

City of Ramsey
Agenda
City Council Work Session
Tuesday, October 12, 2021

5:30 pm
Lake Itasca Room, 7550 Sunwood Drive NW

Remote Attendance available at www.cityoframsey.com/meetings. To maximize social distancing due to the COVID-19 Pandemic, those that can join remotely are encouraged to do so. Those joining remotely and requesting to speak are asked to use a webcam when speaking.

- 1. Call to Order**

- 2. Topics for Discussion**
 1. NW Metro River Crossing Presentation
 2. Discuss Maintenance of the New Public Works Facility
 3. Discuss 8106 Alpine Drive NW

- 3. Topics for Future Discussion**
 1. Review Future Topics/Calendar

- 4. Mayor/Council/Staff Input**

- 5. Adjournment***

***Note: the City Council may motion to recess this Work Session meeting and reconvene after the regular City Council meeting if items on the agenda are not completed.**

Meeting Date: 10/12/2021

Information

Title:

NW Metro River Crossing Presentation

Purpose/Background:

The Northwest Metro River Crossing Analysis study has been completed and Paul Morris of SRF Consulting and Jennifer Wiltgen of MNDOT will make a presentation of the report, answer questions, and outline next steps. Council member Debra Musgrove represented the City on the Study Committee. Representative John Heinrich helped sponsor legislation that funded this study and he has been invited to the meeting, along with Anoka County Commissioner Matt Look. Both MNDOT and Anoka County will be important partners moving forward with this project.

Project Overview (excerpts from the Executive Summary)

Population growth and development in the northwest Twin Cities Metro area has driven the need to evaluate regional traffic demand and guide future investment in the area. The Northwest Metro Mississippi River Crossings Feasibility Analysis was commissioned to update what we have learned from previous studies, re-engage cities and counties and understand the need for increased Mississippi River crossing capacity.

Throughout the past 20 years, numerous investments have been made on area roadways along with significant growth and changes in land use. Growth in this region will continue beyond 2040, resulting in additional congestion to the roadway network and the existing Mississippi River Crossings in this region. The Minnesota Legislature authorized funding for this Northwest Metro River Crossings Feasibility Analysis so MnDOT can complete a technical review of the existing crossings, travel patterns and demands and explore ideas for increasing capacity.

Area of Analysis

The existing Mississippi River crossings on Highways 101, 169 and 610 are approaching/exceeding capacity and experience several hours of congestion daily. Serving a total of more than 200,000 vehicles per day, these river crossings are key for commuter traffic, but they also serve as main routes for freight vehicles and recreational users.

The feasibility analysis does not include project recommendations. It is a fact-finding investigation and the first of several steps in the project development process. The primary goals of the feasibility analysis are to assess the project's community and transportation context, identify the locations and sources of congestion, understand stakeholder perspectives and define a range of potential solutions to mobility challenges.

Findings and Next Steps

This feasibility analysis revealed the following important findings:

- *The four concepts evaluated in this analysis all produced a benefit-cost ratio that is technically feasible.*
- *Additional analysis is needed (particularly with safety) that was not a part of this analysis that should be included in the next phase of analysis, if one were to occur.*
- *The question of jurisdiction for a new river crossing is not addressed in this analysis.*

This analysis concludes with laying out a process stakeholders could use if there is interest in moving forward with improvements.

The following are necessary elements for advancing projects:

- *Identify a champion for leadership (no recommendation at this time)*
- *Adopt a vision to determine improvements that align with local goals*

- *Establish a prioritization plan for implementing projects in the vision*
 - *Facilitate public involvement to incorporate additional voices*
- Advancement of mobility improvements in this area will require additional study, environmental review process and funding for implementation*

Please see the attached documents that include the final study and appendices.

Timeframe:

60 minutes for presentation and discussion.

Funding Source:

N/A

Responsible Party(ies):

Kurt Ulrich, City Administrator

Outcome:

For information only at this time.

Attachments

[Exec.Summary](#)

[Appendix: Context Analysis](#)

[Appendix: OD Analysis](#)

[Appendix:Forecasting](#)

[Final Report](#)

Form Review

Inbox

Kurt Ulrich

Form Started By: Kathy Schmitz

Final Approval Date: 10/07/2021

Reviewed By

Kurt Ulrich

Date

10/07/2021 03:23 PM

Started On: 10/07/2021 01:58 PM



DEPARTMENT OF
TRANSPORTATION

NORTHWEST TWIN CITIES METRO AREA
Mississippi River Crossings'
Feasibility Analysis

Executive Summary

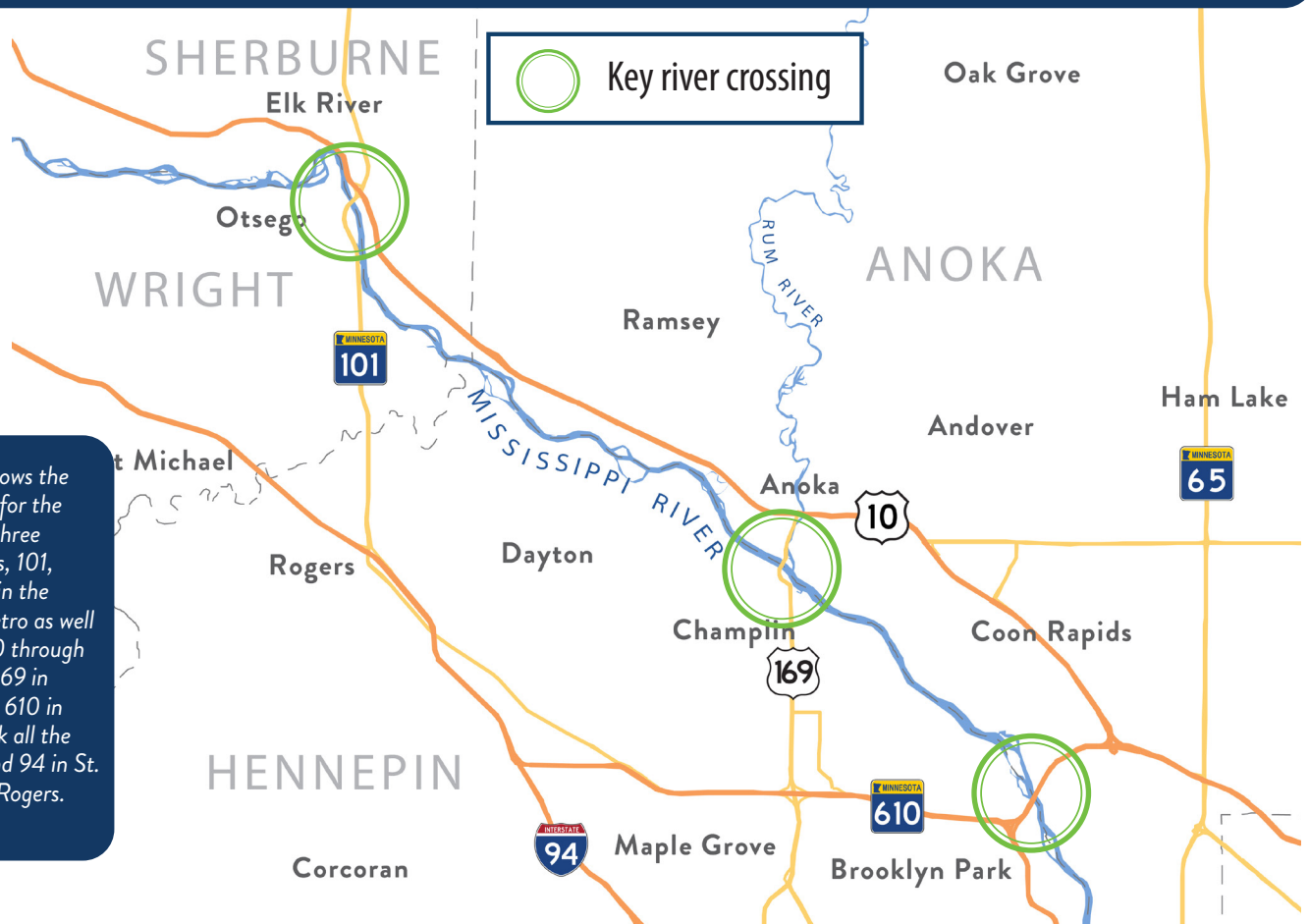
Project Overview

Population growth and development in the northwest Twin Cities Metro area has driven the need to evaluate regional traffic demand and guide future investment in the area. The Northwest Metro Mississippi River Crossings Feasibility Analysis was commissioned to update what we have learned from previous studies, re-engage cities and counties and understand the need for increased Mississippi River crossing capacity.

Throughout the past 20 years, numerous investments

have been made on area roadways along with significant growth and changes in land use. Growth in this region will continue beyond 2040, resulting in additional congestion to the roadway network and the existing Mississippi River Crossings in this region. The Minnesota Legislature authorized funding for this Northwest Metro River Crossings Feasibility Analysis so MnDOT can complete a technical review of the existing crossings, travel patterns and demands and explore ideas for increasing capacity.

Area of Analysis



This image shows the analysis area for the study as the three river crossings, 101, 169 and 610 in the northwest metro as well as highway 10 through from 610 to 169 in Elk River and 610 in Brooklyn Park all the way to 101 and 94 in St. Michael and Rogers.

The existing Mississippi River crossings on Highways 101, 169 and 610 are approaching/exceeding capacity and experience several hours of congestion daily. Serving a total of more than 200,000 vehicles per day, these river crossings are key for commuter traffic, but they also serve as main routes for freight vehicles and recreational users.

Goals of the Feasibility Analysis

The feasibility analysis does not include project recommendations. It is a fact-finding investigation and the first of several steps in the project development process. The primary goals of the feasibility analysis are to assess the project's community and transportation context, identify the locations and sources of congestion, understand stakeholder perspectives and define a range of potential solutions to mobility challenges. These goals are described in more detail below.

- **Understand Past Efforts**
Understanding how project partners have been planning for improved crossing capacity will serve as a baseline for this analysis.
- **Understand Travel Patterns**
Developing a clear understanding of travel patterns for the three Mississippi River crossings at Highways 101, 169 and 610 to accommodate travel demands.
- **Understand System Performance**
Addressing the cost of vehicle delay associated with each river crossing and evaluating delays or planned and programmed improvements will create an understanding of the reserve capacity in each river crossing and establish a baseline in performance.
- **Understand Land Use and Growth**
Identifying and compiling community comprehensive plans will provide an understanding of the long-term population and employment growth along the corridor, the demand this growth will create and the mobility and access needed.
- **Understand Community Position**
A strategic engagement process will allow the team to engage and inform the communities, understand previous work and present clear and consistent findings.
- **Evaluate Concepts to Serve Demands**
Development of high-level concepts that address operational issues and maximize the value of existing infrastructure may include improvements to existing river crossings and exploration of new river crossings.
- **Develop Technically Feasible Concepts**
Evaluation of improvements based on land use, system benefits, overall cost/benefit analysis and return on investment will examine the viability of concepts both on and off the existing road network.
- **Conclusion of this Effort**
This effort is a technical analysis only. The final document will detail the overall findings of this effort but will not recommend a vision. Next steps for project partners will be identified and may include further analysis, environmental study, corridor studies and community engagement.





The Context Analysis provides a **look** at the studies and work that have been completed in the feasibility analysis area during the last three decades. Review of city and county comprehensive plans provides a **look** at what the communities expect to occur in the next 20 years and how they are planning and positioning for this to occur. In total, the context analysis considered:

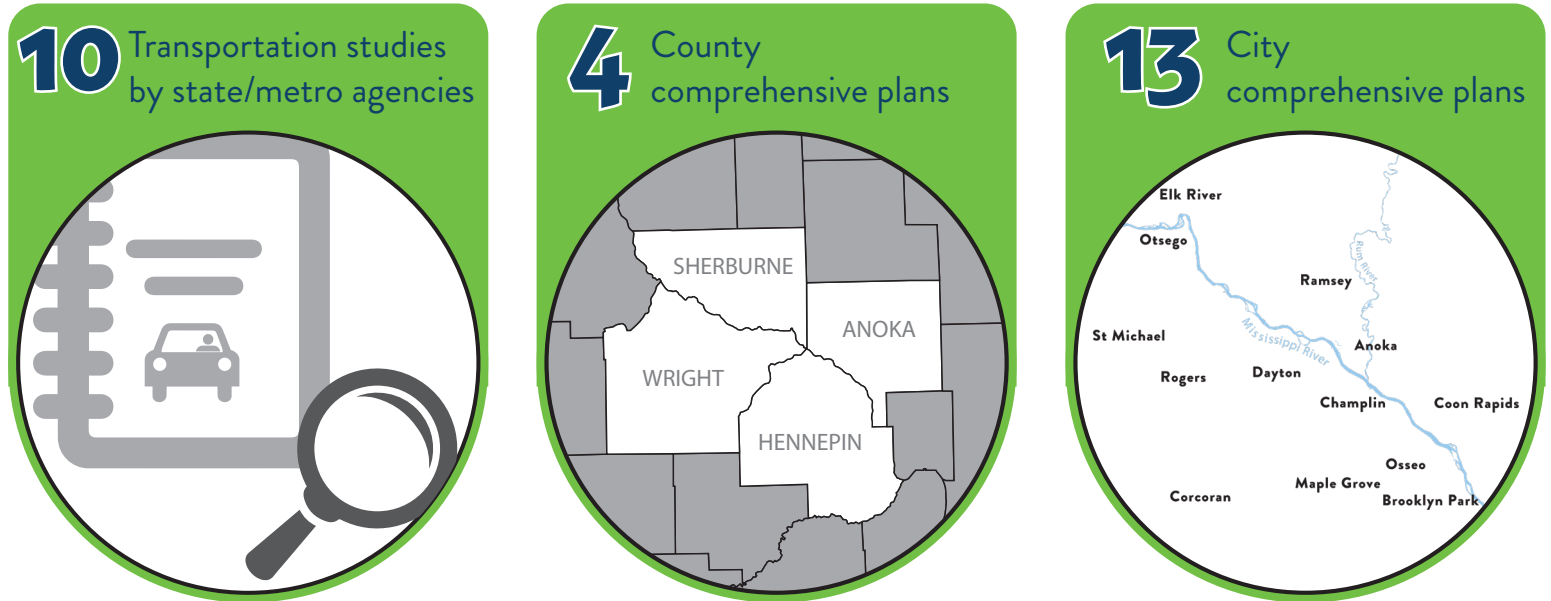






Image displays that 10 transportation studies, 4 county comp plans and 13 city comprehensive plans were reviewed.


Key Takeaways

- 

The need for additional capacity across and along the river has been studied multiple times in the last 30 years. Most of these past studies identified the **need for additional capacity** within the corridor. Some, but not all, identified the **need for additional Mississippi River crossings**.
- 

Growth is anticipated to continue throughout the analysis area. The cities of Ramsey, Corcoran and Dayton are among the fastest growing communities in the Twin Cities Metropolitan area.
- 

Comprehensive plans for many communities in the region identify a **concentration of more intense development along the major highway corridors (101, 169 and 610)**. These plans include mixed use and higher density development. In some cases, the areas are targeted for transit-oriented development.
- 

Capacity investments have been made in the regional roadway network to address existing traffic congestion and future growth in the region.
- 

Some individual communities have made **investments on the north side of the Mississippi River to accommodate a future crossing**.

Area Growth

Regional growth in development, population and employment will reshape communities on both sides of the river. This means increased flow of people and goods across the river in an area where crossings are limited.

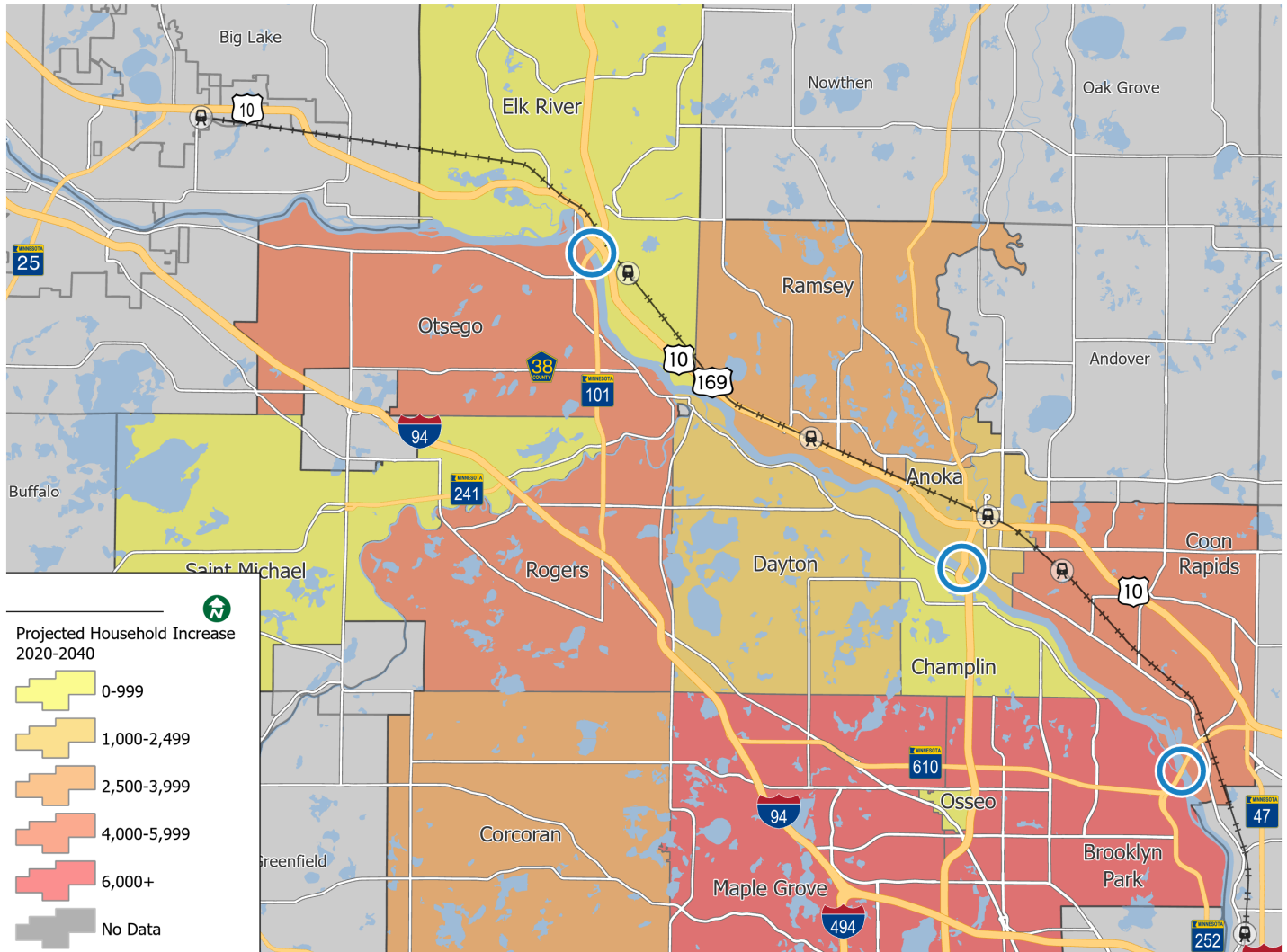


Image shows heat map displaying density of growth in the northwest metro area on both sides of the river.

<i>Growth is likely to continue throughout the area.</i>	Growth in past 20 years (2000-2020)	Growth in next 20 years (2020-2040)
Population	30% ↑	20% ↑
Households	39% ↑	23% ↑
Jobs	54% ↑	17% ↑

Look to the Future

A map of future land use within the analysis area was compiled using information pulled from city comprehensive plans. Land use for each city was summarized into six categories for easier comparison.

The resulting map (below) shows a concentration of commercial and mixed use activity along major corridors. Some areas are clearly targeted for mixed use development and are undergoing urbanization. Such areas include the Center of Ramsey (COR) on the north side of US Highways 10/169, central Anoka surrounding the Northstar Commuter Rail Station, the I-94 corridor from Maple Grove to Hwy 101, areas adjacent to Hwy 101 within Hennepin County and large areas in and around central Elk River.



The COR (Center of Ramsey) downtown development along US Highways 10/169 and the Ramsey Northstar Commuter Rail Station in Ramsey, MN.

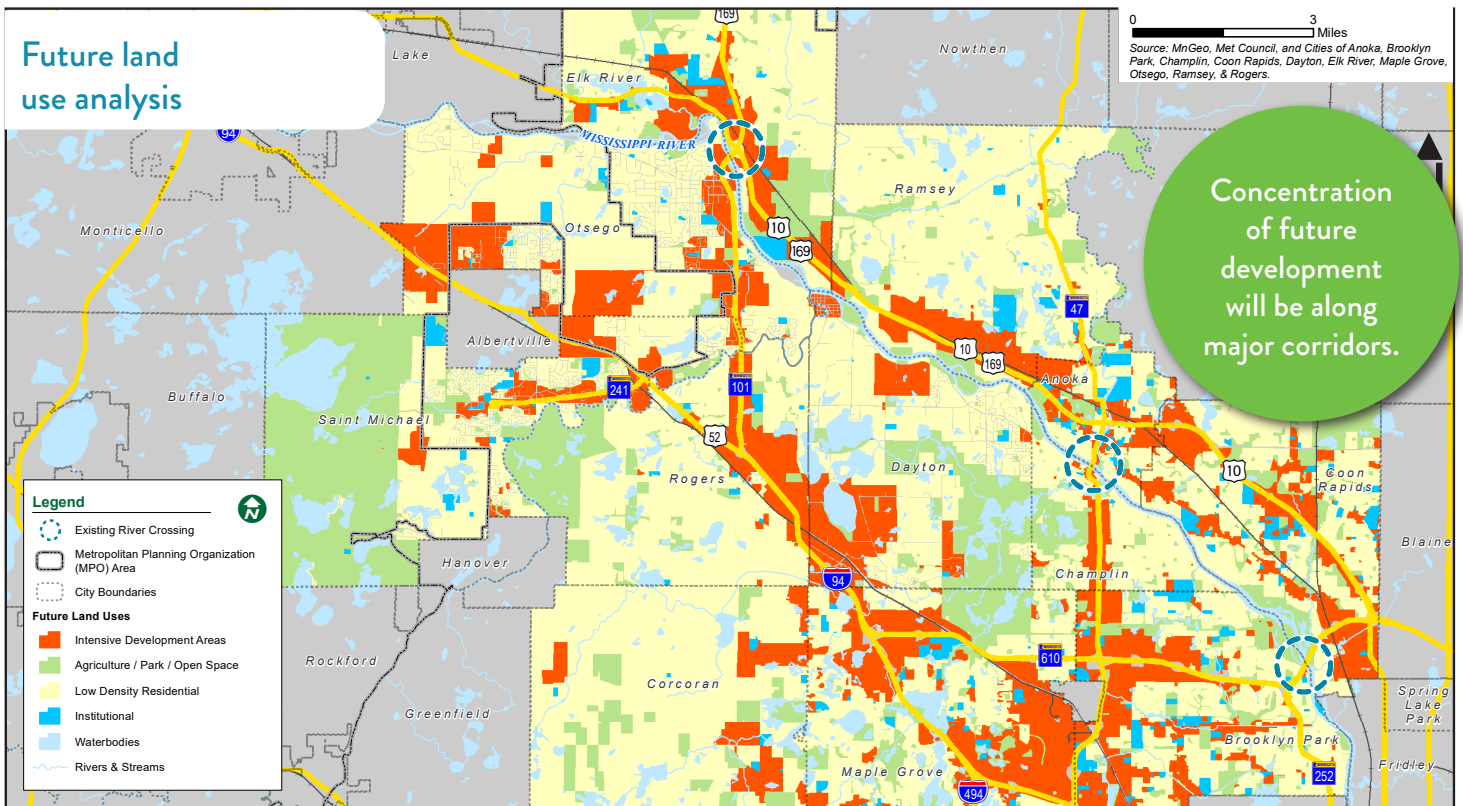


Image displays three future land use categories for the northwest metro area on both sides of the river.

Look to the Future

The future vehicle transportation network map (below) shows funded and planned and funded improvements along I-94 and Hwy 10, as well as potential improvements and new roads identified in past studies and local comprehensive plans. The map shows that communities in the Northwest Twin Cities Metro intend to build a coordinated network that increases capacity and connects major economic and development centers in the region.

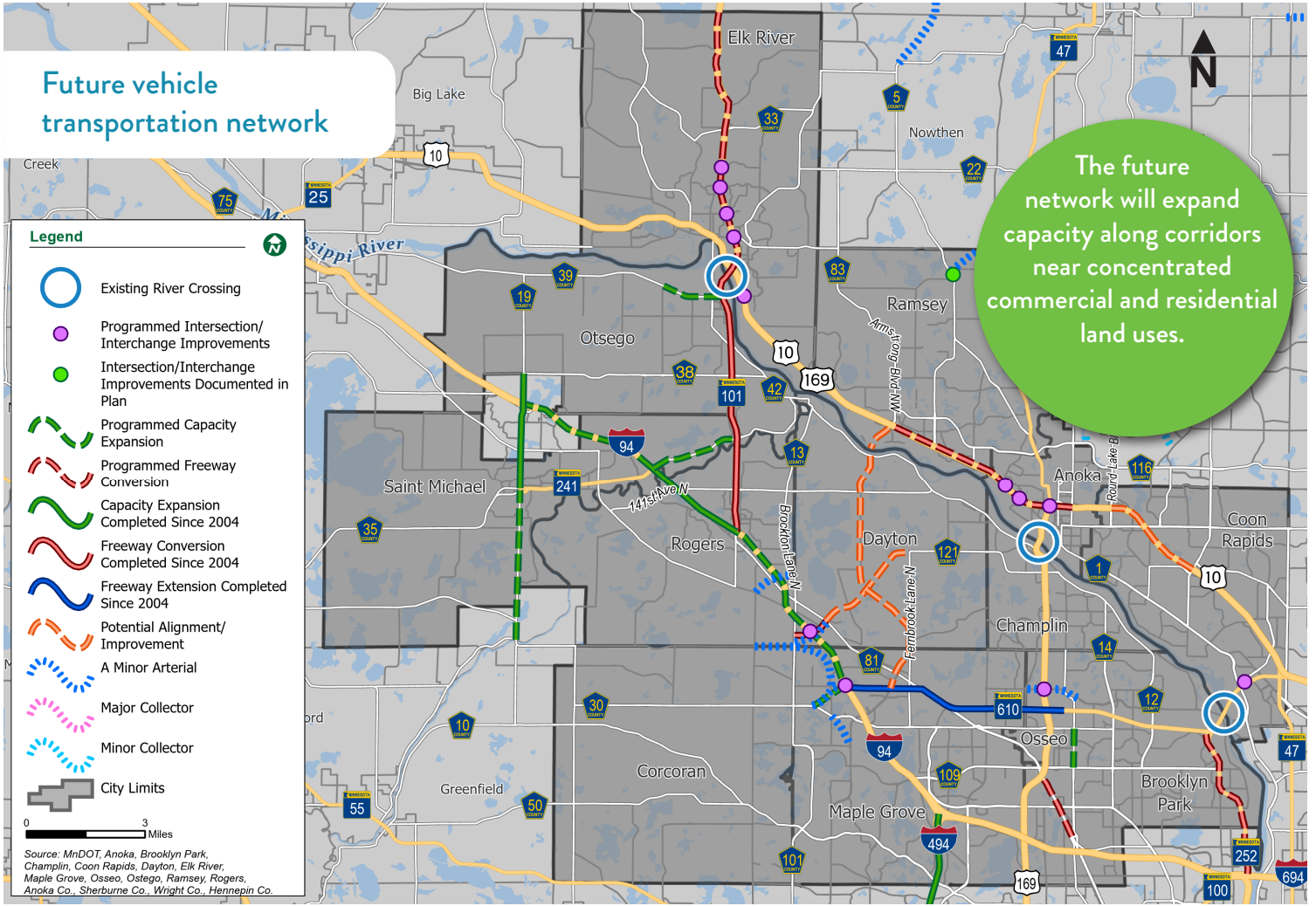


Image identifies completed, underway and planned roadway system improvements on 10, 94, 101, 169 and 610 in the northwest metro area.

Context Analysis Key Takeaways



Need for additional capacity



Continued community growth



Development along major corridors



Investments to increase traffic capacity



Community investments for future improvements



Overview and Need



Context and Land Use



Traffic Analysis



Improvement Concepts



Next Steps



Congestion Analysis

The congestion analysis looks at traffic flow in the Northwest Twin Cities Metropolitan Area to understand the extent, severity, duration and causes of congestion in the region. The analysis shows that travelers regularly experience reduced speeds on highways in the Northwest Twin Cities Metro.

Analysis Highlights

Several of the major highways in the study area experience congestion:

- Interstate 94
- Hwy 10
- Hwy 169
- Hwy 101
- Hwy 610



Congestion Analysis Measures

Severity – *how slow does it get?*

Duration – *how long does it last?*

Extent – *how far does it reach?*

Bottlenecks in each of the congested areas causes the congestion to extend upstream on the highway.

Upcoming projects have been identified for several of the congested areas and bottlenecks. These include Hwy 10 grade separation projects through the cities of Anoka and Ramsey.

Congestion in the Northwest Twin Cities Metro

Travelers encounter some form of congestion on several miles of highway in the Northwest Twin Cities Metro area on a typical workday. The most intense morning congestion occurs around the Hwy 610 and Hwy 252 interchange. There is also a stretch of heavy morning congestion on Hwy 169 between Hwy 10 and the Mississippi River. Afternoon congestion follows a similar pattern, with the heaviest congestion on Hwy 610 west of the Hwy 610 and Hwy 252 interchange and on northbound Hwy 169 approaching the river.

See maps on next page for peak hour congestion and issues.

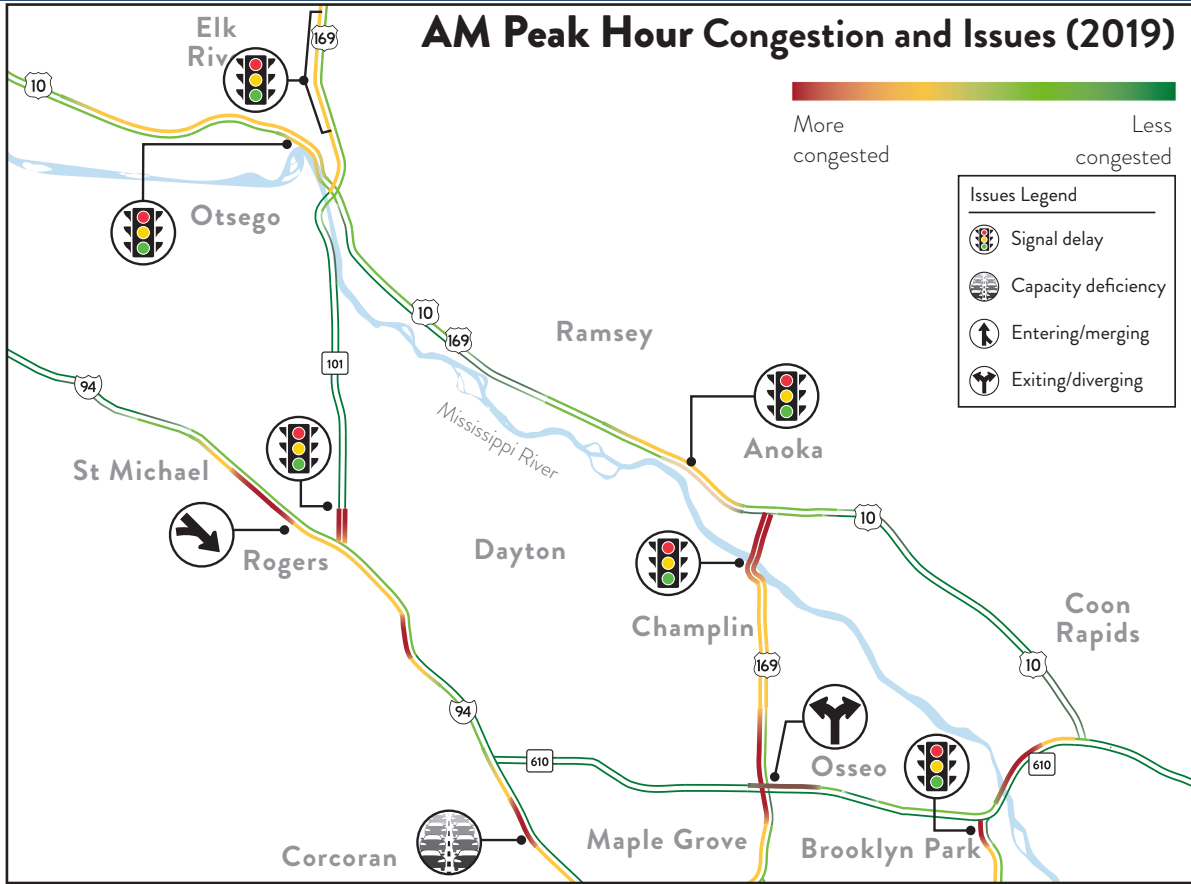


Image shows heat map identifying 2019 morning peak hour congestion on Northwest Twin Cities Metro Area highway system on both sides of the river.

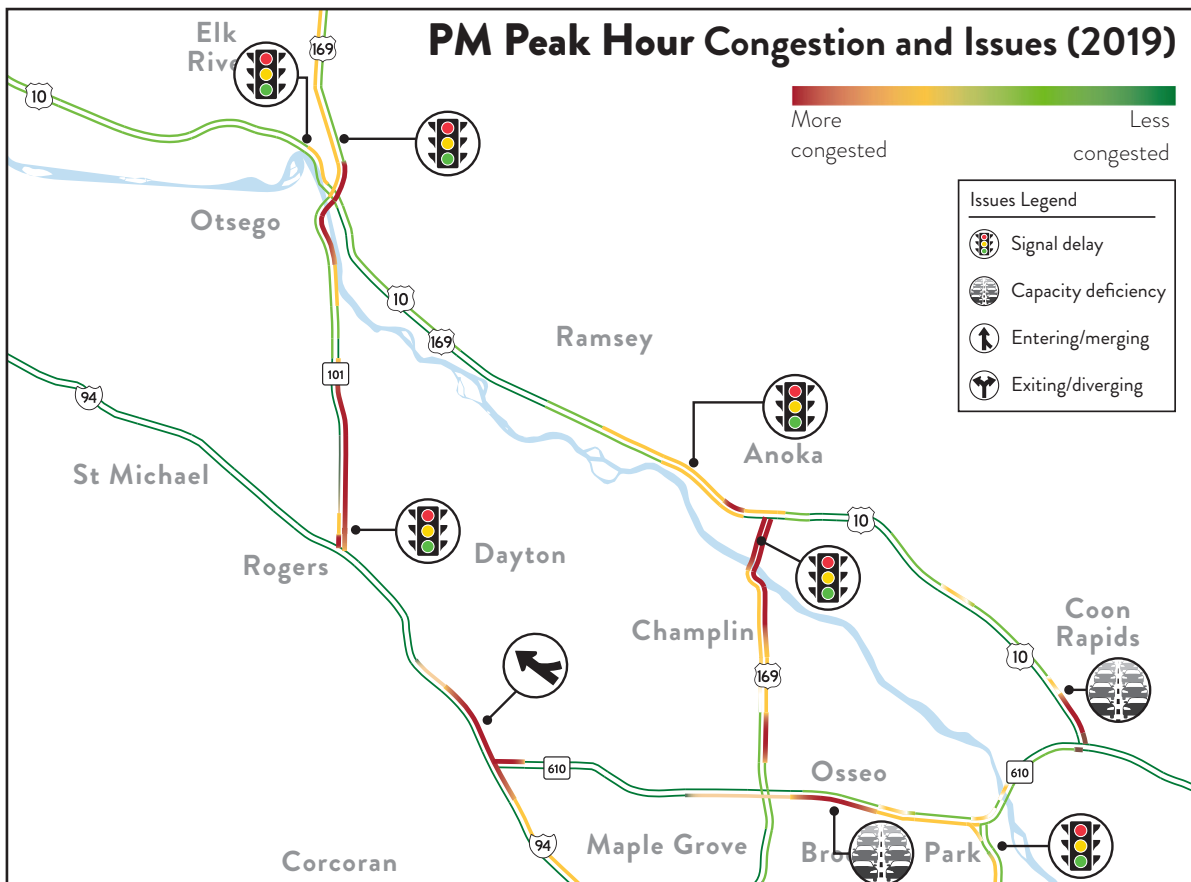


Image shows heat map identifying 2019 afternoon peak hour congestion on Northwest Twin Cities Metro Area highway system on both sides of the river.



Congestion Measurement

Traffic congestion happens on roadways whenever traffic flows at slower than intended speeds. This condition is caused by bottlenecks where travel demand approaches or exceeds roadway capacity.

Traffic congestion is a concern because it delays travelers, increases safety risks and has negative environmental impacts from wasted fuel and increased emissions. This analysis measures congestion in three ways: extent (where does the congestion occur?); intensity (how bad is it?); and duration (how long does the congestion last?).

Corridor Bottlenecks

This analysis identified the bottlenecks most responsible for traffic congestion on major highway corridors in the Northwest Twin Cities Metropolitan Area. Table 1 identifies these bottlenecks and presents information about the extent and duration of the resulting congestion on and off the highways.

Highway	Direction	AM Peak	PM Peak
		Bottleneck (duration)	Bottleneck (duration)
I-94/Hwy 610 between Hwy 241 and Hwy 65	Eastbound	Hwy 101 (~2 hours) Hwy 610 (~1 hour) Hwy 252 (~1.5 hours)	Hwy 252 (2.5 hours)
	Westbound	Hwy 252 (~2 hours) Hwy 169 (1.5 hours)	Hwy 252 (1.5 hours) Zane Ave (1 hour) Hwy 101 (2.5 hours)
US Hwy 10 Between Orono Lake Bridge and Hwy 65	Eastbound	Signal-related in Elk River and congestion (1.5 hours) in Ramsey	Signal-related in Elk River and congestion (1.5 hours) in Ramsey
	Westbound	Signal-related in Elk River and congestion in Ramsey (1 hour)	Signal-related in Elk River and congestion in Ramsey (2.5 hours) and Hanson Blvd (2 hours)
US Hwy 169/Hwy 47 between Bunker Lake Blvd and Hwy 610	Southbound	Signal-related and congestion between Bunker Lake Blvd and Dayton Rd (3 hours), Hwy 610 (2 hours)	Signal-related between Bunker Lake Blvd and Dayton Rd
	Northbound	Signal-related between Bunker Lake Blvd and Dayton Rd	Signal-related and congestion between Bunker Lake Blvd and Hayden Lake Rd (3.5 hours), 109th Ave (1.5 hours)
Hwy 101 between 193rd Ave and I-94	Southbound	Signal-related between 193rd Ave and US Hwy 10 and congestion at Diamond Lake Rd (3 hours)	Signal-related between 193rd Ave and US Hwy 10 and at Diamond Lake Rd
	Northbound	Signal-related at Diamond Lake Rd and between 193rd Ave and US Hwy 10	Signal-related at Diamond Lake Rd and congestion between 193rd Ave and US Hwy 10 (2 hours)

Holiday Congestion

Holiday weekend traffic increases the extent, severity and duration of congestion on highways in the NW Twin Cities Metro. It also shifts where the congestion occurs, with I-94 and Hwy 10 experiencing much more severe congestion on a Friday afternoon before a holiday weekend than on a typical afternoon rush hour.

The Hwy 101 Mississippi River Crossing experiences the greatest holiday weekend congestion impacts of any river crossing in the NW Twin Cities Metro. This is due to a four-fold increase in interregional traffic and the traffic signals on Hwy 169 north of the Highway 10/101/169 intersection.

With 4 times more traffic,
the Hwy 101 Mississippi River Crossing
has the most holiday weekend congestion
in the Northwest Metro.

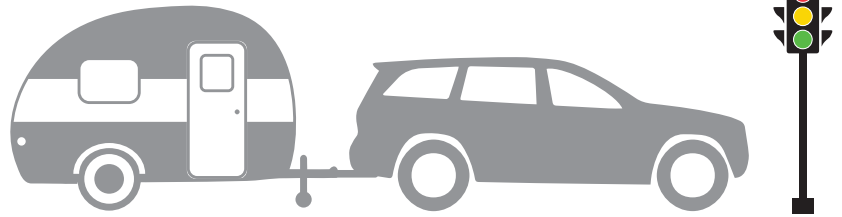


Image illustrates holiday traffic with a car pulling a camper.

Key Takeaways: Congestion Analysis



Hours of Congestion on a Typical Workday

I-94/Hwy 610

Up to 2 hours



Hwy 10

Up to 2.5 hours



Hwy 169/Hwy 47

Up to 3.5 hours



Hwy 101

Up to 3 hours



Overview and Need



Context and Land Use



Traffic Analysis



Improvement Concepts



Next Steps

Origin-Destination Analysis

An analysis of origin and destinations of travel in the study area was undertaken to understand traffic patterns, especially at the three existing river crossings. This analysis used data from StreetLight Insights, a software platform that summarizes traffic movements from mobile devices such as smart phones and GPS navigation units. The analysis provides useful information about trips using the river crossings and other study area roadways, such as:

- Communities where trips start and end
- Common routes used by trips crossing the river
- Time of day trip patterns
- Directional distribution of traffic throughout the day
- Breakdown of autos and truck numbers
- Distribution of typical trip lengths by time and distance

This section summarizes the key findings for the existing Mississippi River crossings and other study area roadways from the origin-destination analysis.

Communities Served

The Hwy 101, Hwy 169 and Hwy 610 river crossings serve the NW Twin Cities Metro in unique and important ways. The Hwy 101 crossing provides an interregional connection serving communities in Sherburne, Wright and Hennepin Counties, while Hwy 169 supports primarily shorter distance and/or local trips between destinations on either side of the river. Hwy 610 is an east-west link in the Twin Cities regional freeway system connecting the large suburban communities of Maple Grove and Brooklyn Park with southern Anoka County and downtown Minneapolis.

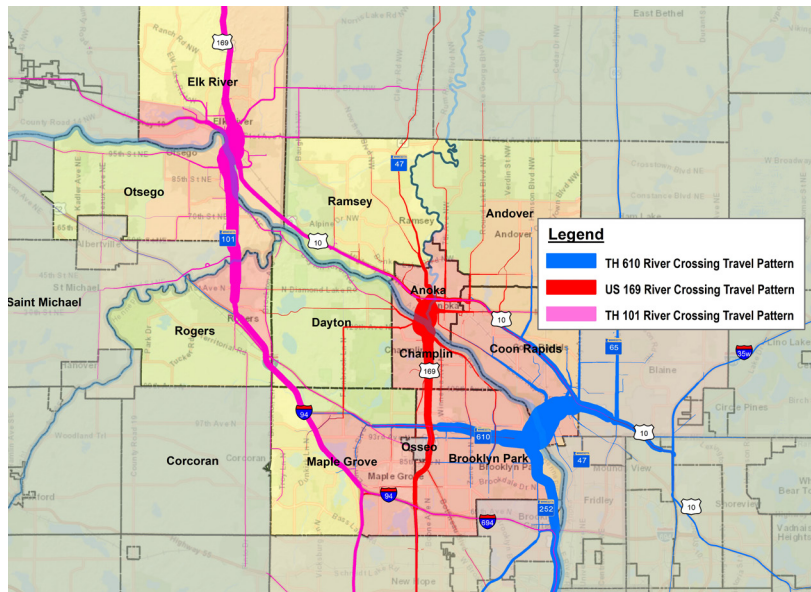


Image uses line thickness to illustrate travel patterns at the Hwy 610, Hwy 169 and Hwy 101 river crossings in the Northwest Twin Cities Metro area.

Key Takeaways

The Hwy 101, Hwy 169 and Hwy 610 river crossings serve the NW Twin Cities Metro in unique and important ways.

Crossing Location	Highest Proportion of:	
Hwy 101	Long trips to and from the Metro	
Hwy 169	Short trips typical of shopping	
Hwy 610	Medium trips typical of commutes	



Overview and Need



Context and Land Use



Traffic Analysis



Improvement Concepts



Next Steps

Trip Length

The average trip length of each NW Twin Cities Metro River Crossing varies according to trip type. As illustrated to the right, the Hwy 169 crossing has the shortest average trip distance. This is consistent with the role Hwy 169 plays carrying short trips between the cities of Champlin, Anoka and Ramsey. Trips using the Hwy 101 and Hwy 610 crossings have similar trip length profiles, although there is greater variation in trips using Hwy 101 due to its function as an interregional corridor.

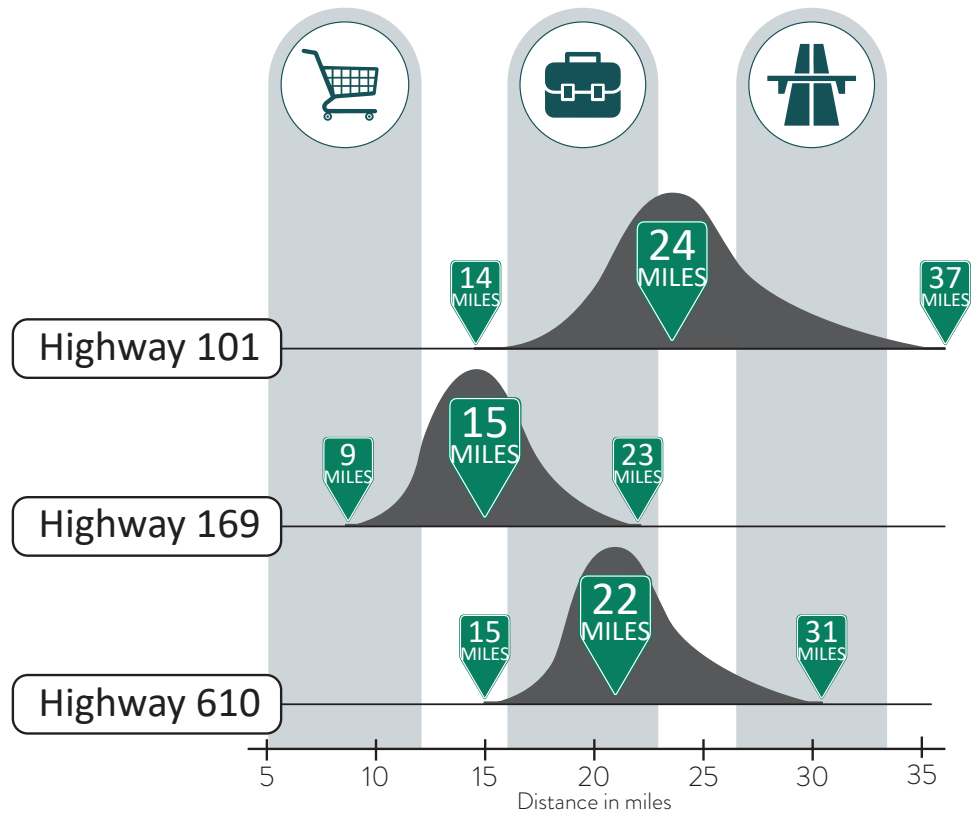


Image shows the average length in miles of trips on Highways 101, 169 and 610 in the Northwest Twin Cities Metro area on both sides of the river.

Trip Volume

Nearly 240k daily trips cross the Mississippi River using the Hwy 101, 169 or 610 river crossings. Hwy 610 carries the heaviest traffic (55 percent of trips), followed by Hwy 101 (27 percent) and Hwy 169 (18 percent).

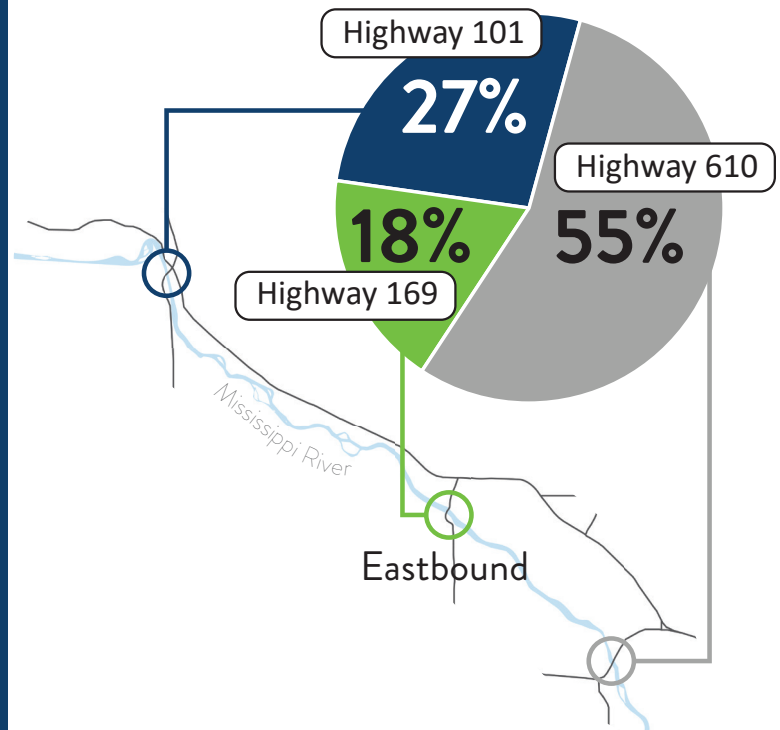


Image is a pie chart identifying the percentage of total trips using each river crossing in the Northwest Twin Cities Metro area.



Daily Profile

Trip type also effects the timing and direction of traffic using the Highways 101, 169 and 610 Mississippi River crossings. Commute trips using a NW Twin Cities Metro river crossing generally travel inbound during morning peak hours and outbound during afternoon peak hours. As a result, between 60 and 70 percent of morning crossings are southbound on Highways 101 and 169 or westbound on Hwy 610. A similar pattern occurs in the afternoon, with 60 to 70 percent of crossings occurring on Hwy 101 northbound, Hwy 169 northbound or Hwy 610 eastbound.

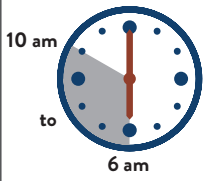
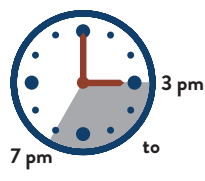
Peak Period	Number of vehicles per river crossing		
	Highway 101	Highway 169	Highway 610
AM peak 	N 10,300 ↓ 5,000 ↑ S	N 6,500 ↓ 4,100 ↑ S	N 20,900 ↓ 11,800 ↑ S
PM peak 	N 8,600 ↓ 13,500 ↑ S	N 5,000 ↓ 8,500 ↑ S	N 17,600 ↓ 27,600 ↑ S

Image uses clocks to identify the morning peak hours of 6-10 and the afternoon peak hours of 3 to 7. (Arrows are used to illustrate direction of trips.)

Holiday Weekend Travel

The Hwy 101 crossing supports four times as many interregional trips on holiday weekend Fridays compared to typical weekdays.



The **Highway 101 bridge** supports **4 times as many** long-distance trips on **Fridays before holiday weekends** than typical weekdays.

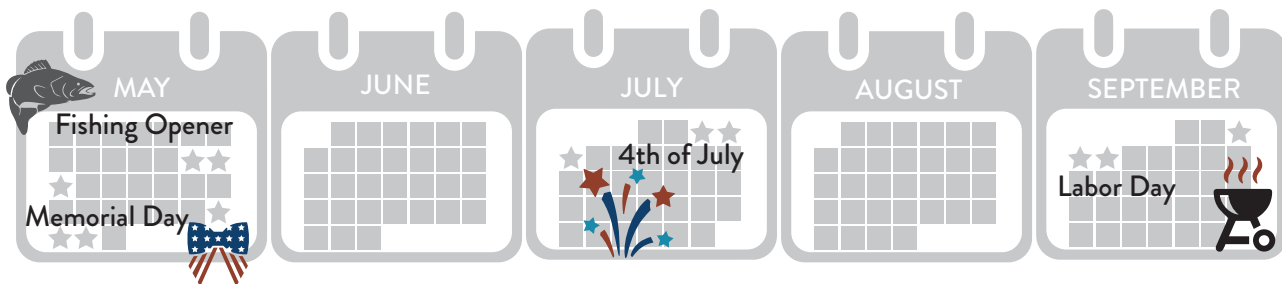


Image is a calendar identifying the major summer weekends, including Fishing Opener, Memorial Day, 4th of July and Labor Day.



Improvement Concept Overview

Improvement concepts were conceived throughout the study area to address mobility concerns identified in the traffic analysis. The improvements were meant to address bottlenecks and congestion on existing highways either through spot mobility or strategic capacity. In addition, several new options for Mississippi River crossing connections concepts were also explored. All of the improvements were evaluated with respect to the following factors:



Improvements that performed well across these factors were included in concept development. A concept graphic was created for each improvement to convey the location and type of improvement. The range of concepts were reviewed by the MNDOT team and then shared with project stakeholders including city and county staff and elected officials. Based on the traffic analysis and input received, the concepts were revised and narrowed to the four identified in the following pages.

The concepts identified included a range of improvements with different magnitudes of costs and mobility benefits. Additional project development, technical analysis and public participation will be required to fully determine what, if any, improvements should be constructed. The planning-level improvements considered in each location are illustrated on the following pages.

Range of Possible Improvements		Improves traffic flow across Mississippi River	Consistent with local & regional planning	Potential residential & community impacts	Natural resources impact considerations	Eligible for inclusion in Concept Development
NO BUILD		X	X			
I-94	Do nothing	X				
US Hwy 10	US Hwy 10 A1* Ramsey to Elk River - Spot mobility improvements from Armstrong Blvd (Ramsey) to Hwy 101 (Elk River) (6 miles)					
	US Hwy 10 A2* Ramsey to Elk River - Convert to four-lane grade-separated corridor from Armstrong Blvd (Ramsey) to Hwy 101 (Elk River) (6 miles)					
	US Hwy 10 B** Coon Rapids Lane Add - Add lane from Hanson Blvd to Round Lake Blvd (2.5 miles)					
Hwy 101	Hwy 101 A1 Hwy 101 SB Capacity Improvements - Signals remain. Ideas include adding an additional right turn lane dedicated to WB I-94 or I-94 interchange could be converted to a DDI					
	Hwy 101 A2 SB 101/94 System Interchange Improvements - Introduce a southbound Hwy 101 to eastbound I-94 flyover					
Hwy 610	Hwy 610 A*** Hwy 610 Mobility Improvement - From Hwy 169 to Hwy 252 (4 miles)		X			
	Hwy 610 B Hwy 610 East River Rd Interchange - Reconfigure interchange to provide full movements (today ramps only on west side)	X				
US Hwy 169	US Hwy 169 A*** US Hwy 169 Mobility Improvement - 101st to W. River Road (3 miles)		X			
	US Hwy 169 B*** US Hwy 169 Mobility Improvement - West River Road to Hwy 10 (1.5 miles)		X			
NEW RIVER CROSSING	A Zanzibar/Armstrong Alignment					
	B1 Hwy 169 to Ramsey Blvd Alignment		X			
	B2 Hwy 169 to Sunfish Lake Blvd Alignment		X			
	C Hwy 169 to 117th Ave to Round Lake Blvd Alignment		X			
	D Hwy 252 Extension to Hanson Blvd Alignment		X			

Key to symbols

Yes

No

Impact level:

None

Low

Medium

High

Yes

No

All improvements

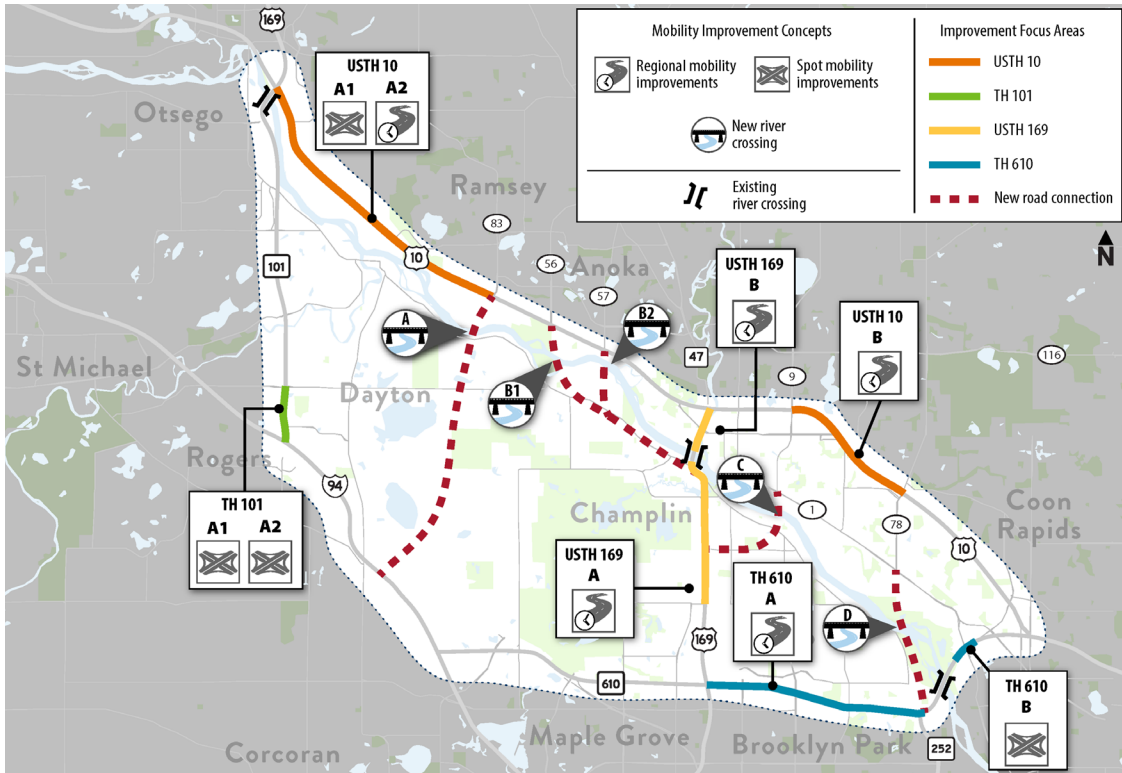


Image is a line map showing all potential improvement concepts on Highways 10, 101, 169 and 610 and new river crossing alignments in the Northwest Twin Cities Metro area.

Improvements carried forward to technical evaluation

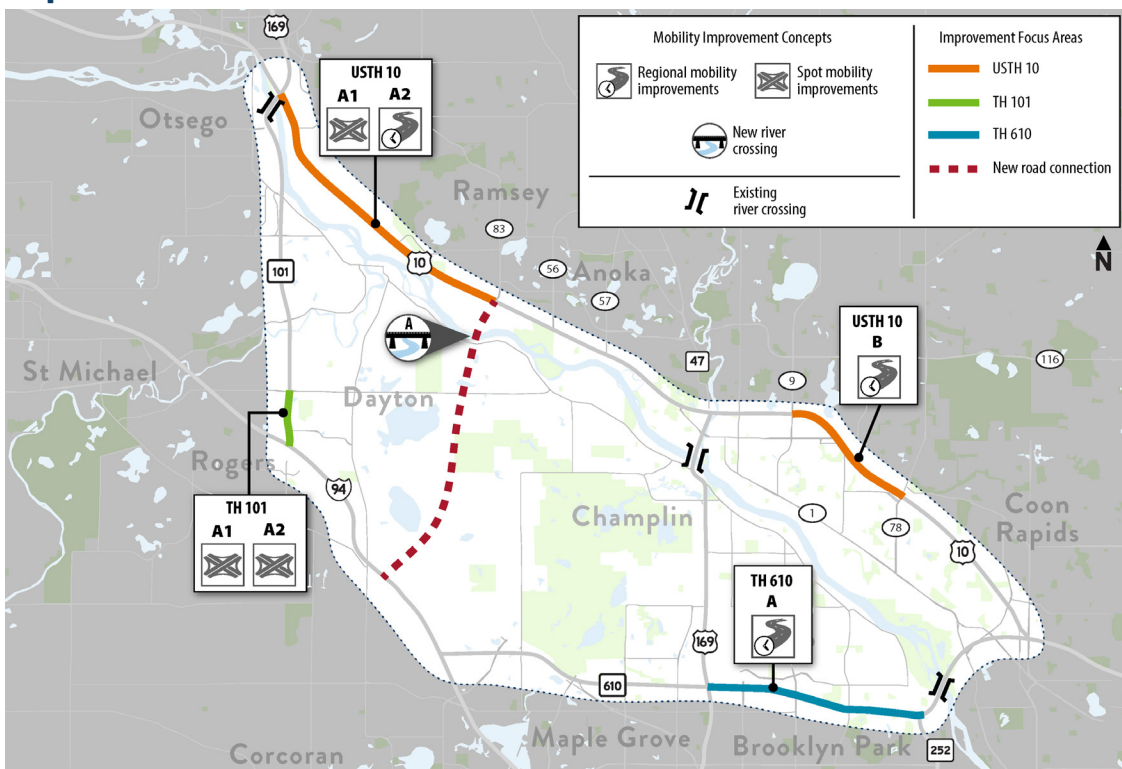
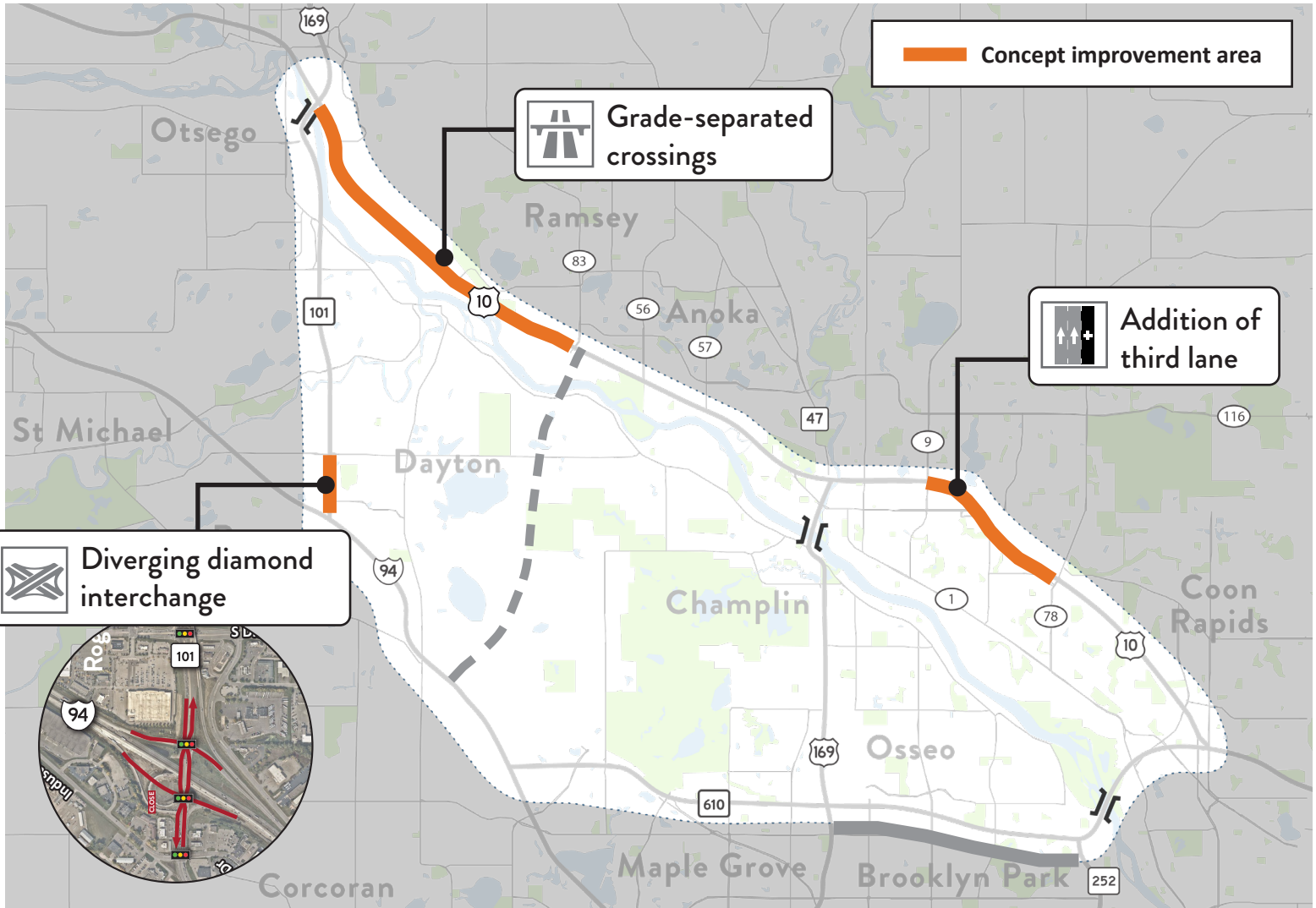


Image is a line map showing all potential improvement concepts on Highways 10, 101, 169 and 610 and new river crossing alignments in the Northwest Twin Cities Metro area carried forward for technical evaluation.

Concept 1 – Mobility Improvements (Hwy 101 + Hwy 10)



Improvement Details and Cost Range

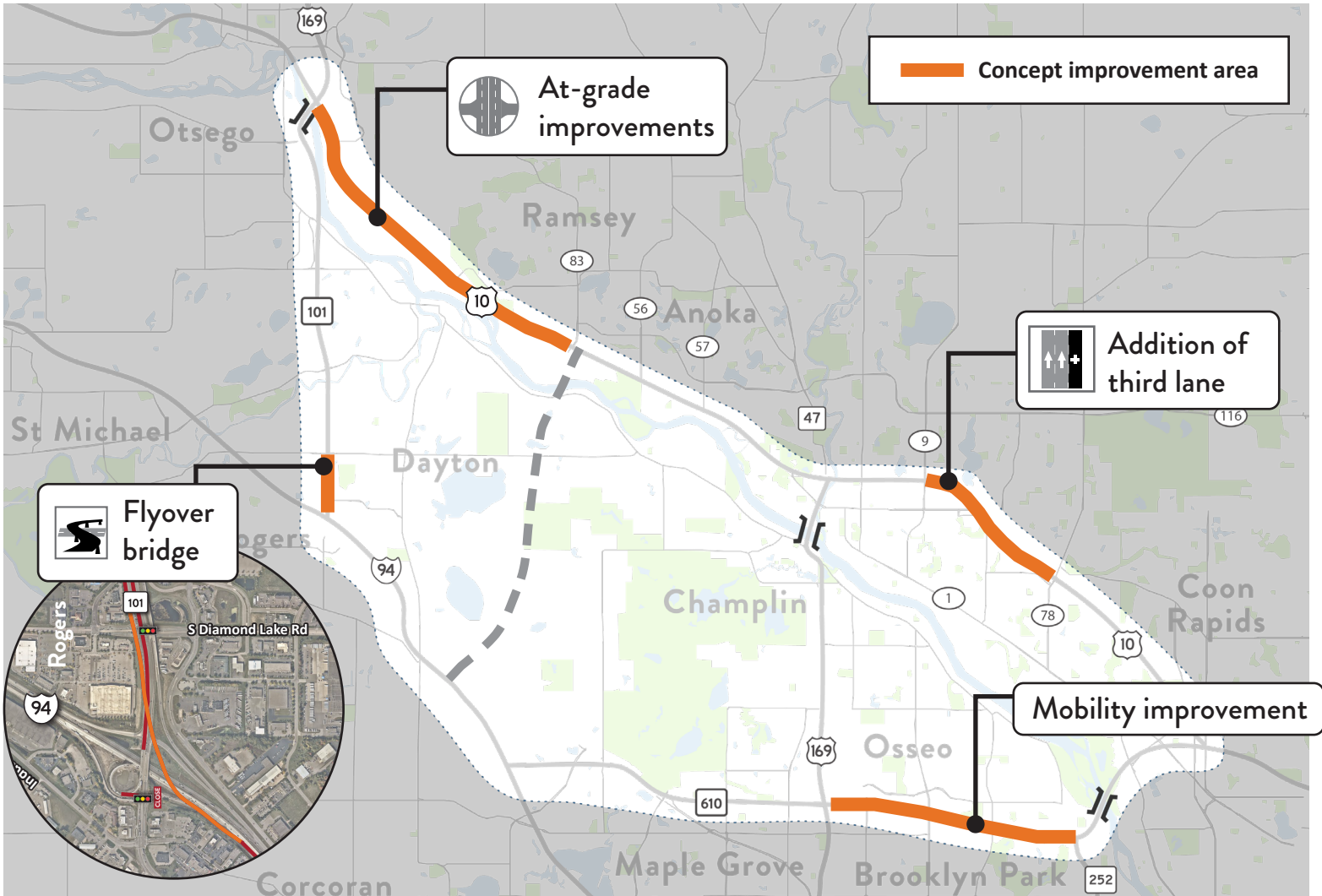
Hwy 10	Grade Separated Crossing	Elk River (US Hwy 169) to Ramsey (Armstrong Blvd)	\$115-290 Million*
Hwy 10	Lane Addition	Eastbound and Westbound Lane Add from Hanson Blvd to Round Lake Blvd	\$36 Million*
Hwy 101	Diverging Diamond Interchange	Diverging Diamond Interchange at Hwy 101 and I-94	\$22-26 Million*

Net Cost: \$175-350 Million*

Benefit/Cost Ratio: 1.0

*Total project cost estimate in 2030 dollars

Concept 2 – Mobility Improvements (Hwy 101 + Hwy 10 + Hwy 610)



Improvement Details and Cost Range

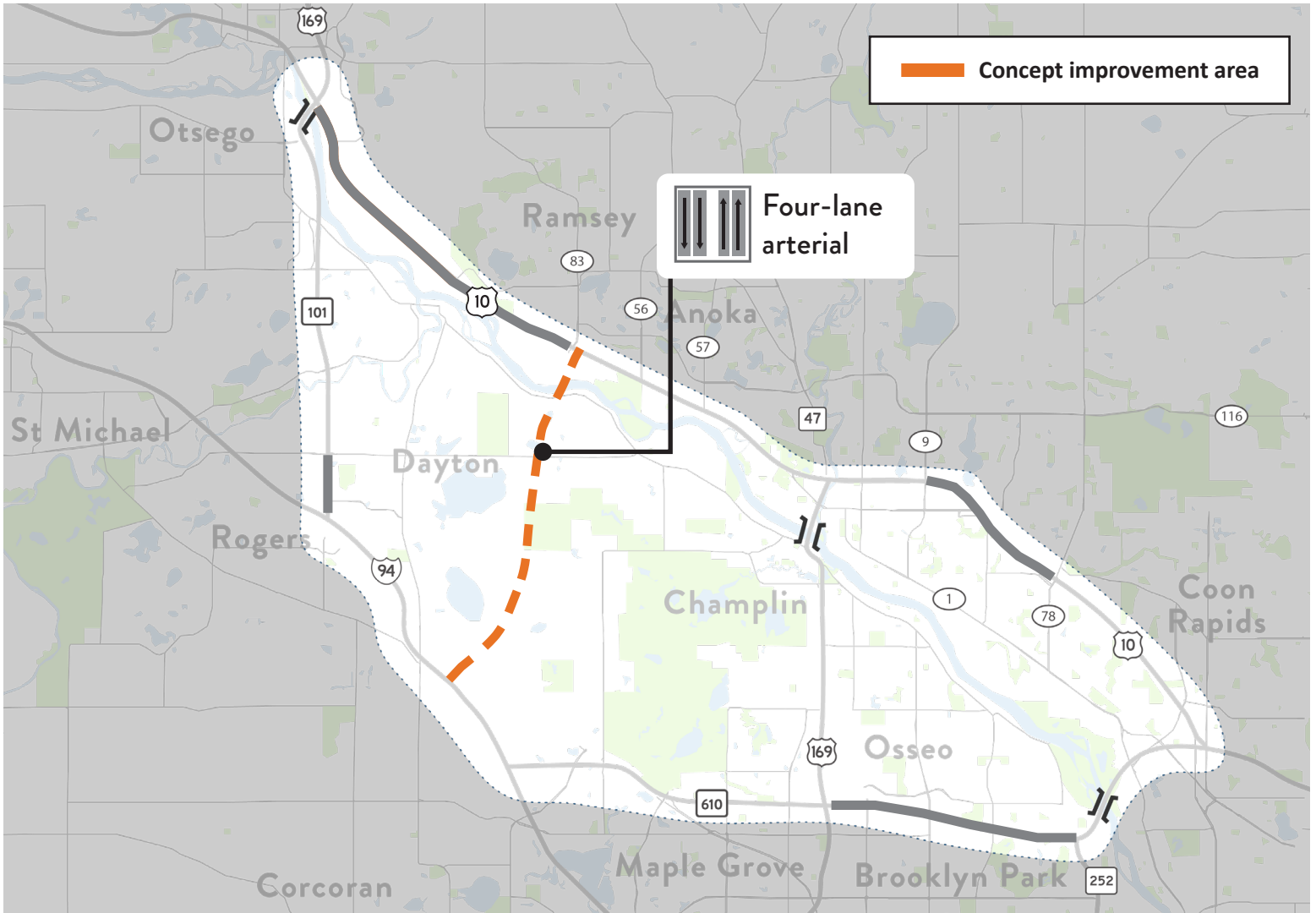
Hwy 10	At-Grade Improvements	Elk River (US Hwy 169) to Ramsey (Armstrong Blvd)	\$22-38 Million*
Hwy 10	Lane Addition	Eastbound and westbound lane add from Hanson Blvd to Round Lake Blvd	\$36 Million*
Hwy 101	Flyover	Southbound Hwy 101 to eastbound I-94 flyover, including realignment of Hwy 101	\$107-129 Million*
Hwy 610	Mobility Improvement	Improvement undetermined. Consider Active Traffic Management, Spot Mobility, MnPASS and Strategic Capacity	\$8-35 Million*

Net Cost: \$175-240 Million*

Benefit/Cost Ratio: 1.4

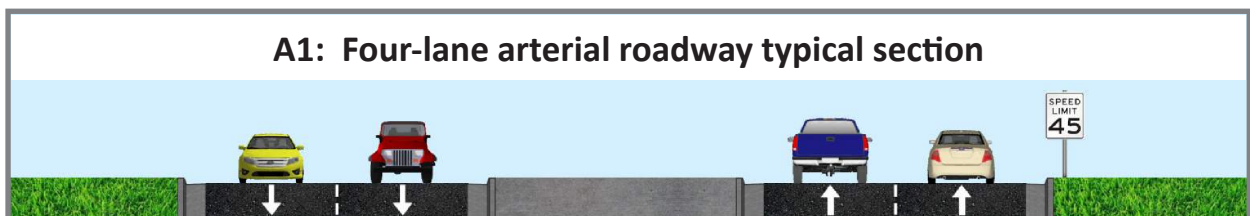
*Total project cost estimate in 2030 dollars

Concept 3 – New River Crossing (Arterial)



Improvement Details and Cost Range

<p>New River Crossing</p>	<p>New river crossing designed as a four-lane arterial roadway between I-94 and Hwy 10.</p>	<p>\$170-250 Million*</p>
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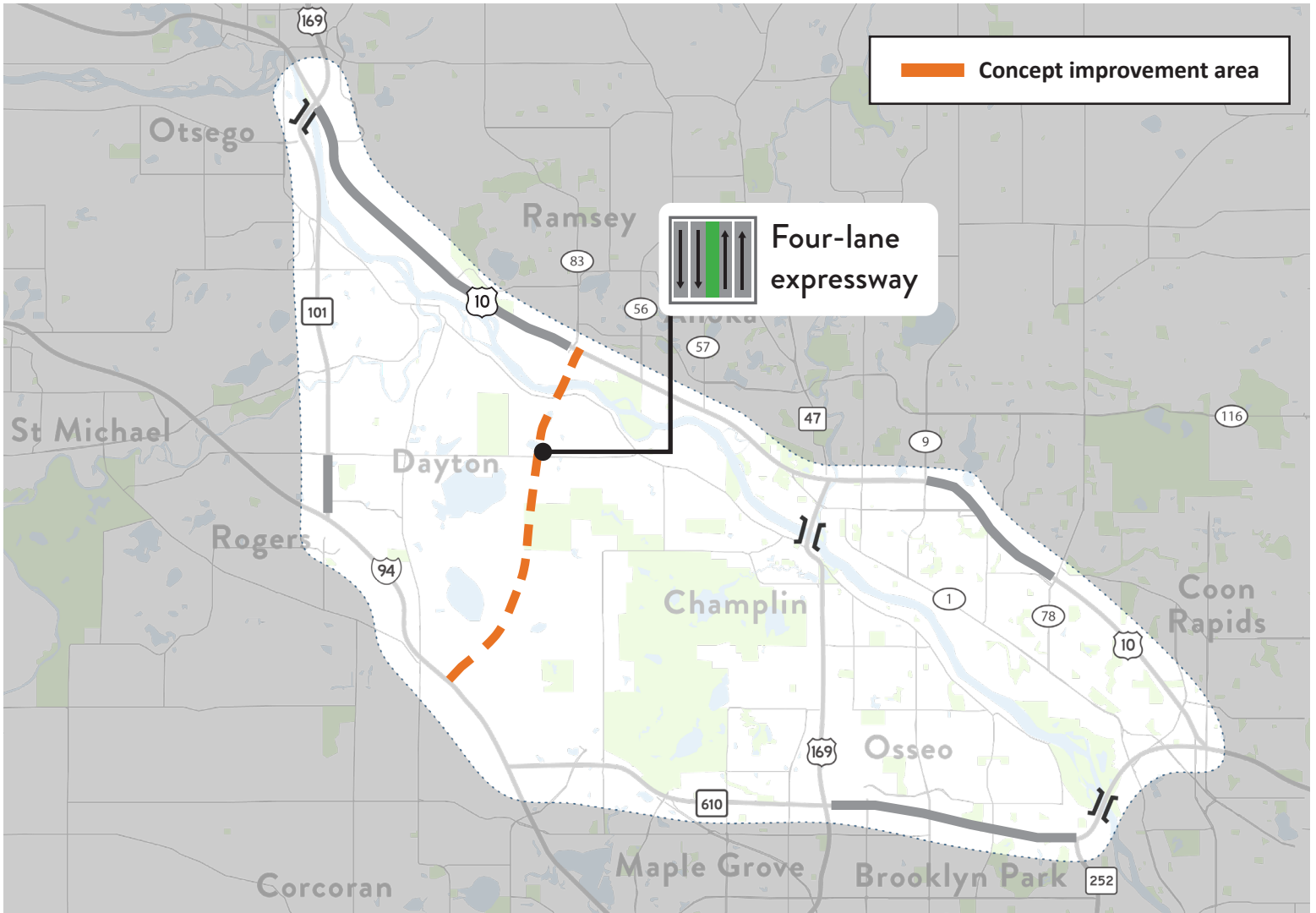
A1: Four-lane arterial roadway typical section

Net Cost: \$170-250 Million*

Benefit/Cost Ratio: 1.1

*Total project cost estimate in 2030 dollars

Concept 4 – New River Crossing (Expressway)



Improvement Details and Cost Range

New River Crossing	New river crossing designed as a four-lane expressway between I-94 and Hwy 10.	\$190-250 Million*
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Net Cost: \$190-270 Million*

Benefit/Cost Ratio: 1.3

*Total project cost estimate in 2030 dollars

2040 Daily Travel Patterns with New River Crossing

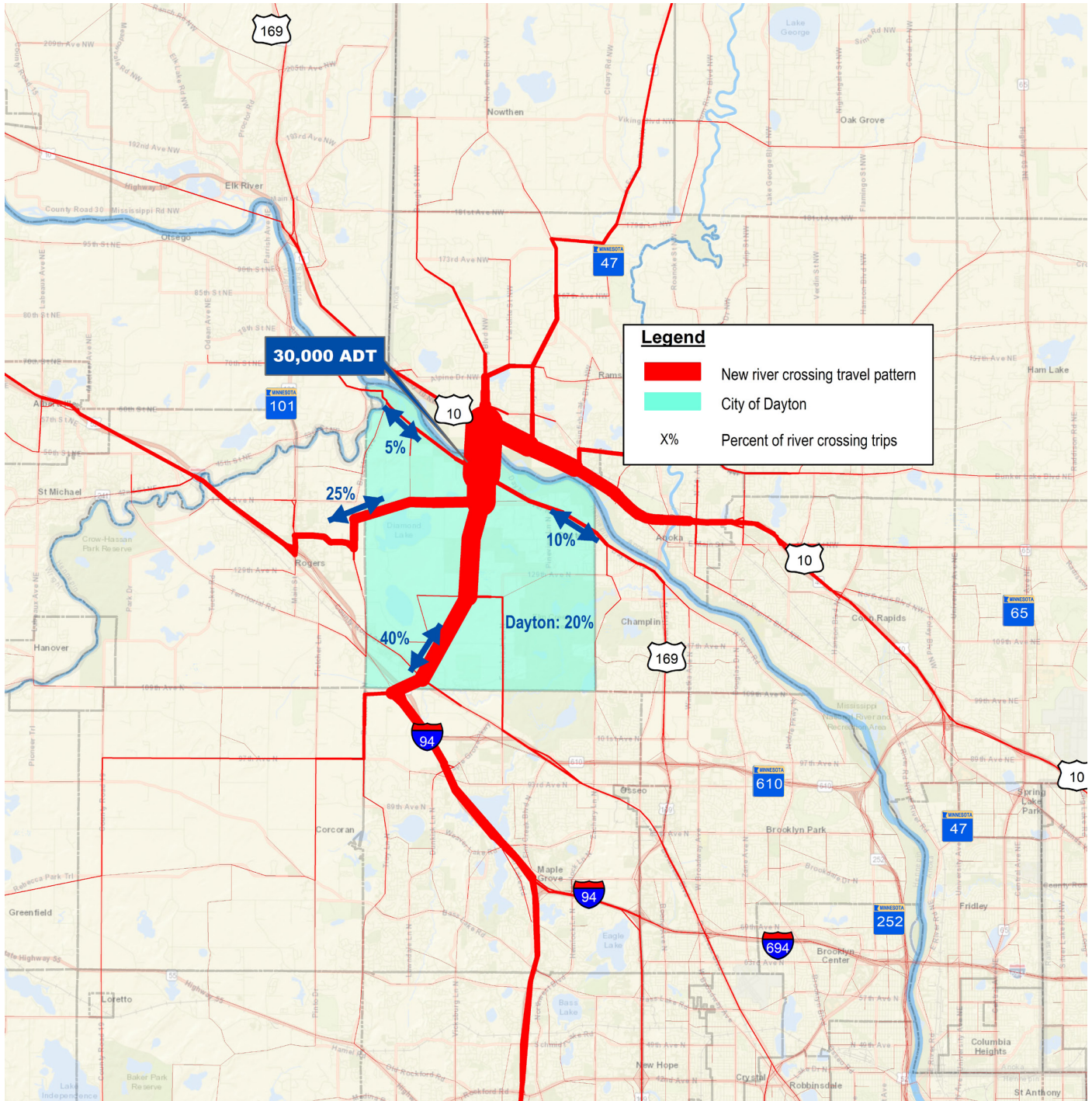


Image uses line thickness to illustrate 2040 travel patterns at the Hwy 610, Hwy 169 and Hwy 101 river crossings in the Northwest Twin Cities Metro area after construction of a new river crossing.



Impacts of the COVID-19 Pandemic

The timeframe during which this analysis was conducted coincided with the COVID-19 pandemic health crisis. During this time, lower traffic volumes were observed due to social gathering restrictions, school and business closures and increased telecommuting. These changes in travel impacted the performance of highways in the study area compared to the pre-COVID traffic data collected for this feasibility analysis. For example, many highways had lower peak period volumes, resulting in congestion that was substantially decreased or eliminated.

A sensitivity analysis was undertaken to compare the traffic conditions during the pandemic versus pre-COVID conditions. This showed that several of the bottlenecks identified in the traffic analysis had been reduced or were eliminated. Other locations, however, continued to experience congestion during the pandemic, most commonly on highway corridors with traffic signals such as Highways 10, 101 and 169.

The future travel demand on highways in the study area will require ongoing monitoring to understand traffic conditions as the COVID-19 pandemic subsides.

Decision makers should monitor these trends in the coming years and weigh the uncertainties of travel behaviors and demand when making investments on highway improvements.

Next steps

This feasibility analysis revealed the following important findings:

- The four concepts evaluated in this analysis all produced a benefit-cost ratio that is technically feasible.
- Additional analysis is needed (particularly with safety) that was not a part of this analysis that should be included in the next phase of analysis, if one were to occur.
- The question of jurisdiction for a new river crossing is not addressed in this analysis.

This analysis concludes with laying out a process stakeholders could use if there is interest in moving forward with improvements.

The following are necessary elements for advancing projects:

- Identify a champion for leadership (no recommendation at this time)
- Adopt a vision to determine improvements that align with local goals
- Establish a prioritization plan for implementing projects in the vision
- Facilitate public involvement to incorporate additional voices

Advancement of mobility improvements in this area will require additional study, environmental review process and funding for implementation.

Northwest Metro Mississippi River Crossing Feasibility Analysis

Appendix A: Context Analysis Report

Acknowledgements:
SRF Consulting Group, Inc.
Bolton & Menk, Inc.

To: Jennifer Wiltgen
Minnesota Department of Transportation

From: Paul Morris, PE, SRF Consulting Group, Inc.
Jane Kansier, AICP, Bolton & Menk, Inc.

Date: October 8, 2020

Subject: Northwest Metro Mississippi River Crossing Feasibility Analysis:
Context Analysis Memorandum

Context Analysis Report

October 8, 2020

Introduction

The Twin Cities Northwest Metro Area is one of the fastest growing areas in Minnesota. Growth in housing, population and employment is expected to continue at the same pace over the next twenty years. This growth has generated increased vehicular traffic loaded on the system for this region, resulting in more congestion, travel delay, and safety issues on area roadways. The Mississippi River forms a natural barrier to travel in this area. It is important to understand regional transportation needs as they relate to the three river crossings (101, 169, and 610), within the context of a rapidly growing area.

There are three existing roadway crossings of the Mississippi River in this area – Trunk Highway (TH) 101 between Otsego and Elk River, TH 169/47 between Champlin and Anoka, and Highway 610 between Brooklyn Park and Coon Rapids. The NW Metro Mississippi River Crossings Feasibility Analysis is just one step of many to understand the need for increased river crossing capacity. As part of this analysis, the Minnesota Department of Transportation (MnDOT) has requested a Context Analysis be completed.

This Context Analysis includes a review of past studies, local municipal and county comprehensive plans, and future land use and transportation elements. It is both a *Look Back* and *Look to the Future*. It includes a comprehensive review of previous land use and transportation planning efforts related to the analysis area, as well as future planned land uses, transportation infrastructure and anticipated demographic changes that are likely to alter travel patterns in the future.

Background

River crossings in this area have been studied several times in the past few decades. In 1989, MnDOT and the Metropolitan Council requested the Transportation Advisory Board study major river crossing needs for the entirety of the Twin Cities Metropolitan Area. In 2002, MnDOT conducted an origin-destination study to better understand travel patterns of bridge users. In 2004, a scoping decision document entitled *Northwest Metro Corridor and River Crossing Study* was completed by MnDOT. The scoping decision analyzed and recommended various alternatives to develop a new river crossing and approach roadways in the Northwest Metro. Momentum behind this effort waned in the past decade as a result of several factors, including a lack of agreement regarding jurisdiction of a future road alignment and river crossing and ongoing state investments in nearby highway and interstate corridors. No one jurisdiction or collection of partners has emerged as a champion of this effort. MnDOT noted in the 2004 Scoping Decision Document that lack of funding and public opposition from some of the project stakeholders led to a decision to pause future plans for environmental documentation. This pause did not preclude the need for additional Mississippi River crossing capacity, which MnDOT maintained would be needed in the future.

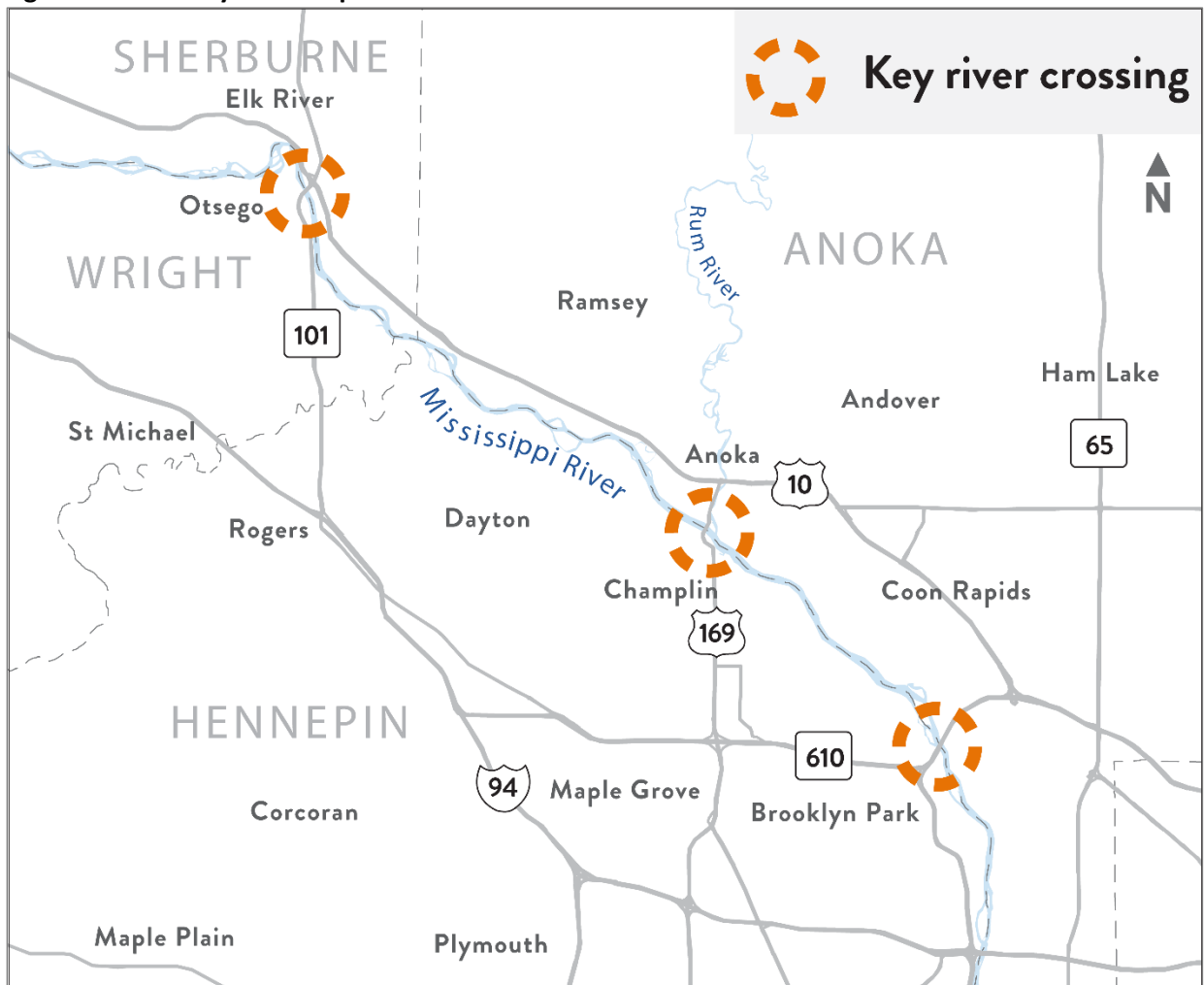
In addition to MnDOT-sponsored studies, Hennepin and Anoka Counties have both looked into the river crossing issue as part of area transportation plans on both sides of the river, as have the cities of Dayton and Ramsey.

Details of all these studies – along with area related area transportation and land use policies within area city and county comprehensive plans – are included in this context analysis.

Feasibility Analysis Area

The Feasibility Analysis Area extends from Otsego and Elk River (Wright and Sherburne Counties) to Coon Rapids (Anoka County) and Brooklyn Park (Hennepin County). The area includes many cities on both sides of the Mississippi River and in close vicinity to understand the regional transportation planning context. Anticipated development and redevelopment trends for population, household, and employment have high potential to reshape cities on both sides of the river and increase pressure on the regional transportation system. This means increased flow of people and goods across the river where existing crossings are limited, and new crossings lack full support.

Figure 1: Feasibility Area Map



Analysis Area Demographics

Table 1 identifies anticipated growth in population, households, and employment for the 13 cities that comprise the analysis area. Combined statistics, provided by Metropolitan Council System Statements for inclusion in Comprehensive Plans and the State Demographer’s projections, suggest an increase in population of 75,355, the addition of 31,938 households, and 30,019 more jobs could occur by 2040.

Figure 2 depicts the study area, along with development and redevelopment areas, and household growth to more clearly understand the growth context that should be carefully considered through the decision-making process for the future of the regional transportation system. By any measure this is a rapidly urbanizing area, and transportation challenges will result alongside this growth.

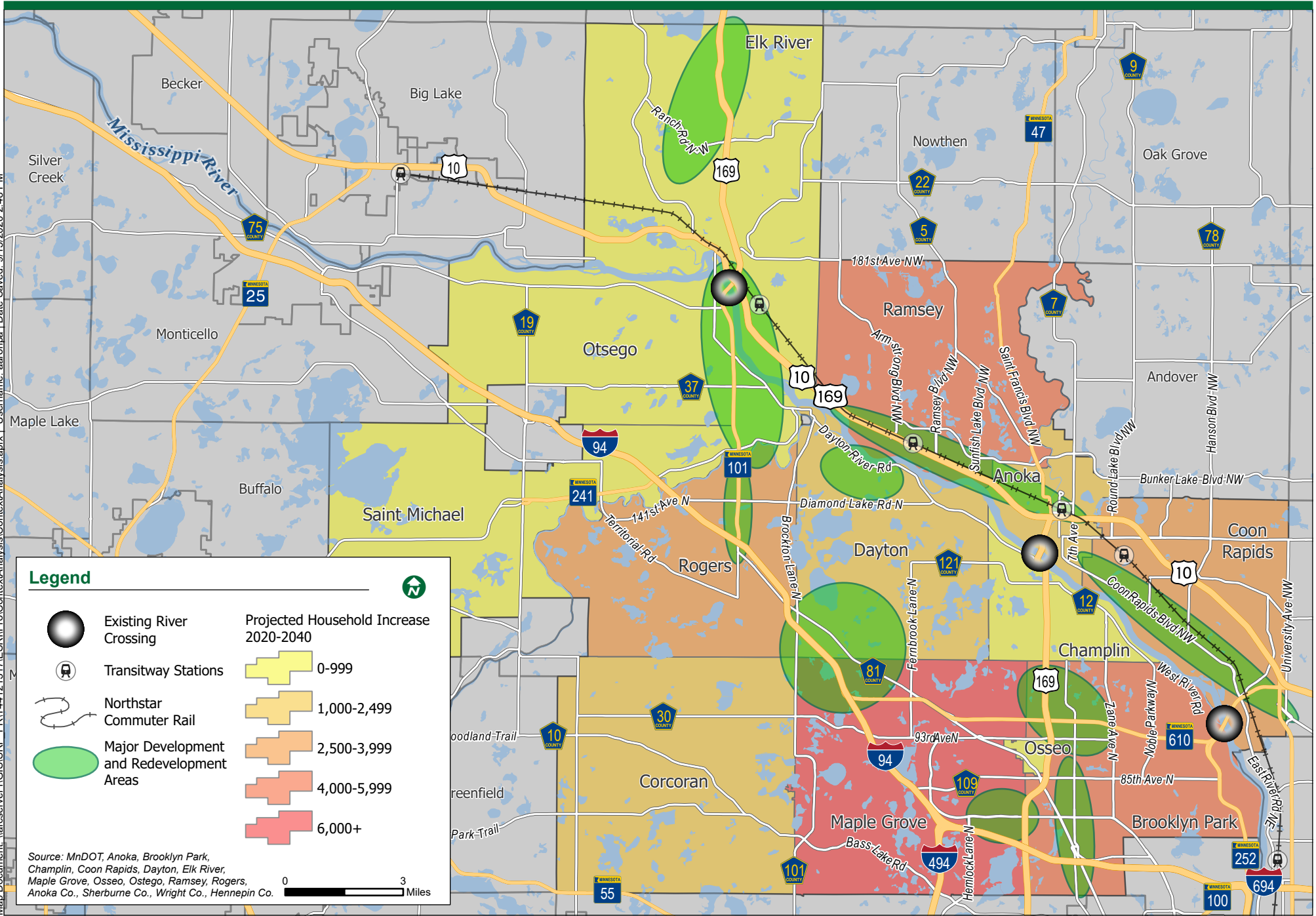
Table 1. Projected Growth

City	Population				Households				Employment			
	2020	2040	Change	% Change	2020	2040	Change	% Change	2020	2040	Change	% Change
Anoka ¹	18,700	21,200	2,500	13.4%	7,900	8,900	1000	12.7%	13,800	14,400	600	4.3%
Brooklyn Park ¹	83,000	97,900	14,900	18.0%	28,720	34,300	5580	19.4%	32,100	40,200	8100	25.2%
Champlin ¹	23,200	24,000	800	3.4%	8,800	9,600	800	9.1%	4,400	4,800	400	9.1%
Coon Rapids ¹	64,800	72,000	7,200	11.1%	25,500	29,300	3800	14.9%	27,100	30,900	3800	14.0%
Corcoran ¹	6,700	11,300	4,600	68.7%	2,500	4,700	2200	88.0%	1,700	2,300	600	35.3%
Dayton ¹	5,900	10,400	4,500	76.3%	2,000	4,400	2400	120.0%	2,000	3,000	1000	50.0%
Elk River ²	24,890	25,940	1,050	4.2%	8,660	9,330	670	7.7%	12,600	12,800	200	1.6%
Maple Grove ¹	70,900	89,700	18,800	26.5%	26,600	33,100	6500	24.4%	38,400	47,000	8600	22.4%
Osseo ¹	2,730	3,170	440	16.1%	1,300	1,500	200	15.4%	1,920	2,300	380	19.8%
Otsego ²	17,300	19,400	2,100	12.1%	5,975	6,692	717	12.0%	9,028	9,767	739	8.2%
Ramsey ¹	26,400	34,700	8,300	31.4%	9,400	13,000	3600	38.3%	6,700	8,100	1400	20.9%
Rogers ¹	14,200	22,800	8,600	60.6%	5,000	8,750	3750	75.0%	11,400	14,800	3400	29.8%
St. Michael ²	17,835	19,400	1,565	8.8%	5,679	6,400	721	12.7%	10,400	11,200	800	7.7%
Total	376,555	451,910	75,355	20%	138,034	169,972	31,938	23%	171,548	201,567	30,019	17%

Sources:

¹ Metropolitan Council System Statements

² Extrapolated from data from Minnesota State Demographer, US Census On the Map



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Plan & Study Review

Major River Crossing Study Report (1989)

The purpose of this study, requested by the Met Council and MnDOT, was to understand river crossing needs at the Mississippi, Minnesota and St. Croix Rivers in the Twin Cities Metropolitan Area. The study ranked bridges that needed to be built, replaced or rehabilitated by 2010. It reviewed the status of 35 Metro Area river crossings.

Look Back

The TH 169 bridge between Anoka and Champlin was identified as the second highest priority bridge in the study group. The original structure dates to 1929, but it was reconstructed in 1991. It was determined the four-lane deck under design in 1991 would not be able to correct current and future capacity problems in this area. The task force concluded additional capacity would be needed in the future for this stretch of the Mississippi. Improvements for TH 610 to the south were expected to satisfy demand needs for the next ten years (through 1999).

The TH 610 bridge between Brooklyn Park and Coon Rapids was also identified by the study as requiring attention (ranking 13th of 20 bridges reviewed). Although it was one of the newest bridges in the Twin Cities at that time, future severe congestion was anticipated in the area. The eventual plan was to construct two, three-lane bridges for TH 610 at this location.

The study did not consider the TH 101 bridge between Otsego and Elk River since this was considered outside of the Metropolitan Area at the time.

Look to Future

The TH 169 bridge is still a 4-lane facility today. The TH 610 crossing currently has two bridges with each carrying four lanes of traffic – well in excess of the future bridge anticipated in the Major River Bridge Crossing Study.

The 1989 study discussed a new river crossing for this area, though it did not identify a location. It noted that total regional demand can generally be satisfied by providing increased capacity at TH 610 and I-694 (the reconstruction planned at TH 169 was not then planned to add capacity and no capacity has since been added to that crossing), but that the orientation of travel demand may still require an additional river crossing. It recommended the affected cities and counties should work in cooperation with MnDOT and the Met Council to complete the additional studies needed to determine the design and location of an additional river crossing, and should preserve the right-of-way needed for future implementation.

Mississippi River Bridge Crossing Study (2002)

This was an origin-destination study of three river crossing in the northwest metro – TH 610 (Brooklyn Park-Coon Rapids), TH 169 (Champlin-Anoka) and TH 10 (Otsego-Elk River).

Look Back

For TH 101 bridge, the study found most origins were in the vicinity of the bridge (e.g. Elk River, Otsego, Zimmerman, etc.). The top five nearby destinations accounted for more than 50% of trip origins, and the top ten (also nearby origins) accounted for 70%. Most destinations were in the immediate vicinity, as well. Almost half of all destinations were in Elk River, Otsego, Anoka, Ramsey, Maple Grove, Brooklyn

Center, Coon Rapids and Rogers. At the time of the study, Downtown Minneapolis was among the top five destinations, accounting for 7.7% of destinations. Downtown Minneapolis was the largest employment center in the state in 2002 and remains so today.

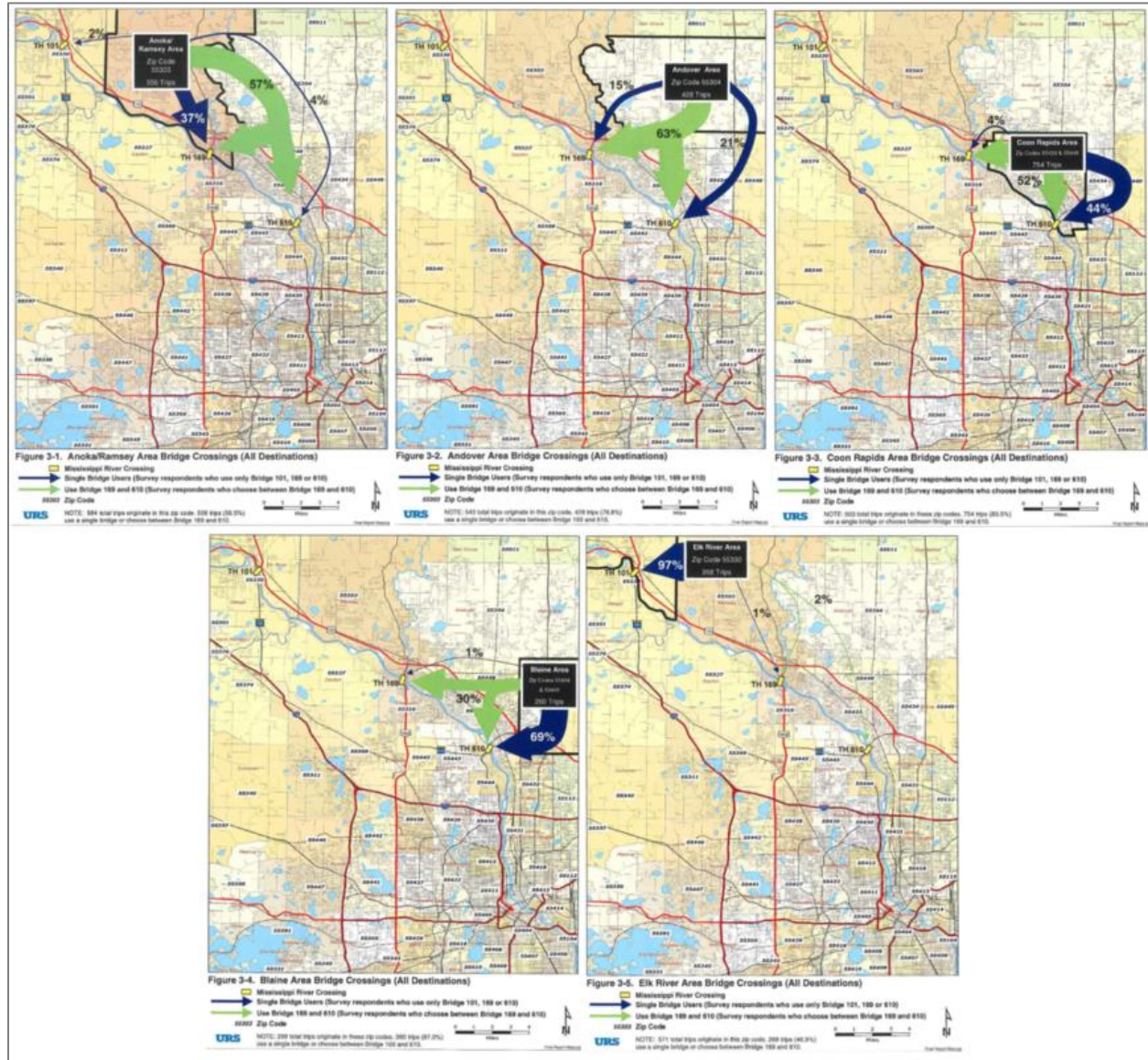
For the TH 169 bridge, the study again identified most origins were in the nearby vicinity, as were most destinations. The top five origins (all nearby) accounted for 53.8% of trip origins, and the top ten (also nearby origins) accounted for 72.3%. Nearby localities in the top ten destinations accounted for 58.1% of destination trips. Downtown Minneapolis was among the top five destinations, accounting for 6.8% of destinations.

For the TH 610 bridge, the top five origins (all nearby) accounted for 51.7% of origins, and the top ten (all nearby) for 72%. Nearby localities account in the top ten destinations account for 57% of destination trips. Downtown Minneapolis was among the top five destinations, accounting for 8.7% of destinations.

Users were not exclusive bridge users. They tended to split use of the three crossings, generally dependent on location. For instance, 57% Anoka/Ramsey area survey respondents reported splitting use of the TH 169 and 610 bridges, and 37% exclusively use TH 169. This pattern is repeated for many nearby localities, except for locations such as Elk River, where respondents reported almost exclusively using TH 101.

Figure 3 shows bridge use patterns from a collection of north-of-river origins.

Figure 3: 2002 North Mississippi River Bridge Crossing Patterns



Look to Future

The study did not identify future trends, a need for a future river crossing, or the location of a potential crossing. It was intended solely to gain understanding of how and where people were traveling at the time of the study.

Progress

As an origin-destination study only, this study did not identify any future needs but was to be a tool for future decision-making for river crossing needs in the region.

Key Takeaways

- Most bridge traffic in 2002 originated from and was destined for nearby cities.

- Minneapolis was strongly represented as a destination (6.8-8.7% of all destinations), a number that has likely grown since 2002 with added housing for the feasibility area and increased numbers of jobs in Downtown Minneapolis

Northwest Corridor and River Crossing Study: Scoping Decision Document (2004)

Look Back

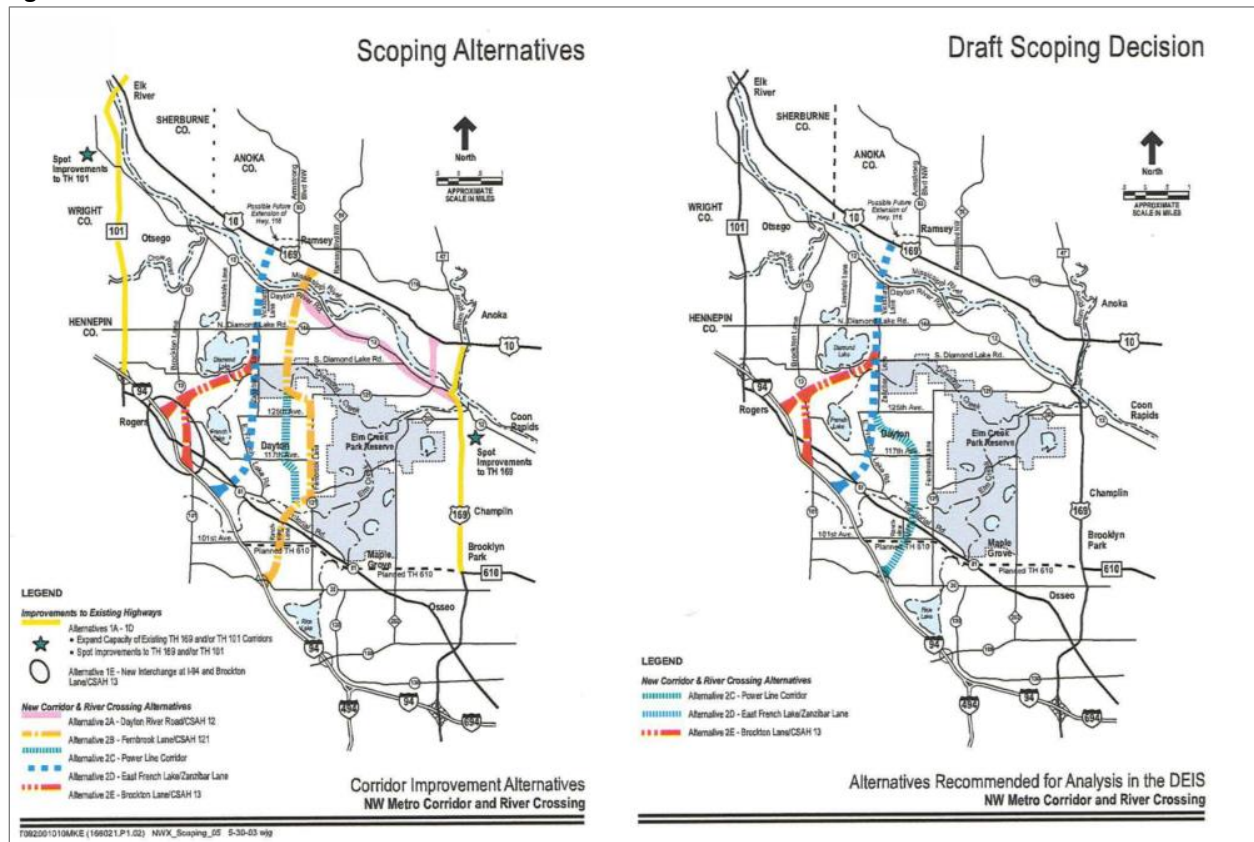
The Scoping Decision Document (SDD) is the most in-depth study on the river crossing utility and feasibility. It states that, at the time of authorship, there had been significant growth in population and traffic congestion in the northwest metro area. Traffic studies at that time identified the need for more capacity for area highways.

Look to Future

The SDD proposed improvements to existing north-south highways crossing the Mississippi River – TH 169 between Champlin and Anoka or TH 101 between Otsego and Elk river, and/or the development of a new north-south highway corridor midway between TH 169 and TH 101. It proposed the advancement of one of two alternatives: no build or official mapping of a new trunk highway and river crossing location between I-94 or the future extension of TH 610 on the south (note that this extension has since been completed) and TH 10 / TH 169 on the north.

The SDD reviewed alternatives and advanced three alternatives for future study (see **Figure 4**).

Figure 4: 2004 SDD Alternatives and DEIS Recommendation



The alternatives recommended to be carried forward for a draft environmental impact statement included the following.

- Alternative 2C – Powerline corridor crossing westward to link with Zanzibar Lane alignment
- Alternative 2D: East French Lake Road/Zanzibar Lane corridor
- Alternative 2E: Brockton Lane (CSAH 13) corridor crossing eastward to link with Zanzibar Lane alignment

The SDD also identified *alternatives with independent utility* which are reasonable to consider in the future for further study even though they would not satisfy the original purpose and need in the scoping study. These included:

- Transportation demand management measures
- Alternative 1B: Improve/expand capacity of TH 101
- Alternative 1C: Spot improvements to Ferry Street / TH 169
- Alternative 1D: Spot improvements to TH 101
- Alternative 1E: Spot improvement new interchange at I-94 and Brockton Lane (CSAH 13)

The SDD included a schedule for environmental documentation that should occur to advance the river crossing concept. These were:

- Preparation of Environmental Impact Statement Notice;
- Tier 1 Environmental Impact Statement and Public Hearing;
- Tier 1 Final Environmental Impact Statement;
- Tier 1 Record of Decision; and
- Adequacy Determination.

Progress

Several proposed improvements recommended in the SDD have since been completed or are planned. Completed projects include capacity expansion to the I-94 corridor north of TH 101 and interchange improvements at TH 101, extension of TH 610 and a new interchange at I-94, a new interchange at Armstrong Blvd and TH 10 in Ramsey, and a freeway conversion for TH 101 north of I-94. Planned improvements include more capacity expansion for I-94 north and south of TH 101, a new interchange in the vicinity of I-94/Brockton Lane, capacity expansion for TH 10 in Coon Rapids, a freeway conversion for TH 10 in Anoka and Ramsey and a freeway conversion for TH 169 in Elk River. There have been or will be significant improvements to the main highway and arterial roadways surrounding the feasibility study area.

No progress has been made on furthering a new crossing through initiation of an environmental review document. MnDOT stated in the 2004 study that the SDD was characterized by controversy, and that lack of funding and public opposition from some of the project stakeholders encouraged MnDOT to pause efforts following the SDD to initiate an EIS. MnDOT did assert, however, that demand for river crossing improvements would persist and that future Mississippi River Crossing capacity would be required.

Notably, an interchange is currently under construction in 2020 for a new road (Dayton Parkway) just east of Brockton Lane (Dayton Parkway). This will include a diverging diamond interchange with I-94 and new road between CH 81 and CH 101 (Brockton Lane). The eventual intention is to extend Dayton Parkway further north and link to Zanzibar Lane. This is shown in the SDD as Alternative 2D, to be advanced for future consideration.

In comments on the SDD, the City of Dayton expressed concern that a new river crossing would result in a number of negative impacts, including increased traffic, crime, pollution, cutting the City of Dayton in half, negatively impact the rural nature of Dayton, and would result in the loss of taxable land. This sentiment was echoed by the majority of comments received.

Key Takeaways

- Increased congestion expected on TH 101 and TH 169
- Expanded capacity on TH 101 would not solve congestion problems for TH 169
- A centrally located, new river crossing would carry a large volume of traffic and would provide a reasonable choice for many travelers who would otherwise use the TH 101 or TH 169 bridges
- Numerous improvements have been completed and are planned for major roadways and interchanges throughout the feasibility study area.
- Environmental documentation has proceeded for a new interchange at Dayton Parkway as part of MnDOT's I-94 Resurfacing and Brockton Interchange Project; an interchange is currently under construction southeast of the Brockton Lane/I-94 crossing that follows a portion of SDD recommended Alternative 2D.
- No additional environmental process has progressed for other portions of the Zanzibar Lane and future river crossing connection to Armstrong Blvd.
- The City of Dayton expressed strong opposition to the SDD findings and recommendations in its 2004 comments.

[Northwest Hennepin County Sub-Area Transportation Study \(2008\)](#)

This study was initiated by the cities of Dayton and Rogers and Hassan Township to develop a transportation plan for this urbanizing section of the northwest metro. It includes these three jurisdictions, all south of the Crow River.

Look Back

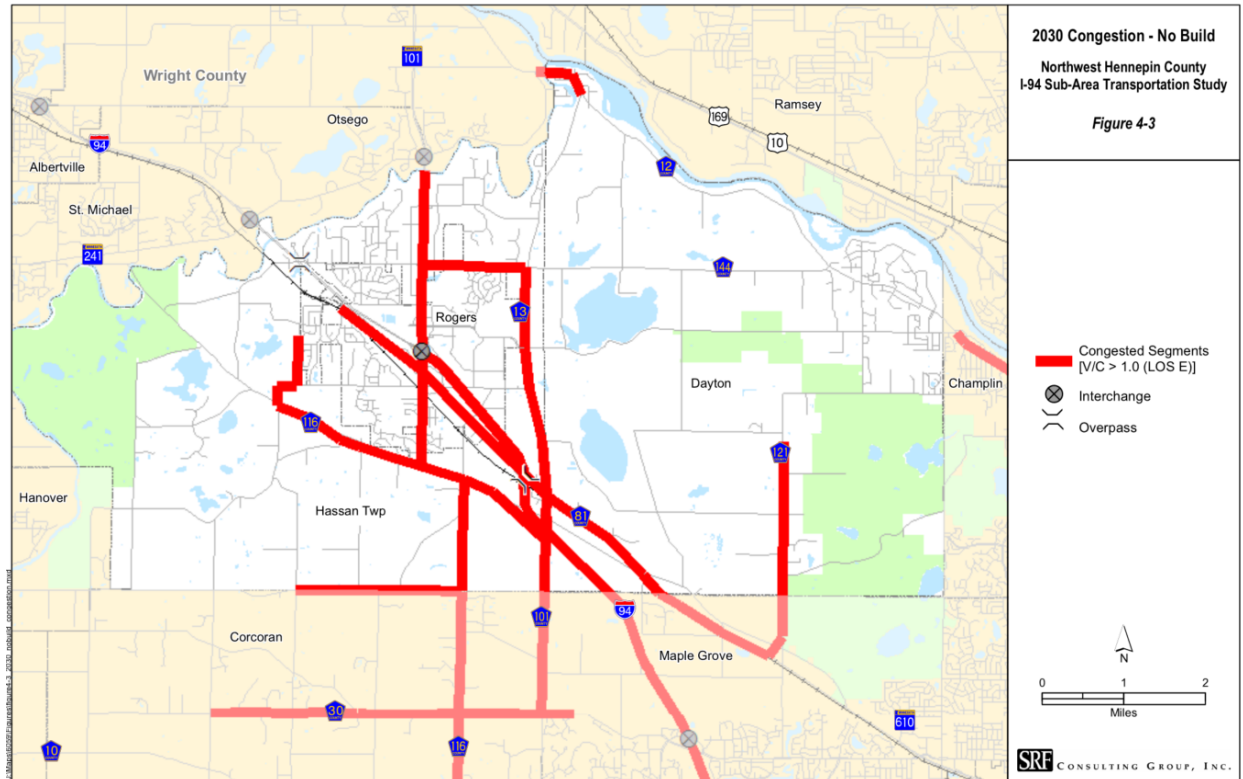
This study identified growth trends contributing to road capacity problems, including population and employment growth in the study area. Population growth was identified as having grown approximately 4% per year for the prior 16 years.

Look to Future

Urbanization was anticipated to continue in the next 20 years beyond the plan date (~2030); the study anticipated a quadrupling of study area population by 2030, and noted that adjacent areas near the study area were also growing in population and employment. The study predicted population growth of almost 6% per year for the next 25 years beyond the study (2009-2033). Dayton was anticipated to grow more than 500% between 2010 and 2030 (5,600 to 28,700 residents), and Rogers was expected to grow 170% (16,500 to 28,700 residents, a number that includes Hassan Township's population, which was anticipated to be incorporated into the City of Rogers). This growth is expected to be mirrored in rapid growth in the nearby communities of Corcoran (212% growth to 24,600) and Maple Grove (130% growth to 84,000). Among these various areas, Dayton and Rogers were predicted to have the most rapid growth annually through 2030. The study area and vicinity were also anticipating extensive employment growth.

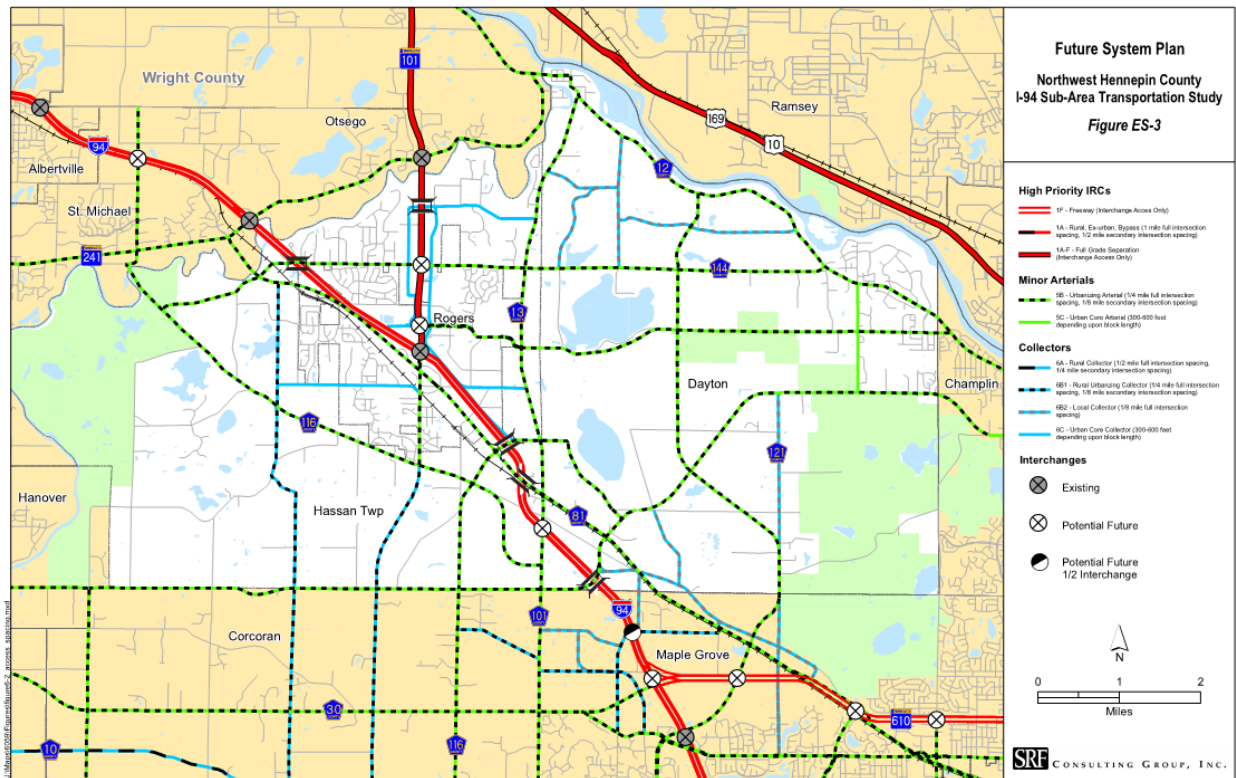
Future (2030) congestion with a no build scenario was expected to be significantly above capacity for much of the study area in the vicinity of the I-94/TH 101 interchange. See **Figure 5**.

Figure 5: 2030 Congestion for NW Hennepin Area Roadways



Hennepin County has planned for a future arterial roadway system in the feasibility study that will include better access to I-94, new interchanges, and an arterial roadway network within Dayton including a north-south access along Zanzibar Lane linking to Dayton River Road (CH 12). See **Figure 6**.

Figure 6: Future System Plan (NW Hennepin Area Transportation Study)



Progress

TH 101 was partially converted to a freeway in Wright County in 2008, though there are still at-grade, signal-controlled intersections that cause congestion and backups on both TH 101 and I-94 (S. Diamond Lake Rd and the westbound off- and on-ramp to I-94).

Key Takeaways

- The area of Dayton south of the Mississippi River lacks an arterial system.
- More north-south and east-west arterial routes would be needed to serve proposed land uses and meet future traffic demands.
- The I-94 corridor will continue to see rapid growth and significant upgrades will be required.
- Increased traffic volumes will lead to more extensive delays and backups at bottlenecks, and cause safety problems.
- I-94 interchange spacing was inadequate to handle growth. Arterial and collector roads with closer spacing will be needed to distribute traffic more evenly – a new Brockton Lane interchange is recommended to balance the system.
- The Future System Plan in this document depicts a future urbanizing arterial corridor along the Zanzibar Lane alignment, but does not depict a river crossing. The study cites lack of jurisdictional agreement about this roadway and crossing, and that the bridge was beyond the 2030 planning horizon of the document.
- Implementation of land use and other strategies to protect important future transportation corridors.

Highway 10 Access Planning Study (2014)

The intent of this study was to identify high-benefit improvements to Highway 10 that could be funded, programmed and implemented incrementally to improve congestion and safety.

Look Back

This study was implemented to look at strategies to reduce crashes and improve mobility along Highway 10 with strategies short of a freeway, both of which had become a problem on the highway.

Look to Future

The study included a planned land use map, which depicted a mix of uses in the Anoka, Ramsey and Dayton areas, but a large amount of commercial use, multi-optional development, single family residential and parks/recreation spaces sporadically located. The zone around Armstrong Blvd was shown as multi-optional development north of US-10, commercial south of the corridor, and single family residential / parks and recreation nearer to the Mississippi River. The Dayton side opposite is shown as single family residential and agricultural uses – the current land uses prevalent today.

Progress

The study included a large number of possible interventions. The grade separation of Armstrong Blvd was completed in 2014-2015. The Ramsey Gateway Project recently secured a \$40 million federal grant from the Revitalize America's Infrastructure program, which would be part of an estimated \$138 million to complete the project. Many of the improvements recommended in the Highway 10 Access Planning Study have been folded into the Ramsey Gateway Vision.

Key Takeaways

- No future river crossing was planned for in this study.
- The grade separation at Armstrong Blvd was recommended and has been since completed. This location is identified in other studies as a possible connection point for a future river crossing from Dayton.
- Significant additional safety and mobility investment is planned for Highway 10.

Dayton Parkway Corridor Study (2019)

This study was commissioned by the City of Dayton as an extension of the Northwest Hennepin Area Transportation Study, to focus on a new I-94 interchange and intersecting roadways.

Look Back

This corridor study references the 2008 NW Hennepin study and specifically noted the lack of east-west and north-south flow in Dayton, capacity problems at major intersections and interchanges, access spacing for I-94 and the implementation plan called for in the 2008 study.

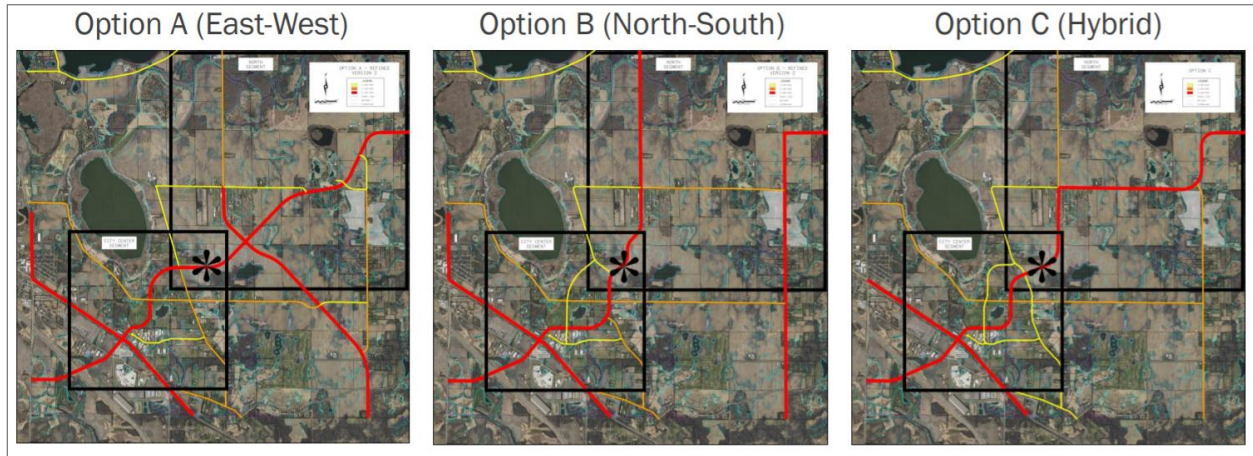
Look to Future

The Dayton Parkway study was intended to better define a future roadway alignment, capacity, access and costs. It also developed a city center vision for this area that is compatible with current land use guidance and the future transportation system. The city center district would be located in an area north of CH 81 and west of E French Lake Rd.

The Dayton Parkway study reviewed three options – one primarily east-west, another north-south, and a third a hybrid of the two. It looked at variations for a central section (city center) and a northern

segment. For center city, the study recommended a western alignment that would best meet evaluation criteria and provide a buffer between an existing industrial area and future city center. For the northern segment, it recommended a generally east-west option that provides more opportunity to control access and reduce impacts to existing access in the area. Option A from **Figure 7** illustrates the recommended alignment.

Figure 7: Dayton Parkway Preliminary Options



Progress

The study recommended continuing to refine options as needed and to develop study documentation. The southern portion of the study area has progressed, and a diverging diamond interchange at I-94 has been included as part of MnDOT's I-94 Resurfacing and Brockton Interchange Project. The interchange is current in construction and a segment of Dayton Parkway will be constructed between CH 101 (Brockton Lane) and CH 81. The city center and northern segments are not yet programmed.

Key Takeaways

- Dayton has identified the Dayton Boulevard corridor as its preferred location for a new I-94 interchange; that project is now in construction east of Brockton Lane.
- The new Dayton Boulevard corridor will extend from Brockton Lane to I-94, and further north to CH 81.
- Dayton is refining plans for a city center district north of CH 81 along an extension of Dayton Boulevard.
- Dayton has identified a preferred alignment for a city center segment and another segment further north. These are not yet programmed for construction.

The future Dayton Boulevard will link to Zanzibar Lane, identified in various studies as a future north-south connection to a future river crossing. The new I-94 interchange can be construed as one piece of connecting between I-94 and TH 10 north of the Mississippi River.

[Ramsey Gateway US Highway 10/169 Project \(2019\)](#)

The Ramsey Gateway project was initiated to develop a preferred vision for Highway 10 improvements in Ramsey and as a means to secure future funding. The corridor had been studied previously but had failed to move beyond multiple scenarios to a preferred alternative. The study area includes the entire

length of TH 10 within the City of Ramsey, and areas somewhat to the north and also south to the Mississippi River.

Look Back

The Gateway study reviewed existing conditions and established a project purpose and need. The project need establishes the past and existing conditions feeding into the project justification. TH 10 was identified as a significant transportation connection for the northwest suburbs and to northern Minnesota. Some segments of the road are freeways while others operate as expressways.

The Gateway study references to *2014 Highway 10 Access Planning* study, which concluded that it would be difficult to achieve the vision of a freeway for this section of TH 10 within the next 20 years given state and federal funding. The 2014 study recommended a series of lower cost, high-benefit improvements that could be incrementally implemented. Between 2014 and 2019, incremental improvements have included a new interchange at Armstrong Blvd and the construction of frontage roads in Anoka and Ramsey toward the ultimate freeway vision.

Traffic analysis shows that this segment of TH 10 ranges from 35,500 (western end) to 56,000 (eastern end) vehicles per day. Data from 2014 demonstrated the importance of TH 10 as a commuting route, with 53% of traffic in the morning peak and 48% in the evening peak passing through the corridor without stopping. As a key link to northern Minnesota, TH 10 also sees significant weekend travel during the summer and fall months. The traffic conditions for TH 10 result in congestion and operational issues. Back ups at many intersections are common.

Safety analysis shows that 277 crashes occurred on TH 10 from 2015-2018, with rear end crashes most common. These are commonly associated with queuing. Significant additional congestion results when crashes occur. Notable intersections include Sunfish Lake Blvd, where the crash rate exceeds the statewide average for similar intersections. Five fatal crashes occurred on this corridor between 2008 and 2017.

The corridor was also identified as an important freight, rail and transit corridor.

Look to Future

Without improvements, additional operational problems will continue to occur on Highway 10 and adjacent roads within Ramsey. Traffic volumes are expected to rise, delays will increase throughout the study area and queues will lengthen. Traffic projections predict all intersections along the corridor would see significant delay.

The Gateway study notes that when Anoka finishes grade-separating TH 10 intersections, Sunfish Lake Blvd will be the first westbound traffic signal. Many of the crashes at Fair Oak Ave in Anoka are likely to shift toward Sunfish Lake Blvd. These deficiencies, along with the importance of other multi-modal transportation along the corridor, frame the argument for why TH 10 should be reconfigured as a freeway.

Progress

Armstrong Boulevard was reconstructed as an interchange in 2016. This particular grade separation is notable for this feasibility study, as it is the proposed location for the northern end of a potential future Mississippi River bridge crossing from Dayton.

A new interchange at Thurston Ave and underpass at Fairoak Ave are slated to begin construction in 2022. Strategic congestion mitigation in the form of additional lanes are planned for TH 10 in Coon Rapids. Most recently, Anoka County secured a federal INFRA grant of \$40m toward completion of grade separation at the TH 10/169 interchange. These projects together start to build out the freeway vision and improved mobility along the corridor through Anoka County.

Key Takeaways

- Congestion is expected to increase on Highway 10 in the future
- Significant planning completed for freeway conversion
- Some infrastructure grade separations completed along the corridor and some are planned and funded
- The project technical advisory committee for the Ramsey Gateway Project recommended grade separations and frontage road improvements for Ramsey Blvd, Sunfish Lake Blvd and adjacent areas.

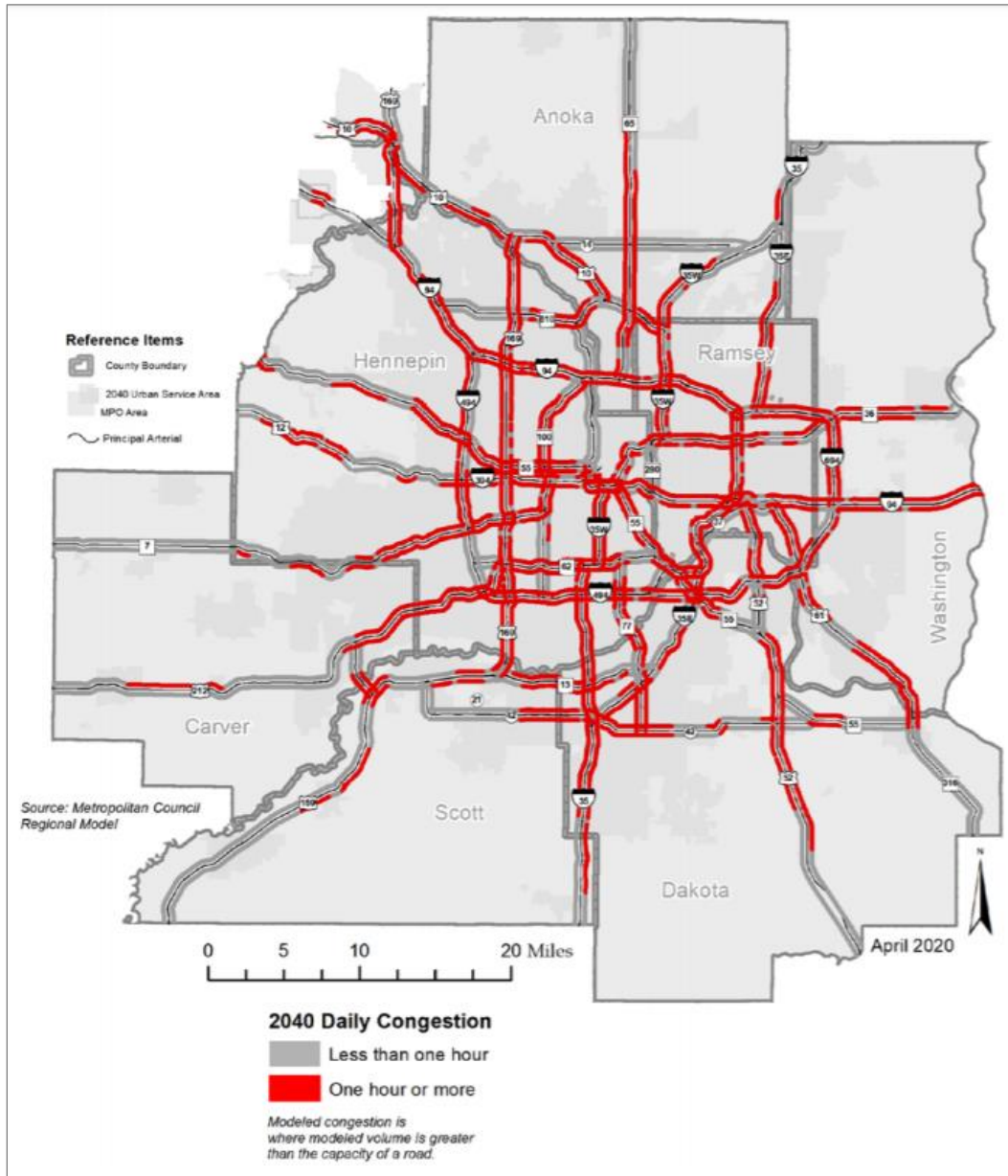
[Met Council 2040 Transportation Policy Plan \(2018\)](#)

This document is the transportation element of the Metropolitan Council's regional plan – Thrive MSP 2040. It includes the goals and policies to carry out the region's transportation vision.

Look Back

The TPP sets the stage by discussing traffic conditions and the location of recent investments. The Highway Investment chapter includes a map of major mobility and preservation projects completed since 2015, noting the interchange investment at Armstrong Blvd/US-10 and the extension of TH 61 to I-94. For traffic conditions, the 2040 congested principal arterials map shows widespread congestion for more than one hour on many roadways within the feasibility study area, including I-94, TH 101, US-10, TH 169 and TH 610 (east of TH 169). See **Figure 8**.

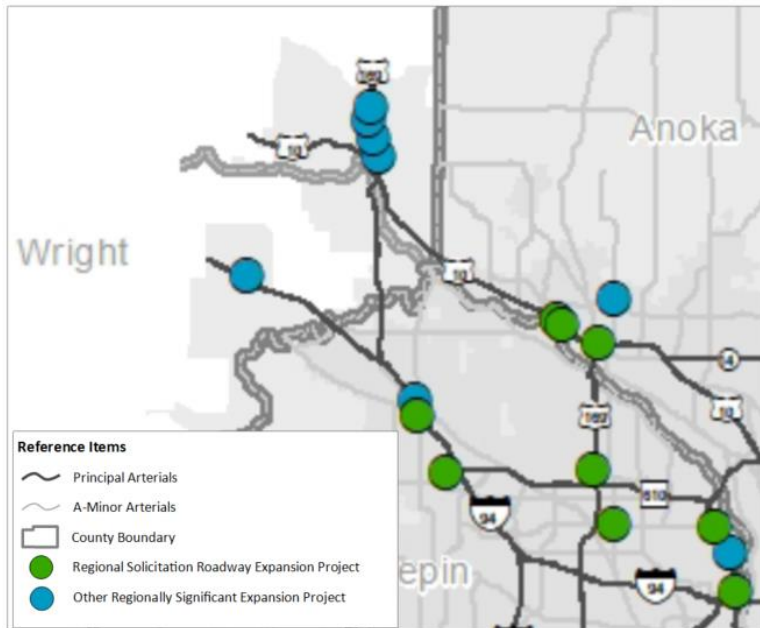
Figure 8: Met Council 2040 Congested Principal Arterials (Current Revenue Scenario)



Look to Future

Much of the document is dedicated to identifying future projects. The Identified Highway Projects 2018-2027 map does not show a MnDOT pavement or preservation project for the study area between Anoka and Elk River, but it does depict pavement preservation and other preservation projects for TH 169 and TH 101. The listing of current revenue scenario projects does not identify a river crossing of any type but does include pavement preservation for numerous study area principal arterial roadways. A map of strategic capacity enhancements shows several planned expansion projects along US-10, I-94 and US-169 (in Elk River and near TH 610). See **Figure 9**.

Figure 9: Met Council Strategic Capacity Enhancements, 2020-2025



The strategic capacity enhancements shown in Figure 6 include:

- Brockton Lane (CSAH 13) interchange with I-94 (Dayton)
- I-94 lane widening between Brockton Lane and TH 101 (Rogers)
- New underpass for US 10 at Fair oak Ave and interchange at Thurston Ave (Anoka)
- New interchange for US-169 at 101st Ave N (Brooklyn Park)
- Four new interchanges on US-169 from US-10 to 198th Ave N (Elk River)
- Interchange reconstruction and auxiliary lanes at US-10 and US-169 (Anoka)

The TPP also notes a series of unfunded projects that have merit but are currently unfunded, including additional traffic management technology priorities for several study area roads and construction of a future MnPASS project for I-94 south of TH 101 (a Tier 3 MnPASS priority project).

Progress

Several elements of the strategic capacity enhancement program described above are currently in progress.

Key Takeaways

- Significant investment currently focused primarily on principal arterials for the feasibility analysis area
- US-10 corridor has strategic capacity enhancements planned and funding secured or in process.
- I-94 improvements at Brockton Lane and on I-94 in Dayton/Rogers will address longstanding issues with local network resilience and bottlenecking.
- Document does not feature river crossing but does recommend continued cooperation between counties and MnDOT to monitor the need for a bridge over the Mississippi, and that project partners work together to preserve right-of-way.

Met Council Congestion Management Plan (In Progress)

The Met Council is in the process of developing Congestion Management Plan documents. It has released Congestion Management Process to date which will eventually result in a plan, process and evaluation to identify and shape projects through the capital planning process to improve safety and mobility.

Look Back

The congestion management process looks at existing congestion levels (volume-to-capacity ratio) as a central criterion to decipher where problems exist in the regional transportation network. The network includes Interstates, non-interstate freeways, non-freeway principal arterials, A-minor arterials and Sherburne and Wright County minor arterials, and other corridors of concern.

Data from available CMP materials is limited, however the process indicates that current volume-to-capacity ratios for the some feasibility analysis area roadways show significant congestion on TH 10 west of the TH 169 interchange and TH 169 between TH 10 and TH 610. Segments of TH 169 in Elk River north of TH 10 also see significant congestion. These are part of National Highway System Group 3 roadways (non-freeway parts of the NHS). Other significant roadways not shown include Group 1 (interstate freeways, e.g. I-94) and Group 2 (NHS non-interstate freeways, e.g. TH 610).

Look to Future

The Met Council will finalize its congestion management plan soon. The next steps will include ongoing corridor analysis and integration of the congestion management process into project development and programming processes for MnDOT and the Met Council.

Key Takeaways

- Congestion documented for TH 10 and TH 169, particularly in the Anoka area and near the intersection of the two roadways
- Congestion on I-94 is also well-documented for the feasibility study area, particularly up and downstream from the TH 101 interchange
- Met Council will finalize its congestion management process soon, and the measures included in the process will be folded into scoping and capital planning decision processes.

Wright County Long Range Transportation Plan (2019)

Look Back

Otsego is among the most populated cities in the county. Much of the county is rural and agricultural in nature. The county had an estimated 131,130 population in 2017. No roadways in the vicinity of the study area are approaching capacity or over capacity. Some safety issues exist along TH 101 where several fatalities have been recorded along this roadway through Dayton and Otsego.

TH 101 is identified as a connection on the National Truck Network.

Look to Future

2040 forecasts still show TH 101 and surrounding roadways as free of capacity issues. CSAH 38 from Odean Ave NE to TH 101 is programmed for reconstruction within the 2019-2023 Five-Year Plan. CSAH 36 from I-94 to TH 101 and CSAH 42 from 85th St to TH 101 are long-term reconstruction/expansion projects identified in the plan.

Progress

TH 101 has been converted to a freeway through Otsego to the Mississippi River crossing.

Key Takeaways

- There are no capacity issues along major corridors in the study area in Wright County
- Some minor arterial roadways that connect to TH 101 and/or I-94 are programmed for reconstruction/expansion by 2040.

Land Use & Roadway System Review

County Comprehensive Plans

Anoka County Comprehensive Plan (2019)

Look Back

The County's highest density population areas and job locations in the southern part of the county, within the study area.

Look to Future

By 2040, the Met Council expects Anoka County will grow by nearly 100,000 people in nearly 45,000 households. TH 10 and TH 169 at the Mississippi River are projected to be over capacity by 2040. TH 610 is anticipated to be near or approaching capacity by 2040.

Figure 34 in the plan identifies a potential new Mississippi River crossing between Anoka and Hennepin Counties as a long-term need. No exact location is identified and there is no discussion in the plan regarding this. Improvements to TH 10 and TH 169 at the river crossing are identified as a short-term need. Improvements to TH 610 at the crossing are also identified as a short-term need.

A letter from the City of Ramsey was included in the Anoka Comprehensive Plan stating the plan is absent meaningful planning for a future Mississippi River crossing. The city states *"Armstrong Boulevard/CSAH 83 has been designed to ultimately become the corridor for the future Mississippi River crossing...Ramsey objects to the potential jurisdictional transfer of this corridor south of Bunker Lake Boulevard."*

Progress

Capacity expansion is planned along TH 10 from Coon Rapids to Anoka and freeway conversion of TH 10 is planned from Anoka to the Armstrong Blvd Interchange in Ramsey.

Key Takeaways

- The regional system is projected to be approaching or over capacity by 2040.
- Capacity expansion and freeway conversion is planned for TH 10 in the future.
- Anoka County has identified a new Mississippi River crossing as a long-term need with no defined location.

Hennepin County Comprehensive Plan (2019)

Look Back

Hennepin County is the largest county in the state and is projected to lead the region in population, household and job growth through 2040.

Look to Future

The Plan identifies pavement and bridge improvements along TH 169 approaching the Mississippi River for 2019-2024 construction. The Plan also identifies capacity improvements along TH 610 showing a connection to CSAH 30. A potential future Mississippi River crossing is identified between Dayton and Ramsey, coincident with the generalized potential future crossing identified in the Anoka County, City of Ramsey, and Dayton Comprehensive Plans.

Progress

Improvements to TH 169 approaching the Mississippi River have been completed as well as TH 610 strategic capacity improvements.

Key Takeaways

- Hennepin is the largest county in the state with significant projected population, household, and employment growth anticipated.
- The Plan identifies a potential future Mississippi River Crossing coincident with potential crossings identified in neighboring geographies.

Sherburne County Comprehensive Plan (2011)

Look Back

Sherburne is a smaller, more rural county with an overall population of roughly 90,000. Significant aggregate resources are present along the Mississippi River.

Look to Future

A significant cost of aggregate is transporting materials so local use is prioritized. Larger mining operations distribute materials around the Twin Cities along the Minnesota River in Dakota and Scott Counties, in Maple Grove, and in Elk River. Sherburne County operations are farther away from developing urban areas compared to these, thus local mining is expected to continue for 30+ years before being depleted.

TH 10/TH 169 are projected to be over capacity through Elk River by 2030.

Progress

MnDOT is currently completing the 169 Redefine project that will convert Highway 169 to a freeway, removing all five stop lights from the Mississippi River north through Elk River. Construction is planned for 2022-2024.

The City of Elk River has funded a study for TH 10 between the Hwy 169 interchange and Upland Avenue (CR 44) to reconstruct TH 10 as a freeway in this section.

A scheduled 2021 project will reconstruct TH 10 between Xenia Ave and 4th St NW in Elk River. This is not part of the freeway conversion concept, but reconstructs pavement, adds turn lanes, upgrades signal systems and pedestrian curb ramps, and includes a new multi-use trail.

Key Takeaways

- Sherburne County contains significant aggregate resources it plans to mine for the foreseeable future
- TH 10/TH 169 are projected to be over capacity by 2030 through Elk River
- The 169 Redefine project is programmed for 2022-2024 that will convert TH 169 to a freeway through Elk River

Northeast Quadrant (NEQ) Land Use Plan: Buffalo, Monticello, and Rockford Townships (Wright County Land Use Plan) (2007)

Look Back

Wright County had an estimated population of 110,836 in 2005 and is described as rural with access to the Metro area. The county has significant aggregate resources surrounding the Mississippi River.

Look to Future

The county aims to protect aggregate resources from development so as not to hinder future mining operations. These resources exist around TH 101 in Otsego which is in the study area. The Otsego plan anticipates much growth surrounding this portion of TH 101 in the future.

Progress

TH 101 has been converted to a freeway through Otsego to the Mississippi River crossing.

Key Takeaways

- Wright County is a rural county with significant aggregate resources along TH 101 and the Mississippi River that it intends to protect
- TH 101 has been converted to a freeway through Otsego and Otsego has plans for development surrounding the highway

City Comprehensive Plans

Anoka 2040 Comprehensive Plan (2018)

Look Back

The City of Anoka had an estimated population of 17,586 among 7,252 households and employed 13,910 in 2014. 2012-2015 Average Annual Daily Traffic (AADT) volumes along TH 10 ranged from 51,000 to 72,000 from the west city limit to the east. AADT along TH 169 ranged from 25,500 to 45,500 within the same timeframe. These high volumes passing through the community are known to cause disproportionate wear and tear on the roads and poses danger to pedestrians in the community and several major intersections remain problem areas. In fact, most of TH 10 and all of TH 169 are currently over capacity within the City of Anoka.

Look to Future

Projections show the City is expected to add nearly 4,000 population and 1,600 households by 2040. The City also anticipates an increase of nearly 500 jobs with added commercial/retail in the community. The City is planning for the development or revitalization of vacant or older properties into up-to-date housing, retail, and commercial establishments. One example is the Commuter Rail Transit Village (CRTV) at the junction of TH 10 and the Rum River. This has potential to accommodate up to 900 housing units, 36,000 square feet of retail, 105,000 square feet of office, and 218,000 square feet of industrial/office showroom. This development has potential to add significant traffic volume to both TH 10 and TH 169 in the City.

2040 AADT forecasts indicate traffic volume increases along TH 10 ranging from 10.7% to 22.5%, except for the section of TH 10 from Fair Oak Avenue to Main Street which shows a 12% decline. Similarly, TH 169 shows AADT increases of 17.3% to 19.8% by 2040. The City expects that by 2040 TH 10 and TH 169 will be reconstructed from the western city limits to Greenhaven Road/Main Street with grade separated intersections. This includes the elimination of all at-grade access to TH 10/TH 169 between

Thurston Avenue and Main Street. Local access will be served with supporting roadways leading to interchanges at Main Street and Thurston Avenue.

Progress

Since the 2018 Comprehensive Plan Update, plans to convert TH 10/TH 169 through Anoka to a freeway have been finalized and funding allocated.

Key Takeaways

- Trends support the expectation of significant growth in population, households, and employment in the City of Anoka that will inherently generate increased traffic pressure on TH 10/TH169
- The highway system is currently over capacity and this condition is expected to worsen significantly by 2040
- Improvements are programmed to alleviate congestion and capacity issues along TH 10/TH 169 through Anoka

Brooklyn Park Comprehensive Plan (2018)

Look Back

Brooklyn Park had an estimated population of 80,450 among 27,539 households and employed 24,084 in 2016. The completion of TH 610 to I-94 and the reconstruction of TH 169 north of CR 81 have provided significant capacity in Brooklyn Park. TH 610 has nearly 200 acres of adjacent prime land available for development.

Look to Future

Brooklyn Park anticipates a population increase to 97,900 by 2040 with households and employment anticipated to increase to 34,300 and 40,200, respectively. Mixed-Use and Business Park development is planned for the TH 169/TH 610 interchange, anticipated to occur in the northeast, southeast, and southwest quadrants from 2021-2030 and in the northwest quadrant from 2031-2040. In total, development of the identified commercial, employment and mixed-use areas could accommodate 18,071 new jobs in Brooklyn Park by the year 2040.

TH 610 is ultimately planned to include another interchange at I-94 in Maple Grove which, combined with a connection to CSAH 30 west of I-94, will likely result in increased traffic on TH 610 through Brooklyn Park.

By 2040, the TH 252 is anticipated to be converted to a freeway. The need to develop multi-agency studies for additional lanes along highway segments is also identified in the plan.

Progress

The TH 169/101 interchange is programmed for 2020/2021 construction and will include a full land access interchange (folded diamond to the north) with auxiliary lanes along TH 169 between TH 610 and the proposed interchange.

Key Takeaways

- Brooklyn Park anticipates nearly 22% growth in population and large increases in housing and employment by 2040.
- Identified commercial, employment and mixed-use development could accommodate over 18,000 new jobs by 2040.

- A planned interchange at I-94 in Maple Grove combined with a connection to CSAH 30 west of I-94 is anticipated to result in increased traffic on TH 610 through Brooklyn Park.

Champlin 2040 Comprehensive Plan (Draft, 2020)

Look Back

The City of Champlin is 95% developed and had an estimated population of 23,343 among 8,328 households while employing 4,012 in 2016. TH 169 exhibits daily traffic volumes that meet or exceed capacity thresholds and is considered a barrier to local traffic in the area as intersections are at-grade and traffic flow on TH 169 is favored heavily. 169 is a Tier 2 Truck Corridor carrying 1350-1550 heavy trucks per day.

Look to Future

Champlin anticipates only a slight population increase to 24,000 residents among 9,600 households and 4,800 jobs. The City anticipates reaching full development by 2040. The City does have roughly 100 acres of vacant/un-platted land available for low-density residential development. The Mississippi Crossings Redevelopment Area is a 70-acre area located adjacent to the Mississippi River and the Anoka Champlin Bridge guided for 295 multi-family apartments, 42 townhomes, 107,750 square feet of retail/office and a restaurant/event center with multi-level parking structure.

TH 169 is anticipated to operate at LOS F by 2040 from the southern city limits to the river. Dayton Road (CSAH 12) is also approaching capacity thresholds in segments between the west city limits and TH 169. The Principal Arterial Intersection Conversion Study identified the TH 169/109th Avenue intersection as a medium priority and the TH 169/Hayden Lake Road intersection as a low priority for grade separation. Champlin strongly supports efforts to identify and develop a new Mississippi River crossing.

MnDOT intends TH 169 ultimately to be a freeway design all the way north to 109th Avenue, which will bring high traffic volumes into Champlin, where TH 169 will have a non-freeway design. The City will look to incorporate:

- New River Crossing
- Adjacent Collector Improvement Projects
- TH 169 intersection operations and improvements

Progress

In 2019, the Mississippi Crossings development moved forward with a large senior cooperative community near the Anoka Champlin Bridge. The city also entered a pre-development agreement with developers to develop 12 more acres that could include 214 rental housing units, an event center, and public park improvements in this development.

Key Takeaways

- Champlin is mostly built out and anticipates only slight growth in population, housing, and jobs by 2040 although some development is planned near the Anoka/Champlin Bridge over the Mississippi River.
- Highway 169 currently exhibits daily traffic volumes that meet or exceed capacity thresholds and is considered a barrier to local traffic.
- Champlin believes a new river crossing is necessary to alleviate anticipated traffic congestion on TH 169.

Coon Rapids 2040 Comprehensive Plan (2019)

Look Back

In 2015, the City of Coon Rapids had an estimated population of 62,527 among 24,023 households and employed 24,007. The city has little remaining vacant land, with some surrounding the TH 10/TH 610 interchange.

Coon Rapids Blvd intersects with TH 610 and has been identified as a key area for redevelopment in the City. This roadway exhibits a declining commercial environment that the City has plans to redevelop and reinvigorate. Land surrounding the TH 610/Coon Rapids Blvd interchange also contains significant industrial area that continues to develop. The city identifies a lack of local, full access from TH 610 in Coon Rapids. Traffic volumes crossing the Mississippi River along TH 610 have increased 31% from 78,000 vehicles per day in 2003 to 102,000 vehicles per day in 2016.

Coon Rapids Blvd is also parallel to TH 10 and expanded lanes on TH 10 are attributed to the declining commercial business environment along the corridor. Coon Rapids believes that TH 10 is reaching capacity, even though it is not included in the Current Revenue Scenario of the TPP.

Look to Future

Coon Rapids anticipates a population increase to 72,000 residents among 29,300 households and employing 30,900 by 2040. This growth would potentially increase commuter volumes traveling to/from the city. Goals for redevelopment include targeting areas well-served by transportation options and nearby amenities that contribute to better proximity between jobs and housing. The city has established Preservation or Renovation Tracts, or “PORTs”, along Coon Rapids Blvd that will include master plans for priority redevelopment. Several of these locations are also identified surrounding the TH 10/TH 610 interchange and are planned to include an increased quantity and variety of housing types, supporting commercial, and urban design amenities. The city anticipates nearly half of the development identified for each node along Coon Rapids Blvd will occur by 2030 and the other half by 2040.

Progress

To improve access from TH 610 and Coon Rapids, the city has initiated conversations with MnDOT and Anoka County on constructing a full interchange at TH 610 and East River Road. The city has been exploring the feasibility of various interchange concepts and designs and was hoping to enter into a preliminary design phase in the near future.

Key Takeaways

- Coon Rapids is anticipating significant population, household, and employment growth by 2040.
- TH 10 and TH 610 over the river have exhibited increasing traffic volumes.
- The city has identified significant redevelopment along Coon Rapids Blvd and around the TH 10/TH 610 interchange that has potential to increase employment in those areas thus further increasing traffic volumes.

Corcoran 2040 Comprehensive Plan (2019)

Look Back

In 2017, the city of Corcoran had an estimated population of 5,592 living among 1,957 households and employed 1,416. The City is primarily undeveloped/agricultural land with one small industrial/commercial node near the intersection of CSAH 116 and CSAH 10. CSAH 101 (Brockton Lane)

runs north/south along the eastern border of the city and provides connections to I-94 and CSAH 81 in the north at Rogers.

Look to Future

Forecast show the population in Corcoran is expected to increase to 11,300 living among 4,700 households and employing 2,300 by 2040. The City anticipates the demand for commercial and industrial development will increase significantly by 2040 as well. Therefore, the City's Land Use Plan identifies large areas of commercial, industrial, business-park, and mixed land use that will provide for a mix of jobs, ranging from retail and commercial service jobs to high end technology jobs. The City's development plan for its downtown area provides an opportunity for additional economic development. The City has guided this area for Mixed Use on the 2040 Land Use Plan, providing flexibility for future development.

A future I-94/Brockton interchange planned in Dayton, and a Highway 610 interchange planned in Maple Grove, will impact the northeastern portions of Corcoran. These roadway improvements will significantly improve access to the City, making it a more desirable location for commercial and industrial development.

Progress

To serve this future demand, the City has planned a large industrial/business park area and commercial/mixed use development in the northeastern portion of the City near each interchange. Additionally, expanding municipal sewer and water services will provide for increased housing opportunities in the City.

Key Takeaways

- Corcoran anticipates nearly doubling population, households and employment by 2040.
- A future I-94/Brockton interchange in Dayton will combine with the TH 619 interchange in Maple Grove to significantly improve access to Corcoran potentially increasing industrial and commercial development.
- The City has planned industrial/business park and commercial mixed use development near each interchange.

Dayton 2040 Comprehensive Plan (Draft, 2020)

Look Back

The City of Dayton is a growing community with a population of 6,072 living among 2,158 households and employing 1,230 in 2018. Dayton is a somewhat rural community with vast agricultural tracts and parks and recreation tracts. A goal of the plan is to focus service businesses and development near urban residential densities and along primary transportation corridors.

Look to Future

Population anticipated to increase to 10,400 in 2040. Households and employment are anticipated to more than double, increasing to 4,400 and 3,000, respectively. The plan designates higher density housing opportunities along major transportation corridors and in close proximity to the new Dayton Parkway Interchange (to be constructed in 2020). For example, the City has planned a large area of mixed-use southwest of the interchange that would support higher density housing uses along the I-94/Hwy 81 corridor which will also provide opportunities for future transit supported residential.

The plan provides for approximately 1,140 additional high-density housing units within the 2020-2030 and 2030-2040 staging decades. The Future Land Use Plan includes 233 net acres of mixed-use development accommodating retail, commercial/office, and housing.

A Mississippi River crossing is not included in the 2040 Transportation Policy plan. Future planning of a corridor and right-of-way protection will be considered as Dayton develops. Future corridor alignment between a future crossing and I-94/Dayton Parkway Interchange would be Vicksburg Lane/Zanzibar Lane to Dayton Parkway.

Progress

I-94 Interchange: The City has secured funding and final approved plans for a Diverging Diamond interchange to be known as the Dayton Parkway Interchange.

Key Takeaways

- Population, households, and employment are anticipated to increase substantially in Dayton by 2040, specifically along major transportation corridors and in close proximity to a new Dayton Parkway interchange to be constructed in 2020.
- The Future Land Use Plan identifies 233 net acres of mixed-use development by 2040.
- Future planning of a corridor and right-of-way protection for a new Mississippi River crossing will be considered as the city develops. Future corridor alignment between a future crossing and I-94/Dayton Parkway Interchange would be Vicksburg Lane/Zanzibar Lane to Dayton Parkway.

Elk River Comprehensive Plan (2014)

Look Back

The City of Elk River had an estimated 22,974 population living among 8,023 households in 2010. The community contains significant undeveloped land. The Comprehensive Plan guides development toward regional highways.

TH 10 and TH 169 were considered congested at the time this plan was developed.

Look to Future

The city's population is anticipated to increase significantly to 34,890 by 2035. The Comprehensive Plan guides future business developments to be located within the Urban Service Boundary and adjacent to regional highways with both visibility and access. The development reserve land use covers a significant central portion of the city and is held in reserve for future development. This area lies adjacent to TH 169 and TH 10 outside of the urban service area. Intense development is expected in the future given the size, access and visibility of the area.

MnDOT and partners, including Elk River, had identified a number of improvements to both TH 10 and TH 169 including converting TH 169 to a freeway facility and converting a portion of TH 10 to freeway as well. Interchanges are planned along TH 10 combined with frontage roads and access elimination to enhance safety and function. TH 169 is anticipated to be a six-lane roadway in the future with several interchanges and other improvements.

Progress

MnDOT is currently completing the 169 Redefine project that will convert Highway 169 to a freeway, removing all five stop lights from the Mississippi River north through Elk River. Construction is planned for 2022-2024.

Key Takeaways

- Elk River is anticipating major population growth by 2035.
- The city has a large portion of the city held in reserve for future development adjacent to TH 169 and TH 10 where intense development is expected.
- TH 169 is programmed for freeway conversion by 2024 through Elk River.

Maple Grove 2040 Comprehensive Plan (2019)

Look Back

Maple Grove had a population of 61,567 among 22,867 households and 29,877 jobs in 2010. 85% of the community is either developed or in open space. There is growing congestion on regional routes such as I-494, I-694, and I-94 causing diversion of traffic to County roadways and local streets. Congestion is spurred by urbanization of developing areas of the city, particularly in the Gravel Mining Area and northwest portion of the City. Transportation goals include providing and protecting efficient connections from major freight facilities to the regional highway system, as well as coordinating with regional governments, transit agencies, and rideshare programs to capture the environmental and social costs of commuting and incentivize alternatives to single-occupancy vehicle trips. I-94 west of its interchange with TH 169 and east of its interchange with I-494 are considered Top Interstate Truck Count Locations in the Metro area, carrying 9,900 trucks per day and 9,800 trucks per day, respectively. Currently freight traffic travelling westbound on TH 610 can only continue westbound on I-94, and similarly freight traffic travelling eastbound on I-94 can only continue eastbound on TH 610.

Look to Future

The city has a projected 2040 population of 89,700 among 33,100 households and 47,000 jobs by 2040. This will undoubtedly exacerbate issues with congestion on regional routes. The city's land use focus will be on managing development, primarily in the northwest sector of the city as well as the Gravel Mining Area. This development is anticipated to bring 170,000 square feet of office space, 110,000 square feet of retail, and 140 high density residential units. Utility extensions are anticipated to be completed within the 2020-2030 timeframe.

To increase connectivity between freight centers located along TH 610 and I-94 and improve regional freight mobility in the northwest metropolitan area, the City of Maple Grove's future vision is to extend TH 610 to connect to CSAH 30 and complete the missing TH 610 connections to I-94.

Progress

The TH 169/CSAH 81 interchange has been reconstructed since 2004.

Key Takeaways

- Maple Grove anticipates major growth in population, housing, and employment that will increase traffic pressure on regional highways.
- Congestion already exists due to urbanization of developing areas including the Gravel Mining Area and the northwest portion of the city where significant development is anticipated to continue.

- The city will look to connect Highway 610 to CSAH 30 in the future to increase freight mobility in the northwest metropolitan area.

Osseo 2040 Comprehensive Plan (2018)

Look Back

The City of Osseo had a population of 2,717 in 2016 among 1,284 households and 1,805 jobs. This is a small community that is mostly built out and surrounded by much larger communities. TH 169 borders the community on the east and CSAH 81 borders on the west. Redevelopment will likely occur in locations that are underutilized, mismatched with surrounding uses. Some locations have been identified along Highway 81.

TH 169 is approaching traffic capacity and exhibits congestion during peak hours.

Look to Future

2040 projections show 3,170 in population among 1,500 households and 2,300 jobs. Some redevelopment is planned to add high density residential in the northeast part of the city.

Progress

The construction of TH 610 was anticipated to handle some of the traffic from CSAH 81 through Osseo as well as accommodate additional trips based on population growth. This roadway was constructed in 2009.

Key Takeaways

- Osseo is a small city but does anticipate some growth in population, housing, and employment.
- The city is anticipates adding high density residential in the northeast.

Otsego Comprehensive Plan (2012)

Look Back

Otsego had 13,571 residents living among 4,736 households in 2010. This represents a more than doubling of both population and number of households in the community since 2000. Growth management is a goal for the community including policies for prioritizing development around utility and transportation infrastructure. The City is largely undeveloped and contains significant agricultural resources. Previous plans prioritized maintaining agriculture as a primary use of the city's land, however, the latest comprehensive plan states that this is no longer a priority and the city is preparing for urbanization.

Look to Future

Otsego anticipates more rapid growth. Population and households are anticipated to rise to 28,000 and 10,000 respectively by 2030. The city anticipates major commercial, industrial, and medium to high-density residential growth flanking TH 101 as depicted in the Future Land Use map.

The Plan recommends many improvements to Highway 101 to be completed in the short term including several interchanges at major intersections of Highways 42, 37, 36, and 8.

Progress

Since the 2012 Comprehensive Plan, much of the land use surrounding TH 101 remains the same. However, TH 101 has been converted to a freeway through Otsego, following the recommendations of the Plan.

Key Takeaways

- Otsego is largely undeveloped and anticipates substantial population and household growth by 2030.
- The city is guiding all land surrounding TH 101 for commercial, industrial, and medium to high-density residential and is preparing for urbanization of the city.
- TH 101 has been converted to a freeway facility through the city of Otsego.

Ramsey 2040 Comprehensive Plan (Draft, 2020)

Look Back

The City of Ramsey had a population of 26,251 living among 8,973 households and provided 6,334 jobs in 2016. Ramsey has significant undeveloped land and is identified as an emerging suburban edge community. There are no large freight traffic generators or intermodal facilities within the City. Most freight passes through Ramsey on trips to/from and through the Twin Cities. The Ramsey Transit Station for the NorthStar railway is in proximity to Hwy 10.

Look to Future

Like the other cities in the area, Ramsey is a growing community, anticipating an increased population of 39,150 living among 13,500 households and providing 8,400 jobs by 2040. Ramsey has significant development planned north and south of TH 10 near the Mississippi River according to the Future Land Use Plan. The COR is a 320-acre master-planned community located adjacent to the Northstar Commuter Rail Station (The COR plus surrounding developable area is over 400 acres). This is aimed to provide a destination for retail and access to commuter-rail transit.

The city is planning for an extension of Armstrong Boulevard to serve as future river crossing to Dayton and the Plan mentions that both cities are choosing to protect corridor right-of-way for this alignment/river crossing. However, the Plan acknowledges that this improvement is likely more than 20 years away.

Portions of US 10, Armstrong Boulevard (CSAH 83), and Ramsey Boulevard (CSAH 56) are expected to exceed capacity in 2040.

Progress

The COR is 50% developed and is anticipated to experience substantial development in the next 10 years.

Key Takeaways

- Like other cities in the study, Ramsey is anticipating significant growth in population, households, and jobs by 2040.
- The Future Land Use Plan identifies significant planned industrial and commercial growth surrounding TH 10

- The City supports a potential future river crossing at Armstrong Boulevard (CSAH 83) between Ramsey and Dayton and is choosing to preserve right-of-way for this potential crossing.

Rogers 2040 Comprehensive Plan (2020)

Look Back

Rogers had a population of 12,228 among 4,037 households and provided 9,401 jobs in 2014. The area surrounding the TH 101/I-94 Interchange developed significantly between 1998 and 2009 which left the city with pockets of remnant, vacant commercial and industrial land.

Roadway capacity deficiencies exist at the TH 101/I-94 Interchange where southbound ramps are over capacity.

Look to Future

Rogers anticipates a population of 22,000 among 8,750 households and 14,800 jobs by 2040. The city has identified significant infill and redevelopment opportunities along TH 101 and TH 94. Long-term growth of business and creation of jobs shall depend on a mix of infill of vacant properties or redevelopment. The city has identified the potential for some non-residential growth along 109th Ave and Territorial Road as a result of the Elm Creek Interceptor extension in 2017 and the planned I-94 Interchange on the border of Dayton planned for 2020.

Traffic deficiencies at the TH 101/I-94 Interchange are anticipated to remain through 2040 and the Rogers Transportation Plan does not identify the need for improvements. Design work continues for the Dayton Parkway Interchange which will reduce overall traffic volumes near the TH 101/I-94 Interchange. No other transportation deficiencies are planned to occur by 2040.

Progress

The Dayton Parkway is currently underway and will include:

- New Dayton Parkway between County road 101 and County Road 81
- New diverging diamond interchange with on /off ramps connecting I-94 and County Road 81

Key Takeaways

- Rogers anticipates an almost doubling of the population and households by 2040 along with a significant increase in jobs.
- Traffic deficiencies are minimal and are anticipated to be alleviated with construction of the Dayton Parkway Interchange.
- The Dayton Parkway Interchange is currently being constructed.

St. Michael Comprehensive Plan (2018)

Look Back

St. Michael had an estimated population of 16,399 living among 5,239 households and employed 5,212 in 2011. St. Michael is rural and largely undeveloped. Industrial, commercial, and residential uses are located along Highway 241 with an industrial node located at the 241/101 interchange. Most of the industrial development in St. Michael occurs along TH 241 between downtown and I-94. Development has been guided toward this area because of its transportation access. The plan describes the city as a young city which limits redevelopment opportunities. Redevelopment opportunities are anticipated to surface as the city ages and anticipated, significant, development takes hold.

Look to Future

By 2040, the city is anticipated to have a population of 19,400 living among 6,400 households and to provide 11,200 jobs. The eastern half of the City is guided for significant development in the future focused around CSAH 241. There is an interchange planned in the Northeast Wright County Transportation Plan to be constructed at Naber Avenue and I-94. The development of an interchange at this location will likely result in the development of a commercial area to serve drivers on the interstate and those traveling to the north along Naber Avenue toward Otsego. This will also be a logical location for business/office park uses south of I-94 and industrial uses to the northwest adjacent to the commercial.

Progress

An interchange is planned at I-94 and Naber Avenue NE, just north of 50th Street and Middle School East. MnDOT and the Federal Highway Administration have approved the interchange, which included extensive traffic and environmental reviews. The City is waiting for the right economic market and financing before the project moves forward.

Key Takeaways

- St. Michael is expected to grow...
- The I-94/Naber Avenue interchange is approved, and the city is waiting for the right economic market and financing before implementation.

Future Land Use in the Analysis Area

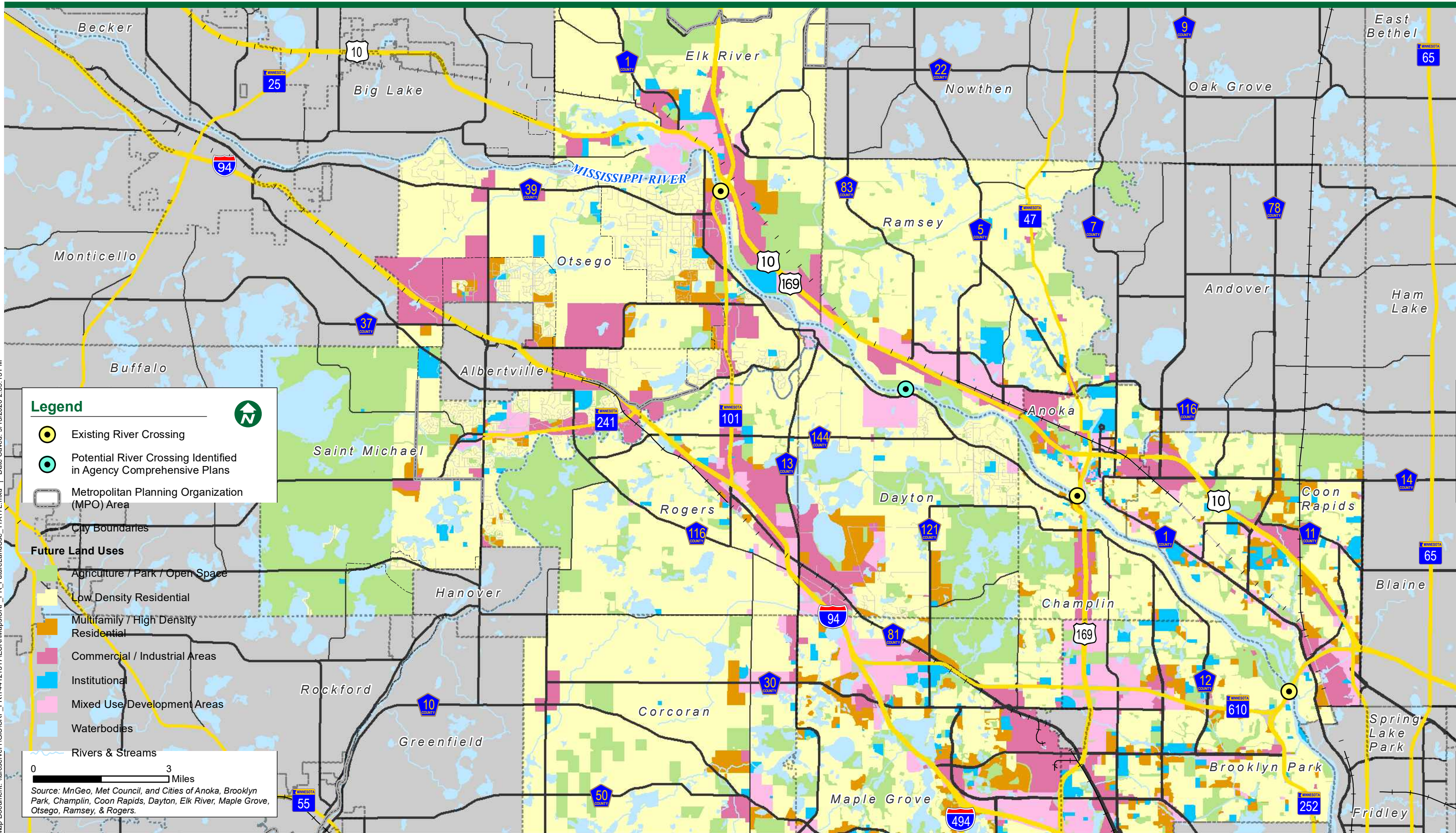
The Project Team assembled land use data for each city within the feasibility analysis area. To allow for cross-community comparison, land use was generalized into six main categories:

- Agricultural/Park/Open Space
- Low Density Residential
- Multifamily/High Density Residential
- Commercial/Industrial Areas
- Institutional
- Mixed Use Development Areas

The results of this land use compilation and generalization are shown in **Figure 10**. The future land use figure confirms some of the themes prevalent in land use and transportation planning documents reviewed in this context analysis. There is a concentration of activity along major corridors, including I-94 north of TH 61 to TH 101, TH 101 from I-94 north into central Elk River, along TH 10/169 between central Elk River and into Coon Rapids, and along TH 169 south of the Mississippi River and in the vicinity of the TH 610 interchange.

Some areas are clearly targeted for mixed use development and are in the process of urbanizing, including higher density residential development and more intense commercial development (higher floor area ratios and taller buildings). These include the COR area of Ramsey on the north side of TH 10/169, central Anoka surrounding the Northstar Commuter Rail Station, the I-94 corridor from Maple Grove to TH 101, areas adjacent to TH 101 within Hennepin County, and large areas in and around central Elk River. Many of these areas have seen rapid development in recent years, and others have the zoning policy in place to facilitate development as the market allows. Several of these areas are at least partially targeted around transit-oriented development related to Northstar Commuter Rail Stations (Elk River 171st Ave Focus Area, Ramsey COR and Anoka Station in the City of Anoka).

There are two areas of particular note planned for increased densities associated with the previously identified river crossing alignment south of Armstrong Boulevard in Ramsey. One is the City Center zone southeast of French Lake in Dayton. This area would be a mixed use, commercial and multifamily/high density residential district connected to I-94 by the new Dayton Parkway project. That project is currently under construction by MnDOT between Brockton Lane (CSAH 101) and CH 81. A future phase of Ramsey Parkway (as yet unprogrammed) is planned to continue northward through the designated City Center Area and continue northeasterly to link with Fernbrook Lane North. It would intersect Zanzibar Lane – an alignment identified in several planning documents as a future connection to a potential river crossing. The second mixed use area to note is directly south of Dayton River Road between the Daytona Golf Club and the residential district along River Hills Parkway. This area would be directly south of Ramsey, and presumably would be situated to benefit directly from the previously identified alignment, as well as from east-west travel along Dayton River Road. It is an area primarily in agricultural use today. The future land use classification for both Dayton sites appears to take advantage of a future north-south connection and potential future river crossing. The City Center Area would likely be less dependent on a crossing because of its proximity to I-94; however, the northern area would be more dependent on the river crossing to effectively deliver the master planned development.



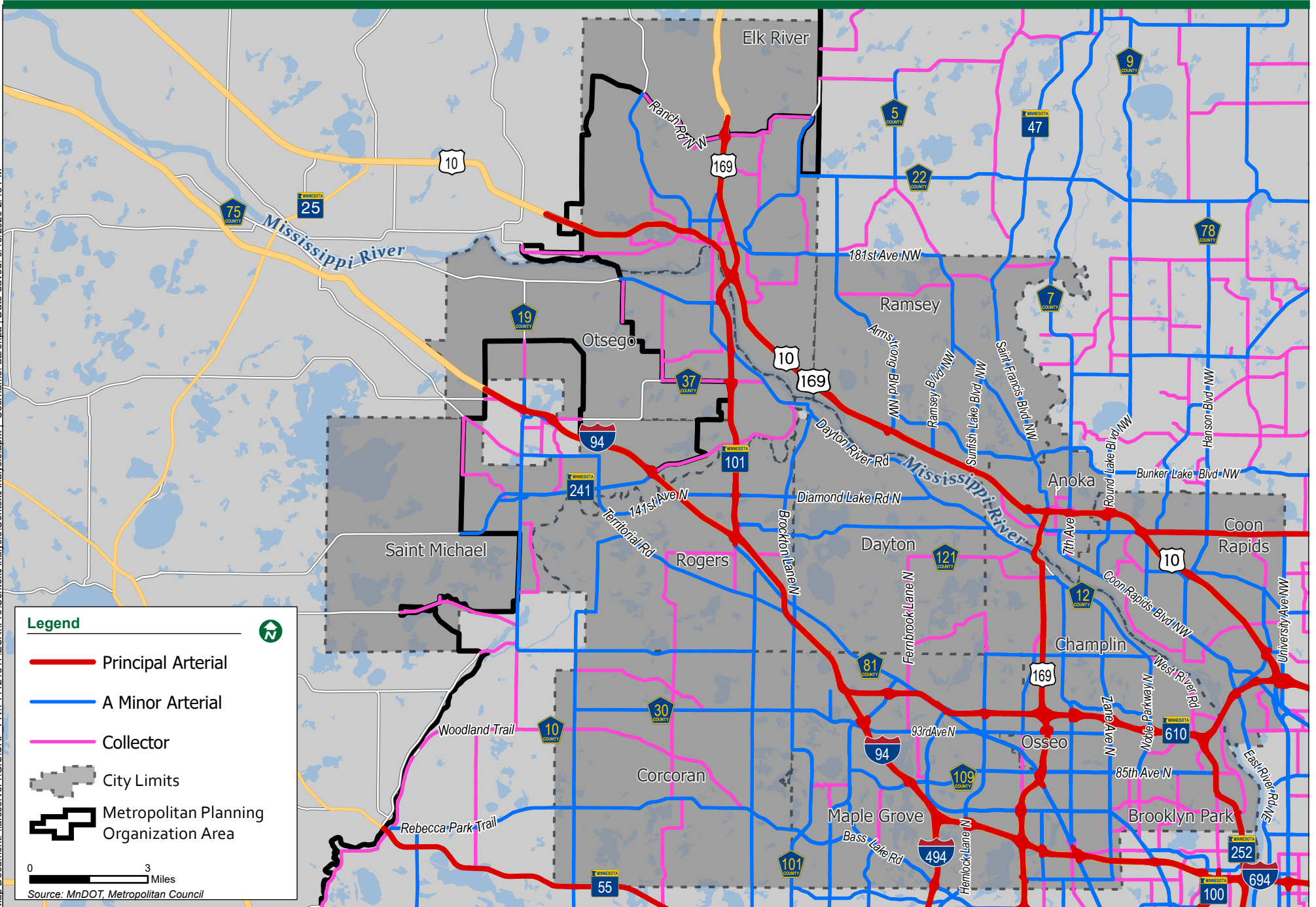
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The Transportation System in the Analysis Area

The Project Team assembled data for the feasibility analysis area. The results of this compilation are shown in **Figures 11 and 12**.

Figure 11 identifies the existing functional classification system, from principal arterials to collectors, within the analysis area. Principal arterials are concentrated along the river corridors, with the supporting system providing connections.

Figure 12 illustrates the future network. This figure identifies programmed and planned improvements along the I-94 and TH 10. It also identifies potential improvements and new alignments identified in past studies and local comprehensive plans. The overall result is a coordinated system with connections at key locations.

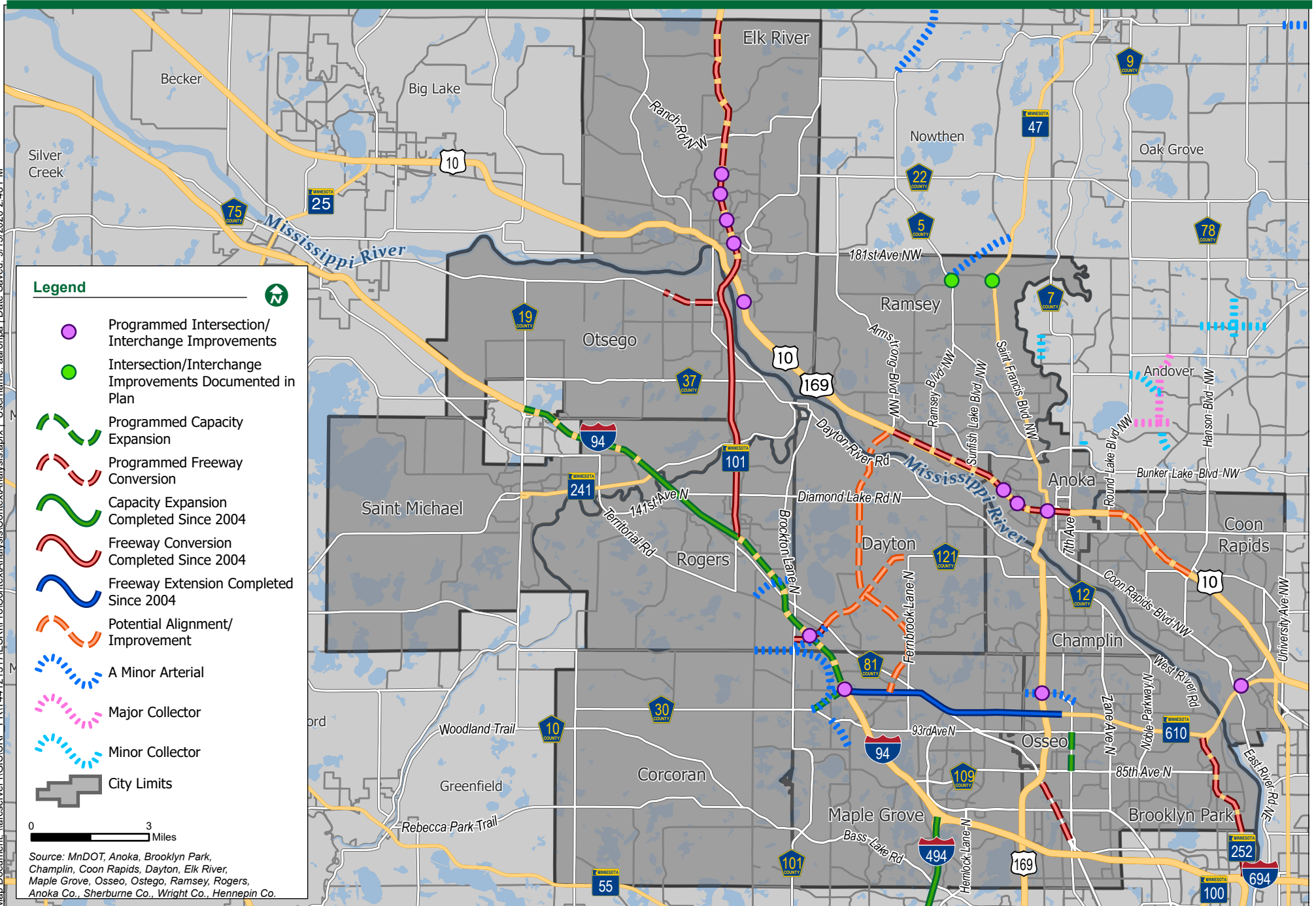


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Legend

- Principal Arterial
- A Minor Arterial
- Collector
- City Limits
- Metropolitan Planning Organization Area

0 3 Miles
Source: MnDOT, Metropolitan Council



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Summary

The Context Analysis is intended to provide a **look back** at the studies and work that has been completed in the feasibility analysis area over the last three decades. Our review of the comprehensive plans prepared by the cities and counties provides a **look to the future** at what the communities expect to occur in the next 20 years, and how they are planning and positioning for this to occur.

Our analysis has results in several **key takeaways**:

- The area included within the feasibility analysis has been studied multiple times over the last 30 years. Nearly all of these past studies identified the need for additional capacity within the corridor. Some, but not all, called out a need for additional crossings.
- Growth is anticipated to continue throughout the analysis area. Ramsey, Corcoran, and Dayton are among the fastest growing communities in the Twin Cities Metropolitan area.
- Comprehensive plans for many of the communities in the feasibility area identify a concentration of more intense development along the major corridors. There are plans for mixed use and higher density development. In some cases, the areas are targeted for transit oriented development.
- Investments have been made in current system to increase capacity as a result of existing conditions, and in anticipation of future growth.
- Some individual communities have made investments on the north side of the river to accommodate a future crossing
- Recent investments on I-94 make it a natural east-west connection for any regional investments connecting both sides of the river

Northwest Metro Mississippi River Crossing Feasibility Analysis

Appendix B: Origin-Destination Analysis Technical Memorandum

To: Jennifer Wiltgen
Minnesota Department of Transportation

From: Paul Morris, PE, SRF Consulting Group, Inc.
Haifeng Xiao, PE, PTOE, HFTE Inc.

Date: June 8, 2021

Subject: Northwest Metro Mississippi River Crossing Feasibility Analysis:
Origin-Destination Analysis Technical Memorandum

Introduction

There are currently three crossings over the Mississippi River in the Twin Cities Northwest Metro area. These crossings include Trunk Highway (TH) 101, US Highway (US) 169, and TH 610. There have been multiple studies completed to investigate the need for additional capacity along and across the Mississippi River in this area. An exclusive Mississippi River Crossing Study was completed in 2002. Since then, the traffic on the three river crossings and adjacent highways has increased significantly due to continued land use development in the region.

As shown in Table 1 below, the overall traffic volumes crossing the river have increased by 22% from 2002 to 2016 while the TH 610 crossing has increased by 31%, followed by the TH 101 crossing (18%) and then the US 169/TH 47 crossing (12%). The travel patterns have changed as well due to the land uses development and transportation improvements on TH 10, TH 101, US 169, and TH 610 in the region.

Table 1: Existing Traffic Volume Growth

River Crossing	2002 AADT	Current AADT
TH 101	44,100	52,000 (2014, 18% increase)
US 169/TH 47	42,500	47,500 (2016, 12% increase)
TH 610	78,000	102,000 (2015, 31% increase)
Total	164,600	201,500 (22% increase)

Based on the latest 2040 comprehensive plans, growth is anticipated to continue throughout the region. Therefore, discussions have recently revisited the need for a fourth river crossing in the region.

Origin-Destination (OD) analysis is one of the major tasks for the river crossing feasibility analysis. The primary purpose of the OD analysis is to investigate the existing traffic conditions on the major highways, as well as the traffic characteristics of the trips using the river crossings and identify

transportation deficiencies in the region. The task was completed using StreetLight Insights, a cloud-based big data analytical platform through MnDOT's subscription. The data is mainly from 2019 prior to the COVID-19 pandemic. The results will be incorporated with the subsequent 2040 travel demand modeling and benefit cost analysis within the context of the land use changes, regional programmed transportation projects, and other potential concepts or improvements to identify the feasibility of a fourth river crossing. This memorandum documents the OD analysis methodology and results.

Origin-Destination Analysis

The major findings of the OD analysis for typical weekday traffic include:

- Nearly 240,000 average daily vehicle trips (weekdays in April, September, and October 2019) use the three river crossings with 55 percent using TH 610, 27 percent using TH 101, and 18 percent using US 169.
- Approximately 70 percent of trips using the crossings are within the immediate river crossing area (Subregion 1 in Figure 0.1 in the Appendix), while approximately two percent of trips are interregional trips (origins or destinations are beyond the metro and its ring counties) with most trips using the TH 101 crossing.
- The top five destination cities of trips using the three crossings are Coon Rapids (9.9 percent), Brooklyn Park (9.7 percent), Blaine (7.3 percent), Elk River (6.7 percent) and Maple Grove (5.9 percent).
- The area between the TH 610 crossing and the US 169 crossing has a much higher density of trips using the crossing (greater than 700 trips per square mile) than the area located between the TH 101 crossing and the US 169 crossing (less than 350 daily trips per square mile).
- Trips crossing the river tend to use nearby crossings with most trips from Elk River using TH 101, while trips from Anoka use US 169 and trips from Coon Rapids use TH 610.
- Each of the three crossings serves a distinct market that varies in terms of the communities of the origins and destinations and trip lengths including:
 - The TH 101 crossing carries a larger proportion of much longer distance interregional trips. The median trip length is 24.2 miles.
 - The US 169 crossing carries trips representing a more compact travelshed with shorter trip lengths. The median trip length is 14.8 miles.
 - The median length of the trips using the TH 610 river crossing is 21.5 miles.
 - The TH 610 crossing carries 8.1 percent of trips from Downtown Minneapolis while TH 101 carries 2.3 percent of the trips and US 169 carries 0.7 percent of the trips.
- It was observed that the recreational interregional traffic during the holiday weekend Friday afternoon on the TH 101 crossing is four times higher than a typical weekday.

Streetlight Platform and Data Configurations

The OD analysis was completed using the StreetLight Data software platform. StreetLight is a private company that compiles anonymized location records from smart phones and navigation devices in connected vehicles and transforms these location records into travel patterns. It delivers unique insights into how vehicles, bicycles, and pedestrians move on virtually every road and census block.

Two types of data were extracted from StreetLight for the OD analysis: Origin-Middle-Filter-Destination (OMD) trips and Top Routes data. This data was used to identify the origins (Os) and destinations (Ds) of the trips using the river crossings (Middle Filters) via different highways (Top Routes).

The OD analysis was conducted primarily for person trips during the AM peak period (6:00 to 10:00 am), the PM peak period (3:00 to 7:00 pm) and daily during weekdays (Monday – Thursday) from April 1st to 30th and September 1st to October 31st, 2019. A comparative analysis was conducted later between weekdays and Memorial Day Friday afternoon to investigate how travel patterns change between a weekday afternoon and a holiday weekend Friday afternoon.

Origin-Destination Zone Development

MnDOT conducted an initial OD study using zip code boundaries in the study area. Further OD analysis indicated two major drawbacks when the zip code boundaries were used for the crossing OD analysis:

- Some zip code areas covered both sides of the Mississippi River, and thus the extracted OD trips within those zip codes do not demonstrate how the trips used the river crossings (for example, the zip code for the city of Elk River).
- Some zip code areas covered multiple cities in the immediate river crossing area and the OD trips within those zip codes do not fully demonstrate how the trips would differ from city to city in the immediate river crossing while this level of OD data would be the most desirable for this analysis.

To overcome these drawbacks, a refined Traffic Analysis Zone (TAZ) structure was used. This TAZ structure was developed by the Met Council for its regional travel demand model and modified to establish ODs for this analysis. The Met Council TAZ structure with 3,030 TAZs was aggregated into 86 ODs in three subregions. Figure 0.1 in the appendix illustrates the three subregions and ODs based on the Met Council TAZs. The city and county jurisdictional boundaries were used as boundaries whenever possible in the OD development process to ensure that OD trips from the StreetLight data could be aggregated at those jurisdiction levels. There were 31 external pass-through stations which were included to capture interregional trips using the river crossings. To capture OD trips using the river crossings, six pass-through gates were defined on the three crossings in both directions as Middle Filter Zones.

Origin-Destination Data Postprocessing

StreetLight provides visualization results along with hundreds of thousands of OD data records in CSV files. Each raw OD record includes the total volumes (averaged from the three months of data)

during each time period (AM, PM or daily) using any crossing (TH 101, US 169, or TH 610) in any direction (northbound or southbound) from any origin or destination. The OD data was postprocessed and summarized in tables and displayed in GIS figures.

Postprocessing raw OD records included two major steps. First, all the OD records were aggregated into 86 OD zones to obtain the total origin and destination trips for each time period, crossing and direction as listed above. Summations were performed to obtain overall trips for the three river crossings regardless of direction. Second, the OD data at this level of aggregation was normalized to obtain the average trips per square mile and were displayed as heatmaps in GIS. The ODs were then further aggregated into jurisdictional city or county levels and were summarized in tables and displayed as labels in the GIS heatmaps.

The top trip routes on the highways for each of the crossings were obtained from StreetLight and were then displayed as bandwidth layers in the GIS heatmaps. The trip length and travel times of all the OD trips using the three crossings were summarized in tables and displayed in figures. These maps, tables, and figures are included in the appendix.

Origin-Destination Analysis Results

The postprocessed OD data is summarized in the following tables described in this section. Results are also illustrated in GIS figures which are described below and are included in the appendix.

Table 2 summarizes the total AM (6:00 to 10:00 am), PM (3:00 to 7:00 pm), and daily trips using the three crossings. These are shown by direction for the peak period and daily volumes. The overall percent of traffic each of the three crossings is provided at the daily level.

Table 2: Total Trips Using the Three Crossings

Duration	TH 101		US 169		TH 610		Total	
	SB	NB	SB	NB	SB	NB	SB	NB
AM (6:00 to 10:00 am)	10,228	4,976	6,444	4,050	20,863	11,798	37,535	20,824
PM (3:00 to 7:00 pm)	8,620	13,512	5,027	8,516	17,612	27,560	31,259	49,588
Daily	32,144	32,320	20,900	21,982	66,692	65,987	119,736	120,289
	64,464 (27%)		42,882 (18%)		132,679 (55%)		240,025 (100%)	

Table 3 identifies the top five communities in terms of the proportion of traffic using each of the three existing river crossings. Percentages of the total river crossing volumes at each location are provided for trips originating from and destined for each community, respectively.

Table 3: Top Cities of Trips Using the Three Crossings (Origin/Destination Daily Trip Percentages)

TH 101	US 169	TH 610
1. Elk River (23.7%/24.0%)	1. Anoka (17.4%/17.5%)	1. Brooklyn Park (14.3%/14.4%)
2. Otsego (11.8%/12.4%)	2. Champlin (15.8%/14.4%)	2. Coon Rapids (14.2%/14.2%)
3. Rogers (8.3%/8.2%)	3. Ramsey (10.2%/10.0%)	3. Blaine (12.1%/12.5%)
4. Maple Grove (5.7%/5.0%)	4. Coon Rapids (8.4%/9.6%)	4. Maple Grove (6.1%/6.1%)
5. Ramsey (3.1%/3.5%)	5. Brooklyn Park (7.4%/7.4%)	5. Downtown MPLS (4.2%/3.9%)

Table 4 identifies communities with the highest share of trips using each of the three existing river crossings in the southbound direction during the AM peak period. Since these trips are traveling from one side of the river to the other, communities where trips originate versus those trips are destined to are presented separately.

Table 4: Top Cities of Trips Using the Southbound Crossings During AM Peak Period (6:00 to 10:00 am)

O/D	TH 101	US 169	TH 610
Origin	1. Elk River (41.8%)	1. Anoka (26.8%)	1. Coon Rapids (27.6%)
	2. Ramsey (5.6%)	2. Ramsey (26.0%)	2. Blaine (23.7%)
	3. Nowthen (3.2%), plus	3. Andover (14.6%)	3. Andover (10.4%)
	4. Sherburne Co other (31.9%)	4. Coon Rapids (10.9%)	4. Anoka (2.7%)
	5. Northern External (5.4%)	5. Nowthen (3.0%)	5. Ramsey (2.5%)
Destination	1. Rogers (16.3%)	1. Rogers (16.3%)	1. Brooklyn Park (17.3%)
	2. Otsego (13.6%)	2. Otsego (13.6%)	2. Champlin (17.3%)
	3. Maple Grove (12.4%)	3. Maple Grove (12.4%)	3. Maple Grove (14.6%)
	4. Brooklyn Park (4.7%)	4. Brooklyn Park (4.7%)	4. Rogers (3.8%)
	5. St Michael (4.2%); Plus	5. St Michael (4.2%); Plus	5. Dayton (2.7%); Plus
	6. Hennepin Co. Other (28.5%)	6. Hennepin Co. Other (28.5%)	6. Hennepin Co. Other (33.6%)

Table 5 identifies the communities with the highest proportion of trips on each river crossing that are destined for downtown Minneapolis during the AM peak period. This is intended to provide an indication of the use of each crossing for work commuting purposes.

Table 5: Top Cities of Trips Destined to Downtown Minneapolis Using the Southbound Crossings (6:00 to 10:00 am)

TH 101	US 169	TH 610
1. Elk River (55.4%)	1. Anoka (41.8%)	1. Coon Rapids (31.3%)
2. Nowthen (1.9%), plus	2. Ramsey (28.6%)	2. Blaine (17.7%)
3. Sherburne Co. other area (34.3%)	3. Coon Rapids (7.7%)	3. Andover (16.7%)
4. Northern External (6.9%)	4. Andover (2.2%)	4. Ramsey (7.5%)
	5. Nowthen (2.2%)	5. Anoka (7.2%)

Table 6 identifies communities with the highest share of trips using each of the three existing river crossings in the northbound destination during the PM peak period. Similar to Table 4, communities where trips originate versus those trips are destined to are presented separately.

Table 6: Top Cities of Trips Using the Northbound Crossings During Typical PM Peak Period (3:00 to 7:00 pm)

O/D	TH 101	US 169	TH 610
Origin	1. Otsego (18.1%)	1. Champlin (29.2%)	1. Brooklyn Park (26.6%)
	2. Rogers (15.9%)	2. Brooklyn Park (15.1%)	2. Downtown MPLS (12.3%)
	3. Maple Grove (12.0%)	3. Maple Grove (13.7%)	3. Maple Grove (10.9%)
	4. St Michael (4.7%)	4. Rogers (4.0%)	4. Brooklyn Center (5.6%)
	5. Brooklyn Park (4.4%) plus	5. Dayton (3.3%); plus	5. Champlin (3.2%); plus
	6. Hennepin Co. other (23.9%)	6. Hennepin Co. other (24.2%)	6. Hennepin Co. other (31.5%)
Destination	1. Elk River (45.5%)	1. Anoka (30.5%)	1. Anoka (30.5%)
	2. Ramsey (6.6%)	2. Ramsey (21.3%)	2. Ramsey (21.3%)
	3. Nowthen (2.6%) plus	3. Coon Rapids (16.8%)	3. Coon Rapids (16.8%)
	4. Sherburne Co. other (24.7%)	4. Andover (11.5%)	4. Andover (11.5%)
	5. External North (5.3%)	5. Blaine (2.2%) plus	5. Blaine (2.2%) plus
		6. Anoka Co. other (7.3%)	6. Anoka Co. other (7.3%)

Table 7 identifies communities with the highest share of trips using each of the three existing river crossings during on Friday afternoons on holiday weekends. Communities where trips originate versus those trips are destined to are presented separately. The results show that the destination of “External North” – which is where US 169 passes from Sherburne County to Mille Lacs County has a much higher share of trips compared to typical weekday afternoons.

Table 7: Top Cities of Trips Using the Northbound Crossings During Holiday Friday PM Peak Period (3:00 to 7:00 pm)

O/D	TH 101	US 169	TH 610
Origin	1. Otsego (20.0%)	1. Champlin (31.5%)	1. Brooklyn Park (28.4%)
	2. Rogers (13.6%)	2. Brooklyn Park (13.9%)	2. Downtown MPLS (7.8%)
	3. Maple Grove (12.8%)	3. Maple Grove (13.6%)	3. Maple Grove (11.1%)
	4. St Michael (2.5%)	4. Rogers (2.8%)	4. Brooklyn Center (6.5%)
	5. Brooklyn Park (4.6%) plus	5. Dayton (3.9%); plus	5. Champlin (3.8%); plus
	6. Hennepin Co. other (15.6%)	6. Hennepin Co. other (21.7%)	6. Hennepin Co. other (29.2%)
Destination	1. Elk River (39.8%)	1. Anoka (26.5%)	1. Coon Rapids (27.1%)
	2. Ramsey (6.2%)	2. Ramsey (17.0%)	2. Blaine (25.7%)
	3. Nowthen (1.4%) plus	3. Coon Rapids (15.0%)	3. Andover (7.2%)
	4. Sherburne Co. other (17.3%)	4. Andover (9.4%)	4. Fridley (4.2%)
	5. External North (20.9%)	5. Blaine (2.5%) plus	5. Anoka (2.9%) plus
		6. Anoka Co. other (6.8%)	6. Anoka Co. other (11.0%)
		7. External North (7.9%)	7. External North (2.1%)

Table 8 provides a distribution of trip lengths observed for each of the three river crossings. These are provided for the 25th, 50th (median), and 75th percentile of all trips using each crossing. The results show that TH 101 has the longest trip lengths, US 169 has the shortest trip lengths, and TH 610 is in between. The distribution of travel times are also provided, and these follow the same trend as the trip distances.

Table 8: Trip Length and Travel Time of 25%-50%-75% Trips Using the Crossings (Daily)

MOES	Trip Percentile	TH 101	US 169	TH 610
Trip Distance (Miles)	25%	14.2	8.6	14.5
	50%	24.2	14.8	21.5
	75%	37.3	23.1	31.4
Travel Time (Minutes)	25%	30.5	26.6	31.5
	50%	45.2	38.8	44.5
	75%	64.0	56.0	62.6

- Tables 2.1 – 2.3 summarize the total AM (6:00 to 10:00 am), PM (3:00 to 7:00 pm), and daily trips using the TH 610 crossing.
- Tables 3.1 – 3.3 summarize the total AM (6:00 to 10:00 am), PM (3:00 to 7:00 pm), and daily trips using the US 169/TH 47 crossing.
- Tables 4.1 – 4.3 summarize the total AM (6:00 to 10:00 am), PM (3:00 to 7:00 pm), and daily trips using the TH 101 crossing.
- Figure 1.1 illustrates the total origin daily trips using the three crossings.
- Figure 1.2 illustrates the total destination daily trips using the three crossings.
- Figures 2.1 – 2.2 illustrate the total origin and destination daily trips using the TH 610 crossing and their top routes.
- Figure 3.1 – 3.2 illustrate the total origin and destination daily trips using the US 169/TH 47 crossing and their top routes.
- Figure 4.1 – 4.2 illustrate the total origin and destination daily trips using TH 101 crossing and their top routes.
- Figures 5.1 – 5.2 illustrate the total origin and destination trips using the three crossings in the southbound direction during the AM peak period (6:00 to 10:00 am).
- Figure 5.3 illustrates the total daily origin trips using the three crossings with Downtown Minneapolis as the destination.
- Figure 6 illustrates the total origin/destination trips and top routes using the southbound TH 610 crossing during the AM peak period (6:00 to 10:00 am).
- Figure 7 illustrates the total origin/destination trips and top routes using the southbound US 169/TH 47 crossing during the AM peak period (6:00 to 10:00 am).
- Figure 8 illustrates the total origin/destination trips and top routes using the southbound TH 101 crossing during the AM peak period (6:00 to 10:00 am).
- Figures 9.1 – 9.2 illustrate the total origin and destination trips using the three crossings in the northbound direction during the PM peak period (3:00 to 7:00 pm).
- Figures 9.3 – 9.4 illustrate the comparison of the total origin and destination trips using the three crossings in the northbound direction during the PM peak period (3:00 to 7:00 pm) for weekdays and holiday Friday.
- Figure 10 illustrates the total origin/destination trips and top routes using the northbound TH 610 crossing during the PM peak period (3:00 to 7:00 pm).
- Figure 11 illustrates the total origin/destination trips and top routes using the northbound US 169/TH 47 crossing during the PM peak period (3:00 to 7:00 pm).

- Figure 12 illustrates the total origin/destination trips and top routes using the northbound TH 101 crossing during the PM peak period (3:00 to 7:00 pm).
- Figures 13.1 – 13.2 illustrate trip length and travel time distributions of the trips using the three river crossings.

https://srfconsultinggroup-my.sharepoint.com/personal/pmorris_srfconsulting_com/Documents/Northwest Metro River Crossing/Documentation/OD_Analysis_Tech_Memo_20210607.docx

Appendix

Table 2.1
AM (6-10am), PM (3-7pm) and Daily Trips Using the TH 610 Crossing (Both Directions)

Jurisdiction		AM Peak Period (6-10am)				PM Peak Period (3-7pm)				Daily			
		Origin		Destination		Origin		Destination		Origin		Destination	
		Trips	%	Trips	%	Trips	%	Trips	%	Trips	%	Trips	%
Cities in the Study Area (North/East Side of the River)	City of Columbia Heights	36	0.1%	46	0.1%	67	0.1%	69	0.2%	204	0.2%	226	0.2%
	City of Fridley	402	1.2%	1,230	3.8%	1,465	3.2%	975	2.2%	3,124	2.4%	3,610	2.7%
	City of Spring Lake Park	118	0.4%	269	0.8%	330	0.7%	293	0.6%	852	0.6%	927	0.7%
	City of Blaine	5,013	15.3%	2,346	7.2%	4,292	9.5%	7,392	16.4%	16,009	12.1%	16,640	12.5%
	City of Coon Rapids	5,861	17.9%	2,974	9.1%	3,364	7.4%	7,678	17.0%	18,862	14.2%	18,859	14.2%
	City of Anoka	591	1.8%	357	1.1%	623	1.4%	763	1.7%	2,067	1.6%	2,003	1.5%
	City of Andover	2,187	6.7%	365	1.1%	825	1.8%	2,642	5.8%	4,645	3.5%	4,920	3.7%
	City of Ramsey	540	1.7%	100	0.3%	256	0.6%	567	1.3%	1,273	1.0%	1,222	0.9%
	City of Nowthen	75	0.2%	14	0.0%	23	0.1%	88	0.2%	172	0.1%	156	0.1%
City of Elk River	143	0.4%	41	0.1%	57	0.1%	118	0.3%	319	0.2%	271	0.2%	
Cities in the Study Area (South/West Side of the River)	City of Brooklyn Center	435	1.3%	1,066	3.3%	1,622	3.6%	874	1.9%	3,632	2.7%	3,575	2.7%
	City of Brooklyn Park	3,840	11.8%	4,786	14.7%	7,511	16.6%	5,713	12.6%	18,949	14.3%	19,092	14.4%
	City of Osseo	87	0.3%	159	0.5%	257	0.6%	204	0.5%	611	0.5%	572	0.4%
	City of Champlin	1,079	3.3%	544	1.7%	918	2.0%	1,559	3.5%	3,040	2.3%	3,547	2.7%
	City of Maple Grove	1,656	5.1%	2,265	6.9%	3,078	6.8%	2,427	5.4%	8,049	6.1%	8,105	6.1%
	City of Dayton	101	0.3%	106	0.3%	119	0.3%	171	0.4%	387	0.3%	478	0.4%
	City of Rogers	490	1.5%	362	1.1%	355	0.8%	520	1.2%	1,389	1.0%	1,625	1.2%
	City of Otsego	162	0.5%	45	0.1%	53	0.1%	258	0.6%	331	0.2%	479	0.4%
	City of Albertville	94	0.3%	25	0.1%	86	0.2%	157	0.3%	354	0.3%	384	0.3%
City of St Michael	305	0.9%	106	0.3%	193	0.4%	380	0.8%	741	0.6%	790	0.6%	
Downtowns	Downtown Minneapolis	205	0.6%	3,007	9.2%	3,511	7.8%	681	1.5%	5,536	4.2%	5,121	3.9%
	Downtown St Paul	8	0.0%	140	0.4%	203	0.4%	35	0.1%	310	0.2%	226	0.2%
Outer Counties*	Anoka County	2,508	7.7%	586	1.8%	1,104	2.4%	2,653	5.9%	5,566	4.2%	5,440	4.1%
	Isanti County	419	1.3%	103	0.3%	10	0.0%	502	1.1%	1,074	0.8%	1,044	0.8%
	Sherburne County	143	0.4%	36	0.1%	39	0.1%	97	0.2%	264	0.2%	264	0.2%
	Wright County	419	1.3%	198	0.6%	229	0.5%	532	1.2%	1,082	0.8%	1,248	0.9%
	Hennepin County	2,313	7.1%	7,444	22.8%	9,158	20.3%	3,354	7.4%	19,332	14.6%	18,473	13.9%
	Ramsey County	1,366	4.2%	2,560	7.8%	3,875	8.6%	1,949	4.3%	7,730	5.8%	6,633	5.0%
	Washington County	655	2.0%	258	0.8%	507	1.1%	822	1.8%	1,708	1.3%	1,714	1.3%
	Dakota County	141	0.4%	197	0.6%	198	0.4%	184	0.4%	632	0.5%	717	0.5%
	Scott County	135	0.4%	141	0.4%	192	0.4%	156	0.3%	696	0.5%	647	0.5%
	Carver County	154	0.5%	109	0.3%	150	0.3%	134	0.3%	482	0.4%	412	0.3%
	Chisago County	561	1.7%	159	0.5%	0	0.0%	558	1.2%	1,304	1.0%	1,184	0.9%
	McLeod/Sibley County	9	0.0%	9	0.0%	0	0.0%	8	0.0%	62	0.0%	40	0.0%
	Le Sueur/Rice/Goodhue County	13	0.0%	17	0.1%	0	0.0%	18	0.0%	76	0.1%	68	0.1%
Wisconsin	109	0.3%	46	0.1%	0	0.0%	115	0.3%	248	0.2%	250	0.2%	
External Roadways**	North	104	0.3%	130	0.4%	157	0.3%	185	0.4%	512	0.4%	536	0.4%
	East	24	0.1%	29	0.1%	64	0.1%	25	0.1%	157	0.1%	109	0.1%
	South	21	0.1%	69	0.2%	78	0.2%	31	0.1%	204	0.2%	221	0.2%
	West	139	0.4%	217	0.7%	203	0.4%	285	0.6%	694	0.5%	851	0.6%
Total		32,661	100%	32,661	100%	45,172	100%	45,172	100%	132,679	100%	132,679	100%

* Excluding the above cities in the study area; **Consistent with the 31 External Stations in the ABM, *** Highlighted are 4% or greater

Table 2.2
AM (6-10am), PM (3-7pm) and Daily Trips Using the Southbound TH 610 Crossing

Jurisdiction		AM Peak Period (6-10am)				PM Peak Period (3-7pm)				Daily			
		Origin		Destination		Origin		Destination		Origin		Destination	
		Trips	%	Trips	%	Trips	%	Trips	%	Trips	%	Trips	%
Cities in the Study Area (North/East Side of the River)	City of Columbia Heights	22	0.1%	25	0.1%	47	0.3%	16	0.1%	118	0.2%	102	0.2%
	City of Fridley	374	1.8%	46	0.2%	1,386	7.9%	74	0.4%	2,896	4.3%	260	0.4%
	City of Spring Lake Park	114	0.5%	7	0.0%	320	1.8%	8	0.0%	821	1.2%	37	0.1%
	City of Blaine			62	0.3%			151	0.9%			453	0.7%
	City of Coon Rapids	5,752	27.6%	92	0.4%	3,259	18.5%	179	1.0%	18,327	27.5%	598	0.9%
	City of Anoka	560	2.7%	29	0.1%	573	3.3%	37	0.2%	1,917	2.9%	151	0.2%
	City of Andover			20	0.1%			40	0.2%			115	0.2%
	City of Ramsey	524	2.5%	10	0.0%	240	1.4%	16	0.1%	1,224	1.8%	62	0.1%
	City of Nowthen	75	0.4%	0	0.0%	22	0.1%	3	0.0%	164	0.2%	9	0.0%
City of Elk River	104	0.5%	30	0.1%	39	0.2%	43	0.2%	236	0.4%	118	0.2%	
Cities in the Study Area (South/West Side of the River)	City of Brooklyn Center	22	0.1%	1,042	5.0%	65	0.4%	822	4.7%	142	0.2%	3,417	5.1%
	City of Brooklyn Park	103	0.5%	4,672	22.4%	185	1.1%	5,490	31.2%	573	0.9%	18,482	27.7%
	City of Osseo	1	0.0%	154	0.7%	13	0.1%	196	1.1%	23	0.0%	550	0.8%
	City of Champlin	34	0.2%	526	2.5%	38	0.2%	1,503	8.5%	128	0.2%	3,410	5.1%
	City of Maple Grove	40	0.2%	2,239	10.7%	65	0.4%	2,361	13.4%	194	0.3%	7,920	11.9%
	City of Dayton	4	0.0%	105	0.5%	6	0.0%	167	0.9%	16	0.0%	462	0.7%
	City of Rogers	6	0.0%	358	1.7%	9	0.1%	506	2.9%	40	0.1%	1,584	2.4%
	City of Otsego	7	0.0%	44	0.2%	5	0.0%	251	1.4%	23	0.0%	458	0.7%
	City of Albertville	0	0.0%	25	0.1%	1	0.0%	153	0.9%	5	0.0%	377	0.6%
City of St Michael	0	0.0%	105	0.5%	2	0.0%	375	2.1%	18	0.0%	777	1.2%	
Downtowns	Downtown Minneapolis	13	0.1%	2,941	14.1%	117	0.7%	639	3.6%	208	0.3%	4,957	7.4%
	Downtown St Paul	6	0.0%	24	0.1%	187	1.1%	6	0.0%	255	0.4%	47	0.1%
Outer Counties*	Anoka County	2,471	11.8%	16	0.1%	1,067	6.1%	42	0.2%	5,443	8.2%	115	0.2%
	Isanti County	416	2.0%	1	0.0%	10	0.1%	5	0.0%	1,063	1.6%	20	0.0%
	Sherburne County	95	0.5%	25	0.1%	21	0.1%	55	0.3%	157	0.2%	158	0.2%
	Wright County	15	0.1%	189	0.9%	10	0.1%	517	2.9%	38	0.1%	1,203	1.8%
	Hennepin County	161	0.8%	7,140	34.2%	487	2.8%	3,110	17.7%	1,169	1.8%	17,496	26.2%
	Ramsey County	1,298	6.2%	228	1.1%	3,636	20.6%	120	0.7%	7,122	10.7%	646	1.0%
	Washington County	641	3.1%	24	0.1%	478	2.7%	26	0.1%	1,622	2.4%	82	0.1%
	Dakota County	102	0.5%	124	0.6%	111	0.6%	57	0.3%	342	0.5%	386	0.6%
	Scott County	4	0.0%	134	0.6%	9	0.1%	148	0.8%	25	0.0%	613	0.9%
	Carver County	2	0.0%	107	0.5%	0	0.0%	128	0.7%	11	0.0%	397	0.6%
	Chisago County	555	2.7%	2	0.0%	0	0.0%	4	0.0%	1,261	1.9%	25	0.0%
	McLeod/Sibley County	0	0.0%	9	0.0%	0	0.0%	8	0.0%	0	0.0%	40	0.1%
	Le Sueur/Rice/Goodhue County	3	0.0%	13	0.1%	0	0.0%	12	0.1%	34	0.1%	44	0.1%
Wisconsin	109	0.5%	5	0.0%	0	0.0%	0	0.0%	235	0.4%	11	0.0%	
External Roadways**	North	87	0.4%	16	0.1%	142	0.8%	37	0.2%	451	0.7%	75	0.1%
	East	24	0.1%	1	0.0%	62	0.4%	0	0.0%	148	0.2%	8	0.0%
	South	3	0.0%	59	0.3%	25	0.1%	24	0.1%	46	0.1%	185	0.3%
	West	0	0.0%	214	1.0%	4	0.0%	283	1.6%	11	0.0%	842	1.3%
Total		20,863	100%	20,863	100%	17,612	100%	17,612	100%	66,692	100%	66,692	100%

* Excluding the above cities in the study area; **Consistent with the 31 External Stations in the ABM, *** Highlighted are 4% or greater

**Table 2.3
AM (6-10am), PM (3-7pm) and Daily Trips Using the Northbound TH 610 Crossing**

Jurisdiction		AM Peak Period (6-10am)				PM Peak Period (3-7pm)				Daily			
		Origin		Destination		Origin		Destination		Origin		Destination	
		Trips	%	Trips	%	Trips	%	Trips	%	Trips	%	Trips	%
Cities in the Study Area (North/East Side of the River)	City of Columbia Heights	14	0.1%	21	0.2%	20	0.1%	53	0.2%	86	0.1%	124	0.2%
	City of Fridley	28	0.2%	1,184	10.0%	79	0.3%	901	3.3%	228	0.3%	3,350	5.1%
	City of Spring Lake Park	4	0.0%	262	2.2%	10	0.0%	285	1.0%	31	0.0%	890	1.3%
	City of Blaine	63	0.5%			123	0.4%			382	0.6%		
	City of Coon Rapids	109	0.9%	2,882	24.4%	105	0.4%	7,499	27.2%	535	0.8%	18,261	27.7%
	City of Anoka	31	0.3%	328	2.8%	50	0.2%	726	2.6%	150	0.2%	1,852	2.8%
	City of Andover	21	0.2%	345	2.9%	23	0.1%			86	0.1%		
	City of Ramsey	16	0.1%	90	0.8%	16	0.1%	551	2.0%	49	0.1%	1,160	1.8%
	City of Nowthen	0	0.0%	14	0.1%	1	0.0%	85	0.3%	8	0.0%	147	0.2%
City of Elk River	39	0.3%	11	0.1%	18	0.1%	75	0.3%	83	0.1%	153	0.2%	
Cities in the Study Area (South/West Side of the River)	City of Brooklyn Center	413	3.5%	24	0.2%	1,557	5.6%	52	0.2%	3,490	5.3%	158	0.2%
	City of Brooklyn Park	3,737	31.7%	114	1.0%	7,326	26.6%	223	0.8%	18,376	27.8%	610	0.9%
	City of Osseo	86	0.7%	5	0.0%	244	0.9%	8	0.0%	588	0.9%	22	0.0%
	City of Champlin	1,045	8.9%	18	0.2%	880	3.2%	56	0.2%	2,912	4.4%	137	0.2%
	City of Maple Grove	1,616	13.7%	26	0.2%	3,013	10.9%	66	0.2%	7,855	11.9%	185	0.3%
	City of Dayton	97	0.8%	1	0.0%	113	0.4%	4	0.0%	371	0.6%	16	0.0%
	City of Rogers	484	4.1%	4	0.0%	346	1.3%	14	0.1%	1,349	2.0%	41	0.1%
	City of Otsego	155	1.3%	1	0.0%	48	0.2%	7	0.0%	308	0.5%	21	0.0%
	City of Albertville	94	0.8%	0	0.0%	85	0.3%	4	0.0%	349	0.5%	7	0.0%
City of St Michael	305	2.6%	1	0.0%	191	0.7%	5	0.0%	723	1.1%	13	0.0%	
Downtowns	Downtown Minneapolis	192	1.6%	66	0.6%	3,394	12.3%	42	0.2%	5,328	8.1%	164	0.2%
	Downtown St Paul	2	0.0%	116	1.0%	16	0.1%	29	0.1%	55	0.1%	179	0.3%
Outer Counties*	Anoka County	37	0.3%	570	4.8%	37	0.1%	2,611	9.5%	123	0.2%	5,325	8.1%
	Isanti County	3	0.0%	102	0.9%	0	0.0%	497	1.8%	11	0.0%	1,024	1.6%
	Sherburne County	48	0.4%	11	0.1%	18	0.1%	42	0.2%	107	0.2%	106	0.2%
	Wright County	404	3.4%	9	0.1%	219	0.8%	15	0.1%	1,044	1.6%	45	0.1%
	Hennepin County	2,152	18.2%	304	2.6%	8,671	31.5%	244	0.9%	18,163	27.5%	977	1.5%
	Ramsey County	68	0.6%	2,332	19.8%	239	0.9%	1,829	6.6%	608	0.9%	5,987	9.1%
	Washington County	14	0.1%	234	2.0%	29	0.1%	796	2.9%	86	0.1%	1,632	2.5%
	Dakota County	39	0.3%	73	0.6%	87	0.3%	127	0.5%	290	0.4%	331	0.5%
	Scott County	131	1.1%	7	0.1%	183	0.7%	8	0.0%	671	1.0%	34	0.1%
	Carver County	152	1.3%	2	0.0%	150	0.5%	6	0.0%	471	0.7%	15	0.0%
	Chisago County	6	0.1%	157	1.3%	0	0.0%	554	2.0%	43	0.1%	1,159	1.8%
	McLeod/Sibley County	9	0.1%	0	0.0%	0	0.0%	0	0.0%	62	0.1%	0	0.0%
	Le Sueur/Rice/Goodhue County	10	0.1%	4	0.0%	0	0.0%	6	0.0%	42	0.1%	24	0.0%
Wisconsin	0	0.0%	41	0.3%	0	0.0%	115	0.4%	13	0.0%	239	0.4%	
External Roadways**	North	17	0.1%	114	1.0%	15	0.1%	148	0.5%	61	0.1%	461	0.7%
	East	0	0.0%	28	0.2%	2	0.0%	25	0.1%	9	0.0%	101	0.2%
	South	18	0.2%	10	0.1%	53	0.2%	7	0.0%	158	0.2%	36	0.1%
	West	139	1.2%	3	0.0%	199	0.7%	2	0.0%	683	1.0%	9	0.0%
Total		11,798	100%	11,798	100%	27,560	100%	27,560	100%	65,987	100%	65,987	100%

* Excluding the above cities in the study area; **Consistent with the 31 External Stations in the ABM, *** Highlighted are 4% or greater

**Table 3.1
AM (6-10am), PM (3-7pm) and Daily Trips Using the US 169 Crossing (Both Directions)**

Jurisdiction		AM Peak Period (6-10am)				PM Peak Period (3-7pm)				Daily			
		Origin		Destination		Origin		Destination		Origin		Destination	
		Trips	%	Trips	%	Trips	%	Trips	%	Trips	%	Trips	%
Cities in the Study Area (North/East Side of the River)	City of Columbia Heights	3	0.0%	4	0.0%	7	0.1%	8	0.1%	16	0.0%	22	0.1%
	City of Fridley	11	0.1%	52	0.5%	52	0.4%	28	0.2%	110	0.3%	132	0.3%
	City of Spring Lake Park	4	0.0%	4	0.0%	10	0.1%	8	0.1%	25	0.1%	24	0.1%
	City of Blaine	114	1.1%	105	1.0%	132	1.0%	202	1.5%	446	1.0%	488	1.1%
	City of Coon Rapids	719	6.9%	884	8.4%	402	3.0%	1,463	10.8%	3,620	8.4%	4,133	9.6%
	City of Anoka	1,781	17.0%	1,750	16.7%	2,355	17.4%	2,627	19.4%	7,453	17.4%	7,503	17.5%
	City of Andover	959	9.1%	172	1.6%	457	3.4%	988	7.3%	2,180	5.1%	2,014	4.7%
	City of Ramsey	1,702	16.2%	543	5.2%	1,023	7.6%	1,829	13.5%	4,373	10.2%	4,285	10.0%
	City of Nowthen	197	1.9%	31	0.3%	53	0.4%	159	1.2%	386	0.9%	338	0.8%
	City of Elk River	163	1.6%	59	0.6%	164	1.2%	146	1.1%	526	1.2%	414	1.0%
Cities in the Study Area (South/West Side of the River)	City of Brooklyn Center	54	0.5%	137	1.3%	147	1.1%	68	0.5%	339	0.8%	335	0.8%
	City of Brooklyn Park	513	4.9%	1,152	11.0%	1,312	9.7%	689	5.1%	3,183	7.4%	3,156	7.4%
	City of Osseo	26	0.2%	65	0.6%	100	0.7%	81	0.6%	272	0.6%	262	0.6%
	City of Champlin	1,214	11.6%	1,156	11.0%	2,500	18.5%	1,779	13.1%	6,792	15.8%	6,165	14.4%
	City of Maple Grove	475	4.5%	965	9.2%	1,181	8.7%	700	5.2%	2,875	6.7%	2,867	6.7%
	City of Dayton	256	2.4%	181	1.7%	283	2.1%	253	1.9%	880	2.1%	894	2.1%
	City of Rogers	182	1.7%	246	2.3%	350	2.6%	233	1.7%	869	2.0%	922	2.2%
	City of Otsego	181	1.7%	23	0.2%	28	0.2%	131	1.0%	276	0.6%	286	0.7%
	City of Albertville	46	0.4%	7	0.1%	9	0.1%	43	0.3%	72	0.2%	90	0.2%
	City of St Michael	106	1.0%	11	0.1%	32	0.2%	77	0.6%	173	0.4%	170	0.4%
Downtowns	Downtown Minneapolis	9	0.1%	56	0.5%	86	0.6%	19	0.1%	178	0.4%	119	0.3%
	Downtown St Paul	0	0.0%	2	0.0%	10	0.1%	3	0.0%	18	0.0%	8	0.0%
Outer Counties*	Anoka County	618	5.9%	114	1.1%	191	1.4%	621	4.6%	1,219	2.8%	1,214	2.8%
	Isanti County	97	0.9%	25	0.2%	11	0.1%	111	0.8%	203	0.5%	221	0.5%
	Sherburne County	99	0.9%	26	0.2%	60	0.4%	83	0.6%	266	0.6%	247	0.6%
	Wright County	107	1.0%	31	0.3%	29	0.2%	74	0.5%	184	0.4%	218	0.5%
	Hennepin County	639	6.1%	2,243	21.4%	2,125	15.7%	830	6.1%	4,657	10.9%	4,987	11.6%
	Ramsey County	48	0.5%	110	1.0%	148	1.1%	76	0.6%	351	0.8%	329	0.8%
	Washington County	16	0.2%	19	0.2%	16	0.1%	15	0.1%	66	0.2%	63	0.1%
	Dakota County	37	0.4%	81	0.8%	61	0.5%	30	0.2%	187	0.4%	202	0.5%
	Scott County	51	0.5%	82	0.8%	62	0.5%	49	0.4%	238	0.6%	264	0.6%
	Carver County	23	0.2%	83	0.8%	78	0.6%	42	0.3%	163	0.4%	204	0.5%
	Chisago County	4	0.0%	3	0.0%	0	0.0%	8	0.1%	24	0.1%	28	0.1%
	McLeod/Sibley County	2	0.0%	4	0.0%	0	0.0%	5	0.0%	13	0.0%	20	0.0%
	Le Sueur/Rice/Goodhue County	6	0.1%	5	0.0%	0	0.0%	6	0.0%	27	0.1%	28	0.1%
	Wisconsin	3	0.0%	2	0.0%	0	0.0%	5	0.0%	11	0.0%	14	0.0%
External Roadways**	North	14	0.1%	28	0.3%	32	0.2%	26	0.2%	98	0.2%	96	0.2%
	East	0	0.0%	1	0.0%	3	0.0%	1	0.0%	7	0.0%	6	0.0%
	South	7	0.1%	20	0.2%	24	0.2%	14	0.1%	63	0.1%	66	0.2%
	West	8	0.1%	12	0.1%	10	0.1%	13	0.1%	43	0.1%	48	0.1%
Total		10,494	100%	10,494	100%	13,543	100%	13,543	100%	42,882	100%	42,882	100%

* Excluding the above cities in the study area; **Consistent with the 31 External Stations in the ABM, *** Highlighted are 4% or greater

Table 3.2
AM (6-10am), PM (3-7pm) and Daily Trips Using the Southbound US 169 Crossing

Jurisdiction		AM Peak Period (6-10am)				PM Peak Period (3-7pm)				Daily			
		Origin		Destination		Origin		Destination		Origin		Destination	
		Trips	%	Trips	%	Trips	%	Trips	%	Trips	%	Trips	%
Cities in the Study Area (North/East Side of the River)	City of Columbia Heights	1	0.0%	1	0.0%	4	0.1%	3	0.1%	8	0.0%	10	0.0%
	City of Fridley	5	0.1%	10	0.2%	32	0.6%	5	0.1%	64	0.3%	32	0.2%
	City of Spring Lake Park	4	0.1%	0	0.0%	8	0.2%	2	0.0%	21	0.1%	5	0.0%
	City of Blaine	103	1.6%	8	0.1%	113	2.2%	11	0.2%	379	1.8%	51	0.2%
	City of Coon Rapids	702	10.9%	21	0.3%	371	7.4%	31	0.6%	3,446	16.5%	106	0.5%
	City of Anoka	1,730	26.8%	19	0.3%	2,291	45.6%	28	0.6%	7,235	34.6%	95	0.5%
	City of Andover	943	14.6%	4	0.1%	439	8.7%	7	0.1%	2,118	10.1%	29	0.1%
	City of Ramsey	1,676	26.0%	7	0.1%	995	19.8%	17	0.3%	4,275	20.5%	47	0.2%
	City of Nowthen	195	3.0%	1	0.0%	53	1.1%	0	0.0%	379	1.8%	2	0.0%
City of Elk River	155	2.4%	1	0.0%	151	3.0%	10	0.2%	485	2.3%	33	0.2%	
Cities in the Study Area (South/West Side of the River)	City of Brooklyn Center	3	0.0%	135	2.1%	5	0.1%	65	1.3%	14	0.1%	312	1.5%
	City of Brooklyn Park	8	0.1%	1,115	17.3%	22	0.4%	651	13.0%	60	0.3%	3,021	14.5%
	City of Osseo	0	0.0%	64	1.0%	1	0.0%	77	1.5%	5	0.0%	253	1.2%
	City of Champlin	10	0.2%	1,116	17.3%	17	0.3%	1,688	33.6%	52	0.2%	5,907	28.3%
	City of Maple Grove	2	0.0%	943	14.6%	13	0.3%	672	13.4%	34	0.2%	2,770	13.3%
	City of Dayton	0	0.0%	173	2.7%	2	0.0%	247	4.9%	6	0.0%	850	4.1%
	City of Rogers	2	0.0%	242	3.8%	9	0.2%	220	4.4%	17	0.1%	887	4.2%
	City of Otsego	9	0.1%	20	0.3%	5	0.1%	121	2.4%	26	0.1%	256	1.2%
	City of Albertville	0	0.0%	6	0.1%	0	0.0%	42	0.8%	3	0.0%	86	0.4%
City of St Michael	2	0.0%	11	0.2%	3	0.1%	75	1.5%	7	0.0%	166	0.8%	
Downtowns	Downtown Minneapolis	2	0.0%	42	0.7%	17	0.3%	16	0.3%	30	0.1%	91	0.4%
	Downtown St Paul	0	0.0%	0	0.0%	3	0.1%	0	0.0%	8	0.0%	0	0.0%
Outer Counties*	Anoka County	609	9.5%	2	0.0%	183	3.6%	3	0.1%	1,183	5.7%	15	0.1%
	Isanti County	95	1.5%	0	0.0%	11	0.2%	1	0.0%	198	0.9%	4	0.0%
	Sherburne County	96	1.5%	0	0.0%	52	1.0%	6	0.1%	242	1.2%	22	0.1%
	Wright County	2	0.0%	31	0.5%	2	0.0%	70	1.4%	10	0.0%	201	1.0%
	Hennepin County	11	0.2%	2,168	33.6%	60	1.2%	784	15.6%	134	0.6%	4,763	22.8%
	Ramsey County	44	0.7%	28	0.4%	108	2.1%	21	0.4%	250	1.2%	94	0.4%
	Washington County	13	0.2%	6	0.1%	12	0.2%	3	0.1%	48	0.2%	18	0.1%
	Dakota County	5	0.1%	68	1.1%	11	0.2%	26	0.5%	28	0.1%	168	0.8%
	Scott County	0	0.0%	79	1.2%	0	0.0%	48	1.0%	4	0.0%	249	1.2%
	Carver County	0	0.0%	83	1.3%	0	0.0%	41	0.8%	2	0.0%	198	0.9%
	Chisago County	4	0.1%	0	0.0%	0	0.0%	0	0.0%	21	0.1%	0	0.0%
	McLeod/Sibley County	0	0.0%	4	0.1%	0	0.0%	5	0.1%	0	0.0%	20	0.1%
	Le Sueur/Rice/Goodhue County	0	0.0%	5	0.1%	0	0.0%	5	0.1%	3	0.0%	26	0.1%
Wisconsin	1	0.0%	0	0.0%	0	0.0%	0	0.0%	7	0.0%	2	0.0%	
External Roadways**	North	12	0.2%	1	0.0%	31	0.6%	0	0.0%	91	0.4%	3	0.0%
	East	0	0.0%	1	0.0%	2	0.0%	0	0.0%	2	0.0%	3	0.0%
	South	0	0.0%	19	0.3%	0	0.0%	13	0.3%	2	0.0%	62	0.3%
	West	0	0.0%	10	0.2%	1	0.0%	13	0.3%	3	0.0%	43	0.2%
Total		6,444	100%	6,444	100%	5,027	100%	5,027	100%	20,900	100%	20,900	100%

* Excluding the above cities in the study area; **Consistent with the 31 External Stations in the ABM, *** Highlighted are 4% or greater

**Table 3.3
AM (6-10am), PM (3-7pm) and Daily Trips Using the Northbound US 169 Crossing**

Jurisdiction		AM Peak Period (6-10am)				PM Peak Period (3-7pm)				Daily			
		Origin		Destination		Origin		Destination		Origin		Destination	
		Trips	%	Trips	%	Trips	%	Trips	%	Trips	%	Trips	%
Cities in the Study Area (North/East Side of the River)	City of Columbia Heights	2	0.0%	3	0.1%	3	0.0%	5	0.1%	8	0.0%	12	0.1%
	City of Fridley	6	0.1%	42	1.0%	20	0.2%	23	0.3%	46	0.2%	100	0.5%
	City of Spring Lake Park	0	0.0%	4	0.1%	2	0.0%	6	0.1%	4	0.0%	19	0.1%
	City of Blaine	11	0.3%	97	2.4%	19	0.2%	191	2.2%	67	0.3%	437	2.0%
	City of Coon Rapids	17	0.4%	863	21.3%	31	0.4%	1,432	16.8%	174	0.8%	4,027	18.3%
	City of Anoka	51	1.3%	1,731	42.7%	64	0.8%	2,599	30.5%	218	1.0%	7,408	33.7%
	City of Andover	16	0.4%	168	4.1%	18	0.2%	981	11.5%	62	0.3%	1,985	9.0%
	City of Ramsey	26	0.6%	536	13.2%	28	0.3%	1,812	21.3%	98	0.4%	4,238	19.3%
	City of Nowthen	2	0.0%	30	0.7%	0	0.0%	159	1.9%	7	0.0%	336	1.5%
City of Elk River	8	0.2%	58	1.4%	13	0.2%	136	1.6%	41	0.2%	381	1.7%	
Cities in the Study Area (South/West Side of the River)	City of Brooklyn Center	51	1.3%	2	0.0%	142	1.7%	3	0.0%	325	1.5%	23	0.1%
	City of Brooklyn Park	505	12.5%	37	0.9%	1,290	15.1%	38	0.4%	3,123	14.2%	135	0.6%
	City of Osseo	26	0.6%	1	0.0%	99	1.2%	4	0.0%	267	1.2%	9	0.0%
	City of Champlin	1,204	29.7%	40	1.0%	2,483	29.2%	91	1.1%	6,740	30.7%	258	1.2%
	City of Maple Grove	473	11.7%	22	0.5%	1,168	13.7%	28	0.3%	2,841	12.9%	97	0.4%
	City of Dayton	256	6.3%	8	0.2%	281	3.3%	6	0.1%	874	4.0%	44	0.2%
	City of Rogers	180	4.4%	4	0.1%	341	4.0%	13	0.2%	852	3.9%	35	0.2%
	City of Otsego	172	4.2%	3	0.1%	23	0.3%	10	0.1%	250	1.1%	30	0.1%
	City of Albertville	46	1.1%	1	0.0%	9	0.1%	1	0.0%	69	0.3%	4	0.0%
City of St Michael	104	2.6%	0	0.0%	29	0.3%	2	0.0%	166	0.8%	4	0.0%	
Downtowns	Downtown Minneapolis	7	0.2%	14	0.3%	69	0.8%	3	0.0%	148	0.7%	28	0.1%
	Downtown St Paul	0	0.0%	2	0.0%	7	0.1%	3	0.0%	10	0.0%	8	0.0%
Outer Counties*	Anoka County	9	0.2%	112	2.8%	8	0.1%	618	7.3%	36	0.2%	1,199	5.5%
	Isanti County	2	0.0%	25	0.6%	0	0.0%	110	1.3%	5	0.0%	217	1.0%
	Sherburne County	3	0.1%	26	0.6%	8	0.1%	77	0.9%	24	0.1%	225	1.0%
	Wright County	105	2.6%	0	0.0%	27	0.3%	4	0.0%	174	0.8%	17	0.1%
	Hennepin County	628	15.5%	75	1.9%	2,065	24.2%	46	0.5%	4,523	20.6%	224	1.0%
	Ramsey County	4	0.1%	82	2.0%	40	0.5%	55	0.6%	101	0.5%	235	1.1%
	Washington County	3	0.1%	13	0.3%	4	0.0%	12	0.1%	18	0.1%	45	0.2%
	Dakota County	32	0.8%	13	0.3%	50	0.6%	4	0.0%	159	0.7%	34	0.2%
	Scott County	51	1.3%	3	0.1%	62	0.7%	1	0.0%	234	1.1%	15	0.1%
	Carver County	23	0.6%	0	0.0%	78	0.9%	1	0.0%	161	0.7%	6	0.0%
	Chisago County	0	0.0%	3	0.1%	0	0.0%	8	0.1%	3	0.0%	28	0.1%
	McLeod/Sibley County	2	0.0%	0	0.0%	0	0.0%	0	0.0%	13	0.1%	0	0.0%
	Le Sueur/Rice/Goodhue County	6	0.1%	0	0.0%	0	0.0%	1	0.0%	24	0.1%	2	0.0%
Wisconsin	2	0.0%	2	0.0%	0	0.0%	5	0.1%	4	0.0%	12	0.1%	
External Roadways**	North	2	0.0%	27	0.7%	1	0.0%	26	0.3%	7	0.0%	93	0.4%
	East	0	0.0%	0	0.0%	1	0.0%	1	0.0%	5	0.0%	3	0.0%
	South	7	0.2%	1	0.0%	24	0.3%	1	0.0%	61	0.3%	4	0.0%
	West	8	0.2%	2	0.0%	9	0.1%	0	0.0%	40	0.2%	5	0.0%
Total		4,050	100%	4,050	100%	8,516	100%	8,516	100%	21,982	100%	21,982	100%

* Excluding the above cities in the study area; **Consistent with the 31 External Stations in the ABM, *** Highlighted are 4% or greater

**Table 4.1
AM (6-10am), PM (3-7pm) and Daily Trips Using the TH 101 Crossing (Both Directions)**

Jurisdiction		AM Peak Period (6-10am)				PM Peak Period (3-7pm)				Daily			
		Origin		Destination		Origin		Destination		Origin		Destination	
		Trips	%	Trips	%	Trips	%	Trips	%	Trips	%	Trips	%
Cities in the Study Area (North/East Side of the River)	City of Columbia Heights	14	0.1%	8	0.1%	14	0.1%	6	0.0%	48	0.1%	30	0.0%
	City of Fridley	9	0.1%	64	0.4%	77	0.3%	14	0.1%	154	0.2%	192	0.3%
	City of Spring Lake Park	0	0.0%	12	0.1%	11	0.0%	3	0.0%	22	0.0%	16	0.0%
	City of Blaine	101	0.7%	88	0.6%	111	0.5%	180	0.8%	379	0.6%	400	0.6%
	City of Coon Rapids	125	0.8%	193	1.3%	146	0.7%	274	1.2%	848	1.3%	822	1.3%
	City of Anoka	96	0.6%	364	2.4%	413	1.9%	181	0.8%	852	1.3%	872	1.4%
	City of Andover	126	0.8%	128	0.8%	175	0.8%	207	0.9%	496	0.8%	505	0.8%
	City of Ramsey	586	3.9%	372	2.4%	649	2.9%	924	4.2%	1,980	3.1%	2,236	3.5%
	City of Nowthen	331	2.2%	78	0.5%	179	0.8%	368	1.7%	732	1.1%	834	1.3%
City of Elk River	4,385	28.8%	2,233	14.7%	4,422	20.0%	6,418	29.0%	15,258	23.7%	15,472	24.0%	
Cities in the Study Area (South/West Side of the River)	City of Brooklyn Center	20	0.1%	140	0.9%	173	0.8%	31	0.1%	304	0.5%	261	0.4%
	City of Brooklyn Park	98	0.6%	502	3.3%	619	2.8%	149	0.7%	1,128	1.7%	957	1.5%
	City of Osseo	17	0.1%	54	0.4%	57	0.3%	38	0.2%	142	0.2%	113	0.2%
	City of Champlin	52	0.3%	111	0.7%	156	0.7%	67	0.3%	312	0.5%	232	0.4%
	City of Maple Grove	362	2.4%	1,295	8.5%	1,670	7.5%	667	3.0%	3,704	5.7%	3,252	5.0%
	City of Dayton	84	0.6%	212	1.4%	316	1.4%	135	0.6%	633	1.0%	621	1.0%
	City of Rogers	649	4.3%	1,701	11.2%	2,224	10.0%	1,456	6.6%	5,323	8.3%	5,268	8.2%
	City of Otsego	1,743	11.5%	1,445	9.5%	2,587	11.7%	2,929	13.2%	7,609	11.8%	8,007	12.4%
	City of Albertville	236	1.6%	138	0.9%	313	1.4%	405	1.8%	998	1.5%	997	1.5%
City of St Michael	439	2.9%	447	2.9%	671	3.0%	698	3.2%	1,813	2.8%	1,873	2.9%	
Downtowns	Downtown Minneapolis	34	0.2%	361	2.4%	460	2.1%	91	0.4%	818	1.3%	743	1.2%
	Downtown St Paul	0	0.0%	13	0.1%	18	0.1%	10	0.0%	57	0.1%	46	0.1%
Outer Counties*	Anoka County*	311	2.0%	179	1.2%	277	1.3%	396	1.8%	981	1.5%	955	1.5%
	Isanti County	225	1.5%	69	0.5%	138	0.6%	324	1.5%	620	1.0%	617	1.0%
	Sherburne County	3,364	22.1%	606	4.0%	1,197	5.4%	3,485	15.7%	7,372	11.4%	7,036	10.9%
	Wright County	428	2.8%	340	2.2%	499	2.3%	715	3.2%	1,650	2.6%	1,823	2.8%
	Hennepin County	508	3.3%	3,009	19.8%	3,344	15.1%	777	3.5%	6,276	9.7%	6,149	9.5%
	Ramsey County	50	0.3%	203	1.3%	201	0.9%	87	0.4%	443	0.7%	511	0.8%
	Washington County	18	0.1%	46	0.3%	47	0.2%	15	0.1%	124	0.2%	113	0.2%
	Dakota County	56	0.4%	108	0.7%	112	0.5%	57	0.3%	349	0.5%	319	0.5%
	Scott County	38	0.2%	89	0.6%	81	0.4%	43	0.2%	243	0.4%	284	0.4%
	Carver County	25	0.2%	82	0.5%	109	0.5%	42	0.2%	217	0.3%	207	0.3%
	Chisago County	17	0.1%	27	0.2%	0	0.0%	44	0.2%	87	0.1%	104	0.2%
	McLeod/Sibley County	6	0.0%	6	0.0%	0	0.0%	3	0.0%	27	0.0%	19	0.0%
	Le Sueur/Rice/Goodhue County	9	0.1%	16	0.1%	0	0.0%	13	0.1%	53	0.1%	68	0.1%
Wisconsin	2	0.0%	10	0.1%	0	0.0%	6	0.0%	19	0.0%	26	0.0%	
External Roadways**	North	564	3.7%	314	2.1%	464	2.1%	735	3.3%	1,889	2.9%	1,947	3.0%
	East	4	0.0%	5	0.0%	14	0.1%	6	0.0%	27	0.0%	26	0.0%
	South	14	0.1%	40	0.3%	40	0.2%	27	0.1%	156	0.2%	139	0.2%
	West	58	0.4%	96	0.6%	148	0.7%	106	0.5%	321	0.5%	372	0.6%
Total		15,204	100%	15,204	100%	22,132	100%	22,132	100%	64,464	100%	64,464	100%

* Excluding the above cities in the study area; **Consistent with the 31 External Stations in the ABM, *** Highlighted are 4% or greater

**Table 4.2
AM (6-10am), PM (3-7pm) and Daily Trips Using the Southbound TH 101 Crossing**

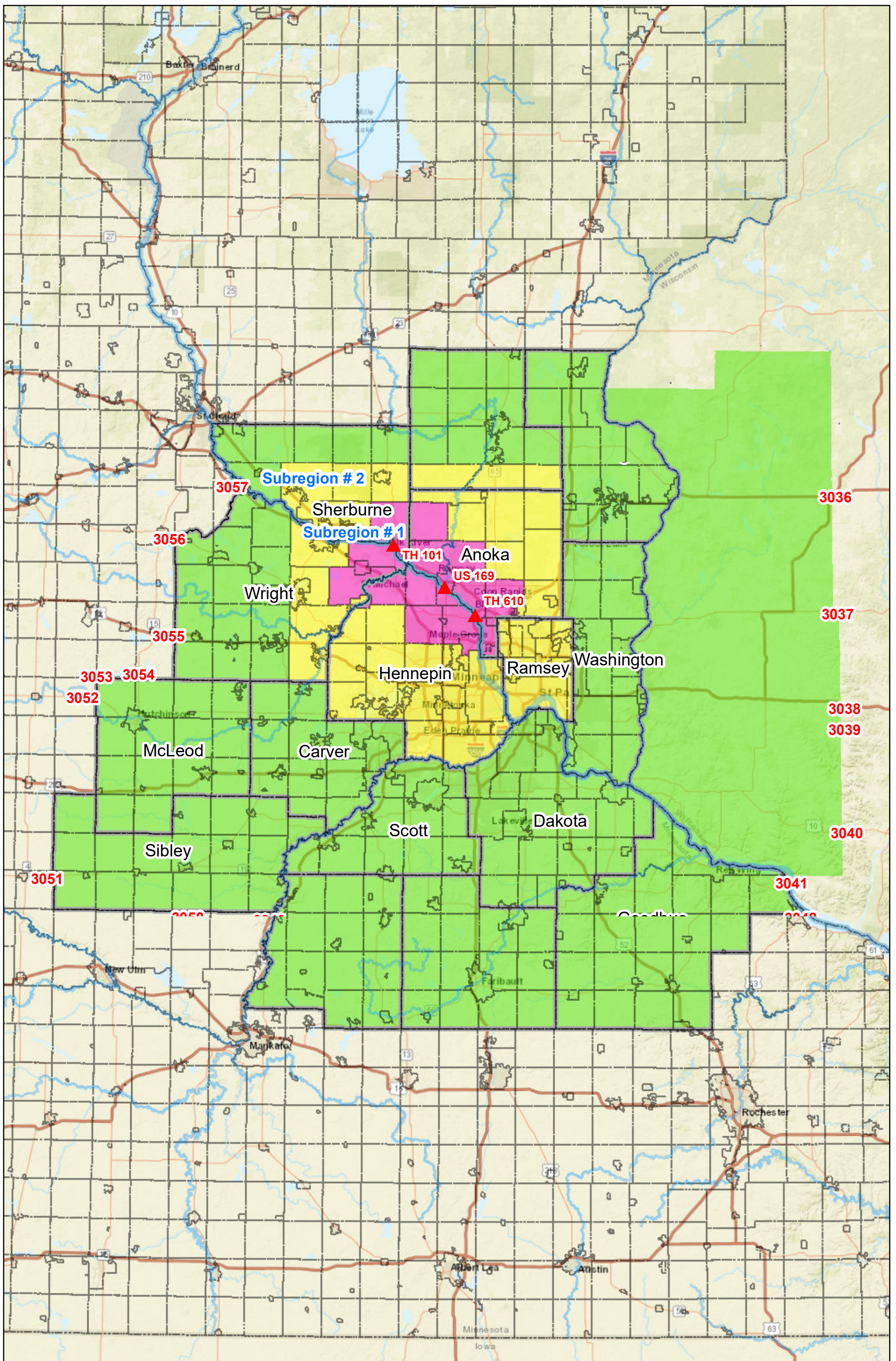
Jurisdiction		AM Peak Period (6-10am)				PM Peak Period (3-7pm)				Daily			
		Origin		Destination		Origin		Destination		Origin		Destination	
		Trips	%	Trips	%	Trips	%	Trips	%	Trips	%	Trips	%
Cities in the Study Area (North/East Side of the River)	City of Columbia Heights	1	0.0%	7	0.1%	4	0.0%	4	0.0%	6	0.0%	24	0.1%
	City of Fridley	4	0.0%	21	0.2%	36	0.4%	2	0.0%	75	0.2%	76	0.2%
	City of Spring Lake Park	0	0.0%	6	0.1%	5	0.1%	0	0.0%	13	0.0%	6	0.0%
	City of Blaine	96	0.9%	8	0.1%	96	1.1%	11	0.1%	328	1.0%	40	0.1%
	City of Coon Rapids	112	1.1%	23	0.2%	129	1.5%	16	0.2%	765	2.4%	78	0.2%
	City of Anoka	92	0.9%	15	0.1%	394	4.6%	9	0.1%	807	2.5%	42	0.1%
	City of Andover	124	1.2%	3	0.0%	164	1.9%	12	0.1%	477	1.5%	22	0.1%
	City of Ramsey	575	5.6%	25	0.2%	623	7.2%	33	0.4%	1,916	6.0%	86	0.3%
	City of Nowthen	327	3.2%	0	0.0%	173	2.0%	14	0.2%	710	2.2%	29	0.1%
City of Elk River	4,274	41.8%	93	0.9%	4,236	49.1%	267	3.1%	14,700	45.7%	638	2.0%	
Cities in the Study Area (South/West Side of the River)	City of Brooklyn Center	0	0.0%	136	1.3%	13	0.2%	30	0.3%	19	0.1%	251	0.8%
	City of Brooklyn Park	4	0.0%	485	4.7%	30	0.3%	132	1.5%	62	0.2%	908	2.8%
	City of Osseo	0	0.0%	54	0.5%	2	0.0%	38	0.4%	6	0.0%	113	0.4%
	City of Champlin	2	0.0%	104	1.0%	15	0.2%	53	0.6%	38	0.1%	196	0.6%
	City of Maple Grove	22	0.2%	1,267	12.4%	54	0.6%	646	7.5%	130	0.4%	3,157	9.8%
	City of Dayton	4	0.0%	212	2.1%	12	0.1%	133	1.5%	26	0.1%	595	1.9%
	City of Rogers	32	0.3%	1,664	16.3%	76	0.9%	1,397	16.2%	204	0.6%	5,094	15.8%
	City of Otsego	103	1.0%	1,388	13.6%	141	1.6%	2,771	32.1%	414	1.3%	7,590	23.6%
	City of Albertville	15	0.1%	132	1.3%	21	0.2%	388	4.5%	55	0.2%	951	3.0%
City of St Michael	32	0.3%	426	4.2%	31	0.4%	662	7.7%	95	0.3%	1,786	5.6%	
Downtowns	Downtown Minneapolis	0	0.0%	315	3.1%	73	0.8%	86	1.0%	88	0.3%	677	2.1%
	Downtown St Paul	0	0.0%	11	0.1%	6	0.1%	8	0.1%	11	0.0%	38	0.1%
Outer Counties*	Anoka County*	303	3.0%	6	0.1%	264	3.1%	18	0.2%	935	2.9%	48	0.1%
	Isanti County	218	2.1%	2	0.0%	132	1.5%	10	0.1%	597	1.9%	20	0.1%
	Sherburne County	3,261	31.9%	23	0.2%	1,143	13.3%	147	1.7%	7,129	22.2%	270	0.8%
	Wright County	17	0.2%	322	3.1%	31	0.4%	653	7.6%	102	0.3%	1,683	5.2%
	Hennepin County	20	0.2%	2,918	28.5%	116	1.3%	751	8.7%	224	0.7%	5,962	18.5%
	Ramsey County	10	0.1%	100	1.0%	88	1.0%	32	0.4%	153	0.5%	296	0.9%
	Washington County	7	0.1%	25	0.2%	26	0.3%	2	0.0%	53	0.2%	56	0.2%
	Dakota County	0	0.0%	103	1.0%	6	0.1%	50	0.6%	13	0.0%	298	0.9%
	Scott County	0	0.0%	86	0.8%	4	0.0%	43	0.5%	9	0.0%	278	0.9%
	Carver County	0	0.0%	82	0.8%	6	0.1%	40	0.5%	10	0.0%	199	0.6%
	Chisago County	17	0.2%	0	0.0%	0	0.0%	2	0.0%	83	0.3%	6	0.0%
	McLeod/Sibley County	0	0.0%	6	0.1%	0	0.0%	3	0.0%	0	0.0%	19	0.1%
	Le Sueur/Rice/Goodhue County	0	0.0%	15	0.1%	0	0.0%	13	0.2%	2	0.0%	66	0.2%
Wisconsin	0	0.0%	5	0.0%	0	0.0%	2	0.0%	7	0.0%	14	0.0%	
External Roadways**	North	552	5.4%	6	0.1%	450	5.2%	16	0.2%	1,851	5.8%	33	0.1%
	East	1	0.0%	4	0.0%	9	0.1%	4	0.0%	12	0.0%	20	0.1%
	South	0	0.0%	40	0.4%	3	0.0%	25	0.3%	5	0.0%	134	0.4%
	West	3	0.0%	90	0.9%	8	0.1%	97	1.1%	14	0.0%	345	1.1%
Total		10,228	100%	10,228	100%	8,620	100%	8,620	100%	32,144	100%	32,144	100%

* Excluding the above cities in the study area; **Consistent with the 31 External Stations in the ABM, *** Highlighted are 4% or greater

**Table 4.3
AM (6-10am), PM (3-7pm) and Daily Trips Using the Northbound TH 101 Crossing**

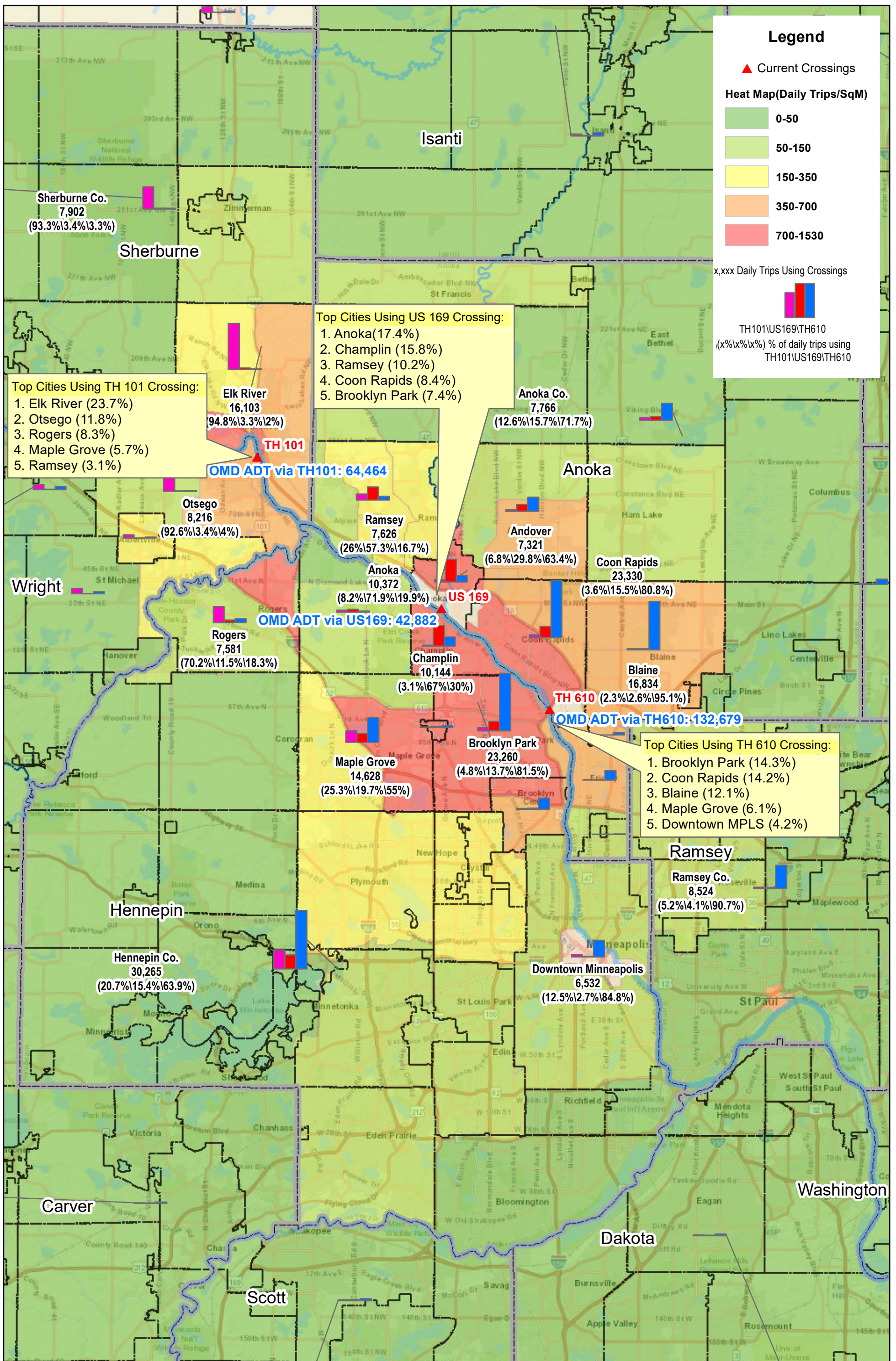
Jurisdiction		AM Peak Period (6-10am)				PM Peak Period (3-7pm)				Daily			
		Origin		Destination		Origin		Destination		Origin		Destination	
		Trips	%	Trips	%	Trips	%	Trips	%	Trips	%	Trips	%
Cities in the Study Area (North/East Side of the River)	City of Columbia Heights	13	0.3%	1	0.0%	10	0.1%	2	0.0%	42	0.1%	6	0.0%
	City of Fridley	5	0.1%	43	0.9%	41	0.3%	12	0.1%	79	0.2%	116	0.4%
	City of Spring Lake Park	0	0.0%	6	0.1%	6	0.0%	3	0.0%	9	0.0%	10	0.0%
	City of Blaine	5	0.1%	80	1.6%	15	0.1%	169	1.3%	51	0.2%	360	1.1%
	City of Coon Rapids	13	0.3%	170	3.4%	17	0.1%	258	1.9%	83	0.3%	744	2.3%
	City of Anoka	4	0.1%	349	7.0%	19	0.1%	172	1.3%	45	0.1%	830	2.6%
	City of Andover	2	0.0%	125	2.5%	11	0.1%	195	1.4%	19	0.1%	483	1.5%
	City of Ramsey	11	0.2%	347	7.0%	26	0.2%	891	6.6%	64	0.2%	2,150	6.7%
	City of Nowthen	4	0.1%	78	1.6%	6	0.0%	354	2.6%	22	0.1%	805	2.5%
City of Elk River	111	2.2%	2,140	43.0%	186	1.4%	6,151	45.5%	558	1.7%	14,834	45.9%	
Cities in the Study Area (South/West Side of the River)	City of Brooklyn Center	20	0.4%	4	0.1%	160	1.2%	1	0.0%	285	0.9%	10	0.0%
	City of Brooklyn Park	94	1.9%	17	0.3%	589	4.4%	17	0.1%	1,066	3.3%	49	0.2%
	City of Osseo	17	0.3%	0	0.0%	55	0.4%	0	0.0%	136	0.4%	0	0.0%
	City of Champlin	50	1.0%	7	0.1%	141	1.0%	14	0.1%	274	0.8%	36	0.1%
	City of Maple Grove	340	6.8%	28	0.6%	1,616	12.0%	21	0.2%	3,574	11.1%	95	0.3%
	City of Dayton	80	1.6%	0	0.0%	304	2.2%	2	0.0%	607	1.9%	26	0.1%
	City of Rogers	617	12.4%	37	0.7%	2,148	15.9%	59	0.4%	5,119	15.8%	174	0.5%
	City of Otsego	1,640	33.0%	57	1.1%	2,446	18.1%	158	1.2%	7,195	22.3%	417	1.3%
	City of Albertville	221	4.4%	6	0.1%	292	2.2%	17	0.1%	943	2.9%	46	0.1%
City of St Michael	407	8.2%	21	0.4%	640	4.7%	36	0.3%	1,718	5.3%	87	0.3%	
Downtowns	Downtown Minneapolis	34	0.7%	46	0.9%	387	2.9%	5	0.0%	730	2.3%	66	0.2%
	Downtown St Paul	0	0.0%	2	0.0%	12	0.1%	2	0.0%	46	0.1%	8	0.0%
Outer Counties*	Anoka County*	8	0.2%	173	3.5%	13	0.1%	378	2.8%	46	0.1%	907	2.8%
	Isanti County	7	0.1%	67	1.3%	6	0.0%	314	2.3%	23	0.1%	597	1.8%
	Sherburne County	103	2.1%	583	11.7%	54	0.4%	3,338	24.7%	243	0.8%	6,766	20.9%
	Wright County	411	8.3%	18	0.4%	468	3.5%	62	0.5%	1,548	4.8%	140	0.4%
	Hennepin County	488	9.8%	91	1.8%	3,228	23.9%	26	0.2%	6,052	18.7%	187	0.6%
	Ramsey County	40	0.8%	103	2.1%	113	0.8%	55	0.4%	290	0.9%	215	0.7%
	Washington County	11	0.2%	21	0.4%	21	0.2%	13	0.1%	71	0.2%	57	0.2%
	Dakota County	56	1.1%	5	0.1%	106	0.8%	7	0.1%	336	1.0%	21	0.1%
	Scott County	38	0.8%	3	0.1%	77	0.6%	0	0.0%	234	0.7%	6	0.0%
	Carver County	25	0.5%	0	0.0%	103	0.8%	2	0.0%	207	0.6%	8	0.0%
	Chisago County	0	0.0%	27	0.5%	0	0.0%	42	0.3%	4	0.0%	98	0.3%
	McLeod/Sibley County	6	0.1%	0	0.0%	0	0.0%	0	0.0%	27	0.1%	0	0.0%
	Le Sueur/Rice/Goodhue County	9	0.2%	1	0.0%	0	0.0%	0	0.0%	51	0.2%	2	0.0%
Wisconsin	2	0.0%	5	0.1%	0	0.0%	4	0.0%	12	0.0%	12	0.0%	
External Roadways**	North	12	0.2%	308	6.2%	14	0.1%	719	5.3%	38	0.1%	1,914	5.9%
	East	3	0.1%	1	0.0%	5	0.0%	2	0.0%	15	0.0%	6	0.0%
	South	14	0.3%	0	0.0%	37	0.3%	2	0.0%	151	0.5%	5	0.0%
	West	55	1.1%	6	0.1%	140	1.0%	9	0.1%	307	0.9%	27	0.1%
Total		4,976	100%	4,976	100%	13,512	100%	13,512	100%	32,320	100%	32,320	100%

* Excluding the above cities in the study area; **Consistent with the 31 External Stations in the ABM, *** Highlighted are 4% or greater



Author: HXiao
Date: 9/9/2020

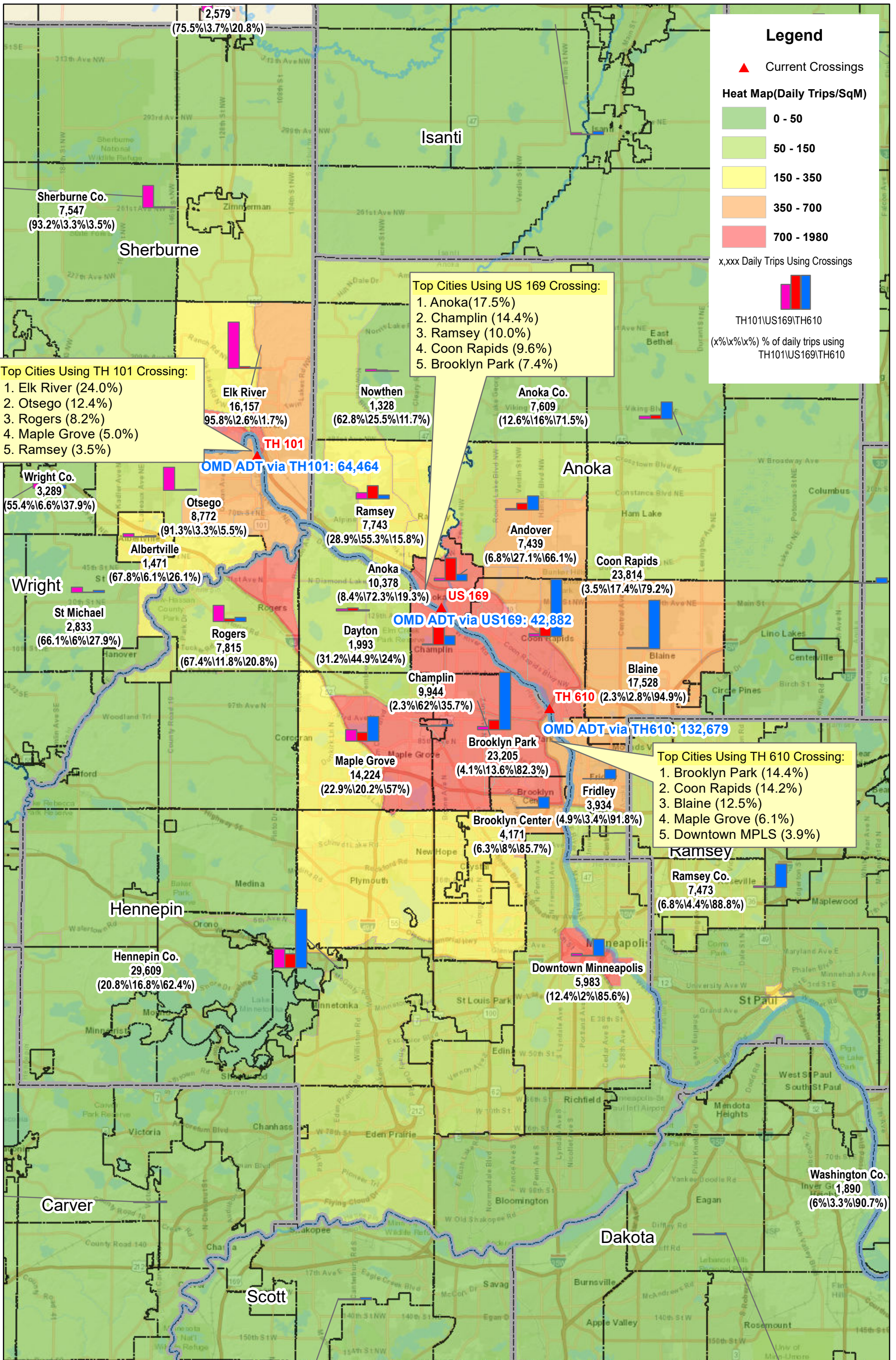
Proposed Three Subregions for Different TAZ Aggregation Levels



Author: HXiao
Date: 10/5/2020

Total Origin Daily Trips Using Current Three Crossings

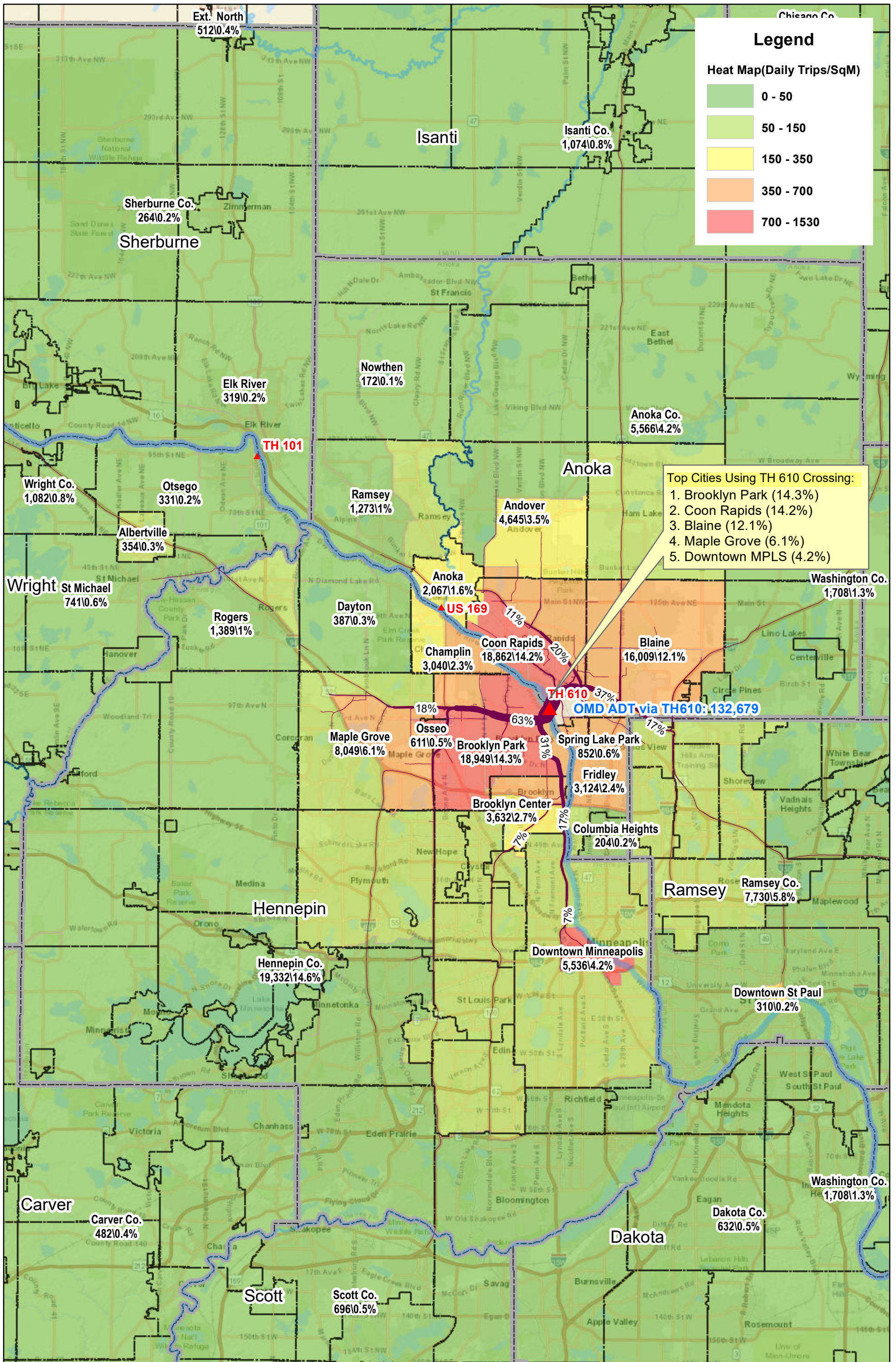
Figure 1.1



Author: HXiao
Date: 10/5/2020

Total Destination Daily Trips Using Current Three Crossings

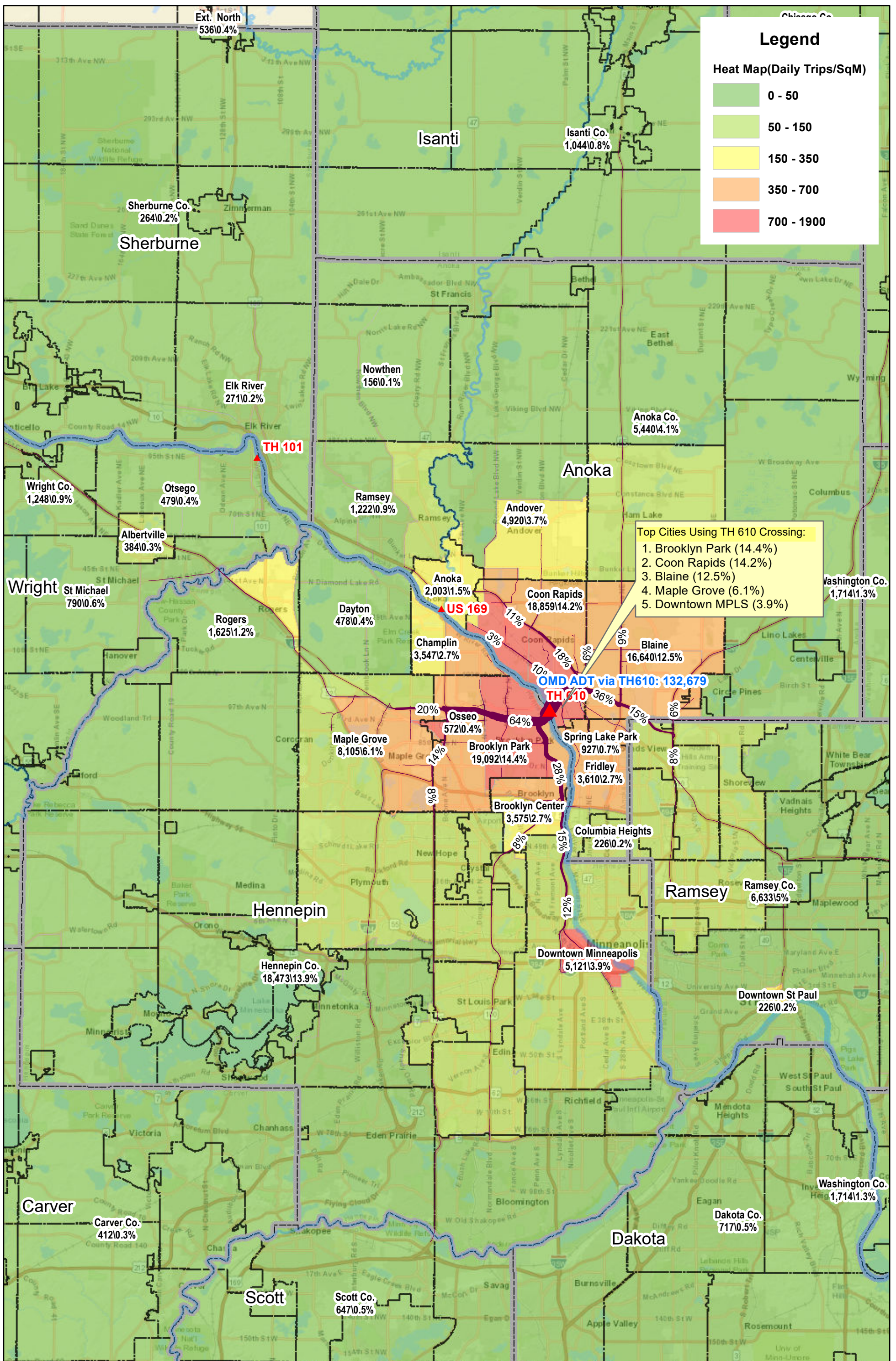
Figure 1.2



Author: HXiao
Date: 10/5/2020

Total Origin Daily Trips Using the TH 610 Crossing

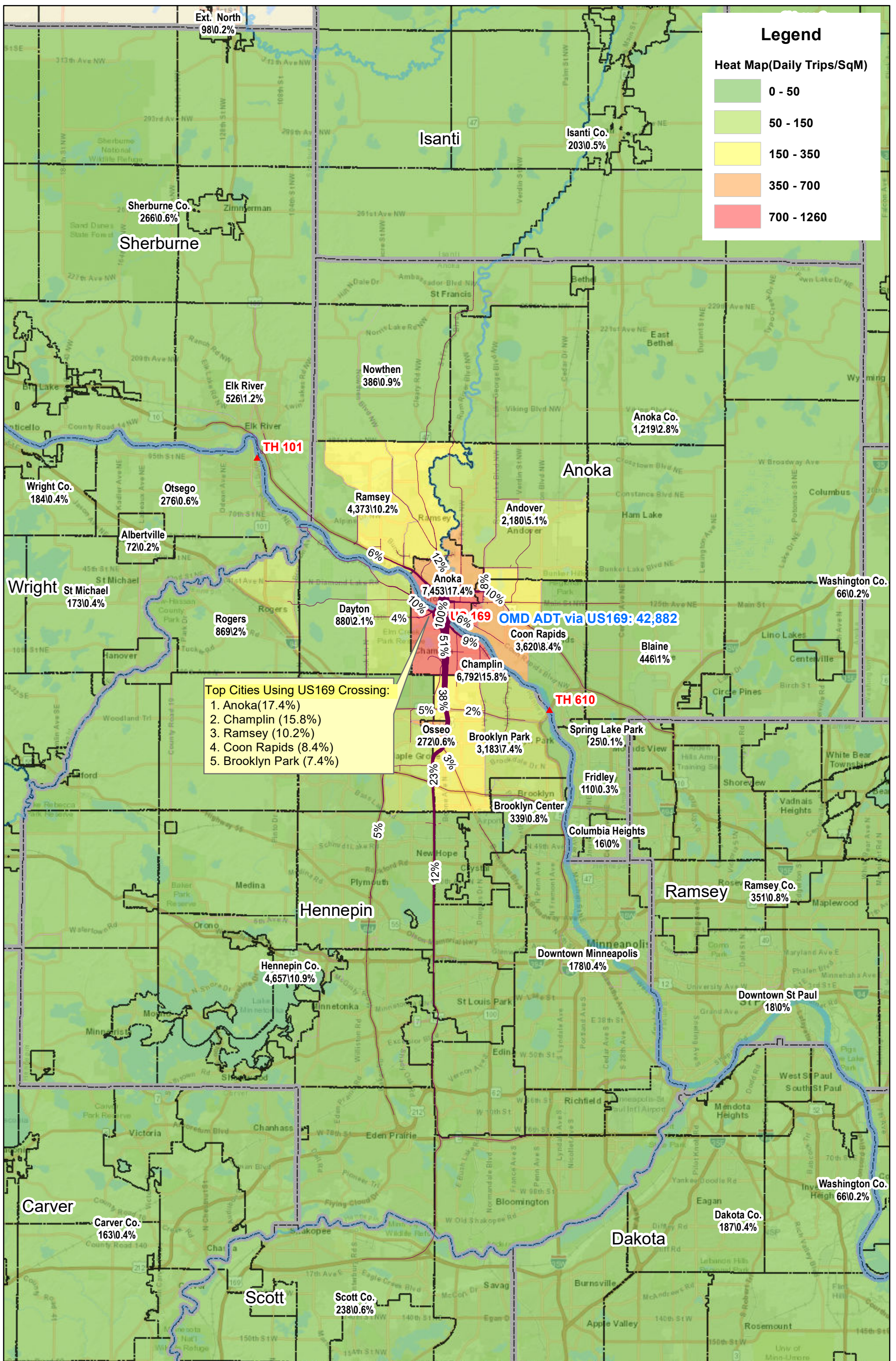
Figure 2.1



Author: HXiao
Date: 10/5/2020

Total Destination Daily Trips Using the TH 610 Crossing

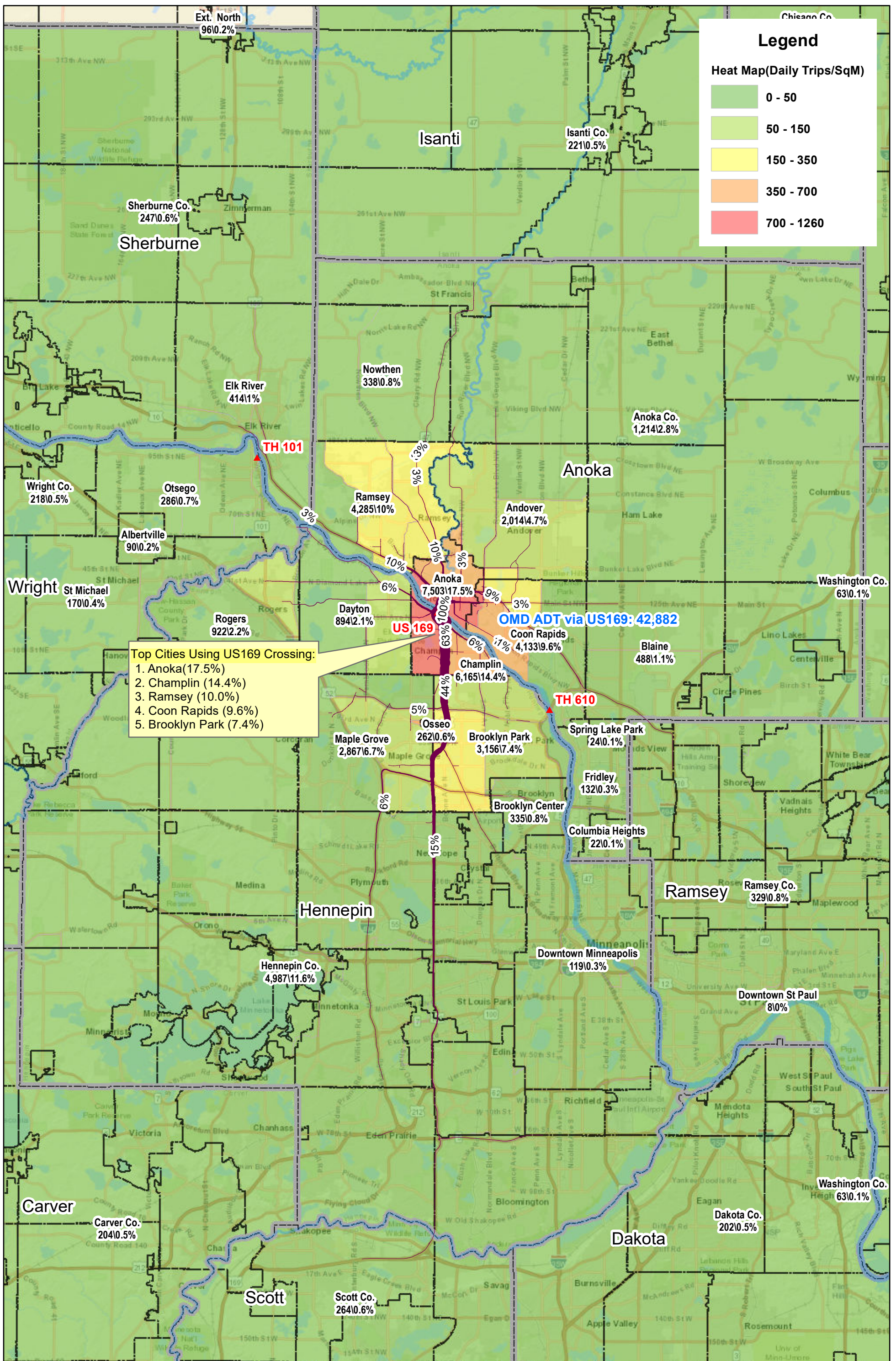
Figure 2.2



Author: HXiao
Date: 10/5/2020

Total Origin Daily Trips Using the US169 Crossing

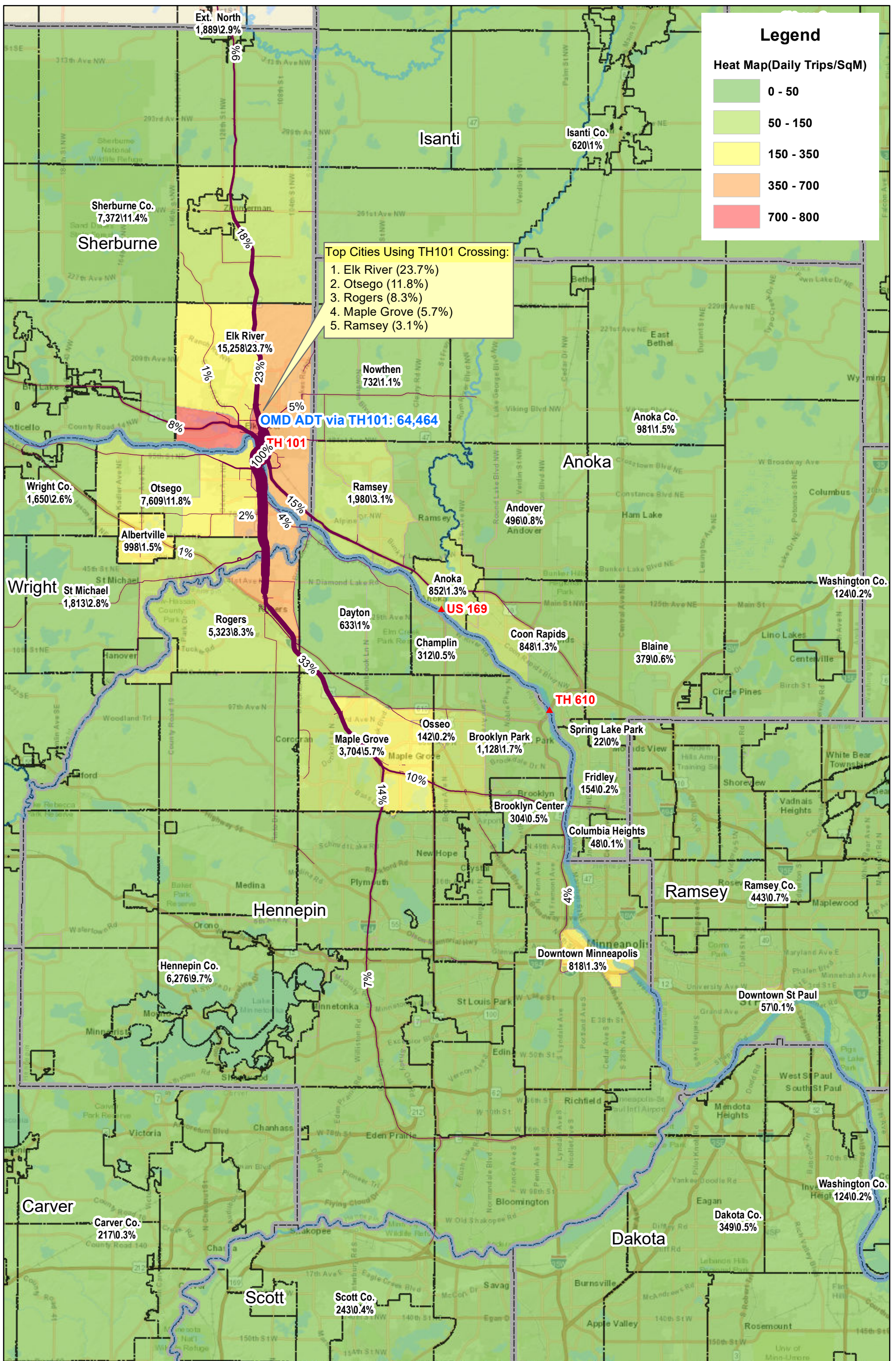
Figure 3.1



Author: HXiao
Date: 10/5/2020

Total Destination Daily Trips Using the US169 Crossing

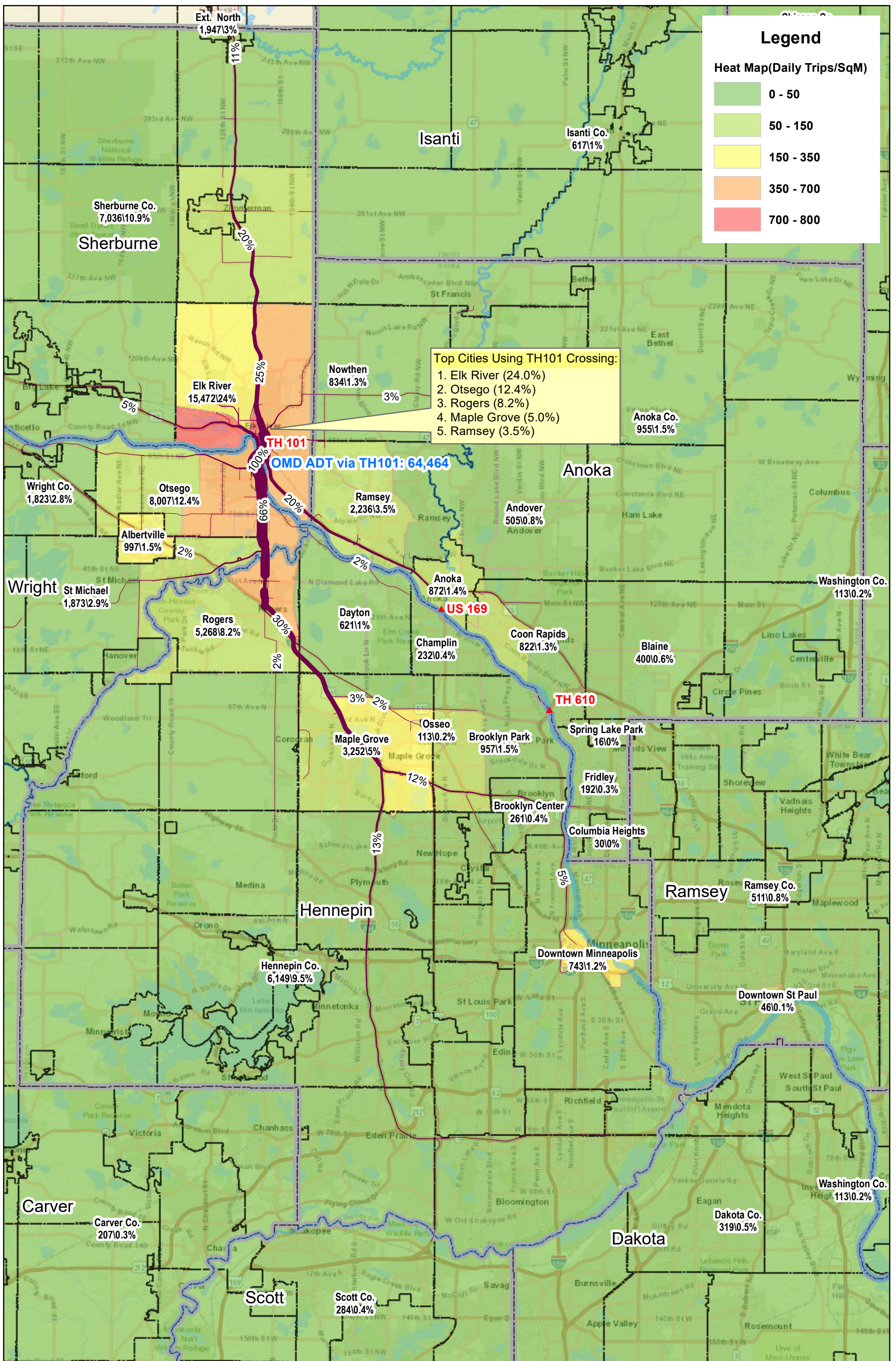
Figure 3.2



Author: HXiao
Date: 10/5/2020

Total Origin Daily Trips Using the TH101 Crossing

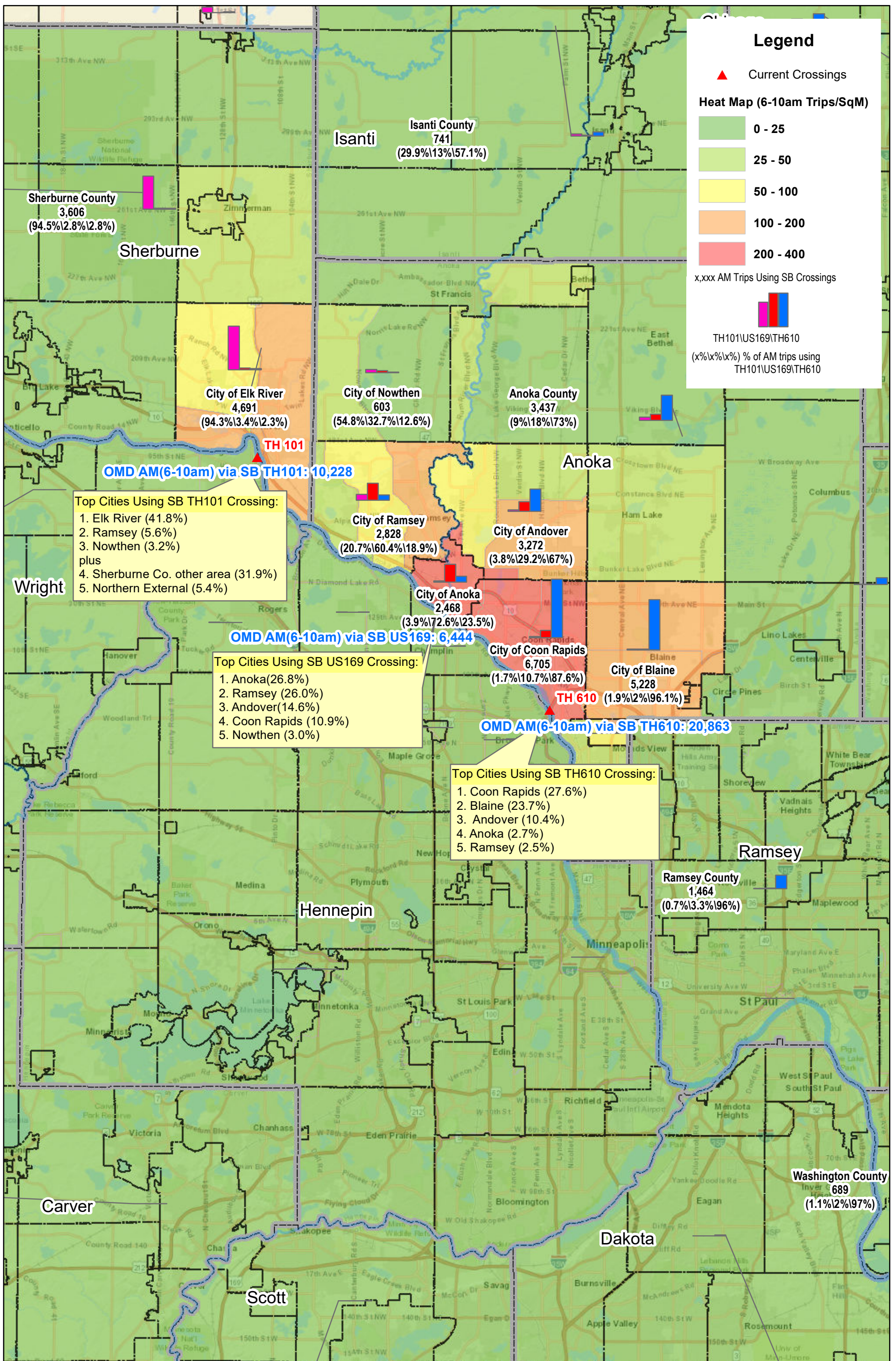
Figure 4.1



Author: HXiao
Date: 10/5/2020

Total Destination Daily Trips Using the TH101 Crossing

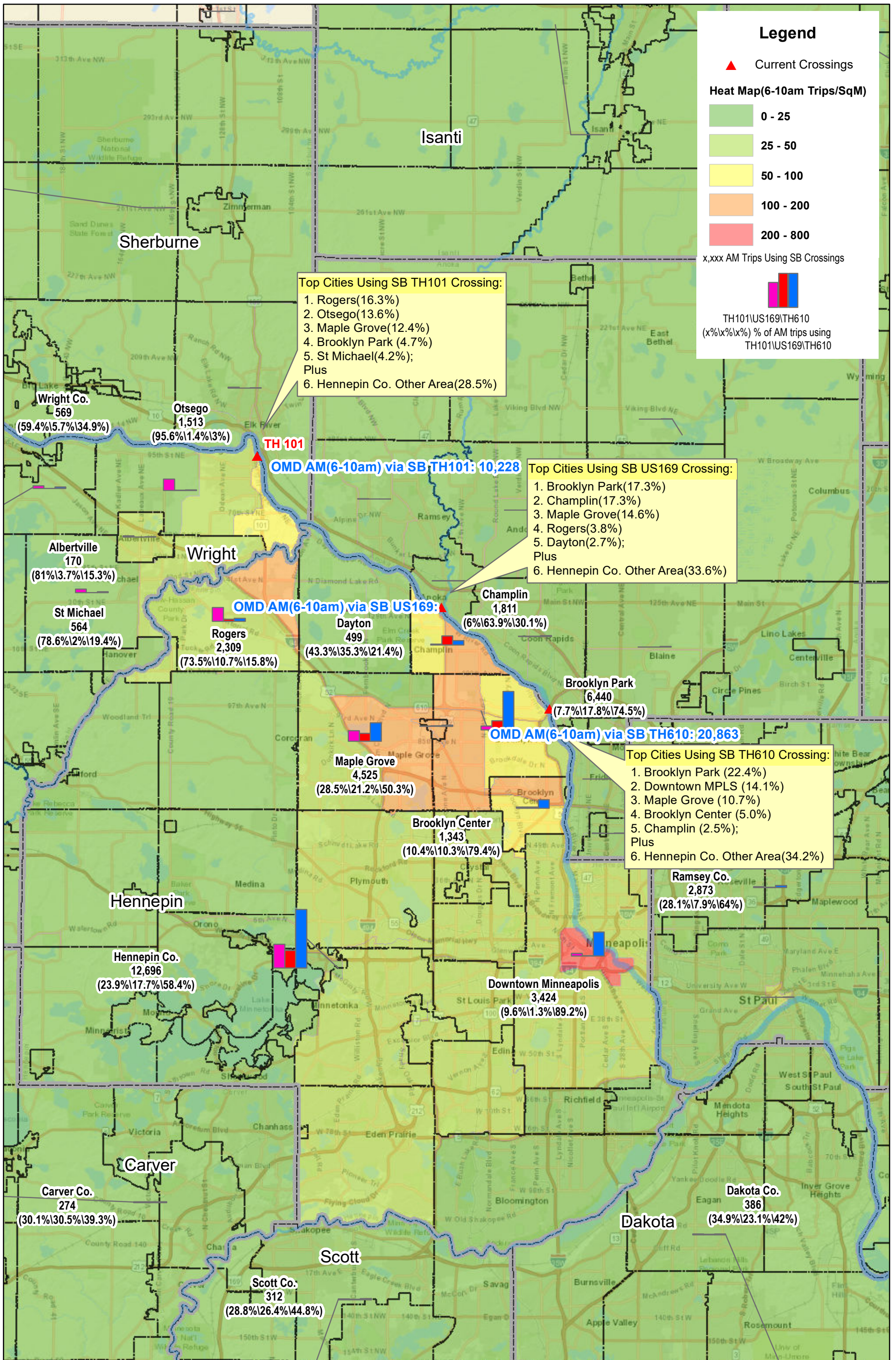
Figure 4.2



Author: HXiao
Date: 10/5/2020

Total Origin Trips Using Current Three Crossings in Southbound(6-10am)

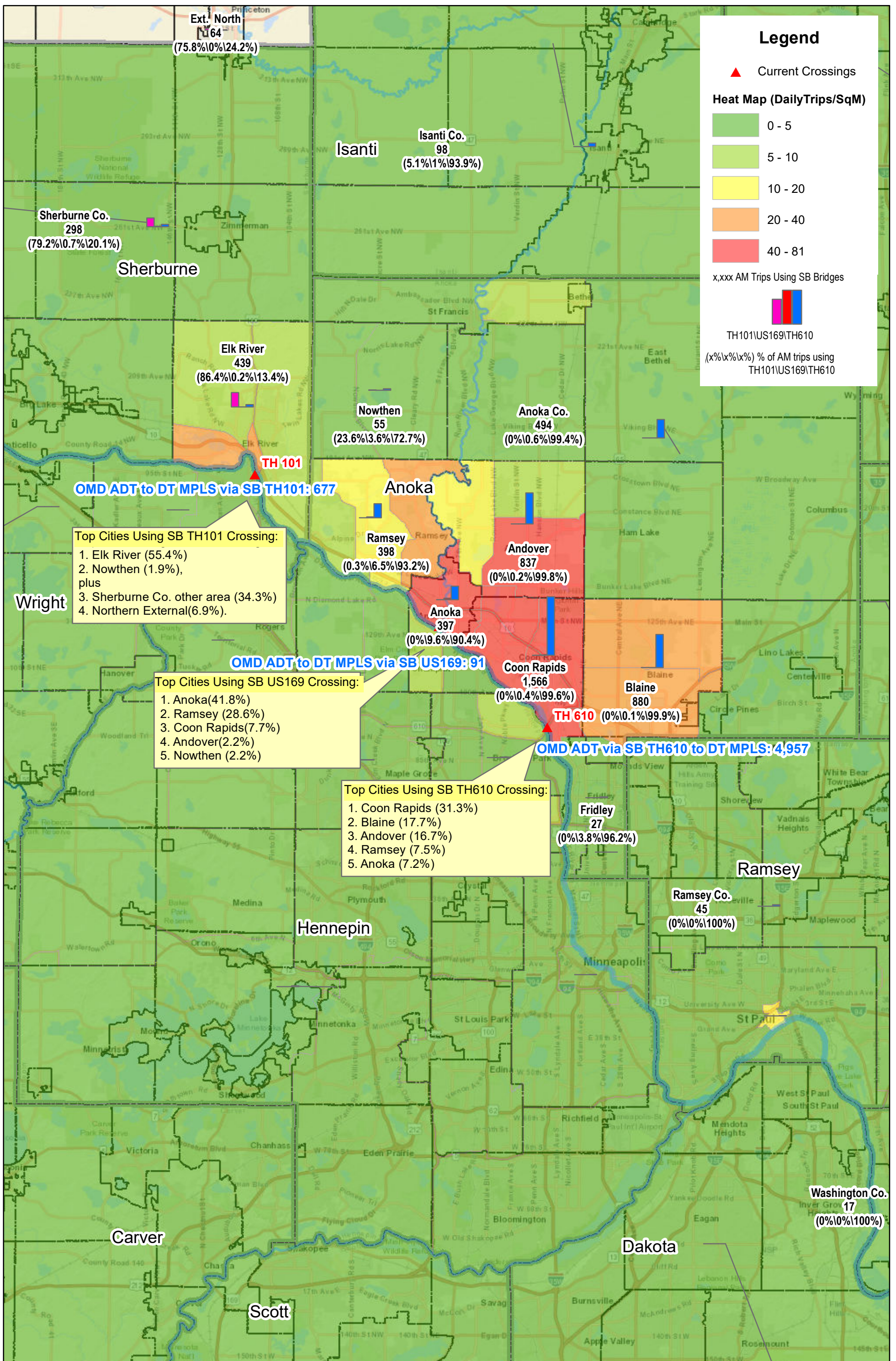
Figure 5.1



Author: HXiao
Date: 10/5/2020

Total Destination Trips Using Current Three Crossings in Southbound(6-10am)

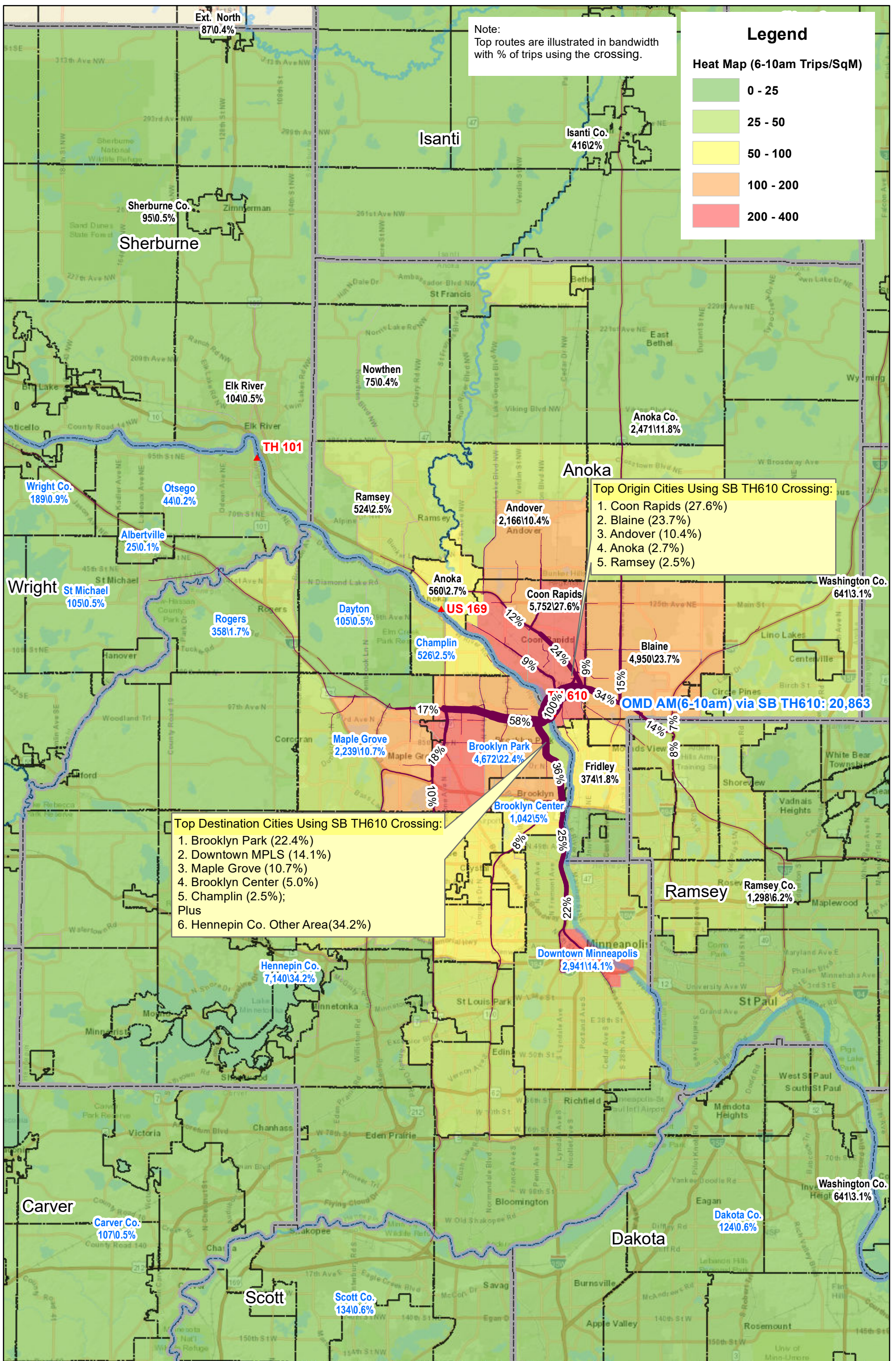
Figure 5.2



Author: HXiao
Date: 10/5/2020

Total Daily Origin Trips Using Current Three Crossings
with Downtown Minneapolis as the Destination

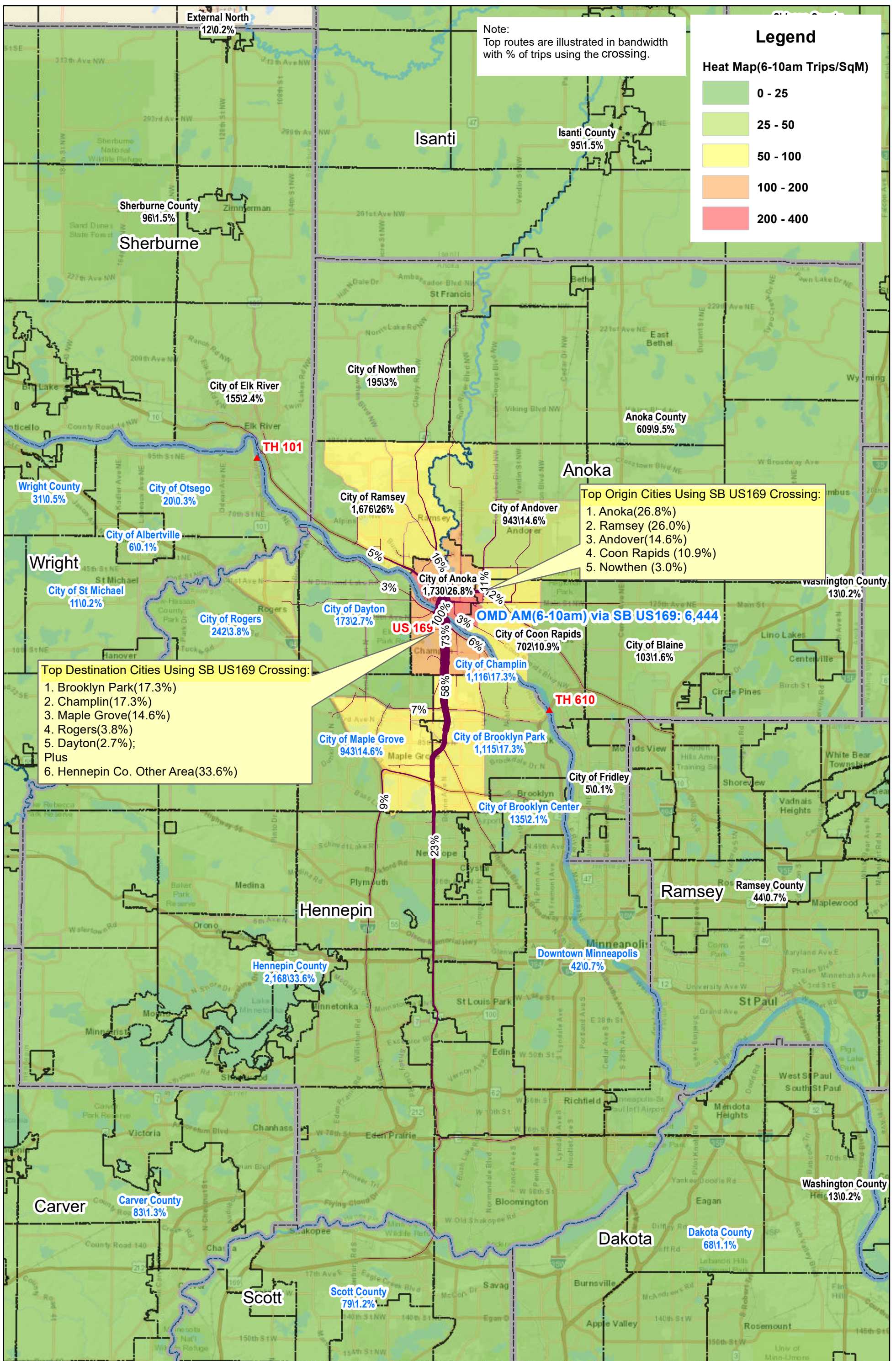
Figure 5.3



Author: HXiao
 Date: 10/5/2020

Total Origin/Destination Trips Using the Southbound TH 610 Crossing (6-10am)

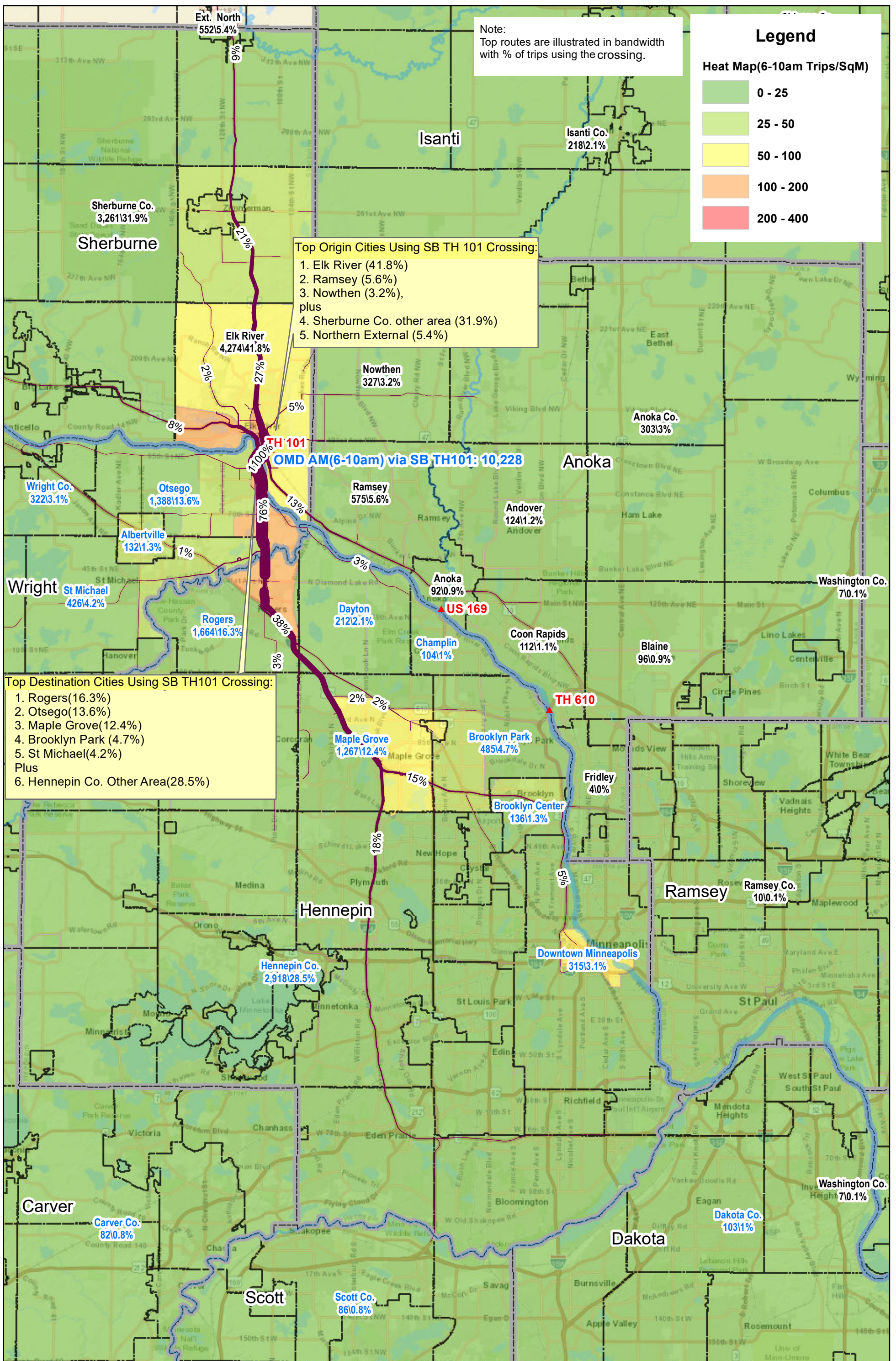
Figure 6



Author: HXiao
Date: 10/5/2020

Total Origin/Destination Trips Using the Southbound US 169 Crossing (6-10am)

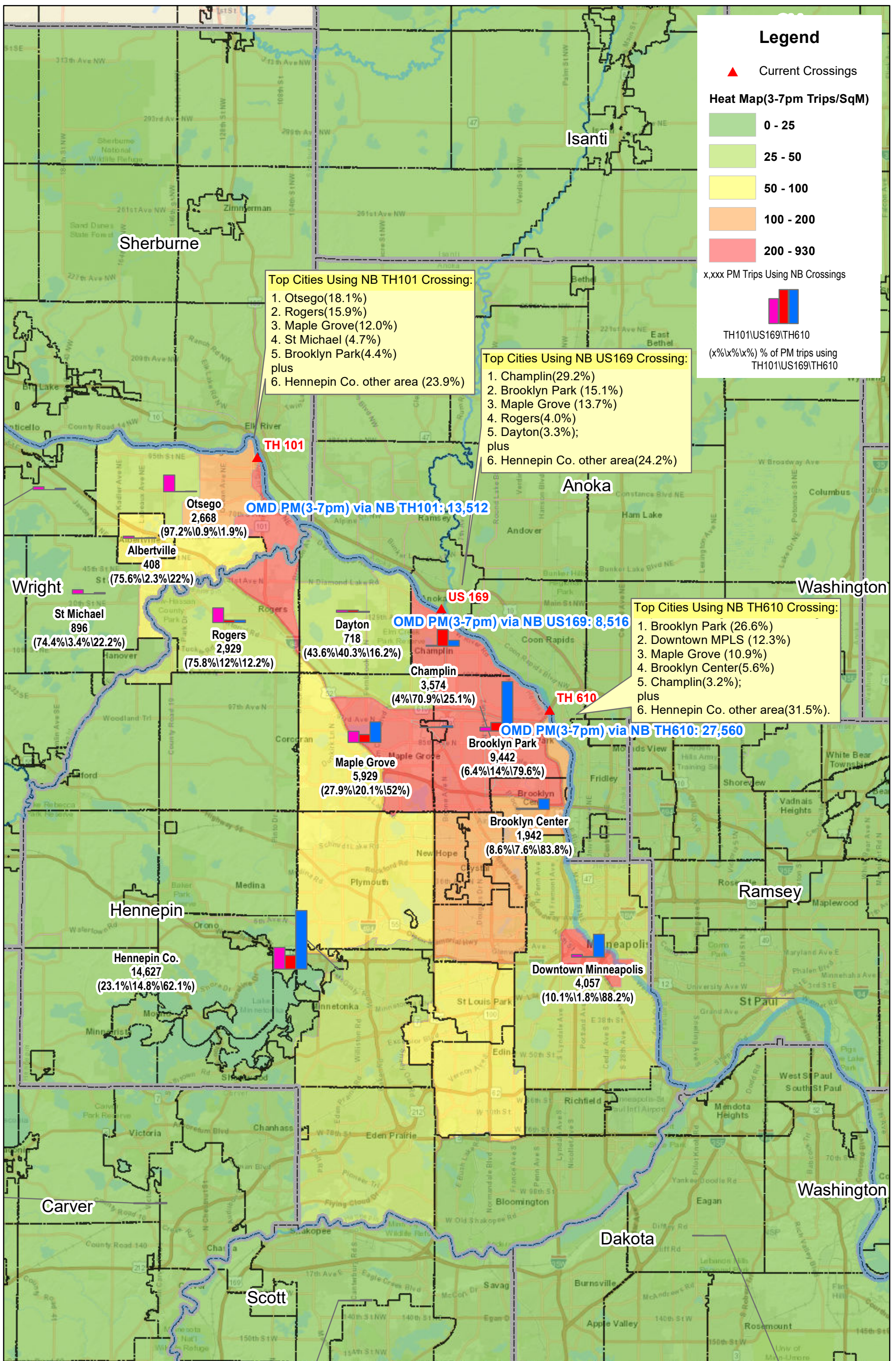
Figure 7



Author: HXiao
Date: 10/5/2020

Total Origin/Destination Trips Using the Southbound US 101 Crossing (6-10am)

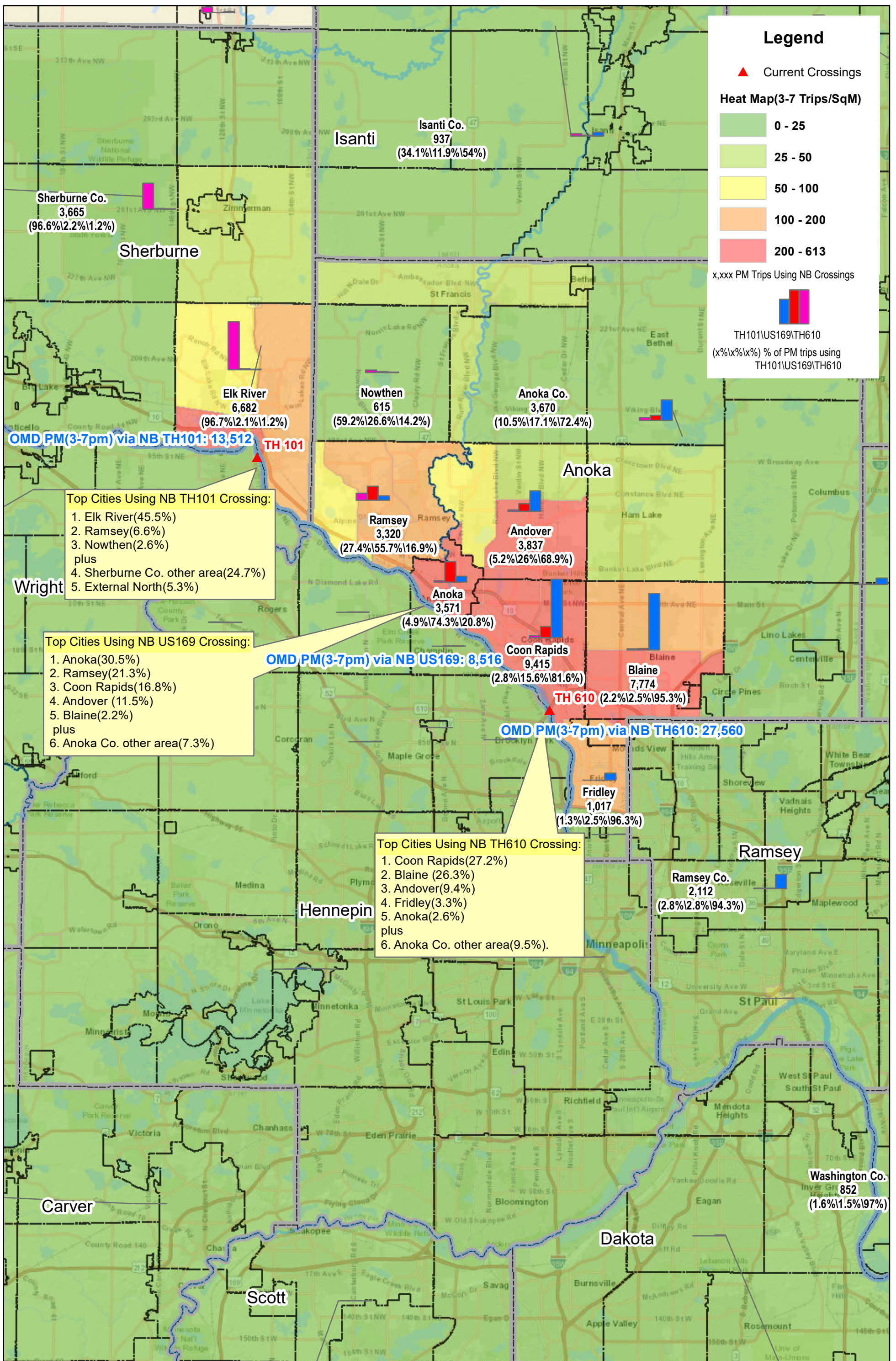
Figure 8



Author: HXiao
Date: 10/5/2020

Total Origin Trips Using Current Three Crossings in Northbound(3-7pm)

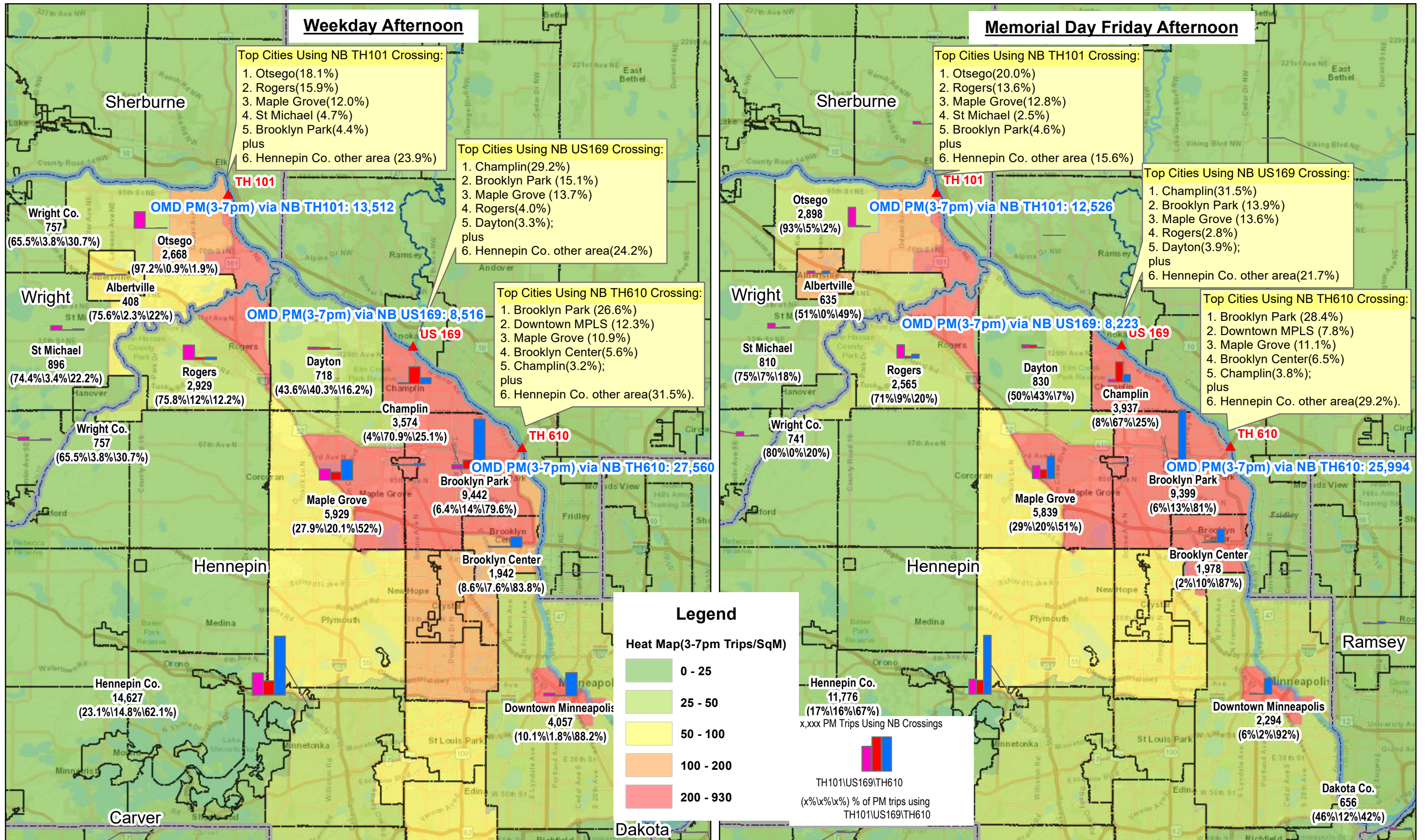
Figure 9.1



Author: HXiao
Date: 10/5/2020

Total Destination Trips Using Current Three Crossings in Northbound(3-7pm)

Figure 9.2



N
 Author: HXiao
 Date: 10/12/2020

Total Origin Trips Using Current Three Crossings in Northbound
 Comparison Between Weekday and Holiday Friday Afternoons (3-7pm)

Figure 9.3

Weekday Afternoon

Memorial Day Friday Afternoon

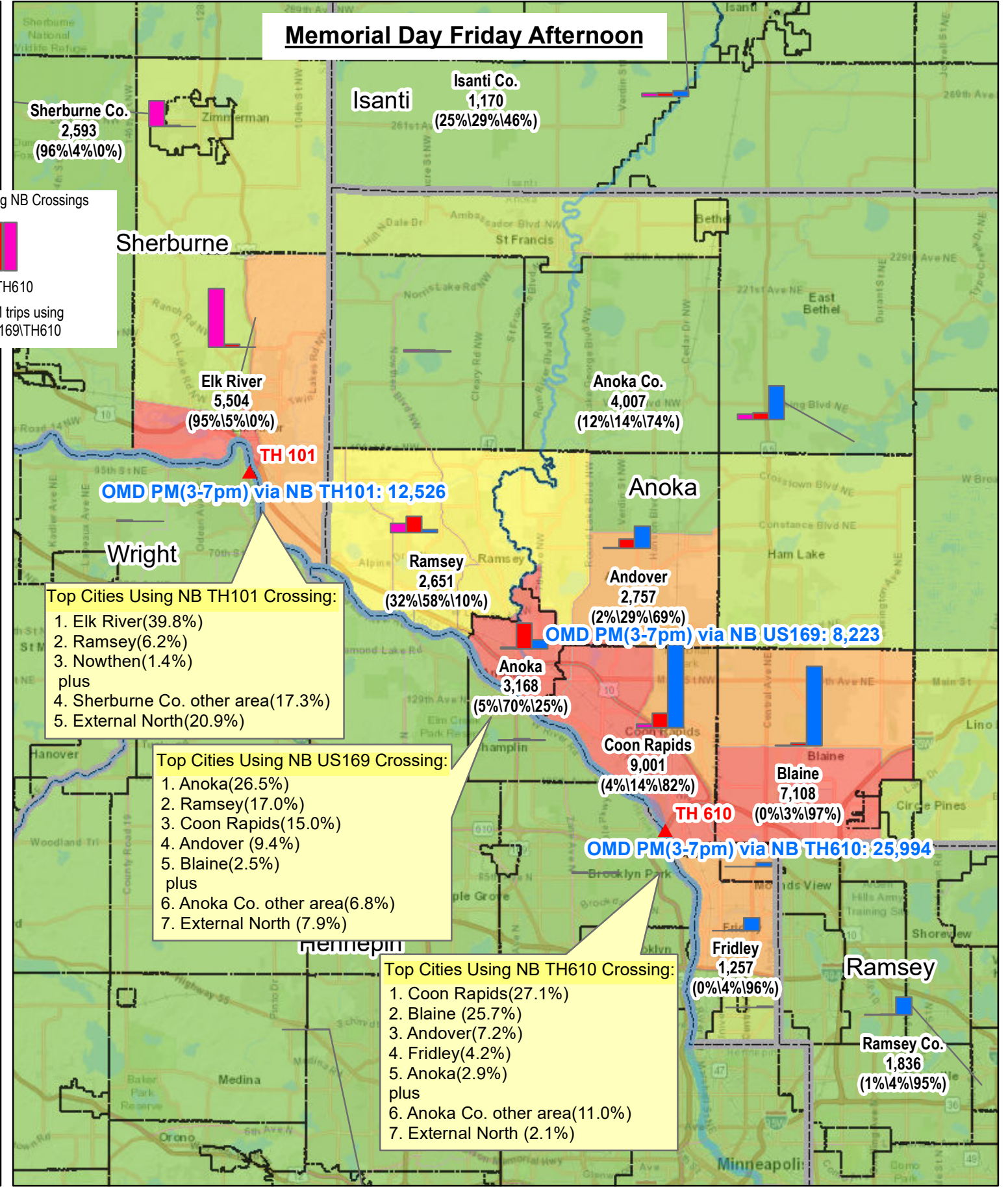
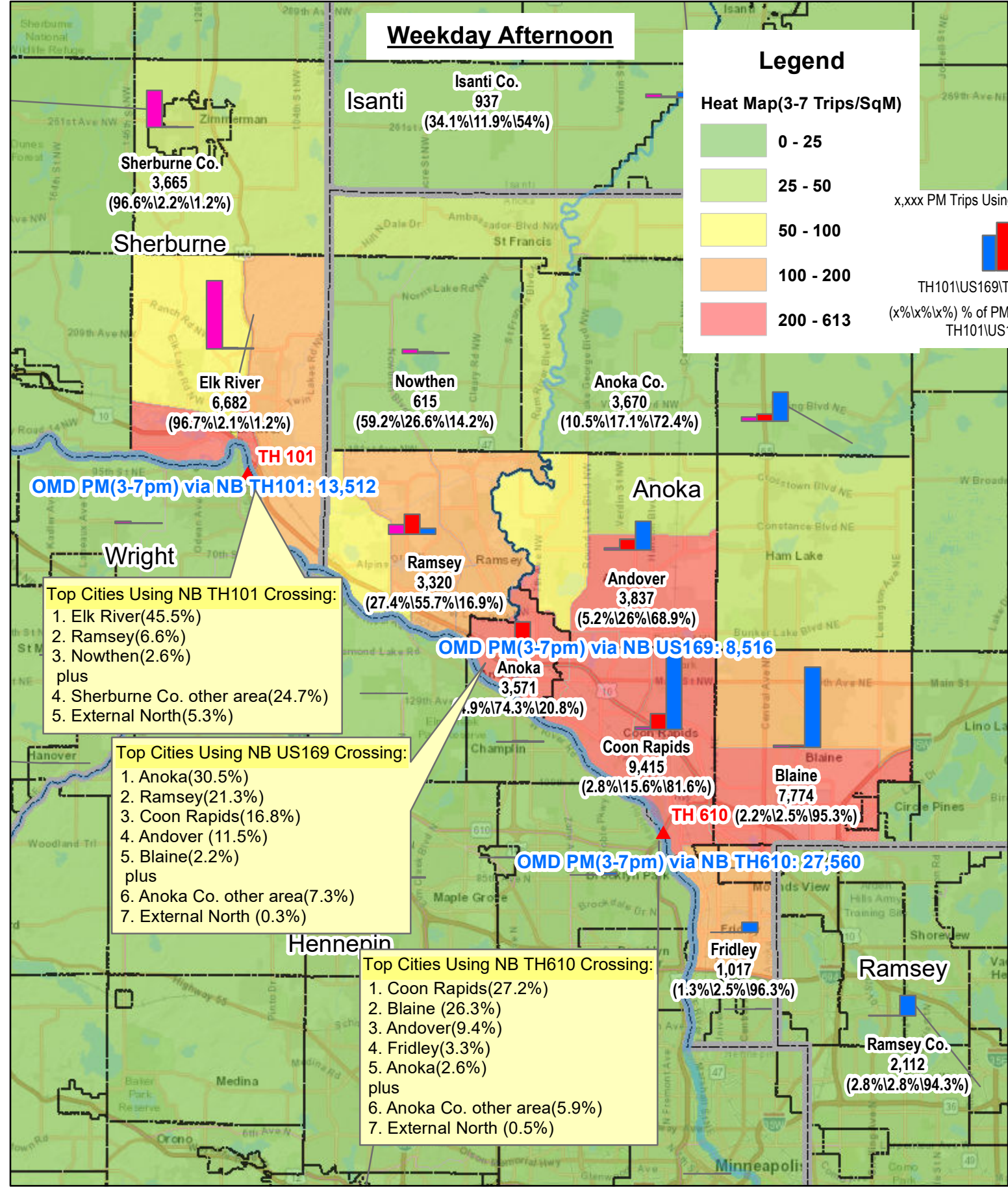
Legend

Heat Map(3-7 Trips/SqM)

- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 200
- 200 - 613

x,xxx PM Trips Using NB Crossings

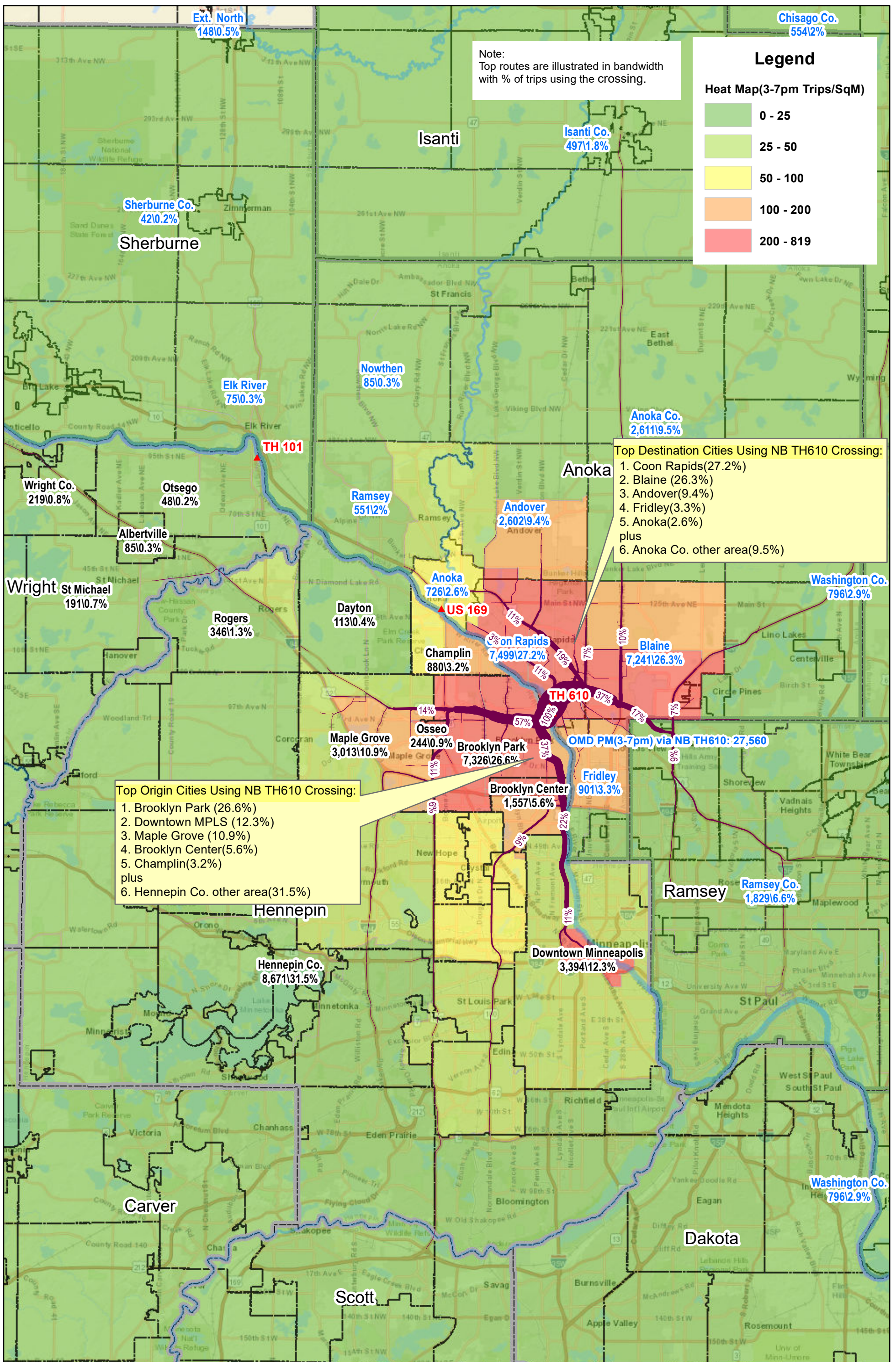
TH101\US169\TH610
(x%\x%\x%) % of PM trips using TH101\US169\TH610



N
Author: HXiao
Date: 10/12/2020

Total Destination Trips Using Current Three Crossings in Northbound Comparison Between Weekday and Holiday Afternoons (3-7pm)

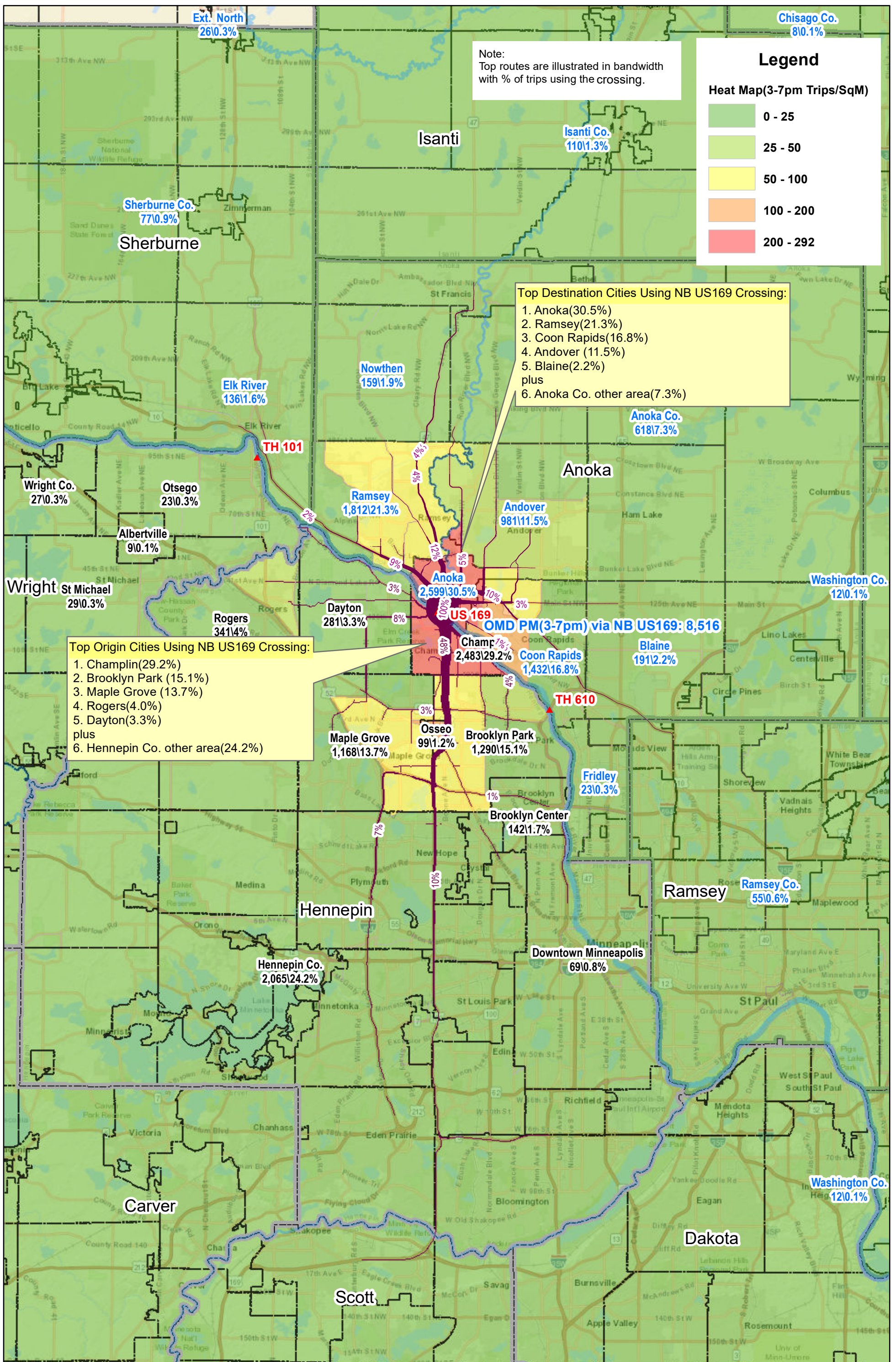
Figure 9.4



Author: HXiao
Date: 10/5/2020

Origin/Destination Trips and Top Routes Using the Northbound TH 610 Crossings (3-7pm)

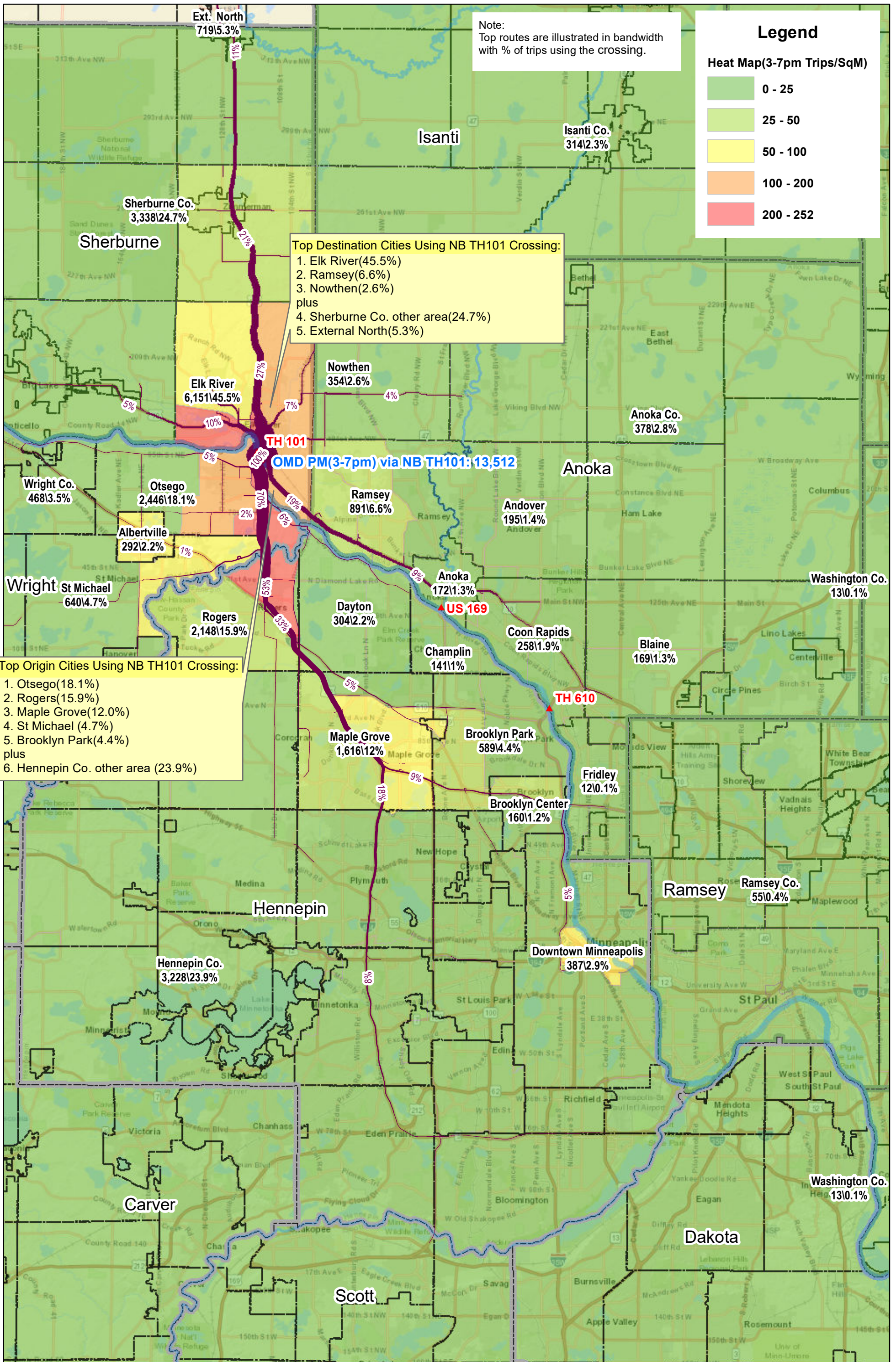
Figure 10



Author: HXiao
Date: 10/5/2020

Origin/Destination Trips and Top Routes Using the Northbound US 169 Crossing (3-7pm)

Figure 11



Author: HXiao
Date: 10/5/2020

Origin/Destination Trips and Top Routes Using the Northbound TH101 Crossing (3-7pm)

Figure 12

Figure 13.1

Travel Distance Distributions of the Trips Using the Three Crossings

Travel Distance (Mile)	Trips		
	TH 101 Crossing	US 169 Crossing	TH 610 Crossing
0-5	3,500	4,748	716
5-10	6,356	8,225	12,392
10-15	7,436	8,805	22,159
15-20	8,050	6,748	24,390
20-25	8,139	4,760	21,835
25-30	7,226	2,992	15,175
30-35	5,442	2,023	9,968
35-40	4,887	1,402	7,154
40-45	3,692	915	4,658
45-50	2,899	576	3,349
50-55	2,116	396	2,662
55-60	1,290	294	1,826
60-65	866	192	1,464
65-70	600	151	1,053
70-75	394	149	790
75-80	267	102	690
80-85	237	80	443
85-90	186	67	361
90-95	149	54	280
95-100	145	39	186
100-105	101	27	162
105-110	118	27	132
110-115	51	20	119
115-120	50	11	110
120+	270	84	605
Total	64,464	42,882	132,679
Average	27.7	18.5	25.8

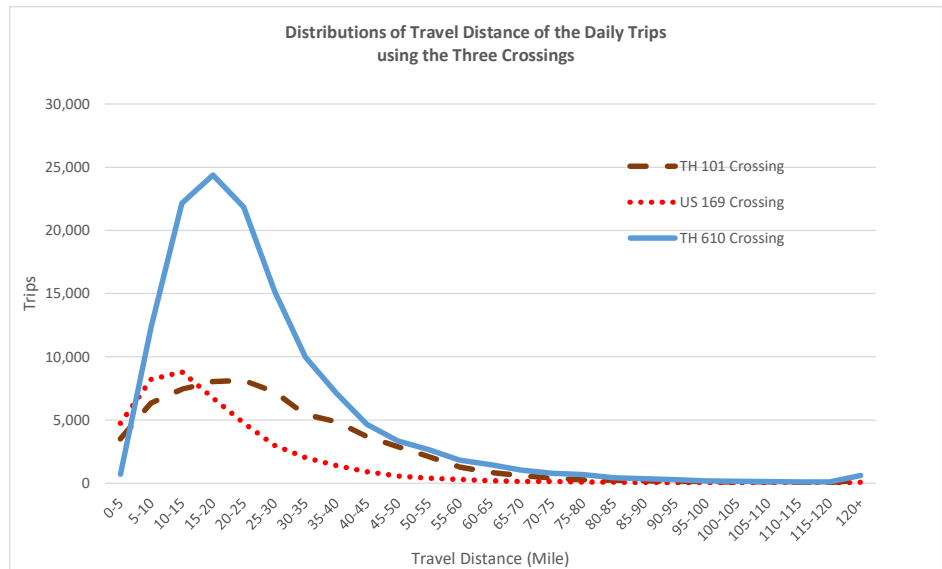
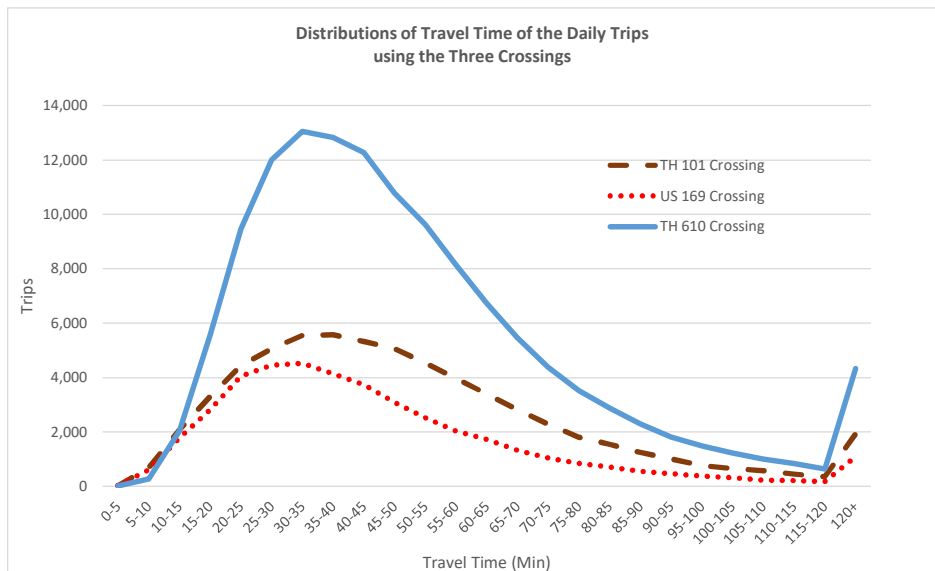


Figure 13.2

Travel Time Distributions of the Trips Using the Three Crossings

Travel Time (Min)	Trips		
	TH 101 Crossing	US 169 Crossing	TH 610 Crossing
0-5	25	33	13
5-10	686	606	277
10-15	2,074	1,781	2,038
15-20	3,301	2,818	5,573
20-25	4,439	4,052	9,470
25-30	5,063	4,458	12,007
30-35	5,550	4,525	13,047
35-40	5,574	4,143	12,826
40-45	5,333	3,734	12,271
45-50	5,063	3,091	10,786
50-55	4,537	2,525	9,629
55-60	3,976	2,036	8,140
60-65	3,398	1,725	6,729
65-70	2,816	1,323	5,462
70-75	2,286	1,044	4,374
75-80	1,809	843	3,526
80-85	1,543	711	2,876
85-90	1,246	550	2,302
90-95	1,010	467	1,815
95-100	766	379	1,484
100-105	657	318	1,226
105-110	577	232	1,002
110-115	454	218	837
115-120	359	179	642
120+	1,926	1,092	4,329
Total	64,464	42,882	132,679
Average	50.0	44.5	50.1



Note:
Travel times include time spent looking for parking, time spent walking from the vehicle to their destination, and anytime spent stopped for traffic, red lights, or stop signs

Northwest Metro Mississippi River Crossing Feasibility Analysis

Appendix D: Traffic Forecasting Technical Memorandum

Acknowledgments:
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Minnesota Department of Transportation

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Haifeng Xiao, PE, PTOE, HFTE Inc.

Date: June 10, 2021

Subject: Northwest Metro Mississippi River Crossing Feasibility Analysis:
Forecasting Technical Memorandum

Introduction

This memorandum documents the assumptions for the validation of the travel demand model and the process of developing future year traffic forecasts for the Northwest Metro Mississippi River Crossing Feasibility Analysis. The regional Activity Based Model (ABM), which was developed and has been maintained by the Metropolitan Council, will be used to evaluate existing and future conditions. The existing year for the model has been updated to the year 2018 (from 2014) due to newly available socioeconomic data for the year 2018. Future year (2040) forecasts were developed to evaluate future congestion and potential improvements. This memorandum presents assumptions and methods used to develop the existing year model and year 2040 forecasts.

Travel demand models provide an estimation of traffic forecasts that include many future year assumptions. However, with uncertainty regarding future-year conditions, the model results should be considered estimates with some margin of error. As a general guideline, MnDOT considers long-range forecasts to have a precision of approximately ± 15 percent. Decision makers and designers should be aware of the uncertainty in long-range forecasts and whether that margin of error would affect outcomes or the recommended improvements.

The forecast development process documented in this memorandum follow traditional planning approaches used in the Twin Cities metropolitan area. These assumptions were established prior to the COVID-19 global pandemic. Specifically, daily activity patterns undertaken by travelers on the regional transportation system reflect data collected through the Metropolitan Council's Travel Behavior Inventory (TBI). Changes in travel behavior during the pandemic, such as increased telework and home delivery services, have insufficient data to be incorporated into modeling processes at this time. These trends should continue to be monitored to understand the extent to which travel demand will be impacted into the future.

Assumptions

Existing and year 2040 socioeconomic and roadway system assumptions are consistent with the regional development assumptions (Thrive MSP 2040) and regional transportation policy plan. These assumptions are incorporated into the model as described below.

Transportation Network

Existing Year Roadway Network

The baseline (2014) roadway system forecasts assume existing roadway system and was updated to reflect conditions as of the year 2018. Key roadway updates identified and incorporated include:

- CSAH 610 extension from CSAH 81 to I-94
- I-35E MnPASS from Little Canada Road to CR J
- I-694 3rd lane expansion in Shoreview
- I-494 3rd lane expansion in Plymouth
- TH 10/Main St area connection coding errors
- Interchange at TH 10 and Armstrong Blvd in Ramsey

Year 2040 Programmed Improvements

The 2040 No Build scenario includes the following planned and programmed improvements:

- I-94 lane additions from TH 610 to TH 101
- 109th Avenue reconstruction to four lanes (Jefferson Highway to CSAH 103)
- 101st Avenue – TH 169 interchange and reconstruction
- CSAH 81 reconstructed as a multi-lane roadway from north of 63rd Avenue North to CSAH 8 in Brooklyn Park.
- CSAH 103 (West Broadway Avenue) reconstructed as a four-lane divided roadway from CSAH 109 (85th Avenue N) to 93rd Avenue in Brooklyn Park.
- CSAH 103 (West Broadway Avenue) reconstructed as a four-lane divided roadway from 78th Ave to CSAH 109 (85th Avenue) in Brooklyn Park. This project includes the reconstruction of CSAH 109/CSAH 103 intersection.
- Highway 610 extension from I-94 to CSAH 30
- I-94 and Dayton Parkway Interchange
- Highway 10 grade separation at Ramsey Blvd and Sunfish Lake Blvd

Zonal Data and Socioeconomic Update

Development inputs to the model (i.e., population, households, and employment) are consistent with the Thrive MSP 2040 plan as of April 2020. Existing and future year municipal socioeconomic totals for key municipalities are shown in Table 1.

Table 1: Existing and Year 2040 Municipal Totals

	Population			Households			Total Employment		
	2018	2040	Delta	2018	2040	Delta	2018	2040	Delta
Andover	33,060	42,100	+9,040	10,651	15,200	+4,549	5,910	6,200	+290
Anoka	18,383	21,300	+2,917	7,482	8,700	+1,218	14,428	14,800	+372
Brooklyn Park	81,261	98,000	+16,739	27,701	34,500	+6,799	32,980	45,600	+12,620
Champlin	23,927	24,100	+173	8,606	9,700	+1,094	4,122	5,100	+978
Coon Rapids	63,747	72,100	+8,353	24,307	29,200	+4,893	25,373	32,900	+7,527
Dayton	6,158	10,500	+4,342	2,183	4,300	+2,117	1,306	3,700	+2,394
Elk River	24,891	27,000	+2,109	8,658	10,000	+1,342	11,860	15,800	+3,940
Maple Grove	66,523	89,700	+23,177	25,454	33,400	+7,946	35,488	52,700	+17,212
Osseo	2,729	3,200	+471	1,250	1,500	+250	2,139	2,500	+361
Otsego	17,308	17,800	+492	5,970	6,400	+430	3,477	5,000	+1,523
Ramsey	27,039	34,500	+7,461	9,204	12,900	+3,696	7,129	9,100	+1,971
Rogers	12,922	22,800	+9,878	4,223	8,600	+4,377	10,605	17,100	+6,495

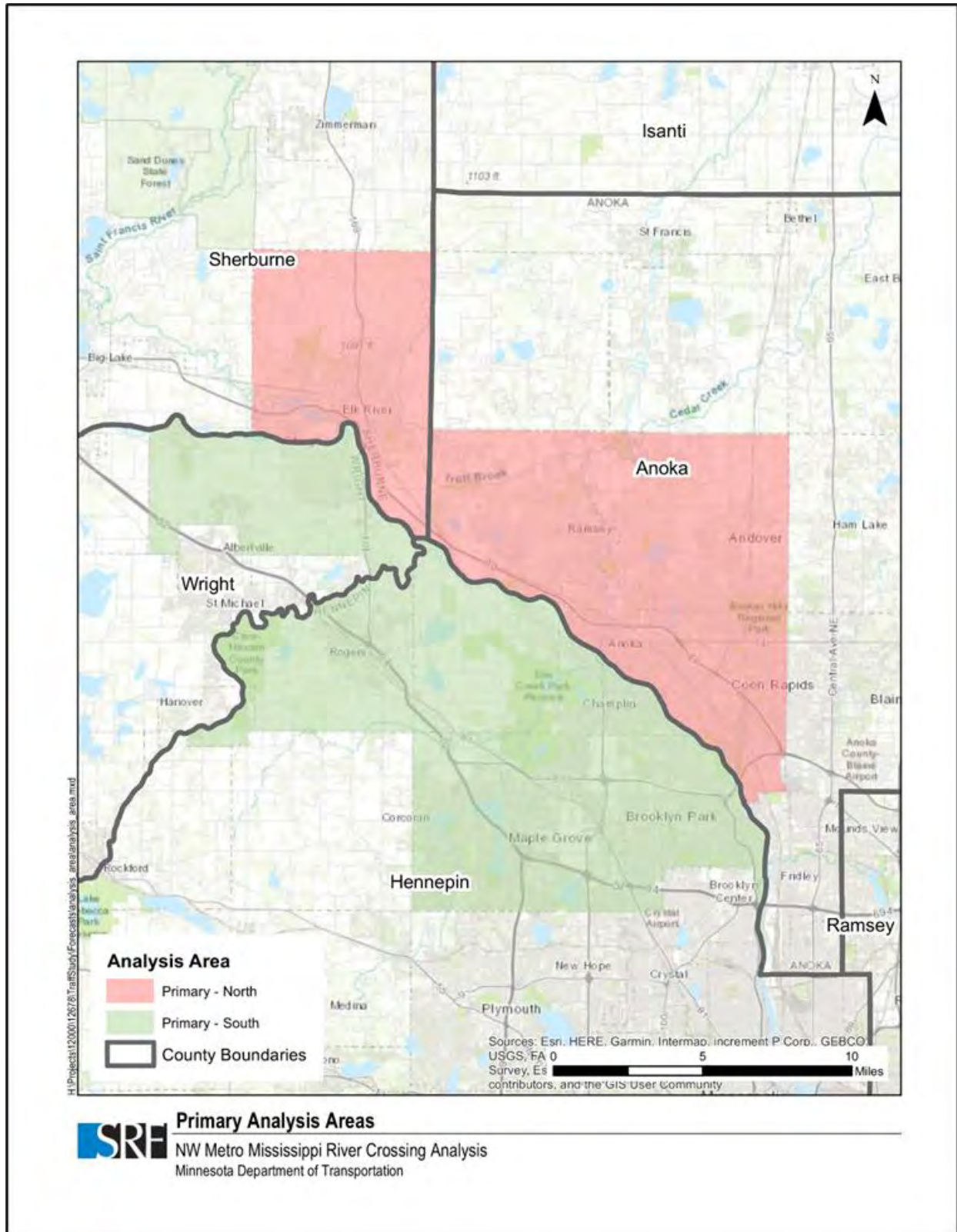
Model Validation

Forecasts were developed using the regional Activity Based Model (ABM). The existing network was reviewed for accuracy in functional class and number of lanes.

Validation of Existing Model

The model roadway network was updated with current MnDOT Average Annual Daily Traffic (AADT) data to facilitate the model validation process. Daily traffic volumes were validated based on the degree to which the model replicates known ground counts. The validation checks are based on the Federal Highway Administration’s *Model Validation and Reasonableness Checking Manual*. Based on the Federal Highway Administration guidance, link percent Root Mean Squared Error (RMSE) gauges this degree of validation. The validation was compared to additional count locations collected in 2017 by Hennepin County to ensure more recent growth is being reflected in the projected 2040 values. The area where counts were updated is shown in Figure 1.

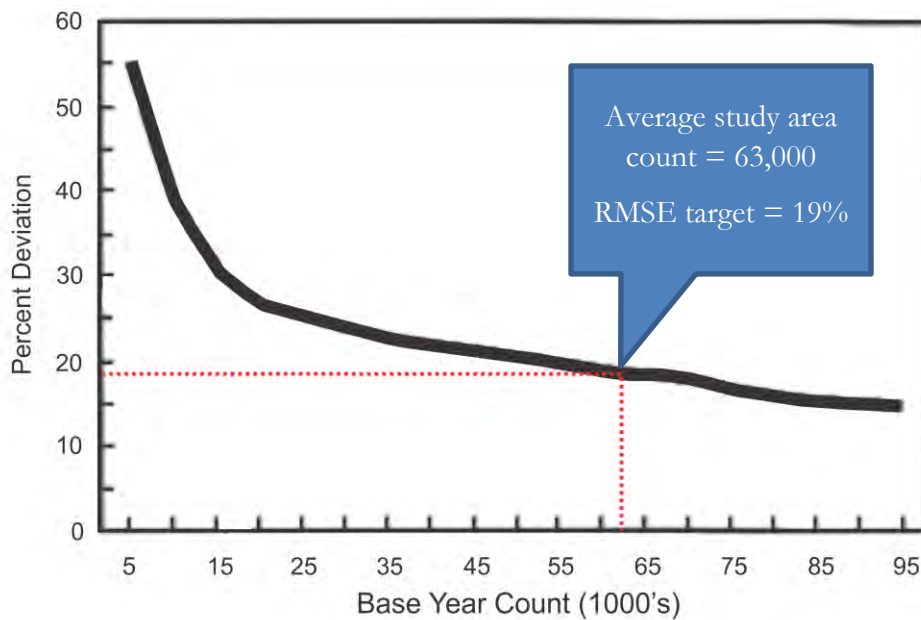
Figure 1: Analysis Area



Link Root Mean Squared Error (RMSE)

The average error of the model can be estimated in two ways. The first, the average arithmetic error, compares the average modeled volume with the average count volume. However, analysts frequently use a more restrictive measure called Root Mean Squared Error (RMSE) that does not allow a too-high volume to be averaged and offset against a too-low volume. Furthermore, error on higher volume facilities is weighted more heavily. It is often helpful to compare the error to the magnitude of an observed traffic count. To do so, the RMSE is normalized by dividing it by the mean count. This new variable is referred to as Normalized RMSE or Percent RMSE. For this project, an RMSE of 19 percent with an average count of 63,000 vehicles per day was obtained. As shown in Figure 2, this value is reasonable given the standard tolerates higher percentage errors with low numeric differences (a result of typical count deviations on low-volume roads and the low impact of those deviations on forecast lane requirements). Model performance for low volume roads is affected by the resources available to refine the geographic size of model zones, the roadway geometrics and traffic control parameters in the model.

Figure 2: Maximum Desirable Error for Link Volumes

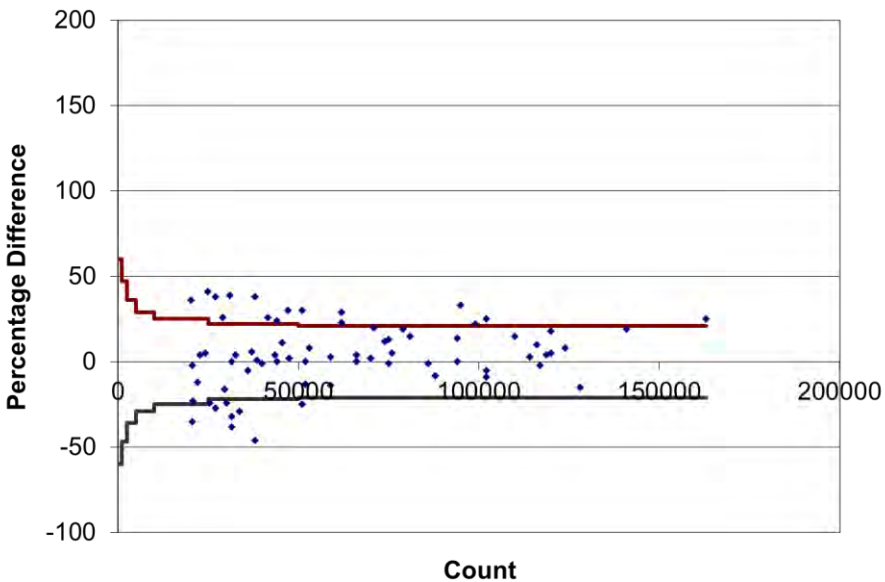


Source: Model Validation and Reasonableness Checking Manual (FHWA, 1997)

Link Deviation from Count

Differences between modeled volumes and ground counts are expected in a model. The significance of any difference depends on whether the difference affects roadway requirements, such as the number of lanes, and considers variance in traffic counts. For this analysis, the model attained a 19 percent RMSE, which necessitates applying an industry-standard post-model adjustment process. As shown in Figure 3, high volume roadways had the best fit; some roadways, particularly low volume roadways, exceeded the desirable deviation.

Figure 3: Model Performance for Segments with Counts



Model Traffic Volume Adjustment Process

The final step in model development was to establish a process for adjusting the future modeled volumes to account for the error in the base model. The National Cooperative Highway Research Program Special Report 255 suggests methods of adjusting models based on: a) the difference between model and count; b) the ratio of the model to county; and c) the magnitude of growth between existing and future. The calculations used in this process are provided below:

- Ratio Method: $AdjustedVolume = FutureModelVolume \times \frac{BaseCount}{BaseModelVolume}$
- Difference Method: $AdjustedVolume = FutureModelVolume + (BaseCount - BaseModelVolume)$
- Average Method: *Average of Ratio Method and Difference Method*

Table 2 shows the conditions under which each of these methods is applied for this project. In general, the ratio method provides potentially volatile and unstable adjustments where the travel demand model is extremely different than the counts, or where growth is proportionately high. Consequently, it is never used on its own. In most cases, the average method is used as the appropriate adjustment method.

Table 2: Model Adjustment Process

Condition	Implications of Condition	Method Used
$\frac{\text{Future Volume}}{\text{Base Volume}} > 3$	High model growth may cause the ratio method to result in unreasonably high adjusted volumes.	Difference Method (adjustment based on numeric count-model difference)
$\frac{\text{Base Count}}{\text{Base Volume}} > 1.5$	A large underestimation by the model in the base year may cause the ratio method to result in unreasonably high adjusted volumes.	Difference Method
$\frac{\text{Base Volume}}{\text{Base Count}} > 1.5$	A large overestimation by the model in the base year may cause the ratio method to result in unreasonably low adjusted volumes.	Difference Method
All Other Cases	The average method is used by default for link volume adjustments. The difference method is used only in cases where the model exhibits high levels of variation or growth.	Average Method (adjustment using average of difference and percent difference)

Source: NCHRP 255: Highway Traffic Data for Urbanized Area Project Planning and Design

Model Results

Year 2040 No Build

The year 2040 No Build daily forecasts are shown in Figure 1 in the appendix. The average percent volume growth on study area highways between 2018 and 2040 is 22 percent. Roadway segments with the highest growth are TH 252 between 73rd Avenue and Brookdale Drive, increasing from 53,000 to 123,300 and on TH 610 between TH 252 and TH 47, increasing from 102,000 to 124,600. The total volume crossing the Mississippi River on the three bridges in the study area (TH 101, US 169, and TH 610) is expected to increase from 205,000 to 246,500, representing 20% growth. The river crossing with the highest growth in TH 610, with an increase of 22,600 vehicles per day (vpd).

Year 2040 Concept Scenarios

Year 2040 Concept 1

Concept 1 incorporated the following improvements into the year 2040 highway network.

- TH 10 lane addition between Round Lake Blvd and Hanson Blvd
- TH 10 grade separation improvements between TH 101 and Armstrong Blvd
- Diverging diamond conversion of TH 101 / I-94 interchange

Daily traffic forecasts for Concept 1 are provided in Figure 4.1 in the appendix. These results show small increases in traffic are attracted to the corridors where improvements are located. Specifically, TH 10 has increases of 400 and 500 vpd associated with the improvements in Coon Rapids and Elk River, respectively. Similarly, an increase of 500 vpd is expected on TH 101 near the I-94 interchange. While these changes show minor increases in traffic are attracted to these facilities, these do not represent major shifts in regional travel patterns.

Year 2040 Concept 2

Concept 2 incorporated the following improvements into the year 2040 highway network.

- TH 10 lane addition between Round Lake Blvd and Hanson Blvd
- TH 10 at-grade improvements between TH 101 and Armstrong Blvd
- TH 101 southbound to eastbound I-94 flyover and interchange improvements
- TH 610 mobility improvement between US 169 and TH 252

Daily traffic forecasts for Concept 2 are provided in Figure 4.2 in the appendix. These results show small increases in traffic are attracted to the corridors where improvements are located. Specifically, TH 10 has increases of 400 and 500 vpd associated with the improvements in Coon Rapids and Elk River, respectively. Similarly, an increase of 700 vpd is expected on TH 101 near the I-94 interchange. A daily traffic increase of 12,700 vpd is expected on the improved section of TH 610, reflecting traffic that would be expected to shift to this highway from parallel local roads.

Year 2040 Concept 3

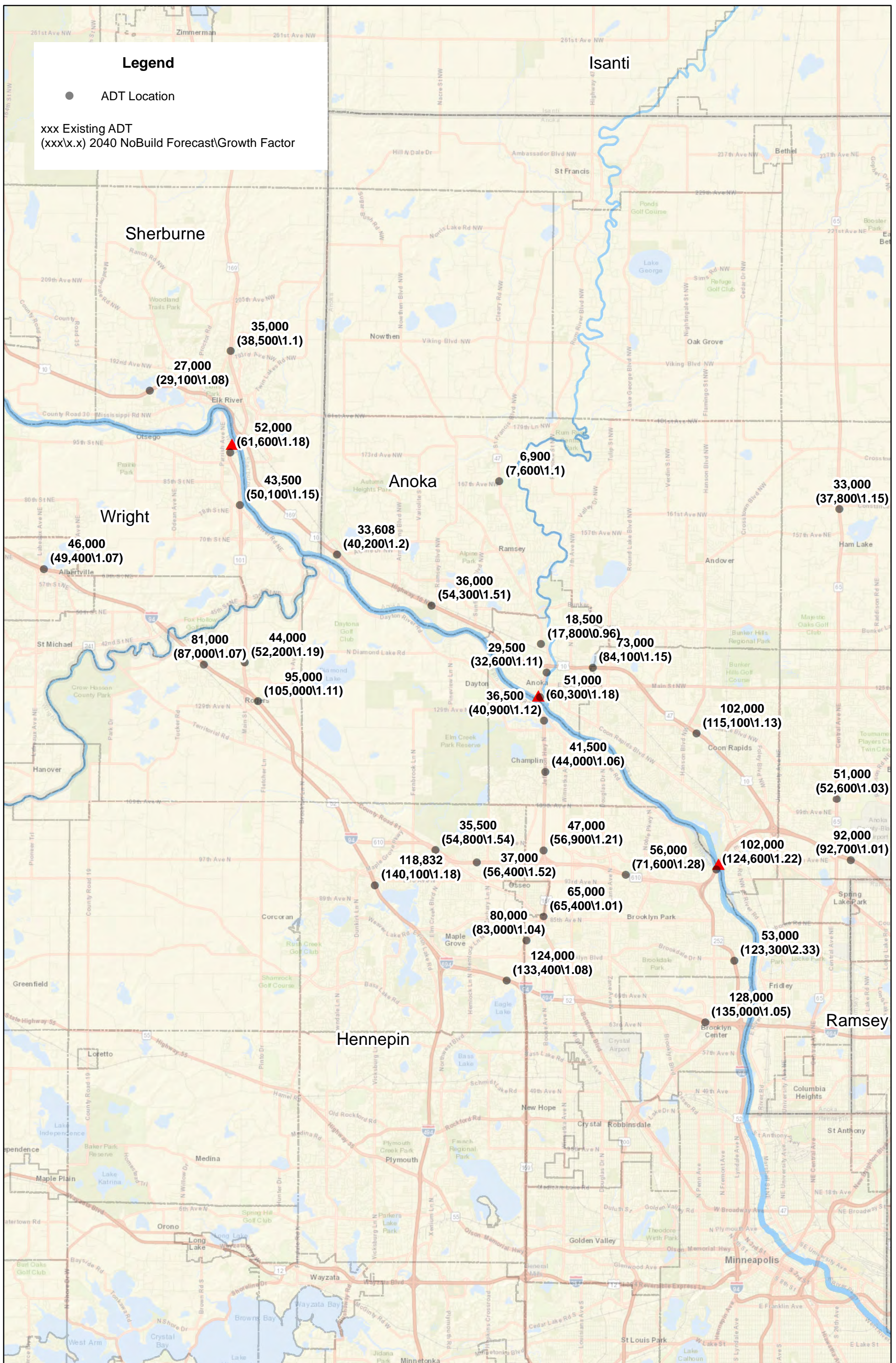
Concept 3 introduces a new Mississippi River crossing in between TH 101 and US 169. This new facility was assumed to connect to the south leg of the existing Armstrong Boulevard/TH 10 interchange north of the river and connect to the north leg of the Dayton Parkway/I-94 interchange south of the river. The new facility was assumed to be a four-lane divided arterial roadway with a speed limit of 45 miles per hour (mph).

The daily forecasts for Concept 3 are provided in Figure 4.3 in the appendix. The number of vehicles expected to use the new river bridge over the Mississippi River in 2040 is 24,200 vpd. This reflects shifts of 7,900 vpd off of the TH 101 bridge and 10,300 vpd off of the US 169 bridge. The shift of traffic from US 169 to the new river crossing approximately offsets the anticipated growth on this facility between 2018 and 2040 no build conditions, resulting in a 2040 forecast that is comparable to existing traffic volumes.

Year 2040 Concept 4

Concept 4 also include a new Mississippi River crossing in between TH 101 and US 169 similar to Concept 3. The alignment of the new river crossing connection was consistent with Concept 3, but the facility type was assumed to be a four-lane expressway with a speed limit of 55 miles per hour (mph) and a higher capacity.

The daily forecasts for Concept 4 are provided in Figure 4.4 in the appendix. The number of vehicles expected to use the new river bridge over the Mississippi River in 2040 is 27,600 vpd. This reflects shifts of 8,300 vpd off of the TH 101 bridge and 12,000 vpd off of the US 169 bridge. Since the expressway design in Concept 4 attracts more traffic compared to the arterial design in Concept 3, the traffic shifts from adjacent river crossings are slightly larger.



Legend

- ADT Location

xxx Existing ADT
 (xxx\1.x) 2040 NoBuild Forecast\Growth Factor

Legend

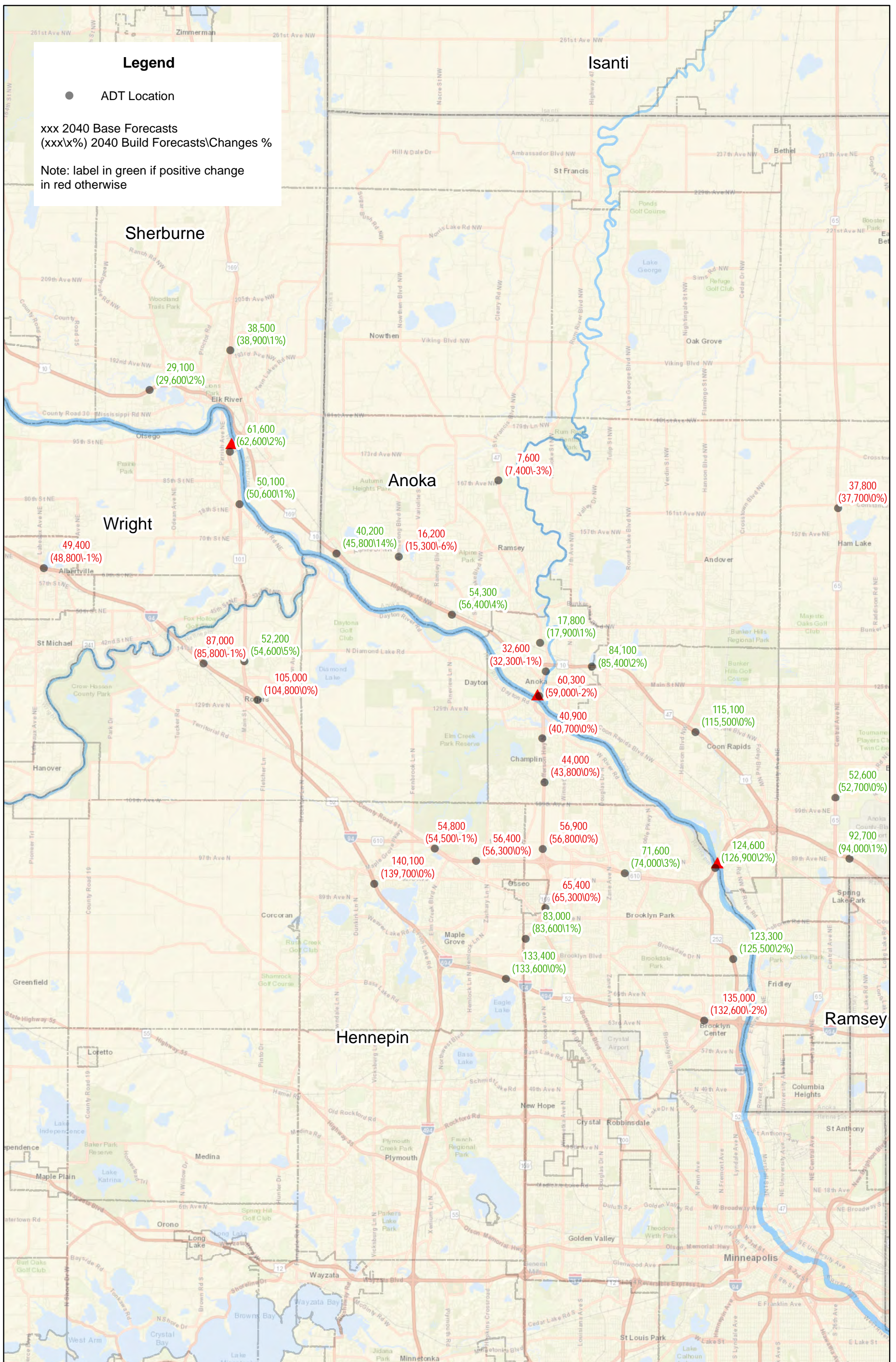
● ADT Location

xxx Existing ADT
 (xxx\1.x) 2040 NoBuild Forecast\Growth Factor

Author: HXiao
 Date: 1/26/2021

Existing and 2040 Forecasted Daily Traffic Volumes



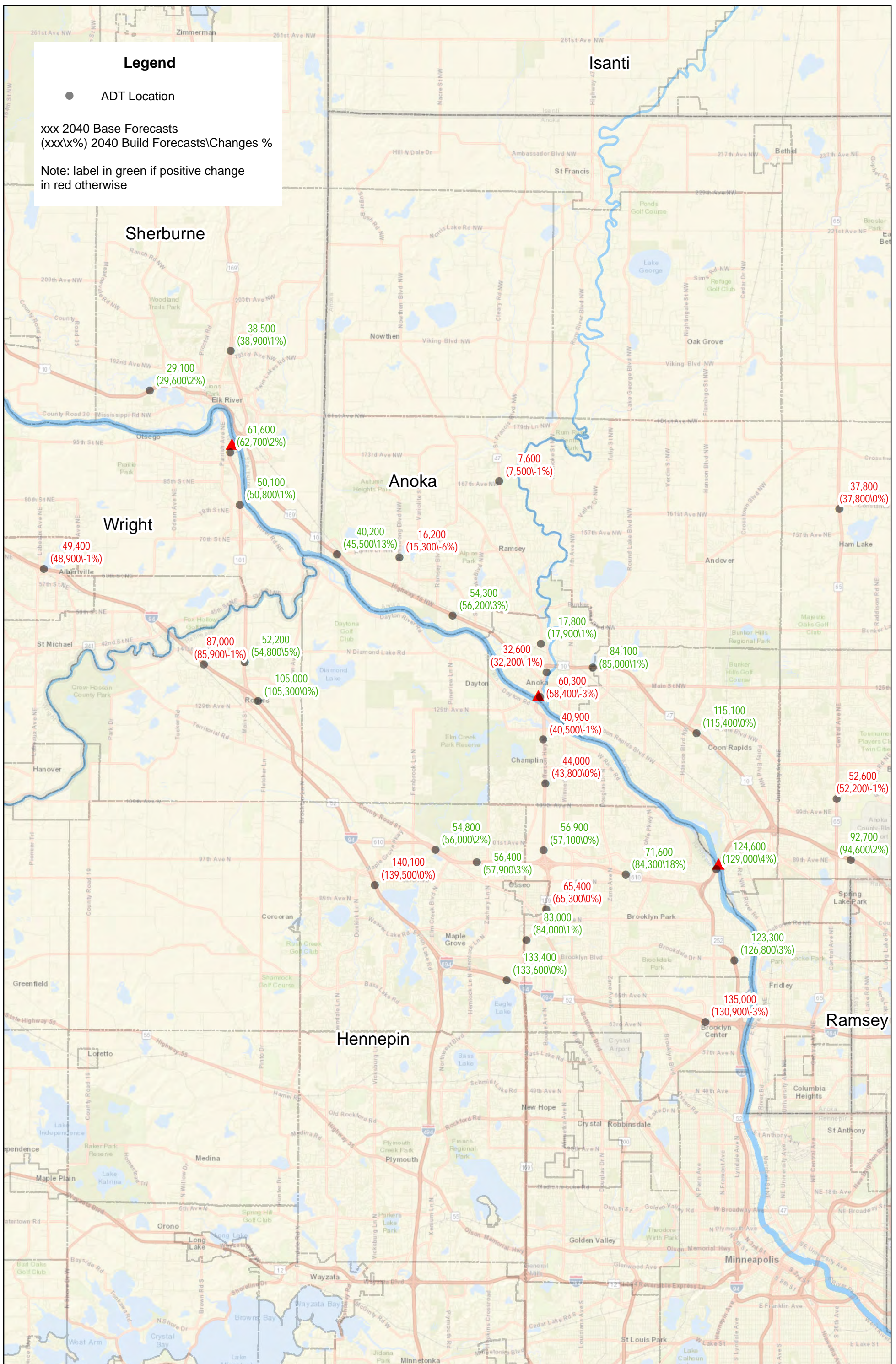


Author: HXiao
 Date: 3/9/2021

2040 NoBuild and Build Concept1 Forecasted Daily Traffic Volumes
 (Concept 1: TH 101 & TH 10 Improvements)

Northwest Metro Mississippi River Crossing Feasibility Analysis
 MnDOT Metro, Minnesota

Figure 4.1

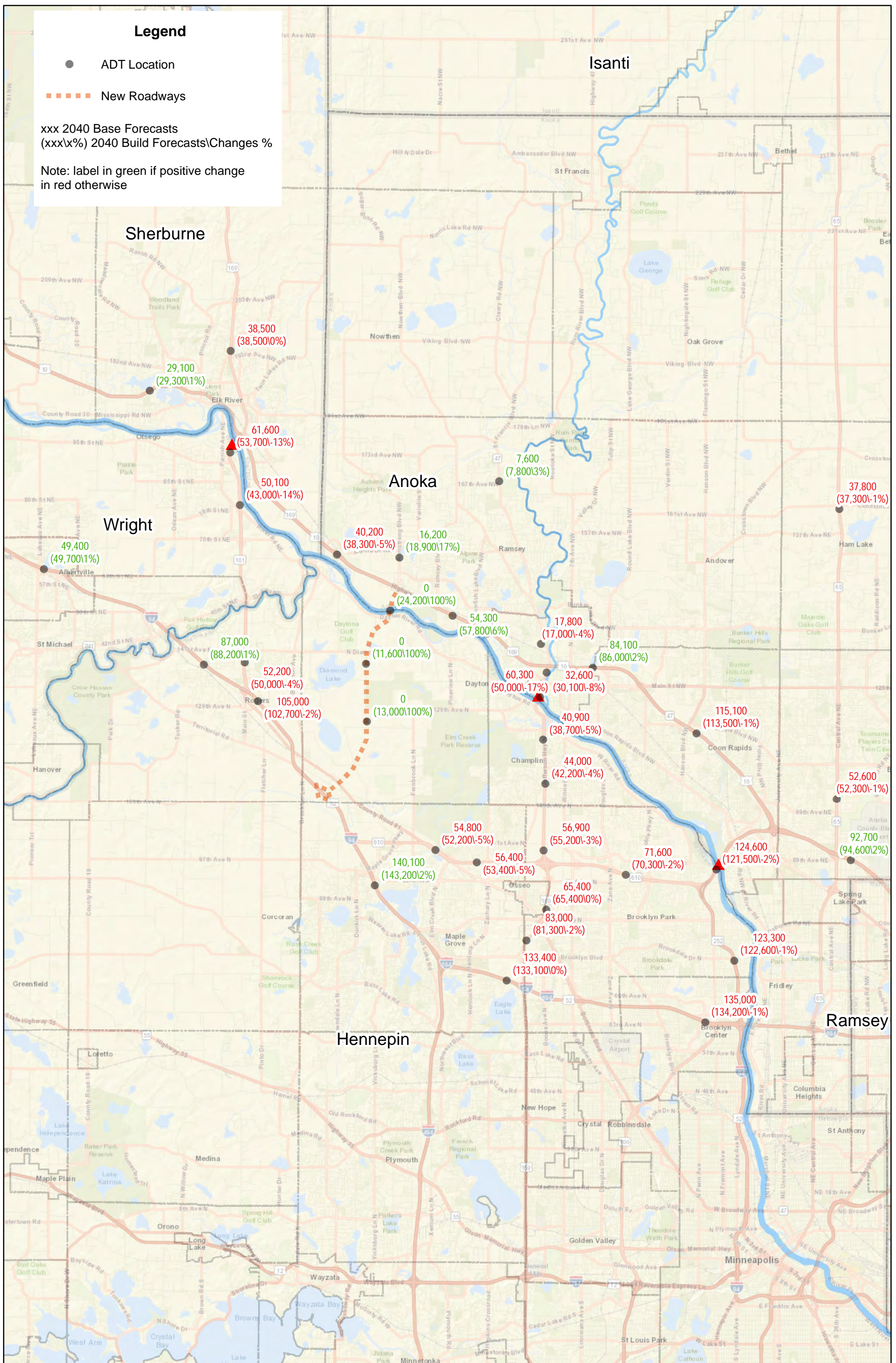


Author: HXiao
Date: 3/9/2021

2040 NoBuild and Build Concept2 Forecasted Daily Traffic Volumes
(Concept 2: TH 101 & TH 10 & TH 610 Improvements)

Northwest Metro Mississippi River Crossing Feasibility Analysis
MnDOT Metro, Minnesota

Figure 4.2

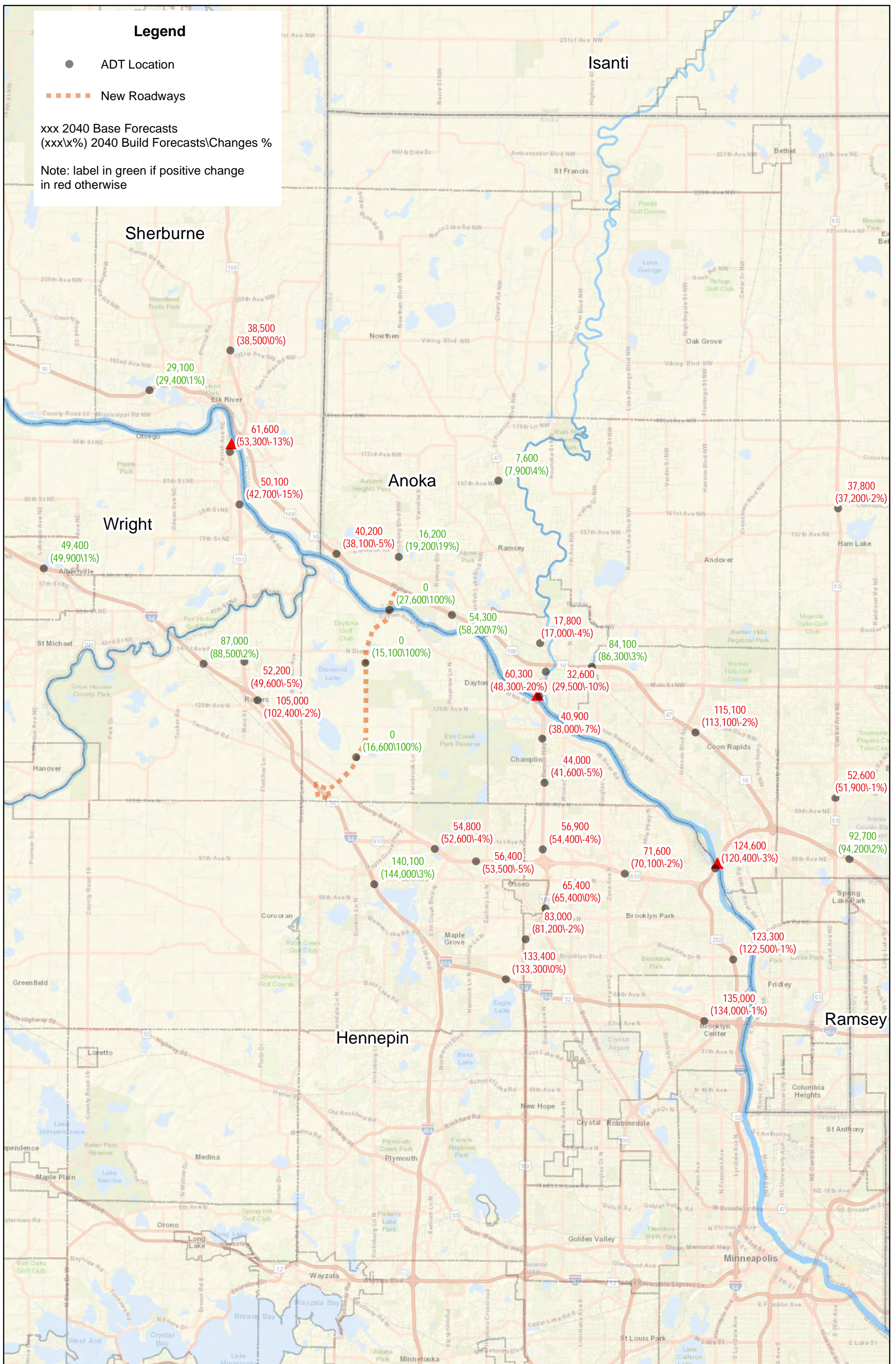


Author: HXiao
Date: 6/9/2021

2040 NoBuild and Build Concept3 Forecasted Daily Traffic Volumes
(Concept 3: New 4-Lane Arterial River Crossing)

Northwest Metro Mississippi River Crossing Feasibility Analysis
MnDOT Metro, Minnesota

Figure 4.3



Legend

- ADT Location
- New Roadways

xxx 2040 Base Forecasts
 (xxx|x%) 2040 Build Forecasts\Changes %

Note: label in green if positive change
 in red otherwise

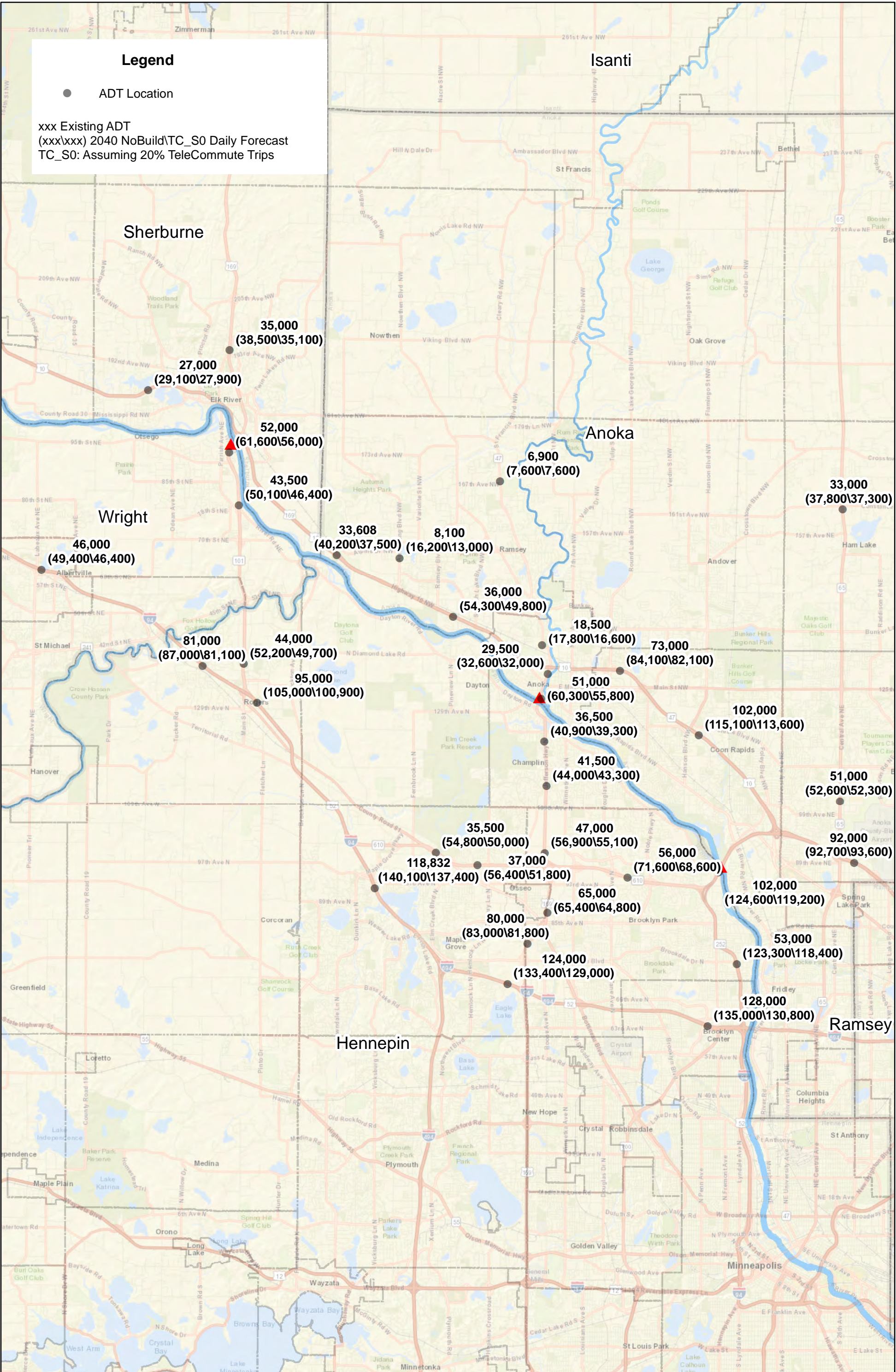


Author: HXiao
 Date: 3/9/2021

2040 NoBuild and Build Concept4 Forecasted Daily Traffic Volumes
 (Concept 4: New 4-Lane Expressway River Crossing)

Northwest Metro Mississippi River Crossing Feasibility Analysis
MnDOT Metro, Minnesota

Figure 4.4



Legend

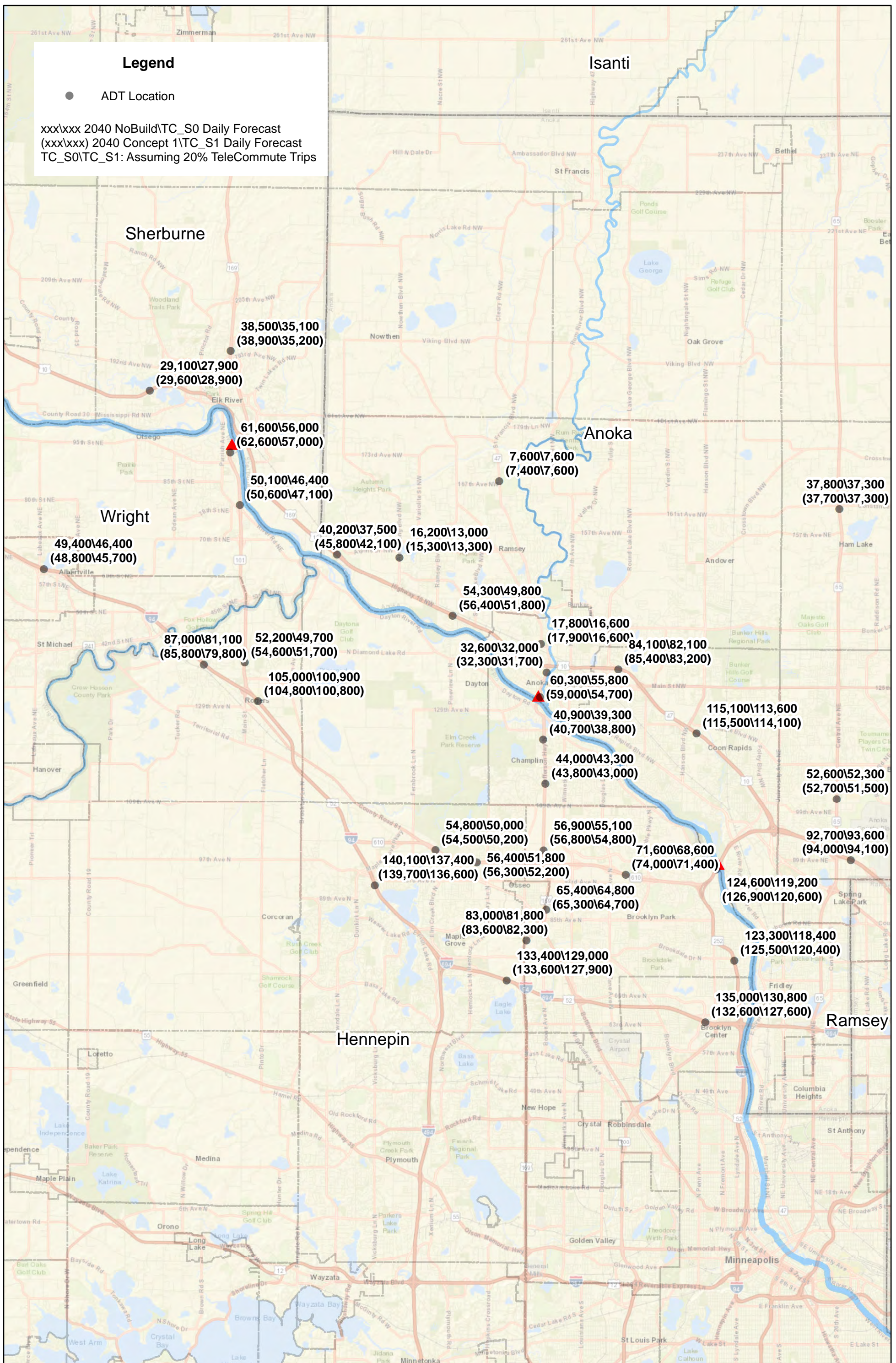
- ADT Location

xxx Existing ADT
 (xxx\xxx) 2040 NoBuild\TC_S0 Daily Forecast
 TC_S0: Assuming 20% TeleCommuter Trips



Author: HXiao
 Date: 6/9/2021

Existing and 2040 Forecasted Daily Traffic Volumes
 (With/Without 20% TeleCommuter Trips)

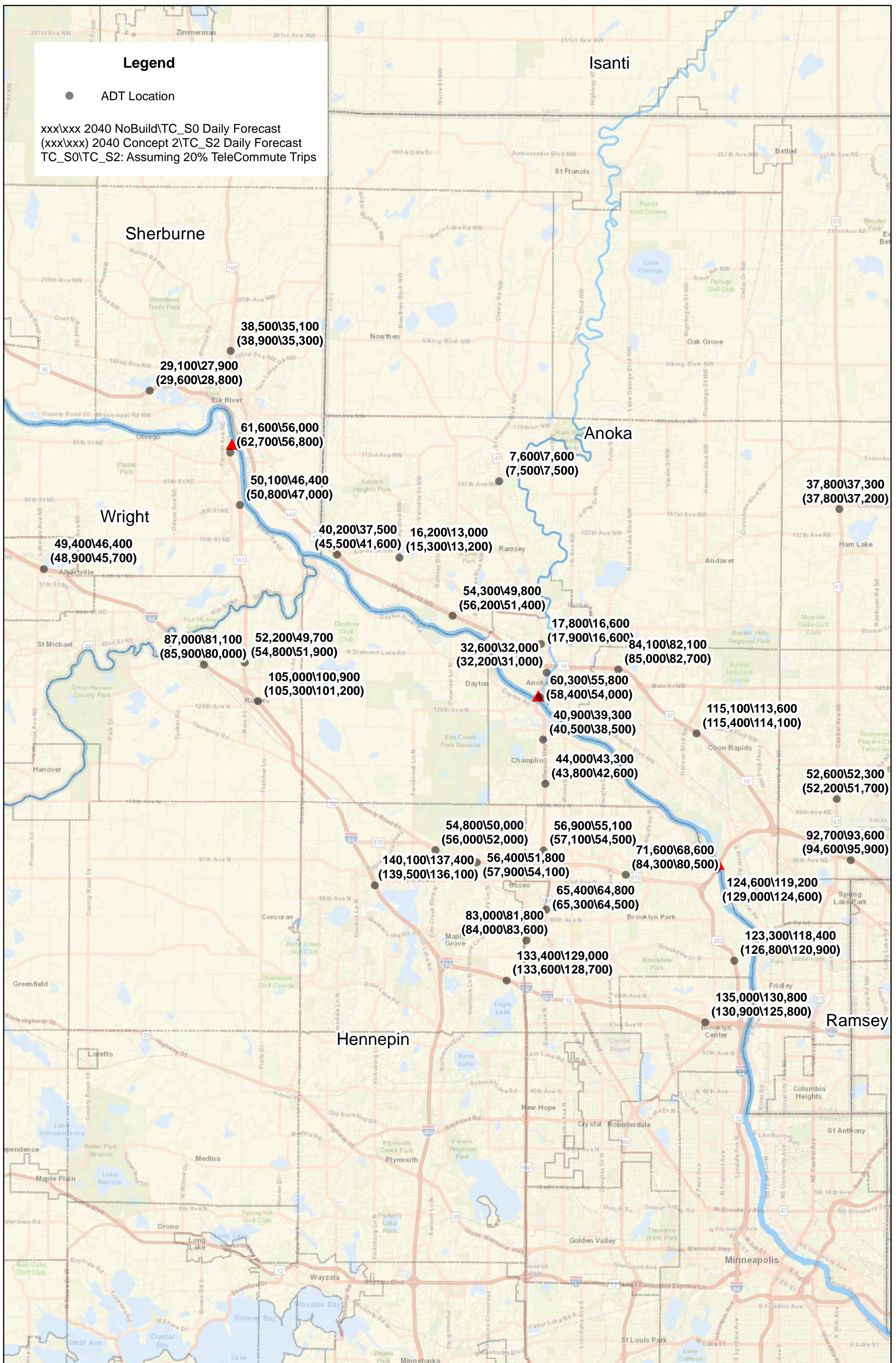


Author: HXiao
 Date: 6/9/2021

2040 NoBuild and Concept 1 Forecasted Daily Traffic Volumes
 (With/Without 20% TeleCommute Trips)

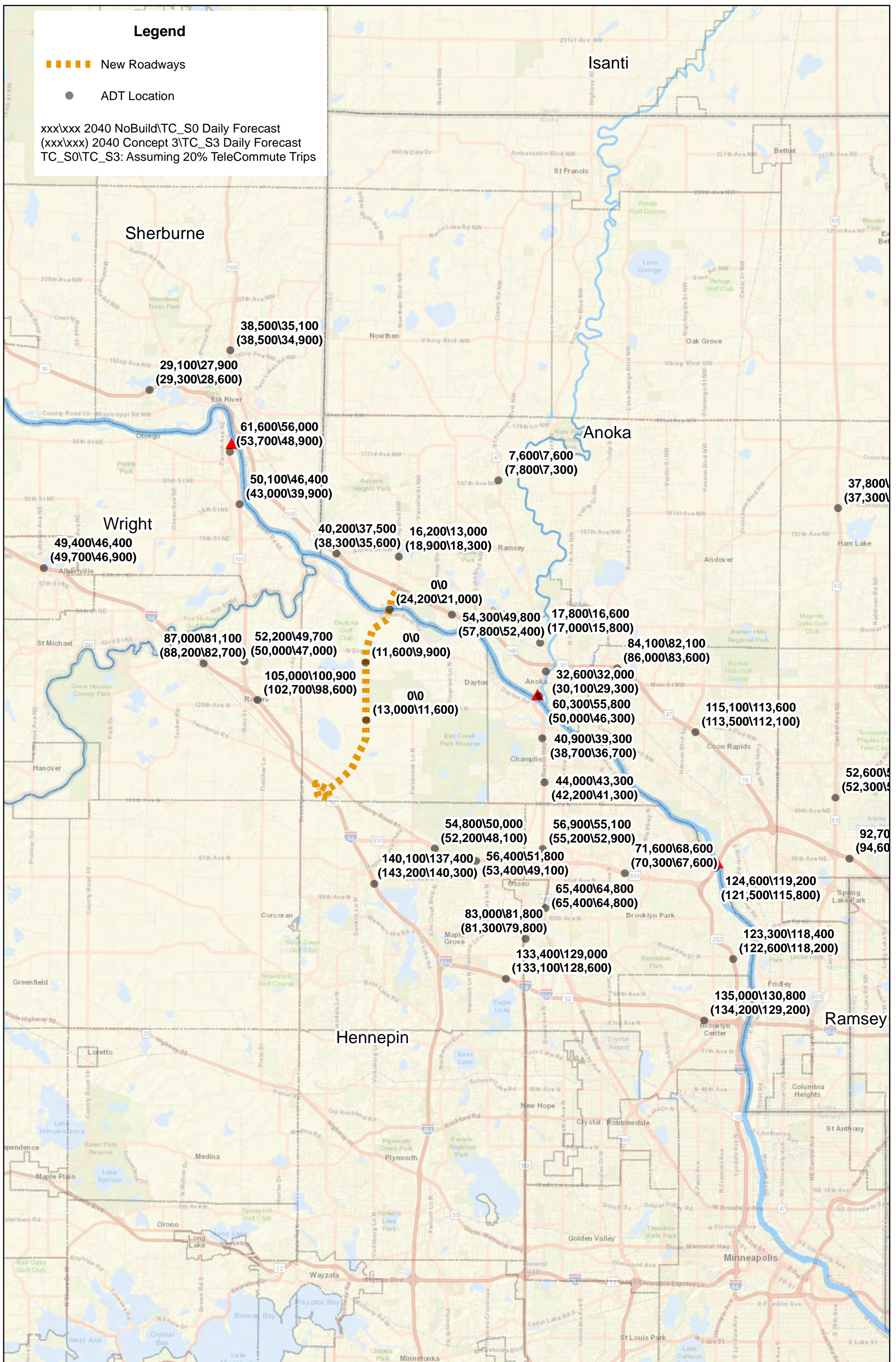
Northwest Metro Mississippi River Crossing Feasibility Analysis
 MnDOT Metro, Minnesota

Figure
 5.1



Author: HXiao
 Date: 6/9/2021

2040 NoBuild and Concept 2 Forecasted Daily Traffic Volumes
 (With/Without 20% TeleCommute Trips)



Legend

- New Roadways
- ADT Location

xxx\xxx 2040 NoBuild\TC_S0 Daily Forecast
 (xxx\xxx) 2040 Concept 3\TC_S3 Daily Forecast
 TC_S0\TC_S3: Assuming 20% TeleCommute Trips



Author: HXiao
 Date: 6/9/2021

2040 NoBuild and Concept 3 Forecasted Daily Traffic Volumes
 (With/Without 20% TeleCommute Trips)

Northwest Metro Mississippi River Crossing Feasibility Analysis
MnDOT Metro, Minnesota

Figure 5.3

Northwest Metro Mississippi River Crossing Feasibility Analysis

September 10, 2021

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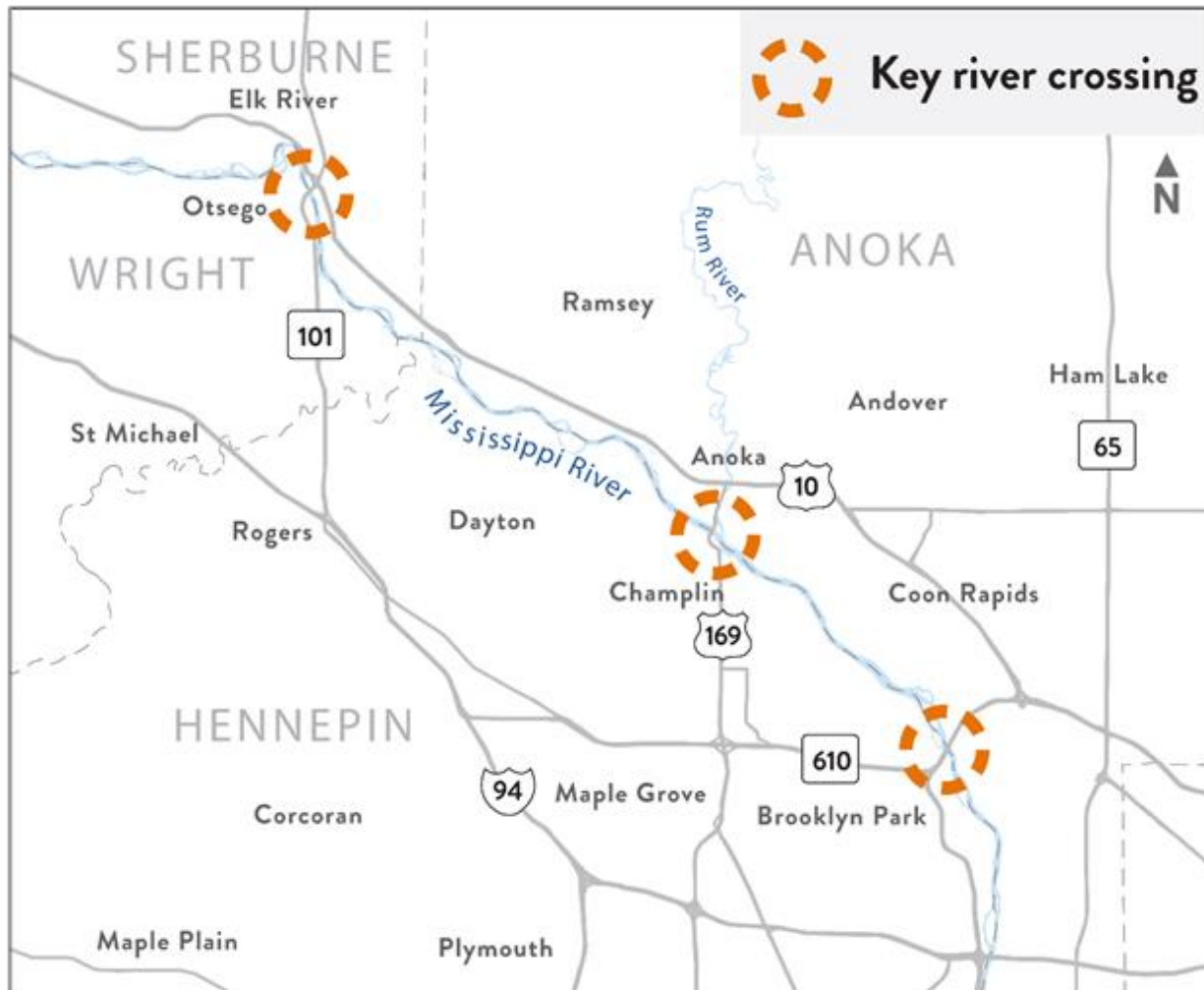
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I. Introduction

The Twin Cities Northwest Metropolitan Area has experienced considerable growth over the last several decades. As a result, existing Mississippi River crossings on Highways 101, 169, and 610 are approaching or exceeding capacity and experience several hours of congestion every day. This congestion impacts hundreds of thousands of commuters, freight haulers, and recreational travelers, as well as countless residents making local trips between northwest metro communities. Furthermore, communities in this area are expected to experience residential and employment growth in the coming years that will place additional pressure on the highway network.

Figure 1: Existing Mississippi River Crossings in the Northwest Twin Cities Metropolitan Area



The Northwest Metro Mississippi River Crossing Feasibility Analysis explores regional travel patterns and considers whether a new Mississippi River crossing is a feasible solution to existing and anticipated mobility challenges. It combines past river crossing studies with up-to-date land use data, population forecasts, traffic modeling techniques, and civil engineering to develop four highway improvement concepts. These concepts are evaluated for traffic impacts and cost effectiveness.

Analysis Goals

As a feasibility analysis, this study does not include project recommendations. It is a fact-finding investigation and the first of several steps in the project development process. At this stage of the process, MnDOT's primary goals are to assess the community and transportation context, identify the locations and sources of congestion, understand stakeholder perspectives, and define a range of potential solutions to mobility challenges. Specifically, the analysis seeks to:

- **Understand Land Use and Growth** – The Northwest Metropolitan Area has experienced considerable growth. Identifying and compiling community plans provides an understanding of long-term population and employment growth along the corridors and the mobility and access needed to accommodate it.
- **Understand Past Efforts** – The idea of additional Mississippi River crossing capacity has been studied numerous times over the past three decades. Understanding how project partners have planned for improved crossing capacity serves as a baseline for this analysis.
- **Understand Travel Patterns** – This study details where people are, where they are going, and how they get there to understand the role of Mississippi River crossings in regional travel.
- **Understand System Performance** – This study evaluates the severity, duration, and extent of highway congestion. These metrics establish a baseline against which to measure performance, assess significance, and evaluate the effectiveness of highway improvements.
- **Understand Community Perspectives** – This study includes a strategic engagement process where the team listens to concerns, explore the facts, and presents clear and consistent findings. Communities in the influence area of this effort are engaged and informed.
- **Develop Improvement Concepts** – This study develops concepts that address operational issues and maximize the value of existing infrastructure. These concepts include improvements to existing highways and new river crossings.
- **Evaluate Concept Feasibility** – This study evaluates concept feasibility based on land use, system benefits, overall cost/benefit analysis, and return on investment.

Impacts of the COVID-19 Pandemic

The timeframe during which this analysis was conducted coincided with the COVID-19 pandemic. During this health crisis, lower traffic volumes were observed in response to social gathering restrictions, school and business closures, and increased telecommuting. Lower traffic volumes on study area highways meant that system performance in 2020 and 2021 was very different than performance reflected in the pre-COVID traffic data collected for this feasibility analysis.

In recognition of this difference, and in response to uncertainty about how future traffic volumes will respond, this study includes a review of year 2020 congestion and sensitivity analysis to compare forecasts based on pre-COVID traffic conditions to forecasts based on conditions observed during the pandemic. This analysis showed that existing and forecasted congestion at several locations was reduced or eliminated due to increased levels of telecommuting. Other locations, however, remain congested under forecasts with increased telecommuting, including segments with traffic signals on Highways 10, 101, and 169.

The study's traffic sensitivity analysis is presented in Sections VI: Traffic Forecasts & Analysis; Section VII: Benefit Cost Analysis; and Section VIII: Operation Analysis. Sensitivity analysis findings are used to test the sensitivity of traffic volumes, congestion, and concept effectiveness with respect to telecommuting assumptions.

Report Structure

The Northwest Metro Mississippi River Crossing Feasibility Analysis technical report is organized in nine sections:

- **Section I: Introduction.** Provides background on the study's purpose and goals.
- **Section II: Context Analysis.** Defines the study area and describes northwest metro land use and transportation systems. This section also summarizes results of relevant plans and studies.
- **Section III: Origin-Destination Analysis.** Describes how people and communities use existing river crossings on Highway 101, Highway 169, and Highway 610.
- **Section IV: Congestion Analysis.** Evaluates the extent, intensity, duration, and causes of congestion on highways in the northwest metro.
- **Section V: Concept Development.** Describes the process used to identify improvements and develop concepts to address current and future mobility challenges. Introduces four concepts as the basis for traffic, benefit-cost, and operational analysis.
- **Section VI: Traffic Forecasts & Analysis.** Forecasts year 2040 traffic volumes and patterns under no-build and build scenarios and evaluates concept impact on year 2040 no-build congestion. This section also evaluates the sensitivity of year 2040 congestion and concept effectiveness with respect to telecommuting assumptions.
- **Section VII: Benefit Cost Analysis.** Evaluates the cost effectiveness of improvement concepts developed for this analysis by comparing their present value of benefits to present value of costs.
- **Section VIII: Operational Analysis.** Evaluates operational benefits and disbenefits of improvement concepts at four study area locations. This section also evaluates the sensitivity of intersection delay and concept effectiveness with respect to telecommuting assumptions.
- **Section IX: Conclusions and Next Steps.** Summarizes conclusions and identifies actions to advance study concepts for further analysis and environmental review.

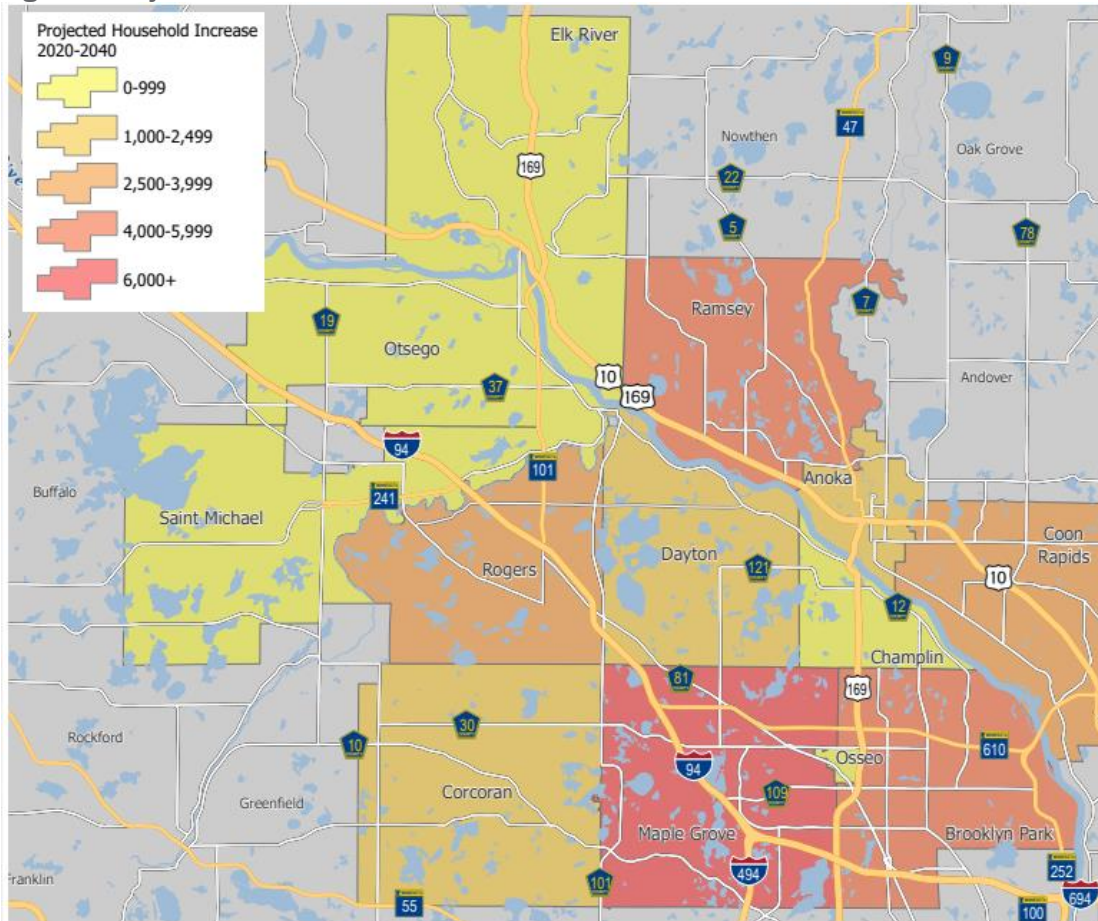
II. Context Analysis

The northwest region of the Twin Cities Metropolitan Area is one of the fastest growing areas in Minnesota. The Mississippi River runs through the heart of it, forming a natural barrier to intra and interregional travel. It is critical, therefore, to understand northwest metro river crossings in the context of local and regional transportation needs.

Study Area

The study area for the Northwest Metro Mississippi River Crossing Feasibility Analysis extends from northeast Wright County and southeast Sherburne County to western Anoka County and northern Hennepin County. Within this area are the fast-growing cities of St. Michael, Elk River, Ramsey, Anoka, Coon Rapids, Brooklyn Park, Maple Grove, Champlin, Dayton, and Rogers. Anticipated development trends for population, household, and employment have the potential to reshape cities on both sides of the river. According to the Metropolitan Council, northwest metro communities experienced a 39% increase in households and a 54% increase in jobs over the last twenty years. This growth is expected to continue, with a further 23% increase in households and a 17% increase in jobs expected by 2040.

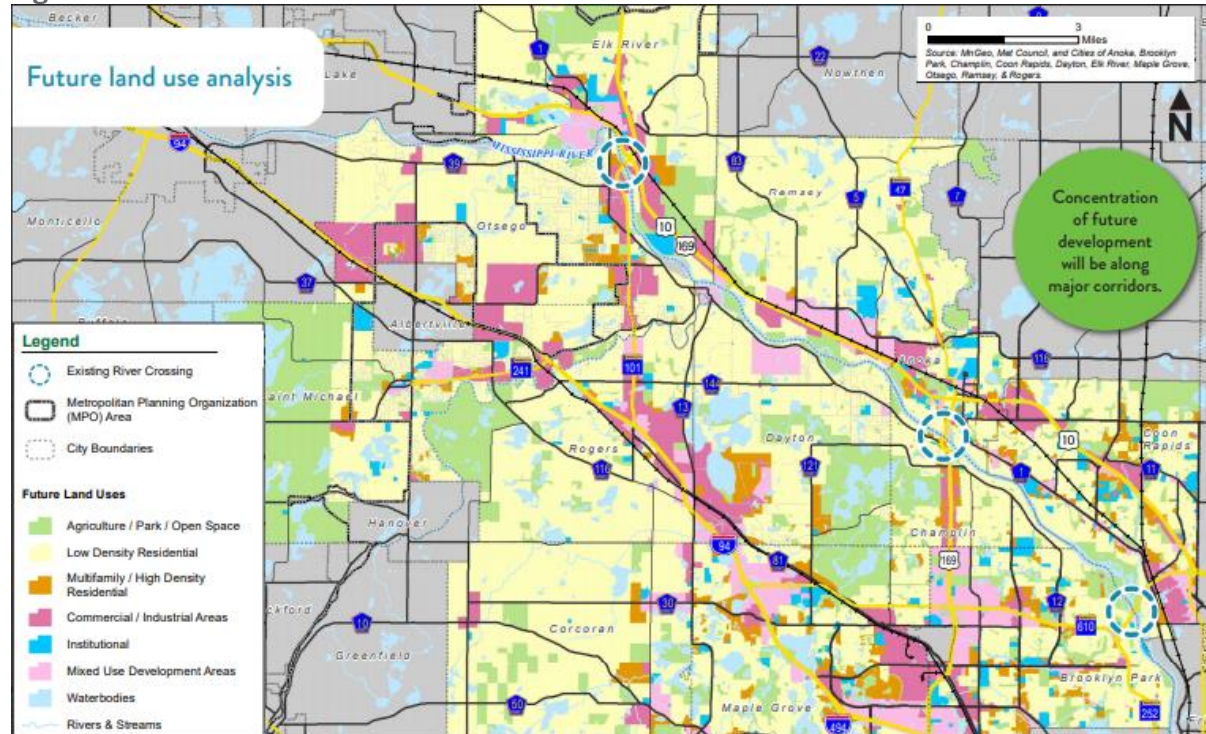
Figure 2: Projected Increase in Households in Northwest Metro Cities



Land Use and Transportation Network

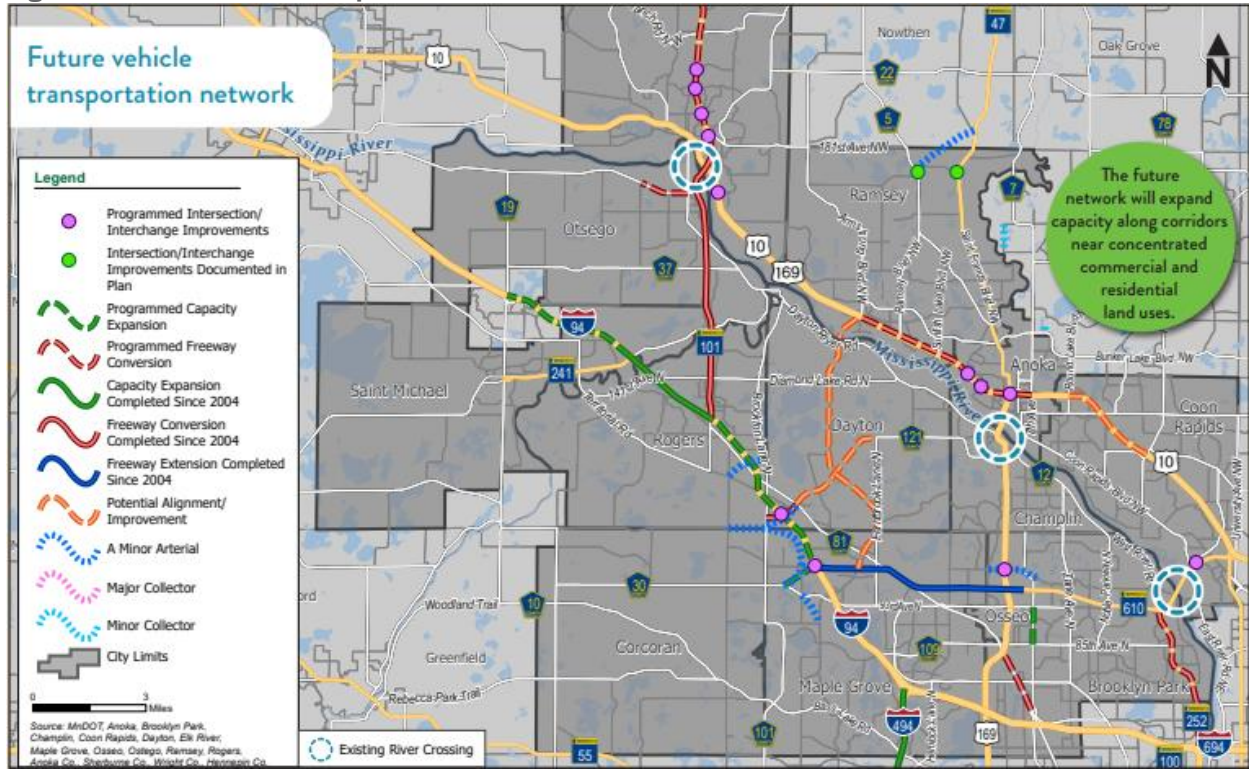
The feasibility analysis team conducted an analysis of future land use within the study area using city comprehensive plans. Land use categories for each city were generalized into six categories for easier comparison. Figure 3 shows a concentration of commercial and mixed-use activity along major corridors. Some areas are targeted for mixed-use development and urbanization. These areas include the Center of Ramsey (COR) on the north side of Highway 10/169, central Anoka surrounding the Northstar Commuter Rail Station, the I-94 corridor from Maple Grove to Highway 101, areas adjacent to Highway 101 within Hennepin County, and large areas in and around central Elk River.

Figure 3: Future Land Use in the Northwest Metro



The future vehicle transportation network shows programmed and planned improvements along I-94 and Highway 10, as well as potential improvements and new alignments identified in past studies and local comprehensive plans is shown in Figure 4. This network has changed significantly since the creation of the 2004 Northwest Metro Corridor and River Crossing Scoping Decision Document. The overall intent of these changes is a transportation network that provides increased capacity and connections at key locations within the study area.

Figure 4: Future Vehicle Transportation Network in the Northwest Metro



Past Studies

Context analysis provides a look back at studies and plans that have been completed in the northwest metro over the last three decades. This work sheds light on what communities expect to happen in the future and how they are planning and positioning for this change to occur.




The Northwest Metro Mississippi River Crossing Feasibility Analysis considered 10 transportation studies by state/metro agencies, four county comprehensive plans, and 13 city comprehensive plans. Key takeaways from this analysis include:

- Growth is anticipated to continue throughout the northwest metro. Ramsey, Corcoran, and Dayton are among the fastest growing communities in the Twin Cities.
- County and city comprehensive plans in the region call for mixed use and higher density development along major corridors.
- Northwest metro highways have been studied multiple times over the last 30 years. Most of these studies identify the need for additional highway capacity.
- Investments have been made to address congestion and support future growth. Some communities have invested north of the Mississippi River to accommodate a future crossing.

III. Origin-Destination Analysis

The Northwest Metro Mississippi River Crossing Feasibility Analysis included an origin-destination (OD) analysis of trips crossing the Mississippi River on Highway 101, 169, and 610. The purpose of this analysis was to understand how travelers and communities use existing river crossings in the northwest metro. Understanding the demand for river crossing trips – where the trips come from and where they are going – sheds valuable light on the potential impact of a new river crossing on regional travel patterns and congestion.

Figure 5: Origin-Destination Analysis Summary of Trips Crossing the Mississippi River

Crossing location	Highest proportion of:
Highway 101	Long trips to and from the Metro 
Highway 169	Short trips typical of shopping 
Highway 610	Medium trips typical of commutes 

Methodology

The OD analysis performed for this study was conducted using the StreetLight Insights software platform. StreetLight is a private company that compiles anonymized location records from smart phones and navigation devices in connected vehicles and transforms these location records into travel pattern data. This allows transportation analysts to develop helpful information about how vehicles, bicycles, and pedestrians move through the transportation network.

Two types of data were extracted from StreetLight for the OD analysis: Origin-Middle-Filter-Destination (OMD) trips and Top Routes data. This data was used to identify the origins (Os) and destinations (Ds) of the trips using the river crossings via different highways (Top Routes).

The OD analysis was conducted primarily for person trips during the AM peak period (6:00 to 10:00 am), the PM peak period (3:00 to 7:00 pm) and daily during weekdays (Monday – Thursday) from April 1st to 30th and September 1st to October 31st, 2019. A comparative analysis was conducted later between weekdays and the Friday afternoon before Memorial Day to investigate how travel patterns change entering a holiday weekend.

Additional information about OD analysis methodology is available in Appendix B.

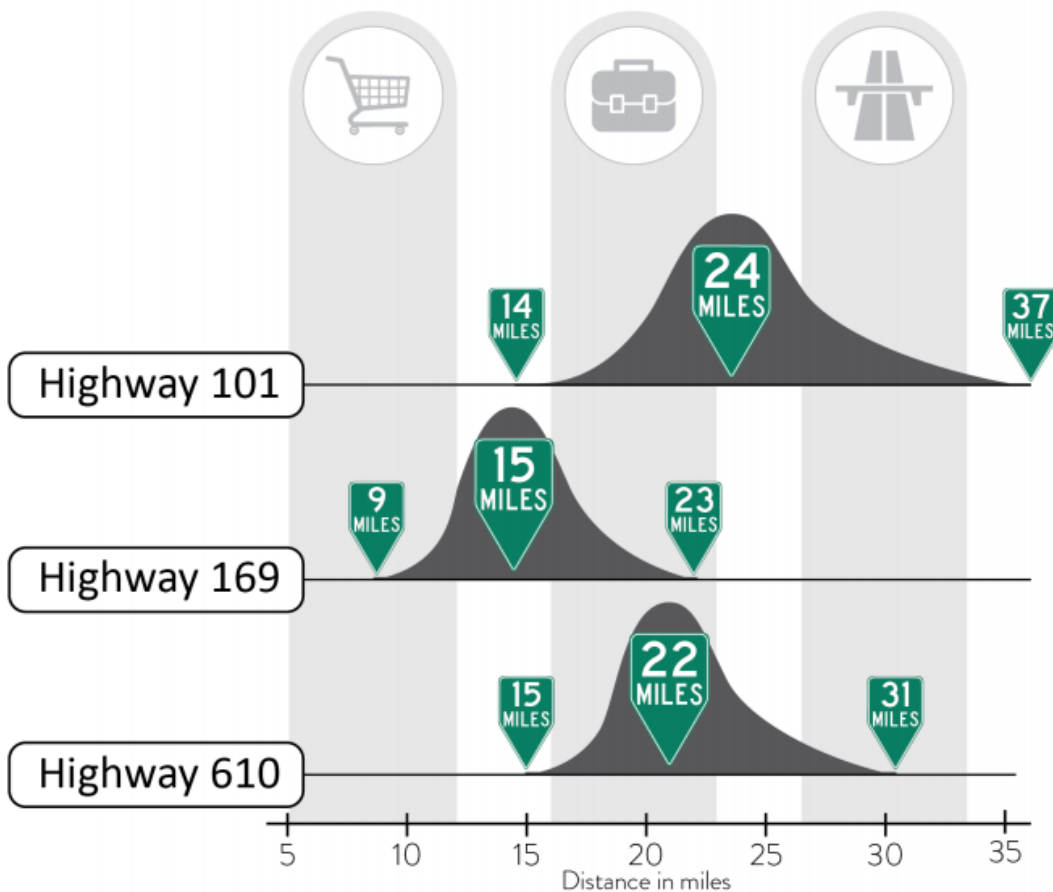
Trip Volume and Length

OD analysis of trips crossing the Mississippi River in the northwest metro indicates that the Highway 101, 169 and 610 river crossings serve the region in unique and important ways. Highway 610 carries over half the river crossings in the study area and serves the highest portion of trips between 20 and 30 minutes in length. This trip profile is consistent with work commutes. Highway 101 carries about one-fourth of the river crossings in study area and serves the highest proportion of trips over 30 minutes. Highway 169 carries the fewest and shortest trips, with most of the trips crossing on Highway 169 less than 20 minutes. These profiles suggest Highway 101 plays an important role carrying trips into and out of the Twin Cities and Highway 169 is a critical connection between the Cities of Champlin (Hennepin County) and Anoka (Anoka County).

Table 1: Distribution of Daily Trips on Northwest Metro Mississippi River Crossings

	Hwy 101		US 169		Hwy 610		Total	
	SB	NB	SB	NB	SB	NB	SB	NB
AM (6:00 to 10:00 am)	10,200	5,000	6,400	4,100	20,900	11,800	37,600	20,800
PM (3:00 to 7:00 pm)	8,600	13,600	5,000	8,500	17,600	27,600	31,300	49,600
Daily	32,100	32,300	20,900	22,000	66,700	66,000	119,700	120,300
	64,500 (27%)		42,900 (18%)		132,700 (55%)		240,000 (100%)	

Figure 6: Median and Range of Daily Trips on Northwest Metro Mississippi River Crossings



Communities Served

In addition to different trip volume and length, northwest metro Mississippi River crossings also serve different trip origins and destinations. Figures 7-9 show the density of trips using a northwest metro Mississippi River crossing by traffic analysis zone (TAZ). The distribution of river crossings by TAZ indicates the Highway 610 river crossing serves trips originating or arriving at locations throughout the northwest metro, while the origins and destination of Highway 169 crossing are concentrated in adjacent communities. The distribution of Highway 101 crossing origins and destinations is more dispersed, with approximately 35 percent of trips beginning or ending in the Cities of Elk River or Otsego and the rest distributed across the region.

Figure 7: Origin and Destination of Trips Crossing the Mississippi River on Highway 101, by TAZ

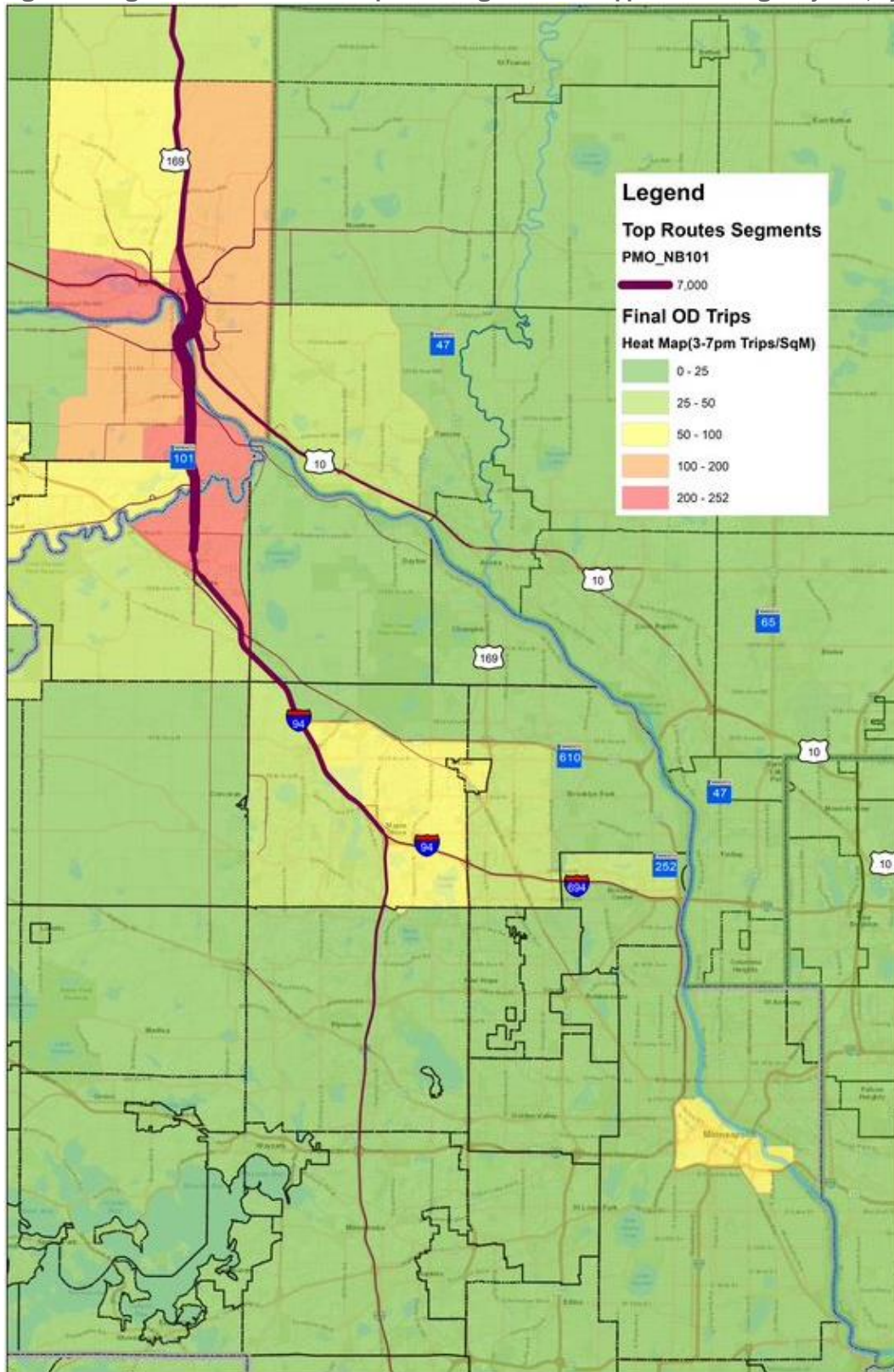
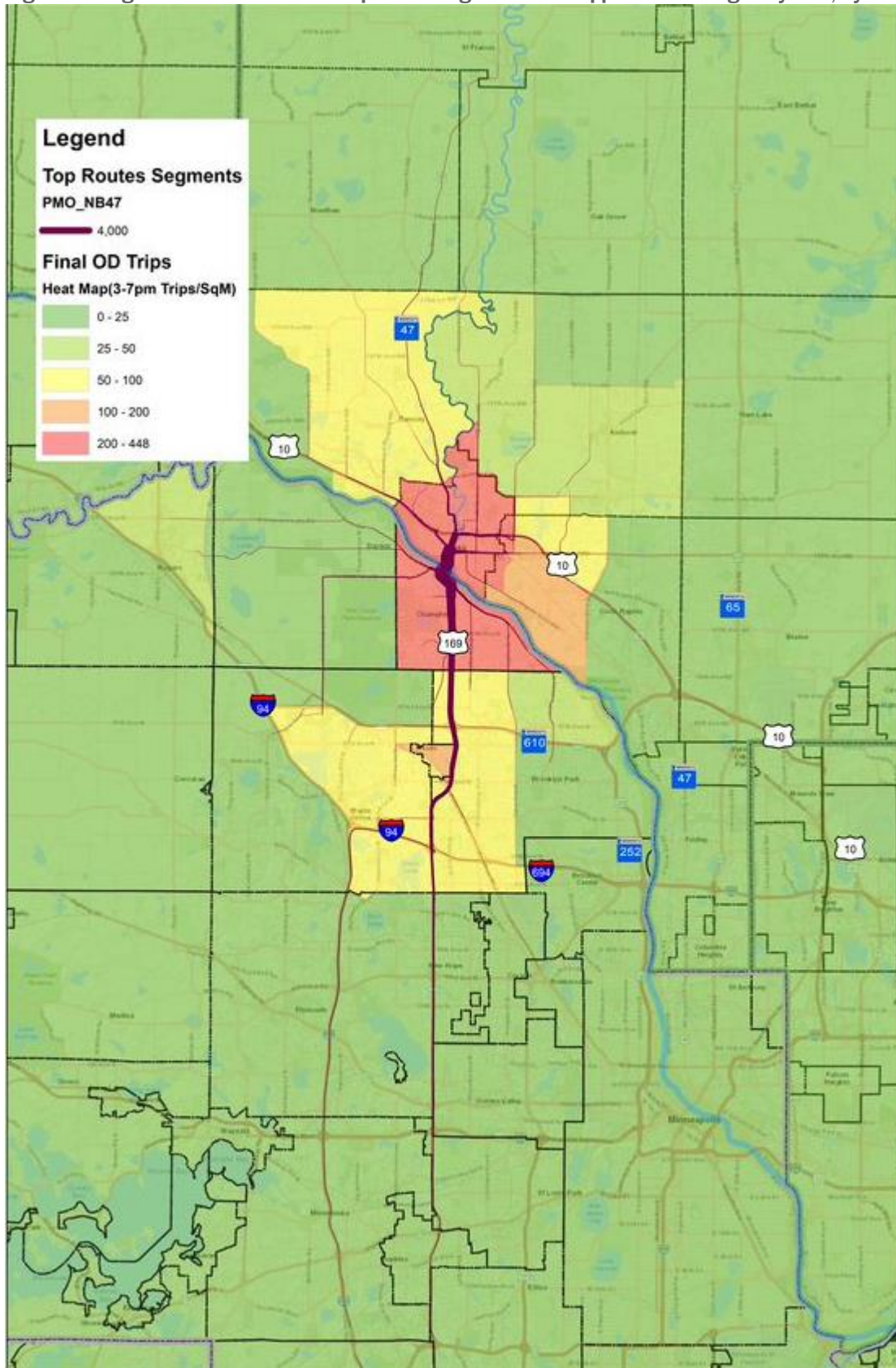


Figure 8: Origin and Destination of Trips Crossing the Mississippi River on Highway 169, by TAZ



Holiday Travel

The OD analysis of trips crossing the Mississippi River in the northwest metro also considered recreational travel on Highway 101. Weekday PM peak period travel was compared to PM peak period travel on the Friday before Memorial Day 2019. This analysis indicated the Highway 101 crossing carries similar trip volumes and patterns on holiday weekends compared to a typical weekend, but average trip length is longer.

Figure 10: Highway 101 Bridge Long-Distance Holiday Trips



Additional Findings

Several additional key findings are summarized below. In addition, detailed OD analysis results are available in Appendix B.

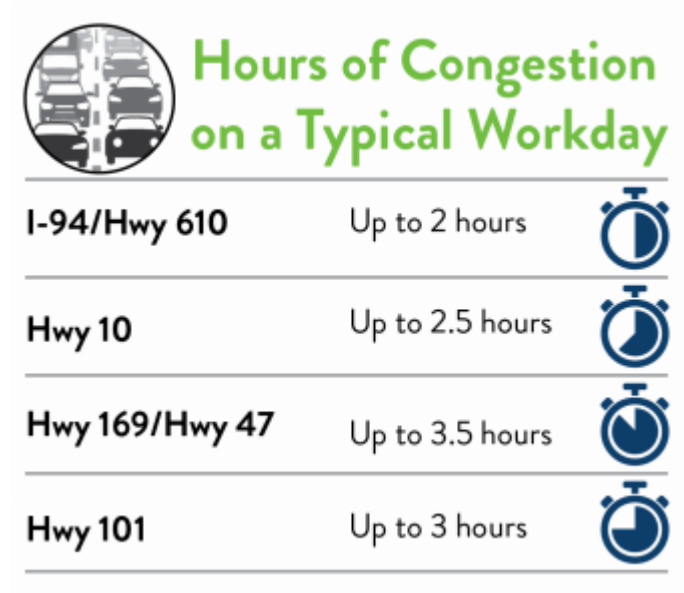
- Mississippi River crossing in the northwest metro carry nearly 240,000 average daily vehicle trips (weekdays in April, September, and October 2019).
- Approximately 70 percent of trips using the crossings serve communities within the immediate river crossing area, while approximately two percent of trips are interregional trips. Most of these interregional trips use the Highway 101 crossing.
- The top five destination cities of trips using northwest metro area crossings are Coon Rapids (9.9 percent), Brooklyn Park (9.7 percent), Blaine (7.3 percent), Elk River (6.7 percent) and Maple Grove (5.9 percent).
- The area between the Highway 610 and Highway 169 crossing has a much higher density of trips crossing the Mississippi River (greater than 700 trips per square mile) than the area located between the Highway 101 and Highway 169 crossing (less than 350 daily trips per square mile).

IV. Congestion Analysis

Traffic congestion is a condition that exists on roadway facilities whenever traffic flows at slower than intended speeds. This condition is caused by bottlenecks, which are locations where travel demand approaches or exceeds roadway capacity. Traffic congestion is a concern because it causes delay to travelers, increases safety risks, reduces highway throughput, and has negative environmental impacts from wasted fuel and increased emissions.

Congestion analysis seeks to understand congestion's extent (where does it occur); intensity (how bad is it); duration (how long does it last); and causes. The congestion analysis performed as part of the Northwest Metro Mississippi River Crossing Feasibility Analysis shows that travelers regularly experience congestion in the study area. The primary causes of regional congestion are high traffic volumes and signal interference at key locations.

Figure 11: Hours of Congestion on a Typical Workday



Methodology

The congestion analysis completed as part of this study uses speed data derived from GPS-enabled devices to locate where and when congestion is happening. The GPS speed data was accessed through MnDOT's subscription to the ClearGuide web platform. This data was collected during the AM and PM peak hours from different days in April, May, September, and October 2019. Speed data was analyzed at both the regional and corridor level. See Appendix C for additional information about how the study's congestion analysis was conducted.

Regional Congestion

A typical workday sees some form of congestion on portions of basically all the state highways in the Northwest Metro study area. Figure 12 and Figure 13 map this congestion and its causes. There is heavy AM and PM congestion in both directions on Highway 169 north of the Mississippi River. This congestion extends south of the river for northbound traffic in the afternoon. There is also heavy AM and PM congestion in both directions on Highway 101 north of the Highway 101/I-94 interchange. In the afternoon, Highway 101 NB is congested north of I-94 and around the Highway 10/101/169 interchange.

Highway 610 is congested at different locations at different times of day. In the AM peak, Highway 610 WB is congested east of the Highway 169/610 interchange and west of the Highway 10/610 interchange. In the PM peak, Highway 610 EB is congested east of the Highway 169/610 interchange. Congestion on I-94 and Highway 10 is driven by commute patterns into and out of the metro core. There is AM peak hour congestion on I-94 EB and PM peak congestion on I-94 WB near the I-94/Highway 610 interchange. The heaviest congestion on Highway 10 occurs during the PM peak west of the Highway 10/Highway 610 interchange.

Figure 12: AM Peak Hour Congestion and Issues

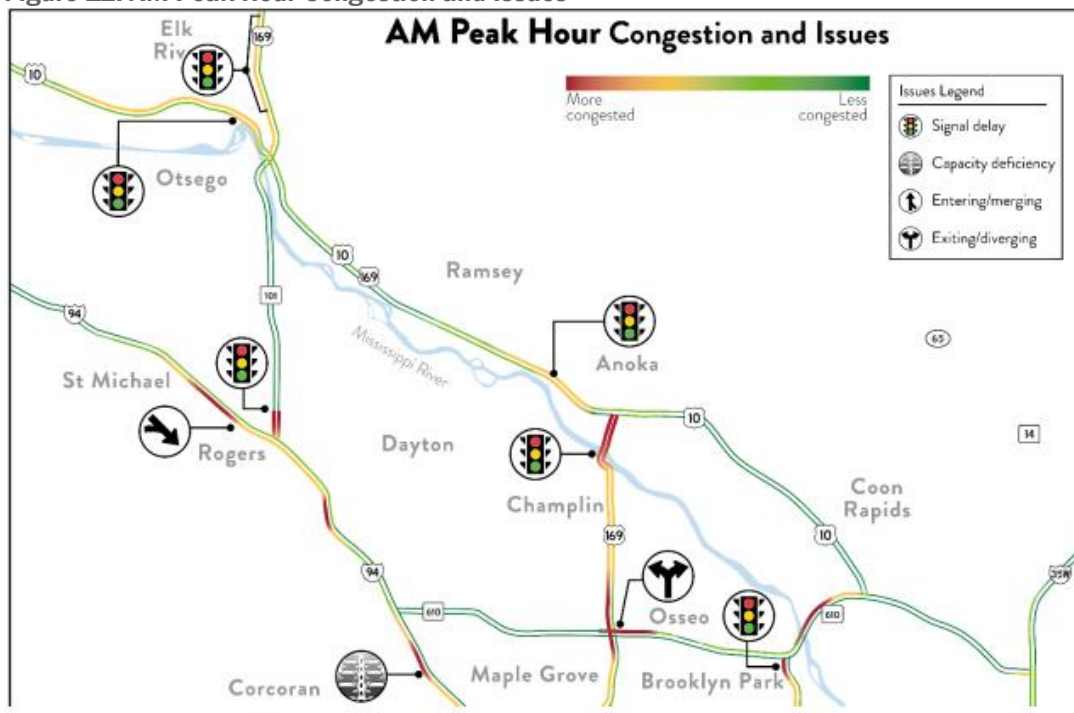
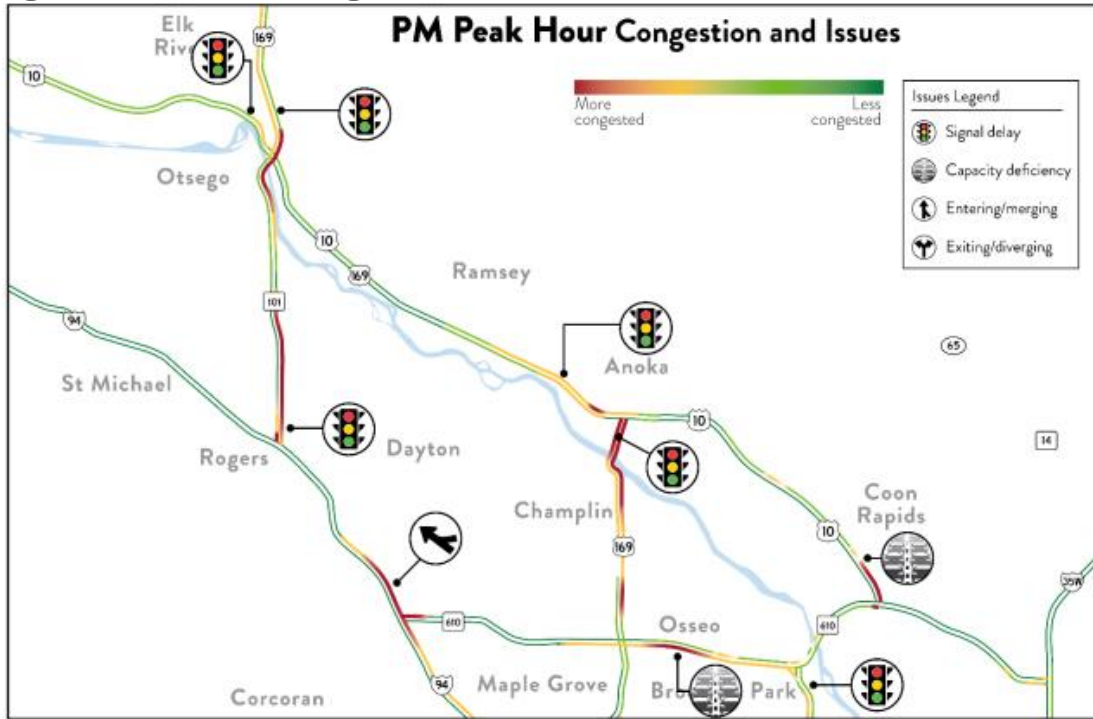


Figure 13: PM Peak Hour Congestion and Issues



Corridor Bottlenecks

Table 2 identifies traffic bottlenecks on major corridors in the northwest metro, along with an approximate congestion duration associated with each bottleneck. The four corridors are:

- I-94/Highway 610 between Highway 241 in St Michael and Highway 65 in Blaine
- Highway between Orono Lake Bridge in Elk River to Highway 65 in Blaine
- Highway 169 between Bunker Lake Blvd in Anoka and Highway 610 in Brooklyn Park
- Highway 101 between 193rd Ave in Elk River and I-94 in Rogers

Freeway bottlenecks on I-94, Highway 610, and Highway 10 are caused by merging and diverging traffic and capacity constraints at key locations. Other bottlenecks in the region are the result of traffic signals. The worst corridor bottlenecks for congestion duration are on Highway 169 SB between Bunk Lake Blvd and Dayton Road, Highway 169 NB between Bunker Lake Blvd. and Hayden Lake Road, and Highway 101 SB between 193rd Ave. and Diamond Lake Road.

Table 2: Traffic Bottlenecks on Major Highway Corridors in the Northwest Metro

Highway Corridors	Dir.	AM Peak	PM Peak
I-94/Hwy 610 between Hwy 241 and Hwy 65	EB	Hwy 101 (2 hours), Hwy 610 (1 hour), Hwy 252 (1.5 hours)	Hwy 252 (2.5 hours)
	WB	Hwy 252 (2 hours), Hwy 169 (1.5 hours)	Hwy 252 (1.5 hours), Zane Ave (1 hour), Hwy 101 (2.5 hours)
Hwy 10 Between Orono Lake Bridge and Hwy 65	EB	Traffic signals in Elk River and congestion (1.5 hours) in Ramsey	Traffic signals in Elk River and congestion (1.5 hours) in Ramsey
	WB	Traffic signals in Elk River and congestion (1 hour) in Ramsey	Traffic signals in Elk River and congestion in Ramsey (2.5 hours) and Coon Rapids (2 hours)
Hwy 169/Hwy 47 between Bunker Lake Blvd and Hwy 610	SB	Traffic signals between Bunker Lake Blvd and Dayton Rd and congestion on Hwy 610 (2 hours)	Traffic signals between Bunker Lake Blvd and Dayton Rd
	NB	Traffic signals between Bunker Lake Blvd and Dayton Rd	Traffic signals and congestion between Bunker Lake Blvd. and Hayden Lake Rd. (3.5 hours); 109 th Ave. (1.5 hours)
Hwy 101 Between 193rd Ave and I-94	SB	Traffic signals between 193rd Ave and Hwy 10 and congestion at Diamond Lake Rd (3 hours)	Traffic signals between 193rd Ave and Hwy 10 and at Diamond Lake Rd
	NB	Traffic signals at Diamond Lake Rd and between 193rd Ave and Hwy 10	Traffic signals at Diamond Lake Rd and congestion between 193rd Ave and Hwy 10 (2 hours)

Hours of congestion provided in parenthesis for bottlenecks caused by traffic movements and capacity constraints

Holiday Congestion

Holiday weekend traffic increases the extent, severity, and duration of congestion on highways in the northwest metro. It also shifts where congestion occurs, with I-94 and Highway 10 experiencing much more severe congestion on a Friday afternoon before a holiday weekend than during a typical afternoon rush hour. Highway 101 also experiences a significant amount of holiday related congestion due to a four-fold increase in interregional traffic and the traffic signals on Highway 169 north of the Highway 10/101/169 intersection.

Figure 14: Highway 101 Mississippi River Crossing Congestion

With 4 times more traffic,
the Hwy 101 Mississippi River Crossing
has the most holiday weekend congestion
in the Northwest Metro.



V. Concept Development

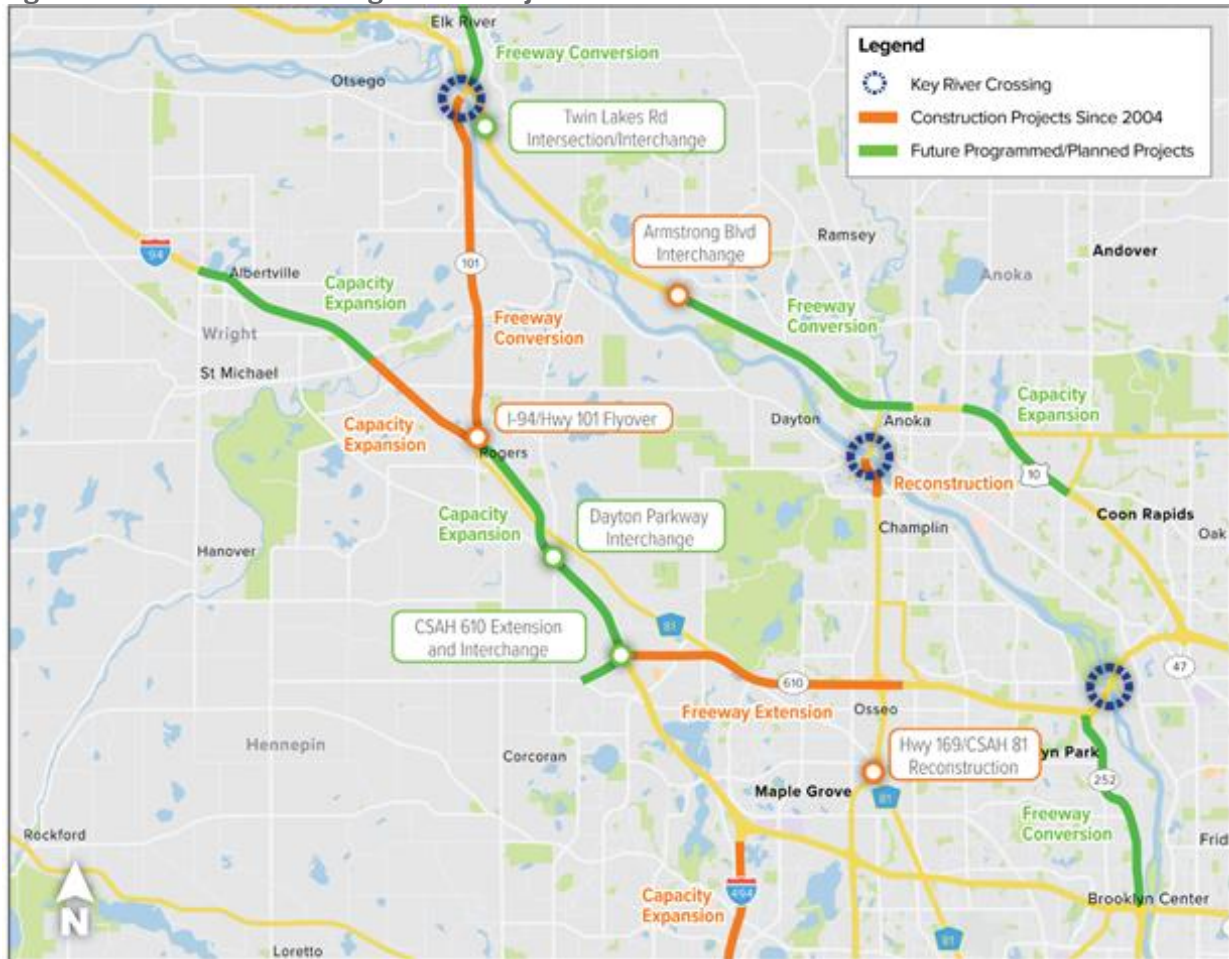
For the purposes of the Northwest Metro Mississippi River Crossing Feasibility Analysis, an improvement refers to a highway enhancement with the potential to improve highway mobility. A concept is a combination of improvements working together to address regional congestion. This section describes the process used to identify improvements and develop improvement concepts. This process has four steps.

- Step 1: Brainstorm ideas.
- Step 2: Narrow the range of feasible improvements.
- Step 3: Develop improvement concepts.
- Step 4: Review concept effectiveness.

Step 1: Brainstorm Ideas

The first step in the concept development process was to brainstorm ways to meet demand for north-south trips across the Mississippi River in the northwest metro. This brainstorm considered potential improvements to existing corridors as well as new river crossings, some consistent with those that were reviewed in the 2004 Northwest Metro Corridor and River Crossing Scoping Decision Document. The feasibility analysis team also reviewed construction projects in the region as shown in Figure 15. Accounting for programmed projects, the analysis assumed three expressway segments in the study area would remain in 2040: Highway 10/169 from Elk River to Ramsey, Highway 101 southbound in Rogers, and Highway 169 from Anoka to Champlin.

Figure 15: Constructed and Programmed Projects – 2021



A total of 14 ideas were put forward at this stage in the feasibility analysis. Nine ideas were improvements to existing corridors, and five ideas were new river crossings. As shown in Figure 16 and Table 3, the ideas included high and low-cost alternatives at two locations: Highway 10 from Ramsey to Elk River and the Highway 101/I-94 interchange. Asterisks indicate the status of improvements in the planning process. One asterisk indicates the location is under study (outside of this study). Two asterisks indicate a project in design.

Figure 16: Range of Possible Improvements on Highway Corridors in the Northwest Metro

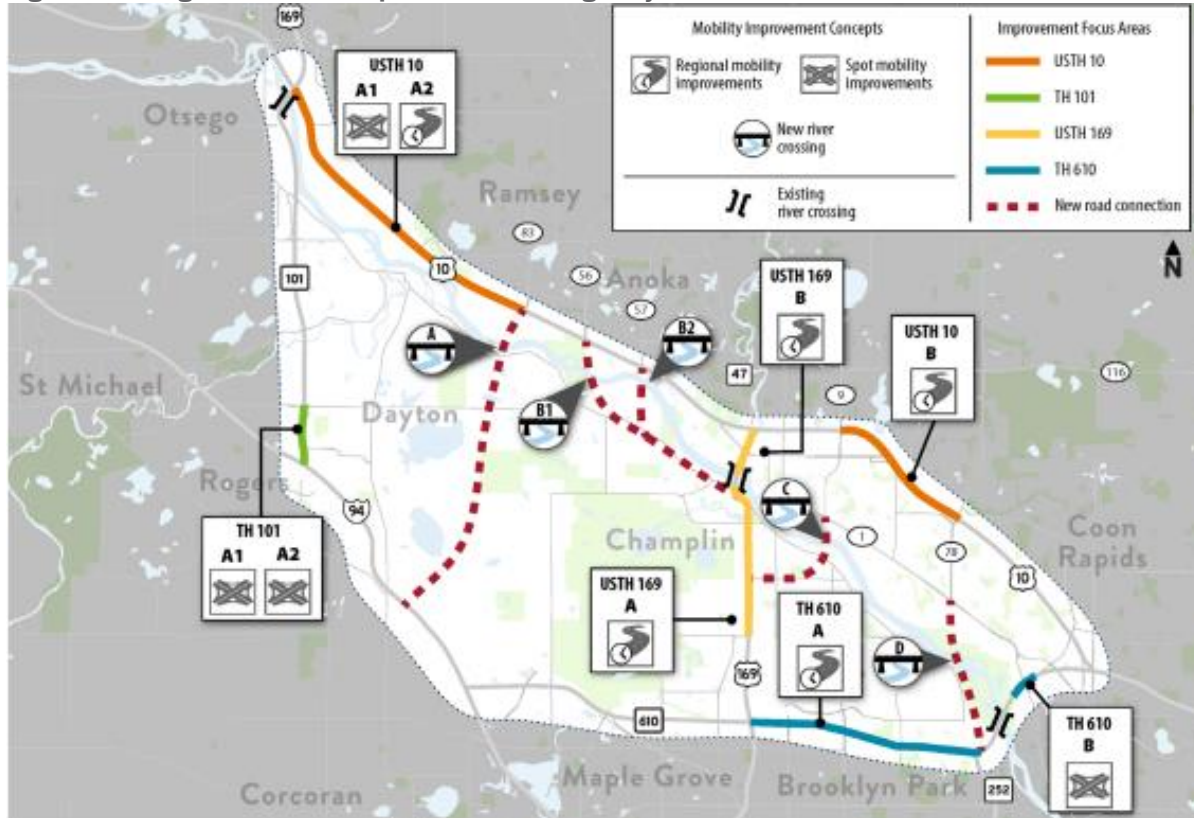


Table 3: Range of Possible Improvements on Highway Corridors in the Northwest Metro

Highway	Improvement	Start	End
Highway 10	A1. At grade improvements*	Armstrong Blvd. (Ramsey)	Hwy 101 (Elk River)
	A2. Grade separated corridor*	Armstrong Blvd. (Ramsey)	Hwy 101 (Elk River)
	B. Lane addition**	Hanson Blvd. (Coon Rapids)	Round Lake Blvd. (Elk River)
Highway 101	A1. Diverging Diamond Conversion	Hwy 101/I-94 interchange	Hwy 101/I-94 interchange
	A2. Hwy 101 SB to I-94 EB flyover	Hwy 101/I-94 interchange	Hwy 101/I-94 interchange
Highway 610	A. Mobility improvement	Hwy 169 (Maple Grove)	Hwy 252 (Brooklyn Park)
	B. Hwy 610/E River Rd Interchange	Hwy 610/E River Rd interchange	Hwy 610/E River Rd interchange
Highway 169	A. Mobility improvement	101 st Ave.	W. River Road
	B. Mobility improvement	W. River Road	Hwy 10
New River Crossing	A. Zanzibar/Armstrong Alignment	Hwy 10/169 and Armstrong Blvd	I-94 and Dayton Pkwy
	B1. Ramsey Blvd. Alignment	Hwy 10/169 and Ramsey Blvd	Hwy 169 (south of river)
	B2. Sunfish Lake Blvd. Alignment	Hwy 10/169 and Sunfish Lake Blvd.	Hwy 169 (south of river)
	C. Round Lake Blvd. Alignment	Hwy 10 and Round Lake Blvd.	Hwy 169 (south of river)
	D. Hwy 252 Ext. to Hanson Blvd.	Hwy 10 and Hanson Blvd.	Hwy 252/610

* Location under study; ** Project in design

Step 2: Narrow the Range of Feasible Improvements

Having considered the mobility impacts of MnDOT’s capital program and identified a range of possible improvements to the future highway network, the next step in the analysis was to evaluate the feasibility of improvement ideas on four factors:

1. *Will it improve traffic flow across the Mississippi River?* Traffic modeling was conducted to determine how well a potential concept would improve congestion and traffic flow.
2. *Is the project consistent with local and regional plans?* Each potential improvement was considered based on city and county comprehensive plans, regional plans, and projects in the area planned or currently under construction.
3. *What is the residential and community impact?* Concepts were evaluated based on right of way needs for the project and the potential for residential and commercial property acquisition and disruption.
4. *What is the impact to natural resources?* Each concept was evaluated based on effects to local parks, lakes, and the Mississippi River.

This analysis eliminated seven ideas from further analysis. The eliminated ideas included both mobility improvement ideas on Highway 169 and all new river crossings except for the Zanzibar/Armstrong Alignment. These improvements were eliminated from consideration due to inconsistency with local plans and the likelihood for high residential, community, and natural resource impacts. In addition, the Highway 610/East River Road Interchange was eliminated from further analysis because it was found to be a local access improvement, not a regional mobility improvement.

Table 4 summarizes the results of the screening analysis to narrow the overall list of improvements to the range of feasible improvements. This shows the assessment of each of the four factors shown above, and concludes with the determination of locations carried forward or eliminated with a “thumbs up” or “thumbs down”, respectively.

Table 4: Feasibility Assessment of Possible Improvements to MnDOT Highways in Study Area

Range of Possible Improvements		Improves traffic flow across Mississippi River	Consistent with local & regional planning	Potential residential & community impacts	Natural resources impact considerations	Eligible for inclusion in Concept Development
NO BUILD						
I-94	Do nothing					
USTH 10	USTH 10 A1* Ramsey to Elk River - Spot mobility improvements from Armstrong Blvd (Ramsey) to TH 101 (Elk River) (6 miles)					
	USTH 10 A2* Ramsey to Elk River - Convert to 4-lane grade-separated corridor from Armstrong Blvd (Ramsey) to TH 101 (Elk River) (6 miles)					
	USTH 10 B** Coon Rapids Lane Add - Add lane from Hanson Blvd to Round Lake Blvd (2.5 miles)					
TH 101	TH 101 A1 TH 101 SB Capacity Improvements - Signals remain. Ideas include adding an additional right turn lane dedicated to WB I-94 or I-94 interchange could be converted to a DDI					
	TH 101 A2 SB 101/94 System Interchange Improvements - Introduce a southbound TH 101 to eastbound I-94 flyover					
TH 610	TH 610 A*** TH 610 Mobility Improvement - From TH 169 to TH 252 (4 miles)					
	TH 610 B TH 610 East River Rd Interchange - Reconfigure interchange to provide full movements (today ramps only on west side)					
USTH 169	USTH 169 A*** USTH 169 Mobility Improvement - 101st to W. River Road (3 miles)					
	USTH 169 B*** USTH 169 Mobility Improvement - West River Road to TH 10 (1.5 miles)					
NEW RIVER CROSSING	A Zanzibar/Armstrong Alignment					
	B1 TH 169 to Ramsey Blvd Alignment					
	B2 TH 169 to Sunfish Lake Blvd Alignment					
	C TH 169 to 117th Ave to Round Lake Blvd Alignment					
	D TH 252 Extension to Hanson Blvd Alignment					

Table 5 identifies improvements advanced for further feasibility analysis. Additional description of each improvement is provided in the pages that follow.

Table 5: Feasible Improvements on Highway Corridors in the Northwest Metro

Highway	Improvement	Start	End	Total Project Cost	
				L	H
Highway 10	A1. At grade improvements	Armstrong Blvd. (Ramsey)	Hwy 101 (Elk River)	\$22M	\$38M
	A2. Grade separated corridor	Armstrong Blvd. (Ramsey)	Hwy 101 (Elk River)	\$115M	\$290M
	B. Lane addition	Hanson Blvd. (Coon Rapids)	Round Lake Blvd. (Elk River)	\$36M	\$36M
Highway 101	A1. Diverging Diamond Conversion	Hwy 101/I-94 interchange	Hwy 101/I-94 interchange	\$22M	\$26M
	A2. Hwy 101 Southbound to I-94 Eastbound flyover	Hwy 101/I-94 interchange	Hwy 101/I-94 interchange	\$107M	\$129M
Highway 610	A. Mobility improvement	Hwy 169 (Maple Grove)	Hwy 252 (Brooklyn Park)	\$8M	\$35M
New River Crossing	A1. Arterial crossing using Zanzibar/Armstrong Alignment	Hwy 10/ Armstrong Blvd interchange	I-94 at the Dayton Pkwy interchange	\$170M	\$250M
	A2. Expressway crossing using Zanzibar/Armstrong Alignment	Hwy 10/ Armstrong Blvd interchange	I-94 at the Dayton Pkwy interchange	\$190M	\$250M

* Total Project Cost presented in year 2030 dollars

Highway 10

Highway 10 is a 6-lane freeway from I-35W to Hanson Boulevard, a 4-lane freeway from Hanson Boulevard to Fair oak Avenue, then a 4-lane expressway to Highway 169. The segment between Armstrong Boulevard to Fair oak Avenue will be converted to a freeway in the next four years. Two segments of Highway 10 were chosen for concept development.

- Segment A: 4-lane expressway from Armstrong Boulevard to the Highway 10/101/169 intersection, approximately 5.4 miles long and currently part of an Elk River led study.
- Segment B: 4-lane freeway from Hanson Boulevard to Round Lake Boulevard, approximately 2.8 miles long.

Highway 10-A1: At-grade improvements.

The Highway 10-A1 concept modifies and consolidates existing intersections and constructs a 2.5-mile frontage road to maintain local access to the highway. The lower cost assumes the five busiest intersections are converted to RCUTs and the other intersections become right-in-right-out. The higher cost assumes all seven intersections in the corridor become signalized.

Highway 10 is not assumed to be reconstructed in this concept. Frontage roads and associated right-of-way were estimated based on a 36' wide urban frontage road system that utilizes existing roads to connect businesses and residential areas to major intersections.

Figure 17: Highway 10-A1: At-Grade Improvements






Highway 10-A2: Grade-Separated Corridor

Highway 10-A2 includes a full reconstruction of Highway 10 from Armstrong Boulevard to the Highway 10/101/169 interchange. The typical roadway section matches the segment under design east of Armstrong Boulevard, a four-lane freeway with median barrier. This concept also includes the construction of two interchanges and 2.5 miles of frontage road to maintain local access to the new freeway. The cost for the interchanges including bridges, retaining wall, earthwork, drainage, and right of way needs were taken from the Ramsey Boulevard/Highway 10 interchange cost estimate. Improvements to the existing rest stop assume extensions of ramps in the lower cost option and an interchange construction in the higher cost option based on previous cost estimates. Frontage roads and associated right-of-way were estimated similarly to the Highway 10-A1 Concept.

Figure 18: Highway 10-A2: Grade-Separated Corridor

	NORTHWEST METRO Mississippi River Crossings Feasibility Analysis	CONCEPT DEVELOPMENT
		USTH 10 - A2 Grade-separated Corridor

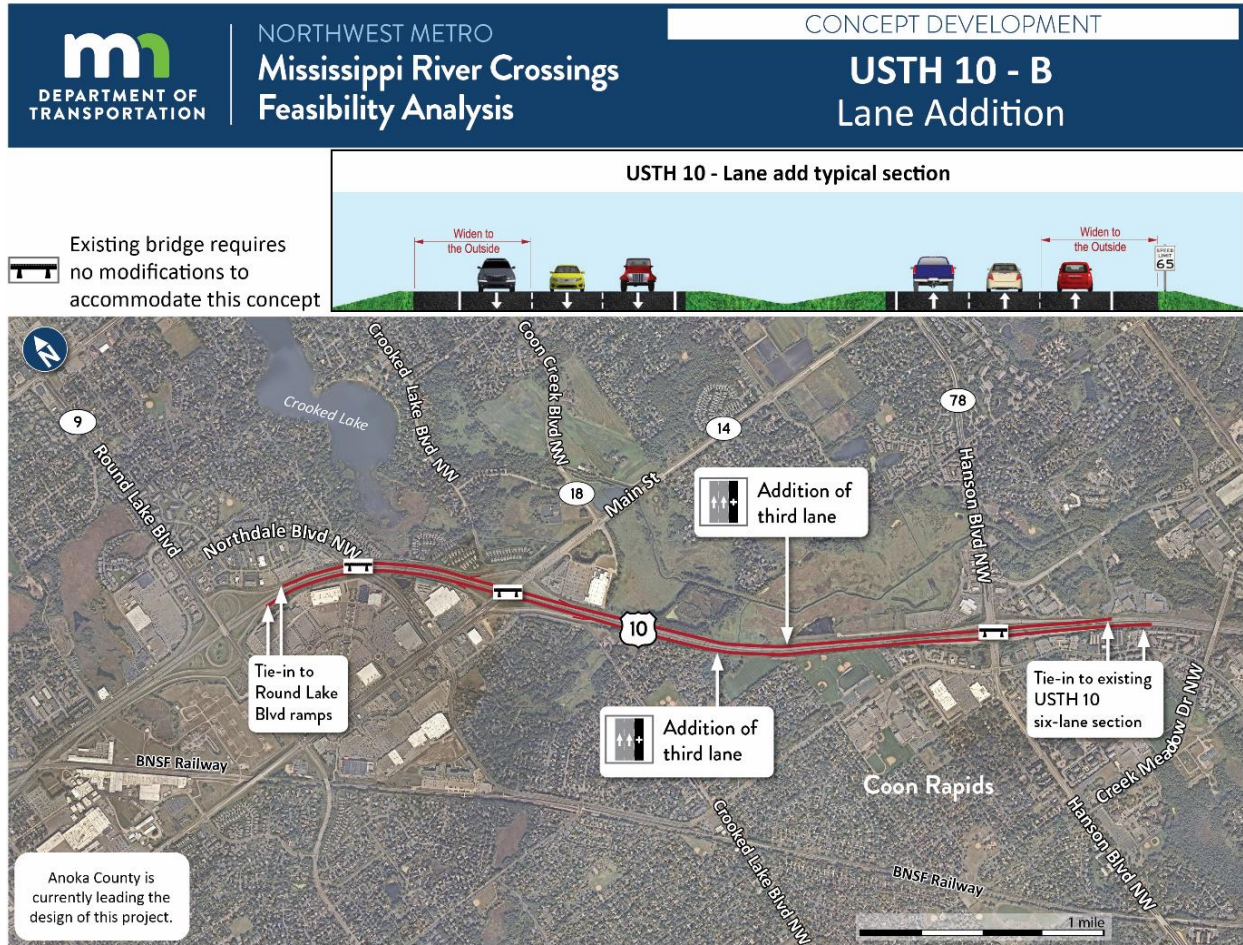
-  Primary interchange search area
-  Corridor improvement area
-  Roadway improvement area



Highway 10-B: Lane Addition

Highway 10-B is the construction of a third lane in each direction of Segment B. The cost estimate was previously completed by Anoka County, which includes the construction of an outside lane and shoulder with associated grading, retaining walls, minor interchange modifications, and noise walls.

Figure 19: Highway 10-A2: Lane Addition



Highway 101

Highway 101 is generally a four-lane freeway connecting I-94 in Rogers, MN to Highway 169 in Elk River. Southbound Highway 101 is signalized in Rogers, at the interchange ramps and South Diamond Lake Road. The interchange of I-94 and Highway 101 is a diamond interchange with a free movement for the westbound I-94 to northbound Highway 101 movement with a flyover for the South Diamond Lake Road intersection and loop ramp for the southbound Highway 101 to eastbound I-94 movement.

Highway 101-A1: Diverging Diamond Conversion

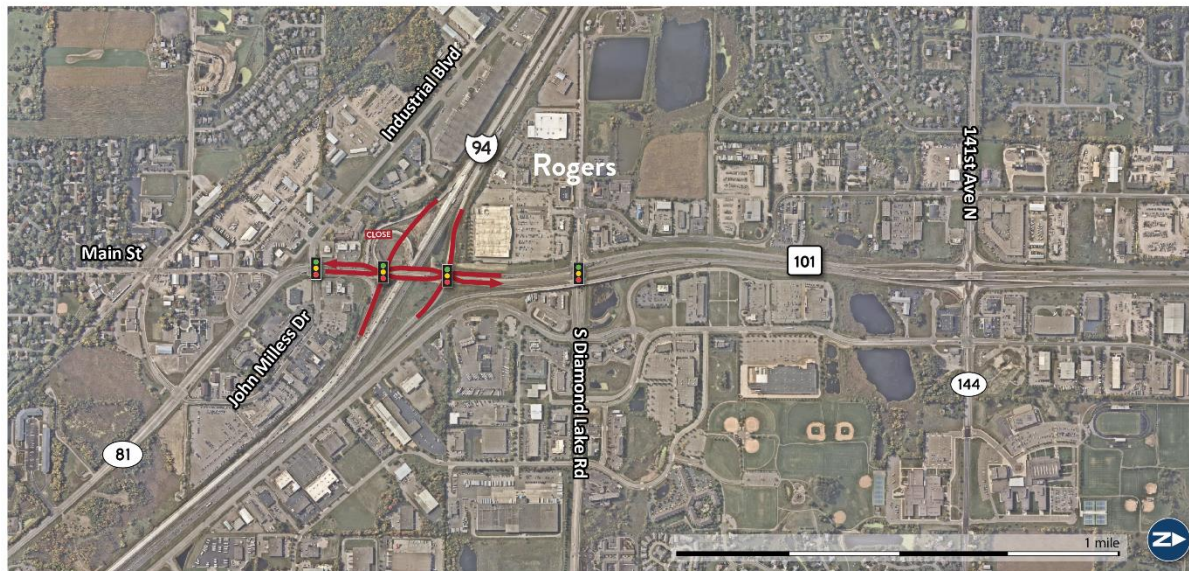
Highway 101-A1 converts the existing interchange into a diverging diamond interchange. This concept, which was previously studied by SRF, would re-deck the existing bridge, reconstruct portions of the ramp, and leave the existing eastbound to northbound free movement.

Figure 20: Highway 101-A1: Diverging Diamond Conversion

	NORTHWEST METRO Mississippi River Crossings Feasibility Analysis	CONCEPT DEVELOPMENT
		TH 101 - A1 Diverging Diamond Conversion

— Roadway improvement area

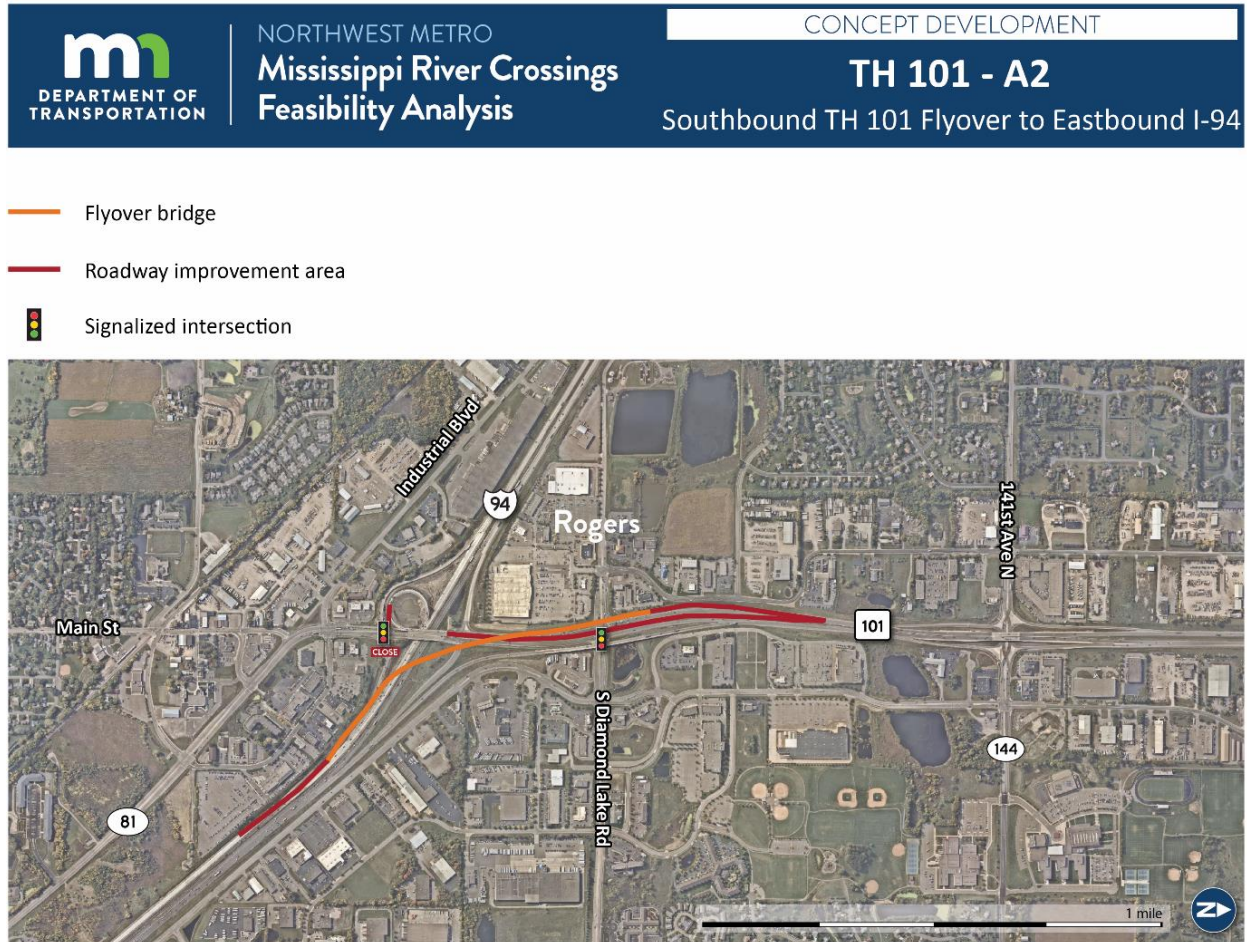
 Signalized intersection



Highway 101-A2: SB Highway 101 to EB I-94 Flyover Ramp

Highway 101-A2 includes construction of a flyover ramp for southbound Highway 101 from north of South Diamond Lake Rd to eastbound I-94. This includes the construction of a 35-foot wide, 3,425-foot long flyover bridge requiring long curved steel beams along the structure and retaining walls to limit earthwork and right-of-way acquisition. Adjustments would be made to the existing interchange including removal of the existing northbound to eastbound on ramp and modifications to the southbound to eastbound loop ramp to accommodate NB and SB traffic with a signal. Low and high-cost estimates differ primarily on risks associated with the flyover bridge design.

Figure 21: Highway 101-A2: SB Highway 101 Flyover to EB I-94




Highway 610


Highway 610 is a four-lane freeway west of Highway 252 and six-lane freeway east of Highway 252. Highway 610 connects Highway 10 and I-94 through Blane, Coon Rapids and Maple Grove.


Highway 610 - A: Mobility Improvement

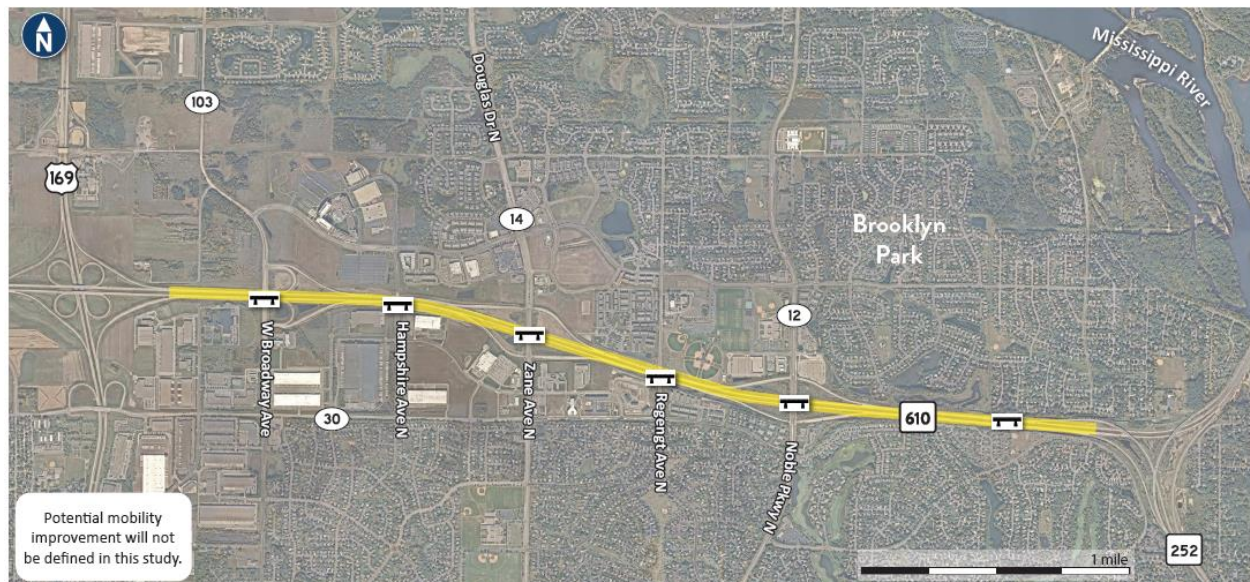
A wide range of concepts are recommended for future consideration for this corridor. This study has recommended an undetermined mobility improvement for Highway 610 between Highway 169 and Highway 252. Improvements to be considered in the future include active traffic management, spot mobility, MnPASS, and strategic capacity. Improvements to this corridor have not been previously identified in local or regional plans. For purposes of this study, the high estimate assumed a lane would be added in each direction between the Highway 169/610 and Highway 252/610 interchanges. The as-built plans show Highway 610 has been pre-graded for an additional lane in this area. The bridges were also built to accommodate the additional outside lane. The project would remove existing outside shoulders and replace with a 12-foot lane and 8-foot shoulder using existing subgrade and relocated overhead signs. The high-end cost estimate assumes the need for a potential retaining wall on each bridge to minimize right-of-way and drainage impacts.

Figure 22: Highway 610 – A1: Mobility Improvement

	NORTHWEST METRO Mississippi River Crossings Feasibility Analysis	CONCEPT DEVELOPMENT
		TH 610 - A Mobility Improvement

 Mobility improvement area

 Existing bridge locations



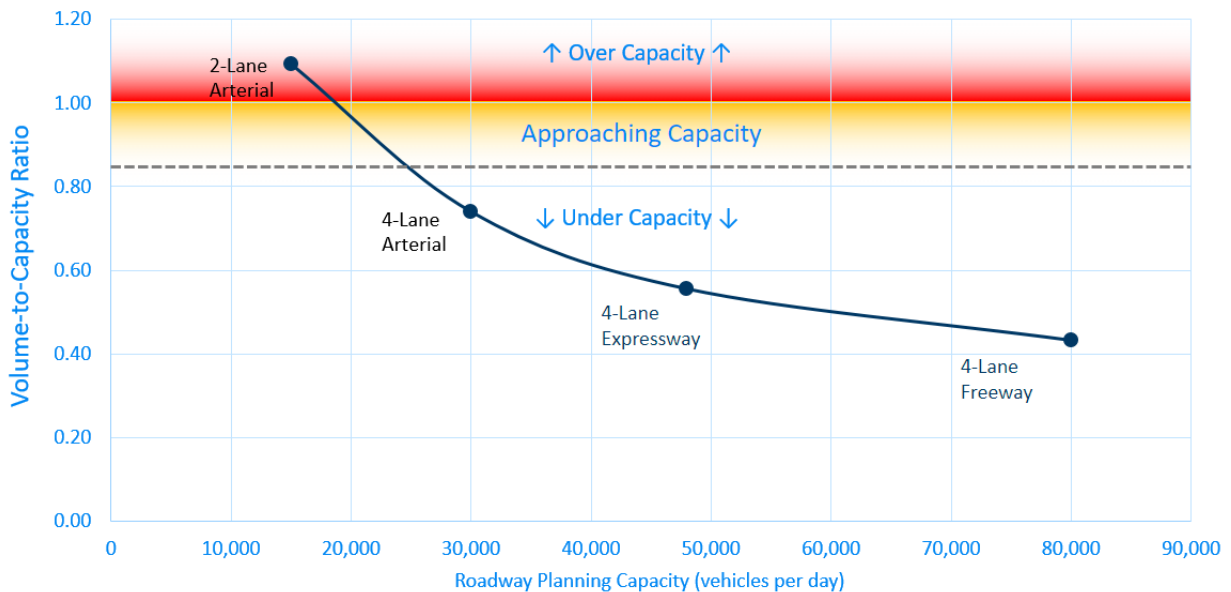
New River Crossing

The new river crossing alignment chosen for concept development connects Highway 10 at the Armstrong Boulevard interchange and I-94 at the Dayton Parkway interchange by way of Zanzibar Lane. This alignment necessitates about six miles of new roadway including the construction of a bridge in each direction over the Mississippi River. It assumes six major intersections along the corridor. A small box culvert is assumed over Diamond Creek and a pedestrian underpass to connect proposed commercial development in the north section of the project. Based on traffic analysis, two typical section concepts were chosen for this roadway called New River Crossing – A1 and New River Crossing – A2.

New River Crossing Capacity

A variety of facility types were evaluated for the new river crossing concept, including an arterial, expressway, and freeway. This evaluation centered on comparisons of projected 2040 traffic volumes to planning level facility capacities. Figure 23 shows the projected volume-to-capacity ratios for a two-lane arterial, a four-lane arterial, a four-lane expressway, and a four-lane freeway facility type. On the basis of this analysis, the project team eliminated a two-lane arterial facility (over capacity) and a four-lane freeway facility (significantly under capacity) from further consideration.

Figure 23: Planning-Level Capacity Needs for New River Crossing



New River Crossing – A1

New river crossing – A1 includes the construction of a 4-lane urban divided arterial roadway along the proposed alignment. right-of-way needs were assumed to be 120-foot' wide to account for possible trails on each side and room for utilities. Low and high costs differ based on material and land cost ranges. The roadway itself was assumed to have a 45-mph speed limit and meet MnDOT standards shown in the figure below. Intersections along the arterial roadway were assumed to be spaced a minimum of one-quarter mile apart. Example intersection types include restricted crossing U-Turn intersections (RCUTs), traffic signalized intersections, side road stop intersections, Green-T intersections, or roundabouts.

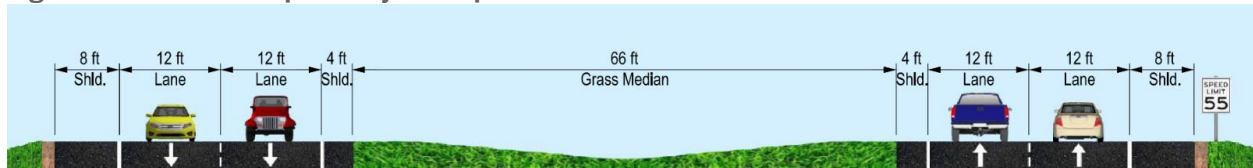
Figure 24: Four-Lane Arterial Conceptual Section



New River Crossing – A2

New river crossing – A2 includes the construction of a four-lane rural divided expressway along the proposed alignment. Right-of-way needs were assumed to be 160-foot' wide to account for grading and required clear zone. Low and high costs differ based on material and land cost ranges. The roadway was assumed to have a 55-mph speed limit and meet MnDOT standards shown in the figure below. Intersections along the expressway were assumed to be spaced a minimum of one-half mile apart. Example intersection types include restricted crossing U-Turn intersections (RCUTs), traffic signalized intersections, Green-T intersections, roundabouts, and grade separated side road crossings.

Figure 25: Four-Lane Expressway Conceptual Section



Step 3: Develop Improvement Concepts

The third step in the concept development process was to package feasible improvements into improvement concepts that could be evaluated for regional traffic impacts and cost effectiveness. This step produced four improvement concepts – two concepts comprised of improvements to existing highways, and two concepts that included a new river crossing following the Zanzibar/Armstrong alignment. Concepts comprised of improvements to existing highways were developed to assess improvement in north-south traffic movements relative to the option of building a new river crossing.

The Northwest Metro Mississippi River Crossing Feasibility Analysis concepts were identified as follows:

- Concept 1: Mobility improvements on Highway 10 and Highway 101
- Concept 2: Mobility improvements on Highway 10, Highway 101, and Highway 610
- Concept 3: Arterial Mississippi River crossing following the Zanzibar/Armstrong alignment
- Concept 4: Expressway Mississippi River crossing following the Zanzibar/Armstrong alignment

Concept 1: Mobility Improvements on Highway 10 and Highway 101

Concept 1 focuses investment on the existing system north of the Mississippi River. On Highway 10, the concept provides grade separation on the remaining expressway portion in Ramsey and Elk River. The concept also includes the Coon Rapids Lane add and the diverging diamond interchange conversion on Highway 101 at I-94.

Figure 26: Concept 1 – Mobility Improvements on Highway 10 and Highway 101

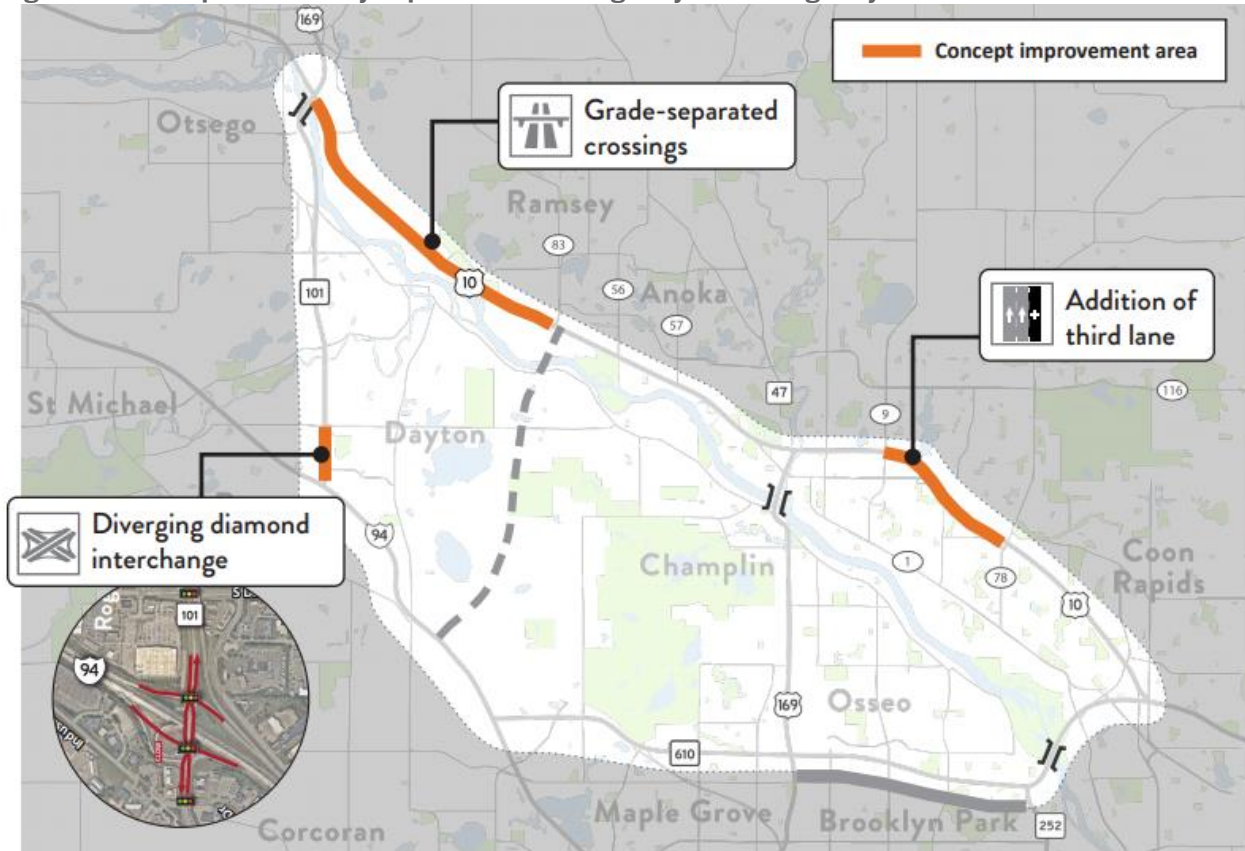


Table 6: Concept 1 Improvement Details and Cost Range

Highway	Improvement	Segment	Total Project Cost (2030 dollars)
Highway 10	Grade separated crossing	Hwy 169 (Elk River) to Armstrong Blvd. (Ramsey)	\$115M – \$290M
Highway 10	Lane addition	EB and WB lane add from Hanson Blvd. to Round Lake Blvd.	\$36M
Highway 101	Diverging diamond interchange	Diverging diamond interchange at Hwy 101 and I-94	\$22M – \$26M
Net Cost			\$175 – \$350M

Concept 2: Mobility Improvements on Highway 10, Highway 101, and Highway 610

Concept 2 also focuses investment on the existing system. The expressway portion of Highway 10 will have at-grade improvements in Elk River and Ramsey. This concept also includes the Coon Rapids Lane add. This concept includes the southbound flyover from Highway 101 to eastbound I-94 and a mobility improvement on Highway 610.

Figure 27: Concept 2 – Mobility Improvements on Highway 10, Highway 101, and Highway 610

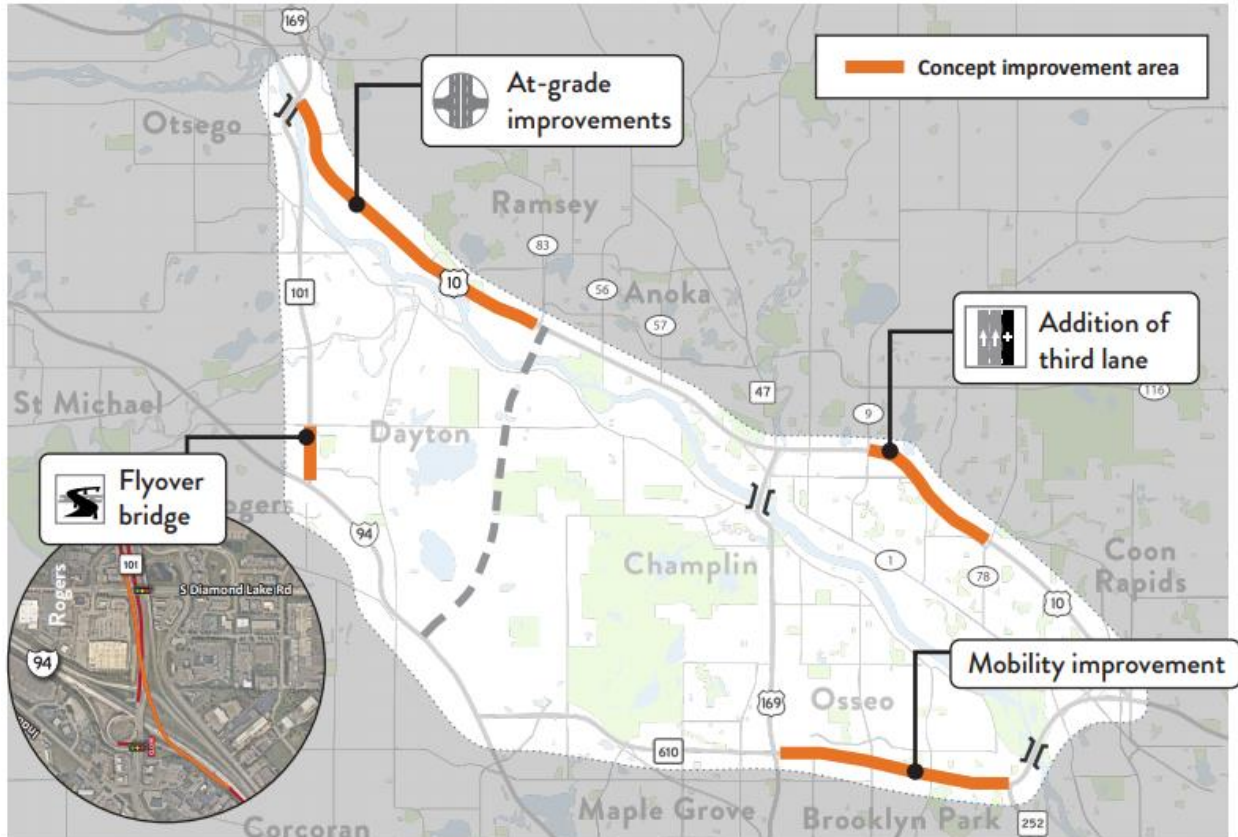


Table 7: Concept 2 Improvement Details and Cost Range

Highway	Improvement	Segment	Total Project Cost (2030 dollars)
Highway 10	At-grade improvements	Hwy 169 (Elk River) to Armstrong Blvd. (Ramsey)	\$22M – \$38M
Highway 10	Lane addition	EB and WB lane add from Hanson Blvd. to Round Lake Blvd.	\$36M
Highway 101	Flyover	SB Hwy 101 to EB I-94 flyover, including realignment of Hwy 101	\$107M – \$129M
Highway 610	Mobility improvement	Improvement undetermined. Consider active traffic management, spot mobility, MnPASS, and strategic capacity	\$8M – \$35M
Net Cost			\$175 – \$240M

Concept 3: Four-lane Arterial River Crossing

Concept 3 is the first of two concepts involving a new Mississippi River crossing on the Zanzibar/Armstrong alignment. Concept 3 consists of a four-lane urban divided arterial with a 120-foot right-of-way and a minimum one-quarter mile spacing between at-grade intersections. The concept assumes a 45-mph design speed and a 560-foot bridge span.

Figure 28: Concept 3 – Four-lane Arterial Following Zanzibar/Armstrong Alignment

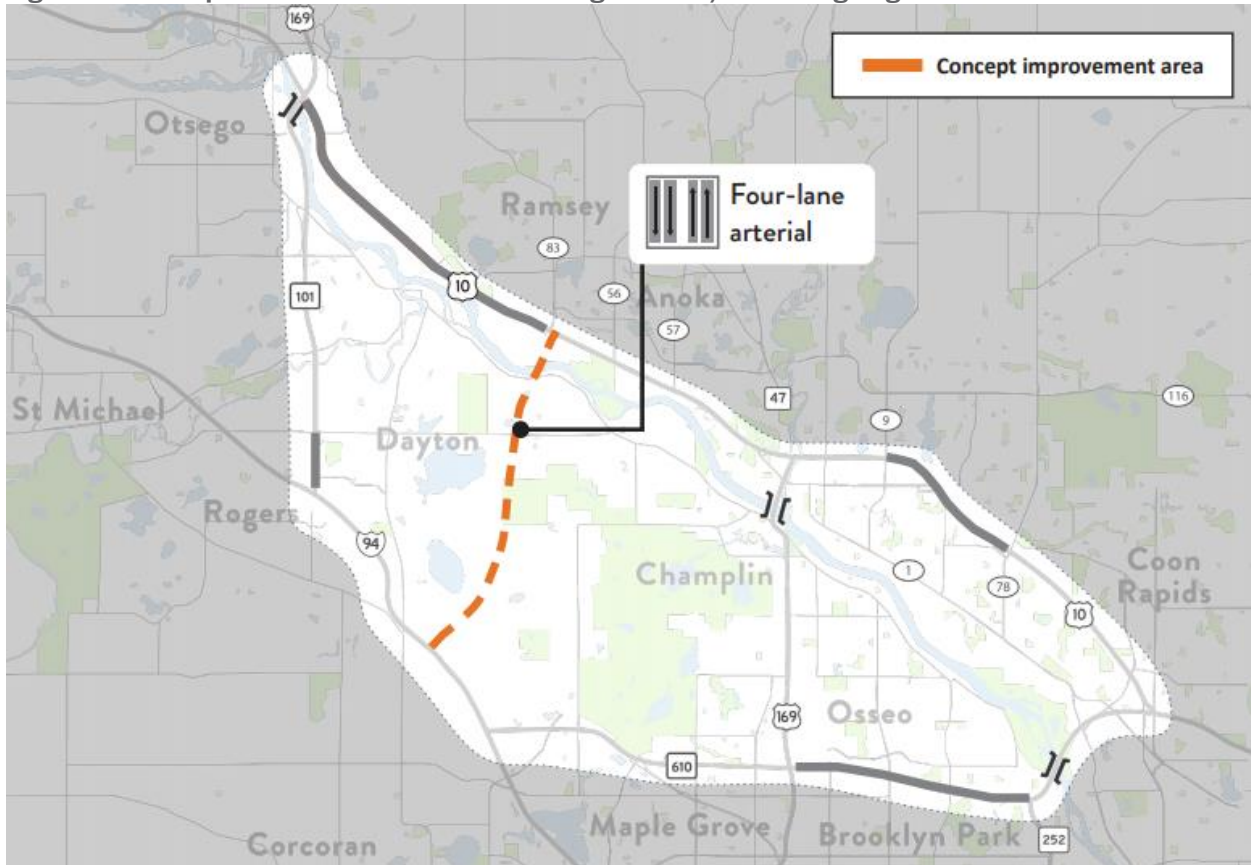


Table 8: Concept 3 Improvement Details and Cost Range

Improvement	Segment	Total Project Cost (2030 dollars)
New River Crossing	New river crossing designed as a 4-lane arterial roadway between I-94 to Highway 10	\$170M - \$250M
Net Cost		\$170 - \$250M

Concept 4: 4-Lane Expressway River Crossing

Concept 4 is the second of two concepts involving a new Mississippi River crossing on the Zanzibar/Armstrong alignment. Concept 4 consists of a four-lane rural divided expressway with a 160-foot right-of-way and a minimum one-half mile spacing between at-grade intersections. The concept assumes a 55-mph design speed and a 560-foot bridge span.

Figure 29: Concept 4 – Four-lane Arterial Following Zanzibar/Armstrong Alignment

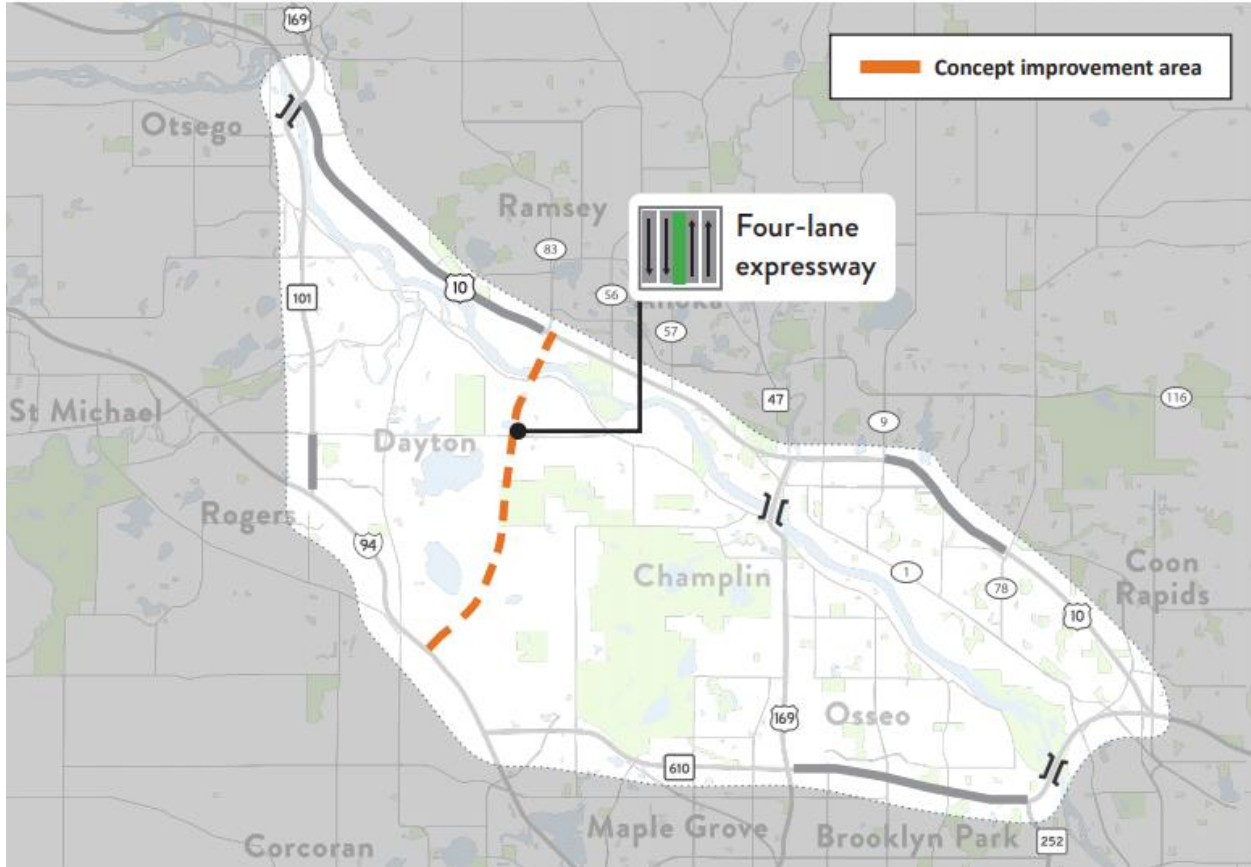


Table 9: Concept 4 Improvement Details and Cost Range

Improvement	Segment	Total Project Cost (2030 dollars)
New River Crossing	New river crossing designed as a 4-lane expressway between I-94 to Highway 10	\$190M - \$250M
Net Cost		\$190 - \$250M

Step 4: Assess Concept Effectiveness

The final step in concept development was to assess concept effectiveness. This assessment reviewed traffic volumes under 2040 no-build and build scenarios for each concept. Section VI: Traffic Forecasts and Analysis and Appendix D describe the no-build and build scenarios in detail. What follows here is a preliminary review of how each concept addresses congestion in the northwest metro.

The effectiveness of Concepts 1 and 2 was assessed by comparing 2040 peak-hour traffic volumes to 2040 peak-hour capacities on improved segments. As shown in Table 10, all four segments improved under Concepts 1 or 2 were found to be “under capacity” post improvement. In this table, under capacity means a volume-to-capacity ratio less than 0.85. This was an important finding as it suggests the improvements considered would continue to be effective under year 2040 traffic demand levels.

Table 10: 2040 Peak Hour Volume-to-Capacity Ratios at Improved Locations Under Concepts 1 & 2

Highway	Location	AM V/C EB / NB	AM V/C WB / SB	PM V/C EB / NB	PM V/C WB / SB
Highway 10	Armstrong Blvd to Highway 10/101/169 interchange	Under capacity	Under capacity	Under capacity	Under capacity
Highway 10	Hanson Blvd to Round Lake Blvd.	Under capacity	Under capacity	Under capacity	Under capacity
Highway 101	Highway 101/I-94 interchange	Under capacity	Under capacity	Under capacity	Under capacity
Highway 610	Highway 252 to Highway 169	Under capacity	Under capacity	Under capacity	Under capacity

Additional analysis of concept effectiveness, including the impact of Concepts 3 and 4 on Highway 169 congestion, is provided in the next three sections.

VI. Traffic Forecasts & Analysis

The Northwest Metro Mississippi River Crossing Feasibility Analysis developed year 2040 traffic forecasts to evaluate the impact of project concepts on future travel demand, traffic patterns, and congestion. These forecasts were developed for a no-build and four build scenarios, one for each project concept introduced in Section V: Concept Development. By comparing no-build and build traffic forecasts, the feasibility analysis team was able to determine how and to what extent the concepts change regional traffic patterns and traffic volumes at locations throughout the network. This analysis is a determinative factor in the study's assessment of concept feasibility.

The traffic forecasts used in this study were developed using the regional Activity Based Model (ABM). The ABM is maintained by the Metropolitan Council and uses socioeconomic and roadway system assumptions that are consistent with the regional development assumptions laid out in Thrive MSP 2040 and regional transportation policy plans. Information about 2040 forecast assumptions and model validation is available in Appendix D.

As part of the study's traffic analysis, the study team tested concept effectiveness under different assumptions about future travel behavior. The purpose of the test was to determine whether concepts developed in Section V: Concept Development remain effective if post COVID-19 telecommuting rates are above rates assumed in traditional traffic forecasts. Test results are summarized in this section under 2040 Traffic Sensitivity Test and detailed in Appendix D.

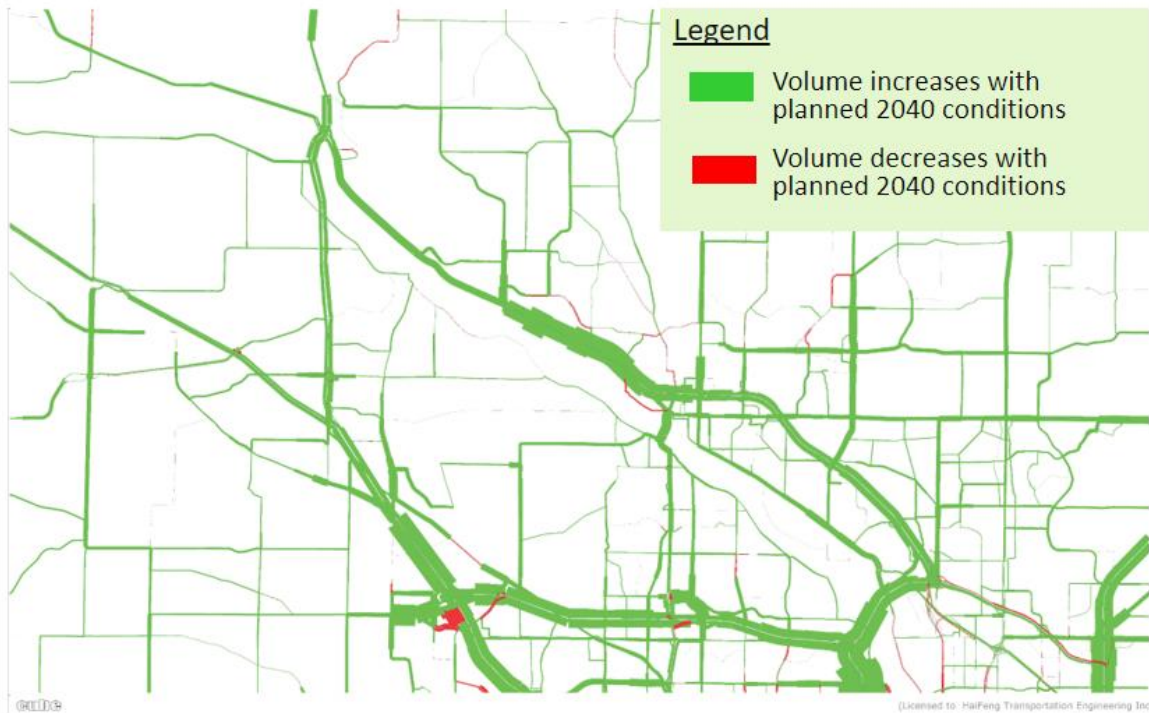
2040 Traffic Volumes

The feasibility analysis team produced year 2040 traffic forecasts under a no-build and four build scenarios, one for each concept described in the previous section. These forecasts were used to assess changes in average daily traffic (ADT) and volume-to-capacity ratios on key segments of the regional highway network.

2040 No-Build Scenario

Year 2040 traffic forecasts indicate a significant increase in traffic volumes on northwest metro area highways. Using traditional forecast methods, daily northwest metro highway traffic volumes increase an average of 22 percent between years 2018 and 2040. Under the no-build scenario, much of this increase occurs on I-94, Highway 610, Highway 252, and Highway 10. See Figure 30 for details.

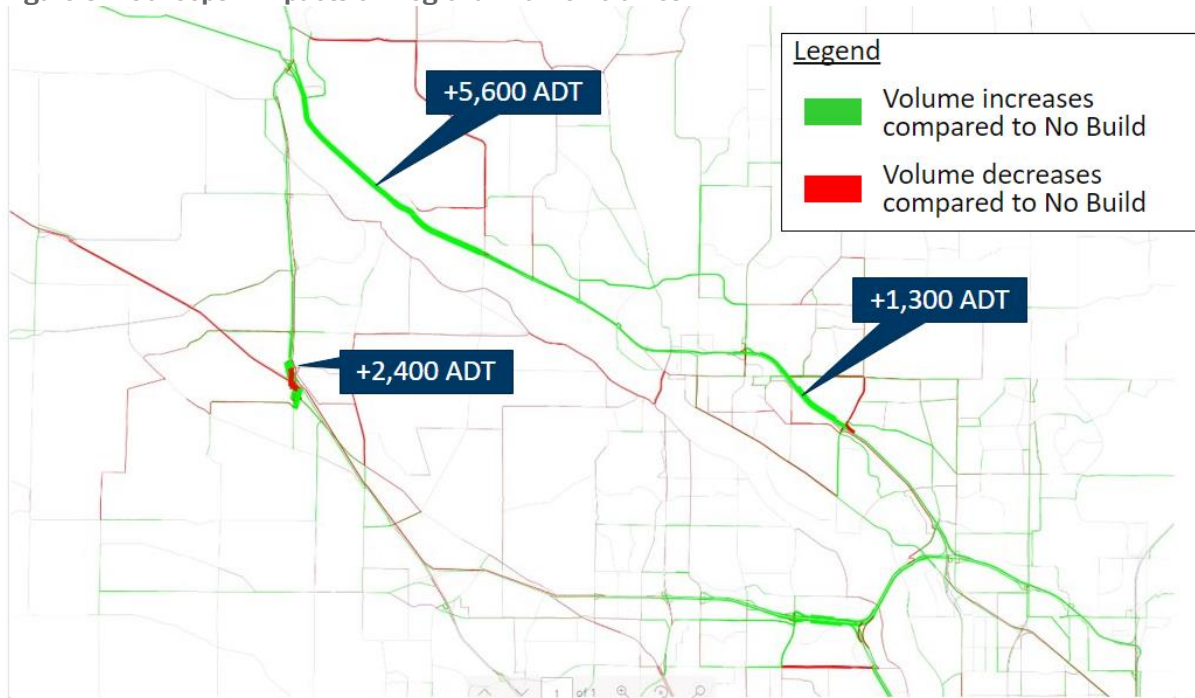
Figure 30: Year 2040 Traffic Volumes Under No-Build Scenario



2040 Build Scenario: Concept 1

Concept 1 consists of mobility improvement on Highway 10 and Highway 101. Year 2040 traffic forecasts indicate that Concept 1 improvements result in small traffic volume increases on improved corridors. As indicated in Figure 31, the Concept 1 scenario forecasts show increased traffic volumes on Highway 10 east of the Highway 10/101/169 interchange, on Highway 10 between Hanson Boulevard and Round Lake Boulevard, and Highway 101 north of the Highway 101/I-94 interchange. Corresponding decreases occur on I-94 and nearby local facilities.

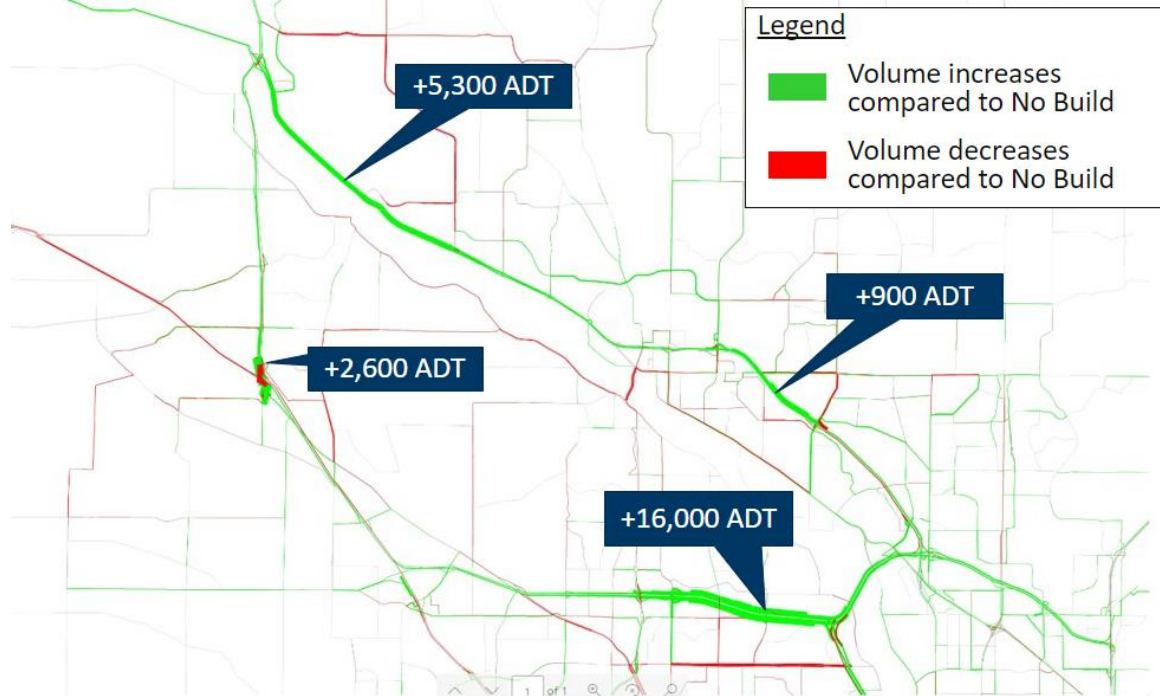
Figure 31: Concept 1 Impacts on Regional Traffic Volumes



2040 Build Scenario: Concept 2

Concept 2 consists of mobility improvement on Highway 10, Highway 101, and Highway 610. Year 2040 traffic forecasts under the Concept 2 scenario show small traffic volume increases on Highways 10 and 101, as well as a large (+16,000 vehicles per day(vpd)) increase on Highway 610. The increase in ADT on Highway 610 reflects local road traffic diverting onto an improved state highway.

Figure 32: Concept 2 Impacts on Regional Traffic Volumes

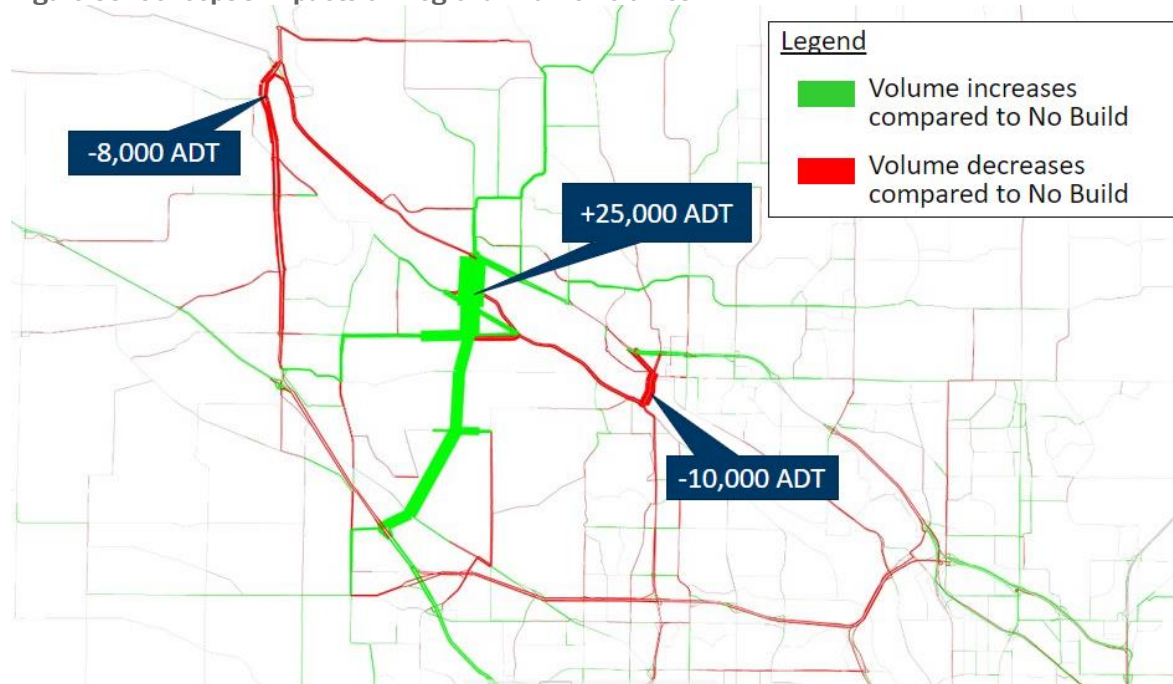


2040 Build Scenario: Concept 3

Concept 3 introduces a new Mississippi River crossing connecting the existing Armstrong Boulevard/Highway 10 interchange north of the river to the Dayton Parkway/I-94 interchange south of the river. The new facility is assumed to be a four-lane divided arterial roadway with a speed limit of 45-mph.

Year 2040 traffic forecasts under Concept 3 show an additional 25,000 vehicles using a new arterial Mississippi River crossing between the existing Highway 101 and Highway 169 crossings. This shift in traffic draws 8,000 vpd from the Highway 101 crossing and 10,000 vpd from the Highway 169 crossing.

Figure 33: Concept 3 Impacts on Regional Traffic Volumes

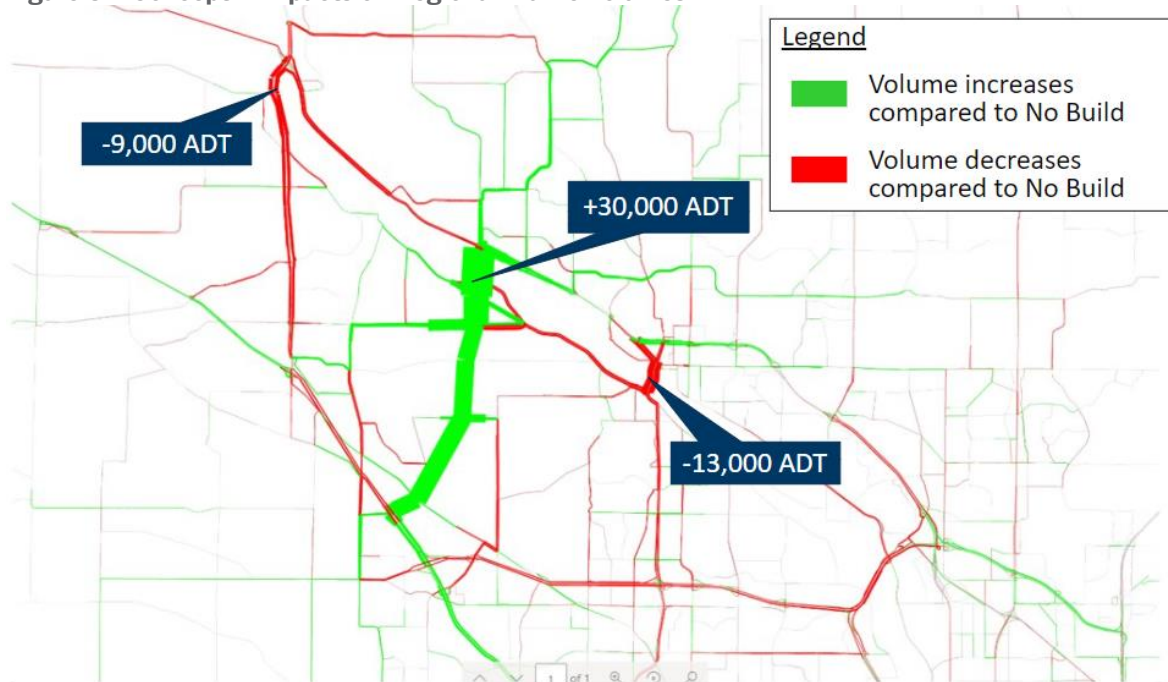


2040 Build Scenario: Concept 4

Concept 4 introduces a new Mississippi River crossing connecting the existing Armstrong Boulevard/Highway 10 interchange north of the river to the Dayton Parkway/I-94 interchange south of the river. The new facility is assumed to be a four-lane divided expressway with a speed limit of 55-mph.

Year 2040 traffic forecasts under Concept 4 show an additional 30,000 vpd using a new expressway Mississippi River crossing between the existing Highway 101 and Highway 169 crossings. This shift in traffic draws 9,000 vpd from the Highway 101 crossing and 13,000 vpd from the Highway 169 crossing.

Figure 34: Concept 4 Impacts on Regional Traffic Volumes



2040 Traffic Congestion

This study’s traffic analysis also included an evaluation of year 2040 traffic congestion under the no-build and build scenarios. This evaluation uses year 2040 volume-to-capacity ratios to locate congestion under the no-build scenario and assess the congestion impacts of Concepts 1-4.

2040 Traffic Congestion Under No-Build Scenario

Increased traffic volumes under the 2040 no-build scenario result in increased congestion on northwest metro highways. Figure 35 illustrates that congestion worsens on Highways 10, 101, 169, 610, and I-94 under the 2040 no-build scenario. The causes of this congestion are identified in Table 11. In addition, segments currently under capacity become congested under the 2040 no-build scenario. These segments are Highway 10 west of the Highway 10/101/169 interchange, Highway 610 between I-94 and Highway 169, and Highway 610 between Highway 252 and Highway 10.

Figure 35: Congestion 2018 vs 2040 No-Build (AM Peak)

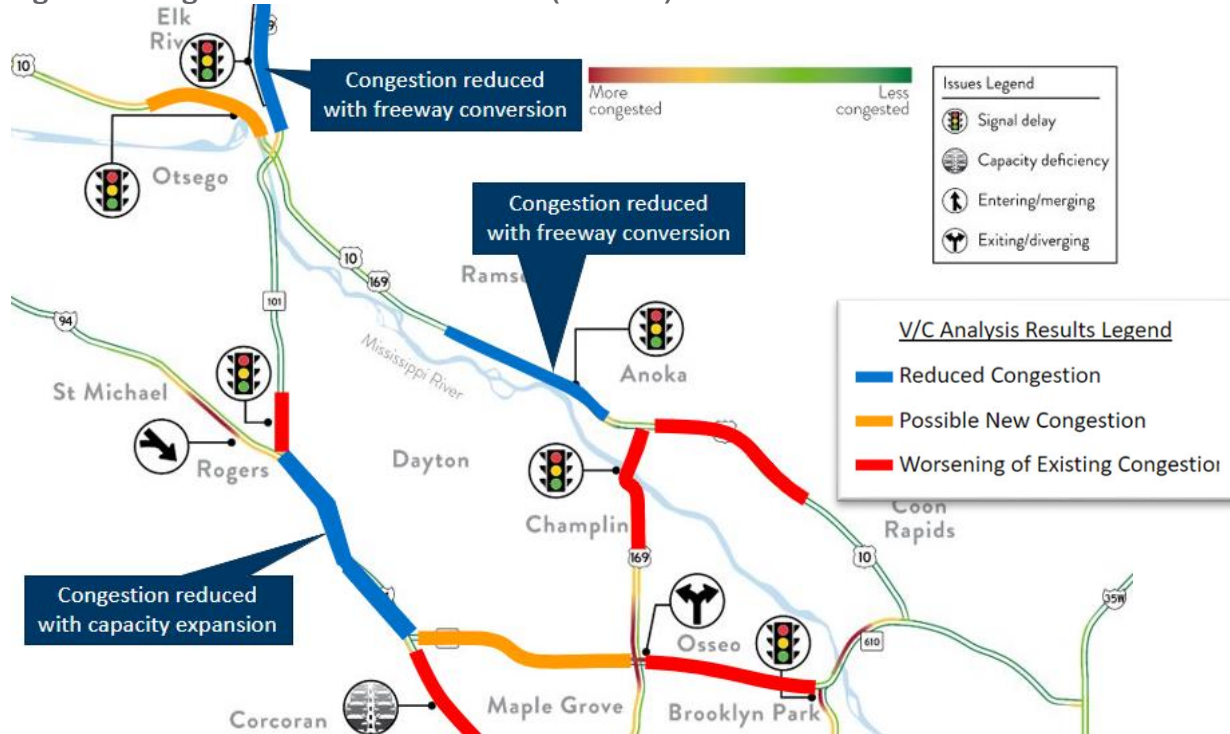


Table 11: AM Peak Hour Congestion and Issues Under the 2040 No-Build Scenario

Highway	Segment	Volume/Capacity Ratio	Issues
Hwy 10	Coon Rapids	Significantly Over	Capacity deficiency
Hwy 101	I-94/101 Interchange	Significantly Over	Signal delay
Hwy 169	Hwy 169 River Crossing	Significantly Over	Signal delay
Hwy 610	Hwy 169 to Hwy 252	Over Capacity	Capacity deficiency
I-94	East of Hwy 610	Over Capacity	Capacity deficiency

2040 Traffic Congestion Under Build Scenarios

Year 2040 traffic forecasts under Concept 1 and Concept 2 build scenarios reinforce the concept effectiveness conclusions presented in Section V: Concept Development. In both cases, the concepts are shown to be effective at reducing congestion on improved segments: Highway 10 in Coon Rapids, Highway 101 at the Highway 101/I-94 interchange, and Highway 610 between Highway 169 and Highway 252. However, 2040 traffic forecasts under Concept 1 and Concept 2 build scenarios indicate no change to congestion at the Highway 169 river crossing or I-94.

Year 2040 traffic forecasts under Concept 3 and Concept 4 build scenarios indicate lower V/C ratios on the Highway 169 river crossing and Highway 610 between Highway 169 and Highway 252, but no change to congestion on Highway 10, Highway 101, and I-94.

Table 12: AM Peak Hour Congestion and Issues Under 2040 Build Scenarios

Highway	Segment	2040 NB V/C	Concept 1	Concept 2	Concept 3	Concept 4
Hwy 10	Coon Rapids	Significantly Over	Improved	Improved	No Change	No Change
Hwy 101	I-94/101 Interchange	Significantly Over	Improved	Improved	No Change	No Change
Hwy 169	Hwy 169 Crossing	Significantly Over	No Change	No Change	Improved	Improved
Hwy 610	Hwy 169 to Hwy 252	Over Capacity	Improved	Improved	Improved	Improved
I-94	East of Hwy 610	Over Capacity	No Change	No Change	No Change	No Change

2040 Traffic Sensitivity Test

The Northwest Metro Mississippi River Crossing Feasibility Analysis included a traffic sensitivity analysis that tested concept effectiveness under different assumptions about future travel behavior. The purpose of the traffic sensitivity analysis was to determine whether concepts developed in Section V: Concept Development remain effective if post COVID-19 telecommuting rates are higher than rates assumed in traditional traffic forecasts.

The traffic sensitivity analysis was conducted with a year 2040 traffic forecast that assumed a 20 percent increase in telecommuting. The forecast, which used the region’s Activity Based Model (ABM), implemented this assumption by eliminating 20 percent of “work tours”. A work tour consists of multiple trip records associated with a work commute. For example, a work tour could include a trip to the coffee shop on the way to work or a trip to the grocery store on the way home. Tours eligible for telecommuting were selected at random and the entire work tour associated with them removed until a 20 percent reduction in work tours was achieved.

The year 2040 traffic forecast used in this sensitivity analysis is not a prediction of future travel behavior. Its purpose is to gauge the sensitivity of traffic impacts modeled under traditional forecasting assumptions. Traffic impacts with low sensitivity, those that are modeled under the traditional and sensitivity forecast, are likely to occur under a range of potential futures.

2040 No-Build Scenario

Figure 5.0 in Appendix D forecasts 2040 traffic volumes under a no-build scenario with increased telecommuting. On average, this forecast shows five percent fewer trips than the year 2040 forecast developed using traditional telecommuting assumptions. Roadway segments with the largest decrease in ADT are I-94 west of Highway 101 (87,000 to 81,100 vpd), the Highway 101 river crossing (61,600 to 56,000 vpd), and the Highway 610 river crossing (124,600 to 119,200 vpd). The total volume crossing the Mississippi River on the three bridges in the study area is expected to decrease from 246,500 to 231,000 vpd, representing a six percent decrease in volume.

Table 13 summarizes the sensitivity of year 2040 no-build congestion to increased telecommuting. It shows that congestion decreases on Highway 10, Highway 101, and Highway 610, but only Highway 610 has a V/C ratio under 1.0. The 2040 no-build traffic forecast with increased telecommuting shows continued congestion on Highway 169 and I-94. These results indicate that northwest metro highways will be congested in year 2040 even if telecommuting levels reflect those seen during the COVID-19 pandemic.

Table 13: Sensitivity of 2040 No-Build Congestion to Increased Telecommuting

Highway	Segment	2040 V/C Ratio (traditional telecommuting)	2040 V/C Ratio (increased telecommuting)
Hwy 10	Coon Rapids	Significantly Over	Over Capacity
Hwy 101	I-94/101 Interchange	Significantly Over	Over Capacity
Hwy 169	Hwy 169 River Crossing	Significantly Over	Significantly Over
Hwy 610	Hwy 169 to Hwy 252	Over Capacity	Under Capacity
I-94	East of Hwy 610	Over Capacity	Over Capacity

2040 Build Scenarios

Figures 5.1 – 5.3 in Appendix D forecasts 2040 traffic volumes under Concept 1, 2, and 3 build scenarios with increased telecommuting. On average, these forecasts show five percent fewer trips than the 2040 build scenario forecasts developed using traditional telecommuting assumptions. The following paragraphs identify roadway segments with the largest decrease in traffic volume under each build scenario.

Concept 1

Under the Concept 1 scenario, highways with the biggest change in year 2040 traffic volume due to increased telecommuting are the Highway 610 river crossing (126,900 to 120,600 vpd), I-94 west of Highway 101 (85,800 to 79,800 vpd), and I-694 west of US 169 (133,600 to 127,900 vpd). Total ADT using a northwest metro area bridge is expected to decrease from 248,500 to 232,300 vpd, representing a seven percent decrease in volume.

Concept 2

Under the Concept 2 scenario, highways with the biggest change in year 2040 traffic volume due to increased telecommuting are the Highway 101 river crossing (62,700 to 56,800 vpd), I-94 west of Highway 101 (85,900 to 80,000 vpd), and Highway 252 between Highway 610 and I-694 (126,800 to 120,900 vpd). Total ADT using a northwest metro area bridge is expected to decrease from 250,100 to 235,400 vpd, representing a six percent decrease in volume.

Concept 3

Under the Concept 3 scenario, highways with the biggest change in year 2040 traffic volume due to increased telecommuting are the Highway 610 river crossing (121,600 to 115,800 vpd), I-94 west of Highway 101 (88,100 to 82,700 vpd), and the Highway 101 river crossing (54,200 to 48,900 vpd). Total ADT using an existing northwest metro area bridge is expected to decrease from 226,700 to 211,000 vpd, representing a seven percent decrease in volume.

A daily traffic sensitivity analysis was not performed for Concept 4. It is assumed the sensitivity of year 2040 traffic volumes for Concept 4 reflect the sensitivity of year 2040 traffic volumes modeled for Concept 3.

Sensitivity Test Results

Table 14 presents the results of this study’s analysis of whether and to what extent Concepts 1-4 reduce congestion if 2040 telecommuting levels reflect those seen during the COVID-19 pandemic. The analysis showed Concepts 1 and 2 reduce congestion on improved segments of Highway 10 and 101 under both traditional and increased telecommuting assumptions. Highway 610 is not improved by any of the concepts because it has a V/C ratio under 1.0 in the increased telecommuting scenarios. The analysis also showed that Concepts 3 and 4 continue to reduce congestion on Highway 169. None of the concepts reduce congestion on I-94.

Table 14: Improvement in 2040 V/C Ratios Under Build Scenarios with Increased Telecommuting

Highway	Segment	2040 NB V/C	Concept 1	Concept 2	Concept 3	Concept 4
Hwy 10	Coon Rapids	Over Capacity	Improved	Improved	No Change	No Change
Hwy 101	I-94/101 Interchange	Over Capacity	Improved	Improved	No Change	No Change
Hwy 169	Hwy 169 crossing	Significantly Over	No Change	No Change	Improved	Improved
I-94	East of Hwy 610	Over Capacity	No Change	No Change	No Change	No Change

The traffic sensitivity test presented above evaluates telecommuting’s impact on daily congestion as measured using 2040 volume-to-capacity ratios on major highways in the northwest metro. Additional sensitivity analysis is provided in Section VIII: Operational Analysis. The sensitivity analysis in Section VIII evaluates delay at four key locations:

- I-94/Highway 101 interchange
- I-94/Dayton Parkway interchange
- Highway 10/Armstrong Boulevard interchange
- Highway 169 Mississippi River Crossing

VII. Benefit-Cost Analysis

Benefit-cost analysis (BCA) converts the benefits and costs of a transportation investment into a common measure (dollars) so a benefit-cost ratio may be calculated and used as an indicator of cost effectiveness. BCAs rely on net present value to calculate a single number representing benefits accruing over long periods of time. This allows long-term benefits to be directly compared to costs, which are incurred primarily in the initial years.

The principal benefits monetized in a BCA are travel time, changes in vehicle operating costs, vehicle crashes, and remaining capital value. Taken together, these benefits provide an indication of a project's economic desirability, which can be weighed against other considerations, effects, and impacts of the project. Projects are considered cost-effective if the benefit-cost ratio is greater than 1.0. The larger the ratio number, the greater the benefits per unit cost.

Methodology & Assumptions

MnDOT Benefit Cost Guidance

The methodology used for the Northwest Metro Mississippi River Crossing Feasibility Analysis BCA are in accordance with MnDOT Office of Transportation System Management methodology and 2021 guidance on assumed values.

The main components analyzed were:

- Travel time/delay
- Fuel consumption
- Crash rates by severity
- Initial capital costs
- Maintenance costs
- Remaining capital value (considered a reduction in cost)
- BCA methodology and assumed value guidance can be reviewed on the MnDOT website: https://www.dot.state.mn.us/planning/program/appendix_a.html

Analysis Years

The BCA assumed each alternative would be constructed in year 2025 and completed by year 2028. Therefore, year 2028 is the first full year project benefits are included in the analysis. The analysis focused on the twenty-year period from 2028 to 2047. The traffic analysis assumed study period between years 2019 and 2040.

Economic assumptions

The present value of all benefits and costs were calculated using year 2021 as the year of current dollars. The assumed discount rate for the analysis was 1.0 percent, per guidelines from the “Recommended standard values for use in B/C analysis in SFY 2021”, Minnesota Department of Transportation, Office of Transportation System Management, July 2020. Value of time, vehicle operating costs, crash costs, and remaining capital value assumptions were also consistent with values published in MnDOT guidance. Benefits for years between 2028 and 2040 were interpolated based on a linear growth rate, and benefits for years after 2040 were extrapolated using the same growth rate.

Development of Vehicle Hours Traveled (VHT)

VHT was derived from the travel demand model over the analysis period.

- Analyses were performed for the year of opening (year 2025) and a horizon year of 2040. Delay for years between 2025 and 2040 was interpolated based on a linear growth rate, and delay for years beyond 2040 was extrapolated using the same rate.
- **Vehicle occupancy rates** were provided by MnDOT Office of Transportation System Management. Values for autos and trucks were 1.30 and 1.0, respectively. A truck percentage of 10.5 percent, which was determined from year 2012 vehicle classification counts provided by MnDOT, was applied to the study network.

Safety Analysis

Safety benefits were estimated based on the reduction in crash severity (type Fatal, A, B, C, or Property Damage) between the programmed and build alternatives.

- The analysis used VMT from the Twin Cities Regional Travel Demand Model data for years 2019 and 2040. Data between 2010 and 2040 was interpolated based on a linear growth rate.
- Crash statistics for different facility types were gathered from MnDOT Toolkit for 2009-2013. This information was used to find a crash rate per million vehicle miles and estimate crash data.
- Crash costs for each severity type were valued in accordance with "Recommended standard values for use in B/C analysis in SFY 2021", MnDOT Office of Transportation System Management, July 2020.

Remaining Capital Value

The remaining capital value of each alternative was subtracted from the initial capital cost to determine the alternative's net capital cost. In determining remaining capital value, the initial costs of the alternatives were separated into the following categories:

- Right-of-Way
- Major structures
- Grading and drainage
- Sub-base and base
- Surface
- Miscellaneous costs – includes mobilization, removal of temporary pavement and drainage, traffic control, project development/delivery, and design and engineering costs. These were assumed to be sunk costs and assigned zero remaining capital value.

Maintenance Costs

Annual maintenance costs between programmed and build alternatives were monetized based on typical values observed in Minnesota for all facility types. The programmed alternative wouldn't have any maintenance costs for this analysis while the Build alternative with a total roadway length of 24 miles would have an annual Routine maintenance cost of \$10,700 per lane-mile according to MnDOT Benefit-cost guidance. These dollar amounts were inflated to year 2019 dollars using an inflation rate of 1.0, which was provided by the Consumer Price Index Inflation Calculator, Bureau of Labor Statistics.³ The maintenance costs were grown linearly from 2028 to 2047.

VMT-VHT Summary

The foundation of a BCA is the vehicle miles traveled (VMT) - vehicle hours traveled (VHT) summary. This summary describes how an improvement concept affects traffic volume, patterns, and congestion. A typical highway improvement facilities mobility, thus inducing longer trips and more VMT while simultaneously decreasing congestion and VHT.

Table 15 documents VMT and VHT changes modeled under Northwest Metro Mississippi River Crossing Feasibility Analysis Concepts. This table shows the expected dynamic – all four concepts increase VMT while decreasing VHT. Concept 2 (mobility improvements to Highway 10, 101 and 610) has the greatest impact on VMT and a middling impact on VHT. Concept 4 (a new expressway river crossing) has less than half Concept 2's impact on VMT but produces significantly more travel time savings.

Table 15: Northwest Metro Mississippi River Crossing Feasibility Analysis; Daily VMT-VHT Summary*

Daily Travel Summaries	Facility Type	Concept 1	Concept 2	Concept 3	Concept 4
Vehicle-Miles Traveled (VMT)	Freeway	330,000	380,000	-50,000	-60,000
	Non-freeway	-270,000	-280,000	90,000	100,000
	Total	60,000	100,000	40,000	40,000
Vehicle-Hours Traveled (VHT)	Freeway	4,600	3,800	-1,500	-1,800
	Non-freeway	-5,900	-6,200	-800	-1,400
	Total	-1,300	-2,400	-2,300	-3,200

* Results presented in relation to 2040 no-build scenario – traditional telecommuting assumptions

Changes in VHT, or travel time savings, tend to be the dominant source of benefits for highway mobility projects. All four concepts have VHT savings exceeding 1,000 vehicle hours per day in year 2040. Concept 4 (four-lane expressway river crossing) provides the greatest VHT savings with over 3,000 hours per day. Concepts 2 and 3 provide slightly lower VHT savings at just over 2,000 hours per day.

Another important factor in user benefits is safety, which are captured in VMT since freeways are statistically safer than non-freeways. Shifts in VMT from non-freeways to freeways indicate improved safety. These results show Concepts 1 and 2 with a net shift in VMT from non-freeway to freeway. However, the reverse is true for Concepts 3 and 4.

Benefit-Cost Results

BCA Detail

Tables 16 – 19 provide itemized present value benefits and costs for each northwest metro improvement concept. These benefits and costs are used to calculate the concepts net present value and benefit-cost ratio defined as net project benefit divided by net project cost.

Table 16: Concept 1 Benefit-Cost Detail (millions of dollars)

Present Value of Itemized Benefits	VMT Savings	-\$68.62
	VHT Savings	\$138.50
	Accident Reduction Benefits	\$95.96
	Present Value of Total Benefits	\$165.84
Present Value of Itemized Costs	Capital Cost Differential	\$237.86
	Maintenance Cost Differential	\$4.37
	Remaining Capital Value Differential	\$76.81
	Present Value of Total Costs	\$165.42
Benefit-Cost	Net Present Value	\$0.41
	Benefit/Cost Ratio	1.00

Table 17: Concept 2 Benefit-Cost Detail (millions of dollars)

Present Value of Itemized Benefits	VMT Savings	-\$126.73
	VHT Savings	\$232.32
	Accident Reduction Benefits	\$187.42
	Present Value of Total Benefits	\$293.01
Present Value of Itemized Costs	Capital Cost Differential	\$319.02
	Maintenance Cost Differential	\$4.37
	Remaining Capital Value Differential	\$108.69
	Present Value of Total Costs	\$214.70
Benefit-Cost	Net Present Value	\$78.31
	Benefit/Cost Ratio	1.36

Table 18: Concept 3 Benefit-Cost Detail (millions of dollars)

Present Value of Itemized Benefits	VMT Savings	-\$35.98
	VHT Savings	\$242.15
	Accident Reduction Benefits	-\$111.18
	Present Value of Total Benefits	\$95.00
Present Value of Itemized Costs	Capital Cost Differential	\$148.47
	Maintenance Cost Differential	\$4.37
	Remaining Capital Value Differential	\$69.83
	Present Value of Total Costs	\$83.02
Benefit-Cost	Net Present Value	\$11.98
	Benefit/Cost Ratio	1.14

Table 19: Concept 4 Benefit-Cost Detail (millions of dollars)

Present Value of Itemized Benefits	VMT Savings	-\$59.05
	VHT Savings	\$275.20
	Accident Reduction Benefits	-\$100.77
	Present Value of Total Benefits	\$115.38
Present Value of Itemized Costs	Capital Cost Differential	\$170.70
	Maintenance Cost Differential	\$4.37
	Remaining Capital Value Differential	\$86.36
	Present Value of Total Costs	\$88.70
Benefit-Cost	Net Present Value	\$26.69
	Benefit/Cost Ratio	1.30

BCA Ratios

Table 20 summarizes the results of this study’s benefit-cost analysis. It shows that all four concepts have a BC ratio greater than 1.0. The ratios presented in Table 20 were calculated using itemized benefits and costs derived from a year 2040 forecast with traditional assumption about telecommuting. Table 20 analyzes the sensitivity of these ratios to increased levels of telecommuting. It shows that additional telecommuting reduces the present value benefits of Concept 2, but all four concepts retain a BC ratio greater than 1.0.

Table 20: Northwest Metro Mississippi River Crossing Feasibility Analysis; Benefit Cost-Ratios

		Concept 1	Concept 2	Concept 3	Concept 4
Traditional Forecasts	Present Value of Benefits	\$166M	\$293M	\$95M	\$115M
	Present Value of Costs	\$165M	\$215M	\$83M	\$89M
	Benefit-Cost Ratio	1.0	1.4	1.1	1.3
Telecommute Forecasts	Present Value of Benefits	\$168	\$226	\$97	\$117
	Present Value of Costs	\$165M	\$215M	\$83M	\$89M
	Benefit-Cost Ratio	1.0	1.1	1.1	1.3

VIII. Operational Analysis

Having identified four technically feasible solutions to mobility challenges in the northwest metro, the Northwest Metro Mississippi River Crossing Feasibility Analysis went on to include a peak-hour operational analysis at four key locations in the study area: I-94/Highway 101 Interchange, I-94/Dayton Parkway Interchange, Highway 10/Armstrong Boulevard Interchange, and the Highway 169 River Crossing.

The purpose of the peak hour operational analysis at these locations was to address the following questions:

- What operational benefits would a reconfigured I-94/Highway 101 interchange experience?
- If a new Mississippi River crossing is constructed following the Zanzibar/Armstrong alignment, what operational benefit would the I-94/Highway 101 interchange and the Highway 169 river crossing experience?
- If a new Mississippi River crossing is constructed following the Zanzibar/Armstrong alignment, can the I-94/Dayton Parkway and Hwy 10/Armstrong Boulevard interchanges accommodate the increased traffic volumes?
- If COVID-19 has long term impacts on future traffic volumes, how do the benefits of this study's concepts change?

Methodology

Three locations were evaluated using Synchro peak hour (a.m. and p.m.) models: I-94/Highway 101 interchange, Dayton Parkway/I-94 interchange, and Armstrong Boulevard/I-94 interchange. At each location, daily forecasts were used to develop turning movement forecasts under no-build and build scenarios. Intersection delays and network delays were obtained from the Synchro models. The delays provided an understanding of potential operational improvement under each scenario.

The study's operational analysis also included an evaluation of congestion duration on the Highway 169 river crossing connecting Anoka and Champlin. Since the corridor is congested multiple hours per day, a maximum throughput in each direction at the river crossing was determined using the corridor's existing volume profile. The feasibility analysis team then used year 2040 traffic forecasts to calculate the number of hours northbound and southbound lanes would be at maximum throughput under no-build and build scenarios.

I-94/Highway 101 Interchange

The I-94/Highway 101 interchange is shown in Figure 36 below. There are currently several issues at this interchange, including heavy delay and long queues (mainly southbound Highway 101 during the AM peak hour), poor lane utilization on southbound Highway 101, and vehicles bypassing the queue and making U-turns south of the interchange to use the northbound-to-eastbound ramp. Additionally, during both peaks, the northbound-to-westbound turn lane can become congested with long queues and there are high numbers of heavy vehicles and uphill grades on southbound Highway 101 near the interchange.

Figure 36: I-94/Hwy 101 Interchange



Three conditions were evaluated for the I-94/Highway 101 interchange:

1. Conversion to Diverging Diamond Interchange with no new river crossing.
2. Addition of a new southbound-to-eastbound flyover with no new river crossing.
3. Existing configuration with a new river crossing.

Intersection Delay

The analysis for these conditions was conducted using Synchro/SimTraffic during future year peak hours. The schematic for Conditions 1 and 2 are shown in Figure 37 and Figure 38 below.

Figure 37: I-94/Hwy 101 Interchange – Condition 1 (DDI)



Figure 38: I-94/Hwy 101 Interchange – Condition 2 (Flyover)



This analysis indicated that Condition 1: DDI provides a 60 to 65 percent delay reduction compared to no-build. The estimated construction cost in current dollars for Condition 1 is \$18 million. Condition 2: Flyover provides 75 to 80 percent delay reduction compared to no-build. The estimated construction cost in current dollars for Condition 2 is \$90 million. For Condition 3, the analysis indicated a new river crossing (either Concept 3 or Concept 4 described in Section V) provides the least amount of benefit with 35 to 40 percent delay reduction compared to no-build. Under this condition, there is a reduction of trips to/from East I-94 and is an increase of trips to/from West I-94.

Operational analysis of the I-94/Highway 101 interchange highlights high demand for southbound Highway 101 to eastbound I-94 movements. With the current geometry of the interchange, in order to access eastbound I-94 from southbound Highway 101, southbound traveling vehicles need to be in the right-most lane. This results in poor southbound lane utilization north of the interchange and lengthy queues that effect the intersection of Highway 101 and South Diamond Lake Road.

Figure 39 and Figure 40 show that under the no-build forecast, AM and PM peak hour intersection delay is expected to more than double on South Diamond Lake Road. This delay is largely resolved by reconfiguring the I-94/Highway 101 interchange as in Concepts 1 and 2. A new river crossing does not solve the poor lane utilization issues present with the existing interchange configuration, but it still does improve delay at South Diamond Lake Road, especially during the AM peak.

Figure 39: I-94/Hwy 101 Intersection Delay; AM Peak Hour

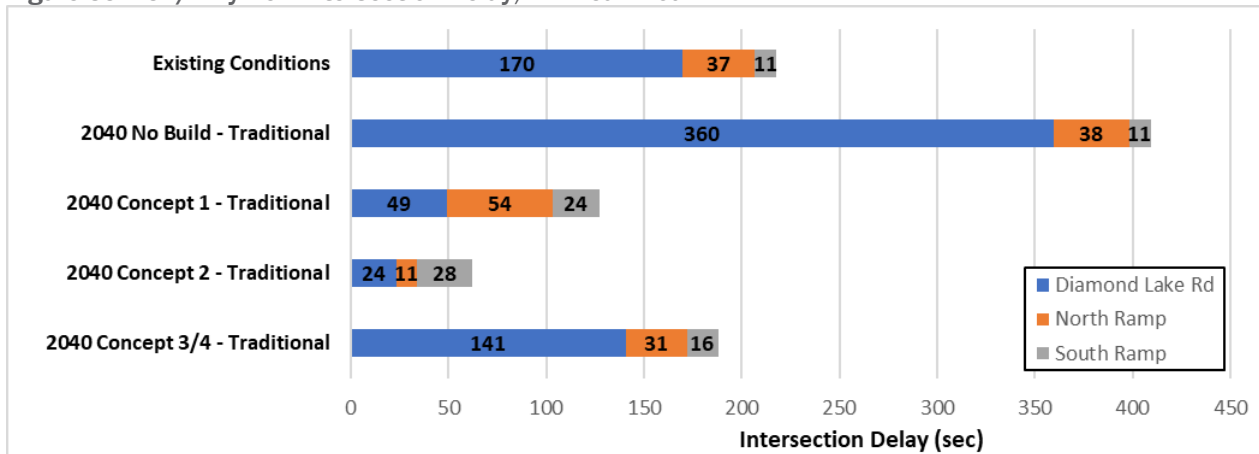
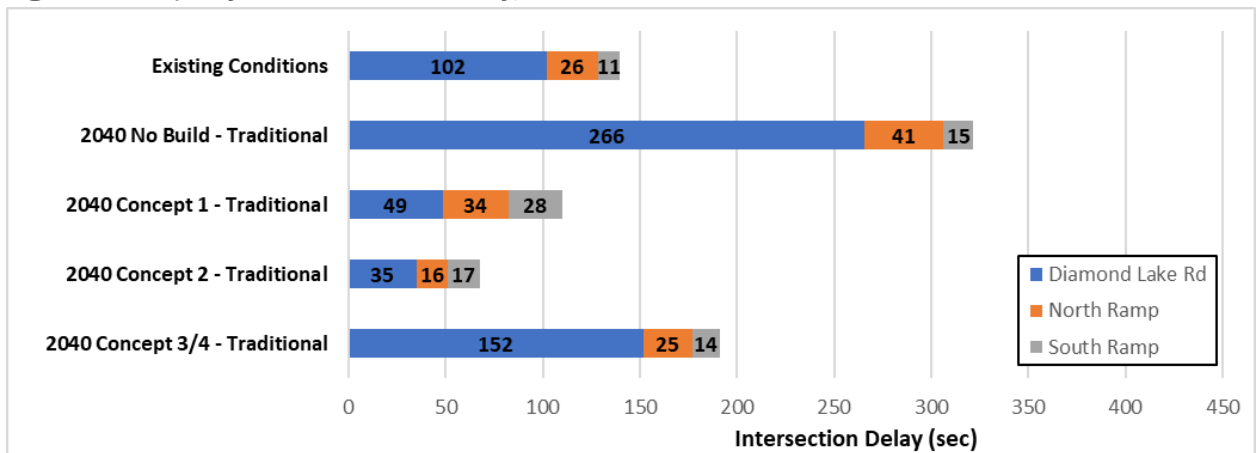


Figure 40: I-94/Hwy 101 Intersection Delay; PM Peak Hour



Intersection Delay Sensitivity Test

Peak hour operational analysis was also conducted for the I-94/Highway 101 interchange using forecasts assuming increased telecommuting. The same methodology was used to calculate intersection delay under the telecommute forecast as under the forecast with traditional travel behavior assumptions.

Figure 41 shows that AM peak hour intersection delay is similar under the traditional and telecommute forecasts, with slightly less intersection delay under the telecommute forecast and therefore less delay reduction benefit. PM peak hour intersection delay is shown in Figure 42. There is significantly less intersection delay under the telecommute no-build scenario than under the traditional no-build scenario.

Figure 41: I-94/Hwy 101 Intersection Delay with Increased Telecommuting; AM Peak Hour

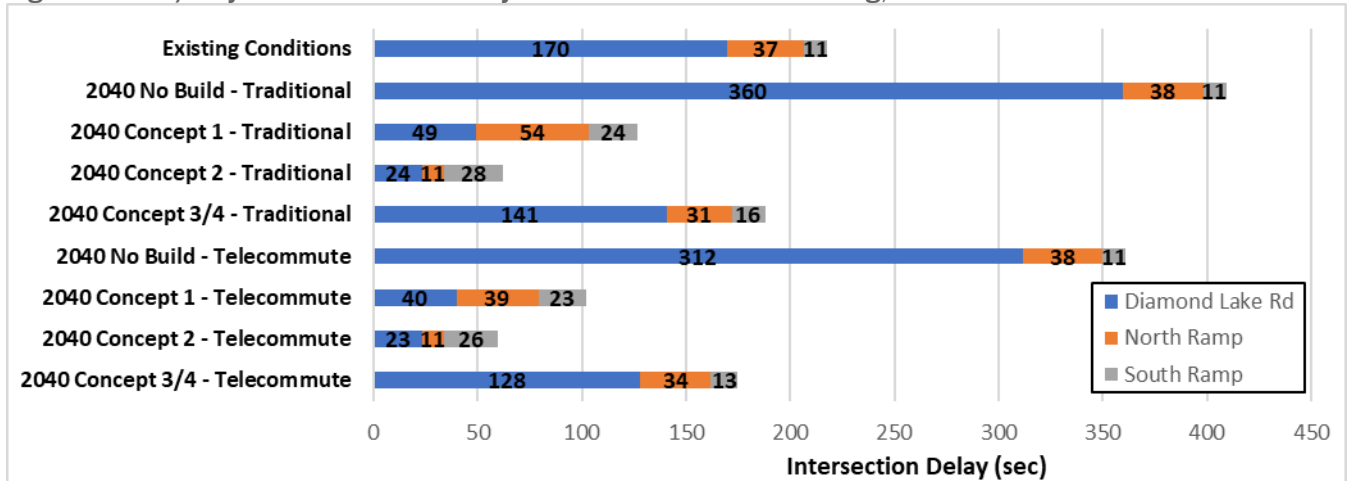
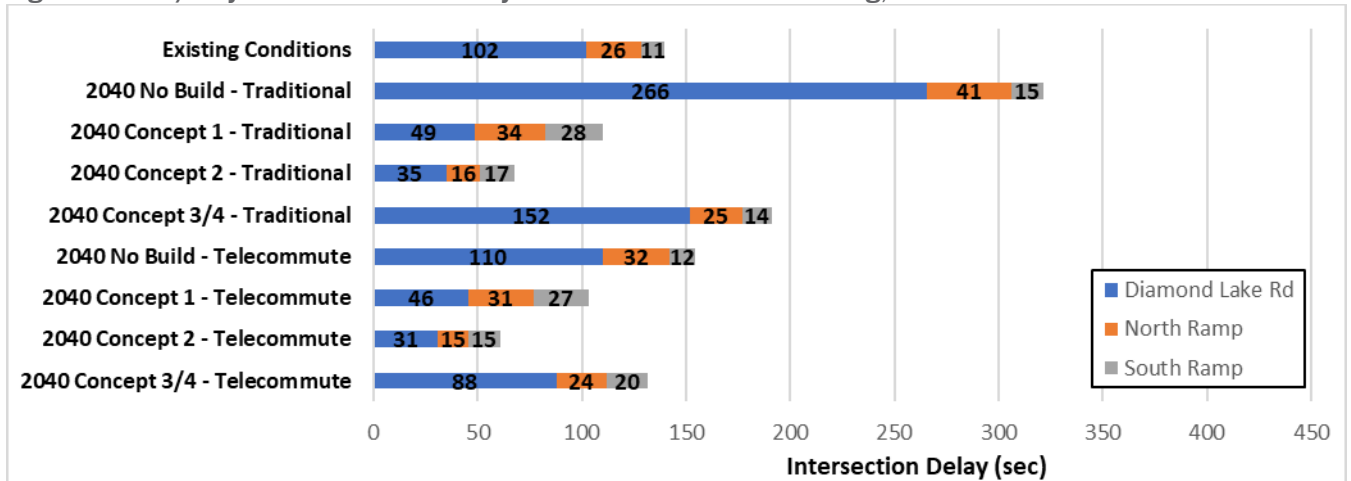


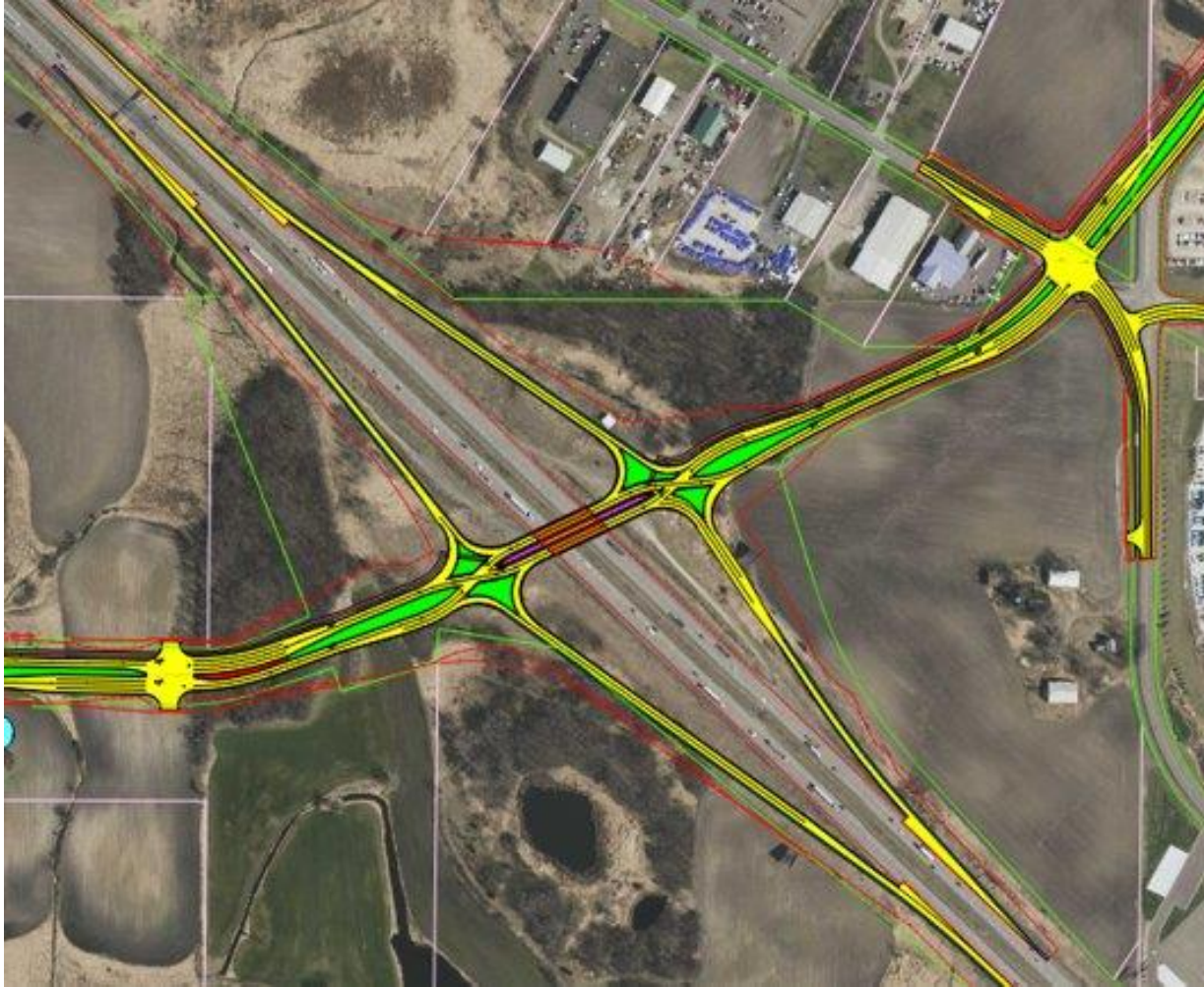
Figure 42: I-94/Hwy 101 Intersection Delay with Increased Telecommuting; PM Peak Hour



I-94/Dayton Parkway Interchange

The I-94/Dayton Parkway interchange is shown in Figure 43 below. This interchange was evaluated using the current configuration to determine if it can accommodate future traffic volumes expected with the new Mississippi River crossing.

Figure 43: I-94/Dayton Parkway Interchange



Intersection Delay

Analysis of operational benefits at the I-94/Dayton Parkway interchange was conducted using Synchro/SimTraffic during future year peak hours. The results of this analysis indicate that the existing interchange will operate well under 2040 no-build conditions if a new Mississippi River crossing is built as described in Concepts 3 and 4. Figure 44 and Figure 45 show the impact of the new river crossing on peak hour intersection delay at the I-94/Dayton Parkway interchange with the existing geometry. Peak hour intersection delay at the interchange with improved geometry is shown in Figure 46 and Figure 47.

Figure 44: I-94/Dayton Parkway Intersection Delay; AM Peak Hour – Existing Geometry

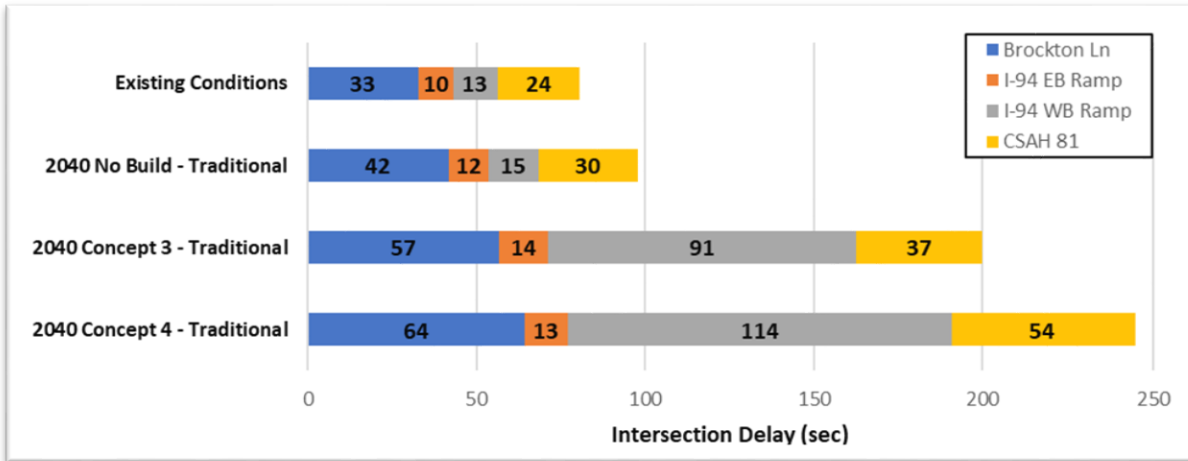


Figure 45: I-94/Dayton Parkway Intersection Delay; PM Peak Hour – Existing Geometry

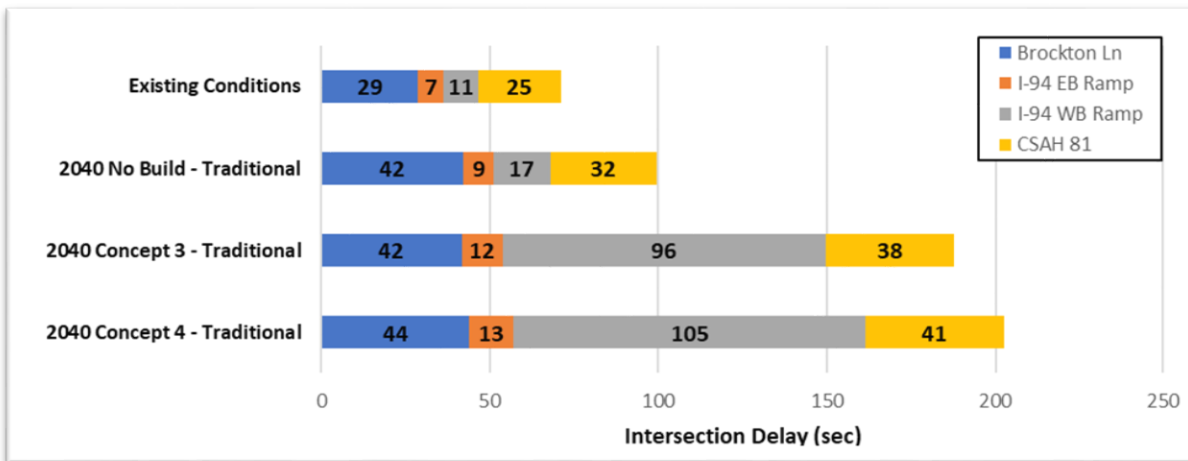


Figure 46: I-94/Dayton Parkway Intersection Delay; AM Peak Hour – Improved Geometry

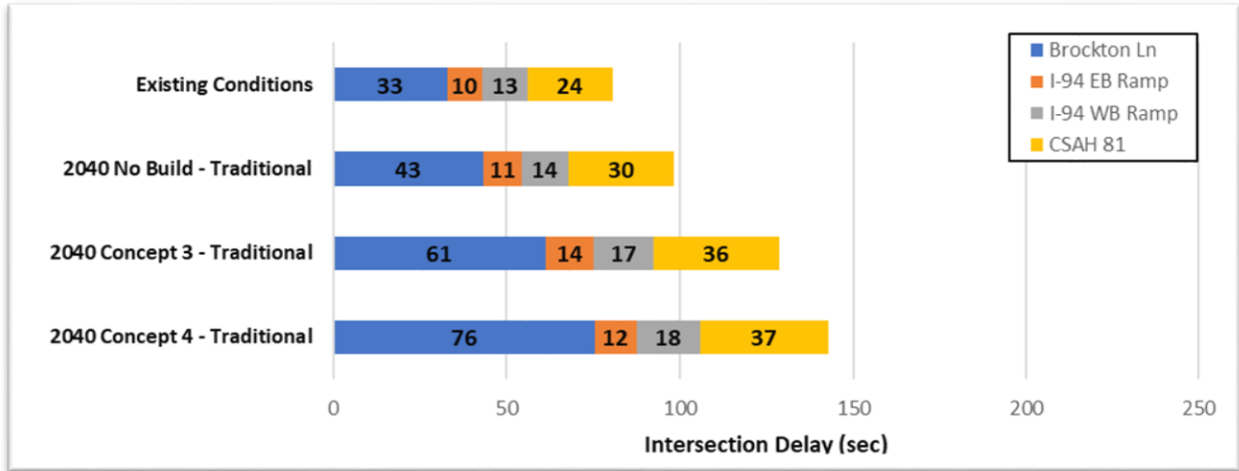
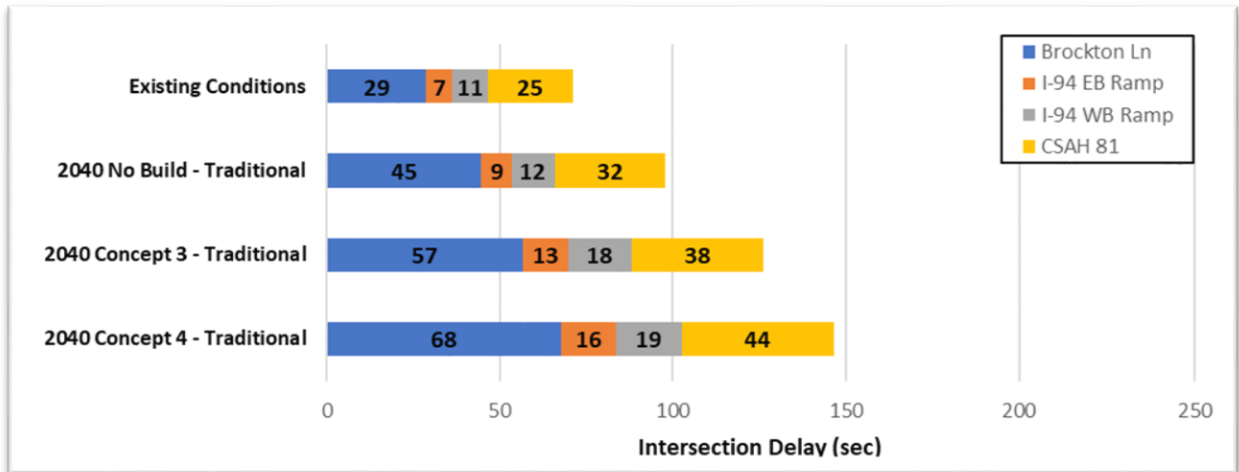


Figure 47: I-94/Dayton Parkway Intersection Delay; PM Peak Hour – Improved Geometry



Intersection Delay Sensitivity Test

Peak hour operational analysis was also conducted for the I-94/Dayton Parkway interchange using forecasts assuming increased telecommuting. The same methodology was used to calculate intersection delay under the telecommute forecast as under the forecast with traditional travel behavior assumptions.

AM peak hour intersection delay with existing geometry is shown in Figure 48 and PM peak hour intersection delay with existing geometry is shown in Figure 49. These figures show that the existing I-94/Dayton Parkway interchange will operate acceptably with or without a new river crossing under scenarios with additional telecommuting.

Figure 48: I-94/Dayton Parkway Intersection Delay with Increased Telecommuting; AM Peak Hour – Existing Geometry

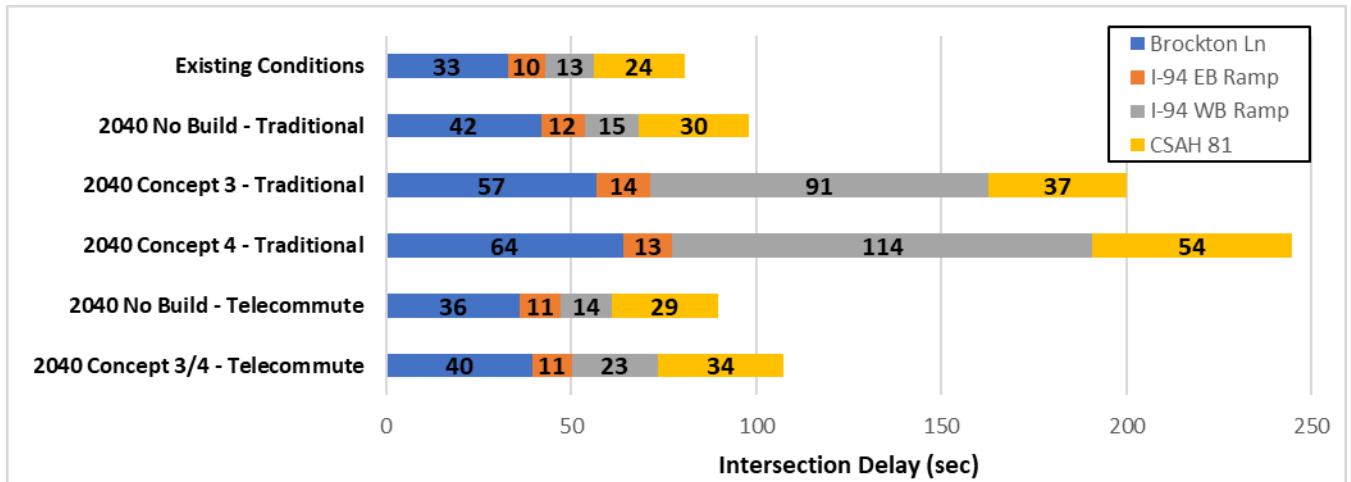
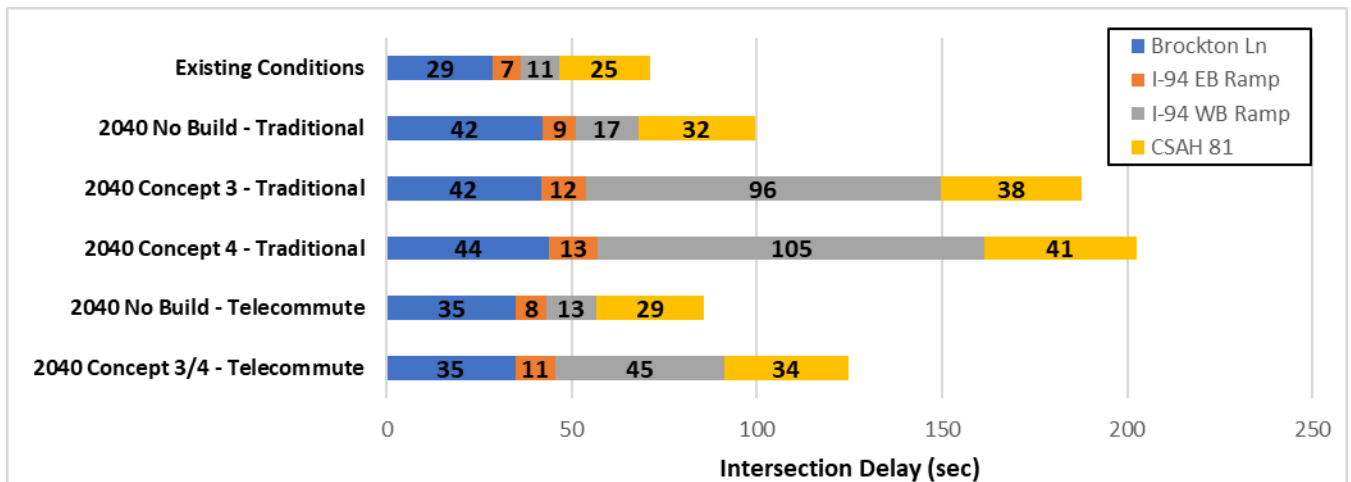


Figure 49: I-94/Dayton Parkway Intersection Delay with Increased Telecommuting; PM Peak Hour – Existing Geometry



Highway 10/Armstrong Boulevard Interchange

The Highway 10/Armstrong Boulevard interchange is shown in Figure 50 below. This interchange was evaluated to determine if it can accommodate future traffic volumes expected with a new Mississippi River crossing following the Zanzibar/Armstrong alignment.

Figure 50: Hwy 10/Armstrong Boulevard Interchange



Intersection Delay

Analysis of operational benefits at the Highway 10/Armstrong Boulevard interchange was conducted using Synchro/SimTraffic during future year peak hours. The results of this analysis indicate the existing interchange will operate well under 2040 no-build conditions if a new Mississippi River crossing is built as described in Concepts 3 and 4. Figure 51 and Figure 52 show the impact of the new river crossing on peak hour intersection delay at the Highway 10/Armstrong Boulevard interchange with existing geometry. Peak hour intersection delay at the interchange with improved geometry is shown in Figure 53 and Figure 54.

Figure 51: Hwy 10/Armstrong Boulevard Intersection Delay; AM Peak Hour – Existing Geometry

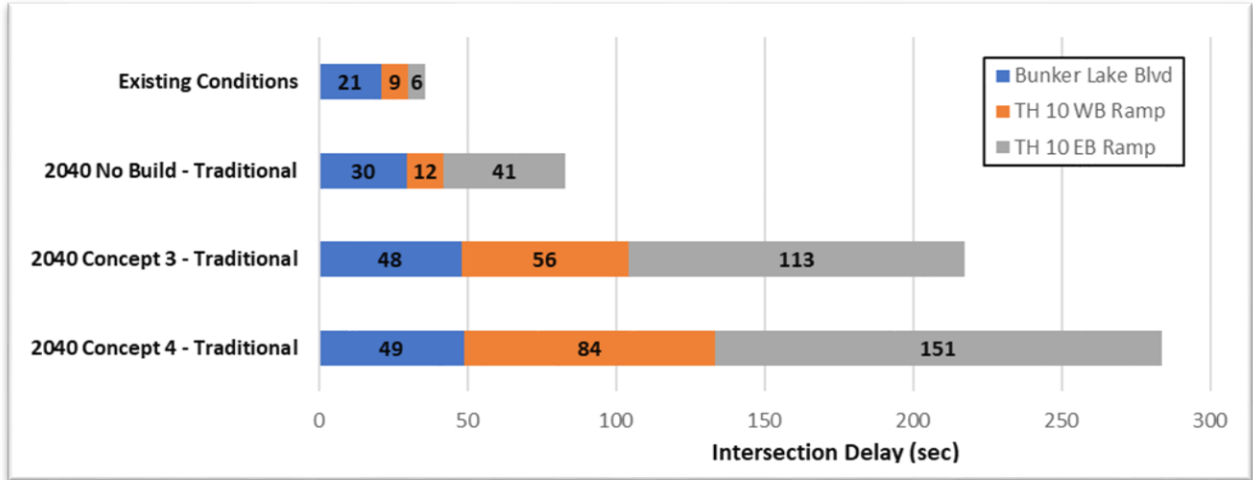


Figure 52: Hwy 10/Armstrong Boulevard Intersection Delay; PM Peak Hour – Existing Geometry

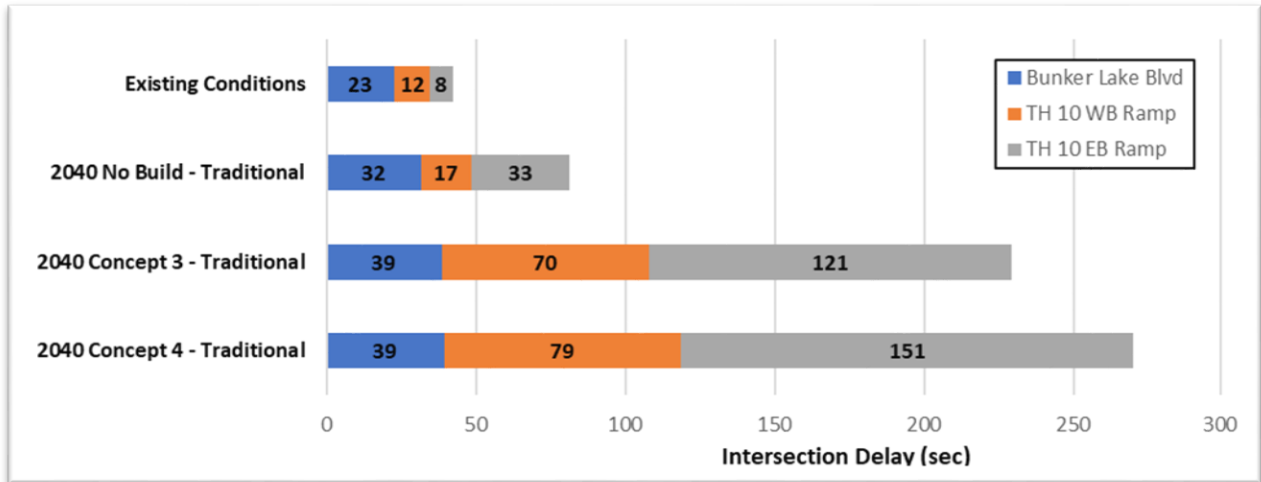


Figure 53: Hwy 10/Armstrong Boulevard Intersection Delay; AM Peak Hour – Improved Geometry

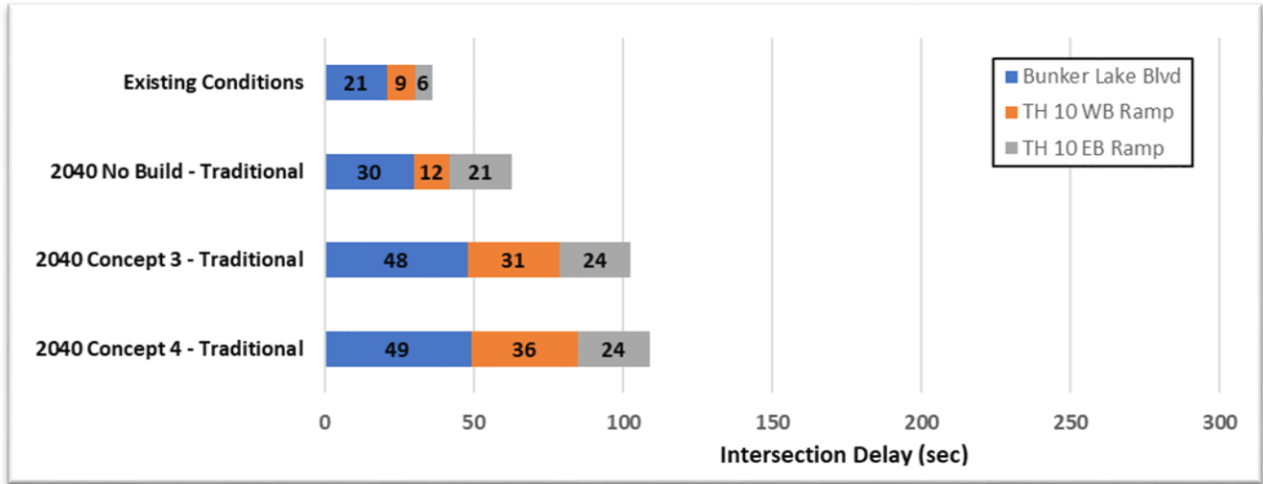
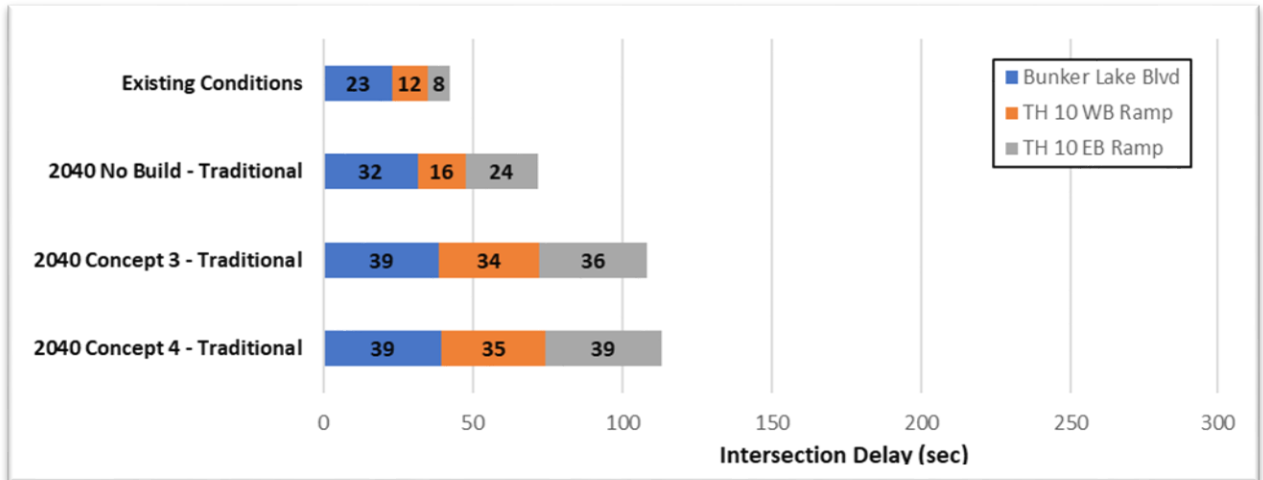


Figure 54: Hwy 10/Armstrong Boulevard Intersection Delay; PM Peak Hour – Improved Geometry



Intersection Delay Sensitivity Test

Peak hour operational analysis was also conducted for the Highway 10/Armstrong Boulevard interchange using forecasts assuming increased telecommuting. The same methodology was used to calculate intersection delay under the telecommute forecast as under the forecast with traditional travel behavior assumptions.

AM peak hour intersection delay with increased telecommuting and existing geometry is shown in Figure 55. PM peak hour intersection delay with increased telecommuting and existing geometry is shown in Figure 56. These figures show that the Highway 10/Armstrong Boulevard interchange will operate below 2040 no-build conditions if a new river crossing is built, but with significantly less delay under forecasts with increased telecommuting than under forecasts with traditional travel behavior assumptions. This is especially true during the AM peak hour, at which time intersection delay under the telecommute build scenario is half the delay under the traditional build scenario.

Figure 55: Hwy 10/Armstrong Blvd Intersection Delay with Increased Telecommuting; AM Peak Hour – Existing Geometry

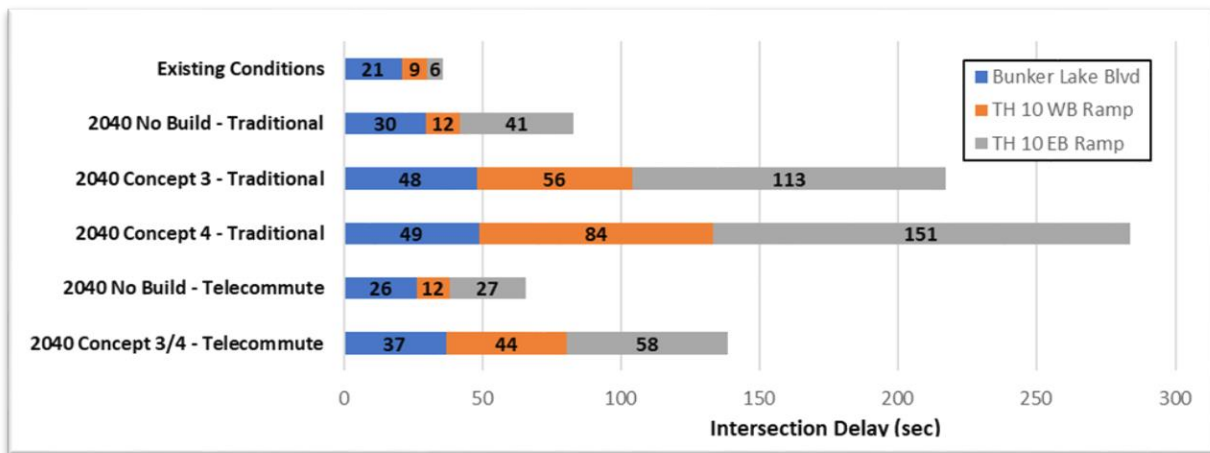


Figure 56: Hwy 10/Armstrong Blvd Intersection Delay with Increased Telecommuting; PM Peak Hour – Existing Geometry

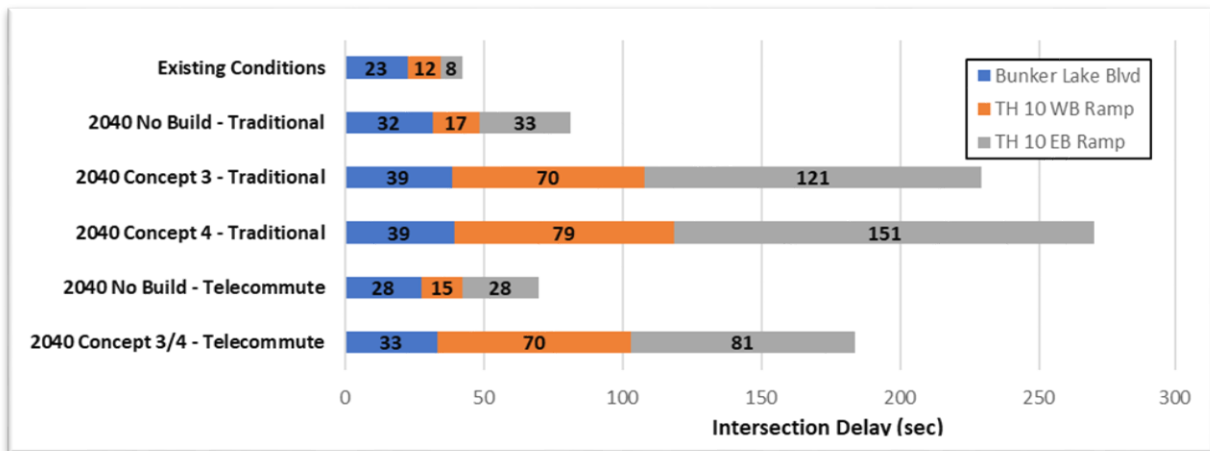


Figure 57 and Figure 58 show intersection delay at the Highway 10/Armstrong Blvd. interchange with increased telecommuting and improved geometry. These figures indicate there are operational benefits to improving the geometry of the Highway 10/Armstrong Blvd. under both traditional and telecommute build scenarios if a new river crossing is built, resulting in additional traffic movements at this location.

Figure 57: Hwy 10/Armstrong Blvd. Intersection Delay with Increased Telecommuting; AM Peak Hour – Improved Geometry

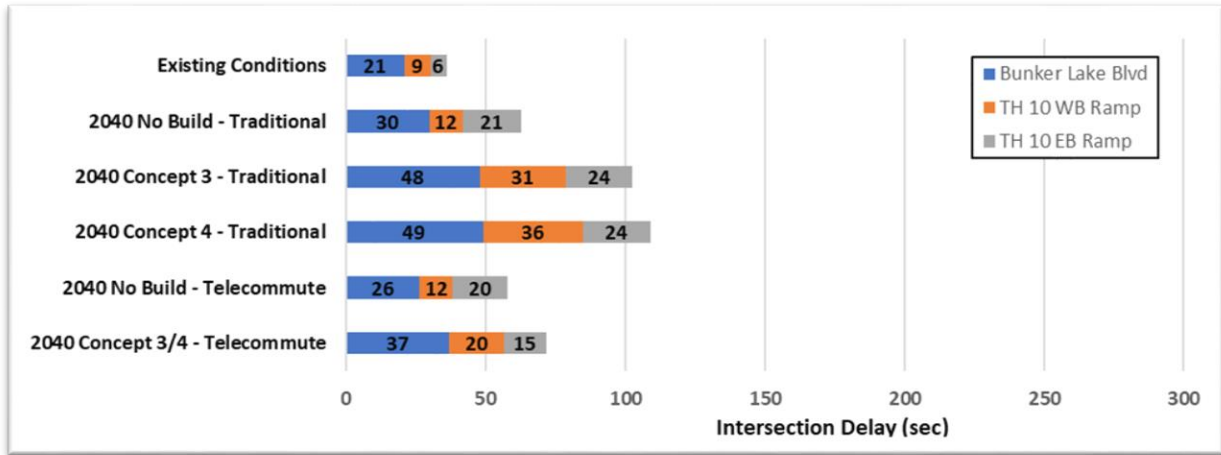
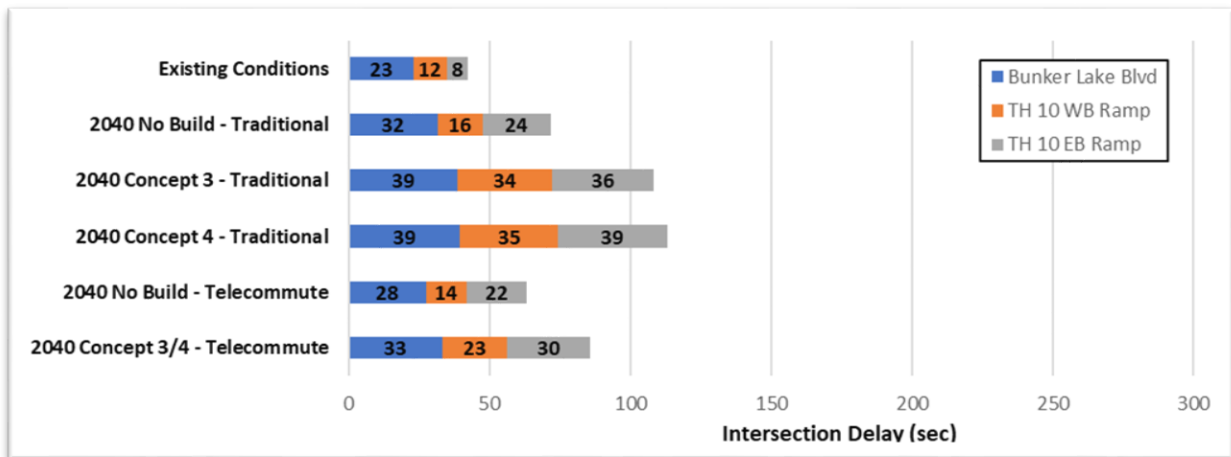


Figure 58: Hwy 10/Armstrong Blvd. Intersection Delay with Increased Telecommuting; PM Peak Hour – Improved Geometry



Highway 169 Mississippi River Crossing

A key segment of Highway 169 Mississippi River Crossing is shown in Figure 59 below. There are currently several issues on this crossing, including heavy delay and long queues during several hours of the day and limited right-of-way to address capacity needs.

Figure 59: US 169 Near South of the Mississippi River



Congestion Duration

This corridor was evaluated by analyzing hours of congestion. To determine hours of congestion, an existing daily volume profile was developed at the river crossing in each direction. This volume profile along with the existing hours of congestion on this corridor was used to determine the maximum throughput in each direction at the river crossing. Based on the existing data, the river crossing capacity was determined to be 2,500 vehicles per hour in each direction.

The feasibility analysis team then calculated year 2040 congestion duration on Highway 169 using the corridor's capacity threshold and future daily volume profiles developed for no-build and build scenarios. Forecasted changes in daily volume were applied to hours not already at capacity under existing conditions. This methodology quantifies congestion duration as the number of hours the daily volume profile exceeds corridor capacity. Year 2040 volume profiles for Highway 169 near the Mississippi River are shown in Figure 60 and Figure 61 below.

Figure 60: Highway 169 Year 2040 Northbound Volume Profile

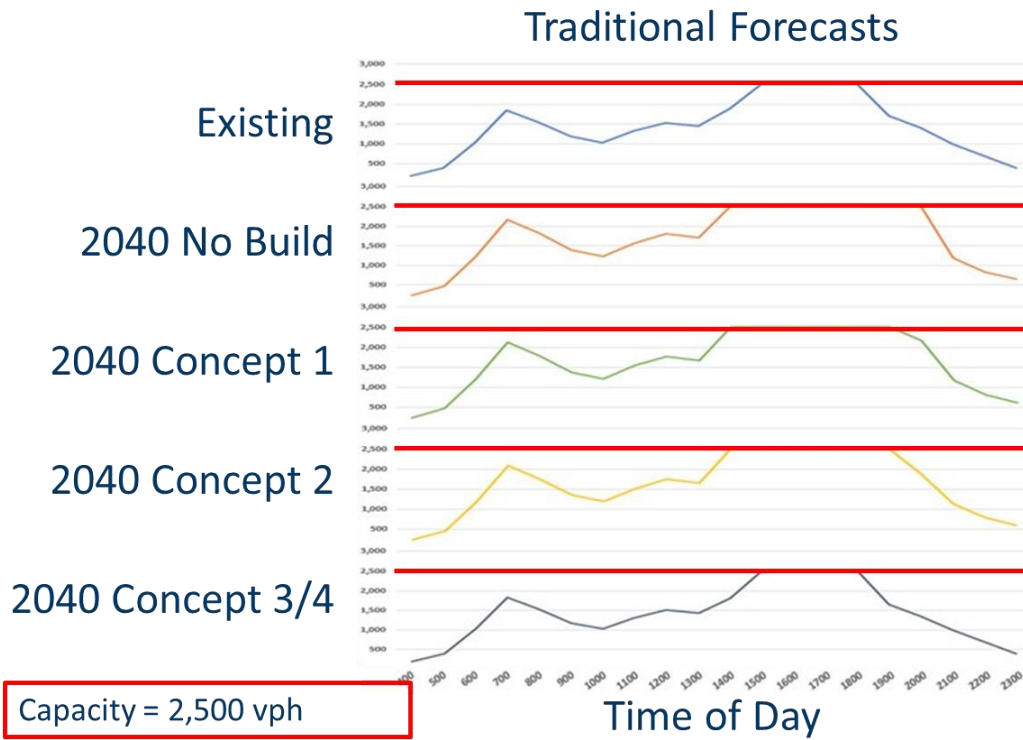


Figure 61: Highway 169 Year 2040 Southbound Volume Profile

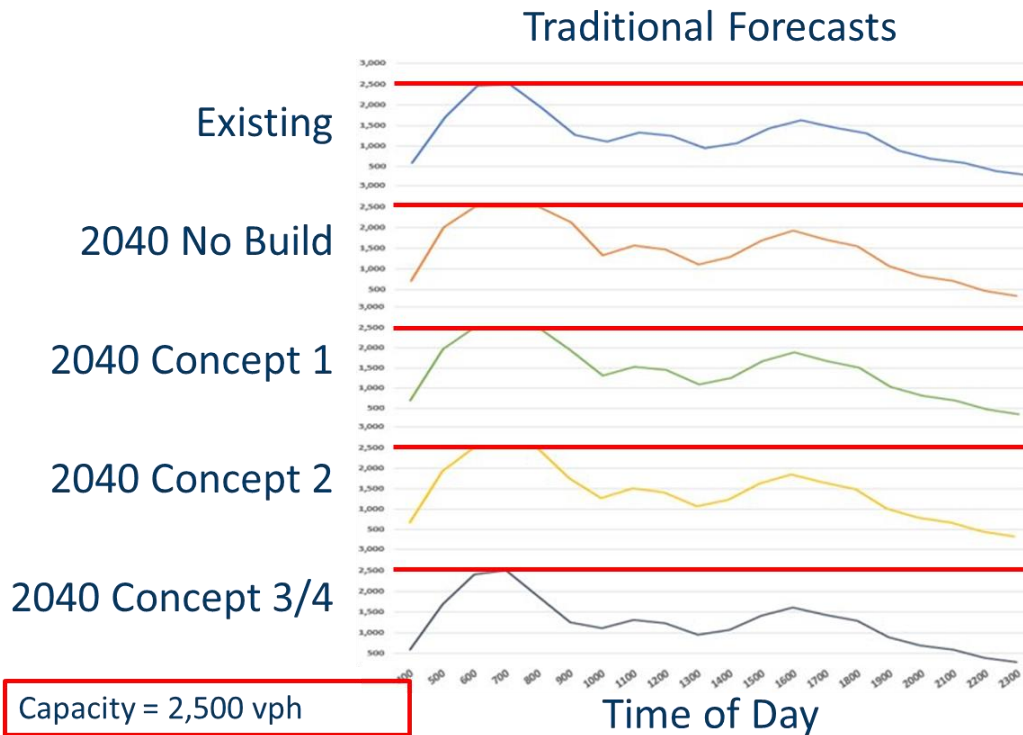
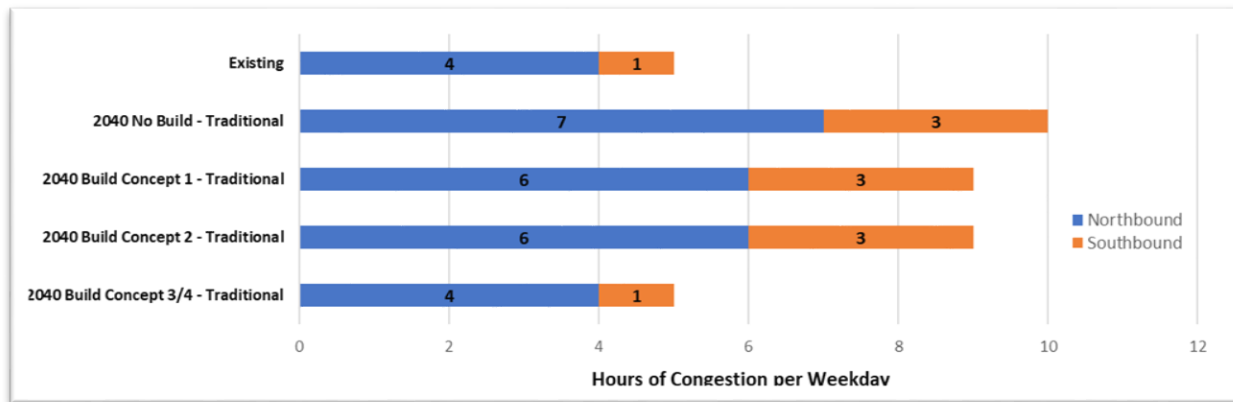


Figure 62 shows year 2040 congestion duration on Highway 169. Under existing conditions there are four hours of congestion in the northbound direction, and one hour of congestion in the southbound direction. Congestion duration increases to seven hours in the northbound direction and three hours in the southbound direction under the 2040 no-build condition. Under both Concept 1 and Concept 2 scenarios, northbound hours of congestion decrease to six hours per day, while hours of southbound congestion do not change. Northbound hours of congestion for Concepts 3 and 4 decrease to four hours per day while the southbound congestion decreases to one hour per day.

This analysis indicates that congestion duration on the Highway 169 crossing will double between 2018 and 2040 under no-build conditions, from five hours per day (four hours northbound and one hour southbound) to 10 hours per day (seven hours northbound and three hours southbound). Under the Concept 3/4 scenario, year 2040 congestion duration returns to levels consistent with year 2018 conditions.

Figure 62: Highway 169 Year 2040 Congestion



Congestion Duration Sensitivity Test

A congestion duration sensitivity test was also conducted for 2040 congestion duration on Highway 169 using forecasts that assume increased telecommuting. The same methodology was used to determine daily hours of congestion in the telecommute scenario as the scenario with traditional travel behavior assumptions.

Figure 63 and Figure 64 on the next page provide 2040 daily volume profiles for both directions of Highway 169 under telecommute scenarios. These profiles illustrate the times of day Highway 169 is congested (volumes reach the corridor’s capacity threshold). Congestion duration – the range of times volumes reach the corridor’s capacity threshold – is broadest under the 2040 no-build scenario. The duration narrows modestly under the Concept 1 and 2 scenarios. Under the Concept 3/4 scenario, congestion duration narrows significantly relative to 2040 no-build.

Figure 63: Highway 169 Year 2040 Northbound Volume Profile; Increased Telecommuting

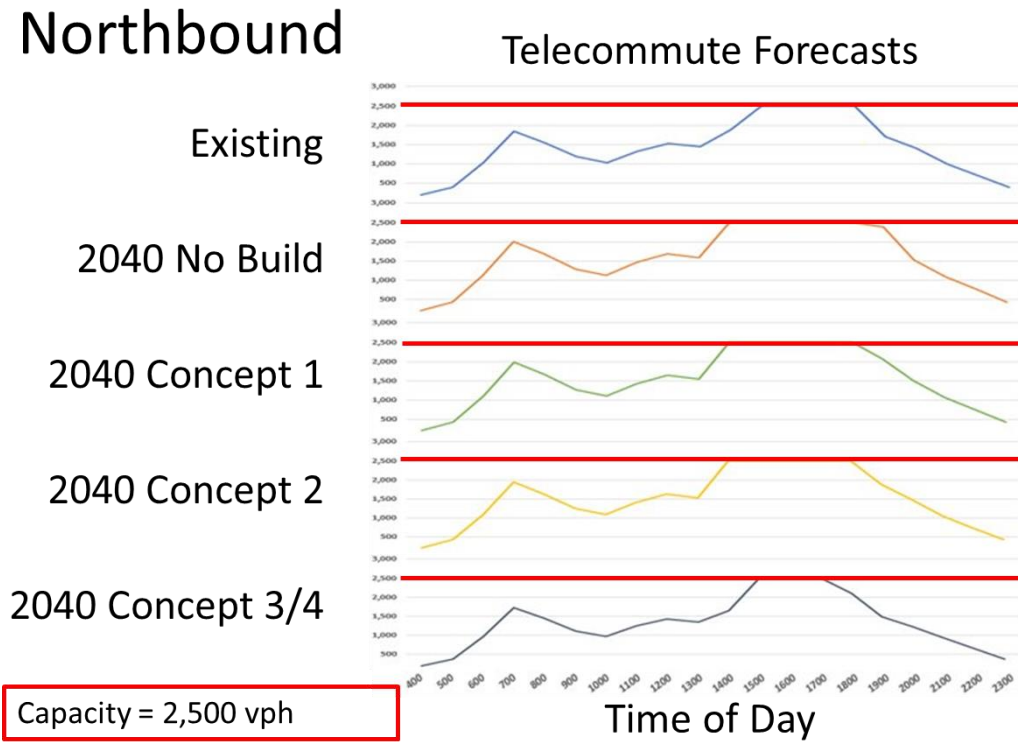


Figure 64: Highway 169 Year 2040 Southbound Volume Profile; Increased Telecommuting

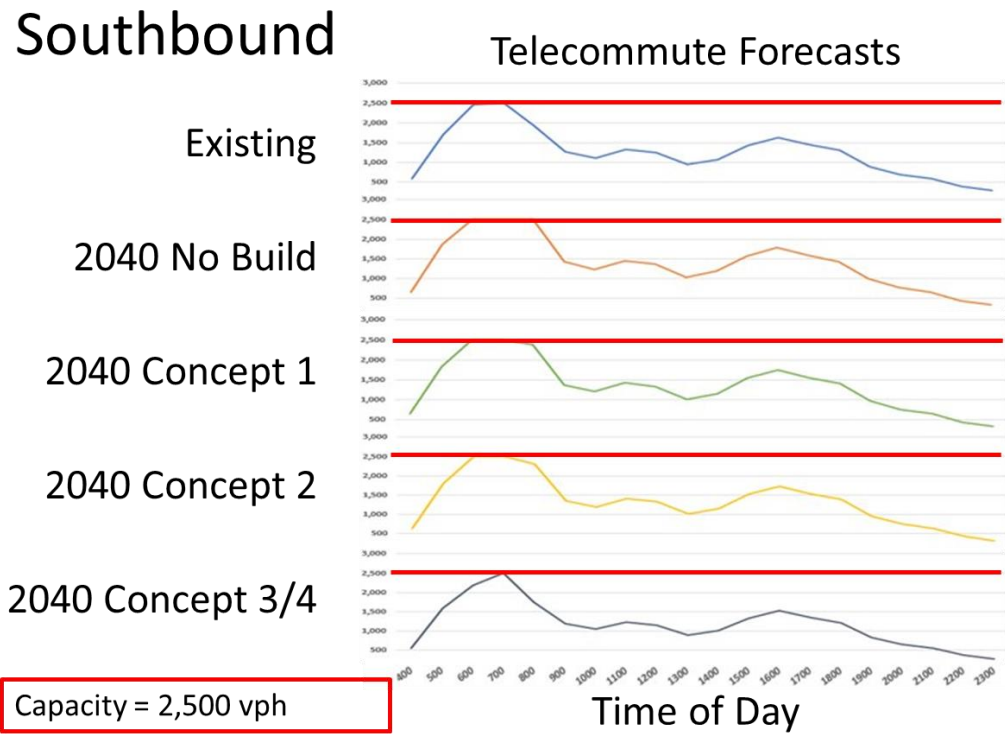
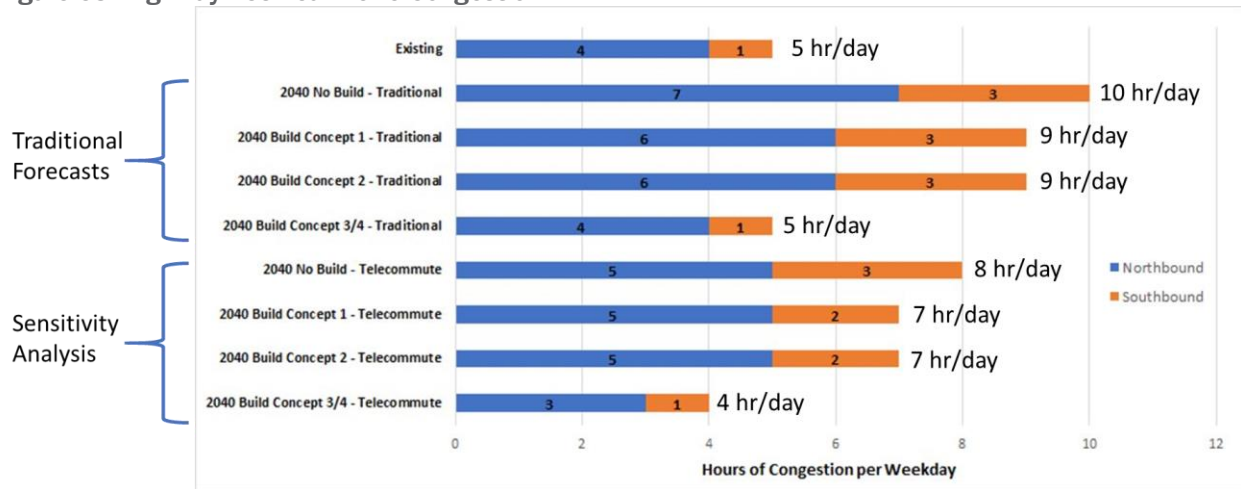


Figure 65 shows 2040 congestion duration on Highway 169 under traditional and telecommuting forecasts. It shows that even with increased telecommuting, the Highway 169 Mississippi River Crossing is expected to be congested eight hours per day, an additional three hours per day relative to existing conditions. This congestion falls to four hours per day under Concept 3/4. Taken together, these results suggest that congestion on Highway 169 is only slightly sensitive to the telecommuting, and that a new river crossing is effective at congestion reduction under traditional and telecommuting scenarios.

Figure 65: Highway 169 Year 2040 Congestion



IX. Conclusions and Next Steps

The Northwest Metro Mississippi River Feasibility Analysis explored regional travel patterns and considered whether improvements to existing highway and/or a new Mississippi River crossing in the northwest portion of the Twin Cities Metropolitan Area are feasible solutions to existing and anticipated mobility challenges. This final section summarizes the study's conclusions and recommends next steps for further analysis and project development.

Conclusions

As noted in the introduction, this study does not include a project recommendation. The study's results are presented as findings regarding the region's land use and planning context, prior transportation studies, travel patterns, current and anticipated mobility challenges, year 2040 traffic forecasts, teleworking rates, and the feasibility of four highway improvement concepts. These conclusions are summarized below.

Context Analysis

- Northwest metro highways have been studied multiple times over the last 30 years. Most of these studies identify the need for additional highway capacity.
- Growth is anticipated to continue in the northwest metro area. Ramsey, Corcoran, and Dayton are among the fastest growing communities in the Twin Cities.
- Investments have been made to address congestion and support future growth. Some communities have invested to accommodate a future crossing.

Origin-Destination Analysis

- Nearly 240,000 daily trips cross the Mississippi River using Highways 101, 169 or 610.
- Each crossing performs a unique role in regional travel patterns:
 - Highway 101 carries the most interregional trips.
 - Highway 169 is used by many short trips to local destinations.
 - Highway 610 serves the most commutes to and from the urban core.

Congestion Analysis

- There is heavy AM and PM peak period congestion in both directions on Highway 169 north of the river and Highway 101 north of the I-94/Highway 101 interchange.
- The worst corridor bottlenecks on northwest metro area highways are associated with traffic signals on Highway 169 and on Highway 101 southbound near South Diamond Lake Road.
- Highway 101 experiences a significant amount of holiday related congestion due to a four-fold increase in interregional traffic.

Concept Development

- A total of 14 highway improvements were screened for consistency with local & regional planning, residential and community impacts, and natural resource impacts.
- Improvements carried forward from the screening were packaged into four concepts.
 - **Concept 1:** Mobility improvements on Highways 10 and 101
 - **Concept 2:** Mobility improvements on Highways 10, 101, and 610
 - **Concept 3:** Arterial river crossing following the Zanzibar/Armstrong alignment
 - **Concept 4:** Expressway river crossing following the Zanzibar/Armstrong alignment
- Estimated net cost of the concepts range between \$170M and \$350M
- All segments improved under Concepts 1 or 2 were found to be “under capacity” post improvement but had minimal impact on river crossing congestion.

Traffic Forecast & Analysis

- Congestion is expected to increase on northwest metro highways under year 2040 no-build conditions.
- Concepts 1 and 2 draw traffic from local roadways onto Highway 10, 101, and 610. These concepts do not significantly change traffic volumes on the Highway 169 river crossing.
- Concept 3 draws 25,000 vpd to a new river crossing and reduces traffic volumes on Highways 101 and 169 by 8,000 and 10,000 vpd, respectively. Concept 4 draws 30,000 vpd and reduces traffic volumes on Highways 101 and 169 by 9,000 and 13,000 vpd, respectively.
- Concepts 1 and 2 reduce V/C ratios on improved facilities but have little impact on the Highway 169 river crossing. Concepts 3 and 4 reduce V/C ratios on Highways 169 and 610 relative to no-build conditions.
- A 2040 traffic sensitivity test that increased telecommuting rates found that Highway 610 would be under capacity between Highways 169 and 252 in an increased telecommute scenario. I-94 and Highways 10, 101, and 169 are expected to continue to be congested under both traditional and telecommute forecasts.

Benefit-Cost Analysis

- The four concepts developed in this study provide regional travel time savings through decreased VHT. Concept 4 provides the most travel time savings among the concepts evaluated.
- All four concepts have a B/C ratio of at least 1.0 under scenarios with traditional travel behavior assumptions. Each concept retains a B/C ratio greater than 1.0 under a sensitivity test that considers increased telecommuting.

Operational Analysis

- The four concepts developed in this study result in significant operational benefits for the I-94/Highway 101 interchange. Concept 2 (southbound Hwy 101 to eastbound I-94 flyover ramp) achieves the most benefits, but Concept 1 (conversion to a diverging diamond interchange) is more cost effective.
- A new river crossing following the Zanzibar/Armstrong alignment reduces delay at the I-94/Highway 101 interchange by diverting traffic away from Highway 101. This results in a greater than 50 percent reduction in AM peak hour delay.
- A new river crossing following the Zanzibar/Armstrong alignment results in a 50 percent reduction in year 2040 congestion duration at the Highway 169 river crossing, from 10 hours per weekday under the year 2040 no build scenario to five hours per weekday under the Concept 3/4 build scenario.
- A new river crossing following the Zanzibar/Armstrong alignment increases delay at the I-94/Dayton Parkway and the Hwy 10/Armstrong Boulevard interchanges. Relatively small-scale geometric improvements are available to mitigate these increases, allowing these interchanges to continue to operate acceptably with a new river crossing connection.
- Traffic sensitivity analysis reached the following conclusions:
 - The operational benefits of Concepts 1-4 at the I-94/Highway 101 interchange are similar under traditional and increased telecommuting forecasts.
 - The I-94/Dayton Parkway interchange operates acceptably in the telecommute no-build and Concept 3/4 build scenarios.

- The I-94/Armstrong Boulevard interchange operates under year 2040 no-build conditions in the telecommute Concept 3/4 build scenario, but delay caused by increased traffic volumes can be mitigated with improved interchange geometry.
- The Highway 169 river crossing remains highly congested under the year 2040 telecommute no-build scenario; Concept 3/4 reduces congestion under both traditional and telecommuting forecasts.

Next Steps

The Northwest Metro Mississippi River Crossing Feasibility Analysis developed four feasible solutions to current and anticipated mobility challenges in the northwest metro, including two concepts comprised of a new Mississippi River crossing. This technical analysis concluded with a series of facilitated discussions between MnDOT and city, county, and regional partners about next steps for the river crossing concepts.

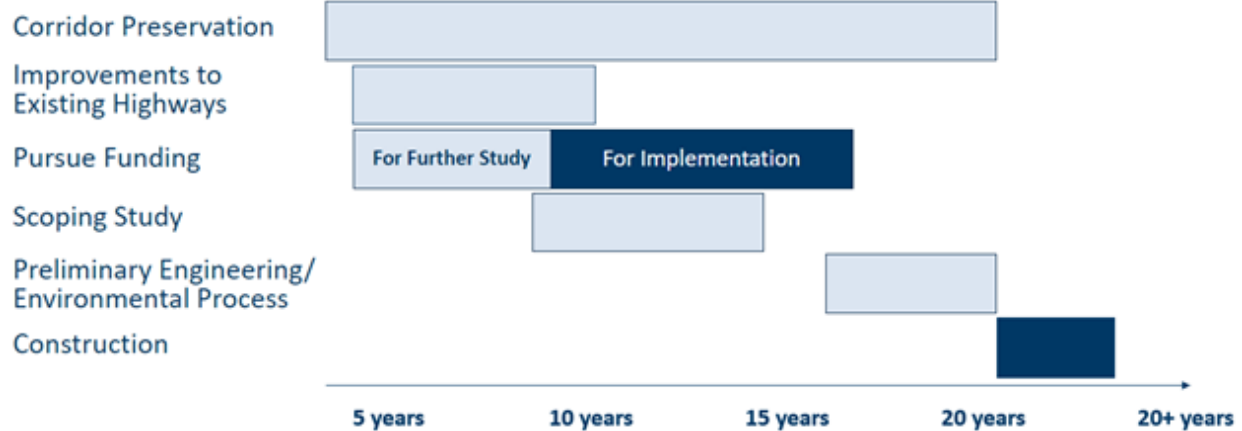
These discussions revealed that agencies generally had a common understanding of the opportunities and challenges associated with the study's river crossing concepts, and that there was openness to participating in a corridor coalition to coordinate future priorities. In general, partner agencies recognize a new river crossing is a long-term endeavor and roadway improvements need to be made in the context of community development.

There are several steps partner agencies can take to advance a river crossing concept along the project development process. These steps include:

- Identify a **project champion**
- Establish a **project vision** to determine improvements that align with local goals
- Develop a **prioritization plan** for implementing improvements in the vision
- Conduct **public involvement** to incorporate additional voices into the process

With successful execution of these steps, a new Mississippi River crossing could proceed along the illustrative implementation timeline provided in Figure 66. This timeline assumes 20+ years between establishment of a project vision and construction. Preservation of right-of-way for a new river crossing alignment is a critical activity throughout the entire timeline.

Figure 66: Illustrative Mississippi River Crossing Implementation Timeline



Meeting Date: 10/12/2021

Information

Title:

Discuss Maintenance of the New Public Works Facility

Purpose/Background:

The purpose of this discussion is to review options for cleaning and maintaining the new Public Works Facility.

As the Council may recall, budget discussions for 2021 included a request to hire a part-time building maintenance worker in anticipation for the new building and other current tasks needing attention. Staff was asked to put a hold on hiring a part-time Building Maintenance Worker. Staff stated that research would be done to determine the best course of action, whether it be to outsource the work, fill the hours with current staff or to conduct a recruitment for the needed hours.

Staff found the cost to outsource the work was a greater cost and is not conducive to having good control over the processes, quality of work, and would not fulfill the requirement to inspect the new boilers, as required by the State of Minnesota.

The estimate for outsourcing the work is \$32,500 (in 2022) for only 3 days per week of coverage. Whereas the cost to add 15 hours per week to our current part-time Building Maintenance Worker is \$33,229 for 5 days per week of coverage, plus much better control over the work product, less supervisory oversight of a contracted firm, and retention of a current employee. Staff's preferred remedy to this situation is as follows: #1 Increase the current part-time employee to full-time, followed by #2 recruiting for an additional part-time employee, followed by (not recommended) #3 outsourcing the work.

As Council is aware, this item is currently included in the 2022 preliminary budget. Staff is requesting to bring the current 25 hour per week employee to 40 hours per week, effective immediately. Staff recommends this continue beyond 2021 as is listed in the 2022 preliminary budget. As discussed as part of the 2022 budget, staff is recommending the current 25 hour per week employee, Mr. Erick Benson, for 40 hours per week.

The City Council may be interested to know that our current building maintenance staff includes one full-time Building Maintenance Supervisor, one full-time Building Maintenance Worker and two part-time Building Maintenance Workers. Building maintenance staff are responsible for the following duties:

- A. Perform janitorial services and maintenance at all City facilities including City Hall, parks facilities, fire departments, public works, the parking ramp and both cemeteries
- B. Monitor and perform light maintenance on utility systems
- C. Run errands
- D. Set-up and clean-up for meetings
- E. Perform basic building and equipment repairs
- F. Assist City Clerk with management of elections equipment, including but not limited to setting up and taking down all polling locations for all elections
- G. Perform Fleet Management
- H. Perform Landscape Maintenance
- I. Perform snow removal, and
- J. Perform a wide range of tasks

Timeframe:

Funding Source:

The 2021 funding required to increase Mr. Erick Benson from 25 hours per week to 40 hours per week from mid-October to December 31, 2021 is \$6960.00. This amount would come from the savings incurred as a result of unanticipated unpaid time off within the department.

Responsible Party(ies):

Outcome:

Based on discussion.

Attachments

No file(s) attached.

Form Review

Inbox

Kurt Ulrich

Form Started By: Colleen Lasher

Final Approval Date: 10/07/2021

Reviewed By

Kurt Ulrich

Date

10/07/2021 03:31 PM

Started On: 10/04/2021 02:41 PM

Meeting Date: 10/12/2021

Submitted For: Bria Raines, Community Development

By: Bria Raines, Community Development

Information

Title

Discuss 8106 Alpine Drive NW

Purpose/Background:

Staff is providing the Ramsey City Council an update of the efforts by Staff to resolve State Building Code, Property Maintenance Code, and Ramsey City Code violations at 8106 Alpine Drive.

On June 2, 2021, Planning Staff was invited by the Police Department for the first inspection concerning animal welfare. A Building Department Staff member was invited as there was historic aerial photos showing the roof had been covered by tarps for several years. If there were any questions or concerns of the buildings integrity, the Building Staff was meant to be of assistance. During the meeting, Staff discovered the structure was unsafe, numerous cats on the property, and violations of Property Maintenance and City Zoning Codes. Staff requested a follow up inspection to allow the Property Owner three (3) weeks to address one stack of waste in the back yard, provide two to three roofing quotes to demonstration action, and make a decision on how roof will be fixed. The re-inspection was scheduled for July 9, 2021. The Property Owner was called after concerns of the roof and condition of the property were relayed to Supervisory Staff; the re-inspection was scheduled for June 25, 2021.

On June 25, 2021, Planning Staff returned to the property with the Police Department, Anoka County Inspectors, and Building Department Staff. The number of staff was invited for the following reasons:

- Police Staff as support
- Anoka County to identify if the County could assist with the conditions of the property with resources for the resident
- Building Official as the determination of what is considered a hazardous structure

During the inspection, it was discovered that the interior of the home had water intrusion, exposed wiring, and had been without water for a decade. As the exposed electrical and failing water system were unknown prior to this inspection, Staff decided to focus on the lack of water and sanitation, fire hazard due to electrical conduction, and structural deficiencies. In accordance with the 2021 International Property Maintenance Code, dwellings have standards that must be met to be habitable. The cited codes are as follow:

Section 304 - Exterior Structure

•Section 304.1 – General. The exterior of a structure shall be maintained in good repair, structurally sound and sanitary so as not to pose a threat to the public health, safety or welfare.

- 304.1.1 Unsafe conditions. The following conditions shall be determined as unsafe and shall be repaired or replaced to comply with the International Building Code or the International Existing Building Code as required for existing buildings:
 - (8) Roofing or roofing components that have defects that admit rain, roof surfaces with inadequate drainage, or any portion of the roof framing that is not in good repair with signs of deterioration, fatigue or without proper anchorage and incapable of supporting all nominal loads and resisting all load effects.

Section 604 – Electrical Facilities

•604.3 Electrical system hazards. Where it is found that the electrical system in a structure constitutes a hazard to the occupants or the structure by reason of inadequate service, improper fusing, insufficient receptacle and lighting outlets, improper wiring or installation, deterioration or damage, or for similar reasons, the code official shall require the defects to be corrected to eliminate the hazard.

Water and Sanitation

•Section 502 – Required facilities.

- 502.1 Dwelling units. Every dwelling unit shall contain its own bathtub or shower, lavatory, water closet and kitchen sink that shall be maintained in a sanitary, safe working condition. The lavatory shall be placed in the same room as the water closet or located in close proximity to the door leading directly into the room in which such water closet is located. A kitchen sink shall not be used as a substitute for the required lavatory.

•Section 505 – Water System

- 505.1 General. Every sink, lavatory, bathtub or shower, drinking fountain, water closet or other plumbing fixture shall be properly connected to either a public water system or to an approved private water system. Kitchen sinks, lavatories, laundry facilities, bathtubs and showers shall be supplied with hot or tempered and cold running water.

•Section 506 – Sanitary Drainage System

- 506.2 Maintenance. Every plumbing stack, vent, waste and sewer line shall function properly and be kept free from obstructions, leaks and defects.

After the Inspection on June 25, 2021, the Property Owner was sent a letter reiterating the hazards discovered by Staff, which was also discussed onsite, as well as a second letter requesting that a decision be made to correct the uninhabitable conditions. The letter was sent July 1, and the requested date of response was July 9, 2021. The Property Owner decided that he would apply for State and County funding through various loan programs. Staff requested proof of the applications being sent as a way to monitor progress. After several weeks, Staff had not received a completed applications. Staff followed up with the Property Owner with a deadline of August 3, 2021 for him to submit completed applications and then a period for the County to respond to the application. On August 10, 2021, Staff contacted Anoka County and confirmed with Staff that partial applications had been received but not a completed application.

Staff then contacted the Property Owner for a meeting at City offices on August 20, 2021. This meeting was another attempt by Staff to request the Property Owner to provide an outline on how he would address the uninhabitable conditions. The timeline given was for October 1, 2021 as the date of posting the dwelling as uninhabitable per the 2020 Minnesota Residential Code, Administrative Chapter 1300.0180. The dwelling was posted as uninhabitable due to the lack of progress on any of the options listed below:

1. Property Owners will make his own arrangements to hire a plumber and well digging contractor to resolve water issue.
 - By October 1st at 12pm, proof of progress would need to be supplied:
 - A completed application to Anoka County loan program; AND
 - A signed contract for well construction and the scheduled start date
2. Property Owners do nothing and the building is posted uninhabitable on October 1, 2021.
3. Property Owners agree to have the work of the well and roof assessed to their property.
 - Signatures would be required for assessing the costs to the property
4. Property Owners will split the lot, using the revenue to address property concerns.
 - Property Owner would need to submit a Minor Plat application by 12pm on October 1st.
5. Property Owners would sell the entire property.
 - The property would need to be listed for sale online or with a realtor by October 1 at 12pm.
6. Something else. If you would like to pursue a path not laid out in options 1 – 4, please let us know by August 27, 2021 and we will discuss. It will also need a deadline of October 1, 2021.

During the following six (6) weeks (from the Meeting on August 20 to October 1, 2021), the Property Owner came to City Hall for plats to consider splitting the property, and then returned a second time on September 22, 2021 to request information for the steps of property assessment. The Property Owner attempted to apply for a building permit, during his first visit but did not have the supporting documents needed to submit a complete application. The Property Owner was told the application was incomplete and did not address the water issue which was the first step of the plans needing to be addressed by October 1, 2021. The Property Owner spoke with Staff at the second visit on September 22, 2021, at which time Staff told the Property Owner the City needed to gather the information for the costs of connecting the property to City water. The information was not able to be provided by

October 1, 2021 but instead a meeting with the Property Owner was scheduled for October 7, 2021 to present the options.

As the Property Owner did not show progress in addressing the violations, the Property was Posted uninhabitable on October 1, 2021, the same date and time that was stated, and restated, from the meeting and letter sent on August 20, 2021. In accordance with the Minnesota Residential Code. The Building Official, like other members of the Public Safety team, does not have flexibility for when to apply Code. The Code is applied uniformly across the board, and there are not variances or deviations allowed. Since the building was posted as uninhabitable, the next step is to post an "Order to Vacate." The Building Official has proposed a deadline of November 1, 2021 for a vacation date.

During the meeting held with Staff and the Property Owner on October 7, 2021, the Property Owner provided Staff with a signed contract to install a new well and to connect the well to the homes water supply system dated October 4, 2021 and an estimated installation date of October 18, 2021. Staff confirmed with the contractor that this date is not guaranteed, the Property Owner is on a list of properties to be serviced with this as the attempted installation date.

At this time, the Property Owner and Staff have no requests for Council.

Notification:

No notification is required.

Observations/Alternatives:

The property needs to be brought top habitable standards, meaning the electrical, water, plumbing, and roof would need to be addressed. During the meeting on October 7, 2021, the Property Owner provided Staff with a signed contract by E.H. Renner for a well installation, and necessary plumbing to the house, to take place near October 18, 2021. The Property Owner also applied for, and received, a plumbing permit through the Building Department.

The Property Owner stated, at the October 7, 2021 meeting, they will be financing the well installation and fixing electrical hazards on their own. A signed contract has been provided, addressing the lack of water, and an electrical permit issued, for the Property Owner to address the fire hazard due to electrical conduction deficiencies. No structural plans have been provided for a building permit, meanings a completed building permit has not been received.

As the Posting of the structure as uninhabitable, is a duty of the Building Official in accordance with Minnesota Residential Code section 1300.0180 regarding unsafe buildings or structures, the posting is not an option that requires City Council decision. State Building code states that " the Building Official shall order any building or portion of a building to be vacated if continued use is dangerous to life, health, or safety of the occupants. The Building Official shall have the authority to order disconnection of utility services to the building, structure, or system, regulated by the code, in case of an emergency to eliminate a hazard to life or property. The order shall be in writing and state the reasons for the action."

Funding Source:

Staff handles all Code Enforcement cases as part of their regular duties.

Recommendation:

Staff recommends a septic compliance inspection, post well installation, to confirm that the septic system is still functioning properly. The increased amount of water that will be introduced to the system from the well installation will be more than the existing tank has received in the last 10 years, and it unknown if the tank will meet septic compliance standards.

Action:

No action is requested from the Ramsey City Council.

Attachments

First Notice of Violation (Sent 5.21.21)

Photos from Inspection #1

Summary of Inspection #1 and Next Steps (Sent 6.2.21)

Interior Inspection Request (Sent 6.9.21)

Letter Reiterating Phone Conversation (Sent 6.18.21)

Photos from Inspection #2 (6.25.21)

Discovery of Uninhabitable Conditions (Sent 6.25.21)

Request for decision for resolving issues(Sent July 1, 2021)

Notice for Date of Posting (Sent 8.20.21)

Posting and State Statute (posted 10.1.21)

State Statute for Hazardous Structures

Well Contract

Form Review

Inbox

Bruce Westby

Kurt Ulrich

Form Started By: Bria Raines

Final Approval Date: 10/07/2021

Reviewed By

Bruce Westby

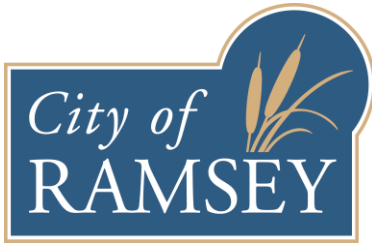
Kurt Ulrich

Date

10/07/2021 04:04 PM

10/07/2021 04:44 PM

Started On: 10/05/2021 12:34 PM



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May 21, 2021

Lowell & Roma Vasseur
Or Current Owner
8106 Alpine Drive NW
Ramsey, MN 55303

Dear Property Owner,

Thank you for being a valued member of the Ramsey community. We at the City strive to be a good resource for you as a Resident. It has come to the attention of City Staff that there is a shed on your property that does not have a record of a permit. We are approaching this with a focus of assistance and education rather than enforcement. With that in mind, there has been work done on the property that does require permits and nuisances on the property that are not allowed by City Code.

All accessory structures, driveways, and work done to structures in the City of Ramsey require either a Zoning Permit or a Building permit depending on their size. *Zoning* Permits require the structure to be two hundred (200) square feet or less, and *Building* Permits are for structures larger than two hundred (200) square feet. Site plans are required for all applications. Site Plans must include all existing structures on the property, dimensions of the accessory structure, and the structure's distance to the nearest property lines. Accessory structures cannot be placed in drainage and utility easements, nor can they be placed within the setbacks applicable to your property's zoning district.

- **Please submit separate permit applications for:**

- The accessory structure shown in the furthest left red circle on the included map (and all other accessory structures).
- A driveway on the property (Bituminous, Concrete, or Class V; not soil)
- All work done that has been done on all structures such as additions or repairs.
- All fences on the property

In addition to requiring permits, The City of Ramsey has adopted ordinances that are designed to keep the community safe, healthy, and attractive. The property is in violation of the following Ramsey City Codes as listed below:

- City Code Section 30-3 – Property conditions constituting a public nuisance.

- The storage or accumulation of waste, refuse, or garbage that is not contained in a closed container. This includes any accumulation of appliances, plumbing fixtures, furniture, equipment, remnants of wood (decayed or weathered) unused construction materials, stockpiles of rocks or dirt, or any items that could not be put to use in the manner that they are intended.
 - **Please remove or properly store refuse along the tree line behind the house, circled in red in the included map.**
- Lean-tos, tarps, carports, and fencing are not considered an approved structure.
 - **Please remove all tarps on structures and those used as permanent covers.**

- City Code Section 117-355 – Residential development off-street parking.
 - Only 8 items are allowed on approved parking surfaces (vehicles and equipment count towards total)
 - **Please properly store or remove of items until you are at 8.**
 - Only one unlicensed, inoperable vehicle allowed on to be parked outdoors
 - No vehicles are allowed on unimproved surfaces

Please submit the required applications and address the outlined violations by June 7, 2021. If you have any questions or concerns, please contact me at (763)433-9840.

Sincerely,

A handwritten signature in black ink that reads "Bria Raines". The signature is written in a cursive, flowing style.

Bria Raines, Zoning Code Enforcement Officer
(763) 433-9840 | braines@cityoframsey.com



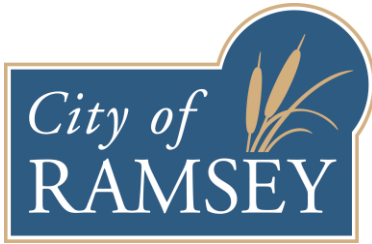












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June 2, 2021

Lowell Vasseur
Or Current Owner
8106 Alpine Drive NW
Ramsey, MN 55303

Dear Property Owner,

Thank you for allowing Staff from the Police Department and Community Development to come and inspect the property with you today. At the inspection this morning we agreed upon the following steps being taken in the next month before a re-inspection.

Please address the following before the re-inspection of the property on July 9, 2021.

- 1. Clean refuse and garbage from behind the house and in the rear property shown in the photos and map below.**
- 2. Get two to three (2-3) quotes for the roof**
 - Some companies do free quotes, so there is an option that does not cost money.
 - Keep proof of quotes for next inspection.
- 3. Decide on what work you will be doing on the roof after speaking with the contractors doing the quote. This will determine what type of permit would need to be applied for and if the work would be done by yourself or by a contractor.**

If you have any questions or concerns, please contact me at (763)433-9840.

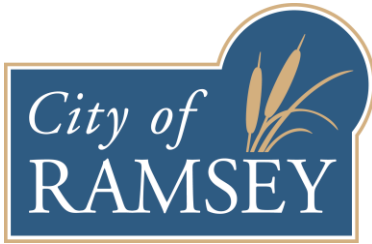
Sincerely,

Bria Raines, Zoning Code Enforcement Officer

(763) 433-9840 | braines@cityofframsey.com

Exhibits of refuse to be cleaned





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June 9, 2021

Lowell Vasseur
Or Current Owner
8106 Alpine Drive NW
Ramsey, MN 55303

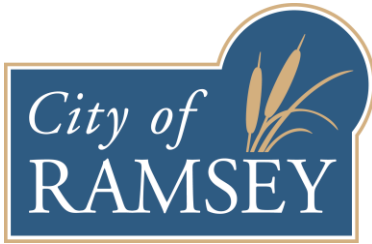
Dear Property Owner,

Thank you again for working with Staff to get the property into compliance. Staff has concerns about the roof and need our Building Official to confirm your safety. Please give me a call as I was hoping to get your permission to have our Building Official do an interior inspection.

Please contact me at (763)433-9840 at your earliest convenience.

Sincerely,

Bria Raines, Zoning Code Enforcement Officer
(763) 433-9840 | braines@cityoframsey.com



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June 18, 2021

Lowell Vasseur
Or Current Owner
8106 Alpine Drive NW
Ramsey, MN 55303

Dear Property Owner,

Thank you again for allowing a voluntary interior inspection of your home. As discussed on the phone, the Building Official must confirm your safety as there were concerns with the structure during our initial on-site inspection with you on June 2, 2021. As there are also health concerns with the property, Anoka County will have one to two inspectors accompanying us at the property. Officer Katie, she was at our previous meeting, will be present so we can discuss the work that has been done on the property and see how the progress is coming.

I appreciate your cooperation in this matter. Your health and safety are our first concern, so I do apologize for any inconvenience caused by our requested inspections.

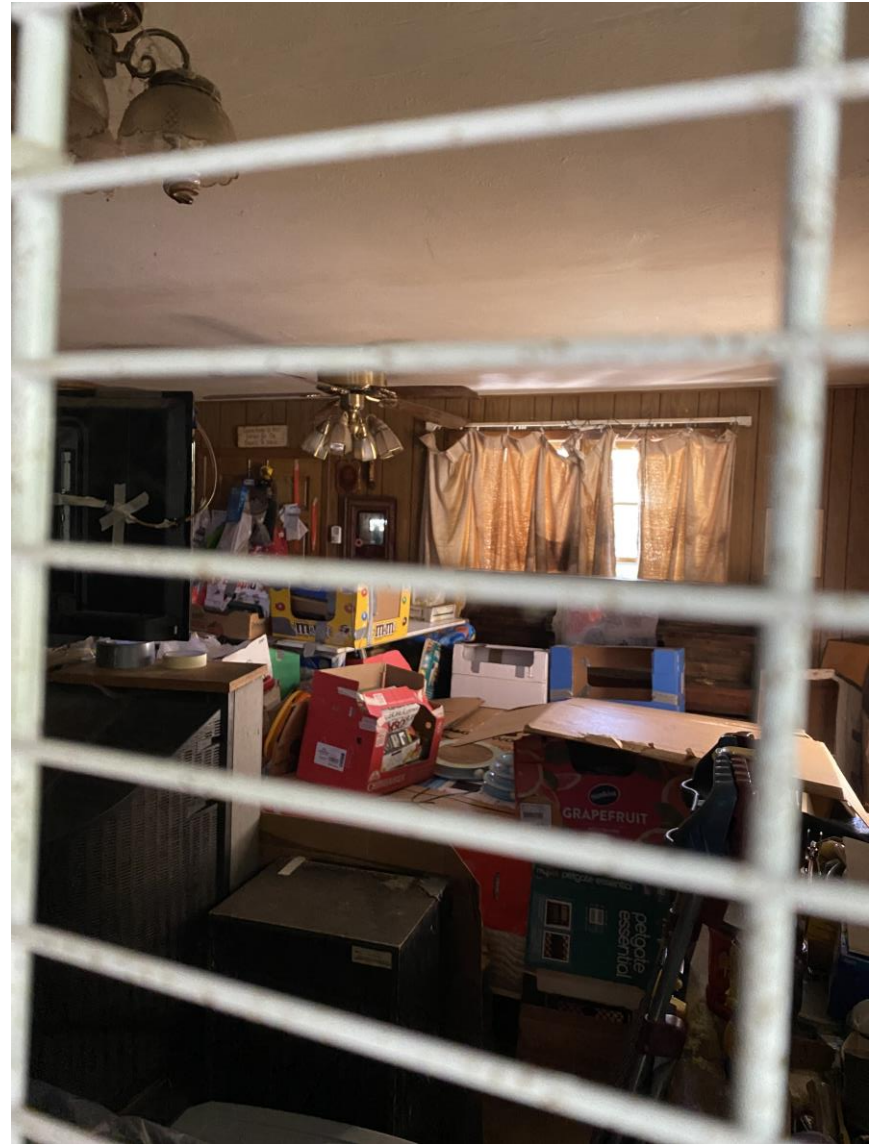
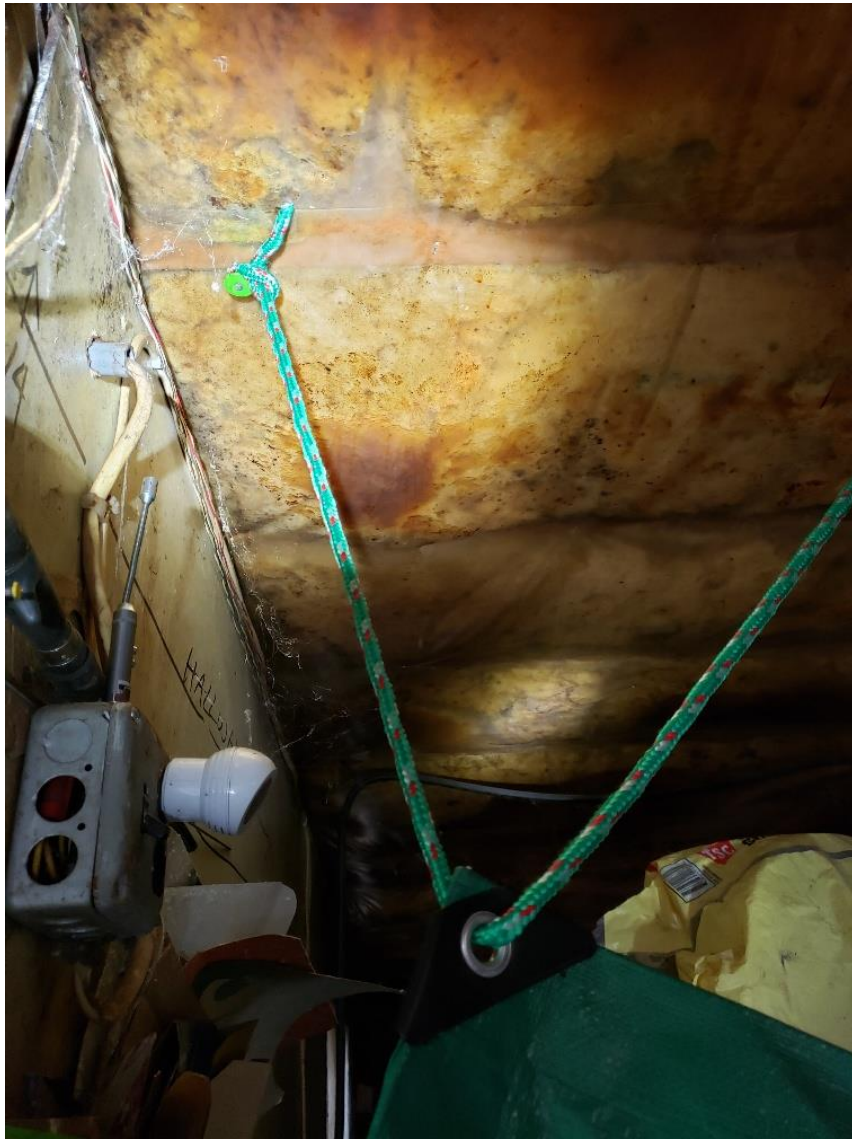
Please contact me at (763)433-9840 if you have any questions, or concerns.

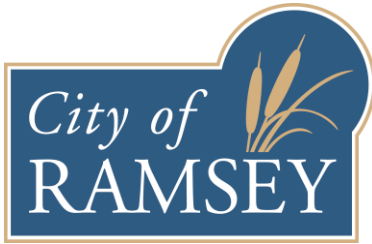
Sincerely,

Bria Raines, Zoning Code Enforcement Officer
(763) 433-9840 | braines@cityoframsey.com









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June 25, 2021

Lowell Vasseur
8106 Alpine Drive NW
Ramsey, MN 55303

Dear Property Owner,

Thank you for allowing all parties to do an inspection of the property. Your cooperation has been much appreciated.

As mentioned at the on-site meeting, you will need to access water on the property via an on-site well or connecting to City utilities. This is not an expense that the City would pay for.

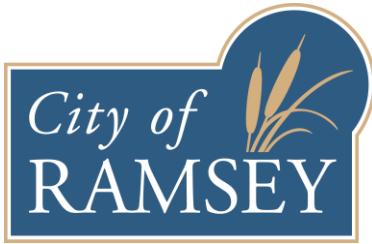
Properties without water and sanitation are considered uninhabitable. However, this is able to be remedied by having a water system connected to your home. From there, it can be determined if there are any septic issues but that would not be known until there was water connected.

This request is how to bring the property to habitable standards, this is not a list of the complete violations on the property. Please have the property connected to a source of water to comply with the sanitation standards. This should be your first priority as if it has not been completed in a timely manner, the case will be brought to City Council for a decision of how to enforce the violations.

Please contact me at (763)433-9840 if you have any questions, or concerns.

Sincerely,

Bria Raines, Zoning Code Enforcement Officer
(763) 433-9840 | braines@cityoframsey.com



7550 Sunwood Drive NW • Ramsey, MN 55303

City Hall: 763.427.1410 • Fax: 763.427.5543

www.cityoframsey.com

July 1, 2021

Lowell Vasseur
8106 Alpine Drive NW
Ramsey, MN 55303

Dear Property Owner,

Please give me a call at (763)433-9840 to further discuss the following details. As mentioned in my previous letter, there are standards for a structure to be habitable; such as having a cooking area, sanitation, water, and spaces for living and sleeping. Your property is considered uninhabitable as there is no water and sanitation. To bring the property to a habitable condition, a new well would need to be installed or the property connected to City utilities.

The current conditions cannot be left unresolved. There are three choices you have to choose from:

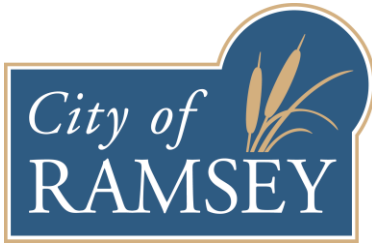
- City Staff will hire a plumber and well digging contractor to install a new well on the property with Owner consent for fees to be assessed to the property;
- Property Owner will make his own arrangements to hire a plumber and well digging contractor to resolve water issue; OR
- Property Owner will vacate the structure.

During our first meeting, you mentioned selling the property to the City. The City is not looking to purchase the property; however, if you are still interested in selling the property, that is an additional choice you have. Should you choose this, please let us know of your choice and we will enforce habitation standards with the new owner.

Please provide your decision by July 9, 2021; if no response has been received, we will be bringing the issue to the City Council to decide. Should you determine any plausible options, we can discuss those as well.

Sincerely,

Bria Raines, Zoning Code Enforcement Officer
(763) 433-9840 | braines@cityoframsey.com



7550 Sunwood Drive NW • Ramsey, MN 55303

City Hall: 763.427.1410 • Fax: 763.427.5543

www.cityoframsey.com

August 20, 2021

Lowell Vasseur
Or Current Owner
8106 Alpine Drive NW
Ramsey, MN 55303

Dear Property Owner,

Thank you for taking the time to meet with City Staff. As mentioned at the meeting, you have options to choose from as to how to bring your house into habitable conditions. The property is considered uninhabitable as there is no water supply or operable sanitation facilities.

As the current condition cannot be left unaddressed, at the meeting, the following options were listed as methods to bring your property to habitability:

All options have a deadline of October 1st at 12pm.

1. Property Owners will make their own arrangements to hire a plumber and well digging contractor to resolve water issue
 - By October 1st at 12pm, proof of progress would need to be supplied:
 - A completed application to Anoka County loan program; AND
 - A signed contract for well construction and the scheduled start date

Other possible options to address the property conditions:

1. Property Owners do nothing and the building is posted uninhabitable on October 1, 2021.
2. Property Owners agree to have the work of the well and roof assessed to their property
 - Signatures would be required for assessing the costs to the property
3. Property Owners will split the lot, using the revenue to address property concerns
 - Property Owner would need to submit a Minor Plat application by 12pm on October 1st.
4. Property Owners would sell the entire property.
 - The property would need to be listed for sale online or with a realtor by October 1 at 12pm.

5. Something else. If you would like to pursue a path not laid out in options 1 – 4, please let us know by August 27, 2021 and we will discuss. It will also need a deadline of October 1, 2021.

The City has been working to help you address the water issue since it was brought to our attention at the June 25, 2021 inspection. From that date to October 1st, the City will have given you 98 days to address the private water system; over 3 months. This time provided has been for the water issue to be corrected alone; it does not include the need to address the hazardous structure caused by the water intrusion in the roof, the electrical hazards caused by the improper and exposed wiring, and the code enforcement violations on the property.

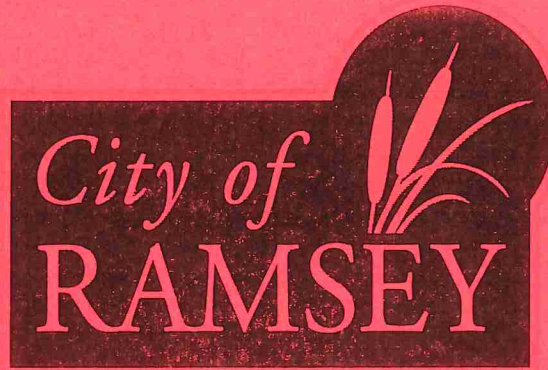
This letter is to reiterate the conversation held today, August 20, 2021, at City Hall. The City is providing adequate time for the Property Owners to meet the International Property Maintenance Code standards for a dwelling. If the Property Owners have not met one of the options above, outlining measurable progress, the house will be deemed uninhabitable by the City of Ramsey on October 1st at 12pm CST.

Please let me know if you have any questions or would like to supply the required proof of progress. As this information was discussed at the meeting ~~yesterday~~, this is not new information; but provided in written form for your own records.

Sincerely,



Bria Raines, Zoning Code Enforcement Officer
(763) 433-9840 | braines@cityoframsey.com



WARNING

This Structure is Considered Unsafe

**The use or occupation of this building or portion of
for any purpose is prohibited.**

2020 MN Building Code Administration – 1300.0180

MN Statutes – Sections 463.15 to 463.26

Date: 10/1/2021

Address: 8106 Alpine Dr. NW Ramsey, MN 55303

Reason:

Uninhabitable structure due to lack of water supply,
UNSANITARY AND UNSAFE CONDITIONS.

Contact the City of Ramsey prior to beginning any remediation.

City of Ramsey Inspector: Jesse Szykubski - Building Official

City of Ramsey – Community Development Department – 763-433-9850

7550 Sunwood Dr. NW

Ramsey, MN 55303

B. permits for plumbing, mechanical, electrical, or other building service equipment systems may be based on valuation or charged a fixed fee.

Subp. 5. Plan review fees for similar plans. When submittal documents for similar plans are approved under subpart 6, plan review fees shall not exceed 25 percent of the normal building permit fee established and charged by the jurisdiction for the same structure.

Subp. 6. Plan review of similar plans.

A. Any number of similar buildings may be built from a master plan if:

- (1) Plan review fees have been paid for the master plan;
- (2) A code change has not occurred that impacts the design of a master plan;
- (3) The similar building has the same physical dimensions and structural design as the master plan;

Exception: The following modifications to the master plan are not considered to be significant modifications, according to Minnesota Statutes, Section 326B.106, subdivision 1, and are permitted for dwelling units and their accessory structures built to the *International Residential Code*, and residential occupancies built to the *International Building Code* that are three stories or less in height and their accessory structures:

- (a) foundation configurations of walkout, lookout, and full basements;
 - (b) alternate foundation materials approved by the building official;
 - (c) roof design changed by a revised truss plan approved by the building official; and
 - (d) other modifications approved by the building official;
- (4) Occupancy groups other than those identified in the exceptions listed in part 1300.0160, subpart 6, item A, subitem (3), must be the same type of construction and occupancy classification and must have the same exit system;

Exception: Minor changes to the exit access; and

- (5) The similar plan is based on a master plan for which the municipality has issued a permit within the last 12 months.

B. Plan review fees for similar building plans must be based on the costs commensurate with the direct and indirect cost of the service, but must not exceed 25 percent of the normal building permit fee established and charged by the municipality for the same structure.

C. The plan review fee charged for similar building plans applies to all buildings regulated by the code regardless of occupancy classification including industrialized/

modular buildings constructed under a program specified in Minnesota Statutes, Section 326B.194.

D. The applicant must submit a new plan set and other information as required by the building official for each building reviewed as a similar building.

Subp. 7. Payment of fees. A permit shall not be issued until the fees prescribed by the municipality have been paid.

Subp. 8. Work commencing before permit issuance. If work for which a permit is required by the code has been commenced without first obtaining a permit, a special investigation shall be made before a permit may be issued for the work. An investigation fee established by the municipality shall be collected whether or not a permit is issued and is in addition to the required permit fees, but it may not exceed the permit fee. The investigation fee must comply with requirements for fees in subpart 2.

Subp. 9. Fee refunds. The municipality shall establish a permit and plan review fee refund policy.

Subp. 10. State surcharge fees. All municipal permits issued for work under the code are subject to a surcharge fee. The fees are established by Minnesota Statutes, Section 326B.148. Reports and remittances by municipalities must be filed with the commissioner.

Surcharge fees imposed by the state are in addition to municipal permit fees. Surcharge report forms and information may be obtained by writing the commissioner.

**1300.0170
STOP WORK ORDER**

If the building official finds any work regulated by the code being performed in a manner contrary to the provisions of the code or in a dangerous or unsafe manner, the building official is authorized to issue a stop work order or a notice or order pursuant to part 1300.0110, subpart 4.

The stop work order shall be in writing and issued to the owner of the property involved, to the owner's agent, or to the person doing the work. Upon issuance of a stop work order, the cited work shall immediately cease. A person who continues work after having been served with a stop work order, except for work that the person is directed to perform to remove a violation or unsafe condition, is subject to penalties as prescribed by law. The stop work order shall state the reason for the order and the conditions under which the cited work will be permitted to resume.

**1300.0180
UNSAFE BUILDINGS OR STRUCTURES**

A building or structure regulated by the code is unsafe, for purposes of this part, if it is structurally unsafe, not provided with adequate egress, a fire hazard, or otherwise dangerous to human life.

Building service equipment that is regulated by the code is unsafe, for purposes of this part, if it is a fire, electrical, or health hazard; an unsanitary condition; or otherwise dangerous to human life. Use of a building, structure, or building service equipment constituting a hazard to safety, health, or

public welfare by reason of inadequate maintenance, dilapidation, obsolescence, fire hazard, disaster, damage, or abandonment is, for the purposes of this part, an unsafe use. Parapet walls, cornices, spires, towers, tanks, statuary, and other appendages or structural members that are supported by, attached to, or a part of a building and that are in deteriorated condition or otherwise unable to sustain the design loads that are specified in the code are unsafe building appendages.

The building official shall order any building or portion of a building to be vacated if continued use is dangerous to life, health, or safety of the occupants. The building official shall have the authority to order disconnection of utility services to the building, structure, or system, regulated by the code, in case of an emergency to eliminate a hazard to life or property. The order shall be in writing and state the reasons for the action.

All unsafe buildings, structures, or appendages are public nuisances and must be abated by repair, rehabilitation, demolition, or removal according to Minnesota Statutes, Sections 463.15 to 463.26.

**1300.0190
TEMPORARY STRUCTURES AND USES**

Subpart 1. General. The building official may issue a permit for temporary structures and temporary uses.

Subp. 2. Conformance. Temporary structures and uses shall conform to the structural strength, fire safety, means of egress, accessibility, light, ventilation, and sanitary requirements of the code as necessary to ensure the public health, safety, and general welfare.

Subp. 3. Termination of approval. The building official may terminate the permit for a temporary structure or use and order the temporary structure or use to be discontinued if the conditions required in this part have not been complied with.

**1300.0210
INSPECTIONS**

Subpart 1. General. Construction or work for which a permit is required is subject to inspection by the building official and the construction or work shall remain accessible and exposed for inspection purposes until approved. Approval as a result of an inspection is not approval of a violation of the code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of the code or of other ordinances of the jurisdiction are not valid. It shall be the duty of the permit applicant to cause the work to remain accessible and exposed for inspection purposes. Neither the building official nor the jurisdiction is liable for expense entailed in the removal or replacement of any material required to allow inspection.

Subp. 2. Preliminary inspection. Before issuing a permit, the building official may examine, or cause to be examined, buildings, structures, and sites for which an application has been filed.

Subp. 3. Inspection record card. The building official shall identify which inspections are required for the work requiring a permit. Work requiring a permit shall not be commenced until the permit holder or an agent of the permit holder has posted or otherwise made available an inspection record card that allows the building official to conveniently make all required entries regarding inspection of the work. This card shall be maintained and made available by the permit holder until final approval has been granted by the building official.

Subp. 4. Inspection requests. The building official shall provide the applicant with policies, procedures, and a timeline for requesting inspections. The person doing the work authorized by a permit shall notify the building official that the work is ready for inspection. The person requesting an inspection required by the code shall provide access to and means for inspection of the work.

Subp. 5. Approval required. Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the building official. The building official, upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed or notify the permit holder or an agent of the permit holder of any failures to comply with the code. Any portion that does not comply shall be corrected and the portion shall not be covered or concealed until authorized by the building official.

Subp. 6. Required inspections. The building official, upon notification, shall make the inspections in this part. In addition to the inspections identified in this subpart, see applicable rule chapters in part 1300.0050 for specific inspection and testing requirements.

- A. Footing inspections shall be made after excavations for footings are complete and any required reinforcing steel is in place. Materials for the foundation shall be on the job, except that concrete need not be on the job if the concrete is ready mixed according to approved nationally recognized standards.
- B. Foundations:
 - (1) Foundation inspections for poured walls shall be made after all forms are in place with any required reinforcing steel and bracing in place, and prior to pouring concrete.
 - (2) All foundation walls shall be inspected prior to backfill for specific code requirements.
 - (3) The foundation inspection shall include excavations for thickened slabs intended for the support of bearing walls, partitions, structural supports, or equipment.
- C. Concrete slab and under-floor inspections shall be made after in-slab or under-floor reinforcing steel and building service equipment, conduit, piping accessories, and other ancillary equipment items are in place, but before any concrete is placed or floor sheathing installed, including the subfloor.
- D. Rough-in inspections of plumbing, mechanical, gas, sprinklers, alarms, and electrical systems shall be made before covering or concealment, before fixtures

CHAPTER 463

LINE EASEMENTS; HAZARDOUS OR SUBSTANDARD BUILDINGS

	BUILDING LINE EASEMENTS		
463.01	BUILDING LINES, EASEMENTS; EXISTING STRUCTURES.	463.16	REPAIR OR REMOVE HAZARDOUS PROPERTY CONDITION.
		463.161	ABATEMENT.
463.02	GRANT, CONDEMNATION OR DEDICATION.	463.17	ORDER.
463.03	ALONG PARKS AND PARKWAYS.	463.18	ANSWER.
463.04	CONDEMNATION PROCEEDINGS FOR BUILDING LINE EASEMENTS.	463.19	DEFAULT CASES.
		463.20	CONTESTED CASES.
463.06	PLATS; ASSESSMENT COPY TO AUDITOR; COLLECTION, PAYMENT.	463.21	ENFORCEMENT OF JUDGMENT.
		463.22	STATEMENT OF MONEYS RECEIVED.
463.07	VACATION OF EASEMENT.	463.23	PAYMENT, TENDER, DEPOSIT IN COURT.
	HAZARDOUS OR SUBSTANDARD BUILDINGS	463.24	PERSONAL PROPERTY OR FIXTURES.
		463.25	HAZARDOUS EXCAVATIONS.
463.15	DEFINITIONS.	463.251	SECURING VACANT BUILDINGS.
463.151	REMOVAL BY MUNICIPALITY; CONSENT; COST.	463.26	LOCAL ACTS AND CHARTER PROVISIONS.
463.152	EXERCISE OF EMINENT DOMAIN.	463.261	RELOCATION BENEFITS.

BUILDING LINE EASEMENTS

463.01 BUILDING LINES, EASEMENTS; EXISTING STRUCTURES.

The council of any city, including any city of this state operating under a home rule charter adopted pursuant to the Constitution of the state of Minnesota, article 4, section 36, article XI, section 4, or article XII, section 5, may establish along any street or highway within such city a building line upon the land adjoining such street or highway, or any portion thereof, and distant not more than 50 feet from the margin of such street or highway, and may, in behalf of the city, acquire an easement in the land between such line and exterior street line, such that no buildings or structures shall be erected or maintained upon this land. Such easement shall be known as a building line easement. The governing body may, at the time they designate the easement to be acquired and define the line by which it is bounded, provide in the resolution designating such easement that buildings or structures or any portions of buildings or structures existing within the boundaries of the easement at that time may remain thereon for stated periods of time or remain thereon during the life of such buildings or structures or portions thereof, but no alteration of any such buildings or structures or portions thereof upon such easement shall be permitted after the designation of such easements, and when such buildings are removed no other buildings or structures shall be erected thereon. Such permission to maintain existing structures upon such easement shall be clearly defined as to time in such resolution and shall confer the right upon the owner of such buildings or structures or portions thereof to maintain the same as defined in such resolution.

History: (1321-1) 1903 c 194 s 1; 1923 c 193 s 1; 1997 c 7 art 4 s 5

463.02 GRANT, CONDEMNATION OR DEDICATION.

Such easement may be acquired by the council by purchase, by grant, or by condemnation. It may also be created by dedication by indicating such building line upon any plat hereafter recorded in the office of the county recorder of the county where the land lies; and the council shall have power to refuse to accept or approve plats of lands unless building lines are shown thereon.

History: (1321-2) 1903 c 194 s 2; 1919 c 504 s 1; 1976 c 181 s 2

463.03 ALONG PARKS AND PARKWAYS.

Any board of park commissioners having control of any park or parkway may in like manner acquire building line easements along the same, or any portion thereof.

History: (1321-3) 1903 c 194 s 3

463.04 CONDEMNATION PROCEEDINGS FOR BUILDING LINE EASEMENTS.

The easement specified in section 463.03 may be acquired by proceedings to be conducted in accordance with chapter 117 by the board of park commissioners, in case of parks and parkways controlled by a board of park commissioners, and by the city council in other cases.

The term "governing body" is used in sections 463.04 to 463.07 to designate the appropriate body in any given case, whether the city council, or board of park commissioners. The governing body shall first designate the easement to be acquired and define the lines by which it is bounded, and shall have power to condemn for the use of the public a building line easement as defined above, and when such condemnation shall have been completed, as in this section provided, the title to such easement shall pass to and be vested in the city for the public use. For the purpose of making the condemnation all the tracts of land required for any improvement may be included in the same proceeding.

An easement under this section must not include or take in any portion of a private residence existing at the time of the passage of sections 463.01 to 463.07 excepting by purchase or grant.

History: (1321-4) 1903 c 194 s 4; 1976 c 44 s 64; 2013 c 125 art 1 s 70

463.05 [Repealed, 1976 c 44 s 70]

463.06 PLATS; ASSESSMENT COPY TO AUDITOR; COLLECTION, PAYMENT.

As soon as such condemnation proceedings have been completed, it shall be the duty of such governing body to cause plats of such improvement to be made, which shall be copies of the original plat on file, with a list of the parcels of land taken and the amount paid on account of each parcel, and to file one of such plats and list duly certified by the president of the governing body and the clerk or secretary, as the case may be, in each of the following offices: The office of the city engineer, the office of the county recorder of the county, and the office of the city clerk or secretary of the park board, as the case may be; and the same shall be prima facie evidence of the full and complete condemnation and appropriation of such easement for the public use. As soon as the assessments are confirmed, the secretary of the board of park commissioners or the city clerk, or the court administrator of the district court, as the case may be, shall transmit a copy thereof duly certified, to the county auditor of the county in which the lands lie. The county auditor shall include the same in the next general tax list for the collection of state, county and city taxes, against the several tracts or parcels of land, and the assessments shall be collected with and as a part of, and shall be subject to the same penalties, costs and interest, as the general taxes. Such assessments shall be set down in the tax books in an appropriate column to be headed, "Building Line Assessments," and when collected a separate account thereof shall be kept by the county auditor, and the same shall be transmitted to the treasurer of the city, and placed to the credit of the proper fund.

History: (1321-6) 1903 c 194 s 6; 1919 c 504 s 8; 1976 c 181 s 2; 1Sp1986 c 3 art 1 s 82

463.07 VACATION OF EASEMENT.

The governing body shall have power at any time to vacate such building line easement or any portion thereof.

History: (1321-7) 1903 c 194 s 7

463.08 [Repealed, 1949 c 119 s 110]

463.09 [Repealed, 1976 c 44 s 70]

463.10 [Repealed, 1976 c 44 s 70]

463.11 [Repealed, 1976 c 44 s 70]

463.12 [Repealed, 1976 c 44 s 70]

463.13 [Repealed, 1976 c 44 s 70]

**HAZARDOUS OR
SUBSTANDARD BUILDINGS****463.15 DEFINITIONS.**

Subdivision 1. **Coverage.** For purposes of sections 463.15 to 463.26 the terms defined in this section have the meanings given them.

Subd. 2. **Building.** "Building" includes any structure or part of a structure.

Subd. 3. **Hazardous building or hazardous property.** "Hazardous building or hazardous property" means any building or property, which because of inadequate maintenance, dilapidation, physical damage, unsanitary condition, or abandonment, constitutes a fire hazard or a hazard to public safety or health.

Subd. 3a. **Municipality.** "Municipality" means a county, city, or town.

Subd. 4. **Owner, owner of record, and lienholder of record.** "Owner," "owner of record," and "lienholder of record" means a person having a right or interest in property described in subdivision 3 and evidence of which is recorded in the office of the county recorder or registrar of titles in the county in which the property is situated.

History: 1965 c 393 s 1; 1967 c 324 s 1; 1976 c 181 s 2; 1989 c 328 art 6 s 5,6; 2004 c 147 s 1; 2005 c 4 s 113

463.151 REMOVAL BY MUNICIPALITY; CONSENT; COST.

The governing body of any municipality may remove or raze any hazardous building or remove or correct any hazardous condition of real estate upon obtaining the consent in writing of all owners of record, occupying tenants, and all lienholders of record; the cost shall be charged against the real estate as provided in section 463.21, except the governing body may provide that the cost so assessed may be paid in not to exceed five equal annual installments with interest thereon, at eight percent per annum.

History: 1967 c 324 s 2; 1974 c 341 s 1; 2004 c 147 s 2

463.152 EXERCISE OF EMINENT DOMAIN.

Subdivision 1. **Purpose, public interest.** In order to maintain a sufficient supply of adequate, safe, and sanitary housing and buildings used for living, commercial, industrial, or other purposes or any combination of purposes, it is found that the public interest requires that municipalities be authorized to acquire buildings, real estate on which buildings are located, or vacant or undeveloped real estate which are found to be hazardous within the meaning of section 463.15, subdivision 3, and the acquisition of such buildings and real estate is hereby declared to be a public purpose.

Subd. 2. **Acquisition; procedure.** In furtherance of the public policy declared in subdivision 1, the governing body of any municipality may acquire any hazardous building, real estate on which any such building is located, or vacant or undeveloped real estate by eminent domain in the manner provided by chapter 117.

History: 1974 c 341 s 3; 1976 c 2 s 140; 2004 c 147 s 3

463.16 REPAIR OR REMOVE HAZARDOUS PROPERTY CONDITION.

The governing body of any municipality may order the owner of any hazardous building or property within the municipality to correct or remove the hazardous condition of the building or property or to raze or remove the building.

History: 1965 c 393 s 2; 1973 c 123 art 5 s 7; 1989 c 328 art 6 s 7; 2004 c 147 s 4

463.161 ABATEMENT.

In the manner prescribed in section 463.21 the governing body of any municipality may correct or remove the hazardous condition of any hazardous building or property; the cost of which shall be charged against the real estate as provided in section 463.21 except the governing body may provide that the cost so assessed may be paid in not to exceed five equal annual installments with interest therein, at eight percent per annum.

History: 1974 c 341 s 2; 1989 c 328 art 6 s 8; 2004 c 147 s 5

463.17 ORDER.

Subdivision 1. **Contents.** The order shall be in writing; recite the grounds therefor; specify the necessary repairs, if any, and provide a reasonable time for compliance; and shall state that a motion for summary enforcement of the order will be made to the district court of the county in which the hazardous building or property is situated unless corrective action is taken, or unless an answer is filed within the time specified in section 463.18.

Subd. 2. **Service.** The order shall be served upon the owner of record, or the owner's agent if an agent is in charge of the building or property, and upon the occupying tenant, if there is one, and upon all lienholders of record, in the manner provided for service of a summons in a civil action. If the owner cannot be found, the order shall be served upon the owner by posting it at the main entrance to the building or, if there is no building, in a conspicuous place on the property, and by four weeks' publication in the official newspaper of the municipality if it has one, otherwise in a legal newspaper in the county.

Subd. 3. **Filing.** A copy of the order with proof of service shall be filed with the court administrator of district court of the county in which the hazardous building or property is located not less than five days prior to the filing of a motion pursuant to section 463.19 to enforce the order. At the time of filing such order the municipality shall file for record with the county recorder or registrar of titles a notice of the pendency

of the proceeding, describing with reasonable certainty the lands affected and the nature of the order. If the proceeding be abandoned the municipality shall within ten days thereafter file with the county recorder a notice to that effect.

History: 1965 c 393 s 3; 1976 c 181 s 2; 1986 c 444; 1Sp1986 c 3 art 1 s 82; 1989 c 328 art 6 s 9

463.18 ANSWER.

Within 20 days from the date of service, any person upon whom the order is served may serve an answer in the manner provided for the service of an answer in a civil action, specifically denying such facts in the order as are in dispute.

History: 1965 c 393 s 4

463.19 DEFAULT CASES.

If no answer is served, the governing body may move the court for the enforcement of the order. If such a motion is made the court may, upon the presentation of such evidence as it may require, affirm or modify the order and enter judgment accordingly, fixing a time after which the governing body may proceed with the enforcement of the order. The court administrator shall cause a copy of the judgment to be mailed forthwith to persons upon whom the original order was served.

History: 1965 c 393 s 5; 1Sp1986 c 3 art 1 s 82

463.20 CONTESTED CASES.

If an answer is filed and served as provided in section 463.18, further proceedings in the action shall be governed by the Rules of Civil Procedure for the District Courts, except that the action has priority over all pending civil actions and shall be tried forthwith. If the order is sustained following the trial, the court shall enter judgment and shall fix a time after which the building must be destroyed or repaired or the hazardous condition removed or corrected, as the case may be, in compliance with the order as originally filed or modified by the court. If the order is not sustained, it shall be annulled and set aside. The court administrator of the court shall cause a copy of the judgment to be mailed forthwith to the persons upon whom the original order was served.

History: 1965 c 393 s 6; 1Sp1986 c 3 art 1 s 82; 1989 c 328 art 6 s 10

463.21 ENFORCEMENT OF JUDGMENT.

If a judgment is not complied with in the time prescribed, the governing body may cause the building to be repaired, razed, or removed or the hazardous condition to be removed or corrected as set forth in the judgment, or acquire the building, if any, and real estate on which the building or hazardous condition is located by eminent domain as provided in section 463.152. The cost of the repairs, razing, correction, or removal may be: a lien against the real estate on which the building is located or the hazardous condition exists, or recovered by obtaining a judgment against the owner of the real estate on which the building is located or the hazardous condition exists. A lien may be levied and collected only as a special assessment in the manner provided by Minnesota Statutes 1961, sections 429.061 to 429.081, but the assessment is payable in a single installment. When the building is razed or removed by the municipality, the governing body may sell the salvage and valuable materials at public auction upon three days' posted notice.

History: 1965 c 393 s 7; 1974 c 341 s 4; 1989 c 328 art 3 s 3

463.22 STATEMENT OF MONEYS RECEIVED.

The municipality shall keep an accurate account of the expenses incurred in carrying out the order and of all other expenses theretofore incurred in connection with its enforcement, including specifically, but not exclusively, filing fees, service fees, publication fees, attorney's fees, appraisers' fees, witness fees, including expert witness fees, and traveling expenses incurred by the municipality from the time the order was originally made, and shall credit thereon the amount, if any, received from the sale of the salvage, or building or structure, and shall report its action under the order, with a statement of moneys received and expenses incurred to the court for approval and allowance. Thereupon the court shall examine, correct, if necessary, and allow the expense account, and, if the amount received from the sale of the salvage, or of the building or structure, does not equal or exceed the amount of expenses as allowed, the court shall by its judgment certify the deficiency in the amount so allowed to the municipal clerk for collection. The owner or other party in interest shall pay the same, without penalty added thereon, and in default of payment by October 1, the clerk shall certify the amount of the expense to the county auditor for entry on the tax lists of the county as a special charge against the real estate on which the building or hazardous condition is or was situated and the same shall be collected in the same manner as other taxes and the amount so collected shall be paid into the municipal treasury. If the amount received for the sale of the salvage or of the building or structure exceeds the expense incurred by the municipality as allowed by the court, and if there are no delinquent taxes, the court shall direct the payment of the surplus to the owner or the payment of the same into court, as provided in sections 463.15 to 463.26. If there are delinquent taxes against the property, the court shall direct the payment of the surplus to the county treasurer to be applied on such taxes.

History: *1965 c 393 s 8; 1974 c 329 s 1; 1989 c 328 art 6 s 11*

463.23 PAYMENT, TENDER, DEPOSIT IN COURT.

The net proceeds of a sale under section 463.21 or 463.24 shall be paid to persons designated in the judgment in the proportions as their interests shall appear therein. Acceptance of such payment shall be taken as a waiver of all objections to the payment and to the proceedings leading thereto on the part of the payee and of all persons for whom the payee is lawfully empowered to act. In case any party to whom a payment of damages is made be not a resident of the state, or the place of residence be unknown, or the party be an infant or other person under legal disability, or, being legally capable, refuses to accept payment, or if for any reason it be doubtful to whom any payment should be paid, the municipality may pay the same to the clerk, to be paid out under the direction of the court; and, unless an appeal be taken such deposit with the clerk shall be deemed a payment of the award.

History: *1965 c 393 s 9; 1986 c 444*

463.24 PERSONAL PROPERTY OR FIXTURES.

If any building ordered razed, removed, or made safe and sanitary by repairs contains personal property or fixtures which will unreasonably interfere with the razing, removal, or repair of such building, or if the razing or removal of the building makes necessary the removal of such personal property or fixtures, the original order of the governing body may direct the removal of such personal property or fixtures within a reasonable time. If the property or fixtures are not removed by the time specified, and the governing body subsequently desires to enforce a judgment under sections 463.15 to 463.26, it may sell the same at public auction as provided in section 463.21, or if without appreciable value, the governing body may destroy the same.

History: *1965 c 393 s 10*

463.25 HAZARDOUS EXCAVATIONS.

If in any municipality, an excavation for building purposes is left open for more than six months without proceeding with the erection of a building thereon, whether or not completed, or if any excavation or basement is not filled to grade or otherwise protected after a building is destroyed, demolished or removed, the governing body may order such excavation to be filled or protected or in the alternative that erection of a building begin forthwith if the excavation is for building purposes. The order shall be served upon the owner or the owner's agent in the manner provided by section 463.17. If the owner of the land fails to comply with the order within 15 days after the order is served, the governing body shall cause the excavation to be filled to grade or protected and the cost shall be charged against the real estate as provided in section 463.21.

History: 1965 c 393 s 11; 1973 c 123 art 5 s 7; 1986 c 444; 2004 c 147 s 6

463.251 SECURING VACANT BUILDINGS.

Subdivision 1. **Definitions.** The following terms have the meanings given them for the purposes of this section.

(a) "City" means a statutory or home rule charter city.

(b) "Neighborhood association" means an organization recognized by the city as representing a neighborhood within the city.

(c) "Secure" may include, but is not limited to, installing locks, repairing windows and doors, boarding windows and doors, posting "no-trespassing" signs, installing exterior lighting or motion-detecting lights, fencing the property, and installing a monitored alarm or other security system.

Subd. 2. **Order; notice.** (a) If in any city a building becomes vacant or unoccupied and is deemed hazardous due to the fact that the building is open to trespass and has not been secured and the building could be made safe by securing the building, the governing body may order the building secured and shall cause notice of the order to be served upon the owner of record of the premises or the owner's agent, the taxpayer identified in the property tax records for that parcel, the holder of the mortgage or sheriff's certificate, and any neighborhood association for the neighborhood in which the building is located that has requested notice, by delivering or mailing a copy to the owner or agent, the identified taxpayer, the holder of the mortgage or sheriff's certificate, and the neighborhood association, at the last known address. Service by mail is complete upon mailing.

(b) The notice under this subdivision must include a statement that:

(1) informs the owner and the holder of any mortgage or sheriff's certificate of the requirements of subdivision 3 and that costs may be assessed against the property if the person does not secure the building;

(2) informs the owner and the holder of any mortgage or sheriff's certificate that the person may request a hearing before the governing body challenging the governing body's determination that the property is vacant or unoccupied and hazardous; and

(3) notifies the holder of any sheriff's certificate of the holder's duty under section 582.031, subdivision 1, paragraph (b), to enter the premises to protect the premises from waste and trespass if the order is not challenged or set aside and there is prima facie evidence of abandonment of the property as described in section 582.032, subdivision 7.

Subd. 3. **Securing building by city; lien.** If the owner of the building or a holder of the sheriff's certificate of sale fails to either comply or provide to the governing body a reasonable plan and schedule to comply

with an order issued under subdivision 2 or to request a hearing on the order within six days after the order is served, the governing body shall cause the building to be properly secured and the cost of securing the building may be charged against the real estate as provided in section 463.21. In the metropolitan area, as defined in section 473.121, subdivision 2, the governing body may work with neighborhood associations to develop and implement plans to secure vacant buildings in a timely and cost-effective fashion. The city may use rehabilitation and revitalization funds in implementing this section.

Subd. 4. **Emergency securing.** A city may provide by ordinance for emergency securing of a building that presents an immediate danger to the health and safety of persons in the community.

History: 1973 c 123 art 5 s 7; 1973 c 520 s 1; 1986 c 444; 1996 c 286 s 1; 2009 c 123 s 1,2; 2010 c 375 s 8

463.26 LOCAL ACTS AND CHARTER PROVISIONS.

Sections 463.15 to 463.26 are supplementary to other statutory and charter provisions and do not limit the authority of any city to enact and enforce ordinances on the same subject.

History: 1965 c 393 s 12; 1973 c 123 art 5 s 7

463.261 RELOCATION BENEFITS.

Notwithstanding the provisions of section 117.56, or any other law to the contrary, all acquisitions of buildings and real estate upon which buildings are located by governmental subdivisions pursuant to the exercise of the power of eminent domain as provided in section 463.152 shall be acquisitions for the purposes of sections 117.50 to 117.56.

History: 1974 c 341 s 5; 1976 c 2 s 141

E.H. Renner & Sons

15688 Jarvis St NW
Elk River, MN 55330
Phone (763) 427-6100
www.ehrenner.com
License: 1431

ESTIMATE



Estimate # 3464
Page 1 of 3

*Oct 18
2021*

LOWELL VASSEUR
8106 ALPINE DRIVE
RAMSEY, MN 55303

Date 7/7/2021
Estimator: KATHRYNN RENNER

Job Location:
8106 Alpine Drive, RAMSEY
Customer Job/Well # REPLACEMENT W

A 4 inch diameter, STEEL cased well drilled 200 feet deep. 100 bags of neat cement installed between the well casing and drilled borehole. 3 hours of development. 2 hours of test pumping. A Baker Snappy pitless adapter. 40 feet of 1-1/4 inch polyethylene water pipe and #12/3 w/grd UF wire buried frost free. A Franklin 3/4 HP, 16 GPM, 230V, pumping system. 63 feet of 1-1/4 inch drop pipe and #12/3 w/grd submersible cable for the pump. A 50 gallon bladder type pressure tank fitted with: pressure switch, pressure guage, and miscellaneous fittings installed and adjusted. The state well notification fee, state well record, and water quality analysis are also included.

*\$275.00
Down*

Variable Costs and Options:

- | | |
|--|-----------------|
| 1. For more or less well depth, Add or Deduct... | \$32.00/ft |
| 2. For more or less neat cement to seal the outside of the well casing, Add or Deduct... | \$20.00/bg |
| 3. For bentonite grout to seal the outside of the well casing, Add... | \$33.00/bg |
| 4. For more or less drop pipe and submersible cable for the pump, Add or Deduct...
\$11.00/ft | |
| 5. For more or less polyethylene water pipe and UF wire buried frost free, Add or Deduct...
(Includes polyethylene water pipe, UF wire, and excavation) | \$21.00/ft |
| 6. For more or less polyethylene water pipe and UF wire directionally drilled, Add or Deduct...
(minimum charge of 100 feet applies) | \$18.00/ft |
| 7. For a Grundfos 3/4 HP, 15 GPM, variable speed system (constant pressure), Add... | \$750.00 |
| 8. For a Grundfos 1 HP, 22 GPM, variable speed system (constant pressure), Add... | \$925.00 |
| 9. For a Grundfos 1.5 HP, 22 GPM, variable speed system (constant pressure), Add...
\$1180.00 | |
| 10. Traction mat rentals, Add... | \$10.00/mat/day |
| 11. For more or less test pumping time, Add or Deduct... | \$200.00/hr |
| 12. For more or less development time, Add or Deduct... | \$200.00/hr |

*Cased
Well Sealing*

Estimate based on the following:

Total **\$18,161.36**

BY SIGNING YOU ACCEPT AND UNDERSTAND THE TOTAL ESTIMATED COST AND TERMS AND CONDITIONS.

Lowell Vasseur
Accepted

10-4-21
Date

E.H. Renner & Sons

15688 Jarvis St NW
Elk River, MN 55330
Phone (763) 427-6100
www.ehrenner.com
License: 1431

CITY EST E



Estimate # 3465
Page 1 of 2

LOWELL VASSEUR
8106 ALPINE DRIVE
RAMSEY, MN 55303

Date 7/7/2021
Estimator: KATHRYNN RENNER

Job Location:
8106 Alpine Drive, RAMSEY
Customer Job/Well # REPLACEMENT W

RESIDENTIAL WELL ABANDONMENT - MN

ESTIMATE TO SEAL THE 3" X 80' SCREENED WELL THAT IS LOCATED ON THE PROPERTY. WE HAVE NOT COMPLETED A SITE INVESTIGATION.

FOR SCHEDULING OR QUESTIONS PLEASE CONTACT:

HEATHER ANDERSON
DIRECT (612) 790-4146
OFFICE (763) 427-6100
EMAIL handerson@ehrenner.com

Estimate based on the following:

Qty	Unit	Item/Description	Unit Price	Extended Price
1	Each	TRIP CHARGE	\$150.00	\$150.00
1	Each	PERMIT SEALING FEE - MN /EA.	\$105.00	\$105.00
2	Hour	SERVICE TECHNICIAN	\$125.00	\$250.00
2	Hour	HELPER	\$100.00	\$200.00
2	Hour	SMEAL 5T/6T TRUCK	\$150.00	\$300.00
1	Each	GROUTMASTER TRIP CHARGE	\$150.00	\$150.00
3	Hour	GROUTER-OPERATOR /HR.	\$125.00	\$375.00
3	Hour	GROUTER-HELPER	\$100.00	\$300.00
3	Hour	GROUTMASTER /HR.	\$125.00	\$375.00
10	Each	CEMENT TYPE 1 PORTLAND 47LB/BAG	\$17.27	\$172.70
1	Each	WELL SEALING REPORT /EA.	\$105.00	\$105.00
Total				\$2,482.70

BY SIGNING YOU ACCEPT AND UNDERSTAND THE TOTAL ESTIMATED COST AND TERMS AND CONDITIONS.

Lowell Vasseur
Accepted

10-4-21
Date

Terms and Conditions

Unless otherwise specified in this contract:

- 1) This is an estimate. Charges for the completed work may vary from the estimated price. Invoices will reflect the unit prices for the work performed and materials used. This estimate is valid for 90 days of the date of issue.
- 2) Additional charges may be assessed to remedy unexpected conditions.
- 3) Payment for work completed is due 30 days from the date of invoice. Past due balances will accrue interest at the maximum rate allowed by law. Cash, check, Visa, MasterCard, and Discover are accepted.*
- 4) The quantity and quality of water produced by a well is dependent on conditions and geology of the site and cannot be guaranteed by E.H. Renner & Sons, Inc. The Customer is responsible for payment of the work

performed and materials used regardless of the water quality or productivity of the well.

5) Access for our equipment shall be provided by the Customer, including, but not limited to, groundwork and the removal of trees, vegetation, and snow.

6) Access, egress, and construction activities may cause damage to the site and is the responsibility of the Customer for repairs. Excavated soils will be backfilled to rough grade. Backfilled soils will not be compacted and settling will likely occur. Removal of debris and restoration of landscape is not included in this estimate.

7) E.H. Renner & Sons, Inc. will notify Gopher State One-Call to locate public utilities. The Customer must identify and locate all private, underground utilities.

8) Electrical work is not included in this estimate and must be performed by the Customer's licensed electrician.

Pre-Lien Notice

Notice to Owner according to Minnesota Statute §514.011:

(a) ANY PERSON OR COMPANY SUPPLYING LABOR OR MATERIALS FOR THIS IMPROVEMENT TO YOUR PROPERTY MAY FILE A LIEN AGAINST YOUR PROPERTY IF THAT PERSON OR COMPANY IS NOT PAID FOR THE CONTRIBUTIONS.

(b) UNDER THE MINNESOTA LAW, YOU HAVE THE RIGHT TO PAY PERSONS WHO SUPPLIED LABOR OR MATERIALS FOR THIS IMPROVEMENT DIRECTLY AND DEDUCT THIS AMOUNT FROM OUR CONTRACT PRICE, OR WITHHOLD THE AMOUNTS DUE THEM FROM US UNTIL 120 DAYS AFTER COMPLETION OF THE IMPROVEMENT UNLESS WE GIVE YOU A LIEN WAIVER SIGNED BY PERSONS WHO SUPPLIED ANY LABOR OR MATERIAL FOR THE IMPROVEMENT AND WHO GAVE YOU TIMELY NOTICE.

If you have any questions regarding this proposal, the "Terms and Conditions" or the "Pre-Lien Notice" please call us at (763) 427-6100.

E.H. Renner & Sons, Incorporated MN License No. 1431

*By providing payment by check you authorize us to use information from your check to make a one-time electronic fund transfer from your account or to process payment as a check transaction. When we make an electronic fund transfer, funds may be withdrawn from your account the same day you make your payment

Terms and Conditions

Unless otherwise specified in this contract:

- 1) This is an estimate. Charges for the completed work may vary from the estimated price. Invoices will reflect the unit prices for the work performed and materials used. This estimate is valid for 90 days of the date of issue.
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- 4) The quantity and quality of water produced by a well is dependent on conditions and geology of the site and cannot be guaranteed by E.H. Renner & Sons, Inc. The Customer is responsible for payment of the work performed and materials used regardless of the water quality or productivity of the well.
- 5) Access for our equipment shall be provided by the Customer including, but not limited to, groundwork and the removal of trees, vegetation, and snow.
- 6) Access, egress, and construction activities may cause damage to the site and is the responsibility of the Customer for repairs. Excavated soils will be backfilled to rough grade. Backfilled soils will not be compacted and settling will likely occur. Removal of debris and restoration of landscape is not included in this estimate.
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E.H. Renner & Sons, Incorporated MN License No. 1431

*By providing payment by check you authorize us to use information from your check to make a one-time electronic fund transfer from your account or to process payment as a check transaction. When we make an electronic fund transfer, funds may be withdrawn from your account the same day you make your payment

OWNER TO SUPPLY ACCESS AND EGRESS TO THE SITE.

DRILLER IS NOT RESPONSIBLE FOR COLATERAL DAMAGE TO GAIN ACCESS OR FOR THE DIG BACKFILLING IS WITHOUT COMPACTION AND COMPLETED TO ROUGH GRADE SODDING AND SEEDING IS BY OTHERS AND IS NOT IN THIS ESTIMATE

ACCEPTING OUR PROPOSAL

Thank you for calling E.H. Renner and Sons, Inc. for your new water well. We appreciate your business and intend to show our gratitude by providing you with the best well and service that we can. Please follow the procedure below to accept our proposal.

Enclosed you will find two copies of the estimate with Terms and Conditions and the Pre-lien Notice on the reverse side. Read the estimate in its entirety and call with ANY questions you have.

CC Work Session

3.1.

Meeting Date: 10/12/2021

By: Katie Schmidt, Administrative Services

Information

Title:

Review Future Topics/Calendar

Purpose/Background:

Attached is the current list of future topics for work session discussion. Items are drawn from Council requests at meetings, or are related to topics that have been identified in the City's strategic plan. Tentative dates have been assigned.

Recommendation:

N/A

Outcome/Action:

For Council review - no formal action necessary.

Attachments

[Future Topics List](#)

Form Review

Inbox

Colleen Lasher

Kurt Ulrich

Form Started By: Katie Schmidt

Final Approval Date: 10/07/2021

Reviewed By

Colleen Lasher

Kurt Ulrich

Date

10/07/2021 10:38 AM

10/07/2021 03:35 PM

Started On: 10/05/2021 11:40 AM

	<u>Tentative City Council Future Work Session Topics</u>	
Proposed Date	Topic	Minutes (Estimate)
10/26/21	Regular City Council Work Session	
	Review November 16 th Joint Meeting Agenda – Ulrich	10
	Budget Discussions – Lund	20
	Fund Balance Quarterly Update – Diana Lund	15
	Discuss Yellow Flashing Arrows/Traffic Signals – Westby	10
	Discuss Union Negotiations (closed to the public) - Lasher	20
	Discuss the Revised Data Retention (Videos) Policy/ and Review the Data Practices Act. - Lasher	20
11/09/21	Regular City Council Work Session	
	Discuss the 2022 Budget - Lund	30
	Discuss Union Negotiations (closed to the public) - Lasher	20
	Discuss 2022 Rates and Charges – Lund	15
	Discuss the 10 year Capital Improvement Projects (CIP) – Lund C	15
11/16/21	Joint Secession with Council, Planning and EDA	90
11/23/21	Regular City Council Work Session	
	Quarterly Communications Update	20
	CCWS/Conclude Discussions Regarding Updating the Employee Telecommuting Policy Colleen Lasher 10	
	Discuss the 2022 Budget - Lund	20
	Discuss 2022 Council Appointments - Lasher	30
	Draft Stormwater Pond Maintenance Policy – Westby/Riemer	TBD
	Draft Trail Maintenance Policy – Westby/Riemer	30
12/14/21	Regular City Council Work Session	
Dates TBD:		
2021	Pending Discussion Regarding Resolution #21-216 Abatement of 7009 Highway 10 NW – McCann	10
2021	Review procedure/policy/best practice for introduction of resolutions/proclamations – Ulrich	20
2021	Discuss the General Topic of Holding Joint Meeting(s) with the Council and Commissions & Other Cities. Based on discussion, future work sessions TBD.	20

