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.

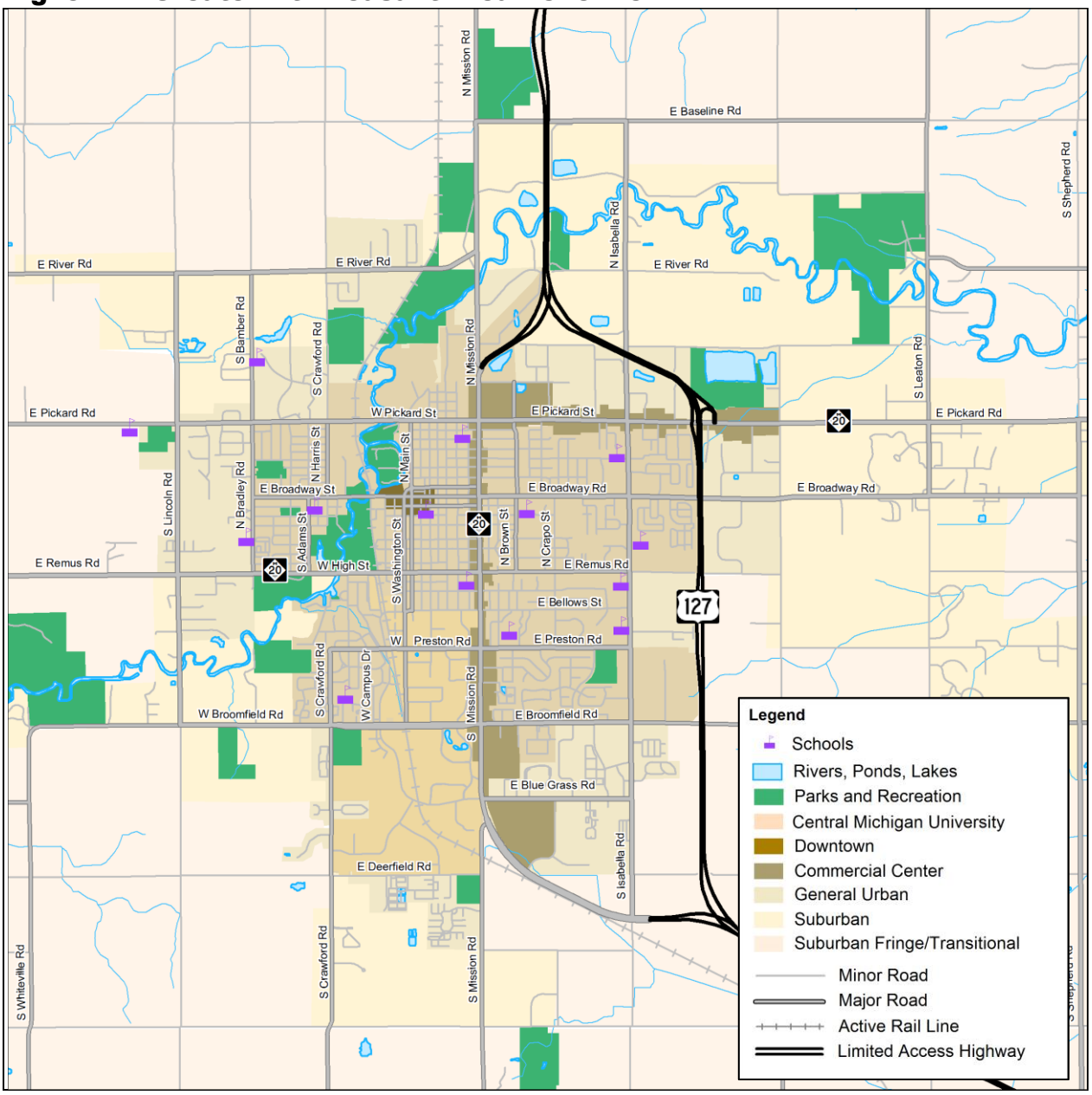
The following maps provide a general summary of the existing conditions in the Greater Mt. Pleasant Area and the Region:

- 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:

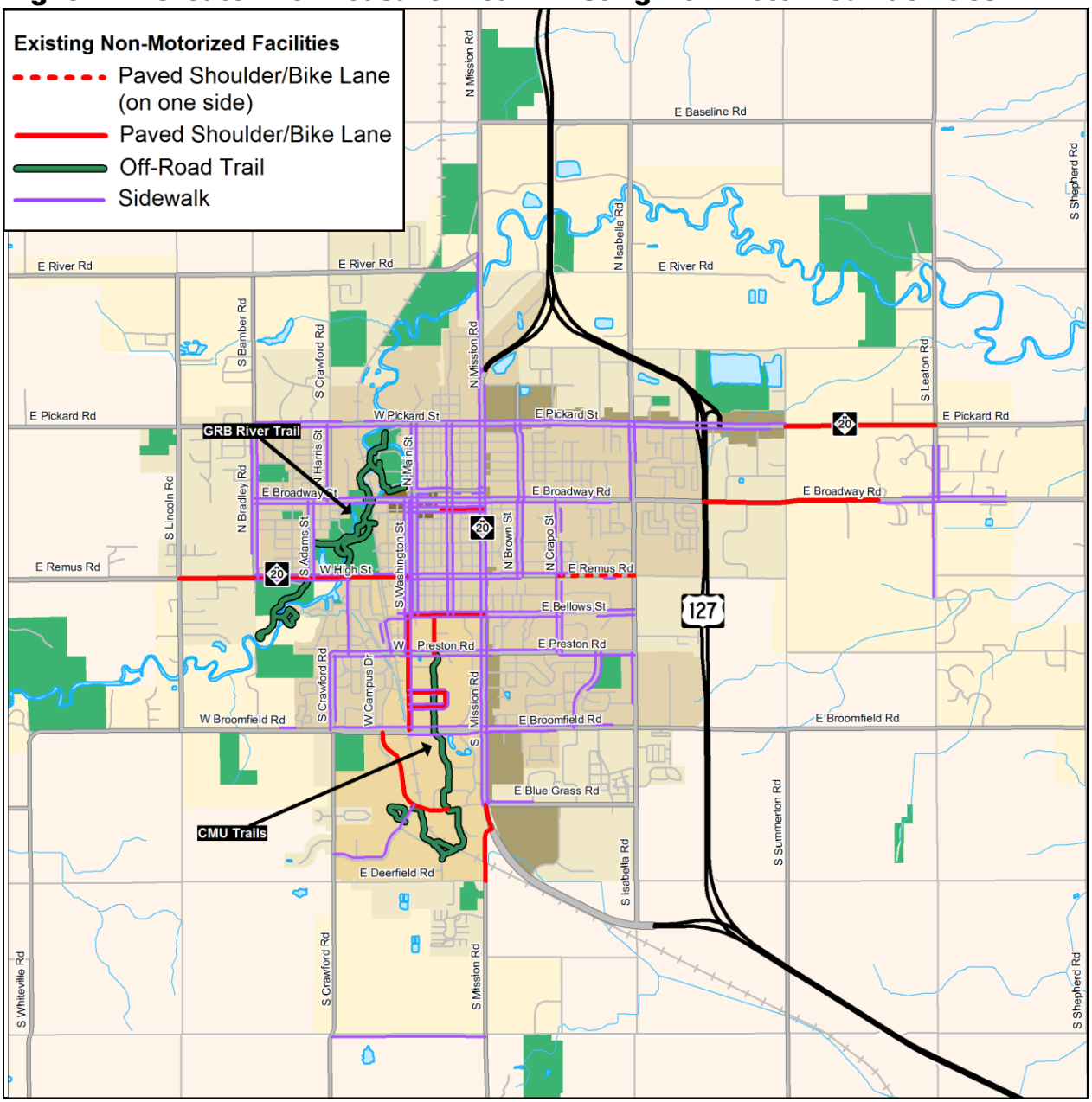
- Fig. 3.1N. Regional: Overview
- Fig. 3.1O. Regional: Landscape Types
- Fig. 3.1P. Regional: Road Classification
- Fig. 3.1Q. Regional: Road Jurisdiction
- Fig. 3.1R Regional: Average Daily Traffic Volumes
- Fig. 3.1S. Regional: Existing Bike and Pedestrian Activity Generators
- Fig. 3.1T. Regional: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

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



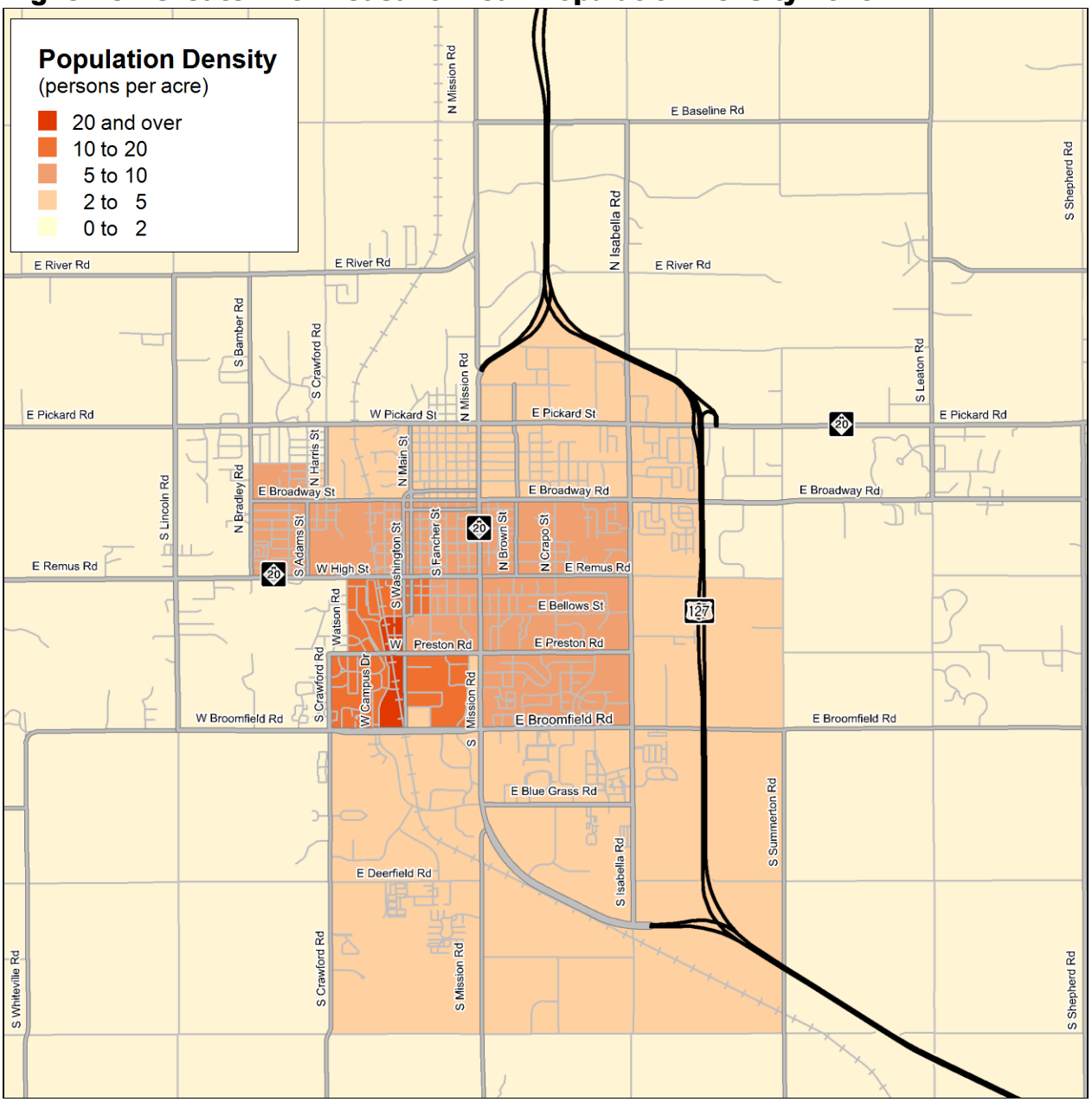
The Greater Mt. Pleasant Area includes the City of Mt. Pleasant, Union Township, Central Michigan University and the Saginaw Chippewa Indian Tribe.

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



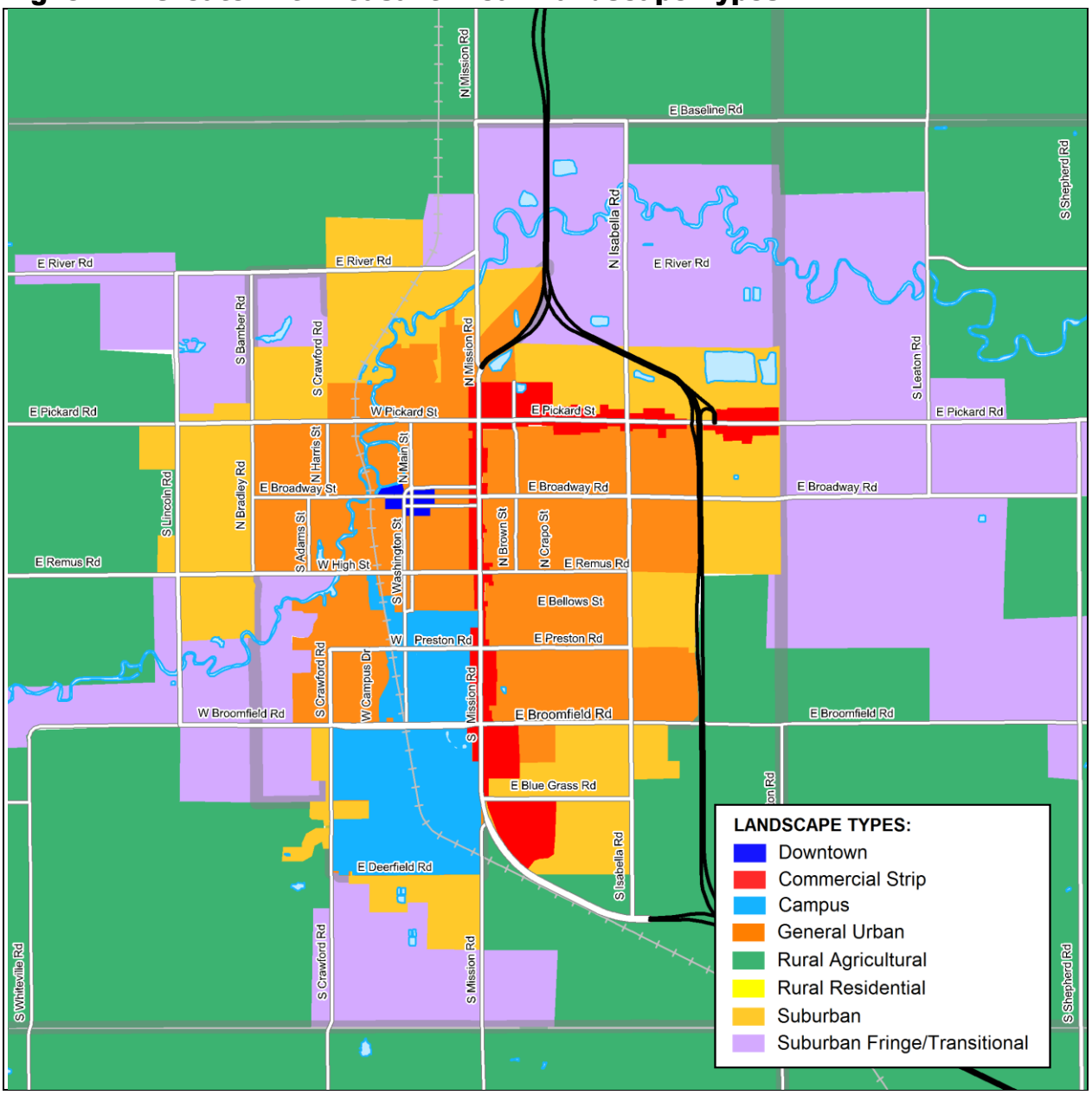
There are approximately 7 miles of existing bike lanes and 5 miles of existing off-road trails in the Greater Mt. Pleasant Area. The GRB RiverWalk is located along the Chippewa River and provides recreational opportunities in the parks.

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



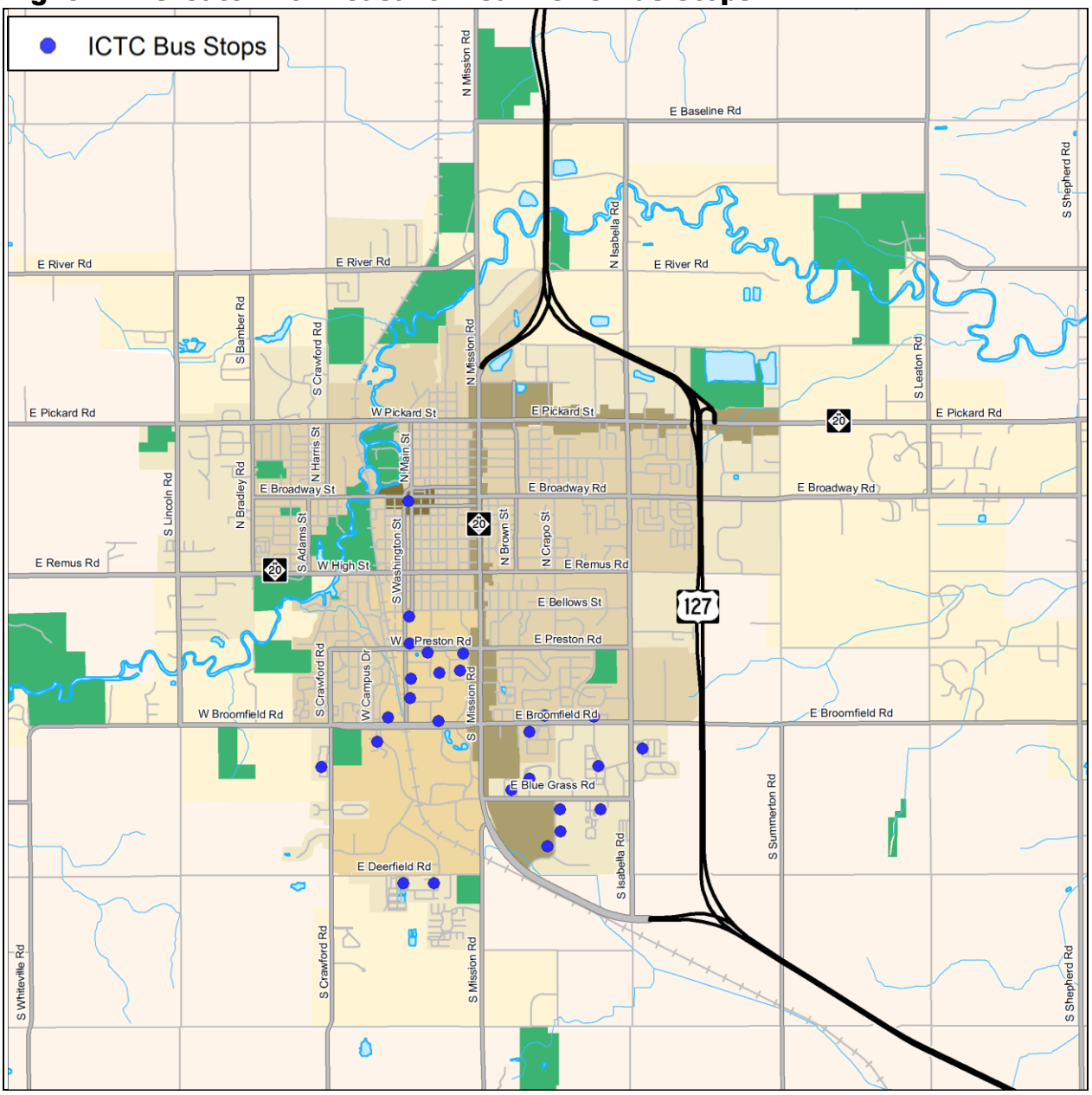
As of the 2010 census, the City of Mt. Pleasants population was 26,016 and Union Township population was 12,927. Central Michigan University has more than 20,000 students on its Mt. Pleasant Campus.

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



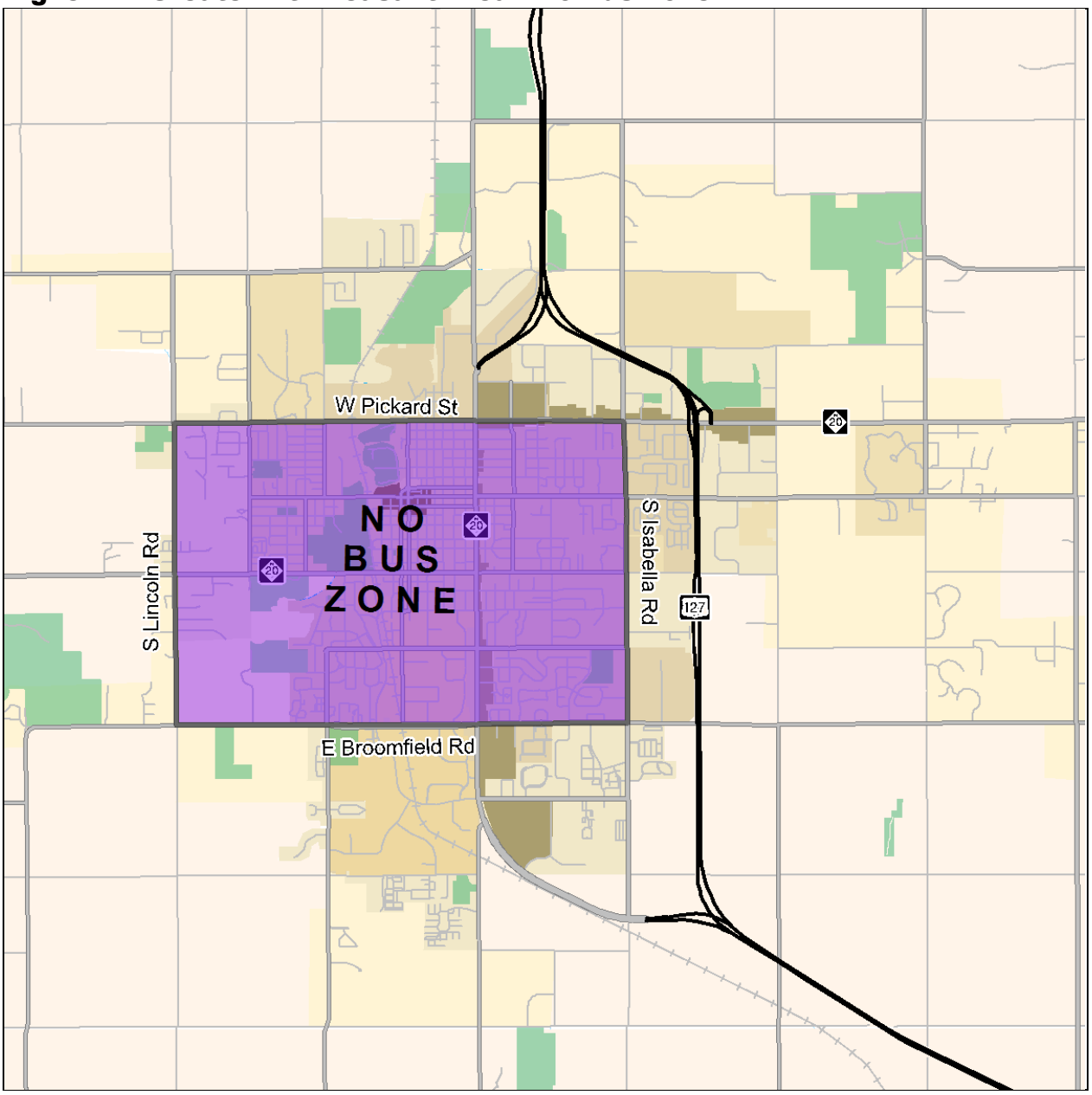
These landscape types where created based on the existing land use and character of the area. Different types of non-motorized facilities are appropriate for different types of landscapes.

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



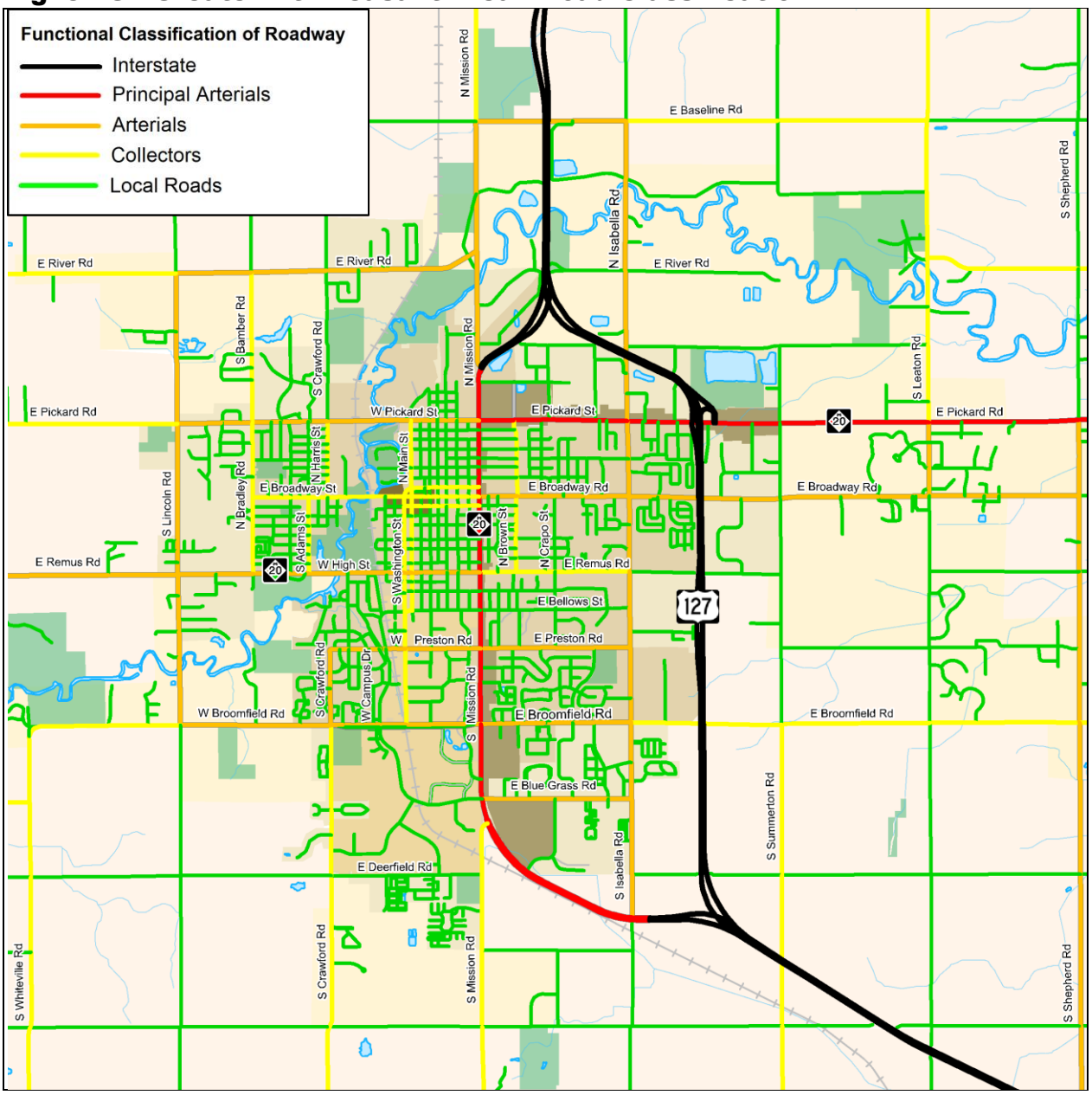
Transit stops generate non-motorized activity. It is important to make sure there are safe and convenient facilities to get people along and cross a roadway to access a bus stop.

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



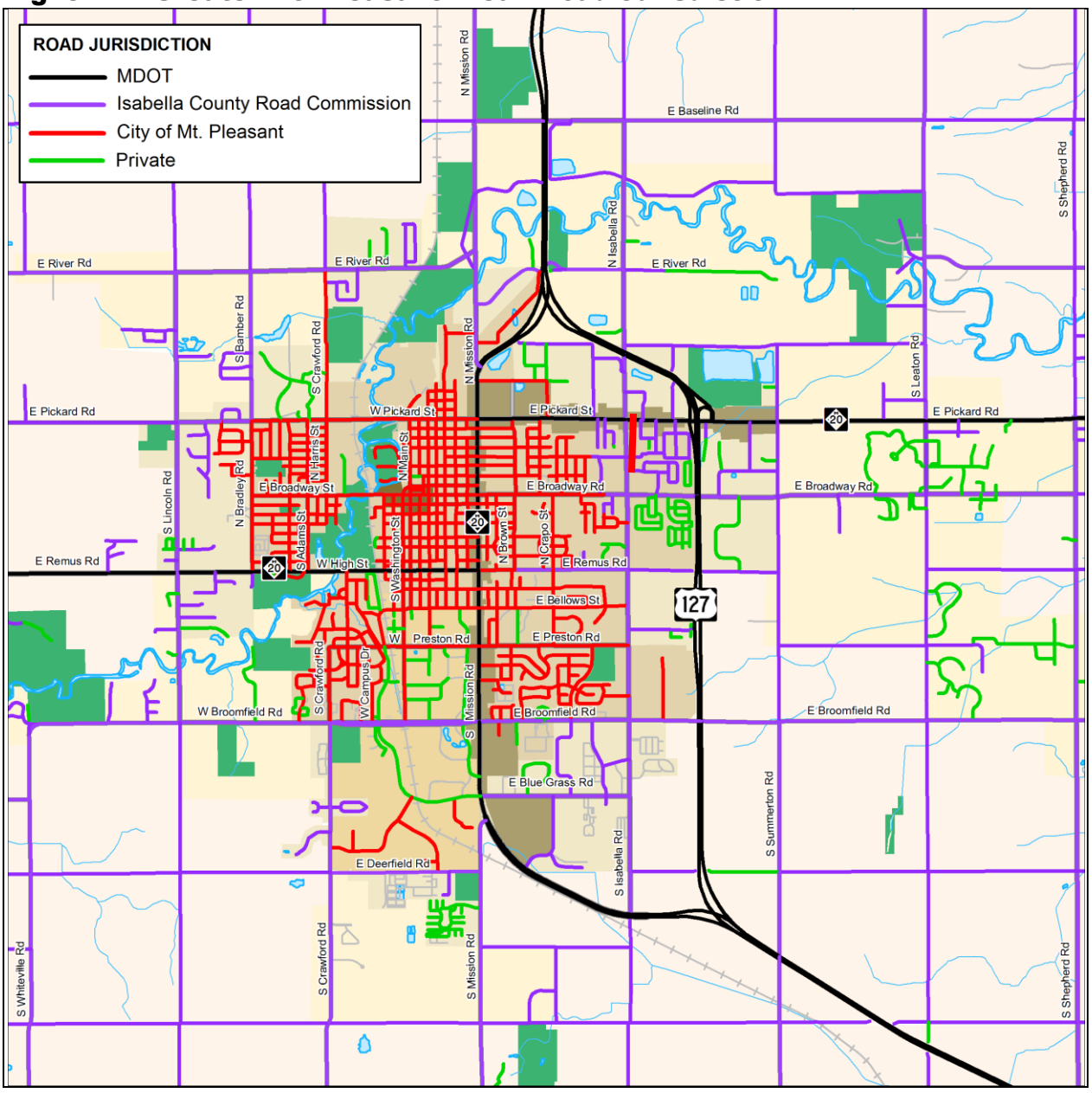
In 2011 a "No Bus Zone" was established for school buses. Children living within the boundary of S Lincoln Road, W Pickard Street, S Isabella Road and E Broomfield Road will no longer be provided school bus service. It is critical that a complete sidewalk system and safe road crossing be established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

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



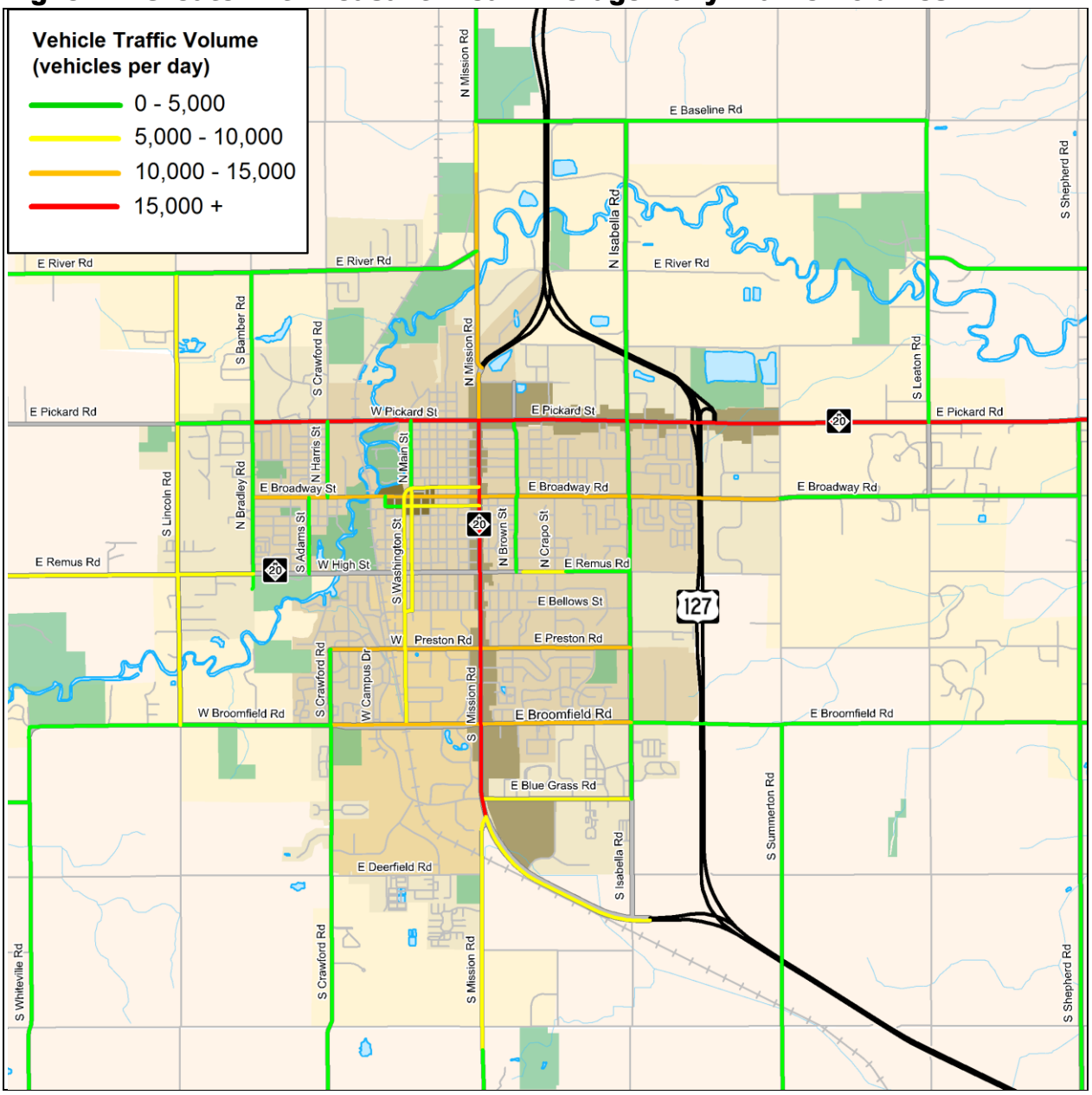
The National Functional Classifications are referenced in AASHTO guidelines and the guidelines in this document. While the National Functional Classification is intended to define a road hierarchy, substantial variation in road characteristics may be found within the classifications. The actual and projected 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.

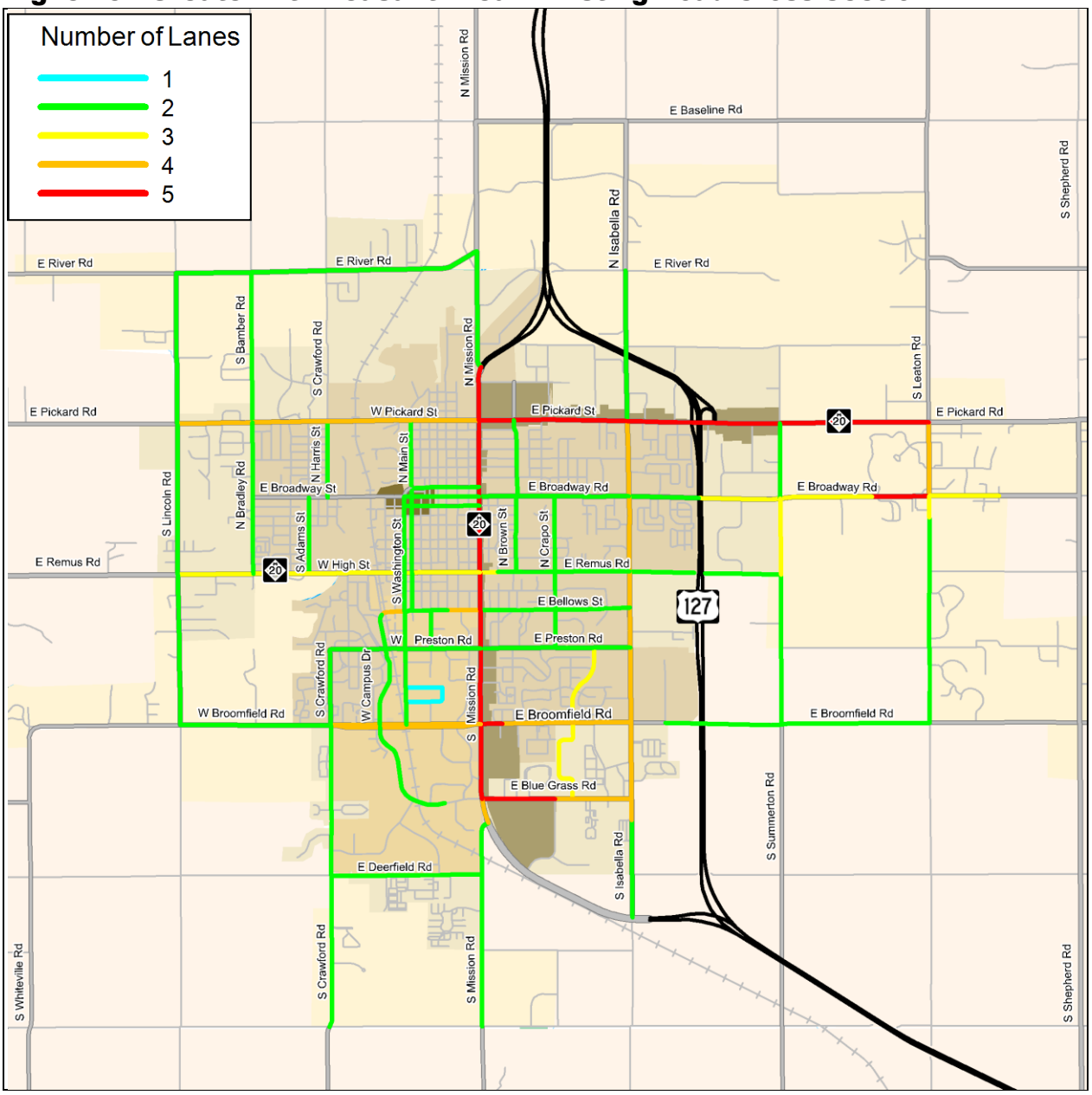
Fig. 3.1I. Greater Mt. Pleasant Area: Average Daily Traffic Volumes



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.

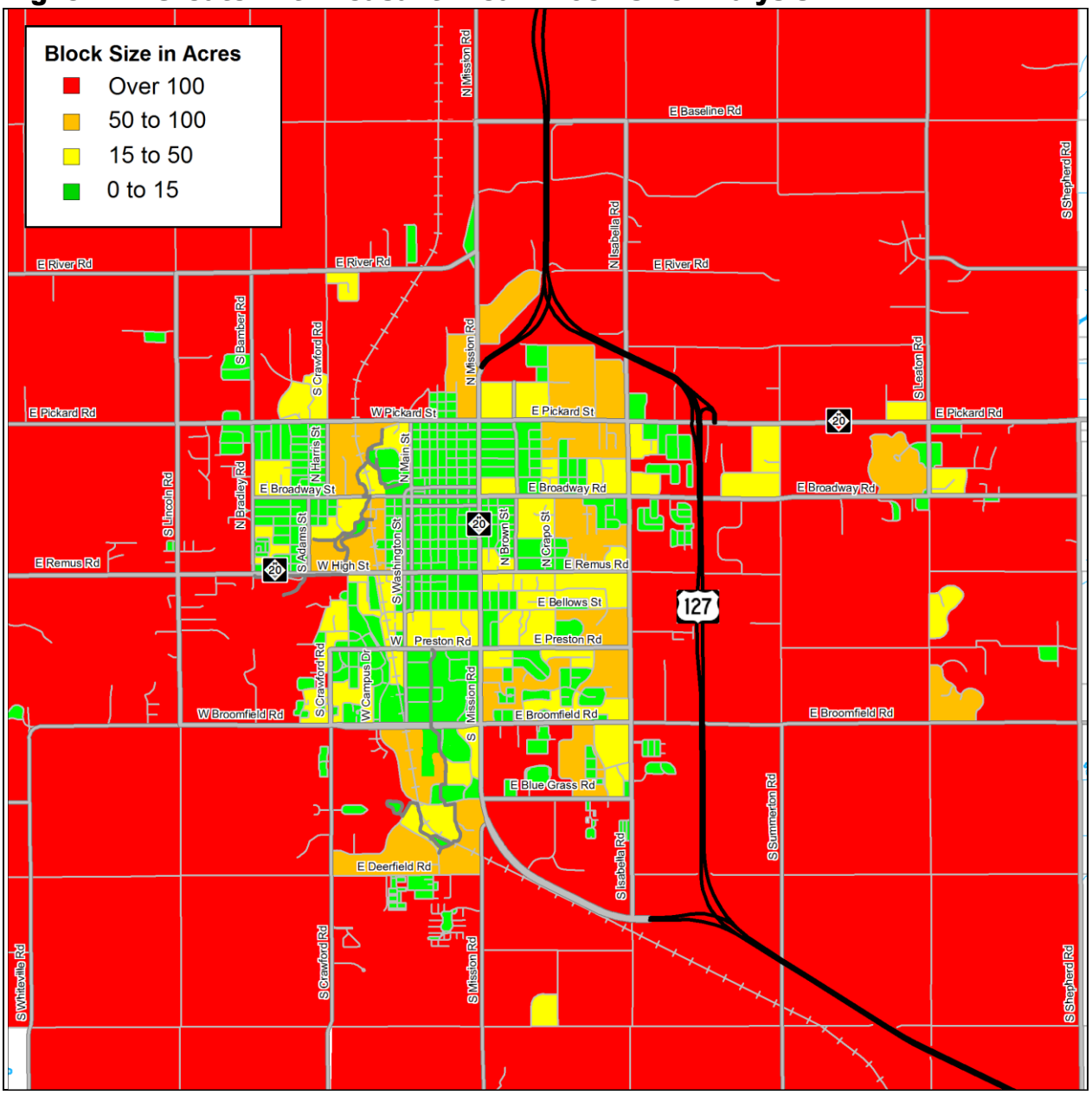
Fig. 3.1J. Greater Mt. Pleasant Area: Existing Road Cross Section



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.

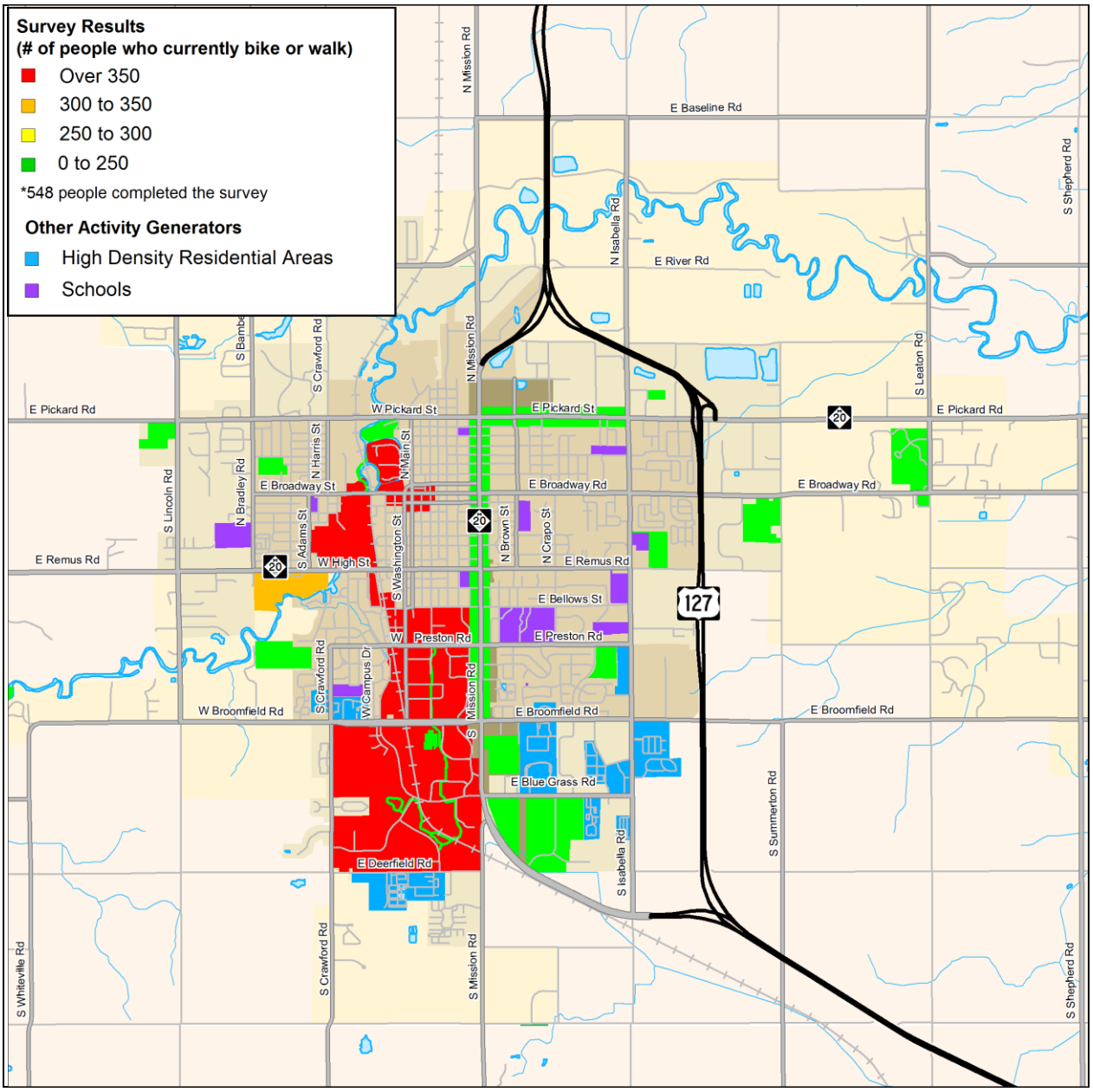
Fig. 3.1K. Greater Mt. Pleasant Area: Block Size Analysis



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.

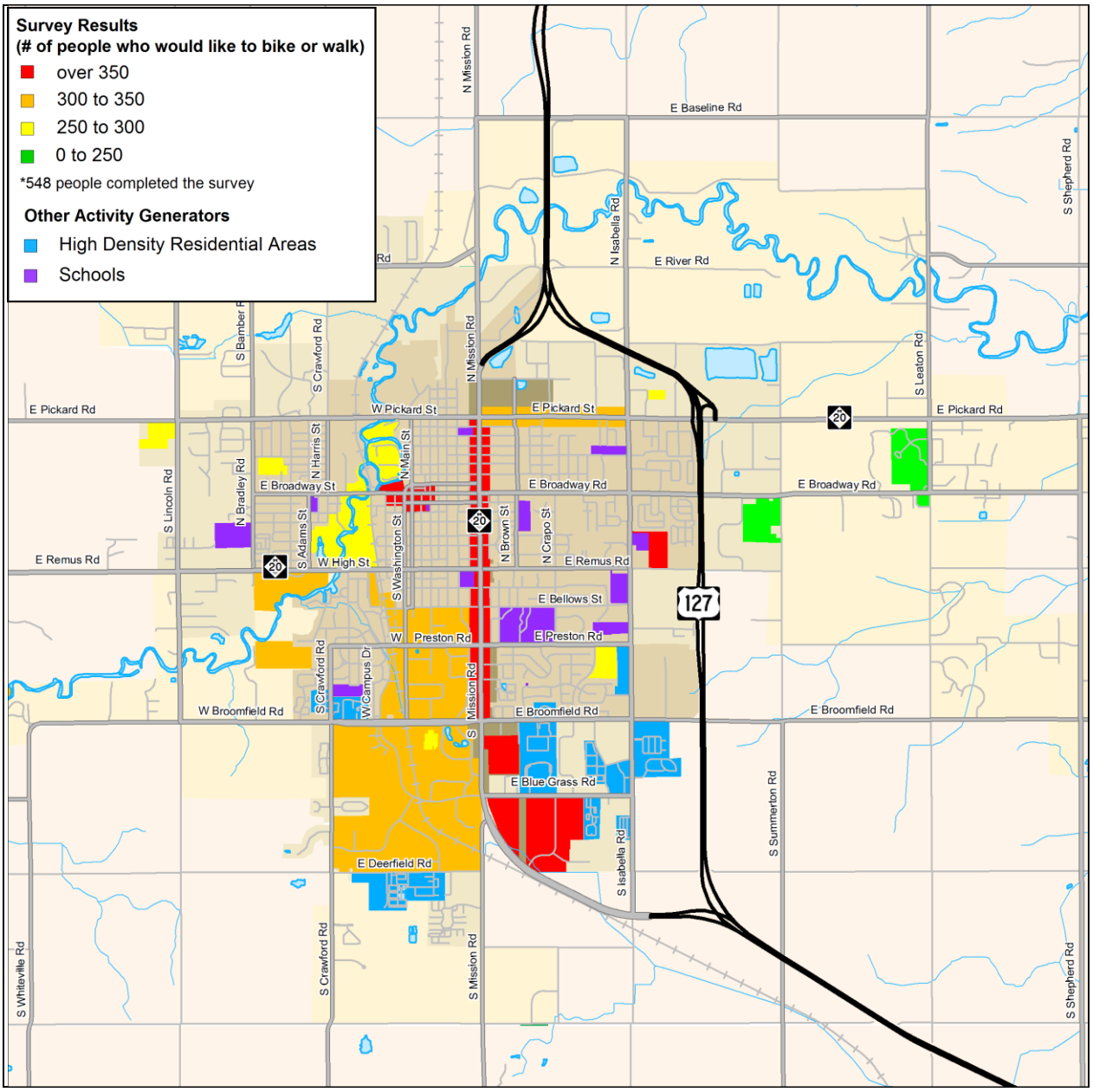
The majority of the City of Mt. Pleasant has blocks under 50 acres in size. This means that with the proper facilities implemented, based on the existing transportation network, there is potential for the community to increase bicycle and pedestrian activity. On the other hand, areas surrounding the 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

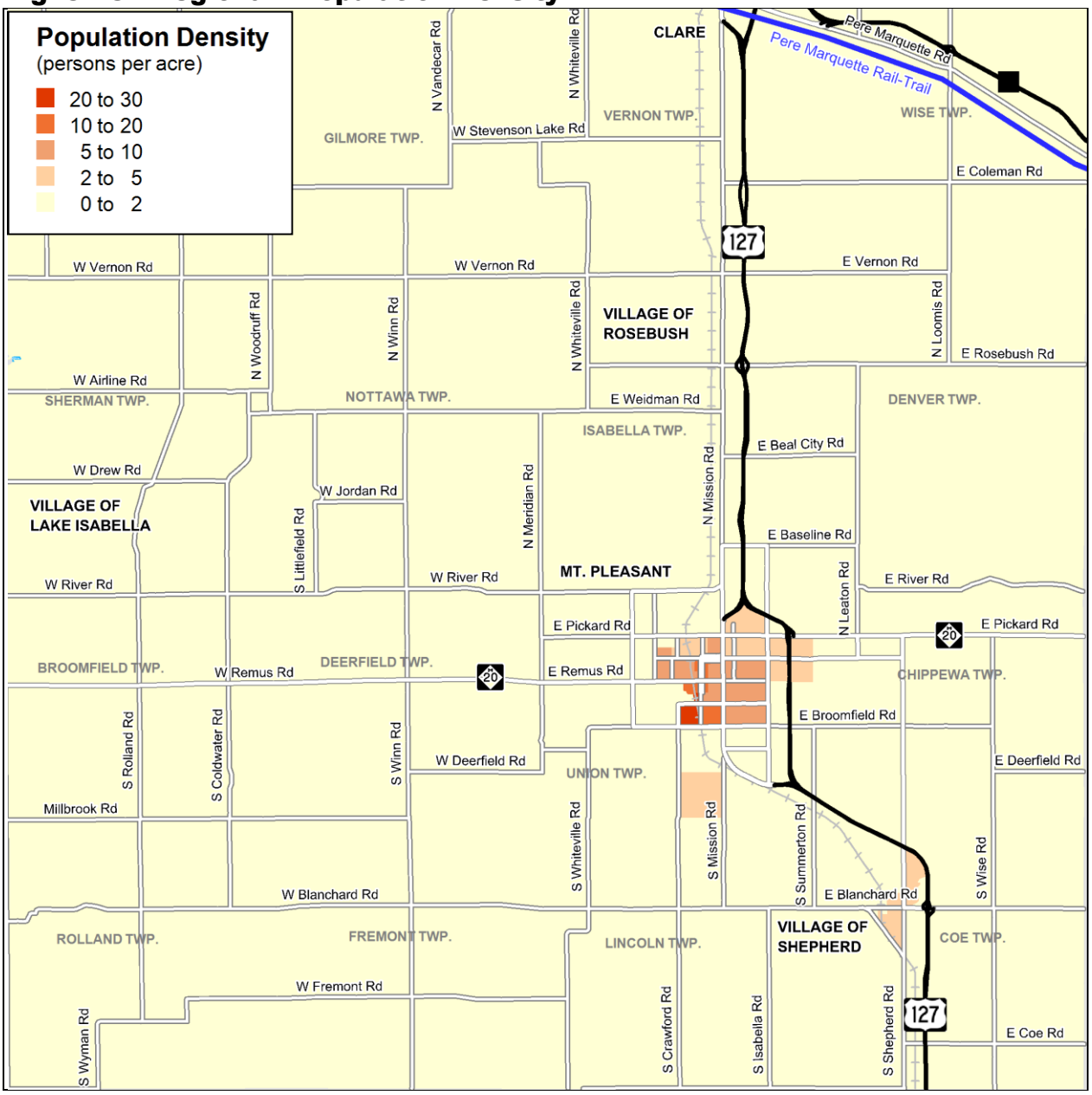


According to the web survey, if a complete and safe non-motorized network was established the shopping centers would see the most growth by non-motorized users based on feedback from the online survey.

Fig. 3.1N. Regional: Overview

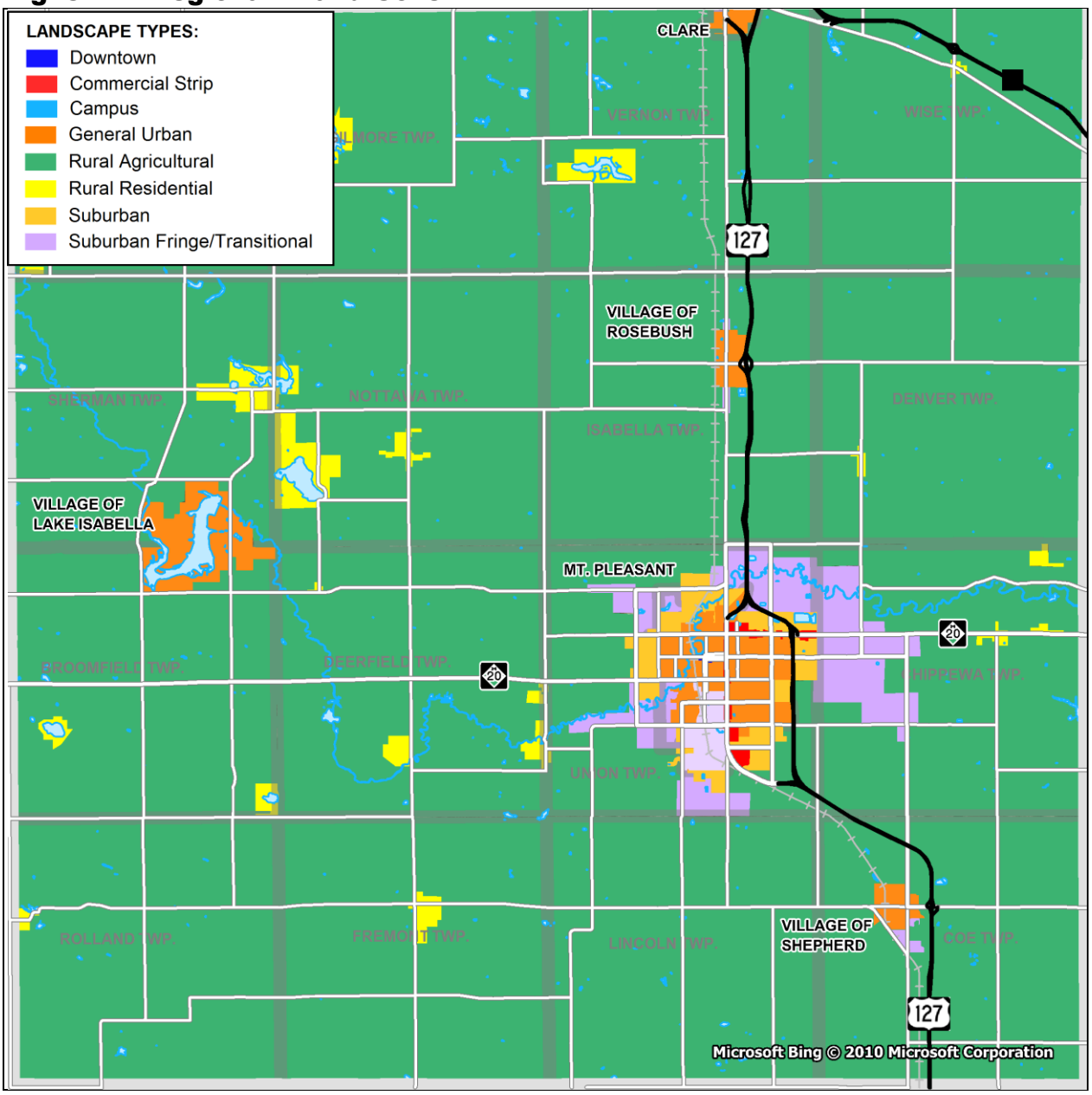
Isabella County is approximately 578 square miles. The Greater Mt. Pleasant Area is located in the south east quadrant of the county. The city of Clare is to the north of the county and Almont is to the south.

Fig. 3.1O. Regional: Population Density



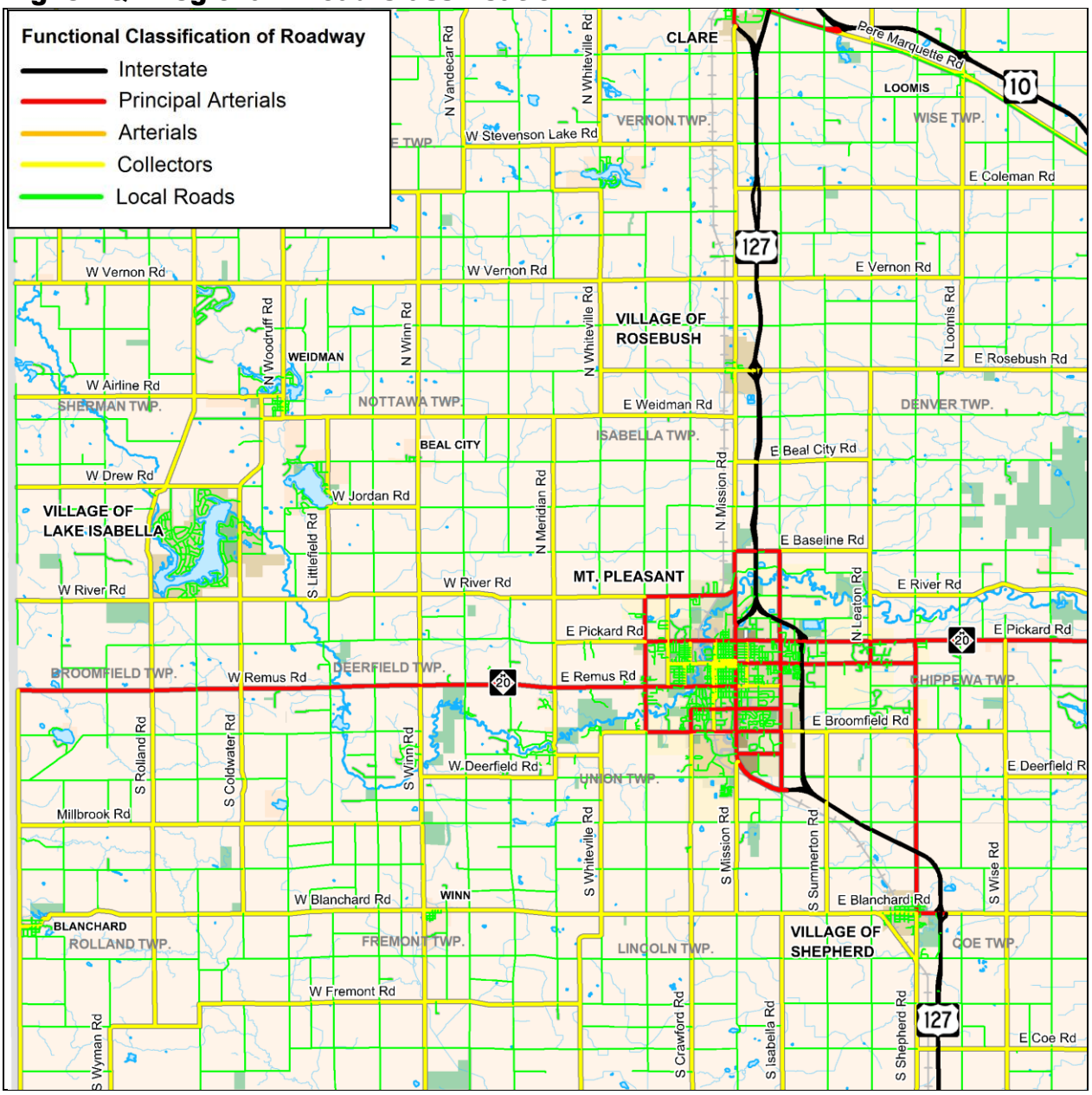
Based on the 2000 census has a population of 63,351 people. The majority of the population is located in the Greater Mt. Pleasant Area and the Village of Shepherd.

Fig. 3.1P. Regional: Land Cover



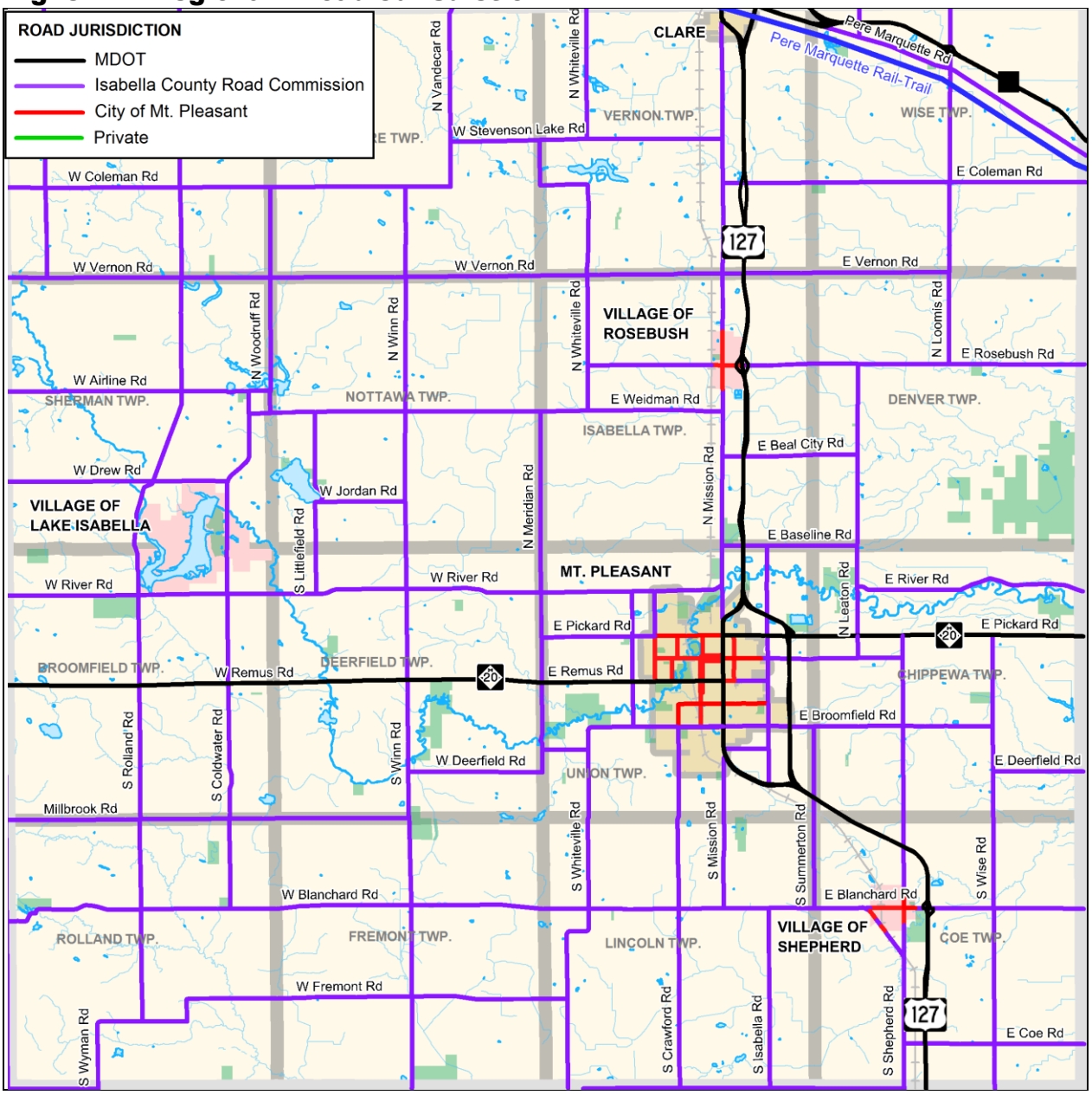
These landscape types where created based on the existing land use and character of the area. Different types of non-motorized facilities are appropriate for different types of landscapes.

Fig. 3.1Q. Regional: Road Classification



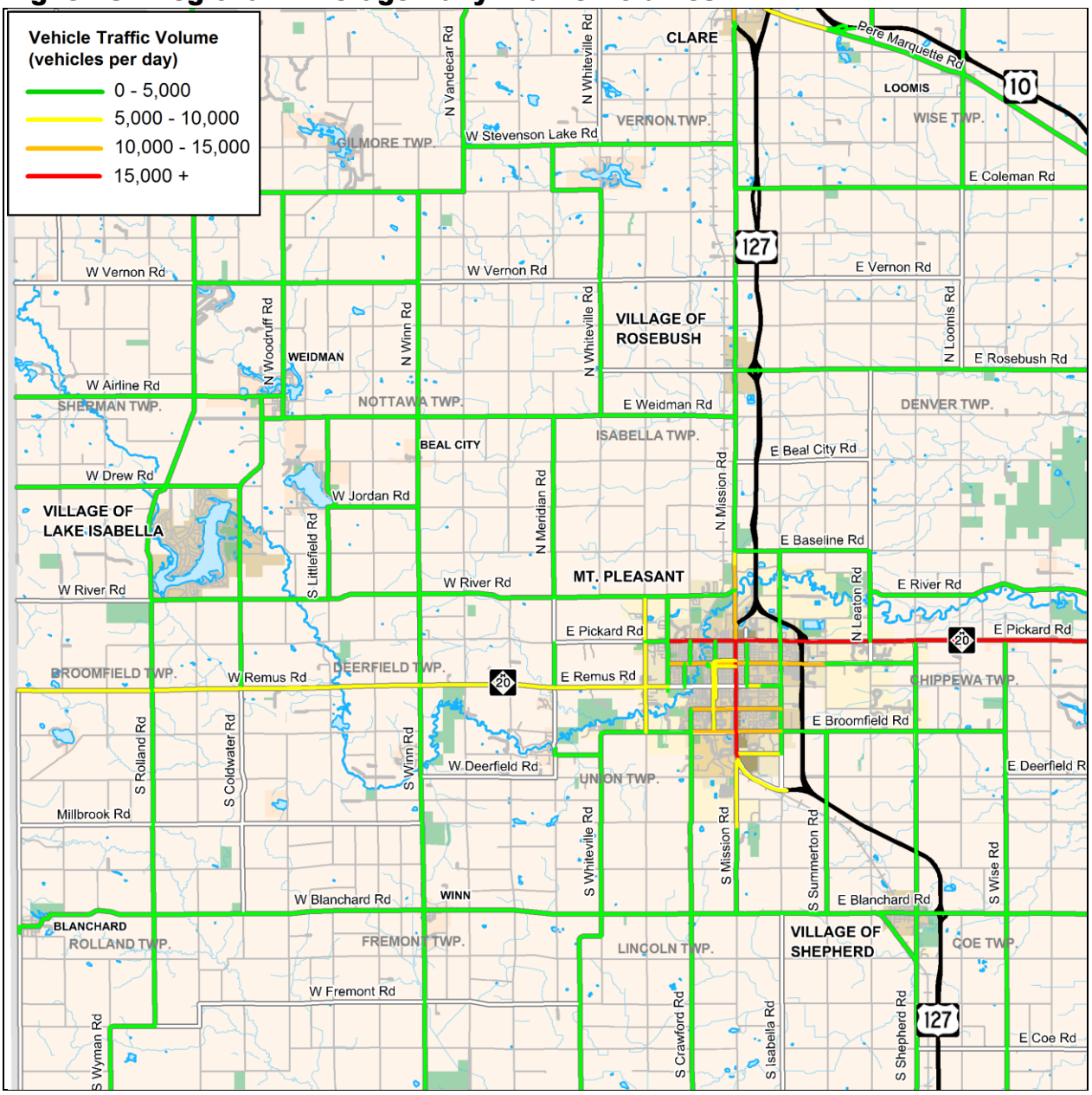
The National Functional Classifications are referenced in AASHTO guidelines and the guidelines in this document. While the National Functional Classification is intended to define a road hierarchy, substantial variation in road characteristics may be found within the classifications. The actual and projected 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.

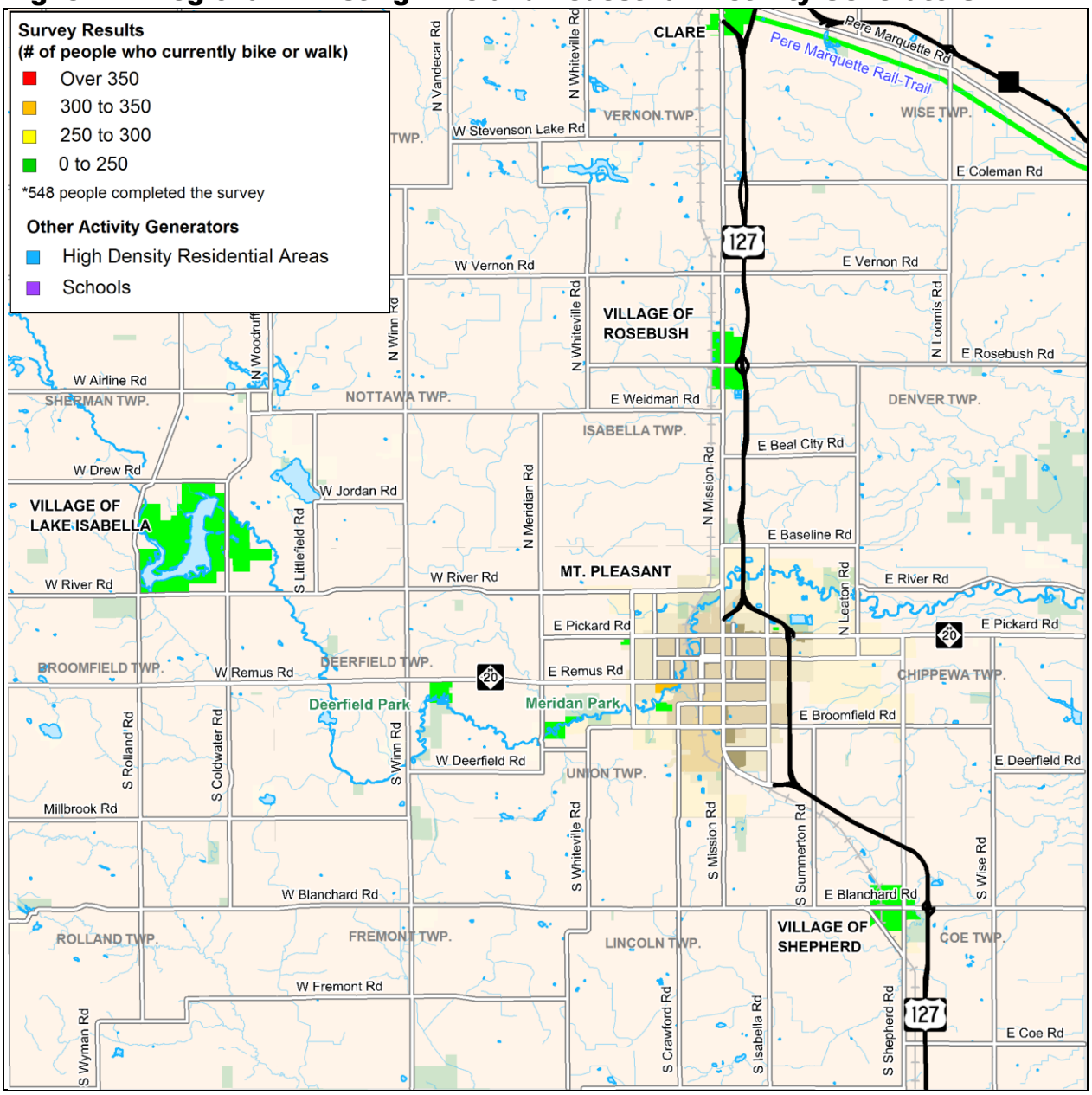
Fig. 3.1S. Regional: Average Daily Traffic Volumes



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.

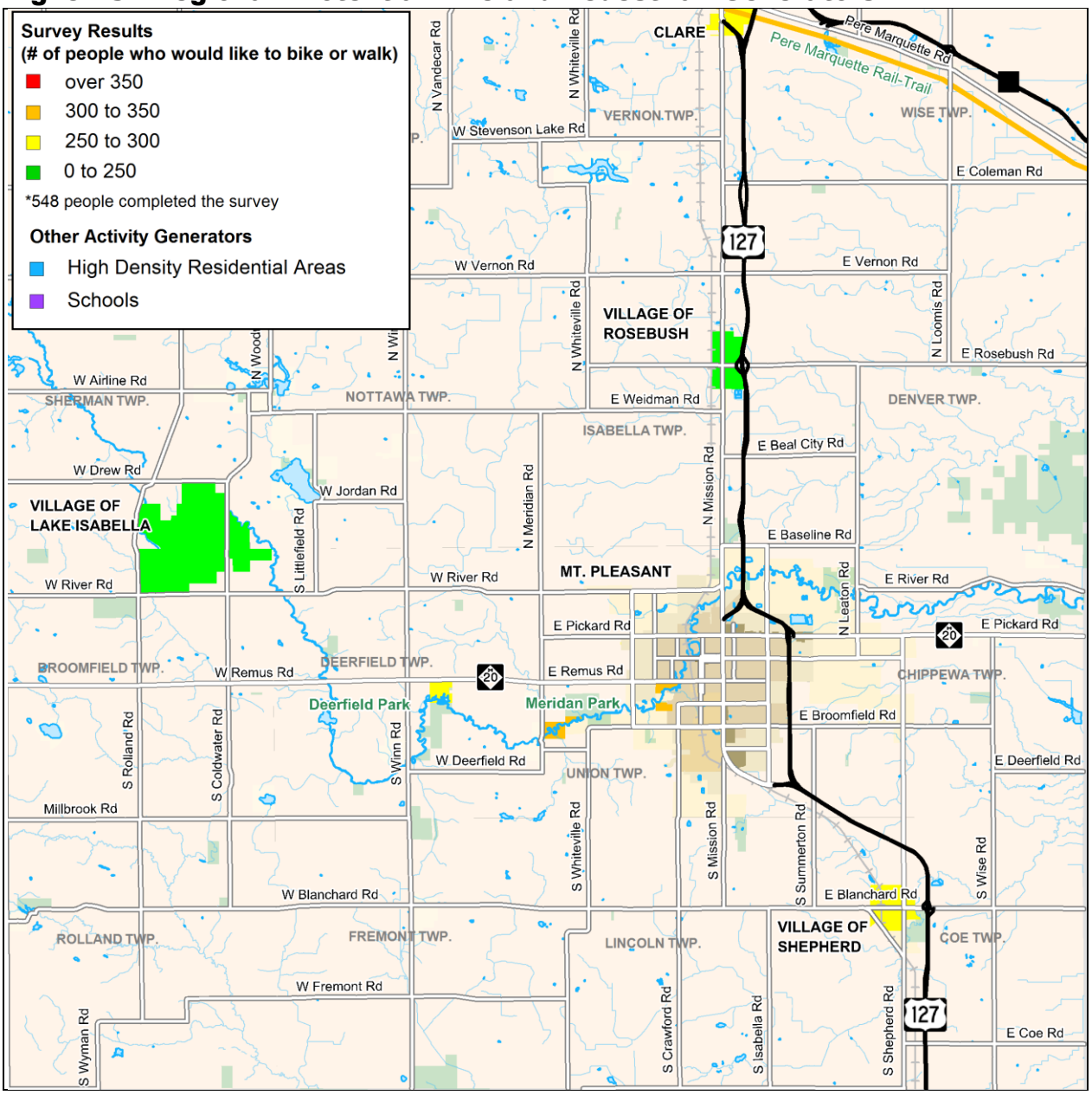
The gradations used generally reflect noticeable changes in the comfort level of bicyclists sharing a roadway with motorists, all other factors being equal.

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

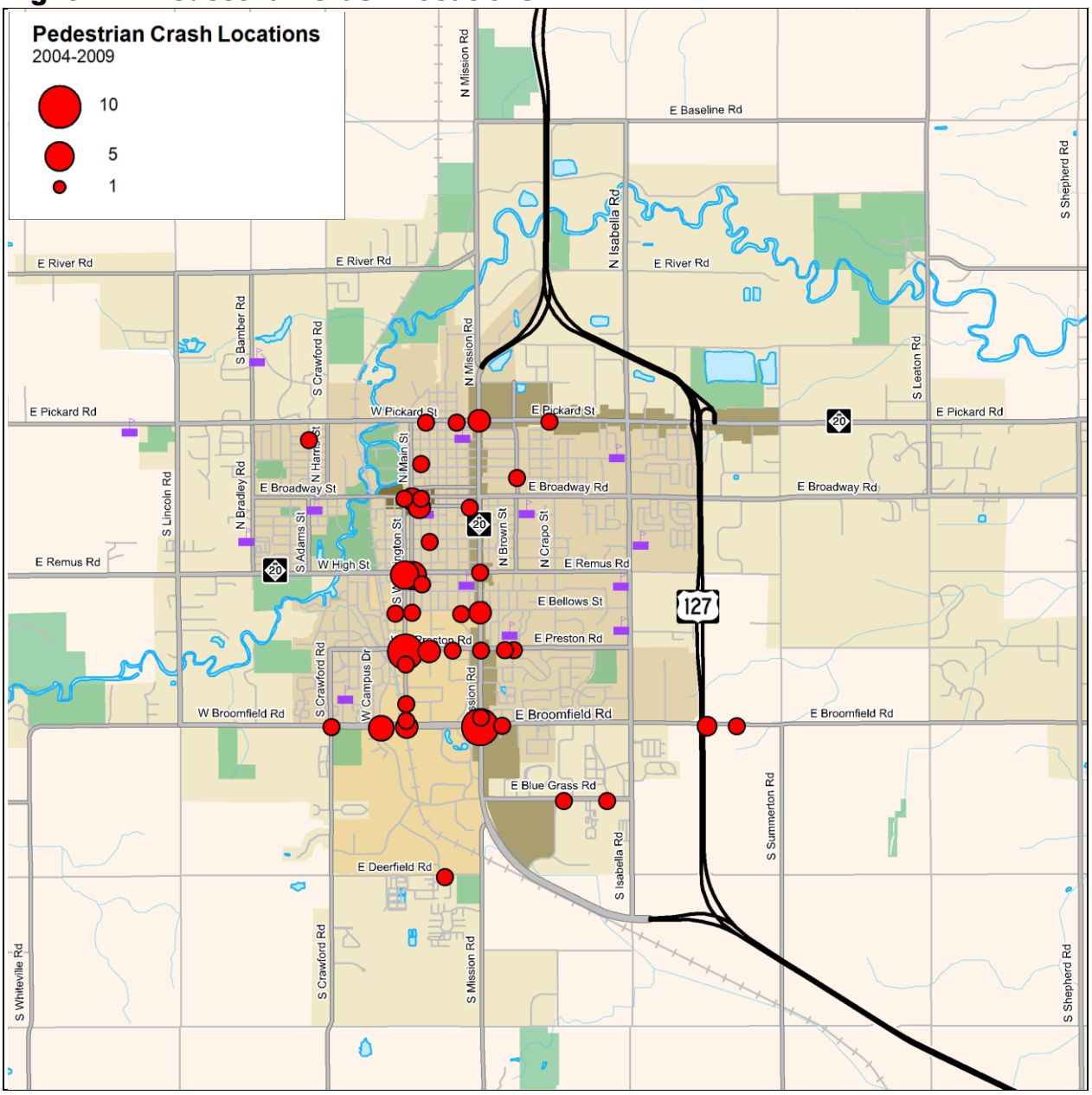
The Greater Mt. Pleasant Area has a partially complete sidewalk system along the major roadways, especially in areas outside of the downtown neighborhoods. There are still significant gaps along major roadways especially in the more suburban parts of town. The quality of the pedestrian experience on 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.

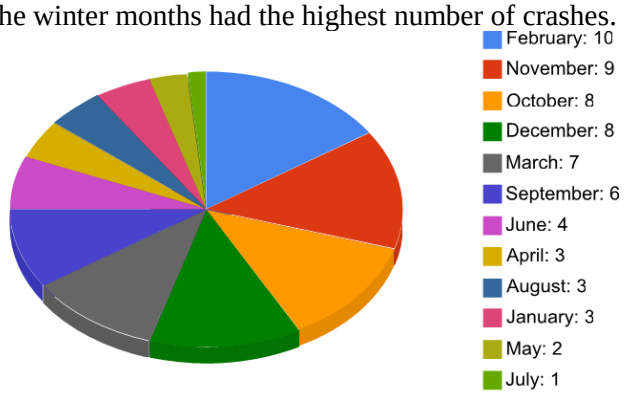
There were 64 pedestrian involved crashes, none were fatal and 13 resulted in serious injuries. Drinking or drug use was involved in 12 of the crashes. There was no traffic control at 42% of the crash locations.

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

Fig. 3.2B. Pedestrian Crash Data

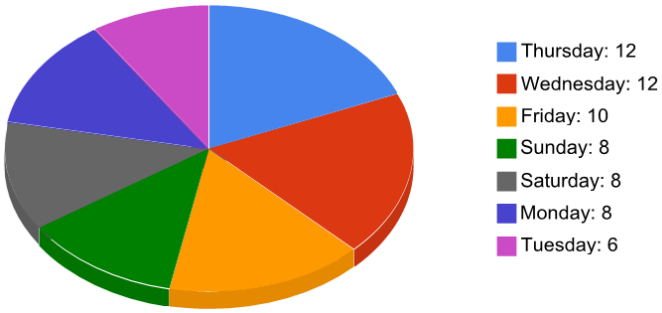
Month of Crash

The winter months had the highest number of crashes.



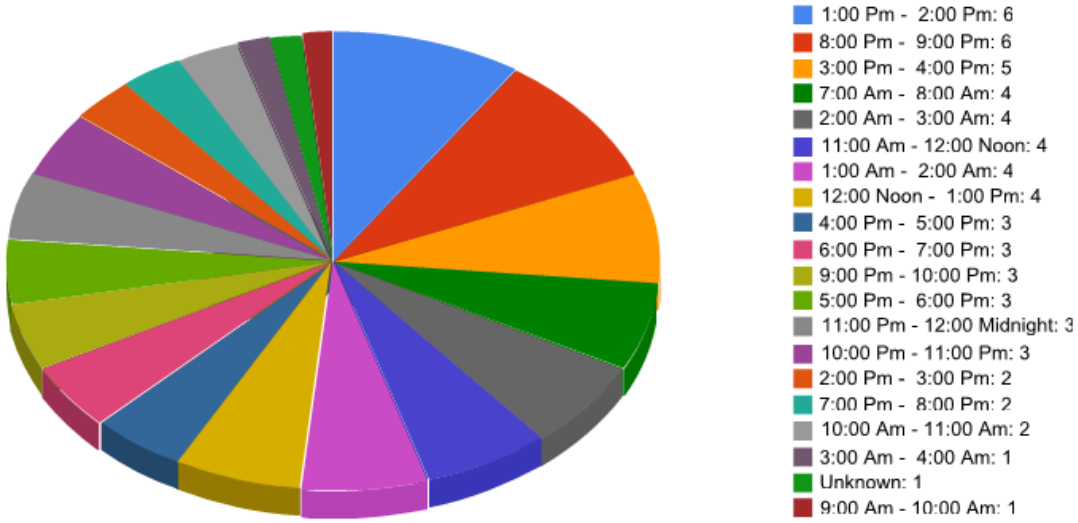
Day of Week

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



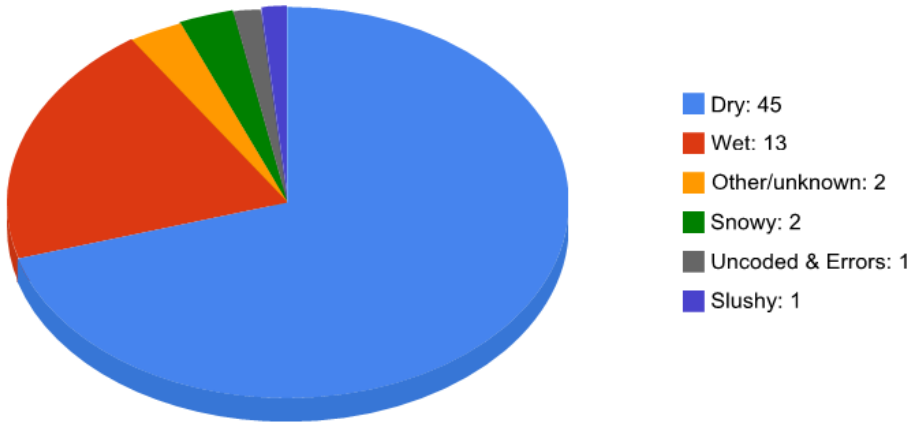
Time of Day

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.

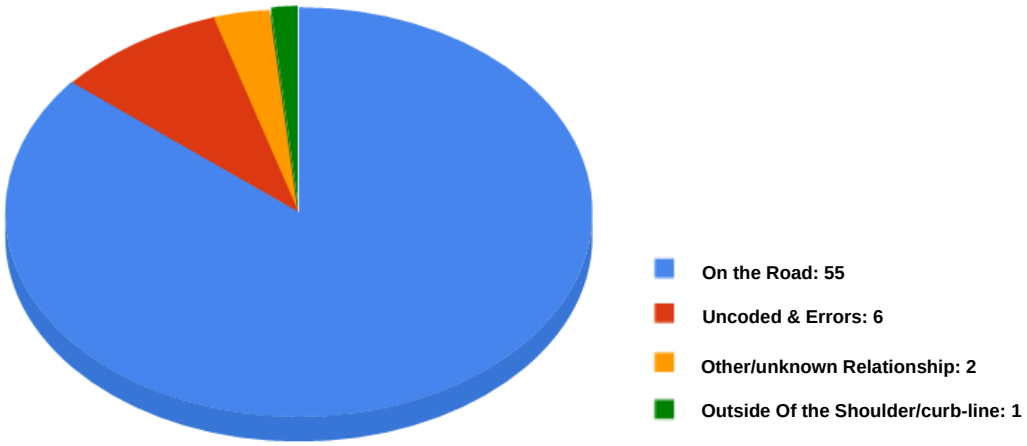
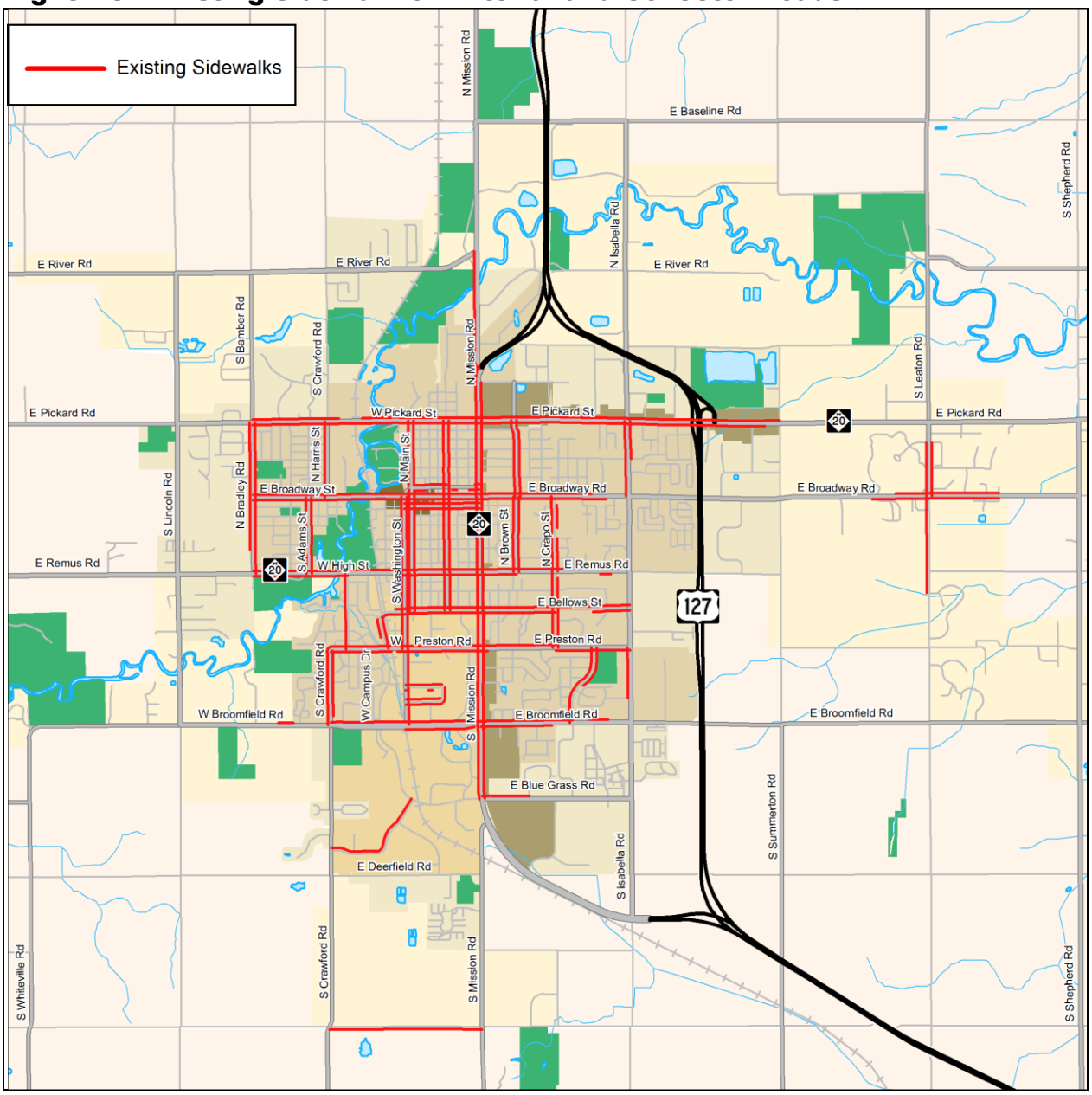


Fig. 3.2C. Existing Sidewalk on Arterial and Collector Roads



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.

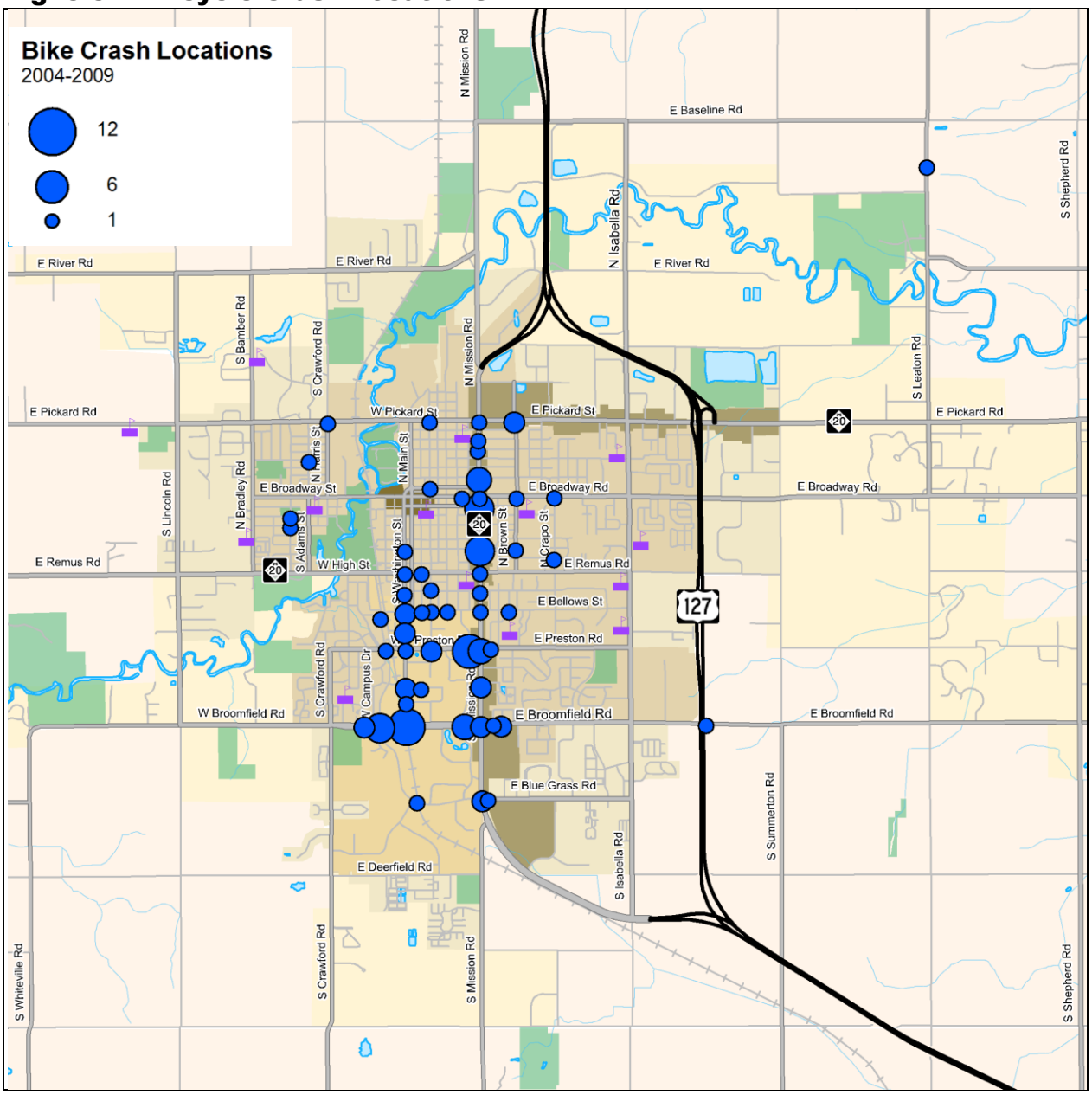
3.3 The Bicycling Environment

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.

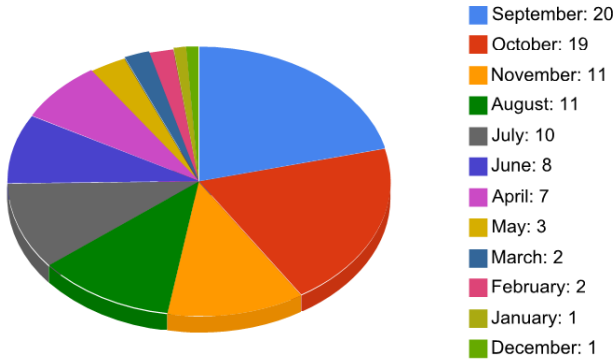
There were 95 bicycle involved crashes, none were fatal and 8 resulted in serious injury. Drinking or drug use was involved in 6 of the crashes. There was no traffic control at 25% of the crashes; a signal was present at 27% and a stop sign at 45% of the locations.

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

Fig. 3.3B. Bicycle Crash Data

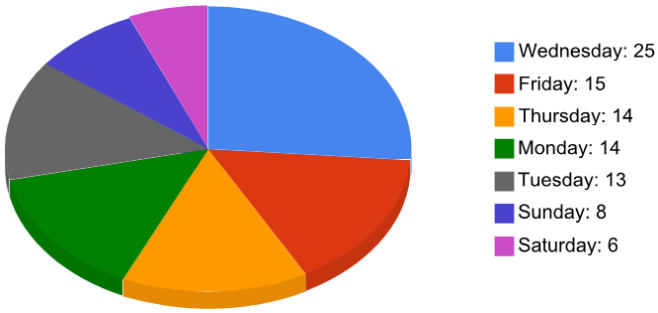
Month of Crash

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.



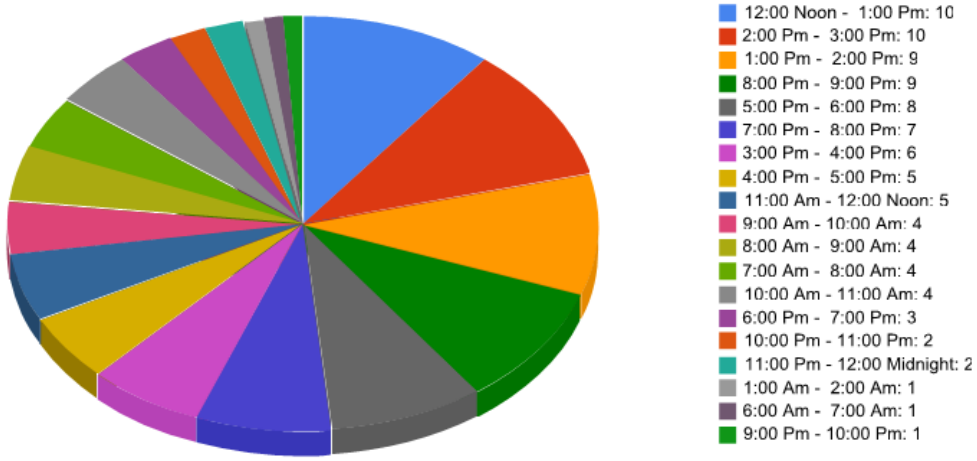
Day of Week

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



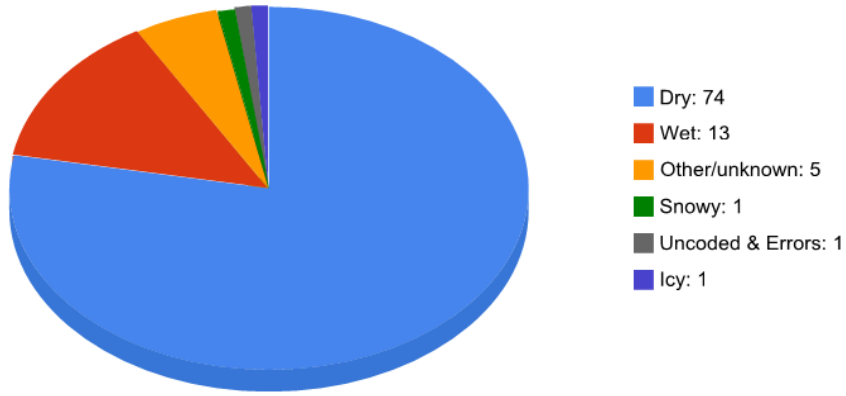
Time of Day

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.

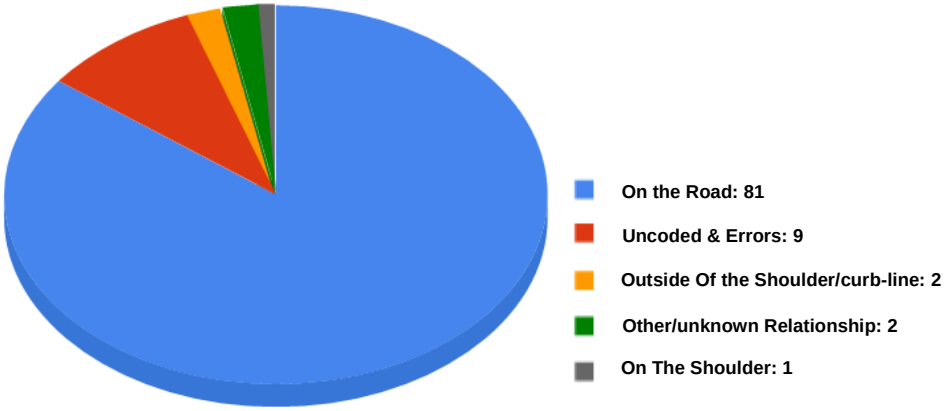
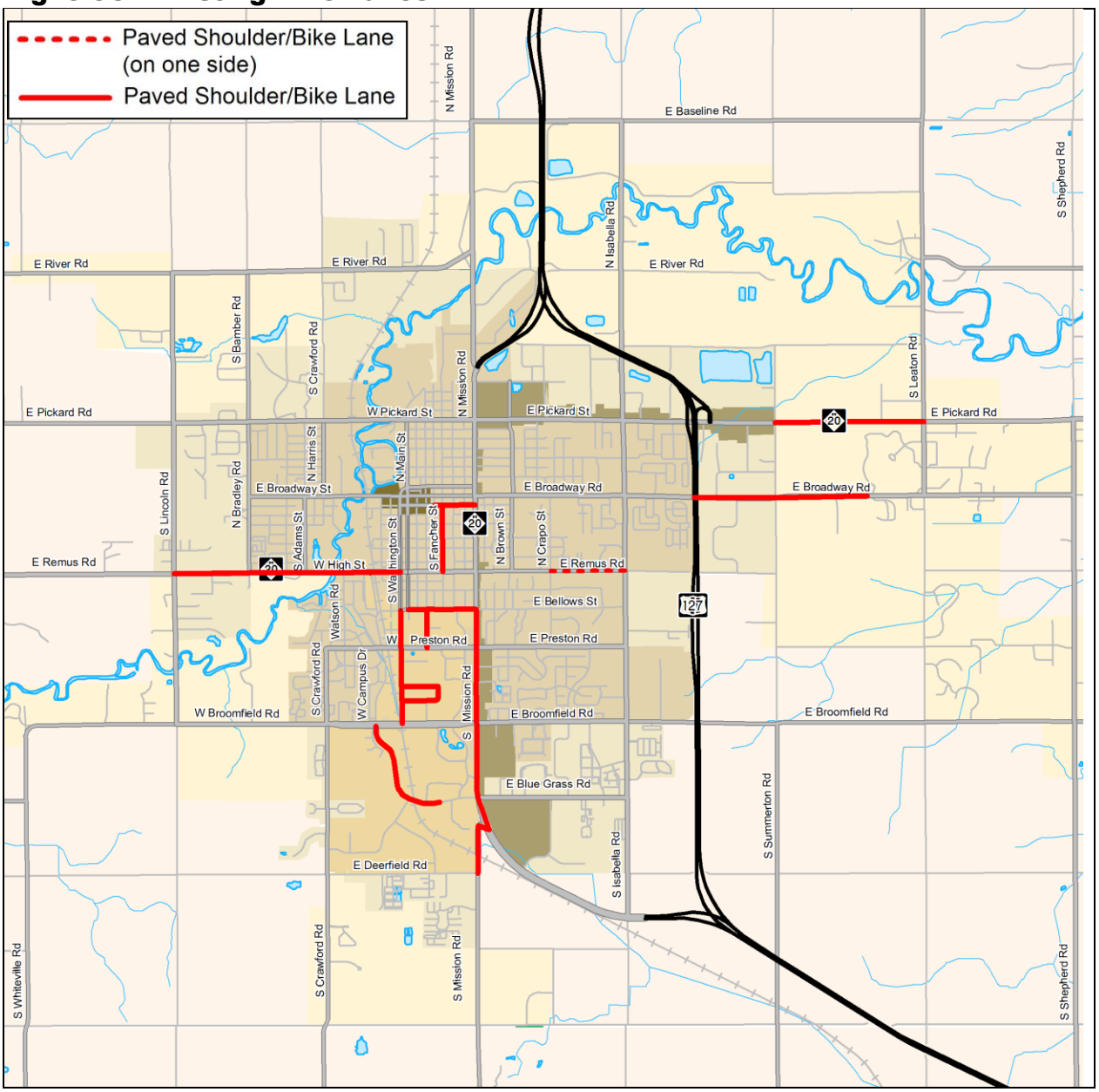
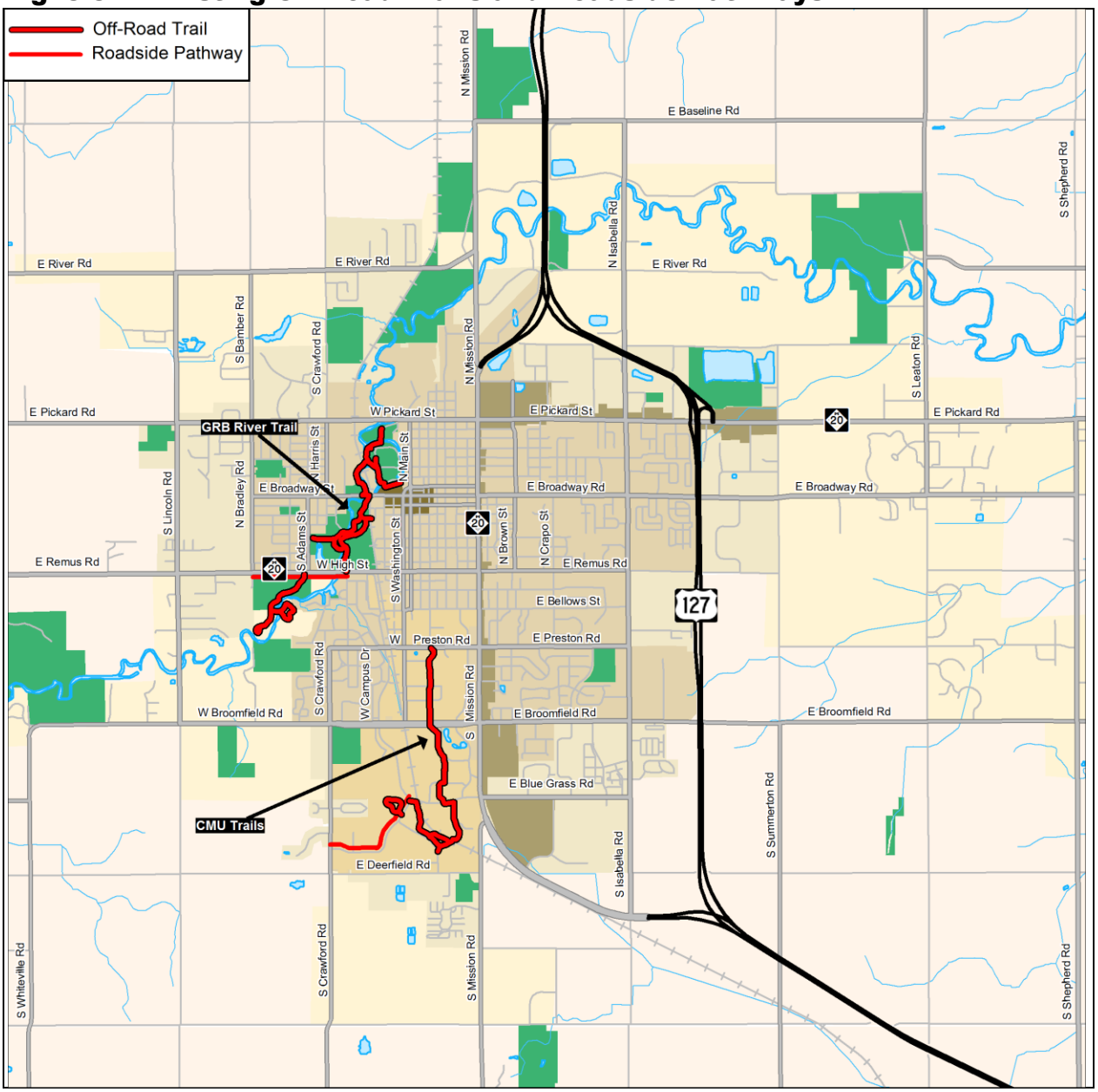


Fig. 3.3C. Existing Bike Lanes



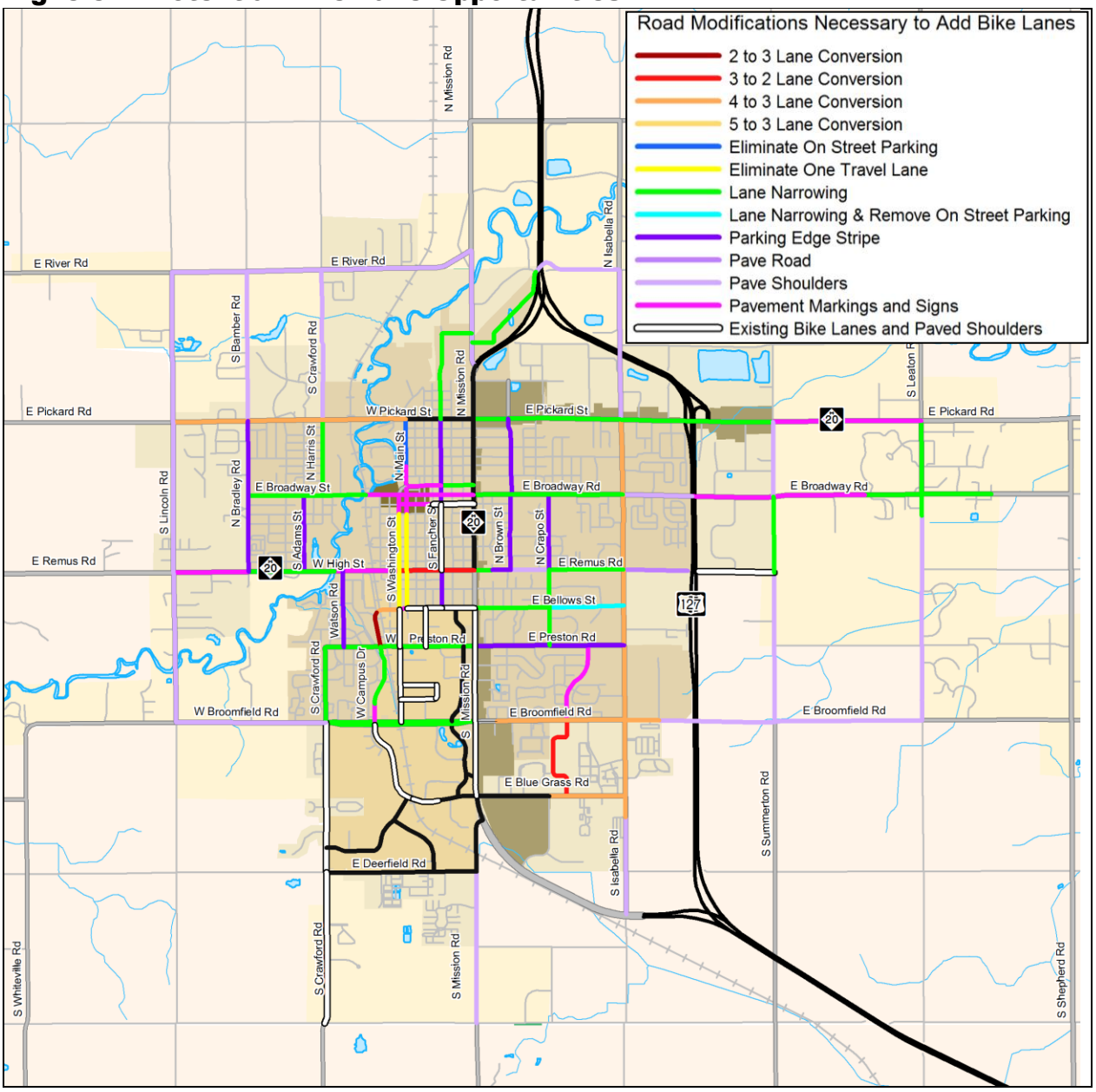
There are about 8 miles of existing bike lanes/paved shoulders in the Greater Mt. Pleasant Area. However, they are inconsistent and do not connect to make a complete system.

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.