.
- Pursue development of a continuous system of pathways and sidewalks as an alternative travel mode and to improve the City’s quality of life.
- Require pedestrian and transit oriented site design including links between the public and on-site pedestrian systems.

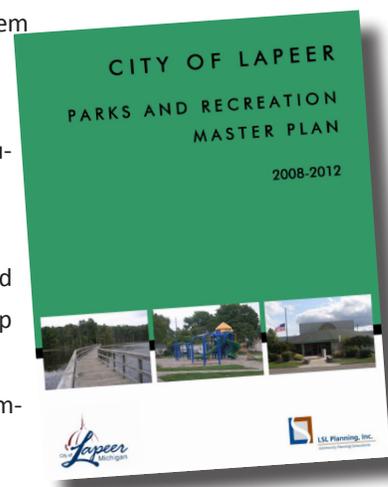
significant natural feature, improve recreational activities, and provide an important link in the City’s non-motorized transportation system.

- A larger and “grandier” pedestrian bridge linking downtown to Annrook Park on the south side of the waterway.

Lapeer Parks and Recreation Master Plan

The 2008-2012 Parks and Recreation Master Plan was adopted in 2008. The Master Plan documents the existing pathway/trail system

as well as proposed extensions to the system. The Plan documents that the path/trail system has consistently been included amongst residents’ top desires and priorities. The Master Plan recommends the City pur-



Parks and Recreation Master Plan Linear Park Action Items (2008 - 2012)

Linear Park Pathway	1. Extend from Nepessing to Saginaw/Genesee St. including a 10 foot asphalt path, pedestrian bridge, signage, landscaping, and linkage to the Audubon Park neighborhood.	\$200,000
	2. Maintain pathway, bridges/boardwalks, signage, etc. along city-owned abandoned railroad corridor and within city parks.	To be determined
	3. Require a tunnel to maintain open access under M-24 when MDOT removes the bridge over the city-owned railroad property and reconstruct the highway.	To be determined
	4. Complete a City-wide Pathways Plan which will define a comprehensive system including linkages along the I-69/M-24 corridor and linkages to the existing system.	\$17,000
	5. Implement the recommendations of the City-wide Pathways Plan to develop a comprehensive pathway network linking parks, schools, neighborhoods, and other key destinations.	To be determined
	6. Extend DeMille pathway from the railroad tunnel to Genesee St and to Woodside School.	\$264,000
Prairies and Ponds at Oakdale	1. Implement the Access to Recreation Grant to add an asphalt pathway at the south entry for better accessibility to the south pond and prairie area including connecting the pathway system to the new Chaffield Natural/Interpretive Building scheduled for completion in 2008.	\$50,000
Farmer's Creek at Oakdale	1. Implement the Access to Recreation Grant which includes two handicapped paved parking spots, a pathway to Farmer's Creek, teaching station, and deck adjacent to the Riverbank.	\$150,000
	2. Connect to the Chatfield Natural/Interpretive Building.	\$5,000

sue the development of a Pathways Plan to provide direction on the location, types, design details, etc. to implement a comprehensive system. Key elements for consideration included:

- Expansion of Linear Park pathway system
- Connection to Downtown
- Linking existing neighborhoods
- Providing pathways to schools and parks
- Connecting to the regional system

Walkability Audit

The City of Lapeer completed a Walkability Audit in March 2010. The Audit was sponsored by the Michigan Municipal League and was completed by Dan Burden, Executive Director of Walkable Communities. The final report includes a list of various opportunities in Lapeer that can be taken advantage of and implemented in order to improve the walkability of the community.

MDOT Training Wheels

The City of Lapeer hosted MDOT's Training Wheels program in September 2011. The day-long program brought experts to Lapeer to discuss how to integrate bike facilities into existing infrastructure to make bicycling safe and convenient. The program was attended by several Lapeer staff, consultants, and interested residents.

Existing Conditions

In addition to the existing emerging non-motorized network and existing adopted plans, there are a number of existing elements and conditions that are important to understand when considering the need and feasibility for various non-motorized and complete street improvements. The resulting existing conditions can influence the location and type of non-motorized accommodation recommended. A number of maps were created in order to document and illustrate vari-

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Non-Motorized Plan

City of Lapeer

LAPEER COUNTY, MICHIGAN

Existing Land Use

- | | |
|---|--|
|  Single Family Residential |  Existing Trails |
|  Duplex Residential |  Major Roads |
|  Mobile Home Park |  Local Roads |
|  Multiple Family Residential |  Railroads |
|  Cemeteries |  Water Features |
|  Parks and Golf |  Water Bodies |
|  Parking |  Parcels |
|  Institutional |  Municipal Boundaries |
|  Office/Medical |  City of Lapeer |
|  Commercial | |
|  Industrial | |
|  Vacant | |

Base Source: Michigan Geographic Data Library;

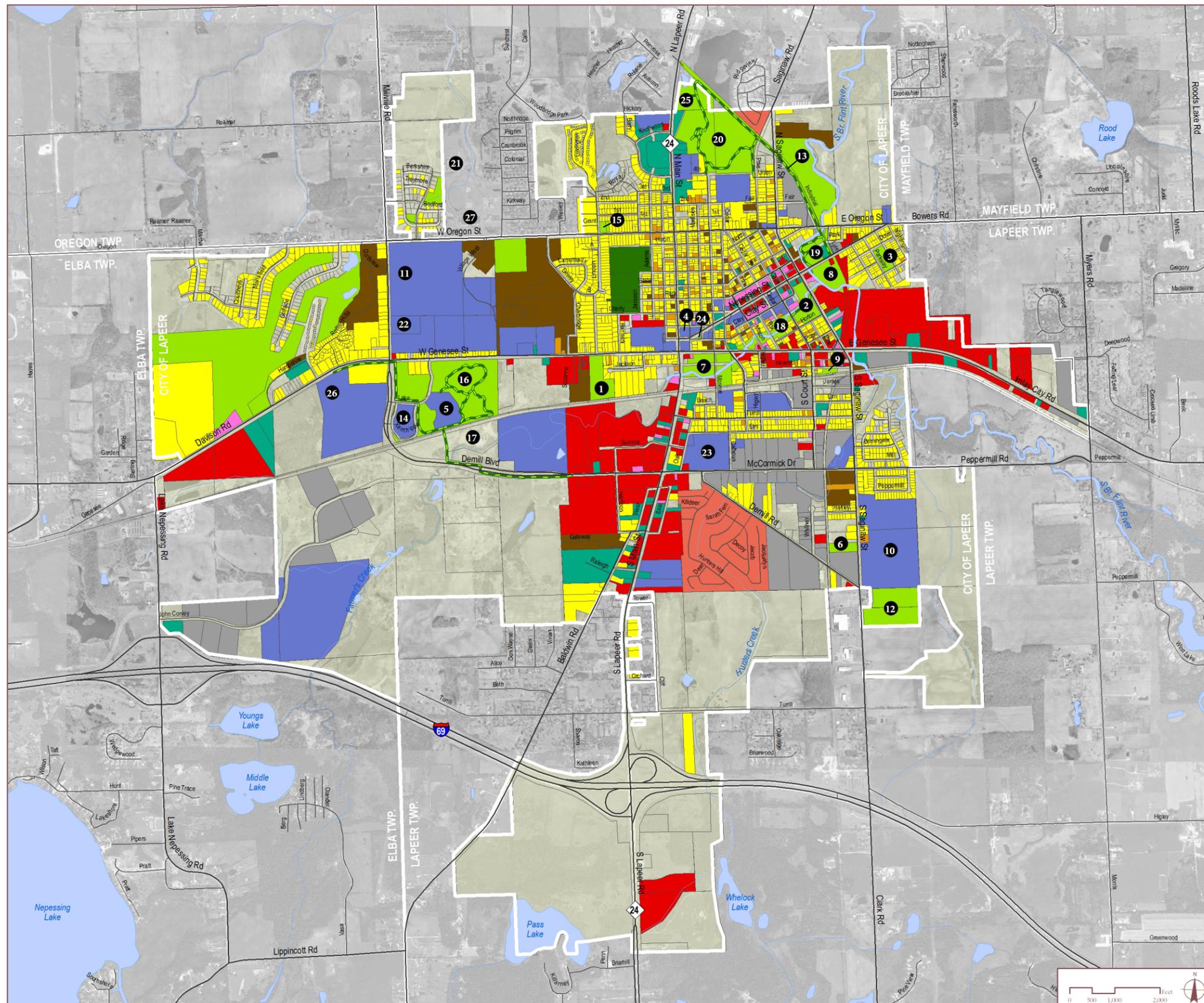
Existing Land Use Source: City of Lapeer. Updated by Wade Trim.

April 2011

1 Parks and Schools:

- | | |
|---|--|
| 1. American Legion Field | 14. Mott Community College |
| 2. Annrook Park | 15. Perkins Park |
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| 13. Linear Park | 26. Woodside School |
| | 27. Zemmer Junior High School* |

*Outside City Limits



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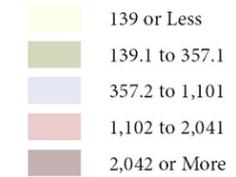
Non-Motorized Plan

City of Lapeer

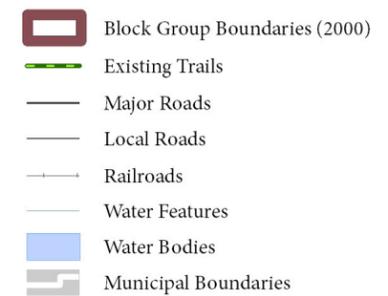
LAPEER COUNTY, MICHIGAN

Population Density

Population per Square Mile*



*Categories based on natural breaks (Jenks) method.



Base Source: Michigan Geographic Data Library;

Facilities Source: City of Lapeer Public Parks, Open Space and Schools Map, updated by Wade Trim;

Density Source: U.S. Census TIGER Data, 2000;

April 2011

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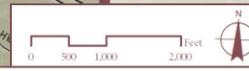
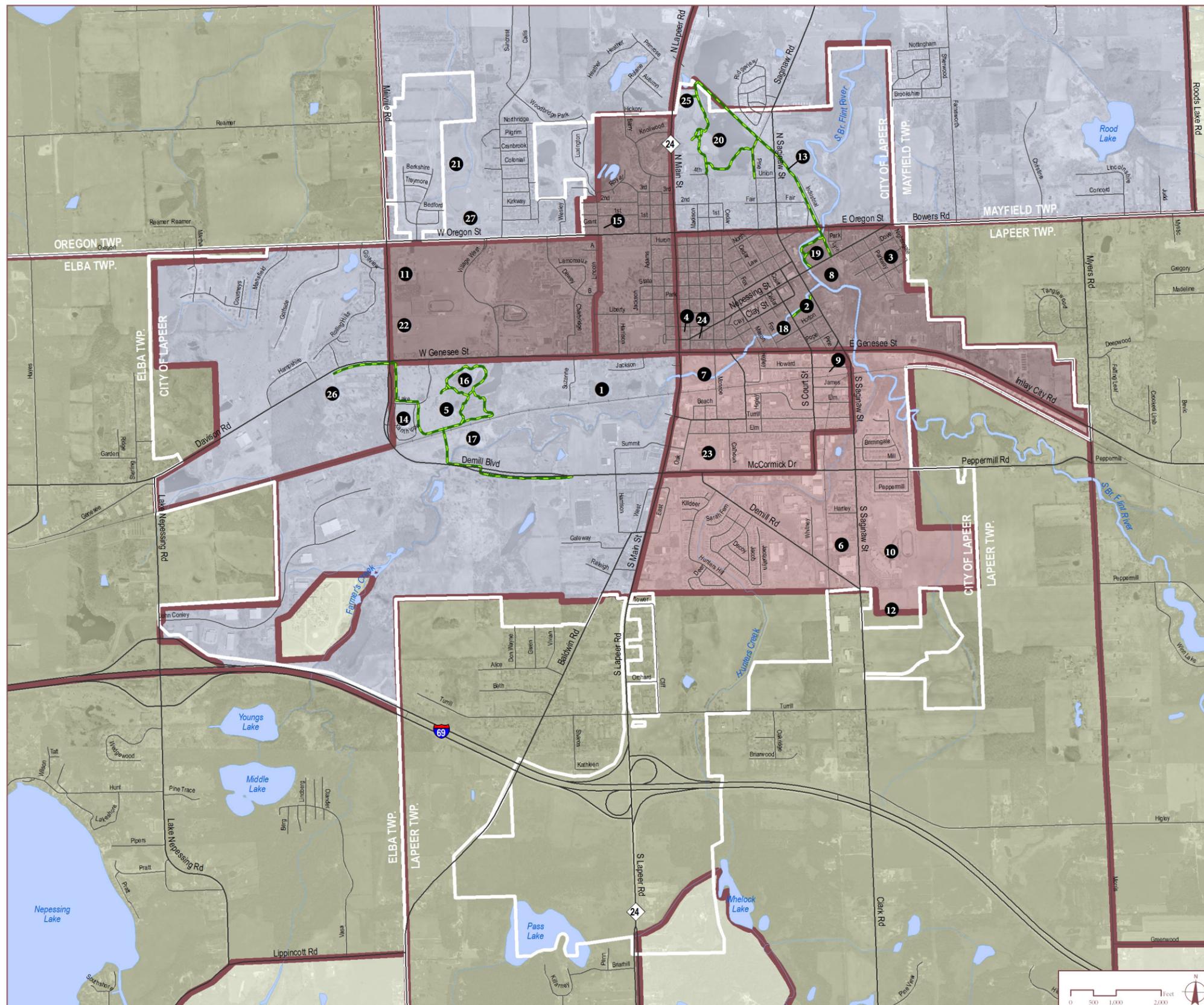


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Non-Motorized Plan

City of Lapeer

LAPEER COUNTY, MICHIGAN

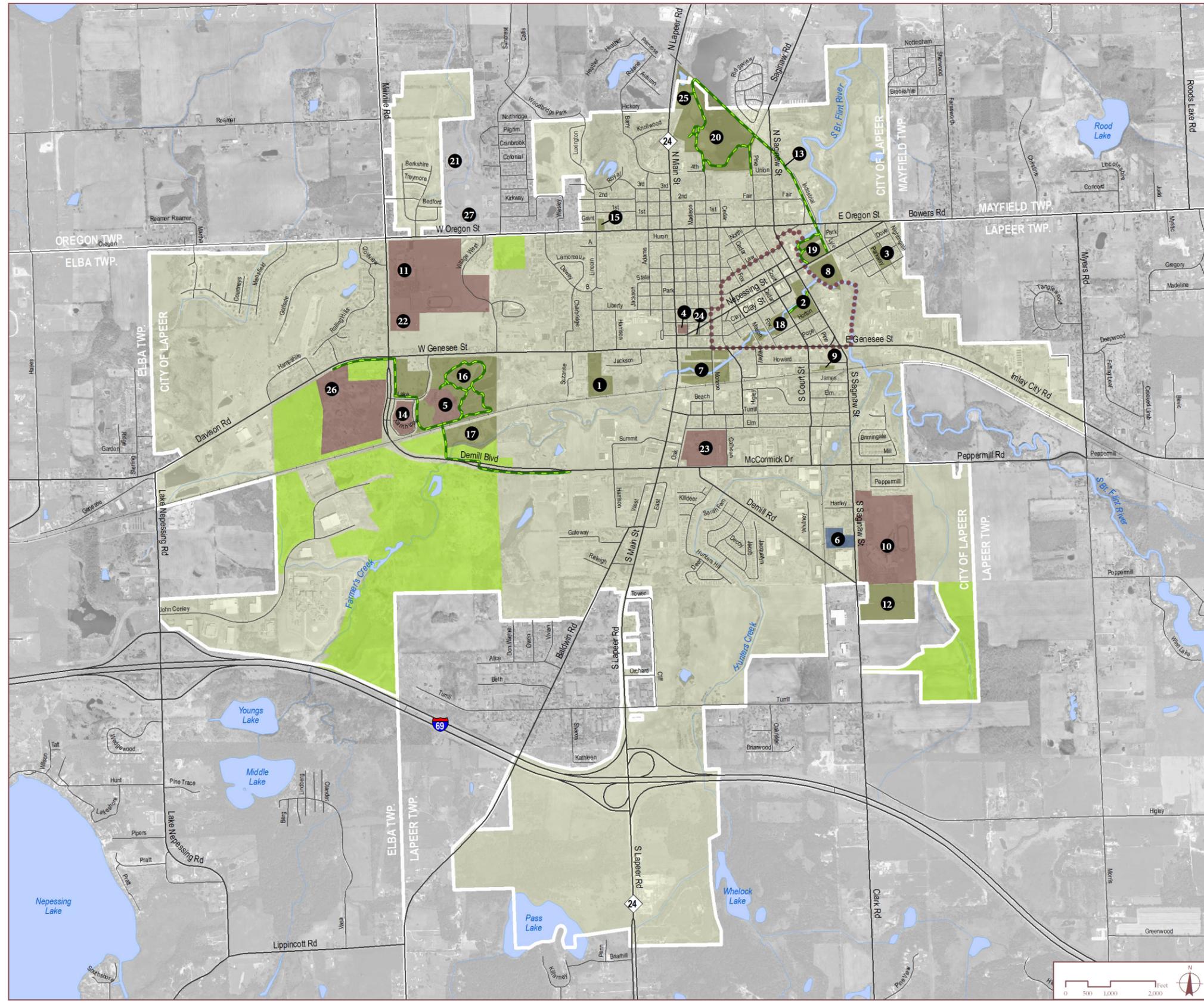
Public Parks, Open Space and Schools

-  Existing Trails
-  City-Owned Open Space
-  Community Center
-  Parks
-  Schools
-  Major Roads
-  Local Roads
-  Railroads
-  Water Features
-  Water Bodies
-  Municipal Boundaries
-  City of Lapeer
-  DDA Boundary

Base Source: Michigan Geographic Data Library;
 Facilities Source: City of Lapeer Public Parks, Open Space and Schools Map, updated by Wade Trim.
 April 2011

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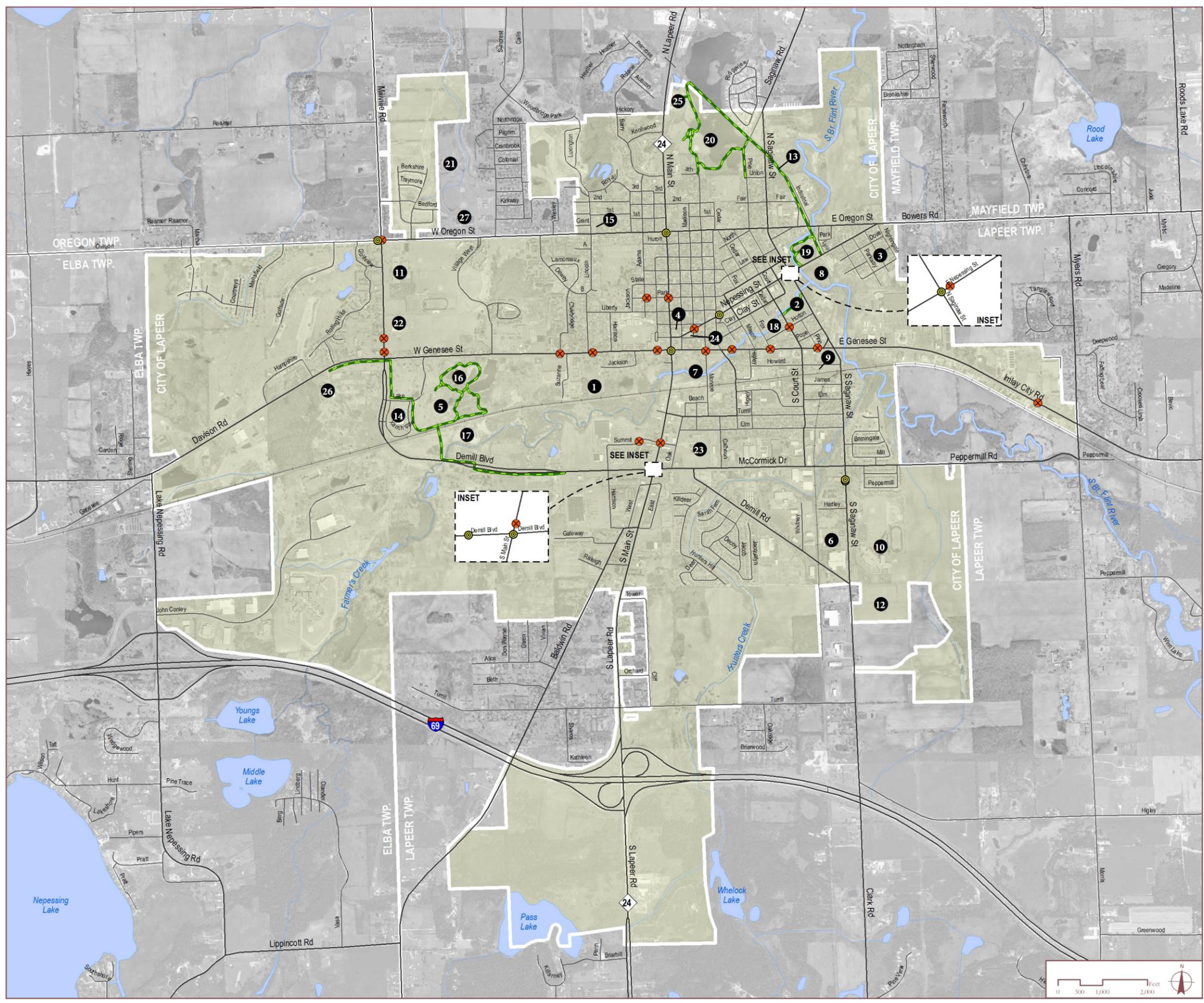
Bicycle and Pedestrian Crash Locations, 2004-2009

- Vehicle/Bicycle Crashes
- Vehicle/Pedestrian Crashes
- Existing Trails
- Major Roads
- Local Roads
- Railroads
- Water Features
- Water Bodies
- Municipal Boundaries
- City of Lapeer

Base Source: Michigan Geographic Data Library;
 Facilities Source: City of Lapeer Public Parks,
 Open Space and Schools Map, updated by Wade Trim;
 Crash Source: Michigan Traffic Crash Facts Website, 2004-2009;
 April 2011

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Non-Motorized Plan

City of Lapeer

LAPEER COUNTY, MICHIGAN

Road Jurisdiction

Road Jurisdiction:

-  State Trunkline
-  City Major
-  City Local
-  County Primary
-  County Local
-  Uncertified

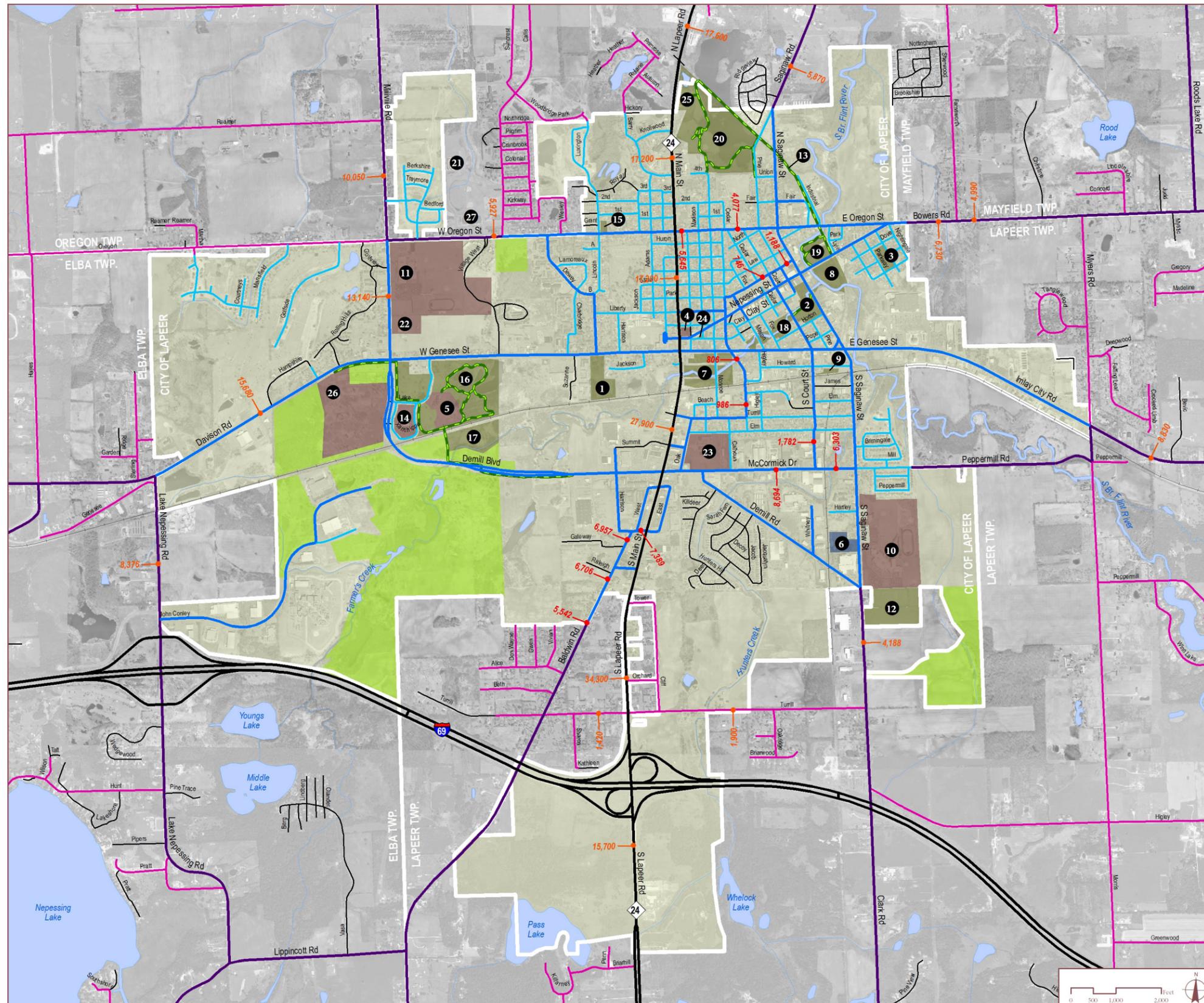
-  Traffic Count - City (2011)
-  Traffic Count - County (2009)
-  Existing Trails
-  Railroads
-  Water Features
-  Water Bodies
-  Municipal Boundaries
-  City of Lapeer

Base Source: Michigan Geographic Data Library;
 Facilities Source: City of Lapeer Public Parks,
 Open Space and Schools Map, updated by Wade Trim.
 Road Source: Michigan Geographic Data Library;
 January 2012

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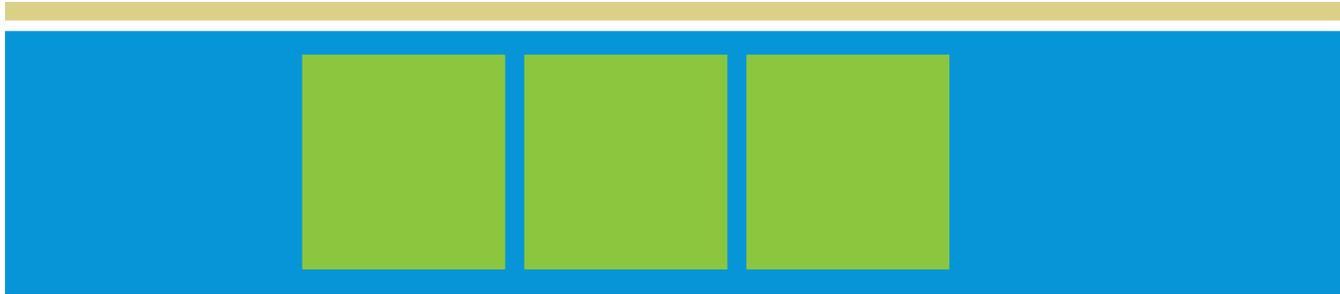
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PLAN PURPOSE..... 3



EXISTING FRAMEWORK..... 7

- The Emerging Network
- Related Initiatives and Efforts
- Existing Conditions



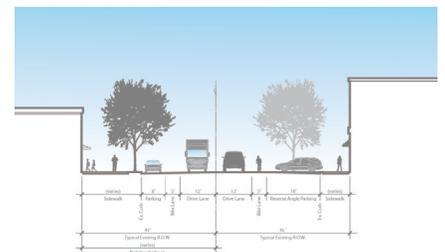
NON-MOTORIZED VISION 23

- Planned Network and
- Typical Designs and Treatments



IMPLEMENTATION STRATEGY..... 33

- Recommended Actions
- Catalyst Project: Riverwalk
- Probable Cost Estimates
- Potential Funding Sources



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NON-MOTORIZED VISION

Based on the existing conditions, an understanding of the emerging network, as well as related initiatives and efforts, an overall vision for Non-Motorized improvements within the City has been developed.

The Non-Motorized Improvements Map illustrates the desired connections and improvements in order to:

- Increase safety
- Encourage walking and biking
- Improve the walkability and bikeability of the community
- Provide connections to destinations within Lapeer, to neighboring communities, and to the emerging regional system

Planned Network and Typical Design Treatments

The proposed non-motorized improvements have been categorized as follows and are described on the following pages:

- Off-Road /Shared Use Trails
- Downtown Pedestrian Connection
- Sidewalks
- Bike Lanes
- Shared Lane Markings (Sharrows)
- Intersection/Crossing Improvements
- Bridge Improvements

The following pages also provide some guidance and examples for typical non-motorized treatments and situations. These are intended as guidelines only. All mandated standards, including those established by AASHTO and the MUTCD, should be referenced at the time of design/implementation.

Off-Road / Shared Use Trails

As has been documented, the City has worked to build an off-road, shared-use trail system utilizing abandoned rail corridor and park property. This system is a tremendous asset and adds to the quality of life in Lapeer. As is illustrated on the Non-Motorized Improvements map, it is the long-term goal to continue to extend the off-road trail system in order to provide connections to various destinations within the City, to neighboring communities, and to the emerging regional trail network.

An off-road trail system is proposed to “loop” the entire City with a link bisecting the community in the vicinity of Farmer’s Creek. The off-road system is proposed to have a 10-foot wide cross-section and be constructed of asphalt and/or crushed limestone. Any boardwalks or pedestrian bridges should be designed to AASHTO standards. It should be noted that while an off-road trail system can be utilized by bicyclists, it is important that it be constructed in areas with very few curb cuts and road crossings as these represent significant and dangerous vehicular/bicycle conflict points. As is stated in the AASHTO Guide, “Shared use paths should not preclude on-road bicycle facilities, but should be considered as complementary to a system of on-road bike lanes.” The vision for the off-road trail system is further explained in the Implementation section.

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Non-Motorized Plan

City of Lapeer

LAPEER COUNTY, MICHIGAN

Non-Motorized Improvements

- Existing Off-Road Trails
- Proposed Off-Road Trails
- Existing Downtown Pedestrian Connection
- Proposed Downtown Pedestrian Connection
- Proposed Sidewalks
- Proposed Bike Lanes
- Proposed Sharrows
- Intersection/Crossing Improvements
- Bridge Improvements
- Access Management Needed
- Major Roads
- Local Roads
- Railroads
- Water Features
- Water Bodies
- City of Lapeer

Base Source: Michigan Geographic Data Library;
 Facilities Source: City of Lapeer Public Parks;
 Open Space and Schools Map, updated by Wade Trim.

February 2012

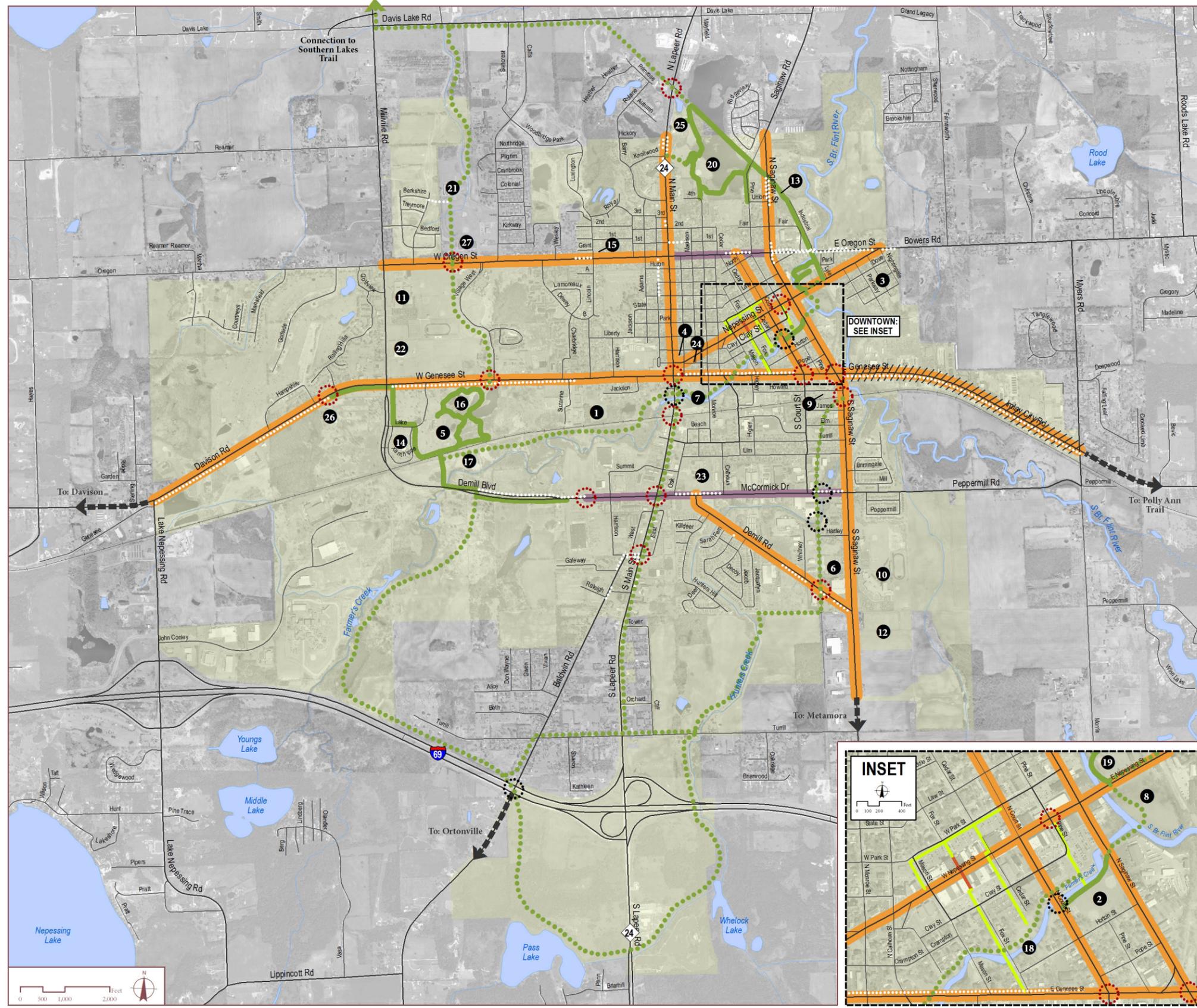
- 1 Parks and Schools:**
- | | |
|----------------------------------|--|
| 1. American Legion Field | 14. Mott Community College |
| 2. Annrook Park | 15. Perkins Park |
| 3. Audubon Park | 16. Prairies and Ponds Park at Oakdale |
| 4. Bishop Kelley Catholic School | 17. Riverbank Park at Oakdale |
| 5. Chatfield Charter School | 18. Riverflats |
| 6. Community Center | 19. Rotary Park |
| 7. Cramton Park | 20. Rowden Park |
| 8. East Annrook Park | 21. Schickler Elementary School* |
| 9. Lapeer Depot | 22. St. Paul Lutheran School |
| 10. Lapeer East High School | 23. Turrill Elementary School |
| 11. Lapeer West High School | 24. Veterans Memorial Park |
| 12. Lapeer Optimist Community | 25. Water Tower Travel Trailer Park |
| 13. Linear Park | 26. Woodside School |
| | 27. Zemmer Junior High School* |

*Outside City Limits

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Downtown Pedestrian Connection

While the City has invested in off-road systems, the connection to the downtown needs further development. The vision is for bicycle and pedestrian routes within the Downtown that connect to the off road system as well as provide intra-connectivity to the many assets in the core, including the Farmers Market, the adjacent well preserved neighborhood, civic facilities, commerce, and most importantly, the riverfront.

The proposed pedestrian connections include:

- Enhanced streetscaping along Mason Street connecting the downtown “ring road” with Farmer’s Creek and Park.
- An extension of the Fox Street passageway southward to Farmer’s Creek.
- Enhanced streetscape along Cedar Street southward culminating in a public deck overlooking the river.
- Enhanced streetscaping along Pine Street connecting Annrook Park to the south with the Riverview Towers senior housing complex to the north at Saginaw Street.

The overall emphasis of Downtown pedestrian connectivity is to link the strong east west spines of Nepessing Street and Farmer’s Creek with the parks, public facilities and businesses in the core.

The streetscape enhancements should take the form of specially textured and toned sidewalks and crosswalks along the designated routes (Mason, Fox, Cedar, and Pine streets - see illustration). The on-street bicycle lane system should be designated (and perhaps include specially colored lanes) in order to emphasize the importance of these facilities, visually, within the overall non-motorized experience in the downtown. Special emphasis related to design elements at the river crossings should be considered in order to visually coordinate these areas throughout the City.

Sidewalks

For the most part, the City has developed and constructed its public rights-of-way to include sidewalks to accommodate pedestrian movement and connections. There are, however, as noted on the map, several locations where sidewalks are missing. The Non-Motorized Vision for Lapeer includes the completion of existing sidewalk gaps.



Typical sidewalks in Lapeer should be 5 feet wide and of concrete construction. There may be exceptions where sidewalks will need to be less than 5 feet wide, however, this should be the exception, as opposed to the rule.

While the majority of the City has sidewalks along the public rights-of-way, the condition of the sidewalk system varies and in some cases, sections are in poor condition, unsafe, and uninviting. In addition to constructing the sidewalk gaps, a sidewalk inventory and annual replacement program should be implemented.

Bike Lanes

On-street bike lanes are facilities that are typically 5 to 6 feet in width and are delineated by a 4 to 6-inch stripe on the left-hand side of the lanes, and include in-pavement markings (bike symbol and arrow) and signage. They designate a space on the roadway for the use of bicyclists. Motor vehicles are not permitted to drive, park or stand in the bike lane, however, right turning vehicles can enter the bike lane at intersections to complete their turn.

Example On-Street Bike Lane



Numerous studies have concluded that well-designed facilities encourage proper behavior and decrease the likelihood of crashes.

On-street bike lanes are proposed on several streets within the City including:

- Davison/Genesee (Lake Nepessing Rd to Myers Rd)
- DeMille Road
- Saginaw Street (within the City limits)
- Nepessing Street
- N Court Street
- N Main Street (Nepessing to north City limits)
- Oregon (Millville to Main)

In most cases, in order to accommodate on-street bike lanes on the above noted facilities, it is a matter of restriping the road to reduce the number of lanes, reduce the width of lanes, or, as is the case with Saginaw Street, pave existing gravel shoulders. Modifications to

reduce lane widths or the number of lanes are referred to as “road diets”. Studies have indicated that, for urban arterials with posted speeds less than 45mph, 10- and 11-foot vehicular travel lanes are just as safe as 12-foot lanes. Existing and proposed cross-sections of these facilities are included in the Implementation Chapter and Appendix of this document.

Shared Lane Markings (Sharrows)

Shared Lane Markings, or “sharrows” are pavement markings installed within shared travel lanes (lanes shared by cars and bicycles). The marking is a bicycle with a chevron above it. Sharrows can be used on streets where there is insufficient space to add bike lanes. The Sharrow helps cyclists position themselves within the lane safely. Sharrows are proposed on:

- McCormick
- Oregon (Saginaw to Main).

Example Sharrow



In order to accommodate on-street bike lanes, road widening should be considered in the future if McCormick is reconstructed.

Intersection/Crossing Improvements

There are a number of locations throughout the City that have been highlighted due to the need to improve the safety and walkability/bikeability of the community. Each identified intersection or crossing will need specific design attention. Proposed improvements

include elements such as:

- Mid-Block Crossings
- Refuge Islands
- Marked Crosswalks
- Pedestrian activated crossing signal
- ADA ramps
- Improved treatments at railroad crossings
- Transitioning from one type of non-motorized facility to another

Several of these improvements are proposed along M-24 including at major intersections, the railroad crossing, at Farmer's Creek, and just north of town where the abandoned rail corridor traverses beneath M-24. At both the Farmer's Creek crossing and the abandoned rail corridor crossing, the vision is to incorporate non-motorized access beneath M-24 to ensure a continuous and connected system.

Some examples of these types of improvements are illustrated in the adjacent images.

Bridge Improvements

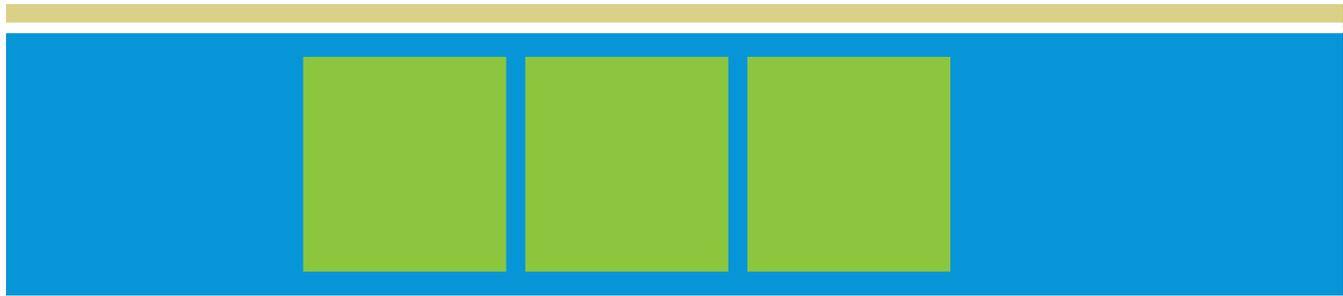
The successful navigation of the many bridges over Farmer's Creek is the key to implementing the River Walk vision. Getting under, over and around these structures is necessary to make the needed connections to Downtown as well as the greater Off-road trail "loop". Many factors will influence how these bridges are modified to best accommodate non-motorized users. These include bridge condition, width, utilities and height above the ordinary high water level. In addition, hydraulic modeling of any improvement within the floodway will be required to fully evaluate any potential bridge improvements.

The City's vision includes coordinated design elements for all river crossings throughout the City. Common design elements to improve aesthetics and visually elevate the bridges throughout the community could include decorative railing, lighting, benches, etc. This includes design elements at the M-24 bridge over Farmer's Creek.

Example Crossing Treatments



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PLAN PURPOSE..... 3



EXISTING FRAMEWORK..... 7

- The Emerging Network
- Related Initiatives and Efforts
- Existing Conditions



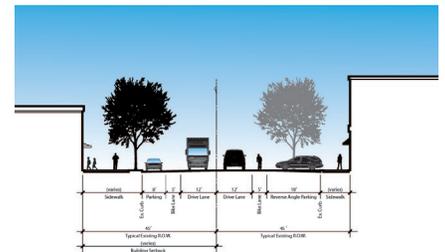
NON-MOTORIZED VISION 23

- Planned Network and
- Typical Designs and Treatments

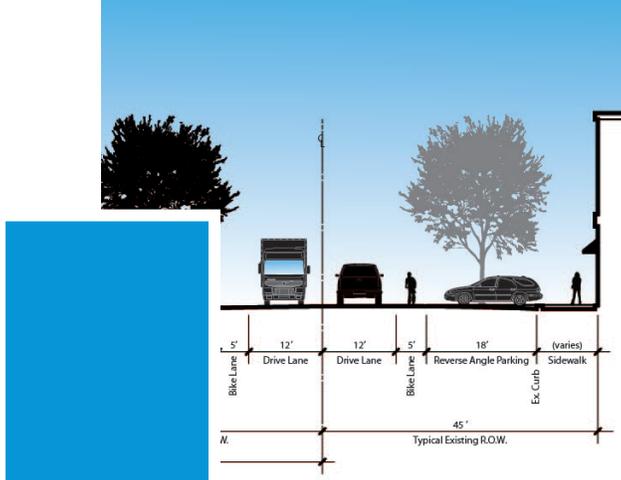


IMPLEMENTATION STRATEGY..... 33

- Recommended Priorities
- Catalyst Project: Riverwalk
- Probable Cost Estimates (Riverwalk)
- Potential Funding Sources



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IMPLEMENTATION STRATEGY

The strategies outlined on the following pages are actions that will work toward implementation of a connected non-motorized system as well as highlight the City of Lapeer as a walkable and bikeable community. It is likely that, over time, the particulars and details of this plan may change due to the proposed systems, funding opportunities, public opinion, etc. Because of this fact, ***this section of the Master Plan in particular should be reviewed and updated on a regular basis as segments are implemented, and funding opportunities and sources change.***

This section summarizes:

- Recommended Priorities
- Catalyst Project: Riverwalk
- Cost Estimates (Riverwalk)
- Potential Funding Sources

Recommended Priorities

The overall vision for Non-Motorized improvements within the City were discussed in the previous chapter of this report. There are many elements, treatments and types of improvements that are proposed in order to improve the walkability and bikeability of the community.

It should be noted that several of the proposed improvements captured on the Non-Motorized Improvements Map can be implemented when roads or bridges are resurfaced or reconstructed. The Non-Motorized Vision should be referenced each time any work within public rights-of-way is proposed in order to incorporate Complete Streets elements and take advantage of design, construction and mobilization efficiencies. Refer to proposed cross-sections in Appendix.

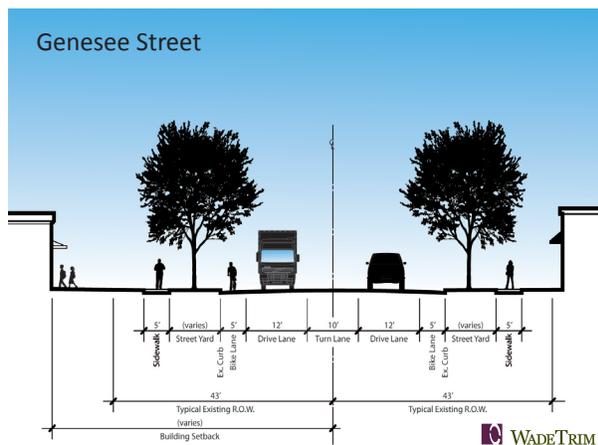
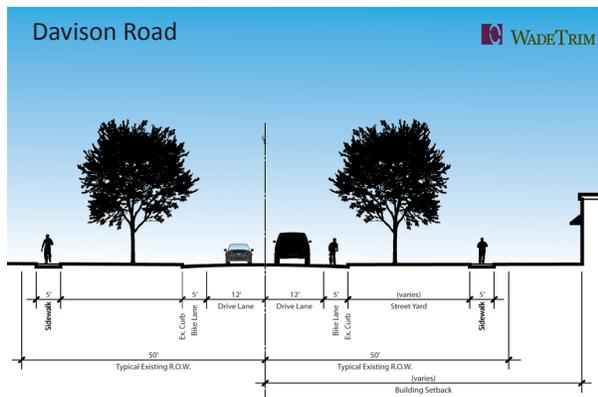
From the overall vision for improvements, a handful of items have been identified as initial priorities to focus implementation efforts and resources. These initial priorities are discussed in greater detail on the following pages and include:

- Off-Road Trail System
- Genesee Street/Davison Road
- M-24 Complete Street Elements
- Nepessing Street
- Riverwalk Catalyst Project

Genesee Street/Davison Road

Genesee Street/Davison Road is the major east-west vehicular route within the City of Lapeer. The route not only provides connections to schools, parks, businesses, and neighborhoods, but also provides connections to neighboring communities and the Polly Ann Trail system. A number of improvements are proposed along Genesee/Davison including:

- Restriping to accommodate on-street bike lanes
- Completion of sidewalk system
- Ped/bike improvements at several intersections and crossings
- Access Management east of Saginaw Street

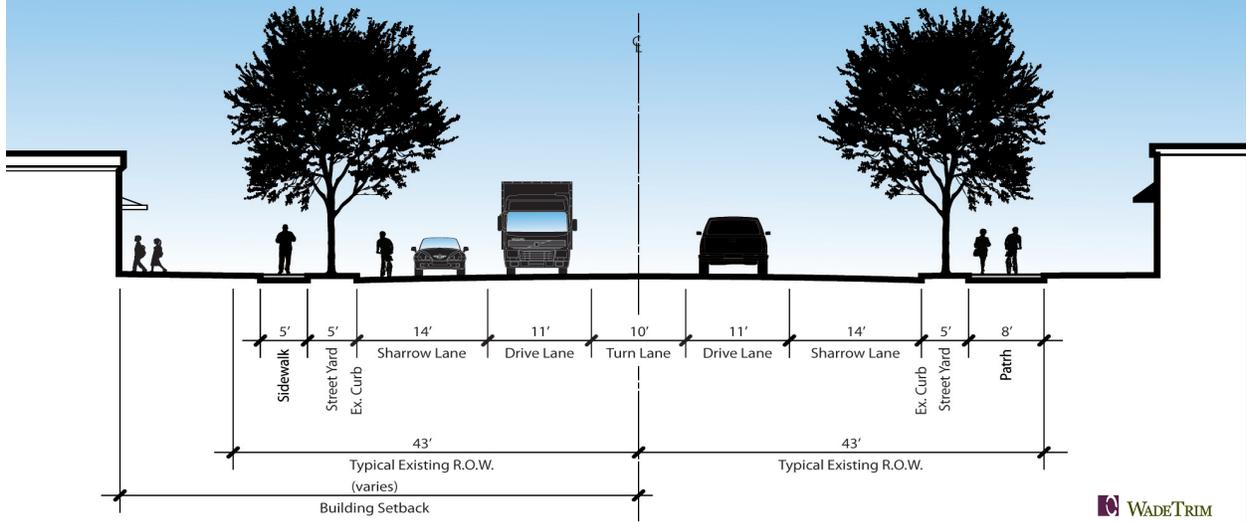


M-24 Complete Street Elements

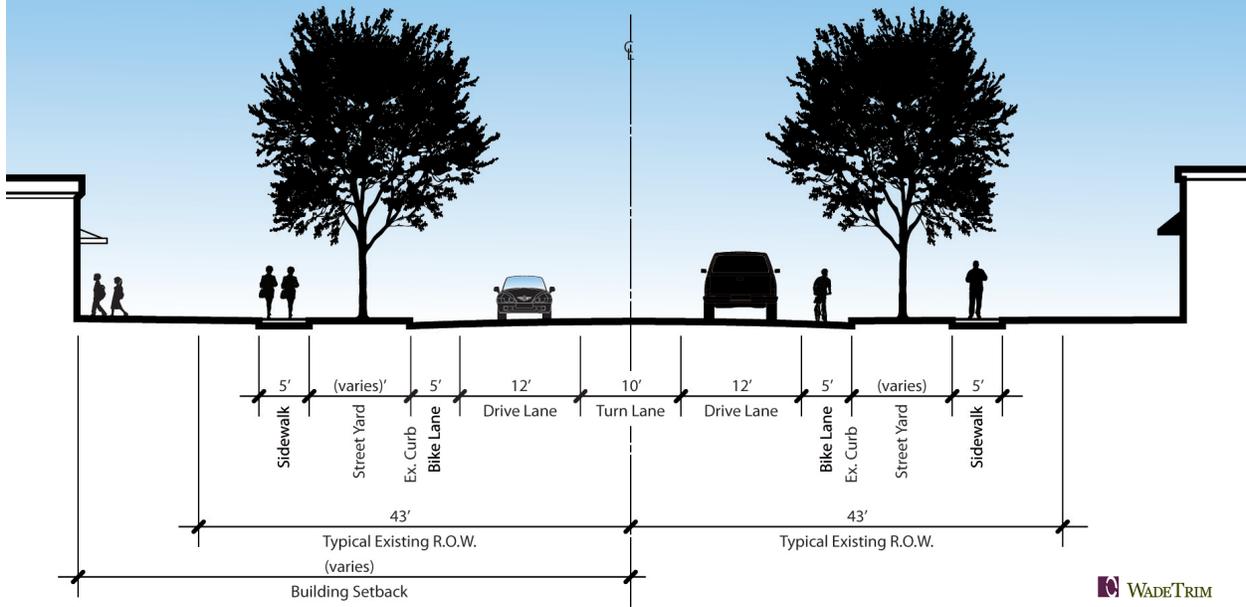
M-24 is Main Street within the City of Lapeer. In order to slow vehicular traffic through the City and improve conditions for pedestrians and cyclists, coordination with MDOT is paramount to incorporate Complete Street elements into the redesign of M-24. Where appropriate, this includes consideration of:

- Overall Complete Streets elements within the M-24 right-of-way such as marked crosswalks, pedestrian crossing signals, ADA ramps, sharrows, bike lanes, improved railroad crossing, landscaping, sidewalks, etc. Illustrations of potential considerations for North and South Main Street are included on the following page.
- Provision of a non-motorized crossing (culvert/bridge) beneath M-24 at Farmer's Creek to accommodate the City's vision to extend the shared use trail system.
- Provision of a non-motorized crossing beneath M-24 just north of the City limits at the abandoned rail corridor to accommodate the City's vision to connect with the growing regional trail system.

South Main Street



North Main Street



Nepessing Street

Nepessing Street is the heart of the historic downtown. How Nepessing looks, feels and functions plays a key role in the attractiveness of the downtown, the desire for businesses to locate along Nepessing and the desire for consumers to shop, work, eat, and live downtown. Several improvements are proposed along Nepessing in order to improve the pedestrian/cyclist experience, including:

- Restriping to include on-street bike lanes.
- Restriping and signing to change the existing diagonal parking areas to reverse-angle parking as is illustrated on the following photo example and proposed cross-section. *A bike lane adjacent to pull-in diagonal parking is not a safe condition and should not be pursued.*

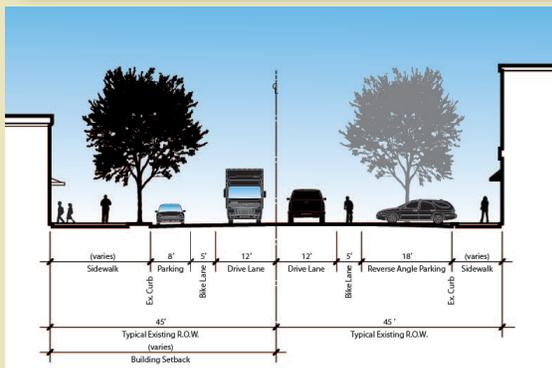
- Crossing improvements to improve the safety and visibility of the pedestrian/cyclist.
- Extension of the off-road shared trail system east of the Flint River toward downtown.

Catalyst Project: Riverwalk

This document is a Master Plan with conceptual ideas and recommendations noted for further investigation and design. As part of this Master Planning process, the City selected one priority area to drill down into further detail in order to better understand implementation opportunities and constraints.

The catalyst project is the Riverwalk - the extension of the off-road trail system adjacent to Farmer's Creek and downtown Lapeer as well as the connections between the Riverwalk and downtown.

Example Reverse-Angle Parking & Bike Lanes



Flood Plain & Floodway Protection

Flooding is a primary consideration along the river. Annual flood levels create a situation where multiple solutions needed to be investigated for pedestrian and bicycle passage under, over, and around the bridges.

Obstacles

The main obstacle for the riverwalk system is the possibility of the system under the existing bridges. This was a primary consideration in determining where the system was placed along the riverfront.

Surfaces

Varied surfaces are used along the riverwalk due to the many different conditions that need to be accommodated. Asphalt is used throughout most of the river-walk with specific areas determined to be wood planks (near waterfront amenities such as picnic areas) or concrete (used on some of the more difficult to navigate bridge underpasses).

Amenities

A key consideration in making the Riverwalk successful was the inclusion of amenities. Fortunately, Lapeer has a considerable amount of public property and parks that are well established anchors along Farmer's Creek. The design team's task was to envision additional opportunities along the river that would add variety and interest to the pedestrian/ cyclist experience. Among other things, this includes coordinated design elements at each of the river crossings as previously described.

East Annrook Park Connection

The East Annrook Park Connector provides the critical first link between an existing park and the new riverwalk system. A new access is provided from Nepessing Street and sidewalk enhancements are called for to accommodate pedestrian access on the south side of Nepessing Street.

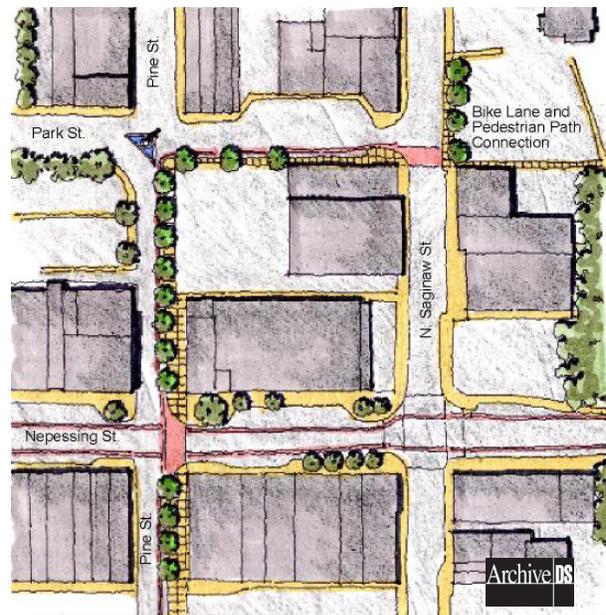
East Annrook to Annrook Park Connection



Rotary Park Connection

Another challenging area is the transition from the south park area up to the street. Cutting through existing privately owned properties is not an option for making a clear connection to the new system. The connection should be made via the available city owned parcels. Once at the street level a clearly delineated street crossing is required (Rotary Park to Downtown). A flashing traffic signal may also be warranted at this location.

Rotary Park to Downtown



Annrook Park/Pine Street Connection

The Pine Street connection incorporates existing plans to tie the downtown core to the adjacent riverfront park. Through reallocation of the existing parking lot on the north side of the river, the design team was able to provide a trail right-of-way that ties into the Annrook Park connector. A clearly defined pedestrian path links Annrook Park to the south with the downtown core to the north. This pedestrian path replaces a less than dignified pedestrian experience of traversing through the existing parking lot. It is also desired to incorporate a more “grand” pedestrian bridge that incorporates design elements that are coordinated with other river crossings improvements proposed in the City. Additional landscaping along the north side of Farmers Creek would soften the park edge, assist with erosion, improve quality of storm water runoff and enhance the users experience of the riverfront.

Annrook Park/Pine Street Connection



Cedar Street Connection

The Cedar Street connector provides access to the riverfront that does not currently exist. An observation deck is proposed at the end of Cedar Street overlooking the river below. A stair is provided to make the transition to the area 15 feet below. This area is envisioned as a public leisure/ passive recreational area (shown as a picnic area in the schematic drawing).

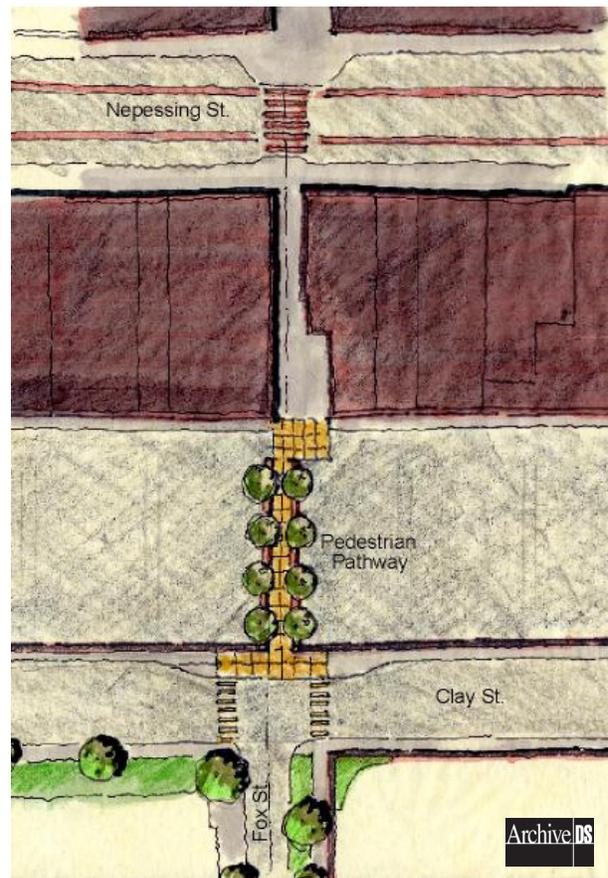
Cedar Street Connection



Fox and Mason Street Connections

The Fox Street Connection and Mason Street Connection should be based on similar accessibility concepts to the illustrated solutions for Cedar, Court, and Pine Streets. The goal of these connections is to provide safe, well-designed and aesthetically pleasing routes between downtown and the riverfront.

Fox Street Connection



Court Street Bridge

The Court Street Bridge is currently slated for rehabilitation. This provides an excellent opportunity to look at potential non-motorized improvements. These improvements can be used as a demonstration project for future improvements to the other bridges along the Farmers Creek.

It is important that non-motorized users have the ability to not only cross Court Street safely but also cross Farmers Creek. To that end, the bridge deck should be designed to accommodate both pedestrians and bicyclists traveling over the bridge along Court Street. There may also be desire to expand the pedestrian area by cantilevering an expanded sitting area with benches and lighting. The current bridge is of sufficient width to provide bicycle lanes as well as sidewalks on both sides. (See illustrations on following page) These facilities need to be seamlessly connected to existing and proposed non-motorized facilities both to the north and south of the bridge.

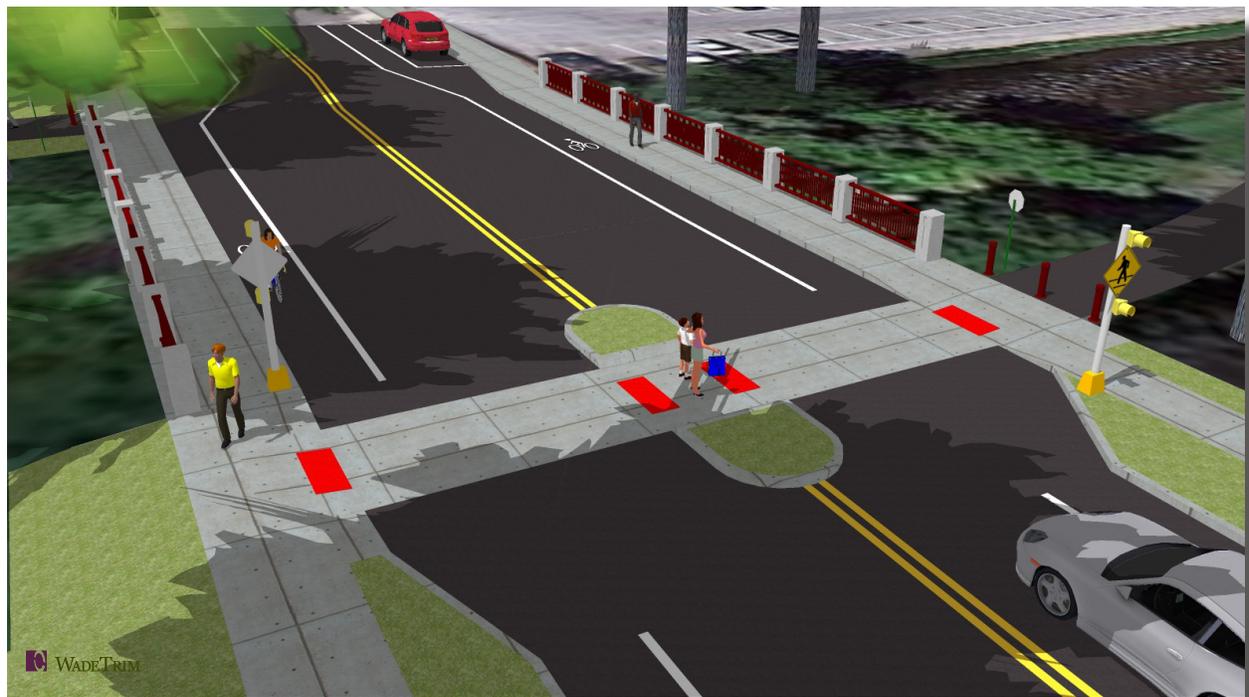
Crossing Court Street can be accomplished in one of two ways, either at grade or under the existing span. Each has their own unique pros and cons. Crossing at grade requires no permitting and is significantly less expensive. However, it requires a controlled crossing of Court Street including significant ADA accommodation. (See illustration) Alternately, traversing under the Court Street Bridge provides unimpeded access along Farmers Creek. (See illustrations) While this is significantly more expensive it will greatly improve the experience for users of the trail. Preliminary investigations of the bridge suggest that there is ample headroom and span to permit the development of a pedestrian path with retaining wall as shown in the sketches. Further study is needed to fully understand the impact of such a facility on up-stream flooding and bridge scour.

Although each bridge crossing is unique, it is believed that these alternatives can be used to provide safe non-motorized accommodation. A conceptual cost estimate is provided for reference and future planning efforts.

Court Street Bridge Conceptual Improvements



WADETRIM



WADETRIM



Probable Cost Estimates (Riverwalk)

Conceptual level cost estimates to implement the Riverwalk project have been developed based on the diagrams and renderings included in this section of the report. These construction cost estimates are intended to provide a magnitude of cost figure for budgeting and grant purposes. The estimates on the following pages will need to be refined during the design process once survey data is collected, materials are selected, and detailed design is complete.

Element	Quantity	Unit Cost	Estimate
Riverwalk Trail (Saginaw to Cramton Park) (10' wide)	2840 lf	\$45/lf	\$127,800
Lighting along Riverwalk Trail	75 ea	\$5,000/ea	\$375,000
East Annrook Park to Annrook Park (pg. 36)			
Sidewalk (both sides of Saginaw)	4770 sf	\$5/sf	\$23,850
Paving (Saginaw from Nepessing to Horton)	30,500 sf	\$4/sf	\$122,000
Striping (Nepessing to Horton)	2900 lf	\$3/lf	\$8,700
Lighting	30 ea	\$5,000/ea	\$150,000
Access to Riverwalk (ramp from Nepessing)	1 ls	\$50,000	\$50,000
Riverwalk Trail (10' wide)	560 lf	\$45/lf	\$25,200
Pedestrian Bridge (E of Saginaw) (80')	1 ls	\$250,000	\$250,000
Trees/Landscaping	1 ls	\$45,000	\$45,000
Total			\$674,750
Rotary Park to Downtown (N of Nepessing) (pg. 36)			
Sidewalk (both sides of Pine; S side of Park)	4380 sf	\$5/sf	\$21,900
Paving (Pine N to Park; Park E of Pine)	21250 sf	\$4/sf	\$85,000
Striping	1300 lf	\$3/lf	\$3,900
Lighting	15 ea	\$5,000/ea	\$75,000
Trees	1 ls	\$11,000	\$11,000
Total			\$196,800
Annrook Park/Pine Street Connection (pg. 37)			
Demolition	115,000 sf	\$1/sf	\$115,000
Sidewalk	4300 sf	\$5/sf	\$21,500
Pedestrian Bridge	1 ls	\$125,000	\$125,000
Trees/Landscaping	1 ls	\$100,000	\$100,000
Paving	104,125 sf	\$4/sf	\$416,500
Striping	6500 lf	\$3/lf	\$19,500
Lighting	30 ea	\$5,000/ea	\$150,000
Total			\$947,500

Element	Quantity	Unit Cost	Estimate
Cedar Street Connection (pg. 38)			
Sidewalk	2500 sf	\$5/sf	\$12,500
Viewing Deck	400 sf	\$55/sf	\$22,000
Stairway (5' wide, 15 vertical ft)	1 ls	\$20,000	\$20,000
Paving	18,150 sf	\$4/sf	\$72,600
Striping	680 lf	\$3/lf	\$2,040
Lighting	34 ea	\$5,000/ea	\$170,000
Total			\$299,140
Fox Street Connection (pg. 38)			
Sidewalk	4600 sf	\$5/sf	\$23,000
Paving (Clay to Genesee)	15,180 sf	\$4/sf	\$60,720
Access to Riverwalk (10' wide ramp)	1 ls	\$10,000	\$10,000
Striping	460 lf	\$3/lf	\$1,380
Lighting	60 ea	\$5,000/ea	\$300,000
Total			\$395,100
Mason Street Connection (pg. 38)			
Sidewalk	8600 sf	\$5/sf	\$43,000
Paving	33,000 sf	\$4/sf	\$132,000
Striping	940 lf	\$3/lf	\$2,820
Lighting	60 ea	\$5,000/ea	\$300,000
Total			\$477,820
Court Street Connection (non-motorized enhancements only) (pg. 39-41)			
<i>Over the Bridge Option</i>			
Mobilization, Removal, Excavation	1 ls	\$3,000	\$3,000
Rapid Flash Beacon	2 ea	\$5,000	\$10,000
Ramps, Bollards, Markings	1 ls	\$8,500	\$8,500
Curb/Gutter, Base, Sidewalk, Restoration	1 ls	\$5,000	\$5,000
Total			\$26,500
<i>Under the Bridge Option</i>			
Mobilization, Excavation	1 ls	\$8,000	\$8,000
River Diversion	1 ls	\$7,500	\$7,500
Concrete Wall	900 FF	\$100	\$90,000
Sidewalk, Lighting	1 ls	\$17,000	\$17,000
Restoration	1 ls	\$1,200	\$12,000
Total			\$134,500

Potential Funding Sources

There are several potential funding sources to investigate as projects move toward implementation. Some projects have a higher likelihood of receiving outside funding assistance than others. Potential funding sources from outside entities change and evolve on a regular basis. Understanding available funding programs, their requirements and deadlines requires continuous monitoring. A few of the more common funding sources have been detailed here as a reference and resource. *These are in addition to traditional funding methods such as the general fund, millages, DDAs, TIFAs, bonds, Community Development Block Grants, and funding non-motorized projects as part of larger road or bridge resurfacing or reconstruction.*

MDOT Transportation Enhancement Program

Transportation Enhancement (TE) activities are federally funded, community-based projects that expand travel choices and enhance the transportation experience by improving the cultural, historic, aesthetic and environmental aspects of the transportation infrastructure. To be eligible, a project must fall into one of the 12 TE activities and relate to surface transportation. Activities that relate to the implementation of this Master Plan include:

- Provision of facilities for pedestrians and bicycles. Includes bike lane striping, wide paved shoulders, bike parking, bike racks, off-road trails, bike and pedestrian bridges and underpasses
- Paved shoulders four or more feet wide
- Bike lanes
- Pedestrian crosswalks
- Shared use paths 10 feet wide or greater
- Path/trail user amenities
- Grade separations
- Bicycle parking facilities
- Provision of safety and educational activities for pedestrians and bicyclists
- Programs designed to encourage walking and

bicycling by providing potential users with education and safety instruction through classes, pamphlets and signage

- Preservation of abandoned railway corridors (including the conversion and use thereof for pedestrian and bicycle trails)
- Acquiring railroad rights-of-way; planning, designing and constructing multi-use trails; developing rail-with-trail projects; purchasing unused railroad property for reuse

A minimum 20% local match is required (although more match is preferred) for proposed projects and applications are accepted on an on-going basis.

Michigan Natural Resources Trust Fund

The MNRTF provides funding for both the purchase of land (or interests in land) for recreation or protection of land because of its environmental importance or scenic beauty and the appropriate development of land for public outdoor recreation use. Goals of the program are to: 1) protect Michigan's natural resources and provide for their access, public use and enjoyment; 2) provide public access to Michigan's water bodies, particularly the Great Lakes, and facilitate their recreation use; 3) meet regional, county and community needs for outdoor recreation opportunities; 4) improve the opportunities for outdoor recreation in Michigan's urban areas; and, 5) stimulate Michigan's economy through recreation-related tourism and community revitalization.

All proposals for grants must include a local match of at least 25% of the total project cost. There is no minimum or maximum for acquisition projects. For development projects, the minimum funding request is \$15,000 and the maximum is \$300,000. Applications are due in April and projects must meet the goals of the Lapeer Parks and Recreation Master Plan.

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

The CMAQ program was created to reduce congestion on local streets and improve air quality. Funds are available to urban communities designated as “non-attainment” areas for air quality. Pedestrian and bicycle projects are eligible for CMAQ funding where they can be shown to divert motor vehicle commuting traffic that would otherwise take place. CMAQ projects on roads must be on federal-aid eligible roads. There is typically a 20% local match requirement.

DALMAC Fund

Established in 1975 to promote bicycling in Michigan, the DALMAC Fund is administered by the Tri-County Bicycle Association and supported by proceeds from DALMAC. The DALMAC Fund supports safety and education programs, bicycle trail development, state-wide bicycle organizations, and route mapping projects. Applications must be submitted by March 1. They are reviewed by the DALMAC Fund Committee and approved by the Board. Grants are made by May of the year they were submitted. Applications can be found at www.biketcba.org.

KODAK American Greenways Awards

Kodak, The Conservation Fund, and the National Geographic Society, provide small grants to stimulate the planning and design of greenways in communities throughout America. Made possible by a grant from Eastman Kodak, the program also honors groups and individuals whose ingenuity and creativity foster the creation of greenways. The application period typically runs from March 1st through June 1st. Program goals are to: develop new, action-oriented greenways projects; assist grassroots greenway organizations; leverage additional money for conservation and greenway development; and, recognize and encourage greenway proponents and organizations. Maximum grant is \$2,500. For more information go to www.conservation-fund.org.

Safe Routes to School

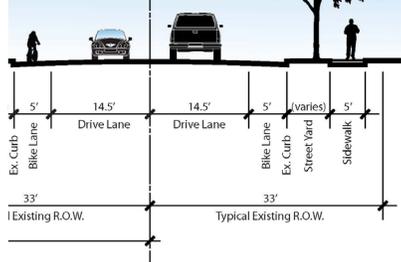
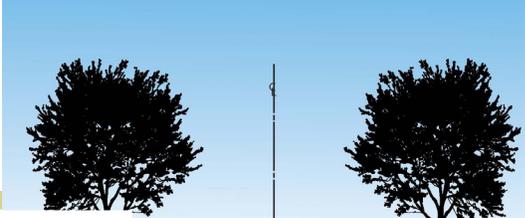
The Safe Routes To School Program is a national movement to make it safe, convenient and fun for children to bicycle and walk to school. In Michigan, the program is sponsored by the Michigan Fitness Foundation and has gained momentum over the past few years. Examples of projects and programs eligible for funding include sidewalks, traffic calming, crossing improvements, bicycle and pedestrian facilities, public awareness campaigns, traffic education and enforcement, etc. Schools must be registered and develop a Walking Audit in order to be eligible to apply. SR2S funding is 100 percent federal; no match is required. Projects must be constructed within 2 miles of the school. www.saferoutesmichigan.org

Bikes Belong

The Bikes Belong Coalition is sponsored by members of the American Bicycle Industry. Their mission is to put more people on bikes more often. The program funds projects in three categories: Facility, Education, and Capacity Building. Requests for funding can be up to \$10,000 for projects such as bike paths, trails, lanes, parking, and transit, and safe routes to school. Applications are accepted via email three times per year (April, August and November). More information can be found at www.bikesbelong.org.

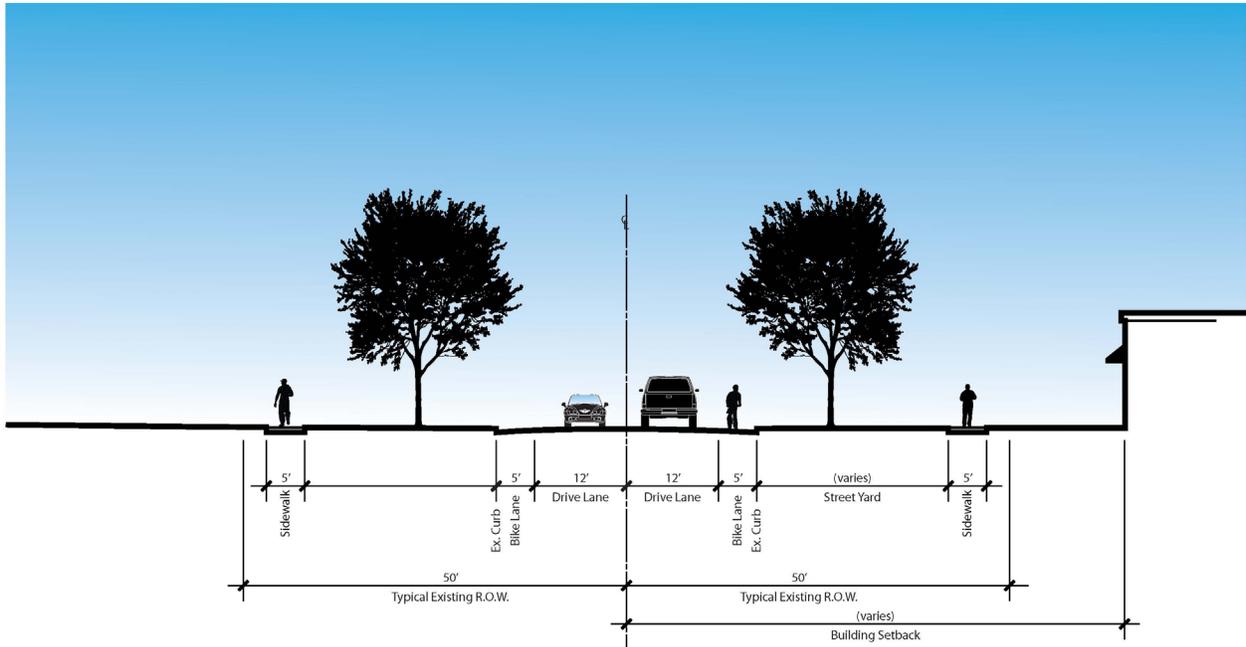
Foundations and Local Donations

In addition to on going grant programs, the City has also successfully secured funds from various donors and foundations in order to implement non-motorized improvements. Groups such as the Optimist Club, Lapeer Community Foundation, Saginaw Bay Watershed, Rotary Club, and local businesses can continue to be approached as potential partners .



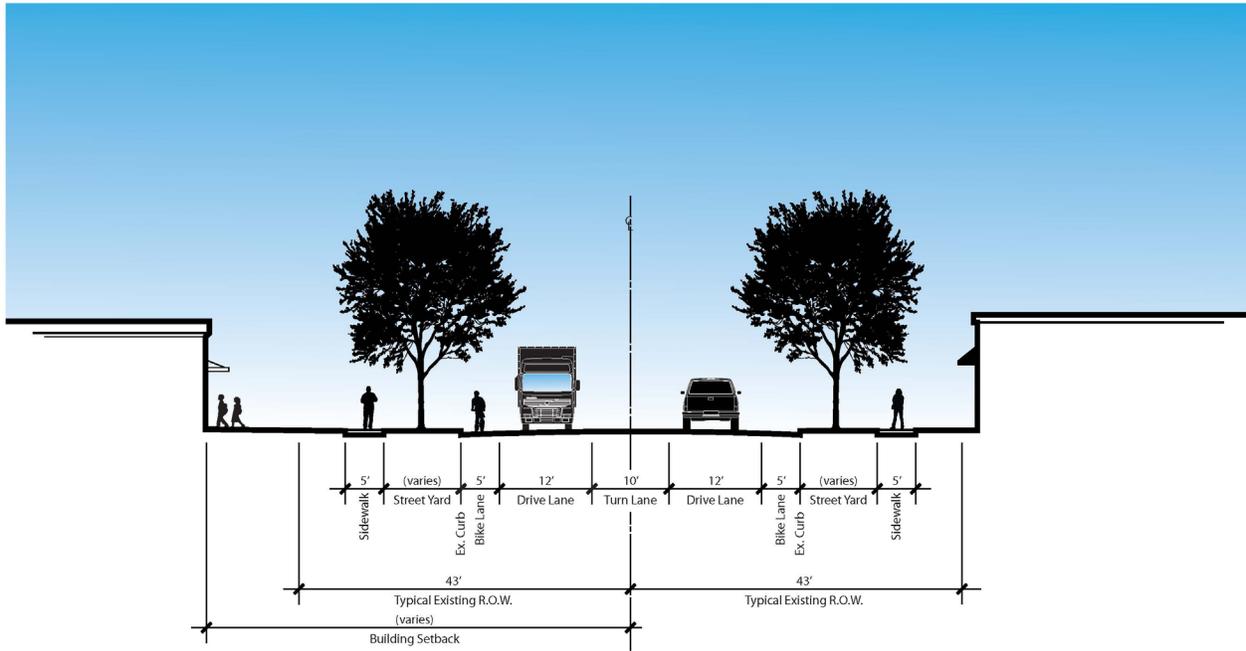
APPENDIX

Proposed Cross-Sections



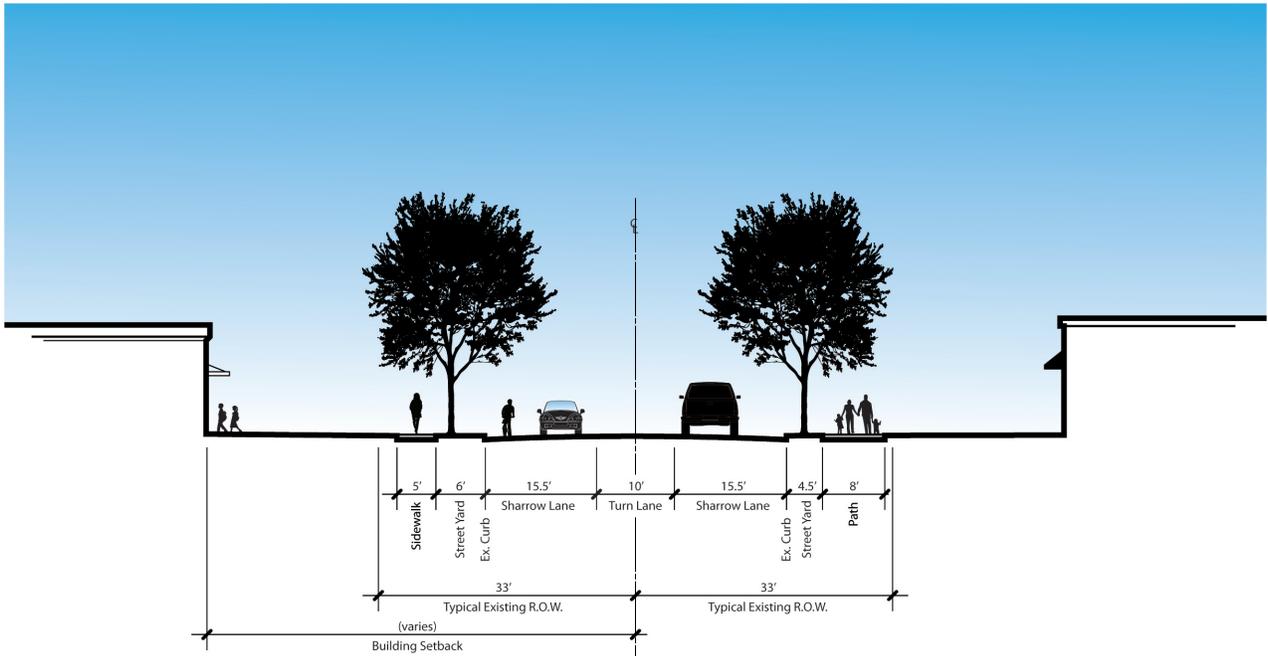
City of Lapeer - Non-Motorized Plan
Davison Road
Proposed Condition


 May 2011



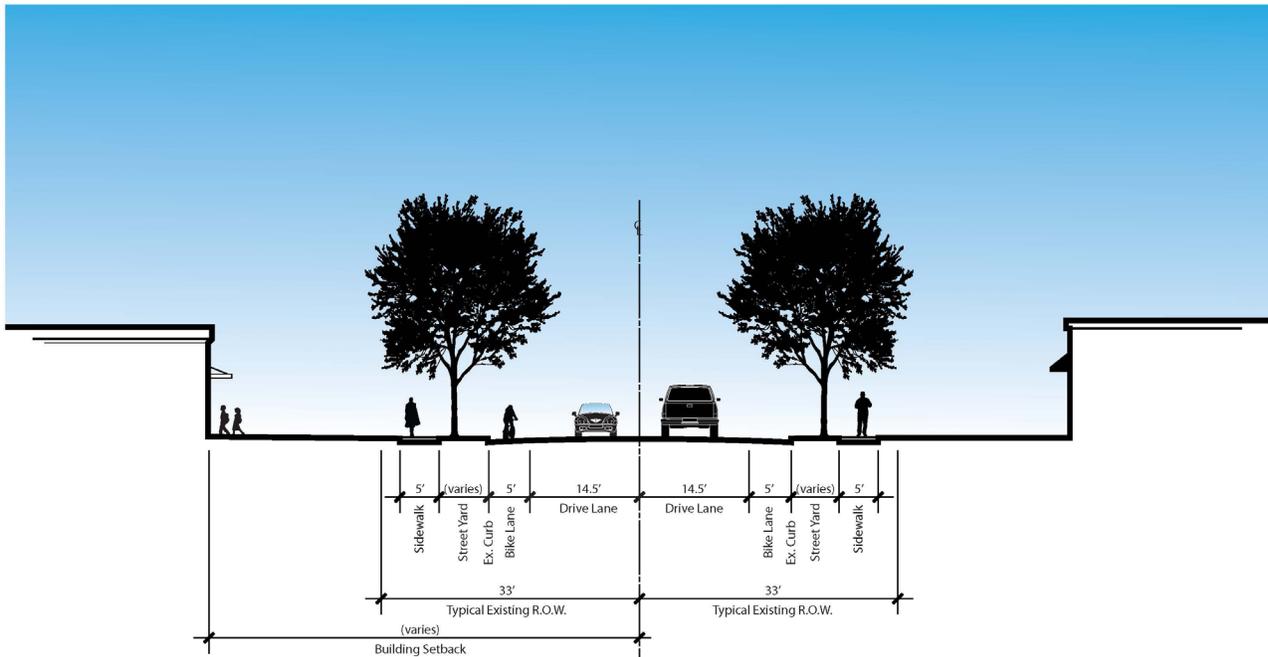
City of Lapeer - Non-Motorized Plan
Genesee Street
Proposed Condition


 May 2011



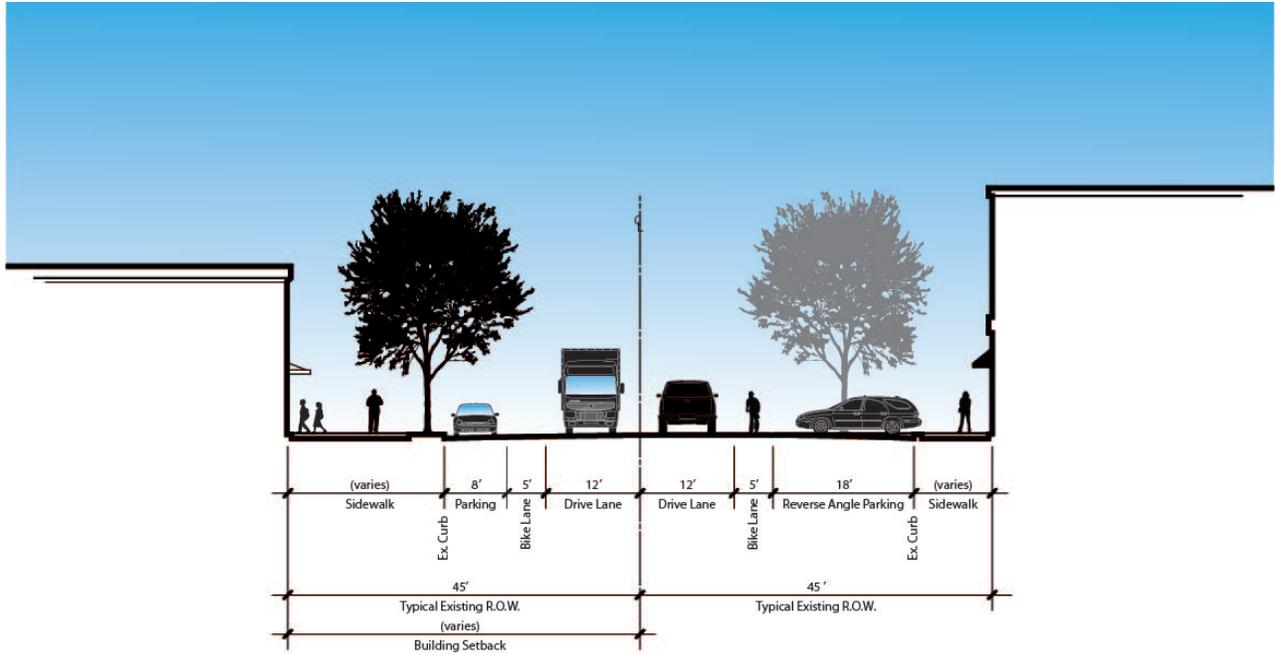
City of Lapeer - Non-Motorized Plan
McCormick Drive
Proposed Condition


 May 2011



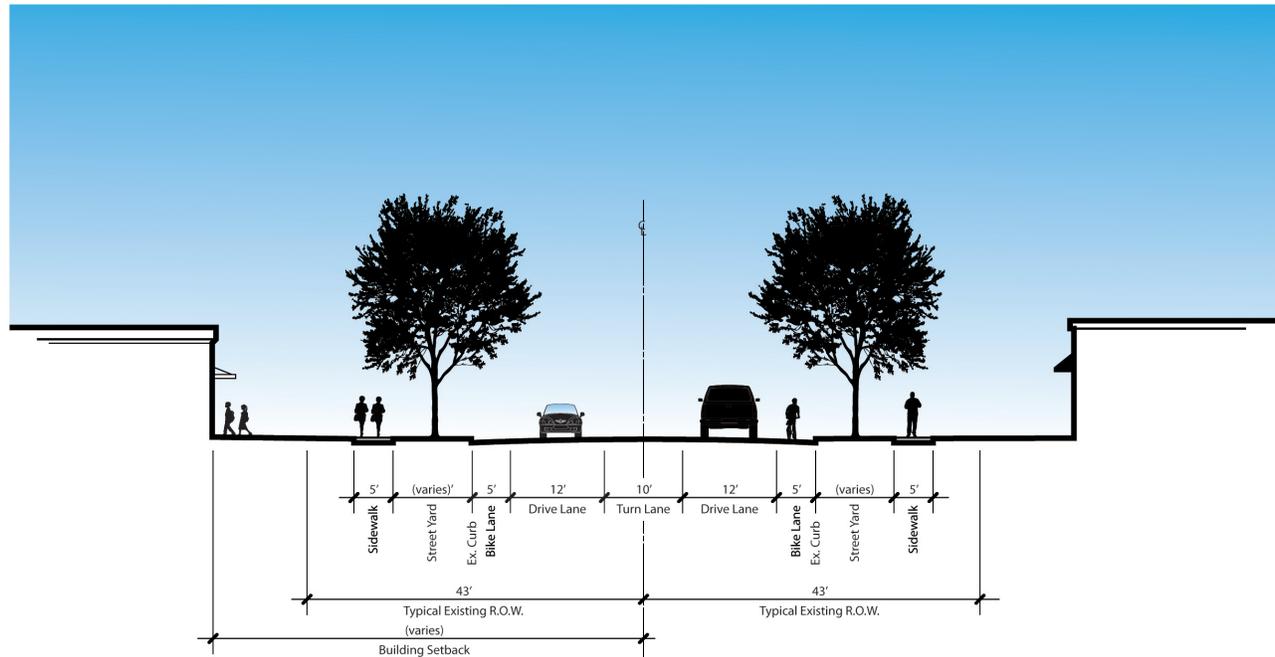
City of Lapeer - Non-Mortorized Plan
DeMille Road
Proposed Condition


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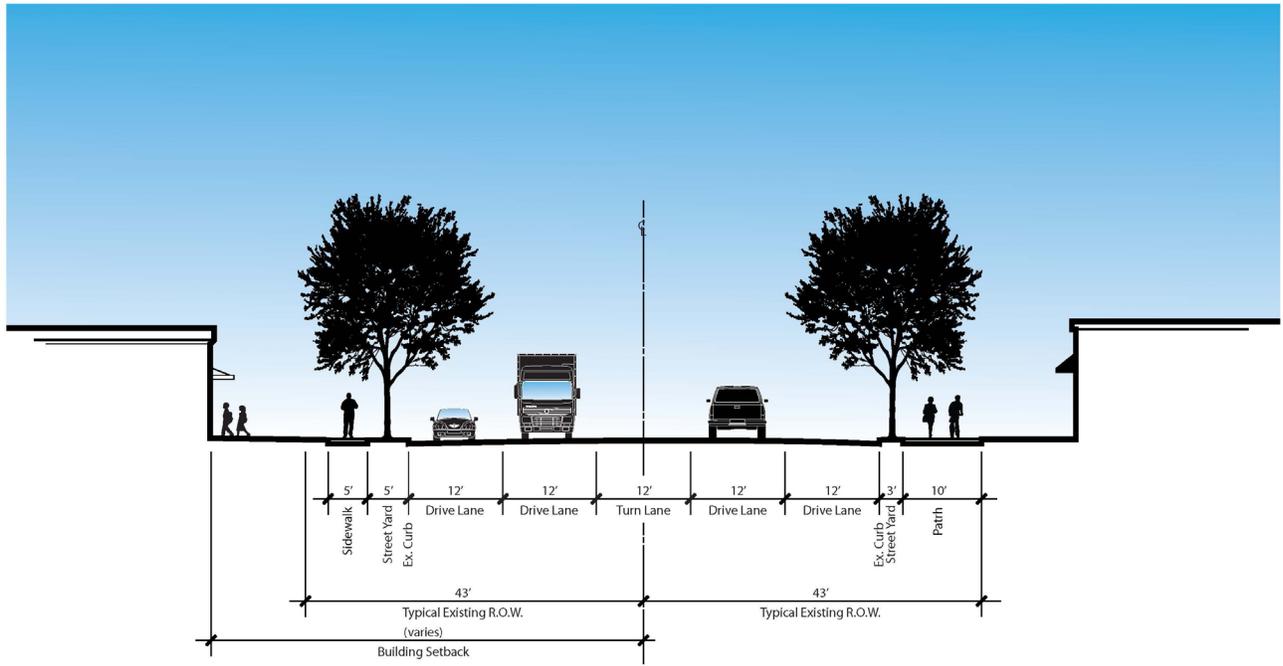
City of Lapeer - Non-Motorized Plan
Nepeassing Street
Proposed Condition


 November 2011



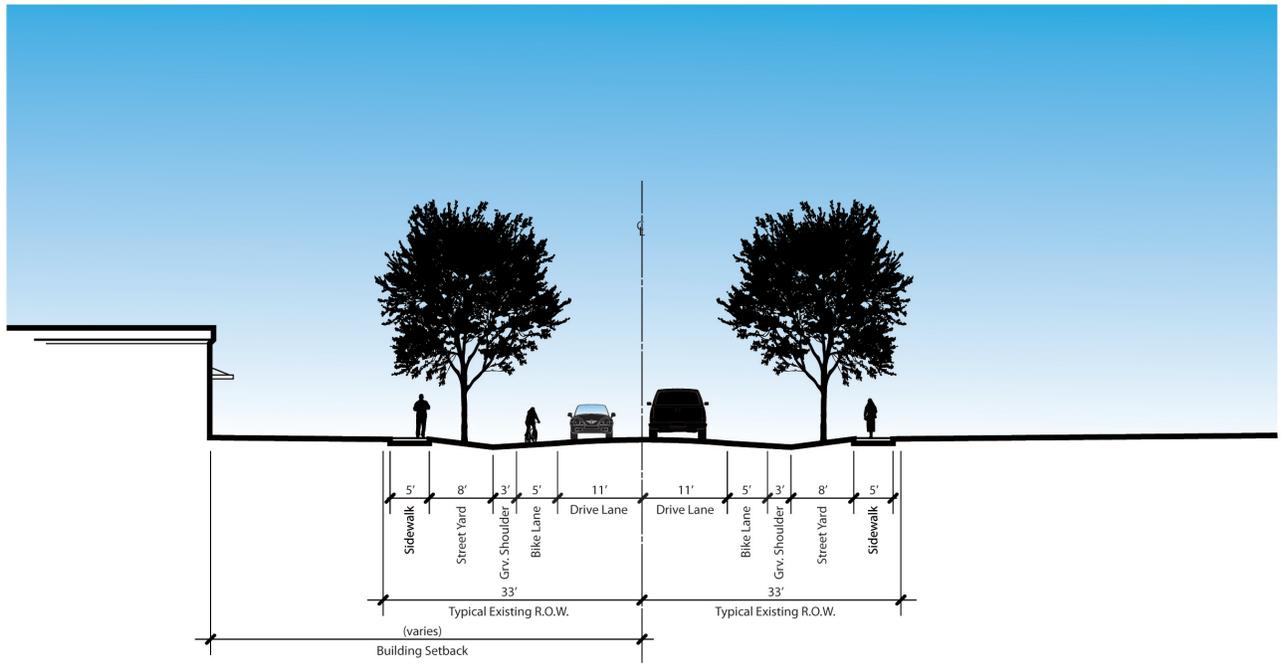
City of Lapeer - Non-Motorized Plan
North Main Street
Proposed Condition


 May 2011



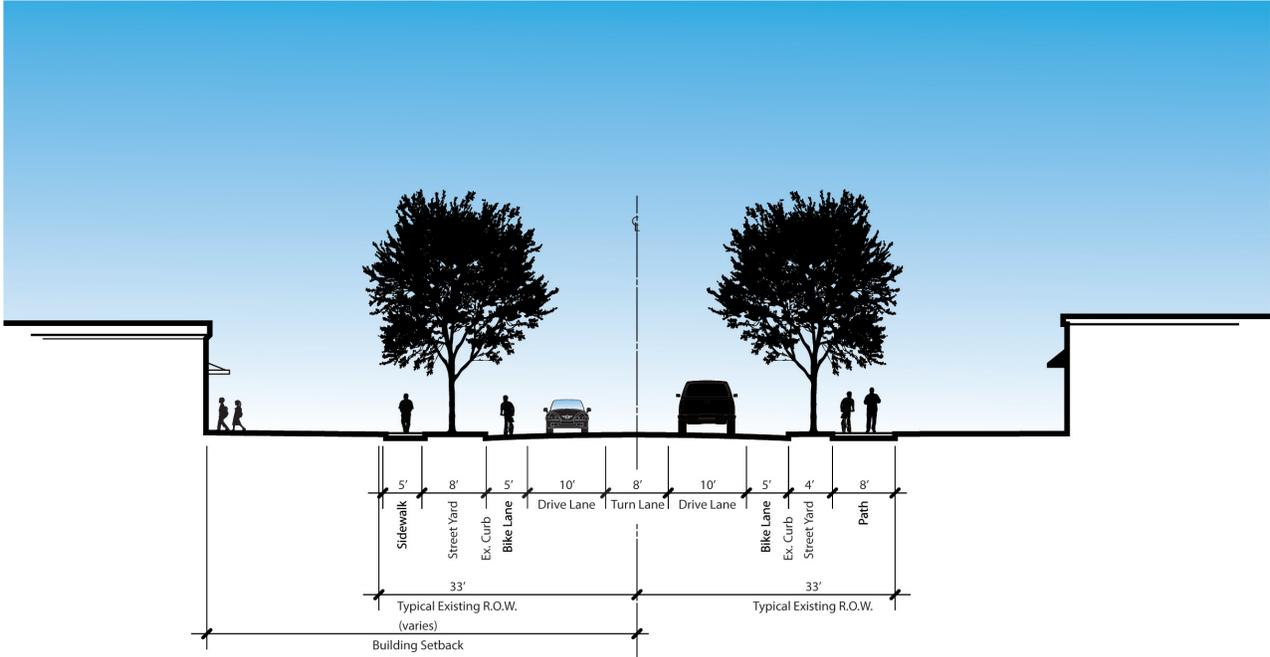
City of Lapeer - Non-Motorized Plan
South Main Street
Proposed Condition

WADETRIM
 livingLAB:
 February 2012



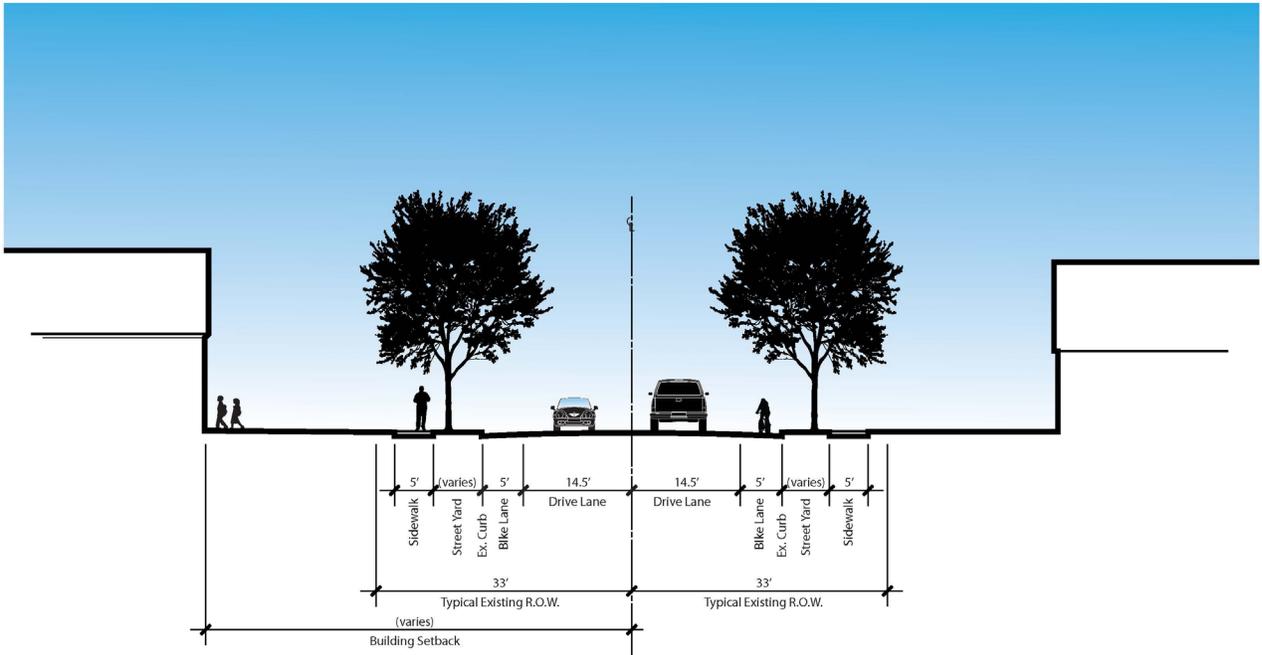
City of Lapeer - Non-Motorized Plan
North Saginaw
Proposed Condition

WADETRIM
 May 2011



City of Lapeer - Non-Motorized Plan
South Saginaw Street
Proposed Condition


 May 2011



City of Lapeer - Non-Motorized Plan
W. Oregon Road
Proposed Condition


 January 2011

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