

CHAPTER 5 TRANSPORTATION

WHAT YOU WILL FIND IN THIS CHAPTER

- » Regional Trends & Travel Behavior
- » Existing Transportation System
- » Existing Transit Characteristics
- » Regional Trail Corridors
- » Analysis of Future Needs
- » Active Living
- » Technological and Societal Trends

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The transportation system encompasses several modes of transport, including automobile, bicycle, pedestrian, transit, goods movement by rail or truck and aviation. It both links and, in some cases, separates land uses within the community. This plan explores the relationship between transportation and land use, and examines ways in which that relationship could be improved and enhanced. This chapter addresses roadways; transit; bicycle and pedestrian facilities; goods movement; travel demand management; and aviation.

This chapter of the Comprehensive Plan:

- » Summarizes regional trends and travel behavior.
- » Describes the existing transportation system.
- » Identifies existing and future transportation needs through the year 2040.
- » Establishes goals, policies and recommended actions to address those transportation needs.

REGIONAL TRENDS AND TRAVEL BEHAVIOR

Every 10 years since 1949, the Metropolitan Council has conducted a battery of surveys to find out where, how, when, how often, and why people in the region travel. The most recent survey was conducted from the fall of 2010 to the spring of 2012 and the report was finalized in the fall of 2013. The information in the study is used by the Metropolitan Council to help plan future transportation projects and develop the region's travel forecast models. This information is also beneficial to the City since the regional trends impact local road and traffic conditions.

From the end of World War II to the late 1990's the United States was experiencing a driving boom that was fueled by a rise in income, the building of the highway system, the affordability of cars, the development of low-density suburbs, and more women in the workforce. Gas tax revenues and relatively cheap gas continued a cycle of building more roads to accommodate more cars. This trend is slowing down and even reversing in a number of travel behavior areas as described below:

- » The number of licensed drivers per household has decreased from an average of 1.97 in 1970 to 1.73 in 2010.
- » The average number of vehicles per household was on a steady rise from 1.25 in 1970 to a high of 1.8 in 2000, but between 2000 and 2010, there has been a slight decrease to 1.78 vehicles per household.
- » Average motorized trips per household, per day, have also decreased to near 1970 levels. In 1970, there were 8.02 motorized trips per household, which rose steadily to a high of 10.3 trips in 2000; by 2010 this number was back down to 8.05.
- » Average trips per household for all modes (including biking and walking) decreased from 11.1 to 8.8 trips from 2000 to 2010.
- » The number of motorized (including transit) trips per person in 2010 has gone back down almost to 1980 levels of 3.3 trips per person from a high of 4.2 trips in 2000.

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- » The total number of car trips decreased from 7.7-million to 6.3-million from 2000 to 2010.
- » Total number of trips by all modes (including walking and biking) decreased from 2000 to 2010 from 11.6-million trips to 9.8-million trips per day.
 - Driving alone decreased by 9% as a percentage of trips.
 - Riding as a passenger decreased by almost 30%.

A number of demographic forces are contributing to these decreases, including a shrinking workforce, a decrease in the number of vehicles owned per licensed driver and the number of licensed drivers, and an aging population. Technological advancements have also helped to reduce trips by allowing individuals to work and shop from home. Telecommuting rose by 73% from 2005 to 2011, with 2.5% of the American workforce considering their home their primary place of work. Online commerce has also been steadily increasing. From 2004 to 2013, online retail sales rose steadily from 2% to 5.5% of all retail sales. More goods and services being acquired online equates to fewer cars on the road. Individuals are also socializing more online and downloading entertainment media from the comfort of their home. A 2012 survey from a large computer-networking company found that 2/3 of college students and young professionals spend at least as much time with friends online as they do in person. The Millennial generation, those born between 1983 and 2000, is also having an effect on travel behaviors. They are more willing to lead a lifestyle that doesn't require owning a car, are postponing getting their driver's license, and want to live in walkable, transit-oriented urban centers near the amenities they seek their workplace.

The average trip length and trip time for all trip purposes continued to increase from 2000 to 2010. The average trip length from 6.6-miles to 7-miles in 2010 and the average trip time from 17-minutes to 22-minutes. The majority of trips taken are for social and recreational purposes with work, school, and shopping tied for second place. Households with children make the most number of trips per day with adult households without children making the least. Households with higher incomes also average twice as many trips when compared to households with lower incomes.

Driving is still the way most trips are made, accounting for 84% of way trips are made. Taking transit or riding a school bus account for 3% and 5%, respectively. Of all trips made in the region, 6% are made by walking and 2% by biking, 90% of commutes to work are made by car, with 75% driving alone. Transit accounts for 6% of commute trips with biking and walking coming in at 3% each.

EXISTING TRANSPORTATION SYSTEM

Roadway Jurisdictional Classification System

Jurisdiction over Shoreview's roadway system is divided among the state, county, and city. The system includes the interstate and trunk highway system, managed by the Minnesota Department of Transportation (MnDOT) and the County State Aid Highway (CSAH) and County Road system, managed by Ramsey County, and local roadways owned and managed by the City. In addition the network includes a small number of private streets owned and managed by private associations, such as

townhome associations. Roadway jurisdiction is based on several factors, including the following:

- » Length of road/length of trip served
- » Connections to roads of similar jurisdiction level
- » Average daily traffic
- » Functional classification
- » Special facilities served

In general, the following relationships are observed and are depicted on **Map 5.1**:

- » Roadways that serve regional, inter-county or state-wide transportation needs are typically owned and maintained by the State (MnDOT).
- » Roadways that serve intermediate level functions generally qualify as county state aid highways or county roads and are owned and maintained by Ramsey County.
- » Roadways that primarily serve local transportation needs are owned and maintained by the City of Shoreview.

Metropolitan Highway System

The metropolitan highway system within Shoreview includes segments of two interstate highways:

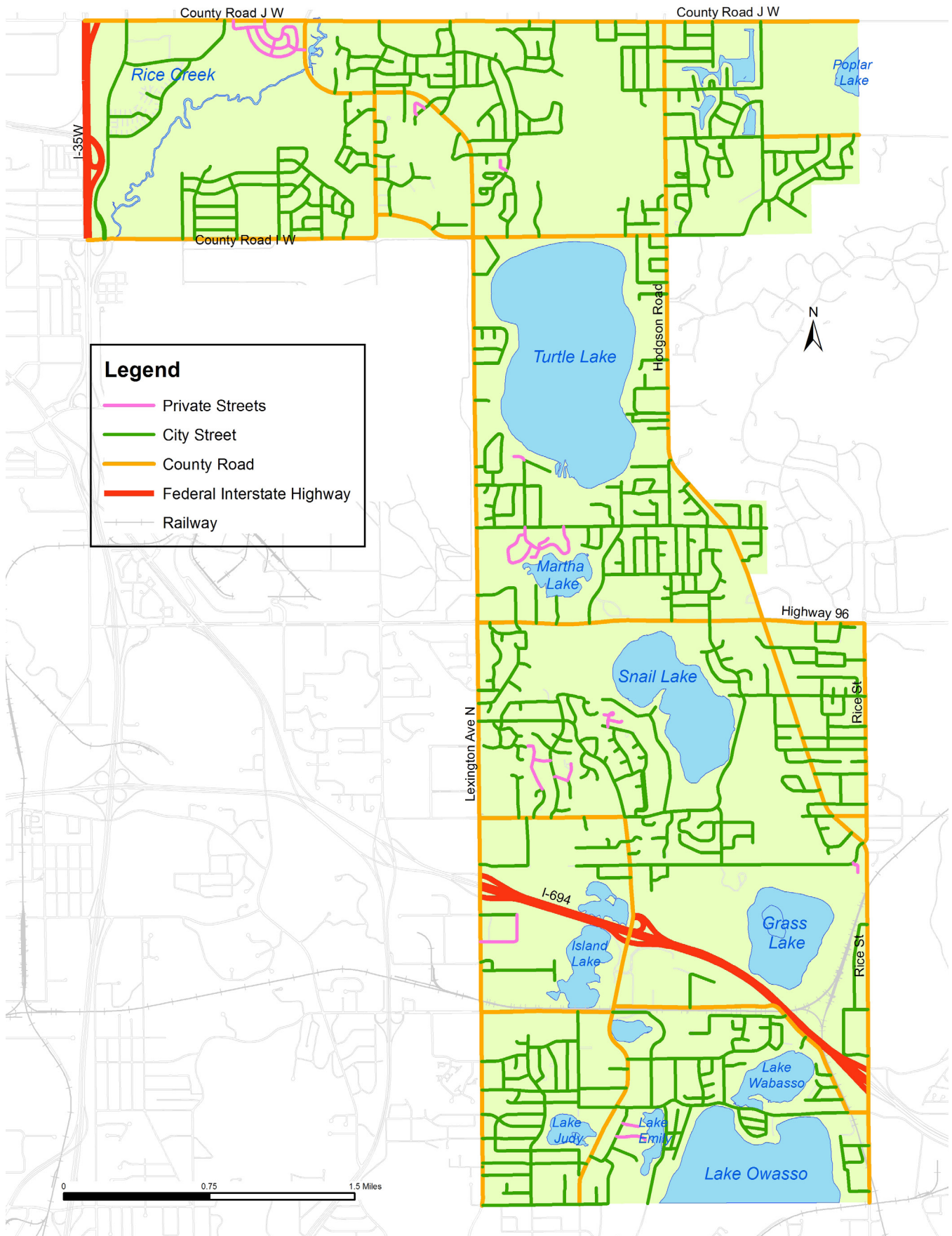
- » I-35W, which runs north-south along the City's northwestern boundary, between County Road I and County Road J; and
- » I-694 (also US 10), part of the Twin Cities "beltway," which crosses the southern part of the City in an east-west direction between Rice Street and Lexington Avenue.

County Highway System

In addition to the metropolitan highway system, most of the City's main transportation corridors are part of the extensive county highway system. This system includes former State Trunk Highways (96 and 49), County State Aid Highways (CSAH) and County Roads.

- | | |
|--|--|
| » CSAH 96 | » CSAH 15 (part of County Road E) |
| » CSAH 49 (part of Rice Street/Hodgson Road) | » CSAH 18 (part of Owasso Boulevard) |
| » CSAH 54 (part of Rice Street) | » CSAH 3 (County Road I) |
| » CSAH 50 (part of Hamline Avenue) | » CSAH 1 (County Road J) |
| » CSAH 51 (Lexington Avenue) | » CSAH 4 (Sherwood Road) |
| » CSAH 52 (Victoria Street) | » County Road 15/99 (County Road E/Soo Street) |
| » CSAH 12 (part of County Road F) | » County Road 136 (part of Soo Street) |

Map 5.1 Road Jurisdictions



Local Street System

The remaining public streets in the City constitute the local city street system. This system includes several roads formerly under jurisdiction of Ramsey County, such as Snail Lake Boulevard, Tanglewood Drive, Gramsie Road, Victoria Street (north and east of County Road F), Turtle Lake Road, Owasso Boulevard North, and Hamline Avenue (north of County Road I and south of Lexington Avenue). This system also includes some alleyways that are located in older lakeshore neighborhoods.

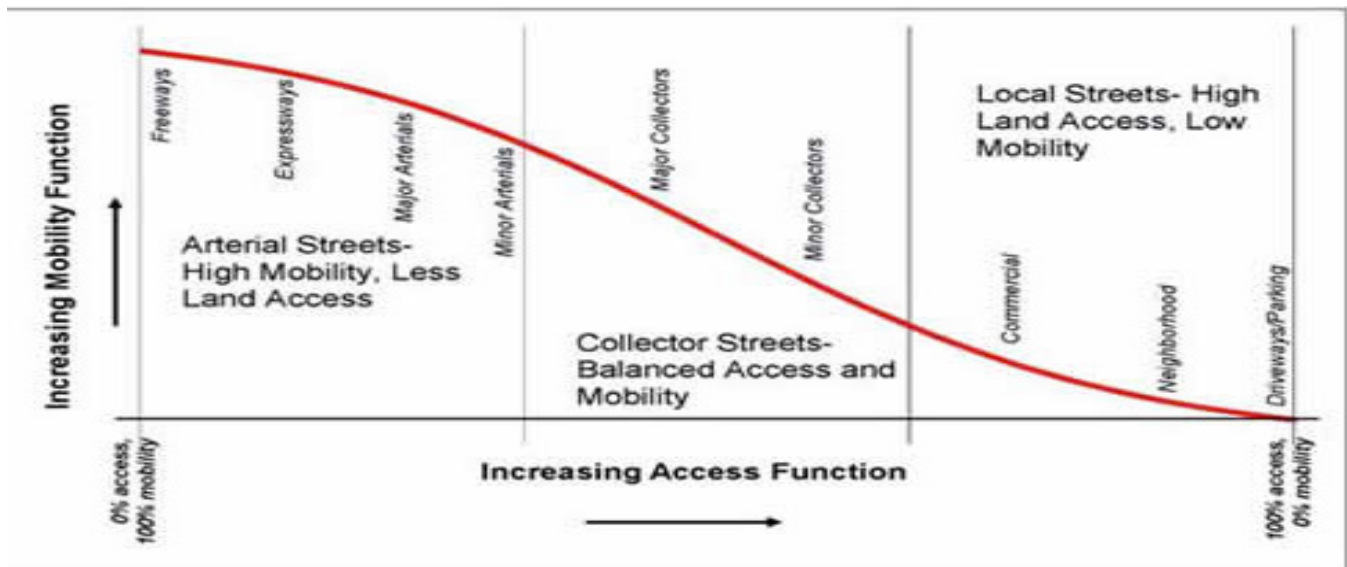
Private Street System

Although the City's current codes generally do not permit the construction of new private streets to provide access to development, private streets were permitted in the past within the City. The majority of these streets are located in medium- and high-density residential developments, but some are located in single-family residential neighborhoods. Residents and/or homeowner associations manage and maintain these streets, however some of these associations have asked to transfer jurisdiction of their private streets to the City. The City has and will consider transferring jurisdiction if it is determined that the private street meets the requirements adopted by the City Council.

Roadway Functional Classification System

The purpose of a functional classification system is to create a hierarchy of roads that collects and distributes traffic from neighborhoods to the county and state highway systems in as efficient a manner as possible. Roads are placed into functional categories based on the degree to which they provide access to adjacent land or provide mobility to through traffic (**Figure 5.1**). Ideally, roads are designed to perform a designated function and are located to best serve the type of travel needed. Transportation issues arise when roadway design is inconsistent with the functional demands imposed on the roadway. The functional classification system used in the City of Shoreview is consistent with that of the Metropolitan Council.

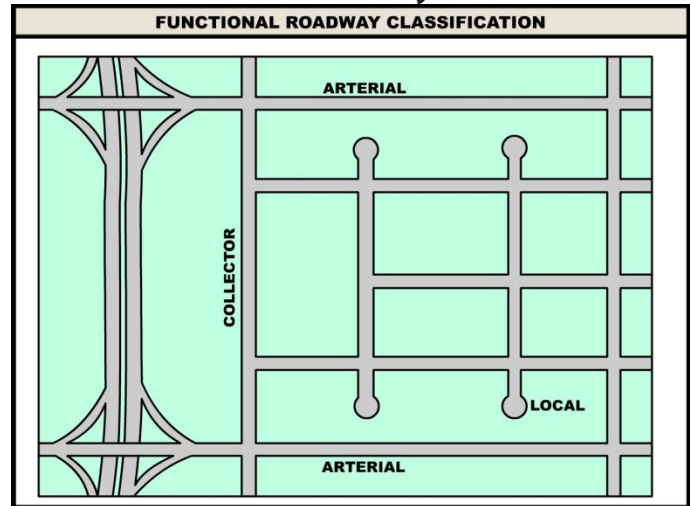
Figure 5.1 Road Access and Mobility Matrix



Shoreview's functional classification system, illustrated on **Figure 5.2**, includes the following four primary categories:

- » Principal Arterials
- » Minor Arterials (A and Other)
- » Collectors (Major and Local)
- » Local Streets (public and private)

Figure 5.2 Functional Roadway Classification System



Principal Arterials

Principal arterials are the highest roadway classification and are considered part of the metropolitan highway system. These roads are intended to connect metropolitan centers with one another and connect major business concentrations in the metropolitan area. These roads also connect the Twin Cities with important locations outside the metropolitan area. The City of Shoreview's principal arterials are the two interstate highways: I-35W and I-694.

Minor Arterials

The A Minor and Other Arterial designations were adopted by the Metropolitan Council as a means for identifying roadways which are oriented toward mobility (through-trips) versus those that are oriented more toward accessibility (land access). Minor arterials are intended to connect cities with adjacent communities and the Metropolitan highway system. Major business concentrations and other important traffic generators are commonly located on minor arterials. The Metropolitan Council has identified minor arterials that are of regional importance because they relieve traffic on the principal arterials or substitute for principal arterials when necessary. All minor arterials are under the jurisdiction of Ramsey County. These roads have been labeled as "A" or "Other" minor arterials with "A" minor arterials categorized into four types: Augmentor, Reliever, Expanders, and Connectors.

- » *A Minor – Augmentors* are roadways that supplement the principal arterial system in more densely developed or redeveloped areas.
- » *A Minor – Relievers* are roadways that provide supplementary capacity for congested, parallel principal arterials.
- » *A Minor – Expanders* are roadways that supplement the principal arterial system in less developed or redeveloped areas.
- » *A Minor – Connectors* are roadways that provide safe, direct connections between rural centers

and to principal arterials in rural areas without adding continuous general purpose lane capacity.

The following roadways within the City are classified as **“A” minor arterials**:

- » Lexington Avenue (I-694 to County Road D – Augmentor)
- » Rice Street (I-694/US 10 to southern boundary of City – Reliever)
- » Lexington Avenue (County Road J to I-694 – Expander)
- » Hodgson Road/Rice Street (County Road J to I-694/US 10 – Expander)
- » Highway 96 (Rice Street to Lexington Avenue – Expander)
- » County Road J (eastern boundary of City to I-35W – Expander)

Other minor arterial roadways within the City form a connected system of north-south and east-west routes through the City, and include:

- » Victoria Street (County Road F to County Road D)
- » Rice Street (Highway 96 to Gramsie Road)
- » County Road I (I-35W to Hodgson Road)
- » County Road F (Lexington Ave. to Victoria St. and Hodgson Rd.. to Rice St.)
- » County Road E/Soo Street/Owasso Boulevard (Lexington Ave. to Rice St.)

Major Collectors

Major collector roadways are designed to serve shorter trips that occur primarily within the City, and to collect and distribute traffic from neighborhoods and employment centers to the arterial system. These streets are typically part of the City’s municipal state aid system. The City’s major collector system includes the following streets:

- » Hamline Avenue (Lexington Avenue to County Road I)
- » Sherwood Road/Turtle Lake Road (Hodgson to eastern boundary of City)
- » Tanglewood Drive (Lexington Avenue to Hodgson Road)
- » Victoria Street (Lexington Avenue to County Road F)
- » Snail Lake Boulevard/ Snail Lake Road (Victoria Street to Hodgson Road)
- » Gramsie Road (Victoria Street to Hodgson Road)
- » County Road D (Lexington Avenue to Victoria Street)

Minor Collectors

Minor collector roadways collect and distribute traffic from neighborhoods to the major collector and arterial network. These roads are generally shorter and less continuous than major collectors, but serve to supplement those streets. These streets are typically part of the City’s municipal state aid system. The City’s minor collector system includes the following streets:

- » Rice Creek Parkway (County Road I to County Road J)
- » Parkview Drive (Rice Creek Parkway to County Road J)
- » Hamline Avenue (Lexington Avenue to Royal Oaks Drive)
- » Fernwood Street (County Rd.. J to Lexington Avenue)
- » Royal Oaks Drive (County Road J to Lexington Avenue)
- » Sherwood Road (Hodgson Road to Turtle Lake Road)
- » Oakwood Drive (Turtle Lake Road to Sherwood Road)
- » Hodgson Connection (Hodgson Road to Tanglewood Drive)
- » Victoria Street (Highway 96 to Tanglewood Drive)
- » Dale Street/Laura Lane (Tanglewood Drive to Highway 96)
- » Mound Avenue (Victoria Street to Dale Street)
- » Snail Lake Boulevard (Highway 96 to Snail Lake Road)
- » Snail Lake Road (Hodgson Road to Rice Street)
- » Mackubin Street (Gramsie Road to Snail Lake Boulevard)
- » Gramsie Road/Chatsworth Street (Lexington Avenue to County Road F)
- » Owasso Street (Victoria Street to Harriet Avenue)
- » Harriet Avenue (Victoria Street to Chandler Avenue)
- » Chandler Avenue (Harriet Avenue to Owasso Boulevard North)
- » Owasso Boulevard West (Owasso Blvd. North to southern City boundary)
- » Owasso Boulevard North (Victoria Street to Soo Street)

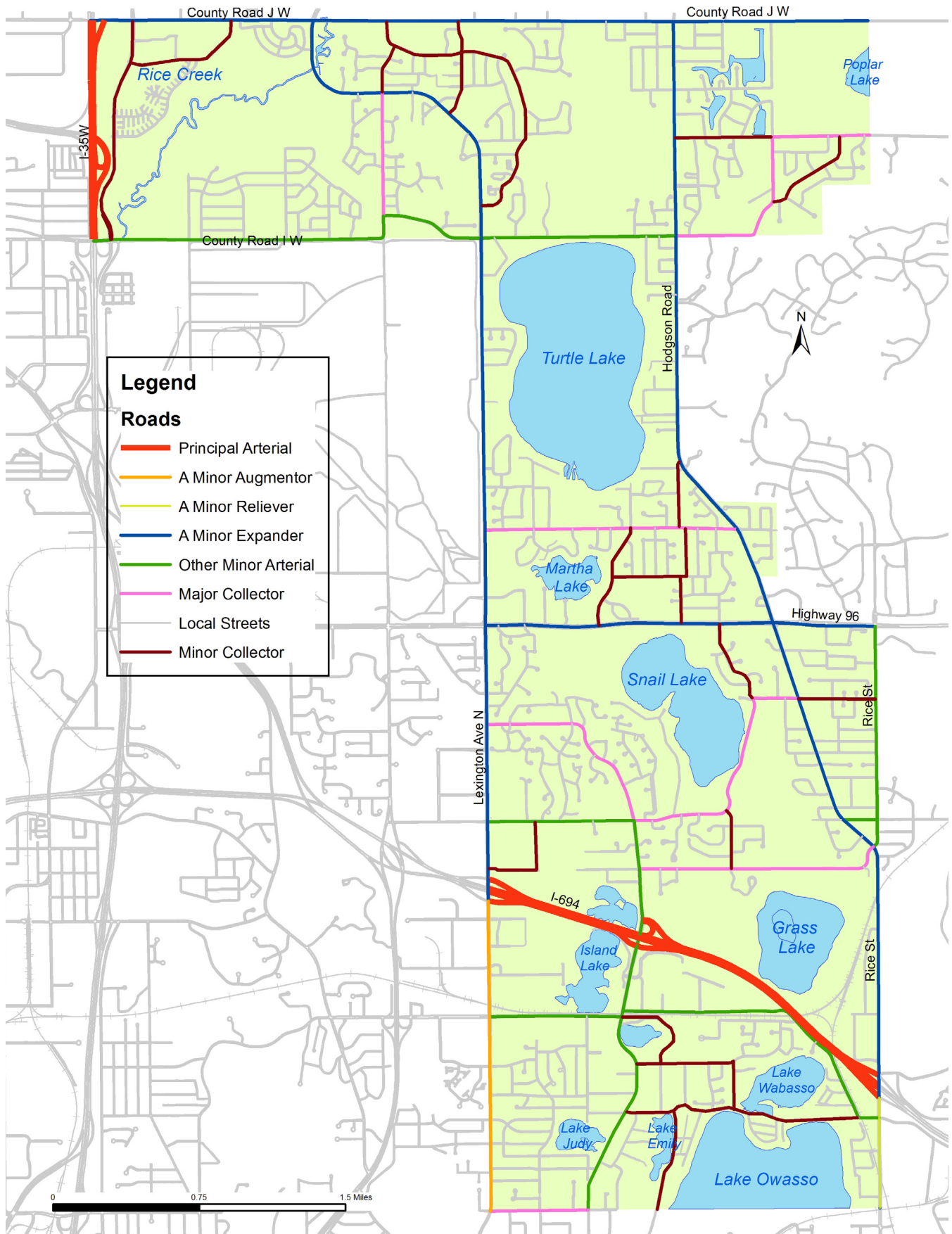
Managed Lanes

MnDOT has adopted the MNPass system for managing High-Occupancy Toll (HOT) lanes. In Shoreview there currently are not any MNPass lanes although they will be expanding into I-35W as shown on the following Map 5.5. The figure also shows MNPass lanes for the portion of I-694 located within Shoreview, but it was determine full time lanes were required and construction of the lanes was completed in 2017.

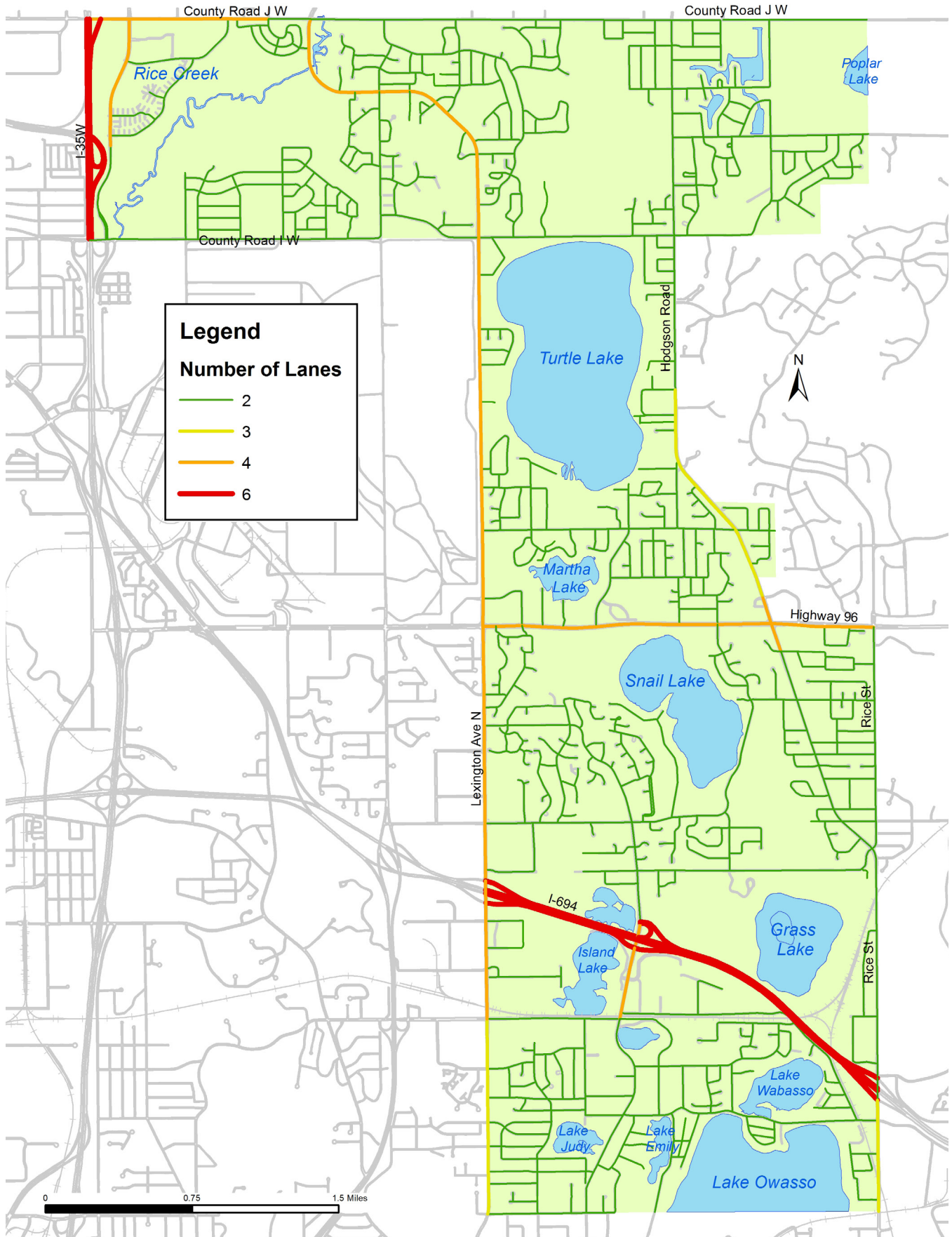
Existing Traffic Lanes and Traffic Volumes

Existing roadway capacity in terms of number of travel lanes for each roadway in the City is shown on **Map 5.3**. The existing (2016) and forecast (2040) traffic volumes for all arterial and collector roadways are displayed on **Map 5.4**. The traffic forecasts are discussed later in the Analysis of Future Needs section of this Chapter. MnDOT and Ramsey County conduct routine counts of traffic volumes for roads under their jurisdiction. The City of Shoreview performs traffic counts on collector streets every two years.

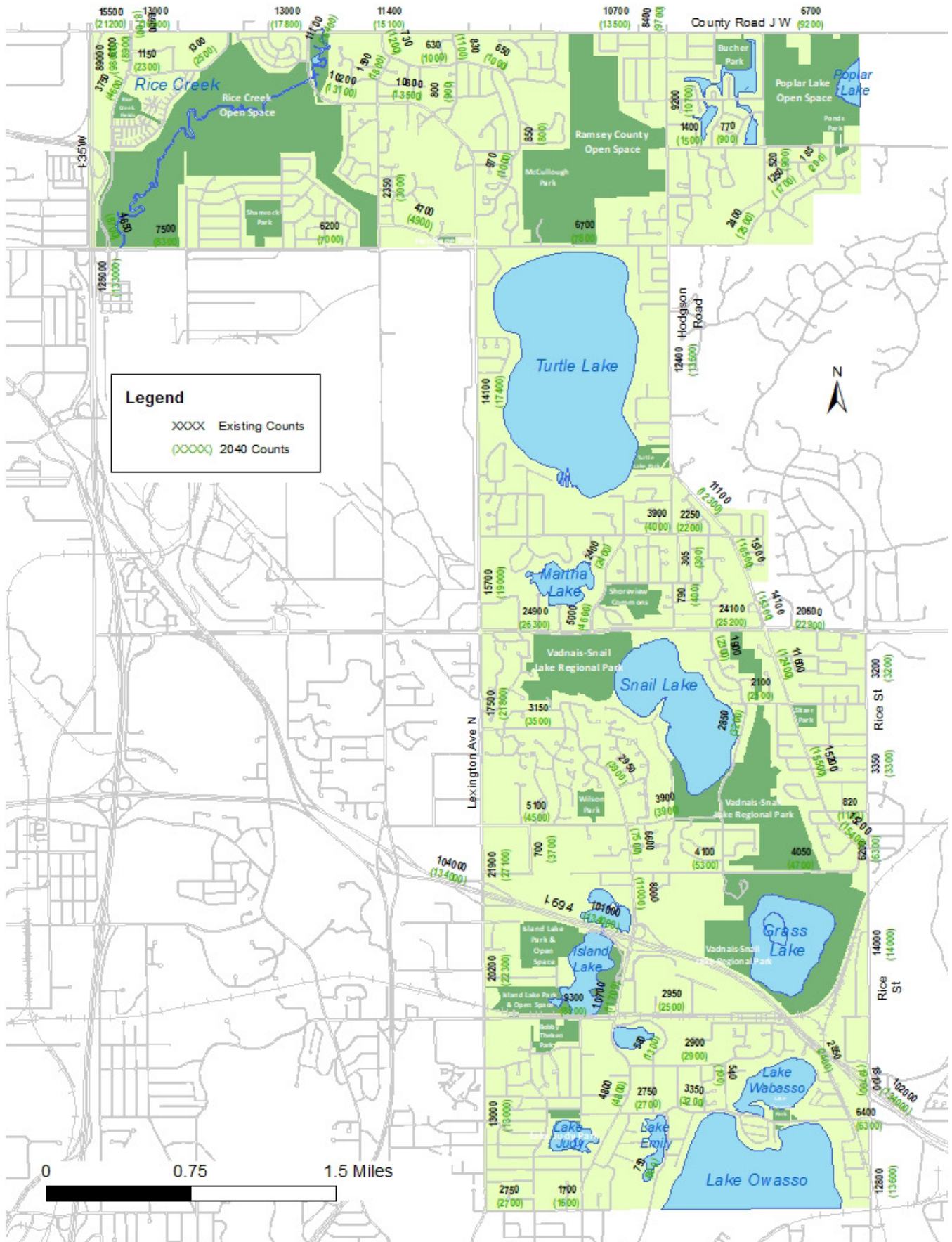
Map 5.2 Functional Road Classifications



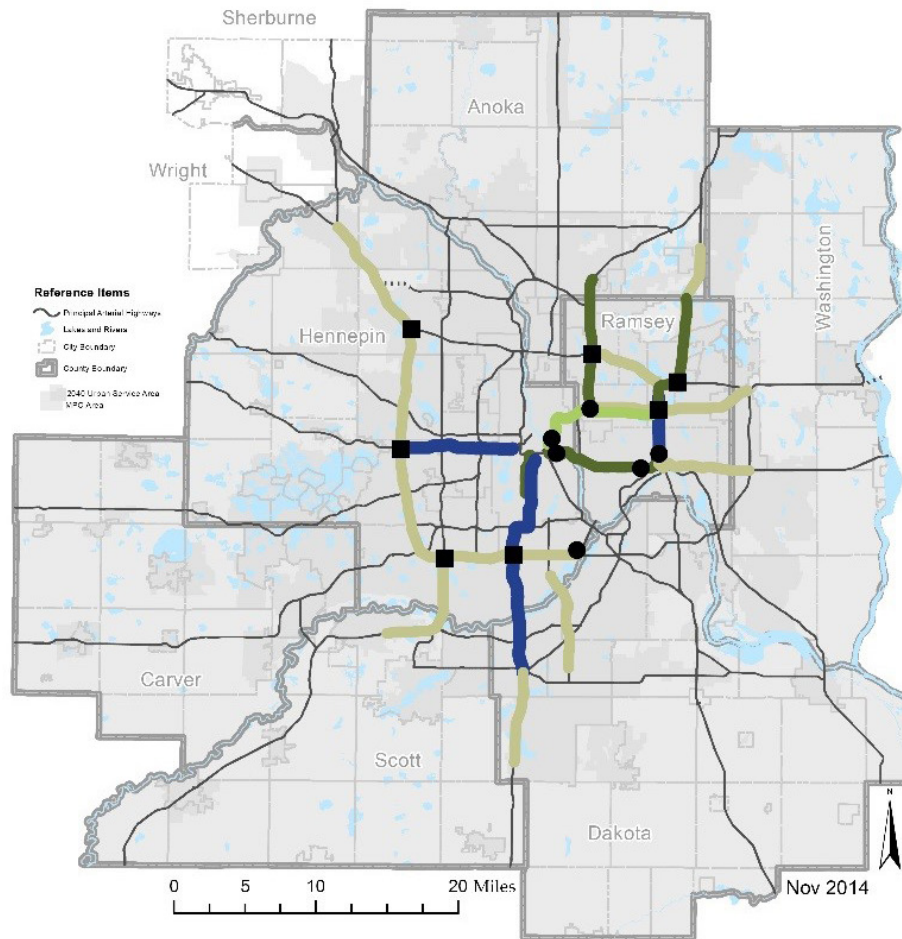
Map 5.3 Number of Lanes



Map 5.4 Traffic Counts



Map 5.5 MNPass System

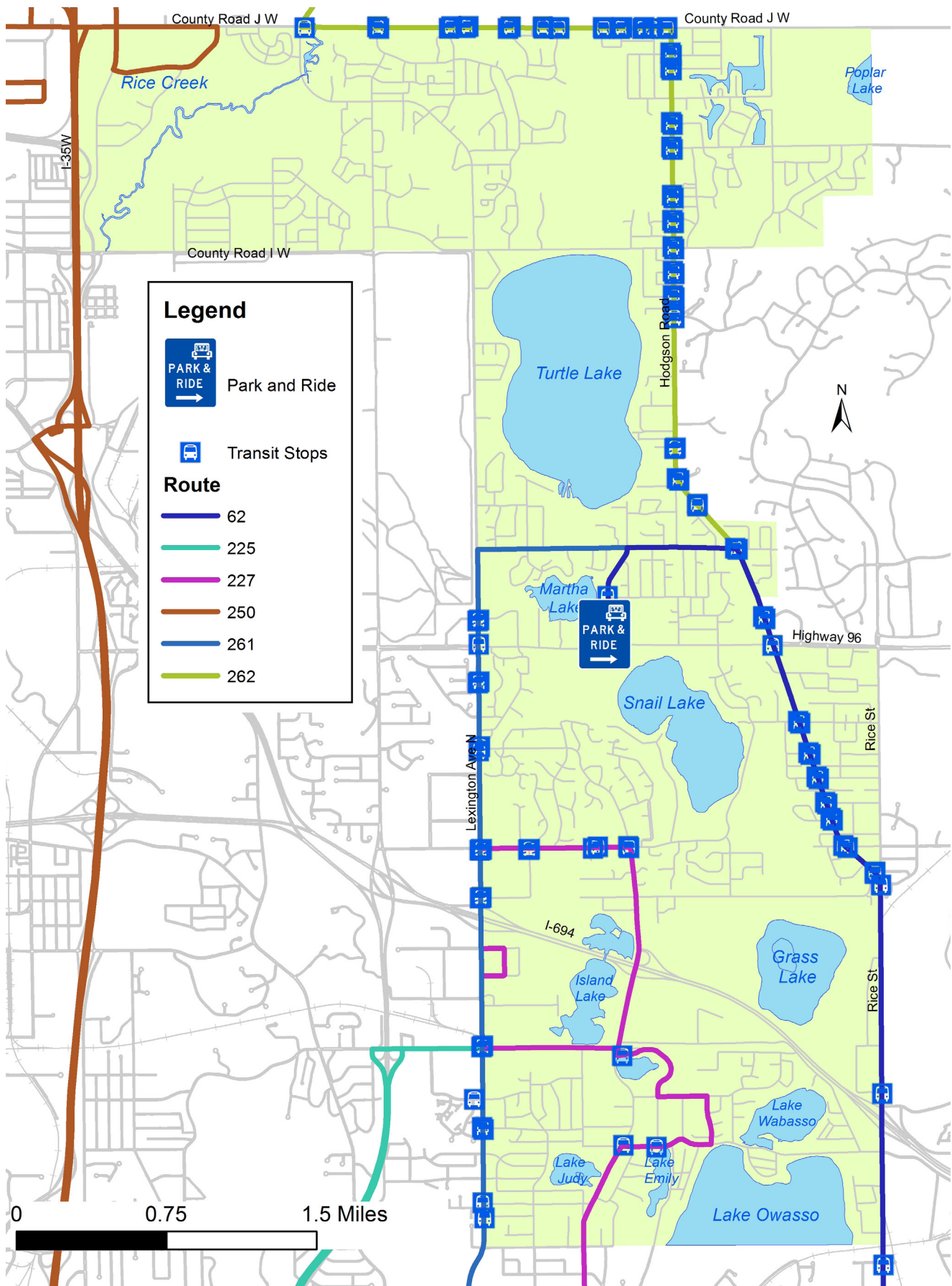


Existing Transit Services and Facilities

The term transit applies to all forms of ridesharing. Transit services within the City of Shoreview are provided by Metro Transit, Transit Link, and Metro Mobility. These services are supported by transit facilities that accommodate the needs of transit users.

Shoreview is in the Metropolitan Transit Taxing District and includes Transit Market Areas III and IV. These Market Areas are characterized by lower to moderate density and are served by peak-period express bus service, mid-day circulator, general public dial-a-ride service, special needs transit, and ride sharing services.

Map 5.6 Transit Information



Bus Service

Metro Transit provides bus service within the City. Metro Transit provides routes 62, 250, 261 and 262. In addition to these Metro transit routes, the Metropolitan Council also contracts with private providers for bus service in Shoreview (Routes 225 and 227). Bus routes, including route numbers and bus stop locations, and park and ride locations are depicted on Map 5.6. Metro Transit also provides:

- » Transit Link – a curb to curb ride share service that must be reserved in advanced.
- » Metro Mobility – a door to door public transportation system for people with disabilities

Shoreview is also served by express bus routes that operate on I-35W, which will continue to operate after completion of MNPass. The routes do not stop in Shoreview but can be accessed at the 35W and County Road H Park and Ride in Mounds View or the 93rd and 35W Park and Ride in Blaine.

Transit Facilities

The Rosedale Shopping Center in the City of Roseville, south of the City of Shoreview, serves as a transit hub for Metro Transit and Metropolitan Council provided bus routes. The facility includes a bus staging area, passenger facilities, and bicycle lockers. The park-and-ride facility in Shoreview is located at the Shoreview Community Center (Highway 96 and Victoria St.).

Several other park-and-ride lots are accessible to Shoreview residents. These lots are located in the adjacent communities of Vadnais Heights, Blaine and Mounds View.

Existing Transit Characteristics

According to the City's 2013 Resident Survey, 53% of the respondents reported that they left the City daily to go to work, which has remained steady for over 10-years. Over 40% of the residents that leave the City commute to Minneapolis or St. Paul. 12% reported that they or a family member regularly use public transportation to get to work, which is up from 4% as reported in the 2005 survey. Of those who do not use public transit, 16% reported that it is not convenient and another 6% reported that no transit service route is available. These numbers are significantly lower when compared to the 2005 survey that reported 35% and 11%, respectively.

When asked about the importance of public transit, 37% answered that it is very important, and 43% rated public transit good or excellent. These numbers are up from 30% and 28%, respectively, when compared to the 2005 survey. The 2010 Transportation Behavior Survey (Metropolitan Council) reported that transit ridership accounts for about 3.2% of total trips in the metro area, up from 2.5% as reported in 2000.

Travel Demand Management

Travel demand management is a set of techniques used to reduce peak period vehicle trips by shifting travelers from driving alone into shared ride arrangements or by encouraging alternative work arrangements, such as flextime and telecommuting that remove trips from the peak travel times. Travel

demand management techniques are best implemented through a partnership of cities, regional and state agencies and employers to encourage travelers to change their behavior through incentives, enhanced services and high occupancy facilities.

Rideshare is a travel demand management tool being used in the City. Metro Commuter Services provides carpool-matching services to employers and individuals in the Metro area. Ride sharing is also available through the Metro VanPool subsidized by the Metropolitan Council. VanPool allows 5-15 people the opportunity to share the ride to and from work an average of three or more days per week.

Light Rail Transit, Commuter Rail, and Bus Rapid Transit

Currently, there are two light rail transit (LRT) corridors, one commuter rail, and one bus rapid transit (BRT) corridor in the Twin Cities Metropolitan Area, as listed below:

- » Metro Blue Line (2004) – 12-mile LRT that serves 11 Minneapolis neighborhoods and the Minneapolis/St. Paul Regional Airport.
- » Northstar Commuter Rail (2009) – 40-mile commuter rail from downtown Minneapolis to the Big Lake area that services Elk River, Ramsey, Anoka, Coon Rapids, and Fridley.
- » Metro Green Line (2014) – 11-mile LRT connecting the downtowns of Minneapolis and Saint Paul running along University Avenue.
- » Metro Red Line (2013) – 11-mile BRT that connects Lakeville, Apple Valley, and Eagan to the Mall of America.

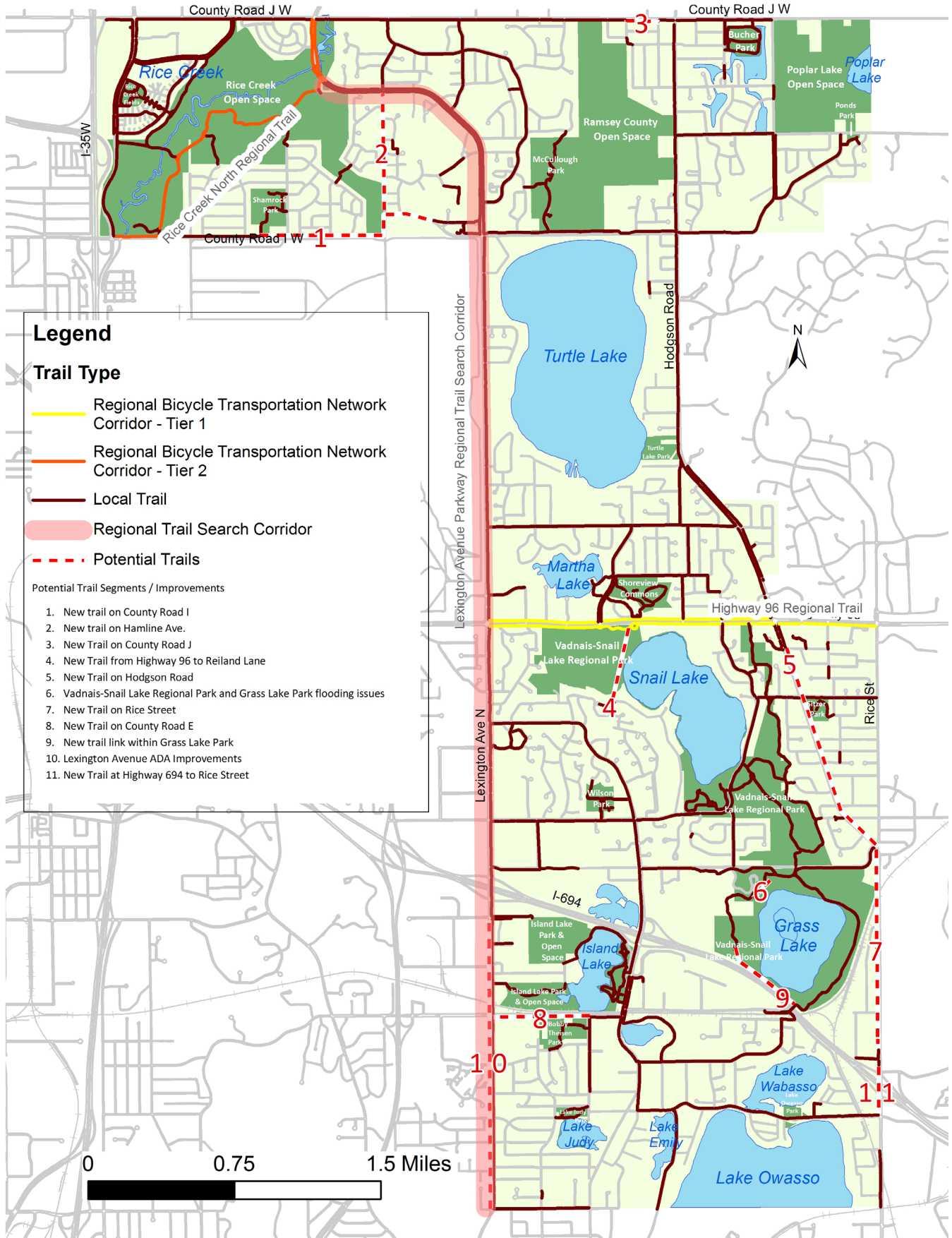
Several more transit corridors are in various stages of development or study for potential transitway investments as listed in the Metropolitan Council 2040 Transportation Policy Plan. A few of the potential projects from Policy Plan are listed below:

- » “A” Line BRT – Connect Minneapolis and St. Paul, Roseville, Shoreview and Arden Hills to Rice Creek Commons
- » Metro Orange Line (I-35W BRT) – connect Minneapolis, Richfield, Bloomington, and Burnsville along I-35W.
- » Metro Blue Line Extension (Bottineau LRT) – connect Minneapolis, Golden Valley, Robbinsdale, Crystal, and Brooklyn Park.
- » Metro Green Line Extension (Southwest LRT) – connect Minneapolis, Eden Prairie, Minnetonka, Hopkins, and St. Lois Park.
- » Metro Gold Line (Gateway Dedicated BRT) – connect Saint Paul, Maplewood, Landfall, Oakdale, Lake Elmo, and Woodbury.

Existing Pedestrian and Bicycle Facilities

In 1998, the City of Shoreview developed a Basic Level of Service Plan and has since implemented this plan by construction an off-street system consisting of approximately 50 miles of asphalt multi-use

Map 5.7 Trails and Bikeways



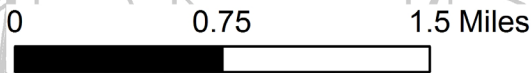
Legend

Trail Type

-  Regional Bicycle Transportation Network Corridor - Tier 1
-  Regional Bicycle Transportation Network Corridor - Tier 2
-  Local Trail
-  Regional Trail Search Corridor
-  Potential Trails

Potential Trail Segments / Improvements

1. New trail on County Road I
2. New trail on Hamline Ave.
3. New Trail on County Road J
4. New Trail from Highway 96 to Reiland Lane
5. New Trail on Hodgson Road
6. Vadnais-Snail Lake Regional Park and Grass Lake Park flooding issues
7. New Trail on Rice Street
8. New Trail on County Road E
9. New trail link within Grass Lake Park
10. Lexington Avenue ADA Improvements
11. New Trail at Highway 694 to Rice Street



trails and concrete sidewalks. This system provides pedestrian and bicycle connections between parks, neighborhoods, community resources, and commercial nodes and represents substantial completion of the basic level of service plan. (See **Map 5.7: Trails and Bikeways**) There are several types of trails and walkways within the City:

- » Regional Trail Corridors- Trails connecting to destinations outside the City.
- » Regional Park Trails - Trails located within regional parks or open spaces that serve the City and surrounding communities.
- » Local Sidewalks and Trails – These pedestrian/bicycle facilities serve the local community by connecting neighborhoods and providing safe access to schools.

Based on the 2013 resident survey, the trail system is one of the characteristics of the City that is a very important quality of life indicator. Over 80% of the survey respondents reported using the trail system at least monthly and over 55% reported using at least weekly or more.

Regional Trail Corridors

There are three trail segments within the City that are part of the Regional Bicycle Transportation System (RBTN): the Highway 96 Corridor Regional Trail (Tier 1), Lexington Avenue (Tier 1) and the Rice Creek North Regional Trail (Tier 2).

The Highway 96 Corridor Regional Trail is a 7-mile long trail that parallels Highway 96 from Old Highway 8 in New Brighton to Highway 61 in White Bear Lake. It is an off-road bituminous multi-use trail that exists in Shoreview on the south side of County Road 96. This regional trail connects a series of regional parks, including Vadnais-Snail Lake Regional Park.

The Lexington Parkway Regional Trail extends north to Anoka County and south into the City of St. Paul. This trail consists of an existing County trail along Lexington Avenue extending from County Road D to County Road J.

The Rice Creek North Regional Trail is part of a 14-mile regional trail corridor that connects the Chain of Lakes Regional Park Reserve in the City of Lino Lakes to the Mississippi River in the City of Fridley. Within the City, this trail follows Rice Creek from County Road J to County Road I. Approximately 112 acres along Rice Creek south of County Road I was recently incorporated into this regional trail corridor and trails have been constructed along both sides of the Creek.

Regional Park Trails

A significant portion of the Vadnais-Snail Lake Regional Park is also located in the City and extends into the City of Vadnais Heights, immediately to the east of Shoreview. This park system includes a variety of trail systems including a 4.1 mile network of paved trails that extend from Snail Lake to Grass Lake.

Local Sidewalks and Trails

Paved sidewalks and paved local trails are located within or adjacent to parks and recreation areas,

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located along several streets, within existing residential and commercial developments, and connect to the RBTN located within and around Shoreview. These transportation facilities link pedestrians to parks, schools, community facilities and transit routes and it is the City's intent to consider off street pedestrian facilities in all minor arterial and collector roadways. Primary north-south routes include trails and walkways along Lexington Avenue, Hodgson Road north of Highway 96, Royal Oaks Drive, Rice Creek Parkway, Snail Lake Boulevard, and Victoria Street north of Owasso Boulevard N. Primary east-west routes include walkways along County Roads F, I and J, Turtle Lake Road and Oakwood Drive, Tanglewood Drive, Highway 96, Gramsie Road and North Owasso Boulevard.

The major physical barriers in the City to the RBTN and local system include I-694, Rice Creek, and the lakes located within Shoreview. Crossings over I-694 are located on Lexington Avenue, which is part of the RBTN, and Victoria Street, which is part of the local system. There is also a pedestrian bridge over I-694 that connects the regional trail system that is part of the Vadnais-Snail Lake Regional Park to the local trail system. A crossing will also be installed over I-694 on Rice Street as part of the Rice Street/I-694 interchange project that will be constructed in 2019-20. Crossings over Rice Creek are located on Lexington Avenue and County Road I and there are many local and regional trails that provide access to and around the lakes. There are many existing crossings located throughout the City that provide users with multiple connections to all areas of the City and surrounding area.

Neighborhood connections encourage trail use, promote physical activity and provide safe routes connecting residents to other neighborhoods, schools, recreation, and commercial nodes. Neighborhood trails and walkways are located throughout the City, linking neighborhoods with each other and providing connection to primary trails. This trail network also provides safe routes to school for the school age population, many of which rely on these pedestrian facilities. The Mounds View School District does not provide bus service for residents living within a 2-mile radius of a school facility and the Roseville School District does not provide bus service for K-6 grades within a ½-mile radius or for grades 7-12 within a 2-mile radius of a school facility.

The City has enhanced the usability of the trail system by installing trail map signs at major junctions to facilitate navigation on the trails to destinations throughout the City. The City also publishes and regularly updates a trail map that is available to residents and area businesses.

Shoreview has a Bikeway and Trails Committee that reviews the network of sidewalks and trails within the community and makes recommendations to the City Council regarding the trail and walkway facilities.

Cycling

Cyclists also use the arterial roadways and collector roadways within the City. The Minnesota Department of Transportation has identified several roadways as part of the metropolitan bikeway system. To increase the safety of these routes for cyclists, the City of Shoreview and Ramsey County have incorporated design improvements when feasible for new and/or reconstruction of these roadways. These safety improvements often include improving lane and paved shoulder widths, improving crossings, signage, and overall road conditions. County Road 49 (Hodgson Road/Rice Street) has for several years been discussed as a designated commuter bikeway corridor.

Goods Movement

There are no truck terminals or heavy industrial uses in the City that generate large volumes of heavy vehicle traffic. Semi-trailer truck traffic is generated by the light industrial and commercial uses in the City for pick-up and delivery of the goods necessary for operations, not for trans-shipment. There are axle weight limits on local roadways during the springtime that were constructed to a lower structural (weight) capacity. These roadways are located in residential areas and do not affect the movement of goods within the City.

One of the first structures located within the City was the rail facility at Cardigan Junction north of Interstate 694. Although this facility no longer exists, the two rail lines served by Cardigan Junction still remain. These lines are currently owned and operated by the Canadian Pacific Railroad. The main line parallels County Road E while the second line is adjacent to Soo Street, east of Wabasso Lake and Lake Owasso. By agreement with the Canadian Pacific, the Canadian National Railroad also operates on the main line. At grade crossings are found at Lexington Avenue, Victoria Street, Lake Owasso Boulevard North and Jerrold Avenue. All of the at-grade crossings were improved with medians and crossing arms to meet the requirements to establish quiet zones. Separated crossings are found at Interstate 694, County Road E and Rice Street. According to 2016 train count data provided by the Canadian Pacific, on average these lines carry from seven to fourteen trains per day.

Aviation

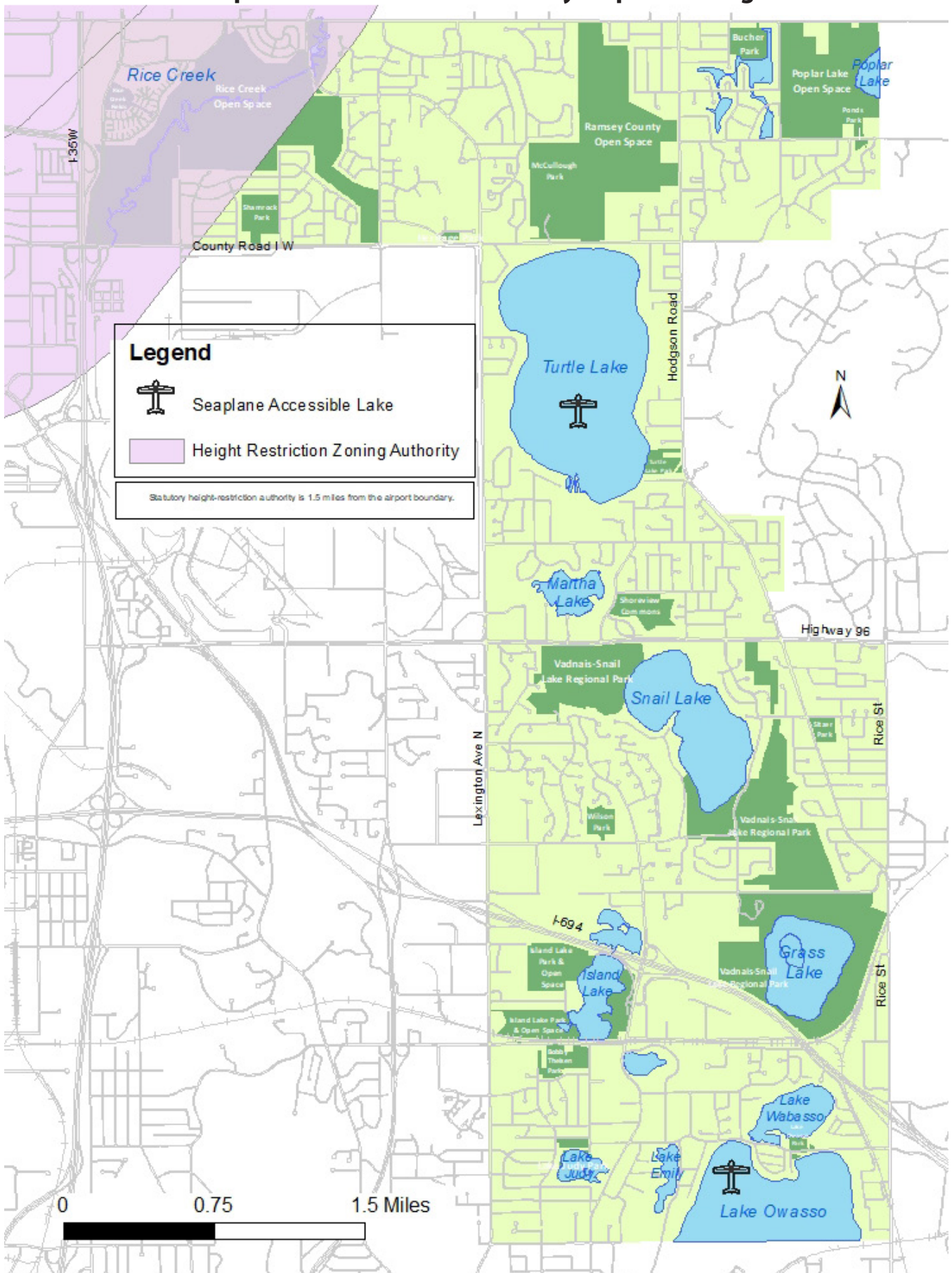
A small portion of the City lies within the influence area of the Blaine-Anoka County Airport, located just northwest of the I-35W/County Road J interchange. The areas within the City that fall under both the Height Restriction Zoning Authority and the Airport Land Use Zone are shown on **Map 5.8**.

The Anoka County-Blaine Airport is one of six reliever airports in the Twin Cities Metro Area. The facility serves the most diverse aircraft mix in the reliever system including corporate jets, recreational planes and many antique aircraft. The airport has a contract air traffic control tower, a 4,855-foot north-south runway and a 5,000-foot east-west runway equipped with an instrument landing system (ILS). Two full-service operators and a number of single-service operators are based at the airport. The airport supports more than 70,000 takeoffs and landings annually and there are 320 aircraft based at the airport.

Since the airport runways run directly north-south and east-west the impacts of the airport on Shoreview are limited since the City lies to the southeast. The City of Shoreview does recognize its responsibility as a community to protect the general airspace surrounding this airport, as well as others in the region. Although the Anoka-Blaine Airport does not currently have an Airport Zoning Ordinance, the MAC has the authority to create and adopt an Airport Zoning Ordinance. If Airport Zoning were adopted, it is likely that areas included in the zoning ordinance would impact portions of Shoreview. Shoreview does lie beyond the airport's existing and projected noise contours.

Structures which are 200 feet or higher above ground level may pose hazards to air navigation. The primary structures of this type in Shoreview are the broadcast towers located north of I-694. Because of their height, the Federal Aviation Administration (FAA) has established flight rules that prohibit aircraft from operating in the vicinity of the towers. The construction of any structure or alteration

Map 5.8 Blaine Anoka County Airport Zoning



exceeding a height of 200 feet or any construction or alteration of greater height than an imaginary surface extending upward at a slope of 100:1 from the nearest point of the nearest runway of a public airport requires notification to the MnDOT Commissioner and the FAA.

Seaplane operations are permitted on two of the City's lakes: Turtle Lake and Lake Owasso. The MnDOT, Aeronautics Division, regulates these types of seaplane operations. On Lake Owasso, seaplane operations are prohibited from 11 am to 6 pm on Saturdays, Sundays, and national legal holidays between June 1 and September 15 (although limited use of personal seaplanes by residents is permitted). MnDOT does not monitor the use of these lakes by seaplanes, unless conflicts are occurring. When lakes are frozen, ski-equipped craft may operate on all City lakes.

Analysis of Future Needs

2040 Forecast Traffic Volumes

Traffic forecasts were prepared for the year 2040 using the Metropolitan Council's Activity Based Travel Demand Model and Transportation Analysis Zones (TAZ), based on forecasts of population, household, and employment, reported by TAZ. The TAZ boundaries are illustrated on **Map 5.9**. Socio-economic forecasts were prepared by the City for each TAZ and the forecast is tabulated in **Figure 5.4**.

Metro Council Activity-Based Travel Demand Modeling Process

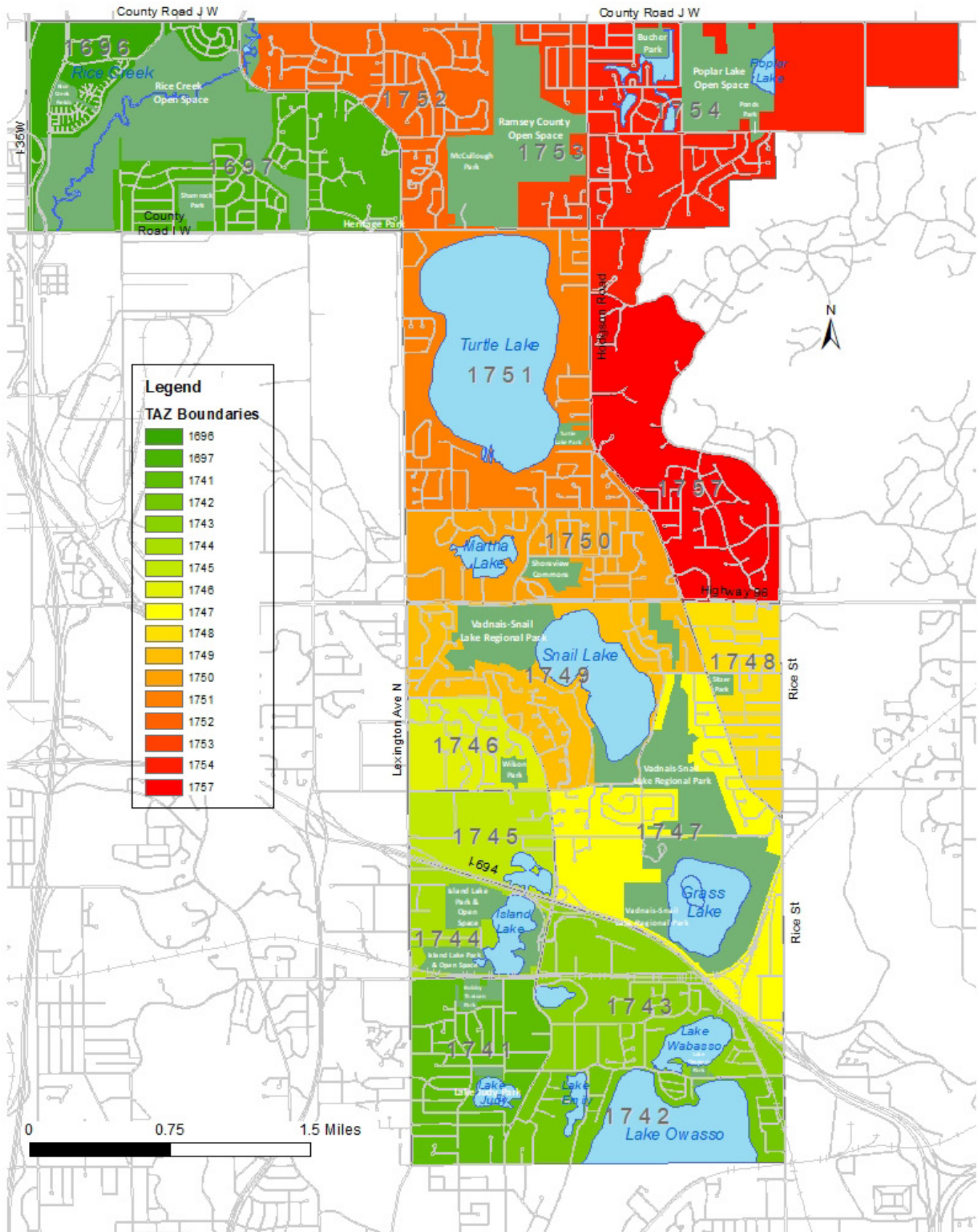
Transportation decision makers often confront difficult questions about how local and regional transportation will perform for future years. Travel demand models are developed to support decision making by providing information about the impacts of alternative transportation and land use policies, as well as demographic and economic trends. Trip-based travel models, often referred to as 4-step models, have been used for decades to support regional and sub-regional transportation analysis and decision making. In recent years, more advanced activity-based models (ABMs) have been developed and implemented due to their significant enhancements to 4-step trip-based models. These enhancements include the explicit representation of more realistic constraints of time and space, as well as the linkages among activities and travel both for an individual person and across multiple people in a household. ABMs more closely replicate actual traveler decisions than traditional 4-step travel demand models and thus may provide better forecast of future travel patterns.

Metro Council upgraded its trip-based model to an ABM for its 2040 Transportation Police Plan (Thrive MSP 2040) and released its latest version in July 2017. Local communities are required to conduct transportation plan updates using the latest ABM model.

In addition to data preparation and special generation aggregate models, there are four major categories of disaggregate models in the Metro Council's ABM. **Figure 5.3** illustrates the model framework for the four major categories. (*Source: Metro Council Model Estimation and Validation Report, July 30, 2015*):

- I. Long-term Models:** The models in this category capture decisions with a longer time horizon including the location of one's regular workplace, regular school location, vehicle availability, and transit and toll transponder pass ownership models. These decisions are modeled first since the

Map 5.9 Transportation Analysis Zone Boundaries



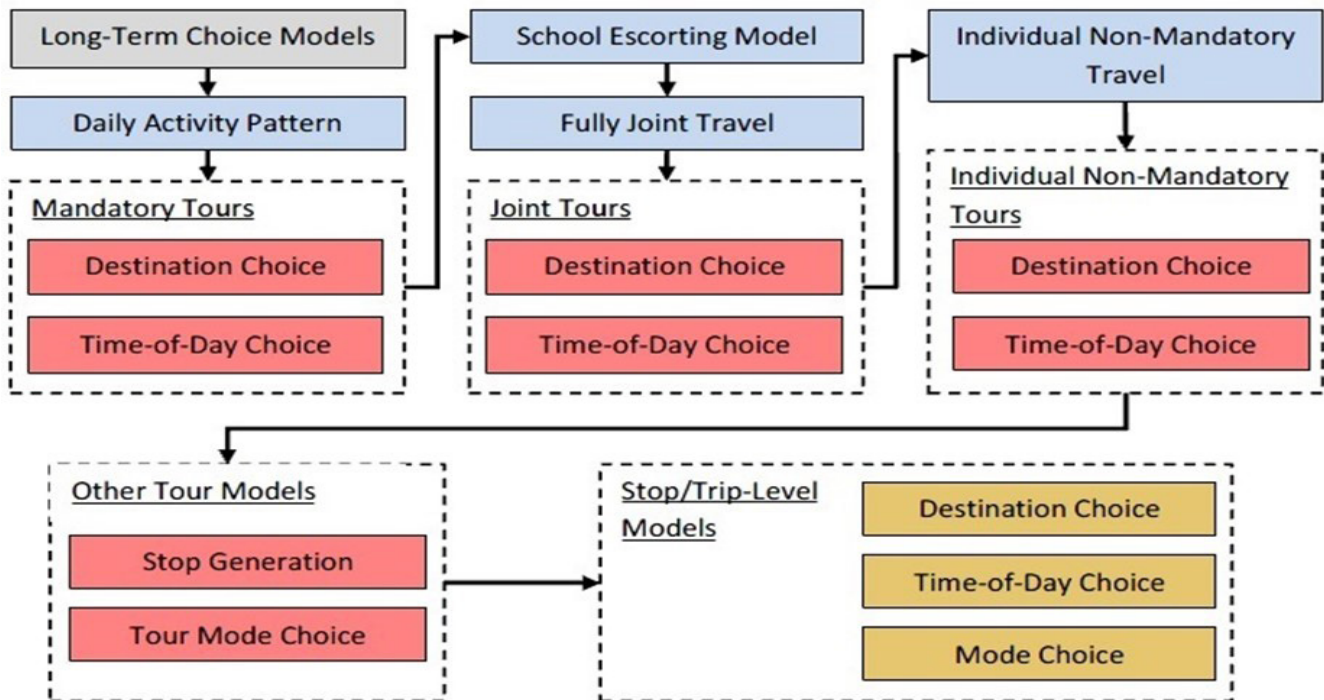
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outcome of these decisions influences other components of travel including mode choice and time availability for non-mandatory travel.

2. **Daily Activity Patterns:** The models in this category establish daily travel patterns at the individual level. Related to this concept is the understanding that each individual has a restricted amount of time per day that can be engaged in activities and associated travel. The daily activity patterns are simulated through a series of models including daily activity pattern, mandatory tour generation, school escorting, joint non-mandatory tour participation and individual non-mandatory tour generation models.
3. **Tour Level Models:** The models in this category incorporate interrelationship among trips that are components of a “tour” which typically departs from home, visits one or more activity locations, and then return home.

Hierarchical rules are established to identify the appropriate nature of the tour. For instance, tours that include a mandatory destination such as work or school are defined as a work-based tour irrespective of other destinations serviced as part of this tour. The tour-level models provide an improved framework over trip-based models to represent daily travel decisions since they account for previous and subsequent trips within a tour. Overall, tour-based models account for information on modes, time-of-day, group travel, and other characteristics of travel that are clearly interrelated across trips within a tour.

Figure 5.3 Metropolitan Council Active-Based Model Structure



Source: Metro Council Model Estimation and Validation Report, July 30, 2015

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Figure 5.4 TAZ 2015 and 2020

City of Shoreview Socio-Economic Data Summary in the Regional Model						
TAZ	2015			2020		
	Population	Households	Employment	Population	Households	Employment
1696	1,046	498	2,473	2,129	876	2,753
1697	2,231	953	241	2,155	927	284
1741	1,713	712	1,020	1,688	757	1,097
1742	843	312	198	822	336	200
1743	2,484	1,187	2,768	2,642	1,205	2,801
1744	115	51	836	117	57	945
1745	938	499	1,290	1,426	711	1,394
1746	1,594	758	156	1,637	782	185
1747	1,607	613	868	1,582	648	726
1748	1,266	493	163	1,229	514	184
1749	2,013	890	311	1,934	915	312
1750	1,812	784	1,848	1,907	800	1,933
1751	2,081	816	52	1,931	804	44
1752	2,199	864	132	2,561	1,012	198
1753	1,118	444	28	1,073	422	45
1754*	2,346	933	28	2,294	919	55
1757*	272	99	25	273	115	44
Total	25,678	10,906	12,437	27,400	11,800	13,200
MC Statement	N/A			27,400	11,800	13,200

*TAZs partially within the City; Only include the data within the City.

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Figure 5.5 TAZ 2030 and 2040

City of Shoreview Socio-Economic Data Summary in the Regional Model						
TAZ	2030			2040		
	Population	Households	Employment	Population	Households	Employment
1696	2,129	891	2,941	2,129	898	3,066
1697	2,155	943	303	2,155	951	316
1741	1,688	770	1,172	1,688	776	1,222
1742	822	342	214	822	345	223
1743	2,642	1,227	2,989	2,642	1,237	3,118
1744	117	58	1,009	117	58	1,052
1745	1,426	723	1,489	1,426	729	1,552
1746	1,637	795	198	1,637	802	206
1747	1,582	659	776	1,582	664	809
1748	1,229	523	197	1,229	527	205
1749	1,934	930	334	1,934	938	348
1750	1,907	813	2,065	1,909	820	2,153
1751	1,931	817	47	1,931	824	49
1752	2,561	1,029	212	2,561	1,038	221
1753	1,073	479	48	1,073	433	50
1754*	2,294	884	59	2,294	942	61
1757*	273	117	47	273	118	49
Total	27,400	12,000	14,100	27,400	12,100	14,700
MC Statement	27,400	12,000	14,100	27,400	12,100	14,700

* TAZs partially within the City; Only include the data within the City.

Figure 5.6 TAZ Change

City of Shoreview Socio-Economic Data Summary in the Regional Model						
TAZ	Change 2015-2040			Annual Change (%)		
	Population	Households	Employment	Population	Households	Employment
1696	1,083	400	593	4.1%	3.2%	1.0%
1697	-76	-2	75	-0.1%	0.0%	1.2%
1741	-25	64	202	-0.1%	0.4%	0.8%
1742	-21	33	25	-0.1%	0.4%	0.5%
1743	158	50	350	0.3%	0.2%	0.5%
1744	2	7	216	0.1%	0.5%	1.0%
1745	488	230	262	2.1%	1.8%	0.8%
1746	43	44	50	0.1%	0.2%	1.3%
1747	-25	51	-59	-0.1%	0.3%	-0.3%
1748	-37	34	42	-0.1%	0.3%	1.0%
1749	-79	48	37	-0.2%	0.2%	0.5%
1750	95	36	305	0.2%	0.2%	0.7%
1751	-150	8	-3	-0.3%	0.0%	-0.2%
1752	362	174	89	0.7%	0.8%	2.7%
1753	-45	-11	22	-0.2%	-0.1%	3.1%
1754*	-52	9	33	-0.1%	0.0%	4.7%
1757*	1	19	24	0.0%	0.8%	3.8%
Total	1722	1,194	2,263	0.3%	0.4%	0.7%

*TAZs partially within the City; Only include the data within the City.

4. Trip/Stop Level Models: Within each tour, non-primary stops are modeled as intermediate stops. For tours with intermediate stops, separate models that capture the destination of the stop, the mode of travel, and the time-of-day of travel are developed.

These models are constrained by the choices already made at the tour-level and therefore, allow for a more realistic decision-making process for every individual trip.

Safety Assessment

The Minnesota Department of Transportation’s crash mapping software (MnCMAT) was used to identify crash locations and statistics for the City of Shoreview. A four year reporting period beginning January

Map 5.10 Crash Data on City Roads

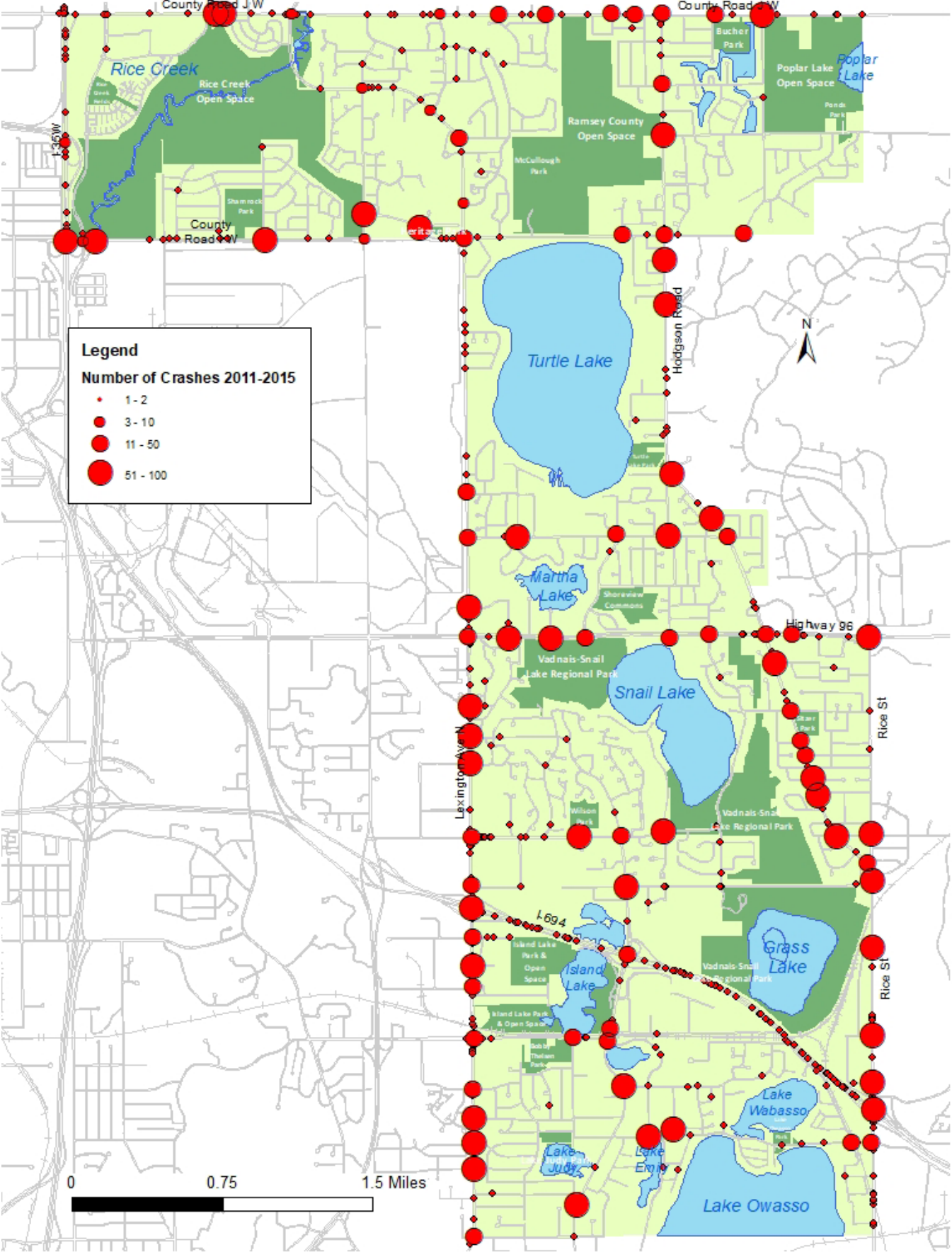


Figure 5.7 Roadway Capacity Guidelines

Generalized Average Daily Traffic Thresholds for Capacity		
Facility Type	Number of Lanes	Daily Capacity
Metered Interstate Freeway	8	147,000
	6	110,000
	4	73,000
Un-Metered Interstate Freeway	6	99,000
	4	66,000
Expressway	6	62,000
	4	41,000
Divided Arterial	6	54,000
	4	36,000
	2	18,000
Un-Divided Arterial	6	48,000
	4	32,000
	2	16,000
Collector	4	21,000
	2	10,000

Note: Estimated based on freeway daily capacity in HCM and hourly capacity in the Metro Council ABM model. The City of Shoreview is designated as a suburban/developing area type (along with developed, rural, business, and residential cores).

I, 2011 and ending December 31, 2015 was utilized in this assessment. Reported crashes during this time period are illustrated on **Map 5.10**.

Overall, the crash frequency on local City streets is relatively low. The vast majority of crashes occur along I-694, I-35W, and County Roads. A more rigorous investigation of crash rates, types, and severity would be necessary to identify potential corrective measures. As improvements in these corridors and intersections are considered, these safety concerns should be explored more thoroughly.

Capacity Assessment

An assessment of the existing and forecast operational concerns through the community has been completed using the 2040 traffic forecast data, crash data, and coordination with Ramsey County and MnDOT.

Existing and Forecast Congestion Issues

In an effort to assess capacity deficiencies, existing (2015) and forecast (2040) traffic volumes were

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reviewed along with design capacity guidelines. For example, traffic operations data indicates that two-lane roadways begin to experience noticeable problems once traffic volumes exceed approximately 10,000 trips per day. Capacity thresholds are based on roadway type (see **Figure 5.7** and **Figure 5.8**).

The capacity and level of service (LOS) thresholds presented in **Figure 5.7** through **Figure 5.11** were used to identify segments of roadway that are either nearing capacity or exceeding capacity of the roadway type. **Map 5.11** and **Map 5.12** illustrate the existing (2015) and future (2040) capacity deficiencies within the community. The capacity thresholds do not indicate the congestion that may occur at intersections, as a result of relative traffic flow and movements. Capacity as used here, is a measure only of the adequacy of the number of lanes to carry a daily volume of vehicles.

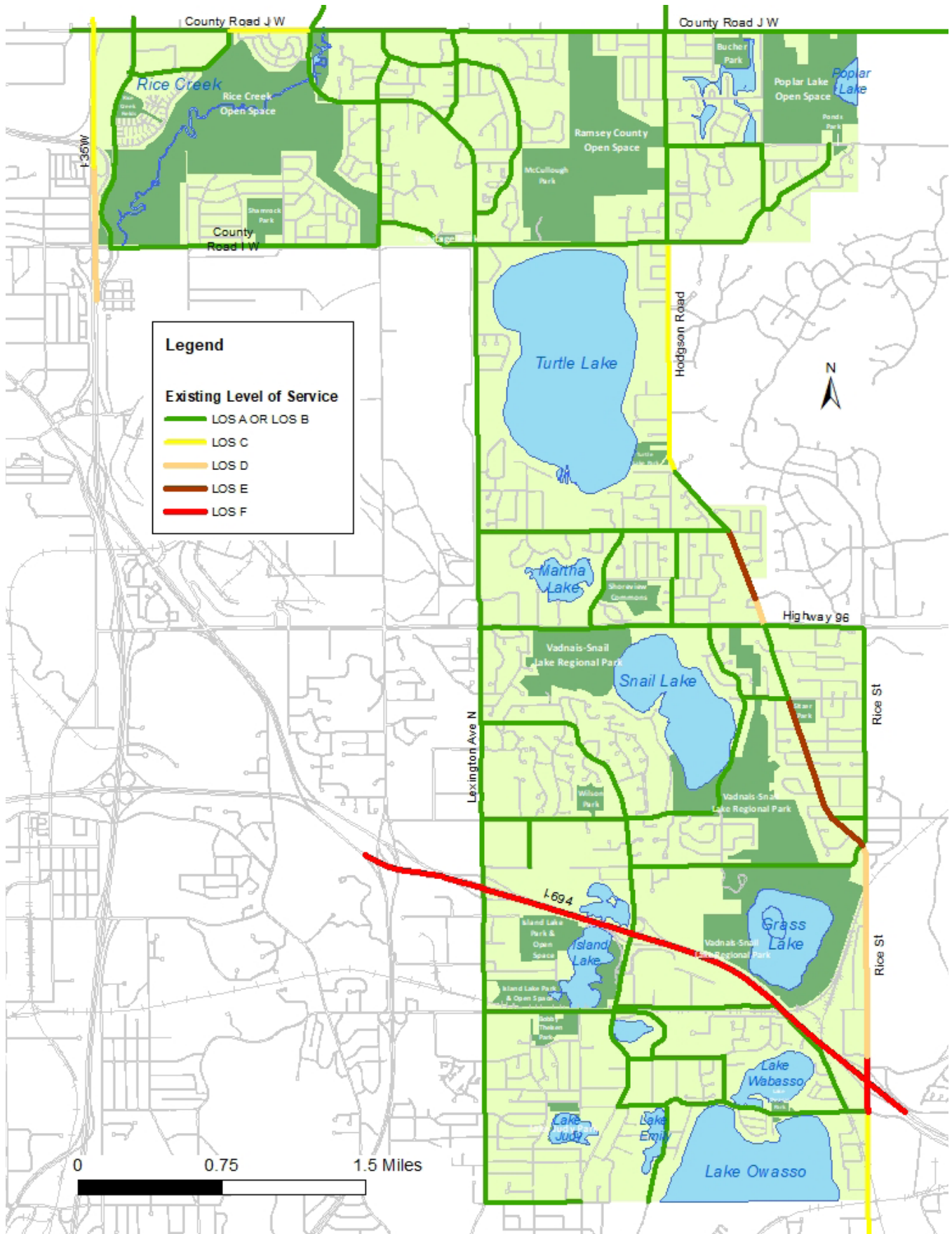
The criteria that is used to determine the LOS grading scale is described below:

Figure 5.8 Roadway Thresholds for Level of Service

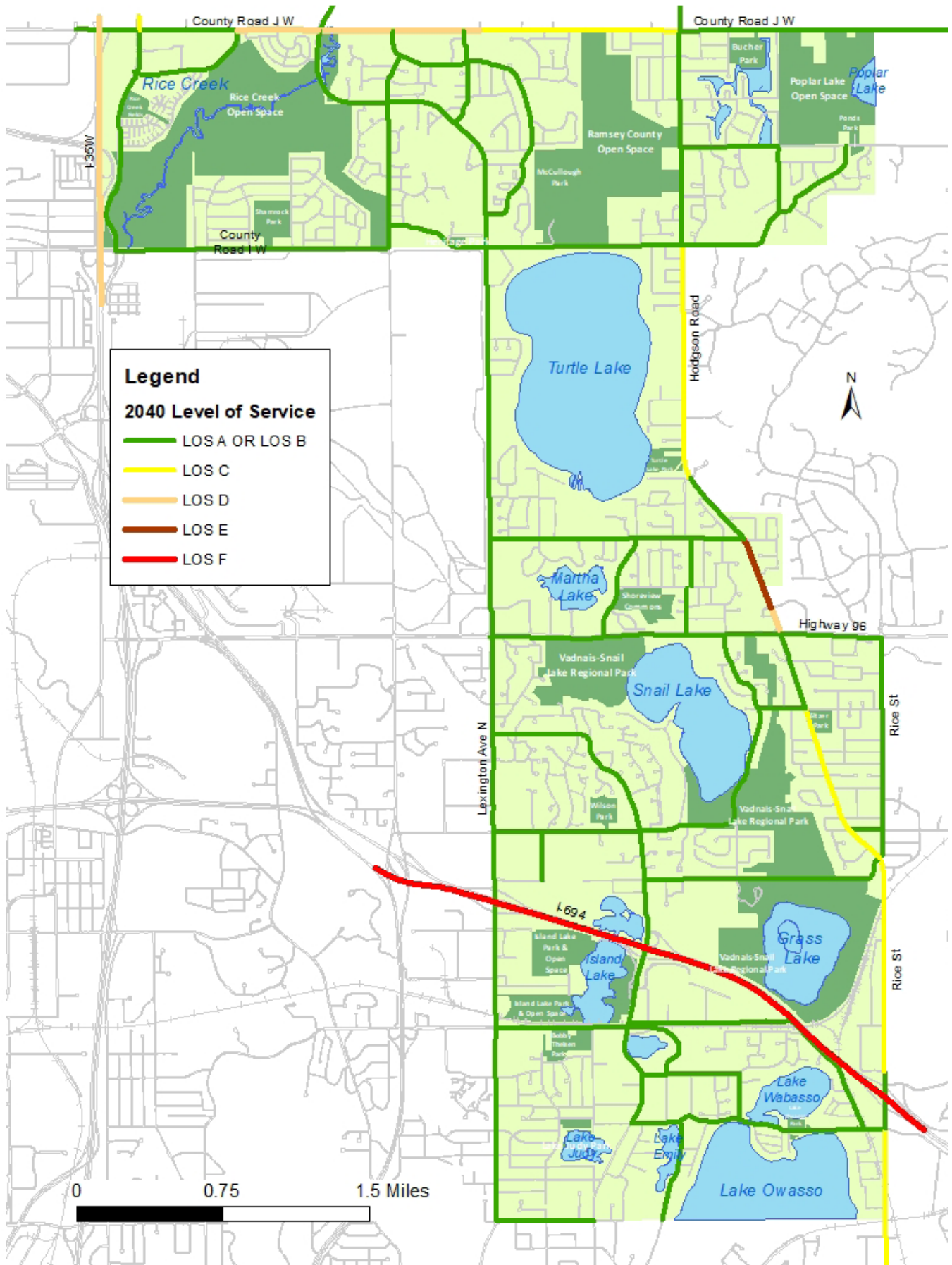
Generalized Average Daily Traffic Lower Limit Thresholds for by Level of Service						
Facility Type	Number of Lanes	B	C	D	E	F
Metered Interstate Freeway	8	95,600	110,000	125,000	140,000	154,000
	6	71,500	82,500	93,500	105,000	116,000
	4	47,500	54,800	62,100	69,400	76,700
Un-Metered Interstate Freeway	6	64,400	74,300	84,200	94,100	104,000
	4	42,900	49,500	56,100	62,700	69,300
Expressway	6	40,300	46,500	52,700	58,900	65,100
	4	26,700	30,800	34,900	39,000	43,100
Divided Arterial	6	35,100	40,500	45,900	51,300	56,700
	4	23,400	27,000	30,600	34,200	37,800
	2	11,700	13,500	15,300	17,100	18,900
Un-Divided Arterial	6	31,200	36,000	40,800	45,600	50,400
	4	20,800	24,000	27,200	30,400	33,600
	2	10,400	12,000	13,600	15,200	16,800
Collector	4	13,700	15,800	17,900	20,000	22,100
	2	6,500	7,500	8,500	9,500	10,500
V/C Ratio		0.65	0.75	0.85	0.95	1.05

Note: Estimated based on freeway daily capacity in HCM and hourly capacity in the Metro Council ABM model. The City of Shoreview is designated as a suburban/developing area type (along with developed, rural, business, and residential cores).

Map 5.11 Existing Level of Service



Map 5.12 Projected 2040 Level of Service



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- » **Level A** – Free-flow operation, ability to maneuver is unimpeded, and travel speeds exceed 85% of the base free-flow speed.
- » **Level B** – Reasonable free flow, ability to maneuver is only slightly restricted, and travel speeds between 67% and 85% of the base free-flow speed.
- » **Level C** – Stable operation, ability to maneuver more restricted than LOS B, queues may form behind any significant blockage contributing to lower travel speeds, and travel speed is between 50% and 67% of the base free-flow speed.

Figure 5.9 Planning Level Capacity Existing

Planning Level Capacity Analysis Summary for Segments with Poor Level of Service (Existing)				
Route and Name	Location	Length (Mile)	V/C Ratio	Level of Service
I-35W	S of US 10	0.69	0.85	D
I-35W	S of CR J	0.78	0.81	C
I-694	E of Victoria St	1.52	1.55	F
I-694	E of Lexington Ave	0.78	1.53	F
I-694	E o Snelling Ave	0.87	1.58	F
CSAH 32 (CR J)	W of Lexington Ave	0.41	0.81	C
CSAH 49 (Hodgson Rd)	S of CR I	1.20	0.78	C
CSAH 49 (Hodgson Rd)	S of Tanglewood Dr	0.06	0.96	E
CSAH 49 (Hodgson Rd)	N of Village Ct	0.32	0.96	E
CSAH 49 (Hodgson Rd)	N of CSAH 96	0.15	0.88	D
CSAH 49 (Hodgson Rd)	S of Snail Lake Rd	0.67	0.95	E
CSAH 49 (Hodgson Rd)	S of CR F	0.21	0.95	E
CSAH 49 (Rice St)	N of Vadnais Blvd	1.10	0.88	D
CSAH 49 (Rice St)	S of Vadnais Blvd	0.29	1.13	F
CSAH 49 (Rice St)	S of Owasso Blvd	0.76	0.80	C
Total		9.80		

- » **Level D** – Speeds decline with increasing flows, density increases more quickly, freedom to maneuver is more noticeably limited, minor incidents create queuing, and travel speed is between 40% and 50% of base free-flow speed.
- » **Level E** – Operation near or at capacity, no usable gaps in the traffic stream, operations extremely volatile, any disruption causes queuing, and travel speed is between 30% and 40% of base free-flow speed.

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Figure 5.10 Planning Level Capacity 2040

Planning Level Capacity Analysis Summary for Segments with Poor Level of Service (2040)				
Route and Name	Location	Length (Mile)	V/C Ratio	Level of Service
I-35W	S of US 10	0.69	0.91	D
I-35W	S of CR J	0.78	0.92	D
I-694	& 10 E of CSAH 52	1.52	1.27	F
I-694	& 10 E of TH 51	0.87	1.26	F
I-694	& 10 W of CSAH 52	0.78	1.27	F
CSAH 32 (CR J)	W of Hodgson Rd	1.02	0.76	C
CSAH 32 (CR J)	E of Lexington Ave	0.83	0.85	D
CSAH 32 (CR J)	W of Lexington Ave	0.41	0.94	D
CSAH 49 (Hodgson Rd)	S of CR I	1.20	0.78	C
CSAH 49 (Hodgson Rd)	S of Tanglewood Dr	0.06	0.98	E
CSAH 49 (Hodgson Rd)	N of Village Ct	0.32	0.98	E
CSAH 49 (Hodgson Rd)	N of CSAH 96	0.15	0.90	D
CSAH 49 (Hodgson Rd)	S of Snail Lake Rd	0.67	0.80	C
CSAH 49 (Hodgson Rd)	S of CR F	0.21	0.79	C
CSAH 49 (Rice St)	N of Vadnais Blvd	1.10	0.80	C
CSAH 49 (Rice St)	S of Owasso Blvd	0.76	0.85	C
CSAH 23 (Naples St)	N of CR J	0.07	0.80	C
Total			11.43	

- » **Level F** – Breakdown in flow, queues form behind breakdown points, demand exceeds capacity, travel speed is 30% or less of base free-flow speed.

As shown in **Figure 5.9, Figure 5.10, Map 5.11** and **Map 5.12**, portions of two roadways within the City currently operate at or near the existing capacity of these facilities. These roadways are CSAH 49 – Hodgson Road and Rice Street and I-694.

These capacity deficiencies result in increased congestion, reduced travel speeds, and increase travel times. Furthermore, roadway congestion causes drivers to seek out alternative routes, which places additional traffic on county and city streets that may not be designed to handle such a function and

Figure 5.11 Capacity Deficiencies Comparison

Roadway Class	Level of Service	Length (Mile)		Level of Service	Length (Mile)	
		Existing	2040		Existing	2040
Freeway	E	0.00	0.00	C	0.78	0.00
	F	3.17	3.17	D	0.69	1.47
	Subtotal	3.17	3.17	Subtotal	1.47	1.47
Arterial	E	1.25	0.53	C	2.37	2.61
	F	0.29	0.41	D	1.25	4.00
	Subtotal	1.54	0.94	Subtotal	3.62	6.61
Collector Road	E	0.00	0.00	C	0.00	0.00
	F	0.00	0.00	D	0.00	0.64
	Subtotal	0.00	0.00	Subtotal	0.00	0.64
Total		4.72	4.11		5.09	8.72

number of trips.

In 2040, as shown in **Figure 5.9, Figure 5.10, Map 5.11** and **Map 5.12**, portions of I-694 and a portion of CSAH 49 – Hodgson Road continue to operate at or near capacity.

As shown in **Figure 5.11**, there is a decrease of 1.17 miles of congested roadways (LOS E and F) and an increase of 2.80 miles of roadway into the LOS C and D range which are not yet, but trending to roadway capacity. Congestion occurring on the regional roadway system impacts the local road system, and this is exacerbated by the City’s dependence on a limited number of arterial streets, which are carrying an increasing amount of regional traffic. The development of additional north-south and east-west arterials in Shoreview or the adjacent communities does not appear to be practical due to natural features and existing land use patterns.

No roadways under the City of Shoreview’s jurisdiction currently have or are projected to have capacity deficiencies. The local roadway system has been designed to serve local transportation needs. There are, however, conflicts caused when regional traffic uses local roads as alternative routes. The local roads used as relievers to the regional system are typically those that serve a collector roadway function. Residential property owners along these routes recognize the increase in traffic when congestion on the regional system occurs. This increase in traffic can create conflicts with those residential land uses. The City recognizes that collector roads may be used in this manner, and has identified some methods that could be employed to discourage the use of these roadways by regional traffic. These

methods include access management, signage and working with regional transportation partners on potential improvements to regional roadways.

Access Management

Properties must be provided access via public roadways; however, access must be managed to ensure the roadway functions according to the roadway classification. As the number of access points on a roadway increases, capacity and safety of these roads can diminish. Access control can be accomplished by developing spacing guidelines, constructing medians, restricting median cuts and crossings or restricting the location and number of land access points. **Figure 5.12** identifies the relationship between access points and crash rates.

The Minnesota Department of Transportation Access Management Guidelines are included in the appendix and serve to guide the City.

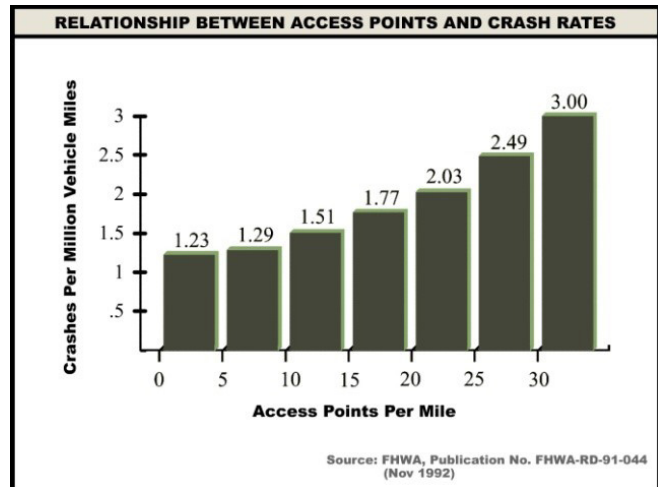
Planned Improvements

The regional transportation system within the City is under the jurisdiction of MnDOT and Ramsey County, and these road authorities control the function, design, maintenance and improvement of these roadways. Many of transportation issues within the community relate to the regional transportation system, including issues such as interstate highway access, signalization, road design, speed, access management and congestion. When the need arises or when opportunities exist, the City works with the appropriate agencies to resolve these issues. Following is a list and brief description of planned transportation improvements within or adjacent to the City of Shoreview that will benefit area residents and will be carried out by MnDOT or Ramsey County. In some cases, funding for these improvements has not been identified and construction is not currently scheduled and is dependent upon funding availability. Improvements that were included in the 2040 traffic forecast includes:

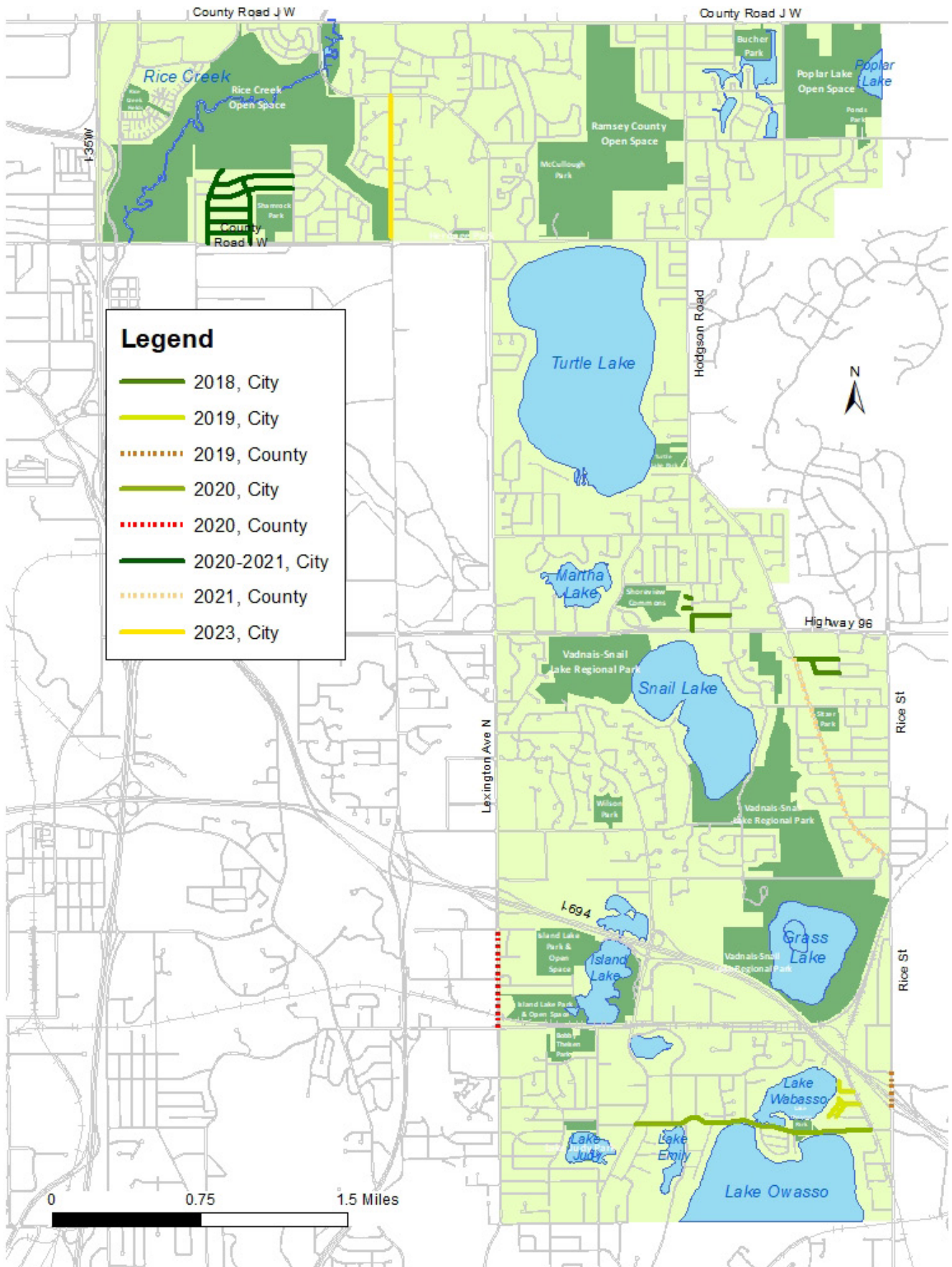
- » I-35W Expansion Plan. This capacity expansion project would involve adding MNPass lanes along both southbound and northbound directions of I-35W. The project is projected to start in 2019 and be completed by 2022.
- » Rice Street/I-694 Interchange Reconstruction – Reconstruct Rice Street (CSAH 49), intersections, and bridge over I-694 between Vadnais Boulevard and Owasso Boulevard North. The project is projected to start in 2019 and be completed by 2020.
- » Hodgson Road Reconstruction (CSAH 49). Reconstruction of Hodgson Road and addition of a center turn lane between Gramsie Road and Bridge Street. The project is anticipated to start in 2020 and be completed in 2021.

The City will maintain the network of city streets and make improvements to address safety and

Figure 5.12 Access Management



Map 5.13 Road Projects



capacity as needed. The City has an aging roadway network that requires on-going maintenance. The City has a pavement management program to monitor the condition of local road and the City has adopted a street renewal program policy to guide the replacement and rehabilitation of local streets. The Capital Improvement Program is reviewed and updated annually to identify road maintenance expenditures over a rolling 5-year time frame. Some neighborhood roadways will be reconstructed in the planning time frame. The City has recently identified the remaining substandard local street areas and tentatively programmed those for reconstruction over the next five years (2018-2023). These streets are depicted on **Map 5.13**.

Transit

Metro Transit routinely monitors transit ridership and adjusts the number and frequency of routes based on transit demand. No significant changes in transit service are planned within the City of Shoreview.

Pedestrian and Bicycle Facilities

The City has completed the trail improvements identified in the adopted 1988 Basic Level of Service plan. That trail network is intended to provide an “arterial” trail system, with neighborhood connections. The existing system provides trails along most arterials and collector streets, and connects neighborhoods to community destinations, parks, schools, regional trails and open space. Transportation infrastructure can provide for and encourage active transportation (walking, cycling), which is a key component of active living. The City will continue to strive for a connected, accessible, and safe trail system that will promote everyday use of these facilities, which will result in active living and better health for the community.

Aviation

Although two of the City’s local lakes are designated seaplane lakes, use by seaplanes on these lakes is minimal. No known conflicts between lake users and seaplanes are occurring.

Private Streets

Maintenance and potential replacement of private streets could become an issue as the existing infrastructure ages and requires increased maintenance. The City anticipates the property owners may request that the City accept responsibility for these streets, including them into the public road system. The City will consider transferring jurisdiction if it is determined that the private street meets the requirements adopted by the City Council. If streets do not meet the requirements, the property owners could request the City complete a capital improvement project with the potential for assessments to cover the costs associated with the improvement. The improved roadway would need to meet the requirements adopted by the City Council and become part of the public road system.

Active Living

Land Use barriers to active living exist in the community due to the existing development pattern, the transportation network and lifestyles. Current studies have found that there is a strong association between land use, automobile dependency, the level of a person’s physical activity and their health. The

evidence indicates that automobile oriented land use policies reduce transportation choice, negatively affect air quality and safety and discourages physical activity. Transportation policies that support accessibility and a multi-modal transportation network have been found to encourage active living. Accessibility planning focuses on the degree to which people can easily get to destinations by a variety of transportation modes. Multi-modal transportation systems provide residents with greater choice and flexibility in deciding how to access activities and it also increases accessibility for residents who do not drive and/or are transit dependent.

Shoreview's past practices pertaining to transportation planning have recognized this multi-modal approach but have been challenged in developing a true multi-modal system due to roadway jurisdictions, the existing development pattern and limited transit service and use. The goals and policies that follow are intended to strengthen the system by improving accessibility for residents through transportation choice.

Technological and Societal Trends

Technology is having a profound impact on our transportation system and the mobility of people, goods and services. The expansion of the internet and improvements in computing and wireless communications have made virtual activities a viable alternative to many physical activities, which has changed travel demand patterns. Technology has expanded or created opportunities for telecommuting, social activities, education and healthcare through online engagement. Online retail shopping may result in decreased shopping trips but result in increased freight deliveries.

Transportation trends related to technology include:

- A. **Mobility as a Service.** Mobility as a Service (MaaS) is the idea of providing people with on-demand access to a wide range of public and private shared mobility services. It is competitive with the private automobile, and provides more convenient, efficient, and potentially less expensive travel options. MaaS enables a transition from the current paradigm, where vehicle ownership is all but required to enable people to freely move about their community, to a new mobility paradigm, where people have access to an array of transportation services, and where access can be purchased as needed. Examples include services such as Uber or Lyft.
- B. **Autonomous, and Connected Vehicles.** Autonomous vehicles (AV) and connected vehicle (CV) features are enabled by sensors, cameras, and radars, allowing vehicles to wirelessly exchange data with their surroundings. These features allow vehicles to communicate with each other (referred to as vehicle-to-vehicle or V2V communications), as well as communications between vehicles and roadway infrastructure, such as traffic signals and toll booths.
- C. **Zero Emission -** Zero emission vehicles emits no exhaust, gas or harmful pollutants to the environment. The shift towards Zero Emission Vehicles have implications to transportation infrastructure needs and climate change.
- D. **Smart Cities and Transportation Systems.** Smart Cities and Intelligent Transportation Systems

(ITS) provide the connected infrastructure that ultimately support the efficiency of a shared, electric, and autonomous transportation future.

GOALS POLICIES AND RECOMMENDED ACTIONS

The transportation goals and policies reflect Shoreview's vision of a multi-modal transportation system within the community and provides a guide for decision-makers regarding priorities and future investment. Listed below are a set of goals and policies that will be applied and assessed when considering potential infrastructure improvements throughout the City. These goals and policies are not ranked or presented in order of importance or need.

Transportation System

Goals

1. The transportation system shall facilitate the safe and efficient movement of people and goods within the City and to/from regional highway facilities.
2. To establish a multi-modal transportation system that accounts for all modes of travel.

Policies

- A. Transportation facilities will be planned to function in a manner compatible with adjacent land uses while also taking into consideration social, economic, equity, and environmental factors.
- B. The City will work cooperatively with all agencies including, but not limited to, federal, state, county, and regional agencies to improve the transportation system throughout the City.
- C. The transportation system should be designed and constructed to accommodate existing and future travel demand.
- D. The City will develop a transportation system that is cost-feasible, where expenditures satisfies a public transportation policy.
- E. The transportation system should integrate and achieve a mix of all transportation modes. Consequently, all projects should be evaluated as to the impact on each mode.
- F. Continue to establish and maintain an interconnected affordable network of roadways, transit services, and pedestrian facilities between neighborhoods, recreational and community facilities, employment and commercial centers.
- G. The City's land use development standards will promote safe and efficient access to the transportation system. New or redeveloped areas will be required to meet the requirements of the City and/or Ramsey County's access management plans in order to maintain safe and efficient operations on these roadways.
- H. Require the dedication or preservation of right-of-way consistent with adopted right-of-way standards when property is platted or subdivided, and work with landowners/developers during the site planning and platting process to implement safe and efficient roadway design.
- I. Support technology that provides opportunities to expand and utilize transportation and

mobility options.

Roadways

Goals

1. Provide a roadway system in which each roadway is designed and functions according to its travel demand and classification.
2. Provide safe traveling conditions on all streets through proper planning, design, and routine maintenance.
3. Address emerging trends (mobility as a service, autonomous vehicles, smart technology, etc) and incorporate as needed in transportation planning.

Policies

- A. Design local streets for actual traffic volumes and speed with consideration of pedestrian and bicycle users.
- B. Continue to serve regional traffic on the federal, state, and county road system while ensuring that local streets serve primarily local traffic.
- C. Improve travel safety and operations by managing property access to each classification of roadway consistent with its existing and planned function.
- D. Establish priorities for maintenance and reconstruction through the ongoing pavement management program.
- E. Review all plans for new development or redevelopment to determine their impact on the roadway system.
- F. Coordinate street improvements with County, Metropolitan, and State transportation departments, and surrounding communities.
- G. With the goal of preserving the community identity and linking neighborhoods together, consider incorporating complete street practices into road projects when street improvements are proposed and such practices are feasible. Complete streets are designed and operated to provide safe access for all users.
- H. Consider emerging trends that impact the City's transportation infrastructure when making investments into the system.

Recommended Actions

Programmed improvements

Programmed roadway improvements are included in the current City Improvement Program (CIP), County Transportation Improvement Program (TIP), the current Metropolitan Council Transportation Policy Plan (TPP), the State Transportation Improvement Program (STIP), and MnDOT Metro District Transportation System Plan (TSP). Several of these projects were discussed under the Planned Improvements portion of the Analysis of Future Needs section of this Transportation Chapter.

Other improvements

The City has identified the following roadway improvements as important to the continued functioning of the transportation system. The City recognizes that deficiencies in the regional transportation system impact the local road system, and that intergovernmental coordination is needed to address these regional issues in order to minimize impacts on the local street network:

1. Work with Ramsey County to improve the intersection of Hamline Avenue and County Road 1 when the City completes the Reconstruction of Hamline Avenue.
2. Improvements to Victoria Street south of County Road E, Rice Street south of Highway 96 to I-694, and County Road E between Lexington and Victoria Street to facilitate completion of gaps in the regional trail system.
3. The City will work with Ramsey County to determine suitable upgrades to and management authority for Soo Street/County Road E between Rice Street and Victoria. With the closure of the County Public Works facility, the existing road jurisdiction may not best reflect the current and future use of these streets.
 - A. Trail improvements along the south and west sides of Soo Street, between Owasso Boulevard North and Cardigan Road should be considered.

Access Management

The City can control access onto local roadways. However, access onto other roadways becomes the responsibility of the state or county. Access onto local roadways is managed through local subdivision and zoning standards. When the City receives a development proposal that proposes access onto a roadway under the jurisdiction of the state or county, the City will coordinate the review of these proposals with the appropriate agencies, and encourage that access to arterials is managed to minimize safety and congestion impacts. The City will also participate in the design process with the appropriate agency when roadways are proposed for construction or reconstruction to ensure proper design and location of access points.

Transit

Goals

1. Encourage and advocate transit use through improvements to accessibility, service, and choice.
2. To improve the quality of, and increase the emphasis on transit use and pedestrian travel for all ages and abilities.

Policies

- A. Continue to work with the Metropolitan Council and Metro Transit to provide adequate transit service that serves the needs of the City's residents and business community.
- B. Evaluate the need for transit during the review of development/redevelopment proposals.

- C. Reduce travel demand by encouraging programs that provide alternatives to single occupant vehicles.
- D. Encourage collaboration with surrounding communities on the need for and location of improved and/or expanded transit services, including on-demand and circulator services.
- E. Maintain existing City trail and walkway infrastructure to allow access to transit services for all ages and abilities.

Recommended Actions

The use of transit will be supported as a transportation mode to reduce congestion on roadways with the City and to provide an alternative form of transportation. The design of the transit system should be attractive to potential users by providing alternative modes that are desirable, easily accessible, cost efficient and user friendly. Since the City does not have direct authority in controlling the availability of transit within the community, it is necessary to work with transit operators, the business community and residents to develop a cost-effective system that meets the community's needs. Actions the City may take include:

1. Enacting land use controls which provide incentives to developers and businesses to use travel demand management, car-pooling and transit.
2. Publicizing the transit opportunities available to residents of all ages and abilities and businesses.
3. Work with Metro Transit to expand park-and-ride lot locations and to ensure viable transportation options. This includes working with Metro-Transit on the extension of the A-Line (bus rapid transit) along Lexington Avenue to the Rice Creek Corporate Park.
4. Participate in discussions regarding commuter rail.
5. Market available transit opportunities to our residents and business community.
6. Explore funding sources that could assist with the costs associated with on-demand or circulator route transit service.
7. Identify other non-profit or volunteer services that provide transportation services to our residents.
8. Invest in technological improvements to improve capacity, safety, and accessibility.

Travel Demand Management

The City supports travel demand management as a way to alleviate congestion on roadways within the City. However, since the majority of the City is developed, the City cannot rely on the development review process, with the exception of Policy Development Areas (PDA's), to encourage transit-friendly design or to require employer participation in travel demand management. The City will work with businesses within the community to encourage the development of voluntary travel demand management programs. Development plans will also be reviewed to ensure transit is accommodated where it is feasible.

Rail Service

Goals

- I. Maintain a rail system that serves the needs of the City's residents and businesses.

Policies

- A. Work with the railroad companies, MnDOT Rail Office, Ramsey County Regional Railroad Authority, and other agencies to reduce conflicts with vehicular and other travel modes and land uses.
- B. Monitor the progress and participate, as appropriate, in the planning of passenger rail services such as commuter and light rail.

Recommended Actions

Railways in the City generally provide for movement of goods. There are no lines or spurs that directly serve industrial areas or specific businesses. The location of the lines does affect and isolate neighborhoods. The City will continue to observe the impact of the railways and will work to mitigate the impact that the lines have on residents and businesses. The City will work with the railroads to minimize conflicts between the railroad operations and existing land uses.

Trails, Bikeways, and Walkways

Goals

1. Develop an integrated system of trails and walkways that promotes active living and provides efficient links to City neighborhoods, transit routes, employment nodes, medical services, food stores including natural and organic, important community destinations, parks, schools, and regional trails, including those regional and local trails and walkways in adjacent municipalities.
2. Maintain the existing trail system including vegetation management, snow removal and upkeep. As the existing system ages, maintenance of the system will be increasingly important in order for the system to remain a valued public infrastructure.
3. The emphasis for future trail improvements must strike a balance between building new arterial trail segments, expanding neighborhood connections and to properly maintain existing trails.

Policies

- A. Provide trails or walkways along all minor arterial, collector, and local collector streets.
- B. Provide off-street trails through city and regional parks and open space where feasible and appropriate.
- C. Include future trail upgrades and replacements in the City's Capital Improvement Program budgeting process.
- D. Consider trail and walkway connections when reviewing proposals for development and

- redevelopment of land within the City.
- E. Continue to work with regional and county agencies, and adjacent communities to improve linkages to both regional and local trails in adjacent municipalities that can provide both recreational and commuting benefits.
 - F. Incorporate trail and walkway construction with roadway improvement projects. Corridor analysis will be a part of each road project in which the City is involved.
 - G. The City will continue to strongly advocate for trails, bikeways and walkways with other agencies of government, including the school districts to promote safe routes to schools.
 - H. The City will organize and support group events that focus attention on the trail system.
 - I. The City will work with Ramsey County to review opportunities for off-street trails and crossings that provide connections to neighborhoods and County parks and open space.

Recommended Actions

The City has essentially completed the trail system infrastructure that was outlined in the 1988 Master Trail Plan. Gaps in the system exist and are listed below in no priority order:

1. County Road 49 (Hodgson/Rice) – County Road 96 to Owasso Boulevard North
2. County Road I - Snelling Avenue to Lexington Avenue
3. Victoria Street - Arbogast Street to County Road D
4. County Road E/ Soo Street - Victoria Street to Owasso Boulevard North
5. Turtle Lake Road - Sherwood Road to County Road J
6. Hamline Avenue - County Road I to Lexington Ave

The City will continuously evaluate the trail system to determine opportune times to complete improvements. Possible additional projects include:

1. Evaluate the City's Bikeway and Trails recommended trail improvements provided by the City's Bikeway and Trails Committee to determine feasibility.
2. Participate in discussions with Ramsey County concerning possible solutions to address trail segments in Vadnais-Snail Lake Regional Park that are susceptible to flooding.
3. Participate in planning and design efforts by other jurisdictions (e.g., adjacent communities, Ramsey County, Anoka County, and MnDOT) to ensure pedestrian and bicycle facility needs are addressed on projects within and adjacent to Shoreview.
4. Partner with Ramsey County, when possible, to fulfill the goals and visions listed in the County's Pedestrian and Bicycle Plan that was completed in 2014-15.
5. The Metropolitan Council has identified a future regional trail along Lexington Avenue. The City has constructed walkways and trails along the length of Lexington Avenue that can be incorporated into a regional trail. The traffic volumes carried by Lexington Avenue may not provide the best available environment for commuter and recreational bicyclists.
6. Develop an ADA (American with Disabilities Act) transition plan for the City's trail system

infrastructure and complete improvements as recommended in the plan. Especially during road projects that could include more access at “T” intersections.

7. Evaluate the safety of trail crossings at arterial and collector roads to improve the usability of the trail system.
8. Review cost numbers of trail improvements and maintenance that could potential correspond with road projects that are within the vicinity of the road project.

Expansion of the trail network can improve connections to the regional trail system, public facilities, commercial nodes, transit facilities, and neighborhoods. The City will evaluate development proposals and require trail and walkways improvements as deemed necessary to expand the network.

The City expects that during the period of this Comprehensive Plan, major road projects may occur that could affect the City trail and walkway system. These projects may provide opportunity to expand and enhance trail connections within the City, but improvements for motorized traffic can also create a challenging design environment for pedestrian and cyclist friendly features. The City will continue to work with the appropriate agencies on these projects to address pedestrian and cyclist needs.

Aviation

Goals

1. To protect the general airspace for the region’s public aviation facilities.
2. Regulate and ensure the compatibility of land use (vertical obstructions) that could impede air traffic

Policies

- A. Notify the MnDOT Commissioner and FAA of any sponsor who proposes any construction or alteration that would exceed a height of 200 feet above ground level at the site, or any construction or alteration of greater height than an imaginary surface extending upward and outward at a slope 100:1 from the nearest point of the nearest runway of a public airport at least 30 days in advance.
- B. Monitor the progress and participate, as appropriate, in the planning process of any enhancements at the Blaine-Anoka County Airport.

Recommended Action

1. Blaine-Anoka County Airport. The City may participate in discussions regarding any future improvements of this airport to learn more about potential impacts within the City of Shoreview. If necessary, the City may also develop land use controls for land within the safety zones. Currently a zoning board is being assembled that includes representation from the City Shoreview.
2. Seaplane Lakes. The City will monitor the use of Turtle Lake and Lake Owasso by seaplanes. If conflicts are present, the City may request MnDOT review seaplane operations on these lakes to establish regulations controlling the use.

Appendix: MnDOT Access Management Guidelines

Category	Area or Facility Type	Typical Functional Class	Public Street Spacing		Signal Spacing
			Public Street Spacing	Secondary Intersection	
1	High-Priority Interregional Corridors and Interstate System (IRCs)				
1F	Interstate Freeway	Principal Arterials	Interchange Access Only		-
1AF	Non-Interstate Freeway		Interchange Access Only (see Section 3.27 for interim spacing)		See Section 3.2.5 for Signalization on Interregional Corridors
1A	Rural		1 mile	½ mile	
1B	Urban/ Urbanizing		½ mile	¼ mile	
1C	Urban Core		300-600 feet dependent upon block length		
2	Medium-Priority Interregional Corridors				
2AF	Non-Interstate Freeway	Principal Arterials	0.1%	0.2%	1.3%
2A	Rural		0.0%	0.3%	-0.3%
2B	Urban/ Urbanizing		-0.1%	0.3%	1.0%
2C	Urban Core		-0.1%	0.2%	0.5%
3	Regional Corridors				
3AF	Non-Interstate Freeway	Principal and Minor Arterials	Interchange Access Only (See Section 3.2.7 for interim spacing)		Interim
3A	Rural		1 mile		See Section 3.2.5
3B	Urban/ Urbanizing		½ mile	¼ mile	½ mile
3C	Urban Core		300-600 feet, dependent upon block length		¼ mile

Appendix: MnDOT Access Management Guidelines

Category	Signal Spacing Guidance
Interregional Corridors and Interstate Highways	
<p>The interregional Corridor system identifies important statewide mobility corridors. On these highways, performance targets have been developed based on overall corridor speed. A traffic signal on one of these corridors represents a delay penalty or a reduction in the corridor speed; therefore, a new traffic signal on an Interregional Corridor should generally be avoided, if possible. When a district is considering a new signal on the Interregional Corridor, the Office of Investment Management is available to assist in calculating the impact of the signal on the overall corridor performance.</p>	
1F	All access to the interstate system is via interchanges. Signal spacing is not applicable.
1AF 2AF	<p>Full Access-Controlled Highways: All access to the highway system is via interchanges. Signal spacing is not applicable.</p> <p>Transitioning Highways: On IRC highways transitioning to a full freeway design, new traffic signals should not be considered unless no other economically feasible alternative is available. The new traffic signal should be considered interim, and a plan for its future removal should be developed. Wherever possible, the new traffic signal should be located where a future interchange is planned.</p>
1A 2A	<p>On rural IRC highways, a new traffic signal may be considered if warranted and if it does not lower the performance of the corridor below the target speed.</p> <p>However, if the signal is warranted and needed for safety, and a cost-effective alternative is not feasible, an interim signal may be considered, even though it would lower the performance of the corridor below the target speed.</p>
1B 2B	<p>On urban/urbanizing IRC highways, a new traffic signal may be considered if warranted, but it should be both uniformly-spaced and interconnected with other signals along the corridor to minimize the delay and to promote platoon flow.</p> <ul style="list-style-type: none"> • Category 1 B: The recommended signal spacing is one-half mile. The new traffic signal should be considered interim and a plan for its future removal should be developed. • Category 2B: The recommended signal spacing is one-half mile.

Note:

The information provided in this Mn/DOT Access Management Manual does not supersede the Mn/DOT Traffic Engineering Manual or the MN MUTCD.

Mn/DOT Traffic Engineering Manual:

“Traffic signals should not be installed unless one or more of the signal warrants in the Mn MUTCD are met, but the meeting of a warrant or warrants does not alone justify the installation of a signal.”

Appendix: MnDOT Access Management Guidelines

Category	Signal Spacing Guidance
Non – IRC Highways	
3AF 4AF	<p>Full- Access- Controlled Highways: All access to the highway system is via interchanges. Signal spacing is not applicable.</p> <p>Transitioning Highways: On highways transitioning to a full freeway design, new traffic signals should not be considered unless no other economically feasible alternative is available. The new traffic signal should be considered interim, and a plan for its future removal should be developed. Wherever possible, the new traffic signal should be located where a future interchange is planned.</p>
3A 4A 5A 6A	<p>Rural: Because traffic signals located in rural areas are generally isolated, they do not directly impact the spacing of at-grade public street connections. In these areas, traffic progression is not an issue and traffic signals are generally installed to address safety concerns.</p> <p>In rare cases, two or more traffic signals may be closely spaced (spacing of one-half mile or less) along an otherwise rural and unsignalized highway. These signals should be interconnected and timing should be coordinated to minimize the impact on the mobility of the through-traffic.</p>
1C 2C 3B & 3C 4B & 4C 5B & 5C 6B & 6C	<p>Urban/Urbanizing and Urban Core: The public street connection spacing policy is based on providing two-way coordinated traffic progression (or platoon flow) through a series of traffic signals. The policy balances mobility and accessibility and relies on the ability to provide uniform and interconnected traffic signal spacing.</p> <ul style="list-style-type: none"> • Categories 3B & 4B: The recommended signal spacing is one-half mile; • Categories 5B & 6B: The recommended signal spacing is one-quarter mile; • Category 1C: The recommended signal spacing is one-quarter mile. The new traffic signal should be considered an interim solution, and a plan for its future removal should be developed; • Categories 2C, 3C, 4C, & 5C: The recommended signal spacing is one-quarter mile; • Category 6C: The recommended signal spacing is one-eighth mile.
7	<p>By adopted plan.</p>

Note:

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MnDOT Traffic Engineering Manual:

“Traffic signals should not be installed unless one or more of the signal warrants in the Mn MUTCD are met, but the meeting of a warrant or warrants does not alone justify the installation of a signal.”