Greater Mt. Pleasant Area Non-motorized Plan

Prepared by:

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Acknowledgements

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Isabella County Citizens and Community Members

All of those who contributed to the Non-Motorized Master Plan development process

Plan Funding

The Greater Mt. Pleasant Area Non-motorized Plan was funded by the Saginaw Chippewa Indian Tribe

Charter Township of Union

Isabella County, Michigan

RESOLUTION TO ADOPT THE GREATER MT PLEASANT AREA NON MOTORIZED PLAN

WHEREAS,
The Charter Township of Union has received a grant from the Saginaw Chippewa Indian Tribe in the sum of Fifty Thousand Dollars to produce an Area Wide Non Motorized Transportation Plan

WHEREAS,
The steering committee for the plan represents a diversity of interests and participants from the local units of government, agencies, educational institutions and citizens of the greater Mt Pleasant Area and Isabella County

WHEREAS,
The steering committee selected The Greenway Collaborative of Ann Arbor, a nationally recognized leader in Non Motorized Transportation Planning

WHEREAS,
The completed plan meets the goals of the steering committee, The Charter Township of Union Master Plan, and The Charter Township of Union Board Policy Manual Global Ends

NOW, THEREFORE, BE IT RESOLVED that
The Charter Township of Union Adopts the Greater Mt Pleasant Area Non Motorized Transportation Plan

The foregoing resolution offered by Board Member Lannen

Second offered by Board Member Dinse

Upon roll call vote the following voted "aye": Dinse, Gallinat, Lannen, Mikus, Stovak, Barker

"nay": Verwey

The Supervisor declared the resolution adopted.

Peter Gallinat, Clerk
Resolution # 2011-10-26

Contents

1. Introduction

The Greater Mt. Pleasant Area Non-motorized Transportation Plan presents a clear vision of how the City of Mt. Pleasant, Union Township, Central Michigan University and the Saginaw Chippewa Indian Tribe may improve their non-motorized connections as well as links to surrounding communities and regional trail resources in Isabella County. The plan looks at how these communities may transform their streets into outstanding attractive public spaces that are friendly to bicyclist, pedestrians and transit users while continuing to serve the needs of motorized traffic. This plan complements the goals of existing redevelopment, trail planning, energy efficiency, storm water mitigation, recreation, wayfinding and community enhancement efforts within the communities. Once implemented, the proposed improvements will help the Greater Mt. Pleasant Area continue to be an attractive place to live, work, get an education and play.

Helping to shape this plan, has been a dedicated group of elected officials, appointed officials, public employees and the general public. The results of an on-line survey and the input gathered at two public workshops guided the proposed non-motorized network as well as setting implementation priorities.

The Non-Motorized Master Plan recommendations will help establish a physical and cultural environment that supports and encourages safe, comfortable and convenient ways for pedestrians and bicyclists to travel throughout the city and into the surrounding communities. It is anticipated that the physical cultural changes will result in a greater number of individuals choosing walking and bicycling as their preferred mode of transportation for many local trips. These choices will in turn lead to healthier lifestyles, improved air and water quality, and a more energy efficient and sustainable transportation system.

The document is divided into eight main segments:

Goals and Objectives
Vision that guides the plan

Inventory & Analysis
Assesses the state of the existing pedestrian and bicycle facilities

Proposed Facilities
Covers the specific infrastructure improvements to the transportation system to establish a non-motorized transportation network

Implementation Plan
Provides the phasing, costs and funding recommendations for near, mid and long term improvements to the non-motorized network

Planning & Zoning Review and Recommendations
Describes how planning and zoning codes can be structured to support a bicycle and pedestrian friendly community

Proposed Policies & Programs
Describes the support system necessary for a successful pedestrian and bicycle network

Education & Marketing
Provides ways to promote non-motorized transportation while providing information on safe bicycling and walking

Design Guidelines
Provides a background on non-motorized transportation issues and defines current best practices for bicycle and pedestrian facility design

1.1 Why Walking and Bicycling Are Important

A comprehensive non-motorized transportation system based on best practices is of paramount importance to the health, safety and general welfare of the citizens of the Greater Mt. Pleasant Area. The benefits of a comprehensive non-motorized transportation system extend beyond the direct benefits to the users of the system to the public as a whole. A well-implemented non-motorized transportation system will reap rewards by:

- Providing viable transportation alternatives for individuals who are capable of independent travel yet do not hold a driver's license or have access to a motor vehicle at all times.
- Improving safety, especially for the young and old who are at most risk due to their dependence on non-motorized facilities and their physical abilities.
- Improving access for the 20% of all Americans who have some type of disability and the 10% of all Americans who have a serious disability.[1]
- Improving the economic viability of a community by making it an attractive place to locate a business while simultaneously reducing public and private health care costs associated with inactivity.
- Encouraging healthy lifestyles by promoting active living.
- Reducing the water, air, and noise pollution associated with automobile use by shifting local trips from automobiles to walking or bicycling.
- Improving the aesthetics of the roadway and community by adding landscaping and medians that improve the pedestrian environment and safety.
- Providing more transportation choices that respect an individual's religious beliefs, environmental ethic, and/or uneasiness in operating a vehicle.
- Reducing the need for parking spaces.
- Creating a stronger social fabric by fostering the personal interaction that takes place while on foot or on bicycle.
- Reducing dependence on and use of fossil fuel with the resulting positive impact on climate change.

Improvements to non-motorized facilities touch all individuals directly, as almost all trips begin and end as a pedestrian.

Where We Are Now

There is little question that the most significant influence on the design of American communities is the automobile. About eighty percent of America has been built in the last fifty years.[2] During those years, the design of everything from homes, neighborhoods, shopping center, schools, workplaces and churches have been profoundly shaped around the car. This is true not only for the site-specific placement of driveways and parking lots, but also the distribution and mixing of land uses.

[1] Disability Status: 2000 - Census 2000 Brief.
[2] Jim Kunstler, *Geography of Nowhere.*

Accommodations to the automobile came not simply as the logical outgrowth of an additional mode of travel, but often at the expense of bicycling, walking and transit. Increases in automobile volumes and speeds have made sharing a roadway uncomfortable and often unsafe. Also, the need for additional rights-of-way to accommodate added vehicle lanes has regularly come at the expense of space typically set aside for sidewalks.

The pattern of public investment in motor vehicle transportation above all other modes has resulted in an overall reduction in transportation options for the average citizen. Communities are now weighing the convenience of the automobile against the consequences of its use at current levels and trying to strike a balance. The direct and indirect consequences include:

- Current guidelines for exercise call for one hour of activity daily. Physical inactivity is a primary factor in at least 200,000 deaths annually and 25% of all chronic disease-related deaths.[3] Forty percent of adults do not participate in any leisure time physical activity;[4] of those who do participate in exercise, 66.1% use their local streets.[5]
- About 40% of all trips are estimated to be less than two miles which is an easy distance for walking or bicycling, provided appropriate facilities are available. In practice, automobiles are used for 76% of all trips under one mile and 91% of all trips between one and two miles.[6]
- While money for bicycle and pedestrian projects has increased dramatically since 1989 with the passage of federal transportation programs known as ISTEA and TEA-21, in Michigan, only $0.16 per person is spent on pedestrian facilities vs. $58.49 per person on highway projects annually.[7]
- The nation is experiencing an obesity epidemic; 61% of Michigan's adults are considered overweight, which is the second highest rate in the country.[8] While there may be other significant factors, the increase in obesity nationally over the past fifteen years corresponds with an increase in the number of miles driven and a decrease in the number of trips made by walking and bicycling. This epidemic is estimated to result in $22 billion a year in health care and personal expenses.[9]
- In southeast Michigan, people spend on average 18.8% of their income on transportation, second only to shelter at 19.1%.[10]
- The number of children that walk or bike to school has dropped 37% over the last twenty years.[11] The increase in traffic caused by parents taking their children to and from school and other activities has been estimated to be 20 to 25% of morning traffic. Half of the children hit by cars while walking or bicycling to school were hit by parents of other children.[12] Today only about 8% of children walk to school.

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[3] Ibid.
[4] W.C. Wilkinson, et. al. Increasing Physical Activity through Community Design: A Guide for Public Health Practitioners. Washington: National Center for Bicycling and Walking. May 2002.
[5] Brownson, Dr. Ross, et.al. "Environmental and policy determinants of physical activity in the United States", American Journal of Public Health, Dec 2001.
[6] Chicago Department of Transportation
[7] Surface transportation Policy Project, "Mean Streets 2000", 2000.
[8] Michigan Governor's Council on Physical Fitness, Health, and Sports.
[9] Ed Pavelka, "Can Commuting Help You Lose Weight?", League of American Bicyclists, Summer 2002.
[10] Surface Transportation Policy Project, "Driven to Spend", 2000.
[11] W.C. Wilkinson, et. al. Increasing Physical Activity through Community Design: A Guide for Public Health Practitioners. Washington: National Center for Bicycling and Walking. May 2002.
[12] Michigan Governor's Council on Physical Fitness, Health, and Sports.

- The result of automobile emissions on public health is just beginning to be understood. In Atlanta during the 1996 Olympics, there was a 22.5% reduction in automobile use; during the same period of time admissions to hospitals due to asthma decreased by 41.6%.[13]In Michigan, non-motorized trips account for about 7% of all trips, but make up about 12% of all traffic fatalities and severe injuries. Non-motorized modes are not inherently dangerous; communities have been able to significantly increase the non-motorized mode-share while simultaneously decreasing the number of non-motorized crashes. Emerging research is showing the single most important factor for improving bicycle and pedestrian safety is increasing the number of bicyclists and pedestrians.

The Intention of This Plan

The purpose of this plan is to provide a general background on the issues of non-motorized transportation as well as to present a proposal on how to address the issues through policies, programs, and design guidelines for facility improvements. This is not intended to be a replacement for the *AASHTO Guide for the Development of Bicycle Facilities*, *AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities, AASHTO Guide for Achieving Flexibility in Highway Design,* USDOT's *Designing Sidewalks and Trails for Access – Part II, Best Practices Design Guide*, *Accessible Public Right-of-Way, Planning and Designing for Alternations,* the *Revised Draft Guidelines for Accessible Public Rights-of-Way*, MUTCD, MMUTCD or any other applicable federal, state, or local guidelines. Rather, it is intended as a synthesis of key aspects of those documents to provide an interpretation on how they may be applied in typical situations in the Greater Mt. Pleasant Area. Given the evolving nature of non-motorized transportation planning, these guidelines should be periodically reevaluated to determine their appropriateness.

The specific facility recommendations within this plan represent a Master Plan level evaluation of the suitability of the proposed facilities for the existing conditions. Prior to proceeding with any of the recommendations in this report though, a more detailed corridor level assessment or traffic study should be done in order to fully investigate the appropriateness of the proposed roadway modifications and/or proposed bicycle or pedestrian facilities.

[13] Friedman, Michael S., et. al. Impact of Changes in Transportation and Commuting Behaviors During the 1996 Summer Olympic Games in Atlanta on Air Quality and Childhood Asthma, Journal of the American Medical association, February 21, 2001.

1.2 Glossary of Terms

Within this document there are a number of terms that may be unfamiliar to many people. The following is a brief glossary of some of the transportation terms that are found in this document:

AASHTO – American Association of State Highway & Transportation Officials.

Bicycle Quality/Level of Service (Bike Q/LOS) – a model for evaluating the perceived safety and comfort of bicycling in a roadway based on conditions within the road (not surrounding land uses) expressed as a letter grade with "A" being best and "F" being worst.

Bicycle Boulevard - a low-volume and low-speed street that has been optimized for bicycle travel through treatments such as traffic calming and traffic reduction; signage and pavement markings; and intersection crossing treatments.

Bike Lane – a portion of the roadway designated for bicycle use. Pavement striping and markings typically accompanied with signage are used to delineate the lane.

Bike Route – a designation that can be applied to any type of bicycle facility. It is intended as an aid to help bicyclists find their way to a destination where the route is not obvious.

Bulb-outs – see Curb Extensions.

Clear Zones – area free of obstructions around roads, Shared-use Paths, and Walkways.

Clearance Interval – the flashing "Don't Walk" or flashing "Red Hand" phase of pedestrian signals. It indicates to pedestrians that they should not begin to cross the street. A correctly timed clearance interval allows a pedestrian who entered the crosswalk during the "Walk" phase to finish crossing the street at an unhurried pace.

Complete Street – streets that are planned, designed, operated and maintained such that all users may safely, comfortably and conveniently move along and across streets throughout a community.

Crossing Islands – a raised median within a roadway typically set between opposing directions of traffic that permits pedestrians to cross the roadway in two stages. A crossing island may be located at signalized intersections or at an unsignalized mid-block crosswalk. These are also known as **Refuge Islands.**

Crosswalk – the area of a roadway that connects sidewalks on either side at an intersection of roads (whether marked or not marked) and other locations distinctly indicated for pedestrian crossings by pavement markings.

Curb Extensions – extending the curb into the roadway in order to minimize pedestrian crossing distance and to improve visibility when on-street parking is present, also known as **Bulb-outs**.

Dispersed Crossing – where pedestrians typically cross the road at numerous points along the roadway, rather than at an officially marked crosswalk.

E-Bike – a bicycle that is propelled by an electric motor and/or peddling.

Fines – finely crushed gravel 3/8" or smaller. The fines may be loosely applied or bound together with a stabilizing agent.

Inside Lane – the travel lane adjacent to the center of the road or the Center Turn Lane.

Ladder Style Crosswalk – a special emphasis crosswalk marking where 1' to 2' wide white pavement markings are placed perpendicular to the direction of a crosswalk to clearly identify the crosswalk.

Lateral Separation – horizontal distance separating one use from another (pedestrians from cars, for example) or motor vehicles from a fixed obstruction such as a tree.

Leading Pedestrian Interval –a traffic signal phasing approach where the pedestrian "Walk" phase precedes the green light going in the same direction by generally 4 to 5 seconds.

Level of Service (LOS) – a measurement of the motor vehicle flow of a roadway expressed by a letter grade with "A" being best or free flowing and "F" being worst or forced flow/heavily congested. Also see Bicycle Level of Service and Pedestrian Level of Service.

Long-term Plan – reflects the vision of the completed non-motorized system. Some improvements may require the reconstruction of existing roadways, the acquisition of new right-of-way, or significant capital investments.

Mid-block Crossings – locations that have been identified based on land uses, bus stop locations and the difficulty of crossing the street as probable candidates for Mid-block Crosswalks. Additional studies will need to be completed for each location to determine the ultimate suitability as a crosswalk location and appropriate solution to address the demand to cross the road.

Mid-block Crosswalk – a crosswalk where motorized vehicles are not controlled by a traffic signal or stop sign. At these locations, pedestrians wait for a gap in traffic to cross the street, motorists are required to yield to a pedestrian who is in the crosswalk (but not if the pedestrian is on the side of the road waiting to cross).

MMUTCD – Michigan Manual of Uniform Traffic Control Devices. This document is based on the National Manual of Uniform Traffic Control Devices (MUTCD). It specifics how signs, pavement markings and traffic signals are to be used. The current version is the 2005 MMUTCD. It was adopted on August 15, 2005 and is based on the 2003 National MUTCD. In 2009 a new National MUTCD was adopted, the state has two years to adopt the national manual. Typically, there are only minor divergences between the two manuals due to specifics in Michigan's traffic laws.

Mode-share / Mode split – the percent of trips for a particular mode of transportation relative to all trips. A mode-share / mode split may be for a particular type of trip such as home-to-work.

Mode – distinct types of transportation (cars, bicycles and pedestrians are all different modes of travel).

MVC – Michigan Vehicle Code, a state law addressing the operation of motor vehicles and other modes of transportation.

Near-term Opportunities –improvements that may generally be done with minimal changes to existing roadway infrastructure. They include road re-striping projects, paved shoulders, new sidewalks and crossing islands. In general, existing curbs and drainage structures are not changed.

Neighborhood Connector – a route that primarily utilizes residential streets and short connecting pathways that link destinations such as parks, schools and **Shared Use Paths**. Neighborhood Connectors may contain the characteristics of a **Bicycle Boulevard** but, in addition, provide accommodations for pedestrians.

Out-of-Direction Travel – travel in an out-of-the-way, undesirable direction.

Outside Lane – the travel lane closest to the side of the road.

Off-road Trail – see Shared Use Path

Pedestrian Desire Lines – preferred pedestrian direction of travel.

Pedestrian Hybrid Beacon – also known as a HAWK signal, is a beacon used to help pedestrians cross mid-block by stopping motorized traffic.

Pedestrian Quality/Level of Service (Ped. Q/LOS) – a model for evaluating the perceived safety and comfort of the pedestrian experience based on conditions within the road ROW (not surrounding land uses) expressed as a letter grade with "A" being best and "F" being worst.

Rectangular Rapid Flash Beacons – are high intensity alternating LED flashers that are paired with standard crosswalk signs. The LED flashers are activated when a pedestrian or bicyclists is crossing the road to draw motorists attention to the crosswalk at the time it is being used.

Refuge Islands – see Crossing Islands.

Roundabouts – yield-based circular intersections that permit continuous vehicle travel movement.

Shared Roadway –bicycles and vehicles share the roadway without any portion of the road specifically designated for the bicycle use. Shared Roadways may have certain undesignated accommodations for bicyclists such as wide lanes, paved shoulders, and/or low speeds. These routes may also be signed and include pavement markings such as Shared-Lane Markings.

Shared Lane Markings – a pavement marking consisting of a bike symbol with a double chevron above, also known as "sharrows". These pavement markings are used for on-road bicycle facilities where the right-of-way is too narrow for designated bike lanes. The shared lane markings alerts cars to take caution and allow cyclist to safely travel in these lanes when striping is not possible. They are often used in conjunction with signage.

Shared Use Path – a wide pathway that is separate from a roadway by an open unpaved space or barrier or located completely away from a roadway. A Shared Use Path is shared by bicyclists and pedestrians. There are numerous sub-types of Shared Use Paths including Sidewalk Bikeways that have unique characteristics and issues. An example of a Shared Use Path would be the I-275 Metro Trail.

Shy Distance – the distance that pedestrians, bicyclists and motorists naturally keep between themselves and a vertical obstruction such as a wall or curb.

Sidepath – see **Roadside Pathway**

Roadside Pathway – a specific type of Shared Use Path that parallels a roadway generally within the road right-of-way. This is also known as a **Sidepath**.

Signalized Crosswalk – a crosswalk where motor vehicle and pedestrian movements are controlled by traffic signals. These are most frequently a part of a signalized roadway intersection but a signal may be installed solely to facilitate pedestrian crossings.

Speed Table – raised area across the road with a flat top to slow traffic oftn used in conjunction with a crosswalk.

Splitter Islands – crossing islands leading up to roundabouts that offer a haven for pedestrians and that guide and slow the flow of traffic. They may also be used at intersections in place of a turning lane.

UTC – Uniform Traffic Code, is a set of laws that can be adopted by municipalities to become local law that address the operation of motor vehicles and other modes of transportation. The UTC is a complementary set of laws to the MVC.

Yield Lines – a row of triangle shaped pavement markings placed on a roadway to signal to vehicles the appropriate place to yield right-of-way. This is a new pavement marking that is used in conjunction with the new "Yield to Pedestrians Here" sign in advance of marked crosswalks.

2. Project Goals and Objectives

The following vision, goals and objectives were developed to guide the development of the master plan. They evolved through an extensive public involvement process that began with a web survey that was completed by 548 people. Participants were asked to individually list their top three desired project outcomes. From this visioning process the project team found that the desired "outcomes" of the plan fell into four categories:

- Non-motorized Connectivity
- Community Health
- Pedestrian and Bicycle Safety
- Pedestrian and Bicycle Friendly Community

Using the survey input as a guide, the project team developed goals and objectives for the plan that would deliver these outcomes. The vision, goals and objectives were then presented at the public workshop and the public was asked to indicate their agreement or disagreement and offer modifications to improve them. Public input was incorporated as appropriate and the following vision, goals and objectives resulted.

Topics:

2.1 Purpose of the Plan and Community Vision

The purpose of the plan is to identify the non-motorized network and the support systems necessary for safe and convenient non-motorized travel throughout the Greater Mt. Pleasant Area and Isabella County. As the network and systems are implemented, it is envisioned that this will result in more people freely choosing to walk and bicycle.

It is further envisioned that this will in turn lead to a healthier and more socially engaged community where walking and bicycling is a natural choice because there are easy and convenient ways to get from one destination to another.

2.2 Goals & Objectives

In addition to a vision statement, there are four goals listed below. Each statement is a general representation of the top desired project outcomes from the web survey.

1. **Provide better non-motorized connectivity**
2. **Advance community health**
3. **Improve pedestrian and bicycle safety**
4. **Institute changes that lead to a pedestrian and bicycle friendly community**

Goal One: Provide better non-motorized connectivity

Objectives:

a) Provide non-motorized links between key destinations within the Greater Mt. Pleasant area (such as shopping centers, parks, schools, campuses, downtown, etc.)

b) Provide non-motorized connections between the Mt. Pleasant area and regional destinations (such as the Pere-Marquette Rail-Trail, Clair, Fred Meijer Hartland Trail, Deerfield Park etc.)

c) Provide a complete non-motorized network (including features such as sidewalks, bike lanes, bike routes, safe road crossings etc.)

d) Provide an implementation plan that addresses the phasing of the network in a realistic manner that takes cost and benefits into consideration

e) Provide appropriate identification and wayfinding signage for pedestrian and bicycle routes that link to key destinations in the Greater Mount Pleasant Area and Isabella County

Goal Two: Advance community health

Objectives:

a) Reduce automobile dependency

b) Reduce obesity due to physical inactivity

c) Provide more active recreation opportunities (such as off-road trails)

d) Increase the number of people walking and bicycling especially for daily transportation trips such as commuting and errands

e) Improve air quality (such as reducing CO2 emissions)

Goal Three: Improve bicycle and pedestrian safety

Objectives:

a) Reduce the number of bicycle and pedestrian crashes

b) Maintain non-motorized facilities such that they are safe to use in a cost effective manner

c) Improve the education of motorists in regards to pedestrian and bicyclist issues

d) Improve the education of pedestrians and bicyclists in regards to rules of the road, motorists concerns and safe travel

e) Improve the safety of pedestrians and bicyclists at existing busy road intersections

f) Provide safe options to cross the road between existing signalized intersections

g) Provide appropriate lighting along non-motorized routes

h) Utilize current best practices in the design of non-motorized facilities and update standard plans and details to incorporated best practices

Goal Four: Institute changes that lead to a bicycle and pedestrian friendly community

Objectives:

a) Establish family friendly non-motorized facilities (such as neighborhood routes to parks and schools)

b) Provide more bike parking and a range of bike parking options (such as downtown, shopping centers, including some that are covered and secured)

c) Create and distribute a guide map that shows pedestrian and bicycle facilities and recommended walking and biking routes

d) Enhance the sense of community through increased social interaction between non-motorized transportation users

e) Provide bike racks on buses

f) Improve the aesthetics of the area's transportation system (such as by adding street trees, decorative lighting, benches etc.)

g) Establish performance benchmarks and track progress in the implementation of facilities, programs and policies as well as non-motorized use and crashes

h) Participate in active transportation recognition programs to track community progress in comparison to peer communities

3. Inventory and Analysis

The major influences on non-motorized travel may be distilled down to two factors: the physical environment and the social environment. The influence of the physical environment is not limited to the existence of specific facilities such as bike lanes and sidewalks. Just as important as facilities is the underlying urban form. The majority of bicycle and pedestrian trips are for short distances. Even with first-rate facilities, large blocks of homogeneous land uses and spread-out development will inhibit many non-motorized trips.

The Greater Mt. Pleasant Area and Isabella County as a whole are at a key juncture. Mainstream media has begun to cover the health and economic implications of our land use and transportation infrastructure decisions. Community leaders and citizen activists are calling for a greater emphasis on non-motorized travel. Yet, there is a tremendous physical legacy to overcome.

Topics:

3.1 General Conditions

The Greater Mt. Pleasant Area is the primary activity center of Isabella County, a generally rural county which is primarily made up of farmland. The Greater Mt. Pleasant Area has been developed into three different context zones with distinct patterns. They include general urban, suburban and suburban fringe/transitional.

The general urban area consists of high density development where there is a grid street pattern and a nearly complete sidewalk system in place. Pedestrian and bicycle travel is generally easy and comfortable in these areas and there are often numerous route options. This area includes the downtown, campus and many of the commercial centers. This area generally has high pedestrian activity and easy access to transit. However, the primary commercial centers that are located along Mission Road and Pickard Street carry high volumes of automobile traffic and present a challenging environment for non-motorized users.

The suburban area consists of moderate density development, with a partially complete sidewalk system and some commercial centers. The area is made up of predominantly single-family housing units with retail and business located in shopping centers and office parks. Residential streets are generally curved and some terminate in cul-de-sacs. There are developments of high density apartment buildings in this area that are isolated from the commercial centers and campus from a non-motorized point of view. Few arterial and collector alternatives exist in these areas for bicyclists and pedestrians. Many times, bicyclists and pedestrians are directed into the corridors with high concentrations of vehicular traffic, limited paved shoulders and very few pedestrian facilities. This area is generally auto-dependent with limited transit and pedestrian activity.

The suburban fringe/transitional area consist generally of dispersed land uses that for the most part are scaled towards automobile use. They are predominantly low-density and single-family with residential housing typically along country roads or detached subdivisions surrounded by agricultural and park land. They are auto-dependent, without sidewalks and generally have few if any paved shoulders.

Overall, bicycle and pedestrian travel outside of neighborhood streets generally follows the primary road system with limited sidewalks and paved shoulders. Opportunities to cross the primary road system are limited with poor bicycle and pedestrian connectivity between neighborhoods that are located on opposite sides of the roadway. The artificial barriers of the railroad, expressways and the four and five-lane arterials also tend to fragment the community from a non-motorized standpoint. The result is a non-motorized environment that is generally not favorable to walking and bicycling for everyday transportation.

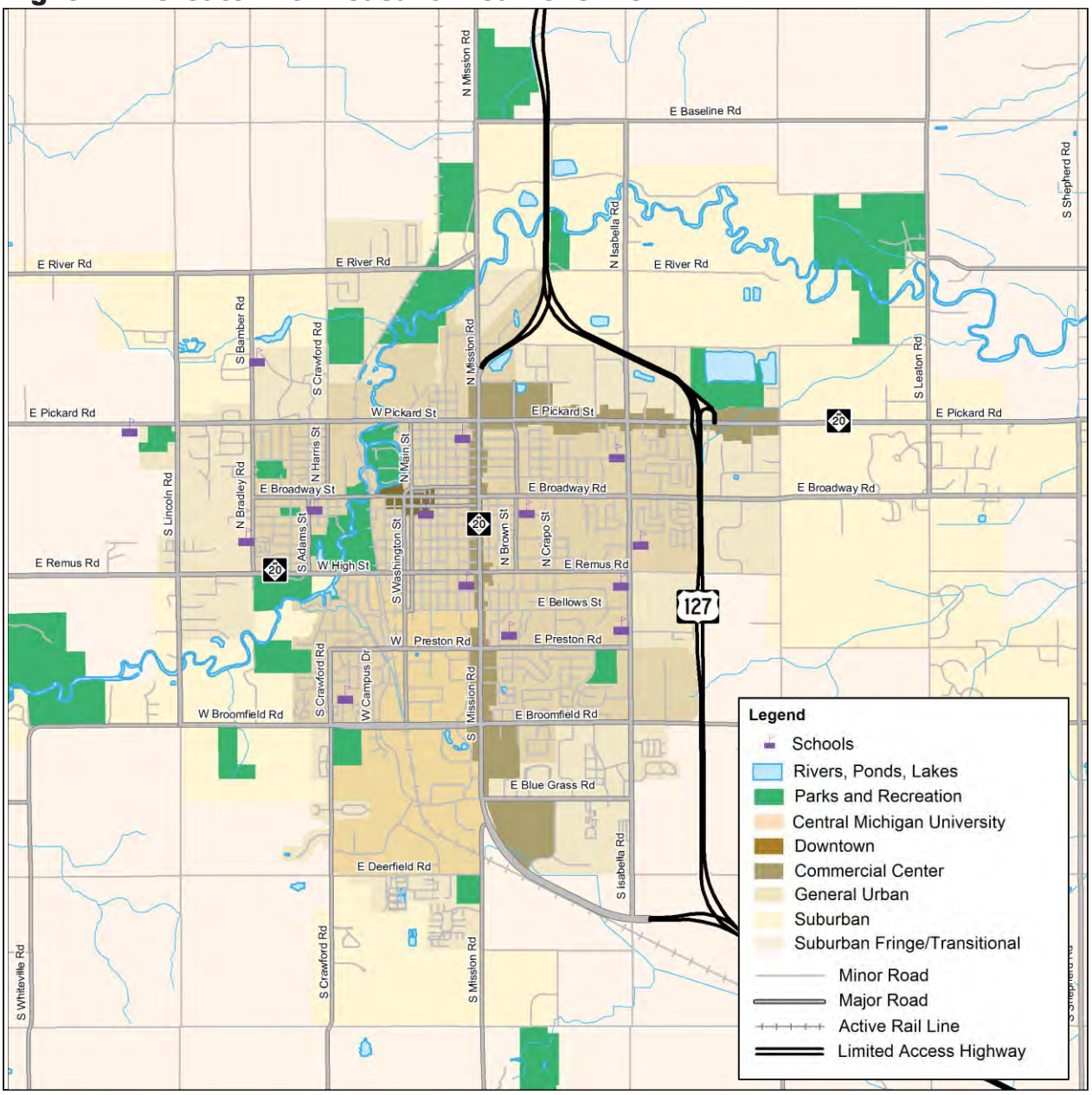
The following maps provide a general summary of the existing conditions in the Greater Mt. Pleasant Area and the Region:

- Fig. 3.1A. Greater Mt. Pleasant Area: Overview
- Fig. 3.1B. Greater Mt. Pleasant Area: Existing Non-motorized Facilities
- Fig. 3.1C. Greater Mt. Pleasant Area: Population Density 2010
- Fig. 3.1D. Greater Mt. Pleasant Area: Landscape Types
- Fig. 3.1E. Greater Mt. Pleasant Area: ICTC Bus Stops
- Fig. 3.1F. Greater Mt. Pleasant Area: No Bus Zone
- Fig. 3.1G. Greater Mt. Pleasant Area: Road Classification
- Fig. 3.1H. Greater Mt. Pleasant Area: Road Jurisdiction
- Fig. 3.1I. Greater Mt. Pleasant Area: Average Daily Traffic Volumes
- Fig. 3.1J. Greater Mt. Pleasant Area: Existing Road Cross Section
- Fig. 3.1K. Greater Mt. Pleasant Area: Block Size Analysis
- Fig. 3.1L. Greater Mt. Pleasant Area: Existing Bike and Pedestrian Activity Generators
- Fig. 3.1M. Greater Mt. Pleasant Area: Potential Bike and Pedestrian Activity Generators

The following maps provide a general summary of the existing conditions in Isabella County:

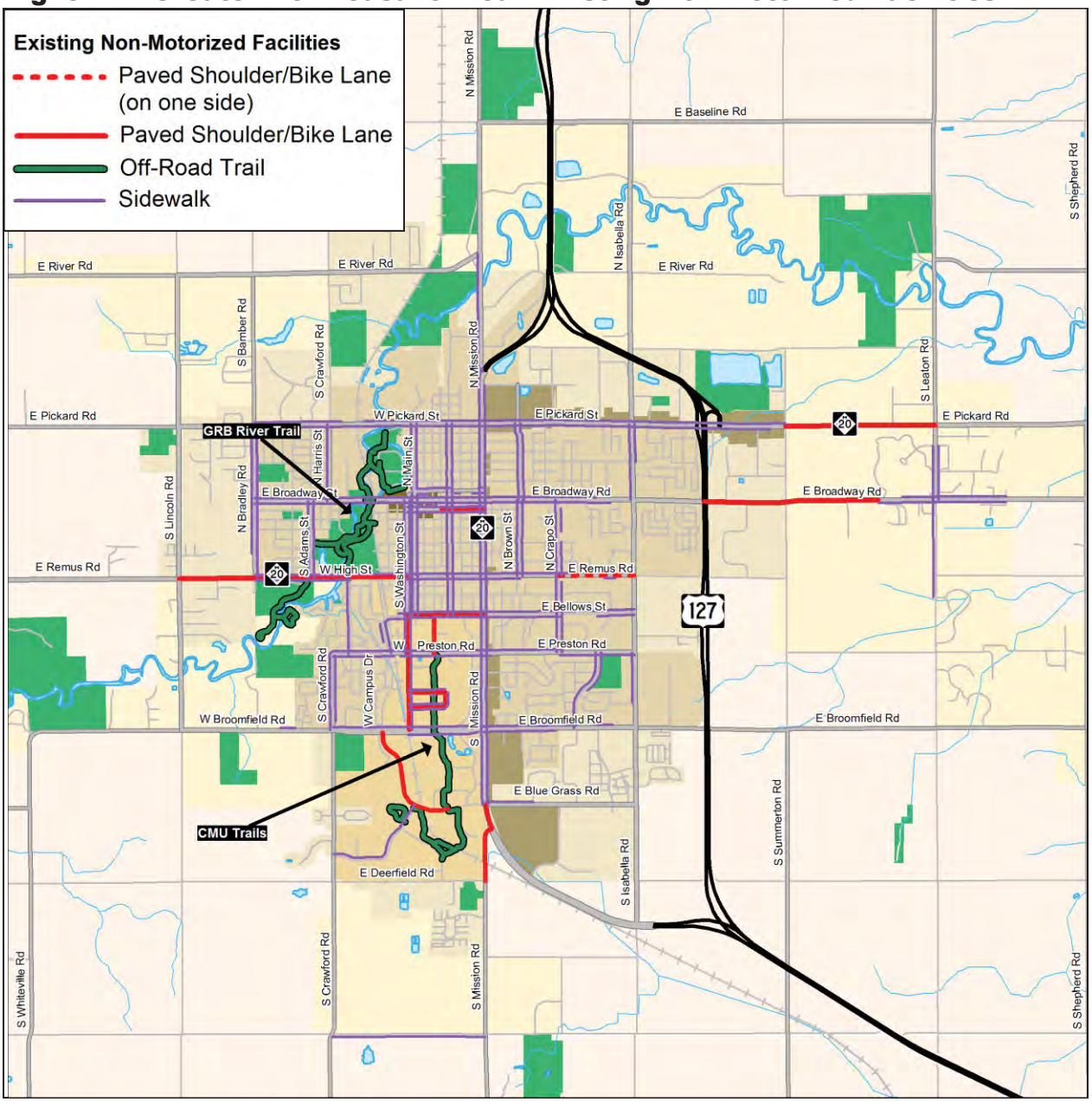
- Fig. 3.1N. Regional: Overview
- Fig. 3.1O. Regional: Landscape Types
- Fig. 3.1P. Regional: Road Classification
- Fig. 3.1Q. Regional: Road Jurisdiction
- Fig. 3.1R Regional: Average Daily Traffic Volumes
- Fig. 3.1S. Regional: Existing Bike and Pedestrian Activity Generators
- Fig. 3.1T. Regional: Potential Bike and Pedestrian Activity Generators

Fig. 3.1A. Greater Mt. Pleasant Area: Overview



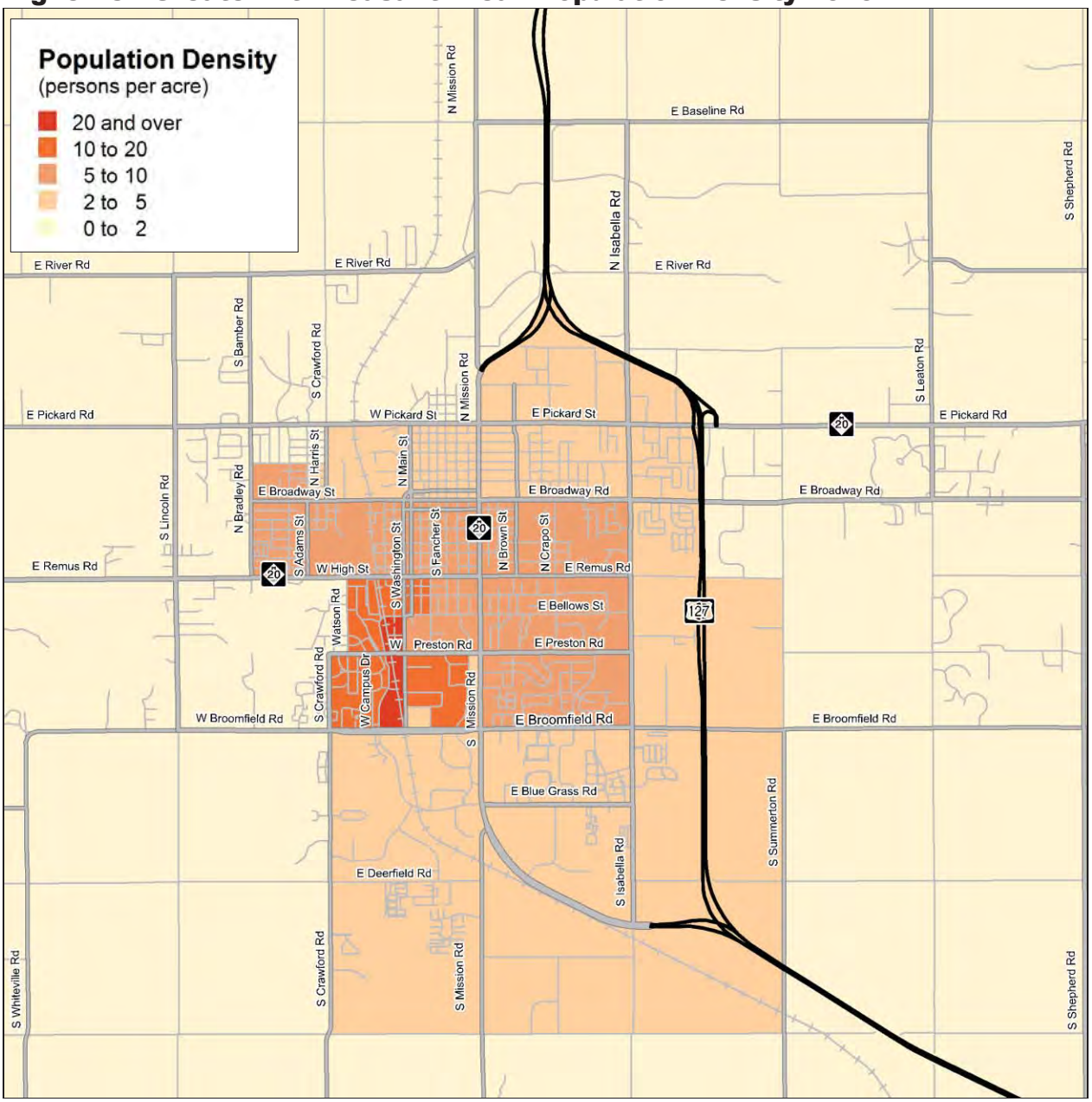
The Greater Mt. Pleasant Area includes the City of Mt. Pleasant, Union Township, Central Michigan University and the Saginaw Chippewa Indian Tribe.

Fig. 3.1B. Greater Mt. Pleasant Area: Existing Non-motorized Facilities



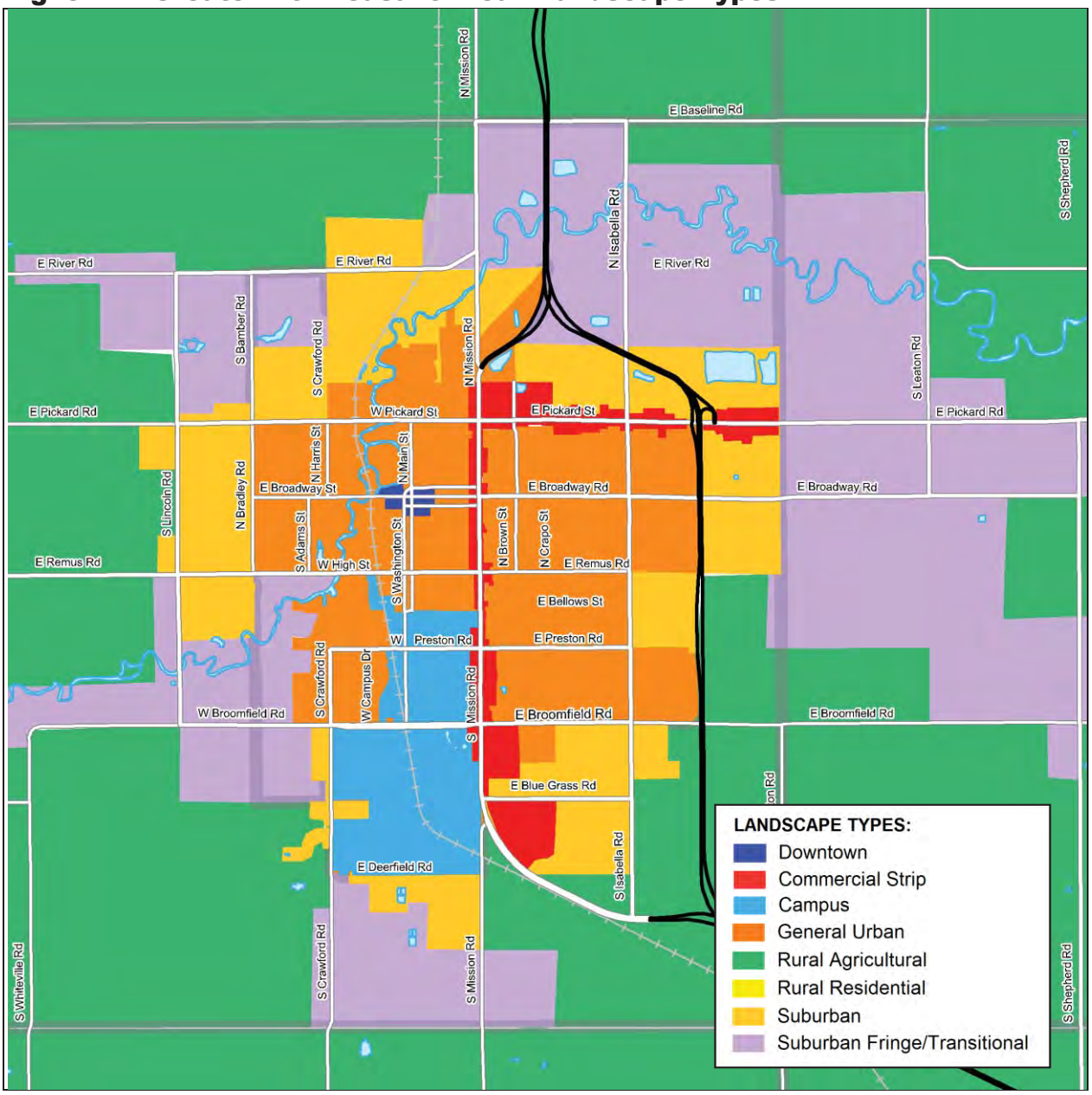
There are approximately 7 miles of existing bike lanes and 5 miles of existing off-road trails in the Greater Mt. Pleasant Area. The GRB RiverWalk is located along the Chippewa River and provides recreational opportunities in the parks.

Fig. 3.1C. Greater Mt. Pleasant Area: Population Density 2010



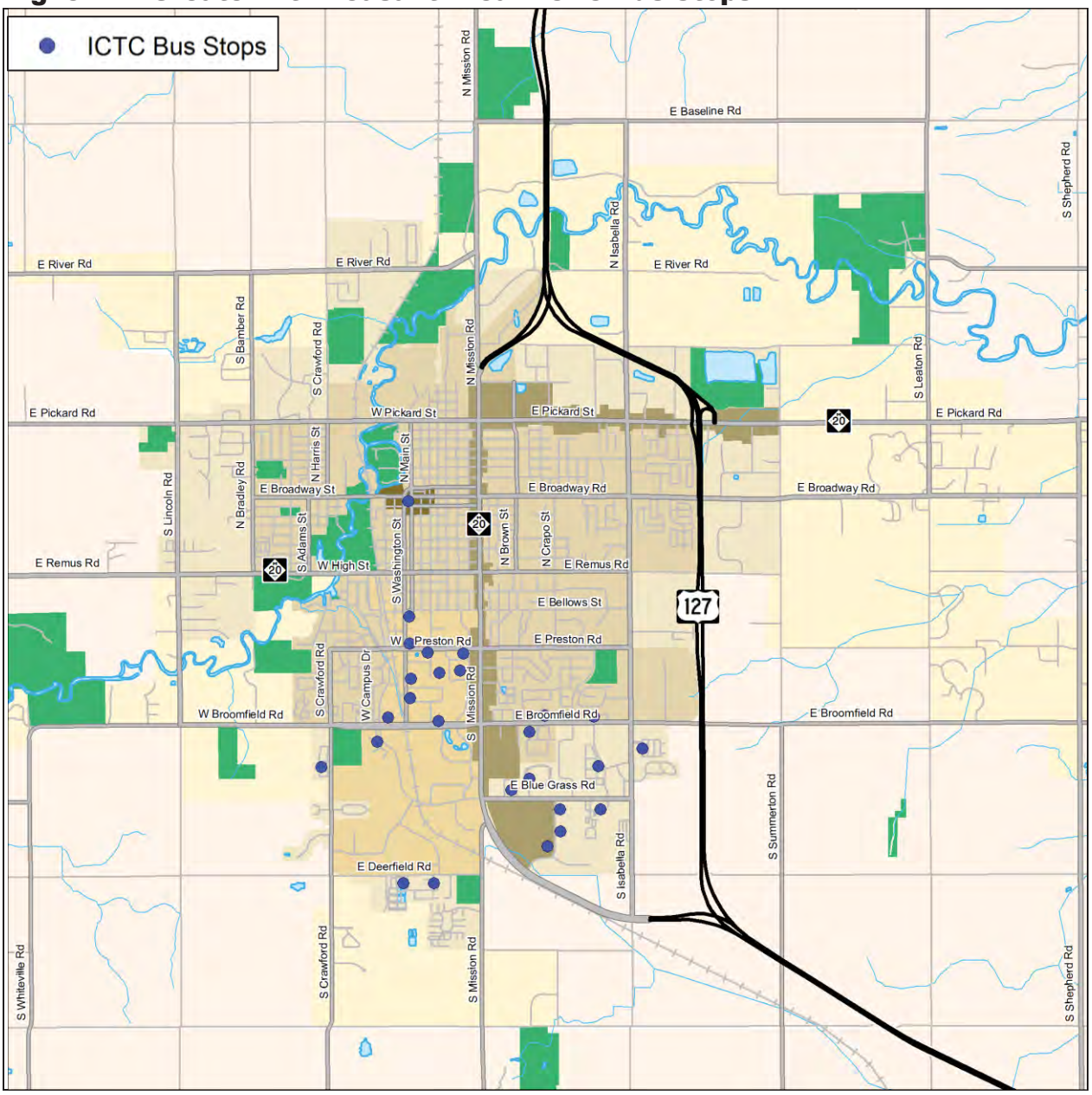
As of the 2010 census, the City of Mt. Pleasants population was 26,016 and Union Township population was 12,927. Central Michigan University has more than 20,000 students on its Mt. Pleasant Campus.

Fig. 3.1D. Greater Mt. Pleasant Area: Landscape Types



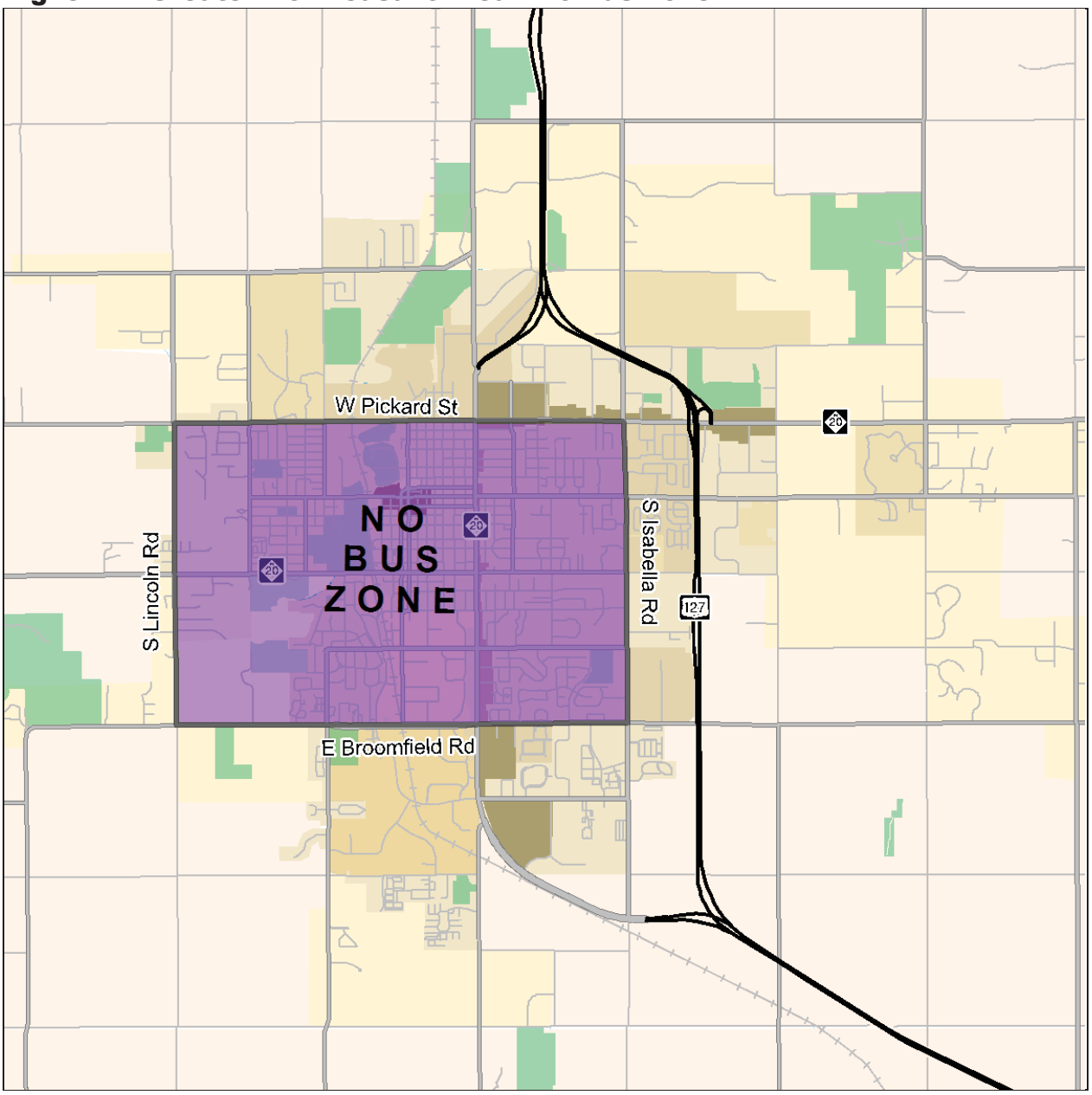
These landscape types where created based on the existing land use and character of the area. Different types of non-motorized facilities are appropriate for different types of landscapes.

Fig. 3.1E. Greater Mt. Pleasant Area: ICTC Bus Stops



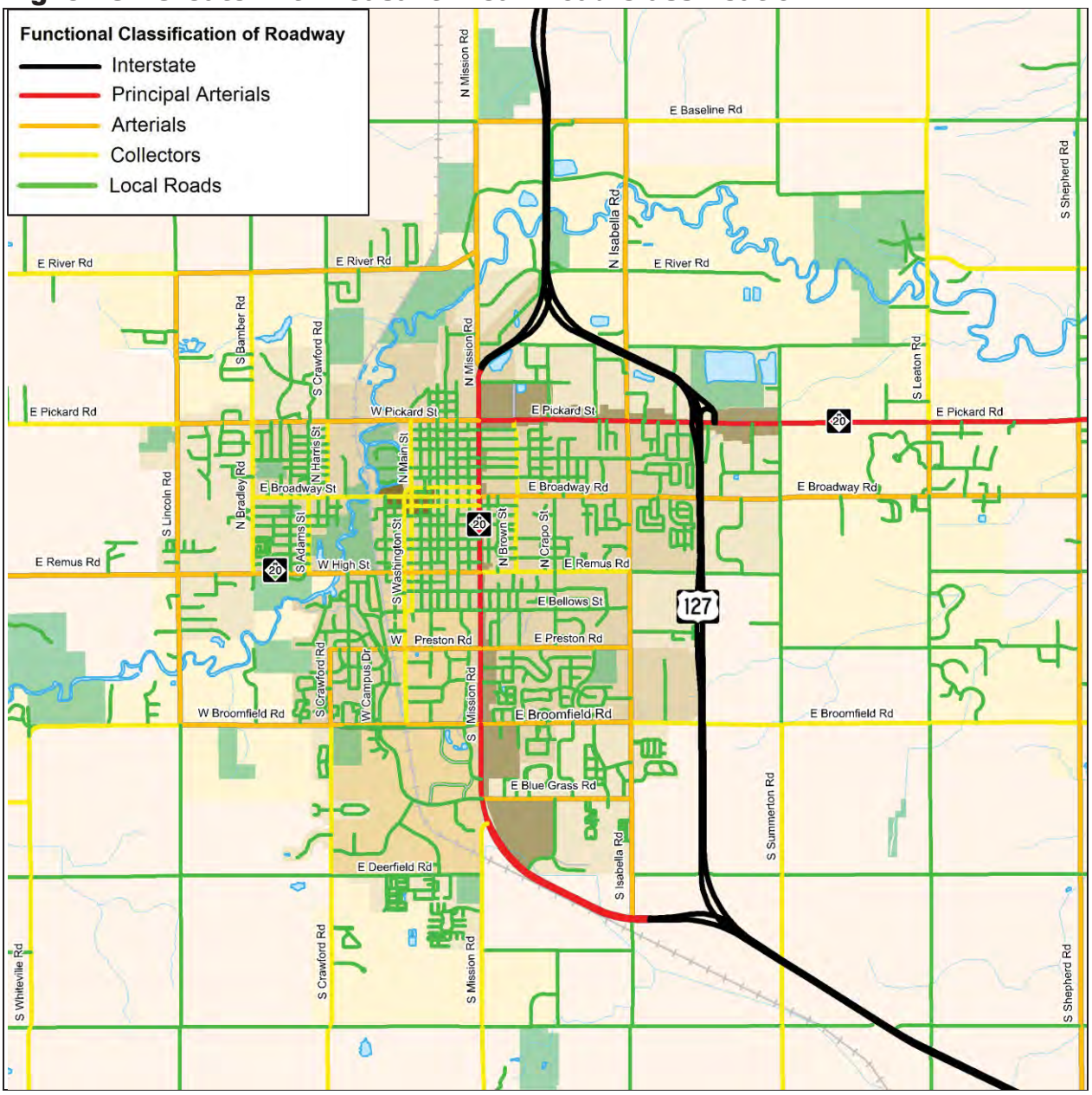
Transit stops generate non-motorized activity. It is important to make sure there are safe and convenient facilities to get people along and cross a roadway to access a bus stop.

Fig. 3.1F. Greater Mt. Pleasant Area: No Bus Zone



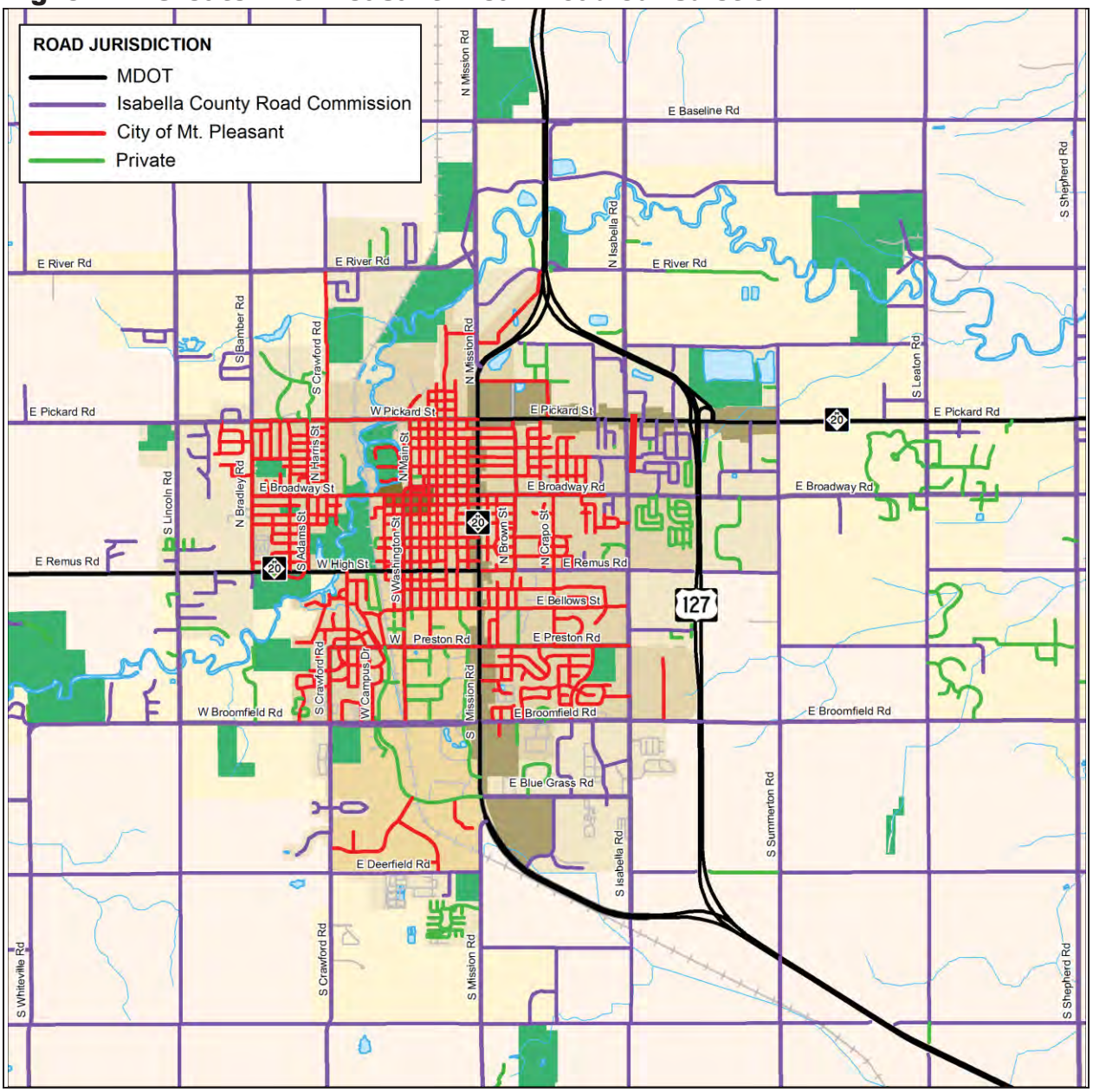
In 2011 a "No Bus Zone" was established for school buses. Children living within the boundary of S Lincoln Road, W Pickard Street, S Isabella Road and E Broomfield Road will no longer be provided school bus service. It is critical that a complete sidewalk system and safe road crossing be established within this zone so children can safely walk to school.

Fig. 3.1G. Greater Mt. Pleasant Area: Road Classification



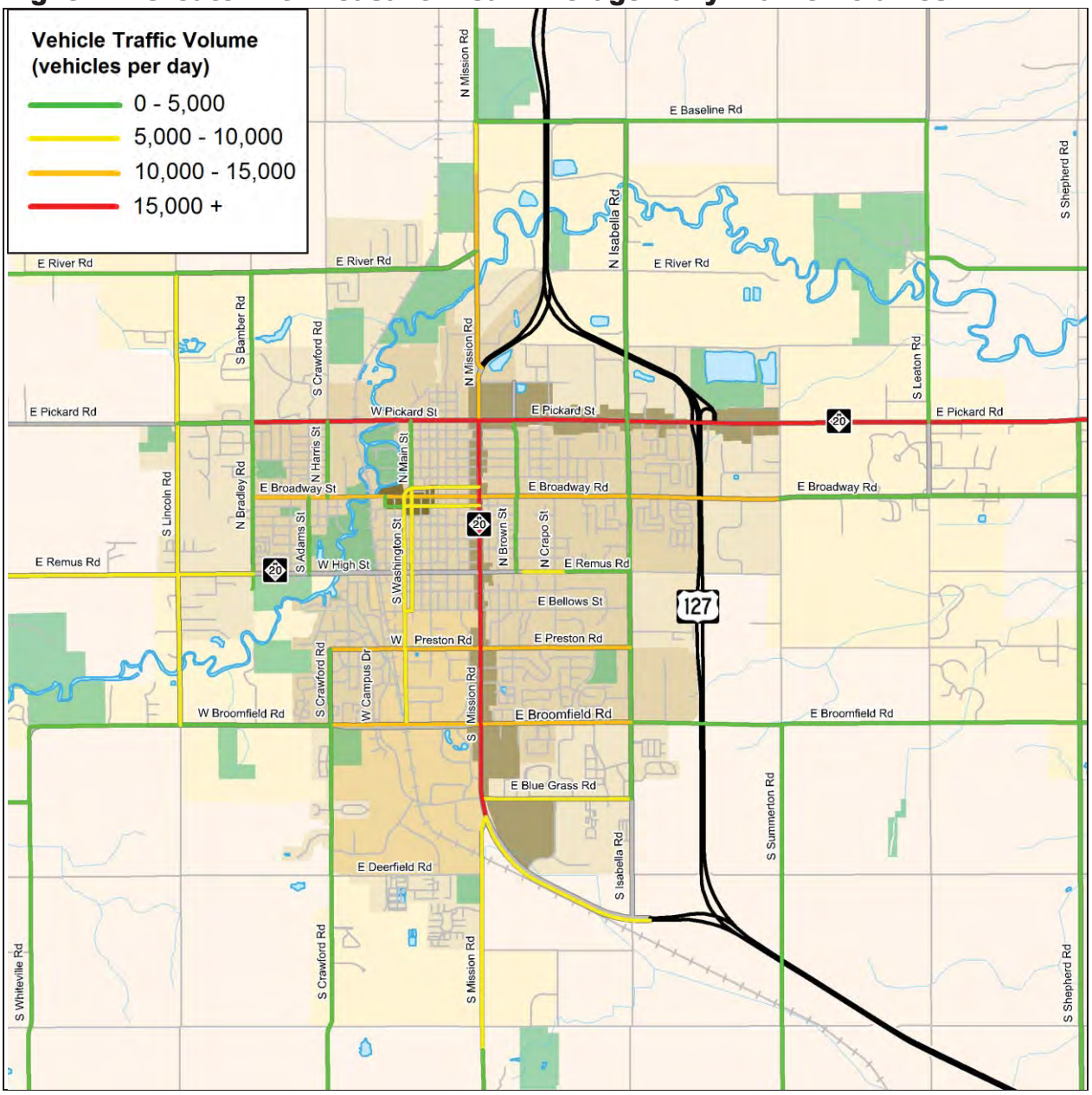
The National Functional Classifications are referenced in AASHTO guidelines and the guidelines in this document. While the National Functional Classification is intended to define a road hierarchy, substantial variation in road characteristics may be found within the classifications. The actual and projected road characteristics should be the determining factor when selecting appropriate sidewalk, buffer and bike lane widths.

Fig. 3.1H. Greater Mt. Pleasant Area: Road Jurisdiction



A local municipality may not always have jurisdiction over all of the roads within its borders. Roads can be owned by the State, County and City and though Private Ownership. It is important to identify the ownership of all roads especially if bike lanes or routes are going to be proposed along a roadway. Any modifications to the roadway must be coordinated with the approved by the agency that has jurisdiction over the road.

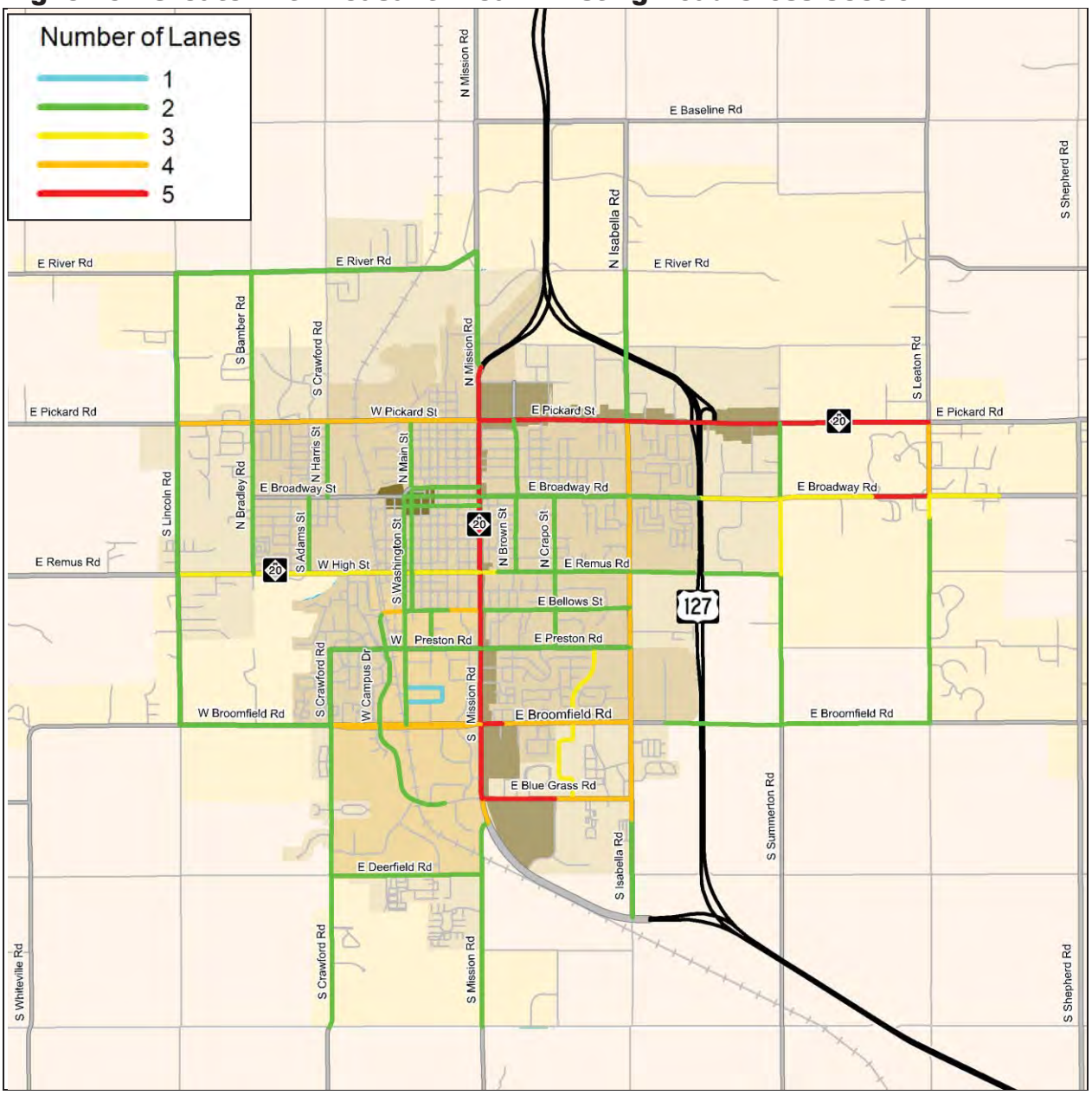
Fig. 3.1I. Greater Mt. Pleasant Area: Average Daily Traffic Volumes



Annual Average Daily Traffic (AADT) is an estimate of traffic volumes. The volumes are based on total two-way traffic over a 24-hour period and may vary by season or day of the week. The volumes are determined from a combination of actual traffic counts and modeling. The map shows data provided by EMCOG.

The gradations used generally reflect noticeable changes in the comfort level of bicyclists sharing a roadway with motorists, all other factors being equal.

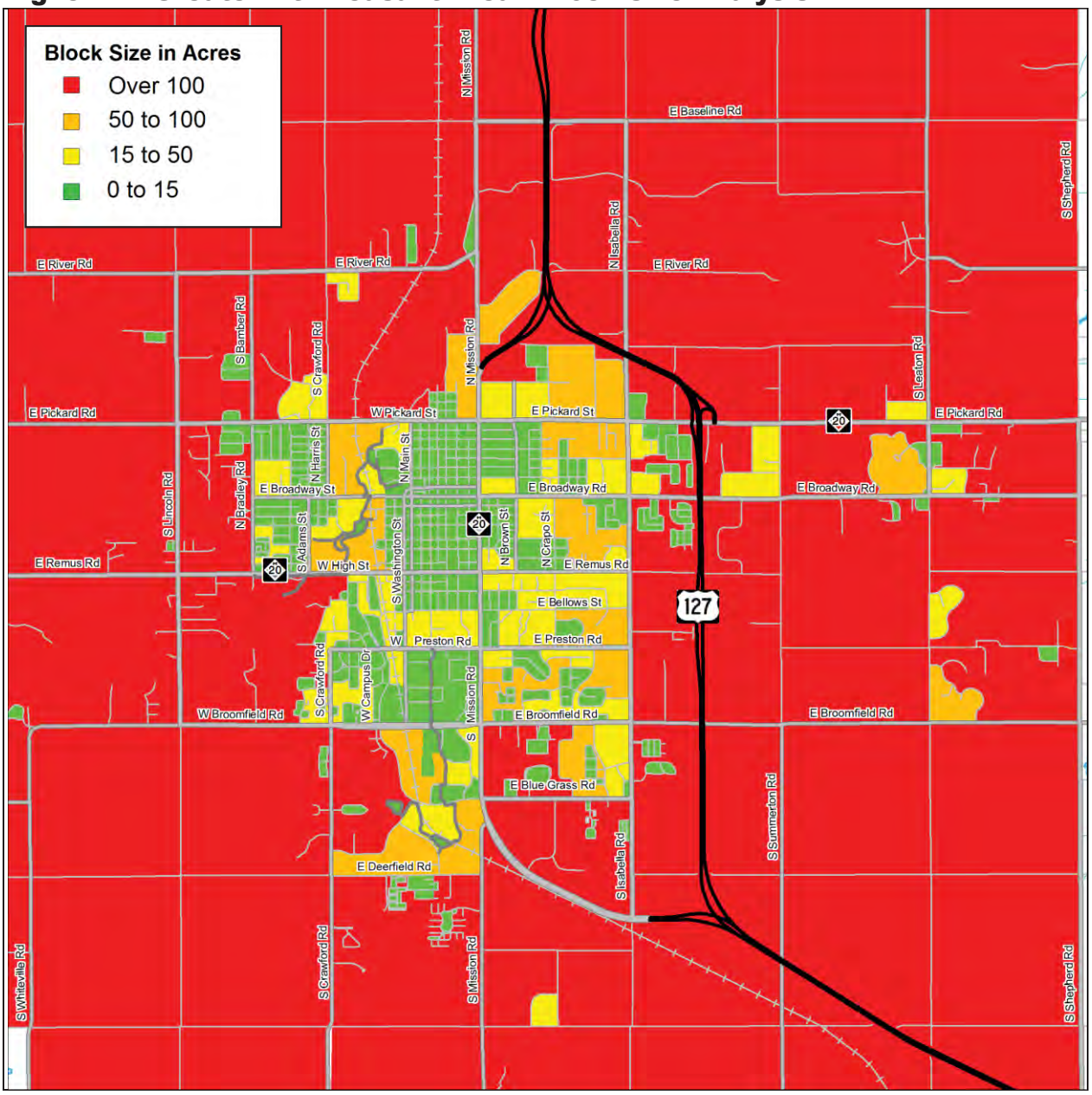
Fig. 3.1J. Greater Mt. Pleasant Area: Existing Road Cross Section



The majority of the roads in the area are two lane roads. The widest roads for the most part are bordered by commercial and industrial centers.

Generally, roadways with numerous lanes present challenges when trying to get bicyclists and pedestrians across the roadway, especially where demand between commercial centers and neighborhoods exists on both sides of the road.

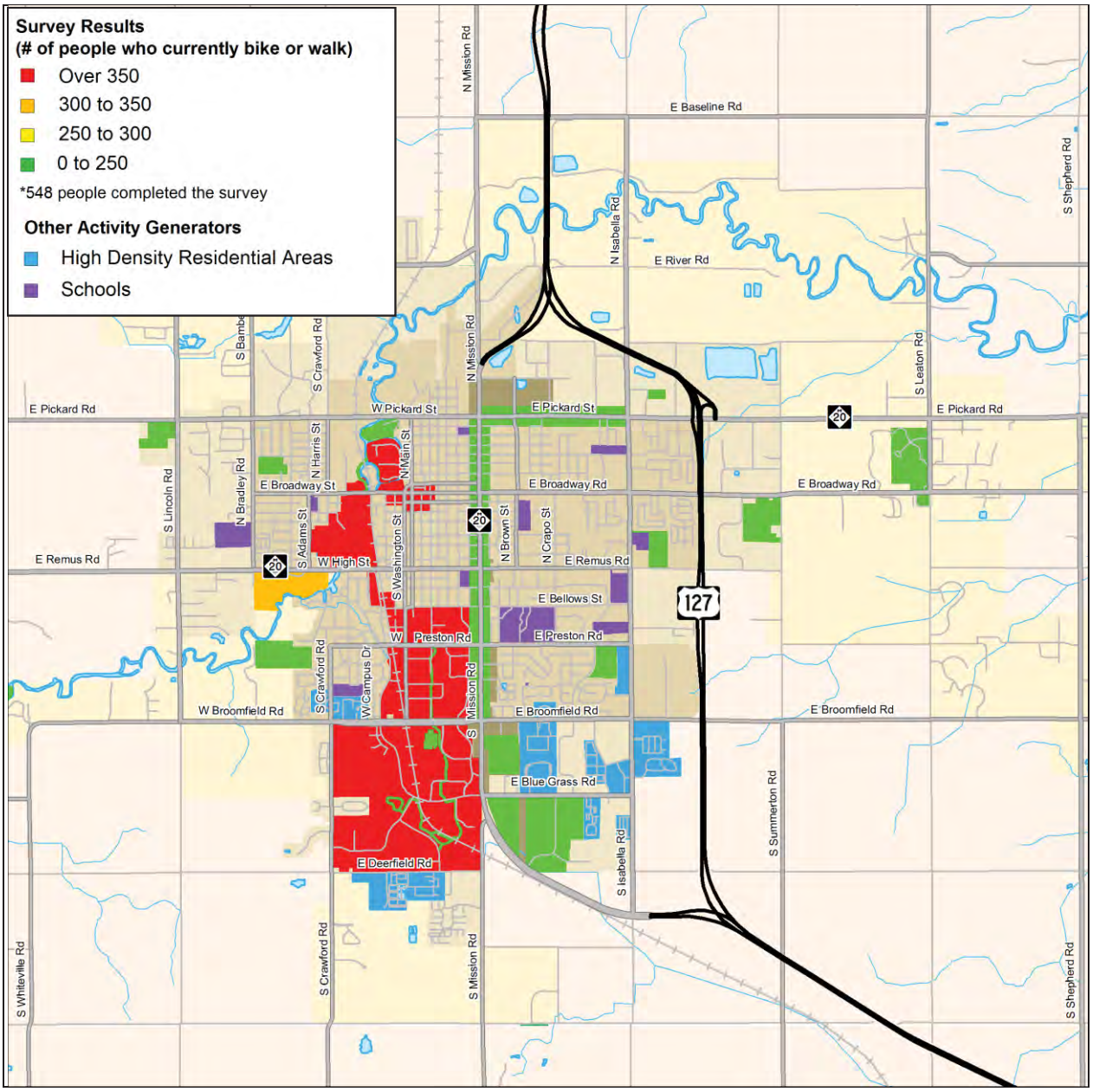
Fig. 3.1K. Greater Mt. Pleasant Area: Block Size Analysis



Block size is an excellent measurement of directness of travel and a key indicator in the level of pedestrian activity. A block is defined as an area that a person cannot pass through. These areas usually do not have any sidewalks, roadways or bike paths allowing access between two points. One example is an expressway where you may have to go a mile or more out of your way just to get to the other side.

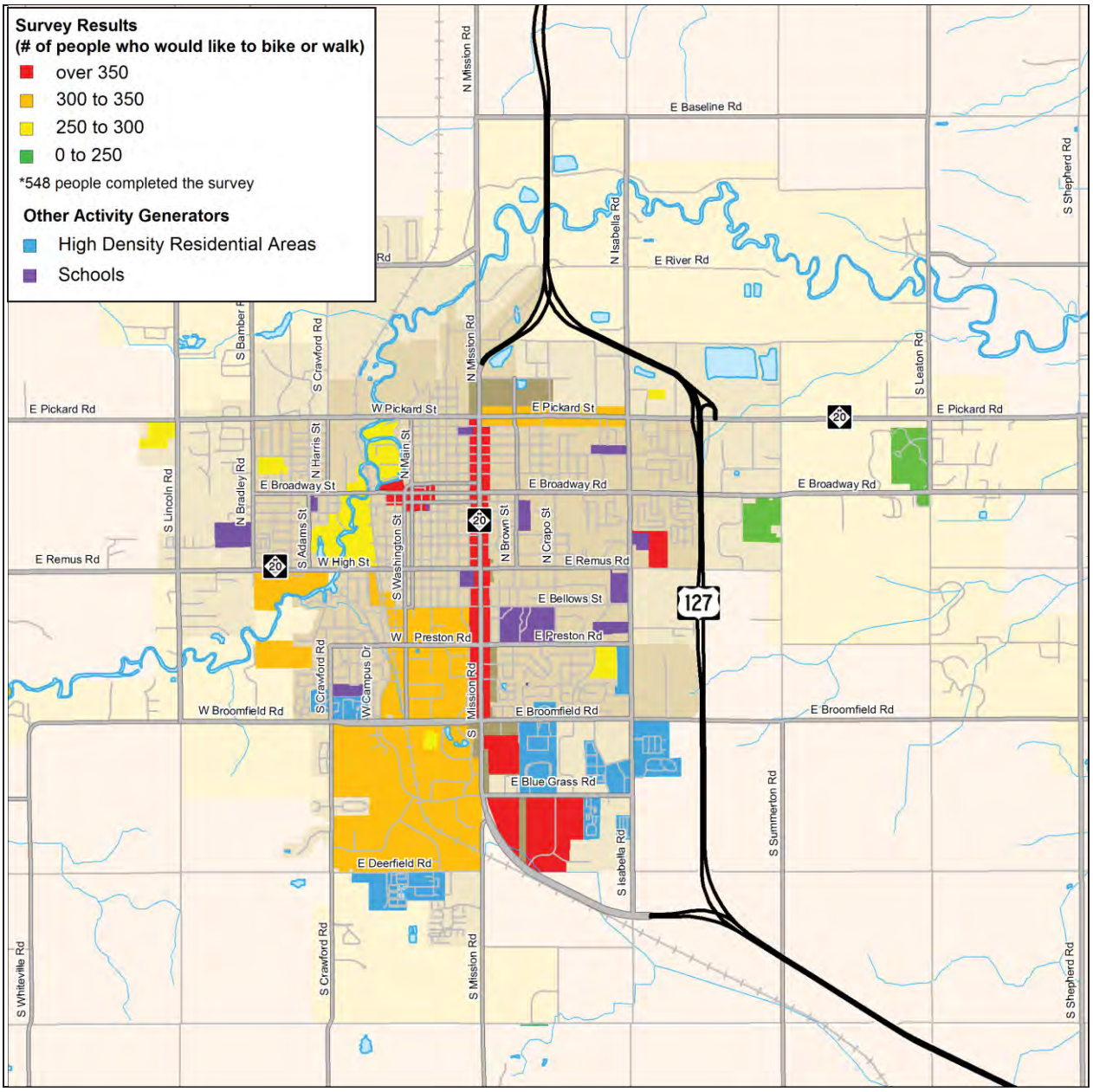
The majority of the City of Mt. Pleasant has blocks under 50 acres in size. This means that with the proper facilities implemented, based on the existing transportation network, there is potential for the community to increase bicycle and pedestrian activity. On the other hand, areas surrounding the city, such as Union Twp. Are primarily blocks over 100 acres in size that presents a challenging landscape for non-motorized transportation.

Fig. 3.1L. Greater Mt. Pleasant Area: Existing Bike and Pedestrian Activity Generators



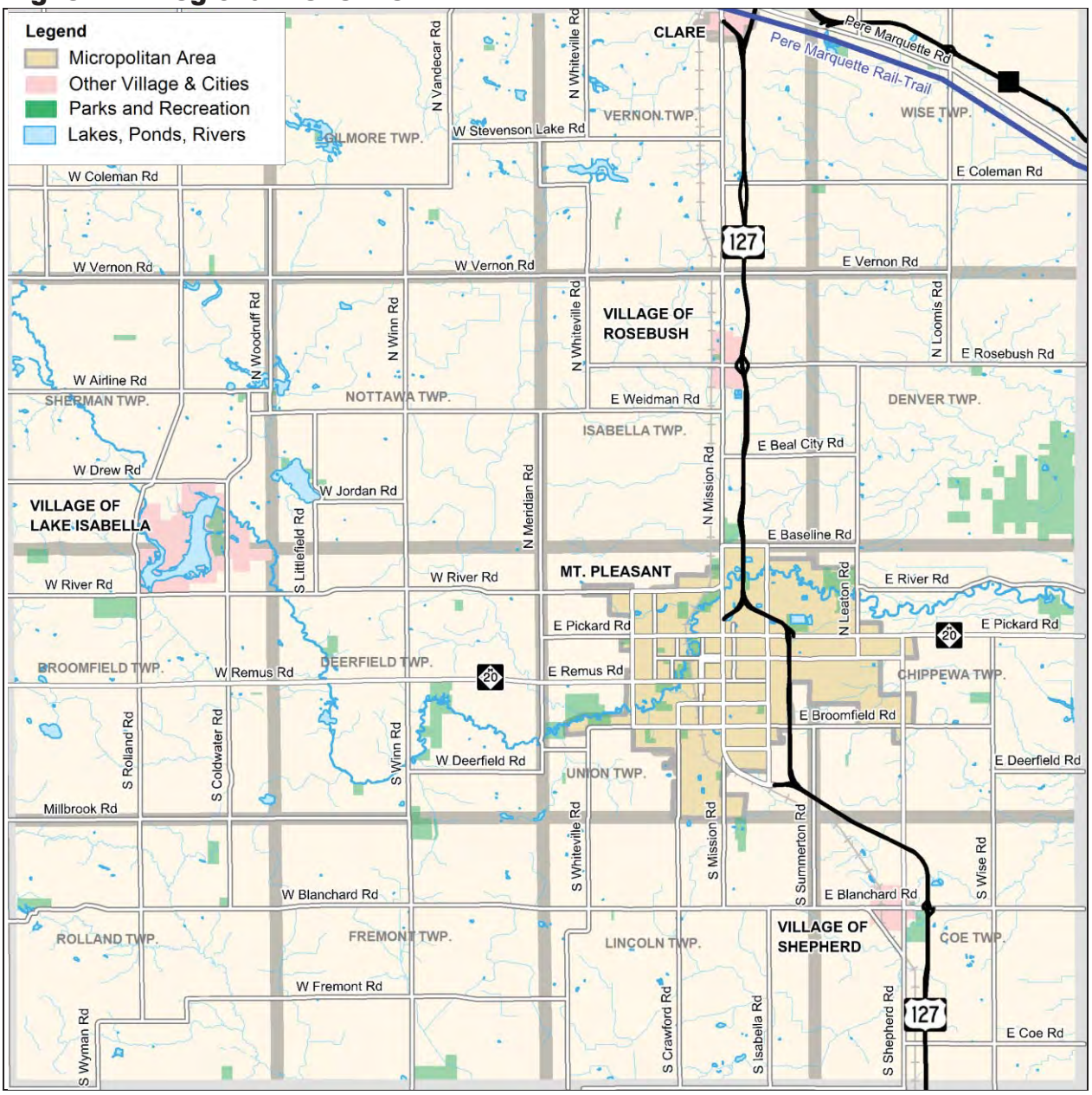
According to the web survey, CMU campus, downtown and the park generate most of the current bicycle and pedestrian activity.

Fig. 3.1M. Greater Mt. Pleasant Area: Potential Bike and Pedestrian Activity Generators



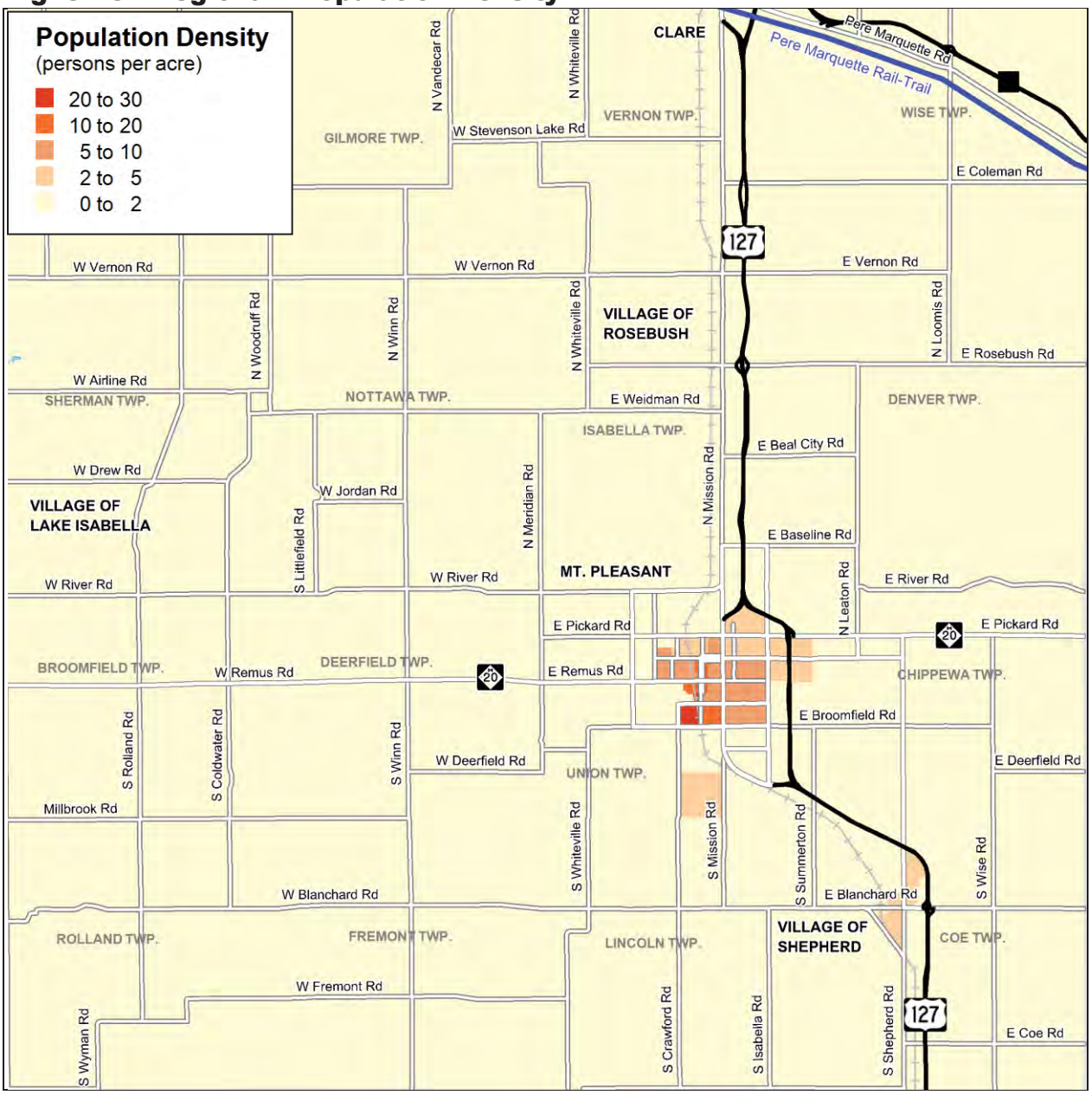
According to the web survey, if a complete and safe non-motorized network was established the shopping centers would see the most growth by non-motorized users based on feedback from the online survey.

Fig. 3.1N. Regional: Overview



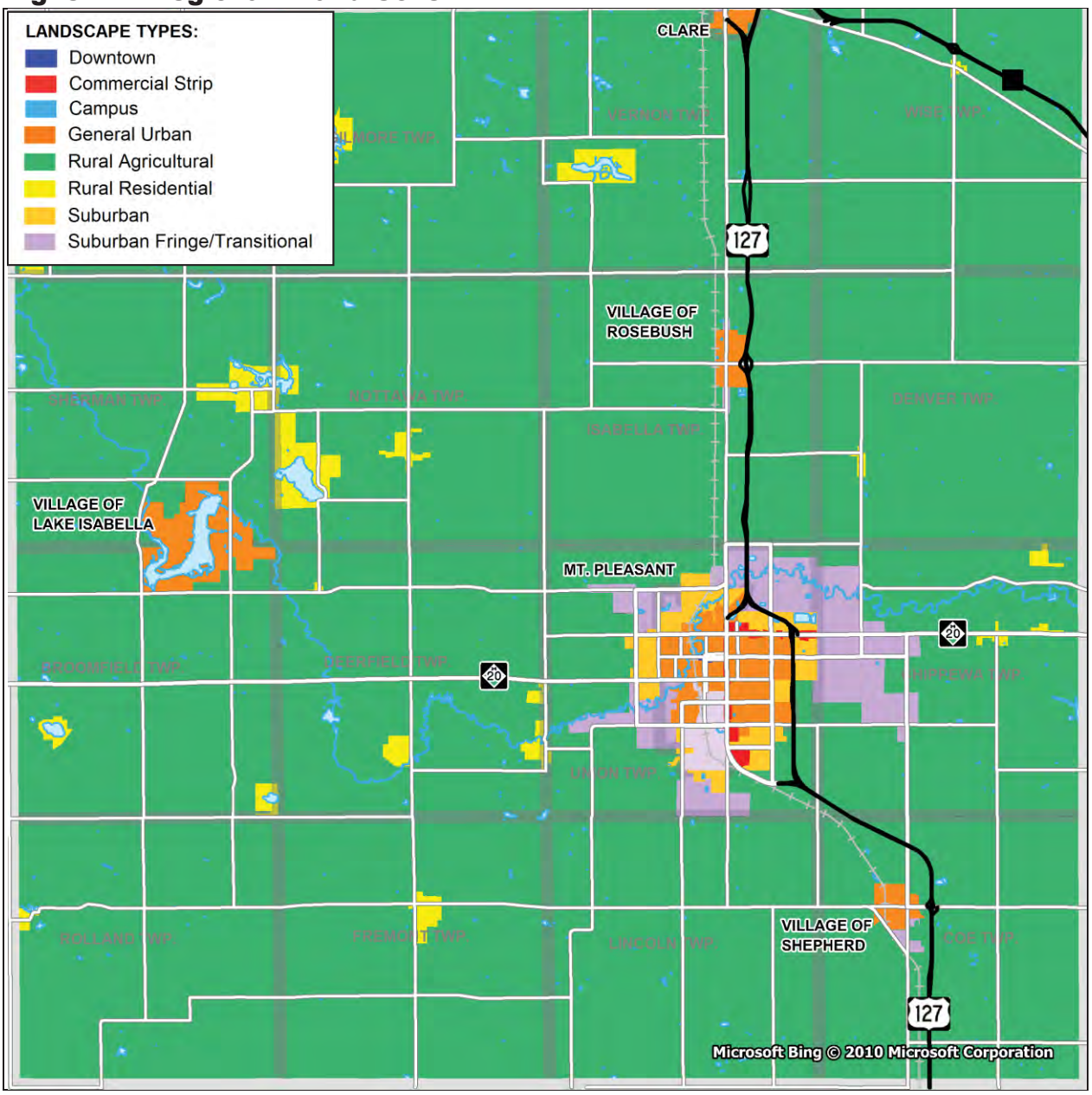
Isabella County is approximately 578 square miles. The Greater Mt. Pleasant Area is located in the south east quadrant of the county. The city of Clare is to the north of the county and Almont is to the south.

Fig. 3.10. Regional: Population Density



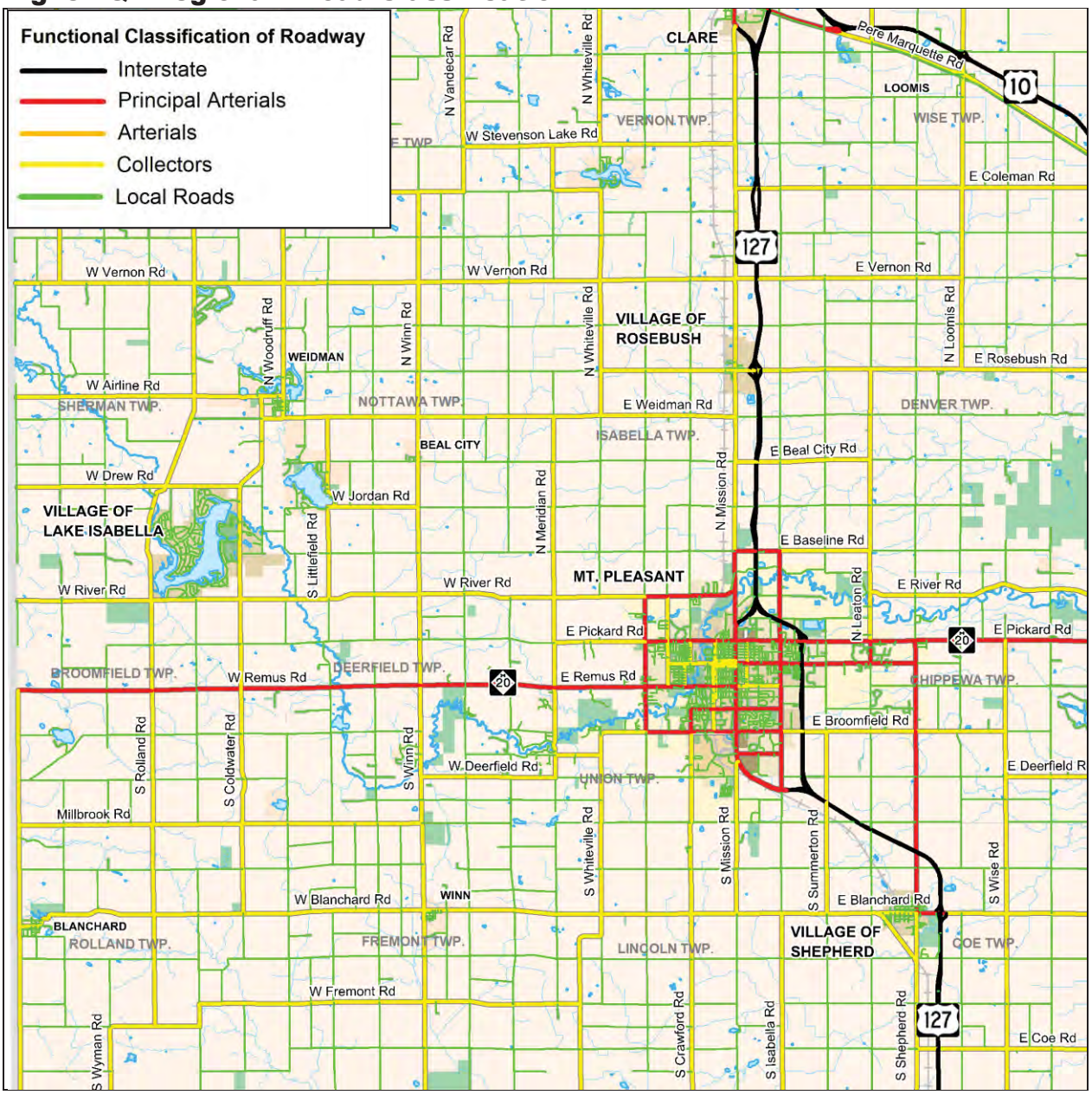
Based on the 2000 census has a population of 63,351 people. The majority of the population is located in the Greater Mt. Pleasant Area and the Village of Shepherd.

Fig. 3.1P. Regional: Land Cover



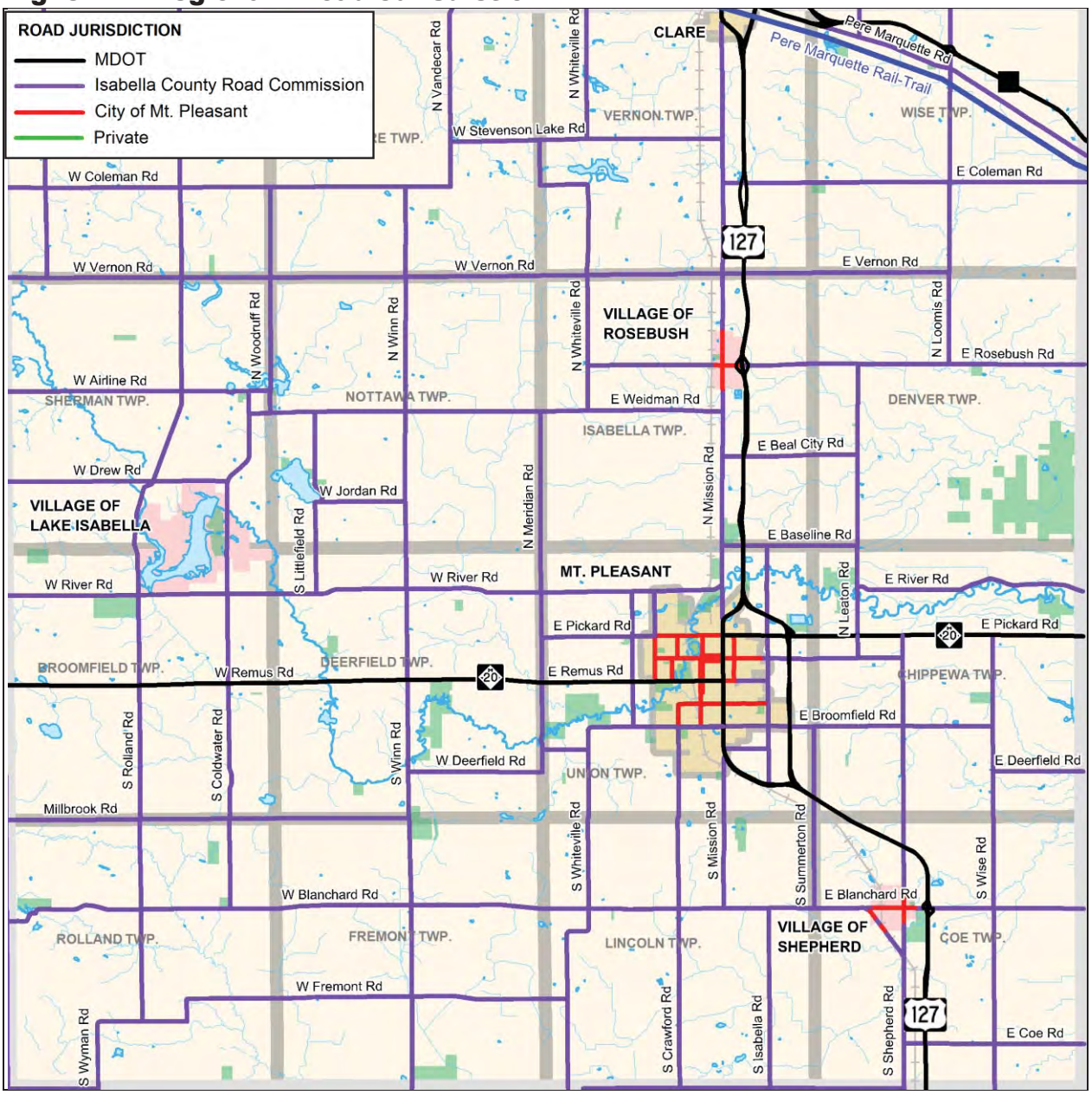
These landscape types where created based on the existing land use and character of the area. Different types of non-motorized facilities are appropriate for different types of landscapes.

Fig. 3.1Q. Regional: Road Classification



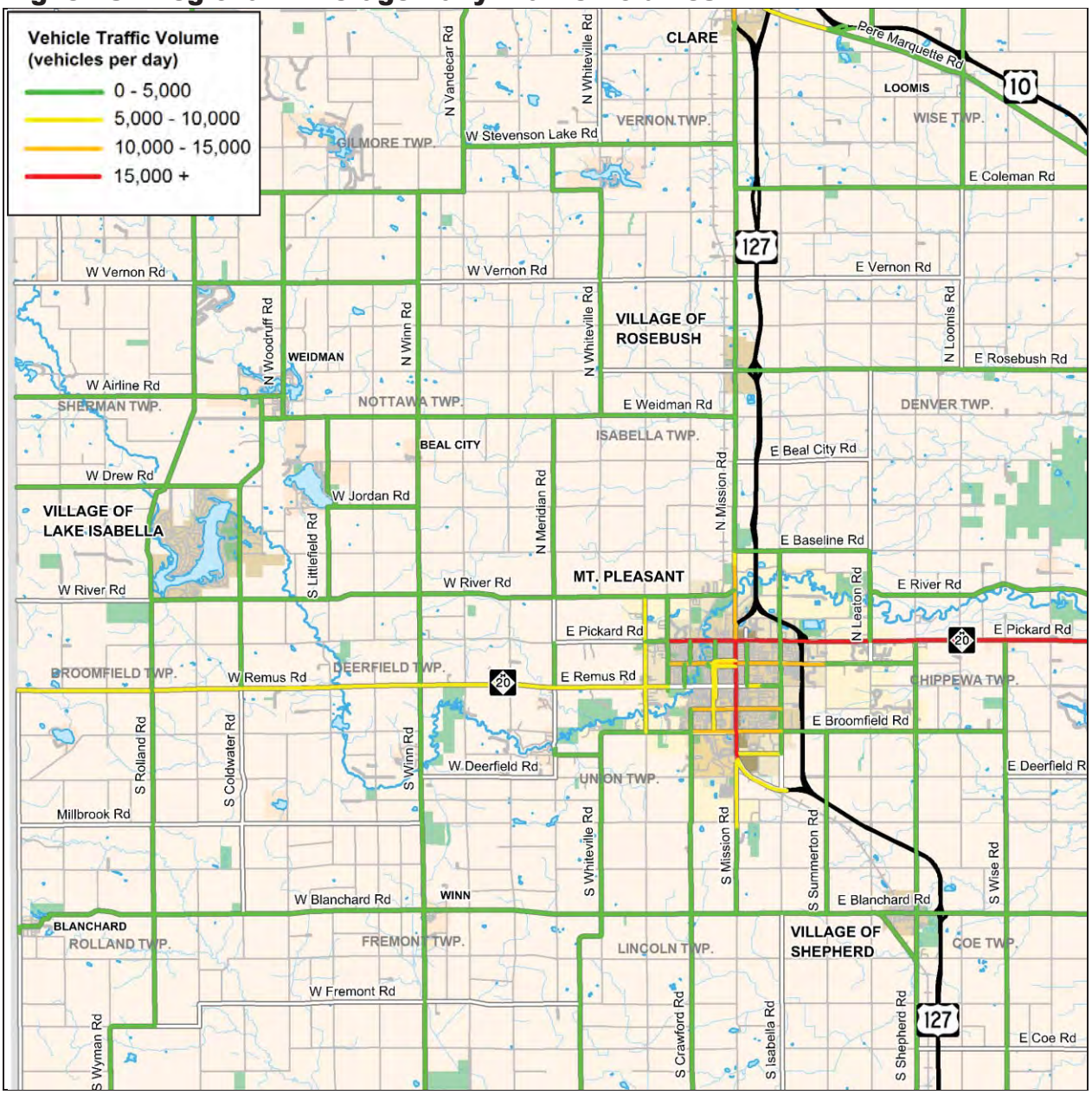
The National Functional Classifications are referenced in AASHTO guidelines and the guidelines in this document. While the National Functional Classification is intended to define a road hierarchy, substantial variation in road characteristics may be found within the classifications. The actual and projected road characteristics should be the determining factor when selecting appropriate sidewalk, buffer and bike lane widths.

Fig. 3.1R. Regional: Road Jurisdiction



Roads owned by the state and managed by the Michigan Department of Transportation (MDOT) are shown in red. Any modifications to these "trunkline" roads must be coordinated with and approved by MDOT. Likewise any roads shown in blue are under the jurisdiction of the county road commission and any modifications to these roads must be coordinated with and approved by the county road commission.

Fig. 3.1S. Regional: Average Daily Traffic Volumes



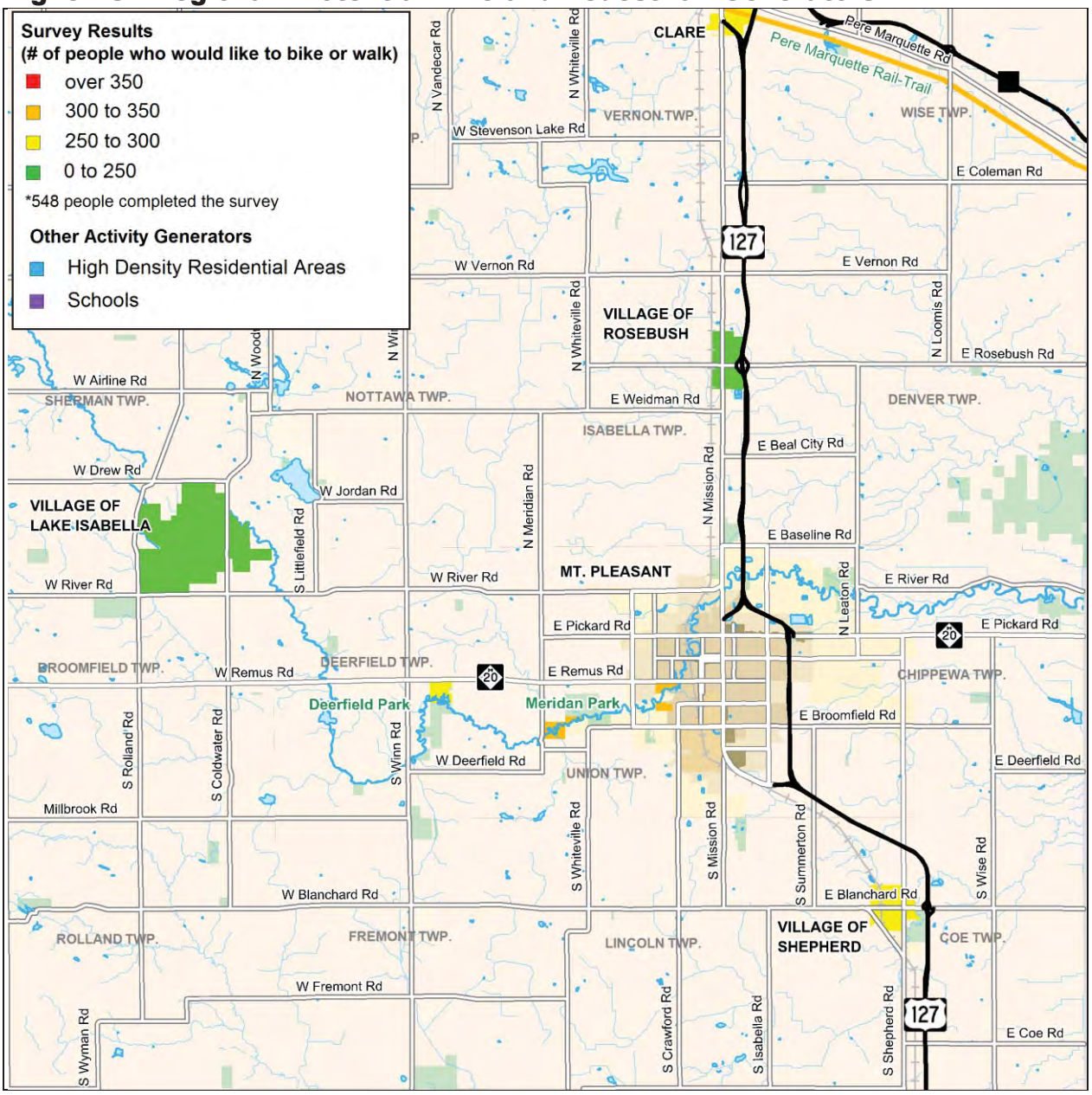
Annual Average Daily Traffic (AADT) is an estimate of traffic volumes. The volumes are based on total two-way traffic over a 24-hour period and may vary by season or day of the week. The volumes are determined from a combination of actual traffic counts and modeling. The map shows data provided by EMCOG.

The gradations used generally reflect noticeable changes in the comfort level of bicyclists sharing a roadway with motorists, all other factors being equal.

Fig. 3.1T. Regional: Existing Bike and Pedestrian Activity Generators

Based on feedback from the online web survey. There are not a lot of people using non-motorized transportation to get to regional destinations.

Fig. 3.1U. Regional: Potential Bike and Pedestrian Generators



Based on input from the web survey there is some desire to walk or bike to regional destinations. Parks close to the Greater Mt. Pleasant Area and the Pere Marquette Rail-Trail have the highest latent demand. The Village of Shephard, Deerfiled Park and Clare were also noted as regional destinations that people would like to walk or bike to.

3.2 The Pedestrian Environment

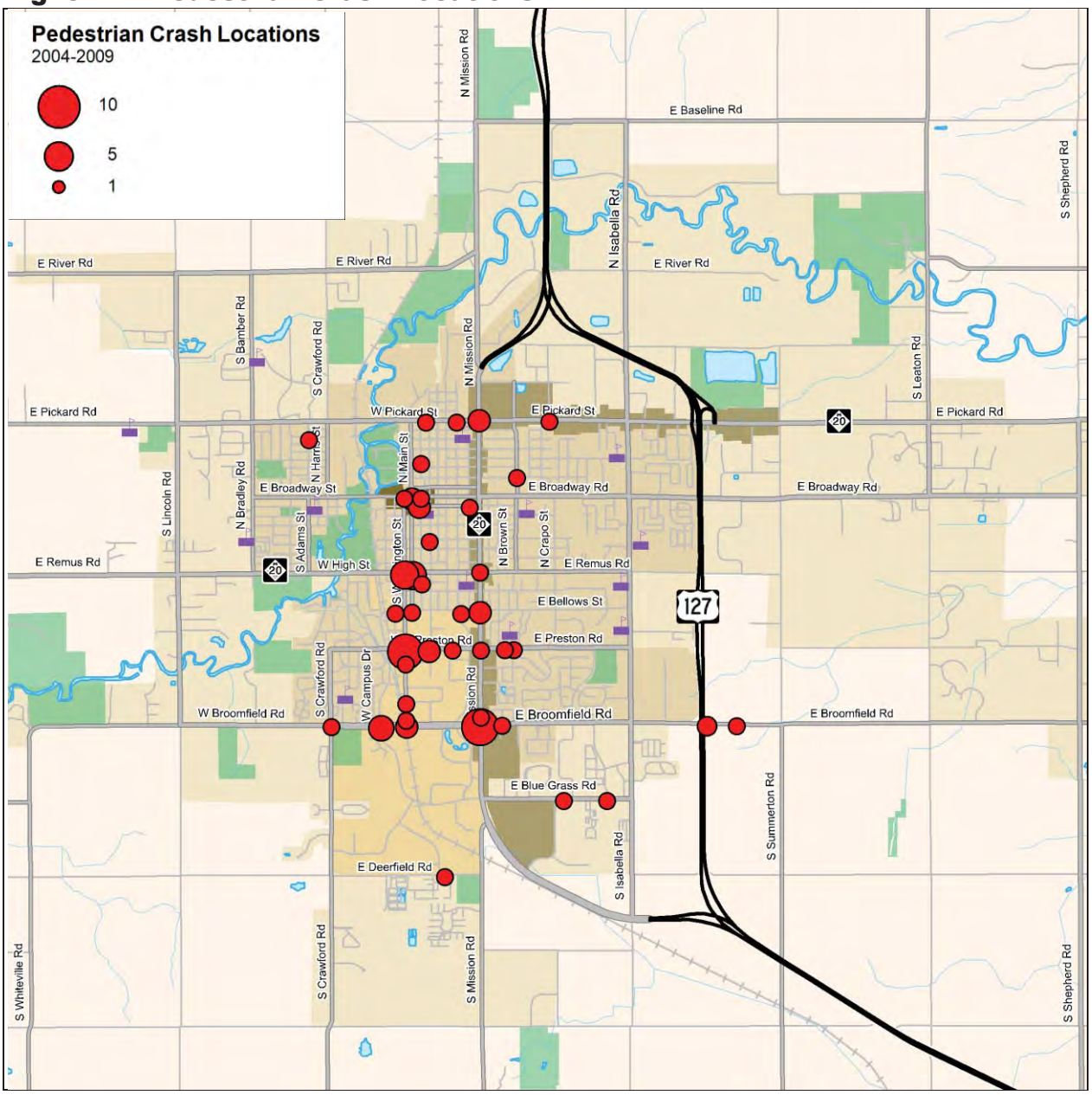
The Greater Mt. Pleasant Area has a partially complete sidewalk system along the major roadways, especially in areas outside of the downtown neighborhoods. There are still significant gaps along major roadways especially in the more suburban parts of town. The quality of the pedestrian experience on these sidewalks varies greatly throughout the Greater Mt. Pleasant Area. Some sidewalks have little if any buffer such as a row of trees or parked cars, between the sidewalk and the roadway. This lack of a barrier has been shown to have a significant adverse impact on the quality of the walking experience. Other sidewalks and roadside pathways are set well back from the road and have substantial vegetated buffer.

Another major issue lies with cross-roadway accommodations. There are significant stretches of the major thoroughfares that provide no means to cross the roadway safely. There are also places where logical crossings are not accommodated. Even where there are marked crosswalks, they are often inadequate. Many times the existing crossings are missing key safety features, making them difficult to cross, especially on high speed multi-lane roadways.

The following maps provide a general summary of the existing conditions of pedestrian facilities:

- Fig. 3.2 A. Pedestrian Crash Locations
- Fig. 3.2 B. Pedestrian Crash Data
- Fig. 3.2 C. Existing Sidewalks

Fig. 3.2A. Pedestrian Crash Locations



The crashes shown are from a five year period, 2004 – 2009 for the Greater Mt. Pleasant Area.

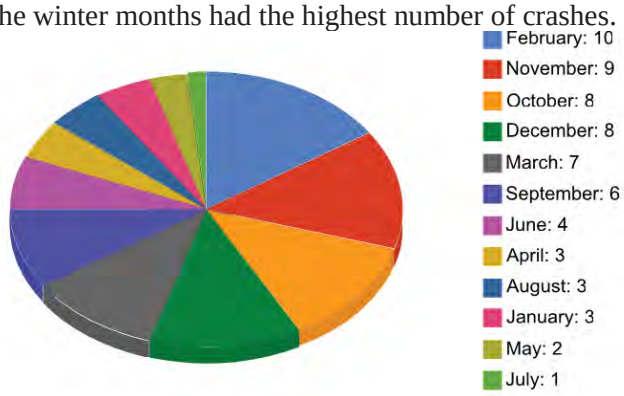
There were 64 pedestrian involved crashes, none were fatal and 13 resulted in serious injuries. Drinking or drug use was involved in 12 of the crashes. There was no traffic control at 42% of the crash locations.

The Michigan Traffic Crash Fact website was the source of the data and charts.

Fig. 3.2B. Pedestrian Crash Data

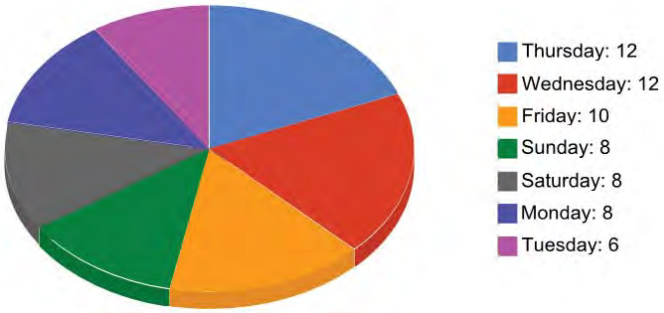
Month of Crash

The winter months had the highest number of crashes.



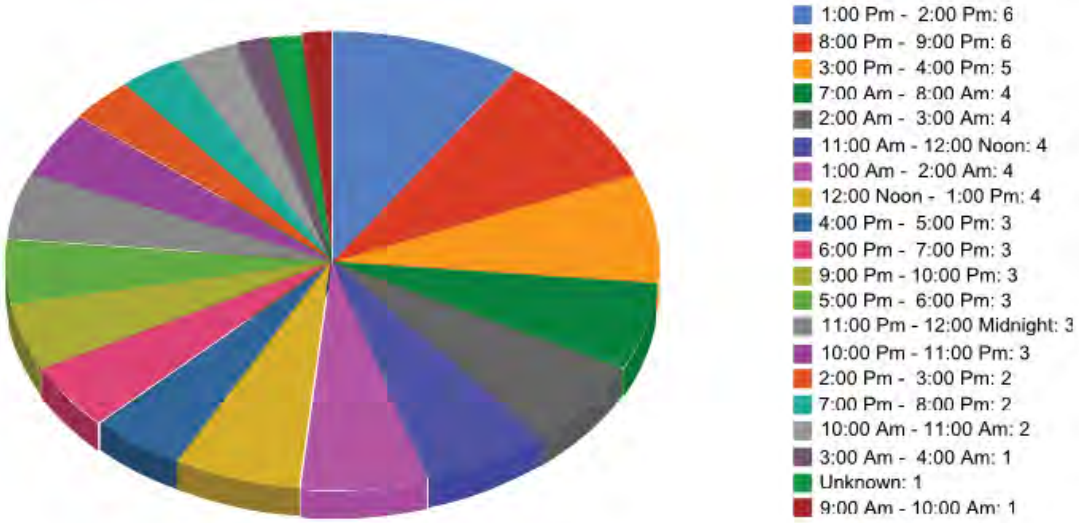
Day of Week

Crashes took place on every day of the week with the most occurring on a Wednesday and Thursday.



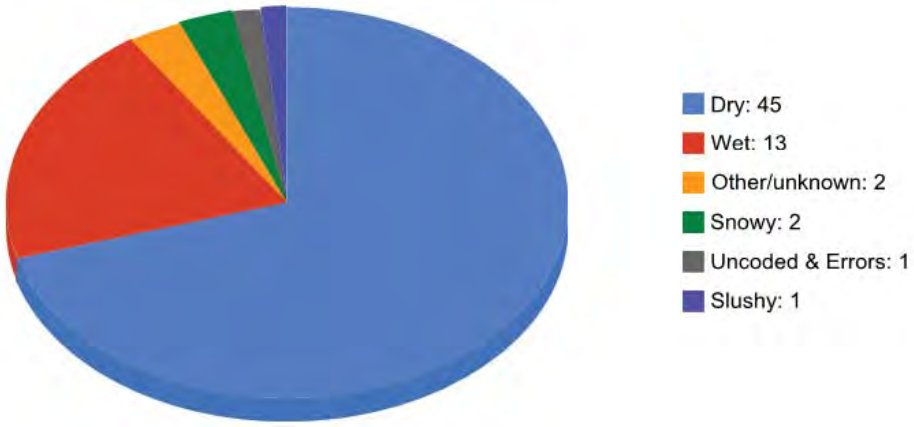
Time of Day

Crashes took place during all hours of the day. 46% of the crashes took place during daylight, 3% took place during dawn, 1% took place during dusk and 45% took place in the dark (3% were not coded).



Road Conditions

Wet, Snowy or Icy roads were a factor in about a quarter of the crashes.



Relation to Roadway

86% of the crashes took place on the roadway.

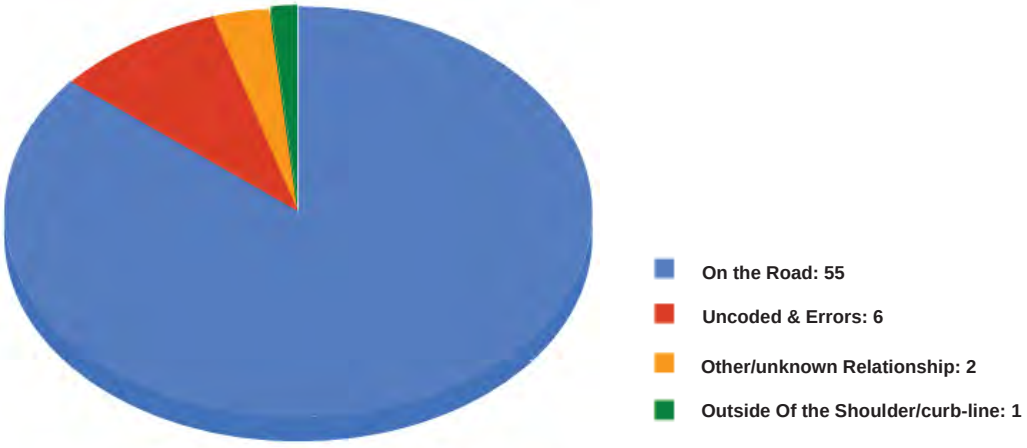
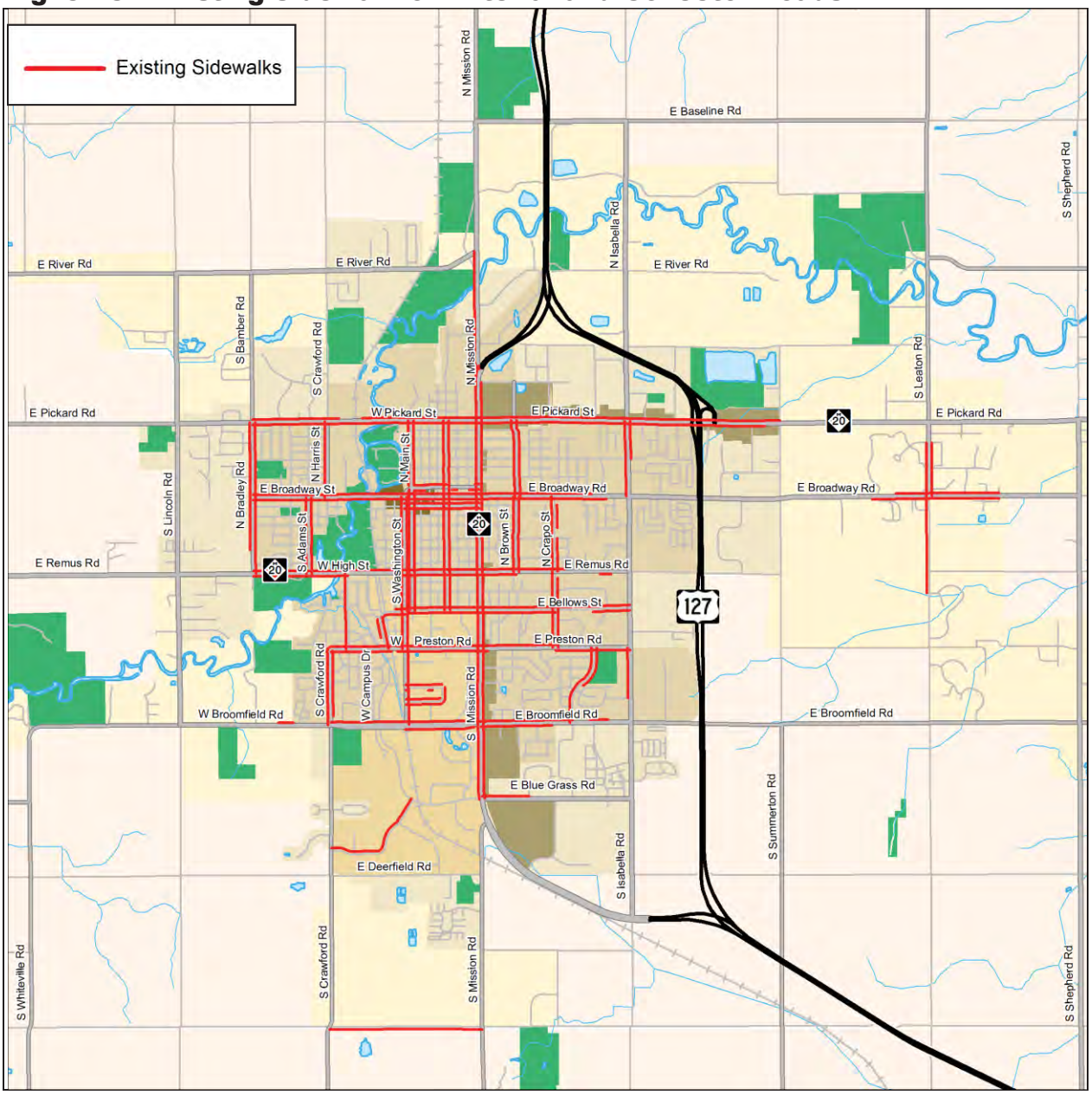


Fig. 3.2C. Existing Sidewalk on Arterial and Collector Roads



There are about 50 miles of existing sidewalk in the Greater Mt. Pleasant Area. A key factor to a pedestrians comfort on a sidewalk is the degree of separation from the roadway. Buffer (lawn extensions) and vertical elements such as trees and light poles increase the pedestrians comfort level.

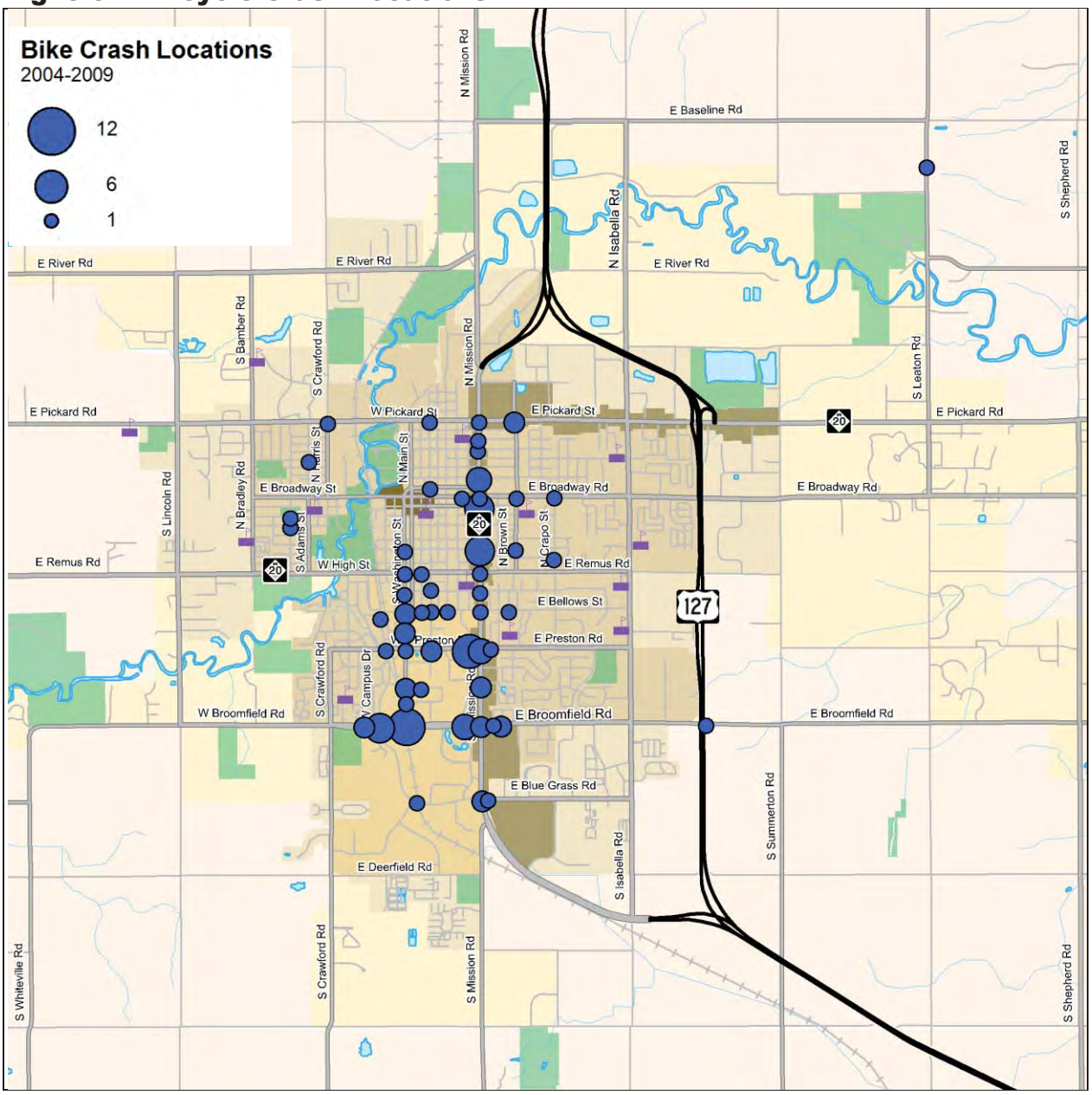
3.3 The Bicycling Environment

The approach to handling bicycles in the Greater Mt. Pleasant Area is inconsistent and incomplete. There are a few short segments of existing bike lanes in the city but they do not connect or create system. The on-road facilities are not logical or convenient.

The following maps provide a general summary of the existing conditions:

- Fig. 3.3A. Bicycle Crash Locations
- Fig. 3.3B. Bicycle Crash Data
- Fig. 3.3C. Existing Bike Lanes
- Fig. 3.3D. Existing Off-Road Trails and Roadside Pathways
- Fig. 3.3E. Potential Bike Lanes Opportunities

Fig. 3.3A. Bicycle Crash Locations



The crashes shown are from a five year period, 2004 – 2009.

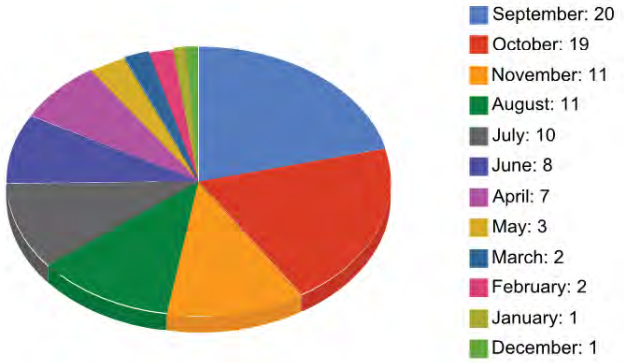
There were 95 bicycle involved crashes, none were fatal and 8 resulted in serious injury. Drinking or drug use was involved in 6 of the crashes. There was no traffic control at 25% of the crashes; a signal was present at 27% and a stop sign at 45% of the locations.

The Michigan Traffic Crash Fact website was the source of the data and charts.

Fig. 3.3B. Bicycle Crash Data

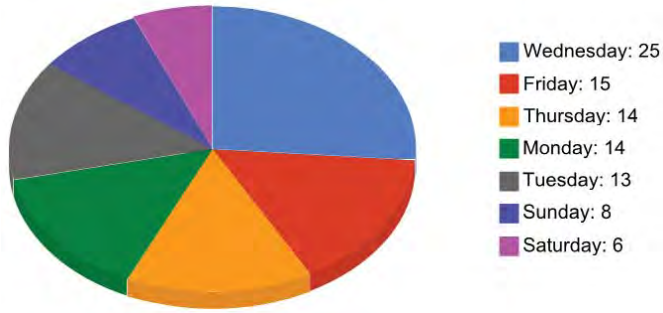
Month of Crash

Crashes occurred during every month. The Fall had the most crashes with September and October with the highest. This is likely due to the University being in session in combination with good weather.



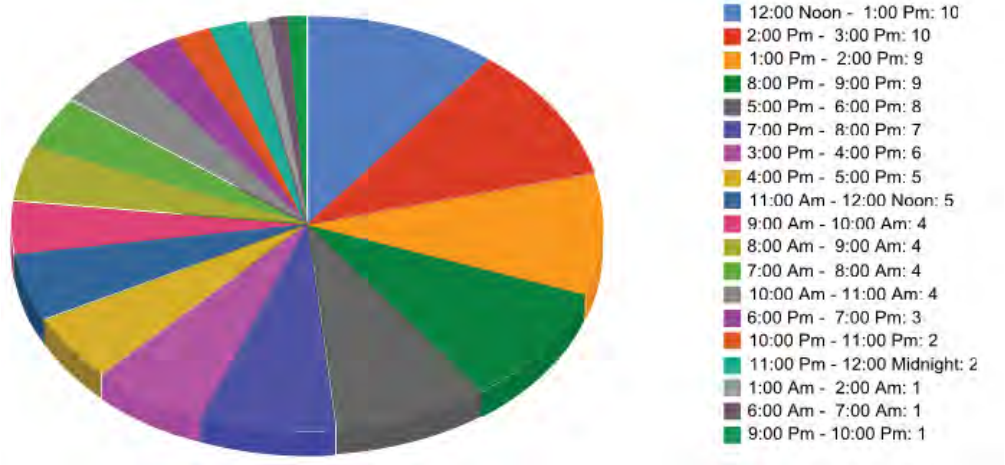
Day of Week

Crashes were fairly evenly distributed throughout the week with the fewest crashes occurring on the weekend.



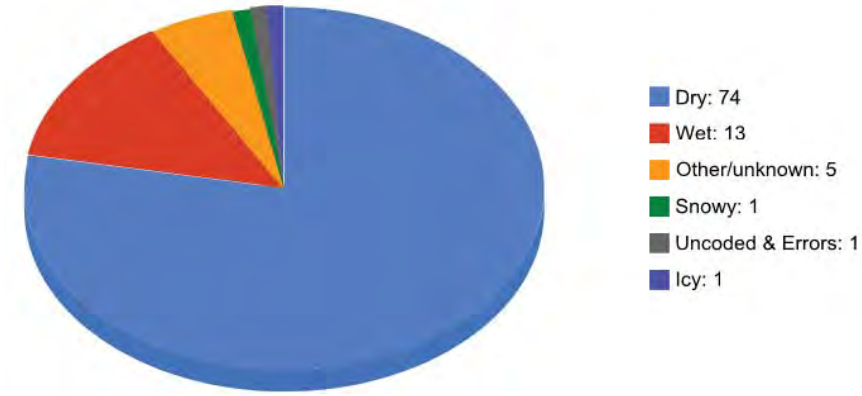
Time of Day

The crashes took place between 7:00 AM and 10 PM. 81% of the crashes took place in daylight, 5% at dusk and 10% took place when it was dark (9% were not coded).



Road Conditions

The road was dry for 78% of the crashes.



Relation to Roadway

85% of the crashes took place in the roadway.

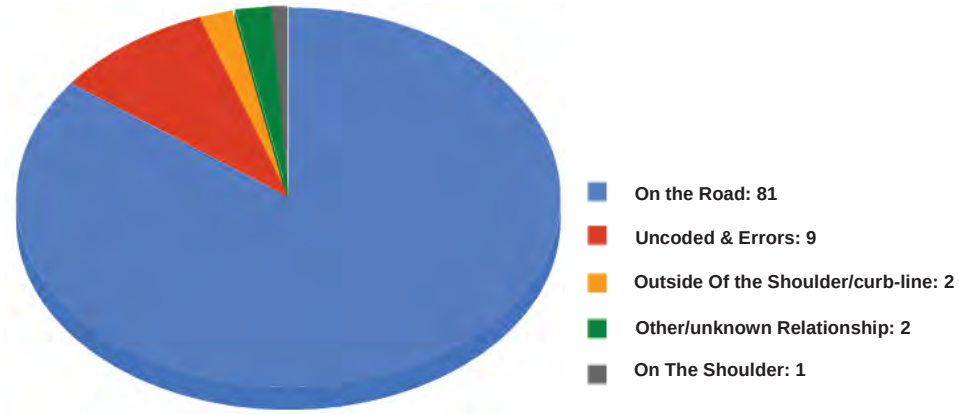
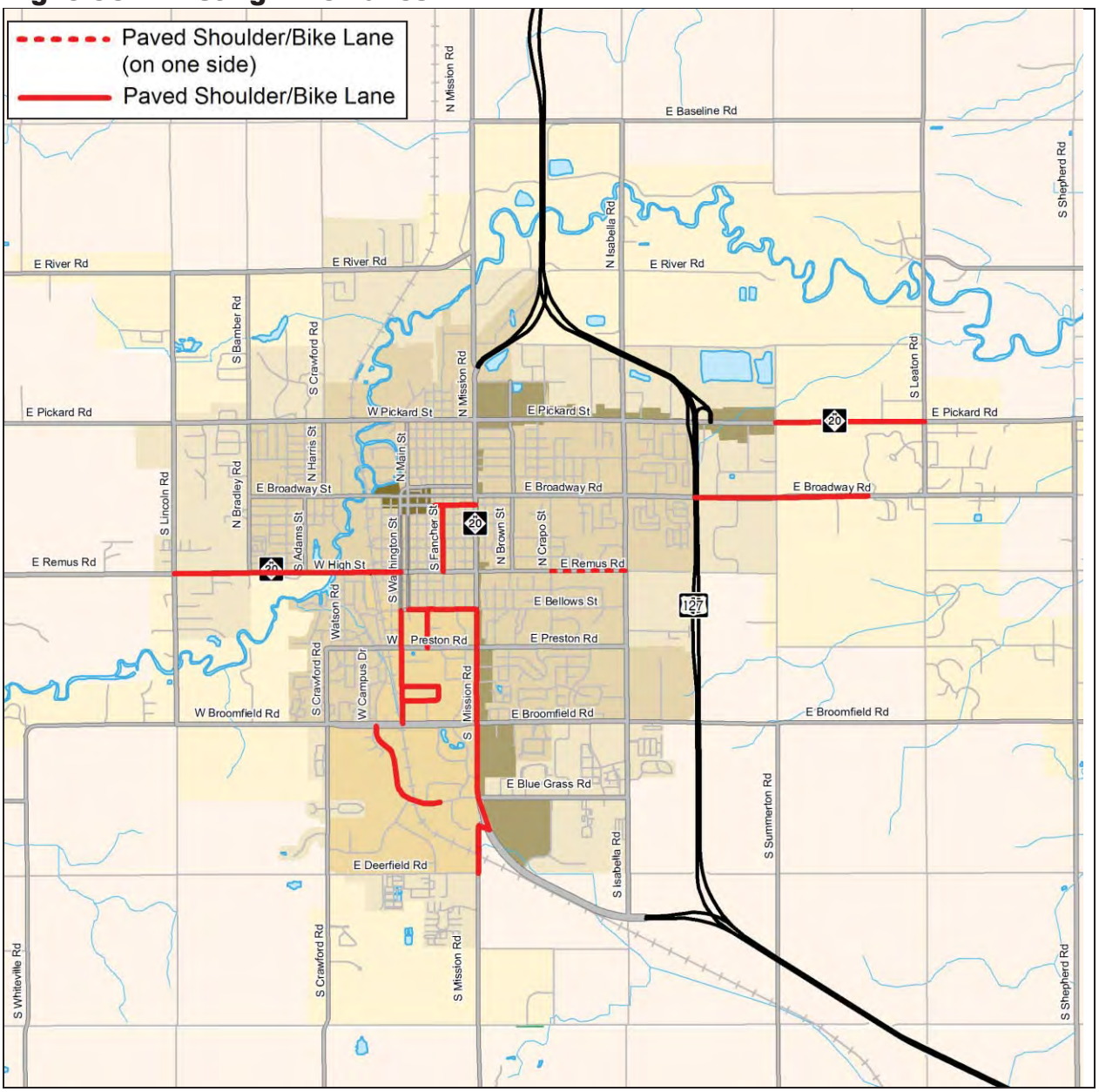
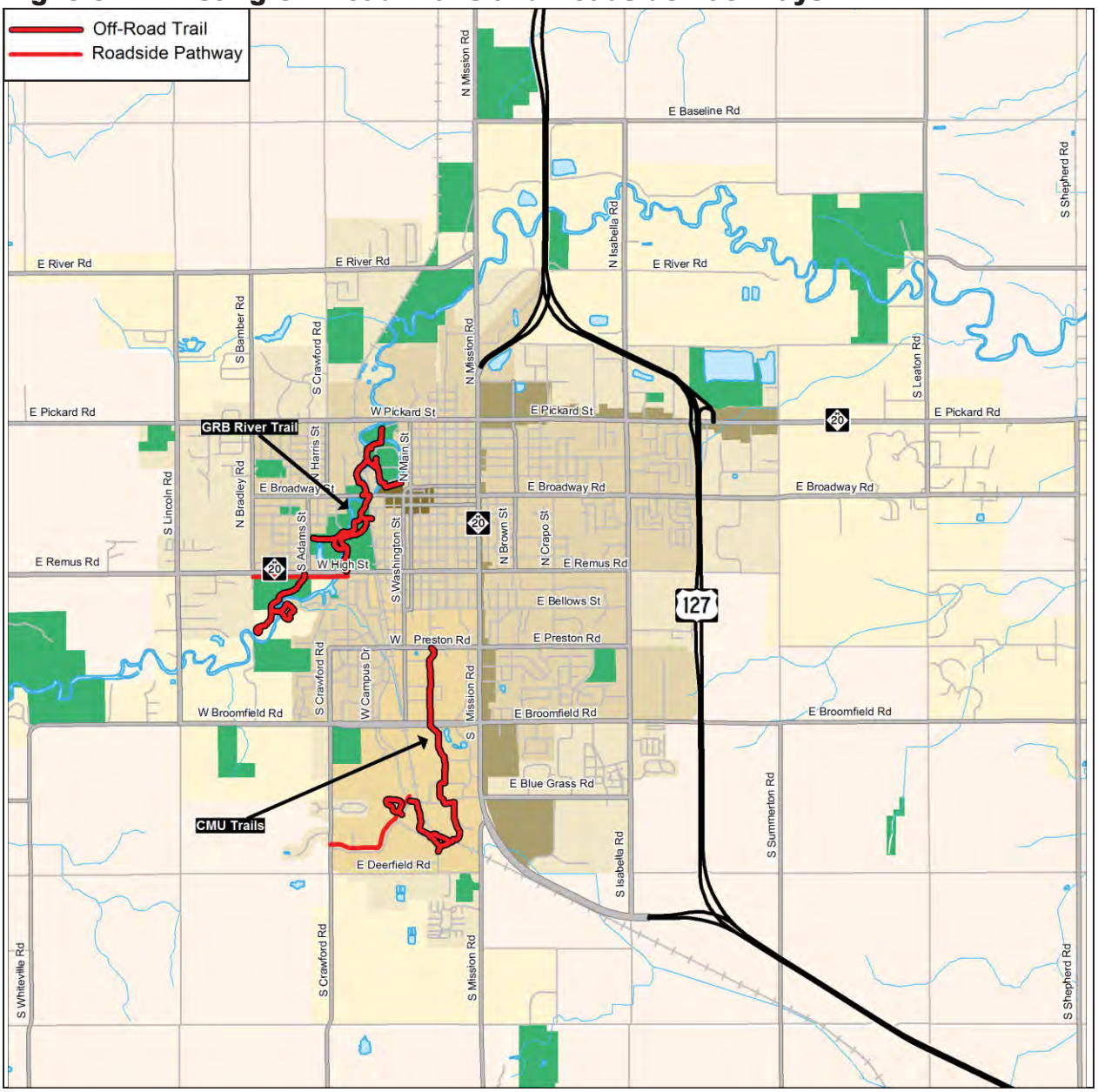


Fig. 3.3C. Existing Bike Lanes



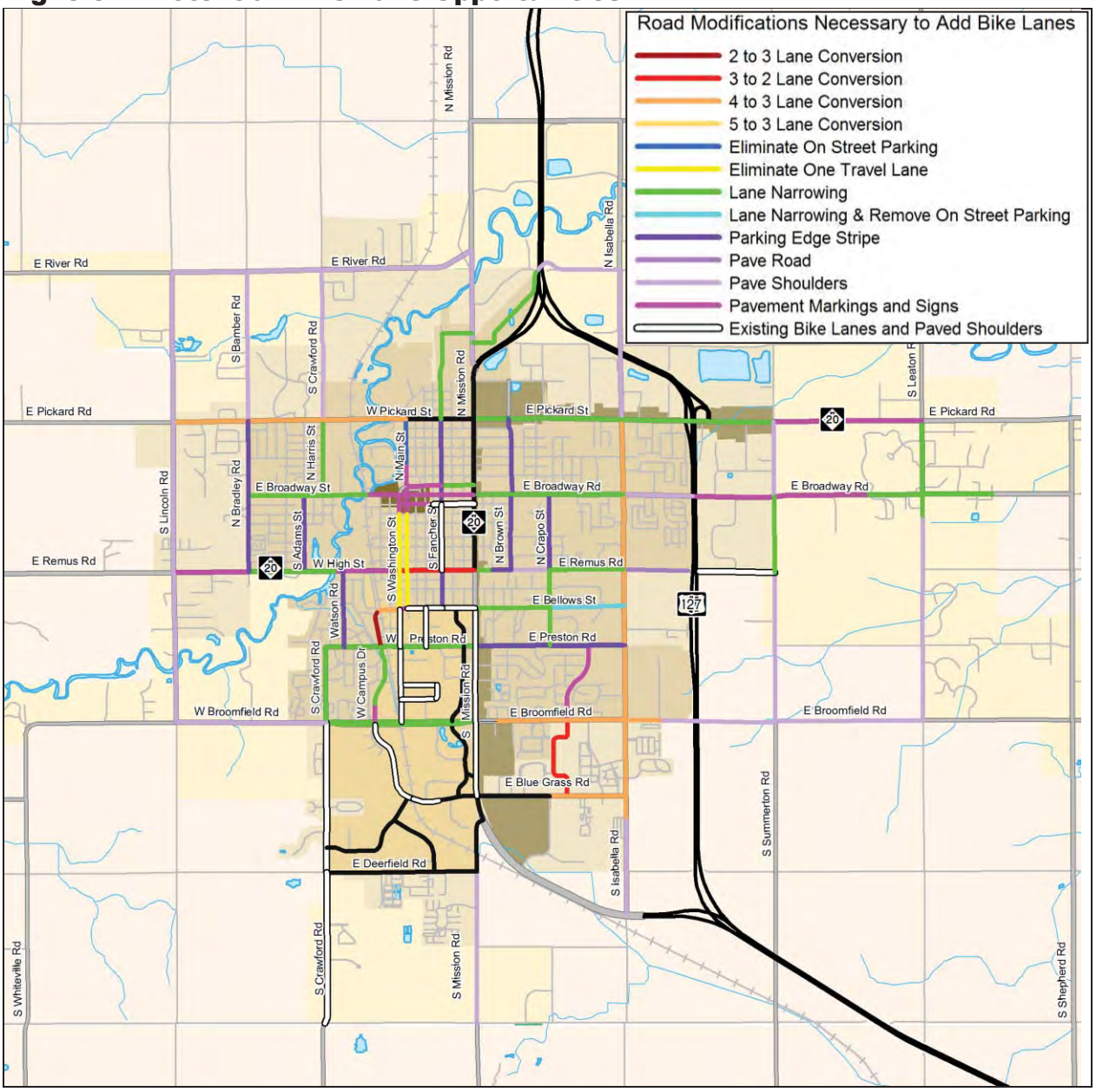
There are about 8 miles of existing bike lanes/paved shoulders in the Greater Mt. Pleasant Area. However, they are inconsistent and do not connect to make a complete system.

Fig. 3.3D. Existing Off-Road Trails and Roadside Pathways



There are 5.25 miles of existing trails and roadside pathways in the Greater Mt. Pleasant Area.

Fig. 3.3E. Potential Bike Lane Opportunities



There is tremendous potential to add bike lanes to the majority of the primary roads the near future just by restriping the roadway.

4. Proposed Facilities

Master Plan vs. Corridor Planning

The recommendations in this Section represent a Master Plan level evaluation of the suitability of the proposed facilities for the existing conditions. Prior to proceeding with any of the recommendations, a corridor level assessment should be done in order to fully evaluate the feasibility and appropriateness of any roadway modification and/or proposed bicycle or pedestrian facility.

Topics:

4.1 Non-Motorized Transportation Network

There is no such thing as a typical pedestrian or bicyclist. A single person's preferences for a walking or bicycle route may vary based on the type of trip. A person's daily commute route will likely favor directness of travel over a scenic route (but not always). An evening or weekend ride, walk or run for recreation and exercise will be based on an entirely different set of criteria. It will likely favor local roads and trails through parks and schools.

Individuals also vary greatly in their tolerance of traffic, hills, weather and numerous other factors. A child will likely choose to keep to local roadways on their way to school provided they have safe ways to cross busy streets. An adult who is just starting to bicycle again will likewise shy away from busy roadways, sticking to residential roads wherever possible. But an experienced bicyclist may choose the busy road for its directness of travel. The solution then is not one dimensional, but rather responds to the needs of the various users and trip types. By doing so the plan addresses the needs of the majority of the community's population, not simply a small interest group.

Bicycle and walking are not exclusive modes of travel either. Most bicycle trips will also include some time as pedestrian. Also, some bicycling and walking trips may be a part of a longer multi-modal journey. For example, someone may ride their bike to a bus and then walk from the bus to their final destination.

For all the reasons listed above, there needs to be a spectrum of non-motorized facilities available that gives the user the choice to choose the route that they feel most comfortable with. Off-road trails, neighborhood connector routes, sidewalks, roadside pathways and bike lanes are some of the most common facilities that make up the network.

List of Figures

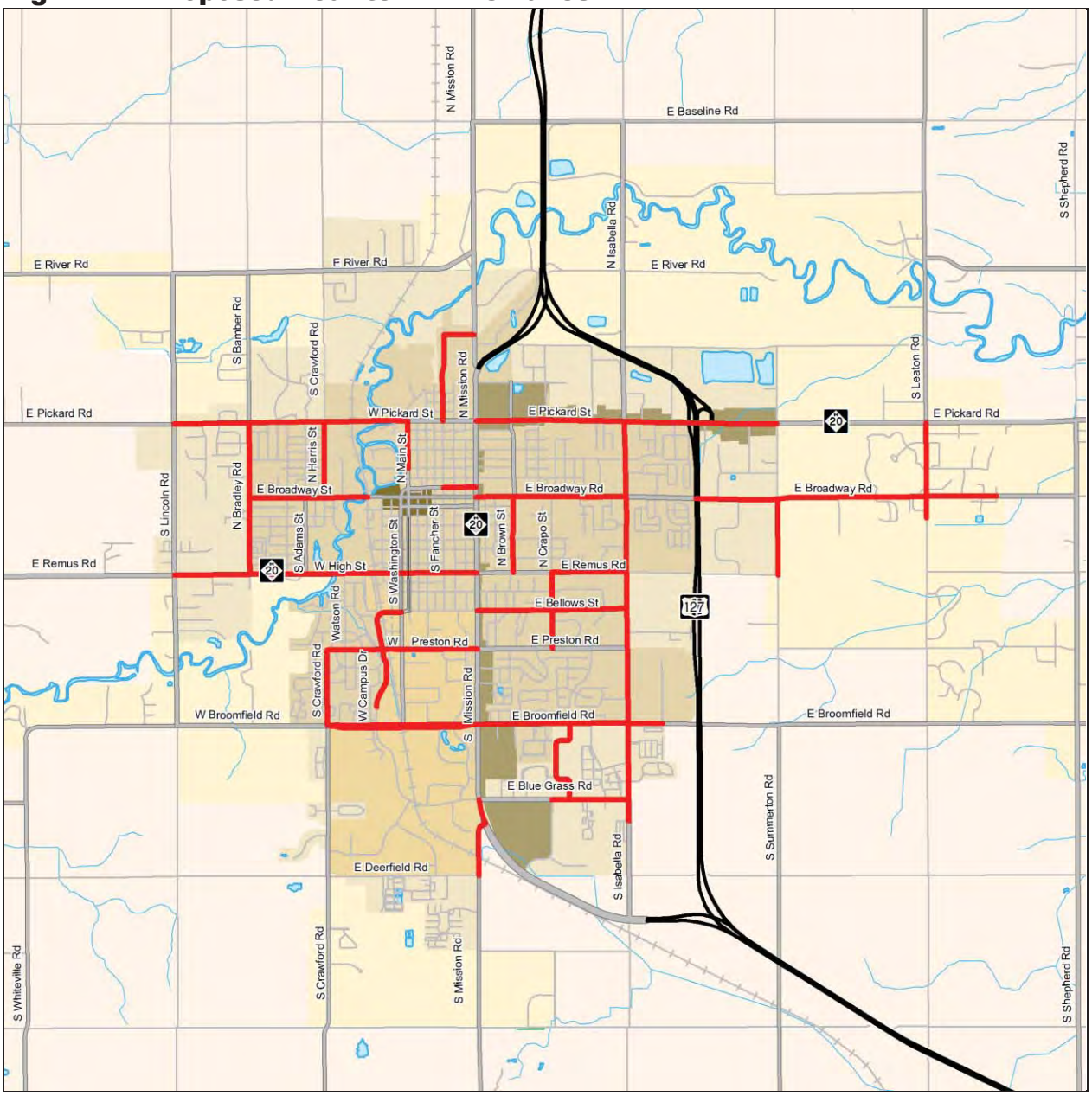
The following illustrations demonstrate the different elements that go into creating a non-motorized network along with the proposed non-motorized transportation improvements:

Fig. 4.1A. Spectrum of Non-motorized Routes

A non-motorized system is made up of a variety of routes that provide options for the user to choose their most comfortable route. The following chart gives a brief overview of some of the most common non-motorized facilities that are available.

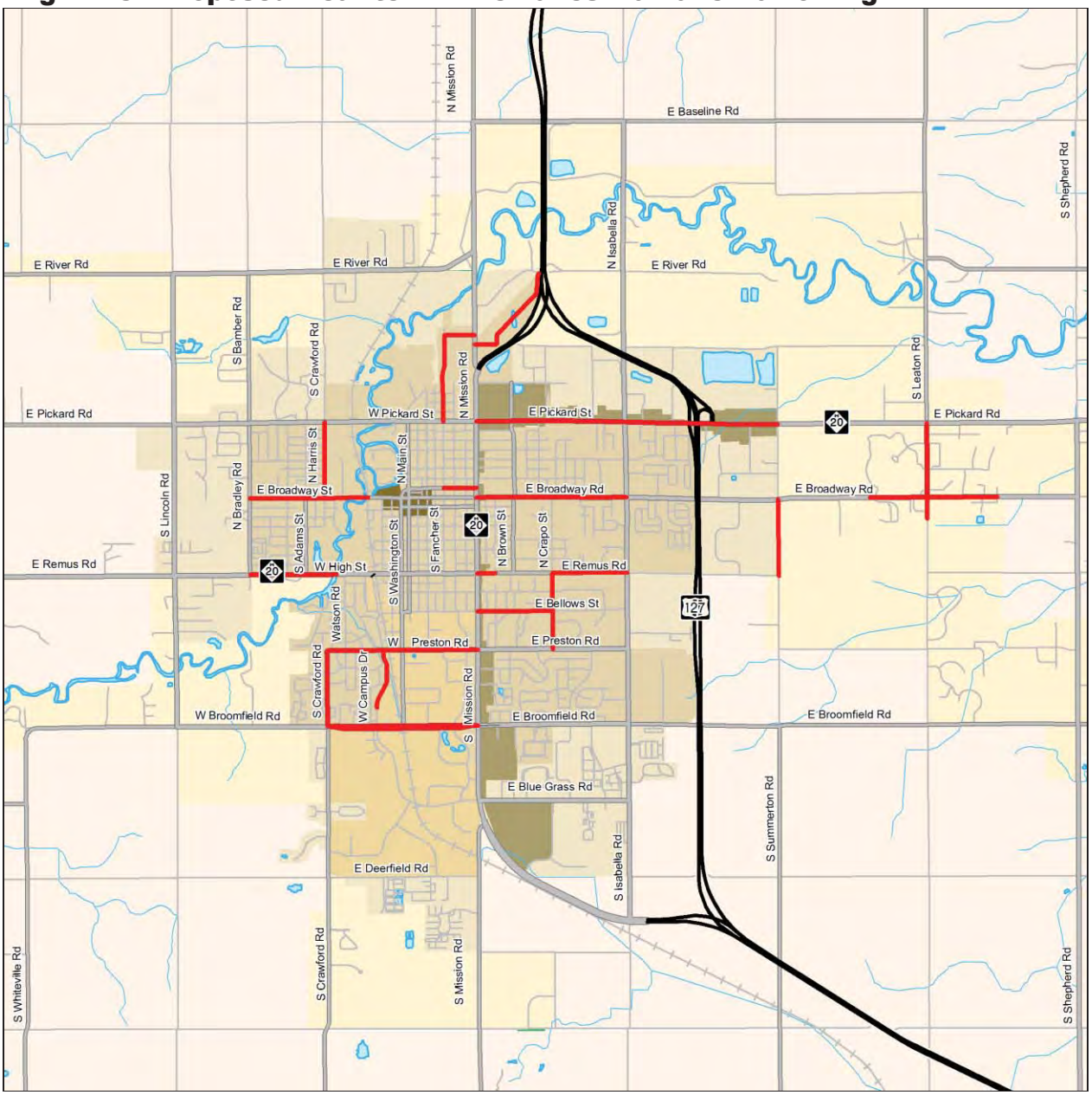
PRIMARY LINKS	NEIGHBORHOOD CONNECTORS	OFF-ROAD TRAILS
		
TYPICAL FACILITY TYPES:		
Complete Streets that may include the following: • Bike Lanes & Sidewalks • Sidepaths • Paved Shoulders • Shared-use Arrows • Road Crossing Improvements	Complete Streets that may include the following: • Guided Routes • Named Routes • Bike and Pedestrian Boulevards • Neighborhood Greenways • Crossing Improvements Where Neighborhood Connectors Intersect Primary Roadways	• Foot Trails • Soft-surfaced Trails • Hard-surfaced Trails • Road Crossing Improvements Where Trails Intersect Primary Roadways
CONTEXT AREAS:		
• Urban Suburban and Rural Primary Roads (Arterials and Collectors) • Urban and Suburban roads typically have bike lanes or shared lane markings paired with sidewalks or sidepaths • Rural typically has paved shoulders	• Urban and Suburban Local and Residential Roads • Connecting Pathways Through Neighborhood Parks and Schools • Provide alternative routes to busy Primary Links	• Major Parks • Waterfronts • Abandoned Rail Corridors • Active Rail Corridors • Transmission Corridors
PRIMARY TRIP TYPES:		
• Daily Transportation to Work and Personal Business	• Mix of Daily Transportation, Safe Routes to School and Close to Home Recreation	• Use Depends on Location • Recreation Destination
TRIP CHARACTERISTCS:		
• Users Typically Segregated Into Mode Specific Facilities Such as Sidewalks and Bike Lanes • Exposure to High Speed and High Volumes of Motorized Vehicle Traffic • Just as Direct a Path of Travel as Using a Motor Vehicle	• More of a Shared Space, Sidewalks May or May Not Be Present • Moderate Exposure to Low Speed and Low Volumes of Motorized Vehicle Traffic • In Some Cases Trips Via Neighborhood Connectors May Be Longer Than the Same Trip Via Complete Streets	• Non-motorized Users Separated from Motorized Vehicle Traffic • Minimal Exposure to Motorized Traffic at Roadway Crossings • Directness of Travel Depends on the Route and What Resources It Connects

Fig. 4.1B. Proposed Near-term Bike Lanes



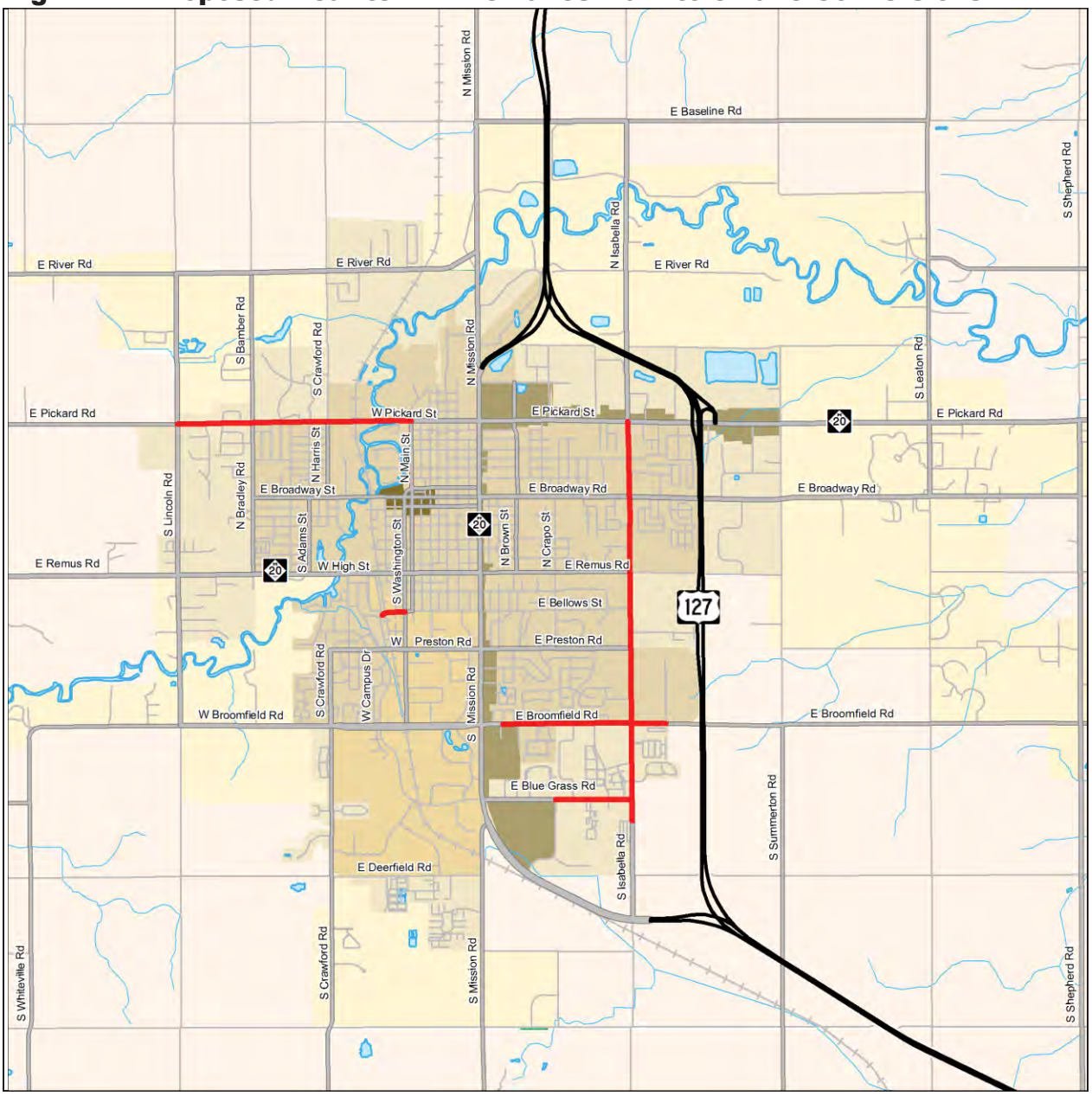
Approximatly 25 miles (40%) of the major roadways can have bike lanes added in the near term, with minor adjustments.

Fig. 4.1C. Proposed Near-term Bike Lanes via Lane Narrowing

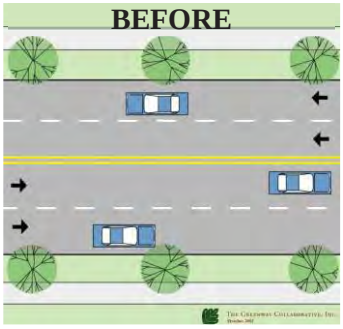


Approximatly 13 miles (20%) of the major roadways can have bike lanes added in the near term, just by restriping the roadway to narrow the lanes.

Fig. 4.1D. Proposed Near-term Bike Lanes via 4 to 3 Lane Conversions



Approximately 6 miles of bike lanes could be add in the near-term through 4 to 3 lane conversions. Please refer to Section 5.6 Modifying Existing Facilities for more information on 4 to 3 lane conversions.



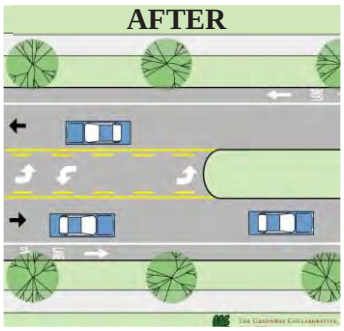
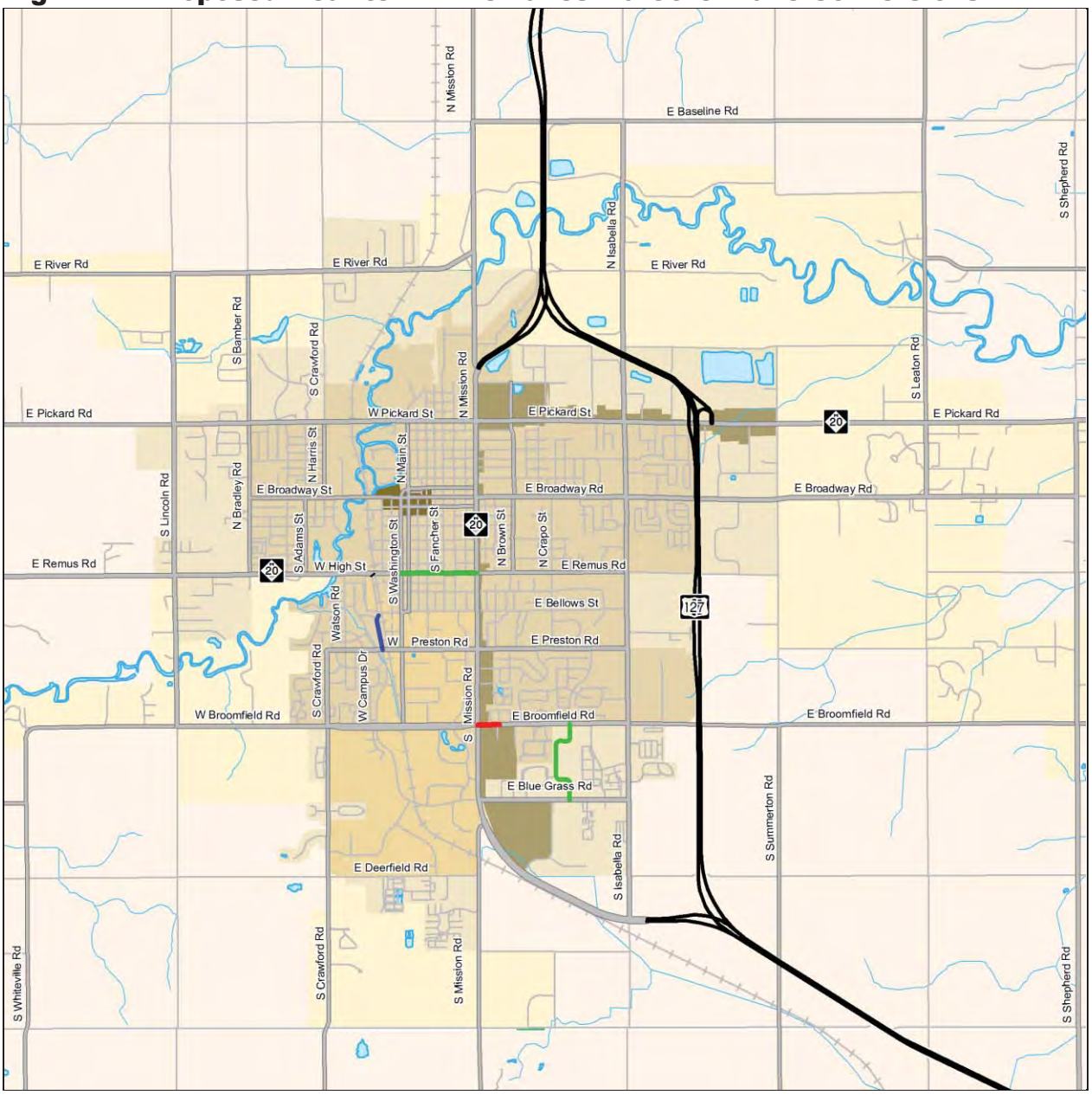


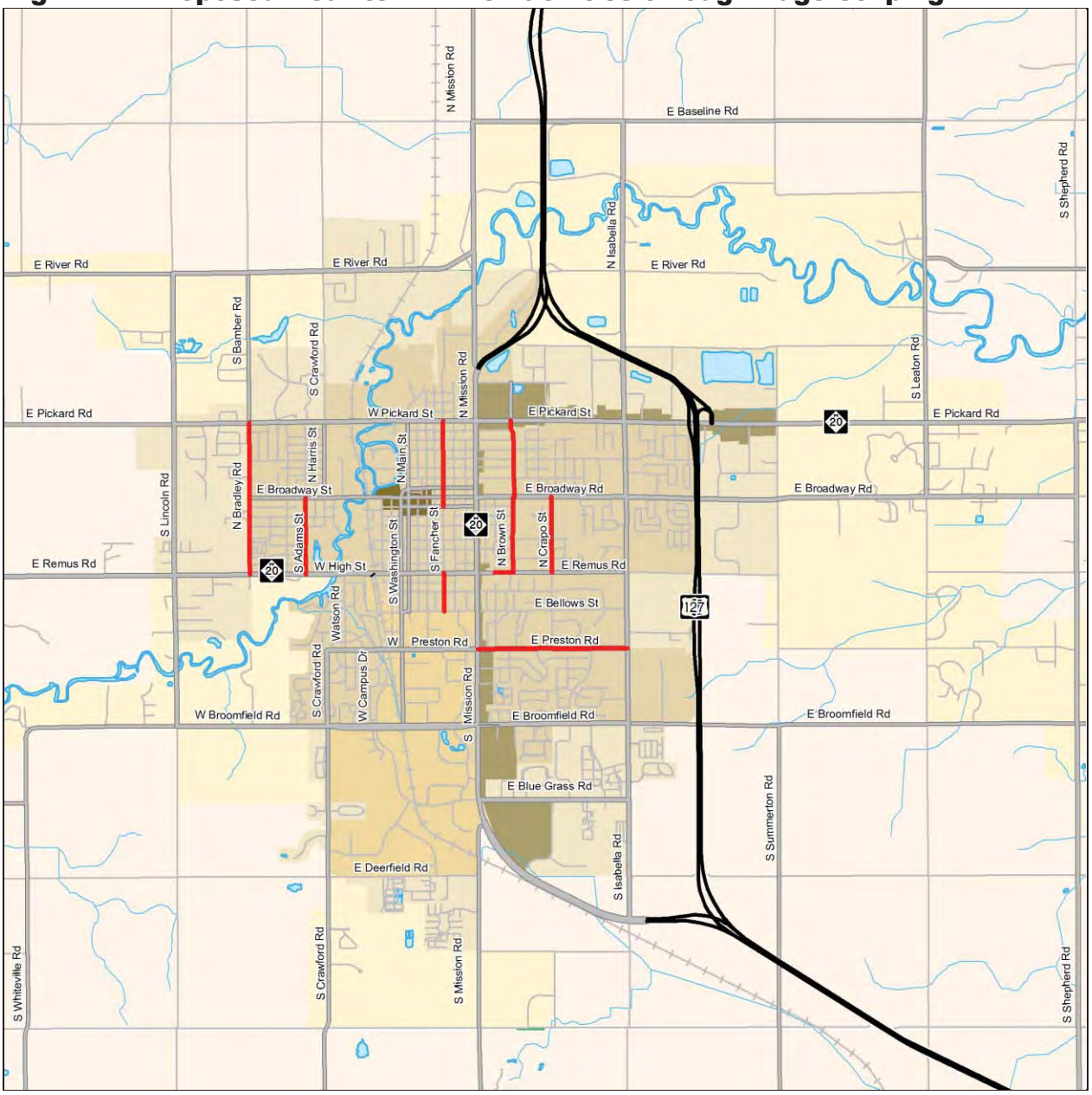
Fig. 4.1E. Proposed Near-term Bike Lanes via Other Lane Conversions



Approximately 1.5 miles of bike lanes could be add in the near-term through 5 to 3 lane conversions, 3 to 2 lane conversions and 2 to 3 lane conversions.

5 to 3 Lane Conversion
3 to 2 Lane Conversion
2 to 3 Lane Conversion

Fig. 4.1F. Proposed Near-term Bike Facilities through Edge Striping

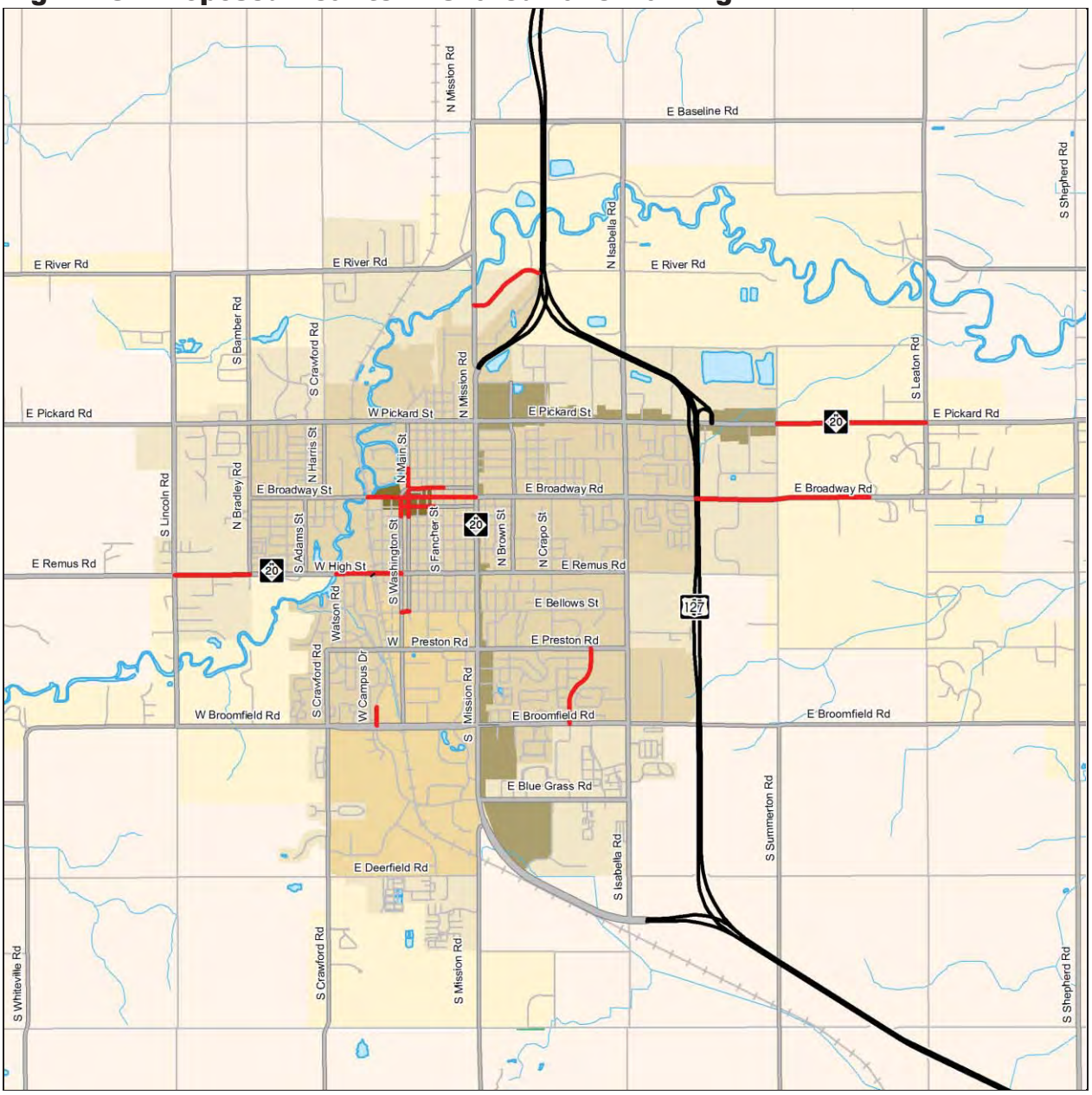


Edge Stripes are recommended for roadways that do not have enough room for a designated bike lane. These roads typically have on-street parking that is used rarely or only during certain events. On these roads, the parking area is defined with a stipe 7 to 8' from curb. Bikes may use the parking area when cars are not present. The striped off area also creates a traffic calming effect because it visually narrows the roadway.

Approximately 6.5 miles of Edge Stripe can be added in the near-term

This plan only recommends Edge Stripes along the neighborhood connector routes. However, many of the local roads in the project area are very wide with limited on street parking, and if desired Edge Stripes should be implemented on other local roads that are not identified in this plan.

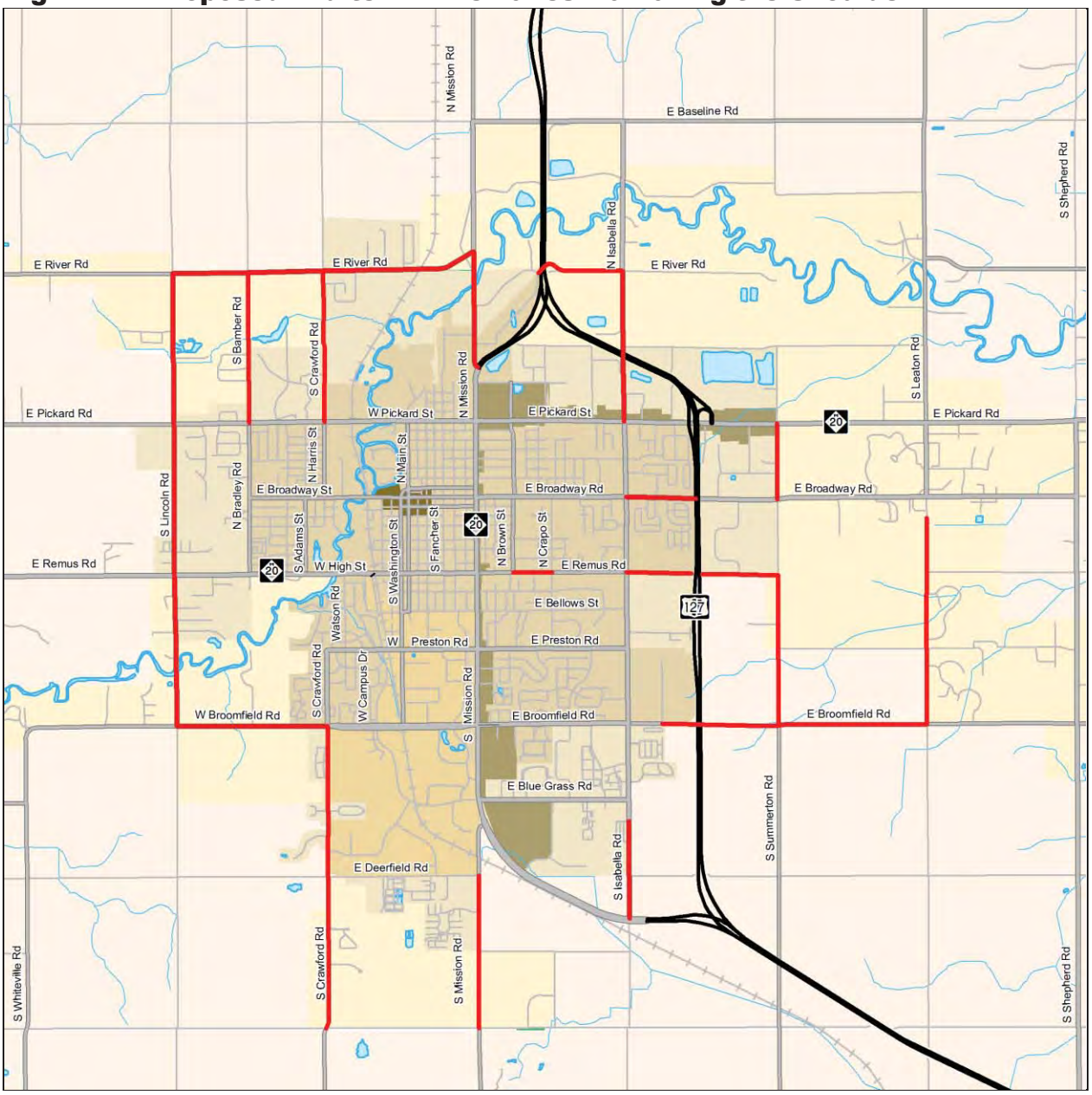
Fig. 4.1G. Proposed Near-term Shared Lane Marking



Shared Lane Markings are used for on-road bicycle facilites where the right-of-way is too narrow for designated bike lanes. The shared lane marking alerts cars to take caution and allows cyclists to safely travel in these lanes when striping is not possible. Typically they are used in downtwon streets where there is not room for a bike lane, there is on-street parallel parking and bicycles are discouraged from using sidewalks. They are often used in conjunction with a Shared the Road Sign.

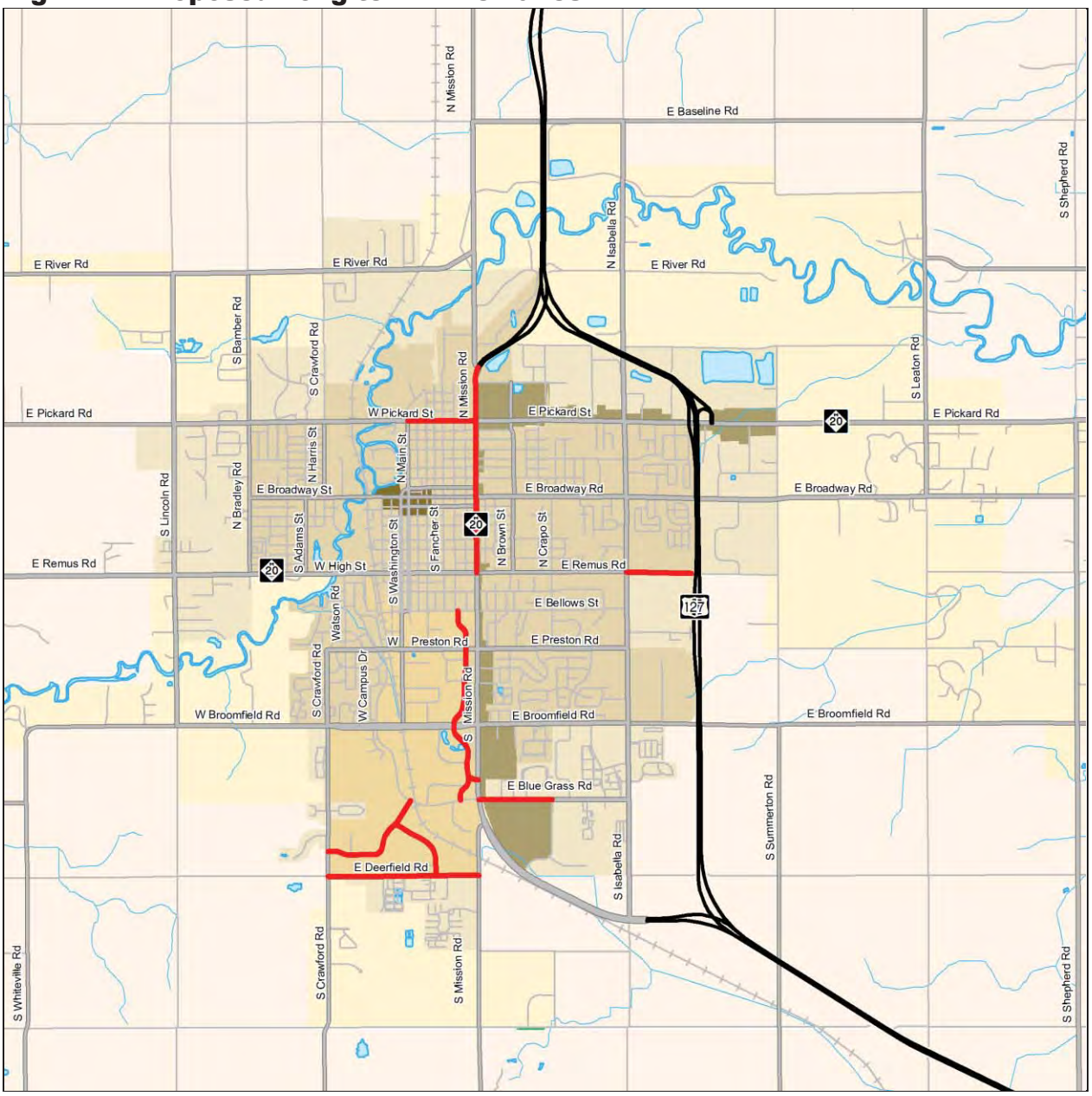
Approximately 2.5 miles of Share Lane Markings can be added in the near-term

Fig. 4.1H. Proposed Mid-term Bike Lanes via Paving the Shoulder



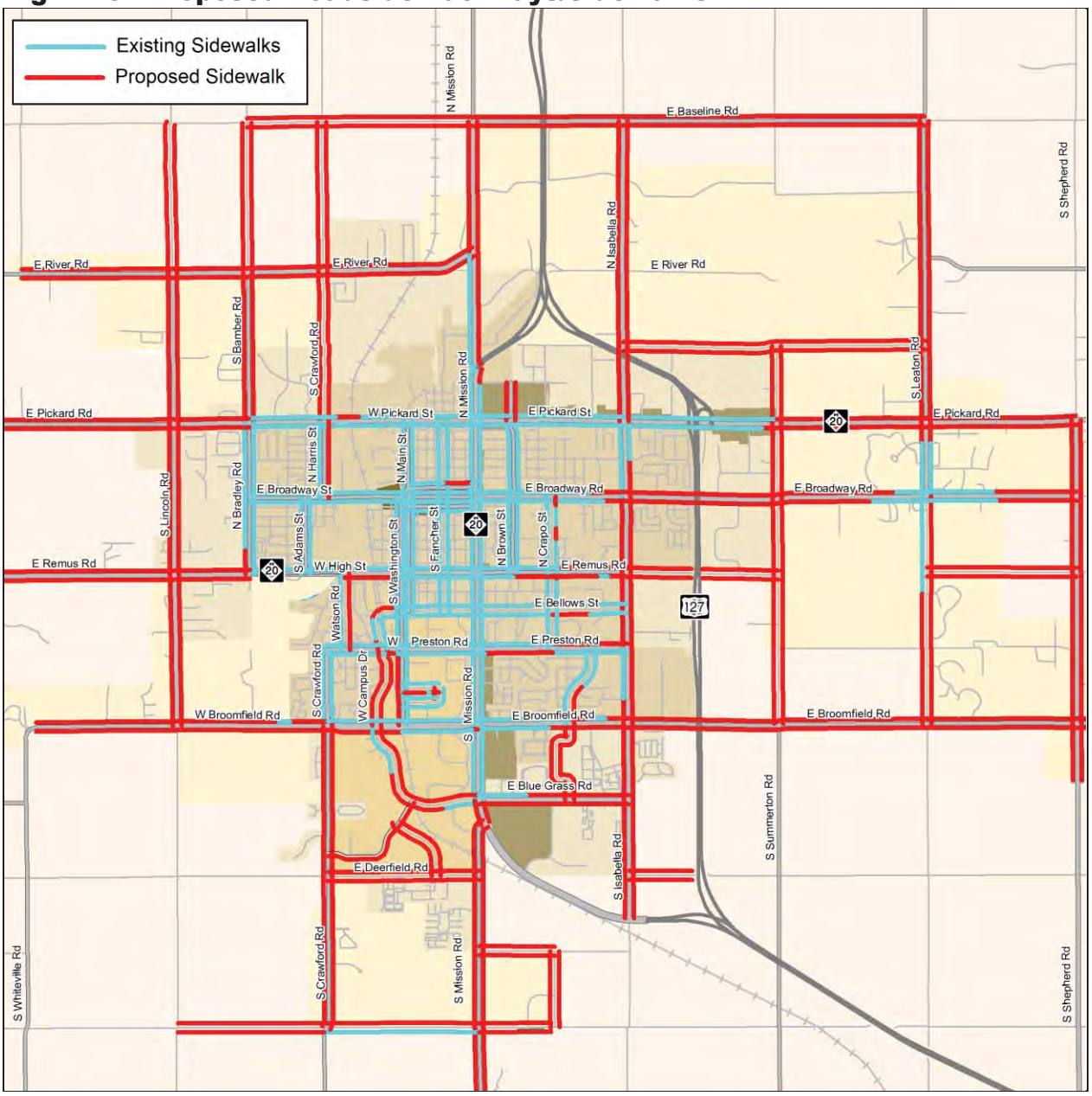
Approximately 20 miles (30%) of the primary roadways can have bike lanes added in the mid-term by paving the road shoulder.

Fig. 4.1l. Proposed Long-term Bike Lanes



Approximately 7 miles (10%) of the primary roadways can have bike lanes added in the long-term. These generally are due to a narrow roadway and bike lanes should be implemented when reconstruction occurs on the roadway.

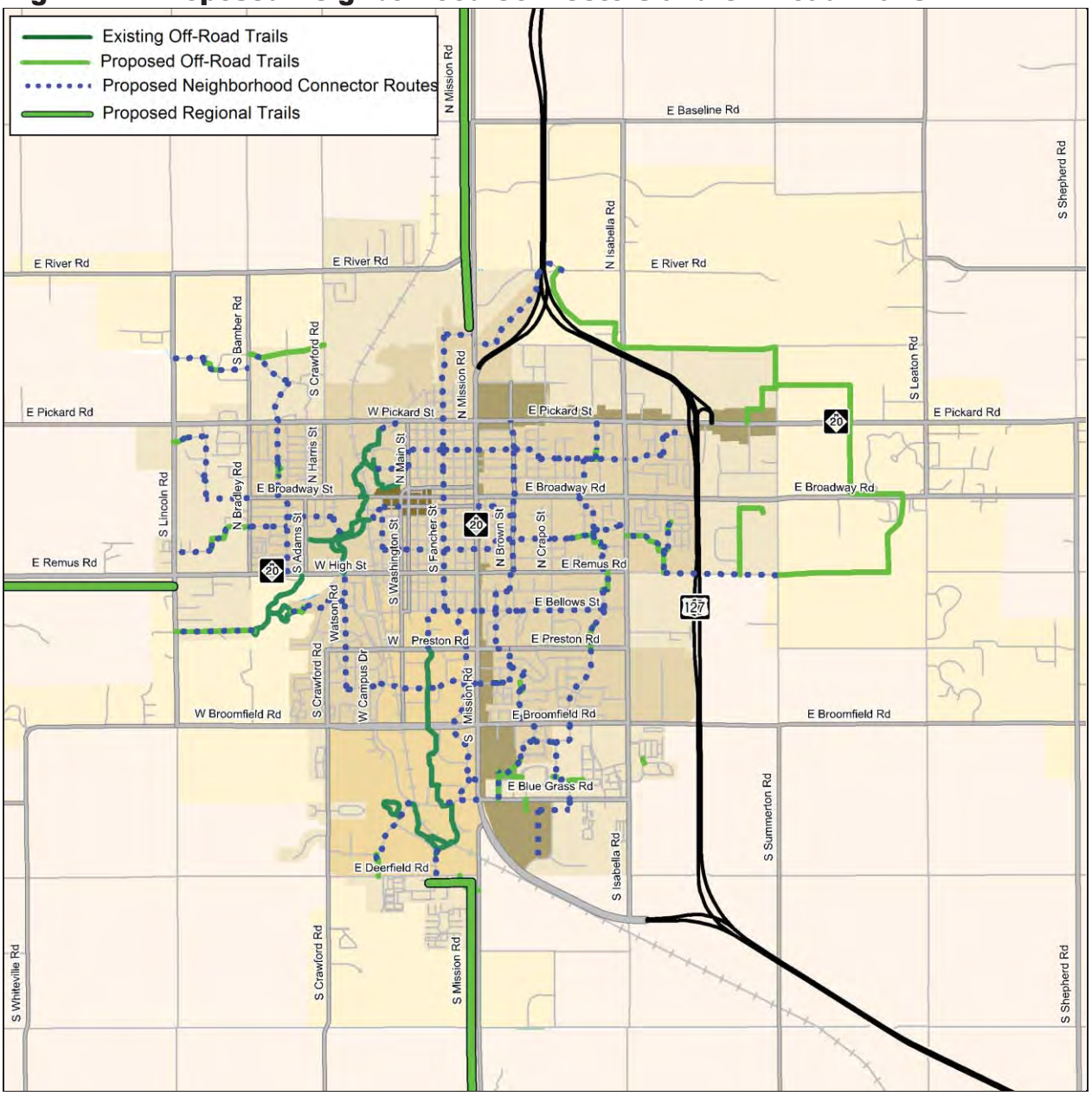
Fig. 4.1J. Proposed Roadside Pathways/Sidewalks



Ideally, all roads should have sidewalks on both sides of the street in an urban environment. In the transistion areas where new development is occuring a sidewalk should be built on at least one side of the roadway in the near-term. It is recommended that sidewalks along major collector and arterial roads have a minimum 6' wide a buffer zone and vertical elements such as trees between the sidewalk and road. Please refer to Section 8.1 and 8.4 for more details.

There are approximately 74 miles of proposed sidewalks.

Fig. 4.1K. Proposed Neighborhood Connectors and Off-Road Trails



The neighborhood connector routes and off-road trails provide connectivity between destinations around the city for bicyclists who would not be comfortable bicycling on the primary road system, even if bicycle lanes were present.

Please note that neighborhood connectors are not just restricted to the routes highlighted above. If elements of neighborhood connectors are desired, they could be used elswhere in the city as a means to calm traffic, provide non-motorized links and enhance a streetscape.

There are approximately 23 miles of neighborhood connectors, 4 miles of short connector pathways and 5 miles of off-road trails proposed.

Fig. 4.1L. Neighborhood Connectors Examples

GUIDED ROUTES:

At each decision point signs, about the size of a typical street sign, indicate the route direction, destination and distance

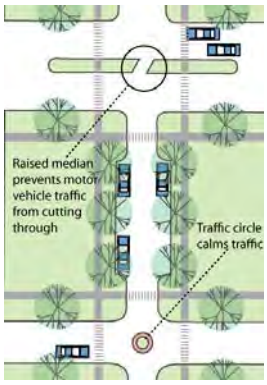
- Located primarily on low speed, low traffic volume local roads and connecting pathways
- Signs provide wayfinding by noting direction and distance to key destination such as schools, parks and the downtown
- Identify routes that may not be obvious to someone who is unfamiliar to the area
- Along the route signs are used periodically to reassure users they are still along the route

NAMED ROUTES:

- Incorporates the elements of the Guided Routes
- Provides trail system branding and specific route identification
- Are helpful in providing consistency where a long-distance route is comprised of a number of different facility types
- Generally used on routes that provide key connections between major destinations – something worthy of a name or number

BICYCLE AND PEDESTRIAN BOULEVARDS:

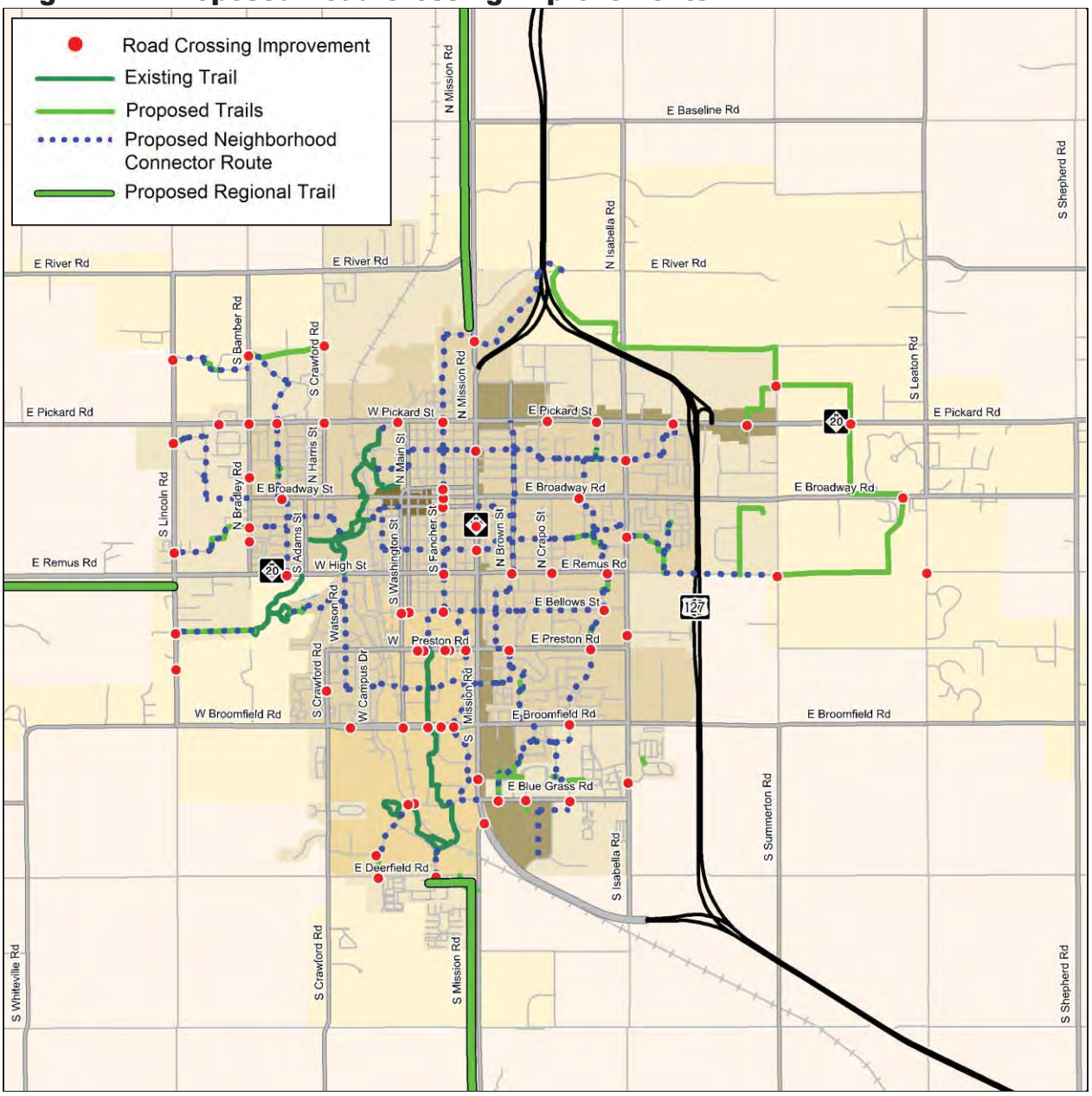
- Generally Incorporates the elements in Guided Routes, and Named Routes
- Route is optimized for bicycle travel while discouraging through motor vehicle traffic via tools such as motor vehicle diverter islands that are permeable to bicycles and pedestrians
- Motor vehicle speeds reduced through calming measures
- Stop signs and yield sign are oriented to provide unimpeded flow of bicycle traffic



NEIGHBORHOOD GREENWAYS:

- Incorporates elements of the Guided Bike Routes, Named Bike Routes, and Bicycle Boulevards
- Designed for pedestrian and bicycle use
- Contains elements that reflect the character of the surrounding community such as natural areas, local art, community gardens and historic features.
- Has sustainable design elements such as rain gardens and permeable pavement

Fig. 4.1M. Proposed Road Crossing Improvements



Road Crossing Improvements are needed in areas where there is a high demand to cross. These areas occur where a bike route crosses a collector or arterial road, a major bus stop or bus shelter is present, there is a long distance between crosswalks, or there is a high demand based on land use and population density.

This map illustrates where crossing improvements are needed. Many of these crossings are addressed in the implementation plan with the neighborhood connector routes and major corriodor developments. However, if demand is present they can be implemented sooner. Please note that these are initial recommendations and they need to be studied further prior to implementation.

Fig. 4.1N. Road Crossing Improvements Examples

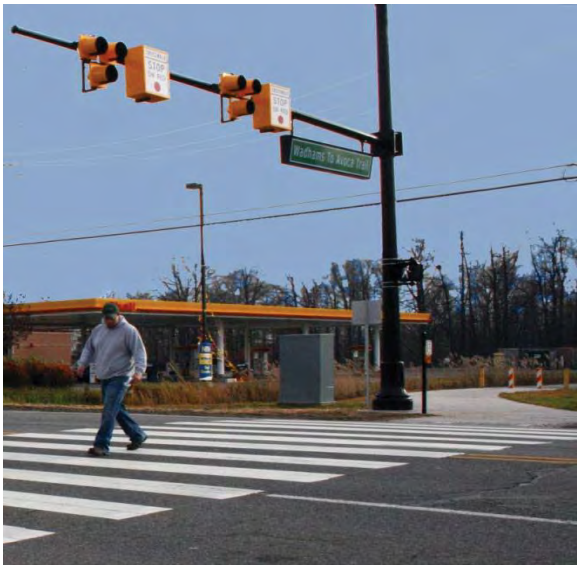
ACTUATED RECTANGULAR RAPID FLASH BEACON:

- High intensity LED flashers that are paired with crosswalk signs
- LED flashers alternate and get motorist attention when activated
- Push-button or passively activated
- Can be linked to advanced warning signs with LED flashers
- Solar powered models available
- Passive activation works best when there is a long pedestrian approach, such as a pathway

CROSSING ISLAND:

- Pedestrians only have to cross one direction of traffic at a time
- Provide Storage area for pedestrians waiting for acceptable gaps in the flow of traffic before completing the street crossing
- Can be combined with Actuated Rectangular Rapid Flash Beacons
- Good for locations where there are three or more busy lanes and/or high speed roadways

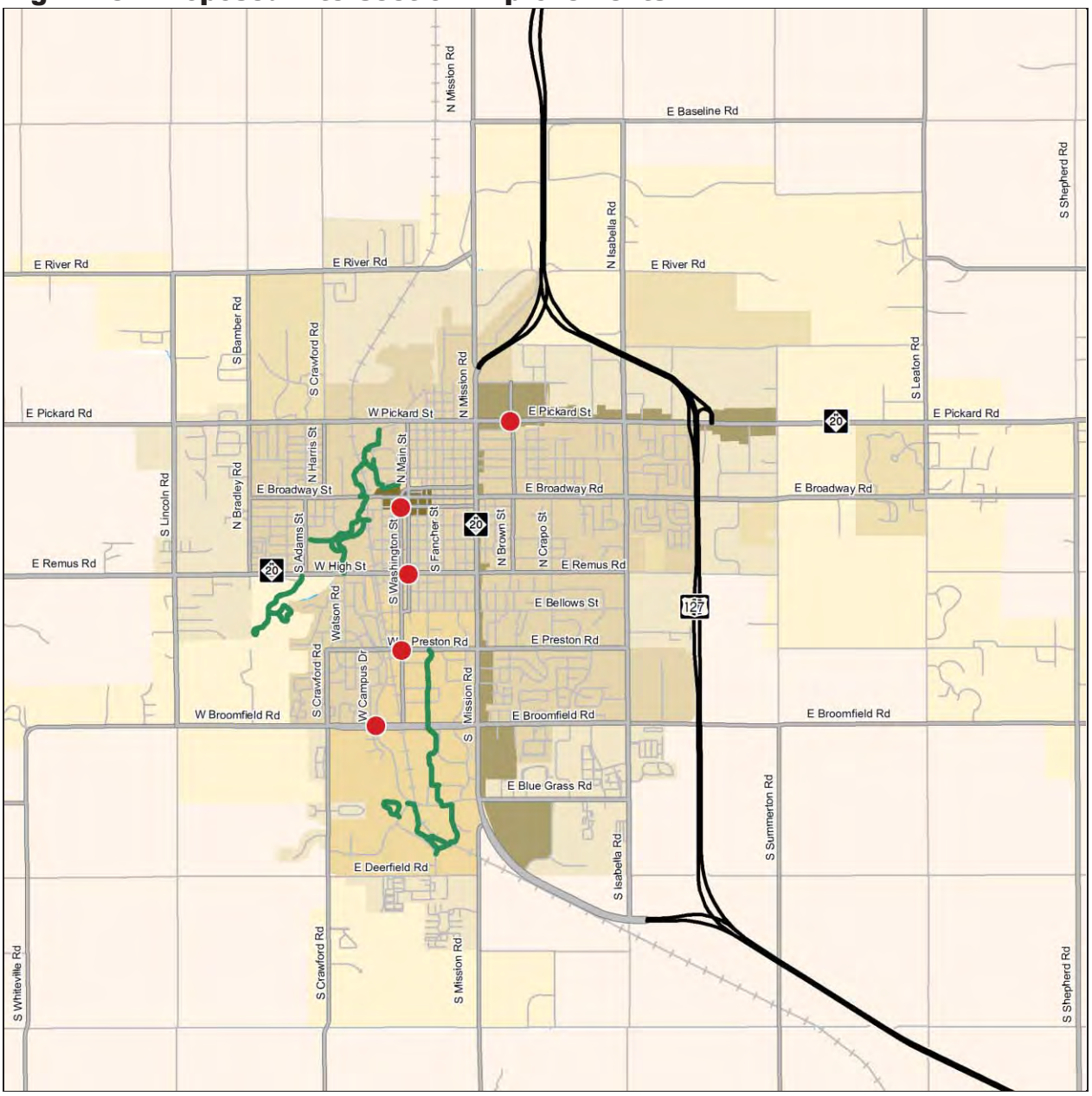
HYBRID PEDESTRIAN SIGNAL:



- Used to help pedestrians cross mid-block where a traditional pedestrian crosswalk signal would be inappropriate
- Minimizes delay to motor vehicle traffic
- Good for locations where there are few usable gaps in traffic, usually on high speed/high volume roadways when a crossing island is not feasible

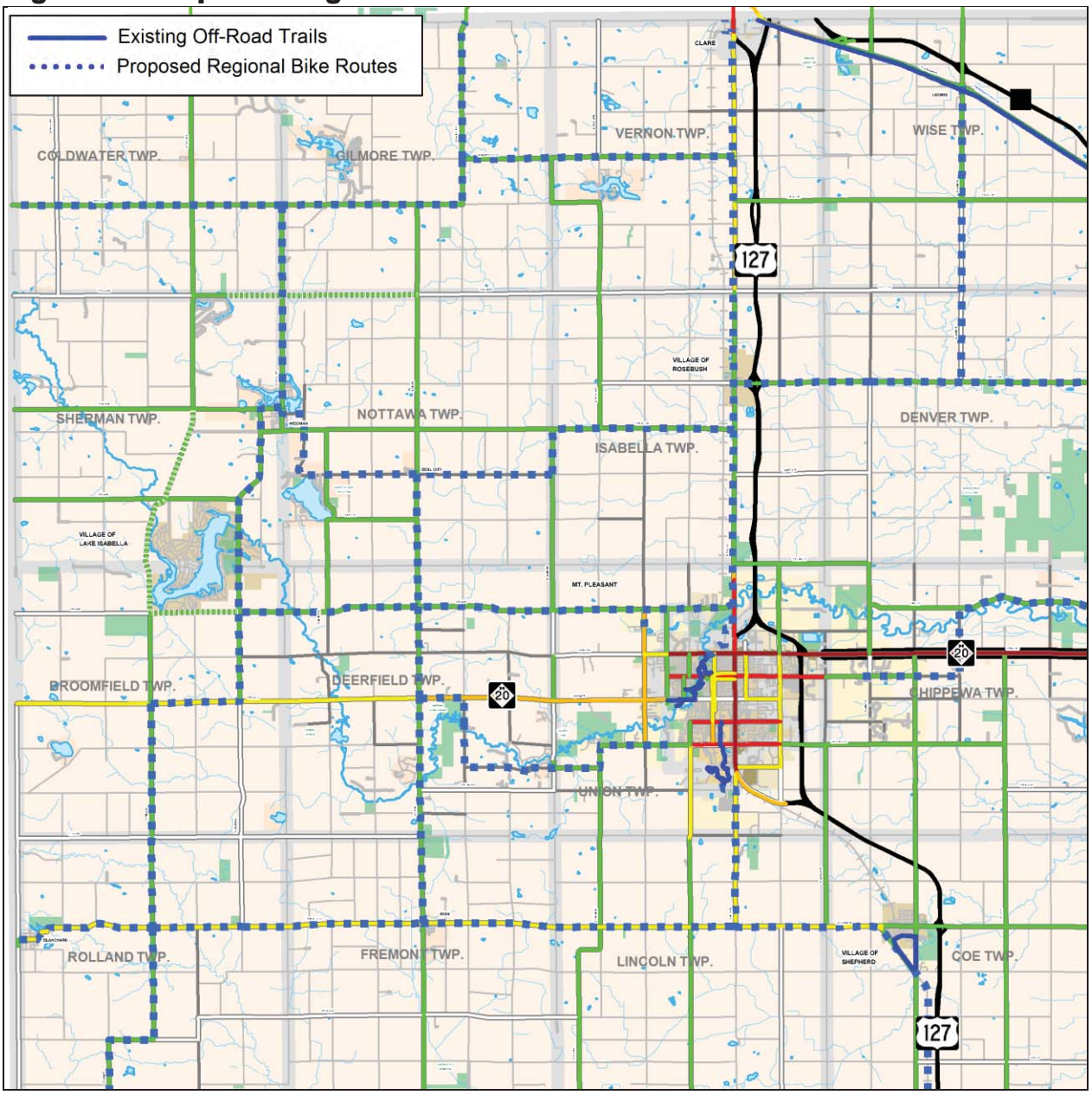
The signal is kept dark at its resting state. When a pedestrian activates the crossing button, a flashing yellow signal is displayed to motorists. This is followed by a steady yellow then a solid red at which time the pedestrian is displayed a walk signal. During the clearance interval, the motorists are displayed an alternating flashing red signal. Motorists may then move forward if the pedestrian or bicyclist has already crossed the road.

Fig. 4.10. Proposed Intersection Improvements



cImprovements at intersections need to address, directional ramps, high visibility crosswalk markings and ADA issues.

Fig. 4.1P. Proposed Regional Connections



The proposed regional connectors are generally on- road routes with some existing segments of paved shoulder. They are on paved, low-volume roads where wayfinding would be used to help with navigation across the county. There are 188 miles of proposed regional connections.

4.2 Specific Area Concept Plans

The following concept plans were prepared to show how some of the ideas of the Non-motorized Plan may be applied to specific areas. These concept plans should not be taken as completely developed designs. Rather, they are to illustrate a design idea. The areas shown will require separate design studies that may involve a more detailed investigation of the site conditions including public input and the development of alternatives and draft preliminary plans.

Mission Road

Mission Road is a state trunk line route that passes through the center of the City of Mt. Pleasant. It is bordered by commercial centers and serves as the US-127 Business Route through town. It is a five lane road with extremely high traffic volumes and numerous driveway intersections. Overall this corridor is not a bicycle and pedestrian friendly environment, although the recently added edge stripe and improved intersections have improved the corridor significantly.

According to the public workshops and surveys, this corridor presents the most challenges for bicyclist and pedestrians who want to navigate this corridor. With business and residential neighborhoods on both sides of the street and a major university to the west, there is a lot of demand for non-motorized travel both along and across the street.

Currently, there are very few opportunities to add medians for mid-block crossings. Even with access consolidation it may be difficult to find locations for crossing islands because there are so many driveways and generally short blocks. Much of the cross-corridor pedestrian and bicycle demand is at intersection streets.

Mission Street will likely never be a pedestrian and bicycle focused corridor because it was designed to move vehicles. In the near and mid-term focus should be on providing safe crossings, alternative routes and improving the pedestrian environment of redevelopments. Also, continue the mixed-use, short set-back development proposed in city plans.

Recommendations for Near and Mid-term Improvements include:

- Provide parallel routes East and West of Mission Road along the local neighborhood roads that provide connection to the business district from behind
- Improve the buffer between the street and sidewalk by adding pedestrian scale lighting and street trees
- Improve the Signalized Crosswalks by including countdown signals, high visibility crosswalks and directional ramps
- Add crossings between signals

Example: Stadium Blvd in Ann Arbor, Michigan

Locations along Mission Street Slated for Road Crossing Improvements

Below are locations that were identified based on public input, proposed routes and demand based on land use.

Intersections:

- Andre Avenue
- Wisconsin Avenue
- Maple Road
- Mission Road at US 127Business Route

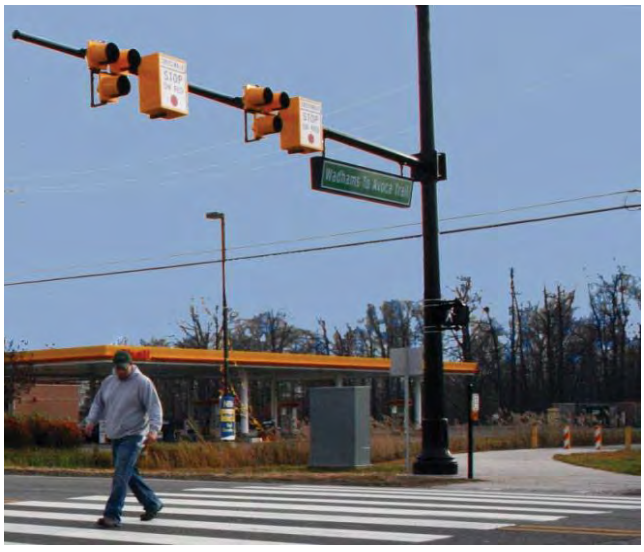
Midblock:

- Mission Mall – A crossing island could be incorporated here

Crossing Improvement Options at Road Intersections

Eliminate Left Turn Lane
There is potential to eliminate one left-turn movement and add a Crossing Island at intersections. Since there is a short distance between intersections, vehicles would only have to go an extra block to make the turn. A similar example of this can be seen on High Street where the Washington and Main Street intersect High Street. This could work at Lincoln Street, Wisconsin Street and Maple Street

Pedestrian Hybrid Beacon
There is potential to add Pedestrian Hybrid Beacon, although these would probably require mitigating measures as they generally should not be used at intersections. Pedestrian Hybrid Beacons are generally good for locations where a crossing island is not feasible. They generally should not be used within 100' of an intersection, but may be used if validated by engineering study. This could work at Lincoln Street, Wisconsin Street and Maple Street



Example: Waddams to Avoca Trail in St. Clair County

Toucan Crossing

Toucan Crossings are essentially a Pedestrian Hybrid Beacon but placed in the middle of the cross street. They eliminate through traffic and left turns for vehicles. Bicyclists and pedestrians cross the intersection at the middle of the road. The signal is only for bicyclists and pedestrians and is activated through a push button or passive detection. Bicyclists respond to a bicycle signal and use a special lane when crossing the roadway. Pedestrians get a standard WALK indication and have a separate, adjacent crosswalk. Motorists receive a standard signal. NO TURN ON RED should be implemented to prevent motorist from making a right turn in order to allow bicyclist to safely merge back onto the roadway after crossing the intersection.

Example: From Tucson, Arizona at, www.tocsonaz.gov

Toucan Crossings are placed at locations of heavy bicycle and pedestrian crossing activity and where roadways are prioritized for non-motorized uses, such as neighborhood connectors. A benefit of the Toucan Crossing is that motorized traffic in not allowed to proceed through the signal, decreasing the number of cars on the neighborhood street, thus enhancing the neighborhood connector route for bicyclists and pedestrians.

Numerous installations have been done in Arizona, but this would be the first in Michigan. This could work at Andre Avenue, Wisconsin Street and Maple Street.

Typically, Pedestrian Hybrid Beacons are not recommended to be used at the intersection of roadways, however, given that the Toucan configuration mitigates many of the concerns of Hybrid Pedestrian Signals at intersections, it can be justified with an engineering study.

4.3 Projected Energy Savings

The desire to expand non-motorized transportation choices is generally driven by two factors. First, is the goal to accommodate non-motorized transportation given the numerous economic, social and public health benefits. The second goal is to reduce the number of Vehicle Miles Traveled (VMT) and the corresponding reduction in Green House Gas (GHG) emissions. This could include shifting trips from single occupancy motor vehicles to bicycling, walking or transit. Regardless of the goal, the question is what change in transportation choices will occur if the environment for walking or bicycling is improved?

Answering this question precisely is hampered by limited data, sparse research on the subject, and the nuances that go into any transportation choice. What is likely, though, is that the number of people who walk and bicycle will increase when the environment for bicycling and walking is improved. It should be noted though that these increases in walking and bicycling do not necessarily have a reciprocal increase in bicycle and pedestrian crashes. Rather, with improved facilities and increases in the number of bicyclists and pedestrians, the crash rates typically decrease as motorists become accustomed to the presence of non-motorized traffic.

One of the least understood aspects of transportation planning is the notion of self-selection. It has been demonstrated that individuals who move to an area with a better non-motorized environment will indeed walk and bicycle more[1]. What is unknown is how much of that increase is the result of the environment alone vs. how much is the result of an individual's choice to live in a place because its environment supports bicycling and walking.

Existing Commuter Mode-split

To understand the Greater Mt. Pleasant Area potential to increase the number of people walking and bicycling, it is helpful to look at the areas current bicycling and walking trends compared to other communities. Then we may be able to gauge approximately how many more people may be enticed to walk and bicycle.

The mode-split is the overall proportion of trips made by a particular mode of travel. This information is generally determined by surveys or census data. When looking at how the Mt. Pleasant area compares to other cities between 20,000 and 40,000 in population, its pedestrian and bicycle commute numbers are the highest. The percent that commute by bike, 1.5%, is well above the peer city average of 0.3% and the national average of 0.5% and. The percent that walk, 15.9% is significantly higher the peer city average of 3.4% and the national average of 2.8%. These numbers can likely be attributed to the presence of CMU and MMCC in combination with the relatively compact nature of the city.

[1] Krizek, Kevin J., Residential Relocation and Changes in Urban Travel: Does Neighborhood-Scale Urban Form Matter? *Journal of the American Planning Association*. Spring, Vol. 69, No. 3, p.265-281.

Table 4.3A Commute to Work Comparison (20,000 to 40,000 Population)

			% of Commuters Who:				Percent
Rank	Place	Pop.	Bike	Walk	Use Transit	Don't Drive	Households W/O Car
1	Ypsilanti	22,403	0.4	15.6	4.6	20.6	14.1
2	Mount Pleasant	26,101	1.5	15.9	0.7	18.2	10.0
3	Holland	35,211	0.5	7.8	1.1	9.3	7.5
4	Hamtramck	22,976	0.2	4.9	3.6	8.7	20.5
5	Port Huron	32,363	0.9	3.9	1.8	6.6	13.9
6	Adrian	21,497	0.3	5.5	0.7	6.5	10.2
7	Jackson	36,316	0.4	3.1	1.5	5.0	15.6
8	Inkster	30,115	0.6	2.2	2.2	5.0	14.9
9	Bay City	36,817	0.4	3.1	1.2	4.7	11.3
10	Monroe	22,349	0.1	2.6	1.1	3.8	11.8
11	Ferndale	22,105	0.3	1.9	1.3	3.4	8.2
12	Oak ParK	29,793	0.2	2.1	1.2	3.4	9.6
13	Okemos	22,686	0.5	1.6	1.3	3.4	3.6
14	Eastpointe	34,077	0.1	1.3	1.0	2.5	7.8
15	Walker	21,795	0.1	1.4	0.9	2.3	5.6
16	Southgate	30,136	0.1	1.3	1.0	2.3	8.1
17	Wyandotte	28,006	0.2	1.9	0.2	2.3	7.8
18	Romulus	22,979	0.1	1.7	0.4	2.2	7.1
19	Madison Heights	31,101	0.3	1.1	0.7	2.0	8.6
20	Garden City	30,047	0.3	1.4	0.2	1.9	5.2
21	Allen Park	29,376	0.1	1.2	0.5	1.7	6.8
22	Burton	30,308	0.1	1.2	0.4	1.7	5.1
23	Saginaw Township North	25,061	0.2	0.5	0.5	1.2	8.2
24	Plymouth Township	27,650	0.1	0.7	0.1	0.9	4.3
25	Forest Hills	20,931	0.2	0.6	0.1	0.9	1.4
	Averages	**27,688**	**0.3**	**3.4**	**1.1**	**4.8**	**9.1**

From the US 2000 Census commute to work data as compiled in the online Carfree Census Database found at Bikesatwork.com, compiled by Bikes At Work, Inc., Ames, IA.

Probable Mode Shift Due to Environmental Change

California Department of Transportation (Caltrans) Air Resources Board has developed guidelines to determine the emission reduction benefits associated with auto trips replaced by bicycle trips. Their research concluded that the key aspect in projecting the percent of trips that may done by bicycle is the ratio of bicycle lane miles to arterial/freeway miles. They concluded that if the ratio is less than 0.35 then a 0.65% bicycle mode share should be projected. If the ratio is greater than 0.35 a 2% mode share should be used (or 6.8% for university towns).

While it may seem easy to dismiss these numbers because they are from California, a state with a much milder climate that Michigan, climate is not the factor most people think it is. In fact, the 2000 census commute data show that many of the cities with the highest percentage of bicycle commuters are from northern climates: Boulder, Colorado - 7.4%, Aspen, Colorado - 6.6%, Missoula, Montana -5.9% and Madison, Wisconsin, 3.29%. These percentages are also ten years old. The 2009 National Household Travel Survey found that bicycling and walking has increased by 25% from 2001.

Table 4.3B Existing to Proposed Conditions Comparison

Existing Conditions		
Primary Motorized Routes		
Freeways	10	Miles
Principal Arterials	5	Miles
Minor Arterial	22	Miles
Collectors	17	Miles
Total	**54**	**Miles**
Primary Pedestrian Routes		
Sidewalk / Roadside Path*	26.2	Total miles divided by two
Off-Road Trails	2.5	Miles
Total	**28.7**	**Miles**
Primary Bicycle Routes		
Bike Lanes	7.2	Miles
Edge Stripe	0	Miles
Shared Lane Marking	0	Miles
Bike Routes	0	Miles
Off-Road Trails	2.5	Miles
Total	**9.7**	**Miles**
Proposed Conditions		
Primary Pedestrian Routes		
Sidewalk / Roadside Path*	36.8	Total miles divided by two
Off-Road Trails	5.2	Miles
	42	**Miles**
Primary Bicycle Routes		
Bike Lanes	52.6	Miles
Edge Stripe	6	Miles
Shared Lane Marking	2	Miles
On-Road Bike Routes	32	Miles
Off-Road Trails	5.2	Miles
	97.8	**Miles**
* equals the equivalent of a road with sidewalks on both sides		
Comparisons		
Pedestrian		
Existing Miles of Pedestrian Routes	53%	of Existing Miles of Motorized Routes
Exist. + Prop. Miles of Ped. Routes	131%	of Existing Miles of Motorized Routes
Exist. + Prop. Miles of Ped. Routes	246%	of Existing Miles of Pedestrian Routes
Bicycle		
Existing Miles of Bicycle Routes	18%	of Existing Miles of Motorized Routes
Exist. + Prop. Miles of Bike Routes	199%	of Existing Miles of Motorized Routes
Proposed Miles of Bicycle Routes	1108%	of Existing Miles of Bicycle Routes

To determine the probable mode shift, a variation of the Caltrans approach has been used. Table 4.3B, Existing to Proposed Conditions Comparison, shows the comparison between existing primary bicycle and pedestrian routes and primary motorized routes for both existing and proposed conditions. The primary routes do not take into account the local residential roadways unless they are part of a designated bicycle route.

The data shows that currently, primary pedestrian routes are about 0.48 of the total of primary motorized routes. When looking at peer cities, the Greater Mt. Pleasant Area already has the highest walking mode share of 15.9% for commuters, the city of Ypsilanti is close behind at 15.6%.

Existing primary bicycle routes are 0.17 of the existing primary motorized routes. When completed the primary bicycle route system will be 1.9 of the primary motorized routes. Even when the system is only partially completed, the change will be significant. Looking at the peer cities, the Greater Mt. Pleasant Area already has the highest bike mode share of 1.5 %. Since the ratio is greater than 0.35 it seems reasonable that the Caltrans approach of a 2% mode share should be used once a bicycle system becomes substantially complete.

An 18% pedestrian and 4% bicycle mode share will be used for the targets. This represents 2.1% mode shift for pedestrians and a 2.5% mode shift for bicycles.

Reduction Vehicle Miles Traveled

Not all trip types are the same. People tend to devote more time to a trip to work than a trip to a grocery store. A 30 minute commute may be typical, but people generally would not spend more than 10 minutes traveling to a grocery store. And the average trip distance varies dramatically based on the mode. For example, a 30 minute commute to work may be 20 miles by car, 4 miles by bike or little less than 2 miles by foot.

Some trips are more likely to be undertaken via walking and bicycling than others. Many work commute trips do not require carrying substantial amounts of materials or supplies. But a trip to the grocery store to acquire a week or two worth of groceries is unlikely to be done by bike or foot. But, if a grocery store is located between home and work, a person's shopping patterns may change. They may find they make more frequent trips to the grocery store carrying only a few days worth of food home each time which is easily accomplished via foot or bike. This is very common travel and shopping pattern in some communities.

To estimate the trip and related greenhouse gas reduction, an estimate of the % of trip types that may be done by walking or bicycling has been made with a rough average of 2% overall. Also, for each trip type reduced, an estimate of the miles for that trip type has been made.

The end result is that with a substantially complete system, the Mt. Pleasant Area could expect to daily replace over 13,000 miles of automobile trips with bicycle or pedestrian trips. This would require on average for each person in the City to replace about 1/3 of a mile trip that currently done by automobile with a trip by bicycle or walking. The trip could be of any sort – a trip to work, the store, to visit with friends, for recreation or to school.

This would result in 34 fewer barrels of oil being used and 7 tons less of CO2 being released into the environment each day – that translates into about 12,402 barrels of oil and 2,520 tons of CO2 per year. The active transportation choices will also improve resident's health in many other ways.

Table 4.3C Estimated Trip and Greenhouse Gas Reduction

Vehicle Miles Traveled (VMT)							
	Greater Mt. Pleasant Area Population	39,854	City Estimate				
	Daily Trips per Person	4.03	2010 National Household Travel Survey				
	Daily Total Number of Trips	160,612					
	Average Vehicle Trip Length	10.10	2010 National Household Travel Survey				
	Daily Total Vehicle Miles Traveled	402,525	Miles				
Reduction in Vehicle Miles Traveled By Walking Trips:							
	Trip by Type	**Daily Total of Trips**	**Percent of Total**	**Reduction Goal**	**Trip Reduction**	**Trip Length**	**VMT Reduction**
	To or From Work	25,216	16%	2%	504	1	504
	Work Related Business	4,818	3%	0%	-	0.25	-
	Shopping	31,640	20%	1%	316	0.25	79
	All Other Family & Personal Business	38,707	24%	2%	774	0.5	387
	School/Church	15,740	10%	2%	315	0.5	157
	Social and Recreational	42,723	27%	3%	1,282	2	2,563
	Other	1,285	1%	0%	-	1	-
		160,130	100%	2.0%	3,191		**3,691**
Reduction in Vehicle Miles Traveled By Bicycle Trips:							
	Trip by Type	**Daily Total of Trips**	**Percent of Total**	**Reduction Goal**	**Trip Reduction**	**Trip Length**	**VMT Reduction**
	To or From Work	25,216	16%	2%	504	2	1,009
	Work Related Business	4,818	3%	0%	-	0.5	-
	Shopping	31,640	20%	1%	316	1	316
	All Other Family & Personal Business	38,707	24%	2%	774	1	774
	School/Church	15,740	10%	2%	315	1	315
	Social and Recreational	42,723	27%	3%	1,282	6	7,690
	Other	1,285	1%	0%	-	2	-
		160,130	100%	2.0%	3,191		**10,104**
	Reduction in Vehicle Miles Traveled	13,795	Miles Per Day				
		3.4%	Total Reduction in VMT				
		0.35	Miles Per Person/Per Day				
		5,035,297	Total Reduction in VMT Per Year				
Projected CO2 Reductions							
	CO2 Emission Factor	454	Grams Per Mile				
	Daily CO2 Reduction	6,263,081	Grams (based on 454 grams per mile)				
	Daily CO2 Reduction	6.90	Tons				
	Yearly CO2 Reduction	2,520	Tons				
Projected Fuel Savings							
	Daily motor gasoline savings	680	Gallons of Gasoline (based on avg. of 20.3 mi. / gal.)				
	Daily Oil Savings	34	Barrels of Oil (based on20 gallons of gas per barrel)				
	Yearly Oil Savings	12,402	Barrels of Oil				

5. Implementation Plan

Master Plan Adoption and Implementation

Adopting the Non-motorized Plan is the first step in the implementation process. Since there are many different agencies involved in this plan, each one will have to adopt the plan. The plan may be adopted in a few different ways, depending on what works best for each agency.

Typically, a non-motorized plan can be adopted in two ways. It can be adopted as an infrastructure improvement plan or as part of an existing community master plan. A community master plan usually contains multiple elements such as transportation, zoning, economic development etc. Adopting the non-motorized plan as part of a community master plan requires (Michigan Public Act 33 of 2008) the agency to send out the master plan to adjacent communities and the county for review for 42 days before the plan can be adopted. The alternative method is to adopt the plan as an infrastructure improvement plan and not part of the Master Plan. By doing this the agency does not have to meet the Act 33 requirement and can wait and include the Non-motorized Plan into the Community Master Plan next time it is updated, which at that point it would go through the Act 33 requirements.

Coordination

The Project Steering Committee contains representatives from all of the different agencies that will adopt this plan. This group should continue to meet after the plan has been adopted to provide residual coordination and to help oversee the implementation across jurisdiction boundaries. The group may want to expand to include representatives from the local school district, public health officials, police departments and other agencies as the group's mission expands.

Topics:

5.1 Implementation Plan

The proposed improvements fall into seven tasks. The first task is Initial Primary Corridors. This task includes projects that should be done first because they create key connections across the city that provide a backbone to the non-motorized system. The connections incorporate the existing pathways, employ near-term bike lane improvements and provide alternative routes to busy roads. These routes were determined based on public input, existing conditions, geographic distribution and desire to create key cross-community connections.

After the Initial Primary Corridors are completed, the following six tasks should be implemented concurrently as opportunities and funding become available. The six parallel tasks include the following:

- Bike Lanes
- Neighborhood Connectors
- Sidewalk Gaps
- Road Crossing Improvements
- Intersection Improvements
- Regional Connections

Some of the improvements include relatively modest changes such as road conversions and signage and others may take longer based on opportunities and available funding. Each task may take multiple years to implement. The speed of the implementation depends on the amount of money that is dedicated to the implementation along with the success of obtaining outside funding.

Implementation Tasks
These six implementation tasks fall into three categories, Near-term, Mid-term and Long-term. In general Near-term opportunities include improvements that may be accomplished by relatively modest changes to the existing road system. Mid-term opportunities include improvements that may be accomplished in the near future; however they may require some additional construction. Long-term improvements are projects that will be implemented with new development or reconstruction of existing roadways. Some construction intensive projects are identified as a Near-term or Mid-term improvement when it addresses safety concerns or there is a high demand for its implementation.

Please note that this report does not define the ideal long-term cross section for every primary road in the area. Rather it defines what improvements should be included and provides guidelines for a wide variety of road and right-of-way scenarios. Projects that require reconstruction may be very important; however they can be very capital intensive and should be prioritized after the initial primary corridors are implemented. Hopefully with the adoption of a complete streets ordinance, is it assumed that bicycle and pedestrian improvements will be incorporated into all projects as a matter of course.

Cost Estimate Introduction
In order to illustrate magnitude of costs and begin planning and budgeting for implementation, planning level cost estimates have been completed for the improvements proposed in the Initial Primary Corridors. In addition, cost estimates for a handful of “typical” treatments have been developed so that staff can consider these treatments in other areas if so desired.

It should be noted that these estimates are based on concepts only, and while they include healthy (20%) contingencies, they are not based on detailed designs. Quantities were derived from GIS data and aerial

imagery. If the community moves forward with implementation, detailed design will be completed and construction cost estimates recalculated at that time.

Acquiring Right –of-Way
Please note that acquiring easements and right-of-way will add to the financial burden of implementation, and can sometimes be as much as the project cost itself. Please refer to the following section for a detailed breakdown of the cost estimate for the Initial Primary Corridors.

Concurrent Studies
A separate study was being conducted of Main Street and Washington Street in Mt. Pleasant during the development of this plan. Due to this occurrence recommendations for Main Street and Washington Street are not provided in this plan. Please refer to the separate study for recommendations on how to proceed with these corridors.

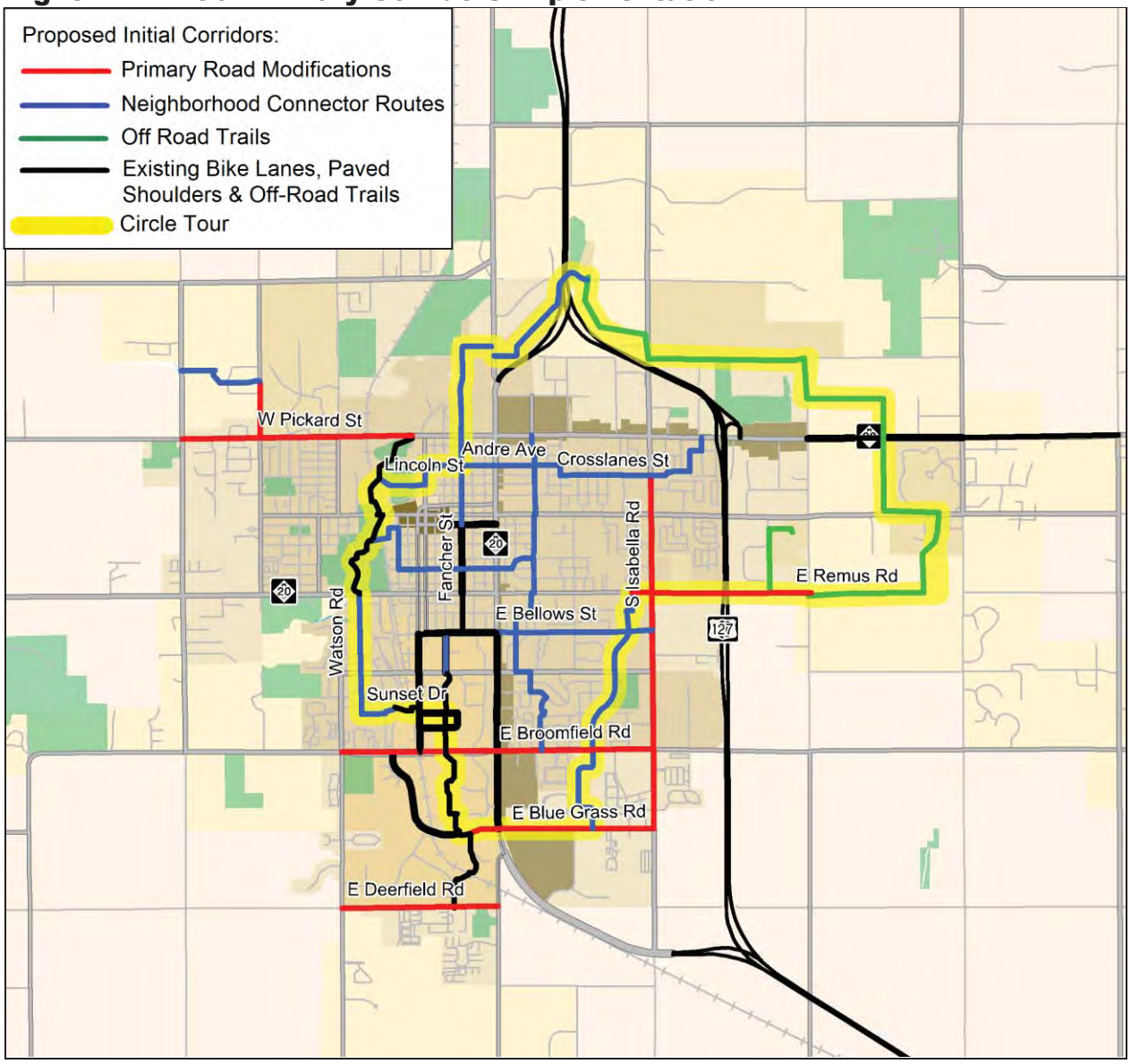
List of Figures
The following maps illustrate the non-motorized facilities implementation recommendations for the Greater Mt. Pleasant Area and Isabella County:

- Fig. 5.1A. Initial Primary Corridors Implementation
- Fig. 5.1B. Circle Tour
- Fig. 5.1C. Circle Tour Implementation
- Fig. 5.1D. Bike Lane Implementation
- Fig. 5.1E. Neighborhood Connectors and Off-Road Trails Implementation
- Fig. 5.1F. Sidewalk Implementation
- Fig. 5.1G. Road Crossing Improvement Implementation
- Fig. 5.1H. Regional Initial Primary Corridor Implementation
- Fig. 5.1I. Regional Connectors Implementation

Initial Primary Corridors Implementation

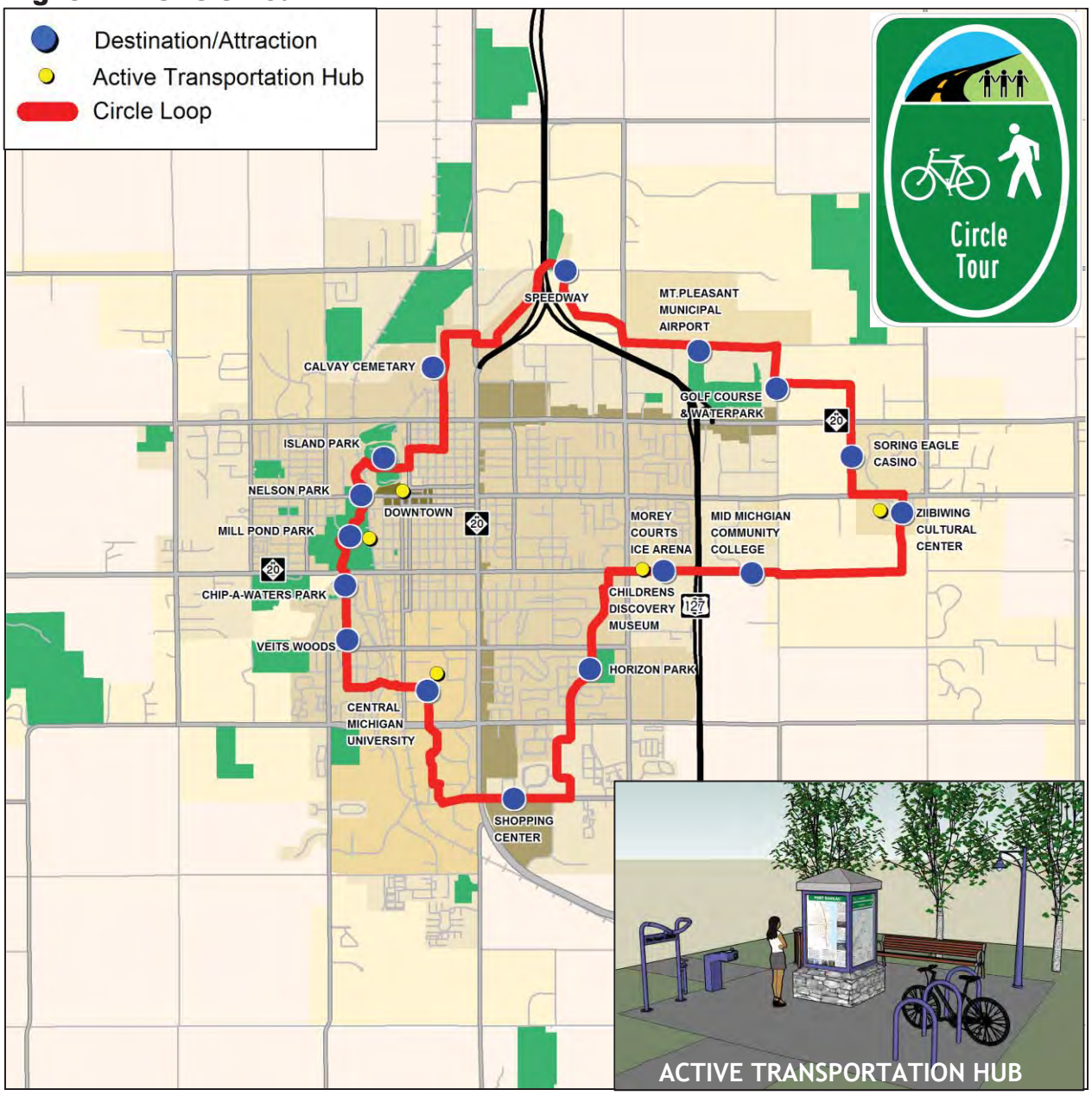
These are near-term projects that may be accomplished by simply restriping the road and large multi-year projects that may be implemented in pieces based on opportunities and funding. Overall, they will provide the framework for the non-motorized system.

Fig. 5.1A. Initial Primary Corridors Implementation



This task focuses on creating key connections across the city that provides a backbone to the non-motorized system. The connections incorporate the existing pathways, employ near-term bike lanes improvements, neighborhood connector routes, and provide alternative to busy roadways such as Mission Road and Pickard Street along the local neighborhood roads. Please note that some of the corridors, such as the Circle Tour described on the follow page, may include large multi-year projects that may be implemented in pieces based on opportunities and funding. Overall, the Circle Tour will provide the initial framework for the non-motorized system with routes across the community building upon and feeding into it. Approximately 28 miles of new facilities are proposed in this phase.

Fig. 5.1B. Circle Tour



Part of the Initial Primary Corridors, the Circle Tour could be a recreational loop around the Greater Mt. Pleasant Area that links key destinations. It would be a combination of on and off-road non-motorized facilities with minimal interaction with high speed, high volume motor vehicle traffic. This route is significant enough that special branding and signage could be designated to this route. There is also potential for art, interpretive and green technology installations along the route to essentially make this route an Urban Greenway. The loop is approximately 15 miles.

Active Transportation Hubs serve as orientation and resources centers for non-motorized trips and could be incorporated into the Circle Tour Route. These centers could contain additional information and amenities such as compressed air, bike parking and vending machines that dispenses basic bicycle supplies such as tubes and repair kits. The hubs would be located in high visibility locations around the Greater Mt. Pleasant Area. They would let people know that they could have walked or biked to that location and other destinations around the city. This would especially be an information source for CMU students and guest who may be less knowledgable to the area and the non-motorized opportunities it provides.

Initial Primary Corridors Cost Estimate

The projected cost for the implementation of the Initial Primary Corridors is $13,099,071.58. Please refer to the following tables below for a breakdown of the projected implementation costs based on facility type. Within each facility type the improvements are listed in order of implementation. The order of implementation was developed based on public input, near-term opportunities, demand and where the majority of the population would be served.

1) Proposed Neighborhood Connector Routes and Pathways (approximately 16 miles)
Provide alternative route to the major roads utilizing local neighborhood streets.

- Neighborhood connector routes are proposed on the following local streets, McDonald Drive, Joseph Drive, Lincoln Street, N Main Street, Andre Ave, Kane Street, Crosslanes Street, E Kay Street, 3rd Street, Palmer Street, 2nd Street, Mill Street, S Oak Street, E Maple Street, E River Road, Industrial Ave, Fancher Street, S Franklin Street, Brown Street, E Gaylord Street, S Elizabeth Street, S Lynnwood Drive, Fairfield Drive, Carnahan Place, Churchill Boulevard, Sweeney Street
- Due to the wide roadways and sporadic on-street parking, there is potential for near-term bike lanes to be added to some of the Neighborhood Connector Routes. These include the following road segments; see Fig. 5.2C for reference:
    - Add bike lane to E Bellows Street between N Main Street and N Crapo Street by narrowing the lanes to 11’
    - Add bike lane to E Bellows Street between N Crapo Street and Isabella Road by removing on street parking and narrowing the lanes to 11’
    - Add bike lanes to Watson Road by eliminating on-street parking, narrowing the lanes to 11’ and adding an edge stripe
    - Add road edge stripe to S Fancher Street between Pickard Street and Michigan Street and between High Street and E Bellows Street (proposed construction 2011)
    - Add bike lanes to N Fancher Street between Pickard Street and Industrial Avenue through lane narrowing
    - Add bike lanes to Industrial Avenue between N Fancher Street and Mission Road through lane narrowing
    - Add bike lanes to Industrial Park Drive between Mission Road and E River Road by narrowing the lanes to 10’ with 5’ bike lanes.
    - Add shared lane markings to E River Road between Mission Road and S Isabella Road
    - Add shared lane marking to Sweeny Street between E Preston Road and E Broomfield Road
    - Add bike lanes to Sweeny Street between E Broomfield Road and E Blue Grass Road between 3 to 2 Lane Conversion
    - Add parking edge stripe to N Brown Street between E Pickard Street and E Remus Road
- Obtain easements to build the following short connector pathways through undeveloped Private Property:
    - Build 10’ asphalt pathway between McDonald Drive to Joseph Drive
- Build the following short connector pathways through School Property:

- Build 10’ asphalt pathway between Sweeney Drive and E Remus Road connecting to Mt. Pleasant Baptists Academy
- Build 10’ asphalt pathway between Sweeney Drive and E Preston Road connecting to Oasis High School
- Build 10’ asphalt pathway between Carnahan Place and Churchill Boulevard

- Provide traffic calming techniques on local neighborhood streets, such as re-orienting stop signs and implementing curb extensions and mini-roundabouts.
- Provide wayfinding signage along routes to direct users
- Provide safe road crossing where the route crosses a major roadway (see road crossing improvements below)

Neighborhood Connector Cost Estimate:

Street	Between		Quantity	Unit	Unit Price	Cost Estimate	
Connector Routes			16.00	mi	$ 261,600.00	$ 4,185,600.00	Assumes (4) intersections with curb bumpouts ($53K each), wayfinding signage, and (6) traffic calming treatments (i.e. traffic buttons, one way choker, speed table)
Connector Routes with Bike Lanes							
E Bellow Street	Main	Crapo	0.95	mi	$ 6,000.00	$ 5,700.00	Narrow lanes to 11'
E Bellow Street	Crapo	Isabella Rd	0.50	mi	$ 6,000.00	$ 3,000.00	Remove on-street parking and narrow lanes to 11'
Watson Road			0.77	mi	$ 5,200.00	$ 4,004.00	Eliminate parking, narrow lanes to 11', add edge stripe
S Fancher St	Pickard St	E Bellows St	4350.00	ft	$ 0.10	$ 435.00	Road Edge Stripe
N Fancher St	Pickard St	Industrial Ave	0.57	mi	$ 6,000.00	$ 3,420.00	Lane narrowing
Industrial Ave	N Fancher St	Mission Rd	0.20	mi	$ 6,000.00	$ 1,200.00	Lane narrowing
Industrial Park Dr	Mission Rd	E River Rd	0.72	mi	$ 6,000.00	$ 4,320.00	Lane narrowing
S Brown Street	E Remus Rd	E Broadway Rd	2640.00	ft	$ 0.10	$ 264.00	Road Edge Stripe
N Brown Street	E Pickard St	E Broadway Rd	2698.08	ft	$ 0.10	$ 269.81	Road Edge Stripe
Sweeney Street	E Preston Rd	E Broomfiled Rd	15.00	ea	$ 225.00	$ 3,375.00	Shared Lane Marking
Sweeney Street	E Broomfield	E Blue Grass Rd	0.65	mi	$ 6,000.00	$ 3,900.00	3 to 2 lane conversion
Connector Pathways							
Asphalt Trail	Mcdonald Dr	Joseph Dr	784.79	ft	$ 45.00	$ 35,315.55	Plus Easement Cost
Asphalt Trail	Sweeney Dr	E Remus	804.28	ft	$ 45.00	$ 36,192.60	To Mt Pleasant Baptist Academy
Asphalt Trail	Sweeney Dr	E Preston Rd	817.99	ft	$ 45.00	$ 36,809.55	To Oasis High School
Asphalt Trail	Carnahan Place	Churchill Blvd	353.95	ft	$ 45.00	$ 15,927.75	
Asphalt Trail	E River	Isabella	4195	ft	$ 45.00	$ 258,775.00	Drain Crossing
			TOTAL			**$ 4,598,508.26**	

Please note that the $4.5 million dollar estimation is assuming the neighborhood connector routes are completely built out with pavement markings, signage and traffic calming elements. To reduce the initial costs, the neighborhood connector routes can be implemented in stages. Since the majority of the routes already exist, with exception to a few connector pathways, neighborhood connector routes can be designated by implementing wayfinding signs and reorienting the stop signs to establish a basic network. With the cost of bike route signage at around $1,200 per mile (assuming 6 signs in three locations) the first stage of implementation for neighborhood connector routes would cost around $20,000. In addition, many of the routes have potential for on-road bicycle facilities by adding pavement markings. Edge stripes, shared lane markings and bike lane markings could be added to these routes in the near-term for a total cost of around $10,000. See the Appendix for more details on costs.

2) Proposed Bike Lanes on Primary Roads (approximately 5.5 miles)
Implement near-term road conversions to add bike lanes on major roadways.

- Add bike lanes to W Pickard Street between S Lincoln Road and N Main Street through a 4 to 3 lane conversion
- Add bike lanes to S Isabella Road between E Pickard Street and E Blue Grass Road through a 4 to 3 lane conversion
- Add bike lanes to E Broomfield Road between S Mission Road and S Isabella Road through a 4 to 3 lane conversion, where E Broomfield widens to 5 lanes at the intersection, implement a 5 to 4 lane conversion with designated right, straight and left turn lanes for west bound traffic and one lane of east bound traffic.
- Add bike lanes to E Blue Grass Rd between Encore Drive and S Isabella Road through a 4 to 3 lane conversion

Bike Lane Cost Estimate:

Street	Between		Quantity	Unit	Unit Price	Cost Estimate
W Pickard Street	S Lincoln	N Main St	1.56	mi	$ 6,000.00	$ 9,360.00
S Isabella Rd	E Pickard St	E Blue Grass Rd	2.51	mi	$ 6,000.00	$ 15,060.00
E Broomfield Rd	S Mission Rd	S Isabella Rd	1.00	mi	$ 6,000.00	$ 6,000.00
E Broomfield Rd	Near Mission		0.24	mi	$ 10,000.00	$ 2,400.00
E Blue Grass Rd	Encore Dr	S Isabella Rd	0.51	mi	$ 6,000.00	$ 3,060.00
			TOTAL			**$ 35,880.00**

3) Proposed Sidewalk Gap Improvements (approximately13 miles)

Complete sidewalk gaps on the following roadways. For a more detailed map of the Initial Priority Corridor Sidewalk Gaps please refer to Fig. 4.2E.

- Complete sidewalk gaps on E Broomfield Road by adding 8' sidewalk to both sides
- Complete sidewalk gaps on E Blue Grass Road by adding 8' sidewalks to both sides
- Add 8' sidewalk on west side of S Isabella Road from E Blue Grass Road to E Pickard Street
- Add 10' sidewalk on E Remus Road with construction of proposed overpass
- Add 10' sidewalk on the south side of E Deerfield Road
- Complete sidewalk gaps on Pickard Street by adding 8' sidewalks to both sides of the road
- Complete sidewalk gaps on the south side of Bellow Street between N Crapo Street and S Isabella Road by adding 6' sidewalk
- Complete the sidewalk gaps on the west side of Sweeney Road between E Broomfield Road and E Blue Grass Road by adding a 6' sidewalk
- Add 8' sidewalk on the east side of S Bamber Road between Pickard Street and Joseph Street
- Complete Sidewalk gap on the south side of Remus Road between S Isabella Road and the proposed pathway through Mt. Pleasant Baptist Academy by adding a 8' sidewalk

Sidewalk Gaps Cost Estimate:

Street	Between		Quantity	Unit	Unit Price	Cost Estimate
E Broomfield			6736.93	ft	$ 36.00	$ 242,529.48
E Blue Grass Rd			8679.08	ft	$ 36.00	$ 312,446.88
Isabella Rd (west)	E Blue Grass	E Pickard	8554.60	ft	$ 36.00	$ 307,965.60
E Remus Rd	Asphalt		9572.00	ft	$ 45.00	$ 630,740.00
E Deerfield Rd (south)	Asphalt		5229.00	ft	$ 45.00	$ 235,305.00
Pickard St			6241.00	ft	$ 36.00	$ 234,676.00
Bellow St (south)	Crapo St	S Isabella	1285.00	ft	$ 24.00	$ 30,840.00
Sweeney Rd (west)	Broomfield	E Blue Grass	3422.14	ft	$ 24.00	$ 82,131.36
S Bamber Rd (east)	Pickard	Joseph St	1836.00	ft	$ 36.00	$ 66,096.00
Remus Rd (south)	Isabella	MPB Academy	669.00	ft	$ 45.00	$ 30,105.00
				TOTAL		$ 2,172,835.32

4) Proposed Road Crossing Improvements

Provide safe crossing where a neighborhood connector crosses a major road or there is demand to get across the road. The following types of crossing improvements should be considered at each road crossing.

- Toucan Crossing with Pedestrian Hybrid Beacon
    - N Mission Road at Andre Ave
- Crossing Island with Rectangular Rapid Flash Beacon:
    - W Pickard Street at S Fancher Street (evaluate roundabout in future)
    - E Pickard Street at Airway Drive/2nd Street
    - E Pickard Street at Proposed Off-road Trail between S Summerton Road and S Leaton Road
    - E Broadway Road connecting Soaring Eagle Casino to Ziibiwing Cultural Center between S Summerton Road and S Leaton Road
    - E Broomfield Road at Sweeney Road
    - E Blue Grass Road at Sweeney Road
    - S Isabella Road at Crosslanes Street
- Crossing Island:
    - E Preston Road at South Lynnwood Drive
- Rectangular Rapid Flash Beacon:
    - Mission Road at Industrial Ave / Industrial Pak Drive
    - S Summerton Road at proposed trail crossing and Remus Road
    - E Deerfield Road at Three Leaves Drive
    - E Remus Road proposed Neighborhood Connector Pathway near S Isabella Street
    - E High Street at N Brown Street
    - W High Street at S Fancher Street
    - E Preston at Sweeny Street
- Rectangular Rapid Flash Beacon with Curb Extensions:
    - E Bellows at Sweeny Street
- Curb Extensions:
    - E Mosher Street at S Fancher Street
    - E Broadway Street at S Fancher Street
    - E Michigan Street at S Fancher Street
    - E Bellows Street at S Fancher Street
    - CMU Trail at Three Leaves Drives crossing driveway

- Other:
    - E Broomfield Road at Sweeney Street and at the existing CMU Trail. The pushbutton is currently hidden behind the controller box. The pushbutton should be relocated to a landing not more than 10 feet (6 is preferred) from the face of the curb on eastbound Broomfield Road and not more than 5 feet from the right edge of the crossing. The surface area of the landing must be a minimum of 5 by 5 feet and have a cross slope of less than 2% in all directions. If the pushbutton does fall within these limitations, then is can be relocated without addition infrastructure costs. For a major trail like this, as well as the major crosswalk for University activities, it is strongly recommended that there is correct placement of all pushbuttons to meet ADA requirements.

Road Crossing Improvements Cost Estimate:

Street	At	Quantity	Unit	Unit Price	Cost Estimate
Toucan Crossing with Pedestrian Hybrid Beacon					
N Mission Rd	Andre Ave	1	ea	$ 160,000	$ 160,000.00
			TOTAL		**$ 160,000.00**
Crossing Island with Rectangular Rapid Flash Beacon					
W Pickard St	S Fancher St	1	ea	$ 29,000.00	$ 29,000.00
E Pickard St	Airway Dr/2nd St	1	ea	$ 29,000.00	$ 29,000.00
E Pickard St	Proposed Trail	1	ea	$ 29,000.00	$ 29,000.00
E Broadway Rd	Soaring Eagle to Ziibiwing	1	ea	$ 29,000.00	$ 29,000.00
E Broomfield Rd	Sweeney Rd	1	ea	$ 29,000.00	$ 29,000.00
E Blue Grass Rd	Sweeney Rd	1	ea	$ 29,000.00	$ 29,000.00
S Isabella Rd	Crosslanes St	1	ea	$ 29,000.00	$ 29,000.00
			TOTAL		**$ 203,000.00**
Crossing Island (Bollards, landscaping, concrete curbs, pavement removal, striping, ped light)					
E Preston Rd	South Lynnwood Dr	1	ea	$ 18,000.00	$ 18,000.00
			TOTAL		**$ 18,000.00**
Rectangular Rapid Flash Beacon					
Mission Rd	Industrial Ave	1	ea	$ 11,000.00	$ 11,000.00
S Summerton Rd	Porposed Trail Crossing	1	ea	$ 11,000.00	$ 11,000.00
E Deerfield Rd	Three Leaves Dr	1	ea	$ 11,000.00	$ 11,000.00
E Remus Rd	Near S Isabella St	1	ea	$ 11,000.00	$ 11,000.00
E High St	N Brown St	1	ea	$ 11,000.00	$ 11,000.00
W High St	S Fancher St	1	ea	$ 11,000.00	$ 11,000.00
E Preston	Sweeney St	1	ea	$ 11,000.00	$ 11,000.00
			TOTAL		**$ 77,000.00**
Rectangular Rapid Flash Beacon with Curb Extensions					
E Bellows	Sweeney St	1	ea	$ 37,000.00	$ 37,000.00
			TOTAL		**$ 37,000.00**
Curb Extensions					
E Mosher St	S Fancher St	1	ea	$ 26,000.00	$ 26,000.00
E Broadway St	S Fancher St	1	ea	$ 26,000.00	$ 26,000.00
E Michigan St	S Fancher St	1	ea	$ 26,000.00	$ 26,000.00
E Bellows St	S Fancher St	1	ea	$ 26,000.00	$ 26,000.00
CMU Trail	Three Leaves Drives	1	ea	$ 26,000.00	$ 26,000.00
			TOTAL		**$ 130,000.00**
Other					
E Broomfield Rd	CMU Trail Crossing	1	ea	$ 2,500.00	$ 2,500.00
			TOTAL		**$ 2,500.00**

5) Proposed Off-Road Trails (approximately 5 miles)

Add trail connection to connect the City with Mid Michigan Community College and Soaring Eagle Casino/Ziibiwing Center on the East side of US 127.

- Build 10' wide asphalt pathway extending from Remus Road to Soaring Eagle Casino then up through tribal lands to connect to the Soaring Eagle Water Park and S Summerton Road
- Build 10' wide asphalt pathway connecting to Mid Michigan Community College
- Build 10' wide asphalt pathway along the west side of S Summerton Road from proposed trail up to E Airport Road
- Build 10'wide asphalt pathway along the south side of E Airport Road between S Summerton Road and S Isabella Road
- Build 10'wide asphalt pathway along the west side of S Isabella Road between E Airport Road and E River Road

Off-Road Trail Cost Estimate:

Street	Quantity	Unit	Unit Price	Cost Estimate
Remus Rd to Summerton Rd (path)	13780.8	ft	$ 45.00	$ 620,136.00
Boardwalk/Wetlands	1330.0	ft	$ 400.00	$ 532,000.00
Creek/Drain Crossing	1.0	ls	$ 70,000.00	$ 70,000.00
		TOTAL		$ 1,222,136.00
Connecting to Mid Michigan Comm College	2217.6	ft	$ 45.00	$ 99,792.00
Creek/Drain Crossing	1.0	ls	$ 70,000.00	$ 70,000.00
		TOTAL		$ 169,792.00
Summerton Rd (west) (from trail to E Airport Rd)	1454.0	ft	$ 45.00	$ 65,430.00
E Airport Rd (south) (Btwn Summerton and Isabella Rd)	4458.0	ft	$ 45.00	$ 200,610.00
Boardwalk/Wetlands	950.0	ft	$ 400.00	$ 380,000.00
		TOTAL		$ 580,610.00
		TOTAL		$ 2,037,968.00

6) Intersection Improvements

Provide save intersections that address ADA issues, high visibility cross walks and ramps.

- E Broomfield Road at W Campus Drive
- N Brown Street at E Pickard Street

Intersection Improvements Cost Estimate:

Street	AT	Quantity	Unit	Cost Estimate	Assumptions
E Broomfield Rd	W Campus Dr	1	ls	$ 4,175.00	4 ramps, 90 ft of crosswalk plus lump sum for misc
N Brown St	E Pickard St	1	ls	$ 8,430.00	8 ramps, 210 ft of crosswalk plus lump sum for misc
		TOTAL		**$ 12,605.00**	

7) New Bridge over US 127

There have been discussions about extending E Remus Rd over US 127 to connect the Saginaw Chippewa Tribal Land and Mid Michigan Community College to the downtown.

- Evaluate if potential vehicle bridge with bike lanes and sidewalks is feasible at Remus Rd over US 127

New Bridge over US 127 Cost Estimate:

According to a cost estimate conducted by MDOT in 2010 it was projected the cost of a new vehicle bridge with bicycle and pedestrian facilities would cost around $3.5 million dollars to construct.

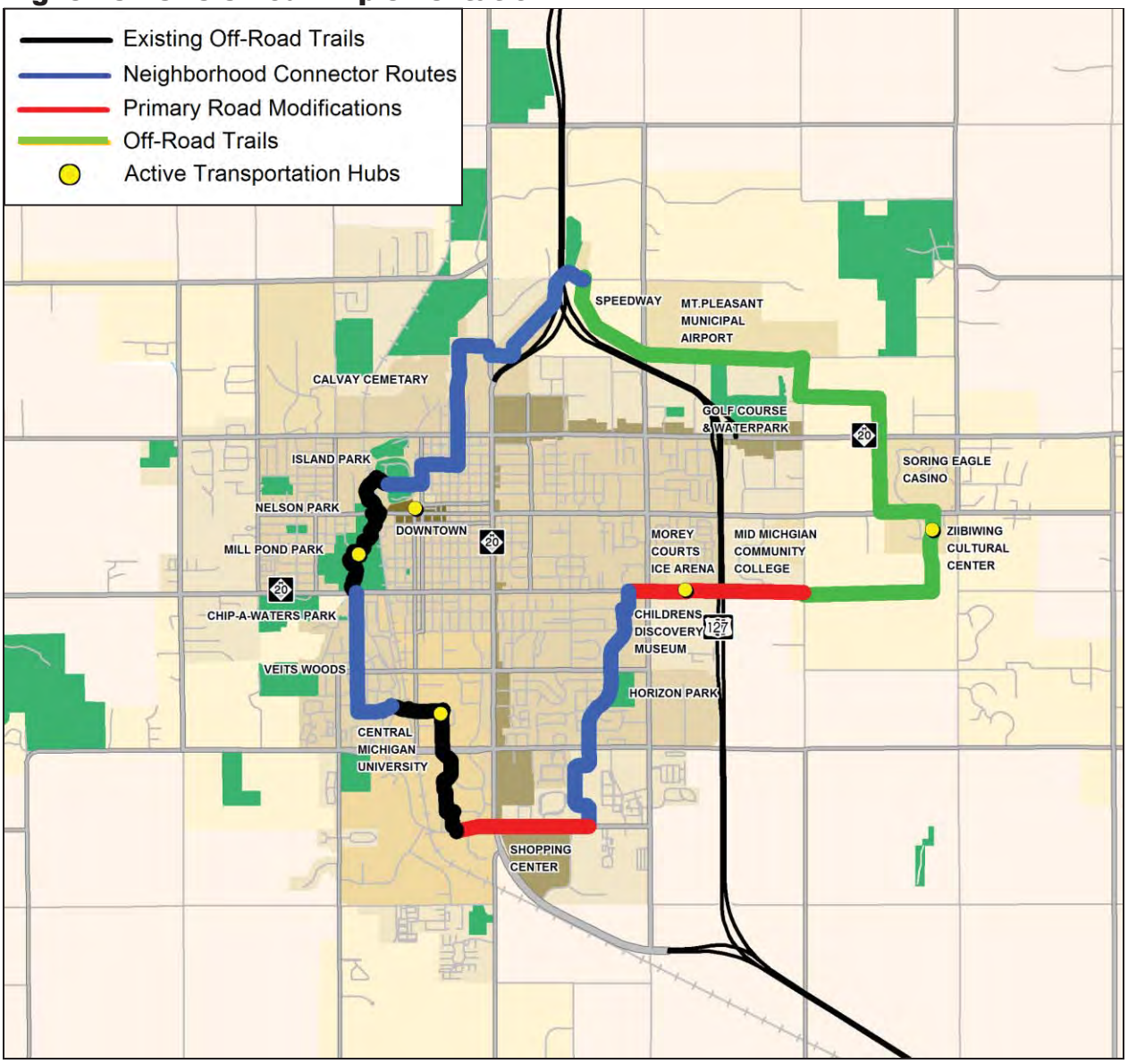
Alternative routes were evaluated, however based on current conditions there is not enough room to retrofit the E Broadway Road or E Broomfield Road overpasses to accommodate bicycle and pedestrian facilities in the near-term. The cost of adding a separate facility at Remus Road would probably cost the same as adding new facilities at E Broomfield Road or E Broadway Road.

Total Initial Primary Corridors Estimate = $13,099,071.58

Circle Tour Implementation

The Circle Tour is part of the Initial Primary Corridor system. Below is a breakdown of the different facilities and costs that make up the circle tour.

Fig. 5.1c. Circle Tour Implementation



The Circle Tour connects to major destinations in the City of Mt. Pleasant, Union Township, Central Michigan University and the Saginaw Chippewa Indian Tribal Lands along with a potential to link to the proposed regional trails that will connect to Clare to the north and Shepherd to the south. Overall this loop is about 15 miles long with 2.4 miles of Existing Off-Road Trails, 5.3 miles of Proposed Neighborhood Connector Routes, 2.2 miles of Proposed Primary Road Modifications and 4.7 Miles of Proposed Off-Road Trails.

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Circle Tour Cost Estimate

The projected cost for the implantation of the Circle Tour Loop (which is a part of the initial primary connectors) is $7,144,618.15. This includes the 5 proposed active transportation hubs, wayfinding signage, traffic calming, bike lanes, multi-modal overpass, off-road trails and 10 road crossing improvements. Please refer to the table below for a breakdown of the projected implementation costs.

Street	Between		Quantity	Unit	Unit Price	Cost Estimate	
Traffic Calming Improvements							
Andre/Main/Lincoln			0.88	mi	$ 261,600.00	$ 230,208.00	
Sunset Lane			0.07	mi	$ 261,600.00	$ 18,312.00	
Sweeney			0.27	mi	$ 261,600.00	$ 70,632.00	
Bike Lanes							
E Blue Grass Rd	Sweeney	University Park Dr	0.81	mi	$ 6,000.00	$ 4,860.00	
Watson Rd			0.77	mi	$ 5,200.00	$ 4,004.00	Eliminate parking, narrow lanes to 11', add edge stripe
S Fancher St	Pickard	Andre	0.19	mi	$ 6,000.00	$ 1,140.00	
N Fancher St	Pickard St	Industrial Ave	0.57	mi	$ 6,000.00	$ 3,420.00	Narrowing
Industrial Ave	N Fancher St	Mission Rd	0.20	mi	$ 6,000.00	$ 1,200.00	Lane narrowing
Industrial Park Dr	Mission Rd	E River Rd	0.72	mi	$ 6,000.00	$ 4,320.00	Lane narrowing
Sweeney St	E Preston Rd	E Broomfield Rd	15.00	ea	$ 225.00	$ 3,375.00	Shared lane markings
Sweeney St	E Broomfield	E Blue Grass Rd	0.65	mi	$ 6,000.00	$ 3,900.00	3 to 2 lane conversion
Sidepaths / Off-Road Trails							
E Blue Grass Rd	Sweeney	University Park Dr	6040.00	ft	$ 45.00	$ 271,800.00	10' wide asphalt
Trail	Sweeney	E Remus	804.28	ft	$ 45.00	$ 36,192.60	10' wide asphalt
Trail	Sweeney	E Preston	817.99	ft	$ 45.00	$ 36,809.55	10' wide asphalt
Trail	E River	Isabella	1.00	ls	$ 188,775.00	$ 188,775.00	4,195 ft plus drain crossing
Remus Rd	Isabella	Summerton	1.00	ls	$ 440,750.00	$ 440,750.00	5350 ft plus boardwalk
Remus Rd	Isabella	MPB Academy	669.00	ft	$ 45.00	$ 30,105.00	10' wide asphalt
Trail	Remus Rd	Summerton	1.00	ls	$ 1,220,000.00	$ 1,220,000.00	15,110 ft plus boardwalk and creek crossing
Summerton Rd (west	Trail to E Airport Rd		1454.00	ft	$ 45.00	$ 65,430.00	
E Airport Rd (south)	Summerton	Isabella	1.00	ls	$ 580,610.00	$ 580,610.00	5408 ft plus boardwalk

Road Crossing Improvements						
W Pickard St	S Fancher St	1	ea	$ 29,000.00	$ 29,000.00	
E Pickard St	Proposed Trail	1	ea	$ 29,000.00	$ 29,000.00	
E Broadway Rd	Soaring Eagle to Ziibiwing	1	ea	$ 29,000.00	$ 29,000.00	
E Broomfield Rd	Sweeney Rd	1	ea	$ 29,000.00	$ 29,000.00	
E Blue Grass Rd	Sweeney Rd	1	ea	$ 29,000.00	$ 29,000.00	
Mission Rd	Industrial Ave	1	ea	$ 11,000.00	$ 11,000.00	
S Summerton Rd	Porposed Trail Crossing	1	ea	$ 11,000.00	$ 11,000.00	
E Remus Rd	Near S Isabella St	1	ea	$ 11,000.00	$ 11,000.00	
E Preston	Sweeney St	1	ea	$ 11,000.00	$ 11,000.00	
E Bellows	Sweeney St	1	ea	$ 37,000.00	$ 37,000.00	
Active Transportation Hubs		5.00	ea	$ 29,555.00	$ 147,775.00	
Wayfinding Signage		1.00	ls	$ 25,000.00	$ 25,000.00	Route signs, pavement markings and street signs
	Sub-Total				**$ 3,614,618.15**	
127 Bridge Crossing	**Sub-Total**				**$ 3,500,000.00**	Vehicle and ped bridge (2010 MDOT Cost Estimate)
	TOTAL:				**$ 7,114,618.15**	

Total Cost of the Circle Tour Estimate= $7,114,618.15

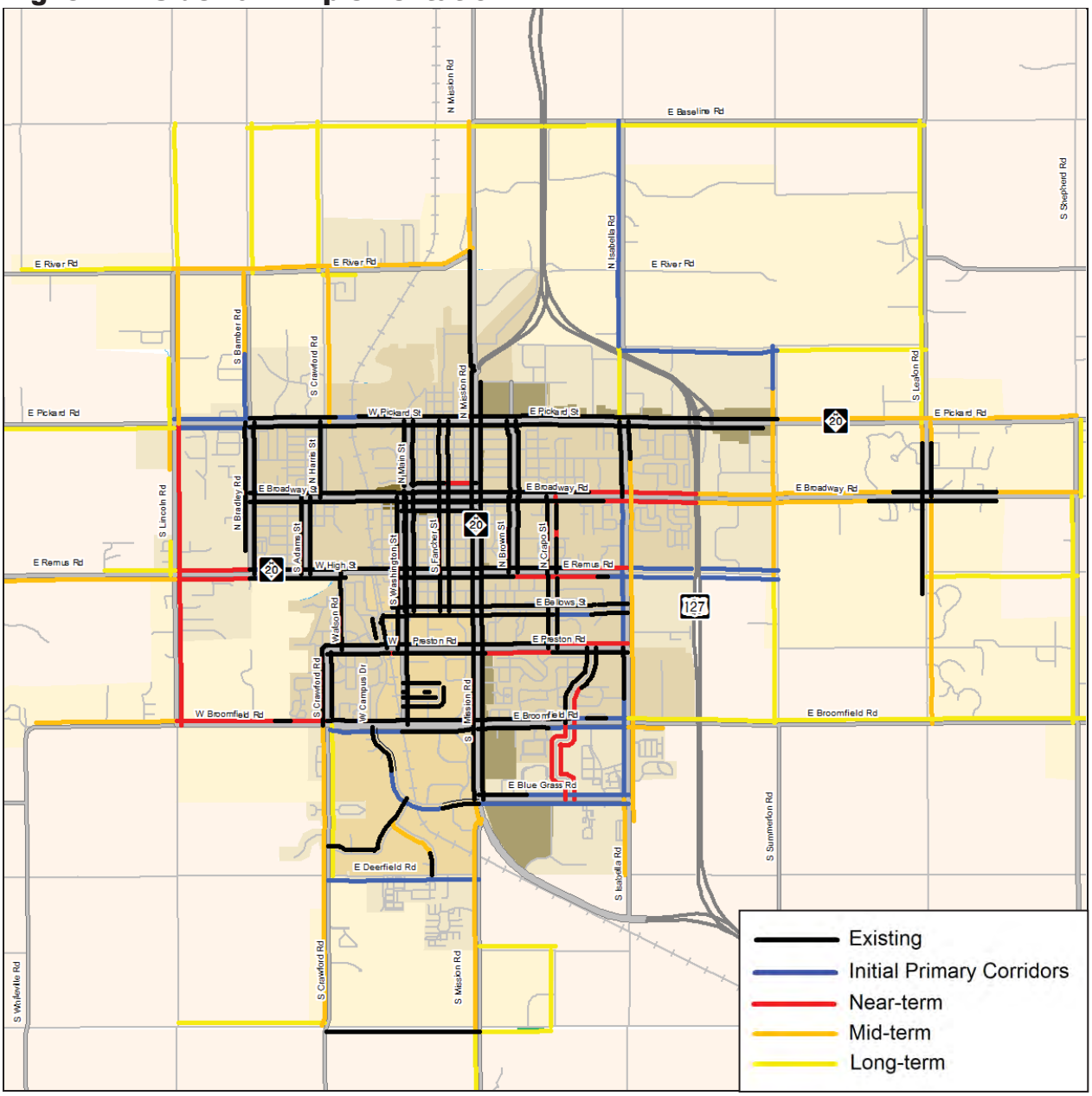
Non-motorized Network Implementation for the Greater Mt. Pleasant Area

The following maps display how the remaining segments of the network should be implemented. The proposed near-term, mid-term and long-term improvements are provided for each of the following facility types; Sidewalks, Bike Lanes, Neighborhood Connectors and Off-Road Trails, Road Crossing Improvements and Intersection Improvements.

Sidewalks Implementation

Some of the sidewalk gaps are addressed in the Initial Primary Corridors task.

Fig. 5.1D. Sidewalk Implementation



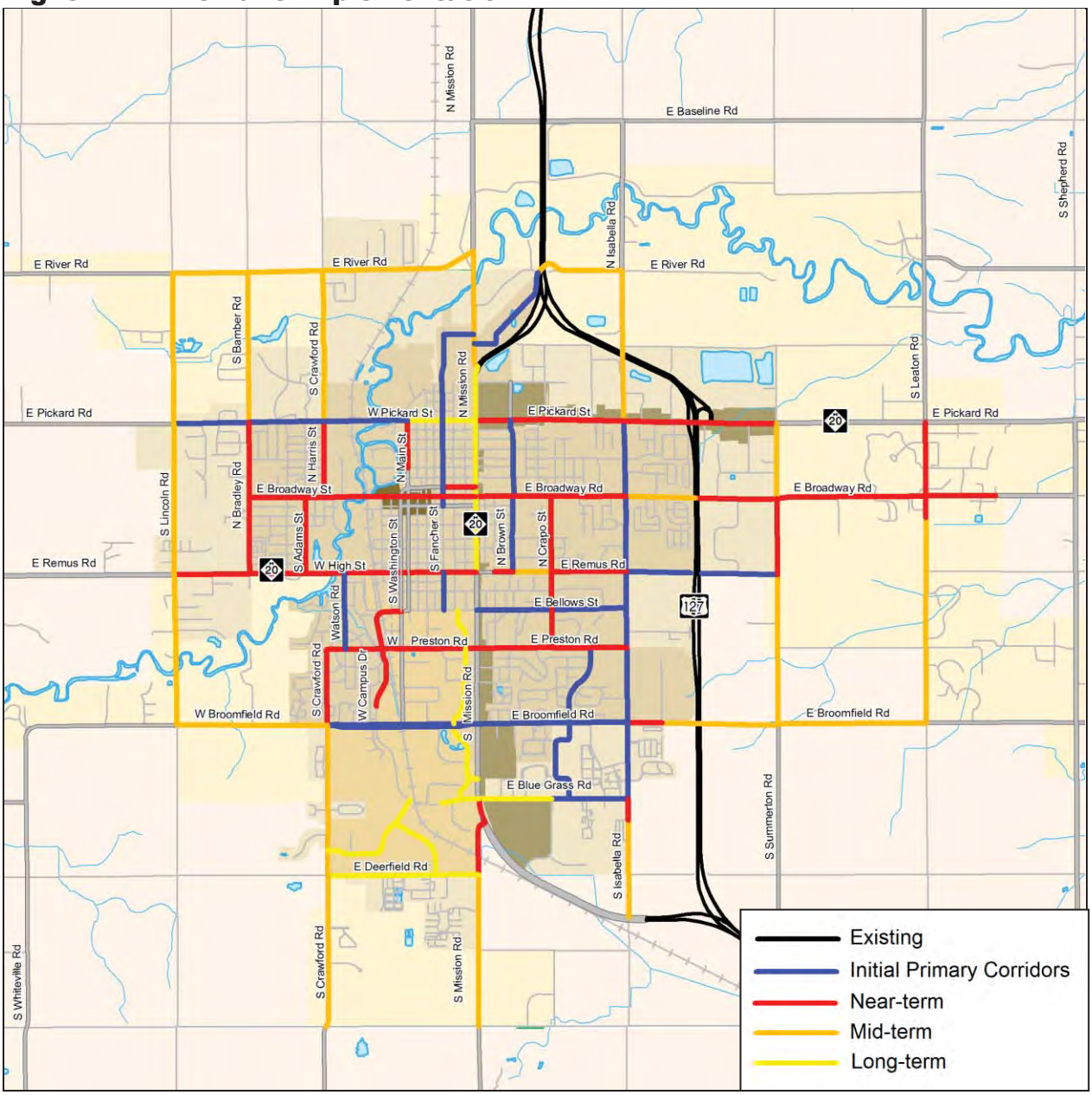
Some of the sidewalk gaps are addressed through the Initial Primary Corridor task. The remaining sidewalk gaps are broken into near-term, mid-term and long-term implementation. However, if opportunities become available to implement sidewalks from the mid or long term group they should be completed first.

In the near-term focus on completing sidewalk gaps in the urban areas, especially within the "No Bus Zone" and to neighborhoods that are isolated from the city center. In the mid-term focus on completing sidewalk gaps in the suburban areas on at least one side of the road. In the long-term focus on completing sidewalks in the suburban fringe areas and trying to connect all of the surrounding neighborhoods to the interior system.

Bike Lane Implementation

There is potential to add 21 miles of bike lanes to the Greater Mt. Pleasant Area in the Near-term.

Fig. 5.1E. Bike Lane Implementation



This task focuses on implementing on-road bike lanes. Most of the near-term bike lanes can be implemented simply by restriping the roadway. The mid-term bike lanes require minimal construction such as paving the shoulder. The long-term bike lanes should be implemented when a roadway is reconstructed.

1) Near-term Bike Lanes (approximately 21 miles)

Cost-effective and easily implemented by minor changes such as re-striping the existing road surface.

- Add shared lane markings to E Michigan Street between S Washington Street and S Lansing Street (planned reconstruction in 2012 between Washington Street and Fancher Street)
- Add bike lanes to W Preston Road between S Crawford Road and S Mission Road by narrowing the lanes to 11' (planned reconstruction in 2012 between Washington Street and E Campus Drive)
- Add parking edge stripe to S Adams Street between W High Street and E Broadway Street (planned overlay in 2013 between E Broadway Street and E High Street)
- Add bike lanes to E Broadway Street between N Bradley Road and the Chippewa River and between N Mission Road and S Isabella Road and between Soaring Eagle Casino and S Leaton Road by narrowing the lanes to 11' (planned reconstruction in 2014 from S Harris Street to S Washington Street)
- Add shared lane markings to E Broadway Street between Chippewa River and S Mission Road (planned reconstruction in 2014 from Harris Street to S Washington Street)
- Add bike lanes to W Campus Drive between W Preston Road and E Bellows Street through a 4 to 3 lane conversion (planned overlay in 2015 between W Preston Road and E Bellows Street)
- Add pavement marking and signs where there are existing paved shoulders on W High Street between S Lincoln Road and S Washington Street to make it a designated bike lane
- Add bike lanes to E High Street between S Washington Street and S Mission Road through a 3 to 2 lane conversion
- Add bike lanes to E High Street Between S Mission Road and Eastlawn Street by narrowing the lanes to 11'
- Add parking edge strip to E High Street between Eastlawn Street and N Brown Street
- Add bike lanes to E Remus Road between N Crapo Street and S Isabella Road by narrowing the lanes to 11'
- Add bike lane to E Pickard Street between N Mission Road and S Summerton Road by narrowing the lanes to 10.5'
- Add pavement marking and signs where there are existing paved shoulders on E Pickard Street between S Summerton Road and S Leaton Road to make it a designated bike lane
- Add pavement marking and signs where there are existing paved shoulders on E Broadway Road between US 127 and Soaring Eagle Boulevard to make it a designated bike lane
- Add shared lane markings to E Mosher Street between N Main Street and S Fancher Street
- Add bike lanes to E Mosher Street between N Main Street and S Mission Road by narrowing the lanes to 11'
- Add parking edge stipe to E Preston Road between S Mission Road and S Isabella Road
- Add parking edge strip to N Bradley Road between W High Street and W Pickard Street by eliminating on-street parking
- Add bike lane to N Harris Street between E Broadway Street and W Pickard Street by narrowing the lane to 11'

- Add bike lane to S Crawford Road between W Preston Road and W Broomfield Road by narrowing the lane to 11’
- Add bike lanes to W Campus Drive between W Broomfeild Road and West Preston Road by narrowing the lane to 11’ and adding shared lane marking near the intersection of W Campus Drive and W Broomfield Road
- Add bike lanes to N Main Street between W Pickard Street and E Lincoln Street by eliminating on street parking
- Add shared lane marking to N Main Street between E Mosher Street and E Lincoln Street
- Narrow lanes to 11’ and add road edge stripe on S Mission Road between W High Street and E Blue Grass Road
- Add bike lanes to N Crapo Street between E Broadway Road and E Remus Road by adding a parking edge stripe
- Add bike lanes to N Crapo Street between E Remus Road and E Preston Road by narrowing the lanes to 11’
- Add bike lanes to S Summerton Road between E Broadway Road and E Remus Road by narrowing the lanes to 10’

2) Mid-term Bike Lanes (approximately 20 miles)
Minor changes needed such as paving the road shoulder.

- Add bike lanes to S Lincoln Road by paving the shoulder between W Broomfield Road and E River
- Add bike lanes to S Bamber Road by paving the shoulder between E River Road and W Pickard Street
- Add bike lanes to S Crawford Road by paving the shoulder between E River Road and W Pickard Street and between W Broomfield Road and E Millbrook Road
- Add bike lanes to N Mission Road by paving the shoulder between Industrial Avenues and E River Road
- Add bike lanes by paving the shoulder to S Summerton Road between E Pickard Street and E Broadway Road and between E Remus Road and E Broomfield Road
- Add bike lanes to S Isabella Road by paving the shoulder between E Blue Grass Road and BR US 127
- Add bike lanes to S Mission Road by paving the shoulder between E Deerfield Road and E Millbrook Road
- Add bike lanes on W Broomfeild Road by paving the shoulder between S Lincoln Road and S Crawford Road and between Grover Parkway and S Leaton Road
- Add bike lanes to E Remus Road by paving the shoulder between N Brown Street and N Crapo Street
- Add bike lanes to E Broadway Street by paving the shoulder between S Isabella Road and US 127

3) Long-term Bike Lanes (approximately 6 miles)

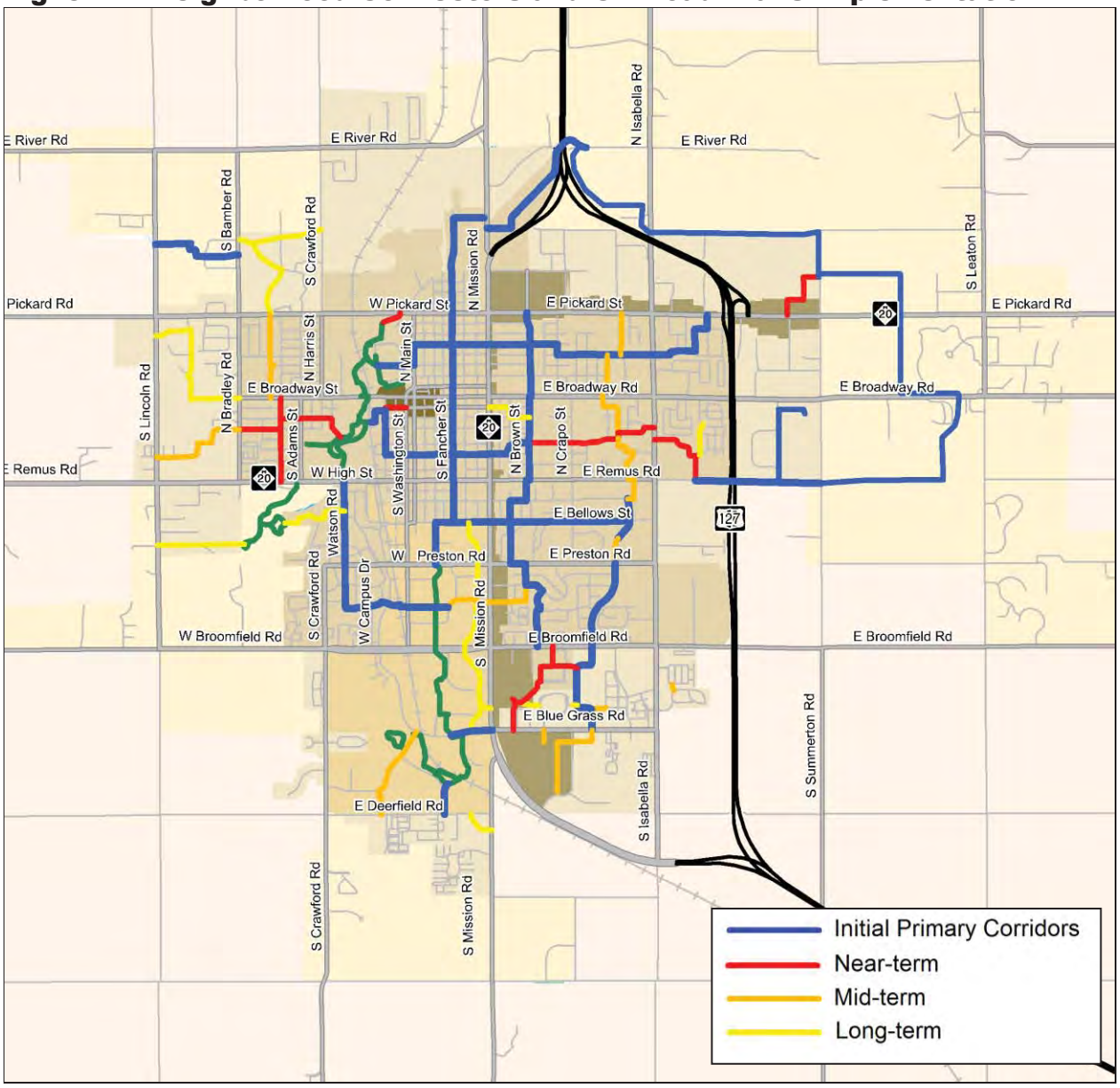
The cost to add bike lanes to these roadways independently of a road reconstruction project would be significant. Thus to maximize the impact of finite resources the long-term improvements are expected to be implemented when a road is completely reconstructed (not just resurfaced).

- Add bike lanes to E Blue Grass Rd between Mission Road and Encore Drive.
- Add bike lanes to E Deerfield Rd between S Crawford Road and S Mission Road
- Add Bike lanes to Mission Road between E High St and Industrial Ave
- Add Bike lanes to E Campus Drive between E Bellow Street and E Blue Grass Road
- Add Bike lanes to Three Leaves Drive between E Deerfield Road and W Campus Drive
- Add Bike lanes to Denison Drive between Three Leaves Drive and S Crawford Road
- Add Bike Lanes to Pickard Street between Main Street and N Mission Road

Neighborhood Connectors and Off-Road Trails Implementation

Please note that neighborhood connectors are not just restricted to the routes highlighted above. If desired elements of neighborhood connectors are desired, they could be used elsewhere in the city as a means to calm traffic, provide non-motorized links and enhance a streetscape.

Fig. 5.1F. Neighborhood Connectors and Off-Road Trails Implementation



This task focuses on implementation of the neighborhood connector routes and off-road trails. The near-term improvements are located mainly along existing roadways and only a few short connector pathways are needed. The mid-term improvements require short connector pathways to help link up the neighborhood connector routes. The long-term improvements include major off-road trails and the remainder of the neighborhood connector routes and pathways.

1) Near-term Neighborhood Connectors and Off-Road Trails (approximately 3.5 miles)

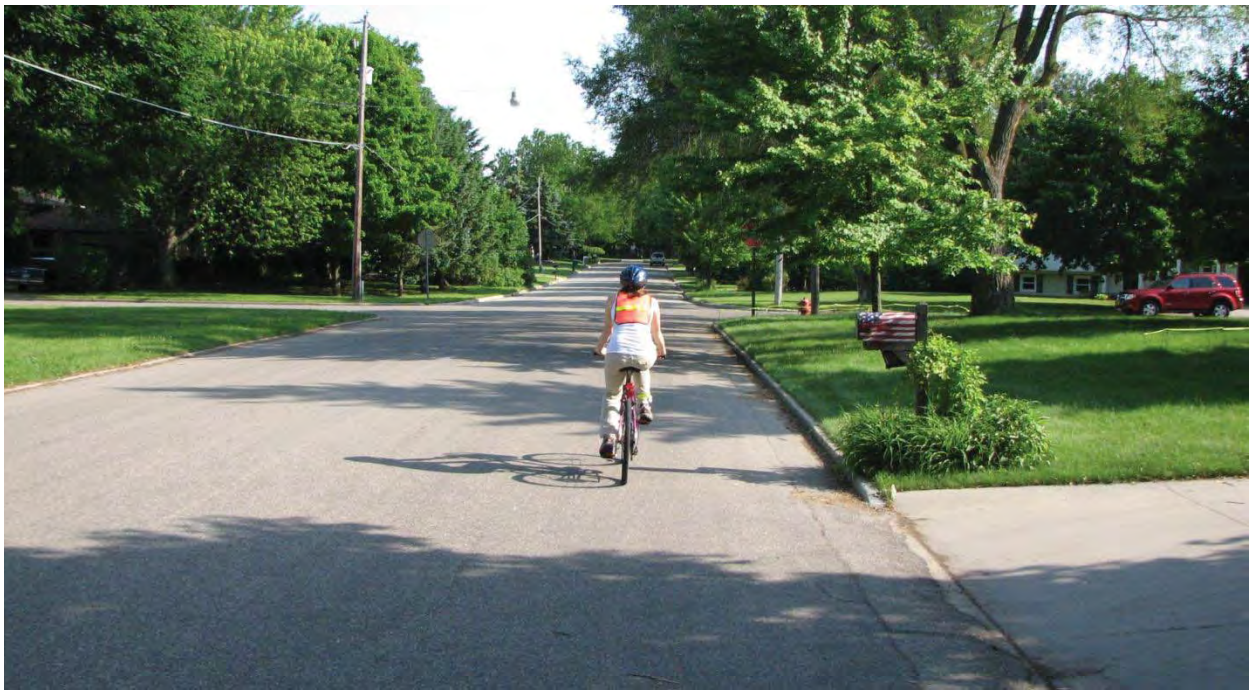
- Obtain easements to build the following short connector pathways through undeveloped Private Property:
    - Connect North Drive to Smalley Drive with a 8' pathway
    - Connect S Ivy over to Morey Courts and the Ice Arena with an 8' pathway
- Build the following short connector pathways through Public and Quasi-Public Property:
    - Provide an 8' pathway around Morey Court and Ice Arena connecting to S Isabella Road and E Remus Road
    - Build 10' pathway between the Ziibiwing Center/Soaring Eagle Casino and the Soaring Eagle Inn and Water Park
- Provide wayfinding and signage along near-term routes
- Implement traffic calming elements along near-term routes
- Implement road crossing improvements where near-term neighborhood connector routes cross a major roadway

2) Mid-term Neighborhood Connectors and Off-Road Trails (approximately 4 miles)

- Obtain easements to build the following short connector pathways through undeveloped Private Property:
    - Connect Sweeny Street to Tallgrass Apartments with a 8' pathway
    - Connect Sweeny Street to Sterling Way with a 8' Pathway
    - Connect Sweeney Street to Apartments on Collegiate Way with a 8' pathway
    - Connect E Blue Grass Road to Wal-Mart with a 8' pathway that extends south from the intersection of E Blue Grass Road and Sterling Way
    - Connect the Existing River Trail to S Lincoln Road with a 8' pathway that crosses through the southern end of the Central Concrete Products Property
- Build the following short connector pathways through Public and Quasi-Public Property:
    - Connect Sweeny Street to Preston Road with a 8' pathway across school property
    - Connect Crosslanes Street to Carter Street with a 8' pathway across school property
    - Build 8' pathway through Sunnyside Park that connects to N Cooley Street and Bruce Street
    - Connect N Bradley Road to E Transportation Drive with a 8' pathway across school property
    - Connect Denison Drive to E Deerfield Road with a 8' pathway across CMU property
    - Build 8' asphalt pathway between York Street and Appian Way
- Provide wayfinding and signage along routes
- Implement traffic calming elements along routes
- Implement road crossing improvements where neighborhood connector routes cross a major roadway

3) Long-term Neighborhood Connectors and Off-Road Trails (approximately 4.5 miles)

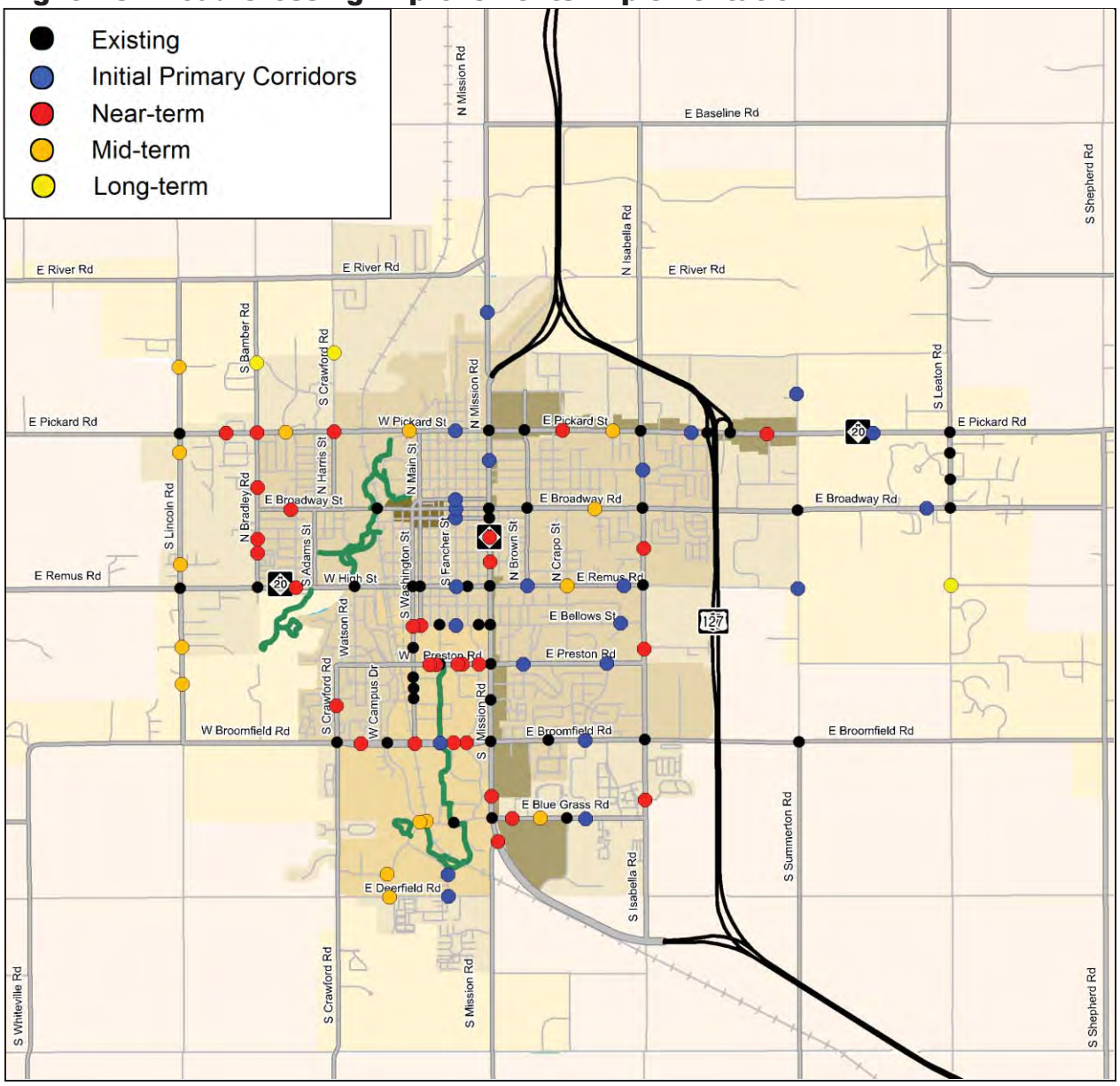
- Obtain easements to build the following short connector pathways through undeveloped Private Property:
    - Build 8’ pathways connecting Target and Mission Mall to the nearby residential areas to the east and to Indian Hills Plaza to the south
    - Connect S Ivy to E Crossway Lane with a 8’ pathway
    - Connect Flagstone Court to S Lincoln Road with a 8’ pathway
- Build the following short connector pathways through Public and Quasi-Public Property:
    - Build 8’ pathway through Union Township property near the intersection of Deerfield Road and S Mission Road, this area also has potential to become a trail head
    - Connect Greenbanks Drive to the existing River Trail with a 12’ pathway
    - Coordinate with the City of Mt. Pleasant to provide pathway connections through the recently purchased property near Pickard Street and N Crawford Street when new development occurs
- Provide wayfinding and signage along routes
- Implement traffic calming elements along routes
- Implement road crossing improvements where neighborhood connector routes cross a major roadway
- Coordinate with Saginaw Chippewa Tribe to provide non-motorized connections when new roads are constructed
- Coordinate with the City of Mt. Pleasant to provide pathway connection through the recently purchased property near Pickard Street and N Crawford Street



Road Crossing Improvements Implementation

Some of the roads crossing improvements are addressed in the Initial Primary Corridors task.

Fig. 5.1G. Road Crossing Improvements Implementation

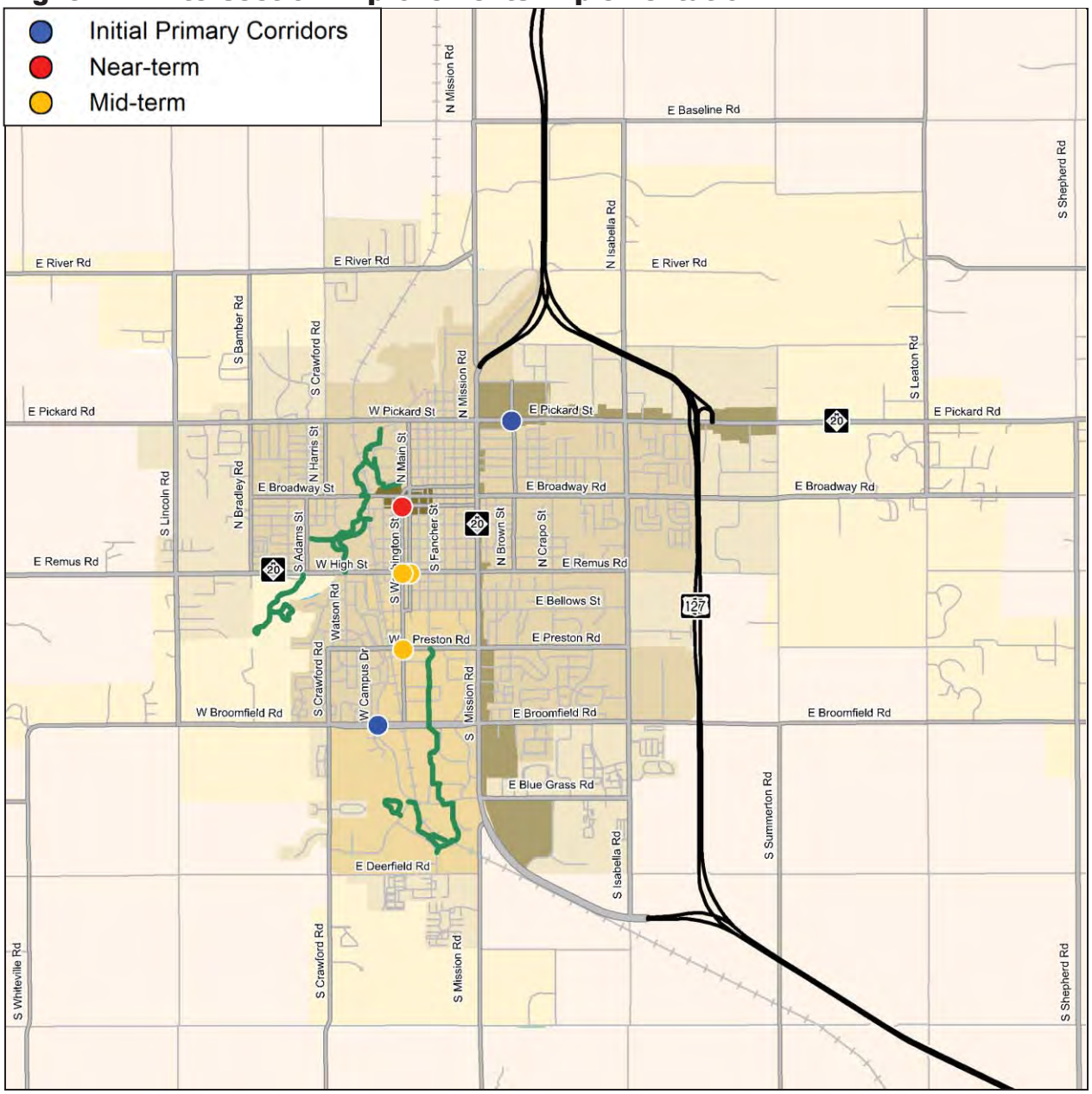


Road crossing improvements implementation rank was established based on the recommended implementation for neighborhood connector routes, sidewalks, and bike lanes. They were also selected based on latent demand to get across the street and safety concerns. Road crossing improvements should be coordinated with the other implementation tasks which include Neighborhood Connector Routes, Sidewalks, and Bike Lanes.

Intersection Improvements Implementation

Some of the intersection improvements are addressed in the Initial Primary Corridors task.

Fig. 5.1H. Intersection Improvements Implementation

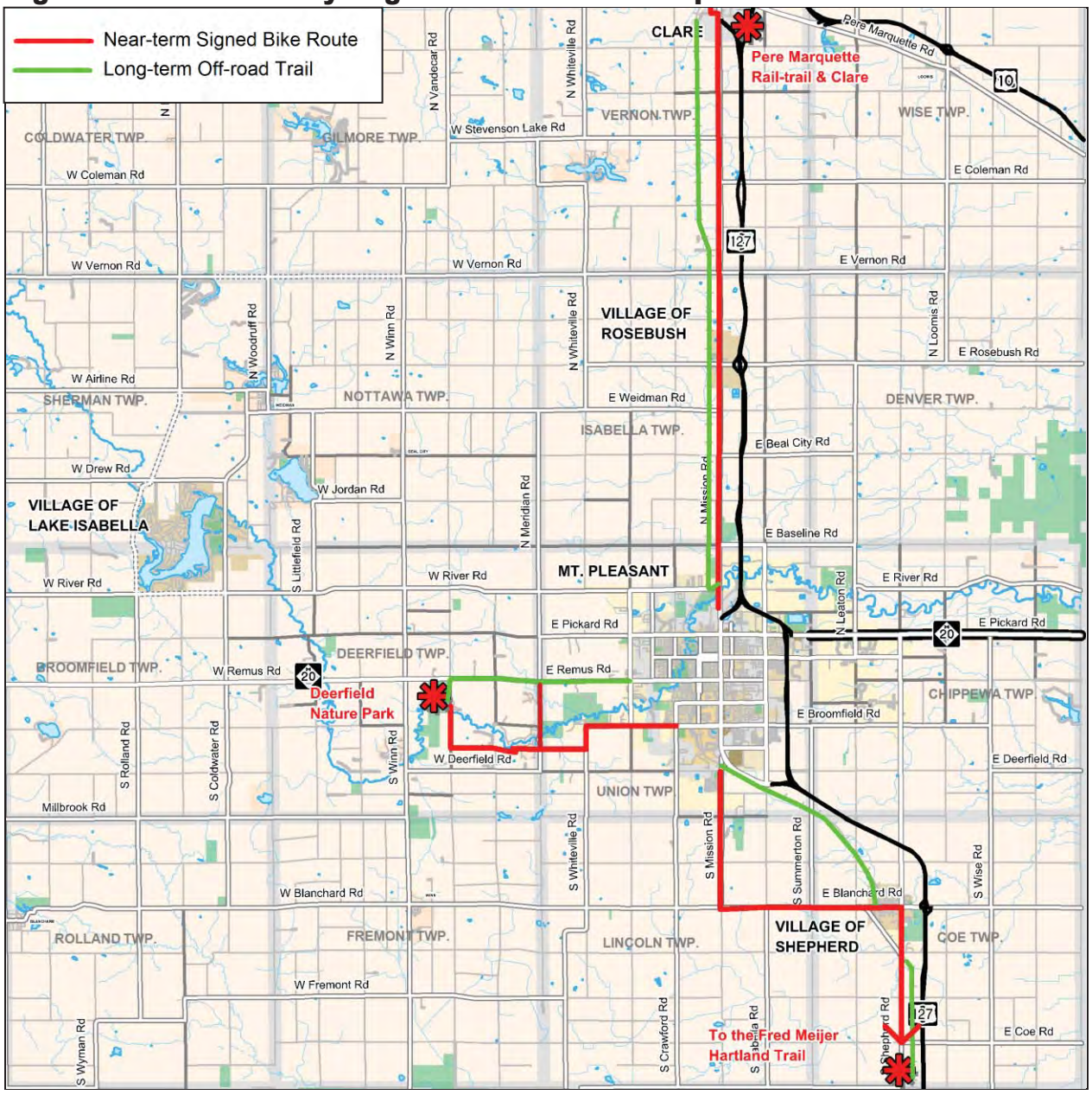


Intersection improvements implementation rank was established based on the recommended implementation for neighborhood connector routes, sidewalks, and bike lanes. They were also selected based on latent demand to get across the street and safety concerns. Intersection improvements should be coordinated with the other implementation tasks which include Neighborhood Connector Routes, Sidewalks, and Bike Lanes.

Initial Primary Regional Connections Implementation

The following improvements were determined based on public input, near-term opportunities, demand and where the majority of the population would be served. Overall, they will provide the framework for the regional non-motorized system.

Fig. 5.1I. Initial Primary Regional Connections Implementation



This task focuses on creating key connections across the county that would provide a backbone to the non-motorized system. These routes are broken up into near-term and long-term improvements that can be implemented based on opportunities and funding. There are 30 miles of signed bike routes proposed and 28 miles of off-road trail proposed in this phase.

1) Connection to Meridian and Deerfield Park

- Near-term: Implement signed bike route along E Bloomfeild Road, S Whiteville Road, E Bluegrass Road, and S Vandercar Road out to Deerfield Park, with a signed bike route along S Meridian Road to Meridian Park.
- Long-term: Implement 10' Roadside Pathway on the south side of E Remus Road between S Vandecar Road and S Lincoln Road.
- It would be dangerous to continue the roadside pathway on the south side of E Remus Road due to the high volume of driveways between S Lincoln Road and S Bradley Road, the alternative option would be to use the proposed sidewalks going north or south on S Lincoln Street and then using the proposed Neighborhood Connector Routes paralleling E Remus Road to the North and South as an alternative route.
- When complete the near-term and long-term solutions will provide a 10 mile loop

2) Connection to Clare and the Pere Marquette Rail-Trail

- Near-term: Implement signed bike route along N Mission Road between Mt. Pleasant and Clare
- Long-term: Acquire easement to implement a Rail-with-Trail between Mt. Pleasant and Clare following the Great Lakes Central Railroad north of E River Road. The railroad has a 50' easement which means there is not enough room for a trail within its right-of-way so an additional property easement from the adjacent landowners (approximately 57 private owners) would be necessary to implement a path along this route. Obtaining easements from the adjacent land owners should be pursued and if the task presents too many challenges than a roadside pathway along N Mission Road should be considered. Please note that driveways that intersect the roadside pathway present safety hazards. Access consolidation may be necessary in some areas where there are a numerous driveways in close proximity to each other, such as near the Village of Rosebush.
- A Rail-with-Trail would be the more desirable option to placing a roadside pathway along N Mission Road because roadside pathways can be very difficult to fund due to their unsatisfactory nature as a bike facility. Also, a Rail-with-Trail would provide a more natural and scenic setting away from the roadway.

3) Connection to the Village of Shepherd and Fred Hartland Trail

- Near-term: Implement signed bike route along N Mission Road, E Blanchard Road and S Shepherd Road between Mt. Pleasant and the Village of Shepherd and then extending south to the Fred Meijer Hartland Trail.
- Long-term: Acquire easement to implement a Rail-with-Trail between Mt. Pleasant and Shepherd following the Great Lakes Central Railroad north of South of E Deerfield Road. The railroad has a 50' easement which means there is not enough room for a trail within its right-of-way so an additional property easement from the adjacent landowners (approximately 15 private owners) would be necessary to implement a path along this route. Obtaining easements from the adjacent land owners should be pursued and if the task presents too many challenges than a roadside pathway along S Mission Road, E Blanchard Road and S Shepherd Road between Mt. Pleasant and the Village of Shepherd should be considered. Please note that driveways that intersect the roadside pathway present safety hazards. Access consolidation may be necessary in some areas where there are a lot of driveways in close proximity to each other, such as near the Village of Shepherd.

- A Rail-with-Trail would be the more desirable option to placing a roadside pathway along S Mission Road because roadside pathways can be very difficult to fund due to their unsatisfactory nature as a bike facility. Also, a Rail-with-Trail would provide a more natural and scenic setting away from the roadway.

Initial Primary Regional Connections Cost Estimate:

	Quantity	Unit	Unit Price	Cost Estimate	
To Meridian and Deerfield Park					
Near-Term					
Signed Bike Route	7.96	mi	$ 1,200.00	$ 9,552.00	Bloomfield Road, Whiteville Road, Bluegrass Rd, Vandercar Rd to Deerfield Park. Also along Meridian Rd (this line should be red)
		TOTAL		**$ 9,552.00**	
Long-Term					
10' Path	23705.19	ft	$ 45.00	$ 1,066,733.55	S side of Remus Rd between Vandecar and Lincoln
		TOTAL		**$ 1,066,733.55**	

	Quantity	Unit	Unit Price	Cost Estimate	
To Clare and Pere Marquette Rail Trail					
Near-Term					
Signed Bike Route	13.83	mi	$ 1,200.00	$ 16,596.00	N Mission Rd between Mt Pleasant and Clare
		TOTAL		**$ 16,596.00**	
Long-Term (Rail w Trail)					
Obtain Easements				TBD	57 Private landowners along railroad - easements needed to fit "rail with trail"
10' Path along RR	71997.8	ft	$ 45.00	$ 3,239,901.00	Along RR from Mission Rd to Pere Marquette Trail in Clare
Bridge Allowance	1	ls	$ 500,000.00	$ 500,000.00	
Boardwalk Allowance	1	ls	$ 225,000.00	$ 225,000.00	
Contingency (20%)				$ 792,980.20	
		TOTAL		**$ 4,757,881.20**	Plus Easements from 57 landowners

To Village of Shepherd and Fred Meijer Hartland Trail

Near-Term

Signed Bike Route	11.11 mi	$	1,200.00	$ 13,332.00	Mission Rd, Blanchard Rd and Shepherd Rd toward the Fred Meijer Hartland Trail (end distance calculation at Isabella Co line)
	TOTAL			**$ 13,332.00**	

Long-Term (Rail w Trail)

Obtain Easements				TBD	15 private landowners along railroad - easements needed to fit "rail with trail"
10' Path along RR	42115.2 ft	$	45.00	$ 1,895,184.00	Segment would become a signed bike route within the village of Shepherd -- approx 1.56 miles.
Bridge Allowance	1 ls	$	280,000.00	$ 280,000.00	
Boardwalk Allowance	1 ls	$	160,000.00	$ 160,000.00	
Contingency (20%)				$ 467,036.80	
	TOTAL			**$ 2,802,220.80**	Plus Easements from 15 landowners

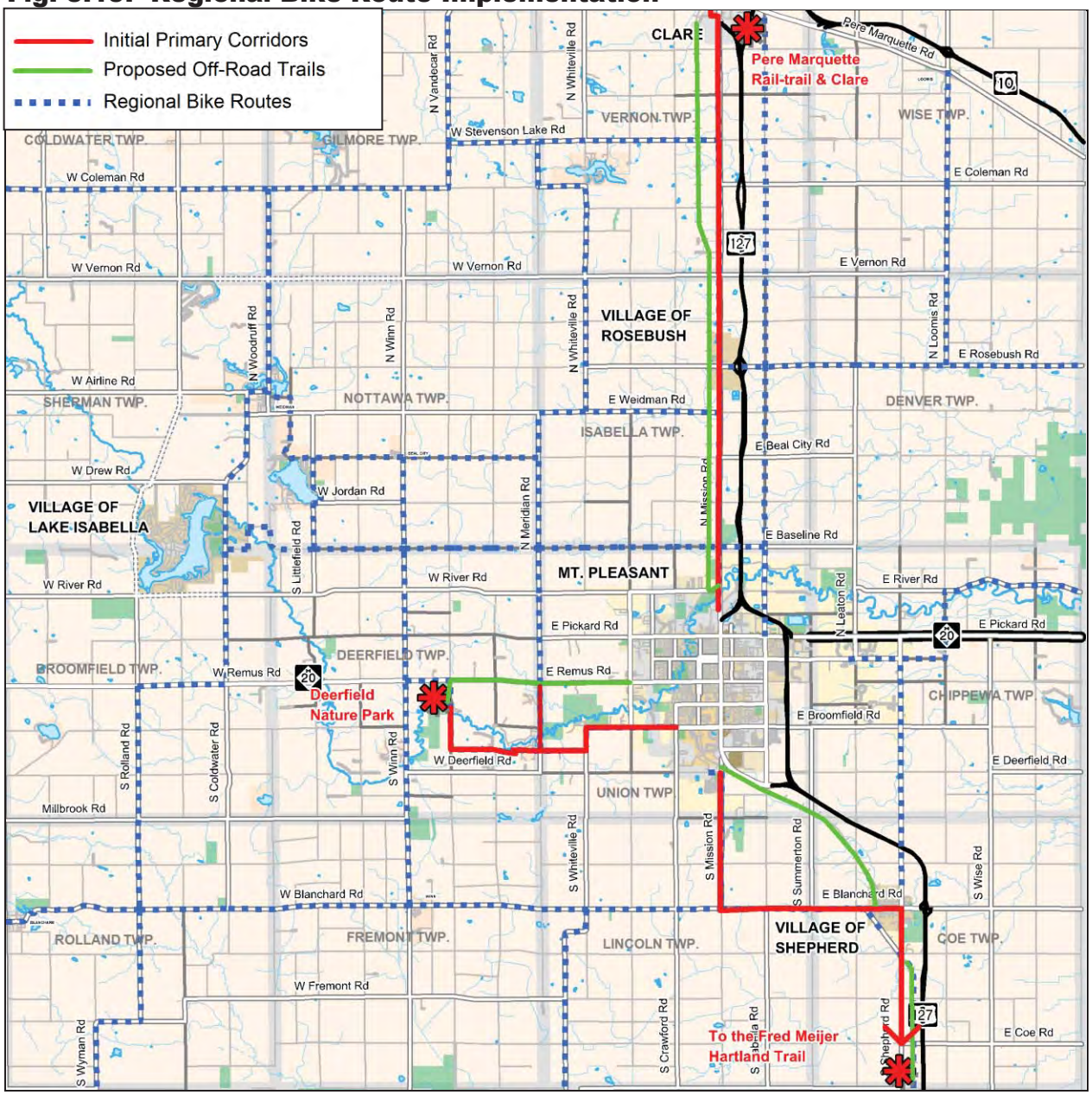
Total Cost of Near-term Initial Primary Regional Connections = $39,480

Total Cost of Long-term Initial Primary Regional Connections = $8,626,835.55

Regional Bike Route Implementation

Some of the roads crossing improvements are addressed in the Initial Primary Corridors task.

Fig. 5.1J. Regional Bike Route Implementation



The proposed Regional Bike Routes will help to link key destinations across the county. The connections include signed bike routes, paved shoulders, and potential off-road trails.

1) Near-term Regional Bike Routes

- Implement wayfinding signs on all routes so road can be used as on-road bike routes

2) Mid-term Regional Bike Routes

- Add bike lanes to the routes by paving the shoulder

3) Long-term Regional Bike Routes

- Implement off-road trails and roadway pathways

5.2 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, bonds, Community Development Block Grants, etc.

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, bus 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
- Bicycle accommodations on public transportation
- 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 community's Parks and Recreation Master Plan. If a community has recently received a significant MDNRE Trust Fund award for a project it may be a few years (2 to 3) before the community can be successful in approaching the Trust Fund again for additional projects. This is due to the Trust Funds historical pattern of dispersing their dollars geographically.

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. This is a relatively small grant program with a total of $70,000 in 2010.

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.conservationfund.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. Applications are received and reviewed quarterly. Typical funding is approximately $200,000 per school and does not cover engineering, administration or permits.
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.

MDOT Small Urban Program
The Small Urban Program provides federal Surface Transportation Program (STP) funding to areas with a population of 5,000 to 49,999. Road and transit capital projects are eligible for STP funds. During a call for projects, MDOT requests that eligible areas, such as Mt. Pleasant, submit road and transit capital projects for funding consideration. All road projects must be located on the federal-aid highway system and consistent with regional land use and development plans. Urban areas may submit for up to $375,000 federal STP per project with a required 20% local match. Eligible projects include non-motorized shoulders, reconstruction, and non-motorized trails (along roads).

Foundations
There are a handful of private Foundations in the Mt. Pleasant area that may be considered for assistance in moving the non-motorized plan forward. It is unclear as to the likelihood of receiving assistance from these Foundations as many do not accept unsolicited proposals. Discussions would begin with an existing relationship and/or association with Foundation staff.

- Mount Pleasant Area Community Foundation
- W.E. Martin Foundation
- Dorsay Foundation
- Isabella Bank and Trust Foundation

5.3 Annual Maintenance & Operation Costs

There are many other factors that can affect cost of maintenance for a non-motorized system. However, the main factor affecting cost is the difference in agencies that maintain and operate facilities. Each agency will have different labor costs, access to different machinery and equipment, and may or may not have a volunteer base to offer assistance.

Routine maintenance can be defined as maintenance that is needed to keep the facility operating in a safe and usable condition, not involving major development or reconstruction. Below is a list of typical routine maintenance activities and their associated annual cost per mile (when applicable):

- Asphalt Paved Trail - $4,500 per mile annually (includes sweeping/blowing of debris, mowing of shoulders, vegetation control, asphalt sealing, and snow removal)
- Asphalt Side Path - $700 per mile annually (includes asphalt sealing, and snow removal)
- Concrete Sidewalk – 30+ year useful life with little or no yearly maintenance (assumes adjacent property owners are required to remove snow and repair broken or shifting flags as needed)
- Pedestrian Bridge – 50+ year useful life with little or no yearly maintenance (dependent on deck surface)
- Boardwalk - $18,000 per mile annually (based on power-washing, mildewcide application and sealing of decking every three years)
- Bicycle Lanes - $10,000 per mile annually (includes weekly sweeping and annual re-striping)
- Signals - $200 annually