

Chapter 6. Transportation

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VISION FOR THE TRANSPORTATION SYSTEM

The purpose of the Transportation Plan is to provide the policy and program guidance needed to make appropriate transportation-related decisions when development occurs, when elements of the transportation system need to be upgraded, or when transportation problems need to be addressed. The Transportation Plan demonstrates how the City of Chaska will provide for an integrated transportation system that will serve the future needs of its residents and businesses, support the City's development plan, and complement the portion of the metropolitan transportation system that lies within the City's boundaries.

In addition, transit service is provided within the City and the City maintains a comprehensive system of trails and sidewalks. Maintaining and improving this multimodal transportation system is important to the ongoing economic health and quality of life in Chaska and it is needed for people to travel easily and safely to work and other destinations, to develop property, and to move goods. To accomplish this purpose, the Transportation Plan:

- » Defines the density and distribution of future land uses and their relationship to the proposed local transportation system.
- » Develops a functional hierarchy of streets and roads and defines their access to the regional system to ensure that they support the existing and anticipated development of the area, serve both short trips and trips to adjacent communities, and complement and support the metropolitan highway system.
- » Establishes a system improvement program that ensures higher priority projects are constructed first, maintains a consistent and coherent process, and discusses adequate funding for all needed improvements.
- » Identifies appropriate transit services and travel demand management strategies for implementation in Chaska to increase the number and proportion of people who use transit or share rides and reduce the peak level of demand on the transportation system.
- » Identifies strategies and policies that need to be implemented to properly integrate the trail system, including pedestrian and bicycle, with the future roadway and transit system, to ensure the provision of trails in a sequence consistent with the development of the roadway system, and to create a rational network of sidewalks.

REPORT ORGANIZATION

The Transportation Plan is organized into the following sections:

- » Roadway System Plan
- » Freight System Plan
- » Aviation Plan
- » Transit System Plan

- » Bicycle and Trail System Plan
- » Planning for the Future

ROADWAY SYSTEM PLAN

The roadway system in the City of Chaska is a significant component of its transportation network and an efficient and well-planned system will help the City meet the demands of its growing population and local economy. The City's roadway system features efficient access to the regional transportation roadway network with major corridors U.S. Trunk Highway 212 (TH 212), Trunk Highway 41 (TH 41), and several County State Aid-Highway (CSAH) and County Road (CR) corridors passing through the community. Industrial areas and economic centers in the City are located with nearby access to the metropolitan highway system, which reduces the impact of truck traffic on local roadways and minimizes the potential for disruption of neighborhoods. This section of the Transportation Plan will address key features of Chaska's roadway system including jurisdictional and functional classifications, roadway system improvements, existing and future traffic volumes, congestion, safety, and additional transportation components and policies.

JURISDICTIONAL CLASSIFICATION

Ownership of the City's roadway system is shared among the Minnesota Department of Transportation (MnDOT), Carver County, and the City of Chaska. MnDOT maintains the trunk highway system on behalf of the State of Minnesota, Carver County maintains the CSAH and CR systems, and the remaining public roadways within the City are owned and maintained by the City of Chaska. The three jurisdictions coordinate in the planning and improvement efforts of the roadway system in Chaska.

The jurisdictional classification system is intended to maintain a balance of responsibility among the three governing agencies. It is organized around the principle that the highest volume and limited access roadways that carry regional trips are primarily maintained by MnDOT, the intermediate volume roadways that carry medium length trips are maintained by Carver County, and the local street system that provides access to individual properties is maintained by the City of Chaska. Occasionally, due to growth and development, changes in travel patterns or construction of new facilities, the jurisdictional classification needs to be adjusted to reflect changes in the way certain roadways are utilized. Currently, Carver County and the City are considering the following jurisdictional transfers:

Potential Transfers from the City of Chaska to Carver County:

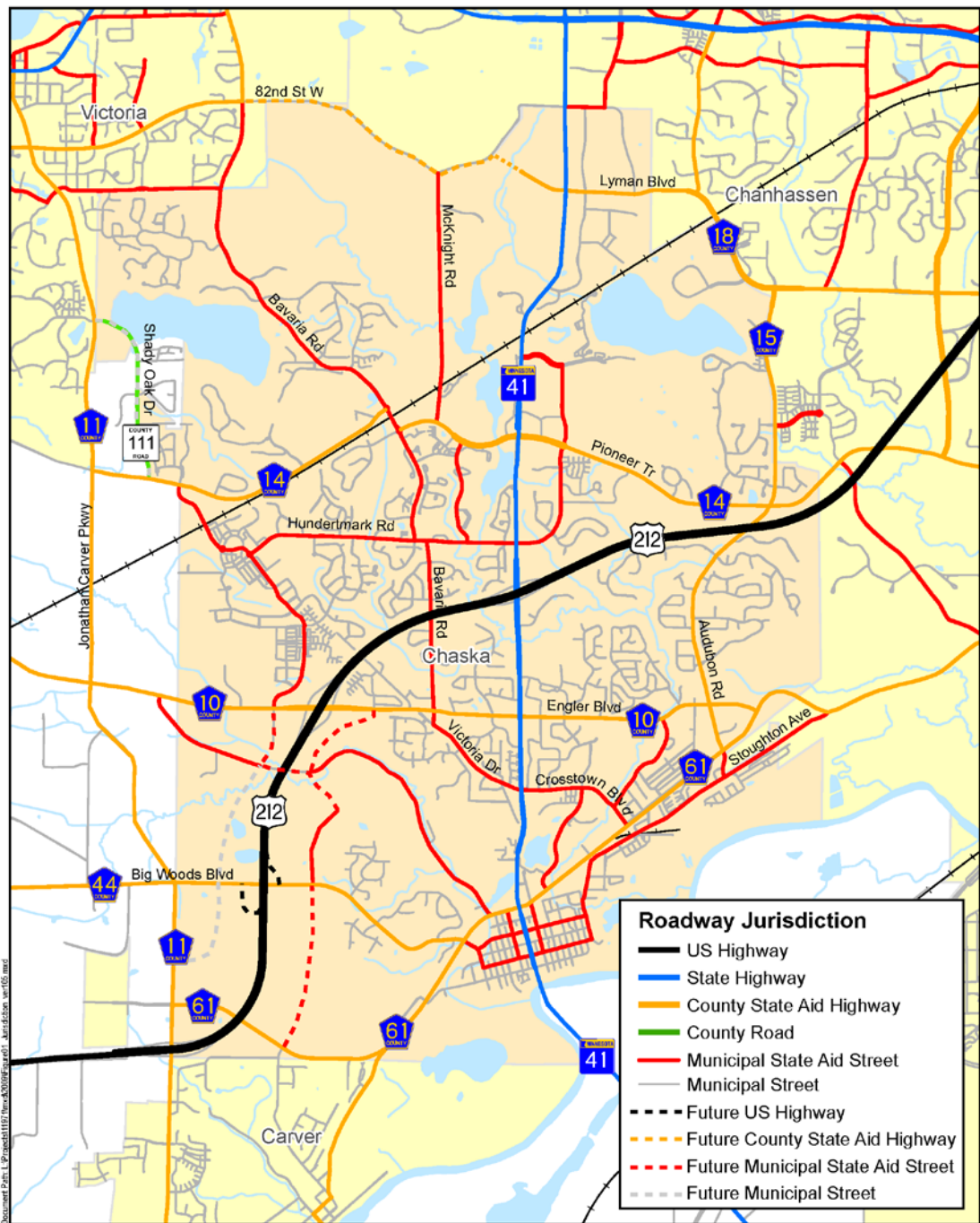
- » 82nd Street W. (CSAH 18) from Bavaria Road to east of McKnight Road

Potential Transfers from Carver County to the City of Chaska:

- » Shady Oak Drive (CR 111) from Victoria Drive (CSAH 11) to Pioneer Trail (CSAH 14)

FIGURE 6.1 presents the existing and future jurisdictional classification for the City of Chaska.

FIGURE 6.1: EXISTING ROADWAY JURISDICTIONAL MAP



Existing and Future Roadway System

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 City of Chaska

Figure 1

FUNCTIONAL CLASSIFICATION

Roadway functional classification categories are defined by the way roadways serve the flow of trips through the overall roadway system. Within the Twin Cities metropolitan area, the Metropolitan Council has established detailed criteria to define roadway functional classifications, which are presented in TABLE 6.1.

TABLE 6.1: METROPOLITAN COUNCIL ROADWAY FUNCTIONAL CLASSIFICATIONS

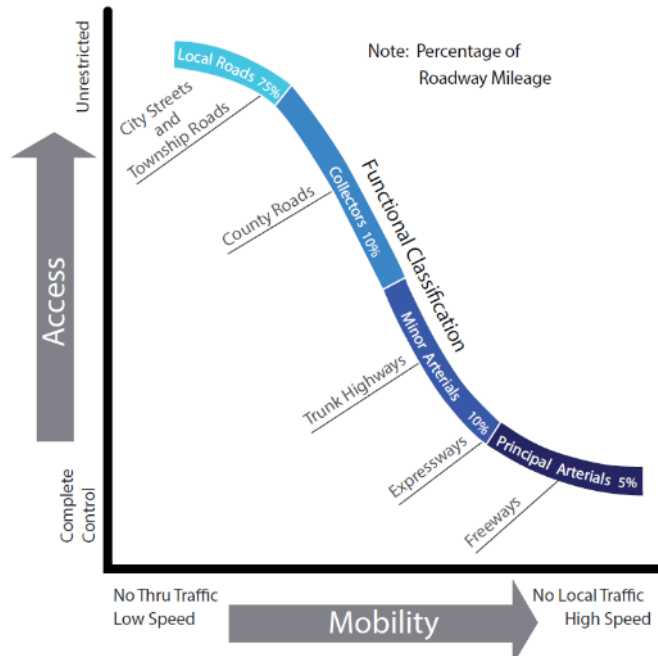
Criteria	Principal Arterial	Minor Arterial and Other Arterial	Collector	Local Street
Place Connections	Connect regional job concentrations and freight terminals within the urban service area.	Provide supplementary connections between regional job concentrations, local centers, and freight terminals within the urban service area.	Connect neighborhoods and centers within the urban service area.	Connect blocks and land parcels within neighborhoods and within commercial or industrial developments.
Spacing	Urban communities: 2 to 3 miles. Suburban communities: Spacing should vary in relation to development density of land uses served, 2 to 6 miles.	Regional job concentrations: 1/4 to 3/4 mile. Urban communities: 1/2 to 1 mile. Suburban communities: 1 to 2 miles.	Job concentrations: 1/8 to 1/2 mile. Urban Communities: 1/4 to 3/4 mile. Suburban Communities: 1/2 to 1 mile.	As needed to access land uses.
System Connections	To interstate freeways, other principal arterials, and select A-Minor arterials. Connections between principal arterials should be of a design type that does not require vehicles to stop. Intersections should be limited to 1 to 2 miles.	To most interstates, principal arterials, other minor arterials, collectors and some local streets.	To minor arterials, other collectors, and local streets.	To a few minor arterials. To collectors and other local streets.

Criteria	Principal Arterial	Minor Arterial and Other Arterial	Collector	Local Street
Trip-Making Service	Trips greater than 8 miles with at least 5 continuous miles on principal arterials. Express and highway bus rapid transit trips.	Medium-to-short trips (2 to 6 miles depending on development density) at moderate speeds. Longer trips accessing the principal arterial network. Local, limited-stop, and arterial bus rapid transit trips.	Short trips (1 to 4 miles depending on development density) at low-to-moderate speeds.	Short trips (under 2 miles) at low speeds, including bicycle and pedestrian trips. Longer trips accessing the collector and arterial network.
Mobility versus Land Access	Emphasis is on mobility for longer trips rather than direct land access. Little or no direct land access within the urbanized area.	Emphasis on mobility for longer trips rather than on direct land access. Direct land access limited to concentrations of activity including regional job concentrations, local centers, freight terminals, and neighborhoods.	Equal emphasis on mobility and land access. Direct land access predominantly to development concentrations.	Emphasis on land access, not on mobility. Direct land access predominantly to residential land uses.
System Mileage	5-10%	10-15%	5-15%	60-75%
Percent of Vehicle Miles Traveled	15-35%	15-25%	10-25%	10-25%
Intersections	Grade separated desirable where appropriate. At a minimum, high-capacity controlled at-grade intersections.	Traffic signals, roundabouts, and cross-street stops.	Four-way stops and some traffic signals.	As required.
Parking	None	Restricted as necessary.	Restricted as necessary.	Permitted as necessary.

Criteria	Principal Arterial	Minor Arterial and Other Arterial	Collector	Local Street
Large Trucks	No restrictions.	Candidates for local truck network, large trucks restricted as necessary.	May be candidates for local truck network, large trucks restricted as necessary.	Permitted as necessary.
Management Tools	Ramp metering, preferential treatment for transit, access control, median barriers, traffic signal progression, staging of reconstruction, and intersection spacing.	Traffic signal progression and spacing, land access management and control, preferential treatment for transit.	Number of lanes, traffic signal timing, land access management.	Intersection control, cul-de-sacs, and diverters.
Typical Average Daily Traffic Volumes	15,000 to 100,000+	5,000 to 30,000+	1,000 to 15,000+	Less than 1,000
Posted Speed Limit	40 to 65 mph	30 to 45 mph	30 to 40 mph	Max. 30 mph
Right-of-Way	100 to 300 feet	60 to 150 feet	60 to 100 feet	50 to 80 feet
Transit Accommodations	Transit advantages that provide priority access and reliable movement for transit in peak periods where possible and needed.	Transit advantages for reliable movement where needed.	Regular-route buses, transit advantages for reliable movement, where needed.	Normally used as bus routes only in nonresidential areas.
Bicycle and Pedestrian Accommodations	On facilities that cross or are parallel to the principal arterial with greater emphasis along transit routes and in activity centers. Crossings should be spaced to allow for adequate crossing opportunities.	On facilities that cross or are parallel to the minor arterial with greater emphasis along transit routes and in activity centers. Crossings should be spaced to allow for adequate crossing opportunities.	On, along, or crossing the collector with higher emphasis along transit routes and in activity centers. Crossings should be spaced for adequate crossing opportunities.	On, along, or crossing the local road.

Source: Metropolitan Council, 2040 Transportation Policy Plan, 2015.

The intent of the functional classification system is to create a hierarchy of roads that collect and distribute traffic from neighborhoods to the metropolitan highway system. Roadways with a higher functional classification, such as arterials, generally provide for longer trips, have more mobility, have limited access, and connect to larger economic and industrial centers. Roadways with a lower functional classification, such as collectors and local streets, generally provide for shorter trips, have lower mobility, have more access, and connect to higher functioning roadways. A balance of all functions of roadways is important for effective operation of the City's transportation network.



The roadway functional classification is based on several factors, including:

- » Trip characteristics such as length of route, type and size of activity centers, and route continuity;
- » Access to regional population centers, activity centers, and major traffic generators;
- » Proportional balance of access, ease of approaching or entering a location;
- » Proportional balance of mobility and ability to move without restrictions;
- » Continuity between travel destinations;
- » Relationship with neighboring land uses;
- » Eligibility for State and Federal funding.

The existing roadway functional classification within the City of Chaska is shown in FIGURE 6.2.

Principal Arterials

Principal arterials are part of the metropolitan highway system and provide high-speed mobility between the Twin Cities and important locations outside the metropolitan area. They are also intended to connect the central business districts of the Twin Cities along with other regional business concentrations in the metropolitan area. Principal arterials are generally constructed as

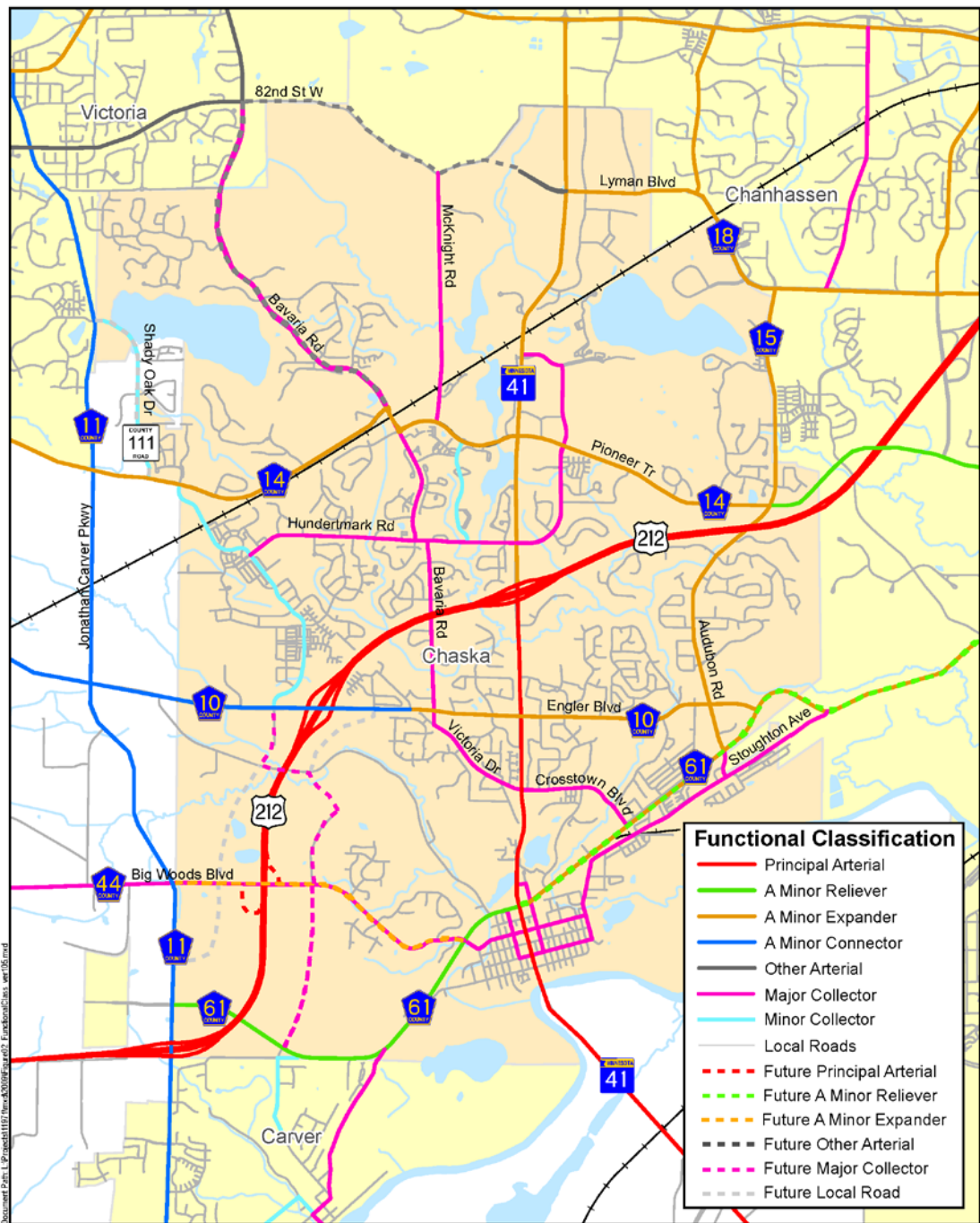
limited access freeways in urban areas and may also be constructed as multiple-lane divided highways. The City of Chaska is served by two principal arterials which are TH 212 and TH 41.

Minor Arterials

Minor arterials also emphasize mobility over land access, serving to connect large cities with adjacent communities and the metropolitan highway system. Major business concentrations and other important traffic generators are usually located on minor arterial roadways. In urban areas, one- to two-mile spacing of minor arterials is considered appropriate, and most locations within the City of Chaska are within one mile of a minor arterial.

A-Minor arterials are defined by the Metropolitan Council as roadways of regional importance as they serve to relieve, expand or complement the principal arterial system. Consistent with Metropolitan Council guidelines, A-Minor arterials are categorized into four types and are described in further detail below:

FIGURE 6.2: EXISTING AND FUTURE FUNCTIONAL CLASSIFICATION



Existing and Future Functional Class

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 City of Chaska

Figure 2

» Relievers – Roadways that provide direct relief for metropolitan highway traffic;

- » Expanders – Roadways that provide a way to make connections between urban areas outside the I-494/I-694 beltway.
- » Connectors – Roadways that provide safe connections to communities at the edge of the urbanized area and in rural areas.
- » Augmenters – Roadways that enhance principal arterials within the I-494/I-694 beltway.

A well-planned and adequately designed system of principal and minor arterials will allow the City of Chaska’s overall roadway network to function properly and discourage through traffic from travelling on residential streets. Volumes on principal and minor arterial roadways are expected to be greater than volumes on collector or local roadways. Minor arterials in Chaska are presented in FIGURE 6.2.

“Other” arterials provide a citywide function, serving medium to long distance trips. 82nd Street currently serves as a local, gravel road under Chaska’s jurisdiction; however, it is proposed as an “Other Arterial” in the event jurisdictional transfer to Carver County takes place.

Collectors

Collectors are designed to serve shorter trips that occur within the City and to provide access from neighborhoods to other collector roadways and the arterial system. Collector roadways are expected to carry less traffic than arterial roadways and intended to provide access to some local properties. Collectors are typically categorized as major and minor, with major collectors linking other collectors to minor arterials, and minor collectors linking local streets to other collectors or minor arterials. Roadway segments designated as major and minor collectors in the City of Chaska are included in FIGURE 6.2.

Local Roads

Local roads provide access to adjacent properties and neighborhoods. Local roads are generally low speed and designed to discourage through traffic. All remaining roadways in the City of Chaska that were not listed under the previous functional classifications fall under the local road designation.

Functional Classification Changes

The following are the anticipated changes to the City’s functional classification system by 2040:

- » CSAH 44 – From CSAH 61 (old TH 212) to the west city limits is recommended to be upgraded from a major collector to an A-Minor Expander. This change is recommended for consistency with the Carver County 2040 Roadway System Plan
- » CSAH 61 (old TH 212) – from TH 41 to the east city limits is recommended to be changed from an A-Minor Arterial Expander to an A-Minor Arterial Reliever since, with the opening of the new TH 212, CSAH 61 will serve to relieve the new highway. This change is also recommended for consistency with the Carver County 2040 Roadway System Plan.

Any proposed changes to the Principal Arterials or A-Minor arterials designation requires approval by the Metropolitan Council's Transportation Advisory Board (TAB). Since these changes often involve State or County roadways, the City should work closely with these agencies to ensure the process of approval is carried forward. Two changes affect the Other Arterial category.

- » Bavaria Road – From 82nd Street (CSAH 18) to Pioneer Trail (CSAH 14) is recommended to be upgraded from a major collector to an Other Arterial. This is consistent with the Carver County 2040 Roadway System Plan.
- » 82nd Street – From Bavaria Road to Lyman Boulevard (only if jurisdictional transfer occurs) is supported as an upgrade from a local road to an Other Arterial. This is consistent with the Carver County 2040 Roadway System Plan.

The future roadway functional classification within the City of Chaska is also shown in FIGURE 6.2.

PLANNED AND PROGRAMMED IMPROVEMENTS

There are various roadway projects within the City of Chaska that are currently under construction, programmed for completion within the next few years, or proceeding through the planning process. TABLE 6.2 and FIGURE 6.3 identify the planned and programmed roadway improvements within Chaska as outlined by Metropolitan Council's 2040 Transportation Policy Plan (TPP), the 2040 Carver County Comprehensive Plan, and the City of Chaska. These planned and programmed roadway improvements are considered part of the future roadway system as they will likely be operational within the 2040 planning period.

It should be noted that Carver County's Roadway System Plan programs the improvement of 82nd Street (as CSAH 18) between Bavaria Road and Lyman Boulevard (1/4-mile west of TH 41). This improvement project is **not** included in Chaska's Transportation Plan as a "planned and programmed" improvement because it is dependent on the jurisdictional transfer of this roadway to the County. The City does not support improvement of this roadway financially at its cost due to the current adjacent land use plans.

COORDINATION WITH OTHER JURISDICTIONS

The City of Chaska strives to coordinate with adjacent jurisdictions, such as the cities of Carver, Victoria, Chanhassen, Jackson Township, Laketown Township and Dahlgren Township, as well as

Carver County and MnDOT when planning future transportation improvements. Coordination among jurisdictions will provide opportunities for collaboration that could benefit all agencies, City residents and the public. Additionally, effective coordination may result in financial and time savings through economies of scale, and potentially reducing construction impacts to residents.

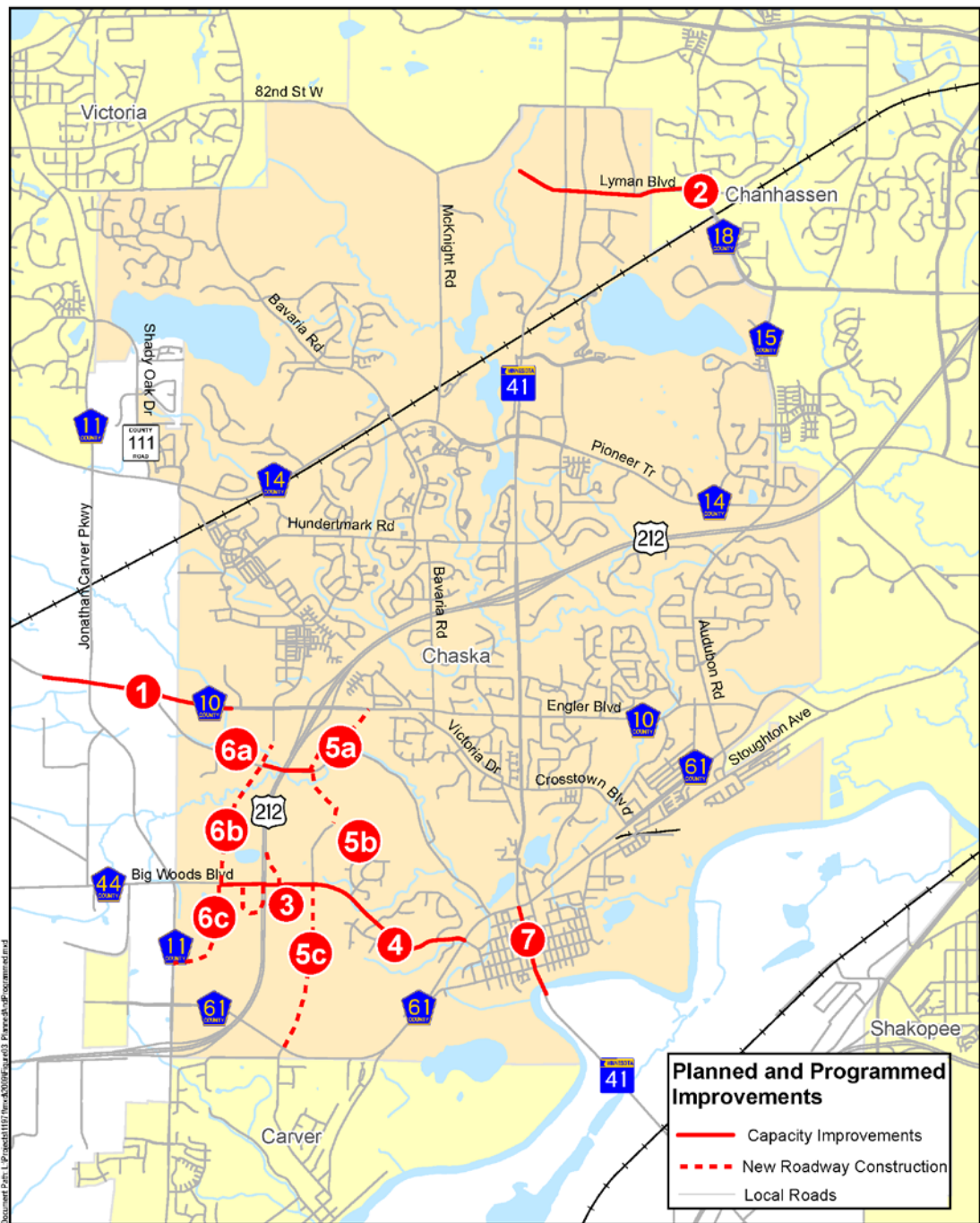
TABLE 6.2: LIST OF PLANNED AND PROGRAMMED IMPROVEMENTS

No.	Roadway	Extents	Project	Jurisdiction	Programmed Improvements
1	Engler Boulevard (CSAH 10)	West of Victoria Drive (CSAH 11) to west of West Creek Lane	Expansion to a four-lane divided arterial	County	County
2	Lyman Boulevard (CSAH 18)	TH 41 (N. Chestnut Street) to Galpin Boulevard (CR 117)	Expansion of a four-lane divided arterial	County	County
3	Big Woods Boulevard (CSAH 44)	At TH 212	New construction of partial interchange	County	County / City
4	Big Woods Boulevard (CSAH 44)	Chaska Boulevard (CSAH 61) to north-south connection west of TH 212	Reconstruction to a two-lane urban roadway	County	County / City
5	New Construction	<u>East of TH 212</u> 5a - Engler Boulevard (CSAH 10) to Creek Road 5b – Creek Road to 4/10-mile north of Big Woods Boulevard (CSAH 44) 5c - Big Woods Boulevard (CSAH 44) to Chaska Boulevard (CSAH 61)	Construction of a new north-south collector	City	City

No.	Roadway	Extents	Project	Jurisdiction	Programmed Improvements
6	New Construction	<u>West of TH 212</u> 6a – Appox 1/4-mile south of Engler Boulevard (CSAH 10) to Creek Road 6b - Creek Road to Big Woods Boulevard (CSAH 44) 6c - Big Woods Boulevard (CSAH 44) to Jonathan Carver Parkway (CSAH 11)	Construction of a new north-south collector	City	City
7	MN 41	TH 41 from MN River to Walnut Street	Reconstruction of Trunk Highway as three-lane facility	MnDOT	MnDOT/City

Sources: Metropolitan Council's 2040 Transportation Policy Plan (TPP), the 2040 Carver County Comprehensive Plan, and the City of Chaska.

FIGURE 6.3: PLANNED AND PROGRAMMED IMPROVEMENTS



SRI **Planned and Programmed Improvements**
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 City of Chaska

Figure 3

2040 TRAVEL DEMAND FORECASTS

The pattern and intensity of travel within the City of Chaska is directly related to the distribution and magnitude of households, population, and employment within the community, in neighboring communities and in the overall region.

Land use, travel patterns, population, and employment change over time affect the efficiency and adequacy of the transportation network. Expected changes in the City's land use pattern, households, population, and employment will be the basis for estimating future travel demand within the City of Chaska.

Land Use

The City of Chaska has a community designation of suburban edge located within the Metropolitan Council's urban service area. Existing land use within the City of Chaska is identified in the Land Use Chapter of the City's Comprehensive Plan.

As the metropolitan area moves forward with a greater focus on multimodal transportation, new development and redevelopment in Chaska will be constrained by the existing and future transportation system. The Transportation Plan is designed to assist the City in developing a transportation system that supports land use and provides safe and efficient movement of people and goods throughout the City.

Socioeconomic Data

The Metropolitan Council prepared estimates for the overall regional growth in terms of population, households, and employment for the years 2020, 2030, and 2040, allocating an appropriate portion to each municipality. Historic and estimated future population, households, and employment levels for the City of Chaska are shown in TABLE 6.3.

TABLE 6.3: SUMMARY OF SOCIOECONOMIC DATA FOR CHASKA

Year	Population	Households	Employment
2010	23,770	8,816	11,123
2020	27,100	10,400	13,600
2030	32,000	12,300	16,000
2040	36,600	14,200	17,600

Source:Metropolitan Council, 2018.

Chaska, with the assistance of the Metropolitan Council, has estimated existing and future population, households, and employment levels for sub-areas within the City known as Traffic Analysis Zones (TAZs). This information was required to complete the traffic forecasting

procedures used to estimate future roadway traffic volumes. Appendix A includes the detailed TAZ allocation for years 2020, 2030, and 2040.

Forecast 2040 Traffic Volumes

Estimated 2040 traffic forecasts for the City of Chaska were prepared using the future population, households, and employment data outlined above. These forecasts are an essential analytical tool to determine the adequacy of the roadway system to handle future development, as anticipated by the City of Chaska and the Metropolitan Council. In addition to the planned and programmed roadway projects identified in FIGURE 6.3, the traffic forecast model accounts for future planned improvements that are in the Metropolitan Council's 2040 TPP and Carver County's 2040 Comprehensive Plan for regional highways outside the City limits. The existing traffic volumes are shown in FIGURE 6.4 and results of the 2040 traffic forecasts are shown in FIGURE 6.5.

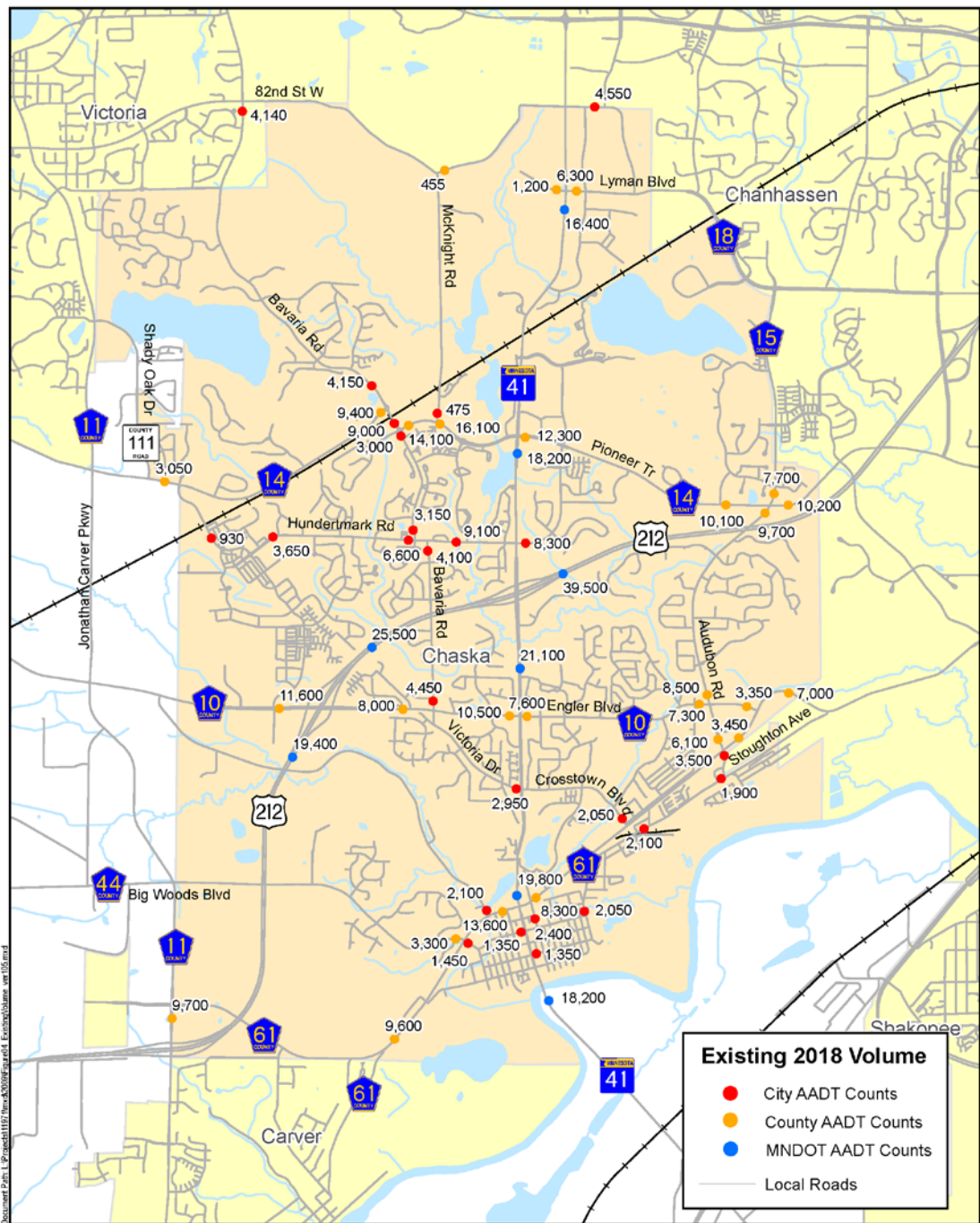
EXISTING AND ANTICIPATED SYSTEM DEFICIENCIES

Congestion on the roadway system is judged to exist when the ratio of traffic volume to roadway capacity, or V/C ratio, approaches or exceeds 1.00. The v/c ratio provides a measurement of congestion along a particular stretch of roadway and can help determine where roadway improvements, access management, transit services, or travel demand management strategies could be implemented. It does not, however, provide a basis for determining specific intersection improvements.

Level of Service

Level of Service (LOS), as related to highways and local roadways, categorizes the different operating conditions that occur on a lane or roadway when accommodating various traffic volumes. It is a qualitative measure of the effect of traffic flow factors such as speed and travel time, interruption, ability to maneuver, driver comfort and convenience, and is an indirect measure of safety and operating costs. LOS is expressed as levels "A" through "F," with level "A" being a condition of free traffic flow with little or no restriction in speed or maneuverability caused by the presence of other vehicles, and level "F" being a forced-flow condition at low speed with many stoppages resulting in the roadway acting as a storage area. Further definition of LOS is described in TABLE 6.4.

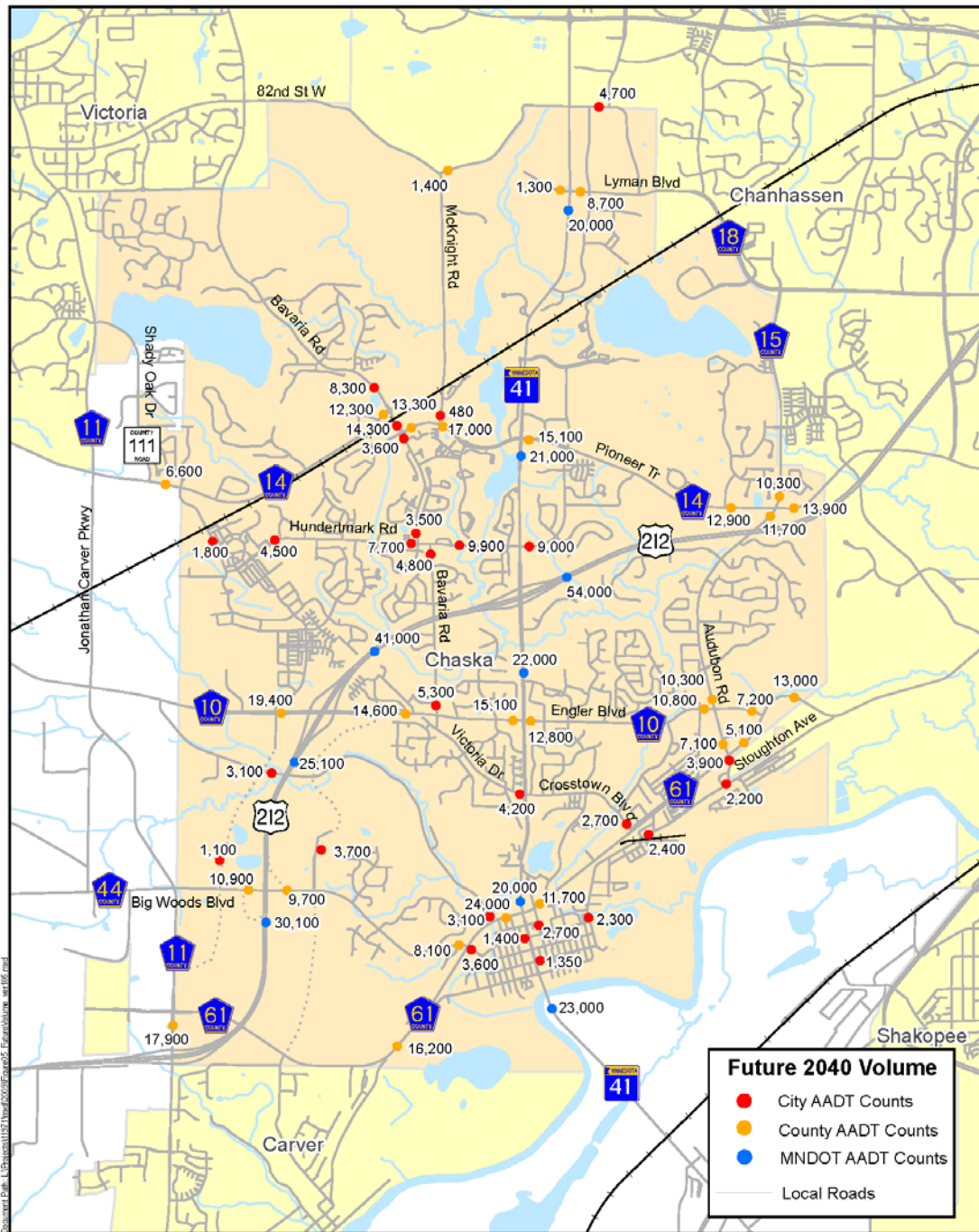
FIGURE 6.4: EXISTING 2018 TRAFFIC VOLUME



SRE Existing 2018 Volume
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 City of Chaska

Figure 4

FIGURE 6.5: FUTURE 2040 TRAFFIC VOLUME



SRI Future 2040 Volume
 Chaska Transportation Plan Update
 City of Chaska

Figure 5

TABLE 6.4: LEVEL OF SERVICE DEFINITIONS

Level of Service (LOS)	Traffic Flow	Volume/Capacity Ratio	Description
A	Free Flow Below Capacity	0.20	Low volumes and no delays.
B	Stable Flow Below Capacity	0.40	Low volumes and speed dictated by travel conditions.
C	Stable Flow Below Capacity	0.60	Speeds and maneuverability closely controlled due to higher volumes.
D	Restricted Flow Near Capacity	0.85	Higher density traffic restricts maneuverability and volumes approaching capacity.
E	Unstable Flow Approaching Capacity	1.00	Low speeds, considerable delays, and volumes at or slightly over capacity.
F	Forced Flow Over Capacity	> 1.00	Very low speeds, volumes exceed capacity, and long delays with stop-and-go traffic.

The following section further describes LOS and the correlation between LOS and planning-level roadway capacities, which provides a better understanding of the operations and capacity levels on existing roadways within the City of Chaska. A method to evaluate roadway capacity for non-freeway and non-regional highways is described in TABLE 6.5. For each facility type, the planning-level annual average daily traffic (AADT) capacity ranges and maximum AADT volume ranges are indicated. These volume ranges are based on guidance from the Transportation Research Board’s Highway Capacity Manual, direction from the Metropolitan Council, and professional engineering judgment. Capacity ranges are used since the maximum capacity of any roadway design is a theoretical measure that can be affected by its functional classification, traffic peaking characteristics, access spacing, design speed, and other roadway characteristics.

TABLE 6.5: PLANNING-LEVEL ROADWAY CAPACITIES BY FACILITY TYPE

Facility Type	Planning Level Daily Capacity Ranges (AADT)	Under Capacity				Approaching Capacity		Over Capacity
		LOS	A	B	C	D	E	F
		V/C	0.2	0.4	0.6	0.85	1.0	> 1.0
Two-lane undivided urban	8,000 – 10,000	2,000	4,000	6,000	8,500	10,000	> 10,000	
Two-lane undivided rural	14,000 – 15,000	3,000	6,000	9,000	12,750	15,000	> 15,000	
Two-lane divided urban (Three-lane)	14,000 – 17,000	3,400	6,800	10,200	14,450	17,000	> 17,000	
Four-lane undivided urban	18,000 – 22,000	4,400	8,800	13,200	18,700	22,000	> 22,000	
Four-lane undivided rural	24,000 – 28,000	5,600	11,200	16,800	23,800	28,000	> 28,000	
Four-lane divided urban (Five-lane)	28,000 – 32,000	6,400	12,800	19,200	27,200	32,000	> 32,000	
Four-lane divided rural	35,000 – 38,000	7,600	15,200	22,800	32,300	38,000	> 38,000	
Four-lane expressway rural	45,000 – 55,000	9,000	18,000	27,000	38,250	45,000	> 45,000	
Four-lane freeway	60,000 – 80,000	16,000	32,000	48,000	68,000	80,000	> 80,000	
Six-lane freeway	90,000 – 120,000	24,000	48,000	72,000	102,000	120,000	> 120,000	

Existing Capacity Deficiencies

By utilizing the methodology described above, existing capacity deficiencies were identified by comparing existing AADT volumes to the thresholds in TABLE 6.5 to identify and illustrate roadways that currently exhibit capacity deficiencies. The existing traffic volumes shown in FIGURE 6.4 and number of lanes shown in FIGURE 6.6 were used to develop the existing capacity deficiencies shown in FIGURE 6.8. FIGURE 6.7 is also provided here to represent the future number of lanes at this point. As noted in FIGURE 6.8, the congested roadway segments are defined as those with a v/c ratio above 1.00, which signifies that a segment of roadway has observed volumes which exceed its design capacity, as identified in TABLE 6.6. In addition,

FIGURE 6.8 and TABLE 6.7 also identify those segments of roadways that are approaching capacity with v/c ratio greater than or equal to 0.85 and less than or equal to 1.00.

TABLE 6.6: EXISTING ROADWAYS OVER CAPACITY (V/C > 1.00)

Roadway	V/C	Extents	
N. Chestnut Street (TH 41)	1.24	North of Engler Boulevard (CSAH 10)	Woodland Drive
Hazeltine Boulevard (TH 41)	1.09	Lyman Boulevard (CSAH 18)	Hazeltine Boulevard
Pioneer Trail (CSAH 14)	1.07	McKnight Road east	To four-lane roadway

TABLE 6.7: EXISTING ROADWAYS APPROACHING CAPACITY (0.85 ≤ V/C ≤ 1.00)

Roadway	V/C	Extents	
Jonathan Carver Parkway (CSAH 11)	0.97	Big Woods Boulevard (CSAH 44)	Approx. Chaska Boulevard (CSAH 61)
Chaska Boulevard (CSAH 61)	0.96	Creek Road	CSAH 40
Pioneer Trail (CSAH 14)	0.94	Bavaria Road	McKnight Road
Audubon Road (CSAH 15)	0.90	Approx. Lyman Boulevard (CSAH 18)	Autumn Woods Drive

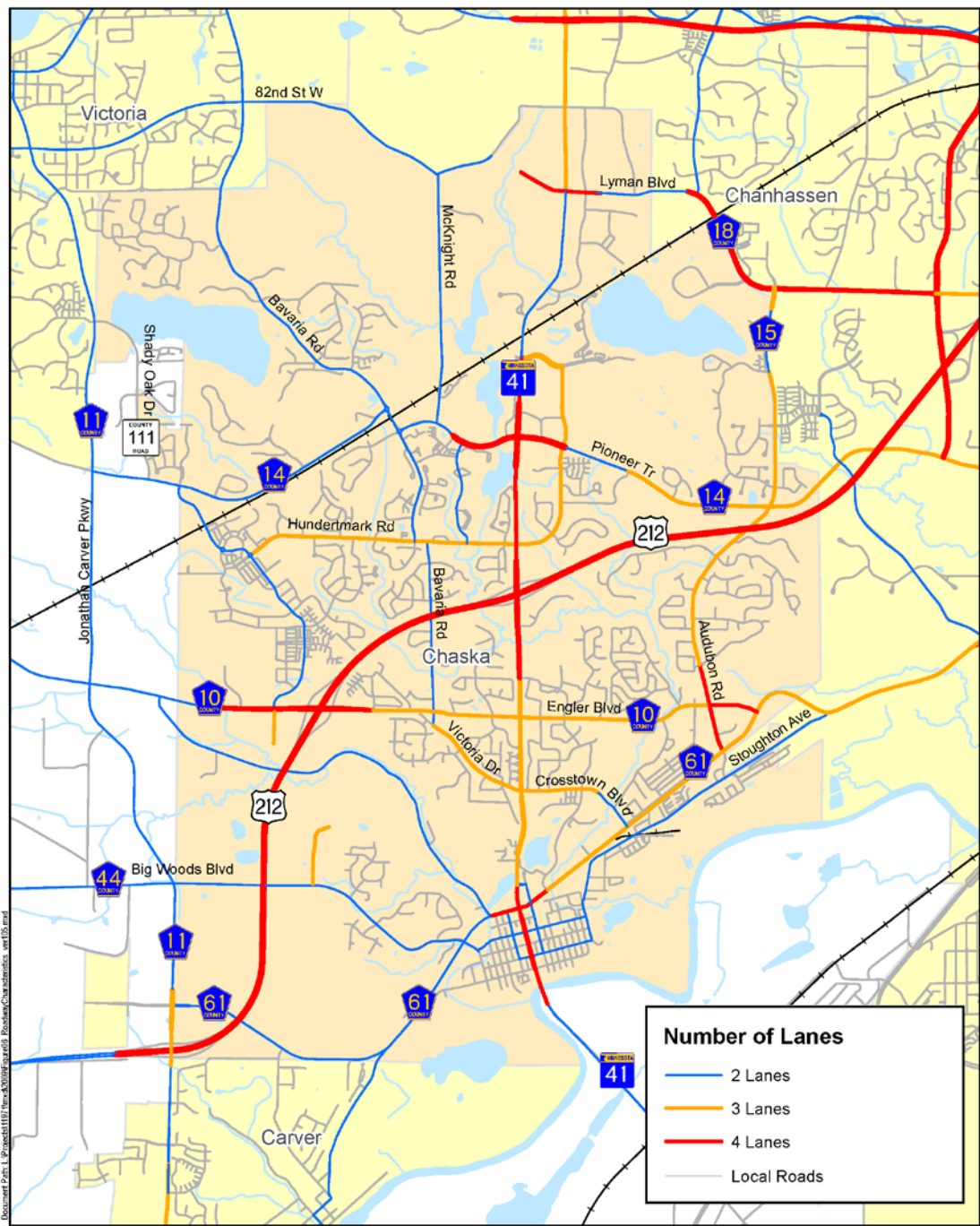
The methodology described above is a planning-level analysis that uses average daily traffic volumes and is not appropriate for all traffic conditions. For example, traffic conditions that do not fit the average daily traffic criteria such as weekend travel, holiday travel, and special events, are likely to produce different levels of congestion. Additionally, factors such as the amount of access and roadway geometrics may influence capacity.

Congestion on the Regional Highway System

MnDOT defines congestion on freeway or highway facilities as traffic travelling at speeds less than or equal to 45 miles per hour (mph). There were no reported congestion issues along corridors within the City in the most recent MnDOT congestion study.¹

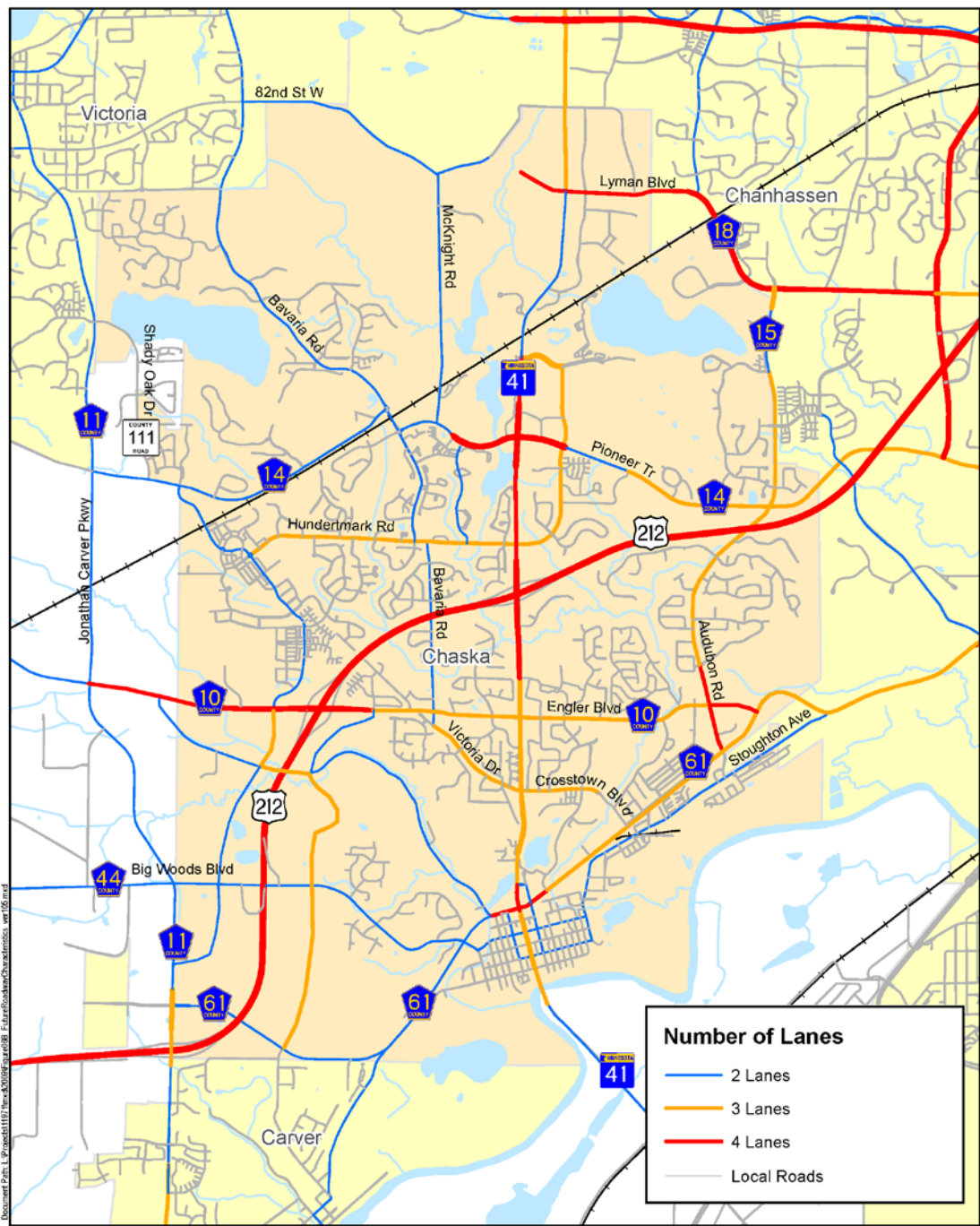
FIGURE 6.6: EXISTING ROADWAY CHARACTERISTICS

¹ MnDOT Metropolitan Freeway System Congestion Report, 2015.



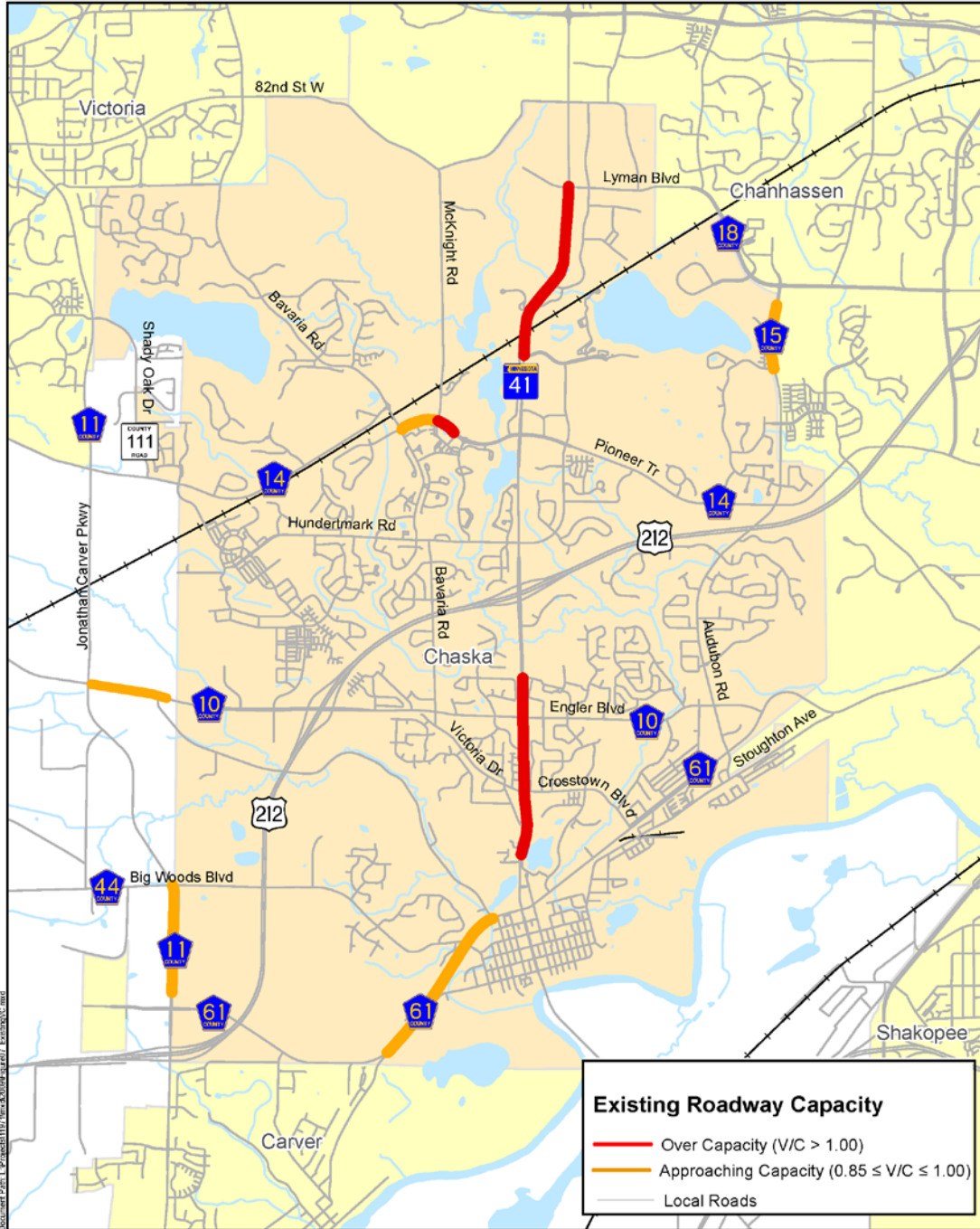
SRE Existing Roadway Characteristics Figure 6a
 Chaska Transportation Plan Update
 City of Chaska

FIGURE 6.7: FUTURE ROADWAY CHARACTERISTICS



SRE Future Roadway Characteristics Figure 6b
 Chaska Transportation Plan Update
 City of Chaska

FIGURE 6.8: EXISTING ROADWAY CAPACITY



SRI Existing Roadway Capacity
 Chaska Transportation Plan Update
 City of Chaska

Figure 7

FUTURE CAPACITY DEFICIENCIES

A planning-level analysis was performed on the existing roadway system to identify locations where capacity problems are expected to occur by the planning horizon year. Demand was estimated using the 2040 traffic forecasts shown in FIGURE 6.5. Capacity was based on the existing and proposed roadway geometrics (FIGURE 6.7), which included the programmed roadway system improvements shown in FIGURE 6.3. A similar volume to capacity analysis was conducted for the forecast 2040 conditions. Using this methodology, TABLE 6.8, TABLE 6.9, and FIGURE 6.9 illustrate Chaska’s anticipated future capacity problem areas.

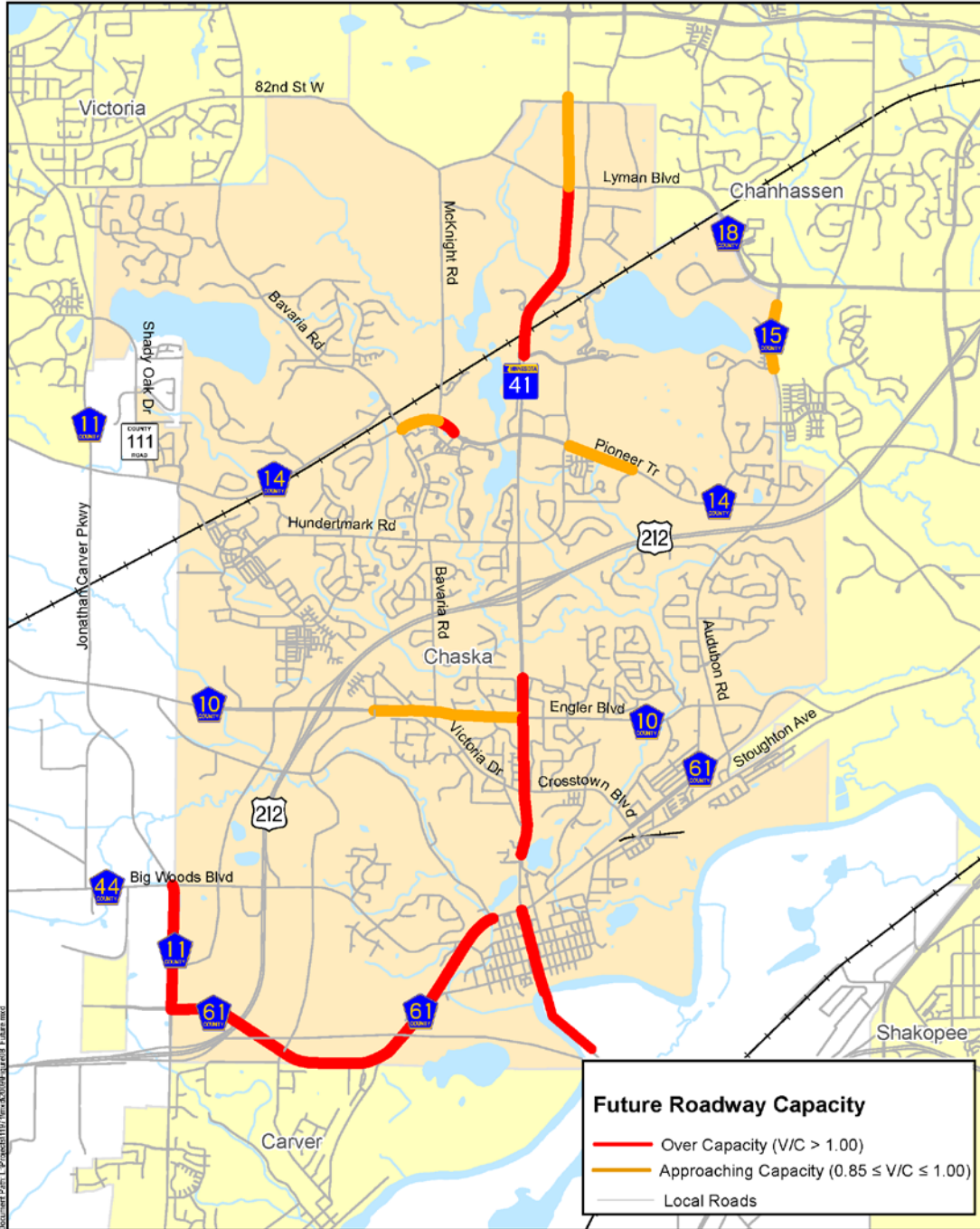
TABLE 6.8: FUTURE ROADWAYS OVER CAPACITY (V/C > 1.00)

Roadway	V/C	Extents	
Chaska Boulevard (CSAH 61)	1.62	Creek Road	Jonathan Carver Parkway (CSAH 11)
N. Chestnut Street (TH 41)	1.35	MN River	Walnut Street
Hazeltine Boulevard (TH 41)	1.33	Lyman Boulevard (CSAH 18)	Hazeltine Boulevard
N. Chestnut Street (TH 41)	1.30	North of Engler Boulevard (CSAH 10)	Woodland Drive
Jonathan Carver Parkway (CSAH 11)	1.19	Big Woods Boulevard (CR 140)	Chaska Boulevard (CSAH 61)
Pioneer Trail (CSAH 14)	1.13	McKnight Road	To four-lane roadway

TABLE 6.9: FUTURE ROADWAYS APPROACHING CAPACITY (0.85 ≤ V/C ≤ 1.00)

Roadway	V/C	Extents	
Hazeltine Boulevard (TH 41)	0.98	North City Boundary	Lyman Boulevard (CSAH 18)
Pioneer Trail (CSAH 14)	0.95	Bavaria Road	McKnight Road
Engler Boulevard (CSAH 10)	0.89	Prescott Lane	N. Chestnut Street (TH 41)
Audubon Road (CSAH 15)	0.86	Lyman Boulevard (CSAH 18)	Autumn Woods Drive
Pioneer Trail (CSAH 14)	0.86	Hundertmark Road	Chaska High School

FIGURE 6.9: FUTURE ROADWAY CAPACITY



SRI **Future Roadway Capacity**
 Chaska Transportation Plan Update
 City of Chaska

Figure 8

ROADWAY SAFETY

A central focus of the City of Chaska’s Transportation Plan is roadway safety. To assist in the evaluation of crashes, MnDOT maintains a database of crash records throughout the State of Minnesota. These records identify the location, severity and circumstances associated with each crash. As shown in TABLE 6.10, this dataset was reviewed to identify the quantity, location, and severity of crashes in the City of Chaska for years 2011 to 2015 (most recent years available in the MnDOT dataset).

TABLE 6.10: MOTOR VEHICLE CRASHES IN CHASKA (2011 TO 2015)

Year	Fatal	Personal Injury Crashes			Property Damage	Total Crashes
		Type A Incapacitating Injury	Type B Non-Incapacitating Injury	Type C Possible Injury		
2011	1	1	11	47	133	193
2012	0	0	14	35	112	161
2013	1	2	8	46	157	214
2014	0	0	13	47	155	215
2015	<u>0</u>	<u>1</u>	<u>21</u>	<u>43</u>	<u>137</u>	<u>202</u>
Totals	2	4	67	218	694	985

These crashes were generally widely distributed throughout the City with most locations accounting for only one or two incidents, suggesting that a crash at that location was a random event. However, several of these crashes were concentrated at a limited number of locations. The 10 intersection locations with the highest frequency of crashes between 2011 and 2015 are listed in TABLE 6.11 and illustrated in FIGURE 6.10. These intersections were also evaluated for the critical index using MnDOT’s crash rate methodology, also indicated in TABLE 6.11. Following MnDOT guidelines, a critical index of 1.00 or less indicates performance within statewide trends, and a critical index above 1.00 indicates that the intersection operates outside the normally expected range.

TABLE 6.11: TOP 10 INTERSECTION CRASH LOCATIONS IN CHASKA (2011 TO 2015)

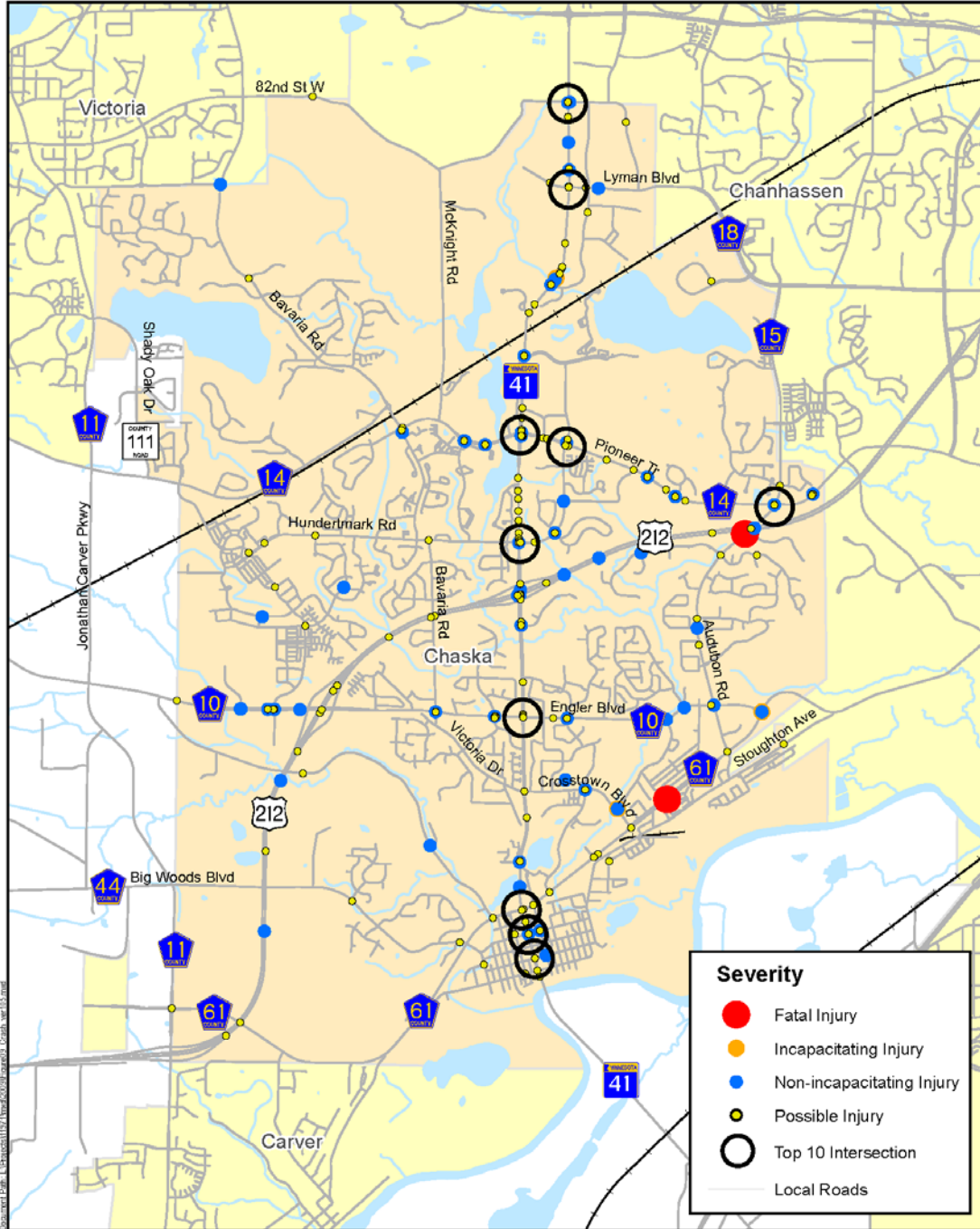
Intersection		Severity					Traffic Control	Critical Index All Crashes	Critical Index Fatal & Type A
		Fatal	Type A	Type B	Type C	Property Damage			
1.	N. Chestnut Street (TH 41) at Hundertmark Road	0	0	1	15	34	Signal	1.44	0.00
2.	Engler Boulevard (CSAH 10) at N. Chestnut street (TH 41)	0	0	0	12	21	Signal	0.70	0.00
3.	N. Chestnut Street (TH 41) at Pioneer Trail (CSAH 14)	0	0	2	8	23	Signal	0.83	0.00
4.	N. Chestnut Street (TH 41) at 4th Street	0	0	2	6	18	Signal	0.66	0.00
5.	N. Chestnut Street (TH 41) at Chaska Boulevard (CSAH 61)	0	0	0	9	15	Signal	0.46	0.00
6.	82nd Street W. (CSAH 18) at N. Chestnut Street (TH 41)	0	0	2	6	9	Signal	0.74	0.00
7.	Pioneer Trail (CSAH 14) at Audubon Road (CSAH 15)	0	0	1	4	12	Signal	0.71	0.00
8.	N. Chestnut Street (TH 41) at 2nd Street	0	0	0	5	11	Signal	0.43	0.00
9.	Hundertmark Road at Pioneer Trail (CSAH 14)	0	0	1	6	5	Signal	0.40	0.00
10	Lyman Boulevard (CSAH 18) at N. Chestnut Street (TH 41)	0	0	0	2	10	Signal	0.46	0.00

Critical Index

The critical index is the ratio of the observed crash rate to the critical crash rate. Critical indexes above 1.00 indicate there is likely an existing safety concern at the intersection. Additional analysis and observation of the intersection should be completed to determine the cause of the high critical index. Based on this conclusion, further investigation is recommended at the crash

locations with a critical index above 1.00 as identified in TABLE 6.11 to determine the types of crashes occurring and identify mitigation approaches to increase safety.

FIGURE 6.10: CRASH LOCATIONS (2011 TO 2015)



SRI **Crash Locations**
 Chaska Transportation Plan Update
 City of Chaska

Figure 9

RIGHT-OF-WAY

Right-of-way (ROW) is a valuable public asset that needs to be protected and managed in a way that respects the intended function of the adjacent roadway, while serving the best interest of the public. The City of Chaska will need to reconstruct, widen, and construct new roadway segments to meet future capacity and connectivity demands due to the City's current and anticipated growth. Such improvements will require adequate ROW be maintained or secured. The City will coordinate with MnDOT and Carver County for ROW acquisition along County or State routes. TABLE 6.12 presents potential ROW guidelines by functional classification and facility type for consideration.

TABLE 6.12: CHASKA RIGHT-OF-WAY GUIDELINES

Functional Classification	ROW Widths ¹
Principal Arterial	150 to 300 feet
A-Minor Arterial	120 to 150 feet
Rural Major Collector	110 to 130 feet
Rural Minor Collector	100 to 120 feet
Urban Major Collector	80 to 100 feet
Urban Minor Collector	60 to 80 feet
Local Roadways	60 feet

Note: ¹ Due to certain development conditions or physical features of the site or highway, the City may require additional ROW width greater than shown in the guidelines. At intersections, ROW widths may be greater to accommodate additional geometric configurations such as signals, turn lanes, and roundabouts.

Right-of-Way Preservation

When future expansion or realignment of a roadway is proposed, but cannot immediately be constructed, the City may consider ROW preservation strategies to reduce costs and maintain the feasibility of the proposed improvement. Several strategies may be implemented to preserve ROW for future construction, including advanced purchase, zoning and subdivision dedication techniques, official mapping, and corridor signing. Before implementing any ROW preservation programs, local agencies should consider the risks of proceeding with ROW preservation without environmental documentation, as MnDOT policy requires environmental documentation prior to purchase. If environmental documentation has not been completed, agencies risk preserving a corridor or parcel that has associated environmental issues.

Direct Purchase

One way to preserve ROW is to purchase it. Unfortunately, agencies rarely have the necessary funds to purchase ROW in advance, and the public benefit of purchasing ROW is not realized until a roadway or transportation facility is constructed. In most cases local jurisdictions utilize

various corridor preservation methods prior to roadway construction and then purchase the ROW, if it is not dedicated, at the time of design and construction.

Planning and Zoning Authority

Local agencies have the authority to regulate existing and future land use. Under this authority, agencies have a number of tools for preserving right-of-way for transportation projects. These tools include:

- » Zoning – If the property has a very low-density zoning classification, local agencies should try to maintain its existing zoning classification. A low zoning classification limits the risk for significant development and can help preserve land for potential ROW until funding becomes available for roadway construction.
- » Platting and Subdivision Regulations – Local platting and subdivision regulations give local agencies authority to consider future roadway alignments during the platting process since most properties must be platted before development. The City of Chaska can use their authority to regulate land development to influence plat configuration and the location of proposed roadways. In most instances, planning and engineering staff work with developers to formulate a plat that meets development objectives and conforms to a long-term community vision and plans. Most local agencies require ROW dedication as part of the platting and subdivision process.
- » Transfer of Development Rights – In addition to the above strategies, some agencies negotiate with property owners by allowing increased development densities on portions of the parcel if the developer will transfer ROW to the jurisdiction for the future roadways needed by the development. This enables the developer to get the same number of lots or units and also enables the agency to obtain the needed ROW.
- » Official Mapping – A final strategy to preserve ROW is to adopt an Official Map. An Official Map is developed by the local governmental unit and identifies the centerline and ROW needed for a future roadway. The local agency then holds a public hearing showing the location of the future roadway and incorporates the Official Map into its thoroughfare or community facilities plan. The mapping process allows agencies to control proposed development within an identified area, and to influence development on adjacent parcels. However, if a directly affected property owner requests to develop property, agencies have six months to initiate acquisition and purchase of the property to prevent its development. If the property is not purchased, the owner can develop it in conformance with current zoning and subdivision regulations. Thus, this process should only be used for preserving key corridors in areas with significant growth pressures.

Corridor Signing Program

In addition to land use regulations, some jurisdictions have used a corridor signing program to identify arterial roadways that are planned for expansion projects. This signage program notifies residents and potential developers that the roadway is planned to be upgraded or a new roadway is planned to be constructed. This often streamlines negotiations with residents and

developers since they have been given advanced notice of major roadway expansion projects. Further, this advanced information aids developers in planning coordinated land uses and access management measures into their subdivisions. Signs are generally placed along section line roads on the urban fringe near the City limits or within a City's extraterritorial expansion area.

ACCESS MANAGEMENT

Access management is an important aspect of providing a safe and efficient roadway network. Control of access to roadways, both in terms of cross-street spacing and driveway placement, is a critical means of preserving or enhancing the efficient operation of the roadway system and improving safety by reducing crash exposure. Access control guidelines are used to preserve the public investment in the roadway system and to give direction to developers for plan preparation. The guidelines are intended to balance the public interest in mobility with the property owner's interest in access. Access refers to providing roadway access to properties and is needed at both ends of a trip. Mobility is the ability to get from one place to another freely or easily. Most roadways serve both functions to some degree based on their functional classification. Effective control of driveway access on the entire roadway system requires the cooperation of City, County, and State officials.

MnDOT has developed a policy on access management and guidelines for access spacing. MnDOT's Highway Access Category System and Spacing Guidelines can be found at: <https://www.dot.state.mn.us/accessmanagement/resources.html>

Access to Principal Arterials

The City of Chaska should follow MnDOT guidelines for access to principal arterials. These guidelines recommend limiting cross-street access to one-half mile spacing within urbanized areas, with one- to two-mile spacing being optimal. No new driveway access is permitted to principal arterials.

Access to Minor Arterials

The City of Chaska strives to meet Carver County guidelines for access to the minor arterial system. These guidelines generally call for one-quarter mile spacing of all access points such as cross streets and driveways.

Driveway Access on City Streets (Collectors and Local Roads)

Driveways contribute to crashes and reduced traffic flow on major streets in local communities as they add to the number of locations where vehicle conflicts can occur. Therefore, it is desirable to have guidelines in place that:

- » Limit the number of driveways to those that are needed to safely accommodate the traffic generated by each development;
- » Provide adequate spacing between driveways so conflicts and resulting crashes between vehicles maneuvering at adjacent driveways are avoided;
- » Ensure proper design to accommodate driveway traffic and minimize vehicle conflicts without significantly reducing roadway capacity.

Occasionally topographic features of an individual site or the needs of a unique land use may require special access features in a proposed development. The City of Chaska may wish to withhold approval of such developments or site changes until a study has been made of the potential impacts on the affected roadways and the adequacy of the proposed access design determined. The City may require that the following steps be included in the traffic study for the site:

- » Estimate site traffic generation and future non-site traffic;
- » Determine directional distribution of trips;
- » Estimate turning movements at driveway and the resulting level of service;
- » Analyze current and future access requirements;
- » Provide necessary geometric and operational improvements to safely accommodate access requirements without negative impacts to traffic operation on the adjoining roadways.

The City of Chaska will continue to support MnDOT and Carver County's access management guidelines on the principal and minor arterial roadway network in the City through the measures listed above. In addition, the City utilizes Carver County's access spacing guidelines to guide access decisions on the City's arterial and collector roadway network.

PAVEMENT CONDITION

The City of Chaska's Department of Public Works is responsible for maintaining roadway pavement within the City. The City applies varying pavement preservation techniques to its roadway system to maintain it in a state of good repair. Generally, the City applies three different pavement treatment types which are pavement preservation, rehabilitation, and reconstruction for maintaining roadways within the City.

Pavement Preservation

Pavement preservation is the proactive maintenance of roadways to prevent them from getting to a condition where major rehabilitation or reconstruction is necessary. Preventative maintenance costs are far less than the ultimate repair cost. Pavement preservation treatments include microsurfacing, micro-milling, and slurry, scrub, or chip seals.

Rehabilitation

As pavement ages, it will inevitably begin to deteriorate due to weathering and loading from vehicles. The condition of the pavement may not be so severe as to warrant complete reconstruction. At this point in the pavement's life is when rehabilitation techniques can be performed. Rehabilitation is carried out on pavements that exhibit distresses beyond the effectiveness of maintenance and preservation techniques, but not too severe to warrant the cost of complete reconstruction. Rehabilitation treatments include mill and overlays.

Reconstruction

Over time pavement structures will degrade due to wear and tear caused by traffic and the environment. Typically, most pavement maintenance programs overlay or rehabilitate pavements to restore its ride quality and structural capacity. Eventually, the roadways deteriorate to a point where rehabilitation becomes too expensive and cannot perform well due to the condition of the underlying pavement conditions. It is at this point when reconstruction is recommended.

TRAFFIC MANAGEMENT STRATEGIES

Traffic Signals

A well-coordinated traffic signal system will promote the efficient flow of traffic along the A-Minor arterials in the City of Chaska, as this type of system reduces the likelihood of through traffic diverting to local streets. The City will work with Carver County to periodically monitor the progression of traffic signals on key County roadways to ensure efficient system operation.

Operational refinement of the signal system will take place on an ongoing basis. New traffic signals will be built at intersections where specific signal warrants are achieved, and funding is available. Intersection improvements will be considered on a site-by-site basis and will be constructed consistently with the warrants identified in the Minnesota Manual on Uniform Traffic Control Devices (MUTCD) when funding is available. Warrants include specific thresholds relating to traffic volumes and considerations of safety and pedestrian activity.

Stop Signs

The City of Chaska receives numerous requests for the installation of stop signs to manage speed and other perceived traffic safety problems in residential neighborhoods. City traffic engineers will evaluate each stop sign request by utilizing MnDOT's uniform traffic warrant criteria.

Traffic Calming

The primary function of minor collector and local streets is to provide access to residences and other uses along the roadway. However, these streets may also provide routes for traveling to

and from or passing through a neighborhood. Conflicts arise between these latter functions when residents become concerned about traffic volumes, speeds and pedestrian safety.

Traffic calming generally refers to strategic physical changes made to streets to reduce vehicle speeds, improve safety, discourage through traffic on residential streets, and decrease the automobile’s visual dominance in a neighborhood setting. There are several activities that may be referred to as traffic calming, examples of which include raised intersections and crosswalks, roundabouts, curvilinear streets, street narrowing, raised medians and islands, pedestrian treatments, and streetscaping. These traffic calming treatments are considered for low volume local and minor collector streets where excessive speeds pose a safety problem. The City of Chaska will consider requests for traffic calming devices on a case-by-case basis.

RECOMMENDED ROADWAY SYSTEM IMPROVEMENTS

Future roadway improvements designed to address system connectivity, continuity, congestion and safety issues are planned and recommended for the roadway system in the City of Chaska. Recommended roadway improvements are shown in TABLE 6.13 and FIGURE 6.11 and are derived from the combination of system needs and the intended function of each roadway as it relates to the adjacent supporting land use. It should be noted that improvements discussed in this section do not include spot intersection improvements or trails.

The determination of which projects will be built, and their proper sequencing, will be determined through each jurisdictions programming process that considers the estimated cost of each project, available financing and coordination with other projects.

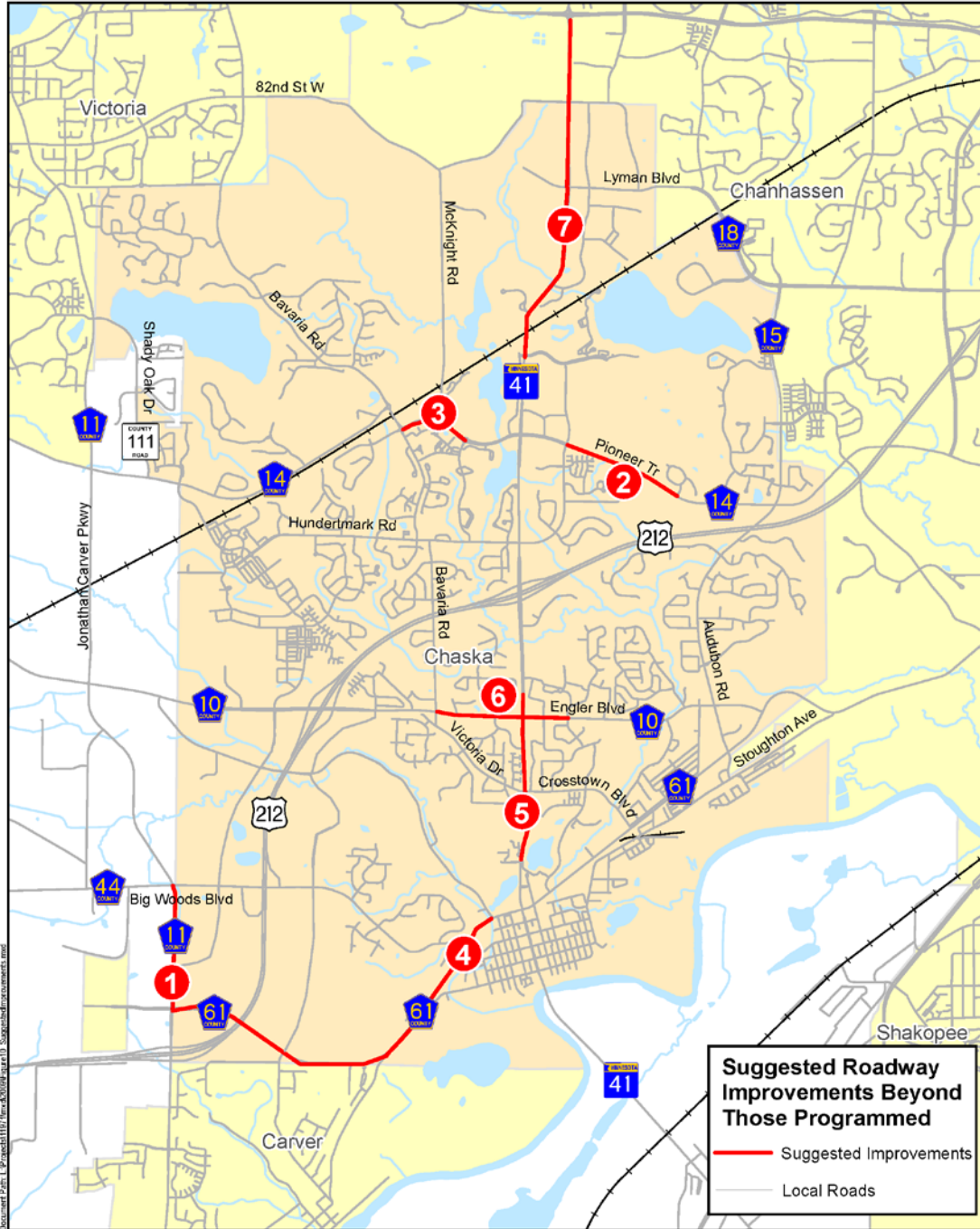
TABLE 6.13: RECOMMENDED ROADWAY IMPROVEMENTS

No.	Roadway	Extents	Recommendation	Jurisdiction
1	Jonathan Carver Parkway (CSAH 11)	Big Woods Boulevard (CSAH 44) to Chaska Boulevard (CSAH 61)	2-Lane to 3-Lane	County
2	Pioneer Trail (CSAH 14)	Hundertmark Road to Oriole Lane	2-Lane to 3-Lane	County
3	Pioneer Trail (CSAH 14)	Bavaria Road to Village Road	2-Lane to 3-Lane	County
4	Chaska Boulevard (CSAH 61)	Creek Road to Jonathan Carver Parkway (CSAH 11)	2-Lane to 3-Lane	County

5	N. Chestnut Street (TH 41)	South of Engler Boulevard to Woodland Drive	3-Lane to 4-Lane	MnDOT
6	Engler Boulevard and MN 41	Bavaria Road to Park Ridge Drive	Left-turn lane improvements	County/MnDOT
7	Hazeltine Boulevard (TH 41)	TH 5 to Hazeltine Boulevard	2-Lane to 4-Lane	MnDOT

The City of Chaska understands the TH 41 corridor through downtown is projected to be over capacity in year 2040. The City is committed to managing traffic through downtown with the three-lane facility that is being constructed in coordination with MnDOT and will monitor traffic going forward into the future.

FIGURE 6.11: SUGGESTED ROADWAY IMPROVEMENTS



SRI Suggested Roadway Improvements
 Chaska Transportation Plan Update
 City of Chaska

Figure 10

FREIGHT PLAN

EXISTING FREIGHT SYSTEM

A major component of Chaska's freight system is the existing roadway network as identified in FIGURE 6.12. There are no interstate highway corridors within Chaska. The non-interstate highway corridors within the City includes TH 212, TH 41 and several county roads including CSAH corridors Engler Boulevard (CSAH 10) and Chaska Boulevard (CSAH 61).

The most heavily used non-interstate highway corridor in Chaska is TH 212, which is also the most heavily used non-interstate highway corridor in Carver County.² TH 212 corridor serves multiple industrial areas that support a range of manufacturing activities such as fabricated metal, machinery, computer and electronic, and miscellaneous manufacturing industries. Additionally, Engler Boulevard which aligns east-west, and TH 41 which aligns north-south through Chaska provide access to the major industrial areas of northern Chaska along TH 41 and TH 212.

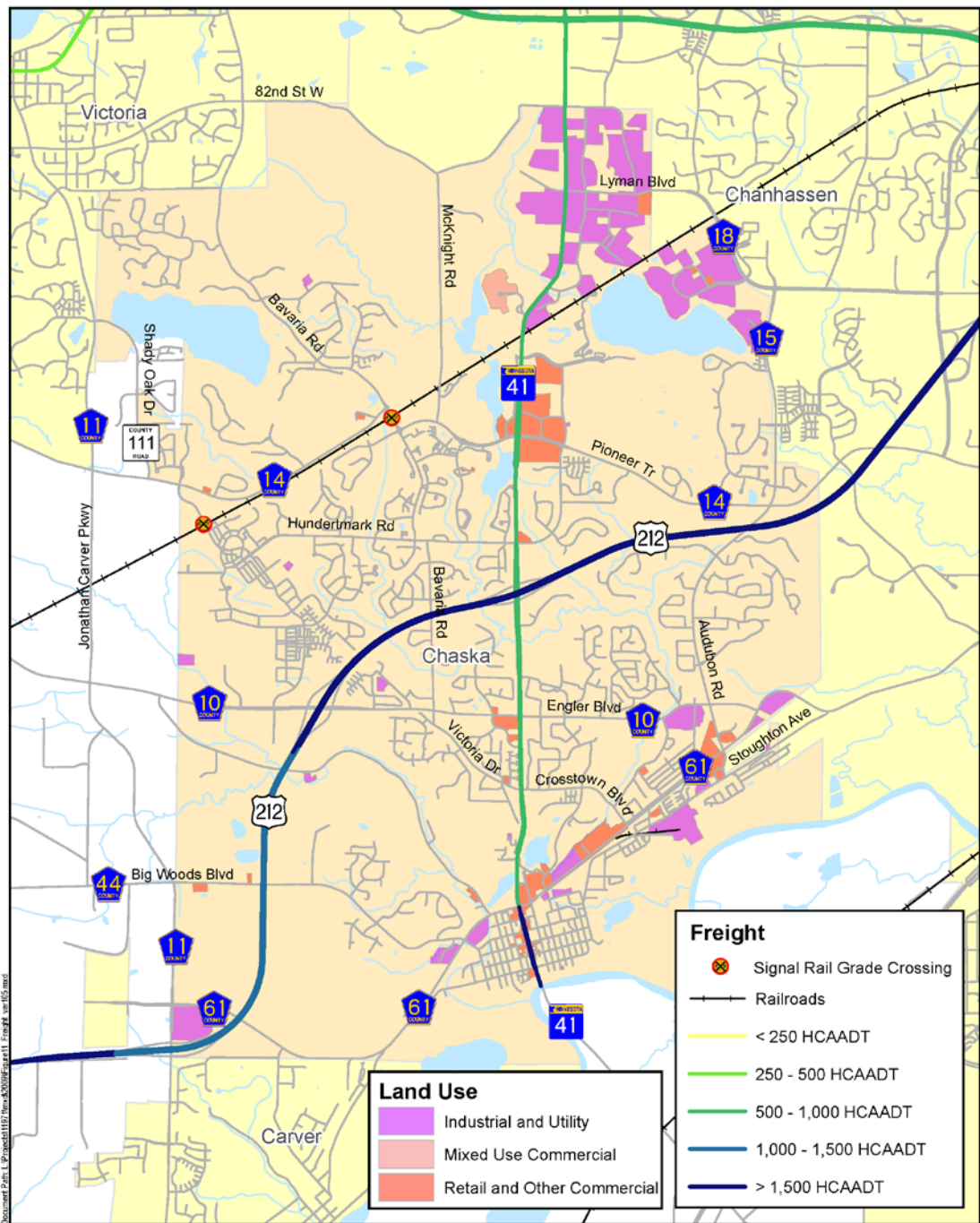
The CSAH system connects to heavy freight corridors and provides first- and last- mile connections to local customers and businesses. CSAH routes that parallel interstate highways or connect to industrial and commercial centers most significantly support the transportation of freight within Chaska.

The rail network in Chaska includes an active Twin Cities and Western Railroad Company (TCWR) rail line located in the northern portion of the City paralleling TH 212 as shown in FIGURE 6.12. The TCWR rail line provides important regional and local connections, most notably to downtown St. Paul and then continues to Chicago, Illinois.

There are no barge facilities or intermodal freight terminals within the City of Chaska.

² Carver County 2040 Comprehensive Plan, 2018.

FIGURE 6.12: FREIGHT



Freight
 Chaska Transportation Plan Update
 City of Chaska

Figure 11

Freight Generators

Concentrations of business activity within the City of Chaska and throughout Carver County have been identified by the Minnesota Department of Employment and Economic Development (DEED). Concentrations, or “economic clusters”, of industrial and major business activity are key locations for freight activity. Industrial clusters are those where more than half of all jobs are in freight-intensive industries such as manufacturing, wholesale trade, and construction, and major clusters represent large employment centers with more than 50,000 jobs.

The corridors TH 212 and TH 41 in Chaska have been identified as a major industrial economic cluster having significant freight activity within the City and serving as a center for both employment and the generation of truck trips within Carver County.³ Many of the facilities within the cluster are manufacturing sites, along with several transportation and warehousing facilities. The TCWR railroad track runs parallel to TH 212 and connects to major industrial locations in northern Chaska.

Heavy Commercial Vehicle Volumes

Existing heavy commercial annual average daily traffic (HCAADT) volumes are provided in FIGURE 6.12. High volume corridors include TH 212 and TH 41. The most heavily truck-travelled portions of the interstate highway network in Carver County occur on TH 212, TH 41 and TH 5. Those highways represent the top 10 truck count locations in Carver County and carry the bulk of the County’s highway freight.

Top Interstate Truck Count Locations in Chaska:

- » TH 212 East of Junction with TH 1 (City of Chaska): 1,750 HCAADT
- » TH 212 North of Junction with CSAH 10 (City of Chaska) 1,650 HCAADT
- » TH 41 South of CSAH 61 (City of Chaska): 1,600 HCAADT

SAFETY AND CAPACITY ISSUES

All industrial areas in Chaska are located with adequate access to the metropolitan highway system. The Interstate and Minnesota Trunk Highway systems are all built to 10-ton axle loading standards, TH 212 and TH 41 are part of the National Truck Network and the Minnesota Twin Trailer Network, allowing extra capacity and flexibility for commercial trucking. This major highway coverage reduces the impact of truck traffic on local roadways and minimizes the potential for disruption of neighborhoods. Two locations within the City of Chaska that have insufficient width requirements for a 10-ton truck:

- » Chaska Boulevard (CSAH 61) just east of TH 41
- » CSAH 15 intersection with CSAH 10

³ 2017 Metropolitan Council’s Regional Truck Highway Corridor Study

Truck travel reliability and freight mobility concerns have been identified within the City's freight network. Poor truck travel time reliability generally coincides with routes that contain several intersections. In Chaska, the stretches of Chestnut Street (TH 41) and Chaska Boulevard (CSAH 61) traverse busy commercial and industrial centers and contain several intersections within a relatively short distance, which contribute to poor reliability due to the significant amount of control delay imposed at each signalized intersection.⁴

In 2017 MnDOT released a study on utilizing truck GPS data for performance analysis in the Twin Cities metropolitan area. The study concluded that most truck bottlenecks in the metropolitan area are located at interchanges. In Carver County, the top morning peak truck bottlenecks identified included TH 212 east of Cologne approaching Chaska.

The unreliable travel times observed in these areas are likely due to trucks navigating roadways with increased demand. According to MnDOT traffic count data, the TH 212 and TH 41 corridors are among the most heavily utilized routes in Carver County. Demand at this level can contribute to poor truck travel time reliability as roadways approach capacity-constrained conditions.

In understanding freight safety and capacity issues, it is important that commercial vehicle traffic from industrial, warehouse and commercial land uses be adequately considered. Increased traffic can be sufficiently accommodated through the following measures:

- » Locating freight-intensive land uses in areas that are proximal to the metropolitan highway system and with ample access to minor arterials;
- » Utilizing acceptable design standards on arterials, ensuring adequate turning radius, pavement depth, and space for commercial vehicles; and
- » Providing adequate signage and marking along roadways to minimize commercial vehicle traffic through residential neighborhoods.

IMPROVEMENT PROJECTS

Several planned projects on the County roadway system will support the freight network in the City of Chaska and are identified below⁵:

- » TH 212 – Upgrade to a four-lane expressway from Cologne to Carver (unfunded priority project).
- » TH 41 – Expansion from two-lane roadway to a four-lane roadway from TH 212 to TH 7. The segment from TH 212 to CSAH 14 is included in the 2017-2022 County CIP and the remaining segment is an unfunded priority project.

⁴ Ibid.

⁵ Carver County 2040 Comprehensive Plan, 2018

- » CSAH 10 – Reconstruction of CSAH 10 east of CSAH 11 and west of West Creek Lane (2017-2022 CIP)

FUTURE CONSIDERATIONS

The City of Chaska is continuing its development as a major hub of industrial centers, business locations, and commercial districts. Transportation system improvements recommended by the City accommodate these continually changing land uses and facilitate increased demand for efficient freight operations to serve these new and growing business developments.

In recent years, e-commerce and day-of deliveries have also become increasingly more important to the national economy and is reflected at a regional level throughout the greater Twin Cities area. The demands of customers to receive products within the shortest amount of time has, and will continue to, increase freight traffic on major and local roadways. Given the proximity of Chaska to the Twin Cities and presence of several industrial clusters, it is imperative that these trends be planned for to maintain traffic flows and avoid congestion along roadways in Chaska.

More cost-effective strategies must be implemented to address regional mobility issues. One strategy proposed for implementation is strategic capacity enhancements. Projects in the form of new interchanges, non-priced managed lanes and limited general-purpose lanes may be needed to address corridor congestion and provide lane continuity for an existing facility or to complete an unfinished segment of the Metropolitan Highway System.

AVIATION PLAN

The Twin Cities metropolitan area is served by one commercial airport, seven reliever airports, and two seaplane bases. Metropolitan Council's 2040 TPP notes that growth in general aviation is essentially flat, but growth in commercial airport activity is projected to continue through 2040. Chaska does not contain any airports; however Flying Cloud Public Airport is five miles east of Chaska in the City of Eden Prairie and serves primarily business and personal aircrafts. Scheduled commercial passenger service is available at the Minneapolis/St. Paul International Airport located approximately 20 miles east of Chaska. Metropolitan Council's 2040 TPP has identified airport service areas based on forecasts for when and where metropolitan growth is likely to occur. Based on these forecasts no new general aviation airports are proposed in the City.

Multiple buffer zones protect the function of each general aviation airport and ensure that surrounding land use is compatible. A 3-mile radius has been established with general requirements for noise, zoning, and infrastructure. Within a 6-mile radius, no new landfills or wind towers are permitted. The Flying Cloud Public Airport noise radius does not intersect

Chaska, so the aircraft takeoffs and landings are deemed to be too far from Chaska to create a noise problem in the City.

DEVELOPMENT AND LAND USE

Because of their role in national and international travel, airports are primarily regulated through the Federal Aviation Administration (FAA). The FAA must approve any application to construct a structure 200-feet above ground level. The FAA requires Form 7460-1 "Notice of Proposed Construction or Alteration," under code of federal regulations CFR-Part 77, be filed for any proposed structure or alteration that exceeds 200-feet. FAA Form 7460-1 can be obtained from FAA headquarters and regional offices. This form must be submitted 30 days before alternation or construction begins or the construction permit is filed, whichever is earlier. In addition, MnDOT must also be notified of the proposed development. The Minneapolis/St. Paul Airport Community Zoning Board's land use safety zoning ordinance should also be considered when reviewing construction in the City that raises potential aviation conflicts.

Structures which are 200-feet or higher above ground level may pose hazards to air navigation. Chaska has no existing structures of this height. Structure height in Chaska is guided by the City's subdivision ordinance. Although not common practice, it is possible there could be structures over 200-feet constructed in Chaska due to planned unit developments or other special circumstances. When possible, tall structures which could pose hazards to air navigation should be clustered. Any applicant who proposes to construct such a structure shall follow the proper procedures required by law, as outlined above.

HELIPORTS

The Twin Cities metropolitan area currently does not contain a freestanding public heliport facility. Numerous helicopters are based in the metropolitan area, mostly at public airports. In addition, there are several private heliports in the metropolitan area, mostly at hospitals. The closest heliport to the City is located in the City of Waconia, eight miles west of Chaska. No heliports currently exist in Chaska.

The Chaska Zoning Ordinance provides for "minor heliports" within industrial districts by Conditional Use Permit provided certain standards are met. The standards were adapted from Metropolitan Council's model heliport ordinance. The City recognizes that potential problems are associated with helicopter operations in terms of safety and noise impacts relative to certain types of land uses, particularly residential areas. Conversely, a heliport may be quite desirable in one or more of the City's industrial districts for economic and potentially emergency use reasons.

SEAPLANES

Seaplanes occasionally land on Hazeltine Lake and Lake Bavaria in northern Chaska but none of these planes are based on these two lakes. The frequency of such landings is quite rare and has caused no known conflicts to date. The operation of seaplanes on Hazeltine Lake and Lake Bavaria must conform to all applicable marine traffic rules and regulations.

PRIVATE AIRPORTS

No private airports exist in Chaska. As the City is predominantly urban and suburban, this type of land use becomes less compatible. Future development of private airports is not encouraged by the City.

TRANSIT SYSTEM PLAN

As more people choose to live, work, and travel in Chaska, public transit is a key component of meeting mobility needs and linking the City's residents to regional job centers and activities. Transit systems, both fixed route and demand-response, provide for the varied transit needs of the City. Affordable and convenient transit is an essential characteristic of an urban community.

Transit is an important element in the overall transportation network as it offers access to medical care, shopping, and government services for those who cannot access or operate a vehicle, provides opportunities for people who prefer an alternative to automobile travel, and removes a portion of existing or future automobile traffic from the roadway, reducing travel time and congestion for other vehicles on the roadway.

The City of Chaska is committed to supporting and preserving existing transit services and facilities while also seeking ways to improve and expand the transit system. The City can support transit service by promoting more transit supportive land use patterns as sections of the community continue to develop. This section of the Transportation Plan identifies the existing transit-related services, facilities, and programs within the City of Chaska, suggests improvements, and discusses the City's role in supporting the transit system.

The transit system in the City of Chaska is typical of suburban cities that are still developing or approaching full development. The most visible services within the City are the express routes to downtown Minneapolis that operate during the peak periods from strategically located stations and park and rides. While this service is the most prominent, it is only one element of a comprehensive collection of services, facilities, and programs that includes express and local routes, demand responsive services, and transit alternatives.

TRANSIT MARKET AREAS

There are five existing transit service areas for all communities within the Twin Cities metropolitan area as identified by the Metropolitan Council⁶. The market service areas are defined by:

- » Population density
- » Employment density
- » Automobile availability
- » Intersection density

TABLE 6.14 describes community, land use, ridership potential, and transit service characteristics for the five transit market areas. Chaska is classified as a Suburban Edge Community, with the central part of the City classified as Emerging Transit Market Area III, and the remainder of the

⁶ Metropolitan Council 2040 Transportation Policy Plan, 2015.

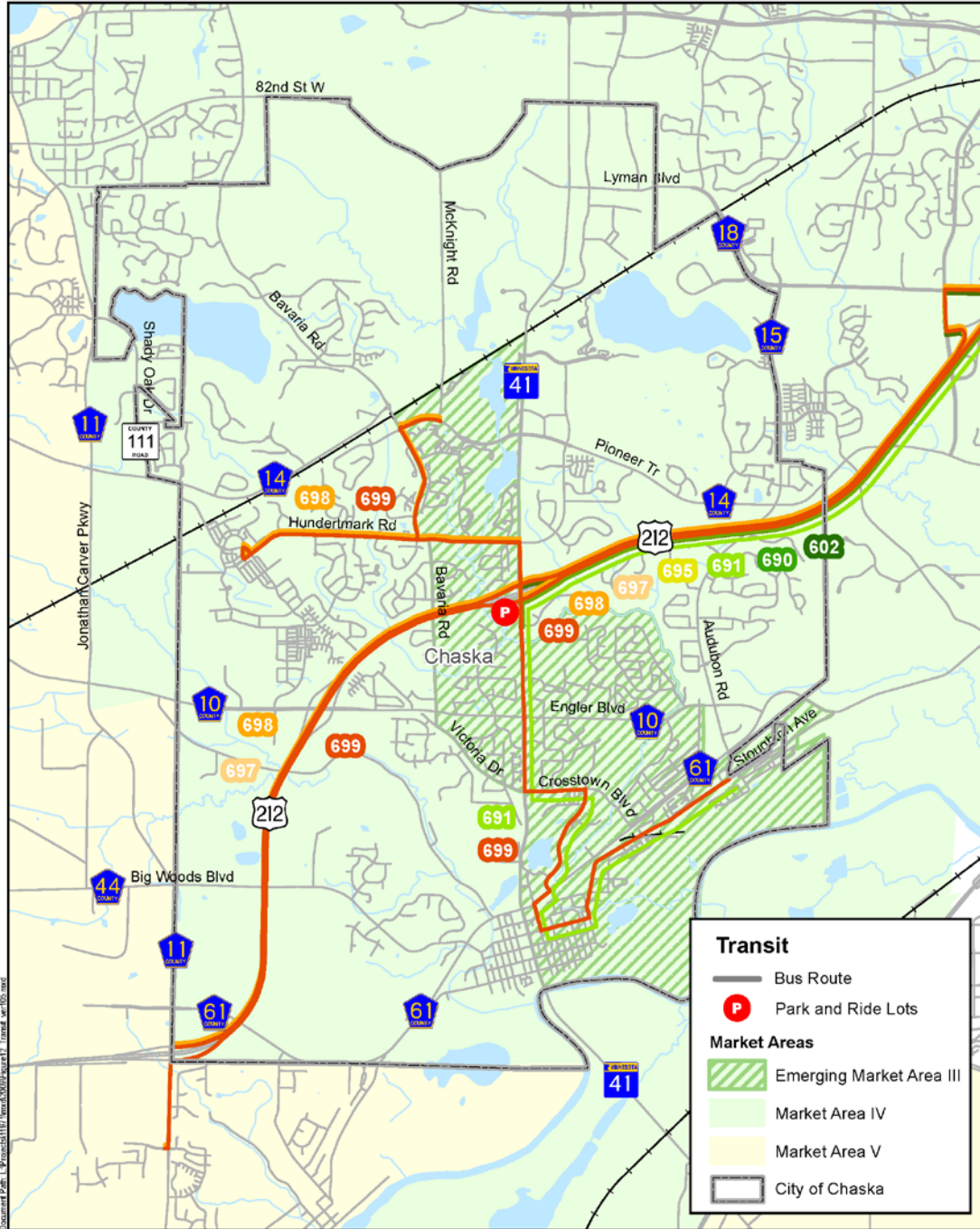
City is classified as Transit Market Area IV. Chaska’s suburban roadway pattern and moderate densities provide moderate potential for transit service options. Additionally, FIGURE 6.13 displays the transit market areas within Chaska along with the City’s existing transit system.

TABLE 6.14: METROPOLITAN COUNCIL TRANSIT MARKET AREAS

Market Area	Community Classification	Land Use Pattern	Ridership Potential	Service Options	Service Characteristics	Presence in Chaska
I	Urban Center.	Highest concentration of housing, employment, and activities.	Highest potential for transit ridership.	Fixed local routes, all-day express services, special needs paratransit including ADA and seniors, and ridesharing.	Frequencies: 15 to 30 minutes local and circulator; Span of Service: 18 to 24 hours, 7 days a week; Access: Locals spaced 0.25 to 0.5 miles apart with 8-10 bus stops per mile.	None
II	Urban Center.	High concentrations of housing, employment, and activities.	Approximately half ridership potential of Market Area I.	Fixed local routes, all-day express routes, small-vehicle circulators, special needs paratransit including ADA and seniors, and ridesharing.	Frequencies: 15 to 30 minutes or 30 to 60 minutes depending on land use pattern; Span of Service: 12 to 20 hours per day, 7 days a week; Access: Locals spaced 0.5 to 1.0 miles apart with 6 to 8 bus stops per mile.	None
III	Primarily Urban, with some Suburban, Suburban Edge, and Emerging Suburban Edge.	Moderate concentration of housing and employment.	Approximately half ridership potential of Market Area II.	Peak-only express services, small vehicle dial-a-ride, midday circulators, special needs paratransit including ADA and seniors, and ridesharing.	Frequencies: Peak-period-only express service, 1 to 2-hour midday frequencies, dial-a-ride advance registration; Span of Service: 10 to 14 hours a day, weekdays and limited weekends; Access: Services tied to park and ride lots and hubs.	Central Chaska

Market Area	Community Classification	Land Use Pattern	Ridership Potential	Service Options	Service Characteristics	Presence in Chaska
IV	Suburban Edge and Emerging Suburban Edge.	Low concentration of housing and employment.	Approximately half ridership potential of Market Area III.	Dial-a-ride, volunteer driver programs, and ridesharing.	Frequencies: As needed; Span of Service: 8-10 hours per day, weekdays; Access: Services tied to park and ride lots and hubs.	Northern, Eastern, and Western Chaska
V	Rural and Agricultural.	Lowest concentration of housing and employment.	Lowest potential for transit ridership.	Dial-a-ride, volunteer driver programs, and ridesharing.	Frequencies: As needed.	Just Outside Western Border

FIGURE 6.13: EXISTING TRANSIT SYSTEM IN CHASKA, 2019



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Figure 12

*Route numbers may change over time as services adapt to meet transit needs in the area

CHASKA TRANSIT SERVICES

The following public transit providers operate in the City of Chaska:

- » SouthWest Transit
- » Carver Area Rural Transit (CART)
- » Metro Mobility

Fixed-Route Transit Service

Fixed-route transit service includes both local and express bus service that operates on a regular schedule and follows a consistent route. Fixed-route transit service in Chaska is primarily provided by SouthWest Transit. In late 1986, Chaska joined the cities of Chanhassen and Eden Prairie in creating the SouthWest Transit Commission which provides transit for the three communities.

The routes operated by SouthWest Transit provide services in Chaska, as well as Carver County, along with services to and from Downtown Minneapolis, the University of Minnesota, Normandale Community College, I-35W/Lake Street, Southdale Mall, and SouthWest Station in Eden Prairie. The majority of SouthWest Transit services are peak-period express routes along the TH 212 corridor to Minneapolis. TABLE 6.15 identifies the characteristics of the routes serving the City of Chaska.

TABLE 6.15: CHARACTERISTICS OF EXISTING FIXED ROUTES SERVING CHASKA, 2019

Route	Provider	Type	Weekday Trips	Service Area
690	SouthWest	Express	Twenty-four (24) morning trips; Twenty (20) afternoon trips	East Creek Station, SouthWest Village, Chanhassen Transit Station, Anderson Lakes Parkway, Preserve Mall, Hennepin Village, Dell Road, Valley View Road, SouthWest Station, downtown Minneapolis
691	SouthWest	Express	One (1) morning trip	Audubon Road, Walnut Park and Ride, East Creek Station, SouthWest Village, SouthWest Station, downtown Minneapolis
695	SouthWest	Express	Seven (7) morning trips; Six (6) afternoon trips	East Creek Station, SouthWest Village, SouthWest Station, University of Minnesota
697	SouthWest	Express	Four (4) mornings trips; Two (2) afternoon trips	Carver Station, East Creek Station, downtown Minneapolis
698	SouthWest	Express	Eleven (11) morning trips; Fourteen (14) afternoon trips	McKnight Road, Clover Field Park and Ride, East Creek Station, SouthWest Village, Chanhassen Transit Station, SouthWest Station, downtown Minneapolis, University of Minnesota

699	SouthWest	Express	Nine (9) morning trips; Ten (10) afternoon trips	Carver Station, Audubon Road, McKnight Rad, Walnut Park and Ride, Clover Field Park and Ride, East Creek Station, SouthWest Village, downtown Minneapolis
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**Route numbers may change over time as services adapt to meet transit needs in the area*

SouthWest Transit offers commuter express service to and from Minneapolis with trips toward Minneapolis in the morning and returning to Chaska in the afternoon. The anchor for this service is a park and ride lot in Chaska which is identified in TABLE 6.16.

TABLE 6.16: CHASKA EXISTING TRANSIT STATIONS AND PARK AND RIDE FACILITIES, 2019

Name	Type	Routes
East Creek Transit Station	Park and Ride	690, 691, 395, 697, 698, 699, SW Flex Blue

Demand Response Services

SouthWest Prime

SouthWest Prime (SW Prime) is a transit service provided by SouthWest Transit for Chaska, Eden Prairie, Chanhassen, Carver, and Victoria. SW Prime is an on-demand ride service which allows riders to request a ride through a smartphone app (SW Transit Phone App), website (SWPrime.org), or by phone. SW Prime vehicles are ADA compliant and service is provided Monday through Saturday; Southdale Mall is also serviced on Saturday. During longer than usual wait times, SW Prime will offer a Lyft coupon code to riders good for a discount on Lyft service that occurs within the SW Prime service area.

Smartlink Transit

SmartLink Transit is a general public dial-a-ride service offered 6:00 a.m. through 7:00 p.m. Monday through Friday in all of Carver County and Scott County. Smartlink is provided through the Metropolitan Council’s Transit Link service. All SmartLink vehicles are equipped with wheelchair lifts. SmartLink offers a suite of services that includes dial-a-ride public transit, medical transportation, and rides provided by volunteer drivers. Passenger fares vary based on service type and distance.

Metro Mobility ADA Services

Metro Mobility is a federally mandated paratransit service per the Americans with Disabilities Act (ADA). The service, provided by the Metropolitan Council, is a shared ride public transportation service for certified riders who are unable to use regular fixed-route buses, including SouthWest Transit, due to a disability or health condition. Trips are provided for any purpose. ADA guidelines determine eligibility for Metro Mobility services.

Other Transit Services

Chaska residents are eligible to be part of the regional van pool and ride-matching services administered by Metro Transit. Metro Vanpool is a service for those wishing to share a ride among an organized van pool. The vans are provided by Metro Transit. Ride-matching services are also available for those who want join carpools using personal vehicles. Chaska park and ride lots are all designated as park and pool facilities, where car or van poolers can meet. Carpool and vanpool participants, like transit riders, qualify for the regional "Guaranteed Ride Home" program, may use High Occupancy Vehicle (HOV) lanes, High Occupancy Toll (HOT) lanes, and meter bypass ramps, receive parking discounts in some circumstances, and may participate in occasional promotional benefits.

TRANSIT FACILITIES

Transit Advantages

Transit advantages are physical transportation infrastructure designed to provide a travel time advantage for transit vehicles compared to other automobiles using the same facility. Examples include dedicated lanes, transit signal priority, bus only shoulders, HOV lanes, and ramp-meter bypasses. Transit advantages improve the attractiveness of transit by allowing buses to move faster than automobiles making the same trip during significant congestion.

The physical transit advantages offered in Chaska that are currently used by transit service are:

- » Bus-only shoulder lanes on TH 212 in both travel directions.

FUTURE TRANSIT FACILITIES

In the coming years, as funding allows, the City of Chaska plans to support the expansion of SouthWest Transit. The primary focus of SouthWest Transit would be to expand services that support local economic development initiatives and local employment travel needs.

Supplementing the existing commuter express service would also be an objective. Another goal of SouthWest Transit is to increase ridership utilizing the SW Prime service.

As SouthWest Transit's service area population and demographics continue to grow and change, there will be a need for new and modified express bus services that will continue to meet the transportation needs of service area residents and businesses. Planned expanded express services provided by SouthWest Transit include the following:

- » Increased commuter express services to Downtown Minneapolis/University of Minnesota.
- » Increased reverse commute services from Minneapolis to the SouthWest Transit service area.

- » Suburb-to-suburb express services connecting the SouthWest Transit service area with major attractors and generators throughout the Twin Cities Metro Area. Service includes planned express service expansion along the I-494 corridor to the Mall of America and Minneapolis-St. Paul International Airport.
- » Expansion for a potential Southwest Transit park and ride system located at TH 5 and Rolling Acres Road.

SouthWest Transit plans to continue its history of being a pioneer in transit service innovation within the Twin Cities region by implementing autonomous vehicle technologies throughout its services. SouthWest Transit is planning to work closely with local, county, and state governments, as well as with MnDOT in implementing autonomous services that are safe, trusted, reliable and cost effective. Additionally, SouthWest Transit plans on implementing electric vehicles technologies across all its services in cases where electric vehicles show potential to significantly increase the cost effectiveness of services and improve air quality. SouthWest Transit is already piloting electric vehicles as part of the SW Prime service, with plans to implement electric vehicle technology into its fixed route transit fleet.

Southwest Light Rail Transit (SWLRT) is slated to begin operation in 2023. Once constructed, SWLRT stands to drastically impact the transit landscape of the SouthWest Transit service area. SouthWest Transit plans to alter its operations in the following ways:

212 Express Connector service will be implemented along TH 212 connecting East Creek Transit Station in Chaska and SouthWest Village in Chanhassen with SWLRT at SouthWest Station in Eden Prairie. 212 Express Connector service would operate from morning to evening seven days a week and is planned to be operated as an autonomous service once feasible.

- » SW Prime Connector service will be utilized to offer first/last mile services between SouthWest Transit park and rides, local businesses, and residential buildings. SW Prime Connector service hours would mirror 212 Express Connector service hours and is planned to operate as an autonomous service once feasible.
- » Should a park and ride be constructed in Victoria, a fixed route connector service may be implemented that would connect the park and ride with the SouthWest Transit SWLRT Service Plan initiatives. This connector service would utilize either TH 5 connecting to Chanhassen Station and SouthWest Station/SWLRT, and/or Bavaria Rd to East Creek Station in Chaska.
- » Fixed route peak connector service between Waconia and East Creek Transit Station in Chaska is also being considered.

TRAVEL DEMAND MANAGEMENT FOR TRANSIT

Travel Demand Management (TDM) services include programs that promote and support any alternative to commuting via single-occupant vehicle (SOV) and may include ride-matching, carpool or vanpool services as previously described. Transit promotions, employer-subsidized bus passes, flexible work hours, and telecommuting are some of the possible strategies to reduce SOV use. Metro Transit provides a regional TDM service through its Metro Commuter Services group, and the City of Chaska residents may use services and programs free of charge to benefit employee travel arrangements and budgets.

BICYCLE AND TRAIL SYSTEM PLAN

PLANNING FOR A CONNECTED PEDESTRIAN AND BICYCLE SYSTEM

The City of Chaska is a suburban edge community that has experienced significant growth over the last several decades. Throughout this expansion, the City has been implementing a plan for park and trail development that provides residents with a well-established system of recreational amenities. These amenities include trails and sidewalks that provide important enhancements to the City's transportation system and allow residents and visitors an alternative approach for travelling to work, school, employment centers and transit centers. The City of Chaska continues to improve its trail system and future multimodal planning will focus on filling gaps in the existing local trail system and connecting the local system to the regional parks and trail systems, regional employment clusters and regional transit facilities.

EXISTING TRAIL SYSTEM

The City of Chaska has a well-developed local trail system including connections to local parks, regional trails, and transit facilities. Over the last decade, Chaska has incorporated off-street trails, sidewalks, and bikeways into major roadway improvements throughout the City, creating key linkages within the bicycle network. Many roadway improvement projects have included trails on both sides of roadways, providing more connections to neighborhoods and local trails and enhancing the local trail system. North-south trails extend along one or both sides of Chestnut Street (CSAH 41), Audubon Road, and Bavaria Road. East-west trails extend along Engler Boulevard (CSAH 10) and Hundertmark Road. Additional local trails connect these major connectors as well as connect to local parks and business centers. As the City's trail system continues to expand, it will be important to identify gaps in the existing system and implement enhancements to the future system to improve connections and provide additional access to regional parks and trails and connections to regional employment clusters. The existing and proposed trail system within the City is identified in FIGURE 6.14.

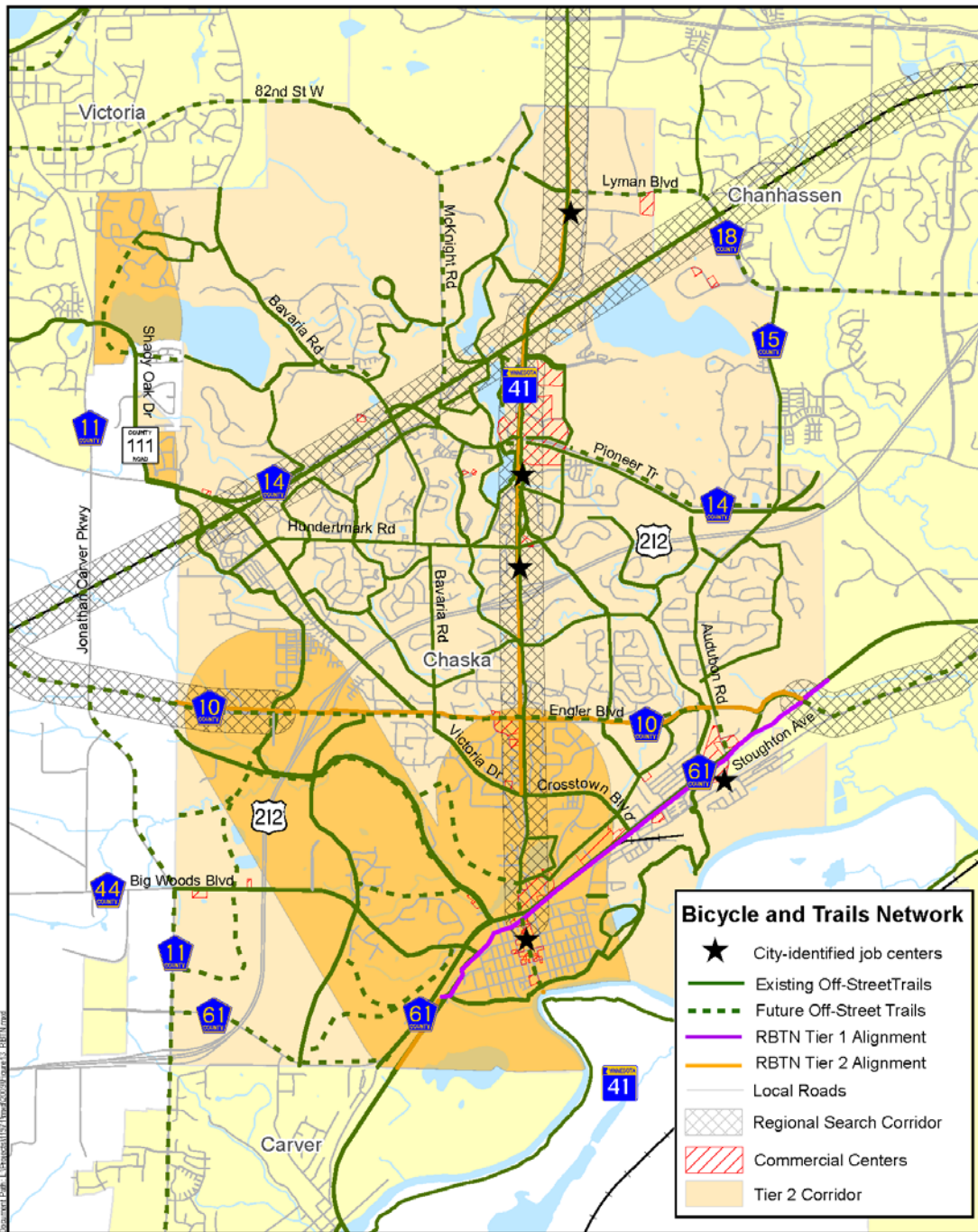
Gaps in the Existing Trail System

The local trail system within the City of Chaska is robust and includes important north-south and east-west trails that serve as the main arteries to a growing network. Improving the local trail system involves identifying gaps and planning to fill those gaps to enhance connections to key destinations within and outside City limits. The primary connections for the local trail system include the following:

- » Connections to local parks and schools;
- » Connections to regional parks and trails;
- » Connections to regional employment clusters;
- » Connections to the local transit system;

- » Connections to the Regional Bicycle Transportation Network (RBTN).

FIGURE 6.14: BICYCLE AND TRAILS NETWORK



SRE **Bicycle and Trails Network**
 Chaska Transportation Plan Update
 City of Chaska

Figure 13

Connections to Regional Employment Clusters

The City of Chaska has identified five regional employment clusters that are characterized by significant retail, professional services, commercial, and industrial development. The five regional employment clusters include:

- » Hazeltine Boulevard at Lyman Boulevard
- » Chestnut Street at Pioneer Trail
- » Chaska Boulevard at Chestnut Street
- » Chaska Boulevard at Audubon Road
- » Chestnut Street and Hundertmark Road

Creating strong multi-modal connections to regional employment clusters with trails and sidewalks will enhance the trail network within Chaska by providing residents and visitors alternatives to driving to frequently utilized services. The regional employment clusters are commonly located at the intersection of major highways and can create obstacles for local trails often due to the presence of large bridges and expansive intersections nearby or within the regional employment cluster locations. Planning for trail connections to regional employment cluster locations is an important first step in ensuring that future development includes multi-modal facility enhancements, such as off-road trails, independent pedestrian bridges, and ADA compliant roadway crossings.

Another important element of the City's trail system is its relationship to the Chaska transit system. Better trail connectivity to park and ride facilities as well as commercial areas in the City offer users the opportunity to utilize the existing trail system to travel to and from transit nodes throughout the City. By increasing the number of trail connections to the transit system, including park and ride lots and transit stations, commuters may be encouraged to utilize transit-related transportation.

Currently, there are three trail connections to the park and ride lot located on Chestnut Street. As additional transit facilities are developed within Chaska, the City will need to ensure adequate pedestrian and bicycle trail connections are available.

Regional Parks System Components

Regional parks system components such as regional parks, park reserves, special recreation features, and regional trails are identified in the 2040 Metropolitan Council Regional Parks Policy Plan. There are no regional parks within Chaska, however, there is a federal land located along the Minnesota River and a regional trail located within City limits. The regional trail within the City Chaska is the Minnesota River Bluffs LRT Regional Trail ⁷. Further information regarding this trail is listed below:

⁷ 2040 Regional Parks Policy Plan – Metropolitan Council

- » Minnesota River Bluffs LRT Regional Trail – This is a 12-mile paved trail that follows an old railroad route between Hopkins and Chaska. The trail runs along several lakes and parks including Shady Oak Lake, Miller Park, Riley Lake Park and the natural forested hills of the Minnesota River Valley.

REGIONAL BICYCLE TRANSPORTATION NETWORK (RBTN)

The City of Chaska is a leader in developing bicycle and trail facilities and planning the next phases of the multi-modal system within the City should correspond closely to the corridors identified in the Regional Bicycle Transportation Network (RBTN) to provide seamless connections to neighboring communities and the broader regional transportation network.

The RBTN was developed as part of the to the Metropolitan Council 2014 Regional Bicycle System Study, which highlights important regional transportation connections for cyclists. The RBTN serves as framework for designated regional corridors and alignments and defines critical bicycle transportation links to help municipalities guide their bikeway planning and development. The RBTN is subdivided into two tiers for regional planning and investment prioritization:

RBTN Tier 1

Priority RBTN corridors and alignments. These corridors and alignments have been determined to provide the best transportation connectivity to regional facilities and developed areas and are given the highest priority for transportation funding. RBTN Tier 1 corridors and alignments within Chaska include:

- » Chaska Boulevard (Alignment)

RBTN Tier 2

RBTN corridors and alignments. These corridors and alignments are the second highest priority for funding. They provide connections to regional facilities in neighboring cities and serve to connect priority regional bicycle transportation corridors and alignments. RBTN Tier 2 corridors and alignments within Chaska include:

- » Engler Boulevard (Alignment)
- » Chestnut Street/Hazeltine Boulevard (Alignment)
- » Creek Road (Corridor)
- » Chestnut Street south of CSAH 10 (TH 41) (Corridor)
- » Victoria Drive (Victoria, MN) (Corridor)

The RBTN corridors and alignments within the City are indicated in FIGURE 6.14.

LINKING LOCAL TRAILS TO THE RBTN

The goal of the RBTN is to develop an integrated seamless system of on-street bikeways and off-road trails that complement each other to most effectively improve conditions for bicycle transportation at the regional level. Cities, such as Chaska, are encouraged to plan for and implement future bikeways within and along these designated corridors and alignments to support the RBTN vision.

The RBTN corridors and alignments make up the trunk arterials of the overall system of bikeways that connect to regional employment and activity centers. These are not intended to be the only bicycle facilities in the region, and local municipalities, such as Chaska, are encouraged to consider planning for any additional bike facilities desired by their communities. RBTN corridors are shown where more specific alignments within those corridors have not yet been designated, so the City of Chaska is encouraged to use their comprehensive planning process to identify suitable alignments within the RBTN corridors.

In addition, Chaska will consider planning local on- and off-road bikeway networks to connect to the designated Tier 1 and Tier 2 alignments, as well as any new network alignments within RBTN corridors to be proposed in future comprehensive plans. Currently, local trails in Chaska provide important connections to the Minnesota River Bluffs LRT Regional Trail. The regional trail connections provide residents and visitors easy off-street access to regional parks, employment clusters, and the RBTN.

PLANNING FOR THE FUTURE

Throughout the City of Chaska's comprehensive planning effort, the City will consider how to address existing transportation needs, while setting the stage for future growth. Items for consideration include the following:

- » Funding Strategies
- » System Preservation
- » Connected Vehicles and Autonomous Vehicles
- » Travel Demand Management
- » Complete Streets and Safe Routes to School

FUNDING STRATEGIES

Roadways under City jurisdiction are maintained, preserved, constructed, and reconstructed by the City's Department of Public Works. Funding for these activities, including the administrative costs of operating the Department, are obtained from a variety of sources, including ad valorem taxes, special assessments, development fees, and tax increment financing. A major concern of the City is the availability of sufficient funds for maintenance and construction activities. If funds are unavailable, needed projects may be delayed or terminated and maintenance of existing facilities may fall short of acceptable standards. The following explains the existing sources of funding and potential new sources of revenue.

State Aid

An important source of revenue to the City is State Aid. A network of City streets called Municipal State-Aid Streets (MSAS) are eligible for funding assistance with revenue from the State Highway User Tax Distribution Fund. This constitutionally-protected funding allocation is comprised of gasoline taxes and vehicle registration fees and is allocated based on a formula that considers the population of a City and the financial construction needs of its MSAS system.

Ad Valorem Taxes

For situations in which 20 percent of the cost of a City project can be assessed to the adjacent property owners, the remaining cost of the project can be added to the ad valorem or property taxes of the remaining property owners in the City. Ad valorem taxes for street improvements are excluded from the State-mandated levy limits.

Tax Increment Financing

Establishing a tax increment financing (TIF) district is a method of funding infrastructure improvements that are needed immediately using the additional tax revenue to be generated in future years by a specific development. Municipal bonds are issued against this future revenue, which is dedicated for a period of years to the repayment of the bonds or to other improvements within the TIF project area. TIF districts can accelerate economic development in

an area by ensuring that the needed infrastructure is in place without requiring support from the usual funding.

Grant Funding

There are many opportunities for metropolitan cities to take advantage of various grant funding initiatives. Regional Solicitation and Highway Safety Improvement Program (HSIP) are among grant solicitations for the Twin Cities metropolitan area. The City should monitor the grant funding opportunities available for applicable projects and submit applications when possible.

SYSTEM PRESERVATION

Infrastructure systems such as roadways, bridges, culverts, and sidewalks have become expensive and challenging to maintain in today's environment with aging infrastructure, rising costs of materials, and stagnant or declining revenue. In fact, many local agencies are being forced to pause, and ask questions about the costs and benefits of continuing to maintain assets throughout their entire system, or if other approaches should be explored to better balance needs with available resources. Generally, approaches to be considered include:

Performance Standards and Measures

A performance-based approach improves the accountability of local infrastructure investments, assesses risks related to different performance levels, and monitors progress and increases transparency.

Project Prioritization

Project prioritization can help the City rank infrastructure needs in a manner that is consistent with preservation goals and objectives. This technique can help avoid the typical "worst first" approach to programming preservation projects that tends to invest limited resources in the most expensive improvements instead of directing maintenance funds to infrastructure that merely need rehabilitation, which will provide more cost-effective solutions in a timely manner.

New Revenue Sources

There are methods to capture new revenue streams to close the financial gap in maintaining assets in a state of good repair. Exploring new revenue sources will allow the City to expand and accelerate preservation initiatives.

New Maintenance Techniques

There are new maintenance techniques that can extend the lifecycle of an asset. For example, new maintenance techniques for roadway surfaces can provide longer service life and higher traffic volume thresholds, resulting in more stable road maintenance costs. Cost reduction of life cycle extension strategies which save money, or extend surface life, can directly benefit preservation needs, and minimize any identified financial gap.

Asset Management

Tracking assets and their condition will provide a stronger outlook on lifecycle costs and replacement schedules. This will help establish funding plans and identified future funding gaps or shortfalls.

CONNECTED VEHICLES AND AUTONOMOUS VEHICLES

Connected Vehicles (CVs) refers to vehicles that communicate with one another and with other elements of intelligent transportation infrastructure. Autonomous, automated, or self-driving vehicles (AVs) describes a spectrum of vehicles that require varying degrees of human control. Connected Automated Vehicles (CAVs) to refers to both technologies, which are automated vehicles connected to other vehicles and the transportation system.

There is a wide range of forecasted adoption scenarios for CV and AV technology. Analysts from the automotive industry tend to provide more conservative forecasts, while analysts from the technology world tend to be less conservative, with some forecasting heavy adoption by as early as 2030. Before widespread adoption occurs, there will be an extended period during which the developing CV and AV platform must coexist with human-operated personal vehicles, as well as with public transit, pedestrian users, and other modes. In Metropolitan Council's 2040 TPP, it is noted that the implications of connected and automated vehicles need to be thoroughly examined. As with many new transportation technologies, automated and connected vehicles are likely to penetrate urban markets prior to expanding to the suburbs, especially if they are initially developed through a ride-hailing platform.

In response to increased prominence of CV and AV technology, the role of regional and local transit providers could be reduced or become more specialized. Pedestrian and bicycle activity could become more regulated, so as not to interfere with automated systems on streets and sidewalks. As CV and AV technology is deployed in the Twin Cities, Chaska and other communities will be faced with policy considerations as they look to promote equity for all transportation users and continue to provide a balanced transportation system. Demand for CV and AV technology in Chaska is expected to be similar as in other suburban areas.

TRAVEL DEMAND MANAGEMENT

Research has shown that Travel Demand Management strategies are a useful technique in helping alleviate parking demands in a geographical area. TDM strategies are applied to help reduce the number of single occupancy vehicles traveling and parking in a certain area. Opportunities to encourage TDM strategies are highlighted throughout this section.

Bicycle Amenities

Actively promoting bicycling as an alternative means of travel to and from a destination can be achieved through information dissemination and the provision of bicycle storage facilities and adding on-street bicycle lanes and additional connections to trails. These actions can help decrease the demand for vehicle parking.

Car Sharing Provisions

Car sharing programs provide mobility options to a cross section of residents who would not otherwise have access to a vehicle. These programs encourage the efficient use of a single vehicle among multiple users, while reducing the amount of parking needed to accommodate each resident within a neighborhood. Zoning language can encourage or require new developments of a certain size to include off-street parking provisions for car sharing programs.

Shared Mobility

Shared mobility includes bikesharing, carsharing, and ridesourcing services provided by companies such as Uber and Lyft. Predictions indicate that by creating a robust network of mobility options, these new modes will help reduce car ownership and increase use of public transit, which will continue to function as the backbone of an integrated, multimodal transportation system.

COMPLETE STREETS AND SAFE ROUTES TO SCHOOL

Complete Streets are commonly defined as roadways that accommodate all users such as pedestrians, bicyclist, vehicles and transit, regardless of age and ability. This is important to consider when recognizing the diversity of people traveling throughout the community.

The Transportation Plan's goals and policies embrace several elements of complete streets, such as safety for pedestrians and bicyclists. MnDOT has adopted a Complete Streets Policy, last updated in May 2016, and has committed to assessing opportunities for incorporating complete street design principles in all MnDOT projects. MnDOT's Complete Streets Policy can serve as a resource to the City for incorporating complete street design standards into City projects.

Safe Routes to School is a national initiative to increase safety and promote walking and bicycling for America's youth. The Safe Routes to school program will assist in providing infrastructure and non-infrastructure grants to build trails, paths, and safe connections to local schools. Planning for safe routes to schools will require specific attention to certain elements such as bike routes, complete street treatments, sidewalk networks, pedestrian/bicycle amenities and wayfinding signage. Combined, these elements can create Safe Routes to Schools or Complete Streets.

GOALS AND POLICIES

Guidance for the development of the City's Transportation Plan is provided by the Metropolitan Council's 2040 Transportation Policy Plan (TPP), the Carver County Comprehensive Plan, and the Carver County Parks, Trails, and Open Space Plan. The role of the Metropolitan Council is to coordinate large-scale transportation planning efforts to benefit the metropolitan region. As a metropolitan community, Chaska's role is to respond to Metropolitan Council's initiatives and coordinate with adjacent communities, while addressing its local responsibility to improve the quality of life for its citizens, and as a part of this process the City has proposed the following transportation goals and policies:

ROADWAY SYSTEM GOALS

- » Develop, manage and maintain a roadway network that supports and promotes modern infrastructure conditions and standards, as well as promoting safety and healthy, livable communities.
- » Ensure that the roadway network can efficiently move people and goods throughout the City and the region.
- » Maintain and manage traffic demand and levels of service to meet the challenges and opportunities from growth and development.
- » Build and develop partnerships through cooperation and coordination among jurisdictions.
- » Identify sustainable funding sources to maintain and operate the City roadway system.
- » Develop and/or refine City policies related to operations, safety, mobility, planning, and funding of the roadway system.

TRANSIT SYSTEM GOALS

- » Create a strong transit system by integrating the City into the existing regional system which will enhance growth and development.
- » Establish multi-modal transportation options for Chaska residents and workers to support a high quality of life, economic development, a diverse workforce and the needs of an aging population.
- » Recognize the importance of an integrated system of bus and trails to create non-auto options for Chaska residents and workers.
- » Accommodate and support trends in autonomous and connected vehicle technologies, as well as shared mobility.

PEDESTRIAN AND BICYCLE GOALS

- » Prepare and implement a cohesive, effective, and efficient trail plan to foster the health and wellbeing of Chaska, its residents, and businesses by providing recreational and conservation lands sufficient to meet present and future needs.
- » Provide residents with parks and natural areas for recreational uses, protection of the natural environment and geographical characteristics of the county, as visual/physical buffering of land development, and to maintain the sense of place, ambiance, appearance, and cultural and natural history of the County.
- » Provide residents with a high quality, interconnected trail and bikeway system for recreation, fitness, and transportation and to tie parks and open spaces together with local communities.
- » Provide County residents with opportunities to engage in a variety of recreational activities that are enjoyable, in a physically attractive environment, and are affordable to citizens. In coordination with other local recreational services providers, the County will strive to provide residents with well-designed, effective, and interesting programs and services that complement other public and private providers.
- » Maintain an effective, ongoing means of communicating and interacting with residents about issues related to trails, recreation facilities, programs, and future development. To provide residents with the opportunity to participate in recreational activities and programs through the City and various public and private partners
- » Maximize the park, open space, trail, and recreational opportunities available to residents through the development of fair and equitable working partnerships between the City and other public agencies, local recreational program providers, local school districts, local cities and townships, and civic organizations.
- » To secure the funding necessary to carry out the vision of the Carver County Parks, Trails, and Open Space Plan.

FREIGHT GOALS

- » Support rail use along the current rail network.
- » Develop a roadway network that supports heavy commercial vehicles and removes bottlenecks to freight to reduce truck impact on the highway system.