Transportation System Assessment

This chapter describes the City of Big Lake's current transportation system, facilities and services and defines existing, base-level transportation conditions and issues.

The system will be evaluated against future land use plans to determine how it should be improved to provide movement and help realize plans for growth and quality of life.

Figures

Big Lake is the northern terminus of the Northstar commuter rail system

Major Transportation Issues

These are the major transportation planning questions that should be discussed, debated and resolved during the course of this process:

1. **Mississippi River bridges:** What should be the City's position regarding the need for and location of another bridge over the Mississippi River in this vicinity?

   There are only four Mississippi River crossings that connect Wright and Sherburne Counties: Minnesota 25, one of the four, crosses the river and links Big Lake to Monticello and I-94. Over the past five years, population and employment in the region has increased, placing additional travel demand pressure on the Minnesota 25 Bridge. As the region grows, traffic volumes will rise, perhaps requiring an additional river crossing in the vicinity of Big Lake.

2. **Potential rail yard-truck transfer facility:** Should Big Lake plan for a rail-served industrial park on its western side?

   A large rail-served industrial district near Big Lake has been discussed for a number of years and was under study in 2018. It is likely that a significant percentage of the traffic generated would seek to access I-94.

3. **Lack of reasonably continuous travel routes across the city:** Can Big Lake adopt and follow a plan to require developers build a system of collector and minor arterial roads that connect across the city?

   Big Lake is generally oriented east and west. The number of reasonably continuous east-west collector roads is inadequate given the length of the city. North-south movement is better but still inadequate. There are two reasons for this problem: 1) the many lakes and wetlands and 2) non-adjacent annexations that have prevented the logical extensions of roads.

4. **Local street design:** Should minor residential streets be built narrower than they have been in the past?

   Some residential streets have been built 36 feet wide between curb faces. Local streets need not be wider than 29 feet to 32 feet. Excessive widths contribute to higher speeds on neighborhood streets and increased construction and maintenance costs.

5. **Sidewalks:** Should sidewalks be built on both sides of future residential streets?

   The current policy the Big Lake is that sidewalks should be installed on at least one side of the street in all residential neighborhoods.
   - Are there some neighborhood characteristics and features that should warrant consideration of sidewalks on both sides of the street?
   - Should the City retroactively install sidewalks in certain locations?
   - Should sidewalks be planned or built in commercial or industrial locations, such as along US 10 frontage roads or in industrial areas?

6. **Trails:** How active should the City be in planning and building an interconnected system of off-road asphalt paths?

   The network of sidewalks and paved, off-street paths is not continuous and inter-connected. Trail systems not only provide residents with respite from the hardscape of concrete and asphalt, they also provide cities with:
   - A physical feature around which growth and development can occur
   - An amenity that increases desirability of land
   - Public accessibility to parks and open spaces
   - Facilities for non-motorized transportation for both recreation and commuter travel.

7. **Off-Street Parking.:** Should the City amend its zoning ordinance to reduce or eliminate the requirements for off-street parking for businesses and industries?

   Many businesses have been required to build more off-street parking than they will ever need. Over-parking contributes to business costs, land use inefficiency, water runoff, heat increases, auto dependence and general unattractiveness. Most businesses have a good idea of how much parking they need.

Introduction

Transportation Planning: Local, Regional, and State Systems

In keeping with the overall intent of a 'comprehensive' plan, the transportation element will consider **all** modes of transportation currently serving the City of Big Lake and the relationships and connections between the city's transportation system and the regional and state systems. The modes that will be addressed include:

- Highways
- Streets
- Transit and para-transit
- Bicycles and pedestrians
- Freight systems
- Aviation systems.

The following Transportation Assessment is the first of two documents. It has been prepared to: 1) report findings from an inventory and evaluation of the current transportation system and 2) identify the system's assets as well as it shortcomings and deficiencies. A second document will recommend policies, goals, objectives, and programs to guide the development of the city's future transportation system.

Big Lake's Transportation Geography

The City of Big Lake is located in east-central Minnesota along US 10 and within ten miles from Interstate Highway 94. Big Lake is linked to other communities in the region by US 10 and Minnesota Trunk Highway (TH) 25. I-94 and US 10 also link Big Lake to the Twin Cities.

Road Ownership and Responsibilities

The road system in Big Lake is comprised of federal, state and county highways plus City streets. Each of those levels of government is responsible for the design, construction and maintenance of the roads that it owns. The state of Minnesota is responsible for the US highways, using federal standards and money. This pattern of ownership is shown by Figure 5-1. The pattern of City streets is shown by Figure 5-2.

US and State of Minnesota Routes

Important federal and state highway facilities serving the City of Big Lake's transportation system are I-94, US 10, and Minnesota 25, three arterial roads that function to accommodate interregional travel demand across long distances. Figure 5-1 shows the federal, state, and county routes.

The Minnesota 25 and I-94 interchange is less than 10 miles from Big Lake, across the Mississippi River in Monticello, Minnesota.

US 10 is divided by a either a grassy median or a raised concrete median along most of its course through the city. The segment of US 10 that is not divided is the more urbanized area of the city. This area extends west from Lake Street for approximately 1,400 feet, and left-turning vehicles in this segment can find refuge in a two-way left-turn channel. US 10 operates as an expressway in Big Lake, with both traffic signals and stop signs providing intersection control.

Some but not all segments of US 10 have east-west frontage roads on both sides or along one of the two sides. Along with the lack of a complete frontage road system is a high frequency of driveways with direct access to and from US 10. Direct access between adjacent land uses and US 10 is a safety concern.

This particular problem, however, is less of a serious concern where the volume of traffic entering and exiting US 10 would be comparatively lower. This occurs west of County 17 (200th Street) which has a more rural setting. East of that point, however, the volume of housing and business suggests that existing and future trips are comparatively high. In situations like this, a safer

system is one where access to and from and across US 10 would be controlled by frontage roads and where existing direct access would be eliminated.

Minnesota 25 links Big Lake and Monticello where I-94 can be accessed.

In Big Lake, Minnesota 25 runs from County 14 along the Mississippi River to US 10. It is then co-aligned with US 10, west from Big Lake to Becker. It is routed as a north-south facility from Becker to Brainerd.

Sherburne County Routes

Two types of Sherburne County roads provide access to and through Big Lake. The first is the County Roads (CRs), which are fully under the jurisdiction of Sherburne County. Included are County Roads 43, 50, 68, 73 and 81. These roads were constructed by and are maintained by Sherburne County. While they are important links in the city's overall transportation system, they are even more important in the townships.

The second group is the County State-Aid Highways (CSAHs). These are Sherburne County roads that play an important role in the state's highway system, collecting and distributing traffic driving to or away from the state routes identified above. For this reason, the state helps the county with the costs of maintenance and reconstruction. State design standards must be followed for the CSAHs.

The CSAHs that serve the City of Big Lake are 5, 14, 15, 17 and 43.

City of Big Lake Local Streets

The core of Big Lake's transportation system is its network of municipal streets and intersections. Figure 5-2 illustrates the city's street system.

Big Lake's street system is built on two distinct patterns. The section of Big Lake that is north of US 10, east of Big Lake, south of Hiawatha Avenue, and west of County 43 can generally be defined as an area where the street system is built on a grid; where north-south streets and east-west avenues define urban-scale blocks. In turn, each block consists of urban-scale lots, and some blocks have sidewalks on at least one side of the street.

Outside this area the street system is built on a suburban pattern where:

- Blocks do not exist or are not sharply defined
- The orientation of streets deviates from the grid described above, and
- Streets are looped and are often discontinuous ending in cul-de-sacs, and the drive route between two points, which may be in close proximity, is circuitous
- Roads respond well to natural features
- Interesting views and changes are provided.

According to some urban designers, there are some aspects of the traditional grid system that are superior to those of the suburban pattern. A traditional street pattern:

1. Provides predictable and regular lot shapes and sizes that are easy to build and rebuild
2. Facilitates more efficient use of land
3. Allows easy navigation, especially for those new to the city
4. Is redundant, so if one street is blocked, traffic can easily reroute to the next street over
5. Offers the most efficient travel routes between two points for walkers, bikers, and drivers
6. Permits efficient and cost-effective framework for implementing utilities such as sewer and water
7. Is comparatively more sustainable in that costs to build and maintain are lower and
8. Fosters more frequent occasions for social interaction among neighbors.

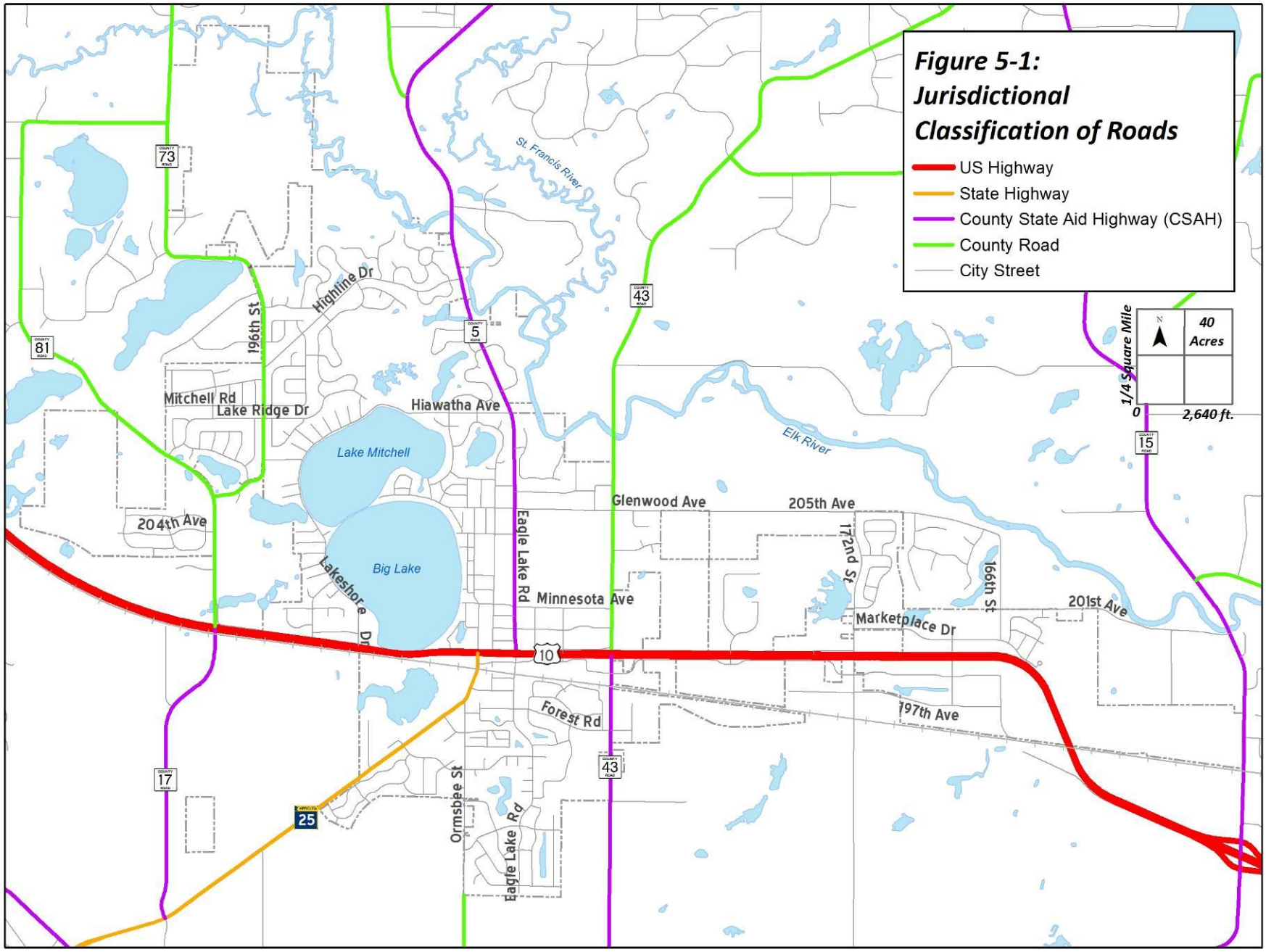


Figure 5-1:
Jurisdictional
Classification of Roads
US Highway
State Highway
County State Aid Highway (CSAH)
County Road
City Street
1/4 Square Mile
40
Acres
0
2,640 ft.
St. Francis River
Elk River
Lake Mitchell
Big Lake
Highline Dr
196th St
Mitchell Rd
Lake Ridge Dr
Hiawatha Ave
204th Ave
Lakeshore Dr
Eagle Lake Rd
Glenwood Ave
205th Ave
172nd St
166th St
201st Ave
Marketplace Dr
Minnesota Ave
Forest Rd
197th Ave
Ormsbee St
Eagle Lake Rd
73
81
5
43
15
10
17
25

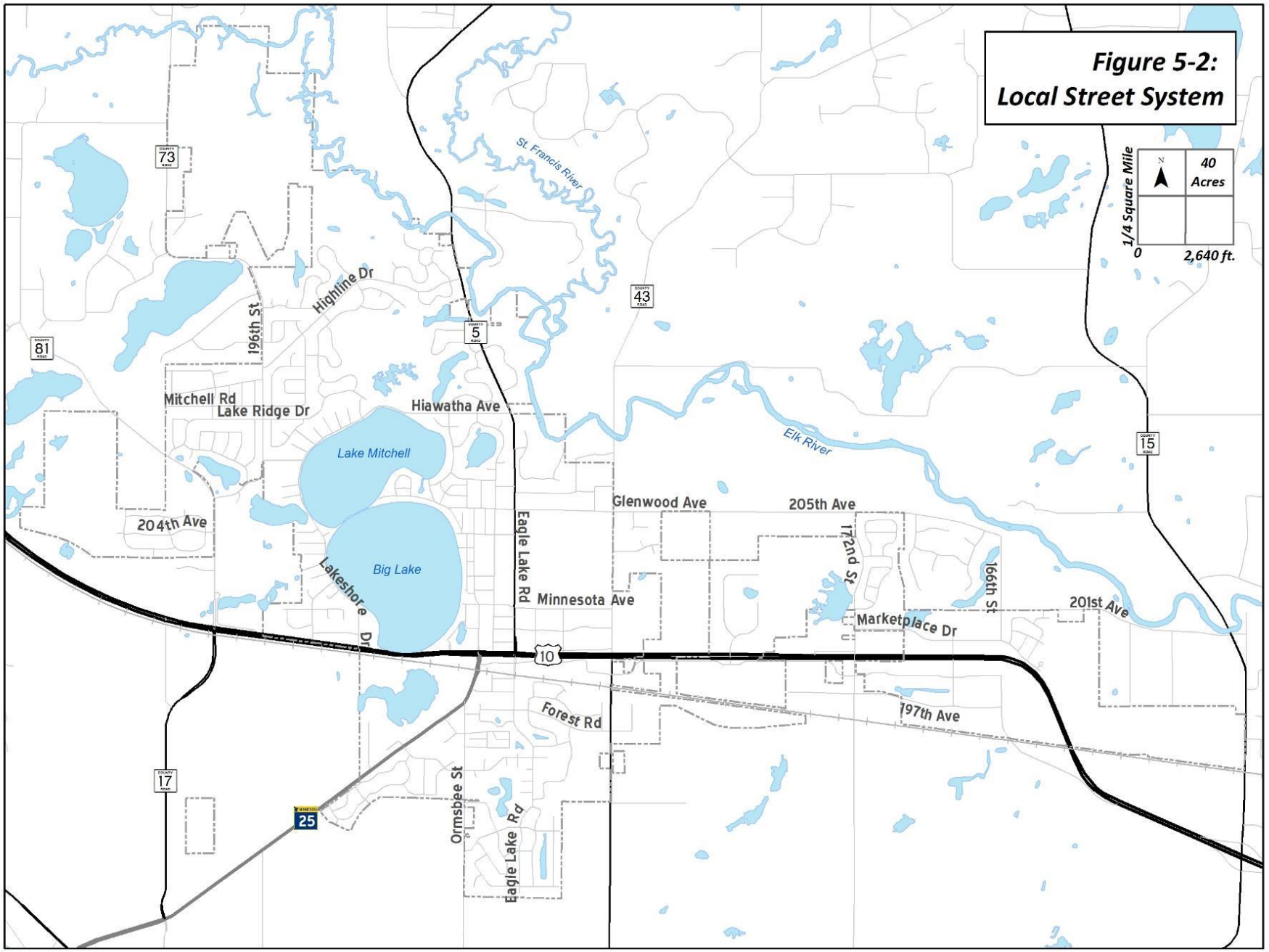


Figure 5-2:
Local Street System
1/4 Square Mile
40 Acres
0
2,640 ft.
St. Francis River
Elk River
Lake Mitchell
Big Lake
Highline Dr
196th St
Mitchell Rd
Lake Ridge Dr
Hiawatha Ave
Eagle Lake Rd
Glenwood Ave
205th Ave
204th Ave
Lakeshore Dr
Minnesota Ave
172nd St
166th St
201st Ave
Marketplace Dr
Forest Rd
197th Ave
Ormsbee St
Eagle Lake Rd
73
81
5
43
15
10
17
25

Road Function

Roads provide some combination of mobility and access. As shown in Figure 5-3, mobility and land access are at two ends of a spectrum, where higher level roads function to provide mobility and lower level facilities (local streets) function to provide accessibility to land uses that are adjacent to the roads.

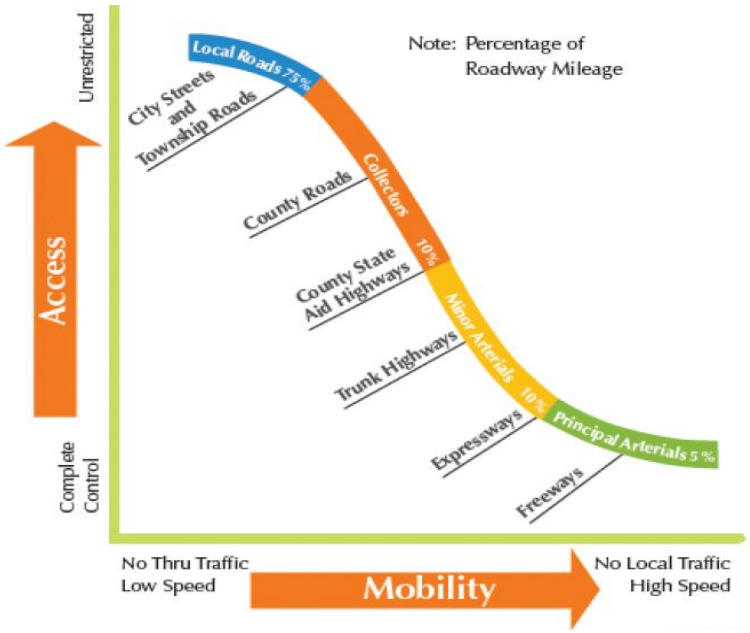


Figure 5-3: Relationship between Access and Mobility

Arterials are primarily intended to move traffic and access to these roads and should be highly managed to optimize efficiency and safety. These include US 10 and Minnesota Highway 25.

Minor arterials and **collectors** have to serve the dual functions of moving traffic and land access. A moderate level of access management, including features such as turning lanes, medians, minimum driveway separations is appropriate to mitigate the adverse effects associated with closely spaced driveways and high levels of turning traffic.

County Highways in Minnesota are typically classified as either Minor Arterials or Collectors. They link communities, economic activity centers, and distant neighborhoods and districts and while also providing land access. Providing both movement and access is difficult, and these roads are where problems are often created. In Minnesota they are typically two- to four lanes wide.

Local Streets, which fall under city jurisdiction, are spaced and designed to provide access to adjacent land parcels. They carry comparatively lower traffic volumes and are designed to accommodate average speeds of 30 miles per hour or less. Local streets should be designed to minimize speeds, volumes, and through traffic with only minor access-related restrictions.

Generally, roads that provide high levels of mobility do not provide high levels of accessibility, and local streets that provide high levels of accessibility do not provide high levels of mobility.

Figure 5-4 shows road functional classification for the highways and streets serving Big Lake.

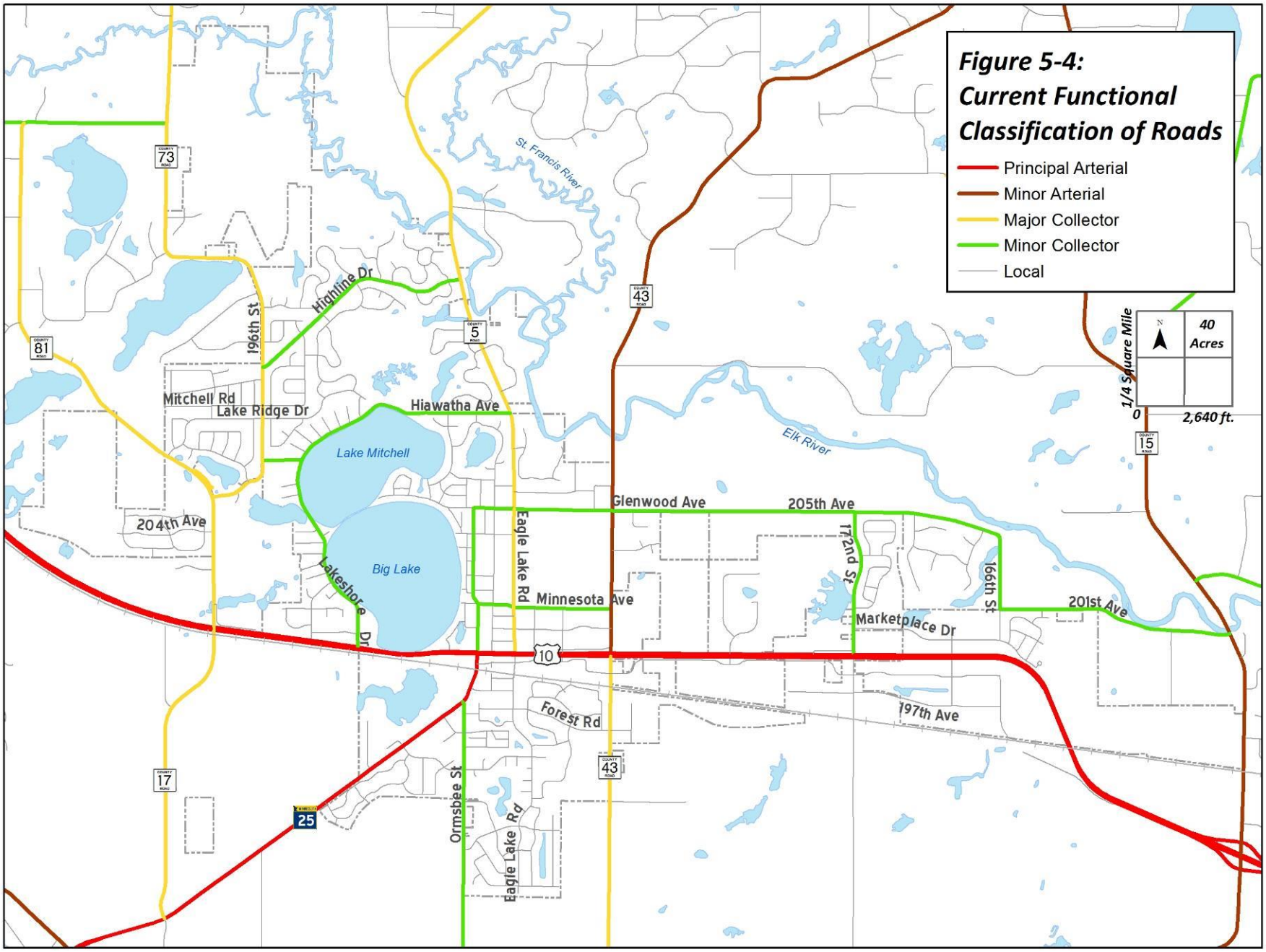


Figure 5-4:
Current Functional
Classification of Roads
Principal Arterial
Minor Arterial
Major Collector
Minor Collector
Local
1/4 Square Mile
40
Acres
0
2,640 ft.
St. Francis River
Elk River
Lake Mitchell
Big Lake
Highline Dr
196th St
Mitchell Rd
Lake Ridge Dr
Hiawatha Ave
204th Ave
Lakeshore Dr
Eagle Lake Rd
Glenwood Ave
205th Ave
172nd St
166th St
201st Ave
Minnesota Ave
Marketplace Dr
Forest Rd
197th Ave
Ormsbee St
Eagle Lake Rd
73
81
5
43
15
10
17
25

Table 5-1
Design Features by Type of Road

This table summarizes how the various types of roads often are designed and used. Note that Sherburne County has adopted access management guidelines.

	Principal Arterial	**Minor Arterial**	**Collector – Major or Minor**	**Local**
Examples	US Highway 10	County Highways 43 and 15	Glenwood, Minnesota, Hiawatha	Many
Definition and Purpose	Partial access control and high priority for traffic flow with at-grade signalized intersections for major roads. High-volume, moderate-to-high speed movement across metro areas with minimal access to adjacent land. *May be designed as a highway with separation from adjacent land uses or as a street with controlled access to adjacent land uses.*	Augments and feeds the primary arterial system and intended for moderate-volume, moderate-speed traffic movement. Access to abutting property is partially controlled.	Collects and distributes traffic between arterial streets and local streets. Intended for short trips wile providing access to abutting properties. *Design varies depending on the character and intensity of traffic generated by land development.*	Provides direct access to abutting property. Intended for low-speed, low-volume movement and shot trips. *Design varies depending on the character and intensity of traffic generated by land development.*
Traffic Flow and Access Priority	Flow : Access 90 : 10 At-grade intersections with arterial and collector street. Signals are uniformly spaced for optimum flow. Driveway and street intersections designed for maximum decrease of 10 mph in thru-lane for turns.	Flow : Access 60 : 40 210 feet spacing for accesses. Safety is higher priority than traffic flow in determining signal spacing.	Flow : Access 40 : 60 160 feet spacing for non-residential driveways	Flow : Access 10:90 No restrictions. 40 feet between access
Spacing	3 to 10 miles	½ to 1 mile	¼ to ½ mile	As required
Trip Length	Across metro areas and between major activity centers	Between and within activity centers	Local street to arterial street (1/2 to 2 miles)	Access to individual property; less than ½ mile
Traffic Volume	20,000 to 50,000 vehicles per day	6,000 to 20,000 vpd	1,500 to 8,000 vpd	Typically under 1,000 vehicles per day
Traffic Speed	Under 65 mph	Under 35 mph	Under 35 mph	Under 30 mph
Pedestrian Provisions	Pedestrians prohibited	Sidewalks on one or both sides	Sidewalks on one or both sides	Sidewalks on one or both sides
Bicycle Provisions	Bicycles prohibited	Shared outside lanes, striped lanes or paved shoulders.	Shared outside lanes or striped lanes	Interconnected street system. Cars and bicycles share the road.
Trees in public right-of-way	Rare	Occasional	Typical	Typical
Bus Provisions	No stops. Express routes only	Scheduled buses, taxis and dial-a-ride service	Scheduled buses, taxis and dial-a-ride service	Rare scheduled buses. Taxis and dial-a-ride

Locations of Traffic Congestion

The ability of a road to handle traffic can be assessed by comparing its average number of daily vehicles to the capacity of the road. Capacity is determined by the number of lanes, spacing and intersections, use of signals and other physical characteristics. This is called the **volume-to-capacity ratio.** When the ratio is greater than 1.0, there is more demand than capacity, generally speaking.

The average annual daily traffic (AADT) or volume of vehicles per day on major roads is listed on Table 5-2 and shown by Figure 5-3.

Traffic flow along a road segment or through an intersection can also be described in terms of **"level of service"** (LOS), ranked as A through F. In a city such as Big Lake, only Levels A, B and C are considered acceptable. Roads with levels of service D, E or F are a problem.

Table 5-2 summaries how the major roads are functioning in Big Lake. It shows the volume-to-capacity ratio and the Level of Service.

Minnesota 25 is the only road where the daily traffic volume exceeds daily capacity. County 5 has a Level of Service of D and E. Adding more traffic to County 5 without also adding capacity could lead to future congestion and a degradation of traffic operations and compromises to safety.[1]

By identifying road segments with congestion, improvements can be planned. In addition, corridors that display high volume-to-capacity ratios and poor Level of Service should be studied for access controls and other ways to improve their operation until major improvements can be built.

Table 5-2
Volume-to-Capacity Ratios and Levels of Service

Road Link	Most Current AADT (vpd)	Threshold Capacity (vpd)	V/C Ratio	LOS
US 10 west of County 17	13,400	45,000	**0.30**	**C**
US 10 between County 17 and Minnesota 25	16,200	35,000	**0.46**	**C**
US 10 between Minnesota 25 and County 5	23,100	35,000	**0.66**	**C**
US 10 between County 5 and County 43	20,090	35,000	**0.57**	**C**
US 10 east of County 43	17,700	35,000	**0.51**	**C**
Minnesota 25 southwest of County 17	16,100	14,000	1.15	F
Minnesota 25 south of US 10	10,800	10,000	1.08	F
Minnesota 25 northeast of County 17	9,700	14,000	**0.69**	**C**
County 5 north of US 10	7,600	10,000	**0.76**	**D**
County 5 north of Glenwood	9,400	10,000	**0.94**	**E**
County 5 north of Highline Dr	7,500	10,000	**0.75**	**D**
County 43 north of US 10	5,500	10,000	**0.55**	**C**
County 43 south of US 10	2,600	10,000	**0.26**	**B**
County 43 north of County 14	1,150	14,000	**0.10**	**A**

[1] *Uncongested* – the existing volume is less than 80 percent of the threshold volume, indicating a low probability of operational problems due to volume of traffic on the facility.
Approaching Capacity – the existing volume is between 81 percent and 100 percent of threshold volumes, suggesting a moderate probability of operational problems due to traffic volume on the facility.
Over Capacity – the existing volume exceeds 100 percent of the threshold volume, indicating a high probability of operational problems due to the volume of traffic on the facility.

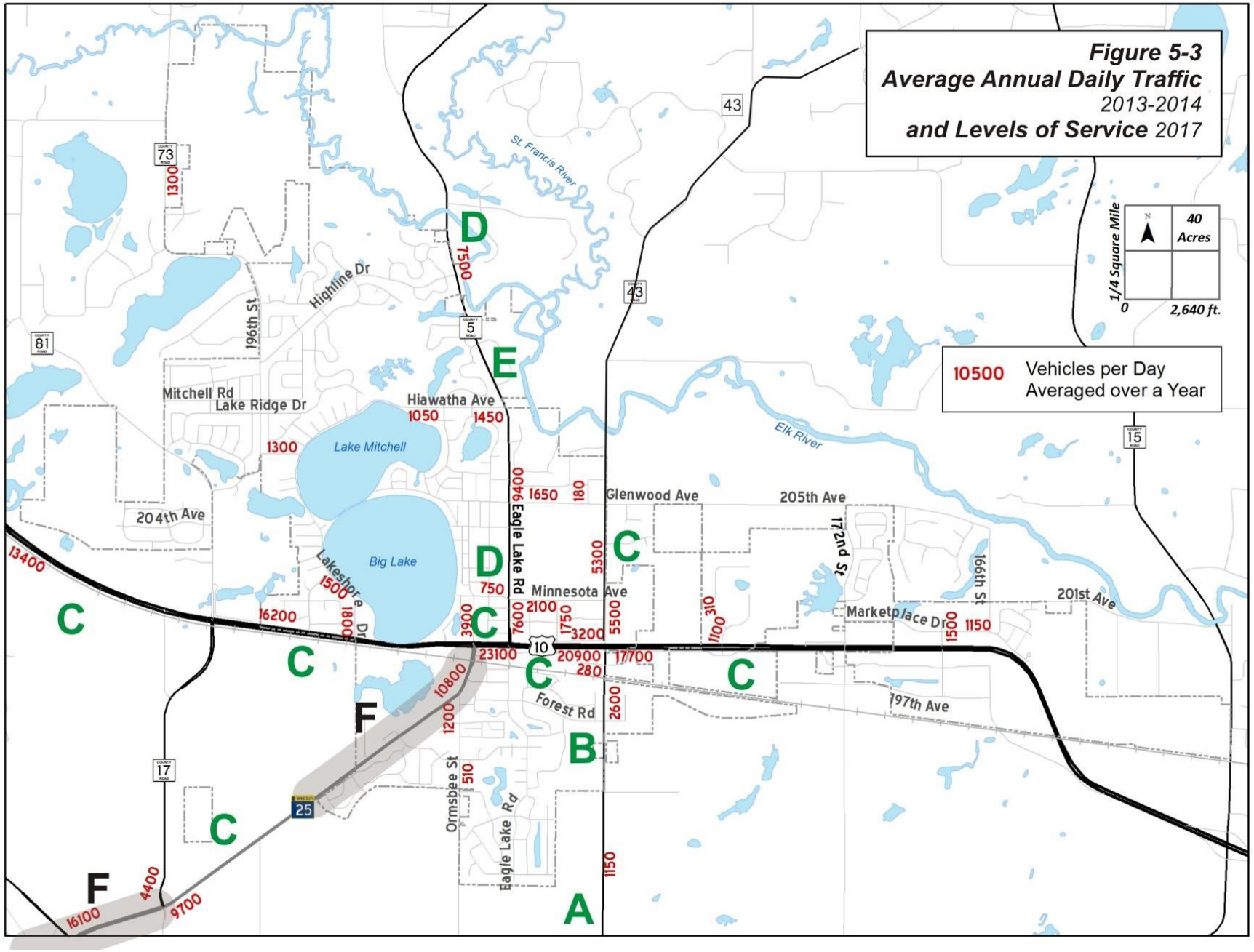


Figure 5-3
Average Annual Daily Traffic
2013-2014
and Levels of Service 2017
10500 Vehicles per Day
Averaged over a Year
1/4 Square Mile
40 Acres
0
2,640 ft.
St. Francis River
Elk River
Lake Mitchell
Big Lake
Highfine Dr
196th St
Mitchell Rd
Lake Ridge Dr
Hiawatha Ave
Eagle Lake Rd
Glenwood Ave
205th Ave
204th Ave
Lakeshore Dr
Minnesota Ave
172nd St
166th St
201st Ave
Marketplace Dr
Forest Rd
197th Ave
Ormsbee St
Eagle Lake Rd
73
81
5
43
15
17
25
10
1300
7500
1050
1450
1300
9400
1650
180
13400
1500
16200
1800
750
3900
7600
2100
1750
3200
5300
5500
310
1100
1500
1150
23100
20900
17700
280
10800
1200
2600
510
1150
4400
9700
16100
A
B
C
D
E
F

US Highway 10 Safety and Access Management

US Highway 10 is important to commerce, commuting, tourism and livability in Minnesota. The segment through Sherburne County has been designated a *Medium Priority Interregional Corridor* for the purposes of identifying appropriate access management policies and practices.

Highway 10, a divided highway for most of its 275 mile route across Minnesota, generally follows the alignment of the BNSF railroad and runs from Moorhead to Cottage Grove. As it passes through the Big Lake, it carries 13,000 and 23,000 vehicles per day, and its posted speed is 65 mph.

Two segments of Highway 10 in Big Lake have been identified as High-Crash Segments[2]. The four intersections in Big Lake were among the nine with the highest crash frequency in Sherburne County between 2001 and 2005.

Access management. one of several ways to improve traffic safety and flow, is important along US Highway 10 as well as along every County and City road.

Access management is the planning, design, and implementation of land use and transportation strategies in to maintain a safe flow of traffic while accommodating the access needs of adjacent development. Access management guidelines provide a means for transportation engineers and planners to balance private property concerns with the need to provide for a safe and efficient transportation system.

Sherburne County has adopted access management guidelines.

The Purpose of Access Management

Traffic flow and safety problems are caused by too many driveways, intersections and closely-spaced traffic signals along major roads:

- Crashes increase as vehicles cross and turn along the road in an uncoordinated manner
- Stop and go conditions frustrate commuters and local residents
- Adjacent businesses suffer when customers have trouble turning into their sites
- Freight and delivery trucks lose time and money when stuck in traffic
- Pedestrians can't find a safe spot to cross the road
- Overall community livability suffers

Benefits of Access Management

Effective access management will:

- Reduce congestion and crashes
- Preserve road capacity and postpone the need for roadway widening
- Improve travel times for the delivery of goods and services
- Ease movement between destinations
- Support local economic development

[2] Source: MnDOT Crash Data: A High Crash Rate Segment is any roadway segment that has a crash rate greater than 1.5 times the average crash rate for that design type. A High Frequency Segment is any roadway segment that has experienced more than four crashes per mile per year. A Low Frequency Segment is any segment with four or fewer crashes per mile per year.

Transit and Para-Transit Facilities and Services

Dial-a-ride, curb-to-curb bus service is provided to residents of Big Lake through Tri-CAP, a transit service program provided by Sherburne, Benton, Morrison, and Stearns Counties along with the Cities of Big Lake, Albany, Sauk Centre, Melrose, Paynesville, Little Falls, and Elk River. The service is offered five days per week.

The bus service is available to the general public with no age or income requirements, and all buses are handicapped accessible. Bus reservations can be made up to two weeks in advance. Advance reservation bus fares, made 24+ hours in advance are $1.25 per boarding within communities and $3.00 per boarding for rural to community trips. Same day reservation fares are $2.00 per boarding within communities and $3.75 per boarding for rural to community trips.

Tri-CAP also offers a program through its dispatch center where volunteers can provide rides, using their own vehicles, to residents of Sherburne, Benton, Stearns, and Morrison Counties. Passengers are assigned to volunteers by the Tri-CAP dispatch center and may be traveling to medical appointments or a variety of other destinations. Volunteer drivers are reimbursed at the Federal IRS rate and may also be eligible for some meal reimbursements.

The City of Big Lake is the northwestern terminus of the Northstar Commuter Rail line, which runs southeast to downtown Minneapolis, stopping at stations in Elk River, Ramsey, Anoka, Coon Rapids and Fridley. The Big Lake commuter rail station is located at the intersection of 198th Avenue and County 43. The station features bicycle lockers and a park and ride lot with capacity for 518 vehicles. Commute time to downtown Minneapolis from this station is about 51 minutes.

This station is the northbound terminus until funding for an extension to St. Cloud is secured. In the meantime, a commuter bus, the Northstar Link (Route 887) connects Big Lake with St. Cloud. The Northstar Link stops at the Metro Bus downtown transit center, St. Cloud State University, a commuter parking lot at Lincoln Avenue and US 10, and the Coffee Cup Cafe in Becker. The bus is operated by St. Cloud Metro Bus.

Bicycle and Pedestrian Systems

Bicycling

The map on the following page shows sidewalk and off-road asphalt paths (trails). As shown, gaps exist in the path system, and not all areas of the city have sidewalks.

The western shorelines of Big Lake (Lakeside Park) and McDowell Lake and McDowell Park are served with trails. Other parks with trails are Highline Park and Hidden Rivers Park. Other parks in the city are without trails.

There are only a few residential development areas that have access to a trail. Notable exceptions are:

- A short trail on Sandbar Lane in the northwest corner of the city; this trail does not connect to any other trails.
- The residential areas north and northeast of McDowell Park.
- Some of the neighborhoods between Minnesota Avenue and Rose Drive.
- There is a north-south trail that runs along CR 43 between Irvine Avenue and Rose Drive.
- A trail along CR 81; this trail does not connect to any other trails.
- A trail along Eagle Lake Road leading to Big Lake Township Lion's Park.
- A trail along 172nd Street; this trail does not connect to any other trails.

Walking

Sidewalks are an essential element of the public infrastructure that provide a number of functions in growing, family-oriented communities. First, they provide a protected and safe environment for pedestrian circulation. Secondly, they provide a clear definable border between public and private property and define what is referred to as a property owner's "defensible space." A sense of "defensible space" contributes to property owners' sense of responsibility, and, as a result, property owners take better care of their yards and take steps to ensure cleanliness and a safe environment.

The buffer that sidewalks provide between the pedestrian and automobile realms is not only physical; it is also a psychological buffer. Consider the lack of comfort a pedestrian may experience walking along a county road or city street in Big Lake where there are no parked cars and no sidewalks.

It was observed that some areas of the City are supplied with sidewalks and others are not.

The map on the following page illustrates locations in the city where the condition of sidewalks is poor and hazards for pedestrians can be found.

Safe Routes to School

The City of Big Lake participated in a MnDOT-funded Safe Routes to School (SRTS) program in 2015. The purpose of the program was to identify factors that prevent school-aged children from walking and biking to school. Each of the city's three schools was included in the study. The study resulted in the creation of a SRTS plan for the Big Lake School District.

Safe Routes to School (SRTS) is a program with a simple goal: helping more children get to school by walking and bicycling.

The City was awarded a Transportation Alternatives Grant from MnDOT in 2017 to implement three of the improvements called for in the SRTS plan. The City and the School District will continue to partner together to increase safe pedestrian access to local schools.

Safe Routes to School programs use a variety of strategies to make it easy, fun and safe for children to walk and bike to school. These strategies are often called the "Five Es."

- **Education**: programs designed to teach children about traffic safety, bicycle and pedestrian skills, and traffic decision-making.
- **Encouragement**: programs that make it fun for kids to walk and bike. These programs may be challenges, incentive programs, regular events (e.g., "Walk and Bike Wednesdays") or classroom activities.
- **Engineering**: physical projects that are built to improve walking and bicycling conditions.
- **Enforcement**: law enforcement strategies to improve driver behavior near schools
- **Evaluation**: strategies to help understand program effectiveness, identify improvements, and ensure program sustainability.

The City of Big Lake adopted a Complete Streets policy resolution in 2010 that states "streets and roads should be designed and operated to be safe and accessible for all transportation users." The specific policy recommendation states "bicyclist and pedestrian transportation users shall be included in street construction, re-construction, re-paving and re-habilitation projects." The policy goes on to explain that significant destinations, such as schools, be given high priority for project development.

The Big Lake School District is committed to encouraging students to engage in physical activity, as is described in the district-wide wellness policy. The wellness policy, adopted in 2006, states "it is the goal of Big Lake School District to ensure that the students of Big Lake receive the nationally recommended amount of daily physical activity (at least 60 minutes per day) and for students to understand that regular physical activity is a personal behavior and that they need physical activity beyond physical education class."

The policy also states the importance of encouraging parents to understand the benefits of an active lifestyle, stating "schools should provide information to parents to help them promote and incorporate physical activity and healthy eating into their children's lives."

The District currently has a one-mile walk zone for elementary schools, and a two-mile walk zone for its middle and high schools. Walking Route Maps for students interested in walking to school are available on school websites.

In 2015, Sherburne County selected various strategies for implementing the Minnesota Statewide Health Improvement Program (SHIP). One strategy is Active Schools, a framework for implementing policies and practices that increase opportunities for physical activity throughout the school day. Included in this strategy is the promotion of active transportation to and from school through the implementation of an SRTS program.

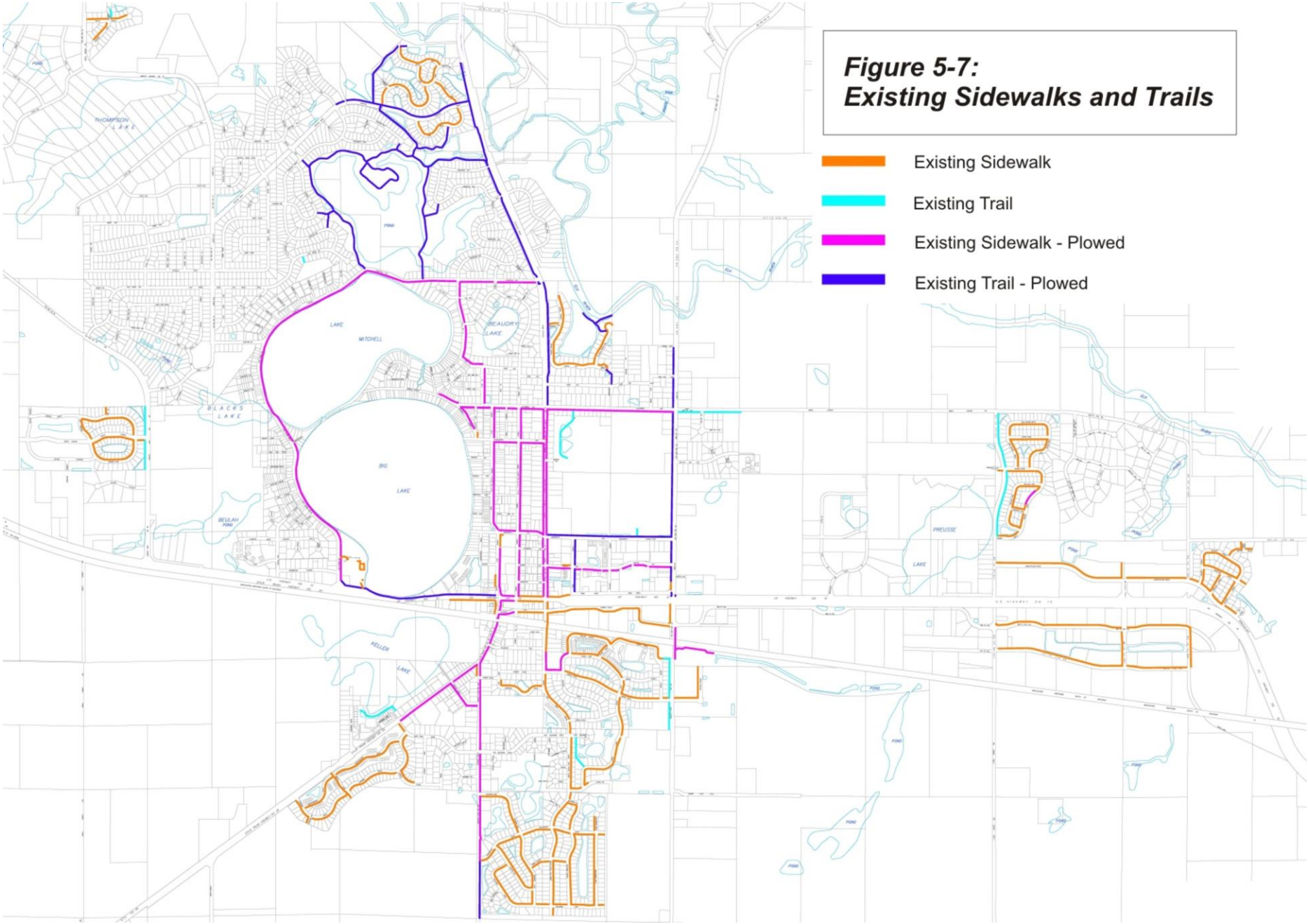


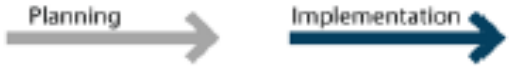
Figure 5-7:
Existing Sidewalks and Trails
Existing Sidewalk
Existing Trail
Existing Sidewalk - Plowed
Existing Trail - Plowed
THOMPSON LAKE
LAKE MITCHELL
BEAUDRY LAKE
BLACKS LAKE
BIG LAKE
BELGIAN POND
PREUSSE LAKE
KELLER LAKE
POND

Factors Preventing Cycling and Walking to School

Parent surveys conducted during the SRTS study asked specifically about barriers to biking and walking to school. More than half of respondents who do not allow their children to walk or bike to school reported that the following issues affected their decision: distance; speed of traffic along the route; amount of traffic along the route; weather or climate; safety of intersections and crossings; and lack of and/or condition of sidewalks or paths.

Engineering solutions are but one category of SRTS recommendations. Some engineering recommendations for the main schools campus from the 2015 plan are outlined below; additional recommendations were provided for the vicinity of Liberty Elementary School. The City would serve as the lead agency on some of the recommendations.

Project #	Solution/ Recommendation	Lead Agency	Priority	Year 1	Year 2	Year 3	Year 4	Year 5
A	Construct a median refuge island, curb extension and marked crossing of Minnesota Avenue.	City of Big Lake	Medium					
B	Construct an ADA compliant landing at the SE corner of Phyllis and Minnesota. Perform an engineering study to determine if the corner radius should be adjusted. If needed, do not enlarge corner radius more than is absolutely necessary.	City of Big Lake	High					
C	Install sidewalk on East side of Phyllis street from Martin Ave to Minnesota Ave. Also consider a marked crossing of Martin Ave to complete the connection.	City of Big Lake	Medium					
D	Complete the sidewalk on the south side of Minnesota Avenue.	City of Big Lake	High					
E	Construct a path to the school drive access along County Rd 43 and install an enhanced crossing to make crossing to the west side safe and comfortable.	Sherburne County	Low					
F	Construct a median refuge island and marked crossing on the south side of the intersection of County Rd 43 and the school bus drive to connect to the proposed path.	Sherburne County	High					
G	Construct a path on the south side of the school bus drive to create a back route connecting all schools.	Big Lake Schools	Low					
H	Implement a time or beacon based school zone speed limit on Minnesota Ave.	City of Big Lake	High					
I	Change to a time-based school speed zone system along Co Rd 5.	Sherburne County	Medium					



Freight or Goods Movement

Trucking

Trucking accounts for deliveries of raw materials to Big Lake and shipments of products from Big Lake. In recent years there has been interest in the development of a rail-truck intermodal transfer facility. This idea is being studied by the Highway 25 Corridor Coalition, which includes Sherburne and Wright Counties and the Cities of Big Lake and Monticello, among others. A candidate location for the facility is south of the Burlington Northern-Santa Fe Railroad right-of-way near County Highway 17.

Factors to be considered in the facility's feasibility are:

- Availability of land; 200 or more acres might be needed
- Engineering feasibility; tracks to and from the BNSF mainline would need to be constructed, and the ability to construct these linkages within design parameters will be critical
- Volume of freight; in order to make the development worthwhile, a minimum required volume of freight would be needed
- Truck operations on County 17 and Minnesota 25. As of today, Minnesota 25 is the obvious route trucks would use to cross the Mississippi River and gain access to I-94. Minnesota 25 is already carrying more daily vehicles than it was designed to accommodate. There is not good freight connectivity between US Highway 10 and Interstate Highway 94.

Rail

The Burlington Northern-Santa Fe Railroad owns the railroad right-of-way that passes through Big Lake. The chief concern of BNSF is the movement of freight, and today over 60 trains per day pass through Big Lake. Each train can be up to a mile long.

The railroad right-of-way is located south of US 10. Minnesota 25 crosses the railroad right-of-way, and traffic back-ups can spill over to US 10, with eastbound right-turns and westbound left-turns from the highway being blocked until the train has cleared the crossing.

BNSF leases track to MnDOT, the agency that operates the Northstar Commuter Rail. A commuter rail station is located south of US 10 and east of County 43.

Off-Street Parking

The City of Big Lake, like nearly every municipality, requires through its zoning ordinance a minimum number of off-street, paved parking spaces for every type of land development, whether residential, commercial, industrial or non-profit. Section 1030.11 of the City Code lists the requirements.

These numbers or ratios were usually adopted in the distant past, often derived from generic, national studies, sometimes based on other Cities' practices, and often out of date with current needs. Consequently, many businesses have been required to build more off-street parking than they will ever need. The disparity appears to be less for residential parking.

Most businesses usually have a close estimate of what their parking needs are, and no auto-dependent business would forego on-site parking altogether.

Over-parking is a national problem and contributes to business costs, barrier to small-business entry, land use and tax base inefficiency, water runoff, heat increases, less walkability and general unattractiveness.

This subject should be addressed in the plan, at least for non-residential parking requirements.

Aviation

The nearest major airport is St. Cloud Regional Airport. This airport has domestic flights from Saint Cloud and is 23 miles from Big Lake.

There is a private, grass landing strip parallel to County 17.