



# TRANSPORTATION

## Overview

Carver is an Emerging Suburban Edge community, defined as an area that is in the early stages of transitioning into more urbanized levels of development. By 2040, significant population and employment growth is forecasted that will expand and intensify development patterns.

Accommodating future growth provides a key opportunity to improve the city's multimodal transportation network. The city needs to plan for the construction of new roads, the maintenance of existing roads, safety, nonmotorized transportation improvements, and overall enhancement of the transportation network for both local and regional connections. Additionally, the City of Carver may need to assess current transportation options to ensure they align with transportation preferences of residents and are fully accessible to all members of the community. This may include expansion of multimodal options and improvements to connectivity and safety.

The primary purpose of this chapter is to provide guidance to city staff and elected officials regarding the implementation of effective, integrated transportation facilities and programs through the 2040 planning timeframe. This chapter is consistent with regional requirements for the transportation element of the comprehensive plan as provided in the Metropolitan Council's 2040 Local Planning Handbook.

This chapter includes all modes of travel in and around Carver, including automobile, bicycle, pedestrian, freight, transit, and aviation. The parks chapter has additional content relevant to the trail network.

## Goals and Objectives

The City of Carver operates and maintains a roadway and trails system which, in conjunction with County facilities, provides a system that fulfills the basic travel needs of its residents. Since Carver is a growing suburb, there are decisions that the city faces that affect these existing and future facilities in addition to affecting other transportation modes and systems. These decisions need to be made in the most informed manner possible. The establishment of **transportation goals** helps to guide these decisions by guiding the development of the transportation system.

The **goals** that guide the further development of the city's transportation system are provided below:

1. Provide a transportation system that serves the existing and future access and mobility needs of the city.
2. Provide a safe and efficient transportation system that is cost effective.
3. Ensure that the transportation system, in the implementation phases, is as environmentally sensitive as possible.
4. Provide a coordinated transportation system with respect to regional and adjoining municipalities' plans.
5. Provide a transportation system that supports multimodal transportation whenever and wherever feasible and advantageous, including transit, bicycle, and pedestrian modes.
6. Provide a transportation system that reflects the values and goals of the residents of Carver.

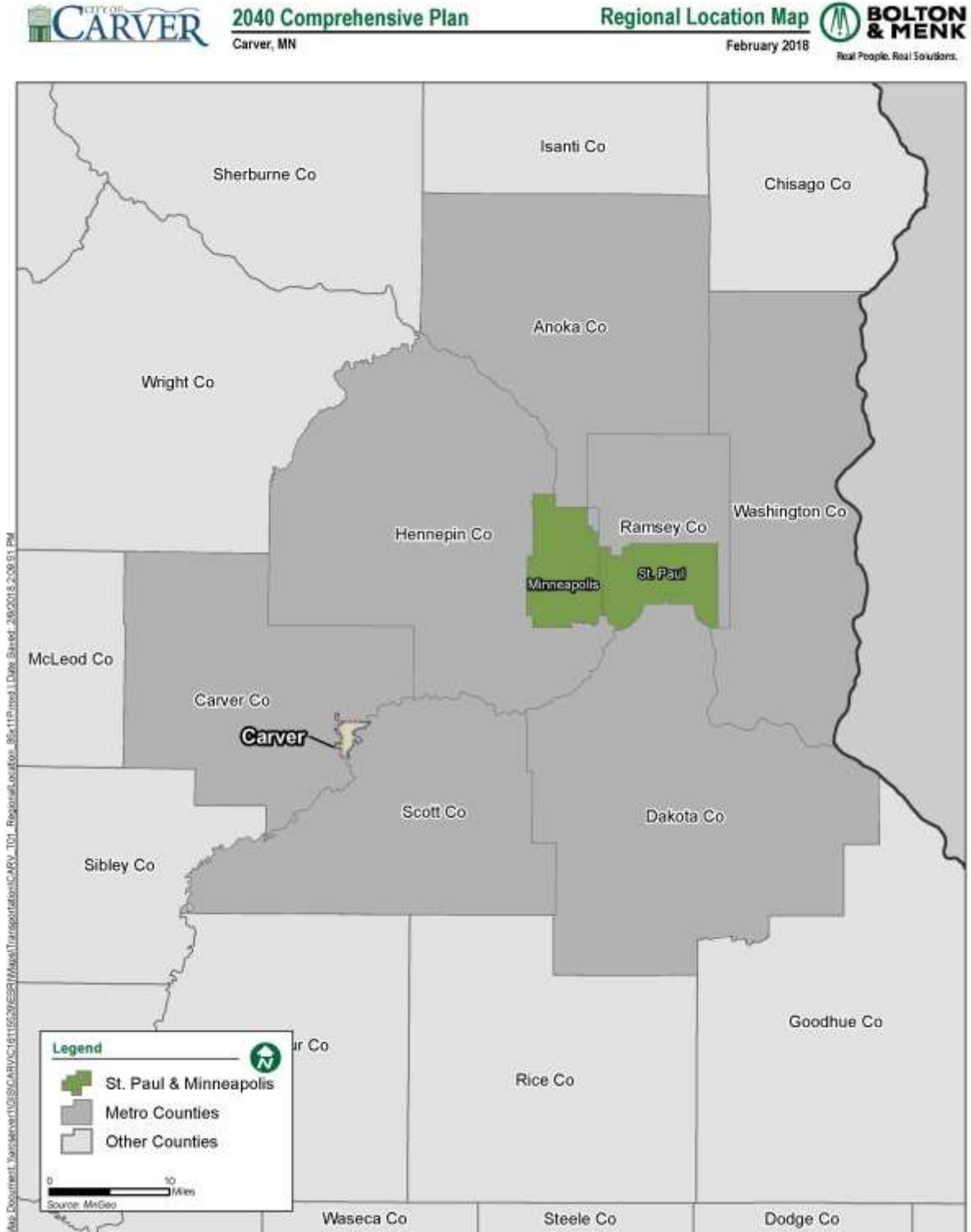
7. Provide and support a transportation system that enhances quality economic development within the city.

Decisions and actions made by the City of Carver, as they affect the transportation system, should be consistent with the transportation goals.

The **objectives** of the Transportation Plan indicate something toward which effort is directed, such as an aim or a goal. The **objectives** of the Carver Transportation Plan are as follows:

1. Consider the impacts of improvements to the existing transportation system on land use, environment, social, historic, and cultural resources.
2. Facilitate an appropriate level of mobility for persons and goods within and through the city by providing connections to adjacent municipalities and ultimately to the regional transportation system.
3. Provide a roadway system that includes a functional hierarchy that accommodates existing and future travel demands while including appropriate design features that complement the roadway's intended use.
4. Consider multimodal transportation alternatives where appropriate.
5. Provide for sufficient roadway capacity to accommodate existing and future demand.
6. Provide a plan that ensures state, county, and adjacent city cooperation, where appropriate, in the provision of the plan elements.
7. Promote increased vehicle occupancies throughout the city.
8. Continue to work with transit providers and others regarding plans for transit service and potential expansion in the city.
9. Develop bicycle and pedestrian networks that serve both recreational and transportation needs, and connect to local and regional destinations.
10. Support a roadway system that manages freight and heavy commercial traffic safely and efficiently.
11. Comply with all state and federal standards regarding aviation and airspace.

Figure T-1 – Regional Location



# Existing Roadway Conditions

## Existing Traffic Volumes and Crash Data

One of the most basic characteristics of a given roadway is the volume of traffic that it carries. Existing and forecasted traffic volumes are used to determine which roads are approaching or exceeding the capacity for which they were designed.

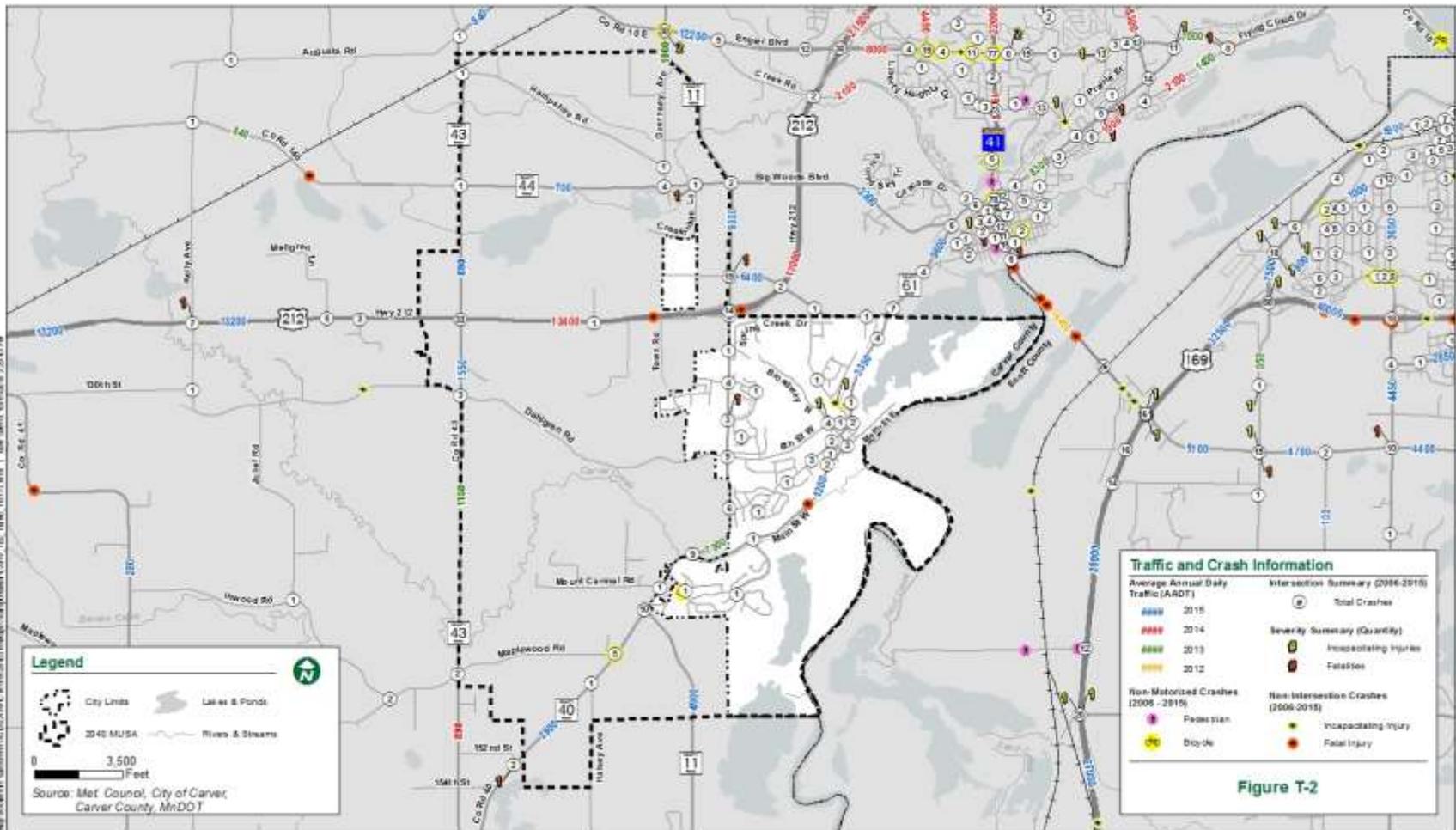
Existing average daily traffic volumes on roadways within Carver are presented on **Figure T-2**. These numbers are based on the most current MnDOT data available for traffic on these roads.

Crash statistics are used to determine which locations on the roadway network have safety concerns, which may need improvements to address. The most recent crash data for roadways are summarized on **Figure T-2**. The highest volumes of crashes in Carver are at:

- Highway 212 and Jonathan Carver Parkway/CSAH 11
- Carver Bluffs Parkway and Jonathan Carver Parkway/CSAH 11
- CSAH 40 and Jonathan Carver Parkway/CSAH 11
- Dahlgren Road/6<sup>th</sup> Street West and Jonathan Carver Parkway/CSAH 11

Within the City of Carver's 2040 Growth Boundary, the CSAH 61/Chaska Boulevard and Jonathan Carver Parkway/CSAH 11 intersection has the largest volume of crashes.

Figure T-2 – Existing Traffic Volume and Crash Data



## Jurisdictional and Functional Classification

### Jurisdictional Classification

Roadways are classified based on which level of government owns and has jurisdiction over them. Typically, roadways with higher mobility functions are under the jurisdiction of a county, regional, state, or federal level of government. Likewise, roads with a focus on local circulation and access typically are under the jurisdiction of a local government.

In the City of Carver, three jurisdictions have responsibility for the overall road network. MnDOT is responsible for US Highway 212, and Carver County is responsible for County State Aid Highway (CSAH) 40/Main Street W, Jonathan Carver Parkway/CSAH 11, and Chaska Boulevard/CSAH 61. The City of Carver is responsible for all remaining roadways. In the 2040 Growth Boundary, existing roads are also under the jurisdiction of these three levels. **Figure T-3** depicts the existing roadway jurisdictional classification system in Carver.

### Functional Classification

Individual roads and streets typically do not operate independently in any major way. Functional classification is a cornerstone of transportation planning. Within this approach, roads are located and designed to perform their designated functions.

The functional classification system defines the hierarchy of roads within a network that distributes traffic from local access routes all the way up to major mobility corridors. A typical system connects neighborhood streets to collector roadways, then to minor arterials, and ultimately the Metropolitan Highway System. Roads are classified based on the degree to which they provide **access** to adjacent land uses and lower level roadways versus providing higher-speed **mobility** for “through” traffic.

The current roadway functional classification system for Carver as identified by the Metropolitan Council is presented on **Figure T-4**. The roadway system presently consists of five roadway functional classifications:

- Principal Arterial
- A Minor Arterial
- Major Collector
- Minor Collector
- Local Street

For arterial roadways, the Metropolitan Council has designation authority. Local agencies may request that their roadways become arterials (or are downgraded from arterial to collector), but such designations or re-designations must be approved by the Metropolitan Council. The agency which has jurisdiction over a given roadway (e.g. Carver County or the City of Carver) has the authority to designate collector status.

Figure T-3 – Existing Roadway Jurisdiction

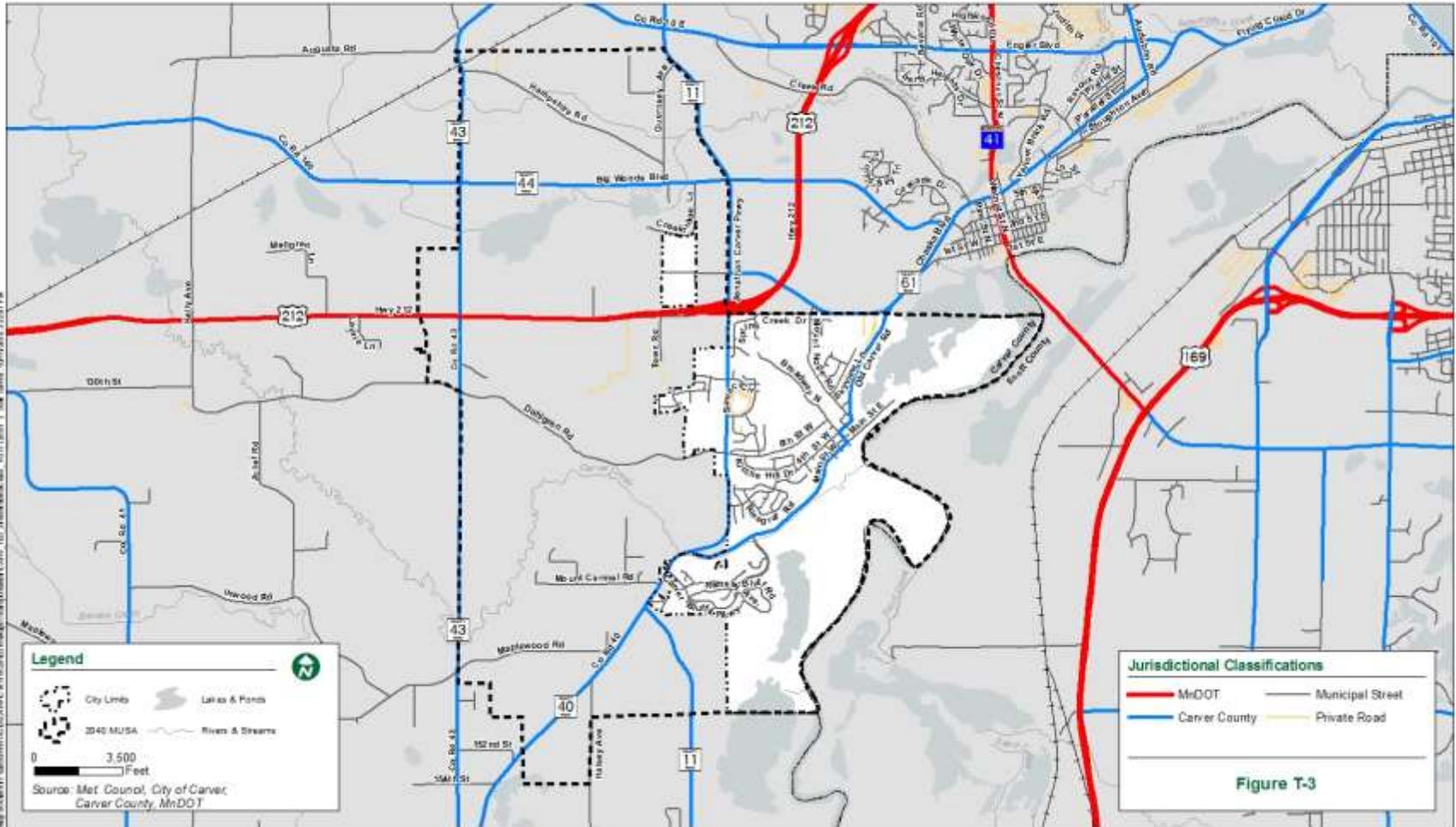
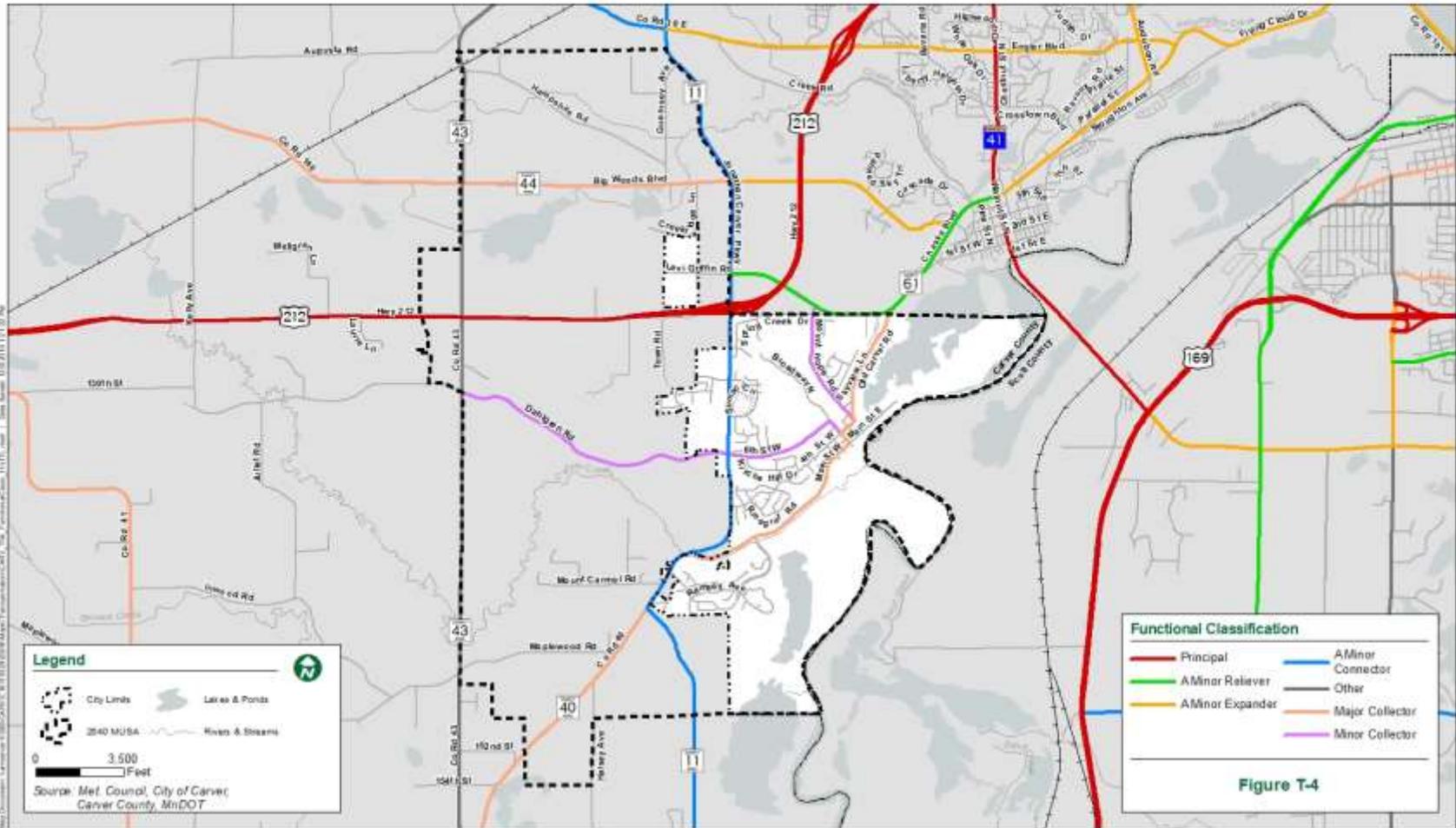


Figure T.4 – Existing Roadway Functional Class



## Principal Arterials

Principal arterials are the highest roadway classification and make up the Metropolitan Highway System. The primary function of these roadways is to provide mobility for regional trips, and they do not provide a land access function. They are intended to interconnect regional business concentrations in the metropolitan area, including the central business districts of Minneapolis and St. Paul. These roads also connect the Twin Cities with important locations outside the metropolitan area. Principal arterials are generally constructed as limited access freeways, but may also be multiple-lane divided highways.

The one principal arterial in Carver is Trunk Highway (TH) 212, located in the northern half of the city. This US highway connects the Twin Cities metropolitan area to cities and towns throughout western Minnesota, South Dakota, Wyoming, and Montana. It has been designated as a High Priority Regional Corridor in the Twin Cities, as well as being placed on the National Highway System.

Two other principal arterials – TH 41 and TH 169 – are located nearby and provide additional connectivity to the regional highway network.

**Table T-1 | Principal Arterial Roadways**

Roadway	From	To	Number of Travel Lanes (Total)
TH 212	CSAH 10/Engler Boulevard	CSAH 41	2-4

## A Minor Arterials

These roads connect important locations within the City of Carver to access points of the metropolitan highway system and with important locations outside the city. These arterials are also intended to carry short to medium trips that would otherwise use principal arterials. While A Minor arterial roadways provide more access than principal arterials, their primary function is still to provide mobility rather than access to lower level roadways or adjacent land uses.

Metropolitan Council has defined four sub-categories of A Minor arterials: reliever, expander, connector, and augmentor. These sub-categories are primarily used by the Metropolitan Council to allocate federal funding for roadway improvements. The different types do not have separate, specific design characteristics or requirements. However, they have somewhat different functions in the roadway network, and are typically found in certain areas within the region.

- **Relievers** provide supplementary capacity for congested parallel principal arterials. They are typically found in urban and suburban communities.
- **Augmentors** supplement the principal arterial system in more densely developed or redeveloping areas. They are typically found in urban communities.
- **Expanders** supplement the principal arterial system in less densely developed or redeveloping areas. They are typically found in urban and suburban communities.
- **Connectors** provide safe, direct connections between rural centers and to principal arterials in rural area without adding continuous general purpose lane capacity. They are typically found in rural communities.

As shown on **Figure T-4**, the A Minor network in Carver includes a Connector, providing access to other A Minor arterials and principal arterials, and a Reliever, supplementing the principal arterial network. Current A Minor arterials are identified in **Table T-2**, below. There are no additional A Minor arterials in the 2040 Growth Boundary.

**Table T-2 | A-Minor Arterial Roadways**

Roadway	From	To	Number of Travel Lanes (Total)
CSAH 11/Jonathan Carver Parkway	US 212	US 169	2
CSAH 61/Chaska Boulevard	CSAH 11	TH 41	2

**Major and Minor Collectors**

Collector roadways provide a balance of the mobility and land-use access functions discussed above. They generally serve trips that are entirely within the city and connect neighborhoods and smaller commercial areas to the arterial network. Minor collectors generally are shorter in length, with lower volumes and lower speeds than major collectors. Current major and minor collector roadways in Carver are identified in **Table T-3**, below. CSAH 44/Big Woods Boulevard is an additional Major Collector located within the 2040 Growth Boundary.

**Table T-3 | Major and Minor Collector Roadways**

Roadway	From	To	Number of Travel Lanes (Total)
<b>Major Collectors</b>			
County Road 40	CSAH 61/Chaska Boulevard	CSAH 50	2
<b>Minor Collectors</b>			
Dahlgren Road/ 6 <sup>th</sup> Street West	County Road 40	CSAH 43	2
Mount Hope Road	CSAH 61/Chaska Boulevard	County Road 40	2

**Problem Issues and Locations**

In discussions with city leadership, staff, and residents, the biggest transportation issue raised was related to Jonathan Carver Parkway/CSAH 11. As the city’s main north-south corridor providing connectivity to the regional highway network and neighboring municipalities, Jonathan Carver Parkway experiences regular congestion during peak hours. Additionally, as identified in crash data provided earlier in this chapter, several intersections along the parkway are traffic safety concerns due to high crash counts. Growth and development planned along this corridor in Carver will likely continue to increase the traffic volumes using this roadway in the future. As of 2018, the City of Carver is involved in a corridor study for Jonathan Carver Parkway.

The city is also concerned about the future of Highway 212, its main east-west corridor. The city has been involved in ongoing work with the County, MnDOT, and local jurisdictions regarding phased improvements and upgrades to this corridor.

In addition to improvements to these two facilities to address capacity and safety issues, this chapter addresses the need for a supporting roadway network that increases connectivity and provides alternatives for traffic.

# Summary of Relevant Transportation Studies

A summary of transportation studies relevant to the City of Carver’s roadway system is provided below.

## Carver County Studies

### County Road 41 and Highway 61 Corridor Study

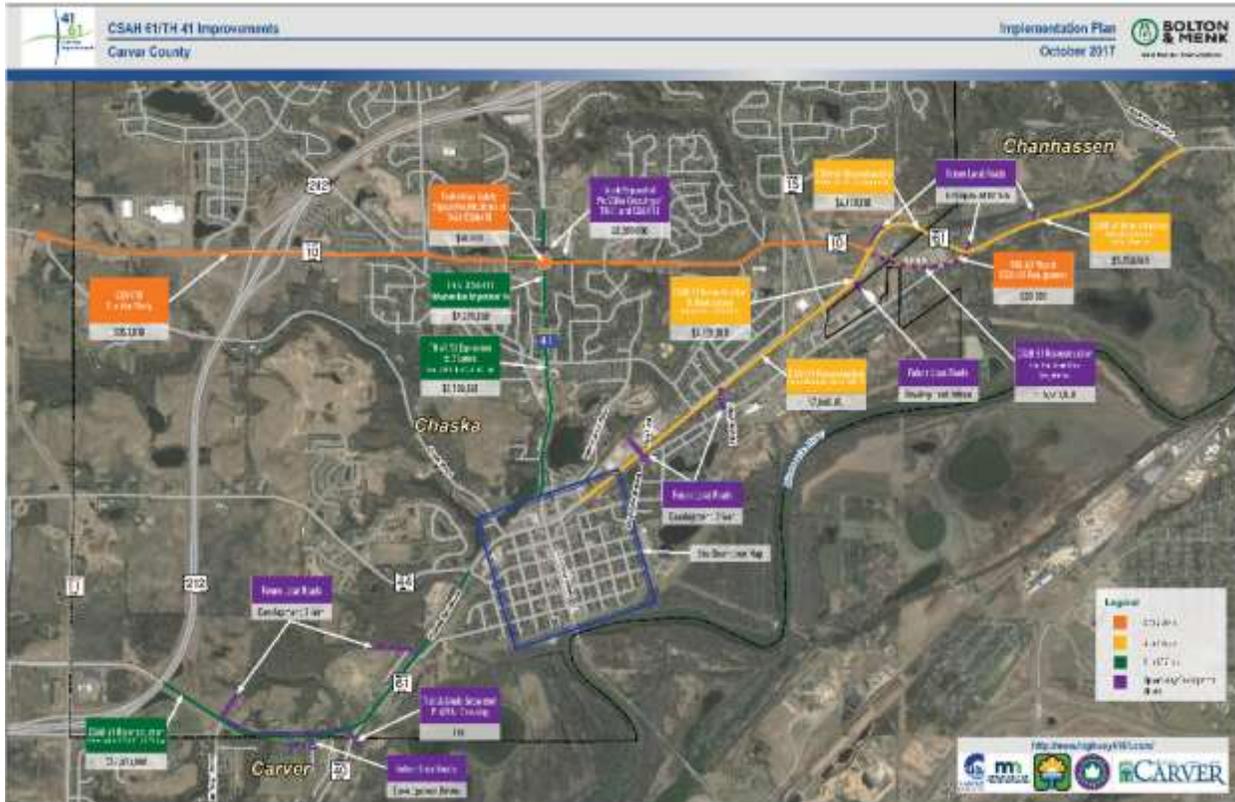
Carver County and MnDOT, in partnership with the Cities of Chaska, Chanhassen and Carver, are working together to identify transportation system improvements on County Highway 61 and State Highway 41. These corridors serve important roles in connecting the southwest metro area and providing access and connectivity within the local communities they serve to move pedestrians, automobiles, transit, and freight users alike.

The City of Carver is located in the western subarea of the plan’s overall study area. Issues in this area include the fact it is a large growth area with significant new development expected, a lack of bicycle and pedestrian facilities, challenging topography, and a skewed intersection at CSAH 40.

Recommended improvements for the western subarea of the study include:

- Reconstruction of CSAH 61 from east of CSAH 11 to CSAH 44 (in 8-15 years)
- Future local road connections (development driven)
- New trail improvements along CSAH 61, with a grade separated bike/pedestrian crossing (development and opportunity driven)





### Highway 11 Study – West Carver Area (2018-2019)

Carver County and the City of Carver are partnering on a corridor study along Jonathan Carver Parkway (Highway 11) between Highway 40 (south leg) and US Highway 212. The purpose of the study is to identify the short-, mid-, and long-term improvements along the corridor to address the transportation needs of the community and region for the next 20 years. The local supporting roadway network that feeds into and parallels Jonathan Carver Parkway will also be addressed during the study, which is anticipated to be completed in 2019.

The corridor has been experiencing incremental growth over the years and residential and commercial development is anticipated to intensify over the next 10 years, in Carver, as well as other nearby communities. Traffic demands on the corridor are expected to continue to increase significantly, prompting a need to expand Jonathan Carver Parkway between CH 40 (south leg) and US Highway 212. The expansion will support the additional traffic, maintain safety, and accommodate bicycle and pedestrian activity. Supporting roadway network needs will also be considered to relieve travel demands on Jonathan Carver Parkway and provide alternate north-south continuity as the City of Carver and Carver County develops.

### County Roadway Safety Plan (2013)

The Carver County Roadway Safety Plan was commissioned by MnDOT as part of a statewide highway safety planning process. This study covers the entire Carver County roadway system, and aims to reduce the number of fatal and serious injury crashes on county highway systems. The study analyzed safety data and recommended a number of improvements.

Priority corridor and intersection improvement projects in the City of Carver and the 2040 growth area are identified in the tables below. Additionally, the study identified a number of rural curves along both CSAH 11 and CSAH 40 that need safety improvements.

**Table T-4 | County Roadway Safety Plan Priority Corridor Projects**

Corridor	Start	End	Recommendation
CSAH 11	San Francisco Twp.	CSAH 50	Rumble strip
CSAH 11	CSAH 40	CSAH 61	Ground in wet-reflective markings
CSAH 40	East Union Twp.	CSAH 11	Rumble strip
CSAH 40	Sibley County	East Union Twp.	Pave shoulders, rumble strip, safety wedge
CSAH 43	CSAH 50	CSAH 10	Rump strip, centerline rumble strip

**Table T-5| County Roadway Safety Plan Priority Rural Intersection Projects**

Intersection	Recommendation
CSAH 43 & CSAH 50; Nathan Cr T-514	Install street lights, stop ahead signs, and related improvements
CSAH 43 & TH 212	Mainline dynamic warning sign, streetlights, and related improvements
CSAH 40 & CSAH 50	Install street lights, stop ahead signs, and related improvements

The following illustrations from the plan show the location of priority corridors identified in the safety plan countywide.

The expectation of the plan was that it would be periodically updated to reflect additional safety needs.

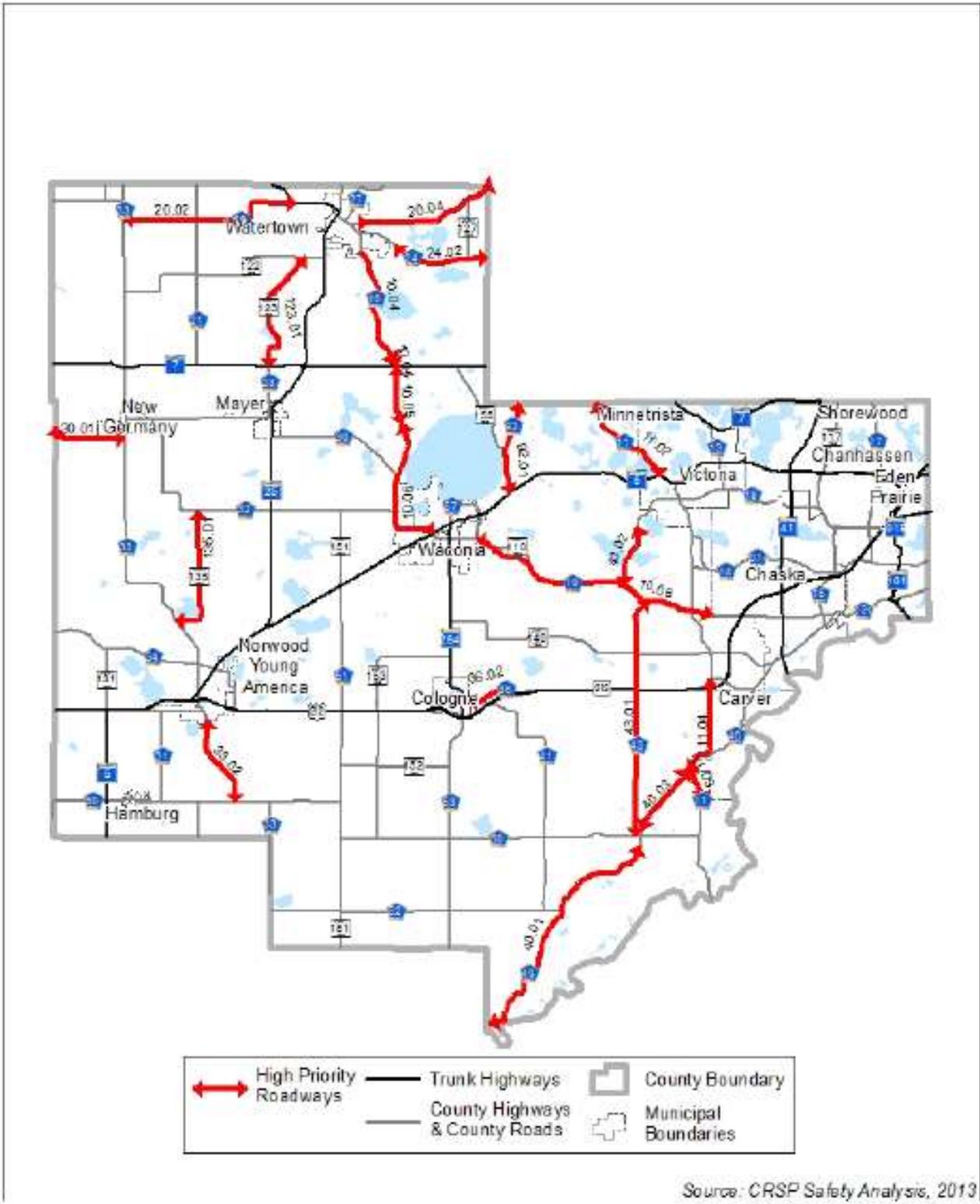
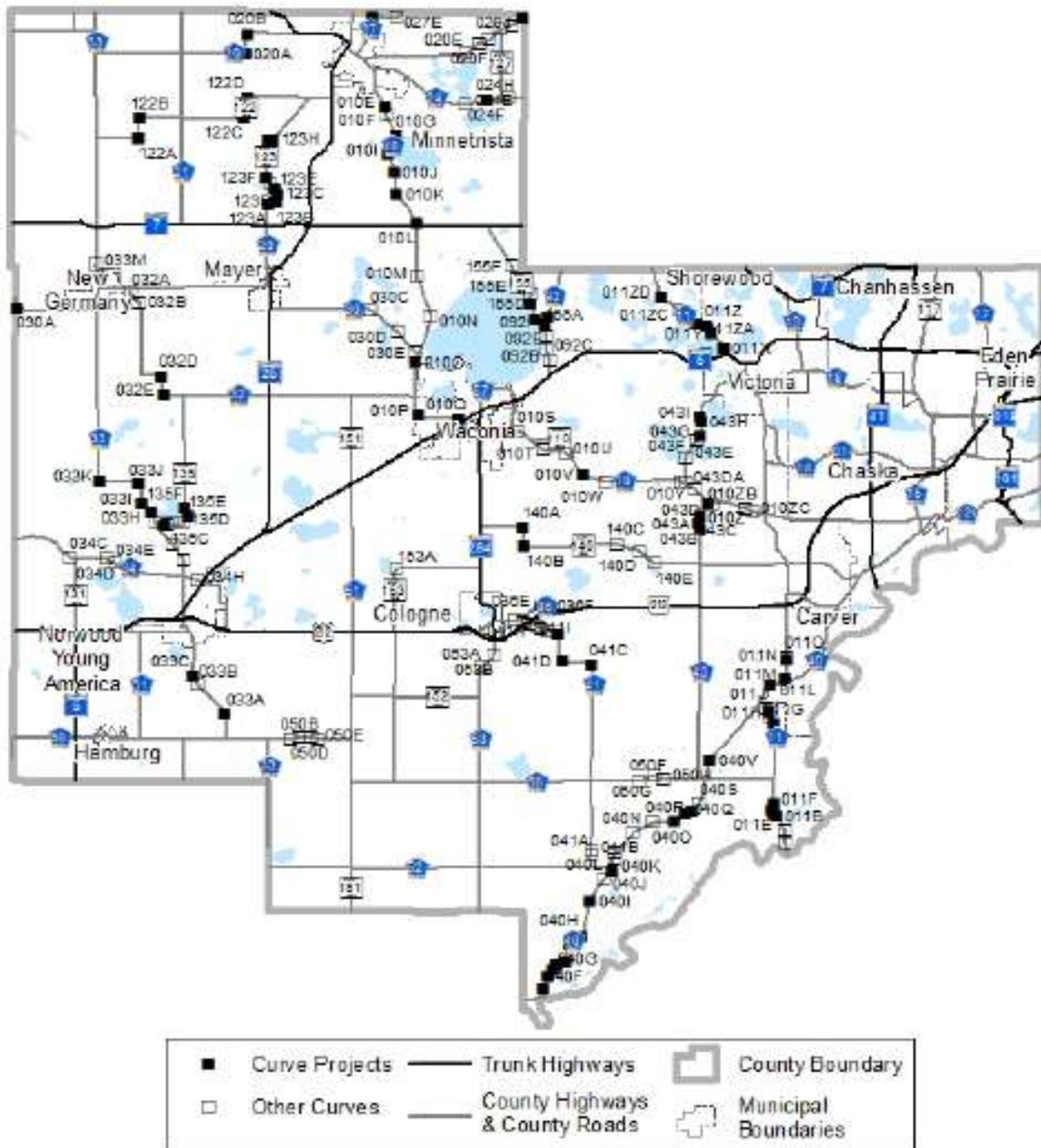
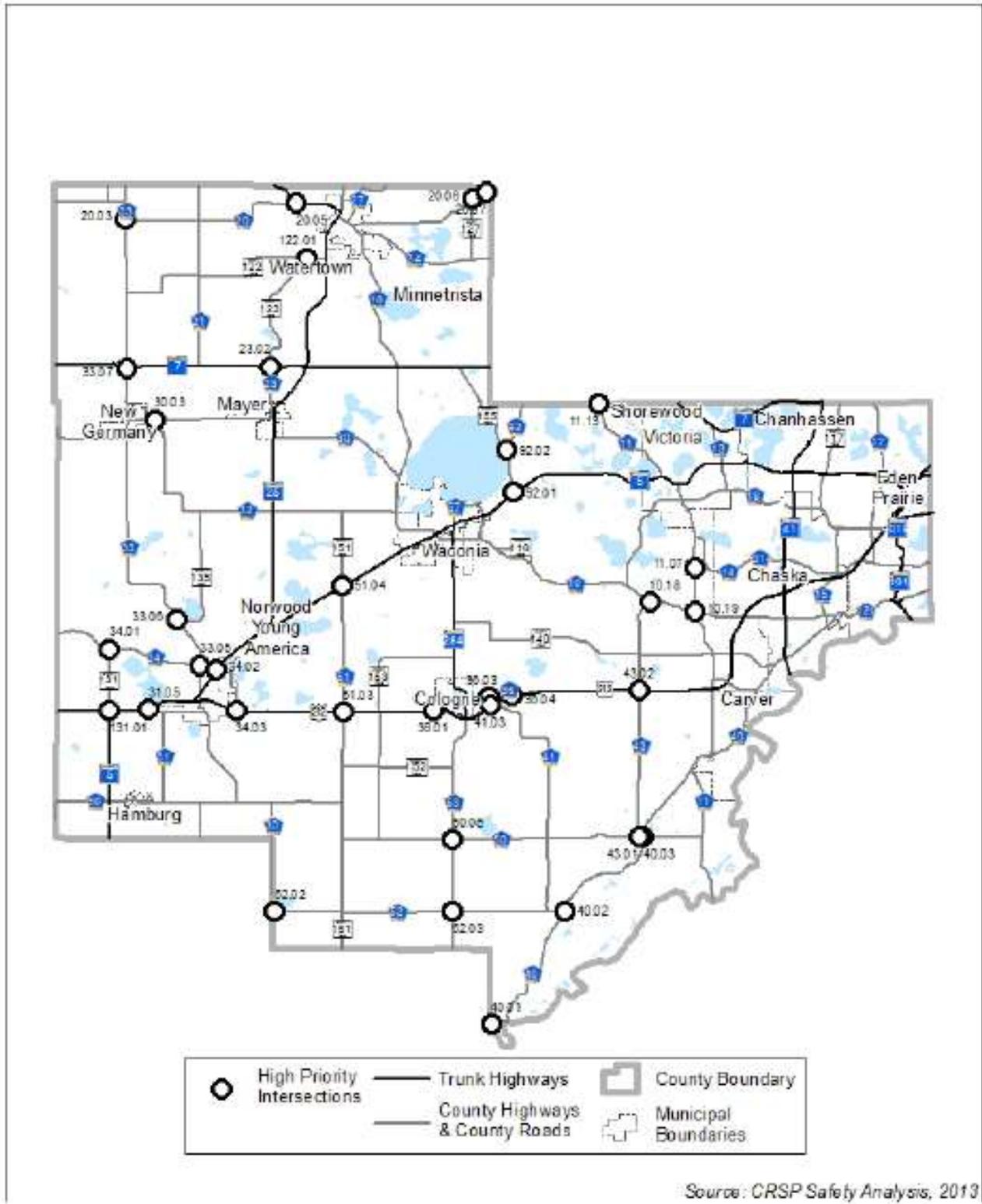


Figure 4-10  
Rural Segment Projects



Source: CRSP Safety Analysis, 2013

**Figure 4-11**  
**Rural Curve Projects**



**Figure 4-12**  
**Rural Intersection Projects**

## Regional Studies

### Principal Arterial Intersection Conversion Study (2017)

The Metropolitan Council commissioned this regional study to evaluate at-grade intersections which may be candidates for conversion to an interchange.

While not identified as a top priority, the TH 212 & CSAH 43 intersection was advanced for Phase II analysis. It currently does not meet the study's established volume criteria. However, local stakeholders identified that this location warrants Phase II consideration based on potential future development in the area, as well as its role in the overall TH 212 capacity expansion concept. Stakeholder input suggested that access modification between CR 43 and the existing interchange to the east at Jonathan Carver Parkway should be considered.

### Highway 212/44 Interchange Project

Although not directly located in the City of Carver, the Highway 212/44 Interchange Project in the City of Chaska will ease traffic congestion and address anticipated development and growth in Chaska and in the area southwest of Chaska.

The overall objective of the project includes approximately two miles of safety and modernization improvements along Highway 44 between Highway 11 and Highway 61 (Chaska Blvd.) in Chaska and a new partial Highway 212 interchange. The project includes reconstruction of the highway from a two-lane undivided to a two-lane divided urban highway. At the new Highway 212 interchange, northbound entrance and a southbound exit ramps will connect to the existing freeway.

As part of the project, a number of technical evaluations will be conducted to identify existing and future issues associated with:

- Mobility/Congestion
- Safety
- Pedestrian/Bicycle Connectivity
- Infrastructure Needs

# Roadway System Plan

## Future Roadway Network

Figure T-5 shows the future 2040 roadway network planned for the Carver area, including the existing and anticipated number of travel lanes on arterials and major collectors.

The roadway network assumed for the 2040 analysis include the existing network, plus projects that have been programmed and/or planned. The roadway projects that will enhance the existing network that are anticipated to be in place as part of the 2040 network are identified and summarized below:

- CSAH 140 bridge over Carver Creek replacement (2017)
- CSAH 43 from Maplewood Road to CSAH 50 improvements (2017)
- TH 212 at CSAH 41 & 36 intersection safety improvements (2018)
- 3<sup>rd</sup> Street culvert replacement – City project (2018)
- CSAH 44 from TH 284 to TH 212 improvements (2020)
- CSAH 40 from Dahlgren Road to CSAH 11 improvements (2021)
- CSAH 11/Jonathan Carver Parkway improvements (2022)
- Monroe Drive extension

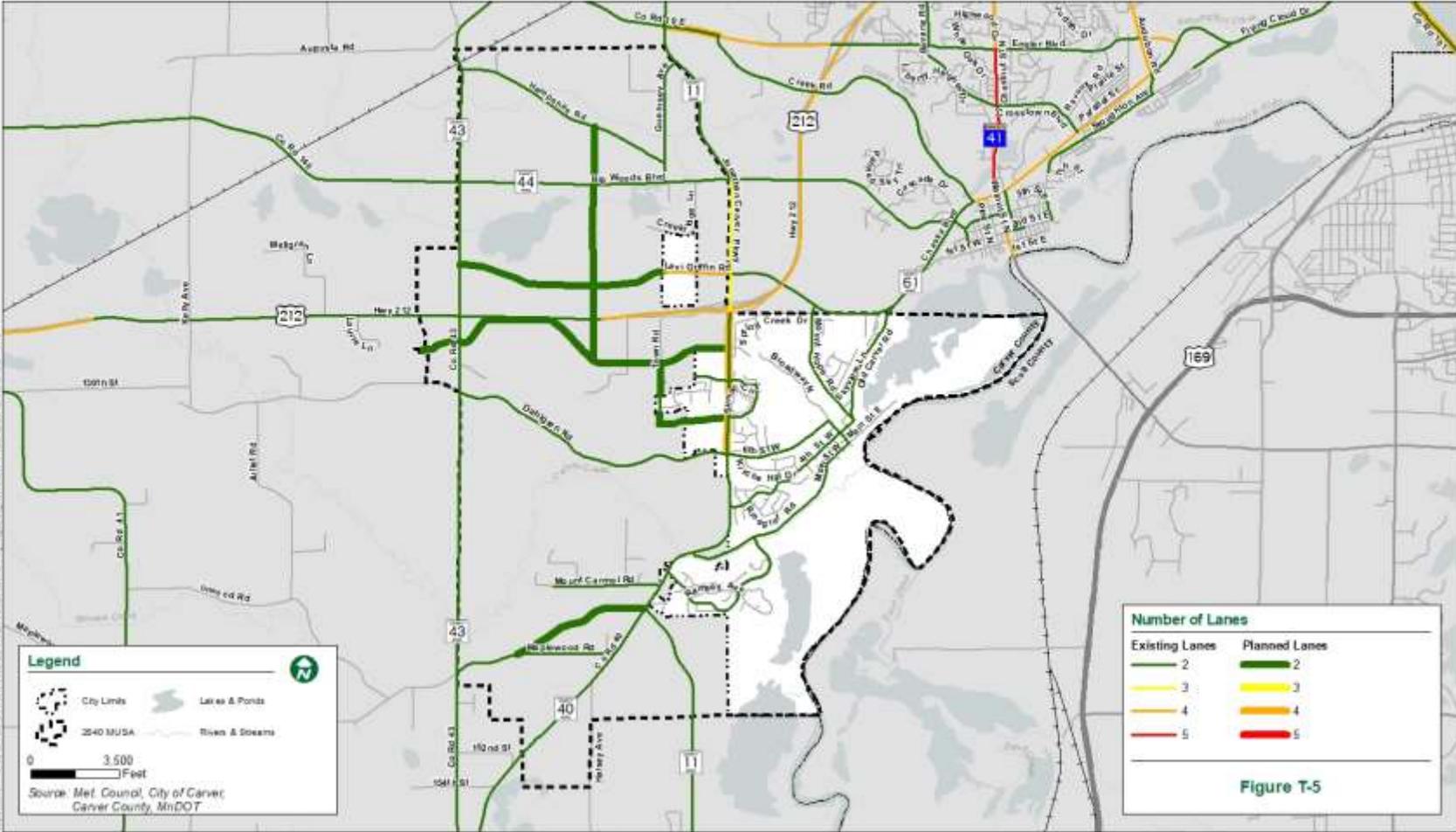
While outside the Carver growth boundary, plans for the TH 212 & CSAH 44/Big Woods Boulevard interchange north of the city in Chaska will impact traffic and access to properties in the northern portion of Carver’s growth area. These projects are considered non-CIP, and will be development driven.

- CSAH 44 & TH 212 interchange (2019)
- CSAH 44 from TH 212 to Cemetery Drive improvements (2019)
- CSAH 44 from CSAH 11 to TH 212 improvements (2020)

The figure below illustrates priority routes for improvement within the vicinity of Carver, as identified through a former study.



Figure T-5 – Existing and Anticipated Number of Travel Lanes



## Transportation Analysis Zones

As part of the support for regional, county, and local transportation planning, the Metropolitan Council has developed and maintained a regional travel demand model. This model forecasts 2040 traffic volumes on major roadways throughout the Twin Cities region, based on expected population and job growth, observed travel behavior, and other factors. Since the model is mainly designed to work at the regional level, Carver County has done additional work to refine the analysis and results to provide more locally relevant forecasts for the county and its cities. The model information included in this plan is derived from the Carver County modified version of the regional model.

Traffic projections are based on the use of Transportation Analysis Zones (TAZs). The TAZs for the City of Carver, as defined by the Metropolitan Council, are presented on **Figure T-6**. TAZs are defined to reflect travel patterns for an area, and are used as a unit of analysis in a regional travel demand model which forecasts future travel patterns based on expected growth of an area. The model's outputs include estimated traffic volumes and capacity on the roads included in the model (typically those with a functional class of collector or above).

The anticipated land use patterns discussed in the land use chapter of this Comprehensive Plan were used to develop the 2040 population, household, and jobs projections by TAZ are were used in the model. The TAZ socioeconomic data projected for 2040 conditions are presented in **Table T-6**.

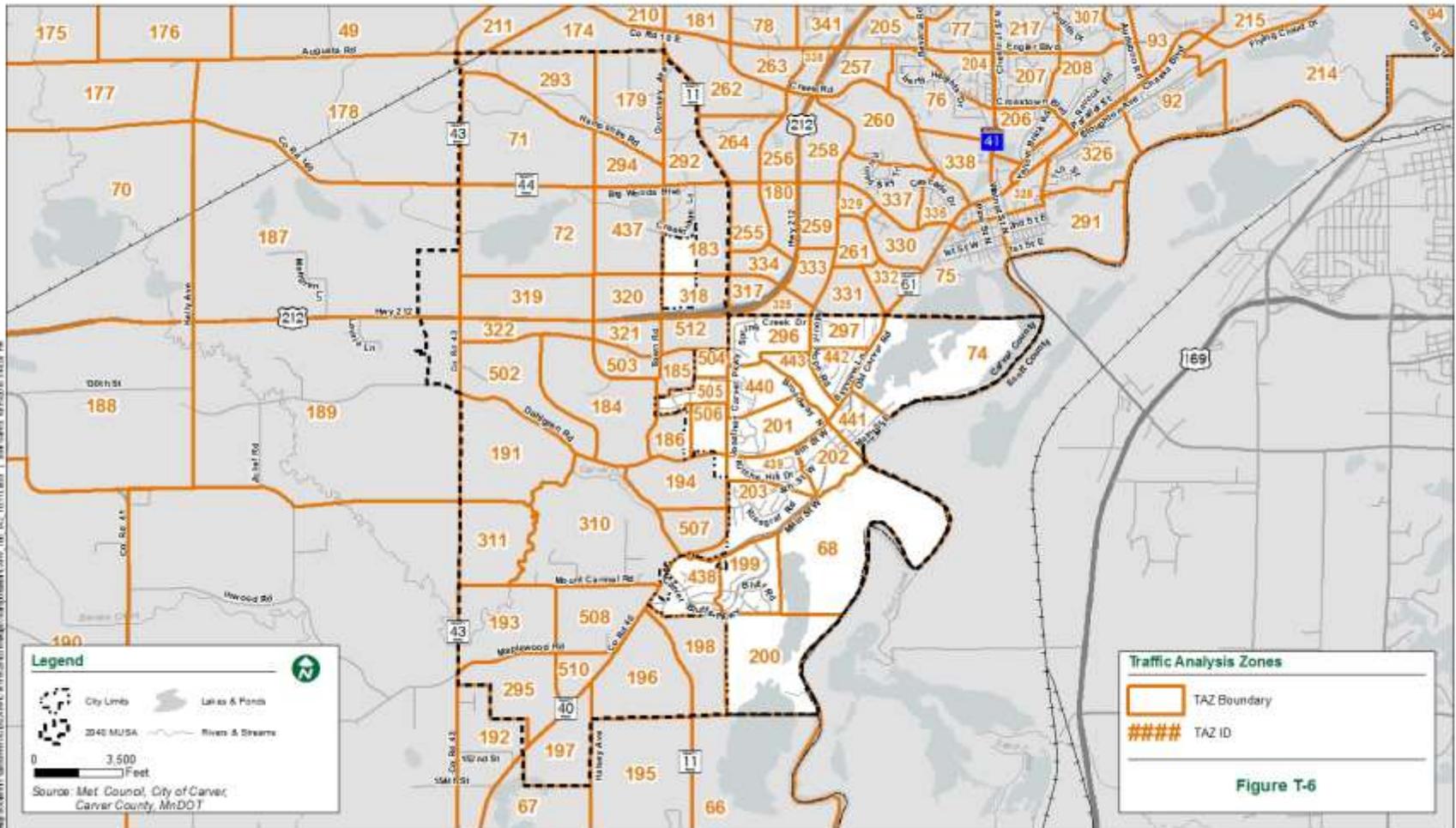
**Table T-6 | City of Carver TAZ Data**

TAZ		2020				2030				2040			
METC	CARVER CO	POP	HH	R-EMP	NON-R	POP	HH	R-EMP	NON-R	POP	HH	R-EMP	NON-R
360	201	475	160	0	0	520	170	0	0	530	175	0	0
360	296	737	250	0	0	737	273	0	0	737	273	0	0
360	297	120	43	0	0	170	60	0	0	210	80	0	0
360	439	350	115	0	0	430	185	0	0	420	185	0	0
360	440	564	180	0	0	564	209	0	0	564	209	0	0
360	442	399	120	0	0	390	120	0	0	375	120	0	0
360	443	0	0	0	0	0	0	0	0	0	0	0	0
357	71	30	9	0	0	25	10	0	0	30	10	0	0
358	72	12	4	0	0	20	10	0	0	700	225	0	0
357	179	20	7	2	8	2	1	3	20	225	75	5	75
359	184	50	17	0	0	540	162	0	0	870	300	0	0
359	185	45	15	0	0	405	150	0	0	440	150	0	0
359	186	22	11	0	0	350	115	0	0	320	115	0	0
356	187	0	0	5	90	0	0	8	105	0	0	5	130
355	189	0	0	0	0	0	0	0	0	60	20	5	60
354	191	30	10	0	0	30	10	0	0	30	10	0	0
352	196	33	11	0	5	33	11	0	8	33	11	0	12
352	197	6	3	0	0	6	6	0	0	6	3	0	0
353	198	6	3	0	0	0	0	0	0	0	0	0	0
357	293	3	1	0	0	3	1	0	5	3	1	0	100
357	294	15	5	0	0	110	55	0	0	400	150	0	0
354	295	10	3	0	0	10	3	0	0	10	3	0	0
354	311	6	2	0	0	6	2	0	0	6	2	0	0
358	319	0	0	0	5	280	150	0	50	540	200	5	75

TAZ		2020				2030				2040			
METC	CARVER CO	POP	HH	R-EMP	NON-R	POP	HH	R-EMP	NON-R	POP	HH	R-EMP	NON-R
358	320	0	0	0	80	200	100	5	175	450	150	8	200
359	512	227	75	0	5	227	84	5	10	227	84	10	30
359	322	2	1	0	15	2	1	0	20	700	250	5	20
358	437	45	15	0	0	225	80	0	0	450	150	0	0
353	68	0	0	0	0	0	0	0	0	0	0	0	0
360	74	0	0	0	0	0	0	0	0	0	0	0	0
358	183	40	15	2	95	35	14	4	190	25	10	50	310
354	193	6	2	0	0	6	2	0	0	6	2	0	0
354	194	0	0	2	70	0	0	3	80	0	0	5	90
353	199	525	170	0	0	500	150	0	0	461	150	0	0
353	200	0	0	0	0	0	0	0	0	0	0	0	0
360	202	179	66	20	51	180	70	23	56	170	68	25	60
360	203	704	240	0	0	850	280	0	0	750	280	0	0
363	292	4	2	0	10	4	2	0	20	730	350	10	143
354	310	80	29	0	0	324	90	0	0	1200	400	0	0
358	318	0	0	35	20	0	0	40	32	0	0	45	35
353	438	460	155	0	0	800	255	0	0	750	250	0	0
360	441	104	36	30	70	100	40	42	80	80	40	45	90
359	505	325	120	0	0	647	238	0	0	643	238	0	0
359	502	21	7	0	0	66	20	0	0	300	100	0	0
354	510	3	1	0	0	3	1	0	0	3	1	0	0
354	508	60	20	0	0	60	20	0	0	480	180	0	0
354	507	0	0	0	20	0	0	0	23	0	0	0	25
359	506	540	185	0	0	690	230	0	0	621	230	0	0
359	321	42	12	0	0	450	150	0	0	540	200	0	0
359	503	0	0	0	0	300	100	0	0	405	150	0	2
359	504	0	0	0	10	0	0	0	23	0	0	0	20
<b>Total</b>		<b>6300</b>	<b>2120</b>	<b>96</b>	<b>554</b>	<b>10300</b>	<b>3630</b>	<b>133</b>	<b>897</b>	<b>15500</b>	<b>5600</b>	<b>223</b>	<b>1477</b>
<b>Employment Total</b>					<b>650</b>				<b>1030</b>				

Source: Carver County and City of Carver

Figure T-6 – Transportation Analysis Zones



## 2040 Traffic Forecasting

Traffic projections for the year 2040 are from the Carver County transportation model. They were made based on modifications to the regional Metropolitan Council model. Factors considered in developing the model included:

- Historic trend analysis for volumes
- Assessment of anticipated local and regional development patterns and associated TAZ information
- Discussion and coordination with local, county, and regional staff regarding future plans and the update the regional travel demand model
- Review of other studies and plans for consistency

The 2040 traffic projections are presented on **Figure T-7**. These reflect forecasted 2040 traffic volumes on roadways that are currently funded through a capital improvement plan (CIP). The purpose of this model run is to identify future capacity deficiencies in the roadway network, so that the plan can address them with planned improvements.

Comparing this with existing volumes on **Figure T-2**, it is apparent that these new volumes overall represent a substantial increase over existing levels of traffic. Without additional investment in the roadway network beyond the current CIP projects, volumes couple double or triple on several main corridors – including Highway 212, Jonathan Carver Parkway/CSAH 11, CSAH 61, CSAH 40, and CSAH 43. These increases in volumes reflect the impact of forecasted growth in the community through 2040.



## Future Capacity Deficiencies

In addition to forecasting volumes, the travel model can be used to determine roadways with future capacity deficiencies – defined as areas where traffic volumes regularly exceed roadway capacity.

All roads are designed to handle a defined level of traffic volume. Once the road begins to approach or exceed capacity, traffic movements become more difficult and there may be congestion. It is at that point when it is determined whether there needs to be a capacity increase in the transportation system – through the addition of new travel lanes, new roads, intersection or interchange redesign, or other capacity-increasing improvements.

A planning-level analysis was performed to identify roadway segments where capacity problems are anticipated to occur by 2040. Based on the projected 2040 traffic volumes and the assumed 2040 roadway network, an analysis of anticipated future congestion conditions was performed. This analysis used the volume-to-capacity method. The volumes were taken from the 2040 projections discussed under the previous heading. The capacity is based on typical capacity levels for different types and configurations of roadways as summarized in **Table T-7**.

**Table T-7| Typical Traffic Capacity by Roadway Type/Configuration**

Roadway Design	Planning Level Daily Capacity
<b>Local</b>	
Gravel Roadway	Up to 500
Local 2-Lane	Up to 1,000
<b>Collector and Arterial</b>	
Urban 2-Lane	7,500 – 12,000
Urban 3-Lane or 2-Lane Divided	12,000 – 18,000
Urban 4-Lane Undivided	Up to 20,000
Urban 4-Lane Divided	28,000 to 40,000
4-Lane Freeway	Up to 70,000

The results of the volume to capacity analysis are shown on **Figure T-8**. The roadway segments where projected volumes exceed planning-level capacity are summarized in **Table T-8**, below.

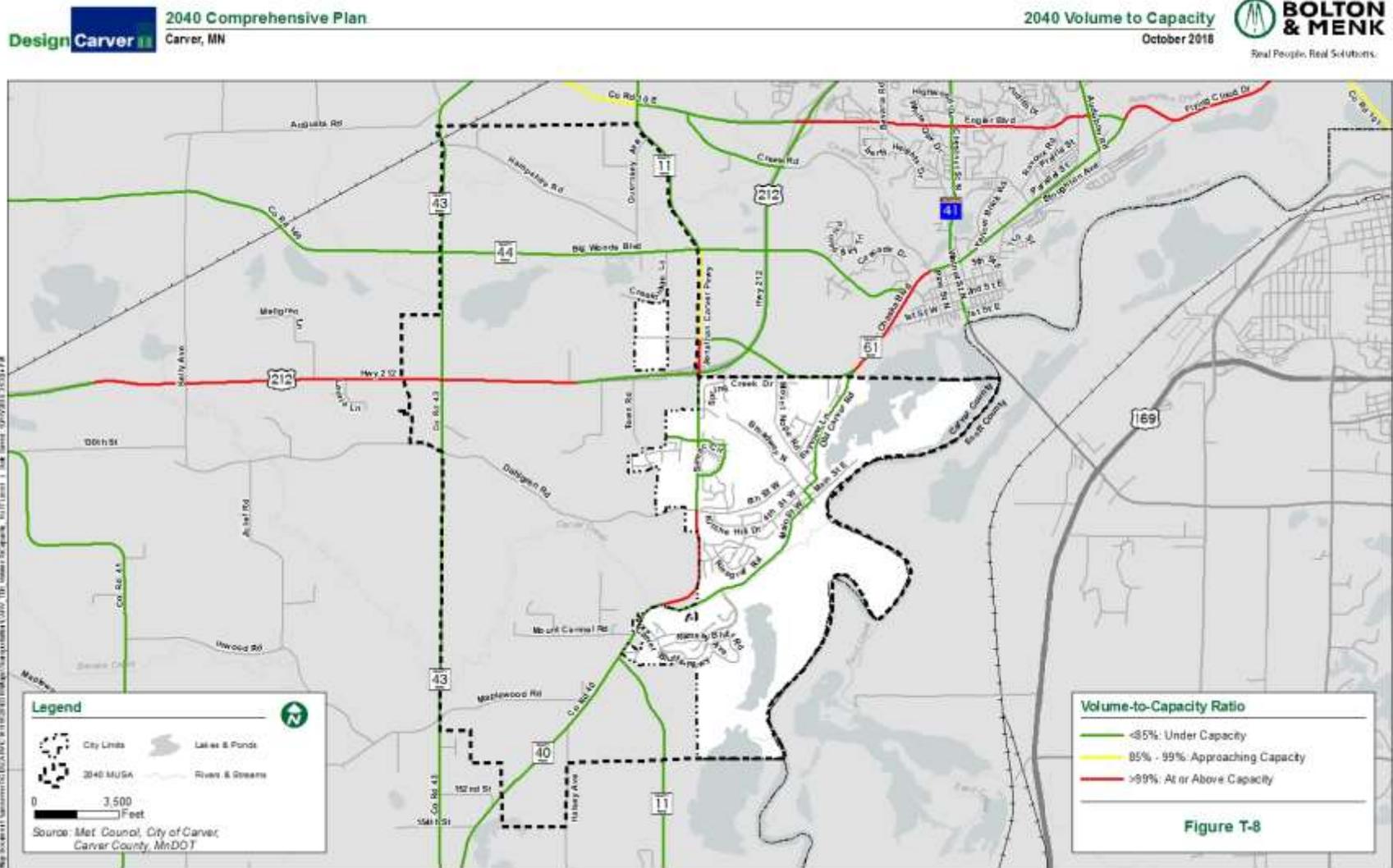
**Table T-8| Projected 2040 Roadway Capacity Deficiencies**

Roadway Segment	Volume to Capacity Ratio
US Highway 212 – Kelly Avenue to CSAH 43	1.18
US Highway 212 – CSAH 43 to CSAH 11	1.32
CSAH 11/Jonathan Carver Parkway – US Highway 212 to CSAH 61	1.38
CSAH 11/Jonathan Carver Parkway – Dahlgren Road to CSAH 40	1.40

As can be seen on **Figure T-8**, there are additionally some roadway segments which are “approaching capacity,” defined as having a volume-to-capacity ratio of 0.85 – 0.99. These locations should be monitored in the coming years to determine if problem conditions develop and whether next steps should be implemented including more detailed analysis. This includes:

- CSAH 11/Jonathan Carver Parkway – CSAH 44 to CSAH 61

Figure T-8 – 2040 Volume to Capacity – **TO BE UPDATED ONCE COUNTY MODEL RUNS COMPLETE**



## Recommended Roadway System Improvements

### Roadway Segments

A suitable arterial-collector system to accommodate future development and traffic patterns is necessary in the growing community of Carver. The existing county and state highways have historically provided much of the local circulation and connectivity; however, these roadways will not be capable of meeting both the future local and regional travel demands. A city collector system consisting of major collector and minor Collector streets is needed to provide acceptable local circulation and access to developing areas, as well as to enable the Principal Arterial and Minor Arterial roadways to serve longer, regional travel. It is not anticipated that all of the proposed collector streets will be constructed by 2040. Rather, collector streets should be constructed as development occurs.

Based on the results of this analysis, the following new roadways are recommended. They are also shown on **Figure T-9**.

- **Jonathan Carver Parkway/CSAH 11 improvements** – Jonathan Carver Parkway/CSAH 11 is forecasted to be over capacity on several segments by 2040. This roadway will need to be widened to accommodate demand. While additional analysis by the County is needed, it is anticipated that it may be up to six lanes north of Dahlgren Road and four lanes south. A study now underway (anticipated to be complete in 2019) will provide more specific recommendations for the future roadway configuration.
- **Collector roadway network to support growth** – as the city grows westward, an improved roadway network should be developed to provide connectivity to the existing county roadway network and reduce the travel demand on Jonathan Carver Parkway/CSAH 11. This will most likely include frontage roads on the north and south sides of Highway 212 between CSAH 11 and CSAH 43, as well as other connections. See Figure T-9 for approximate location of these future roadways.
- **New access at Highway 212** – The improved roadway network should include a new access to Highway 212 between CSAH 11 and CSAH 43. The future of this intersection (overpass, limited or full interchange) will need to be determined through additional analysis and discussions as planning for Highway 212 continues.
- **Other roadways** – Capacity and safety improvements may be needed on other existing roadways, which will have to be updated to meet increased usage. This includes CSAH 43, CSAH 45, Maplewood Road, Dahlgren Road, and 6<sup>th</sup> Street. Improvements may include upgrading to a 2-lane with turn lanes or 3-lane facility depending upon the access.

The timing of these improvements has not yet been finalized. As is the case with the local street network, timing of construction for collector routes will likely be development driven. The City should continue to work with the County and other agencies to monitor the actual growth in traffic on roadways and intersections and to determine the appropriate timing on any improvements.

Additionally, the City should work with other agencies and developers to provide adequate access management on the study roadways, consistent with city, county, and state guidelines as appropriate. This will increase the safety and capacity of the roadway network.

### Intersections

It is beyond the scope of this 2040 transportation plan to perform intersection analyses with detailed

recommendations. However, based on information gathered as part of this planning process, including previous studies, the following intersections will likely require attention over the 2040 planning horizon. It is anticipated that these may need signalization or roundabouts, although further analysis is needed to determine the appropriate treatment.

- CSAH 40 is planned for a turnback route to the City of Carver. As part of improvements to the corridor, the intersections of CSAH 40/CSAH 11 and CSAH 40/CSAH 61 may need to be addressed.
- Many of the intersections along Jonathan Carver Parkway/CSAH 11 need additional evaluation for improvements. The Jonathan Carver Parkway Study currently underway will have some recommendations for improvements. The study is anticipated to be complete in 2019.

As with the roadway network, the City should continue to monitor traffic and safety data in the city and growth area to determine needs for capacity and safety improvements to area intersections. This may include addition of turn lanes, improved signage and lighting, new intersection design such as roundabouts, or other improvements.

### Future Functional Classification

Re-designations of roadways involving the A-minor arterial functional classification (e.g. from collector to arterial, from arterial to collector, or changing designations within arterial) are under the authority of the Metropolitan Council. No changes to the existing arterial system are proposed at this time.

For collector roadways, the functional class designation is under the authority of the agency which owns the given road. This plan recommends the designation of additional new collector routes that will serve the city's western growth area. These locations are depicted on **Figure T-9**.

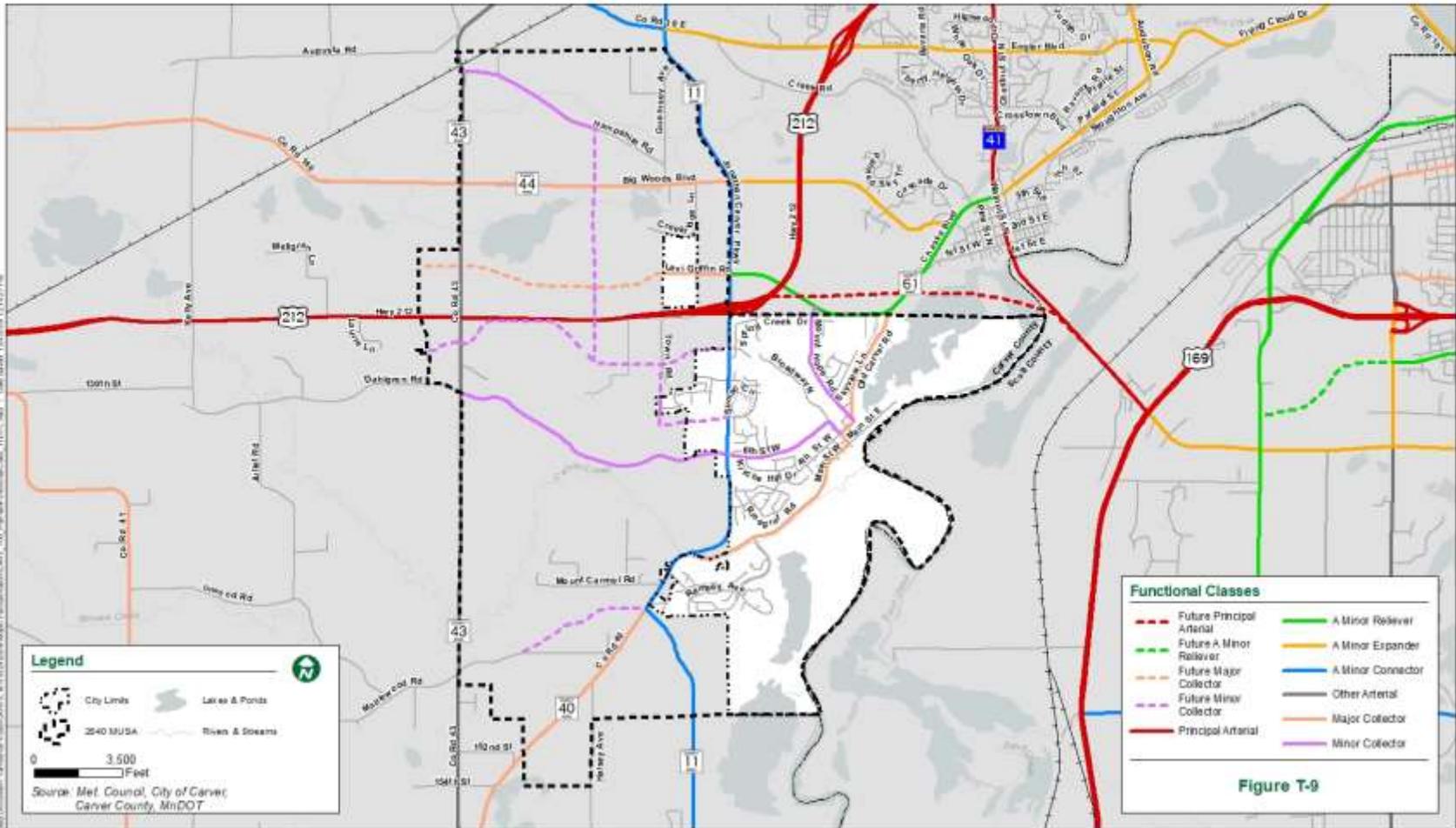
### Future Jurisdictional Classification

Jurisdictional changes are made when it is determined that a road is better maintained by another jurisdiction. Roads are sometimes turned back to local communities, and hence removed from a county or regional system. Likewise, local roads at times become county or regional routes, often in the context of new development which changes the function and usage of the roadway within the network.

Proposed jurisdictional changes include:

- The County envisions a turnback of County Road 40, from CSAH 61 CSAH 11, to be turned back to the City.
- The County proposed Dahlgren Road, from CSAH 11, then extending westerly through Carver to be a future County Road.

Figure T-9 – Planned Functional Classification

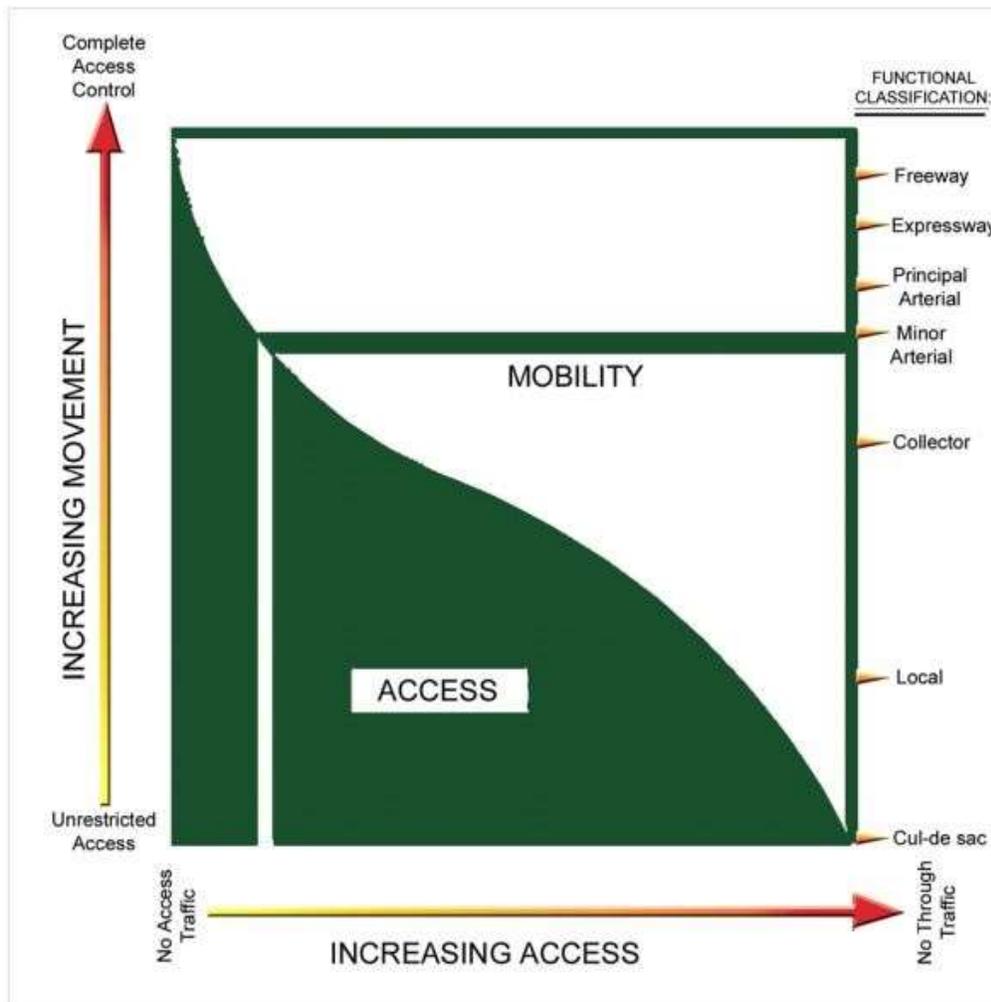


# Access Management

## Overview

Access management refers to balancing the need for connections to local land uses (access) with the need for network-level movement (mobility) on the overall roadway system. Arterials generally have limited access in the form of driveways and low volume side streets because their role in the network is to support relatively long, high speed traffic movements; collectors allow a greater degree of access given their combined mobility/access function, and local streets have relatively few limits on access. Appropriate access control preserves the capacity on arterial and collector streets, and improves safety by separating local turning movements from higher-speed “through” traffic. Moreover, it concentrates higher volume traffic linkages at intersections controlled with traffic signals, roundabouts, or other measures.

MnDOT and Carver County Roadways in Carver are identified on **Figure T-3**. For MnDOT roadways, MnDOT access management guidelines apply. Similarly, for County roadways, Carver County’s access management guidelines apply. MnDOT and Carver County guidelines are included in **Appendix T-1**.



Access spacing guidelines for the City of Carver are shown on **Table T-9**. These guidelines are the same as Carver County for the minor arterials and the collectors. The City of Carver has two collector types,

major and minor. The management guidelines refer to both. However, it is fully realized that the access guidelines for a minor collector will allow for spacing at lesser intervals. The notation of private access to be permitted under special conditions will allow for deviation from the guidelines for access to minor collectors.

**Table T-9| City of Carver Access Management Guidelines**

Area of Facility Type	Typical Functional Classification	Intersection Spacing		Signal Spacing	Private Access
		Primary Full Movement Intersection	Conditional Secondary Movement		
<b>Minor Arterials</b>					
Rural, Exurban, and Bypass	Minor Arterials	½ mile	¼ mile	½ mile	Permitted Subject to Conditions
Urban and Urbanizing		¼ mile	1/8 mile	¼ mile	By Exception or Deviation Only
Urban Core		300-600 feet dependent on block length		¼ mile	Permitted Subject to Conditions
<b>Collectors</b>					
Rural, Exurban, and Bypass	Collectors	½ mile	¼ mile	½ mile	Permitted Subject to Conditions
Urban and Urbanizing		¼ mile	1/8 mile	¼ mile	
Urban Core		300-600 feet dependent on block length		1/8 mile	

## Geometric Design Standards

The City of Carver requires all new roads and road improvements to be constructed as an urban road section., where drainage is provided by curb and gutter. Urban road sections shall consist of a bituminous surface with surmountable concrete curb and gutter in residential areas, B618 concrete curb and gutter in all others on each side. Minimum right-of-way widths, pavement widths (as measured from face to face of curb), and parking shall be reviewed by the city and city engineer based on functional classification, traffic volume, and design speed. The minimum widths for each type of public street or road are shown in **Table T-10**.

**Table T-10| Urban Roadway Widths**

Type of Street	Right-of-Way Width (feet)	Roadway Width (feet)
Minor arterial	120—160	As determined by traffic needs
Collector street/residential	80	40
Industrial collector service street	80-102	40 minimum
Local street	53-60	26-32
Cul-de-sac turn-around radius	60	46-48

All roadways within the city shall be design strength of seven ton in accordance with the most current edition of the Minnesota Department of Transportation Standard Specifications for Construction. All roadways shall be crowned a minimum of four inches. The centerline grades of all streets shall be a minimum of five-tenths (0.50) percent. The maximum centerline grades of all streets shall be at the discretion of the city.

### County Roadways

Geometric design standards for Carver County roadways are generally based on the standards as specified by the State Aid Office. It should be noted there are a number of roadway sections that could be chosen for county roadways. These roadways, which typically have a range of 15,000-18,000 ADT, can operate with 3-lane, 4-lane undivided, and 4-lane divided cross sections. Carver County and the City of Carver will work collaboratively to determine what is most appropriate for each section.

### Future Right-of-Way Preservation

MnDOT, Carver County, and the City of Carver will work collaboratively to determine appropriate right-of-way needs and preservation for planned and future projects.

# Bicycling and Walking

A well-developed bicycle and pedestrian network provides a way for people of all ages and abilities to travel in a way that is safe, comfortable, accessible, and active. It connects people to community destinations, improves bicycle and pedestrian safety, increases multimodal opportunities, encourages active living, and provides a community amenity.

## Pedestrian Facilities

Pedestrian travel provides an alternative to driving for short distance trips, and safe connections between other modes and final destinations for longer ones. It also can serve as an amenity for residents and visitors who are looking for a safe and active means of recreation, and for businesses districts looking for street life. Dedicated pedestrian facilities also help prevent fatalities resulting from pedestrians mixing with vehicle traffic. The current sidewalk system serving Carver is depicted on **Figure T-10**. Also depicted are the new sidewalk and trail links that the City intends to build to extend and enhance the overall pedestrian network, as consistent with city plans and the zoning and subdivision ordinance.

Section 42-115 of the City’s subdivision ordinance covers requirements for installing new sidewalks and pedestrian ways:

*Sidewalk requirement. Sidewalks may be required by the city council in situations where the safe and efficient conduct of pedestrian traffic makes the installation of sidewalks necessary.*

*Pedestrian way requirement. Pedestrian ways may be required in order to provide pedestrian access across long blocks or to provide access to schools, parks, playgrounds, or other activity centers that attract pedestrian traffic, or to provide a pedestrian travel system within the development and/or to connect to such systems outside the development. Pedestrian ways shall be constructed in accordance with article XI of this Code.*

## Bicycle Facilities

Bicycle facilities provide additional opportunities for non-motorized connectivity and travel. Bicycle trips can be longer than pedestrian trips, which opens possibilities for both replacing auto trips and connecting to a regional network. As traffic volumes grow, having an alternative means of travel can ease pressure on roads with limited capacity. Additionally, bicycle tourism has become increasingly popular in many communities, as a low-impact way to enjoy area attractions and support local businesses.

They can also be developed as a system that is similar to road functional class – with different facility types for different travel needs. Major categories of bicycle facilities in Carver include:

- **Off-street trails** – These trails link destinations and communities and may have a range of supporting amenities, including signage, parking, seating, and wayfinding. They may be located along major roadways, or in their own dedicated right-of-way (such as an abandoned rail corridor, as is the case with the Minnesota Bluffs Regional Trail). They are frequently located along higher volume and speed corridors where on-street bicycling would be less safe. Regional trails are developed and maintained at the county or regional level, and provide connections

over longer distances and between cities. Local trails are maintained at the city level, and typically provide connectivity between local destinations and regional systems.

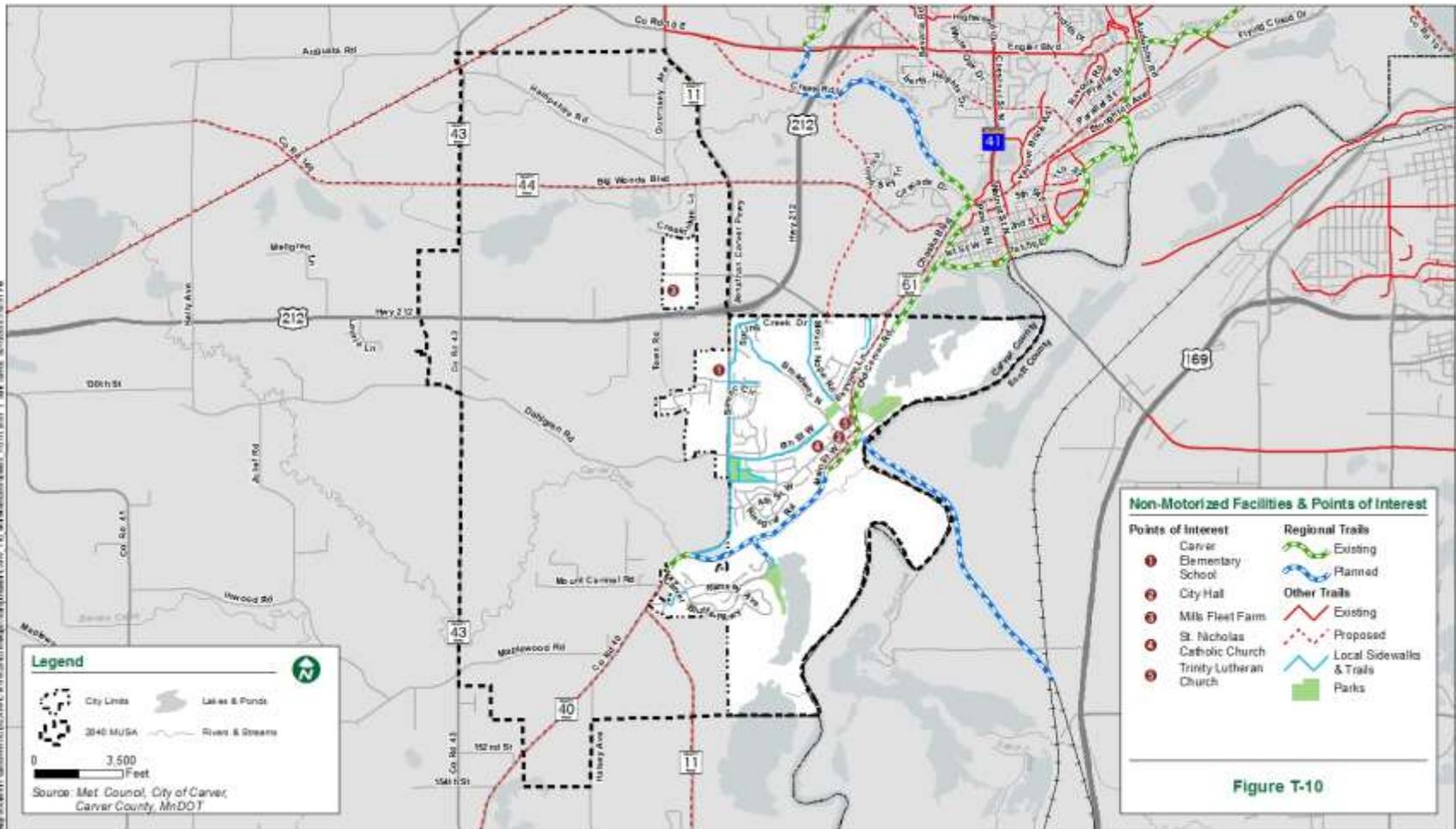
- **On-street bike lanes** – On-street bicycle facilities are typically developed by the county or municipality when funding or right-of-way constraints preclude off-street facilities – or where traffic volumes do not justify the additional investment. They can provide important local connections to the off-street system and local destinations.

Existing bicycle facilities in Carver are depicted on **Figure T-10**. Also depicted are regional trail search corridors that would connect Carver with other Western Carver County communities and other regional trail networks (discussed more below).

Section 42-115 of the City’s subdivision ordinance covers requirements for installing new bicycle paths:

*Bicycle path requirement. Bicycle paths may be required to provide for internal bicycle travel and/or to provide a connection to bicycle systems external to the development. If bicycle paths are shown in the comprehensive plan, installation shall be mandatory. Bicycle paths shall be constructed in accordance with MnDOT standards.*

Figure T-10 – Existing and Planned Non-Motorized Facilities



## Regional Trail Facilities

As shown in **Figure T-10**, the main regional bicycle and pedestrian facility in the city is the Minnesota River Bluffs Connection Regional Trail. The Minnesota River Bluffs LRT Regional Trail is a 12-mile aggregate trail that follows an old railroad route from Hopkins to Minnetonka, Eden Prairie, Chanhassen, Chaska, and Carver. The trail offers access to several destinations including Downtown Hopkins, Downtown Chaska, Shady Oak Lake, Miller Park, Riley Lake Park, and the forested hills around the Minnesota River Valley. The trail is open daily from 5 AM-10 PM. The trail is maintained by the Three Rivers Park District during most of the year, though cities along the route are responsible for snow plowing (currently, only done by Hopkins, Eden Prairie, and Minnetonka). A portion of the trail in Carver County is currently closed due to a 2014 mudslide. The Hennepin County Regional Railroad Authority, the trail corridor's owner, has the goal of reconstructing the slope in 2019.

Just north of Carver, the Minnesota River Bluffs Regional Trail is soon to be connected to the Southwest Regional Trail. The Southwest trail is a developing 13-mile trail corridor between the cities of Chaska and Victoria. When completed, it will connect the Minnesota River Bluffs Regional Trail to the Lake Minnetonka Regional Trail, creating a looping trail network between the three trails. Implementation of this regional trail will occur over time as new development occurs, and with the construction of new roads or as reconstruction of roadways takes place.

In Carver, the Minnesota River Bluffs trail connects also to the Minnesota Valley State Trail, which follows the course of the Minnesota River through the Minnesota Valley National Wildlife Refuge.

See the Parks chapter for additional information on these trail facilities. While these are primarily recreational facilities, they may also serve a transportation purpose, connecting people to destinations.

## Regional Bicycle Transportation Network

The Metropolitan Council has reflected the need for a hierarchy of non-motorized transportation facilities through their designation of the Regional Bicycle Transportation Network (RBTN). The RBTN was developed by the Metropolitan Council through the Regional Bicycle System Study in 2014, and was incorporated into the 2040 Transportation Policy Plan. It is the Metropolitan Council's intent that the RBTN will "serve as the 'backbone' arterial system for biking in the region." The guiding principles for this network include:

- Overcome physical barriers and eliminate critical system gaps.
- Facilitate safe and continuous trips to regional destinations.
- Function as arteries to connect regional destinations and the transit system year-round.
- Accommodate a broad range of cyclist abilities and preferences to attract a wide variety of users.
- Integrate and/or supplement existing and planned infrastructure.
- Provide improved opportunities to increase the share of trips made by bicycle.
- Connect to local, state, and national bikeway networks.
- Consider opportunities to enhance economic development.

- Be equitably distributed throughout the region.
- Follow spacing guidelines that reflect established development and transportation patterns.
- Consider priorities reflected in adopted plans.

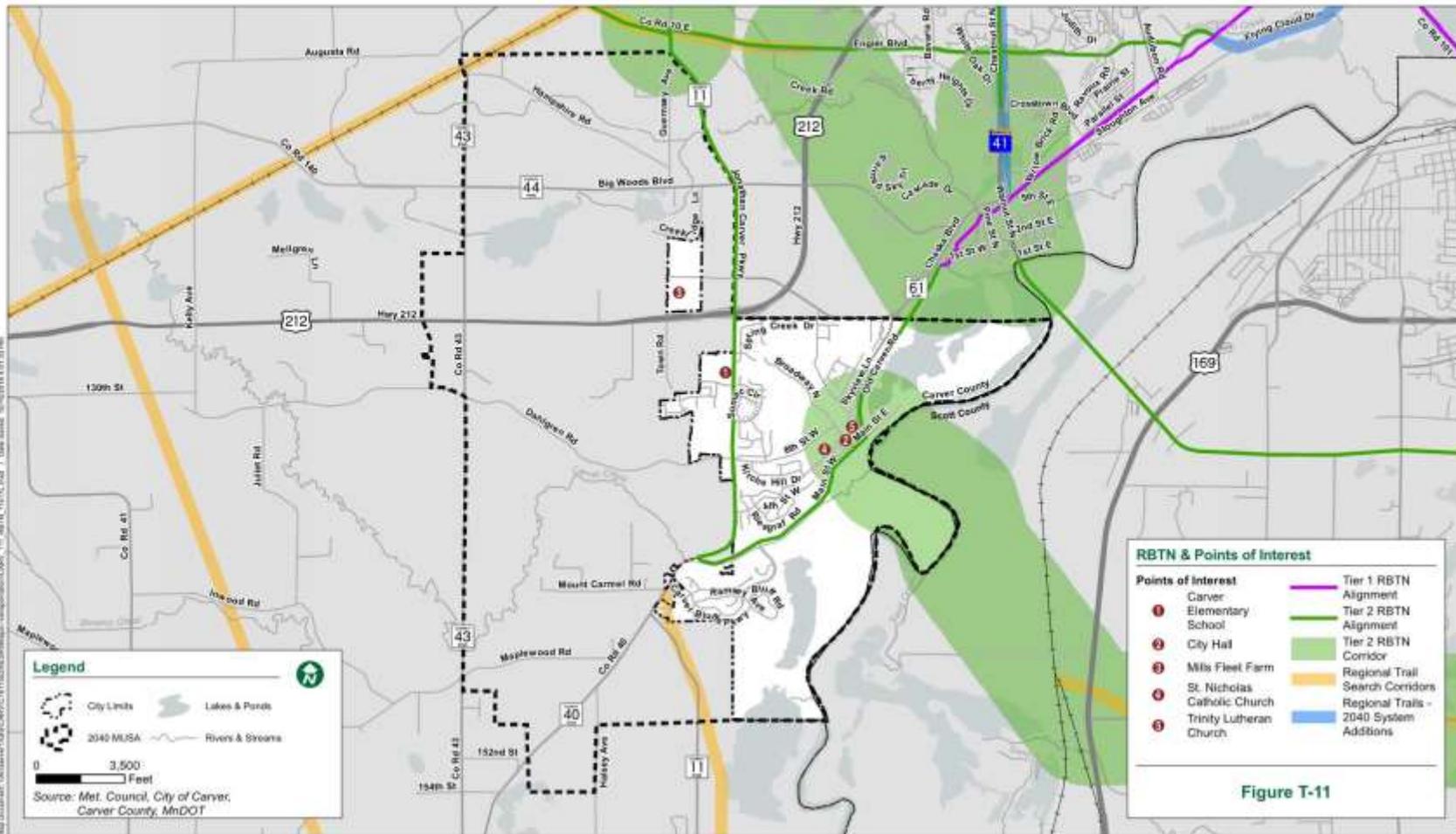
The RBTN is subdivided into two tiers for planning and investment prioritization:

Tier 1 and Tier 2 Regional Bicycle Transportation Alignments reflect specific routes that have already been constructed and/or identified through local plans. Some may need little or no improvement, while others have not yet been developed. The Tier 1 subset reflects those that provide direct connections to and between regional destinations.

Tier 1 and Tier 2 Regional Bicycle Transportation Corridors are the highest priorities for regional planning and investment, with Tier 1 being the top ones. They were chosen to reflect areas where it would be possible to attract the most riders and thereby make the biggest difference in terms of mode shifts. At present, they are shown as broad lines on the map because the exact alignment has not yet been determined.

In Carver, portions of Jonathan Carver Parkway/CSAH 11 and Main Street/Old Carver Road/CSAH 40 are identified as Tier 2 Regional Bicycle Transportation Alignments. See Figure T-11 for the location. Existing off-road trails follow along the roadway corridors for both alignments, and connect at the northern end of the city with regional trail corridors in Chaska.

Figure T-11 – Regional Bicycle Transportation Network



## Facility Improvements

### Planned Regional Facilities

Planned regional trail search corridors are shown on **Figure T-11**. The primary one in Carver is the proposed southward extension of the Jonathan Carver Parkway/CSAH 11 trail further south of its current terminus. For more information on both the planned trail extensions and regional trail search areas, see the Parks chapter.

Potential RBTN corridors near Carver are also shown on **Figure T-11**. An additional trail crossing the Minnesota River to Scott County is shown on the southeast side of Carver, near a former Union Pacific Railroad corridor. This potential crossing is designated as a Tier 2 RBTN Corridor. Other connections are located outside the city limits, but with potential to increase connectivity between the city and other regional destinations.

### General Guidelines

Bikeways, sidewalks and/or multi-use trails are recommended to be adjacent to minor arterial, major collector and minor collector roadways within Carver to accommodate pedestrian, bicycle, and other non-motorized travel in a safe and comfortable manner. These roadways carry a considerable amount of vehicular traffic and separation of vehicular and non-vehicular travel modes is recommended. At the discretion of the City, in commercial and industrial areas, the requirements for trails and sidewalks may vary to accommodate additional pedestrian and bicycle traffic to provide connectivity as illustrated in **Figure 6.9**.

Along major collectors, on-street bikeways are recommended, and when possible a sidewalk on at least one side. On minor collectors, due to varying right-of-way widths and existing limitations, on-street bikeways or off-street trails or sidewalks are recommended, where right-of-way permits. When possible, pedestrian facilities on both sides of major collector roadways are recommended to allow for pedestrian travel within the corridor without introducing excessive crossing demand. With the vehicular volumes anticipated on minor collector streets, pedestrians can safely cross the roadway; however, pedestrian travel along the roadway may become less comfortable as traffic levels increase. An off-street sidewalk or trail will accommodate pedestrian travel along the corridor as well as provide a safe, comfortable link between lower volume residential streets and the other pedestrian facilities within the community.

# Transit

## Transit Market Area

Transit connections for Carver are important to the community, providing a transportation alternative for workers in and around Carver, particularly to major job centers in the Twin Cities metropolitan region. Levels of transit service in the region are determined by a series of Transit Market Areas. The Metropolitan Council has defined Transit Market Areas based on the following primary factors:

- Density of population and jobs
- Interconnectedness of the local street system
- Number of autos owned by residents

In general, areas with high density of population and jobs, highly interconnected local streets, and relatively low auto ownership rates will have the greatest demand for transit services and facilities. Transit Market Areas are a tool used to guide transit planning decisions. They help ensure that the types and levels of transit service provided, fixed-route bus service, match the anticipated demand for a given community or area.

Based on this analysis, the Metropolitan Council categorizes the City of Carver in Transit Market Area V. As identified in Appendix G of the Metropolitan Council's 2040 Transportation Policy Plan (TPP), the characteristics of this category area are as follows:

*Transit Market Area V has very low population and employment densities and tends to be primarily Rural communities and Agricultural uses. General public dial-a-ride service may be appropriate here, but due to the very low-intensity land uses these areas are not well-suited for fixed-route transit service.*

Also from Appendix G of the 2040 TPP (Table G-2), the primary emphasis within Transit Market Area V is public dial-a-ride services for eligible riders. However, the City of Carver does have some limited fixed route transit service, as identified in the next section.

## Current Transit Service and Facilities

### Fixed Route Transit

**Figure T-12** shows existing and planned transit routes and infrastructure in Carver.

The City of Carver is served by fixed route bus transit through SouthWest Transit. The routes serving the area make a single stop at the Carver Station park and ride, located at the intersection of Jonathan Carver Parkway and Ironwood Drive. The climate controlled station has a parking lot with capacity for 400 vehicles.



The routes currently servicing Carver Station include:

- Route 697: Provides weekday peak hour express service connecting Carver Station, East Creek Station (Chaska), and Downtown Minneapolis. Buses run 6:01-8:12 AM eastbound, and 3:56-5:50 PM westbound.
- Route 698: Provides weekday service connecting Carver Station, Pioneer Trail & McKnight Road

(Chaska), Clover Field Park & Ride (Chaska), East Creek Station (Chaska), SouthWest Village (Chanhassen), Chanhassen Transit Station (Downtown Chanhassen), SouthWest Station (Eden Prairie), Downtown Minneapolis, and the University of Minnesota. Buses run 5:32 AM-3:55 PM eastbound and 11:15 AM-10:31 PM westbound. Presently, Carver Station stops are only available for select westbound trips.

- Route 699: Provides weekday peak hour service connecting Carver Station, East Creek Station (Chaska), SouthWest Village (Chanhassen), and Downtown Minneapolis. Buses run 5:50 AM-8:52 AM eastbound and 3:31-6:24 PM westbound.

## Dial-a-Ride Service

Carver is serviced by Transit Link, the dial-a-ride service provided through the Metropolitan Council at the County level. Transit Link provides metro-wide transit connections and access to qualifying rides, such as last mile service, connections between transit stations, or to and from areas not serviced by regular bus routes. Any member of the public may reserve a qualifying ride. Upon reservation, each trip is assessed to ensure it does not overlap with regular route bus services. Starting and ending destinations must be more than ¼ mile from regular route transit in winter months (November-March) and more than ½ mile from regular route transit in summer months (April-October). Transit Link Service does not operate on Thanksgiving Day, Christmas Day, and New Year's Day.

Transit Link fares are determined by distance traveled. Trips less than 10 miles are \$2.25 one way, trips between 10 and 20 miles are \$4.50 one way, and trips more than \$20 miles are \$6.75 one way. ADA-certified riders pay a maximum of \$4.50 one way regardless of distance traveled. This fare includes transfer to a regular service route except for the Northstar Line or peak hour services.

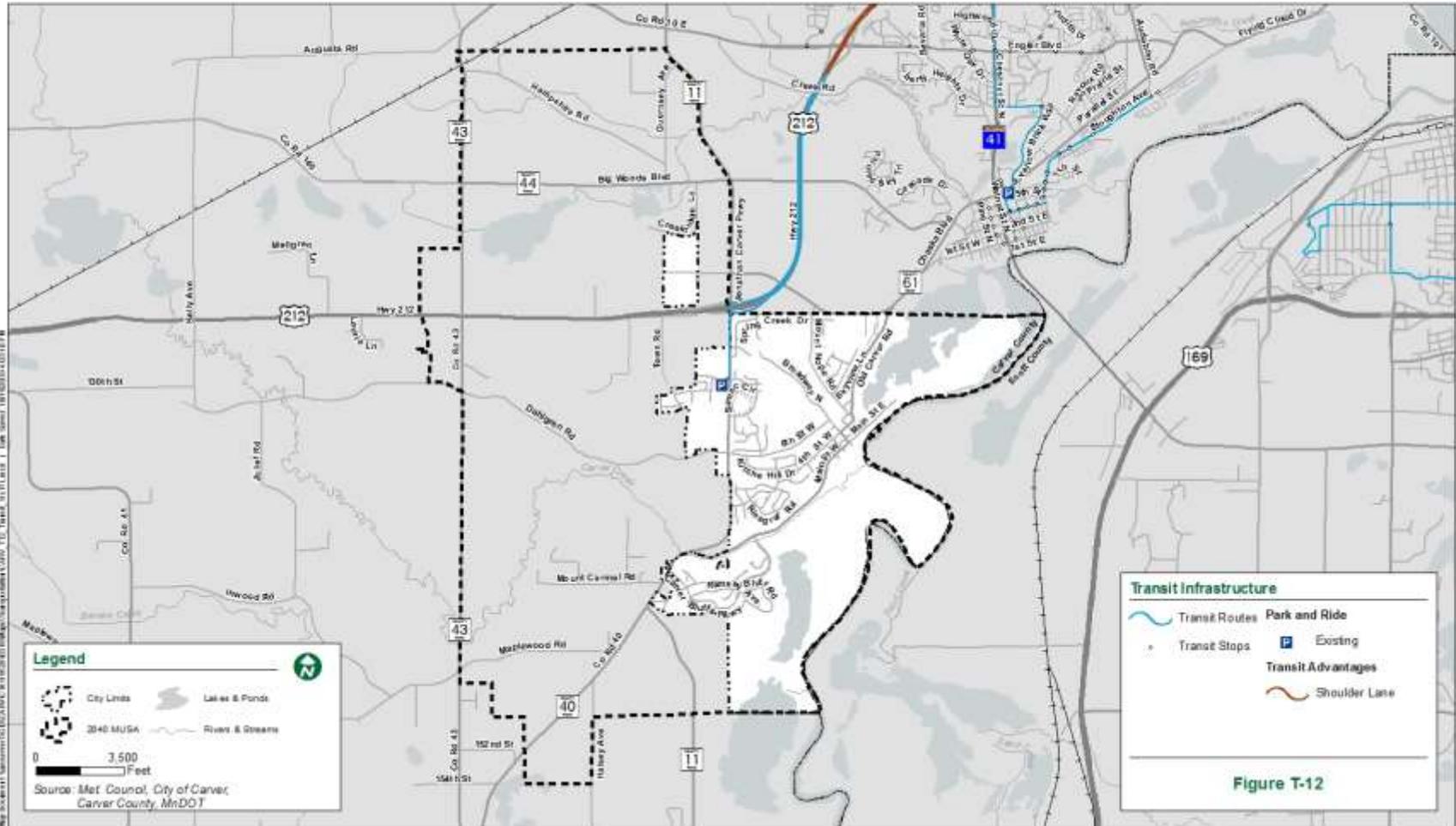
Transit Link service offered jointly through Carver and Scott Counties, called SmartLink Transit, serves all cities and townships in Carver and Scott Counties. Service is available Monday-Friday from 6:00am – 7:00pm. Transfers between Transfer Link and regular service routes take place at one of the following transit hubs: Chanhassen Transit Station, Southwest Village, East Creek Station, Marschall Road Transit Station, Eagle Creek Park & Ride (Secondary), and Southbridge Crossing Park & Ride (Secondary Rush). The following stations in Dakota County are also available for transfer service: Burnsville Shopping Center, Burnsville Transit Station.

Metro Mobility is also available to qualified individuals with disabilities on an on-call basis throughout the seven-county metropolitan area.

## Recommendations

At this time, there are no specific plans for further extending transit into the City of Carver. However, as the city further develops and increases in the intensity of population and jobs, there may be additional need to provide transit service. The City of Carver will continue to work with Carver County, Southwest Transit, and others to periodically evaluate the existing transit usage, growth in both demand and ridership, and opportunities to expand transit frequency and/or coverage.

Figure T-12 – Existing and Planned Transit Infrastructure



# Aviation

There are no existing or planned aviation facilities in Carver. Flying Cloud Airport, located in Eden Prairie, is the nearest airport to Carver within the regional airport system. Flying Cloud Airport is located approximately 12 miles northeast of Carver. Since Carver is outside the Airport Compatibility Area, the airport poses no potential impacts on Carver and there are no airspace restrictions affecting development in the city.

The Metropolitan Council states that each community has a responsibility to identify policies and ordinances that protect regional airspace from obstructions, including meeting any Federal Aviation Administration (FAA) notification requirements. The Transportation Policy Plan provides some guidance and resources to inform the development of ordinances and regulations. As appropriate, city ordinances to satisfy FAA requirements should be created.

# Freight

TH 212 is the major truck freight corridor serving the Carver area. In its *Regional Truck Freight Corridor Study* (2017), the Metropolitan Council evaluated freight corridors throughout the region with four factors including: average annual truck volume, truck percentage of total traffic, proximity to identified freight clusters, and proximity to regional freight terminals. TH 212 was identified as a Tier One corridor, which were those ranking the highest in terms of these criteria.

The study identified TH 212 as the most important corridor for the movement of freight in Carver County. It also noted that there were some substandard segments, particularly relative to the traffic volumes, that needed improvements. Issues for freight included congestion, lack of places to pull off the roadway, and some tight turning movements. The ongoing work along TH 212 at the County level is designed to address a number of these deficiencies.

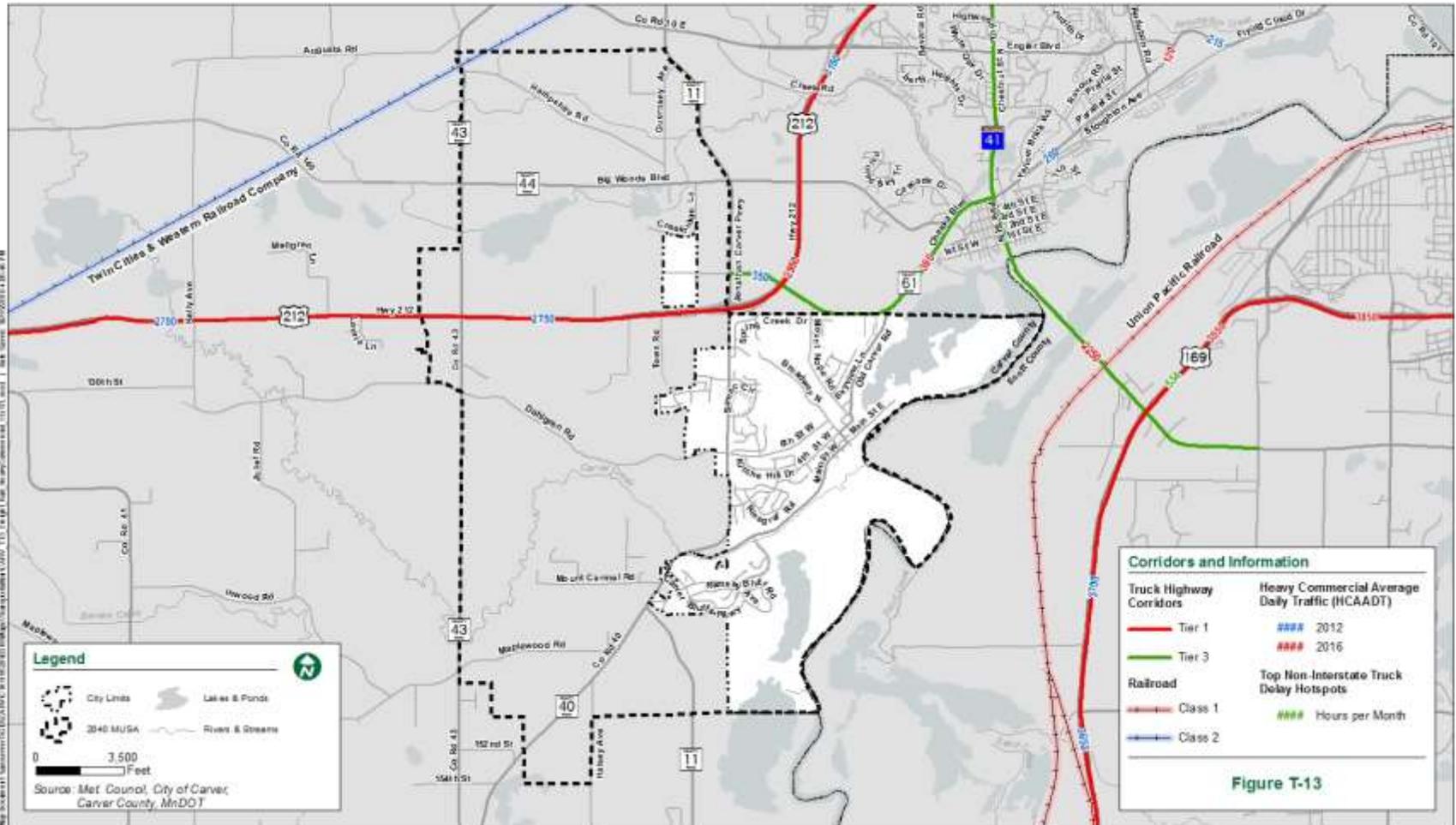
Nearby TH 169 in Scott County was also ranked as a Tier 1 corridor, while CSAH 41 and CSAH 61 were identified as Tier 3 corridors. In terms of current truck volumes on these routes:

- TH 212: around 2,950 heavy commercial vehicles per day, or 17% of total traffic
- TH 169: around 3,550 heavy commercial vehicles per day, or 11% of total traffic
- CSAH 41: around 2,250 heavy commercial vehicles per day, or 12% of total traffic
- CSAH 61: around 390 heavy commercial vehicles per day, or 4% of total traffic

There are no active rail lines in the City of Carver. There were two since-abandoned rail lines that used to run through the city. One of them has since been converted to a connecting link for the Minnesota River Bluffs Regional Trail.

The future land use map in the Land Use chapter shows the location of existing and planned commercial/industrial areas. The City of Carver will plan for safe and adequate truck access to freight generators in these locations, and work to mitigate impacts on other uses.

Figure T-13 – Freight, Rail, and Heavy Commercial Corridors



# Emerging Trends in Transportation

While this plan for the most part assumes the continuation existing travel patterns and technology, there are some emerging trends that may impact how people travel in Carver in the future. These are summarized below, along with an explanation of implications for transportation planning at the city level. Since these are still developing and there is much uncertainty as to specific outcomes, it is recommended that the City (along with other partners) continue to monitor these and make changes as needed.

- **Multi-modal transportation:** As roads become more congested, it is not always feasible or cost effective to add new capacity to the roadway network. Additionally, some people are looking for expanded opportunities to be more active and/or environmentally friendly by driving less. When developing or improving roadway facilities, it is worthwhile to consider how other modes of travel can be accommodated safely in addition to automobile traffic.
- **Expanded use of autonomous vehicles.** Advances in self-driving car technology suggest that in the next few decades, these may become much more widely used. Some experts predict that by 2040, autonomous vehicles will be the primary personal transportation mode. This has broad potential implications for the City of Carver, including but not limited to: (1) the need to upgrade infrastructure markings, signage, and lane structure, to be compatible with the needs of autonomous vehicles, (2) the potential for substantial shifts away from parking for single-occupant vehicles to a more pooled vehicle model (with potential for redevelopment of old parking facilities), and (3) the need for interjurisdictional coordination on how facilities and standards may change across borders – and what new standards might look like. While it is still too early to know the timeline for rollout and adoption of this technology, it should be considered as part of this plan.
- **Mobility as a service, and shared vehicles.** While ride sharing is not a new concept (carpooling dates back decades), the expansion of this as a commercially available service has increased greatly in recent years. Companies such as Lyft and Uber offer ride-sharing services that may reduce the need for personal vehicle usage and ultimately car ownership. This has implications for the demand for dedicated drop off/pick up zones and parking and staging of vehicles. The need for a city level response in terms of regulations and enforcement will expand as these services expand, both in terms of usage and geographic cover.
- **Changes in shopping patterns and delivery methods.** People are increasingly shopping online (for pickup or delivery), leading to implications for both brick and mortar store design, as well as accommodating increased and expanded delivery methods. Increases in freight traffic from deliveries may have implications for existing city roadways. Additionally, the potential expansion of other means of delivery (such as drones or self-driving vehicles) raises questions about how these will be regulated for safety and efficiency. Increases in telecommuting and working remotely have similar implications.