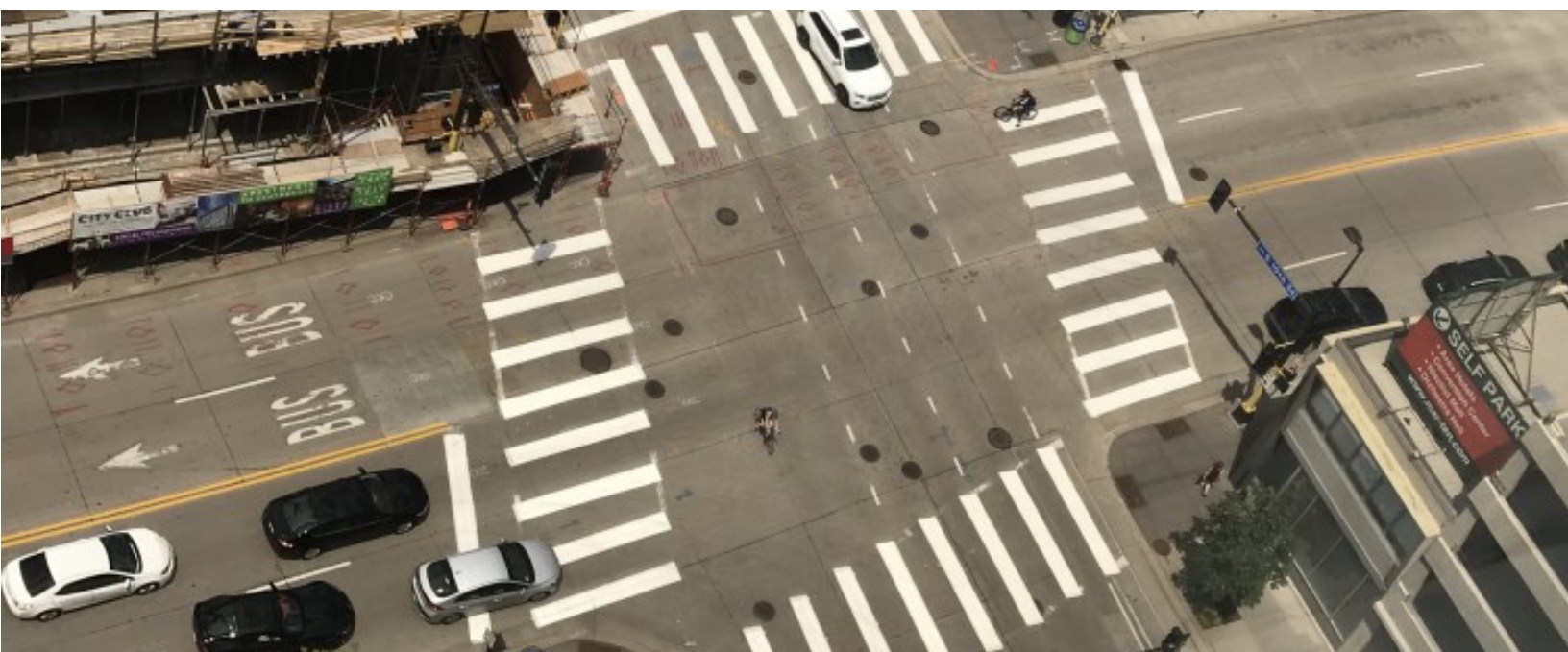




MAPPING 2045 SUMMARY



An aerial photograph of a city, likely St. Paul, Minnesota, showing a river (St. Paul River) flowing through the urban landscape. A large bridge (St. Paul River Bridge) crosses the river. The city features a mix of residential, commercial, and industrial buildings, parking lots, and green spaces. A text box is overlaid on the image, providing information about the 'MAPPING 2045' document.

MAPPING 2045 documents the collective vision and goals for the regional transportation system AND guides project prioritization and expenditure of federal transportation funds for the area.

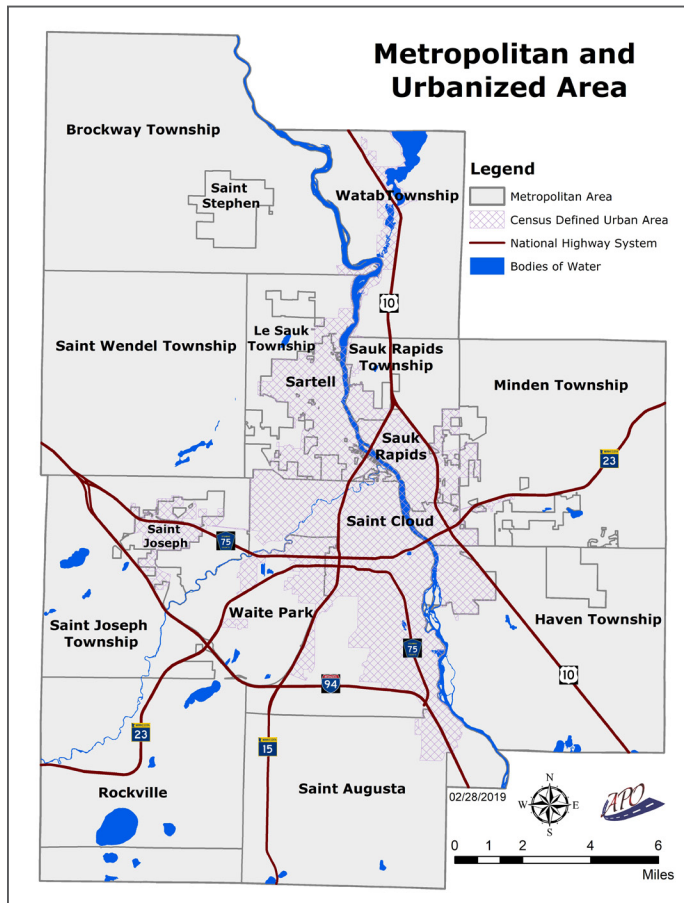
HIGHLIGHTS OF CHAPTER 1:

Introduction of MAPPING 2045

This document is an Summary of the Metropolitan Area Planning and Programming: An Innovative Network Guide (MAPPING 2045). MAPPING 2045 serves as an update to the area's 2014 Metropolitan Transportation Plan.

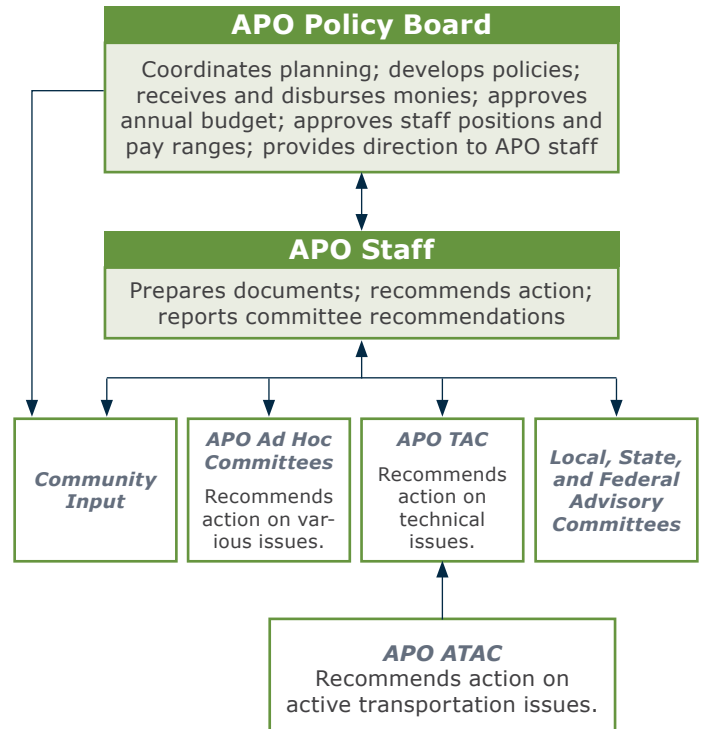
The decision-making body of the APO is the Policy Board, which is comprised of officials from:

- Metro Bus
- Benton County
- LeSauk Township
- Sherburne County
- Stearns County
- Saint Cloud
- Saint Joseph
- Sartell
- Sauk Rapids
- Waite Park



The Metropolitan Transportation Plan (MTP) must:

- Look at least 20 years into the future
- Consider both current and future travel demand
- Consider existing and proposed transportation facilities (including major roadways, transit, sidewalks and bicycle paths) that should function as an integrated system
- Consider traffic management strategies to improve mobility and safety
- Include a financial plan that accounts for both preservation of existing facilities as well as the construction of new facilities
- Include descriptions of all proposed projects detailed enough that reasonable cost estimates can be developed
- Include a discussion of potential environmental mitigation activities



HIGHLIGHTS OF CHAPTER 2: Existing Conditions

The population of the region is growing. As the population grows, the economy also grows. The efficiency of the transportation network is key to ensuring an efficient economy. The transportation system helps to receive materials and ship out products; it also helps residents get to work, shop, and to reach other destinations that improve their quality of life. A high quality of life is one of the factors that results in continued population growth. It is important, therefore, that the growth and development of the transportation network keep up with the growth and development of the population and businesses.



Population of **Cities in the Region** **increased** (on average) **22%** from 2000-2015.



Rural Townships **decreased** in population **by 11%** in the same timeframe.

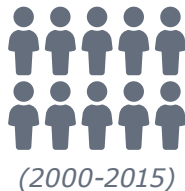


58%

of population, ages 25+, **does not have a college degree**

Entire region **increased** in population by

16.8%



Real median incomes fell by an average of

9.4%

between 2010-2015

Population is growing, but real incomes are not and that makes it difficult for cities and counties to keep up with transportation maintenance and expansion.

36,500

Coming in to work



45,765

Living and working

19,671

Commuting out

This commuting has placed demands on (and resulted in certain outcomes for) the transportation system.



Annual Vehicle Miles traveled
increased 30 million from
2011-2015 (2%)



99%
of bridges are in "Fair"
or "Good" shape.



42%
of roads have "Good"
road surface quality.

The rate of serious injuries resulting from vehicle crashes has fallen significantly. In the same time period the fatality rate, however, is trending upward slightly. Recent data suggests that this is the result of increasing fatalities from bicyclists and pedestrians being struck by vehicles.



Serious Injury Crash
Rate **decreased 29%**
from 2011 to 2015.



Fatality rate per 100
million vehicle miles
traveled **increased**
from 0.48 to 1.01.



Transit



Average per gallon gasoline
price in Minnesota **decreased**
19% in the last 5 years.



Metro Bus ridership is down
29% in the past 10 years.




Tri-CAP ridership is up 46%
in the past 10 years.



Daily ridership for the **Northstar**
Link has decreased 19% in
the past 5 years.





Environmental resources have immeasurable benefits that affect social well-being and the long-term viability of local and regional systems - Transportation planning plays a key role in minimizing environmental impacts.

HIGHLIGHTS OF CHAPTER 3: Environmental Impact Mitigation

The St. Cloud APO is committed to environmental protection, with key preservation aspects being:



Air Quality



Water/Wetland
Resources and
Floodplains



Wildlife and
Habitat
Protection



Public Health

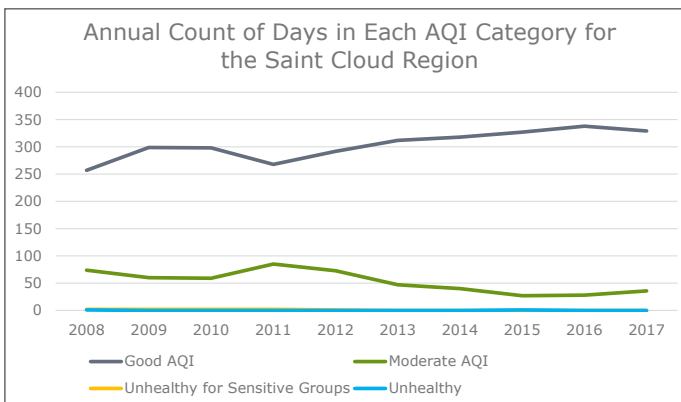


Soil



Cultural and
Historic
Resources

The St. Cloud Metro Area has experienced a **28% increase** in the number of days with a good Air Quality Index (AQI) in the last 10 years.



Area Watersheds



- Mississippi River – Sartell
- Mississippi River – St. Cloud
- Sauk River

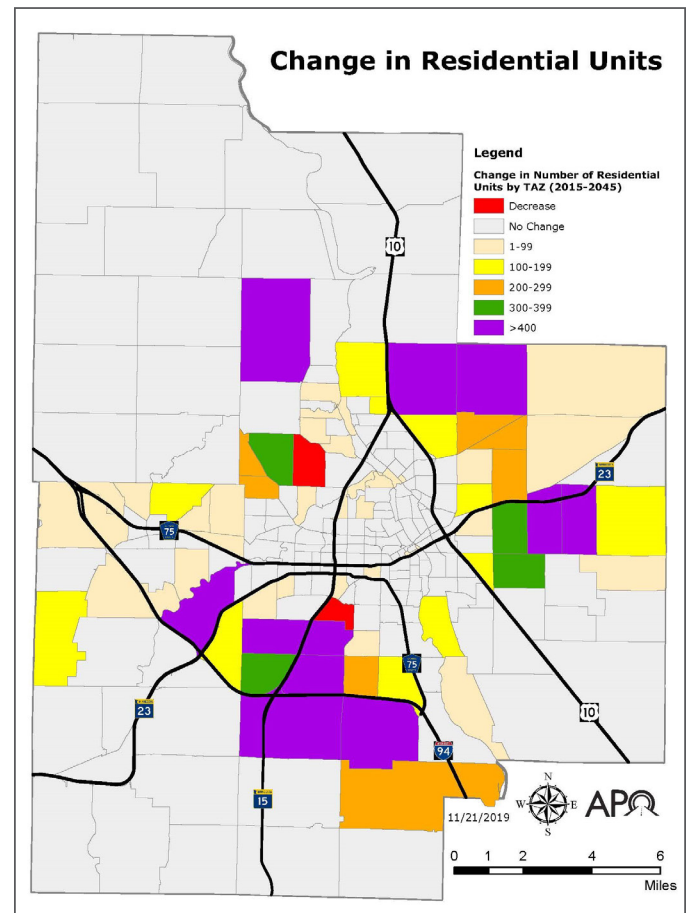


Natural resource activities contribute

\$7 billion

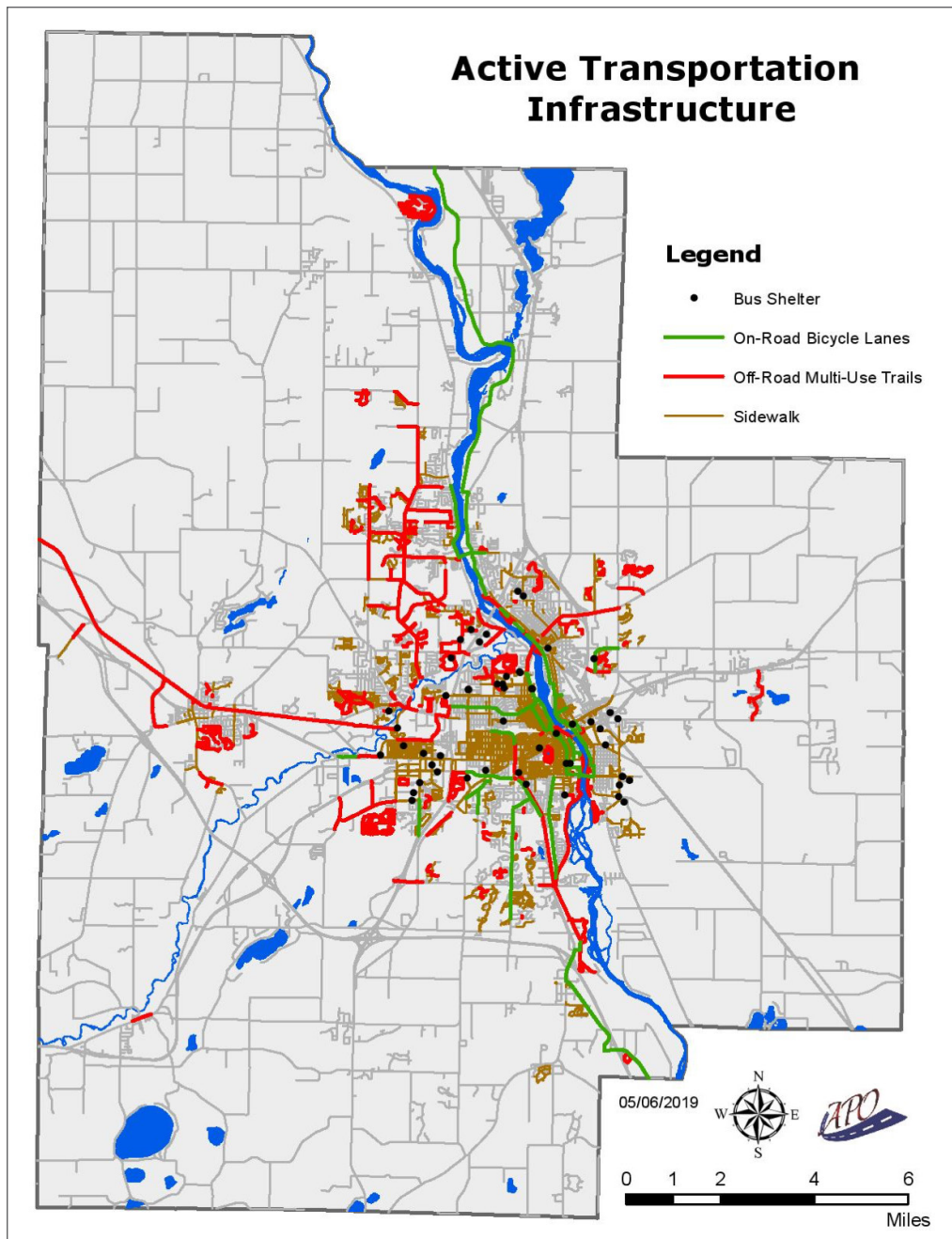
to the State's economy.

Every time we choose to pave over part of the outdoors, we impact animal habitat, clean water, and the economy. The map below shows the anticipated growth in households between 2015 and 2045. **Growth, like most things, is a double-edged sword** — there are positive and negative outcomes.



HIGHLIGHTS OF CHAPTER 4: Analysis of Key Concepts

Both the City of Sartell and the City of St. Cloud have been recognized as **Bronze-Level Bicycle Friendly Communities**. The St. Cloud APO is working towards improving active transportation throughout the Metro Area.



527
miles of sidewalk



34
miles of on-road lanes



265
miles of off-road multi-use trails

“

Support economic competitiveness and job creation by providing a reliable, efficient, and safe regional freight system.

”



Saint Cloud APO Freight Transportation Goals

Traffic	Improve congestion and reliability on the regional freight system.
Safety	Reduce commercial vehicle crashes region wide.
Connectivity	Maintain the Level of Service (LOS) and State of Good Repair on the Tier III (local) freight network and intermodal connectors.
Workforce	Connect workers to freight clusters.
State of Good Repair	Capitalize on existing infrastructure.
Environmental	Minimize negative impacts on the region's vulnerable populations.

Direct Impacts

Transportation sector businesses and activities, such as transit systems, bridge and roadway construction companies, or freight brokers, provide employment and buy goods and services from other businesses.

Indirect Impacts

Businesses supported by transportation sector businesses also employ staff and buy goods and services from tertiary businesses like office supply firms, insurance companies, and equipment suppliers.

Induced Impacts

An efficient transportation system will result in reduced prices for goods and services purchased by both businesses and consumers, and helps free up funds to meet other needs.

“

Connectivity refers to the directness of connections in the street network. Creating a more accessible network leads to a more resilient system.

”

“

Improving the safety and efficiency of our transportation network is a key factor in the economic vitality of the Metro Area as a whole.

”





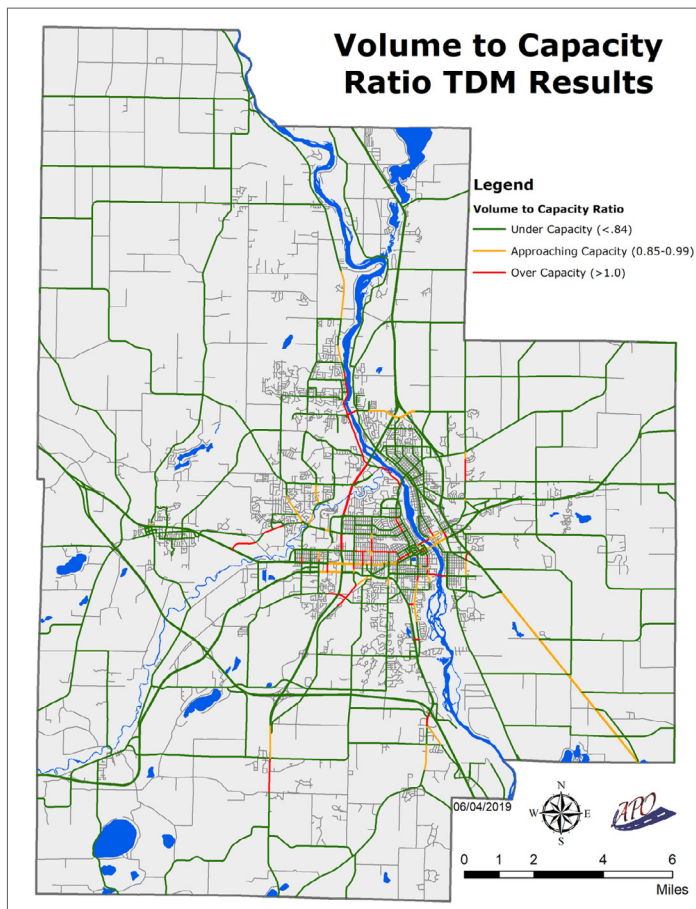
Jurisdictional Plans reviewed

- City of St. Cloud
- City of St. Joseph
- City of Sartell
- City of Sauk Rapids
- City of Waite Park
- Minnesota Department of Transportation
- Transit and County Plans

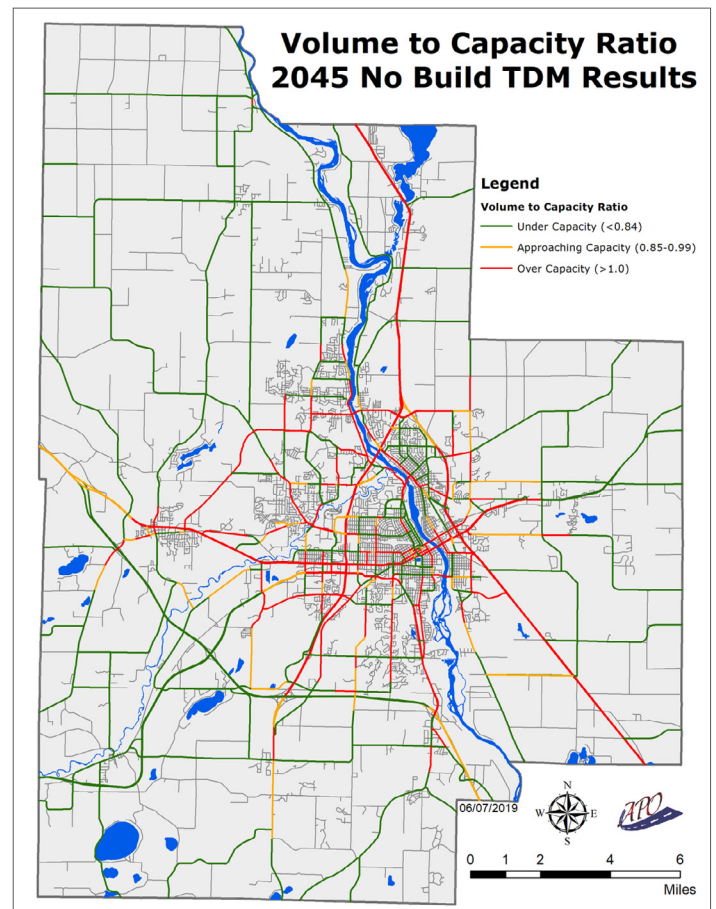
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HIGHLIGHTS OF CHAPTER 6: Travel Demand Modeling

The St. Cloud APO maintains a regional Travel Demand Model (TDM) that provides an outlook on how the current transportation system is operating as well as future travel conditions based on the socioeconomic forecasts for the region. This TDM identifies the amount of traffic on the current and future roadway network.

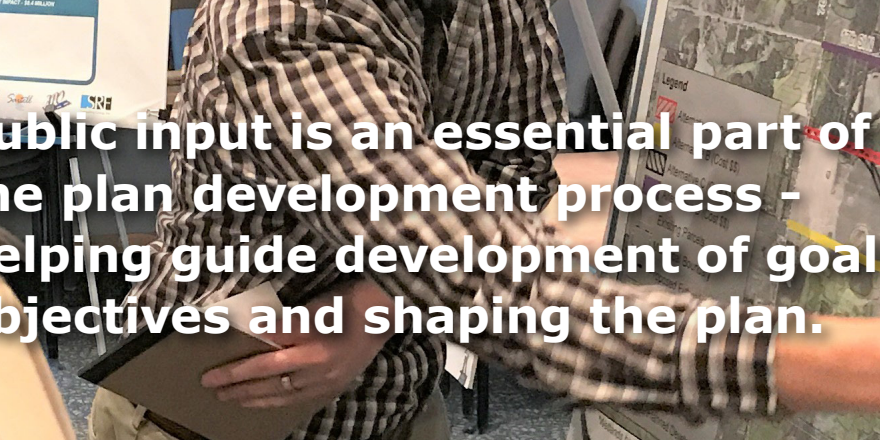


Roadways estimated to exceed v/c ratios in 2015



Estimated v/c ratios in 2045 no-build model scenario

With the current roadway network, many of the St. Cloud area roads become over capacity by year 2045 causing congestion and loss of efficiency. The St. Cloud APO will prioritize these over-capacity roadways through improvement projects that increase capacity and/or manage mobility.

A person wearing a plaid shirt is pointing at a large map displayed on a screen. The map shows a landscape with various colored areas and a red line. In the background, there is a sign with text about 'TERN CONNECTION' and 'HARVEST BENTLAND IMPACTS'. The text 'Public input is an essential part of the plan development process - helping guide development of goals/objectives and shaping the plan.' is overlaid on the image.

Public input is an essential part of the plan development process - helping guide development of goals/objectives and shaping the plan.

Public Comments

Ideas, thoughts, and feedback from the public are critical to writing a successful transportation plan. In 2017, APO staff made a big effort to reach out to the public and solicit their comments on how the transportation system was working for them.

Some representative comments are shown below. A complete list of all comments can be found in Appendix A of the MTP. <https://stcloudapo.org/current-plans/current-mtp/>

“

Start putting the pedestrian and non-motorized user first in reconstruction projects and new road projects.

- In-person Comment (submitted 3/13/2017)

”

“

On weekdays, buses should start a little earlier and run a little later to better accommodate work schedules.

- In-person Comment (submitted 5/10/2017)

”

“

Connecting bike paths that already exist should be a priority.

- Online Survey (submitted 5/10/2017)

”

“

Roundabouts are great—keep them coming! (...but don't go nuts!)

- Online Survey (submitted 3/8/2017)

”

“

It's taking way too long to get from Hwy 23 south through Waite Park/Saint Cloud, to Hwy 23 north. May want to start looking at bypasses around Waite Park/Saint Cloud.

- Online Survey (submitted 3/7/2017)

”

“

The bus system works well, just need to finish the long term plan on routes so it all ties together and makes a great system.

- Online Survey (submitted 5/10/2017)

”

“

Bring the North Star to St. Cloud.

- In-person Comment (submitted 5/10/2017)

”

“

Synchronize all traffic lights so that traffic flow is maximized (especially on Division).

- Online Survey (submitted 3/6/2017)

”

HIGHLIGHTS OF CHAPTER 7:

Goals, Objectives, Strategies, and Performance Measures

The goals, objectives, and performance measures established by the APO are designed to provide direction and guidance for MAPPING 2045. The goals were developed based on the analysis of the existing conditions, performance data, and public input detailed in the previous chapters. For each goal, specific measurable actions (i.e., objectives) were identified to help the region reach the desired goal.



Maintain and Enhance Transportation Safety

Develop and maintain a transportation system that is safe for all users.

- Build and maintain roadways that include appropriate safety infrastructure to help prevent crashes.
- Identify and prioritize high-crash locations for investments and/or mitigation activities, as warranted.
- Reduce the regional rates of bicycle and pedestrian fatalities and serious injuries.
- Support, to the extent practical, efforts by outside agencies and stakeholders to reduce bad driving behavior such as driving under the influence and distract-ed driving.
- Support, to the extent practical, a safe transit system.
- Define and support transportation security.



Increase System Accessibility, Mobility, and Connectivity

Increase the accessibility and mobility options for people and freight across and between all modes for all users.

- Increase accessibility of people and freight.
- Increase mobility of people and freight.
- Identify and maintain viable non-motorized transportation options.
- Enhance connectivity across and between modes of transportation.



**Efficiently Manage
Operations and Cost-
Effectively Preserve
the System**

Develop a transportation system that is cost-feasible, maintains a state of good repair, and satisfies public transportation priorities.

- Prioritize the maintenance and preservation of the existing transportation network.
- Invest in cost-effective transportation solutions.
- Efficiently manage the transportation system.



**Support Metropolitan
Vitality and Economic
Development**

Support the economic vitality of the APO Metropolitan Planning Area (MPA) by enabling global competitiveness, productivity, and efficiency while enhancing travel and tourism.

- Promote the efficient movement of people.
- Promote the efficient movement of goods.



**Promote Energy
and Environmental
Conservation**

Support transportation improvements that promote energy conservation and improve public health and quality of life, while sustaining and improving the resiliency and reliability of the transportation system.

- Protect the environment through the promotion of energy conservation.
- Prevent and/or minimize disproportionate adverse impacts to communities containing a high concentration of low-income and minority populations.


HIGHLIGHTS OF CHAPTER 8:

Development of Financial Plans

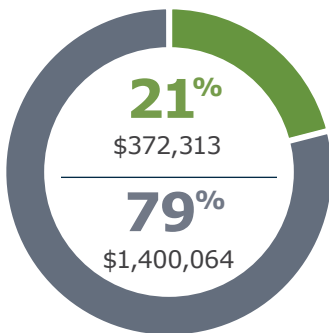
The following charts show the average annual expenditures, by jurisdiction, for transportation maintenance and expansion between 2008 and 2017. These figures, inflated 3% annually, were then used to estimate how much funding each jurisdiction would have over the next 20 years to maintain and expand the transportation system.

Historical Financial Conditions

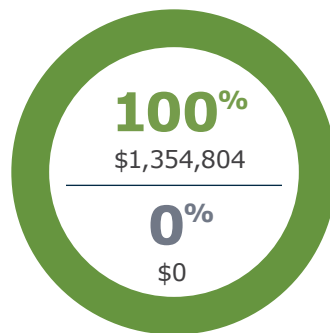
Average money spent annually on
system preservation: 

Average money spent annually on
capacity expansion: 

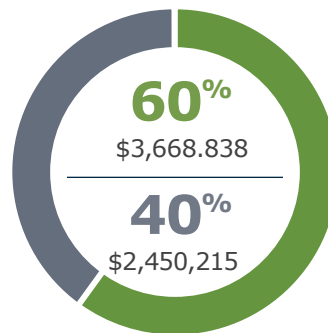
**Benton County
within APO's MPA**



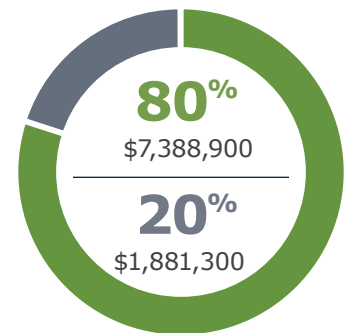
**Sherburne County
within APO's MPA**



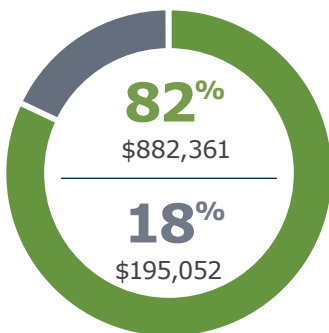
**Stearns County
within APO's MPA**



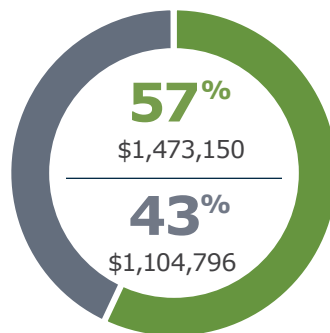
**City of
Saint Cloud**



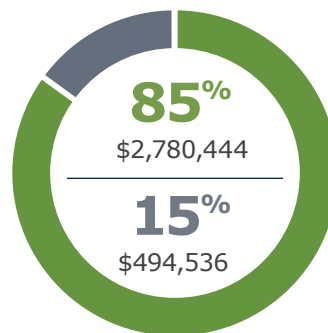
**City of
Saint Joseph**



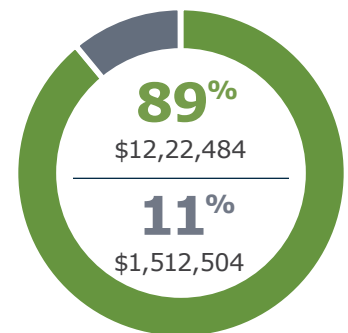
**City of
Sartell**



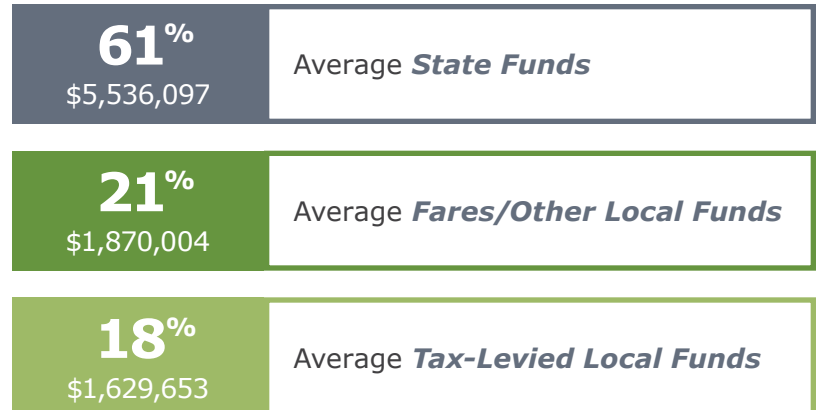
**City of
Sauk Rapids**



**MnDOT D3
within APO's MPA**



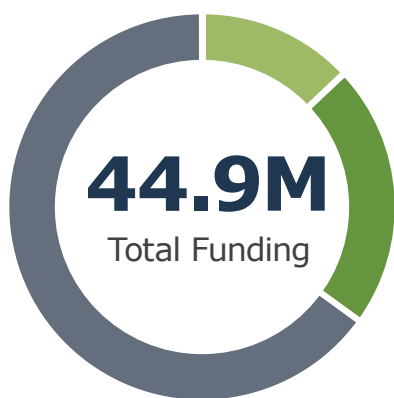
Average Annual Revenues for Saint Cloud Metro Bus



City of Waite Park Funding Allocations

The City of Waite Park does not use historic expenditures to represent future funding allocations. Their anticipated revenues are represented as follows.

System Preservation Budget



Short-Term
(2020–2023)

13%
\$5,856,000

Mid-Range
(2024–2029)

22%
\$10,033,970

Long-Range
(2030–2045)

65%
\$29,016,337

Expansion Budget



Short-Term
(2020–2023)


13%
\$1,464,000

Mid-Range
(2024–2029)

22%
\$2,508,492

Long-Range
(2030–2045)

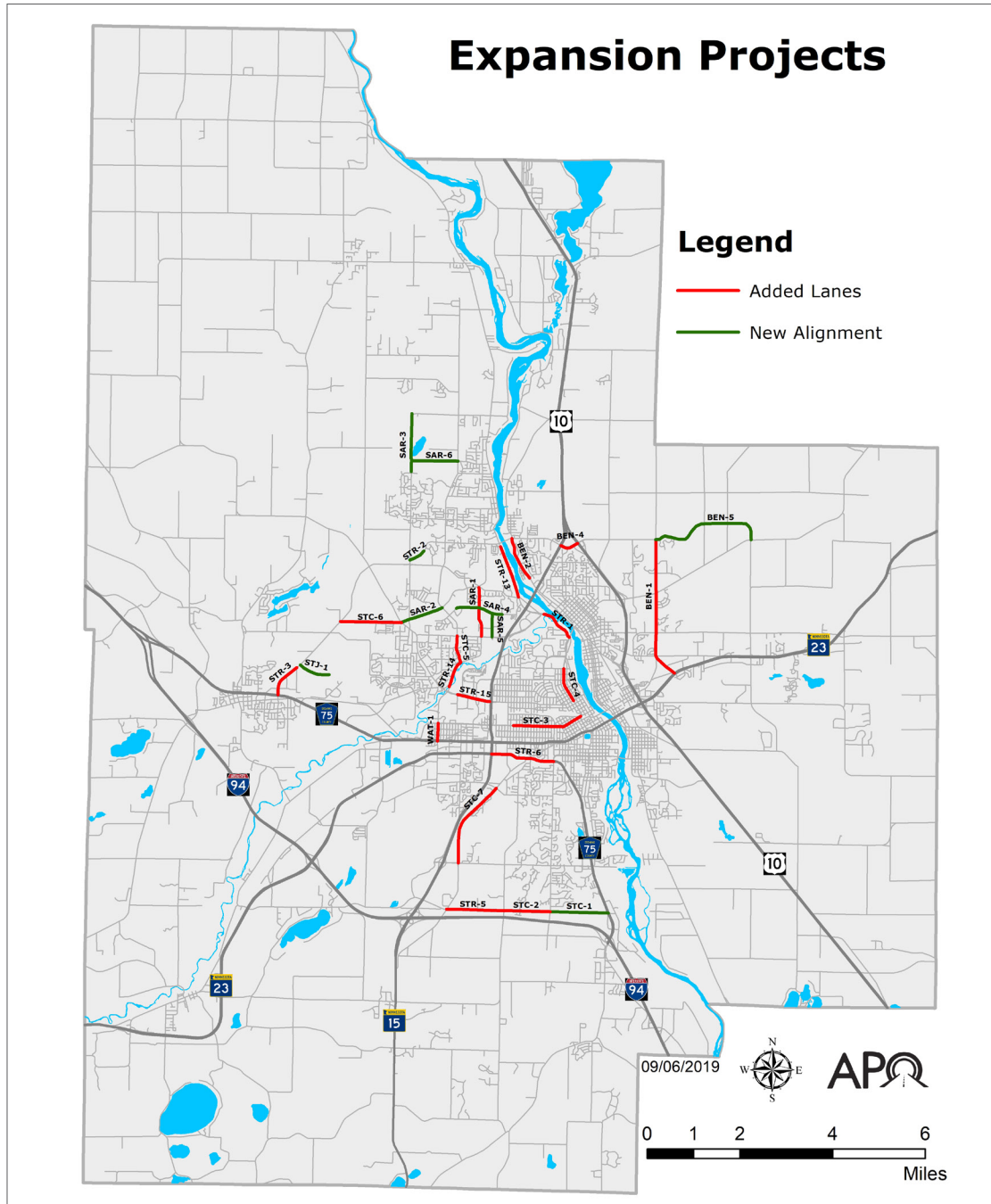
65%
\$7,254,084



Regional transportation system improvement projects are necessary to maintain the system in a state of good repair and attempt to mitigate congestion into the future.

HIGHLIGHTS OF CHAPTER 9: 2045 MTP Projects and Fiscal Constraint

Below is a map of future roadway expansion projects in the St. Cloud area. A table describing these projects can be found on the following page.

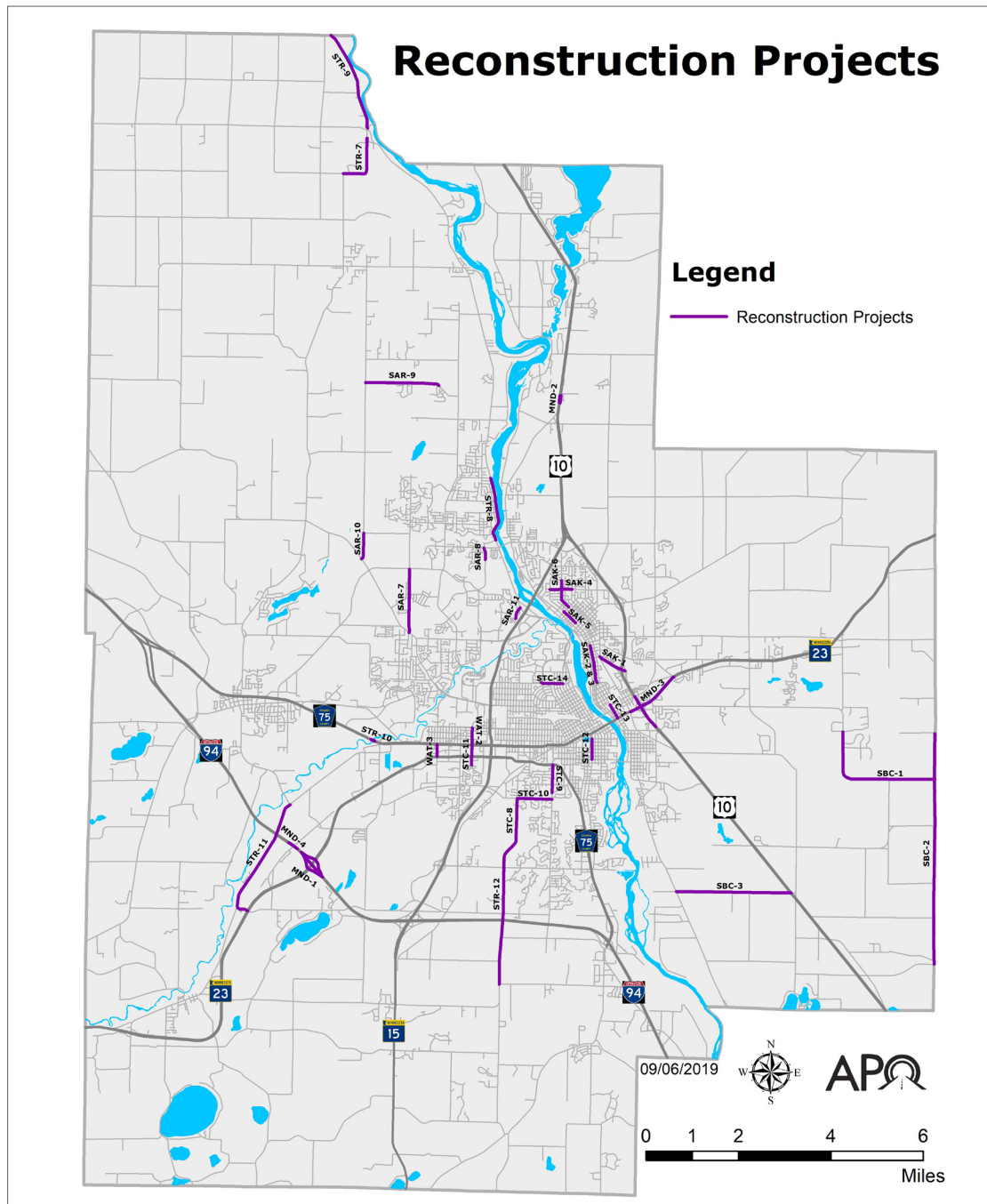


Below is a table of planned roadway expansion projects.

Roadway Expansion Projects

Project ID	Project Location	Beginning and Ending Termini	Post-Construction Facility Type
BEN-1	CSAH 1 (Mayhew Lake Rd NE) in Sauk Rapids	CSAH 29 (35th St NE) to MN 23	Four-Lane Undivided Arterial
BEN-2	CSAH 33 (Benton Drive) in Sauk Rapids	CSAH 29 (1st St NE) to 18th St NW	Four-Lane Undivided Arterial
BEN-4	CSAH 29 (35th St NE) in Sauk Rapids	MN-15 to US-10	Four-Lane Divided Arterial
BEN-5	CSAH 29 in Sauk Rapids	CSAH 1 (Mayhew Lake Rd) to 35th Ave NE	Two-Lane Divided Arterial
STR-1	CSAH 1 (River Ave N) in Sartell	MSAS 145 (9th Ave N) to County Rd 120	Four-Lane Undivided Arterial
STR-2	CSAH 133 (2nd St S) in Sartell	Theisen Rd to CSAH 133 (6th St S/19th Ave N)	Four-Lane Undivided Arterial
STR-3	CSAH 133 in Saint Joseph	CSAH 75 to 19th Ave NE	Four-Lane Undivided Arterial
STR-5	County Rd 122 (40th St S) in Saint Cloud	CSAH 74 to CSAH 136 (Oak Grove Rd SW)	Four-Lane Undivided Collector
STR-6	CSAH 75 (2nd St S) in Saint Cloud	MN-15 to MSAS 141 (Cooper Ave S)	Six-Lane Divided Arterial
STR-13	CSAH 1 (Riverside Ave S) in Sartell	MSAS 118 (Heritage Drive) to CSAH 78	Four-Lane Undivided Arterial
STR-14	County Rd 134 in Saint Cloud	Sauk River Bridge to Pinecone Rd	Four-Lane Divided Arterial
STR-15	CSAH 4 (8th St North) in Saint Cloud	Anderson Ave to MN-15	Six-Lane Divided Arterial
STC-1	MSAS 156 (40th St S) in Saint Cloud	MSAS 141 (Cooper Ave) to CSAH 75 (Roosevelt Rd)	Four-Lane Undivided Collector
STC-2	MSAS 156 (40th St S) in Saint Cloud	CSAH 136 (Oak Grove Rd SW) to MSAS 141 (Cooper Ave)	Four-Lane Undivided Collector
STC-3	MSAS 114 (3rd St N) in Saint Cloud	31st Ave N to MSAS 145 (9th Ave N)	Four-Lane Divided Arterial
STC-4	MSAS 145 (9th Ave N) in Saint Cloud	MSAS 148 (15th St N) to Stearns CSAH 4 (8th St N/Veterans Drive)	Four-Lane Divided Arterial
STC-5	Pinecone Rd S in Saint Cloud	Stearns County Rd 134 to Stearns CSAH 120	Four-Lane Divided Arterial
STC-6	322nd St in Saint Cloud	Stearns CSAH 133 to Stearns CSAH 4	Three-Lane Undivided Collector
STC-7	CSAH 74 (West Saint Germain St) in Saint Cloud	Stearns County Rd 137 (7th St S/22nd St S) to 33rd St S	Three-Lane Undivided Arterial
STJ-1	Westwood Parkway in Saint Joseph	21st Ave NE to 0.68 miles East	Four-Lane Divided Arterial
SAR-1	MSAS 117 (Leander Ave) in Sartell	Stearns CSAH 120 to MSAS 118 (Heritage Drive)	Three-Lane Undivided Collector
SAR-2	Roberts Rd in Sartell	MSAS 103 (Pinecone Rd S) to Stearns CSAH 4 (322nd St)	Three-Lane Undivided Collector
SAR-3	19th Ave N in Sartell	11th St N to 27th St N	Two-Lane Undivided Local
SAR-4	Scout Drive in Sartell	Scout Drive to Connecticut Ave S	Two-Lane Undivided Local
SAR-5	Then Ave in Sartell	Proposed Scout Drive alignment to CSAH 120	Two-Lane Undivided Local
SAR-6	15th St N in Sartell	MSAS 103 (Pinecone Rd N) to 19th Ave N	Four-Lane Undivided Collector
WAT-1	MSAS 103 (10th Ave N) in Waite Park	Stearns CSAH 81 (3rd St N) to CSAH 75 (Division St)	Four-Lane Divided Arterial

Below is a map of future reconstruction projects in the St. Cloud area. A table describing these projects can be found on the following page.



Below is a table of planned roadway reconstruction projects.

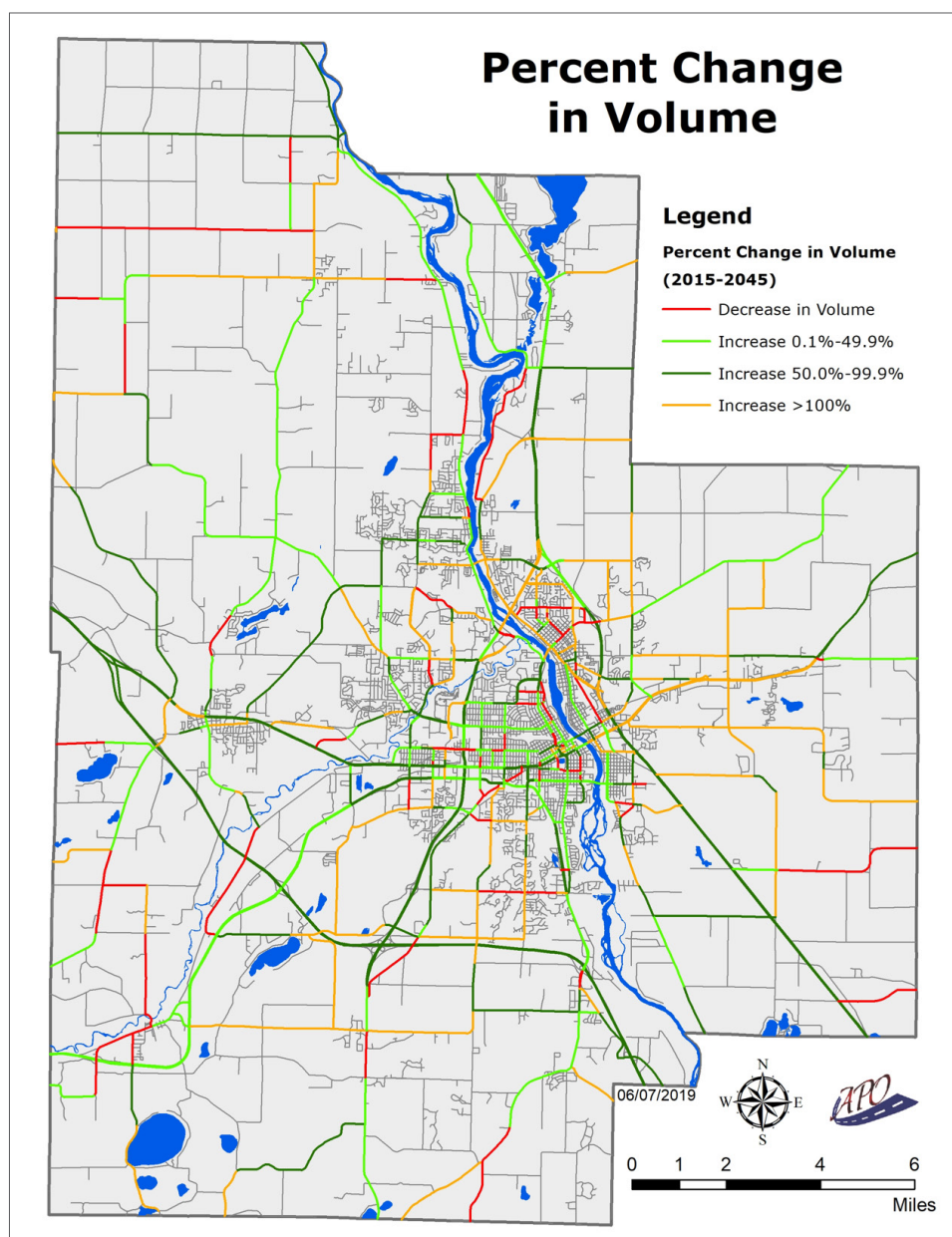
Roadway Reconstruction Projects

Project ID	Project Location	Beginning and Ending Termini	Post-Construction Facility Type
STR-7	CSAH 2 (Central Ave N) in Brockway Township	421st St to CSAH 1	Two-Lane Arterial Reconstruction
STR-8	CSAH 1 (Riverside Ave N) in Sartell	Sartell St W to MSAS 104 (12th St N)	Two-Lane Arterial Reconstruction
STR-9	CSAH 1 in Brockway Township	CSAH 17 to North Stearns County Line	Two-Lane Arterial Reconstruction
STR-10	CSAH 75 in Waite Park	Bridge Number 6819 over the Sauk River	Principal Arterial Bridge Replacement
STR-11	CSAH 138 in Waite Park and Saint Joseph Township	MN 23 to County Rd 121	Minor Collector Reconstruction
STR-12	CSAH 136 (Oak Grove Rd SW) in Saint Cloud and Saint Augusta	County Rd 115 to 33rd St S	Major Collector Reconstruction
STC-8	MSAS 175 (County Rd 136/Oak Grove Rd SW) in Saint Cloud	MSAS 175 (County Rd 136/Oak Grove Rd SW) in Saint Cloud	Two-Lane Collector Reconstruction
STC-9	MSAS 141 (Cooper Ave S) in Saint Cloud	MSAS 146 (Traverse Rd) to CSAH 75 (Roosevelt Rd)	Two-Lane Collector Reconstruction
STC-10	MSAS 153 (22nd St S) in Saint Cloud	MSAS 175 (Oak Grove Rd SW) to MSAS 141 (Cooper Ave S)	Two-Lane Minor Arterial Reconstruction
STC-11	MSAS 102 (Waite Ave S) in Saint Cloud	First St N to 125' South of Wellington Circle	Four-Lane Arterial/Two-Lane Local Reconstruction
STC-12	MSAS 145 (9th Ave S) in Saint Cloud	Fourth St S to MSAS 101 (University Drive)	Four-Lane Arterial Reconstruction
STC-13	MSAS 106 (Wilson Ave NE) in Saint Cloud	MN 23 to 1st St NE	Two-Lane Collector Reconstruction
STC-14	MSAS 125 (13th St N) in Saint Cloud	MSAS 135 (Northway Drive) to MSAS 145 (9th Ave N)	Two-Lane Collector Reconstruction
SAR-7	19th Ave S in Sartell	Stearns CSAH 4 to Stearns CSAH 133 (6th St S)	Two-Lane Collector Reconstruction
SAR-8	4th Ave S in Sartell	Stearns CSAH 133 (2nd St S) to 4th St S	Two-Lane Collector Reconstruction
SAR-9	35th St N in Sartell	75th Ave (Townline Rd) to 12th Ave N	Two-Lane Collector Reconstruction
SAR-10	75th Ave (Townline Rd) in Sartell	Stearns CSAH 4 to 1st St N	Two-Lane Collector Reconstruction
SAR-11	MSAS 131 (LeSauk Drive) in Sartell	Stearns CSAH 1 (Riverside Ave S) to Dehler Drive	Two-Lane Local Reconstruction
SAK-1	MSAS 109 (Benton Drive S) in Sauk Rapids	MSAS 103 (Summit Ave S) to US 10	Four-Lane Arterial Reconstruction
SAK-2	MSAS 104 (2nd Ave S) in Sauk Rapids	MSAS 109 (Benton Drive S) to 10th St S	Two-Lane Collector Reconstruction
SAK-3	MSAS 104 (2nd Ave S) in Sauk Rapids	10th St S to Searle St	Two-Lane Collector Reconstruction
SAK-4	MSAS 101 (11th St N) in Sauk Rapids	MSAS 104 (2nd Ave N) to MSAS 101 (6th Ave N)	Two-Lane Collector Reconstruction
SAK-5	MSAS 104 (2nd Ave N) in Sauk Rapids	Third St N to MSAS 108 (8th St N)	Two-Lane Local Reconstruction
SAK-6	MSAS 111 (4th Ave N) in Sauk Rapids	MSAS 108 (8th St N) to 13th St N	Four-Lane Arterial Reconstruction
WAT-2	MSAS 101 (Waite Ave) in Waite Park	Stearns CSAH 81 (3rd St N) to MN 23 (2nd St S)	Four-Lane Arterial Reconstruction
WAT-3	MSAS 103 (10th Ave S) in Waite Park	Stearns CSAH 75 (Division St) to MN 23 (2nd St S)	Two-Lane Collector Reconstruction
SBC-1	CR 63 (17th St SE) in Haven Township	Tee-To-Green St to CSAH 20 (75th Ave SE)	Two-Lane Collector Reconstruction
SBC-2	CSAH 20 (75th Ave SE) in Haven Township	7th St SE to CSAH 16 (57th St SE)	Two-Lane Collector Reconstruction
SBC-3	CR 65 (42nd St SE) in Haven Township	CAH 8 to US 10	Two-Lane Local Reconstruction
MND-1	I-94 in Saint Joseph Township	I-94 at MN 23	Interchange Reconstruction
MND-2	US 10 in Watab Township	Bridge Number 3666	Bridge Replacement
MND-3	MN 23 in Saint Cloud	MN 23 (from Lincoln Ave to Benton CSAH 1) to US 10 (from East Saint Germain St to 15th Ave SE)	Interchange Reconstruction
MND-4	I-94 in Saint Joseph Township	Bridge Numbers 73875 and 73876	Bridge Replacement

Predicted Impact of Projects

The map below shows planned capacity improvement projects as well as the percent change in volume of trips using the roadways.

The projects identified in the MTP will make a difference, increasing the lane-miles that are under capacity and decreasing the lane-miles over capacity. It is still worth noting that after expending almost \$300 million on transportation projects, the number of lane-miles over capacity is expected to grow, as compared to 2015 (55), by over 500% (2045-279).



10%

of lane miles are
**approaching or over
capacity** in 2015.

If no projects are added,

36%



of lane miles will be
**approaching or over
capacity** in 2045.

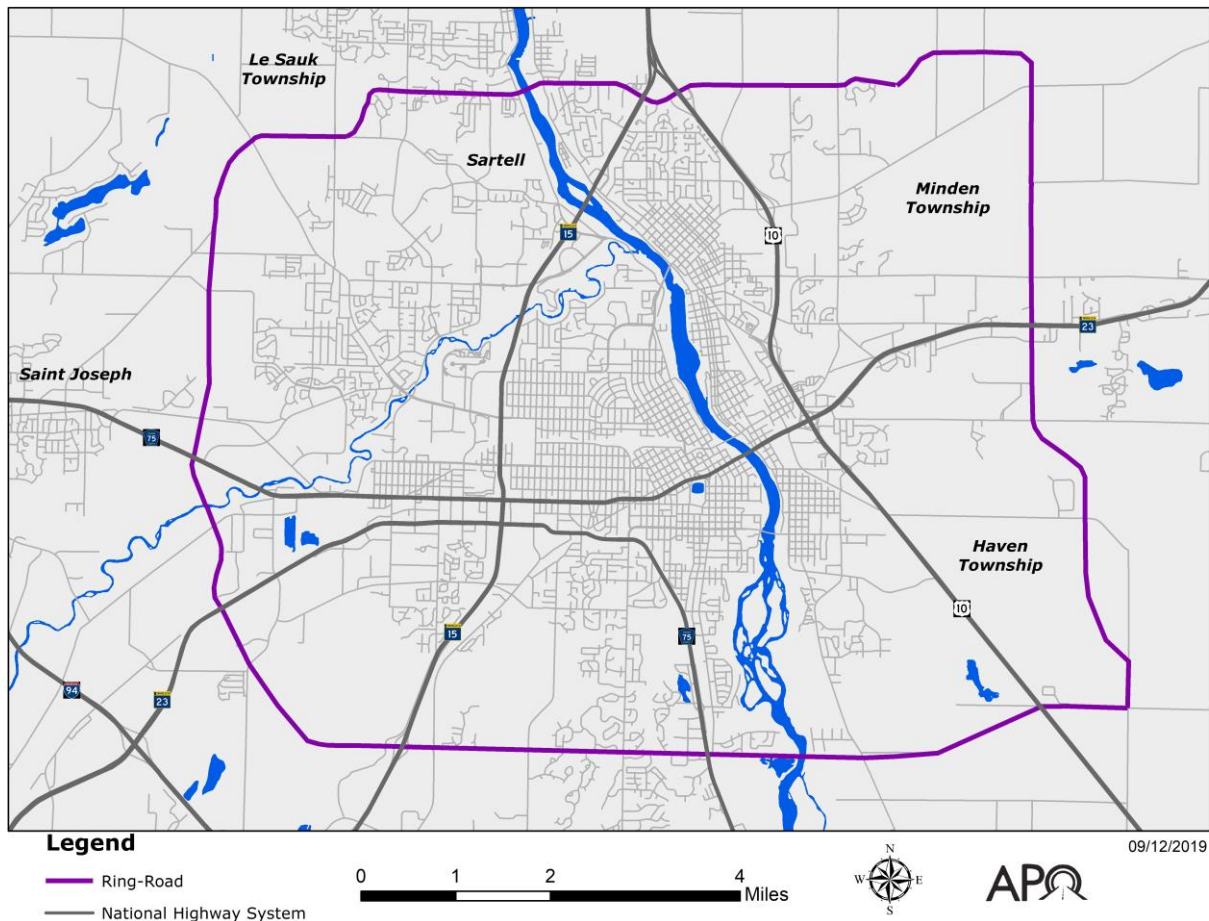
Planned MTP projects **reduce**
the future number of lane
miles that are over capacity by

13%



Urban Beltline Corridor

The idea of constructing an urban beltline corridor has been around for some time. And the APO's traffic model does show that it would help to further reduce the number of lane-miles over capacity in 2045. A few segments of the beltline are included in this plan, but most segments are far too expensive to meet fiscal constraint requirements. The urban beltline remains an overall goal, but it will most likely be constructed a few segments at a time, as finances allow.



The Beltline Corridor
adds an additional

77 miles

of roadway.

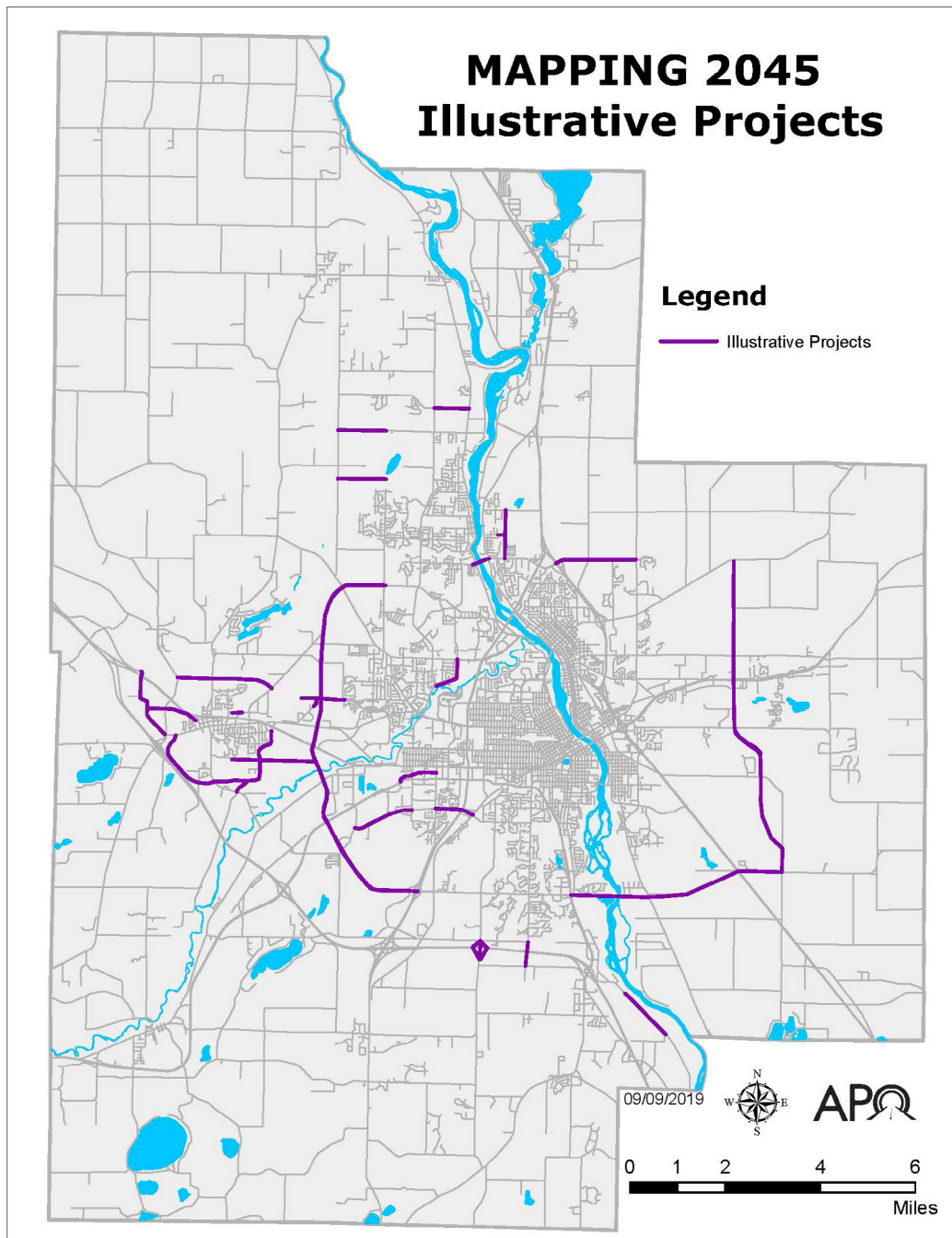


With the addition of the
beltline in 2045, the number
of lane miles approaching or
at capacity **reduces** another

33% ↓

Other Unconstrained Projects

In addition to the beltline corridor, there were a few other illustrative projects identified as priorities for the jurisdictions, which did not fit within the required fiscal constraint. These projects are included in the MTP to document their consideration/discussion for future reference. If, for any reason, additional transportation funding were identified in the future, these would be the next projects “in line” to receive funding.



**Planning for the future, includes
preparing as best as possible for
innovation in transportation.**



HIGHLIGHTS OF CHAPTER 10: The Future



Autonomous Vehicles



There are many exciting possibilities and technologies on the transportation horizon.

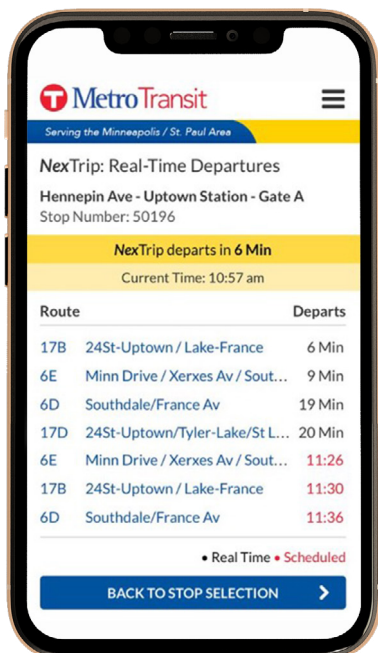
Self-driving automobiles are being developed by the world's largest car innovators. If and when they are widely available, they are expected to have a huge impact on transportation safety and the general mobility of the population.



Technology



Metro Bus is looking at technology that can provide real-time vehicle information to passengers so that they know exactly when the next bus will arrive.



Micromobility



In addition, there are interesting options emerging in the field of "micromobility" and electric mobility, such as scooters, electric bicycles, bike-share programs, and shared streets.



The APO will keep a careful eye on all of these potential developments and adjust planning assumptions as needed.



MAPPING 2045

SUMMARY



The preparation of this document was funded in part by the United States Department of Transportation with funding administered through the Minnesota Department of Transportation, the Federal Highway Administration, and the Federal Transit Administration. Additional funding was provided locally by the member jurisdictions of the Saint Cloud Area Planning Organization: Benton County, Sherburne County, Stearns County, City of Sartell, City of Sauk Rapids, City of Saint Cloud, City of Saint Joseph, City of Waite Park, and LeSauk Township. The United States Government and the State of Minnesota assume no liability for the contents or use thereof.

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