



Application

13863 - 2020 Roadway System Management

14027 - Carver County Traffic Signal Technologies and ITS Corridor Enhancements

Regional Solicitation - Roadways Including Multimodal Elements

Status: Submitted

Submitted Date: 05/13/2020 1:51 PM

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## Primary Contact

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*	Cologne	Minnesota	55322
	<small>City</small>	<small>State/Province</small>	<small>Postal Code/Zip</small>

<b>Phone:</b> *	952-466-5208
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<b>What Grant Programs are you most interested in?</b>	Regional Solicitation - Roadways Including Multimodal Elements
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## Organization Information

<b>Name:</b>	CARVER COUNTY
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Jurisdictional Agency (if different):

Organization Type:

County Government

Organization Website:

Address:

PUBLIC WORKS

11360 HWY 212 W #1

\*

COLOGNE

Minnesota

55322-9133

City

State/Province

Postal Code/Zip

County:

Carver

Phone:\*

Ext.

Fax:

PeopleSoft Vendor Number

0000026790A12

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## Project Information

Project Name

Carver County Traffic Signal Technologies and ITS Corridor Enhancements

Primary County where the Project is Located

Carver

Cities or Townships where the Project is Located:

Chanhassen, Chaska, Waconia, Carver, Laketown Township

Jurisdictional Agency (If Different than the Applicant):

Brief Project Description (Include location, road name/functional class, type of improvement, etc.)

The proposed project will add new and upgrade existing obsolete traffic management and intelligent transportation systems (ITS) throughout Carver County, with a focus on CSAH 18-Lyman Boulevard (Chanhassen/Carver), CSAH 14-Pioneer Trail (Chanhassen/Carver), CSAH 59-Main Street (Waconia), and other intersections. The project will include: a new Advanced Traffic Management System (ATMS); central signal system software with expanded remote access and operations; upgraded traffic signal controllers and cabinets including conflict monitors; updated timing and coordination plans; video detection systems; ITS devices including CCTV cameras; and communications upgrades including connections to the existing trunk fiber optic cable at all traffic signal locations.



(Limit 2,800 characters; approximately 400 words)

#### TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

**DESCRIPTION** - will be used in TIP if the project is selected for funding. See MnDOT's TIP description guidance.

Traffic signal and communication upgrades

**Project Length (Miles)**

7.0

*to the nearest one-tenth of a mile*

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## Project Funding

**Are you applying for competitive funds from another source(s) to implement this project?**

No

**If yes, please identify the source(s)**

**Federal Amount**

\$1,580,000.00

**Match Amount**

\$395,000.00

*Minimum of 20% of project total*

**Project Total**

\$1,975,000.00

*For transit projects, the total cost for the application is total cost minus fare revenues.*

**Match Percentage**

20.0%

*Minimum of 20%*

*Compute the match percentage by dividing the match amount by the project total*

**Source of Match Funds**

County State Aid and/or Local Funds

*A minimum of 20% of the total project cost must come from non-federal sources; additional match funds over the 20% minimum can come from other federal sources*

## Preferred Program Year

**Select one:**

2025

*Select 2022 or 2023 for TDM projects only. For all other applications, select 2024 or 2025.*

**Additional Program Years:**

*Select all years that are feasible if funding in an earlier year becomes available.*

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## Project Information: Roadway Projects

**County, City, or Lead Agency**

Carver County

**Functional Class of Road**

A-Minor Arterial

**Road System**

CSAH

*TH, CSAH, MSAS, CO. RD., TWP. RD., CITY STREET*

**Road/Route No.**

*i.e., 53 for CSAH 53*

**Name of Road**

Various locations throughout Carver County (more than can be fit within character limit). See attached list of intersections that may be included.

Example: 1st ST., MAIN AVE

Zip Code where Majority of Work is Being Performed	55317
(Approximate) Begin Construction Date	03/15/2025
(Approximate) End Construction Date	11/15/2025

**TERMINI:(Termini listed must be within 0.3 miles of any work)**

**From:**  
(Intersection or Address)

**To:**  
(Intersection or Address)

DO NOT INCLUDE LEGAL DESCRIPTION

Or At	Various locations - countywide
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Miles of Sidewalk (nearest 0.1 miles)	0
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Miles of Trail (nearest 0.1 miles)	0
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Miles of Trail on the Regional Bicycle Transportation Network (nearest 0.1 miles)	0
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Primary Types of Work	ITS and Traffic Signal Systems improvements including hardware and software, ATMS, communication, and signal timing and coordination
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Examples: GRADE, AGG BASE, BIT BASE, BIT SURF, SIDEWALK, CURB AND GUTTER, STORM SEWER, SIGNALS, LIGHTING, GUARDRAIL, BIKE PATH, PED RAMPS, BRIDGE, PARK AND RIDE, ETC.

#### BRIDGE/CULVERT PROJECTS (IF APPLICABLE)

Old Bridge/Culvert No.:

New Bridge/Culvert No.:

Structure is Over/Under  
(Bridge or culvert name):

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## Requirements - All Projects

### All Projects

1. The project must be consistent with the goals and policies in these adopted regional plans: Thrive MSP 2040 (2014), the 2040 Transportation Policy Plan (2018), the 2040 Regional Parks Policy Plan (2018), and the 2040 Water Resources Policy Plan (2015).

Check the box to indicate that the project meets this requirement. Yes

2. The project must be consistent with the 2040 Transportation Policy Plan. Reference the 2040 Transportation Plan goals, objectives, and strategies that relate to the project.

a. Goal: Transportation System Stewardship; Objectives: A. Efficiently preserve and maintain the regional transportation system and a state of good repair, B. Operate...to efficiently and cost-effectively connect people and freight to destinations; Strategies: A1. Prioritize resources to operating, maintaining, and rebuilding what already exists, A2. Identify cost-effective opportunity to incorporate improvements. (Pages 2.2-2.4)

b. Goal: Safety and Security; Objectives: A. Reduce fatal and serious injury crashes and improve safety and security, B. Reduce transportation system's vulnerability to natural and human-caused incidents; Strategies: B1. Focus on safety in all areas of transportation investments, B2. Protect and strengthen the role of the transportation system in providing effective emergency response. (Pages 2.5-2.6)

Briefly list the goals, objectives, strategies, and associated pages:

c. Goal: Access to Destinations; Objectives: B. Increase reliability and predictability for travel; Strategies: C7: Manage and optimize the performance of the principal arterial system as measured by person throughput, C9: Support investments in A-minor arterials that build, manage, or improve the system, C10: Manage access to Principal and A-minor arterials to preserve and enhance their safety and capacity. (Pages 2.10-2.20)

d. Goal: Competitive Economy, Objectives: A. Improve multimodal access to regional job concentrations, C. Support the region's economic competitiveness through the efficient movement of freight; Strategies: D1: Identify and pursue funding needed to create a system that is safe, well maintained...manages and eases congestion,

provides reliable access to jobs and opportunities..., D4: Invest in a transportation system that provides travel conditions that compete well with peer metropolitan regions, D5: Identify the impacts of highway congestion on freight and identify cost-effective mitigation. (Pages 2.26-2.28)

*Limit 2,800 characters, approximately 400 words*

*3. The project or the transportation problem/need that the project addresses must be in a local planning or programming document. Reference the name of the appropriate comprehensive plan, regional/statewide plan, capital improvement program, corridor study document [studies on trunk highway must be approved by the Minnesota Department of Transportation and the Metropolitan Council], or other official plan or program of the applicant agency [includes Safe Routes to School Plans] that the project is included in and/or a transportation problem/need that the project addresses.*

a. 2040 Carver County Highway System Plan:  
County Goals: Develop, manage and maintain a roadway network that supports and promotes modern infrastructure conditions and standards; Develop a roadway network that promotes traffic safety and healthy livable communities; Strive to ensure that the roadway network promotes the efficient movement of people and goods and regional mobility. County Strategies: Maintain infrastructure in a state of good repair; Reduce roadway and intersection crashes and fatalities in the County; Make judicious roadway and intersection capacity improvements to meet current traffic needs. (Pages 4.3, 4.4)

**List the applicable documents and pages:**

b. County Roadway Safety Plan (Carver County):  
Potential Strategies: Improve availability of gaps in traffic; Choose appropriate intersection traffic control to minimize crash frequency and severity; Reduce frequency and severity of intersection conflicts through traffic control and operational improvements; Improve driver awareness of intersections and signal control. (Pages 3-3, 3-4)

c. County Roadway Safety Plan (Carver County):  
Several intersections recommended for signal re-timing, additional signals, flashing yellow arrows (Pages 2-26, 4-22), and pedestrian and bicycle. (Pages 4-7, 4-8)

*Limit 2,800 characters, approximately 400 words*

*4. The project must exclude costs for studies, preliminary engineering, design, or construction engineering. Right-of-way costs are only eligible as part of transit stations/stops, transit terminals, park-and-ride facilities, or pool-and-ride lots. Noise barriers, drainage projects, fences, landscaping, etc., are not eligible for funding as a standalone project, but can be included as part of the larger submitted project, which is otherwise eligible.*

**Check the box to indicate that the project meets this requirement.** Yes

*5. Applicants that are not State Aid cities or counties in the seven-county metro area with populations over 5,000 must contact the MnDOT Metro State Aid Office prior to submitting their application to determine if a public agency sponsor is required.*

**Check the box to indicate that the project meets this requirement.** Yes

*6. Applicants must not submit an application for the same project elements in more than one funding application category.*

**Check the box to indicate that the project meets this requirement.** Yes

*7. The requested funding amount must be more than or equal to the minimum award and less than or equal to the maximum award. The cost of preparing a project for funding authorization can be substantial. For that reason, minimum federal amounts apply. Other federal funds may be combined with the requested funds for projects exceeding the maximum award, but the source(s) must be identified in the application. Funding amounts by application category are listed below.*

**Strategic Capacity (Roadway Expansion):** \$1,000,000 to \$10,000,000

**Roadway Reconstruction/Modernization:** \$1,000,000 to \$7,000,000

**Traffic Management Technologies (Roadway System Management):** \$250,000 to \$3,500,000

**Spot Mobility and Safety:** \$1,000,000 to \$3,500,000

**Bridges Rehabilitation/Replacement:** \$1,000,000 to \$7,000,000

**Check the box to indicate that the project meets this requirement.** Yes

*8. The project must comply with the Americans with Disabilities Act (ADA).*

**Check the box to indicate that the project meets this requirement.** Yes

*9. In order for a selected project to be included in the Transportation Improvement Program (TIP) and approved by USDOT, the public agency sponsor must either have a current Americans with Disabilities Act (ADA) self-evaluation or transition plan that covers the public right of way/transportation, as required under Title II of the ADA. The plan must be completed by the local agency before the Regional Solicitation application deadline. For the 2022 Regional Solicitation funding cycle, this requirement may include that the plan is updated within the past five years.*

**The applicant is a public agency that employs 50 or more people and has a completed ADA transition plan that covers the public right of way/transportation.** Yes

**Date plan completed:** 02/18/2014

**Link to plan:** <https://www.co.carver.mn.us/home/showdocument?id=1164>

**The applicant is a public agency that employs fewer than 50 people and has a completed ADA self-evaluation that covers the public right of way/transportation.**

**Date self-evaluation completed:**

**Link to plan:**

**Upload plan or self-evaluation if there is no link**

*Upload as PDF*

*10. The project must be accessible and open to the general public.*

**Check the box to indicate that the project meets this requirement.** Yes

*11. The owner/operator of the facility must operate and maintain the project year-round for the useful life of the improvement, per FHWA direction established 8/27/2008 and updated 6/27/2017.*

**Check the box to indicate that the project meets this requirement.** Yes

*12. The project must represent a permanent improvement with independent utility. The term independent utility means the project provides benefits described in the application by itself and does not depend on any construction elements of the project being funded from other sources outside the regional solicitation, excluding the required non-federal match. Projects that include traffic management or transit operating funds as part of a construction project are exempt from this policy.*

**Check the box to indicate that the project meets this requirement.** Yes

*13. The project must not be a temporary construction project. A temporary construction project is defined as work that must be replaced within five years and is ineligible for funding. The project must also not be staged construction where the project will be replaced as part of future stages. Staged construction is eligible for funding as long as future stages build on, rather than replace, previous work.*

Check the box to indicate that the project meets this requirement. Yes

14. The project applicant must send written notification regarding the proposed project to all affected state and local units of government prior to submitting the application.

Check the box to indicate that the project meets this requirement. Yes

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## Roadways Including Multimodal Elements

1. All roadway and bridge projects must be identified as a principal arterial (non-freeway facilities only) or A-minor arterial as shown on the latest TAB approved roadway functional classification map.

Check the box to indicate that the project meets this requirement. Yes

### Roadway Expansion and Reconstruction/Modernization and Spot Mobility projects only:

2. The project must be designed to meet 10-ton load limit standards.

Check the box to indicate that the project meets this requirement.

### Bridge Rehabilitation/Replacement and Strategic Capacity projects only:

3. Projects requiring a grade-separated crossing of a principal arterial freeway must be limited to the federal share of those project costs identified as local (non-MnDOT) cost responsibility using MnDOT's Cost Participation for Cooperative Construction Projects and Maintenance Responsibilities manual. In the case of a federally funded trunk highway project, the policy guidelines should be read as if the funded trunk highway route is under local jurisdiction.

Check the box to indicate that the project meets this requirement.

4. The bridge must carry vehicular traffic. Bridges can carry traffic from multiple modes. However, bridges that are exclusively for bicycle or pedestrian traffic must apply under one of the Bicycle and Pedestrian Facilities application categories. Rail-only bridges are ineligible for funding.

Check the box to indicate that the project meets this requirement.

### Bridge Rehabilitation/Replacement projects only:

5. The length of the bridge must equal or exceed 20 feet.

Check the box to indicate that the project meets this requirement.

6. The bridge must have a National Bridge Inventory Rating of 6 or less for rehabilitation projects and 4 or less for replacement projects.

Check the box to indicate that the project meets this requirement.

### Roadway Expansion, Reconstruction/Modernization, and Bridge Rehabilitation/Replacement projects only:

7. All roadway projects that involve the construction of a new/expanded interchange or new interchange ramps must have approval by the Metropolitan Council/MnDOT Interchange Planning Review Committee prior to application submittal. Please contact Michael Corbett at MnDOT (Michael.J.Corbett@state.mn.us or 651-234-7793) to determine whether your project needs to go through this process as described in Appendix F of the 2040 Transportation Policy Plan.

Check the box to indicate that the project meets this requirement.

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## Requirements - Roadways Including Multimodal Elements

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### Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST  
ESTIMATES

Cost

Mobilization (approx. 5% of total cost)	\$100,000.00
Removals (approx. 5% of total cost)	\$100,000.00
Roadway (grading, borrow, etc.)	\$0.00
Roadway (aggregates and paving)	\$0.00
Subgrade Correction (muck)	\$0.00
Storm Sewer	\$0.00
Ponds	\$0.00
Concrete Items (curb & gutter, sidewalks, median barriers)	\$0.00
Traffic Control	\$30,000.00
Striping	\$10,000.00
Signing	\$10,000.00
Lighting	\$0.00
Turf - Erosion & Landscaping	\$0.00
Bridge	\$0.00
Retaining Walls	\$0.00
Noise Wall (not calculated in cost effectiveness measure)	\$0.00
Traffic Signals	\$1,475,000.00
Wetland Mitigation	\$0.00
Other Natural and Cultural Resource Protection	\$0.00
RR Crossing	\$0.00
Roadway Contingencies	\$100,000.00
Other Roadway Elements	\$25,000.00
<b>Totals</b>	<b>\$1,850,000.00</b>

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## Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Path/Trail Construction	\$0.00
Sidewalk Construction	\$0.00
On-Street Bicycle Facility Construction	\$0.00
Right-of-Way	\$0.00
Pedestrian Curb Ramps (ADA)	\$25,000.00
Crossing Aids (e.g., Audible Pedestrian Signals, HAWK)	\$75,000.00
Pedestrian-scale Lighting	\$0.00
Streetscaping	\$0.00



Wayfinding	\$0.00
Bicycle and Pedestrian Contingencies	\$25,000.00
Other Bicycle and Pedestrian Elements	\$0.00
<b>Totals</b>	<b>\$125,000.00</b>

### Specific Transit and TDM Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Fixed Guideway Elements	\$0.00
Stations, Stops, and Terminals	\$0.00
Support Facilities	\$0.00
Transit Systems (e.g. communications, signals, controls, fare collection, etc.)	\$0.00
Vehicles	\$0.00
Contingencies	\$0.00
Right-of-Way	\$0.00
Other Transit and TDM Elements	\$0.00
<b>Totals</b>	<b>\$0.00</b>

### Transit Operating Costs

Number of Platform hours	0
Cost Per Platform hour (full loaded Cost)	\$0.00
Subtotal	\$0.00
Other Costs - Administration, Overhead,etc.	\$0.00

### Totals

Total Cost	\$1,975,000.00
Construction Cost Total	\$1,975,000.00
Transit Operating Cost Total	\$0.00

### Measure A: Functional Classification of Project

The majority of the project funds will be invested on the principal arterial system:

(50 points)

The majority of the project funds will be invested on the A-minor arterial system: Yes

(25 points)

The majority of the project funds will be invested on the collector or local system with some investment either on the principal arterial or A-minor arterial system:

(0 points)

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## Measure 1B: Regional Truck Corridor Tiers

RESPONSE (Select one for your project, based on the Regional Truck Corridor Study):

The majority of the project funds will be invested on either a Tier 1, Tier 2, or Tier 3 corridor:

(50 Points)

Miles (to the nearest 0.1 miles): 0

If box above is checked, fill in length.

A majority of the project funds will NOT be invested on a Tier 1, Tier 2, or Tier 3 corridor, but at least 10 percent of the funds will be invested on these corridors: Yes

(25 Points)

Miles (to the nearest 0.1 miles): 2.4

If box above is checked, fill in length.

No project funds will be invested on a Tier 1, Tier 2, or Tier 3 corridor:

(0 Points)

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## Measure C: Integration within existing traffic management systems

Carver County has already invested in a county-wide trunk fiber optic backbone with fiber optic splice vaults at all existing traffic signals although the connection between the fiber optic backbone, new central traffic management center, IT/ethernet systems, and signal cabinets has not been made. This project would allow for a cost-effective connection of all County-owned traffic signals to the fiber backbone. This project will complete the fiber optic traffic signal interconnect for all traffic signal systems in the County. Several of the existing signal systems are currently interconnected with copper and the obsolete legacy master controllers and copper interconnect would be upgraded to new controllers and fiber, greatly expanding communication and performance capabilities.

**Response:**

The project will also improve existing, obsolete traffic signal communication equipment infrastructure by upgrading equipment including replacing existing signal cabinets, converting from loop detection to video detection, adding communications and ethernet switches, upgrading Emergency Vehicle Preemption, Accessible Pedestrian Signal upgrades, and installing Pan Tilt Zoom (PTZ) cameras. The new central traffic management center, traffic signal software, communications, and obsolete equipment upgrades will allow Carver County to access and manage remotely, retime, and coordinate corridors through the County's Advanced Traffic Management System (ATMS), which is also part of this project. At several locations, left-turn phasing will be modified to flashing yellow arrow phasing further improving operations.

*(Limit 2,800 characters; approximately 400 words)*

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## **Measure D: Coordination with other agencies**

The project will establish a more responsive, efficient, future-minded, and smart traffic control system at County-owned intersections and locations in Carver County by enhancing coordination and inter-operability among local, County, MnDOT, and transit operations and management systems. The project will allow Carver County signals to communicate and integrate with each other and with MnDOT-operated traffic signals throughout the County; this kind of operational coordination is physically not possible for Carver County traffic signals under existing conditions.

**Response:**

Carver County is also working with the Carver County Sheriff's Department and local police departments to share resources and increase the number of video cameras that provide video that is shared throughout the County. The cameras installed as part of this project would be a part of that effort.

This project would allow the County to create an Advanced Traffic Management System (ATMS), providing greater monitoring and control capabilities, improving response times to signal malfunctions, providing better data, and improving the County's ability to control traffic operations in coordination with MnDOT and Hennepin County.

The installation of modern traffic signal cabinets and controllers prepares the County for future requests for transit signal priority from transit agencies, including on-demand services provided by SmartLink Transit and SouthWest Transit.

*(Limit 2,800 characters; approximately 400 words)*

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## **Measure A: Current Daily Person Throughput**

Location	Lyman Blvd east of Audubon Rd east leg
Current AADT Volume	20000.0
Existing transit routes at the location noted above	600, 690, 698
<i>Select all transit routes that apply.</i>	
Upload "Transit Connections" map	1588693291568_APPENDIX-D_Transit_Connections_Lyman-Main-Pioneer.pdf
<i>Please upload attachment in PDF form.</i>	

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## Response - Daily Person Throughput

Average Annual Daily Transit Ridership	0
Current Daily Person Throughput	26000.0

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## Measure B: 2040 Forecast ADT

Use Metropolitan Council model to determine forecast (2040) ADT volume Yes

If checked, METC Staff will provide Forecast (2040) ADT volume

OR

Identify the approved county or city travel demand model to determine forecast (2040) ADT volume

Forecast (2040) ADT volume

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## Measure A: Connection to disadvantaged populations and projects benefits, impacts, and mitigation

*1. **Sub-measure:** Equity Population Engagement: A successful project is one that is the result of active engagement of low-income populations, people of color, persons with disabilities, youth and the elderly. Engagement should occur prior to and during a projects development, with the intent to provide direct benefits to, or solve, an expressed transportation issue, while also limiting and mitigating any negative impacts. Describe and map the location of any low-income populations, people of color, disabled populations, youth or the elderly within a ½ mile of the proposed project. Describe how these specific populations were engaged and provided outreach to, whether through community planning efforts, project needs identification, or during the project development process. Describe what engagement methods and tools were used and how the input is reflected in the projects purpose and need and design. Elements of quality engagement include: outreach and engagement to specific communities and populations that are likely to be directly impacted by the project; techniques to reach out to populations traditionally not involved in community engagement related to transportation projects; feedback from these populations identifying potential positive and negative elements of the proposed project through engagement, study recommendations, or plans that provide feedback from populations that may be impacted by the proposed project. If relevant, describe how NEPA or Title VI regulations will guide engagement activities.*

Elders, youth, people with disabilities, of color, and with low incomes live and work in Carver County. Attachment "Map B\_Carver\_County\_Issues.pdf" shows the largest populations for each people group. The map also shows that the majority of signal improvements will be within census tracts with populations of people of color, and nearly all improvements are located within ½ mile of a census tract home to at least one additional traditionally underrepresented people group.

Through engagement, the County identified that populations of traditionally underrepresented groups work in the project area.

**Response:**

Project engagement includes website and online questionnaire shared with and promoted by educational and social service agencies, as well as in-person meetings. The questionnaire was sent to 2,500+ contacts on 12 project email lists listed in Question 8.5. Public Works staff also provided information presented at the April 2020 Carver County Community Development Authority meeting.

The project scope, specific elements, and construction approach were identified based on community values prioritized by traditionally underrepresented residents and employees as well as the general public. The public also provided input on which intersections to improve. Values ranked in order of priority are: Pedestrian or bicycle access; Vehicle access; Travel time; and Safety.

*(Limit 2,800 characters; approximately 400 words)*

**2.Sub-measure:** *Equity Population Benefits and Impacts:* A successful project is one that has been designed to provide direct benefits to low-income populations, people of color, persons with disabilities, youth and the elderly. All projects must mitigate potential negative benefits as required under federal law. Projects that are designed to provide benefits go beyond the mitigation requirement to proactively provide transportation benefits and solve transportation issues experienced by Equity populations.

a.*Describe the projects benefits to low-income populations, people of color, children, people with disabilities, and the elderly. Benefits could relate to pedestrian and bicycle safety improvements; public health benefits; direct access improvements for residents or improved access to destinations such as jobs, school, health care or other; travel time improvements; gap closures; new transportation services or modal options, leveraging of other beneficial projects and investments; and/or community connection and cohesion improvements. Note that this is not an exhaustive list.*

The project will provide benefits along major Carver County commuter and local access routes. These corridors include major commuter and local access routes for traditionally underrepresented people traveling into and out of the County. The project will reduce traffic-related crashes, minimize travel time, and improve traffic flow and air quality, which currently disproportionately and negatively affect low-income populations in the Greater MSP region.

The project will also improve bicycle and pedestrian access and safety for people of all ages and abilities. The project will include accessible pedestrian signals improving bicycle and pedestrian access and safety to elementary and high schools (Jonathan at Pioneer Trail/Village Road intersection, Chanhassen High School on Lyman at Audubon, Bluff Creek on Galpin between Lyman Blvd and TH 5) and the regional manufacturing and distribution centers shown in Appendix B. Pioneer Trail separates Jonathan Elementary (north side) from the affordable housing south of Pioneer Trail (see response to question 3.B.Part 2). Residents living at affordable housing complexes are more likely to rely on biking and walking for critical mobility needs and improvements in bicycle and pedestrian safety will benefit these populations.

Emissions, traffic congestion affecting fixed route and on-demand transit service, and infrastructure reinvestment priorities affecting safe travel have historically disproportionately negatively affected residents in the project areas within the County. These proposed improvements reduce transit travel delays, which disproportionately affect people who rely on transit in and around Carver County. Providing better traffic flow results in more reliable arrival times and transit connections, enhancing the strength of the regional transit system. Reducing

Response:



congestion also reduces the risk of transit and general traffic crashes resulting from stop-and-go traffic.

Improved inter-agency coordination also benefits residents and employees across the County. Better collaboration between traffic management staff and emergency responders means faster response times. It also means the County is better able to handle large volumes of event traffic that congest local streets and are a burden to local residents and workers.

*(Limit 2,800 characters; approximately 400 words)*

*b. Describe any negative impacts to low-income populations, people of color, children, people with disabilities, and the elderly created by the project, along with measures that will be taken to mitigate them. Negative impacts that are not adequately mitigated can result in a reduction in points.*

*Below is a list of negative impacts. Note that this is not an exhaustive list.*

*Increased difficulty in street crossing caused by increased roadway width, increased traffic speed, wider turning radii, or other elements that negatively impact pedestrian access.*

*Increased noise.*

*Decreased pedestrian access through sidewalk removal / narrowing, placement of barriers along the walking path, increase in auto-oriented curb cuts, etc.*

*Project elements that are detrimental to location-based air quality by increasing stop/start activity at intersections, creating vehicle idling areas, directing an increased number of vehicles to a particular point, etc.*

*Increased speed and/or cut-through traffic.*

*Removed or diminished safe bicycle access.*

*Inclusion of some other barrier to access to jobs and other destinations.*

*Displacement of residents and businesses.*

*Mitigation of temporary construction/implementation impacts such as dust; noise; reduced access for travelers and to businesses; disruption of utilities; and eliminated street crossings.*

*Other*

**Response:**

Anticipated negative externalities with these improvements are temporary inconveniences related to construction. While infrastructure is being reconstructed, the County and partners will ensure that fully accessible alternative routes are provided for residents and workers connecting to local and regional destinations. Any lane restrictions will be during off-peak hours. Staff will monitor traffic operations and make signal timing adjustments as needed to avoid or minimize impacts on travelers.

*(Limit 2,800 characters; approximately 400 words)*

**Select one:**

**3.Sub-measure: Bonus Points** Those projects that score at least 80% of the maximum total points available through sub-measures 1 and 2 will be awarded bonus points based on the geographic location of the project. These points will be assigned as follows, based on the highest-scoring geography the project contacts:

a.25 points to projects within an Area of Concentrated Poverty with 50% or more people of color

b.20 points to projects within an Area of Concentrated Poverty

c.15 points to projects within census tracts with the percent of population in poverty or population of color above the regional average percent

d.10 points for all other areas

**Project is located in an Area of Concentrated Poverty where 50% or more of residents are people of color (ACP50):**

**Project located in Area of Concentrated Poverty:**

**Projects census tracts are above the regional average for population in poverty or population of color:**

**Project located in a census tract that is below the regional average for population in poverty or populations of color or includes children, people with disabilities, or the elderly:** Yes

(up to 40% of maximum score )

Upload the "Socio-Economic Conditions" map used for this measure. The second map created for sub measure A1 can be uploaded on the Other Attachments Form, or can be combined with the "Socio-Economic Conditions" map into a single PDF and uploaded here.

**Upload Map**

1588693902614\_APPENDIX-C\_Socioeconomic\_Lyman-Main-Pioneer.pdf

## Measure B: Part 1: Housing Performance Score

City	Funds to be spent within each City	Score	Funds/Total Funds	Percent of total funds to be spent within City
Chanhassen	750000.0	19.0	0.38	7.215
Chaska	885000.0	95.0	0.45	42.57
Waconia	205000.0	79.0	0.1	8.2
Carver	70000.0	60.0	0.04	2.127
Laketown Township	65000.0	13.0	0.03	0.428
	<b>1975000</b>			<b>61</b>

## Housing Performance Score

**Total Project Cost** \$1,975,000.00

From the total project cost on the Project Information form.

**Total funds to be spent** \$1,975,000.00

Verify that this amount is the same as the total project cost on the Project Information form.

**Total Housing Score** 60.54

## **Part 2: Affordable Housing Access**

*Reference Access to Affordable Housing Guidance located under Regional Solicitation Resources for information on how to respond to this measure and create the map.*

*If text box is not showing, click Edit or "Add" in top right of page.*

The project will improve access to affordable housing along three corridors:

- Lyman Blvd from Galpin Blvd to MN-101
- Pioneer Trail from Village Road to MN-101
- Main Street from MN-5 to Engler Blvd

The project will reduce traffic crashes, minimize travel time, and improve traffic flow and air quality for low-income populations in the project area. The project will also improve bicycle and pedestrian access between affordable housing and key destinations, including Jefferson Elementary and the regional manufacturing and distribution centers shown in Appendix B, positively benefiting residents in affordable housing who are more likely to bike and walk for mobility needs.

#### Response

Appendix E shows affordable housing within ½ mile of each corridor.

Lyman Blvd:

- Gateway Place Apartments has 48 units, 47 are affordable. One, two, and three-bedroom units are available at 60% of the AMI. Affordability is guaranteed through the LIHTC, LHIA and LMIR programs.

Pioneer Trail:

- Barbary Knoll Apartments has 60 units, all affordable. One and two-bedroom units are available at 60% of the AMI. Affordability is guaranteed through the LIHTC program.

- Waybury Apartments has 114 units, all affordable. One and two-bedroom units are available at 30% of the AMI. Affordability is guaranteed through the LIHTC, LMIR and ARIF programs.

- Lake Grace Apartments has 91 units, five affordable. One, two and three-bedroom units are available at 30% of the AMI. Affordability is guaranteed through the Section 811 Project Rental Assistance Demonstration Program.

Main Street:

- Interlaken Place Apartments has 48 units, all affordable. Two and three-bedroom units are available at 50% of the AMI. Affordability is guaranteed through the LIHTC, LMIR, LHIA and EDHC programs.

- Spruce Apartments, located just outside the ½-mile boundary, has 31 units, all affordable. One, two three and four-bedroom units are available at 80% of the AMI. Affordability is guaranteed through the POHP program.

*(Limit 2,100 characters; approximately 300 words)*

**Upload map:**

1588694313532\_APPENDIX-  
E\_Affordable\_Housing\_Access.pdf

---

## **Measure A: Upgrades to obsolete equipment**

**RESPONSE:**

Carver County does not have a central traffic management system, communications system, or software to manage its traffic signal/ITS systems. Within the project area obsolete cabinets/controllers will be replaced with updated models that will provide better performance and functionality. The average age of the cabinets and controllers being replaced is approximately 20 years; these components have obsolete operating systems with firmware that is no longer supported with software updates. Most of the signals are not yet interconnected and the few that are utilize copper traffic signal interconnect. Carver County has installed a county-wide trunk fiber optic backbone which will enable the implementation of an Advanced Traffic Management System (ATMS) and interconnection of all County traffic signals. New technologies relying on video detection and deployment of Pan Tilt Zoom (PTZ) cameras makes upgrading to fiber very important to attain the necessary bandwidth. In addition to replacing cabinets and upgrading controllers, video detection at signalized intersections will replace existing inductive loop detection. Video detection requires less downtime when replacement is needed and provides for flexibility in adjusting detection zones to further optimize signal timing and coordination without additional infrastructure costs.

*(Limit 2,800 characters; approximately 400 words)*

---

## Measure A: Congested Roadway

*RESPONSE:*

<b>Corridor:</b>	Lyman Blvd
<b>Corridor Start and End Points:</b>	
<b>Start Point:</b>	Galpin Blvd
<b>End Point:</b>	MN-101
<b>Free-Flow Travel Speed:</b>	35

*Free-Flow Travel Speed is black number.*

**Peak Hour Travel Speed:** 24.0

*Peak Hour Travel Speed is red number.*

**Percentage Decrease in Travel Speed in Peak Hour Compared to Free-Flow (online calculation):** 31.43%

**Upload the "Level of Congestion" map used for this measure.** 1588695097878\_APPENDIX-A\_Level\_of\_Congestion\_Lyman-Main-Pioneer.pdf

---

## Measure 5B: Emissions and congestion benefits of project

Improved traffic management technologies and traffic signal timing plans will reduce congestion and related emissions (CO, NOX, and VOC) largely through the ability to coordinate and monitor traffic signals along three arterial roadways: Lyman Blvd (Chanhassen/Carver), Pioneer Trail (Chanhassen/Carver), and Main Street (Waconia). This project will allow Carver County, MnDOT, and Hennepin County to better work together and reduce congestion and emissions in the ways described below.

Establishing a Carver County Advanced Traffic Management System (ATMS) and communications and ITS connections to fiber-optic interconnect will allow the County to:

- Monitor the signals using the County's central signal system software and ATMS, automatically sending alerts when signals are in flash, are using battery backup power, or have faulted detection.
- Use the County's central signal system software and ATMS to alter traffic operations remotely, providing the ability to quickly respond to changes in traffic patterns and events, including crashes or other incidents.
- Provide coordination between traffic signals where no coordination is possible today, yielding more fuel-efficient travel speeds and directly reducing stops, accelerations, and emissions.

With the addition of the central signal system software and modern traffic signal cabinets and controllers, the County will be able to:

- Monitor traffic signal performance.

Response:



- Monitor traffic volumes.
- Reduce maintenance issues resulting from legacy traffic signal controller malfunctions.
- Prepare for future implementation of Transit Signal Priority and other enhancements.

The addition of the central signal system software and traffic cameras will allow the County to improve signal operations performance, monitor the traffic signal network in real time, and make adjustments as needed when issues arise.

Lyman Blvd (A-Minor Expander) and Pioneer Trail (A-Minor Reliever) supplement and relieve US 212 as it approaches I-494 by supporting east-west movement between Chanhassen, Chaska, Eden Prairie, and points beyond. The MnDOT Metro Freeway 2018 Congestion Report shows 1 to 2 hours of congestion on US 212 between Lyman Blvd and Pioneer Trail (p.20). This project will improve travel times and reliability on Lyman Blvd and Pioneer Trail, maintaining their attractiveness for medium-to-short trips and keeping local traffic off US-212, and providing congestion relief on US-212, Lyman, and Pioneer which provide important access to regional manufacturing and distribution centers as shown in Appendix B (Regional Economy Maps for Lyman and Pioneer).

*(Limit 2,800 characters; approximately 400 words)*

---

## **Measure A: Benefit of Crash Reduction**

**Crash Modification Factor Used:**

A Crash Modification Factor (CMF) of 0.79 was implemented for all crashes at signals because this project includes the re-timing of all traffic signals and the addition of communications hardware, software, and fiber optic interconnect to coordinate all traffic signal corridors and connect them to the proposed Carver County Advanced Traffic Management System (ATMS). This is CMF 9868 from the CMF Clearinghouse.

*(Limit 700 Characters; approximately 100 words)*

**Rationale for Crash Modification Selected:**

A review of this applicable CMF was completed to make sure it was from a reputable source and directly related to the proposed project elements.

*(Limit 1400 Characters; approximately 200 words)*

<b>Project Benefit (\$) from B/C Ratio</b>	\$4,799,839.00
<b>Total Fatal (K) Crashes:</b>	0
<b>Total Serious Injury (A) Crashes:</b>	1
<b>Total Non-Motorized Fatal and Serious Injury Crashes:</b>	0
<b>Total Crashes:</b>	69
<b>Total Fatal (K) Crashes Reduced by Project:</b>	0
<b>Total Serious Injury (A) Crashes Reduced by Project:</b>	0
<b>Total Non-Motorized Fatal and Serious Injury Crashes Reduced by Project:</b>	0
<b>Total Crashes Reduced by Project:</b>	14
<b>Worksheet Attachment</b>	1588721530653_Benefit_Cost_CMF_Crashes.pdf

*Upload Crash Modification Factors and B/C Worksheet in PDF form.*

---

## Measure 6B: Safety issues in project area

**Response:**

Some project area intersections experience left turn crash problems. The project will address the left turn problems by updating signal timing, adding flashing left arrows, and other signal timing and phasing measures as appropriate. The project also includes the addition of fiber optic ethernet interconnect to coordinate all traffic signal corridors and connect them to the proposed Carver County Advanced Traffic Management System (ATMS), allowing the County and emergency responders to address crashes more quickly.

*(Limit 2,800 characters; approximately 400 words)*

---

**Measure A: Multimodal Elements and Existing Connections**

The project area includes bicycle and pedestrian infrastructure and transit connections. Existing bicycle and pedestrian infrastructure includes multiuse trails or sidewalks along all minor arterials in developed areas. In addition, Attachment "Map A\_Carver\_County\_Issues.pdf" shows Engler Blvd/County Road 10 is a Tier 2 Regional Bicycle Transportation Network (RBTN) alignment. Lyman Blvd, Pioneer Trail, and Main Street also connect into multiple RBTN Tier 1 and 2 alignments.

Existing transit connections include on-demand service provided by SmartLink (all of Carver County) and SouthWest Transit (Chaska, Chanhassen, Carver, and Victoria), express bus Routes 600, 690, and 698, the East Creek Station park and ride located at US 212 and TH-41, and the Southwest Village Station park and ride at US-212 and Lyman.

**Response:**

The project will enhance bicycle, pedestrian, and transit connections. Existing inductive loops typically cannot detect bicyclists; the project's video detection elements will detect bicyclists. The project's new controllers will have additional features to assist bicycle- and pedestrian-supportive traffic signal programming. The CCTV cameras will improve safety for all modes by integrating bicycle and pedestrian monitoring capabilities with improved general traffic flow. Improvements will target key intersections used by pedestrians (transit or not-transit related), bicyclists (transit or not-transit related), and motorists, improving safety at high-traffic crossings.

The project's new controllers will also be capable of transit signal priority, creating opportunities to support future transit signal priority for SouthWest

Transit express bus service and on-demand services provided by SmartLink and SouthWest Transit. Transit Signal Priority improves the performance of specific bus routes, the overall regional transit system, and reduces delay for individuals using transit.

The project will improve ADA compliance in response to issues identified in the County's ADA Transition Plan. The project will add APS and count-down timers at multiple locations, such as Main Street in Waconia, and improve ADA redundancies at intersections along Lyman Blvd and Pioneer Trail where three of four legs have accommodations.

Finally, the project will result in better coordination among Public Works, Police, and Public Safety, resulting in improved security for pedestrians, cyclists, and people using transit.

*(Limit 2,800 characters; approximately 400 words)*

---

## Transit Projects Not Requiring Construction

*If the applicant is completing a transit application that is operations only, check the box and do not complete the remainder of the form. These projects will receive full points for the Risk Assessment.*

*Park-and-Ride and other transit construction projects require completion of the Risk Assessment below.*

**Check Here if Your Transit Project Does Not Require Construction**

---

## Measure A: Risk Assessment - Construction Projects

### 1)Layout (25 Percent of Points)

*Layout should include proposed geometrics and existing and proposed right-of-way boundaries.*

**Layout approved by the applicant and all impacted jurisdictions (i.e., cities/counties that the project goes through or agencies that maintain the roadway(s)). A PDF of the layout must be attached along with letters from each jurisdiction to receive points.**

100%

**Attach Layout**

Please upload attachment in PDF form.

Layout completed but not approved by all jurisdictions. A PDF of the layout must be attached to receive points.

Yes

50%

Attach Layout

1589298278252\_Carver County Traffic Signal Communication Plan & Appendices.pdf

Please upload attachment in PDF form.

Layout has not been started

0%

Anticipated date or date of completion

10/31/2024

## 2)Review of Section 106 Historic Resources (15 Percent of Points)

No known historic properties eligible for or listed in the National Register of Historic Places are located in the project area, and project is not located on an identified historic bridge

100%

There are historical/archeological properties present but determination of no historic properties affected is anticipated.

Yes

100%

Historic/archeological property impacted; determination of no adverse effect anticipated

80%

Historic/archeological property impacted; determination of adverse effect anticipated

40%

Unsure if there are any historic/archaeological properties in the project area.

0%

Project is located on an identified historic bridge

## 3)Right-of-Way (25 Percent of Points)

Right-of-way, permanent or temporary easements either not required or all have been acquired

Yes

100%

Right-of-way, permanent or temporary easements required, plat, legal descriptions, or official map complete

50%

Right-of-way, permanent or temporary easements required, parcels identified

25%

Right-of-way, permanent or temporary easements required, parcels not all identified

0%

Anticipated date or date of acquisition

#### 4)Railroad Involvement (15 Percent of Points)

No railroad involvement on project or railroad Right-of-Way agreement is executed (include signature page, if applicable)

Yes

100%

##### Signature Page

Please upload attachment in PDF form.

Railroad Right-of-Way Agreement required; negotiations have begun

50%

Railroad Right-of-Way Agreement required; negotiations have not begun.

0%

Anticipated date or date of executed Agreement

#### 5) Public Involvement (20 percent of points)

*Projects that have been through a public process with residents and other interested public entities are more likely than others to be successful. The project applicant must indicate that events and/or targeted outreach (e.g., surveys and other web-based input) were held to help identify the transportation problem, how the potential solution was selected instead of other options, and the public involvement completed to date on the project. List Dates of most recent meetings and outreach specific to this project:*

Meeting with general public: 04/16/2020

Meeting with partner agencies:

Targeted online/mail outreach: 04/14/2020

Number of respondents: 415

Meetings specific to this project with the general public and partner agencies have been used to help identify the project need. Yes

100%

Targeted outreach to this project with the general public and partner agencies have been used to help identify the project need.

75%

At least one meeting specific to this project with the general public has been used to help identify the project need.

50%

At least one meeting specific to this project with key partner agencies has been used to help identify the project need.

50%

No meeting or outreach specific to this project was conducted, but the project was identified through meetings and/or outreach related to a larger planning effort.

25%

No outreach has led to the selection of this project.

0%

Project engagement includes a website and online questionnaire shared with and promoted by educational and social service agencies, as well as in-person meetings. County Board briefings were held in February and March 2020, and Public Works staff also provided information presented at the April 2020 Carver County Community Development Authority meeting.

The questionnaire was sent to over 2,500 recipients using the following 12 project email lists (# of recipients per email list): Highway 41/18 Project (409 recipients), Highway 11 Study - West Carver Area (189 recipients), Arboretum Area Transportation Plan (559 recipients), Highway 10 Study - Victoria/Chaska Area (238 recipients), School Transportation Group (56 recipients), Highway 10/Waconia Parkway Intersection Project (157 recipients), Fire/EMS Group (35 recipients), Transportation Agency Group (18 recipients), Highway 212/44 Interchange Project (220 recipients), Highway 10 Project - Waconia School (186 recipients), Highway Closure (433 recipients), Law Enforcement Agency Group (3 recipients). There were 415 responses to the online questionnaire.

Response (Limit 2,800 characters; approximately 400 words):

The questionnaire sought input on priorities from the community regarding where signal improvements should be focused, where particular traffic signals require improvements, and input on where there are particular traffic signals or corridors related to traffic congestion, crashes, and multimodal needs. Demographic information was also requested for those that would provide it.

This information obtained through questionnaire input was used to refine the elements included in



the project. For example, due to multimodal concerns expressed in the questionnaire, an emphasis was placed on additional accessible pedestrian signals for both pedestrians and bicyclists. Traffic congestion and delay will all be improved through the addition of the proposed Advanced Traffic Management System (ATMS), fiber optic interconnect, signal re-timing, and CCTV cameras. The addition of flashing left turn arrows and re-timing of the signals will result in a reduction in crashes.

---

### Measure A: Cost Effectiveness

Total Project Cost (entered in Project Cost Form):	\$1,975,000.00
Enter Amount of the Noise Walls:	\$0.00
Total Project Cost subtract the amount of the noise walls:	\$1,975,000.00
Enter amount of any outside, competitive funding:	\$0.00
Attach documentation of award:	
Points Awarded in Previous Criteria	
Cost Effectiveness	\$0.00

---

### Other Attachments



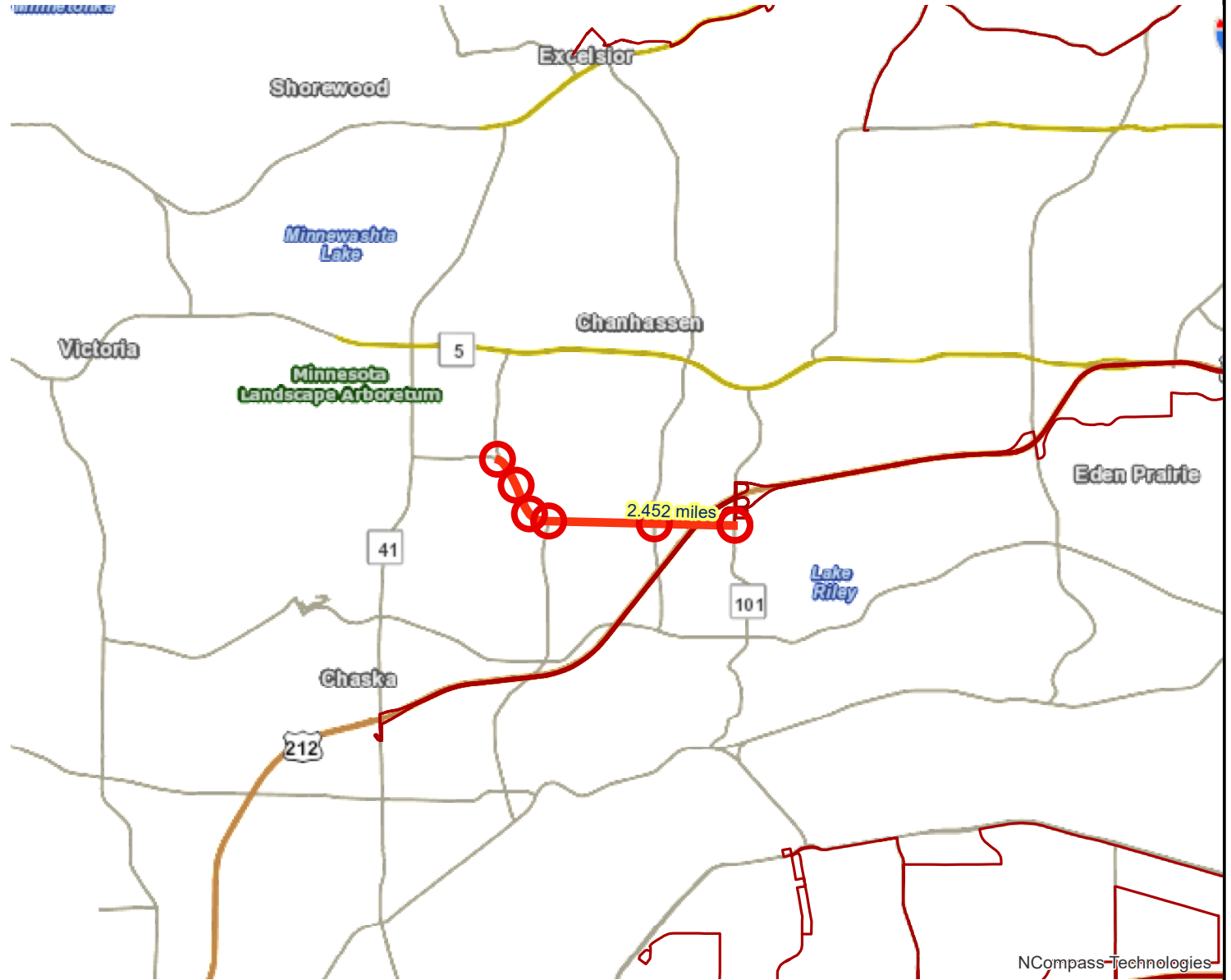
Carver County photograph showing the existing conditions within the project area.

956 KB

File Name	Description	File Size
APPENDIX-A_Level_of_Congestion_Lyman-Main-Pioneer.pdf	Appendix A - Level of Congestion Maps	12.9 MB
APPENDIX-B_Regional_Econ_Lyman-Main-Pioneer.pdf	Appendix B - Regional Economy Maps for Lyman Blvd and Pioneer Trail	8.3 MB
APPENDIX-C_Socioeconomic_Lyman-Main-Pioneer.pdf	Appendix C - Socioeconomic Maps	7.1 MB
APPENDIX-D_Transit_Connections_Lyman-Main-Pioneer.pdf	Appendix D - Transit Connections Maps	5.3 MB
APPENDIX-E_Affordable_Housing_Access.pdf	Appendix E - Affordable Housing Access	2.4 MB
Carver County Agency Letter of Support Traffic Mgnmt Technologies 2020.pdf	Carver County Agency Letter of Support	368 KB
Map A_Carver_County_Issues.pdf	Map A_Carver_County_Issues	785 KB
Map B_Carver_County_Issues.pdf	Map B_Carver_County_Issues	1.5 MB
One-Pager_Carver-County_Final2.pdf	01_One-Page Project Summary: Carver County Traffic Signal Technologies and ITS Corridor Enhancements	2.9 MB

## Transit Connections

Roadway System Management Project: Carver County ITS Corridor Enhancements (Lyman) | Map ID: 15864458421



### Results

Transit with a Direct Connection to project:  
600 690 698

*\*indicates Planned Alignments*

Transit Market areas: 3, 4

○ Project Points — Transit Routes

— Project

□ Project Area

0 0.75 1.5 3 4.5 6 Miles

Created: 4/9/2020  
LandscapeRSA3

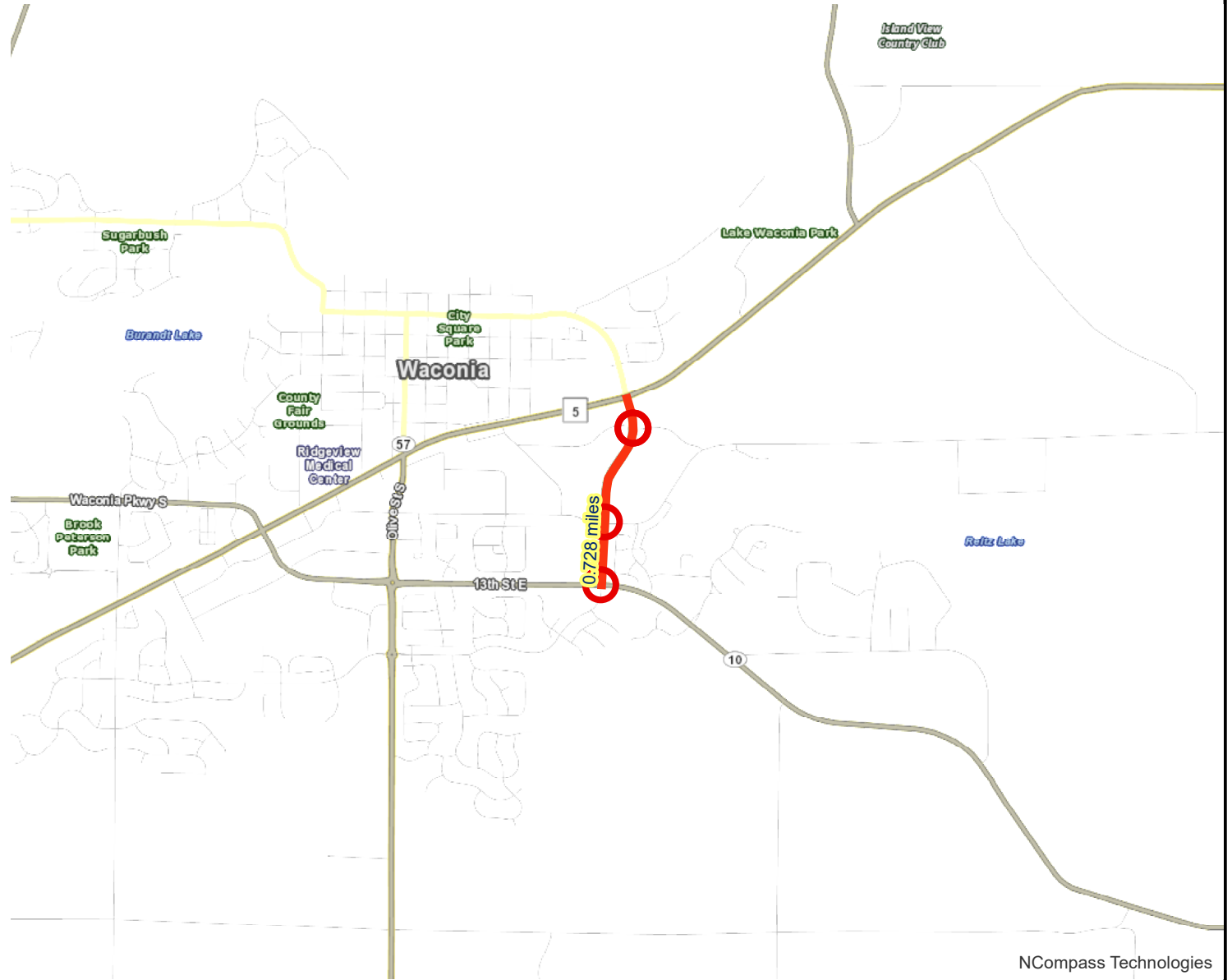


For complete disclaimer of accuracy, please visit  
<https://giswebsite.metc.state.mn.us/gissite/notice.aspx>



## Transit Connections

Roadway System Management Project: Carver County ITS Corridor Enhancements (Main) | Map ID: 158647287585



## Results

Transit with a Direct Connection to project:  
-- NONE --

*\*indicates Planned Alignments*

Transit Market areas: 4

○ Project Points

— Project

□ Project Area

0 0.35 0.7 1.4 2.1 2.8 Miles

Created: 4/9/2020  
LandscapeRSA3



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<https://gisweb.site.metc.state.mn.us/gissite/notice.aspx>





## Transit Connections

Roadway System Management Project: Carver County ITS Corridor Enhancements (Pioneer) | Map ID: 1586472440

### Results

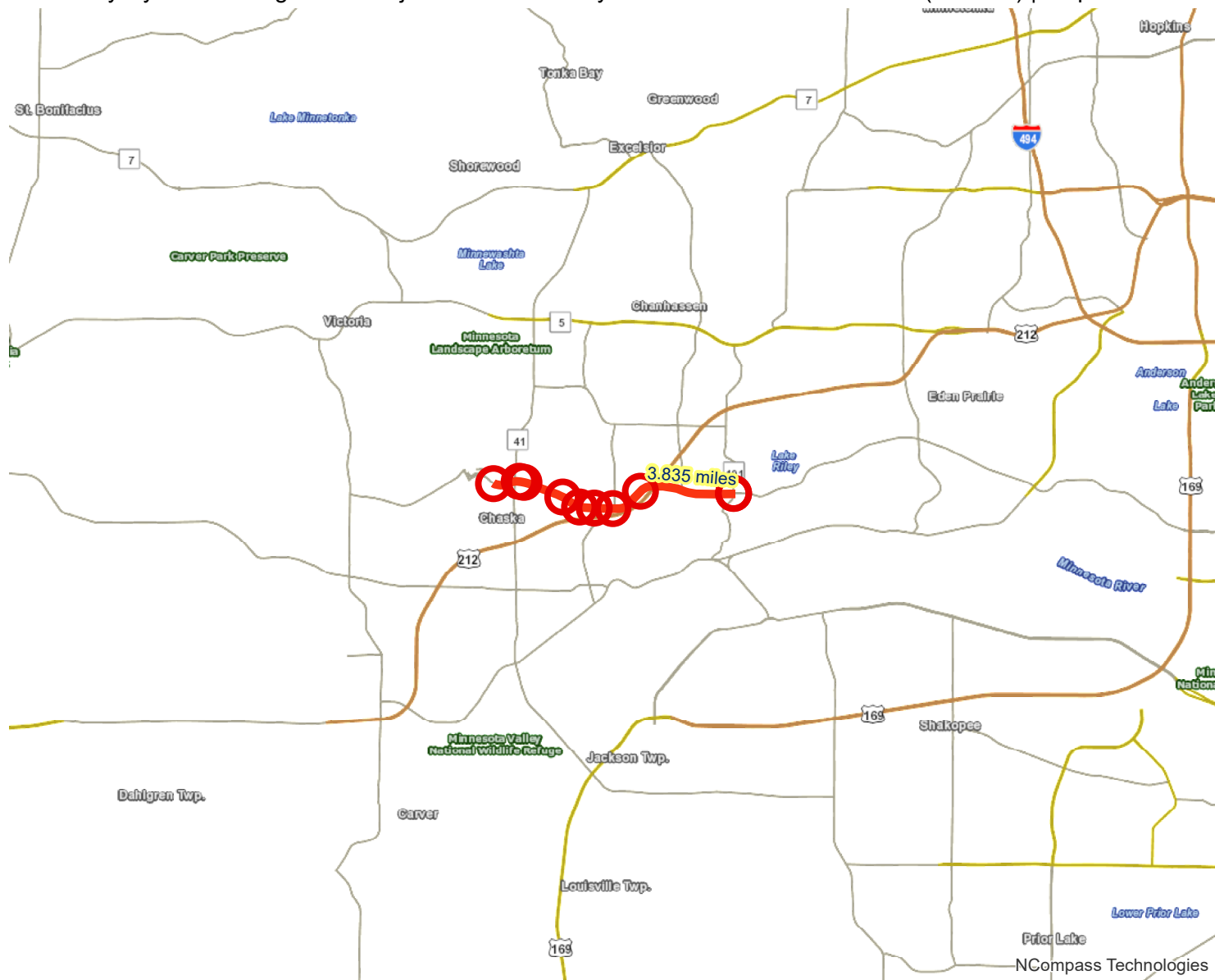
Transit with a Direct Connection to project:  
600 690 698

*\*indicates Planned Alignments*

Transit Market areas: 4, 9

-  Project Points
-  Project
-  Project Area

0 1.25 2.5 5 7.5 10 Miles



Created: 4/9/2020  
LandscapeRSA3



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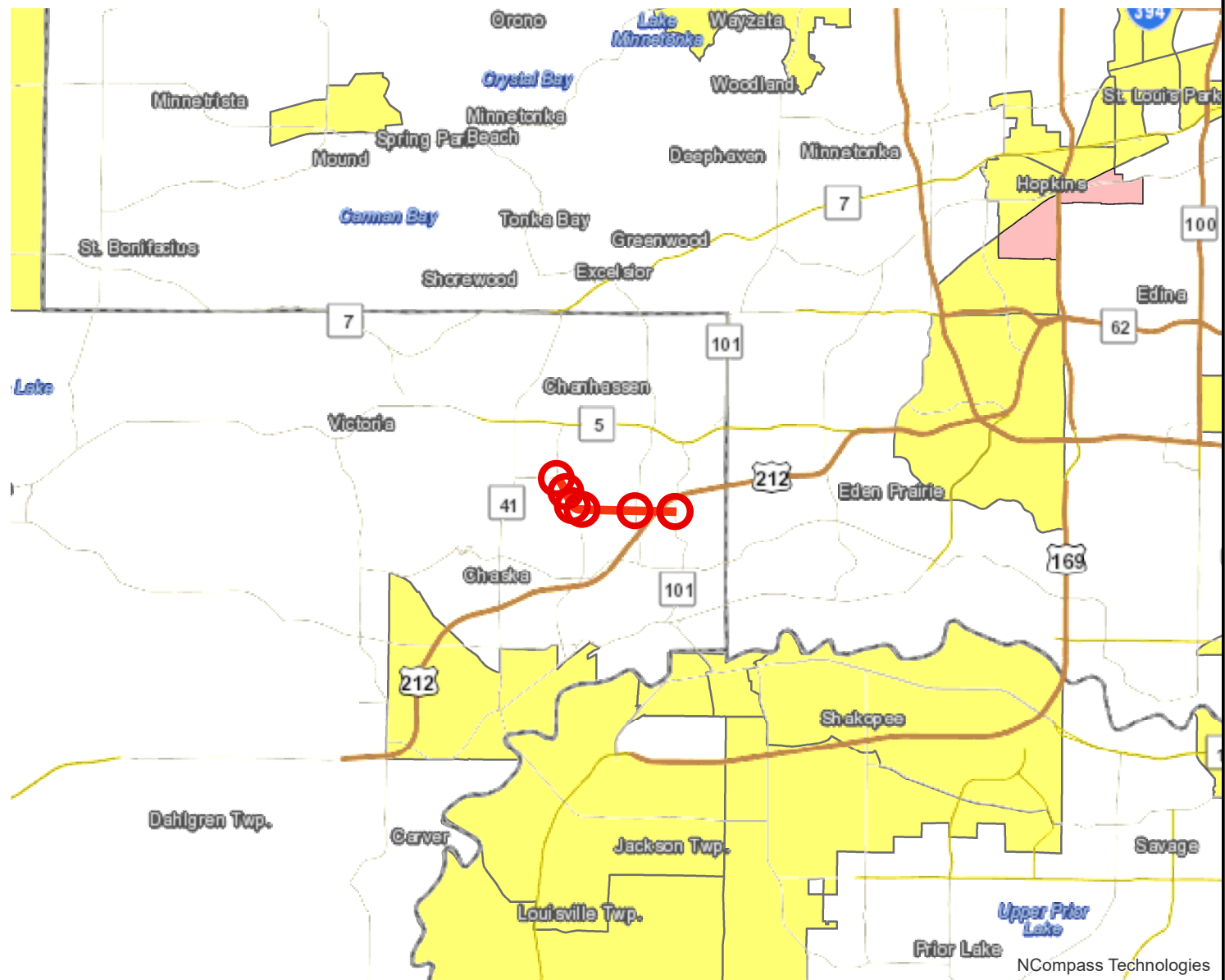
## Socio-Economic Conditions

Roadway System Management Project: Carver County ITS Corridor Enhancements (Lyman) | Map ID: 1586445842146

### Results

Project located in a census tract that is below the regional average for population in poverty or populations of color, or includes children, people with disabilities, or the elderly:  
(0 to 12 Points)

Tracts within half-mile:  
90701 90702 90900



Points



Lines



Area of Concentrated Poverty > 50% residents of color



Area of Concentrated Poverty



Above reg'l avg conc of race/poverty

0 1.75 3.5 7 10.5 14 Miles

Created: 4/9/2020  
LandscapeRSA2



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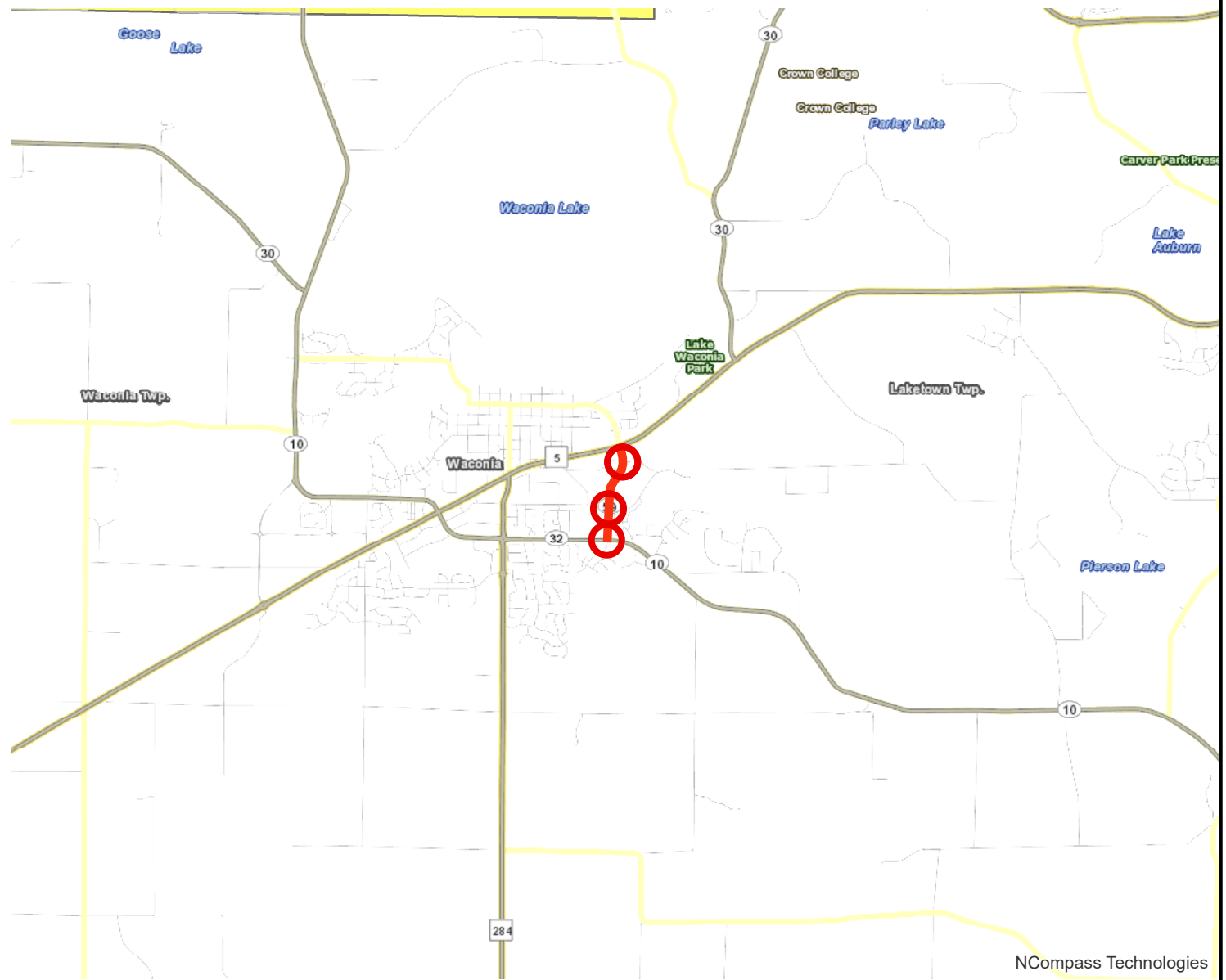
# Socio-Economic Conditions

Roadway System Management Project: Carver County ITS Corridor Enhancements (Main) | Map ID: 1586472875859

## Results

Project located in a census tract that is below the regional average for population in poverty or populations of color, or includes children, people with disabilities, or the elderly:  
(0 to 12 Points)

Tracts within half-mile:  
90301 90302 90401



Points



Lines



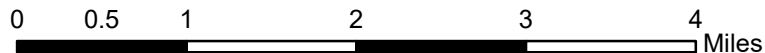
Area of Concentrated Poverty > 50% residents of color



Area of Concentrated Poverty



Above reg'l avg conc of race/poverty



Created: 4/9/2020  
LandscapeRSA2



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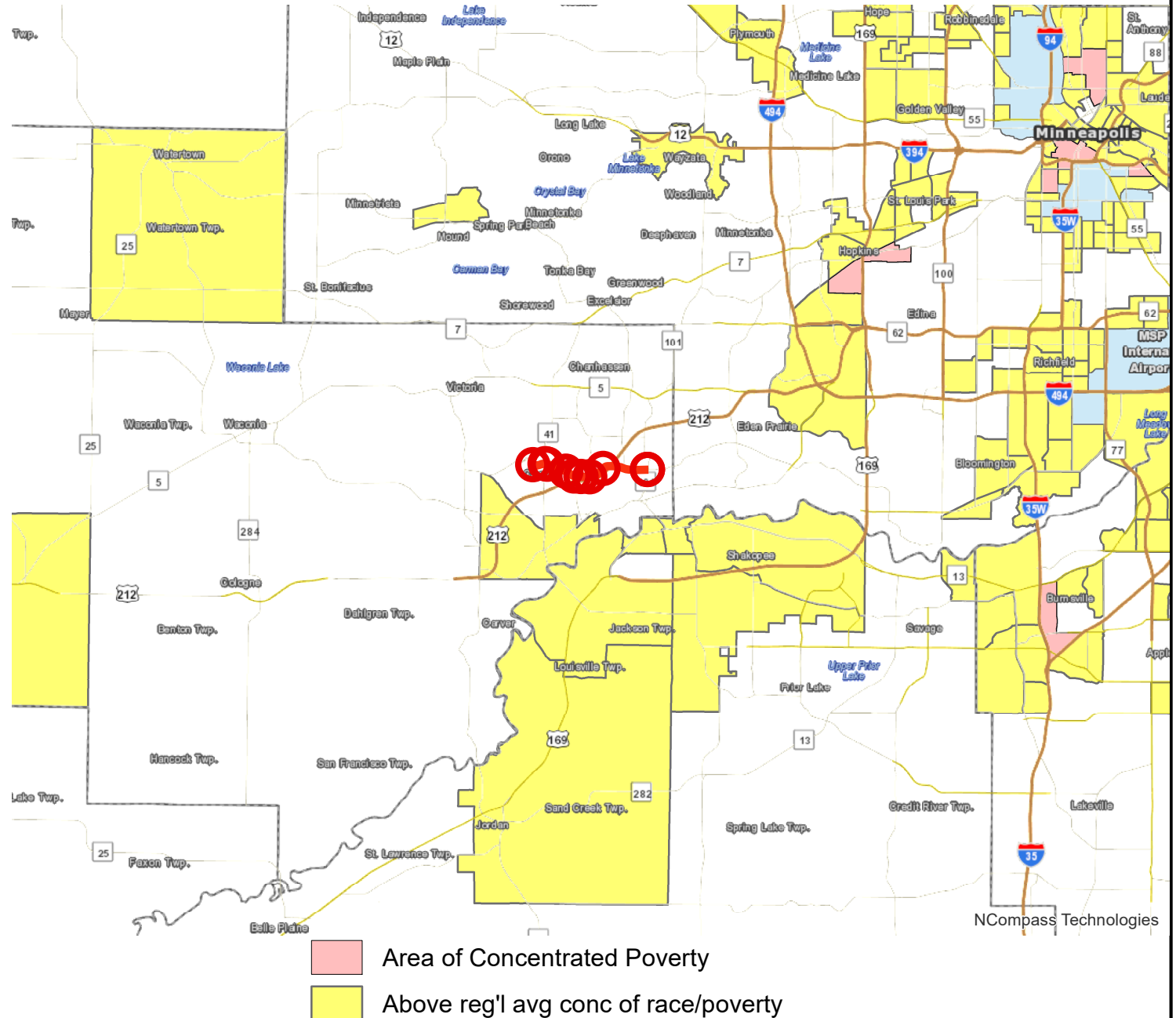
# Socio-Economic Conditions

Roadway System Management Project: Carver County ITS Corridor Enhancements (Pioneer) | Map ID: 1586472440498

## Results

Project located in a census tract that is below the regional average for population in poverty or populations of color, or includes children, people with disabilities, or the elderly:  
(0 to 12 Points)

Tracts within half-mile:  
90702 90800 90900



NCompass Technologies

0 2.75 5.5 11 16.5 22 Miles

Created: 4/9/2020  
LandscapeRSA2

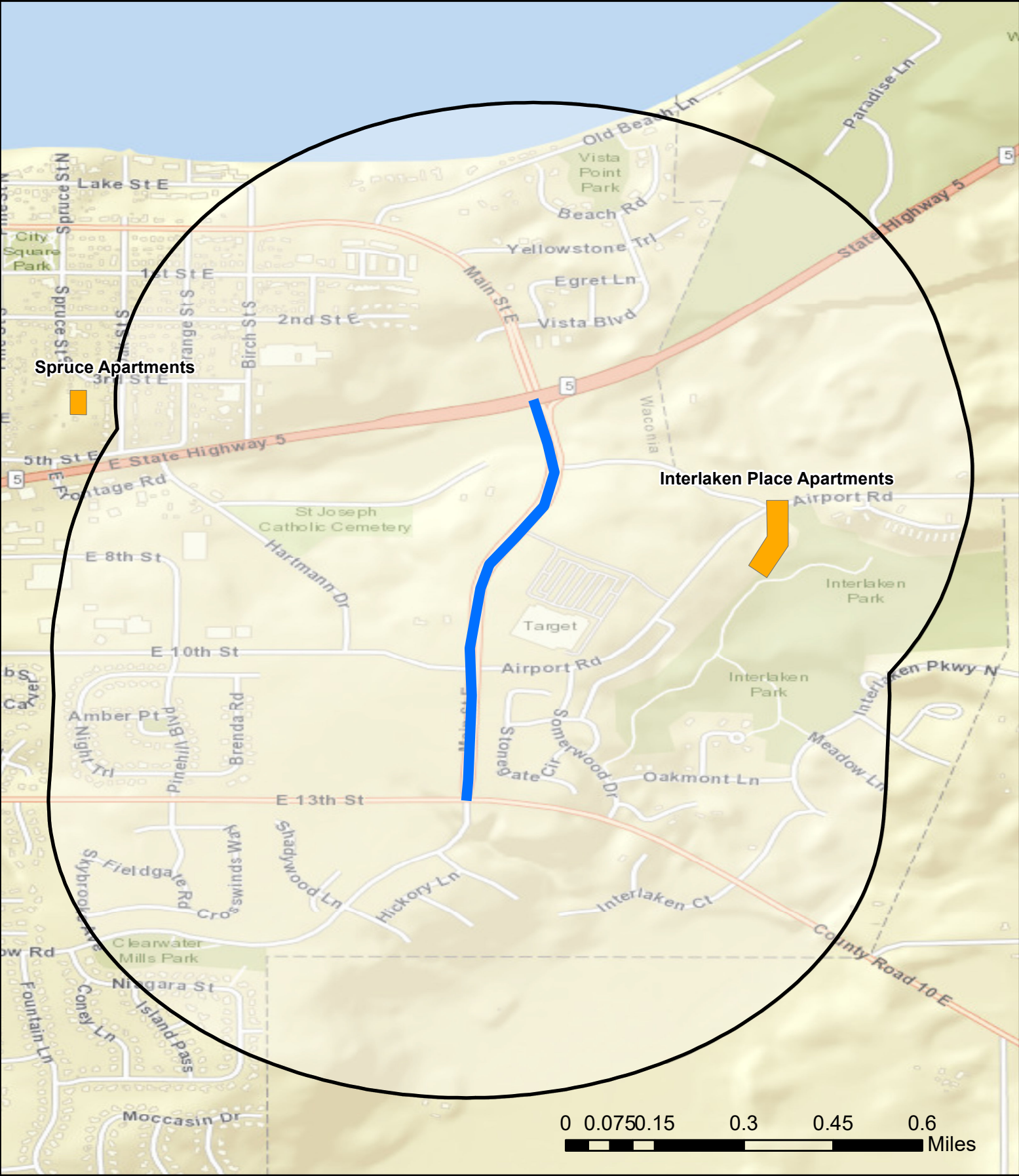


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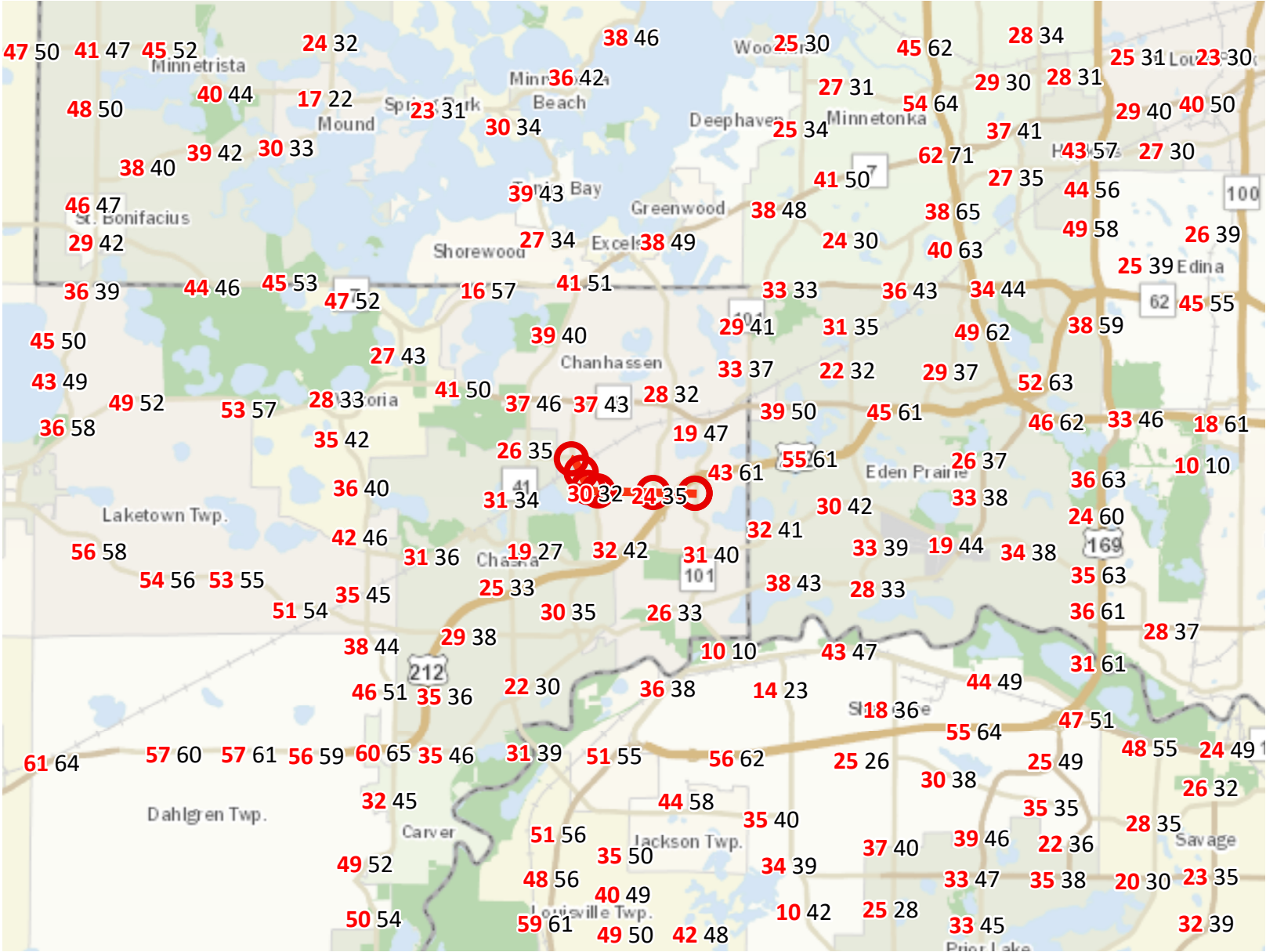
**Legend**

-  Main Street Corridor
-  .5 Mile Radius
-  Affordable Housing Developments within .5 mile

**Affordable Housing Access  
Main Street Corridor**

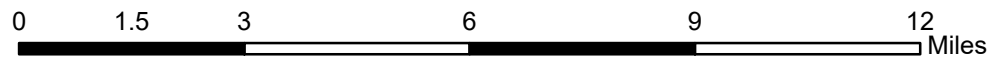
# Level of Congestion

Roadway System Management Project: Carver County ITS Corridor Enhancements (Lyman) | Map ID: 1586445842146



○ Project Points

— Project



Created: 4/9/2020  
LandscapeRSA1

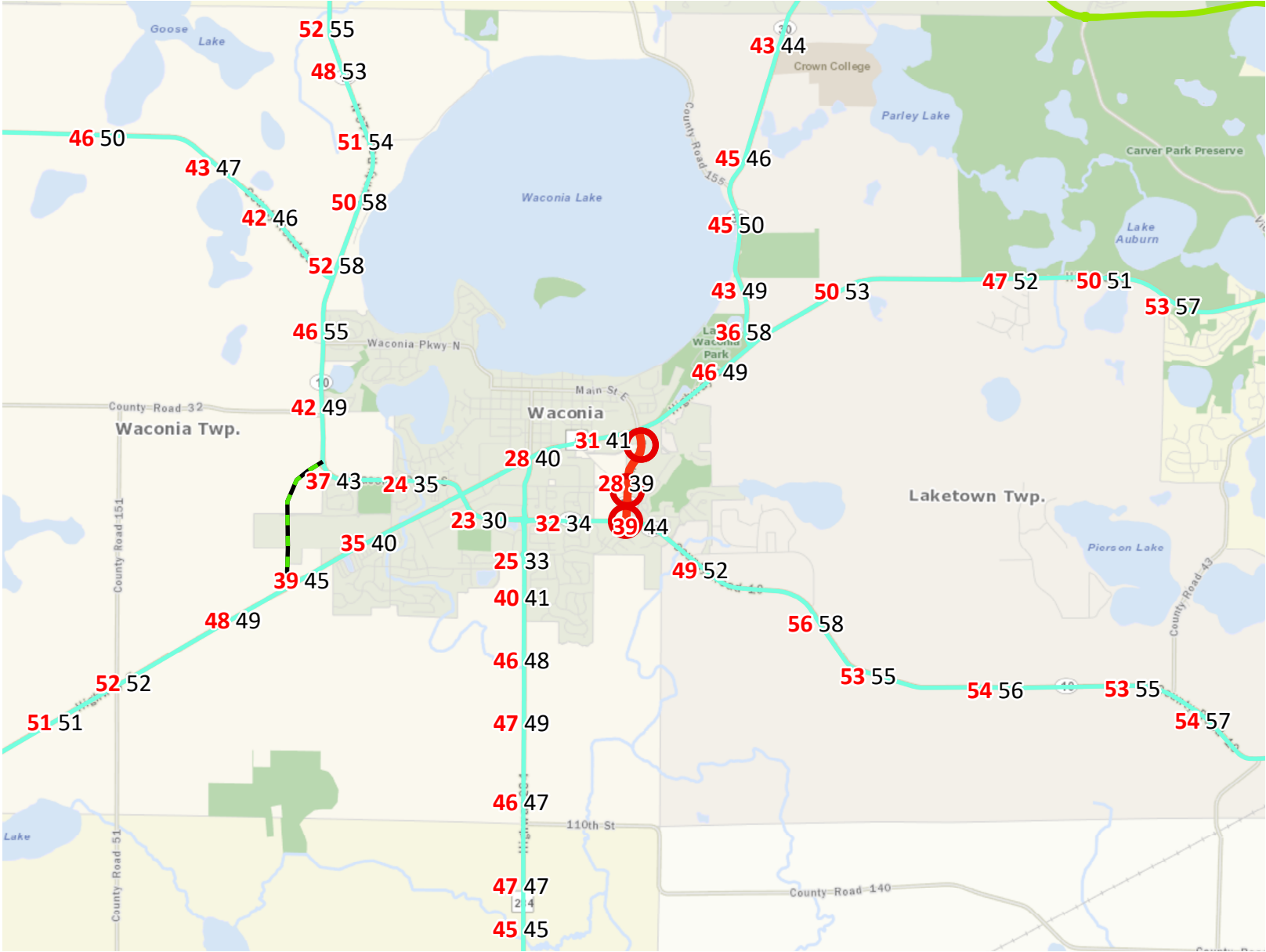








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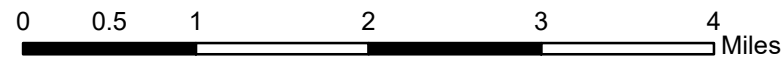


# Level of Congestion

Roadway System Management Project: Carver County ITS Corridor Enhancements (Main) | Map ID: 1586472875859



-  Project Points
-  Principal Arterials
-  Principal Arterials Planned
-  A Minor Arterials
-  A Minor Arterials Planned
-  Project



Created: 4/9/2020  
LandscapeRSA1



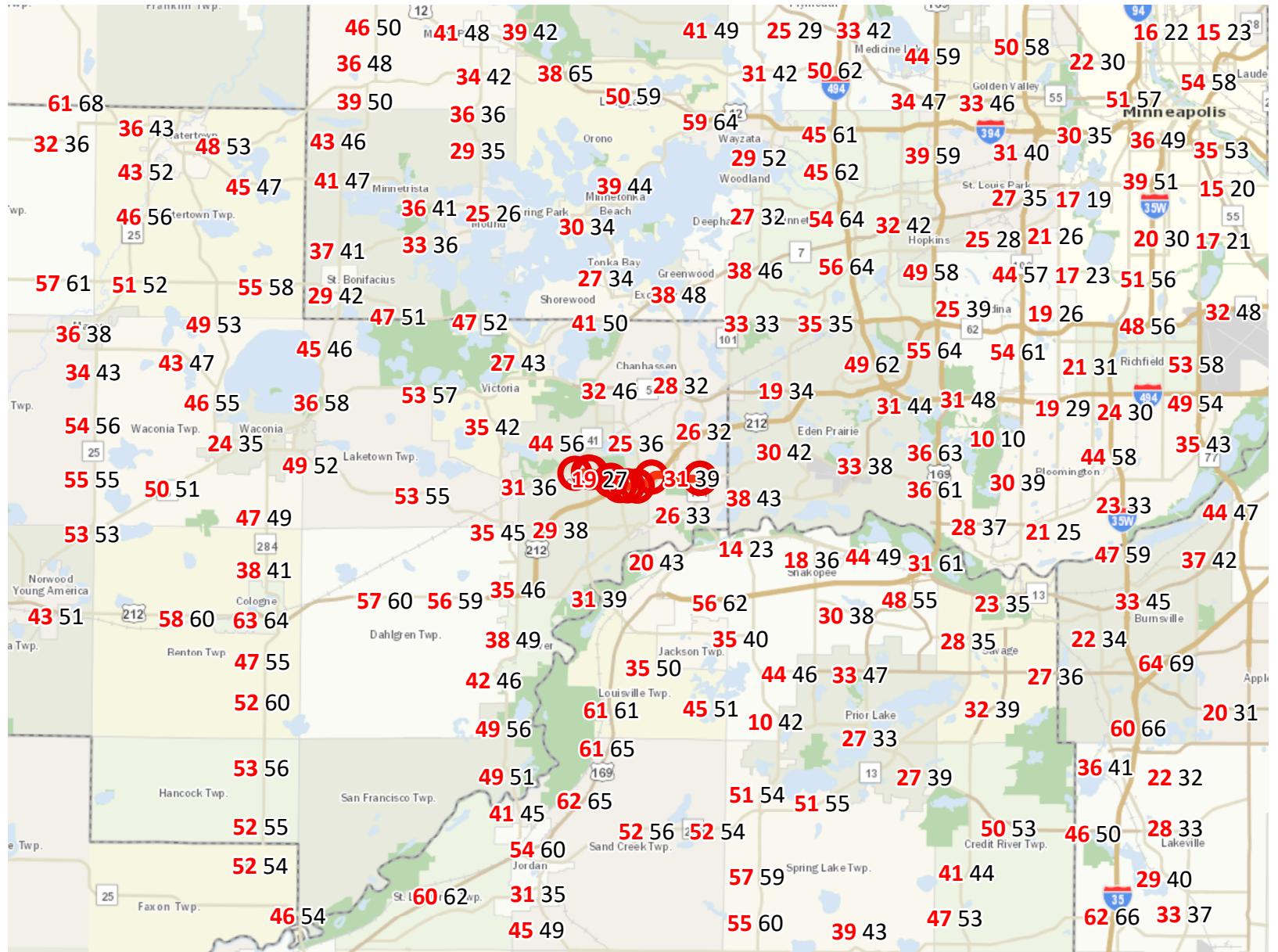
For complete disclaimer of accuracy, please visit  
<https://giswebsite.metc.state.mn.us/gissite/notice.aspx>





### Level of Congestion

Roadway System Management Project: Carver County ITS Corridor Enhancements (Pioneer) | Map ID: 1586472440498



## Project Points



Project

Created: 4/9/2020  
LandscapeRSA1



For complete disclaimer of accuracy, please visit  
<https://giswebsite.metc.state.mn.us/gissite/notice.aspx>



HSIP  
worksheet

Control  
Section

T.H. /  
Roadway

Location

Beginning  
Ref. Pt.

Ending  
Ref. Pt.

State,  
County,  
City or  
Township

Study  
Period  
Begins

Study  
Period Ends

CSAH 14

Village Road to CSAH 101

Carver Co.

1/1/2016

12/31/2018

Description of  
Proposed Work

Communication and equipment upgrades for corridor signal retiming through the County's Advanced Traffic Management System

Accident Diagram  
Codes

1 Rear End

2 Sideswipe  
Same Direction

3 Left Turn Main Line

5 Right Angle

4,7 Ran off Road

8, 9 Head On/  
Sideswipe -  
Opposite Direction

Pedestrian

Other

Total

Study  
Period:  
Number of  
Crashes

Fatal

F

Personal Injury (PI)

A

1

1

B

1

5

1

7

C

3

2

1

1

7

Property  
Damage

PD

21

6

15

6

2

1

3

54

% Change  
in Crashes

Fatal

F

PI

A

-21%

B

-21%

-21%

-21%

C

-21%

-21%

-21%

Property  
Damage

PD

-21%

-21%

-21%

-21%

-21%

-21%

-21%

Change in  
Crashes

Fatal

F

PI

A

-0.21

-0.21

B

-0.21

-1.05

-0.21

-1.47

C

-0.63

-0.42

-0.21

-0.21

-1.47

Property  
Damage

PD

-4.41

-1.26

-3.15

-1.26

-0.42

-0.21

-0.63

-11.34

Year (Safety Improvement Construction)

2021

Project Cost (exclude Right of Way)

\$ 1,975,000

Type of  
Crash

Study  
Period:  
Change in  
Crashes

Annual  
Change in  
Crashes

Cost per Crash

Annual Benefit

Right of Way Costs (optional)

F

\$ 1,180,000

Traffic Growth Factor

0.5%

A

-0.21

-0.07

\$ 590,000

\$ 41,300

Capital Recovery

B

-1.47

-0.49

\$ 170,000

\$ 83,300

1. Discount Rate

2%

C

-1.47

-0.49

\$ 87,000

\$ 42,630

2. Project Service Life (n)

30

PD

-11.34

-3.78

\$ 7,800

\$ 29,484

Total

\$ 196,714

B/C= 2.43

Using present worth values,  
B= \$ 4,799,839  
C= \$ 1,975,000  
See "Calculations" sheet for  
amortization.

Office of Traffic Engineering  
July 2018



## CMF / CRF Details

**CMF ID: 9868**

**Coordinate arterial signals**

**Description:** Coordination of traffic signals along an arterial cooridor

**Prior Condition:** No coordination between arterial signals

**Category:** Intersection traffic control

**Study:** [\*Identifying the Safety Impact of Signal Coordination Projects along Urban Arterials Using a Meta-analysis Method, Williamson et al., 2018\*](#)

**Star Quality Rating:**



[\[View score details\]](#)

### Crash Modification Factor (CMF)

**Value:**

0.79

**Adjusted Standard Error:**

**Unadjusted Standard Error:**

### Crash Reduction Factor (CRF)

**Value:**

21 (This value indicates a **decrease** in crashes)

**Adjusted Standard Error:**



Unadjusted Standard Error:	
----------------------------	--

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	Not specified
Number of Lanes:	
Road Division Type:	
Speed Limit:	
Area Type:	Urban and suburban
Traffic Volume:	10316 to 25800 <i>Average Daily Traffic (ADT)</i>
Time of Day:	All
<i>If countermeasure is intersection-based</i>	
Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Development Details	
Date Range of Data Used:	
Municipality:	
State:	IL

<b>Country:</b>	USA
<b>Type of Methodology Used:</b>	Before/after using comparison group
<b>Sample Size Used:</b>	

Other Details	
<b>Included in Highway Safety Manual?</b>	No
<b>Date Added to Clearinghouse:</b>	Nov-19-2018
<b>Comments:</b>	The CMF applies to all crashes along the corridor. Applies for both urban and suburban principal arterial-other and minor arterial.

---

This site is funded by the U.S. Department of Transportation Federal Highway Administration and maintained by the University of North Carolina Highway Safety Research Center

*The information contained in the Crash Modification Factors (CMF) Clearinghouse is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The U.S. Government assumes no liability for the use of the information contained in the CMF Clearinghouse. The information contained in the CMF Clearinghouse does not constitute a standard, specification, or regulation, nor is it a substitute for sound engineering judgment.*

PIONEER TRAIL

Failure to yield (15) and distracted/careless driving (15) were top contributing factors, similar to overall county crashes.

Year	(Multiple Items)
Contributing Factor	Crashes
Failure to Yield Right-of-Way	15
No Clear Contributing Action	11
Driver Distracted	11
Ran Red Light	5
Following Too Closely	5
Operated Motor Vehicle in Careless, Negligent, or Erratic Manner	4
Unknown	3
Other Contributing Action	3
Improper Turn/Merge	3
Failed to Keep in Proper Lane	1
Failure to Obey Traffic Signs, Signals, or Officer	1
Ran Stop Sign	1
Improper Backing	1
Disregard Other Traffic Signs	1
Disregard Other Road Markings	1
Grand Total	69

Rear-end (23) and angle (right or left turning) (21) crashes were most common crash type.

Year	(Multiple Items)
Crash Type	Crashes
Front to Rear	23
Angle	21
	9
Front to Front	9
Sideswipe - Same Direction	5
Rear to Side	2
Grand Total	69

Left turns were cited in 19 crashes.

Year	(Multiple Items)
Pre-Crash Maneuver (Vehicle 1)	Crashes
Moving Forward	34
Turning Left	13
Turning Right	5
Changing Lanes	4
Vehicle Stopped or Stalled in Roadway	4
Backing	3
Slowing	2
Entering Traffic Lane	1
Making a U Turn	1
Swerved or Attempt to Avoid Object in Roadway (Due to	1
Parked or Entering or Leaving a Parked Position	1
Grand Total	69

Year	(Multiple Items)
Pre-Crash Maneuver (Vehicle 2)	Crashes
Moving Forward	34
Vehicle Stopped or Stalled in Roadway	8
Slowing	7
Turning Left	6
	5
Parked or Entering or Leaving a Parked Position	4
Turning Right	2
Changing Lanes	1
Backing	1
Negotiating a Curve	1
Grand Total	69

PIONEER TRAIL

COST BENEFIT ANALYSIS

Count of BENEFIT_COST_TYPE	Column Labels							
Row Labels	HEAD ON	LEFT	OTHER	RAN OFF ROAD	REAR-END	RIGHT	SIDESWIPE - SAME DIRECTION	Grand Total
Minor Injury Crash		5			1	1		7
Possible Injury Crash			1		1	3	2	7
Property Damage Only Crash	1	15	3		2	21	6	54
Serious Injury Crash					1			1
Grand Total	1	20	4		5	25	8	69

**To:** Kate Miner, Carver County  
**From:** Nick Erpelding, P.E., PTOE  
Mark Gallagher AICP  
**Date:** April 29, 2015  
**Subject:** Carver County Traffic Signal Communication Plan

## Introduction

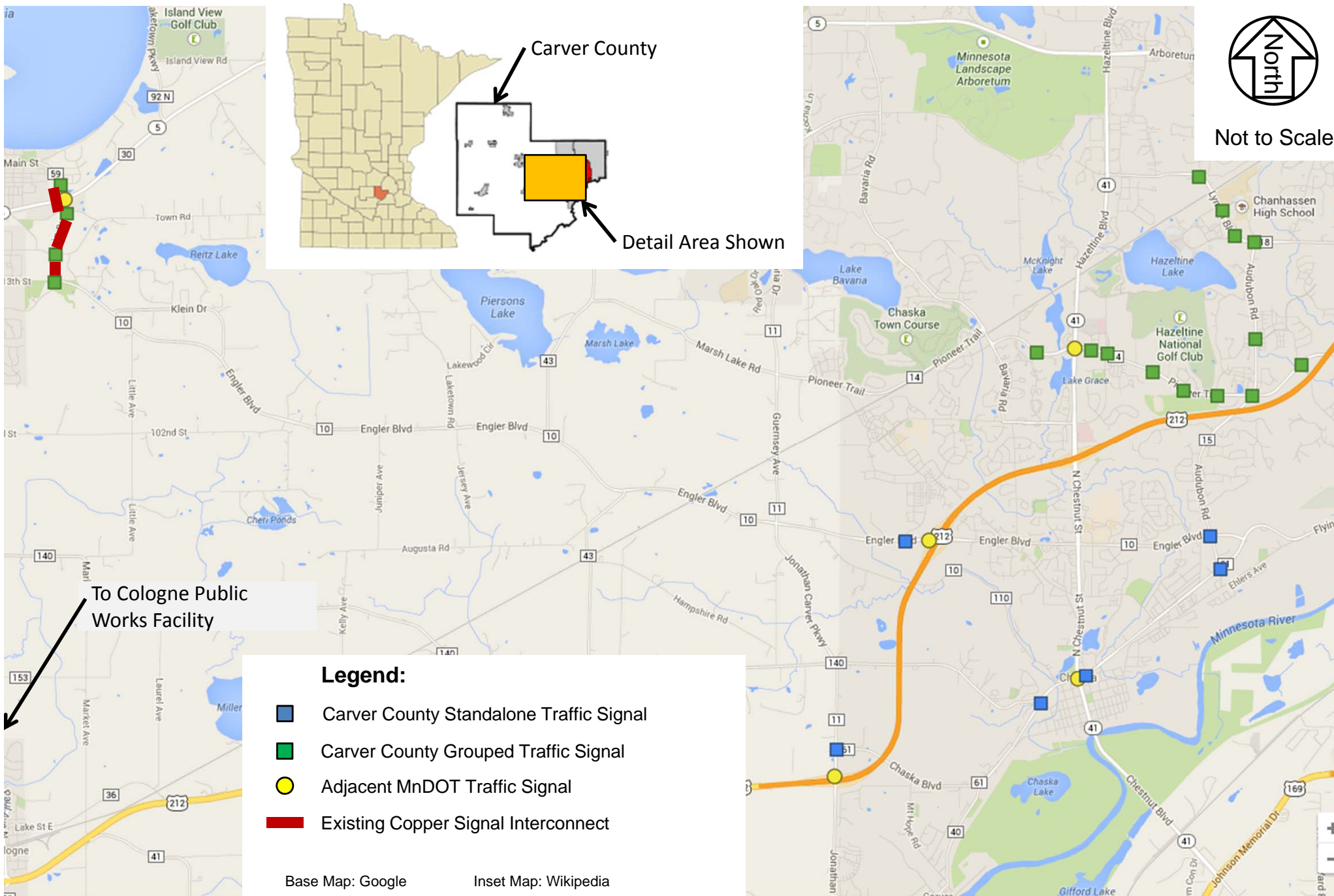
In 2012, Carver County was nearing completion of a large-scale fiber-optic infrastructure deployment to connect county administrative facilities, libraries and a number of other users with a robust, high capacity network. The network deployment brought fiber lines close to a number of existing signalized intersections. The County approached SRF for help in determining how to take advantage of the fiber to improve the monitoring and management capabilities of the existing county signal system, and to take a larger look at how the initial buildout could be expanded in the future to connect all existing and anticipated County signals and roundabouts.

This memo includes:

- A description of Carver County's existing traffic signal system.
- Background on the reasons for moving toward use of an Advanced Traffic Management System for traffic signal management and operations.
- Discussion on the method used to determine which future intersections to include in the communications plan.
- Vision for a completed signal network with detailed recommendations and cost estimates.

## Carver County Traffic Signal System Overview

Carver County's traffic signal system consists of roughly 25 intersections, mostly located in the eastern half of the County, as shown in Figure 1. The locations of adjacent signalized intersections owned/operated by MnDOT are also noted.



## Existing Traffic Signal System

Traffic Signal Communication Plan  
Carver County

The overall system includes a mix of grouped and standalone intersections, as depicted in Figure 1.

The local signal controllers within the Waconia (Main Street) group are interconnected to each other with twisted pair copper to form what are known as a closed-loop system, with basic intersection operations handled by the local signal controllers and coordinated operation carried out via an on-street master. No connection has yet been established from the County's Traffic Operations Center (TOC) at the Public Works facility in Cologne to the on-street masters for management (uploading and downloading) of timing plans and viewing of system and intersection status.

The local signal controllers within the CSAH 14 and CSAH 18 groups are not currently interconnected, though fiber optic cable has been installed to each of the cabinets. Coordinated signal operations for these intersections are carried out via time-based coordination.

## **Need for Advanced Traffic Management System**

Due to the availability of affordable industrial networking hardware and the poor reliability of dial-up and serial-based communications, the closed loop / on-street master architecture is nearing the end of its useful service life. Many agencies in positions similar to the County are converting from a series of connected closed-loop systems to a single centralized network connecting all of their signals.

A system used to centrally manage various components of transportation infrastructure is referred to as an Advanced Traffic Management System, or ATMS. Management and operation of traffic signals is one of many functions that an ATMS can provide for an agency.

## **Identification of Future Traffic Control Locations**

Constructing the underlying network of communications links needed to support an ATMS is often the most difficult, if not costly, part of deploying a new ATMS installation. In order to cost-effectively provide long term benefit, planning for which intersections to include is an important first step in the deployment of an ATMS system.

To determine which existing and future intersections to include in Carver County's network, an assessment of the transportation system was completed based on the Carver County Capital Improvement Plan, input from County staff, forecast volumes and anticipated roadway reconstructions or alignments. This approach allowed objective measures, such as traffic volumes and programmed construction to be considered along with measures that required engineering judgment, such as likely land use patterns and roadway changes that are anticipated but not yet programmed.

Each intersection was assigned a type (signal, roundabout, or TBD) and a priority value. The intersections were then entered into a database that allowed for a systematic approach to planning interconnections according to the process described in the following section.

Existing uncontrolled and anticipated future intersections were subjectively given a priority score of Low, Medium, or High for each of these measures. The intent was to identify intersections which would likely require a higher traffic control device (roundabout or traffic signal) to manage traffic. Intersections meeting the High Priority conditions for a given measure are more likely to need a traffic control device sooner. Intersections matching the Low Priority categories would require a significant increase in traffic or significant roadway improvements before meeting warrants for a signal or roundabout. Table 2, below, summarizes the measures used in the analysis and the criteria used to prioritize each intersection for each measure.

**Table 1. Priority Criteria**

<b>Measure</b>	<b>Low Priority</b>	<b>Medium Priority</b>	<b>High Priority</b>
Existing Volumes	Low Volumes	Moderate volumes near, but not likely meeting warrants	Volumes nearly or already meeting traffic control warrant
Forecast Volumes	Those just meeting thresholds	Solidly within thresholds for traffic control device	Those significantly above thresholds
Roadway Network	Requires new roadway or significant upgrade; not planned	Roadway network upgrades being planned	Roadway network already exists
Surrounding Land Use	No immediate development pending	Near developing or developed areas	Within or on the edge of developing or developed areas
Previous, Existing, or Pending Project	No project currently planned in area	Projects being considered or needed in future	Area has already been studied with roadway / traffic control upgrades

## Communication Plan Development

Once the set of intersections to include in the network had been determined, the following process was used to determine how best to connect each intersection. This process used Geographic Information System (GIS) data processing to ensure that results were repeatable, and that different assumptions about the devices to be connected could be tested and the effect on overall costs determined. Based on feedback from County staff, fiber optic connections are assumed to all traffic control devices. During final system design, other media (such as copper twisted pair, co-axial or wireless connections) may be evaluated to optimize the cost/performance tradeoffs.

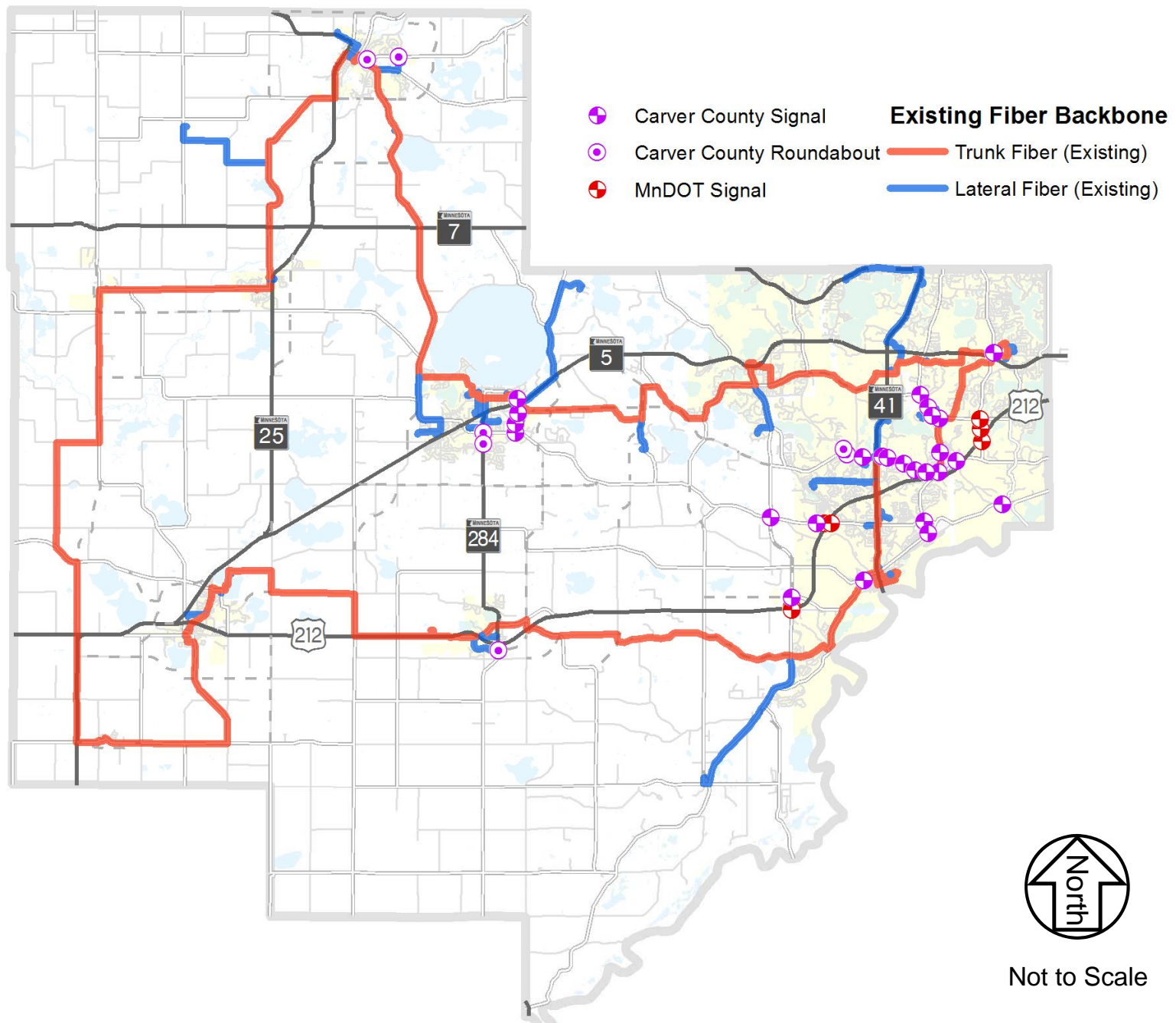
The plan development process proceeded in a stepwise fashion as follows:

1. Identify and map all existing signals, interconnect and fiber optic infrastructure (see Figure 2).
2. Identify and map possible future traffic control devices.



3. Assign priorities based on the method described in the previous section.
4. Select only the medium- and high-priority traffic control locations.
5. Identify County rights-of-way, assuming that new fiber installations will follow these paths.
6. Calculate the shortest distance from each traffic control device, following County right-of-way, to the nearest available fiber connection point.
7. For each segment identified in the previous step, calculate the distance and associate it with the appropriate traffic control device.
8. Using a planning estimate for cost per foot, calculate the cost for each segment of planned fiber.
9. Map all of the new segments and review network geography for consistency.
10. Create simple overview schematic plan showing the connections between traffic control devices and the fiber optic infrastructure.
11. Create detailed (near design level) schematics. Include detail on type of interconnect media, which fibers used, handholes, splice vaults.

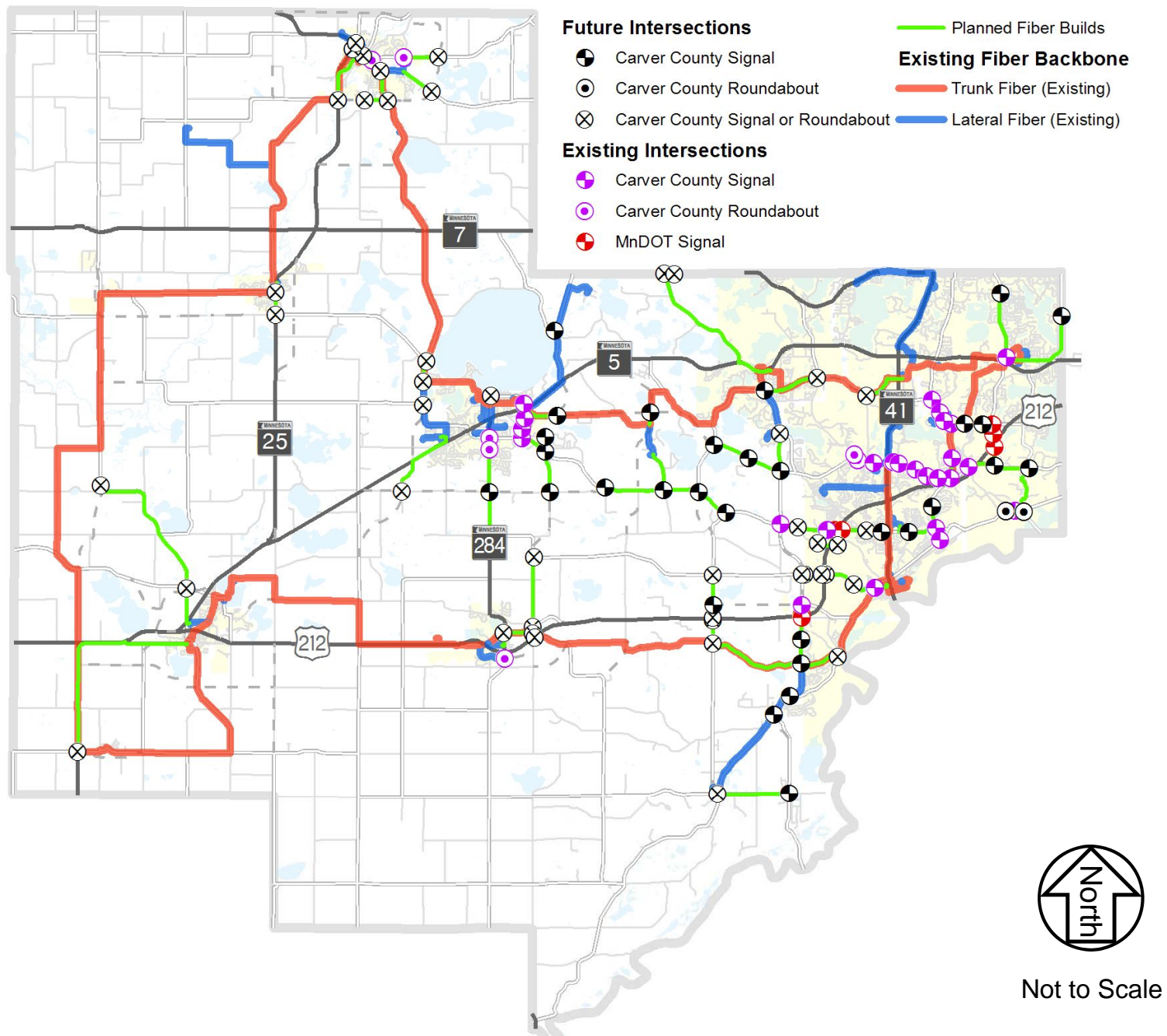
The results of steps 9 and 10 (overview map and overview schematic) are shown in Figures 3 and 4 below. A detailed, full-size overview map is provided in Appendix A. The results of step 11 (detailed schematics) are provided in Appendix B.



## Existing Traffic Signals and Fiber Optic Network

Traffic Signal Communication Plan  
Carver County

Figure 2



## Future Traffic Signals and Fiber Optic Network

Traffic Signal Communication Plan  
Carver County

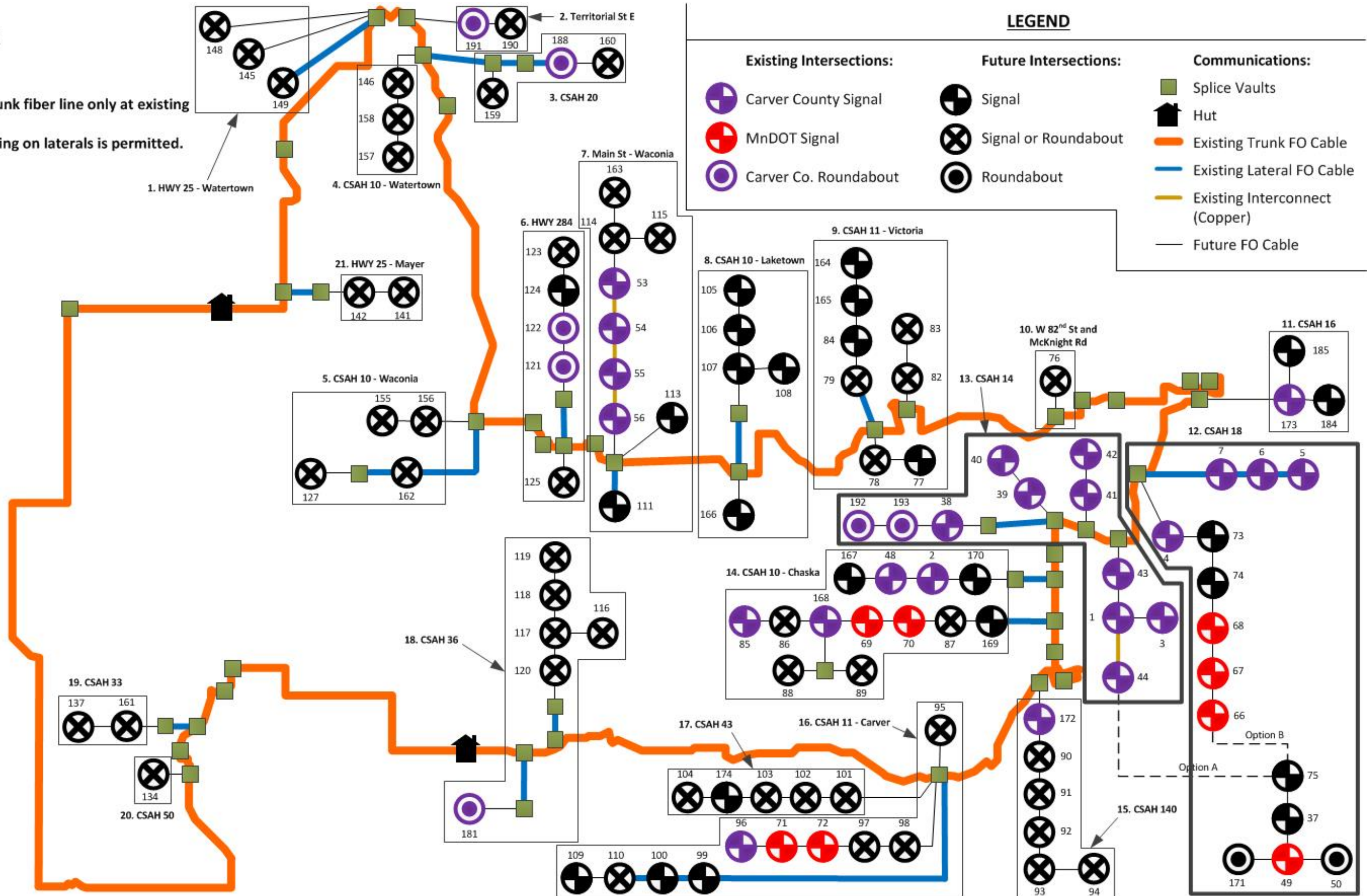
Figure 3



NOT TO SCALE

**Notes:**

1. Assumes splicing to trunk fiber line only at existing splice vaults.
2. Assumes midway splicing on laterals is permitted.



## Cost Estimate

### Communications Links

A planning level estimate of the cost to add each intersection to the overall communications network was completed. This estimate includes hardware installation costs related to communication lines (in general, fiber optic cable), Ethernet switches, and design and integration costs. A detailed estimate of the cost to connect a typical intersection is provided in Table 2.

**Table 2. Site Equipment Cost Estimate Assumptions**

Item	Unit	Qty. per Site	Cost per Unit	Cost per Site
Fiber optic splice	Each	4	\$45	\$180
Fiber optic splice closure	Each	1	\$510	\$510
Fiber optic termination panel	Each	1	\$500	\$500
Splice Vault	Each	1	\$1,500	\$1,500
Pull Box	Each	Varies	\$950	Varies
Ethernet switches	Each	1	\$1,600	\$1600 (incl. w/ new cabinets)
Ethernet switch power supply	Each	1	\$195	\$195
Fiber optic interfaces for switch	Each	2	\$650	\$1,300

These costs were aggregated with the cost per foot of fiber optic cable (\$4.10 per foot for 2-inch conduit and \$2.35 per foot for 96-strand fiber optic cable) to produce an overall planning estimate of \$11.50 per foot for fiber optics, including all splicing, hardware, electronics and installation. This \$11.50 per foot price was used to generate a planning level cost estimate for each segment, discussed in Signal Group Estimates section below.

Prior to procuring hardware based on the following recommendations, a detailed investigation of intended operations and the capabilities of specific products should be performed.

### Signal Group Estimates

For purposes of presentation, traffic control devices were logically grouped into “chains” of devices that connect to a single point on the fiber optic backbone. This allows for more detailed cost estimates, and groups signals that are likely to be deployed within a similar time frame. In total there were 21 groups in the county, as shown in Figure 4. (Note: existing signals shown in **bold**.)

**Table 3. Interconnect Cost Estimates**

<b>Group Name</b>	<b>Group Number</b>	<b>Intersection Numbers</b>	<b>Fiber Length (feet)</b>	<b>Cost Per Group</b>
Highway 25 - Watertown	1	145, 148, 149	7,600	\$88,000
Territorial St E	2	<b>191</b> , 190	1,000	\$12,000
County Road 20	3	<b>188</b> , 159, 160	9,000	\$104,000
County Road 10 - Watertown	4	146, 157, 158	6,400	\$73,000
County Road 10 - Waconia	5	155, 156, 162, 127	12,800	\$147,000
Highway 284	6	<b>121, 122</b> , 123, 124, 125	13,400	\$154,000
Main St - Waconia	7	<b>53, 54, 55, 56</b> , 114, 163, 111, 113, 115	14,400	\$165,000
County Road 10 - Laketown	8	105, 106, 107, 108, 166	21,900	\$252,000
County Road 11 - Victoria	9	79, 84, 165, 164, 78, 77, 82, 83	40,500	\$466,000
W 82nd St and McKnight Rd	10	76	5,500	\$63,000
County Road 16	11	<b>173</b> , 184, 185	19,200	\$221,000
County Road 18	12	<b>4, 5, 6, 7</b> , 73, 74, <b>66, 67, 68</b> , 75, 37, <b>49</b> , 50, 171	22,900	\$264,000
County Road 14	13	<b>44, 1, 3, 43, 42, 41, 40, 39, 38, 193, 192</b>	8,800	\$101,000
County Road 10 - Chaska	14	170, <b>2, 48</b> , 167, 169, 87, <b>70, 69, 168</b> , 86, <b>85</b> , 88, 89	26,400	\$303,000
County Road 140	15	<b>172</b> , 90, 91, 92, 93, 94	11,500	\$ 132,000
County Road 11 - Carver	16	95, 98, 97, <b>71, 72, 96</b> , 99, 100, 110, 109	21,000	\$242,000
County Road 43	17	101, 102, 103, 174, 104	19,900	\$229,000
County Road 36	18	<b>181</b> , 120, 117, 118, 119, 116	15,800	\$182,000
County Road 33	19	137, 161	23,500	\$270,000
County Road 50	20	134	26,200	\$301,000
Highway 25 - Mayer	21	142, 141	4,000	\$ 46,000
<b>TOTAL – ALL SIGNALS, EXISTING AND FUTURE</b>			<b>331,700</b>	<b>\$3.8 M</b>

## Centracs

While several ATMS software packages could be used to perform signal management and monitoring functions desired by the County, in practice the software provided by the manufacturer of the traffic signal controllers to be managed provides the highest level of compatibility and functionality. For Carver County, this means that Centracs, Econolite's ATMS solution, is the first option to consider.

Numerous other agencies in Minnesota and nearby states have moved from Econolite closed loop systems to a Centracs ATMS system with success, including:

- City of St. Paul
- City of St. Cloud/Stearns County/MnDOT District 3 St. Cloud
- City of Grand Forks, North Dakota
- City of Duluth (installation underway)
- WisDOT

The primary disadvantage of conversion to an ATMS system (Centracs or other), is cost. Initial cost for ATMS hardware and software can range from \$100,000 to more than \$300,000. Ongoing yearly software management costs can exceed \$20,000. Both initial and ongoing costs can vary widely. Carver County should work directly with Econolite's local vendor's representative, Traffic Control Corporation, to confirm deployment needs and costs.

## Prioritization and General Recommendations

The following should be considered in prioritizing when to add each intersection.

- Resources should be focused on connecting the grouped intersections in Waconia, on CSAH 18, and on CSAH 14 first. These are contained in Signal Groups 7, 12 and 13.
- Once the grouped intersections have been connected to the communications network, the County's next focus should be on procuring Centracs (or another ATMS platform) and making it operational.
- After the County's ATMS is up and running, the remaining existing standalone intersections should be brought online as funding becomes available.
- After all existing intersections are online, the County should plan for building out the remaining linkages in geographical groups. Where possible, the addition of these links should be tied to other construction work to minimize cost.
- As the County reconstructs and adds new roadway, fiber optic cable (or, at a minimum, conduit for future fiber optic cable installation) should be provided along the entire length of the roadway in the locations shown in the Communications Plan.

## **Appendix A**

Full Size Overview Map – Future Traffic Signals and Fiber Optic Network



## Appendix B

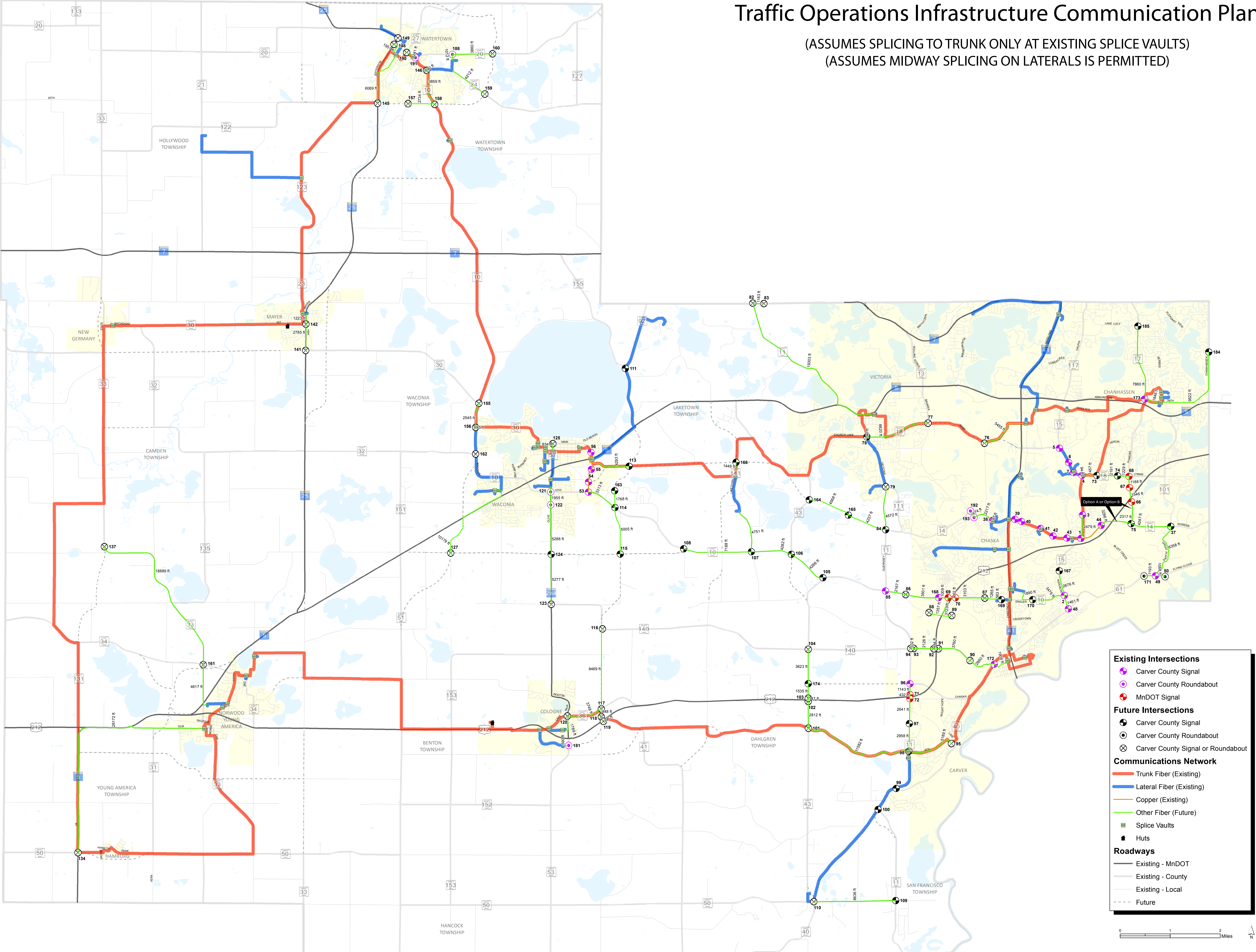
### Detailed Fiber Schematics



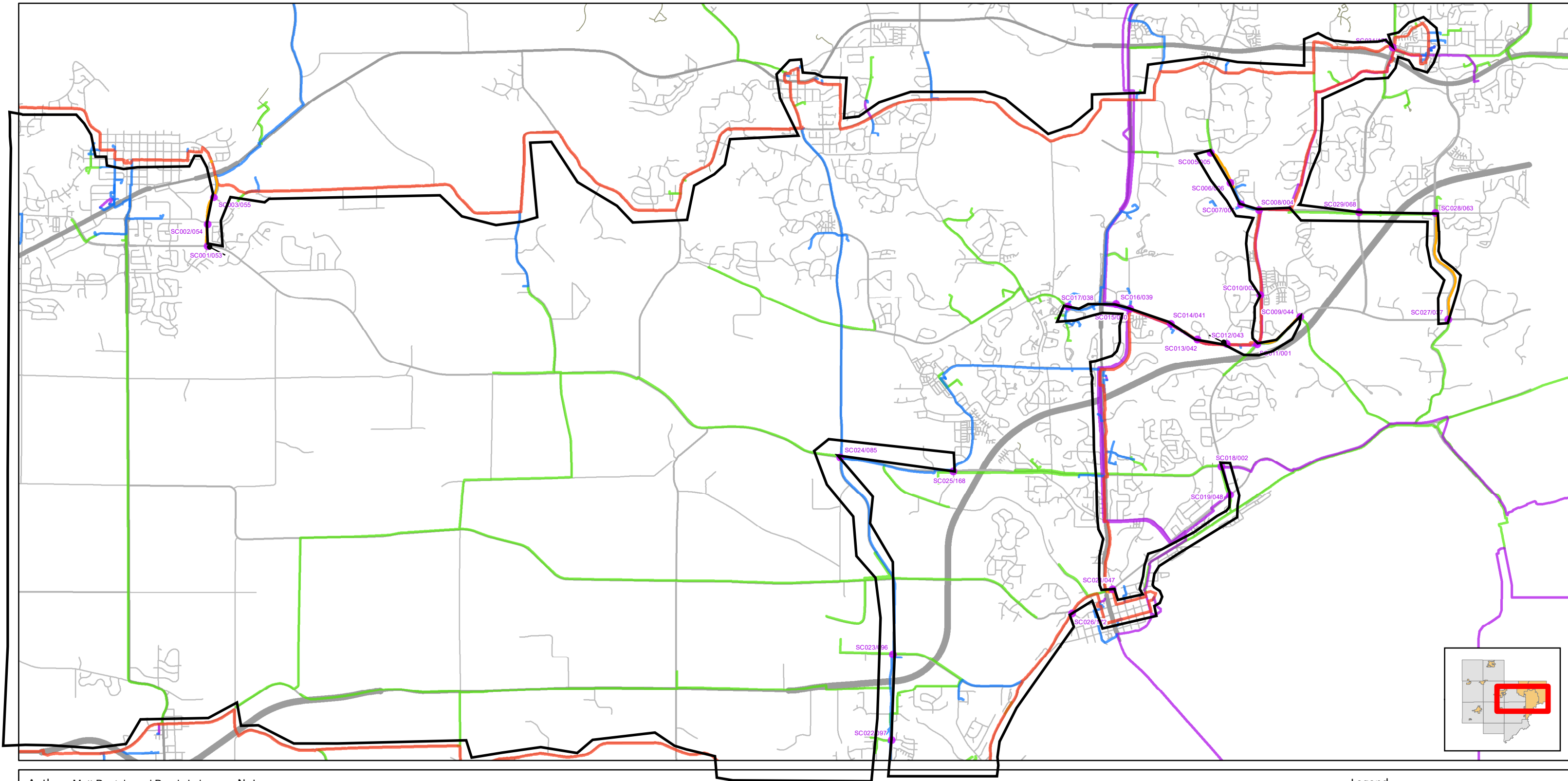
# Carver County

## Traffic Operations Infrastructure Communication Plan

(ASSUMES SPLICING TO TRUNK ONLY AT EXISTING SPLICE VAULTS)  
(ASSUMES MIDWAY SPLICING ON LATERALS IS PERMITTED)







Author: Matt Rantala and Randy Lehs

Notes:

Date: 9/9/2019

This map was created using Carver County's Geographic Information Systems (GIS), it is a compilation of information and data from various City, County, State, and Federal offices. This map is not a surveyed or legally recorded map and is intended to be used as a reference. Carver County is not responsible for any inaccuracies contained herein.

This is an update to the original Carver County signal cabinet traffic control network ring route map created on 6-28-18. This new map adds routes and incorporates all remaining Carver County active or planned active signal cabinets that CarverLink will have fiber constructed into (weather permitting) by end of fall 2019 construction season. There should be 28 traffic control signals total and should correlate to the signal cabinets on the spreadsheet Carver County Active Signal Cabinets 9-11-19. On the map each cabinet is identified in purple by its CarverLink id number and then also public works id number. The BLACK LINE identifies how the pair of dark fiber routes into and back out of each cabinet and around the ring.

#### Legend

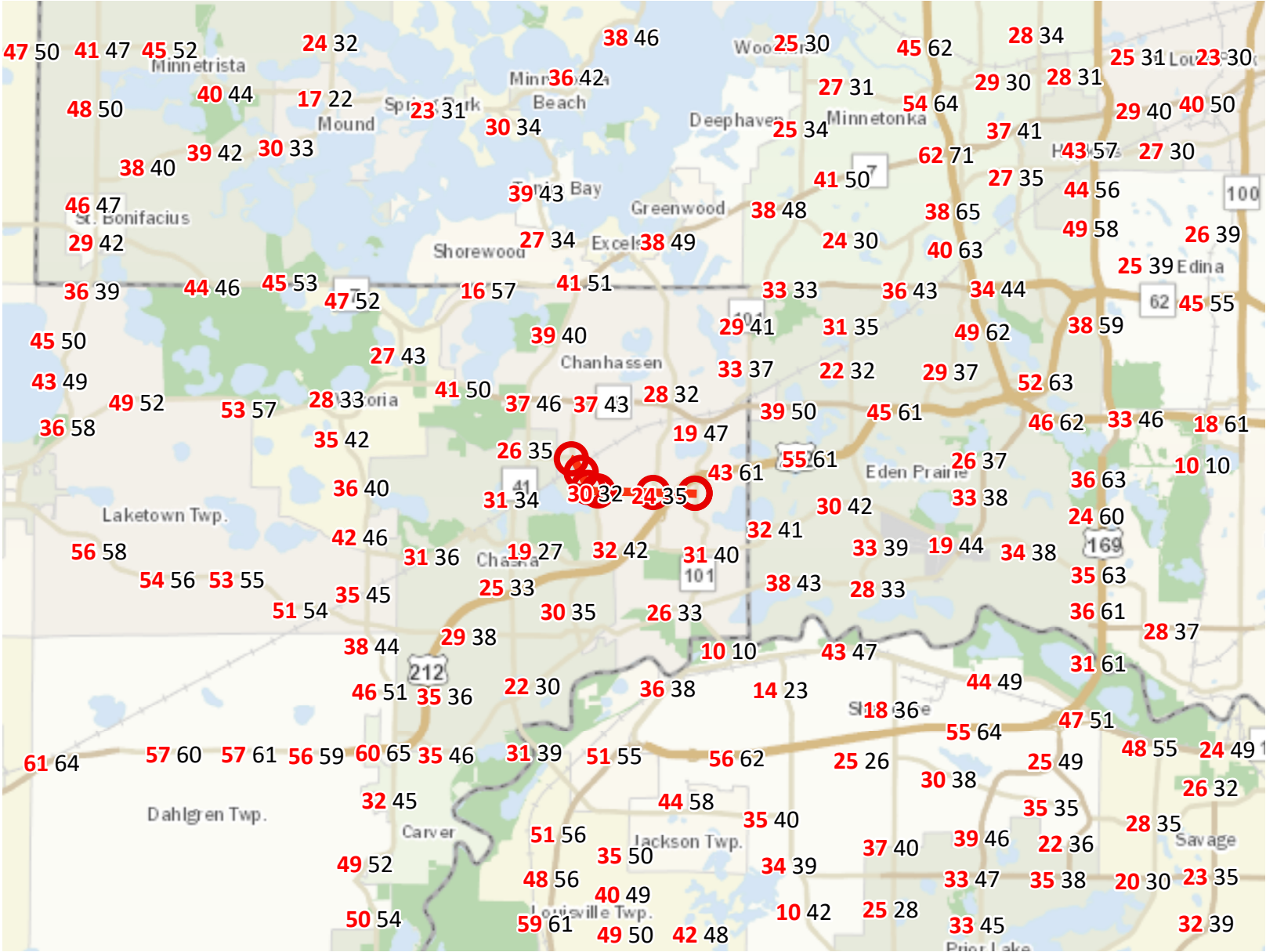
- Splice Case
- 30" x 48" Handhole
- 24" x 36" Handhole
- 17" x 30" Handhole
- 18" Round Handhole
- Handhole (Unknown Size)
- Additional/Lateral Segments
- Backbone Segments
- Signal Cabinet Segments
- Proposed Segments
- Bartered Segments
- Conduit

0 1,350 2,700 5,400 8,100 10,800 Feet



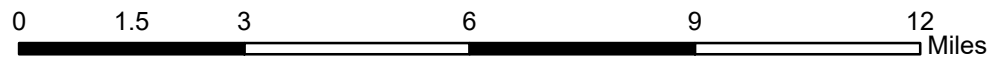
# Level of Congestion

Roadway System Management Project: Carver County ITS Corridor Enhancements (Lyman) | Map ID: 1586445842146



○ Project Points

— Project



Created: 4/9/2020  
LandscapeRSA1

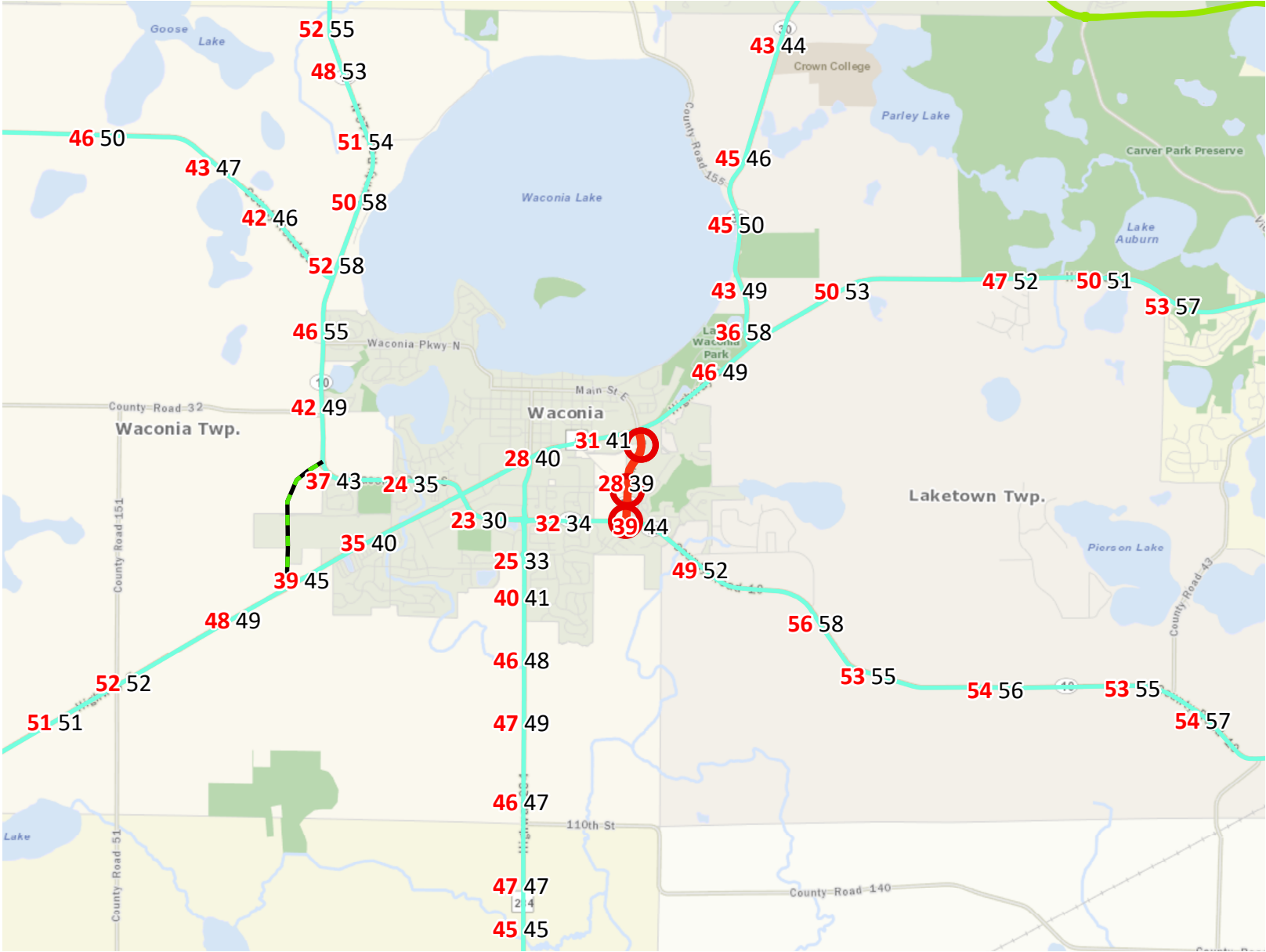


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<https://giswebsite.metc.state.mn.us/gissite/notice.aspx>

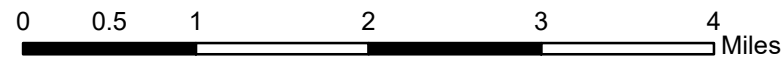


# Level of Congestion

Roadway System Management Project: Carver County ITS Corridor Enhancements (Main) | Map ID: 1586472875859



- Project Points
- Principal Arterials
- Principal Arterials Planned
- A Minor Arterials
- A Minor Arterials Planned
- Project



Created: 4/9/2020  
LandscapeRSA1



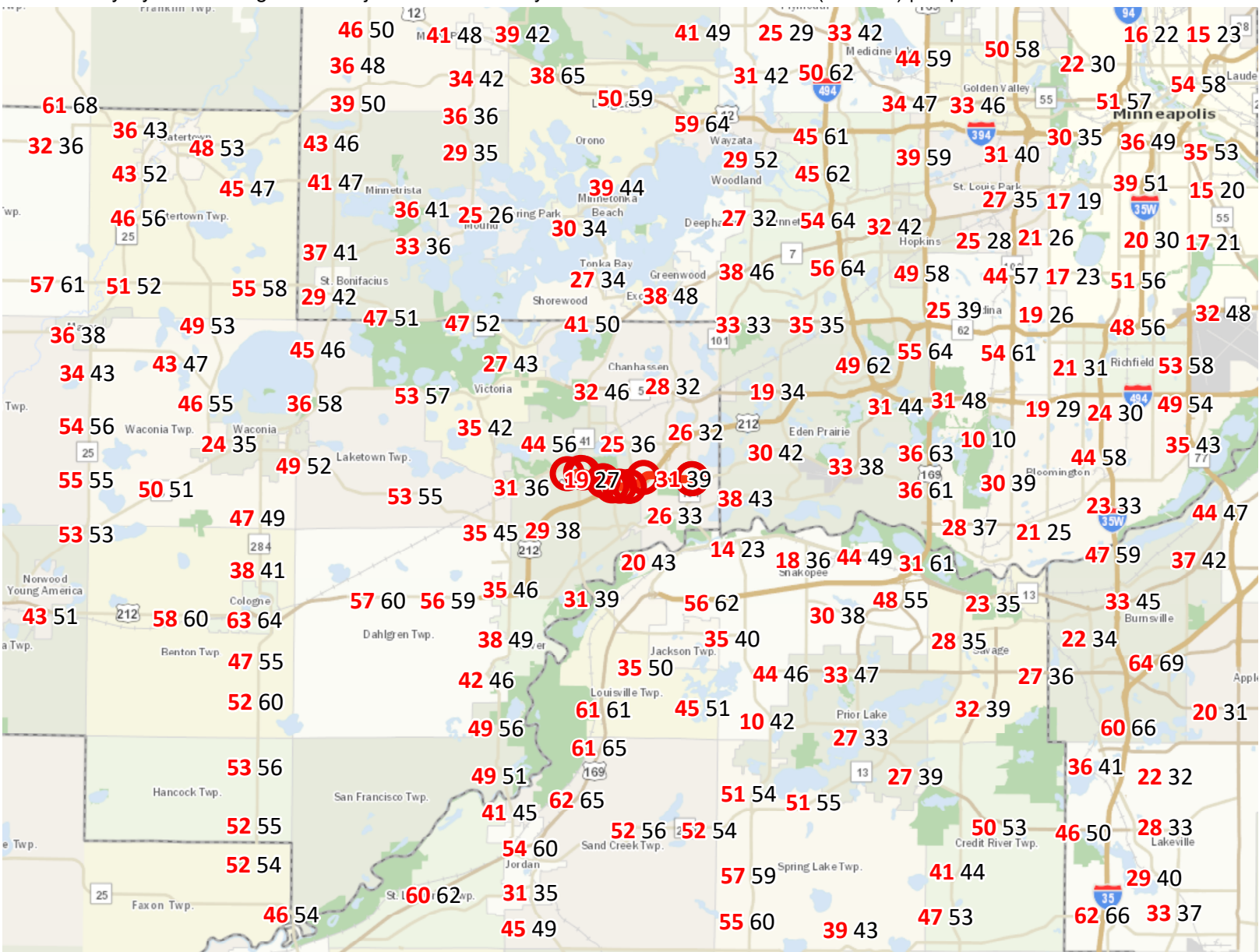
For complete disclaimer of accuracy, please visit  
<https://giswebsite.metc.state.mn.us/gissite/notice.aspx>





# Level of Congestion

Roadway System Management Project: Carver County ITS Corridor Enhancements (Pioneer) | Map ID: 1586472440498



○ Project Points

— Project



Created: 4/9/2020  
LandscapeRSA1



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<https://giswebsite.metc.state.mn.us/gisnotice.aspx>



# Regional Economy

Roadway System Management Project: Carver County ITS Corridor Enhancements (Lyman) | Map ID: 1586539353967

## Results

**WITHIN ONE MI of project:**  
Postsecondary Students: 0

### Totals by City:

#### Chanhassen

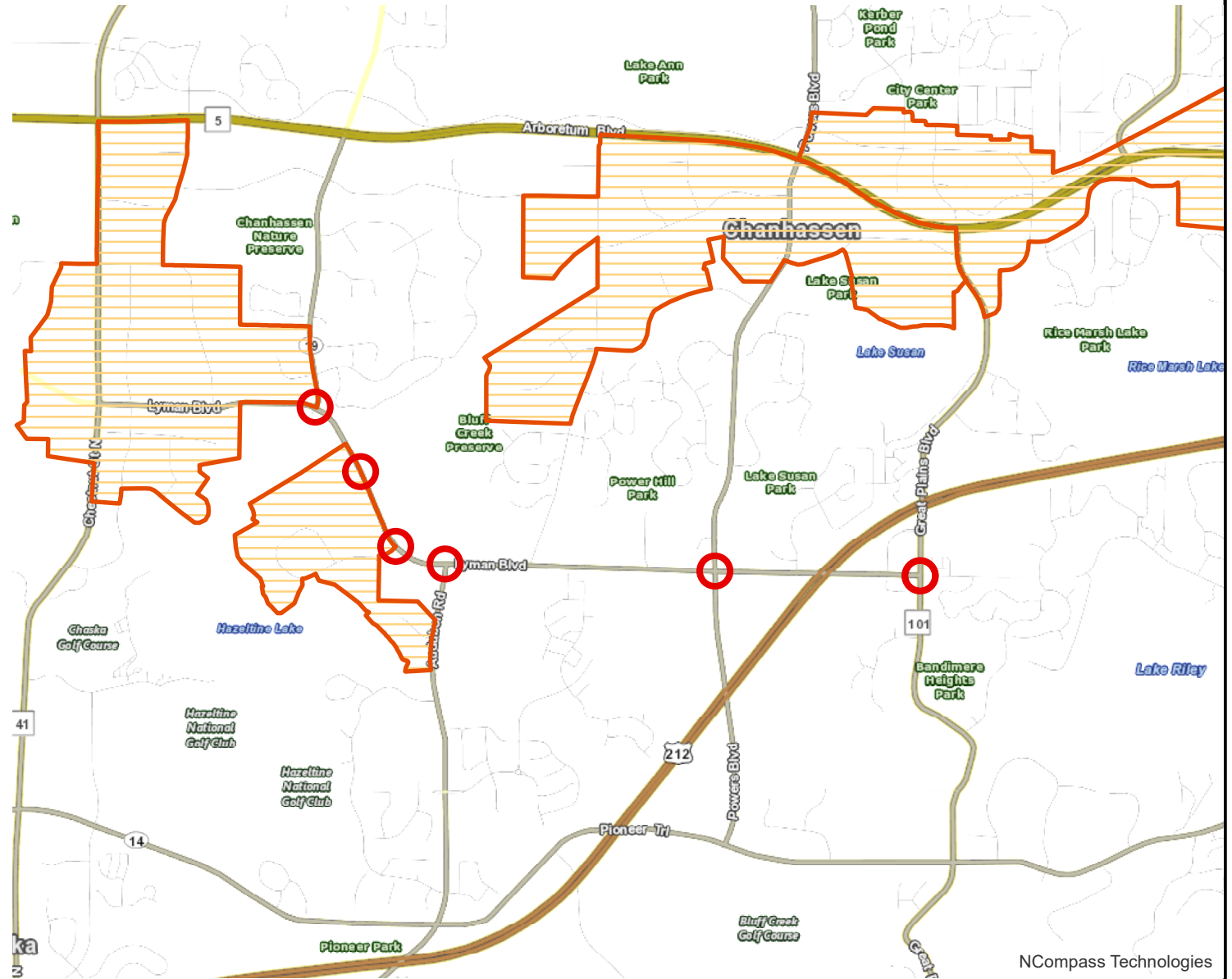
Population: 15027  
Employment: 7149  
Mfg and Dist Employment: 2914

#### Chaska

Population: 2731  
Employment: 6386  
Mfg and Dist Employment: 4833

#### Eden Prairie

Population: 1558  
Employment: 1195  
Mfg and Dist Employment: 225



NCompass Technologies



Project Points



Job Concentration Centers



Manufacturing/Distribution Centers

0 0.325 0.65 1.3 1.95 2.6 Miles

Created: 4/10/2020  
LandscapeRSA5



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<http://giswebsite.metc.state.mn.us/gissitenew/notice.aspx>



# Regional Economy

Roadway System Management Project: Carver County ITS Corridor Enhancements (Main) | Map ID: 1586539912533

## Results

**WITHIN ONE MI of project:**  
Postsecondary Students: 0

Totals by City:

**Laketown Twp.**

Population: 1225

Employment: 316

Mfg and Dist Employment: 8

**Waconia**

Population: 4873

Employment: 5655

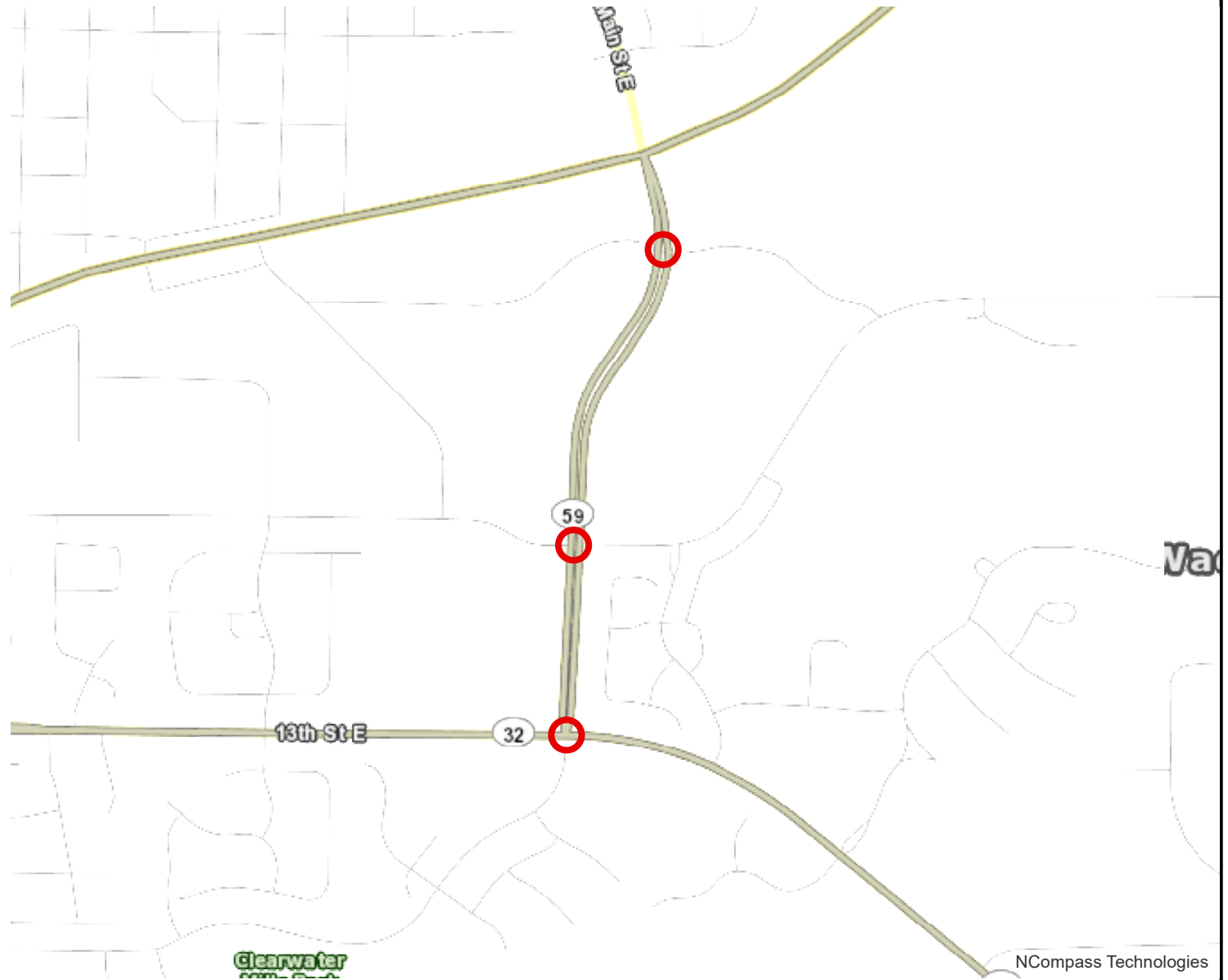
Mfg and Dist Employment: 1343

**Waconia Twp.**

Population: 2102

Employment: 54

Mfg and Dist Employment: 7



NCompass Technologies



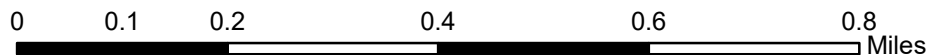
Project Points



Job Concentration Centers



Manufacturing/Distribution Centers



Created: 4/10/2020  
LandscapeRSA5



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# Regional Economy

Roadway System Management Project: Carver County ITS Corridor Enhancements (Pioneer) | Map ID: 1586539695078

## Results

**WITHIN ONE MI of project:**  
Postsecondary Students: 0

### Totals by City:

#### Chanhassen

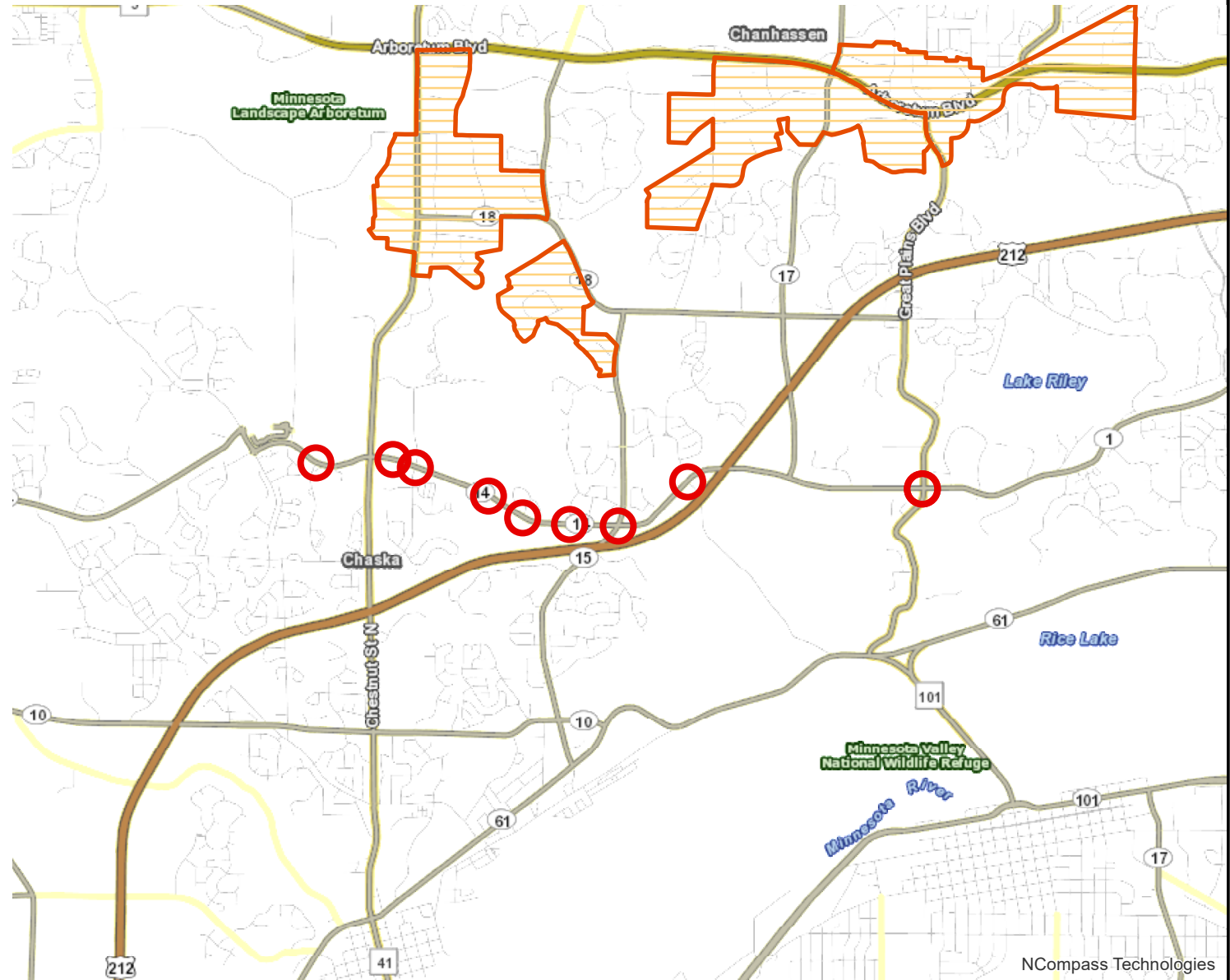
Population: 4931  
Employment: 2716  
Mfg and Dist Employment: 1157

#### Chaska

Population: 13879  
Employment: 7398  
Mfg and Dist Employment: 4891

#### Eden Prairie

Population: 2841  
Employment: 164  
Mfg and Dist Employment: 12



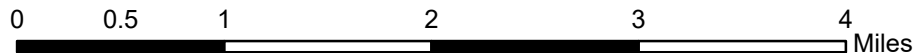
Project Points



Job Concentration Centers



Manufacturing/Distribution Centers



Created: 4/10/2020  
LandscapeRSA5



For complete disclaimer of accuracy, please visit  
<http://giswebsite.metc.state.mn.us/gissitenew/notice.aspx>



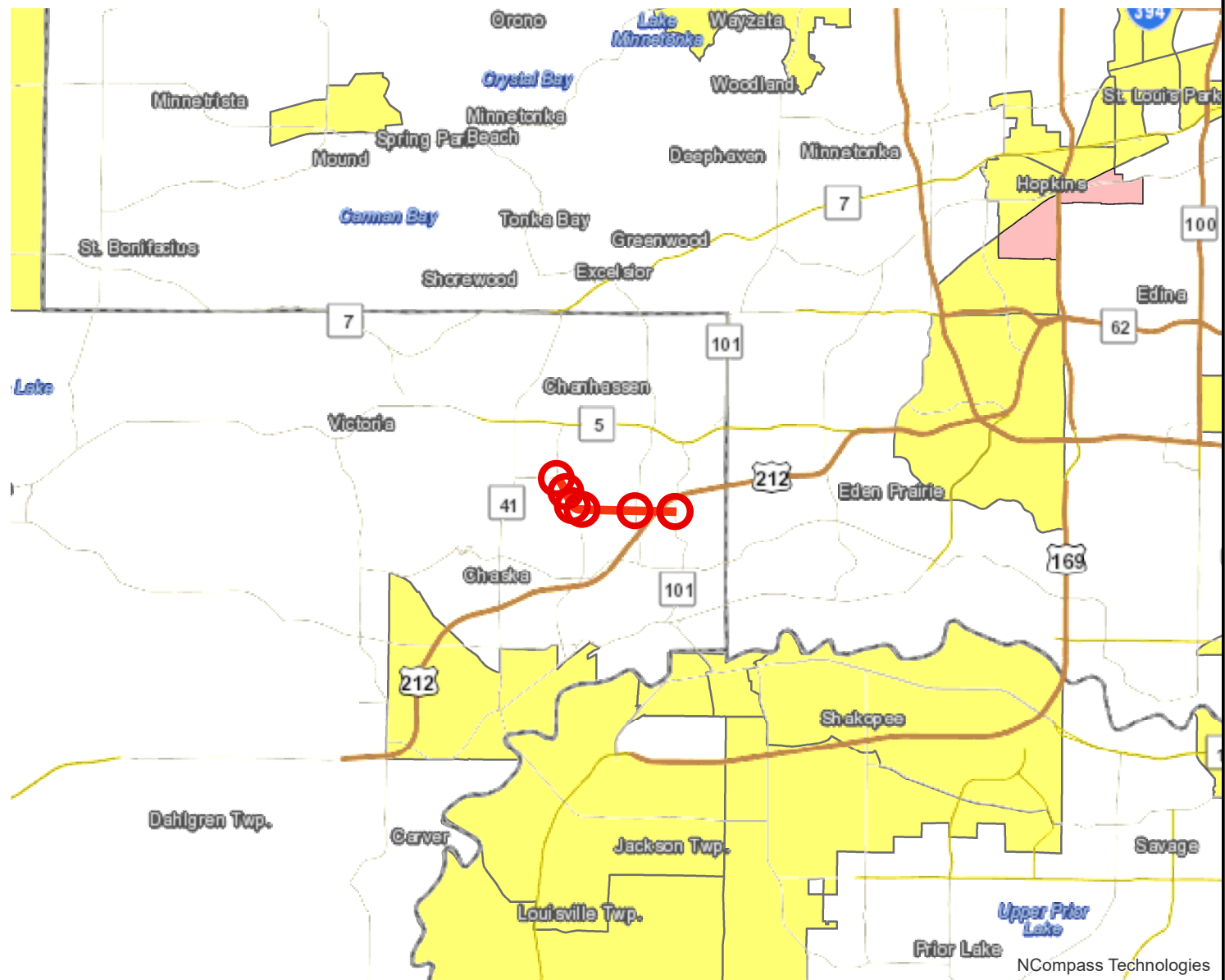
## Socio-Economic Conditions

Roadway System Management Project: Carver County ITS Corridor Enhancements (Lyman) | Map ID: 1586445842146

### Results

Project located in a census tract that is below the regional average for population in poverty or populations of color, or includes children, people with disabilities, or the elderly:  
(0 to 12 Points)

Tracts within half-mile:  
90701 90702 90900



Points



Lines



Area of Concentrated Poverty > 50% residents of color



Area of Concentrated Poverty



Above reg'l avg conc of race/poverty



Created: 4/9/2020  
LandscapeRSA2



For complete disclaimer of accuracy, please visit  
<http://giswebsite.metc.state.mn.us/gis/notice.aspx>



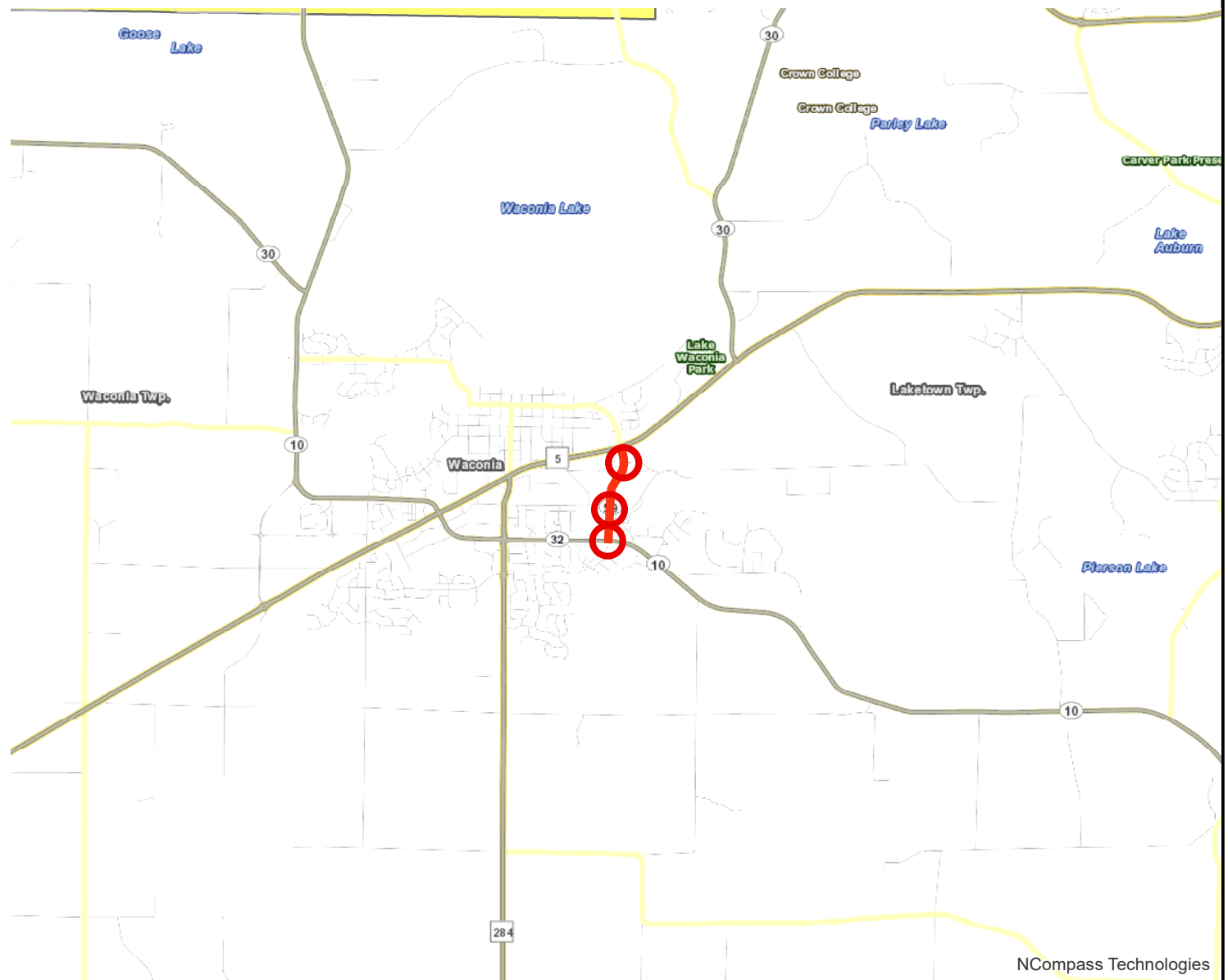
# Socio-Economic Conditions

Roadway System Management Project: Carver County ITS Corridor Enhancements (Main) | Map ID: 1586472875859

## Results

Project located in a census tract that is below the regional average for population in poverty or populations of color, or includes children, people with disabilities, or the elderly:  
(0 to 12 Points)

Tracts within half-mile:  
90301 90302 90401



Points



Lines



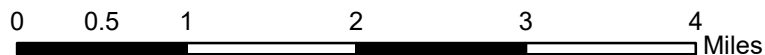
Area of Concentrated Poverty > 50% residents of color



Area of Concentrated Poverty



Above reg'l avg conc of race/poverty



Created: 4/9/2020  
LandscapeRSA2



For complete disclaimer of accuracy, please visit  
<http://giswebsite.metc.state.mn.us/gisite/notice.aspx>



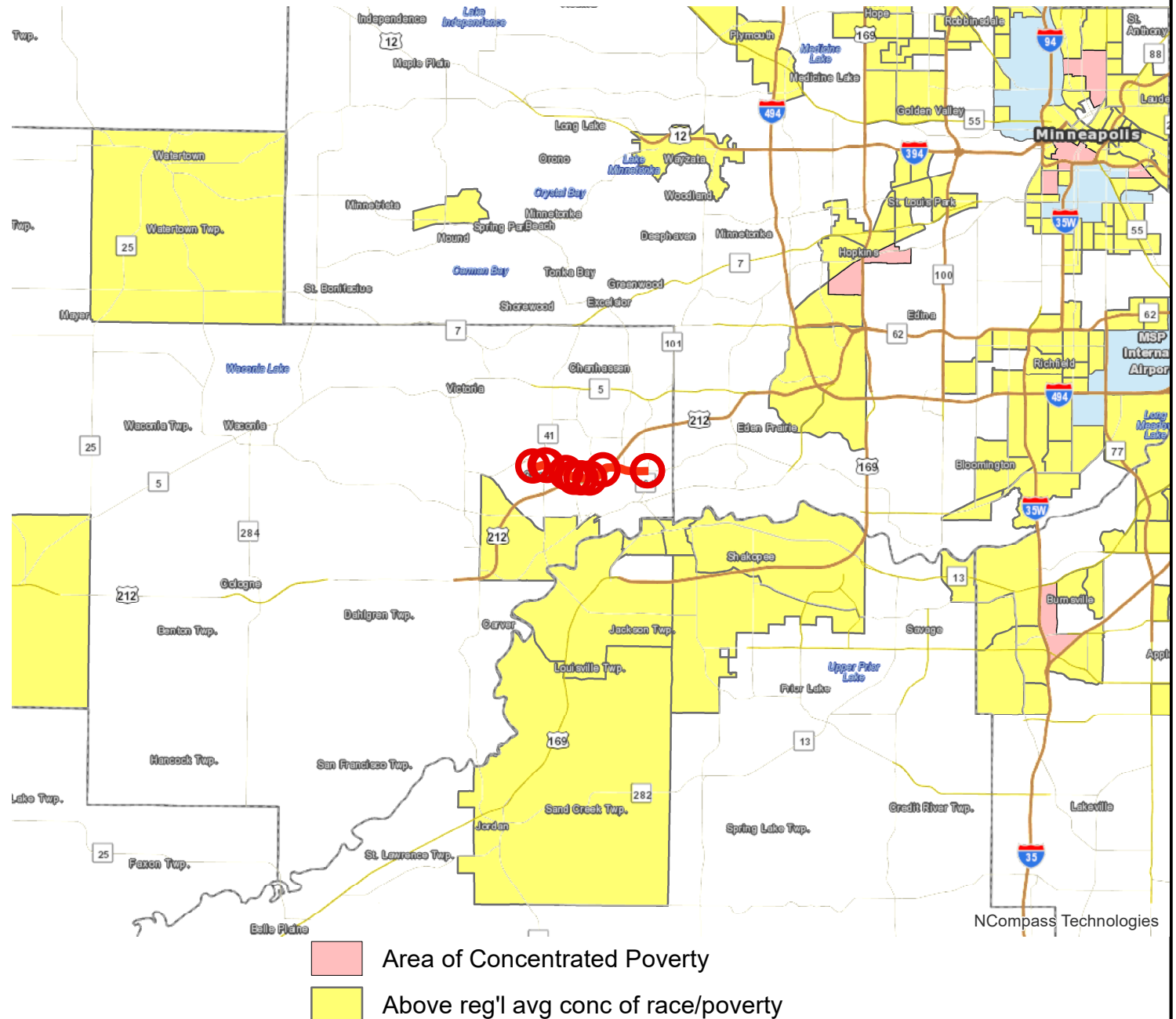
# Socio-Economic Conditions

Roadway System Management Project: Carver County ITS Corridor Enhancements (Pioneer) | Map ID: 1586472440498

## Results

Project located in a census tract that is below the regional average for population in poverty or populations of color, or includes children, people with disabilities, or the elderly:  
(0 to 12 Points)

Tracts within half-mile:  
90702 90800 90900



0 2.75 5.5 11 16.5 22 Miles

Created: 4/9/2020  
LandscapeRSA2

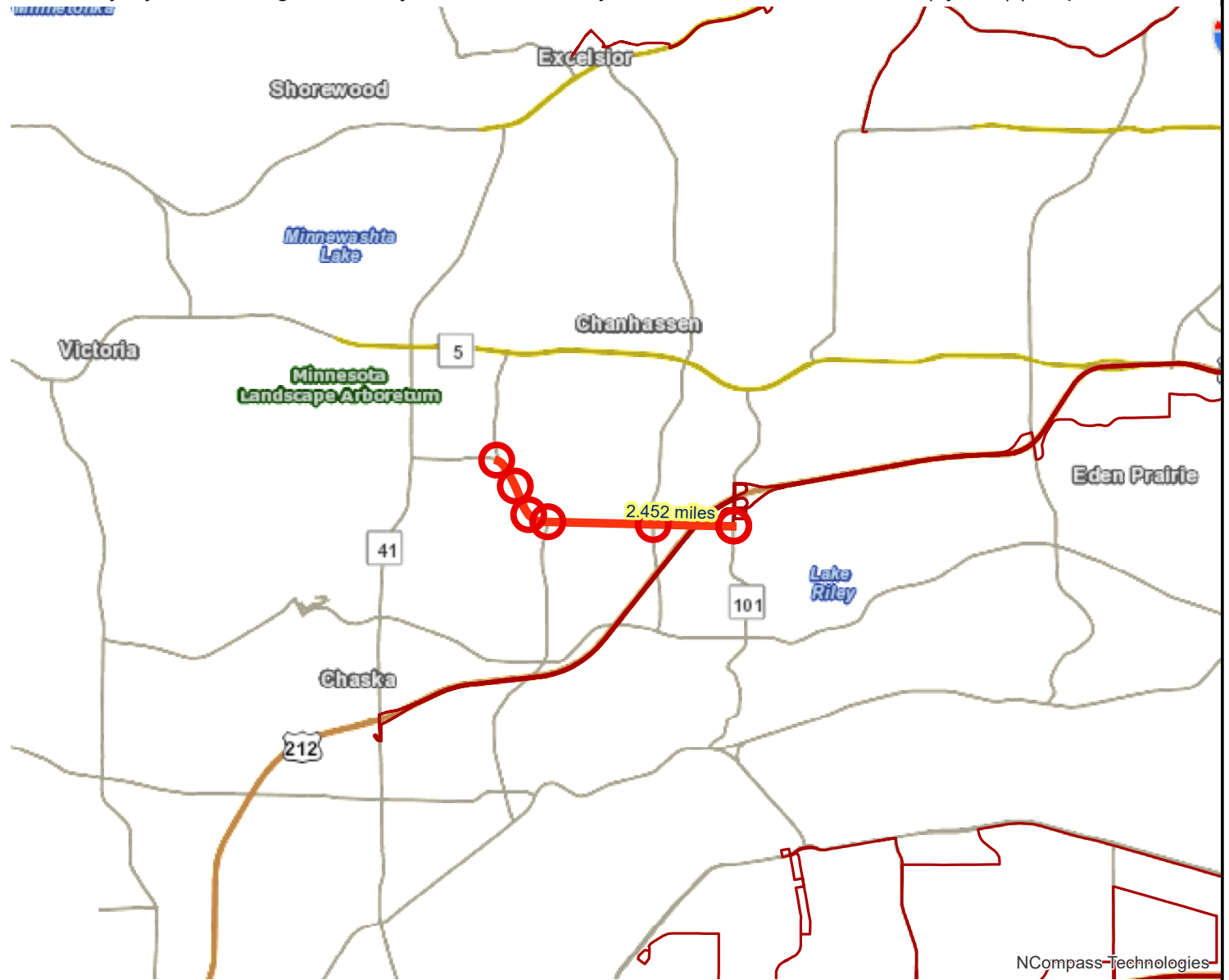


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<http://giswebsite.metc.state.mn.us/gis/notice.aspx>



## Transit Connections

Roadway System Management Project: Carver County ITS Corridor Enhancements (Lyman) | Map ID: 15864458421



### Results

Transit with a Direct Connection to project:  
600 690 698

*\*indicates Planned Alignments*

Transit Market areas: 3, 4

○ Project Points — Transit Routes

— Project

□ Project Area

0 0.75 1.5 3 4.5 6 Miles

Created: 4/9/2020  
LandscapeRSA3

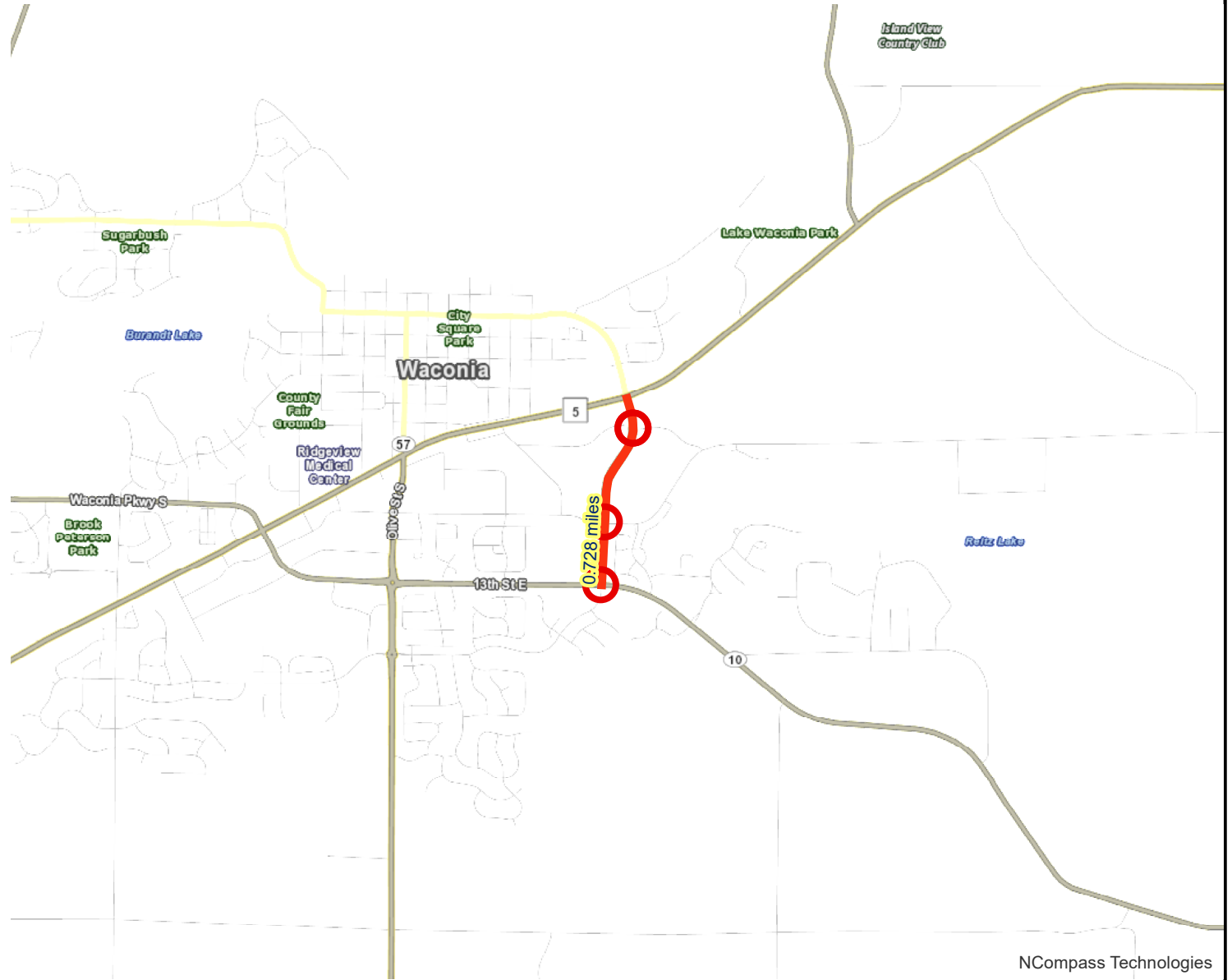


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## Transit Connections

Roadway System Management Project: Carver County ITS Corridor Enhancements (Main) | Map ID: 158647287585



## Results

Transit with a Direct Connection to project:  
-- NONE --

*\*indicates Planned Alignments*

Transit Market areas: 4

○ Project Points

— Project

□ Project Area

0 0.35 0.7 1.4 2.1 2.8 Miles

Created: 4/9/2020  
LandscapeRSA3



For complete disclaimer of accuracy, please visit  
<https://giswebsite.metc.state.mn.us/gissite/notice.aspx>



NCompass Technologies



## Transit Connections

Roadway System Management Project: Carver County ITS Corridor Enhancements (Pioneer) | Map ID: 1586472440

### Results

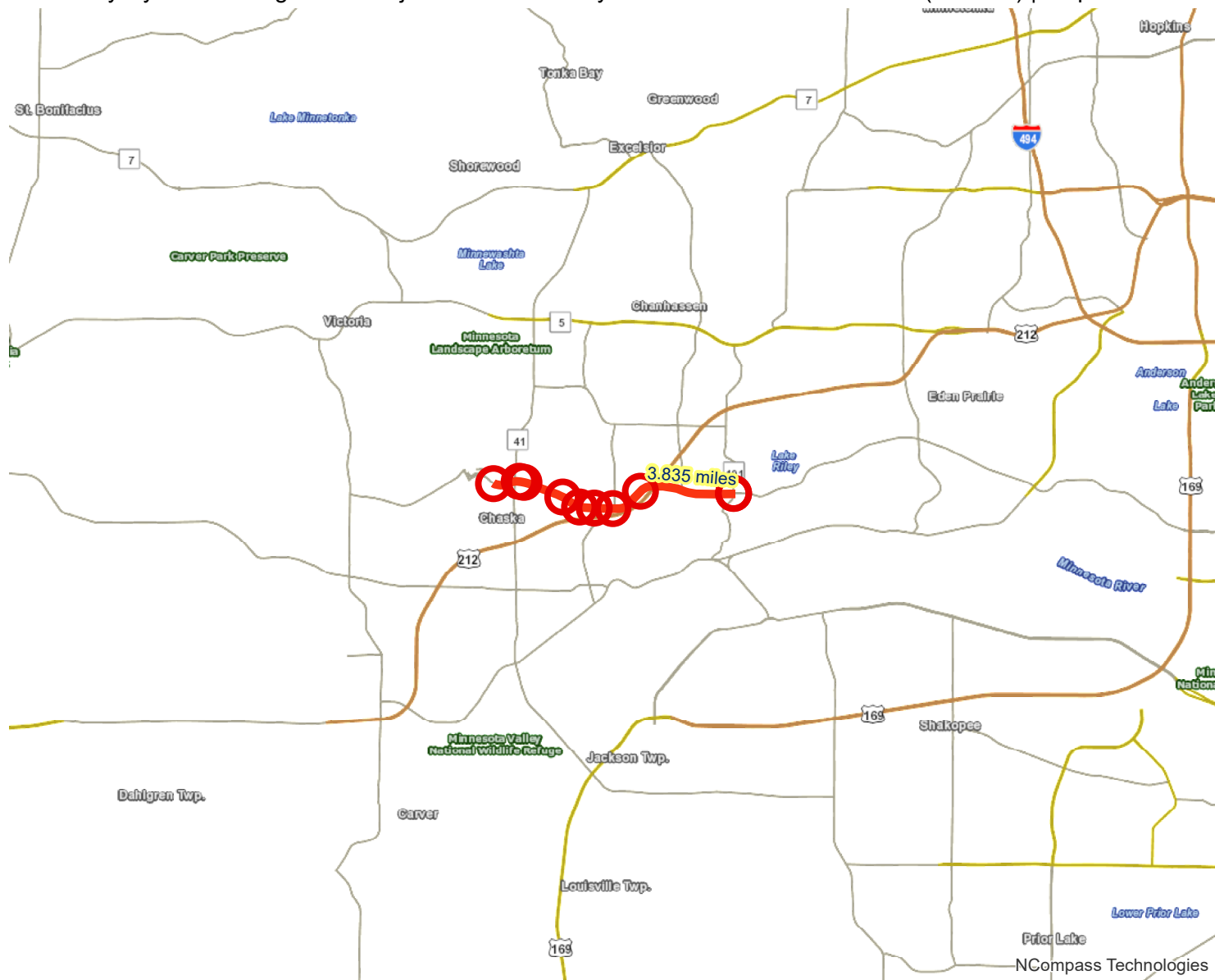
Transit with a Direct Connection to project:  
600 690 698

*\*indicates Planned Alignments*

Transit Market areas: 4, 9

-  Project Points
-  Project
-  Project Area

0 1.25 2.5 5 7.5 10 Miles

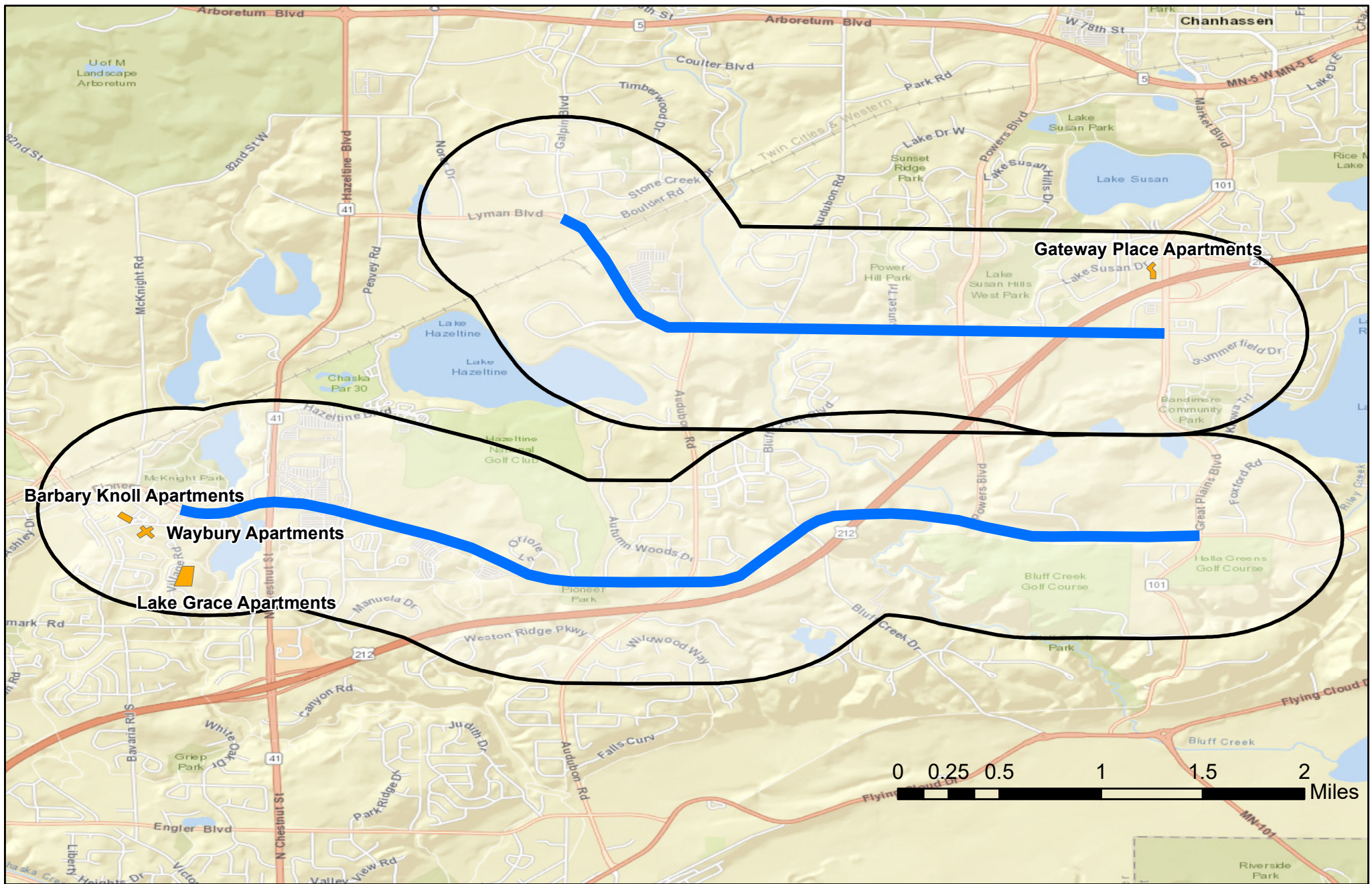


Created: 4/9/2020  
LandscapeRSA3



For complete disclaimer of accuracy, please visit  
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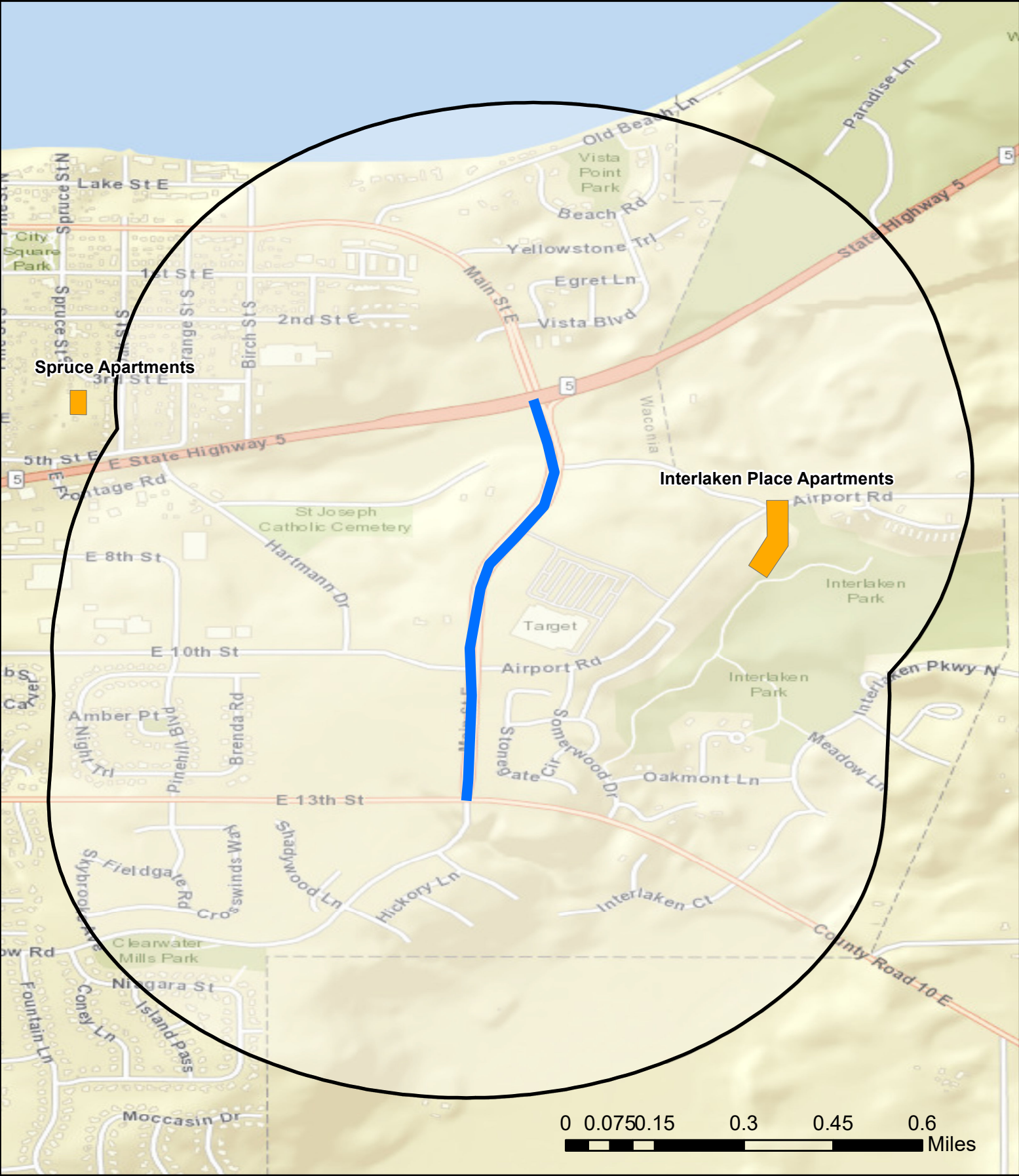


## Legend




- Main Street Corridor
- .5 Mile Radius
- Affordable Housing Developments within .5 mile

**Affordable Housing Access**  
**Lyman Boulevard Corridor**  
**Pioneer Trail Corridor**





**Legend**

-  Main Street Corridor
-  .5 Mile Radius
-  Affordable Housing Developments within .5 mile

**Affordable Housing Access  
Main Street Corridor**



**Carver County  
Public Works**

11360 Highway 212, Suite 1  
Cologne, MN 55322

May 5th, 2020

Elaine Koutsoukos  
TAB Coordinator  
Metropolitan Council  
390 Robert Street North  
St. Paul, MN 55101  
[elaine.koutsoukos@metc.state.mn.us](mailto:elaine.koutsoukos@metc.state.mn.us)  
651-602-1717

**Re: Agency Owner / Operator Letter of Support / Project Readiness --  
2020 Regional Solicitation Transportation Grant Funding Request -- Proposed Carver County Traffic  
Management Technologies Grant Application**

Dear Ms. Koutsoukos,

We are writing this letter in support of the subject grant application project. The project for ***Carver County Traffic Signal Technologies and ITS Corridor Enhancements*** is planned to involve County-owned intersections and locations in coordination with but independent from other agencies.

Agency Owner / Operator. As the agency that owns and operates the traffic signal, ITS, and traffic management systems for Carver County, please consider this as a letter of support indicating that we are aware of and understand the project being submitted and that we are committed to operating and maintaining the planned facilities year-round for the useful life of the improvements.

County Board Authorization. The Carver County Board is also in support and formally authorized the County Engineer to submit this 2020 Regional Solicitation project application to the Transportation Advisory Board of the Metropolitan Council at its May 5th, 2020 meeting.

Layouts / Plans / Previous Work. We would also like to note that the County has been developing a master plan, construction improvement program, and set of smaller implementable projects to assist in the support of this grant application as well as ongoing planning and updating of its traffic signals and ITS systems and other related traffic management technologies.

Layouts and plans for the subject ITS / Traffic Management Technologies project application have been developed in various major work items. In 2015, Carver County completed a Traffic Signal Communications and ATMS Systems Plan with SRF Consulting Group. This plan included a systems plan and detailed location-based layout plans with a Countywide systems map, fiber-information technology communications plan, and detailed component devices selection and fiber schematics. More information on this plan and the layouts can be found at the subject Project website: <https://www.co.carver.mn.us/departments/public-works/projects-studies/traffic-signal-technologies-project-plan>

In addition, as noted in the 2015 Traffic Signal Communications Plan, since 2010 Carver County has been investing in a large-scale fiber optic, broadband infrastructure deployment to connect the County's facilities

CARVER COUNTY

with a major backbone fiber ring trunk line and a robust, high capacity network. In the last five or more years, and as of the end of 2019, the fiber deployment made localized, dedicated lateral fiber line connections to all the County's existing and planned traffic signal and related ITS locations. With the assistance of the County's CarverLink Fiber Public Services Division, Carver County Public Works has invested in several hundred thousands of dollars to make these localized Traffic Signal / ITS connections project ready for the next stages of a modern advanced traffic management system. To have these fiber connections already in place comes as a substantial major cost savings to such traffic management technologies projects. More information on the County's fiber deployments can be found at the noted Project website.

Project Benefits / Interests. The County's interests in the subject grant application is to take advantage of these previous plans and investments to enable the next steps of additions and upgrades in traffic signal and ITS equipment and systems. The County's 2020 grant application for ***Traffic Signal Technologies and ITS Corridor Enhancements*** would focus on 2-3 major highway corridors to:

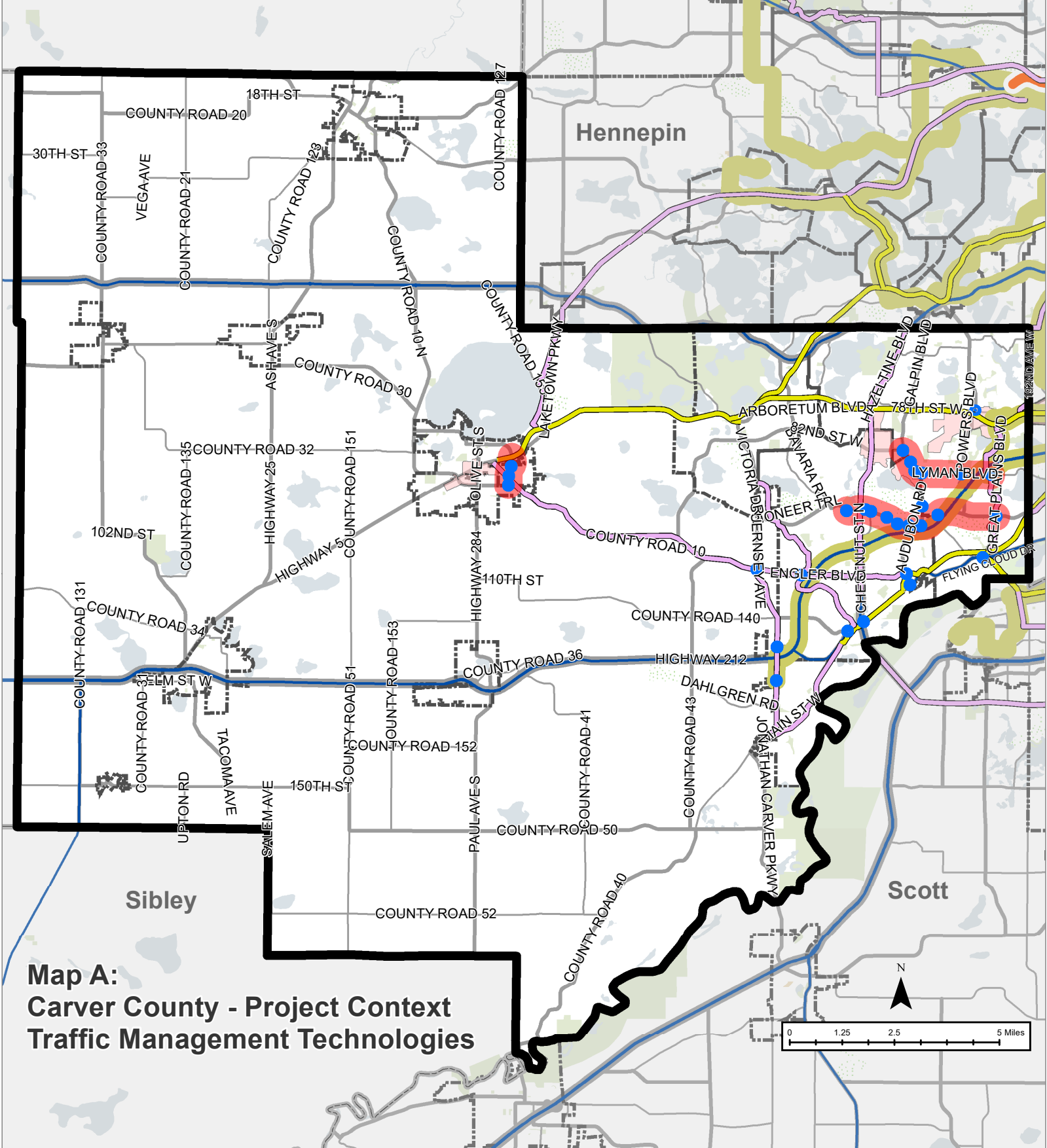
- Install the County's first traffic management center, traffic communications and central signal system software for needed modern ITS and traffic signal systems to help improve multi-modal transportation mobility, safety, and operations.
- Replace obsolete, legacy equipment systems with modern, responsive platforms, consistent with the Mn Statewide Regional Architecture ITS Architecture. The County has a list of dated, obsolete equipment and systems, many of which can be seen on Econolite's legacy products list (products like Aries limited zone software; ASC-2 controllers; video detection sensors, and other older generation and retired components.
- Provide and increase inter-operability and coordination with MnDOT and other agencies / systems to cooperatively and collaboratively address the region's mobility issues on arterial street networks. By working across traditional jurisdictional boundaries, agencies provide higher levels of customer service through more consistent systems and objective oriented actions that consider the regional impacts of local activities.
- Work with our partner agencies in Information Technologies (IT) and CarverLink to enable and enhance the County's fiber optic network and the County's IT and ethernet infrastructure to support and operate the traffic signal and ITS traffic management technology systems planned.
- Among other things: Improve traffic flow and air quality; Include innovative treatments, including flashing yellow arrows and vehicle detection at traffic signals; Reduce traffic-related crashes; Minimize travel time; Link and improve coordination and operation of county traffic signals

Carver County appreciates the opportunity to share the proposed plans in the subject project application and looks forward to the Met Council's consideration of federal funds through the Regional Solicitation Programs. If there is anything else needed to support this project and/or the subject application, please let me know.













Sincerely,



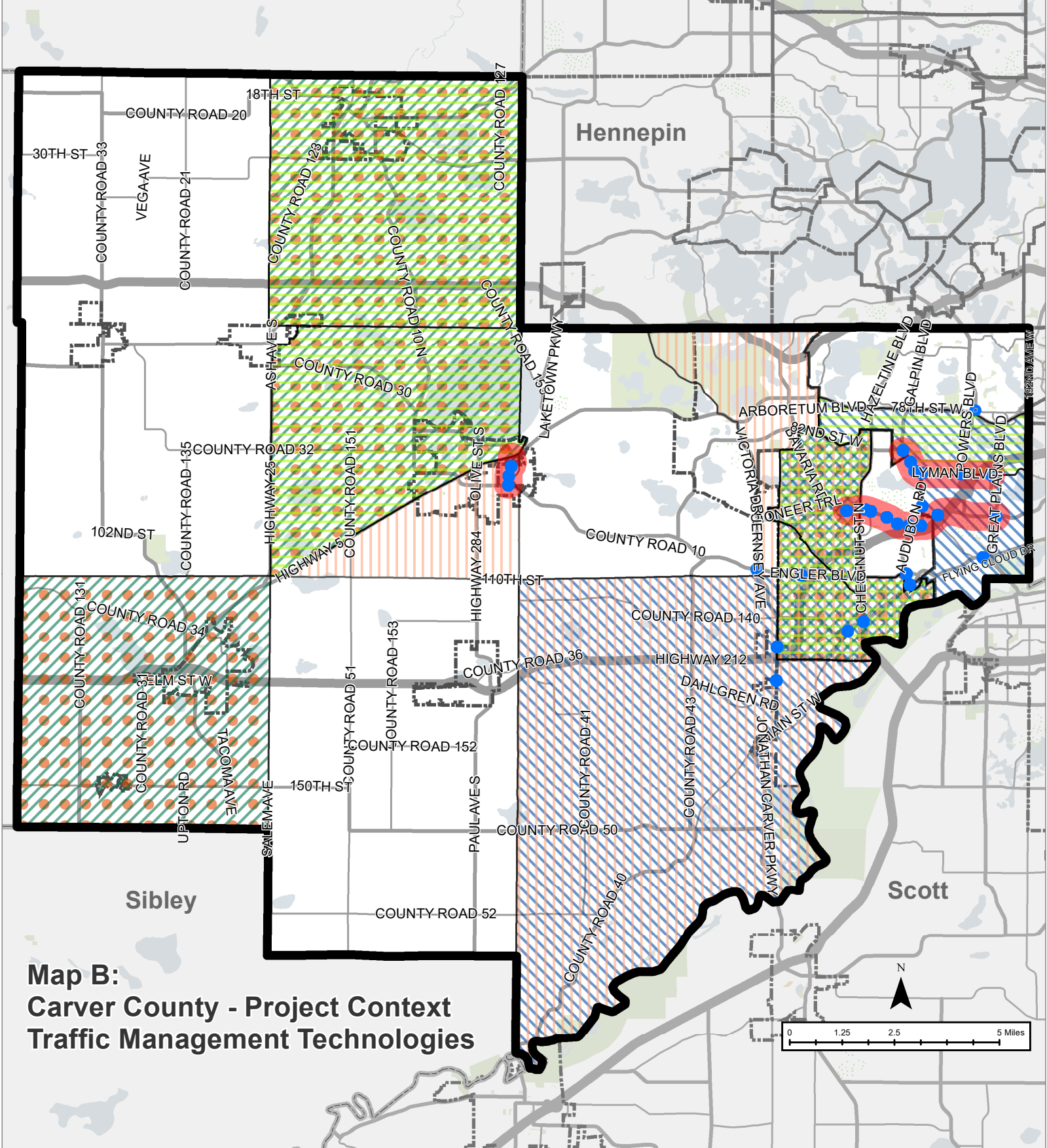
Lyndon Robjant, PE  
Public Works Director  
County Engineer



**Map A:**  
**Carver County - Project Context**  
**Traffic Management Technologies**

- |   |   |   |  |
|---|---|---|--|
| <b>RBTN Alignments</b>  | <b>Designated Truck Routes</b>  | <b>Functional Classification</b>  |  Job/Activity Centers |
|  Tier 1                           |  Designated Truck Routes                                     |  Principal Arterials |  Cities               |
|  Tier 2                           |  Signalized Intersections<br>(Carver County<br>Jurisdiction) |  A-Minor Arterials   |  Project Corridors    |
|  Planned Transitway<br>Alignments |  Transit Routes  |  Other               |  |





**Map B:**  
**Carver County - Project Context**  
**Traffic Management Technologies**

Population 65 and older  
(top 5 census tracts by #)

Population younger than  
18 (top 5 census tracts by  
#)

Population with a disability  
(top 5 census tracts by #)

Non-white population (top  
5 census tracts by #)

Households with income  
less than \$25,000 (top 5  
census tracts by #)

Cities

Signalized Intersections  
(Carver County  
Jurisdiction)

Project Corridors

**Functional  
Classification**

Principal

A-Minor

Other



# Project Summary

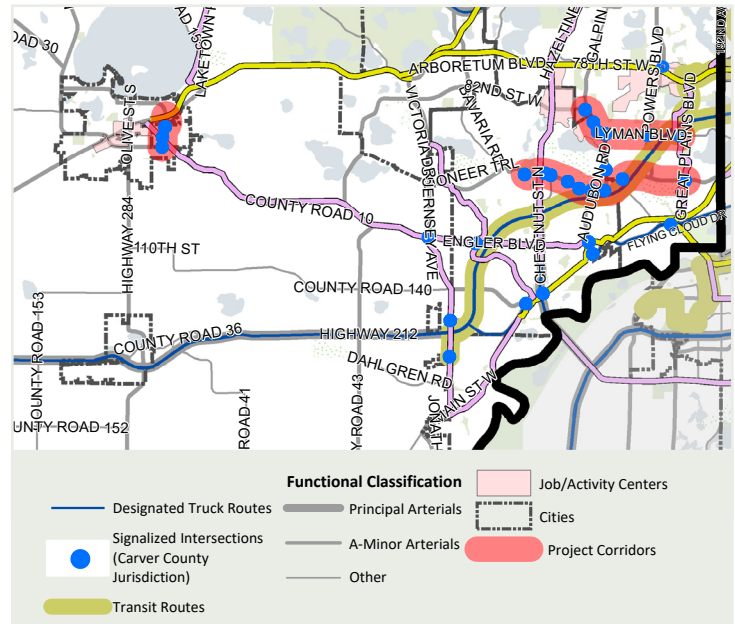
## Traffic Signal Technologies and ITS Corridor Enhancements

Applicant: Carver County  
May 15, 2020

### Project Overview

Carver County uses traffic signals to support safe and efficient multimodal transportation for County residents, businesses, employees, and visitors. The County is requesting a federal grant to upgrade obsolete and add to existing traffic management and intelligent transportation systems (ITS) throughout Carver County, with a focus on CSAH 18-Lyman Boulevard (Chanhassen/Carver), CSAH 14-Pioneer Trail (Chanhassen/Carver), CSAH 59-Main Street (Waconia), and other intersections. The project scope will include:

- A new Advanced Traffic Management System (ATMS)
- Central signal system software with expanded remote access and operations
- Upgraded traffic signal controllers and cabinets
- Conflict monitors
- Upgraded timing plans, coordination, and video detection systems
- ITS devices including CCTV cameras
- Communications and fiber optic cable upgrades & connections



Project Area

### Project Benefits

The roadway system management project will provide a more responsive, efficient, future-minded, and smart traffic control system. The project will:

- Link and improve coordination, operation, and interoperability of County-owned signals and with other jurisdictions
- Reduce traffic-related crashes, minimize travel time, and better support incident management and special events
- Support environmental sustainability and air quality by improving traffic flow
- Include innovative treatments such as flashing yellow arrows and vehicle detection at traffic signals consistent with Regional ITS Architecture and best practices
- Improve bicycle and pedestrian access and safety by installing accessible pedestrian signals



Existing Carver County Traffic Signal

### Project Schedule

- **Design:** Summer 2021-Summer 2024
- **Right-of-way:** Not anticipated
- **Bidding:** Fall 2024-Winter 2025
- **Construction:** Spring-Fall 2025

### Requested Federal Amount

\$1,580,000

### Total Project Cost

\$1,975,000

### CONTACT:

**Dan McCormick, Transportation Manager**

Carver County Public Works

952.466.5208

[dmccormick@co.carver.mn.us](mailto:dmccormick@co.carver.mn.us)

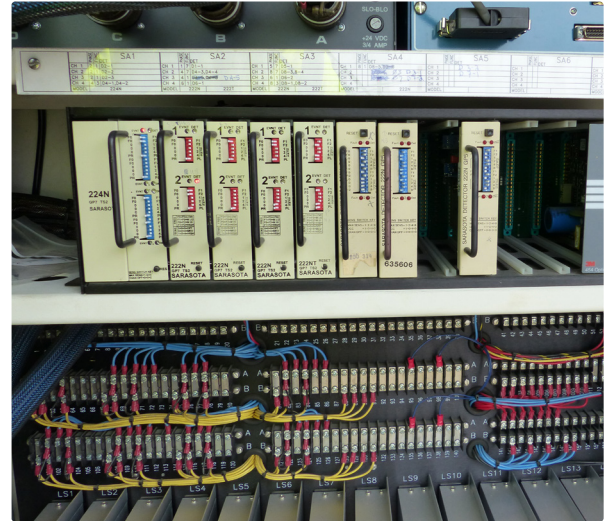
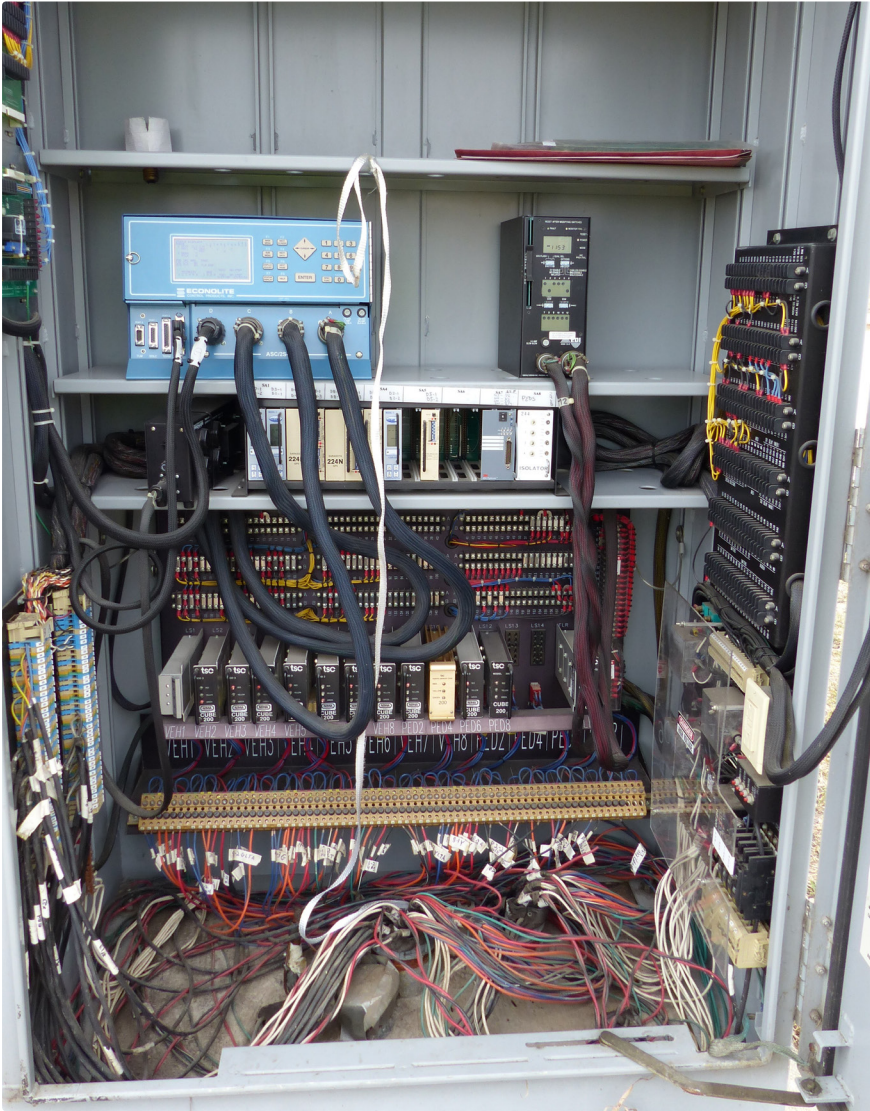
<https://www.co.carver.mn.us/departments/public-works/projects-studies/traffic-signal-technologies-project-plan>



# Project Summary

## Traffic Signal Technologies and ITS Corridor Enhancements

Applicant: Carver County  
May 15, 2020



*Existing Carver County Signal Cabinets*

### CONTACT:

**Dan McCormick, Transportation Manager**  
Carver County Public Works  
952.466.5208  
dmccormick@co.carver.mn.us  
<https://www.co.carver.mn.us/departments/public-works/projects-studies/traffic-signal-technologies-project-plan>