Application

19838 - 2024 Roadway Modernization
20032 - CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project
Regional Solicitation - Roadways Including Multimodal Elements

Status: Submitted
Submitted Date: 12/15/2023 11:33 AM

Primary Contact

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What Grant Programs are you most interested in? Regional Solicitation - Roadways Including Multimodal Elements

Organization Information

Name: HENNEPIN COUNTY
Jurisdictional Agency (if different):
Organization Type: County Government
Organization Website:
Address: DPT OF PUBLIC WORKS
1600 PRAIRIE DR

*

MEDINA	Minnesota	55340
City	State/Province	Postal Code/Zip

County: Hennepin
Phone:* 763-745-7600
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Fax:
PeopleSoft Vendor Number 0000028004A9

Project Information

Project Name CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project
Primary County where the Project is Located Hennepin
Cities or Townships where the Project is Located: St. Louis Park
Jurisdictional Agency (If Different than the Applicant):

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

The CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project includes the reconstruction of the corridor from Xylon Ave to Vernon Ave in the City of St. Louis Park. CSAH 5 (Minnetonka Blvd) is classified as an A-Minor Reliever. Attachment 02 provides a map of the project location.

The project objectives are to improve safety, accessibility, and mobility for people who walk, roll, bike, and drive along the corridor through the lens of the county's Complete and Green Streets Policy. This project will build upon the Phase 1 reconstruction project from TH 100 to France Ave that is expected to begin construction in 2024. Photos depicting the roadway's existing condition are included in Attachment 03.

The current roadway consists of a 2-lane undivided configuration with turn lanes at signalized intersections and an on-street bicycle facilities that lack vertical separation. Many of the pedestrian ramps do not meet current ADA standards, causing challenges for people with limited mobility. The existing ADA accommodations are especially poor due to the surrounding topography. CSAH 5 (Minnetonka Blvd) serves as a Tier 1 RBTN corridor and provides access to the North Cedar Lake Regional Trail, another Tier 1 RBTN alignment, as well as several other bicycle facilities that connect to future Green Line Extension stations.

The project will include, but is not limited to the following elements. The specific types of improvements and locations will be determined as part of the design process based on additional community input, data analysis, and environmental review. Attachment 04 includes the potential typical section for the corridor, and Attachment 05 includes the potential concept.

- Roadway improvements; including, the replacement of deteriorated pavement, pavement substructure, curb, and storm sewer structures.

- Safety improvements; including potential roundabouts to manage vehicle speeds, dedicated off-street bicycle facilities to separate people biking from people driving, and medians to separate opposing traffic.

- Pedestrian improvements; such as ADA compliant ramps, upgraded sidewalks (free of obstructions), high visibility crosswalk markings, APS at signals, and medians.

-For people taking transit (Routes 17 and 667), this project will improve first and last mile connections to transit stops by providing dedicated facilities for people walking and biking.

-Streetscaping improvements; such as the introduction of green space for boulevards and uniform lighting. County staff will explore opportunities to incorporate green space throughout the corridor for stormwater management, climate resiliency, and beautification to provide a more pleasant user experience. County staff will also explore opportunities to bury overhead utilities.

(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.**

CSAH 5 (Minnetonka Blvd) from Xylon Ave to Vernon Ave in St. Louis Park.

Include both the CSAH/MSAS/TH references and their corresponding street names in the TIP Description (see Resources link on Regional Solicitation webpage for examples).

Project Length (Miles) 1.77

to the nearest one-tenth of a mile

Project Funding

Are you applying for competitive funds from another source(s) to implement this project? No

If yes, please identify the source(s) Not Applicable

Federal Amount $7,000,000.00

Match Amount $13,800,000.00

Minimum of 20% of project total

Project Total $20,800,000.00

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

Match Percentage 66.35%

Minimum of 20%
Compute the match percentage by dividing the match amount by the project total

Source of Match Funds Hennepin County

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: 2028

Select 2026 or 2027 for TDM and Unique projects only. For all other applications, select 2028 or 2029.

Additional Program Years:

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

Project Information-Roadways

NOTE: If your project has already been assigned a State Aid Project # (SAP or SP), please Indicate SAP# here

SAP#:

County, City, or Lead Agency Hennepin County

Functional Class of Road A-Minor Reliever

Road System CSAH

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

Road/Route No. 5

i.e., 53 for CSAH 53

Name of Road Minnetonka Blvd

Example; 1st ST., MAIN AVE

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

From:
Road System Local Street

Road/Route No.

i.e., 53 for CSAH 53

Name of Road Xylon Ave

Example; 1st ST., MAIN AVE

To:
Road System MSAS

DO NOT INCLUDE LEGAL DESCRIPTION

Road/Route No. 6374

i.e., 53 for CSAH 53

Name of Road Vernon Ave

Example; 1st ST., MAIN AVE

In the City/Cities of: St. Louis Park

(List all cities within project limits)

OR:

At:
Road System

(TH, CSAH, MSAS, CO. RD., TWP. RD., City Street)

Road/Route No.

i.e., 53 for CSAH 53

Name of Road

Example; 1st ST., MAIN AVE

In the City/Cities of:	
(List all cities within project limits)	
PROJECT LENGTH	
Miles	1.8
(nearest 0.1 miles)	
Primary Types of Work (check all the apply)	
New Construction	
Reconstruction	Yes
Resurfacing	
Bituminous Pavement	
Concrete Pavement	Yes
Roundabout	Yes
New Bridge	
Bridge Replacement	
Bridge Rehab	
New Signal	
Signal Replacement/Revision	Yes
Bike Trail	
Other (do not include incidental items)	GRADING, AGG BASE, CONCRETE SURFACE SURFACE, STORM SEWER, OFF-STREET FACILITY (IF FEASIBLE), SIDEWALK, ADA, STREETSCAPING, LIGHTING, AND CURB/GUTTER
BRIDGE/CULVERT PROJECTS (IF APPLICABLE)	
Old Bridge/Culvert No.:	
New Bridge/Culvert No.:	
Structure is Over/Under (Bridge or culvert name):	
OTHER INFORMATION:	
Zip Code where Majority of Work is Being Performed	55426
Approximate Begin Construction Date	05/01/2028
Approximate End Construction Date	10/31/2029
Miles of Trail (nearest 0.1 miles)	1.8
Miles of Sidewalk (nearest 0.1 miles)	1.8
Miles of trail on the Regional Bicycle Transportation Network (nearest 0.1 miles):	1.8
Is this a new trail?	No

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.

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

A)Transportation System Stewardship (p 2.2-2.4)

Objectives A & B; Strategies A1 & A2

The project will reconstruct assets as maintenance is no longer cost-effective to extend the useful life of the roadway. Dedicated facilities for people walking, an off-street bikeway, reconfiguring the number of lanes and intersection improvements will increase the efficiency of the transportation system.

B)Safety and security (p 2.5-2.9)

Objectives A & B; Strategies B1, B3, B4 & B6

The project will improve safety improvements for all modes. Lanes will be reconfigured to include roundabouts at intersections and medians throughout the corridor to separate opposing vehicular traffic. Shifting bicyclists from on-street to off-street will result in safer outcomes, as will boulevard space in between the roadway and sidewalk.

C)Access to destinations (p 2.10-2.25)

Objectives A, B, C, D & E; Strategies C1, C2, C3, C4, C8, C9, C15, C16 & C17

CSAH 5 (Minnetonka Blvd) is an A-minor Reliever that serves a key east-west connection that connects to several principal arterials such as TH 100 and TH 169. CSAH 5 (Minnetonka Blvd) is identified as a Tier 1 alignment on the RBTN network, and the western limits of the project will enhance access to the Cedar Lake Regional Trail.

D)Competitive economy (p 2.26-2.29)

Objectives A, B & C; Strategies D1, D3 & D4

The corridor provides direct access to residences, many shopping centers and Aquila Elementary School. Off-street bike facilities will connect people to businesses and residences along the corridor.

E)Healthy and equitable communities (p 2.30-2.34)

Objectives A, B, C & D; Strategies E1, E2, E3, E4, E5, E6 & E7

The project will enhance non-motorized travel for people biking, walking and rolling along the corridor. Boulevards will be added to incorporate green space where feasible. Improvements will allow safer crossings at key intersections.

F)Leveraging transportation investments to guide land use (p 2.35-2.41)

Objectives A & C; Strategies F1, F2, F3, F5, F6, F7

The project will result in a Complete Streets roadway design that enhances the suburban context. Off-street bikeways and improved sidewalks will provide safe modal choices for all users. Roundabouts at key intersections and medians throughout the corridor to separate opposing vehicular traffic will promote safety and accessibility to the high number of business and residential accesses along the corridor.

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.

List the applicable documents and pages: Unique projects are exempt from this qualifying requirement because of their innovative nature.

1)Hennepin County 2024-2028 Capital Improvement Program (Attachment 06)

2)Hennepin County 2040 Transportation Plan (pages 2-11 - 2-18)

URL: hennepin.us/-/media/hennepinus/your-government/projects-initiatives/2040-comprehensive-plan/2040-comprehensive-plan-full.pdf

3)Hennepin County Climate Action Plan (pages 50-54)

URL: hennepin.us/climate-action/-/media/climate-action/hennepin-county-climate-action-plan-final.pdf

4)Hennepin County Complete and Green Streets Policy (pages 10-11)

URL: hennepin.us/-/media/hennepinus/your-government/projects-initiatives/complete-streets/Complete-and-Green-Streets-Policy_Oct2023.pdf

5)Hennepin County Pedestrian Plan (page 8)

URL: hennepin.us/-/media/hennepinus/residents/transportation/documents/pedestrian-plan.pdf

6)Hennepin County Enhanced Bikeway Network Study (Attachment 07)

7)St. Louis Park Comprehensive Plan (pages 6-228 and 6-247)

URL: stlouisparkmn.gov/home/showpublisheddocument/15332/637110597442630000

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. Unique project costs are limited to those that are federally eligible.

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

5. Applicant is a public agency (e.g., county, city, tribal government, transit provider, etc.) or non-profit organization (TDM and Unique Projects applicants only). 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 in Table 1. For unique projects, the minimum award is $500,000 and the maximum award is the total amount available each funding cycle (approximately $4,000,000 for the 2024 funding cycle).

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): *$500,000 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 future Regional Solicitation funding cycles, this requirement may include that the plan has undergone a recent update, e.g., within five years prior to application.

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

(TDM and Unique Project Applicants Only) The applicant is not a public agency subject to the self-evaluation requirements in Title II of the ADA.

Date plan completed: 08/31/2015

Link to plan: hennepin.us/-/media/hennepinus/residents/transportation/documents/ada-sidewalk-transition-plan.pdf

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. This includes assurance of year-round use of bicycle, pedestrian, and transit facilities, per FHWA direction established 8/27/2008 and updated 4/15/2019. Unique projects are exempt from this qualifying requirement.

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

Roadways Including Multimodal Elements

1. All roadway 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. Bridge Rehabilitation/Replacement projects must be located on a minor collector and above functionally classified roadway in the urban areas or a major collector and above in the rural areas.

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

Roadway Strategic Capacity 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. Yes

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 in-place structure is 20 feet or longer.

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

6. The bridge must have a Local Planning Index (LPI) of less than 60 OR a National Bridge Inventory (NBI) Rating of 3 or less for either Deck Geometry, Approach Roadway, or Waterway Adequacy as reported on the most recent Minnesota Structure Inventory Report.

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 David Elvin at MnDOT (David.Elvin@state.mn.us or 651-234-7795) 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.

Requirements - Roadways Including Multimodal Elements

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Mobilization (approx. 5% of total cost)	$820,000.00
Removals (approx. 5% of total cost)	$684,000.00
Roadway (grading, borrow, etc.)	$1,239,160.00
Roadway (aggregates and paving)	$3,248,520.00
Subgrade Correction (muck)	$0.00
Storm Sewer	$1,962,000.00
Ponds	$0.00
Concrete Items (curb & gutter, sidewalks, median barriers)	$1,190,340.00
Traffic Control	$820,000.00
Striping	$85,000.00
Signing	$76,500.00
Lighting	$708,000.00
Turf - Erosion & Landscaping	$942,000.00
Bridge	$0.00
Retaining Walls	$0.00
Noise Wall (not calculated in cost effectiveness measure)	$0.00
Traffic Signals	$100,000.00
Wetland Mitigation	$0.00
Other Natural and Cultural Resource Protection	$0.00
RR Crossing	$0.00
Roadway Contingencies	$3,684,330.00
Other Roadway Elements	$400,000.00
Totals	**$15,959,850.00**

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Path/Trail Construction	$832,800.00
Sidewalk Construction	$1,048,390.00
On-Street Bicycle Facility Construction	$0.00
Right-of-Way	$0.00
Pedestrian Curb Ramps (ADA)	$290,000.00
Crossing Aids (e.g., Audible Pedestrian Signals, HAWK)	$150,000.00
Pedestrian-scale Lighting	$0.00
Streetscaping	$942,000.00
Wayfinding	$0.00
Bicycle and Pedestrian Contingencies	$1,116,960.00
Other Bicycle and Pedestrian Elements	$460,000.00
Totals	**$4,840,150.00**

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
Totals	**$0.00**

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

PROTECT Funds Eligibility

One of the new federal funding sources is Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT). Please describe which specific elements of your project and associated costs out of the Total TAB-Eligible Costs are eligible to receive PROTECT funds. Examples of potential eligible items may include: storm sewer, ponding, erosion control/landscaping, retaining walls, new bridges over floodplains, and road realignments out of floodplains.

INFORMATION: Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Formula Program Implementation Guidance (dot.gov).

Response: Based on a planning level review of the proposed scope of work, the following project elements appear to be eligible for the PROTECT Program: Storm Sewer, Landscaping, and Streetscaping (within the Bicycle and Pedestrian Elements)

Totals

Total Cost	$20,800,000.00
Construction Cost Total	$20,800,000.00
Transit Operating Cost Total	$0.00

Measure B: Project Location Relative to Jobs, Manufacturing, and Education

Existing Employment within 1 Mile:	23432
Existing Manufacturing/Distribution-Related Employment within 1 Mile:	2265
Existing Post-Secondary Students within 1 Mile:	0
Upload Map	1702226184045_2024 RS Map 02 - CSAH 005 Minnetonka Blvd Phase 2 - Regional Economy.pdf

Please upload attachment in PDF form

Measure C: Current Heavy Commercial Traffic

RESPONSE: Select one for your project, based on the updated 2021 Regional Truck Corridor Study:

Along Tier 1:	
Miles:	0
(to the nearest 0.1 miles)	
Along Tier 2:	
Miles:	0
(to the nearest 0.1 miles)	
Along Tier 3:	
Miles:	0
(to the nearest 0.1 miles)	
The project provides a direct and immediate connection (i.e., intersects) with either a Tier 1, Tier 2, or Tier 3 corridor:	Yes
None of the tiers:	

Measure A: Current Daily Person Throughput

Location	CSAH 5 (Minnetonka Blvd) east of Louisiana Ave (Seq ID# 42750)
Current AADT Volume	12000
Existing Transit Routes on the Project	17, 667

For New Roadways only, list transit routes that will likely be diverted to the new proposed roadway (if applicable).

Upload Transit Connections Map	1702226403597_2024 RS Map 04 - CSAH 005 Minnetonka Blvd Phase 2 - Transit Connections.pdf

Please upload attachment in PDF form

Response: Current Daily Person Throughput

Average Annual Daily Transit Ridership	0
Current Daily Person Throughput	15600.0

Measure B: 2040 Forecast ADT

Use Metropolitan Council model to determine forecast (2040) ADT volume	No
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	Hennepin County conducted a comprehensive travel demand forecasting analysis based on the Metropolitan Council's regional activity based model. Forecast traffic volumes were based on a combination of socio-economic and land use assumptions. It should be noted that the future transportation network was assumed to include projects identified in the county's Capital Improvement Program. Attachment 08 illustrates the forecast traffic volumes.
Forecast (2040) ADT volume	14600

Measure A: Engagement

i. Describe any Black, Indigenous, and People of Color populations, low-income populations, disabled populations, youth, or older adults within a ½ mile of the proposed project. Describe how these populations relate to regional context. Location of affordable housing will be addressed in Measure C.

ii. Describe how Black, Indigenous, and People of Color populations, low-income populations, persons with disabilities, youth, older adults, and residents in affordable housing were engaged, whether through community planning efforts, project needs identification, or during the project development process.

iii. Describe the progression of engagement activities in this project. A full response should answer these questions:

1. *What engagement methods and tools were used?*
2. *How did you engage specific communities and populations likely to be directly impacted by the project?*
3. *What techniques did you use to reach populations traditionally not involved in community engagement related to transportation projects?*
4. *How were the project?s purpose and need identified?*
5. *How was the community engaged as the project was developed and designed?*
6. *How did you provide multiple opportunities for of Black, Indigenous, and People of Color populations, low-income populations, persons with disabilities, youth, older adults, and residents in affordable housing to engage at different points of project development?*
7. *How did engagement influence the project plans or recommendations? How did you share back findings with community and re-engage to assess responsiveness of these changes?*
8. *If applicable, how will NEPA or Title VI regulations will guide engagement activities?*

Response:

Within 0.5 miles of the project corridor, 24% of the population are Black, Indigenous and people of color (BIPOC) and 9% of the population are those with a disability of any kind. In addition, 20% of the population is under 18 years old and 15% of the population is over 65. 18% of the population within 0.5 miles of the project area has a household income under 200% of the federal poverty level and 5% of households has limited English proficiency. These demographic profiles are based on ACS 2017 - 2021 5-year estimates via the EPA's EJScreen tool. In addition, St. Louis Park is home to a robust Orthodox Jewish community dating to the 1930's which supports a variety of synagogues, schools, and other community institutions.

While public engagement has not formally started for this section of CSAH 5 (Minnetonka Blvd), extensive public engagement has occurred for the first phase of the project immediately east of TH 100. Outreach for the first phase has included three iterative rounds of engagement where county staff received hundreds of in-person and online comments through open houses, online interactive maps and surveys as well as physical signage and sidewalk decals. Specific focus groups were used to reach BOPIC populations, low income populations and youth populations including attending events such as Skateapalooza. In addition, specific outreach was conducted to local community organizations and businesses including the distribution of flyers and surveys. A public website was established early in project development process and has been consistently updated with engagement materials. Public engagement also was specifically structured to engage the Orthodox Jewish community including respecting religious holidays when scheduling engagement address and carefully coordinating construction detours to acknowledge specific Jewish practices which set cultural expectations for travel behavior. A summary of community engagement to-date, including key themes, can be found in Attachment 09.

Public engagement for this project will follow a similar iterative structure including a mix of focus groups, open houses, physical and virtual materials, and direct meeting with prominent corridor institutions and organizations. Engagement will be conducted with staff from across county functional groups including the Community and Engagement team to encourage the use of plain language and ensure the use of best practices. Critical project elements such as typical sections will be determined through public engagement like the first phase of the Minnetonka Blvd reconstruction project which arrived at the final typical section through several iterations communicated through a public website.

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

Measure B: Disadvantaged Communities Benefits and Impacts

Describe the project?s benefits to Black, Indigenous, and People of Color populations, low-income populations, children, people with disabilities, youth, and older adults. 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.

This is not an exhaustive list. A full response will support the benefits claimed, identify benefits specific to Disadvantaged communities residing or engaged in activities near the project area, identify benefits addressing a transportation issue affecting Disadvantaged communities specifically identified through engagement, and substantiate benefits with data.

Acknowledge and describe any negative project impacts to Black, Indigenous, and People of Color populations, low-income populations, children, people with disabilities, youth, and older adults. Describe measures to mitigate these impacts. Unidentified or unmitigated negative impacts may result in a reduction in points.

Below is a list of potential negative impacts. This is not an exhaustive list.

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

Response:

The reconstruction of CSAH 5 (Minnetonka Blvd) will improve safety and mobility for people with disabilities, youth, older adults, low-income households and BIPOC populations. Attachment 10 provides an overview of key community resources as well as census tracts with high scores of the CDC/ATSDR Social Vulnerability Index (SVI), a resource that uses census data to measure resilience to natural or human-caused disasters. The western edge of the corridor between the North Cedar Lake Trail and Texas Ave has a high SVI score, indicating the community is more vulnerable and potentially a higher number of users who walk, cycle, or utilize public transit.

The current design of the roadway includes a two-lane undivided configuration with limited crossing enhancements and painted on-street bike lanes. Hennepin County will introduce complete streets elements such as curb extensions, pedestrian refuges, and high visibility crosswalks as feasible to improve safety for nonmotorized users. Reconstructed sidewalk facilities will also provide significant benefit to those with limited mobility as there are sections of sidewalk as narrow as 4 feet along CSAH 5 (Minnetonka Blvd) combined with aging pedestrian ramps throughout the corridor.

The introduction of improved facilities for people biking will ensure that people of all ages and abilities can safely travel CSAH 5 (Minnetonka Blvd). This is especially important for students and families who use the corridor to access the St. Louis Park Library, Aquila Elementary or St. Louis Park High School. It will also provide a safe connection for the North Cedar Lake Trail. The project will also promote first and last mile connections for transit users, including Metro Transit routes 17, 667, and for future Green Line light rail stations at Louisiana Ave and Wooddale Ave, These regional connections will help promote a range of modal choices, particularly for disadvantaged communities who need to access employment, education, and healthcare beyond the immediate project area.

Expanded green infrastructure through the proposed project will address historical drainage issues, particularly along the eastern half of the corridor. These drainage issues have negatively impacted commercial and residential properties as well as serve as a hazard for people driving and people biking using on-street facilities.

Increased noise and impacts to the roadway and sidewalks are anticipated during construction. The contractor will be required to follow temporary traffic control plans which specify detour routes for all people traveling through the corridor. Access to adjacent buildings will be critical, and staff will seek our opportunities to ensure that nearby businesses and services are not negatively impacted during construction.

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

Measure C: Affordable Housing Access

Describe any affordable housing developments?existing, under construction, or planned?within ½ mile of the proposed project. The applicant should note the number of existing subsidized units, which will be provided on the Socio-Economic Conditions map. Applicants can also describe other types of affordable housing (e.g., naturally-occurring affordable housing, manufactured housing) and under construction or planned affordable housing that is within a half mile of the project. If applicable, the applicant can provide self-generated PDF maps to support these additions. Applicants are encouraged to provide a self-generated PDF map describing how a project connects affordable housing residents to destinations (e.g., childcare, grocery stores, schools, places of worship).

Describe the project?s benefits to current and future affordable housing residents within ½ mile of the project. Benefits must relate to affordable housing residents. Examples may include:

- *? specific direct access improvements for residents*
- *? improved access to destinations such as jobs, school, health care or other;*
- *? new transportation services or modal options;*
- *? and/or community connection and cohesion improvements.*

This is not an exhaustive list. Since residents of affordable housing are more likely not to own a private vehicle, higher points will be provided to roadway projects that include other multimodal access improvements. A full response will support the benefits claimed, identify benefits specific to residents of affordable housing, identify benefits addressing a transportation issue affecting residents of affordable housing specifically identified through engagement, and substantiate benefits with data.

Response:

A total of 5 affordable subsidized housing developments are located within 0.5 miles of the project area, many of which specifically target serving those with disabilities, seniors, and families with children. Attachment 11 provides a map and full detail summary of these locations, including unit sizes and affordability limits based on area median incomes. As identified in the Met Council generated Socio-Economic Conditions map, 1117 subsidized units exist in census tracts within 0.5 miles of the project.

The proposed project would provide a direct benefit to residents of the affordable housing through the allocation of existing resources to facilities for those walking, rolling, biking, and using transit. One development of note is the Shalom Menorah Plaza, a 155-unit property with 143 subsidized units for seniors and 12 units for those with memory impairment. Shalom Menorah Plaza represents a significant source of those who may walk or roll through the project area and includes culturally sensitive programming and meals for the Jewish community in the Cedar Lake area as well as a wide array of general programming for seniors. Oak Park Village apartments is another notable development which provides 100 subsidized townhomes for families just south of CSAH 5 (Minnetonka Blvd).

The reconstruction of CSAH 5 (Minnetonka Blvd) will include proven safety measures at the Texas Ave intersection, which ranks as one of the top 200 intersections for crash frequency and severity in Hennepin County. This will directly improve access to all destinations for residents of the Volo at Texas Tonka, a recently completed mixed income development at the corner of Texas Ave that contains 112 units of housing, 23 of which are subsidized.

Improvement of the bicycle and pedestrian realm will be especially beneficial for families living in affordable housing through the project area as the Saint Louis Park Library, St. Louis Park High School, and Aquila Elementary School are all within one-half mile of the project. Other destinations such as parks, places of worship, and childcare can be found in Attachment 10. The proposed project will ensure that affordable housing residents will have access to a full range of modal options through improved first and last mile connections to Metro Transit Route 17, 667, and at least two future Green Line stations. Off-street bicycle facilities will also connect affordable housing residents who bike as their primary means of transportation to employment centers, grocery stores, and other daily needs via the North Cedar Lake Trail.

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

Measure D: BONUS POINTS

Project is located in an Area of Concentrated Poverty:	
Project?s census tracts are above the regional average for population in poverty or population of color (Regional Environmental Justice Area):	Yes
Project located in a census tract that is below the regional average for population in poverty or populations of color (Regional Environmental Justice Area):	
Upload the ?Socio-Economic Conditions? map used for this measure.	1702227256781_2024 RS Map 03 - CSAH 005 Minnetonka Blvd Phase 2 - Socio Economic Conditions.pdf

Measure A: Year of Roadway Construction

Year of Original Roadway Construction or Most Recent Reconstruction	Segment Length	Calculation	Calculation 2
2008	0.03	60.24	34.034
1959	0.03	58.77	33.203
1956	0.66	1290.96	729.356

1956	0.5	978.0	552.542
1952	0.55	1073.6	606.554
	2	**3462**	**1956**

Total Project Length

Total Project Length (as entered in "Project Information" form) 1.77

Average Construction Year

Weighted Year 1955

Total Segment Length (Miles)

Total Segment Length 1.77

Measure B: Geometric, Structural, or Infrastructure Improvements

Improved roadway to better accommodate freight movements: Yes

Response:

Minnetonka Blvd was originally constructed with concrete pavement and has since experienced 3+ bituminous overlays that extend over the gutter. The current pavement surface exhibits cracking at the concrete joints, requiring preservation techniques at short intervals - frequently impacting freight traffic. A reconstruction will include a pavement design that supports the desired truck loads and curb/gutter to define the roadway edge.

The potential conversion of signalized intersections to roundabouts (designed to accommodate truck turns) will reduce unnecessary delays caused by marginally warranted signals.

A StreetLight analysis estimates 600 daily commercial vehicles (Attachment 12).

(Limit 700 characters; approximately 100 words)

Improved clear zones or sight lines: Yes

Response:

The vertical curve present at the Minnetonka Blvd/Texas Ave intersection presents sight distance issues. This project is anticipated to lower the profile to minimize negative impacts.

In the 1970s, as part of a retrofit project, Minnetonka Blvd was expanded to introduce traffic signals and turn lanes at the Texas, Louisiana, and Dakota Aves intersections - compromising boulevard space to accommodate the new infrastructure. This project presents an opportunity to reconstruct these intersections and introduce more compact designs (including consideration for roundabouts) to improve visibility for people walking, biking, and driving through these areas that experience high activity.

(Limit 700 characters; approximately 100 words)

Improved roadway geometrics: Yes

Response:

Conditions along Minnetonka Blvd include a number of shortcomings. Bituminous pavement extends over the gutter pan, reducing the benefits offered by the curb. There is an absence of traffic calming strategies (such as medians and curb extensions) to manage vehicle speeds. In addition, both left-turn lanes and on-road bike lanes were introduced as part of retrofit projects.

The following complete street strategies are anticipated with the project (as determined to be feasible):

- Traffic calming via raised medians (supplemented with green space)

- Shorter crossing distances through the conversion of signals to roundabouts

- Improved stormwater retention through the redesign of boulevards

(Limit 700 characters; approximately 100 words)

Access management enhancements: Yes

Response:

There are approximately 95 access points along Minnetonka Blvd (including 65 driveways and 30 local streets) where all turning movements are generally permitted. This project presents an opportunity to leverage the surrounding grid system and advance the following access management strategies (as determined to be feasible as part of the project development process):

- Conversion of signal systems to tandem roundabouts to allow for U-Turn maneuvers and consolidation of redundant driveways

- Introduction of continuous raised medians to promote right-in/right-out access

- Accommodations at each intersection for people walking to ensure accessibility

(Limit 700 characters; approximately 100 words)

Vertical/horizontal alignment improvements: Yes

Response:

The Minnetonka Blvd/Texas Ave intersection is located at the crest of a vertical curve, limiting sight distance for approaching users. Although negative impacts are mitigated via a traffic signal, conditions are not ideal for people walking and biking as they are required to transverse steep slopes. The project is anticipated to reduce the profile at Minnetonka Blvd/Texas Ave by approximately 3' to flatten the vertical alignment.

Also, a relatively steep horizontal curve is present at the east end, near Vernon Ave. Although the roadway's proximity to W Lake St and TH 100 are controlling factors, the replacement and relocation of curb lines will promote natural transitions through this area.

(Limit 700 characters; approximately 100 words)

Improved stormwater mitigation: Yes

Response:

Staff will collaborate with the city and the Minnehaha Creek WD to explore BMPs to improve water quality and withstand desired flood events. Some areas, such as Jersey Ave and Colorado Ave, have been identified by MetCouncil's Localized Flood Map as susceptible to flooding. Examples of green infrastructure to be evaluated as part of project development:

- Introduction of greening within medians

- Retention of mature trees

- Reduction in impervious surfaces by converting signalized intersections to roundabouts (via elimination of turn lanes)

- Redesign of boulevards to improve their ability to collect and retain stormwater

- Replacement of curb that is experiencing diminished functionality

(Limit 700 characters; approximately 100 words)

Signals/lighting upgrades:

Yes

Response:

There are 5 signals within the project area. At the time of their initial installation (primarily in the 1970s), alternative intersection control devices were not considered industry standard (roundabouts). This project will evaluate the potential to convert signals to roundabouts to reduce unnecessary delays while promoting safe and comfortable crossing experiences for people walking and biking.

The existing lighting conditions include antiquated wood poles along the corridor and luminaires installed on the 5 signals. This project will likely replace and upgrade lighting throughout the corridor; emphasizing illumination at intersections to promote nighttime visibility for pedestrians.

(Limit 700 characters; approximately 100 words)

Other Improvements

Yes

Response:

This project presents an opportunity to advance the following miscellaneous improvements:

People walking - improved accessibility by constructing directional pedestrian ramps at intersections

People using transit - improved first/last mile connections to Route 17 & 667 customers

People biking - exploration of bicycle accommodations as the existing on-road bike lanes were retrofitted in ~2017 as a detour route for the Cedar Lake Regional Trail during construction of the Green Line LRT Extension

People driving - potential removal of marginally warranted traffic signals to reduce unnecessary delays

Railroad - exploration of placemaking features underneath Bridge #27B54 serving CP Rail

(Limit 700 characters; approximately 100 words)

Measure A: Congestion Reduction/Air Quality

Total Peak Hour Delay Per Vehicle Without The Project (Seconds/Vehicle)	Total Peak Hour Delay Per Vehicle With The Project (Seconds/Vehicle)	Total Peak Hour Delay Per Vehicle Reduced by Project (Seconds/Vehicle)	Volume without the Project (Vehicles per hour)	Volume with the Project (Vehicles Per Hour):	Total Peak Hour Delay without the Project:	Total Peak Hour Delay by the Project:	Total Peak hour Delay Reduced by project	EXPLANATION of methodology used to calculate railroad crossing delay, if applicable.	Synchro or HCM Reports
13.0	8.4	4.6	1103	1102	14339.0	9256.8	5082.2	N/A	1702653140012_CSAH 5 Minnetonka Blvd - Synchro Report for Congestion Reduction.pdf
25.0	16.6	8.4	1627	1627	40675.0	27008.2	13666.8	N/A	1702653212986_CSAH 5 Minnetonka Blvd - Synchro Report for Congestion Reduction.pdf
8.0	8.6	-0.6	1069	1069	8552.0	9193.4	-641.4	N/A	1702653259499_CSAH 5 Minnetonka Blvd - Synchro Report for Congestion Reduction.pdf
17.0	19.8	-2.8	1505	1504	25585.0	29779.2	-4194.2	N/A	1702653312896_CSAH 5 Minnetonka Blvd - Synchro Report for Congestion Reduction.pdf
15.0	15.0	0	1895	1895	28425.0	28425.0	0	N/A	1702653338163_CSAH 5 Minnetonka Blvd - Synchro Report for Congestion Reduction.pdf
						103663			

Vehicle Delay Reduced

Total Peak Hour Delay Reduced	Total Peak Hour Delay Reduced	Delay Reduced Total
117576.0	103662.6	13913.4

Measure B: Roadway projects that do not include new roadway segments or railroad grade-separation elements

Total (CO, NOX, and VOC) Peak Hour Emissions without the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions with the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):
1.92	1.97	-0.05
3.38	2.95	0.43
1.54	1.74	-0.2
2.85	2.72	0.13
4.13	4.12	0.01
14	**14**	**0**

Total

Total Emissions Reduced: 0.32

Upload Synchro Report 1702653416939_CSAH 5 Minnetonka Blvd - Synchro Report for Emission Reduction.pdf

Please upload attachment in PDF form (Save Form, then click 'Edit' in top right to upload file.)

Measure B: Roadway projects that are constructing new roadway segments, but do not include railroad grade-separation elements (for Roadway Expansion applications only):

Total (CO, NOX, and VOC) Peak Hour Emissions without the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions with the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):

0 0 0

Total Parallel Roadway

Emissions Reduced on Parallel Roadways	0
Upload Synchro Report	

Please upload attachment in PDF form (Save Form, then click 'Edit' in top right to upload file.)

New Roadway Portion:

Cruise speed in miles per hour with the project:	0
Vehicle miles traveled with the project:	0
Total delay in hours with the project:	0
Total stops in vehicles per hour with the project:	0
Fuel consumption in gallons:	0
Total (CO, NOX, and VOC) Peak Hour Emissions Reduced or Produced on New Roadway (Kilograms):	0
EXPLANATION of methodology and assumptions used:(Limit 1,400 characters; approximately 200 words)	
Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):	0.0

Measure B: Roadway projects that include railroad grade-separation elements

Cruise speed in miles per hour without the project:	0
Vehicle miles traveled without the project:	0
Total delay in hours without the project:	0
Total stops in vehicles per hour without the project:	0
Cruise speed in miles per hour with the project:	0
Vehicle miles traveled with the project:	0
Total delay in hours with the project:	0
Total stops in vehicles per hour with the project:	0
Fuel consumption in gallons (F1)	0
Fuel consumption in gallons (F2)	0
Fuel consumption in gallons (F3)	0
Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):	0
EXPLANATION of methodology and assumptions used:(Limit 1,400 characters; approximately 200 words)	

Measure A: Roadway Projects that do not Include Railroad Grade-Separation Elements

Crash Modification Factor Used:

Attachment 13 includes a listing of the reported crashes along the project corridor during the 2020-2022 timeframe. Attachment 14 includes CMFs referenced as part of the Benefit/Cost Analysis.

XX) Countermeasure: Crashes targeted (CMF ID, % reduction)

01) Install raised median without marked crosswalk: Pedestrian (CMF 00176, 39%)

02) Convert intersection control from traffic signal to roundabout: All (CMF 00225, 48%)

03) Add two-way-left-turn-lane (TWLTL) on 2-lane roadway: All (CMF 02338, 31.4%)

04) Install continuous raised median: All (CMF 03034, 39%)

05) Construct multi-use trail facility: Bicycle (CMF 09250, 25%)

06) Resurface pavement: RE, SS, LT, RA, OR, & HO (CMF 09300, 14.7%)

(Limit 700 Characters; approximately 100 words)

Rationale for Crash Modification Selected:

The Benefit/Cost Analysis evaluated the project corridor in ten different sections (comprised of major intersections and segments) to target crash themes. Up to two (of the six selected) CMFs were applied to each crash based on the reported crash type, along with the anticipated benefit provided by each safety countermeasure. A maximum of four CMFs were applied to each individual intersection or segment since the project corridor experiences diverse crash types among people walking, biking, and driving.

The expected service life for each improvement was entered as 20 years in the Benefit/Cost Worksheets based on the service life information included in the 2024 Highway Safety Improvement Program guidelines.

The overall crash reduction expected from the project is 45% (based on a 55% crash modification factor). Approximately 45% (15 crashes) of the total number of reported crashes from the years 2020 to 2022 will be reduced annually through the implementation of proven safety countermeasures as part of this project.

(Limit 1400 Characters; approximately 200 words)

Project Benefit ($) from B/C Ratio	$19,038,434.00
Total Fatal (K) Crashes:	0
Total Serious Injury (A) Crashes:	3
Total Non-Motorized Fatal and Serious Injury Crashes:	0
Total Crashes:	97
Total Fatal (K) Crashes Reduced by Project:	0
Total Serious Injury (A) Crashes Reduced by Project:	1
Total Non-Motorized Fatal and Serious Injury Crashes Reduced by Project:	0
Total Crashes Reduced by Project:	44
Worksheet Attachment	1702651560725_005_Benefit_Cost_Worksheets.pdf

Please upload attachment in PDF form

Roadway projects that include railroad grade-separation elements:

Current AADT volume:	0
Average daily trains:	0
Crash Risk Exposure eliminated:	0

Measure B: Pedestrian Safety

Determine if these measures do not apply to your project. *Does the project match either of the following descriptions?*

If either of the items are checked yes, then ***score for entire pedestrian safety measure is zero****. Applicant does not need to respond to the sub-measures and can proceed to the next section.*

Project is primarily a freeway (or transitioning to a freeway) and does not provide safe and comfortable pedestrian facilities and crossings.	No
Existing location lacks any pedestrian facilities (e.g., sidewalks, marked crossings, wide shoulders in rural contexts) and project does not add pedestrian elements (e.g., reconstruction of a roadway without sidewalks, that doesn?t also add pedestrian crossings and sidewalk or sidepath on one or both sides).	No

SUB-MEASURE 1: Project-Based Pedestrian Safety Enhancements and Risk Elements

To receive maximum points in this category, pedestrian safety countermeasures selected for implementation in projects should be, to the greatest extent feasible, consistent with the countermeasure recommendations in the Regional Pedestrian Safety Action Plan and state and national best practices. Links to resources are provided on the Regional Solicitation Resources web page.

Please answer the following two questions with as much detail as possible based on the known attributes of the proposed design. If any aspect referenced in this section is not yet determined, describe the range of options being considered, to the greatest extent available. If there are project elements that may increase pedestrian risk, describe how these risks are being mitigated.

1. Describe how this project will address the safety needs of people crossing the street at signalized intersections, unsignalized intersections, midblock locations, and roundabouts.

Treatments and countermeasures should be well-matched to the roadway?s context (e.g., appropriate for the speed, volume, crossing distance, and other location attributes). Refer to the Regional Solicitation Resources web page for guidance links.

Response:

CSAH 5 (Minnetonka Blvd) is generally a 2-lane urban undivided roadway with shoulders and sidewalk facilities since its original construction in the 1950s. Subsequently, in the 1970s, new signals were installed at the Texas, Louisiana, and Dakota intersections that were supplemented with turn lanes. With the exception of a new signal at Hampshire that was added in the 1990s, the conditions described above have remained relatively unchanged in the last 50 years. Although a 2-lane roadway offers relatively positive experiences for people walking, the following characteristics present challenges.

- Frequency of local streets and driveways resulting in high turning volumes

- Presence of turn lanes at signals that result in relatively long crossing distances

- Lack of vertical design elements (besides curb) to encourage safe and reasonable speeds

- Lack of directional pedestrian ramps for north/south crossings

Signalized intersections

This project is anticipated to explore alternative intersection devices (including roundabouts) at each of the 5 signalized intersections; noting that an alternative device at Vernon Ave is somewhat unlikely given its proximity to the TH 100 interchange that was reconstructed circa 2015.

Roundabout intersections

Contingent on project development, the planning concept identifies approximately 4 roundabouts, 16 medians, and 16 high-visibility crosswalks that may be feasible. Of note, is the exploration of single lane approaches, supplemented with raised medians, for each of the roundabouts to not only eliminate the potential for dual threat crashes, but also to shorten the crossing distance by approximately 8' from 36' to 28' with pedestrian refuge. In addition, lighting conditions will satisfy design standards for nighttime visibility.

Unsignalized intersections

Contingent on project development, the planning concept identifies a continuous raised median that is potentially feasible. Of the approximately 25 unsignalized intersections that currently include full access, it's anticipated that full access will be retained at 3 intersections, three-quarters access will be introduced at 6 intersections, and right-in/right-out access will be introduced at 16 intersections. Note that the planning level concept omitted pedestrian access through the raised median - an oversight that will be corrected as part of preliminary design. Crossing distances at intersections with right-in/right-out access will benefit most significantly through the introduction of a median for pedestrian refuge.

Midblock locations

Contingent on project development, the planning concept identifies a continuous raised median that is potential feasible along CSAH 5 (Minnetonka Blvd). Mid-block crossings are not anticipated to be prohibited via barriers.

(Limit 2,800 characters; approximately 400 words)

Is the distance in between signalized intersections increasing (e.g., removing a signal)?

Select one: Yes

If yes, describe what measures are being used to fill the gap between protected crossing opportunities for pedestrians (e.g., adding High-Intensity Activated Crosswalk beacons to help motorists yield and help pedestrians find a suitable gap for crossing, turning signal into a roundabout to slow motorist speed, etc.).

Response:

Although contingent on the project development process, it's anticipated that alternative intersection control devices will be considered for the following four intersections that currently operate under signalized control: Texas Ave, Louisiana Ave, Hampshire Ave, and Dakota Ave. As illustrated on the planning level concept, roundabouts will be evaluated for feasibility in an effort to balance accessibility, mobility, and safety along the corridor. The following design characteristics will be considered to promote pedestrian safety:

- Introduction of single lane approaches, thereby eliminating dedicated turn lanes, to reduce pedestrian crossing distances by approximately 18' (from 54' to 36'); with the exception of Hampshire Ave where no turn lanes currently exist

- Proper channelization and deflection, including relatively long raised medians along CSAH 5 (Minnetonka Blvd) to encourage proper vehicle entering speeds; reducing the likelihood of fatal and severe injury crashes

- Raised medians to provide pedestrian refuge for two-staged crossings

- Reduction in the number of conflict points by 24 when comparing a standard 4-legged signalized intersection (32) to a 4-legged roundabout (8)

- Improved access management for driveways located within close proximity to future roundabout candidate locations to restrict to right-in/right-out operations

(Limit 1,400 characters; approximately 200 words)

Will your design increase the crossing distance or crossing time across any leg of an intersection? (e.g., by adding turn or through lanes, widening lanes, using a multi-phase crossing, prohibiting crossing on any leg of an intersection, pedestrian bridge requiring length detour, etc.). This does not include any increases to crossing distances solely due to the addition of bike lanes (i.e., no other through or turn lanes being added or widened).

Select one: No

If yes,
? How many intersections will likely be affected?

Response: 0

? Describe what measures are being used to reduce exposure and delay for pedestrians (e.g., median crossing islands, curb bulb-outs, etc.)

Response:

Although contingent on the project development process, the planning level concept suggests the following pedestrian crossing distances along the CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project corridor:

Signalized intersections (5 - Texas Ave, Louisiana Ave, Hampshire Ave, Dakota Ave, & Vernon Ave)

- Texas, Louisiana, & Dakota: Reduction of approximately 18' in crossing distances (from 54' to 36'); note that the raised median width is included in the 36' width dimension

- Hampshire: In recognition of dedicated turn lanes in the present condition, crossing distance reduction would solely be attributed to the raised median

- Vernon: In recognition of this intersection being recently impacted by the TH 100 Interchange Project circa 2015, no anticipated reduction in pedestrian crossing distances

Non-signalized intersections converted to right-in/right-out access (approximately 16 intersections) - A reduction in crossing distances would solely be attributed to the raised median (approximately 8')

Non-signalized intersections with full or three-quarters access (approximately 9 intersections) - Crossing distances are not anticipated to be reduced in recognition of the presence of a dedicated left-turn lane; noting that at locations with three-quarters access will be evaluated for median installation within approach that mirrors left-turn lane.

(Limit 1,400 characters; approximately 200 words)

? If grade separated pedestrian crossings are being added and increasing crossing time, describe any features that are included that will reduce the detour required of pedestrians and make the separated crossing a more appealing option (e.g., shallow tunnel that doesn?t require much elevation change instead of pedestrian bridge with numerous switchbacks).

Response:

Although contingent on the project development process, no new grade separated crossings are anticipated to be introduced as part of the CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project.

(Limit 1,400 characters; approximately 200 words)

If mid-block crossings are restricted or blocked, explain why this is necessary and how pedestrian crossing needs and safety are supported in other ways (e.g., nearest protected or enhanced crossing opportunity).

Response:

Although contingent on the project development process, no mid-block crossings are anticipated to be prohibited as part of the CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project.

Upon commencement of preliminary design, extensive community engagement, data analysis, and environmental review will take place to explore the feasibility of a continuous raised median along CSAH 5 (Minnetonka Blvd). This proven design strategy is anticipated to provide significant safety benefits in terms of access management, traffic calming, and pedestrian crossing experiences.

There are four segments involving five major intersections within the project area that include the following distances:

Segment #1 (from Texas Ave to Louisiana Ave): ~0.50 miles

Segment #2 (from Louisiana Ave to Hampshire Ave): ~0.25 miles

Segment #3 (from Hampshire Ave to Dakota Ave): ~0.25 miles

Segment #4 (from Dakota Ave to Vernon Ave): ~0.50 miles

In recognition of the relatively long segment distances listed above, enhanced pedestrian crossings will likely be considered to properly facilitate pedestrian crossings along the corridor. In recognition of the proposed continuous raised median, high visibility crosswalk markings, lighting, and pedestrian crossing beacons are anticipated to be the most logical choice of safety countermeasures to be considered at these enhanced pedestrian crossing locations.

(Limit 1,400 characters; approximately 200 words)

2. Describe how motorist speed will be managed in the project design, both for through traffic and turning movements. *Describe any project-related factors that may affect speed directly or indirectly, even if speed is not the intended outcome (e.g., wider lanes and turning radii to facilitate freight movements, adding turn lanes to alleviate peak hour congestion, etc.). Note any strategies or treatments being considered that are intended to help motorists drive slower (e.g., visual narrowing, narrow lanes, truck aprons to mitigate wide turning radii, etc.) or protect pedestrians if increasing motorist speed (e.g., buffers or other separation from moving vehicles, crossing treatments appropriate for higher speed roadways, etc.).*

Response:

The CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project will introduce several proven strategies to promote uniform, safe, and reasonable speeds by people driving along the corridor.

Roadway operation changes

It's anticipated that a continuous raised median will be evaluated as part of the project development to promote sound access management along the corridor. Based on the planning level concept, it's anticipated that full access will be reduced to right-in/right-out access at approximately 16 intersections. In addition, roundabouts will supplement raised medians to balance mobility and access (url: highways.dot.gov/sites/fhwa.dot.gov/files/Corridor%20Access%20Management_508.pdf)

Roadway design changes

Although contingent on the project development process, it's anticipated that a 2-lane divided configuration will be introduced to balance access, mobility, and safety along the corridor through a raised median to provide a continuous visual cue to people driving. Of specific note, are potential changes to intersection control devices at the Texas Ave, Louisiana Ave, Hampshire Ave, and Dakota Ave intersections that appear to be candidate locations for single-lane roundabouts. This intersection control change will prove especially beneficial as intersection approaches will be desired with proper deflection and approach angles to slow speeds prior to entering the intersection. In addition, the introduction of boulevards will offer separation between people driving and people walking.

Green streets changes

The planning level concept identifies a number of areas that are candidates for greening treatments, including: boulevards along both sides, continuous median, and the inscribed circle within each of the 4 potential roundabouts. County staff will work extensively with the City of St. Louis Park to identify project elements that will not only promote a Complete & Green Streets environment, but also withstand Minnesota's harsh climate.

Multimodal facility changes

Although contingent on the project development process, it's anticipated that a multi-use trail facility will be provided on (at least) one side of CSAH 5 (Minnetonka Blvd), and a sidewalk facility on the alternate side to provide similar experiences for people walking as the county's CSAH 5 (Minnetonka Blvd) Phase 1 Reconstruction Project (url: hennepin.us/-/media/hennepinus/residents/transportation/minnetonka-blvd/Preferred-Concept-8-3.pdf)

(Limit 2,800 characters; approximately 400 words)

If known, what are the existing and proposed design, operation, and posted speeds? Is this an increase or decrease from existing conditions?

Response:

The existing posted speed limit along this segment of CSAH 5 (Minnetonka Blvd) is 35 mph.

The proposed design speed limit(s) will be determined as part of the project development process based on data analysis, stakeholder input, and environmental review. At this time of application submittal, an increase in the existing speed limit is not anticipated. In addition, consideration will be given to establishing a School Speed Zone for Aquila Elementary School to provide another tool for reducing the likelihood of severe and fatal pedestrian crashes. Project elements such as roundabouts, continuous raised medians, streetscaping, and lane widths are anticipated to support the proposed design speed limit(s).

(Limit 1,400 characters; approximately 200 words)

SUB-MEASURE 2: Existing Location-Based Pedestrian Safety Risk Factors

These factors are based on based on trends and patterns observed in pedestrian crash analysis done for the Regional Pedestrian Safety Action Plan. Check off how many of the following factors are present. Applicants receive more points if more risk factors are present.

Existing road configuration is a One-way, 3+ through lanes

or

Existing road configuration is a Two-way, 4+ through lanes

Existing road has a design speed, posted speed limit, or speed study/data showing 85th percentile travel speeds in excess of 30 MPH or more Yes

Existing road has AADT of greater than 15,000 vehicles per day

List the AADT 12000

SUB-MEASURE 3: Existing Location-Based Pedestrian Safety Exposure Factors

These factors are based on based on trends and patterns observed in pedestrian crash analysis done for the Regional Pedestrian Safety Action Plan. Check off how many of the following existing location exposure factors are present. Applicants receive more points if more risk factors are present.

Existing road has transit running on or across it with 1+ transit stops in the project area (If flag-stop route with no fixed stops, then 1+ locations in the project area where roadside stops are allowed. Do not count portions of transit routes with no stops, such as non-stop freeway sections of express or limited-stop routes.) Yes

Existing road has high-frequency transit running on or across it and 1+ high-frequency stops in the project area (high-frequency defined as service at least every 15 minutes from 6am to 7pm weekdays and 9am to 6pm Saturdays.)

Existing road is within 500? of 1+ shopping, dining, or entertainment destinations (e.g., grocery store, restaurant) Yes

If checked, please describe:

The following transit routes currently operate along or across CSAH 5 (Minnetonka Blvd):

-Route 17 (11 stops)

-Route 667 (11 stops)

While not part of the high frequency network, Route 17 will provide a transfer connection to the future B Line service anticipated along CSAH 3 (Lake St).

CSAH 5 (Minnetonka Blvd) is home to a variety of uses that serve the surrounding neighborhoods including a number of shopping, dining, and entertainment destinations, particularly at the Texas Ave intersection. Below is a summary of key destinations along the corridor likely to generate pedestrian activity:

-Parkway Pizza (Restaurant)

-Texa-Tonka Lanes (Entertainment)

-Barbers in the Park (Service)

-Erik's Bike Shop (Retail)

-Angel Food Bakery & Coffee Bar (Restaurant)

-Ax-Man Surplus Stores (Retail, Entertainment)

-Revival St. Louis Park (Restaurant)

-Best of India Indian (Restaurant)

-Dreamers Vault Games (Retail)

(Limit 1,400 characters; approximately 200 words)

Existing road is within 500? of other known pedestrian generators (e.g., school, civic/community center, senior housing, multifamily housing, regulatorily-designated affordable housing) Yes

If checked, please describe:

CSAH 5 (Minnetonka Blvd) also is home to a number of educational, civic, and residential destinations which generate pedestrian activity from the surrounding neighborhoods. Below is a non-exhaustive list of significant pedestrian generators within 500 feet of the corridor:

-Volo at Texa Tonka (Mixed-Income Multifamily Housing)

-Aquila Park Apartments (Market-Rate Multifamily Housing)

-Aquila Elementary School (School)

-Lenox Community Center (Community Resource)

-Kenwood Gymnastics Center (Community Resource)

-Boulevard 100 Apartments (Market-Rate Multifamily Housing)

-Keystone Park (Recreation)

-Bronx Park (Recreation)

-Royal Terrace Apartments (Market-Rate Multifamily Housing)

-Park Community Church (Place of Worship)

In addition, CSAH 5 is home to a variety of housing types and affordability levels as well as an established neighborhood grid, which in of itself generates pedestrian activity along and across the proposed project.

(Limit 1,400 characters; approximately 200 words)

Measure A: Multimodal Elements and Existing Connections

Response:

The CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project is along the Regional Bicycle Transportation Network (RBTN) Tier 1 alignment and connects to an RBTN Tier 1 corridor centerline at Louisiana Ave. This corridor has served as a detour route for the Cedar Lake Regional Trail while the Green Line LRT expansion construction has been underway. For people biking, this project will upgrade the current on-street facility to an off-street All Ages & Abilities facility. Green space will further separate people biking from people driving and provide a more pleasant user experience. Additionally, medians and shorter crossing distances will provide more comfortable crossings for people biking, walking, and rolling that will only require crossing one vehicular travel lane at a time. This corridor provides a connection to the North Cedar Lake Regional Trail, and is within a half mile of the Cedar Lake Regional Trail and the parallel Green Line Extension. This corridor is anticipated to include a future connection to Three Rivers' Park District CP Regional Trail. Attachment 15 highlights key multimodal connections within the vicinity of the CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project.

Met Council's Regional Bicycle Barriers webmap identifies TH 100 as an Expressway Barrier. The eastern termini of this project falls within the Expressway Barrier Crossing Area, and this project will address the barrier by providing consistent facilities for people walking and biking that will connect to multimodal facilities that exist on the bridge over TH 100 and to the east as part of the Phase 1 reconstruction project.

In addition to increased green space and shorter crossing distances for people walking and rolling, ADA compliant pedestrian ramps and a sidewalk (free of obstructions) will provide a more pleasant, safe, and accessible environment. Accessible Pedestrian Signals (APS) will be incorporated at signalized intersections.

People taking transit (Metro Transit Routes 17 and 667) will be provided with dedicated infrastructure for walking and biking to promote first and last mile connections.

For people driving, a smooth pavement surface will provide a more pleasant user experience. The installation of roundabouts and medians throughout the corridor is anticipated to promote safety and manage vehicle speeds.

(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. 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. The focus of this section is on the opportunity for public input as opposed to the quality of input. NOTE: A written response is required and failure to respond will result in zero points.

Multiple types of targeted outreach efforts (such as meetings or online/mail outreach) specific to this project with the general public and partner agencies have been used to help identify the project need.

100%

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

50%

At least online/mail outreach effort specific to this project with the general public 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.

Yes

25%

No outreach has led to the selection of this project.

0%

Describe the type(s) of outreach selected for this project (i.e., online or in-person meetings, surveys, demonstration projects), the method(s) used to announce outreach opportunities, and how many people participated. Include any public website links to outreach opportunities.

Response:

While public engagement has not formally started for this section of CSAH 5 (Minnetonka Blvd), extensive public engagement has occurred for the first phase of the project immediately east of TH 100. Outreach for the first phase has included three iterative rounds of engagement where county staff received hundreds of in-person and online comments through open houses, online interactive maps and surveys as well as physical signage and sidewalk decals. Specific focus groups were used to reach BOPIC populations, low income populations and youth populations including attending events such as Skateapalooza. In addition, specific outreach was conducted to local community organizations and businesses including the distribution of flyers and surveys. A public website was established early in project development process and has been consistently updated with engagement materials. Public engagement also was specifically structured to engage the Orthodox Jewish community including respecting religious holidays when scheduling engagement address and carefully coordinating construction detours to acknowledge specific Jewish practices which set cultural expectations for travel behavior.

Public engagement for this project will follow a similar iterative structure including a mix of focus groups, open houses, physical and virtual materials, and direct meeting with prominent corridor institutions and organizations. Engagement will be conducted with staff from across county functional groups including the Community and Engagement team to encourage the use of plain language and ensure the use of best practices. Critical project elements such as typical sections will be determined through public engagement like the first phase of the Minnetonka Blvd reconstruction project which arrived at the final typical section through several iterations communicated through a public website.

(Limit 2,800 characters; approximately 400 words)

2. Layout (25 Percent of Points)

Layout includes proposed geometrics and existing and proposed right-of-way boundaries. A basic layout should include a base map (north arrow, scale; legend; city and/or county limits; existing ROW, labeled; existing signals;* and bridge numbers*) and design data (proposed alignments; bike and/or roadway lane widths; shoulder width;* proposed signals;* and proposed ROW). An aerial photograph with a line showing the project?s termini does not suffice and will be awarded zero points. *If applicable*

Layout approved by the applicant and all impacted jurisdictions (i.e., cities/counties/MnDOT. If a MnDOT trunk highway is impacted, approval by MnDOT must have occurred to receive full points. A PDF of the layout must be attached along with letters from each jurisdiction to receive points.

100%

A layout does not apply (signal replacement/signal timing, stand-alone streetscaping, minor intersection improvements). Applicants that are not certain whether a layout is required should contact Colleen Brown at MnDOT Metro State Aid ? colleen.brown@state.mn.us.

100%

For projects where MnDOT trunk highways are impacted and a MnDOT Staff Approved layout is required. Layout approved by the applicant and all impacted local jurisdictions (i.e., cities/counties), and layout review and approval by MnDOT is pending. A PDF of the layout must be attached along with letters from each jurisdiction to receive points.

75%

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

Yes

50%

Layout has been started but is not complete. A PDF of the layout must be attached to receive points.

25%

Layout has not been started

0%

Attach Layout

1702652213905_Attachment 05 - Potential Concept.pdf

Please upload attachment in PDF form

Additional Attachments

Please upload attachment in PDF form

3. 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	Yes
100%	
There are historical/archeological properties present but determination of ?no historic properties affected? is anticipated.	
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	
4. Right-of-Way (25 Percent of Points)	
Right-of-way, permanent or temporary easements, and MnDOT agreement/limited-use permit either not required or all have been acquired	
100%	
Right-of-way, permanent or temporary easements, and/or MnDOT agreement/limited-use permit required - plat, legal descriptions, or official map complete	
50%	
Right-of-way, permanent or temporary easements, and/or MnDOT agreement/limited-use permit required - parcels identified	Yes
25%	
Right-of-way, permanent or temporary easements, and/or MnDOT agreement/limited-use permit required - parcels not all identified	
0%	
5. 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%	

Measure A: Cost Effectiveness

Total Project Cost (entered in Project Cost Form):	$20,800,000.00
Enter Amount of the Noise Walls:	$0.00
Total Project Cost subtract the amount of the noise walls:	$20,800,000.00
Enter amount of any outside, competitive funding:	$0.00
Attach documentation of award:	
Points Awarded in Previous Criteria	
Cost Effectiveness	$0.00

Other Attachments

File Name	Description	File Size
Attachment 00 - List of Attachments.pdf	Attachment 00 - List of Attachments	78 KB
Attachment 01 - Project Narrative.pdf	Attachment 01 - Project Narrative	111 KB
Attachment 02 - Project Location Map.pdf	Attachment 02 - Project Location Map	1.5 MB
Attachment 03 - Existing Condition Photos.pdf	Attachment 03 - Existing Condition Photos	2.6 MB
Attachment 04 - Potential Typical Sections.pdf	Attachment 04 - Potential Typical Sections	137 KB
Attachment 05 - Potential Concept.pdf	Attachment 05 - Potential Concept	1.8 MB
Attachment 06 - Hennepin County 2024-2028 Transportation CIP.pdf	Attachment 06 - Hennepin County 2024-2028 Transportation CIP	207 KB
Attachment 07 - Hennepin County Enhanced Bikeway Study Maps.pdf	Attachment 07 - Hennepin County Enhanced Bikeway Study Maps	1.3 MB
Attachment 08 - 2040 Forecast Traffic Volumes.pdf	Attachment 08 - 2040 Forecast Traffic Volumes	1.3 MB
Attachment 09 - Community Engagement Summary.pdf	Attachment 09 - Community Engagement Summary	831 KB
Attachment 10 - Disadvantaged Communities and Resources Map.pdf	Attachment 10 - Disadvantaged Communities and Resources Map	1.3 MB
Attachment 11 - Affordable Housing Access Map and Summary.pdf	Attachment 11 - Affordable Housing Access Map and Summary	767 KB
Attachment 12 - Hennepin County Streetlight Analysis.pdf	Attachment 12 - Hennepin County Streetlight Analysis	120 KB
Attachment 13 - Crash Map and Detail Listing.pdf	Attachment 13 - Crash Map and Detail Listing	254 KB
Attachment 14 - Crash Modification Factors.pdf	Attachment 14 - Crash Modification Factors	1.2 MB
Attachment 15 - Multimodal Connections Map.pdf	Attachment 15 - Multimodal Connections Map	1.9 MB
Attachment 16 - City of St Louis Park Support Letter.pdf	Attachment 16 - City of St Louis Park Support Letter	139 KB
Attachment 17 - Three Rivers Park District Support Letter.pdf	Attachment 17 - Three Rivers Park District Support Letter	258 KB

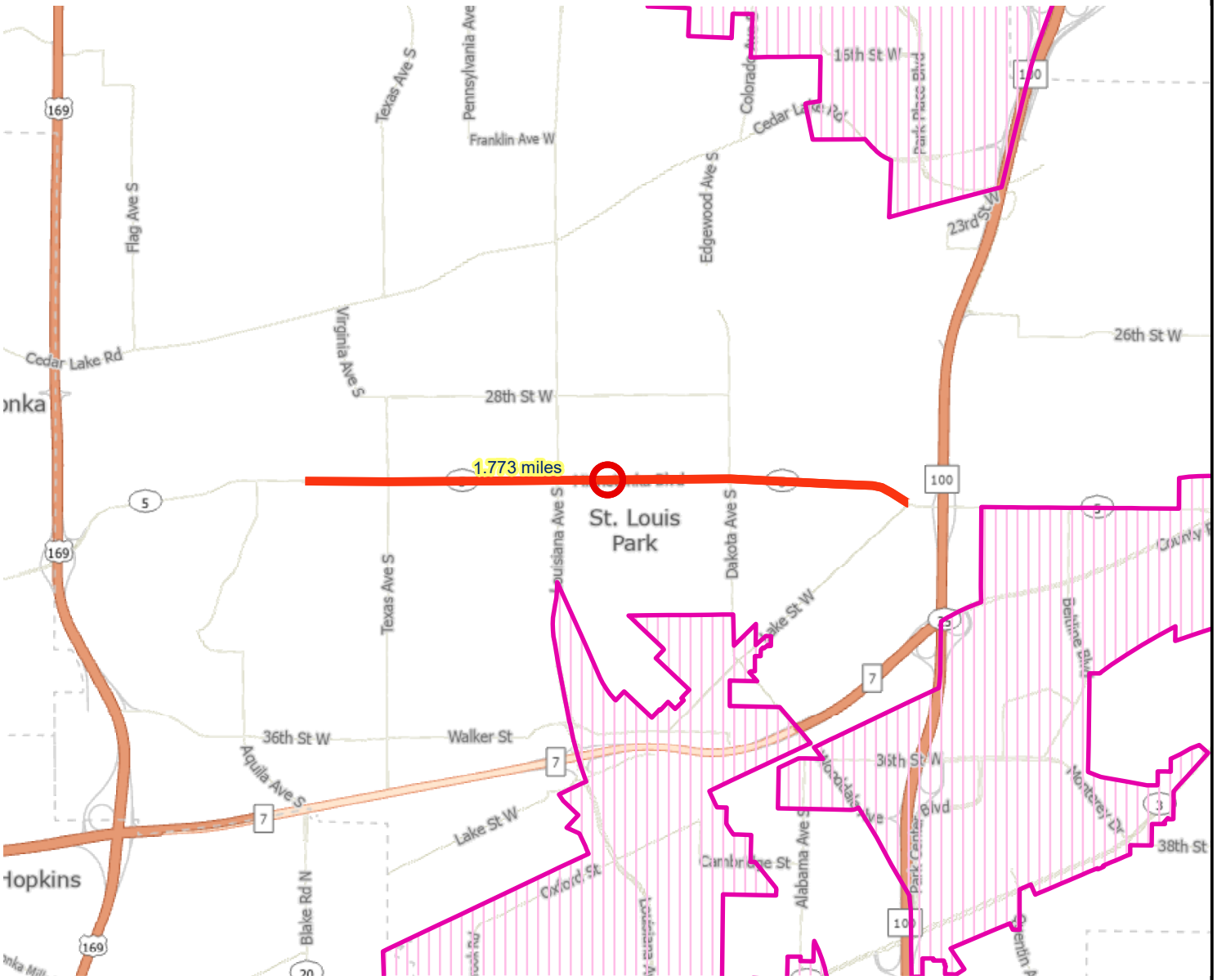
Regional Economy

Roadway Reconstruction/Modernization Project: CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project | Map ID

Results

WITHIN ONE MI of project:
Postsecondary Students: 0

Totals by City:
St. Louis Park
Population: 35660
Employment: 23432
Mfg and Dist Employment: 2265



Project Points
Project
Manfacturing/Distribution Centers
Job Concentration Centers

0 0.275 0.55 1.1 1.65 2.2 Miles

Created: 11/1/2023
LandscapeRSA5

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

METROPOLITAN COUNCIL

Transit Connections

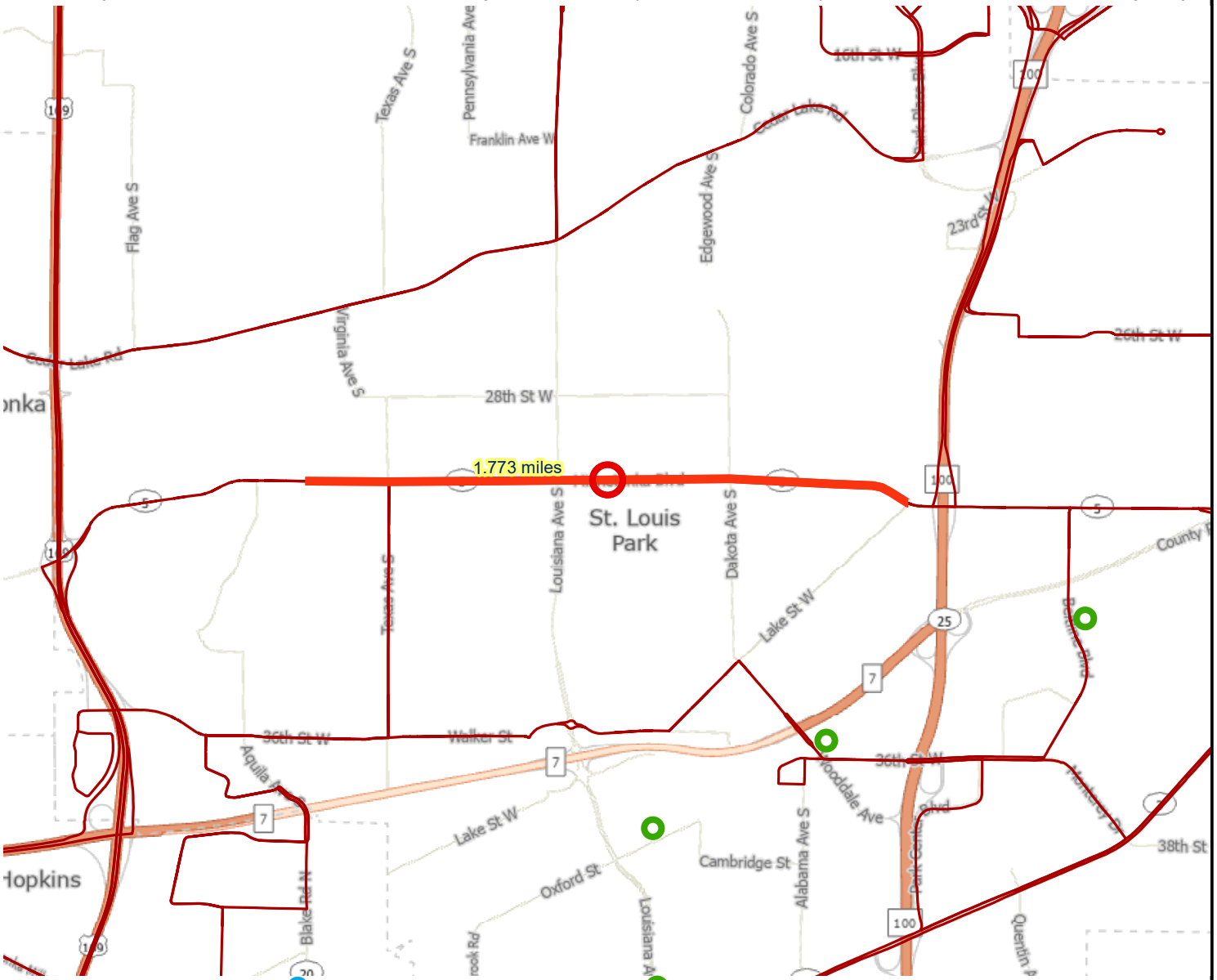
Roadway Reconstruction/Modernization Project: CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project | Map II

Results

Transit with a Direct Connection to project:
17 667

**indicates Planned Alignments*

Transit Market areas: 2



Created: 11/1/2023
LandscapeRSA3

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

METROPOLITAN COUNCIL

Socio-Economic Conditions

Roadway Reconstruction/Modernization Project: CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project | Map ID: 169887

Results

Total of publicly subsidized rental housing units in census tracts within 1/2 mile: 1117

Project located in census tract(s) that are ABOVE the regional average for population in poverty or population of color.

Points
Lines
Area of Concentrated Poverty
Regional Environmental Justice Area

0 0.275 0.55 1.1 1.65 2.2 Miles

Created: 11/1/2023
LandscapeRSA2

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METROPOLITAN COUNCIL

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Synchro Report – Congestion Reduction

Existing conditions (AM Peak)

10: Texas Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1103
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.35
NOx Emissions (kg)	0.26
VOC Emissions (kg)	0.31

Proposed conditions (AM Peak)

10: Texas Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1102
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.38
NOx Emissions (kg)	0.27
VOC Emissions (kg)	0.32

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

20: Louisiana Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1627
Total Delay / Veh (s/v)	25
CO Emissions (kg)	2.37
NOx Emissions (kg)	0.46
VOC Emissions (kg)	0.55

Proposed conditions (AM Peak)

20: Louisiana Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1627
Total Delay / Veh (s/v)	0
CO Emissions (kg)	2.07
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.48

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

30: Hampshire Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1069
Total Delay / Veh (s/v)	8
CO Emissions (kg)	1.08
NOx Emissions (kg)	0.21
VOC Emissions (kg)	0.25

Proposed conditions (AM Peak)

30: Hampshire Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1069
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.22
NOx Emissions (kg)	0.24
VOC Emissions (kg)	0.28

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

40: Dakota Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1505
Total Delay / Veh (s/v)	17
CO Emissions (kg)	2.00
NOx Emissions (kg)	0.39
VOC Emissions (kg)	0.46

Proposed conditions (AM Peak)

40: Dakota Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1504
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.91
NOx Emissions (kg)	0.37
VOC Emissions (kg)	0.44

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

50: Lake St & Minnetonka Blvd

Direction	All
Future Volume (vph)	1895
Total Delay / Veh (s/v)	15
CO Emissions (kg)	2.90
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

Proposed conditions (AM Peak)

50: Lake St & Minnetonka Blvd

Direction	All
Future Volume (vph)	1895
Total Delay / Veh (s/v)	15
CO Emissions (kg)	2.89
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

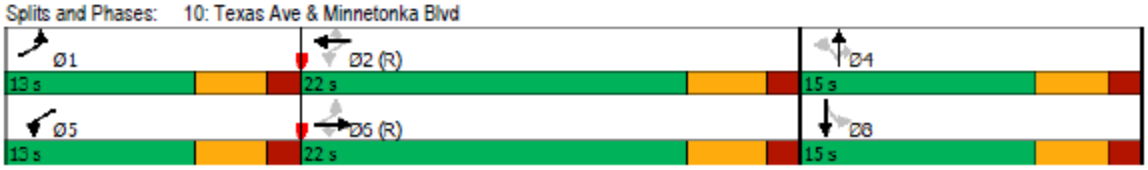
Synchro Report for existing conditions (AM Peak) CSAH 5 and Texas Ave

10: Texas Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	53	338	33	46	297	29	39	53	57	40	49
Future Volume (vph)	53	338	33	46	297	29	39	53	57	40	49
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			4			8
Permitted Phases	6		6	2		2	4		4	8	
Detector Phase	1 6	6		2 5	2		4	4	4	8	8
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	20.0	20.0	13.0	20.0	20.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	13.0	22.0	22.0	13.0	22.0	22.0	15.0	15.0	15.0	15.0	15.0
Total Split (%)	26.0%	44.0%	44.0%	26.0%	44.0%	44.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	5.1	5.1	4.7	5.1	5.1		4.7	4.7	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?											
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	31.8	28.0	28.0	30.0	25.5	25.5		8.7	8.7	8.7	8.7
Actuated g/C Ratio	0.64	0.56	0.56	0.60	0.51	0.51		0.17	0.17	0.17	0.17
v/c Ratio	0.15	0.36	0.05	0.09	0.38	0.05		0.66	0.18	0.24	0.52
Control Delay	4.7	11.6	0.1	4.5	13.0	0.1		35.0	1.5	20.0	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	4.7	11.6	0.1	4.5	13.0	0.1		35.0	1.5	20.0	12.5
LOS	A	B	A	A	B	A		C	A	C	B
Approach Delay		9.2			10.8			24.0			14.0
Approach LOS		A			B			C			B

Intersection Summary	
Cycle Length: 50	
Actuated Cycle Length: 50	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of 1st Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 12.7	Intersection LOS: B
Intersection Capacity Utilization 45.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: Texas Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Texas Ave

HCM 6th Roundabout — 10: Texas Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	533	461	210	260
Demand Flow Rate, veh/h	547	474	218	265
Vehicles Circulating, veh/h	190	251	546	496
Vehicles Exiting, veh/h	571	513	191	229
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.6	8.4	7.9	8.1
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	547	474	218	265
Cap Entry Lane, veh/h	1137	1068	791	832
Entry HV Adj Factor	0.975	0.972	0.965	0.979
Flow Entry, veh/h	533	461	210	260
Cap Entry, veh/h	1108	1038	763	815
V/C Ratio	0.481	0.444	0.276	0.318
Control Delay, s/veh	8.6	8.4	7.9	8.1
LOS	A	A	A	A
95th %tile Queue, veh	3	2	1	1

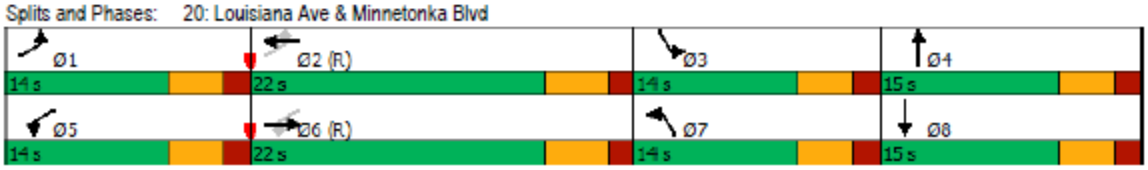
Synchro Report for existing conditions (AM Peak) CSAH 5 and Louisiana Ave

20: Louisiana Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	111	338	66	28	165	171	77	213	202	146
Future Volume (vph)	111	338	66	28	165	171	77	213	202	146
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Prot	NA	Prot	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	2		6	6		2				
Detector Phase	1 2	6		5 6	2		7	4	3	8
Switch Phase										
Minimum Initial (s)	6.0	12.0	12.0	6.0	12.0	12.0	6.0	7.0	6.0	7.0
Minimum Split (s)	14.0	20.0	20.0	14.0	20.0	20.0	14.0	15.0	14.0	15.0
Total Split (s)	14.0	22.0	22.0	14.0	22.0	22.0	14.0	15.0	14.0	15.0
Total Split (%)	21.5%	33.8%	33.8%	21.5%	33.8%	33.8%	21.5%	23.1%	21.5%	23.1%
Yellow Time (s)	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	5.1	5.1	4.7	5.1	5.1	4.7	4.7	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	28.5	25.8	25.8	30.4	19.8	19.8	8.1	8.4	9.3	11.7
Actuated g/C Ratio	0.44	0.40	0.40	0.47	0.30	0.30	0.12	0.13	0.14	0.18
v/c Ratio	0.28	0.54	0.12	0.12	0.34	0.36	0.40	0.62	0.93	0.36
Control Delay	10.6	21.8	0.3	9.4	20.7	5.1	31.5	27.5	72.8	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	21.8	0.3	9.4	20.7	5.1	31.5	27.5	72.8	19.2
LOS	B	C	A	A	C	A	C	C	E	B
Approach Delay		16.1			11.9			28.4		46.0
Approach LOS		B			B			C		D

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 24.6	Intersection LOS: C
Intersection Capacity Utilization 57.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 20: Louisiana Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Louisiana Ave

HCM 6th Roundabout — 20: Louisiana Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	16.6
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	656	465	391	471
Demand Flow Rate, veh/h	669	479	400	483
Vehicles Circulating, veh/h	462	494	819	336
Vehicles Exiting, veh/h	357	725	312	637
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	21.3	13.1	21.0	9.8
Approach LOS	C	B	C	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	669	479	400	483
Cap Entry Lane, veh/h	861	834	599	980
Entry HV Adj Factor	0.981	0.971	0.979	0.975
Flow Entry, veh/h	656	465	391	471
Cap Entry, veh/h	845	810	586	955
V/C Ratio	0.777	0.575	0.668	0.493
Control Delay, s/veh	21.3	13.1	21.0	9.8
LOS	C	B	C	A
95th %tile Queue, veh	8	4	5	3

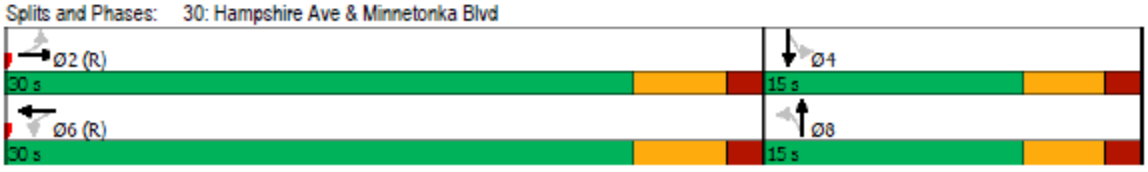
Synchro Report for existing conditions (AM Peak) CSAH 5 and Hampshire Ave

30: Hampshire Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	1	532	6	336	22	5	27	15
Future Volume (vph)	1	532	6	336	22	5	27	15
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	12.0	12.0	12.0	12.0	7.0	7.0	7.0	7.0
Minimum Split (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0
Total Split (s)	30.0	30.0	30.0	30.0	15.0	15.0	15.0	15.0
Total Split (%)	66.7%	66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.1		5.1		4.7		4.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		31.0		31.0		7.5		7.5
Actuated g/C Ratio		0.69		0.69		0.17		0.17
v/c Ratio		0.59		0.39		0.26		0.41
Control Delay		8.0		5.5		15.0		16.8
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		8.0		5.5		15.0		16.8
LOS		A		A		B		B
Approach Delay		8.0		5.5		15.0		16.8
Approach LOS		A		A		B		B

Intersection Summary	
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 8.2	Intersection LOS: A
Intersection Capacity Utilization 46.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 30: Hampshire Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Hampshire Ave

HCM 6th Roundabout — 30: Hampshire Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	746	480	70	114
Demand Flow Rate, veh/h	767	493	72	117
Vehicles Circulating, veh/h	96	55	705	476
Vehicles Exiting, veh/h	497	722	158	72
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.6	6.4	6.7	5.8
Approach LOS	B	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	767	493	72	117
Cap Entry Lane, veh/h	1251	1305	672	849
Entry HV Adj Factor	0.973	0.973	0.969	0.971
Flow Entry, veh/h	746	480	70	114
Cap Entry, veh/h	1217	1270	652	825
V/C Ratio	0.613	0.378	0.107	0.138
Control Delay, s/veh	10.6	6.4	6.7	5.8
LOS	B	A	A	A
95th %tile Queue, veh	4	2	0	0

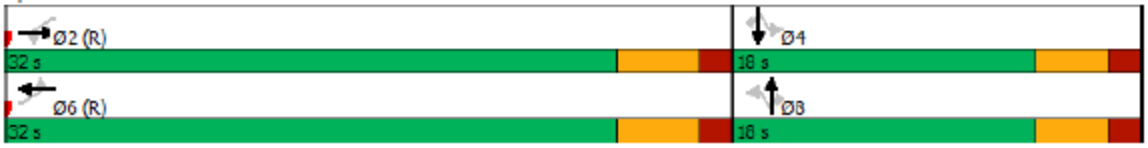
Synchro Report for existing conditions (AM Peak) CSAH 5 and Dakota Ave

40: Dakota Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	22	523	60	295	75	51	77	90	99	47
Future Volume (vph)	22	523	60	295	75	51	77	90	99	47
Turn Type	D.Pm	NA	D.Pm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2		6		8			4	
Permitted Phases	6		2		8		8	4		4
Detector Phase	6	2	2	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	32.0	32.0	32.0	32.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	64.0%	64.0%	64.0%	64.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1		4.7	4.7		4.7	4.7
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	28.5	28.5	28.5	28.5		11.7	11.7		11.7	11.7
Actuated g/C Ratio	0.57	0.57	0.57	0.57		0.23	0.23		0.23	0.23
v/c Ratio	0.12	0.74	0.40	0.44		0.74	0.25		0.82	0.20
Control Delay	6.5	14.7	13.4	7.4		38.3	5.5		40.8	5.6
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	6.5	14.7	13.4	7.4		38.3	5.5		40.8	5.6
LOS	A	B	B	A		D	A		D	A
Approach Delay		14.2		8.5		26.0			31.9	
Approach LOS		B		A		C			C	

Intersection Summary	
Cycle Length: 50	
Actuated Cycle Length: 50	
Offset: 18 (36%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 17.4	Intersection LOS: B
Intersection Capacity Utilization 72.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 40: Dakota Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Dakota Ave

HCM 6th Roundabout — 40: Dakota Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	19.8
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	835	547	293	347
Demand Flow Rate, veh/h	854	568	306	354
Vehicles Circulating, veh/h	362	252	892	550
Vehicles Exiting, veh/h	542	946	324	270
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	30.7	10.1	17.5	10.7
Approach LOS	D	B	C	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	854	568	306	354
Cap Entry Lane, veh/h	954	1067	556	787
Entry HV Adj Factor	0.977	0.963	0.959	0.979
Flow Entry, veh/h	835	547	293	347
Cap Entry, veh/h	932	1027	533	771
V/C Ratio	0.895	0.532	0.551	0.450
Control Delay, s/veh	30.7	10.1	17.5	10.7
LOS	D	B	C	B
95th %tile Queue, veh	13	3	3	2

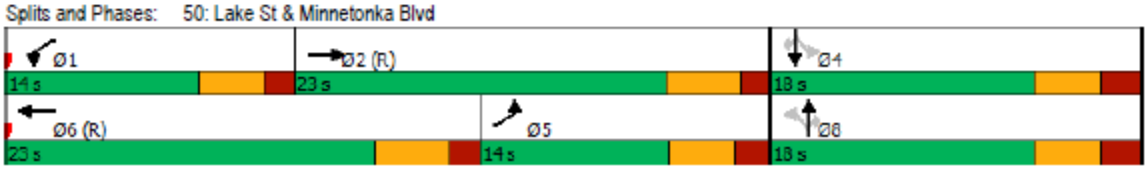
Synchro Report for existing conditions (AM Peak) CSAH 5 and Vernon Ave/ Lake St W

50: Lake St & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	11	661	122	413	51	19	429	41	27	14
Future Volume (vph)	11	661	122	413	51	19	429	41	27	14
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	12.0	6.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	20.0	14.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	14.0	23.0	14.0	23.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	25.5%	41.8%	25.5%	41.8%	32.7%	32.7%	32.7%	32.7%	32.7%	32.7%
Yellow Time (s)	3.2	3.6	3.2	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	5.1	4.7	5.1		5.2	5.2	5.2	5.2	5.2
Lead/Lag	Lag	Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	6.9	23.7	9.0	32.3		9.6	9.6	9.6	9.6	9.6
Actuated g/C Ratio	0.13	0.43	0.16	0.59		0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.09	0.61	0.52	0.25		0.42	0.79	0.30	0.10	0.04
Control Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
LOS	C	B	C	A		C	B	C	B	A
Approach Delay		16.6		12.4		15.4			17.6	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 55	
Actuated Cycle Length: 55	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 50: Lake St & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Vernon Ave/Lake St W

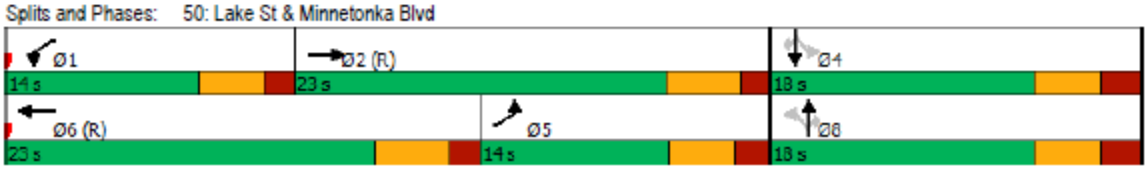
Timings
Minnetonka Blvd - Build AM Peak

50: Lake St & Minnetonka Blvd
11/29/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	11	661	122	413	51	19	429	41	27	14
Future Volume (vph)	11	661	122	413	51	19	429	41	27	14
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	12.0	6.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	20.0	14.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	14.0	23.0	14.0	23.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	25.5%	41.8%	25.5%	41.8%	32.7%	32.7%	32.7%	32.7%	32.7%	32.7%
Yellow Time (s)	3.2	3.6	3.2	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	5.1	4.7	5.1		5.2	5.2	5.2	5.2	5.2
Lead/Lag	Lag	Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	6.9	23.7	9.0	32.3		9.6	9.6	9.6	9.6	9.6
Actuated g/C Ratio	0.13	0.43	0.16	0.59		0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.09	0.61	0.52	0.25		0.42	0.79	0.30	0.10	0.04
Control Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
LOS	C	B	C	A		C	B	C	B	A
Approach Delay		16.6		12.4		15.4			17.6	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 55	
Actuated Cycle Length: 55	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 50: Lake St & Minnetonka Blvd



CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Synchro Report – Congestion Reduction

Existing conditions (AM Peak)

10: Texas Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1103
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.35
NOx Emissions (kg)	0.26
VOC Emissions (kg)	0.31

Proposed conditions (AM Peak)

10: Texas Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1102
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.38
NOx Emissions (kg)	0.27
VOC Emissions (kg)	0.32

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

20: Louisiana Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1627
Total Delay / Veh (s/v)	25
CO Emissions (kg)	2.37
NOx Emissions (kg)	0.46
VOC Emissions (kg)	0.55

Proposed conditions (AM Peak)

20: Louisiana Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1627
Total Delay / Veh (s/v)	0
CO Emissions (kg)	2.07
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.48

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

30: Hampshire Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1069
Total Delay / Veh (s/v)	8
CO Emissions (kg)	1.08
NOx Emissions (kg)	0.21
VOC Emissions (kg)	0.25

Proposed conditions (AM Peak)

30: Hampshire Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1069
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.22
NOx Emissions (kg)	0.24
VOC Emissions (kg)	0.28

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

40: Dakota Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1505
Total Delay / Veh (s/v)	17
CO Emissions (kg)	2.00
NOx Emissions (kg)	0.39
VOC Emissions (kg)	0.46

Proposed conditions (AM Peak)

40: Dakota Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1504
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.91
NOx Emissions (kg)	0.37
VOC Emissions (kg)	0.44

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

50: Lake St & Minnetonka Blvd

Direction	All
Future Volume (vph)	1895
Total Delay / Veh (s/v)	15
CO Emissions (kg)	2.90
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

Proposed conditions (AM Peak)

50: Lake St & Minnetonka Blvd

Direction	All
Future Volume (vph)	1895
Total Delay / Veh (s/v)	15
CO Emissions (kg)	2.89
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

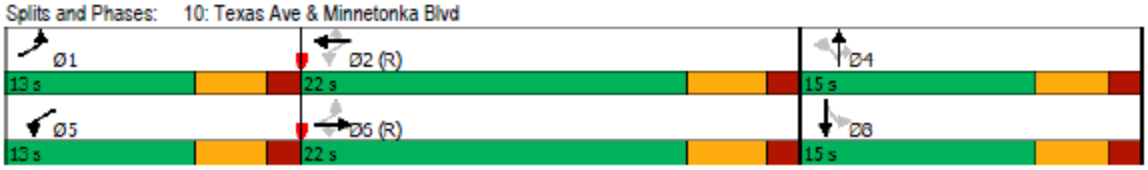
Synchro Report for existing conditions (AM Peak) CSAH 5 and Texas Ave

10: Texas Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	53	338	33	46	297	29	39	53	57	40	49
Future Volume (vph)	53	338	33	46	297	29	39	53	57	40	49
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			4			8
Permitted Phases	6		6	2		2	4		4	8	
Detector Phase	1 6	6		2 5	2		4	4	4	8	8
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	20.0	20.0	13.0	20.0	20.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	13.0	22.0	22.0	13.0	22.0	22.0	15.0	15.0	15.0	15.0	15.0
Total Split (%)	26.0%	44.0%	44.0%	26.0%	44.0%	44.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	5.1	5.1	4.7	5.1	5.1		4.7	4.7	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?											
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	31.8	28.0	28.0	30.0	25.5	25.5		8.7	8.7	8.7	8.7
Actuated g/C Ratio	0.64	0.56	0.56	0.60	0.51	0.51		0.17	0.17	0.17	0.17
v/c Ratio	0.15	0.36	0.05	0.09	0.38	0.05		0.66	0.18	0.24	0.52
Control Delay	4.7	11.6	0.1	4.5	13.0	0.1		35.0	1.5	20.0	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	4.7	11.6	0.1	4.5	13.0	0.1		35.0	1.5	20.0	12.5
LOS	A	B	A	A	B	A		C	A	C	B
Approach Delay		9.2			10.8			24.0			14.0
Approach LOS		A			B			C			B

Intersection Summary	
Cycle Length: 50	
Actuated Cycle Length: 50	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of 1st Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 12.7	Intersection LOS: B
Intersection Capacity Utilization 45.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: Texas Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Texas Ave

HCM 6th Roundabout — 10: Texas Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	533	461	210	260
Demand Flow Rate, veh/h	547	474	218	265
Vehicles Circulating, veh/h	190	251	546	496
Vehicles Exiting, veh/h	571	513	191	229
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.6	8.4	7.9	8.1
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	547	474	218	265
Cap Entry Lane, veh/h	1137	1068	791	832
Entry HV Adj Factor	0.975	0.972	0.965	0.979
Flow Entry, veh/h	533	461	210	260
Cap Entry, veh/h	1108	1038	763	815
V/C Ratio	0.481	0.444	0.276	0.318
Control Delay, s/veh	8.6	8.4	7.9	8.1
LOS	A	A	A	A
95th %tile Queue, veh	3	2	1	1

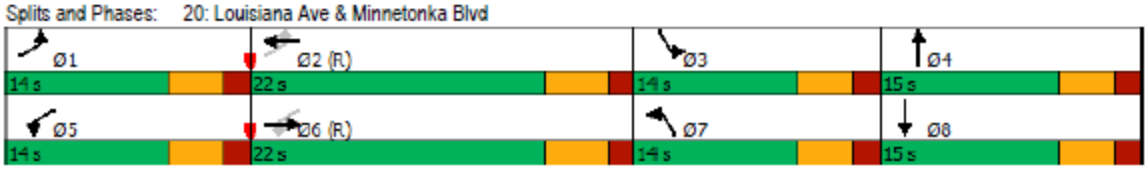
Synchro Report for existing conditions (AM Peak) CSAH 5 and Louisiana Ave

20: Louisiana Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	111	338	66	28	165	171	77	213	202	146
Future Volume (vph)	111	338	66	28	165	171	77	213	202	146
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Prot	NA	Prot	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	2		6	6		2				
Detector Phase	1 2	6		5 6	2		7	4	3	8
Switch Phase										
Minimum Initial (s)	6.0	12.0	12.0	6.0	12.0	12.0	6.0	7.0	6.0	7.0
Minimum Split (s)	14.0	20.0	20.0	14.0	20.0	20.0	14.0	15.0	14.0	15.0
Total Split (s)	14.0	22.0	22.0	14.0	22.0	22.0	14.0	15.0	14.0	15.0
Total Split (%)	21.5%	33.8%	33.8%	21.5%	33.8%	33.8%	21.5%	23.1%	21.5%	23.1%
Yellow Time (s)	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	5.1	5.1	4.7	5.1	5.1	4.7	4.7	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	28.5	25.8	25.8	30.4	19.8	19.8	8.1	8.4	9.3	11.7
Actuated g/C Ratio	0.44	0.40	0.40	0.47	0.30	0.30	0.12	0.13	0.14	0.18
v/c Ratio	0.28	0.54	0.12	0.12	0.34	0.36	0.40	0.62	0.93	0.36
Control Delay	10.6	21.8	0.3	9.4	20.7	5.1	31.5	27.5	72.8	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	21.8	0.3	9.4	20.7	5.1	31.5	27.5	72.8	19.2
LOS	B	C	A	A	C	A	C	C	E	B
Approach Delay		16.1			11.9			28.4		46.0
Approach LOS		B			B			C		D

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 24.6	Intersection LOS: C
Intersection Capacity Utilization 57.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 20: Louisiana Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Louisiana Ave

HCM 6th Roundabout — 20: Louisiana Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	16.6
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	656	465	391	471
Demand Flow Rate, veh/h	669	479	400	483
Vehicles Circulating, veh/h	462	494	819	336
Vehicles Exiting, veh/h	357	725	312	637
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	21.3	13.1	21.0	9.8
Approach LOS	C	B	C	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	669	479	400	483
Cap Entry Lane, veh/h	861	834	599	980
Entry HV Adj Factor	0.981	0.971	0.979	0.975
Flow Entry, veh/h	656	465	391	471
Cap Entry, veh/h	845	810	586	955
V/C Ratio	0.777	0.575	0.668	0.493
Control Delay, s/veh	21.3	13.1	21.0	9.8
LOS	C	B	C	A
95th %tile Queue, veh	8	4	5	3

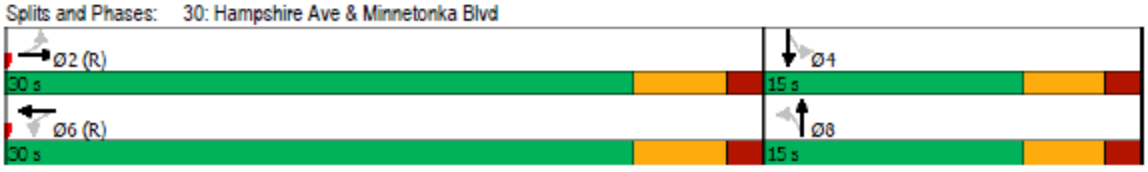
Synchro Report for existing conditions (AM Peak) CSAH 5 and Hampshire Ave

30: Hampshire Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	1	532	6	336	22	5	27	15
Future Volume (vph)	1	532	6	336	22	5	27	15
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	12.0	12.0	12.0	12.0	7.0	7.0	7.0	7.0
Minimum Split (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0
Total Split (s)	30.0	30.0	30.0	30.0	15.0	15.0	15.0	15.0
Total Split (%)	66.7%	66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.1		5.1		4.7		4.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		31.0		31.0		7.5		7.5
Actuated g/C Ratio		0.69		0.69		0.17		0.17
v/c Ratio		0.59		0.39		0.26		0.41
Control Delay		8.0		5.5		15.0		16.8
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		8.0		5.5		15.0		16.8
LOS		A		A		B		B
Approach Delay		8.0		5.5		15.0		16.8
Approach LOS		A		A		B		B

Intersection Summary	
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 8.2	Intersection LOS: A
Intersection Capacity Utilization 46.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 30: Hampshire Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Hampshire Ave

HCM 6th Roundabout — 30: Hampshire Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	746	480	70	114
Demand Flow Rate, veh/h	767	493	72	117
Vehicles Circulating, veh/h	96	55	705	476
Vehicles Exiting, veh/h	497	722	158	72
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.6	6.4	6.7	5.8
Approach LOS	B	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	767	493	72	117
Cap Entry Lane, veh/h	1251	1305	672	849
Entry HV Adj Factor	0.973	0.973	0.969	0.971
Flow Entry, veh/h	746	480	70	114
Cap Entry, veh/h	1217	1270	652	825
V/C Ratio	0.613	0.378	0.107	0.138
Control Delay, s/veh	10.6	6.4	6.7	5.8
LOS	B	A	A	A
95th %tile Queue, veh	4	2	0	0

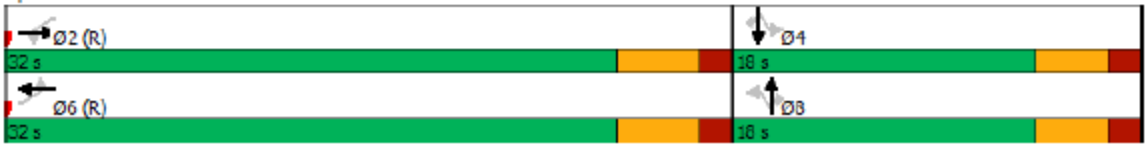
Synchro Report for existing conditions (AM Peak) CSAH 5 and Dakota Ave

40: Dakota Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	22	523	60	295	75	51	77	90	99	47
Future Volume (vph)	22	523	60	295	75	51	77	90	99	47
Turn Type	D.Pm	NA	D.Pm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2		6		8			4	
Permitted Phases	6		2		8		8	4		4
Detector Phase	6	2	2	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	32.0	32.0	32.0	32.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	64.0%	64.0%	64.0%	64.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1		4.7	4.7		4.7	4.7
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	28.5	28.5	28.5	28.5		11.7	11.7		11.7	11.7
Actuated g/C Ratio	0.57	0.57	0.57	0.57		0.23	0.23		0.23	0.23
v/c Ratio	0.12	0.74	0.40	0.44		0.74	0.25		0.82	0.20
Control Delay	6.5	14.7	13.4	7.4		38.3	5.5		40.8	5.6
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	6.5	14.7	13.4	7.4		38.3	5.5		40.8	5.6
LOS	A	B	B	A		D	A		D	A
Approach Delay		14.2		8.5		26.0			31.9	
Approach LOS		B		A		C			C	

Intersection Summary	
Cycle Length: 50	
Actuated Cycle Length: 50	
Offset: 18 (36%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 17.4	Intersection LOS: B
Intersection Capacity Utilization 72.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 40: Dakota Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Dakota Ave

HCM 6th Roundabout — 40: Dakota Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	19.8
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	835	547	293	347
Demand Flow Rate, veh/h	854	568	306	354
Vehicles Circulating, veh/h	362	252	892	550
Vehicles Exiting, veh/h	542	946	324	270
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	30.7	10.1	17.5	10.7
Approach LOS	D	B	C	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	854	568	306	354
Cap Entry Lane, veh/h	954	1067	556	787
Entry HV Adj Factor	0.977	0.963	0.959	0.979
Flow Entry, veh/h	835	547	293	347
Cap Entry, veh/h	932	1027	533	771
V/C Ratio	0.895	0.532	0.551	0.450
Control Delay, s/veh	30.7	10.1	17.5	10.7
LOS	D	B	C	B
95th %tile Queue, veh	13	3	3	2

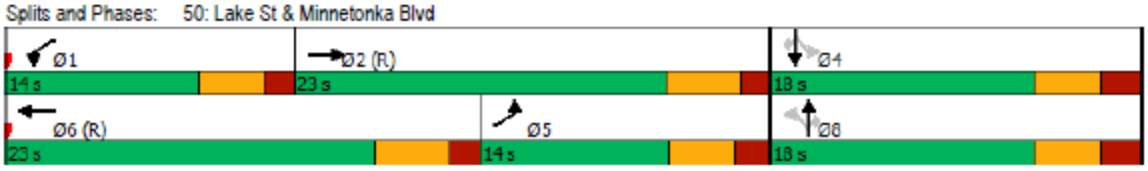
Synchro Report for existing conditions (AM Peak) CSAH 5 and Vernon Ave/ Lake St W

50: Lake St & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	11	661	122	413	51	19	429	41	27	14
Future Volume (vph)	11	661	122	413	51	19	429	41	27	14
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	12.0	6.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	20.0	14.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	14.0	23.0	14.0	23.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	25.5%	41.8%	25.5%	41.8%	32.7%	32.7%	32.7%	32.7%	32.7%	32.7%
Yellow Time (s)	3.2	3.6	3.2	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	5.1	4.7	5.1		5.2	5.2	5.2	5.2	5.2
Lead/Lag	Lag	Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	6.9	23.7	9.0	32.3		9.6	9.6	9.6	9.6	9.6
Actuated g/C Ratio	0.13	0.43	0.16	0.59		0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.09	0.61	0.52	0.25		0.42	0.79	0.30	0.10	0.04
Control Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
LOS	C	B	C	A		C	B	C	B	A
Approach Delay		16.6		12.4		15.4			17.6	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 55	
Actuated Cycle Length: 55	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 50: Lake St & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Vernon Ave/Lake St W

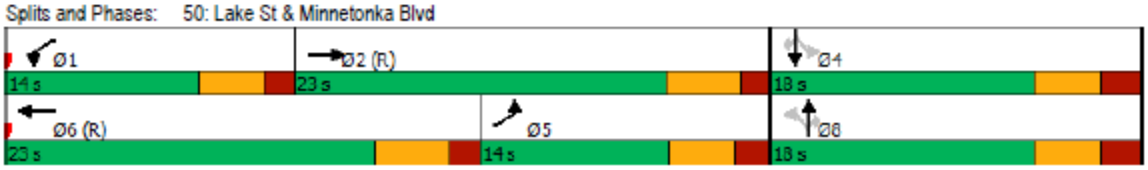
Timings
Minnetonka Blvd - Build AM Peak

50: Lake St & Minnetonka Blvd
11/29/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	11	661	122	413	51	19	429	41	27	14
Future Volume (vph)	11	661	122	413	51	19	429	41	27	14
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	12.0	6.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	20.0	14.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	14.0	23.0	14.0	23.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	25.5%	41.8%	25.5%	41.8%	32.7%	32.7%	32.7%	32.7%	32.7%	32.7%
Yellow Time (s)	3.2	3.6	3.2	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	5.1	4.7	5.1		5.2	5.2	5.2	5.2	5.2
Lead/Lag	Lag	Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	6.9	23.7	9.0	32.3		9.6	9.6	9.6	9.6	9.6
Actuated g/C Ratio	0.13	0.43	0.16	0.59		0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.09	0.61	0.52	0.25		0.42	0.79	0.30	0.10	0.04
Control Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
LOS	C	B	C	A		C	B	C	B	A
Approach Delay		16.6		12.4		15.4			17.6	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 55	
Actuated Cycle Length: 55	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 50: Lake St & Minnetonka Blvd



CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Synchro Report – Congestion Reduction

Existing conditions (AM Peak)

10: Texas Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1103
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.35
NOx Emissions (kg)	0.26
VOC Emissions (kg)	0.31

Proposed conditions (AM Peak)

10: Texas Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1102
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.38
NOx Emissions (kg)	0.27
VOC Emissions (kg)	0.32

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

20: Louisiana Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1627
Total Delay / Veh (s/v)	25
CO Emissions (kg)	2.37
NOx Emissions (kg)	0.46
VOC Emissions (kg)	0.55

Proposed conditions (AM Peak)

20: Louisiana Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1627
Total Delay / Veh (s/v)	0
CO Emissions (kg)	2.07
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.48

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

30: Hampshire Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1069
Total Delay / Veh (s/v)	8
CO Emissions (kg)	1.08
NOx Emissions (kg)	0.21
VOC Emissions (kg)	0.25

Proposed conditions (AM Peak)

30: Hampshire Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1069
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.22
NOx Emissions (kg)	0.24
VOC Emissions (kg)	0.28

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

40: Dakota Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1505
Total Delay / Veh (s/v)	17
CO Emissions (kg)	2.00
NOx Emissions (kg)	0.39
VOC Emissions (kg)	0.46

Proposed conditions (AM Peak)

40: Dakota Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1504
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.91
NOx Emissions (kg)	0.37
VOC Emissions (kg)	0.44

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

50: Lake St & Minnetonka Blvd

Direction	All
Future Volume (vph)	1895
Total Delay / Veh (s/v)	15
CO Emissions (kg)	2.90
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

Proposed conditions (AM Peak)

50: Lake St & Minnetonka Blvd

Direction	All
Future Volume (vph)	1895
Total Delay / Veh (s/v)	15
CO Emissions (kg)	2.89
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

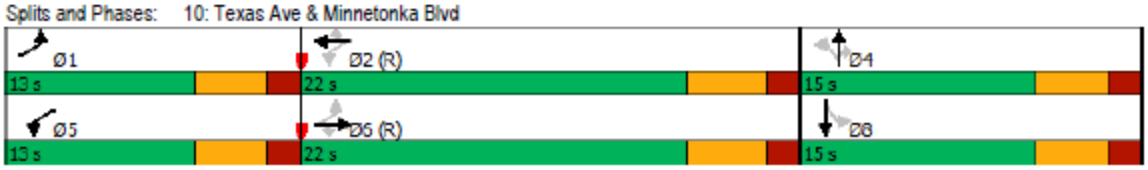
Synchro Report for existing conditions (AM Peak) CSAH 5 and Texas Ave

10: Texas Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	53	338	33	46	297	29	39	53	57	40	49
Future Volume (vph)	53	338	33	46	297	29	39	53	57	40	49
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			4			8
Permitted Phases	6		6	2		2	4		4	8	
Detector Phase	1 6	6		2 5	2		4	4	4	8	8
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	20.0	20.0	13.0	20.0	20.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	13.0	22.0	22.0	13.0	22.0	22.0	15.0	15.0	15.0	15.0	15.0
Total Split (%)	26.0%	44.0%	44.0%	26.0%	44.0%	44.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	5.1	5.1	4.7	5.1	5.1		4.7	4.7	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?											
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	31.8	28.0	28.0	30.0	25.5	25.5		8.7	8.7	8.7	8.7
Actuated g/C Ratio	0.64	0.56	0.56	0.60	0.51	0.51		0.17	0.17	0.17	0.17
v/c Ratio	0.15	0.36	0.05	0.09	0.38	0.05		0.66	0.18	0.24	0.52
Control Delay	4.7	11.6	0.1	4.5	13.0	0.1		35.0	1.5	20.0	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	4.7	11.6	0.1	4.5	13.0	0.1		35.0	1.5	20.0	12.5
LOS	A	B	A	A	B	A		C	A	C	B
Approach Delay		9.2			10.8			24.0			14.0
Approach LOS		A			B			C			B

Intersection Summary	
Cycle Length: 50	
Actuated Cycle Length: 50	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of 1st Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 12.7	Intersection LOS: B
Intersection Capacity Utilization 45.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: Texas Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Texas Ave

HCM 6th Roundabout — 10: Texas Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	533	461	210	260
Demand Flow Rate, veh/h	547	474	218	265
Vehicles Circulating, veh/h	190	251	546	496
Vehicles Exiting, veh/h	571	513	191	229
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.6	8.4	7.9	8.1
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	547	474	218	265
Cap Entry Lane, veh/h	1137	1068	791	832
Entry HV Adj Factor	0.975	0.972	0.965	0.979
Flow Entry, veh/h	533	461	210	260
Cap Entry, veh/h	1108	1038	763	815
V/C Ratio	0.481	0.444	0.276	0.318
Control Delay, s/veh	8.6	8.4	7.9	8.1
LOS	A	A	A	A
95th %tile Queue, veh	3	2	1	1

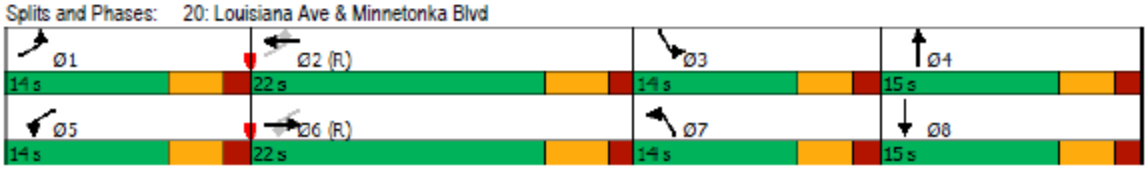
Synchro Report for existing conditions (AM Peak) CSAH 5 and Louisiana Ave

20: Louisiana Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	111	338	66	28	165	171	77	213	202	146
Future Volume (vph)	111	338	66	28	165	171	77	213	202	146
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Prot	NA	Prot	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	2		6	6		2				
Detector Phase	1 2	6		5 6	2		7	4	3	8
Switch Phase										
Minimum Initial (s)	6.0	12.0	12.0	6.0	12.0	12.0	6.0	7.0	6.0	7.0
Minimum Split (s)	14.0	20.0	20.0	14.0	20.0	20.0	14.0	15.0	14.0	15.0
Total Split (s)	14.0	22.0	22.0	14.0	22.0	22.0	14.0	15.0	14.0	15.0
Total Split (%)	21.5%	33.8%	33.8%	21.5%	33.8%	33.8%	21.5%	23.1%	21.5%	23.1%
Yellow Time (s)	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	5.1	5.1	4.7	5.1	5.1	4.7	4.7	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	28.5	25.8	25.8	30.4	19.8	19.8	8.1	8.4	9.3	11.7
Actuated g/C Ratio	0.44	0.40	0.40	0.47	0.30	0.30	0.12	0.13	0.14	0.18
v/c Ratio	0.28	0.54	0.12	0.12	0.34	0.36	0.40	0.62	0.93	0.36
Control Delay	10.6	21.8	0.3	9.4	20.7	5.1	31.5	27.5	72.8	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	21.8	0.3	9.4	20.7	5.1	31.5	27.5	72.8	19.2
LOS	B	C	A	A	C	A	C	C	E	B
Approach Delay		16.1			11.9			28.4		46.0
Approach LOS		B			B			C		D

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 24.6	Intersection LOS: C
Intersection Capacity Utilization 57.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 20: Louisiana Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Louisiana Ave

HCM 6th Roundabout — 20: Louisiana Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	16.6
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	656	465	391	471
Demand Flow Rate, veh/h	669	479	400	483
Vehicles Circulating, veh/h	462	494	819	336
Vehicles Exiting, veh/h	357	725	312	637
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	21.3	13.1	21.0	9.8
Approach LOS	C	B	C	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	669	479	400	483
Cap Entry Lane, veh/h	861	834	599	980
Entry HV Adj Factor	0.981	0.971	0.979	0.975
Flow Entry, veh/h	656	465	391	471
Cap Entry, veh/h	845	810	586	955
V/C Ratio	0.777	0.575	0.668	0.493
Control Delay, s/veh	21.3	13.1	21.0	9.8
LOS	C	B	C	A
95th %tile Queue, veh	8	4	5	3

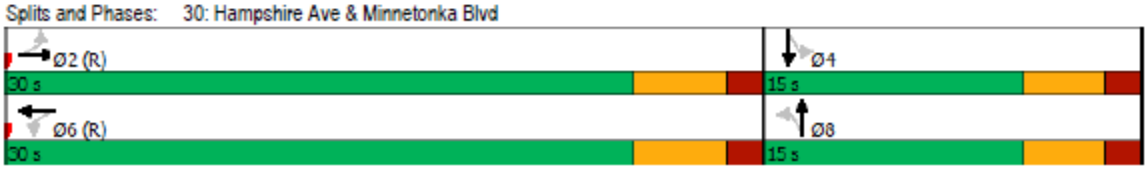
Synchro Report for existing conditions (AM Peak) CSAH 5 and Hampshire Ave

30: Hampshire Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	1	532	6	336	22	5	27	15
Future Volume (vph)	1	532	6	336	22	5	27	15
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	12.0	12.0	12.0	12.0	7.0	7.0	7.0	7.0
Minimum Split (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0
Total Split (s)	30.0	30.0	30.0	30.0	15.0	15.0	15.0	15.0
Total Split (%)	66.7%	66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.1		5.1		4.7		4.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		31.0		31.0		7.5		7.5
Actuated g/C Ratio		0.69		0.69		0.17		0.17
v/c Ratio		0.59		0.39		0.26		0.41
Control Delay		8.0		5.5		15.0		16.8
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		8.0		5.5		15.0		16.8
LOS		A		A		B		B
Approach Delay		8.0		5.5		15.0		16.8
Approach LOS		A		A		B		B

Intersection Summary	
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 8.2	Intersection LOS: A
Intersection Capacity Utilization 46.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 30: Hampshire Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Hampshire Ave

HCM 6th Roundabout — 30: Hampshire Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	746	480	70	114
Demand Flow Rate, veh/h	767	493	72	117
Vehicles Circulating, veh/h	96	55	705	476
Vehicles Exiting, veh/h	497	722	158	72
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.6	6.4	6.7	5.8
Approach LOS	B	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	767	493	72	117
Cap Entry Lane, veh/h	1251	1305	672	849
Entry HV Adj Factor	0.973	0.973	0.969	0.971
Flow Entry, veh/h	746	480	70	114
Cap Entry, veh/h	1217	1270	652	825
V/C Ratio	0.613	0.378	0.107	0.138
Control Delay, s/veh	10.6	6.4	6.7	5.8
LOS	B	A	A	A
95th %tile Queue, veh	4	2	0	0

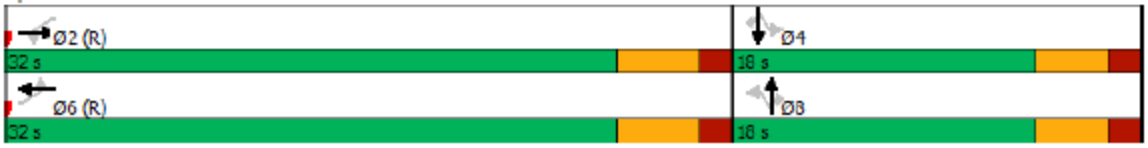
Synchro Report for existing conditions (AM Peak) CSAH 5 and Dakota Ave

40: Dakota Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	22	523	60	295	75	51	77	90	99	47
Future Volume (vph)	22	523	60	295	75	51	77	90	99	47
Turn Type	D.Pm	NA	D.Pm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2		6		8			4	
Permitted Phases	6		2		8		8	4		4
Detector Phase	6	2	2	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	32.0	32.0	32.0	32.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	64.0%	64.0%	64.0%	64.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1		4.7	4.7		4.7	4.7
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	28.5	28.5	28.5	28.5		11.7	11.7		11.7	11.7
Actuated g/C Ratio	0.57	0.57	0.57	0.57		0.23	0.23		0.23	0.23
v/c Ratio	0.12	0.74	0.40	0.44		0.74	0.25		0.82	0.20
Control Delay	6.5	14.7	13.4	7.4		38.3	5.5		40.8	5.6
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	6.5	14.7	13.4	7.4		38.3	5.5		40.8	5.6
LOS	A	B	B	A		D	A		D	A
Approach Delay		14.2		8.5		26.0			31.9	
Approach LOS		B		A		C			C	

Intersection Summary	
Cycle Length: 50	
Actuated Cycle Length: 50	
Offset: 18 (36%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 17.4	Intersection LOS: B
Intersection Capacity Utilization 72.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 40: Dakota Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Dakota Ave

HCM 6th Roundabout — 40: Dakota Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	19.8
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	835	547	293	347
Demand Flow Rate, veh/h	854	568	306	354
Vehicles Circulating, veh/h	362	252	892	550
Vehicles Exiting, veh/h	542	946	324	270
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	30.7	10.1	17.5	10.7
Approach LOS	D	B	C	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	854	568	306	354
Cap Entry Lane, veh/h	954	1067	556	787
Entry HV Adj Factor	0.977	0.963	0.959	0.979
Flow Entry, veh/h	835	547	293	347
Cap Entry, veh/h	932	1027	533	771
V/C Ratio	0.895	0.532	0.551	0.450
Control Delay, s/veh	30.7	10.1	17.5	10.7
LOS	D	B	C	B
95th %tile Queue, veh	13	3	3	2

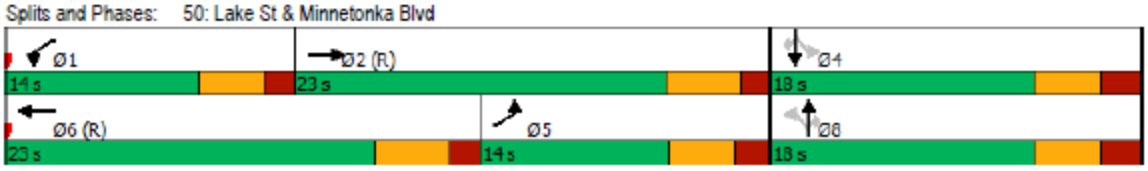
Synchro Report for existing conditions (AM Peak) CSAH 5 and Vernon Ave/ Lake St W

50: Lake St & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	11	661	122	413	51	19	429	41	27	14
Future Volume (vph)	11	661	122	413	51	19	429	41	27	14
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	12.0	6.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	20.0	14.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	14.0	23.0	14.0	23.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	25.5%	41.8%	25.5%	41.8%	32.7%	32.7%	32.7%	32.7%	32.7%	32.7%
Yellow Time (s)	3.2	3.6	3.2	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	5.1	4.7	5.1		5.2	5.2	5.2	5.2	5.2
Lead/Lag	Lag	Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	6.9	23.7	9.0	32.3		9.6	9.6	9.6	9.6	9.6
Actuated g/C Ratio	0.13	0.43	0.16	0.59		0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.09	0.61	0.52	0.25		0.42	0.79	0.30	0.10	0.04
Control Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
LOS	C	B	C	A		C	B	C	B	A
Approach Delay		16.6		12.4		15.4			17.6	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 55	
Actuated Cycle Length: 55	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 50: Lake St & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Vernon Ave/Lake St W

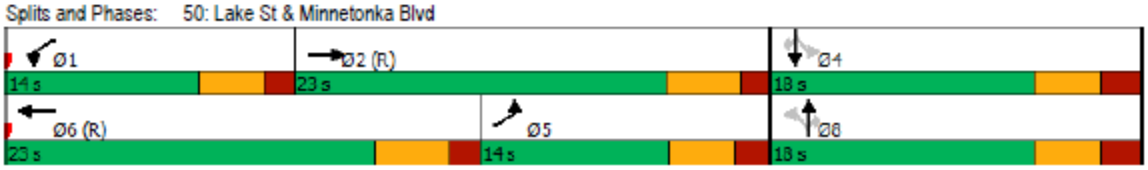
Timings
Minnetonka Blvd - Build AM Peak

50: Lake St & Minnetonka Blvd
11/29/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	11	661	122	413	51	19	429	41	27	14
Future Volume (vph)	11	661	122	413	51	19	429	41	27	14
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	12.0	6.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	20.0	14.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	14.0	23.0	14.0	23.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	25.5%	41.8%	25.5%	41.8%	32.7%	32.7%	32.7%	32.7%	32.7%	32.7%
Yellow Time (s)	3.2	3.6	3.2	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	5.1	4.7	5.1		5.2	5.2	5.2	5.2	5.2
Lead/Lag	Lag	Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	6.9	23.7	9.0	32.3		9.6	9.6	9.6	9.6	9.6
Actuated g/C Ratio	0.13	0.43	0.16	0.59		0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.09	0.61	0.52	0.25		0.42	0.79	0.30	0.10	0.04
Control Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
LOS	C	B	C	A		C	B	C	B	A
Approach Delay		16.6		12.4		15.4			17.6	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 55	
Actuated Cycle Length: 55	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 50: Lake St & Minnetonka Blvd



CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Synchro Report – Congestion Reduction

Existing conditions (AM Peak)

10: Texas Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1103
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.35
NOx Emissions (kg)	0.26
VOC Emissions (kg)	0.31

Proposed conditions (AM Peak)

10: Texas Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1102
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.38
NOx Emissions (kg)	0.27
VOC Emissions (kg)	0.32

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

20: Louisiana Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1627
Total Delay / Veh (s/v)	25
CO Emissions (kg)	2.37
NOx Emissions (kg)	0.46
VOC Emissions (kg)	0.55

Proposed conditions (AM Peak)

20: Louisiana Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1627
Total Delay / Veh (s/v)	0
CO Emissions (kg)	2.07
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.48

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

30: Hampshire Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1069
Total Delay / Veh (s/v)	8
CO Emissions (kg)	1.08
NOx Emissions (kg)	0.21
VOC Emissions (kg)	0.25

Proposed conditions (AM Peak)

30: Hampshire Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1069
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.22
NOx Emissions (kg)	0.24
VOC Emissions (kg)	0.28

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

40: Dakota Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1505
Total Delay / Veh (s/v)	17
CO Emissions (kg)	2.00
NOx Emissions (kg)	0.39
VOC Emissions (kg)	0.46

Proposed conditions (AM Peak)

40: Dakota Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1504
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.91
NOx Emissions (kg)	0.37
VOC Emissions (kg)	0.44

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

50: Lake St & Minnetonka Blvd

Direction	All
Future Volume (vph)	1895
Total Delay / Veh (s/v)	15
CO Emissions (kg)	2.90
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

Proposed conditions (AM Peak)

50: Lake St & Minnetonka Blvd

Direction	All
Future Volume (vph)	1895
Total Delay / Veh (s/v)	15
CO Emissions (kg)	2.89
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

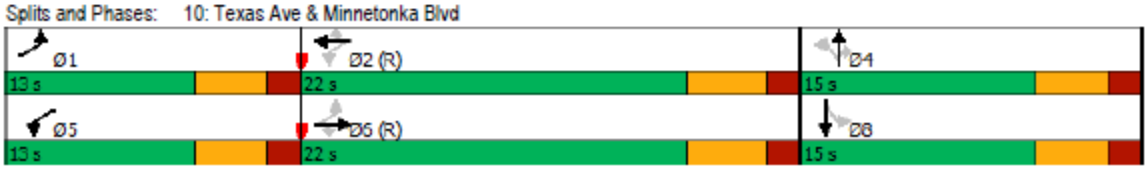
Synchro Report for existing conditions (AM Peak) CSAH 5 and Texas Ave

10: Texas Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	53	338	33	46	297	29	39	53	57	40	49
Future Volume (vph)	53	338	33	46	297	29	39	53	57	40	49
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			4			8
Permitted Phases	6		6	2		2	4		4	8	
Detector Phase	1 6	6		2 5	2		4	4	4	8	8
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	20.0	20.0	13.0	20.0	20.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	13.0	22.0	22.0	13.0	22.0	22.0	15.0	15.0	15.0	15.0	15.0
Total Split (%)	26.0%	44.0%	44.0%	26.0%	44.0%	44.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	5.1	5.1	4.7	5.1	5.1		4.7	4.7	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?											
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	31.8	28.0	28.0	30.0	25.5	25.5		8.7	8.7	8.7	8.7
Actuated g/C Ratio	0.64	0.56	0.56	0.60	0.51	0.51		0.17	0.17	0.17	0.17
v/c Ratio	0.15	0.36	0.05	0.09	0.38	0.05		0.66	0.18	0.24	0.52
Control Delay	4.7	11.6	0.1	4.5	13.0	0.1		35.0	1.5	20.0	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	4.7	11.6	0.1	4.5	13.0	0.1		35.0	1.5	20.0	12.5
LOS	A	B	A	A	B	A		C	A	C	B
Approach Delay		9.2			10.8			24.0			14.0
Approach LOS		A			B			C			B

Intersection Summary	
Cycle Length: 50	
Actuated Cycle Length: 50	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of 1st Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 12.7	Intersection LOS: B
Intersection Capacity Utilization 45.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: Texas Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Texas Ave

HCM 6th Roundabout — 10: Texas Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	533	461	210	260
Demand Flow Rate, veh/h	547	474	218	265
Vehicles Circulating, veh/h	190	251	546	496
Vehicles Exiting, veh/h	571	513	191	229
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.6	8.4	7.9	8.1
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	547	474	218	265
Cap Entry Lane, veh/h	1137	1068	791	832
Entry HV Adj Factor	0.975	0.972	0.965	0.979
Flow Entry, veh/h	533	461	210	260
Cap Entry, veh/h	1108	1038	763	815
V/C Ratio	0.481	0.444	0.276	0.318
Control Delay, s/veh	8.6	8.4	7.9	8.1
LOS	A	A	A	A
95th %tile Queue, veh	3	2	1	1

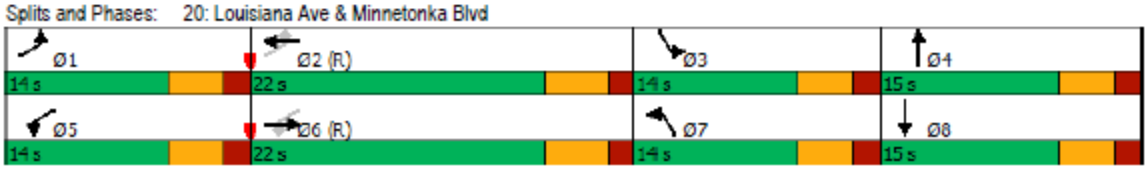
Synchro Report for existing conditions (AM Peak) CSAH 5 and Louisiana Ave

20: Louisiana Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	111	338	66	28	165	171	77	213	202	146
Future Volume (vph)	111	338	66	28	165	171	77	213	202	146
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Prot	NA	Prot	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	2		6	6		2				
Detector Phase	1 2	6		5 6	2		7	4	3	8
Switch Phase										
Minimum Initial (s)	6.0	12.0	12.0	6.0	12.0	12.0	6.0	7.0	6.0	7.0
Minimum Split (s)	14.0	20.0	20.0	14.0	20.0	20.0	14.0	15.0	14.0	15.0
Total Split (s)	14.0	22.0	22.0	14.0	22.0	22.0	14.0	15.0	14.0	15.0
Total Split (%)	21.5%	33.8%	33.8%	21.5%	33.8%	33.8%	21.5%	23.1%	21.5%	23.1%
Yellow Time (s)	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	5.1	5.1	4.7	5.1	5.1	4.7	4.7	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	28.5	25.8	25.8	30.4	19.8	19.8	8.1	8.4	9.3	11.7
Actuated g/C Ratio	0.44	0.40	0.40	0.47	0.30	0.30	0.12	0.13	0.14	0.18
v/c Ratio	0.28	0.54	0.12	0.12	0.34	0.36	0.40	0.62	0.93	0.36
Control Delay	10.6	21.8	0.3	9.4	20.7	5.1	31.5	27.5	72.8	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	21.8	0.3	9.4	20.7	5.1	31.5	27.5	72.8	19.2
LOS	B	C	A	A	C	A	C	C	E	B
Approach Delay		16.1			11.9			28.4		46.0
Approach LOS		B			B			C		D

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 24.6	Intersection LOS: C
Intersection Capacity Utilization 57.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 20: Louisiana Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Louisiana Ave

HCM 6th Roundabout — 20: Louisiana Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	16.6
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	656	465	391	471
Demand Flow Rate, veh/h	669	479	400	483
Vehicles Circulating, veh/h	462	494	819	336
Vehicles Exiting, veh/h	357	725	312	637
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	21.3	13.1	21.0	9.8
Approach LOS	C	B	C	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	669	479	400	483
Cap Entry Lane, veh/h	861	834	599	980
Entry HV Adj Factor	0.981	0.971	0.979	0.975
Flow Entry, veh/h	656	465	391	471
Cap Entry, veh/h	845	810	586	955
V/C Ratio	0.777	0.575	0.668	0.493
Control Delay, s/veh	21.3	13.1	21.0	9.8
LOS	C	B	C	A
95th %tile Queue, veh	8	4	5	3

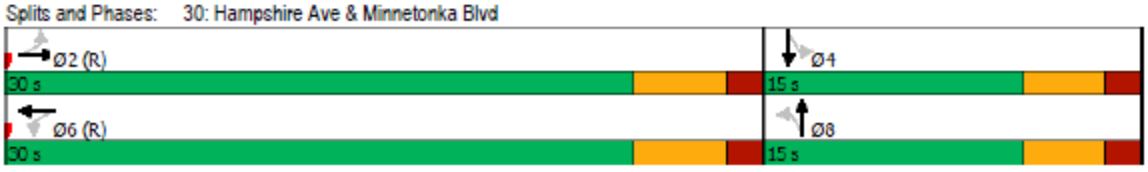
Synchro Report for existing conditions (AM Peak) CSAH 5 and Hampshire Ave

30: Hampshire Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	1	532	6	336	22	5	27	15
Future Volume (vph)	1	532	6	336	22	5	27	15
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	12.0	12.0	12.0	12.0	7.0	7.0	7.0	7.0
Minimum Split (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0
Total Split (s)	30.0	30.0	30.0	30.0	15.0	15.0	15.0	15.0
Total Split (%)	66.7%	66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.1		5.1		4.7		4.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		31.0		31.0		7.5		7.5
Actuated g/C Ratio		0.69		0.69		0.17		0.17
v/c Ratio		0.59		0.39		0.26		0.41
Control Delay		8.0		5.5		15.0		16.8
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		8.0		5.5		15.0		16.8
LOS		A		A		B		B
Approach Delay		8.0		5.5		15.0		16.8
Approach LOS		A		A		B		B

Intersection Summary	
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 8.2	Intersection LOS: A
Intersection Capacity Utilization 46.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 30: Hampshire Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Hampshire Ave

HCM 6th Roundabout — 30: Hampshire Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	746	480	70	114
Demand Flow Rate, veh/h	767	493	72	117
Vehicles Circulating, veh/h	96	55	705	476
Vehicles Exiting, veh/h	497	722	158	72
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.6	6.4	6.7	5.8
Approach LOS	B	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	767	493	72	117
Cap Entry Lane, veh/h	1251	1305	672	849
Entry HV Adj Factor	0.973	0.973	0.969	0.971
Flow Entry, veh/h	746	480	70	114
Cap Entry, veh/h	1217	1270	652	825
V/C Ratio	0.613	0.378	0.107	0.138
Control Delay, s/veh	10.6	6.4	6.7	5.8
LOS	B	A	A	A
95th %tile Queue, veh	4	2	0	0

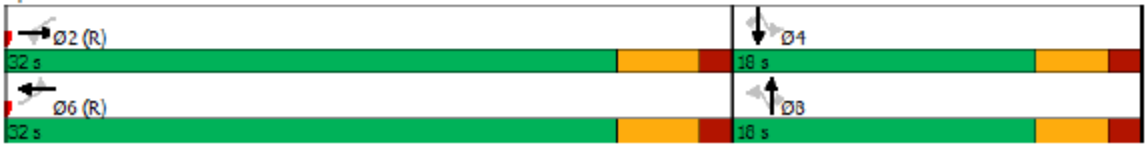
Synchro Report for existing conditions (AM Peak) CSAH 5 and Dakota Ave

40: Dakota Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	22	523	60	295	75	51	77	90	99	47
Future Volume (vph)	22	523	60	295	75	51	77	90	99	47
Turn Type	D.Pm	NA	D.Pm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2		6		8			4	
Permitted Phases	6		2		8		8	4		4
Detector Phase	6	2	2	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	32.0	32.0	32.0	32.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	64.0%	64.0%	64.0%	64.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1		4.7	4.7		4.7	4.7
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	28.5	28.5	28.5	28.5		11.7	11.7		11.7	11.7
Actuated g/C Ratio	0.57	0.57	0.57	0.57		0.23	0.23		0.23	0.23
v/c Ratio	0.12	0.74	0.40	0.44		0.74	0.25		0.82	0.20
Control Delay	6.5	14.7	13.4	7.4		38.3	5.5		40.8	5.6
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	6.5	14.7	13.4	7.4		38.3	5.5		40.8	5.6
LOS	A	B	B	A		D	A		D	A
Approach Delay		14.2		8.5		26.0			31.9	
Approach LOS		B		A		C			C	

Intersection Summary	
Cycle Length: 50	
Actuated Cycle Length: 50	
Offset: 18 (36%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 17.4	Intersection LOS: B
Intersection Capacity Utilization 72.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 40: Dakota Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Dakota Ave

HCM 6th Roundabout — 40: Dakota Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	19.8
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	835	547	293	347
Demand Flow Rate, veh/h	854	568	306	354
Vehicles Circulating, veh/h	362	252	892	550
Vehicles Exiting, veh/h	542	946	324	270
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	30.7	10.1	17.5	10.7
Approach LOS	D	B	C	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	854	568	306	354
Cap Entry Lane, veh/h	954	1067	556	787
Entry HV Adj Factor	0.977	0.963	0.959	0.979
Flow Entry, veh/h	835	547	293	347
Cap Entry, veh/h	932	1027	533	771
V/C Ratio	0.895	0.532	0.551	0.450
Control Delay, s/veh	30.7	10.1	17.5	10.7
LOS	D	B	C	B
95th %tile Queue, veh	13	3	3	2

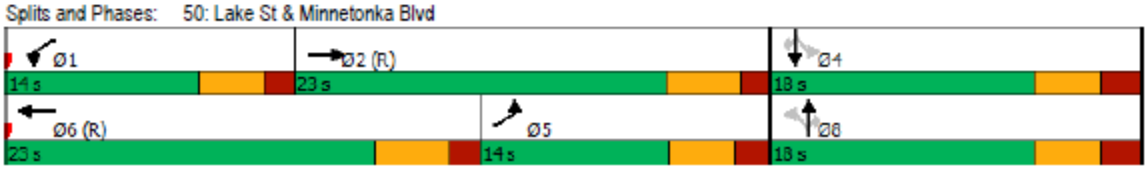
Synchro Report for existing conditions (AM Peak) CSAH 5 and Vernon Ave/ Lake St W

50: Lake St & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	11	661	122	413	51	19	429	41	27	14
Future Volume (vph)	11	661	122	413	51	19	429	41	27	14
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	12.0	6.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	20.0	14.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	14.0	23.0	14.0	23.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	25.5%	41.8%	25.5%	41.8%	32.7%	32.7%	32.7%	32.7%	32.7%	32.7%
Yellow Time (s)	3.2	3.6	3.2	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	5.1	4.7	5.1		5.2	5.2	5.2	5.2	5.2
Lead/Lag	Lag	Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	6.9	23.7	9.0	32.3		9.6	9.6	9.6	9.6	9.6
Actuated g/C Ratio	0.13	0.43	0.16	0.59		0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.09	0.61	0.52	0.25		0.42	0.79	0.30	0.10	0.04
Control Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
LOS	C	B	C	A		C	B	C	B	A
Approach Delay		16.6		12.4		15.4			17.6	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 55	
Actuated Cycle Length: 55	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 50: Lake St & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Vernon Ave/Lake St W

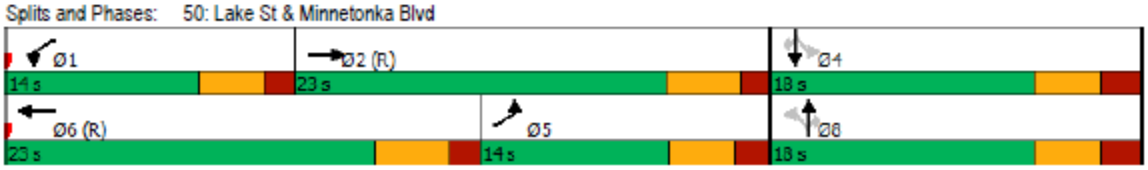
Timings
Minnetonka Blvd - Build AM Peak

50: Lake St & Minnetonka Blvd
11/29/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	11	661	122	413	51	19	429	41	27	14
Future Volume (vph)	11	661	122	413	51	19	429	41	27	14
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	12.0	6.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	20.0	14.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	14.0	23.0	14.0	23.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	25.5%	41.8%	25.5%	41.8%	32.7%	32.7%	32.7%	32.7%	32.7%	32.7%
Yellow Time (s)	3.2	3.6	3.2	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	5.1	4.7	5.1		5.2	5.2	5.2	5.2	5.2
Lead/Lag	Lag	Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	6.9	23.7	9.0	32.3		9.6	9.6	9.6	9.6	9.6
Actuated g/C Ratio	0.13	0.43	0.16	0.59		0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.09	0.61	0.52	0.25		0.42	0.79	0.30	0.10	0.04
Control Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
LOS	C	B	C	A		C	B	C	B	A
Approach Delay		16.6		12.4		15.4			17.6	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 55	
Actuated Cycle Length: 55	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 50: Lake St & Minnetonka Blvd



CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Synchro Report – Congestion Reduction

Existing conditions (AM Peak)

10: Texas Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1103
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.35
NOx Emissions (kg)	0.26
VOC Emissions (kg)	0.31

Proposed conditions (AM Peak)

10: Texas Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1102
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.38
NOx Emissions (kg)	0.27
VOC Emissions (kg)	0.32

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

20: Louisiana Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1627
Total Delay / Veh (s/v)	25
CO Emissions (kg)	2.37
NOx Emissions (kg)	0.46
VOC Emissions (kg)	0.55

Proposed conditions (AM Peak)

20: Louisiana Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1627
Total Delay / Veh (s/v)	0
CO Emissions (kg)	2.07
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.48

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

30: Hampshire Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1069
Total Delay / Veh (s/v)	8
CO Emissions (kg)	1.08
NOx Emissions (kg)	0.21
VOC Emissions (kg)	0.25

Proposed conditions (AM Peak)

30: Hampshire Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1069
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.22
NOx Emissions (kg)	0.24
VOC Emissions (kg)	0.28

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

40: Dakota Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1505
Total Delay / Veh (s/v)	17
CO Emissions (kg)	2.00
NOx Emissions (kg)	0.39
VOC Emissions (kg)	0.46

Proposed conditions (AM Peak)

40: Dakota Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1504
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.91
NOx Emissions (kg)	0.37
VOC Emissions (kg)	0.44

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

50: Lake St & Minnetonka Blvd

Direction	All
Future Volume (vph)	1895
Total Delay / Veh (s/v)	15
CO Emissions (kg)	2.90
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

Proposed conditions (AM Peak)

50: Lake St & Minnetonka Blvd

Direction	All
Future Volume (vph)	1895
Total Delay / Veh (s/v)	15
CO Emissions (kg)	2.89
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

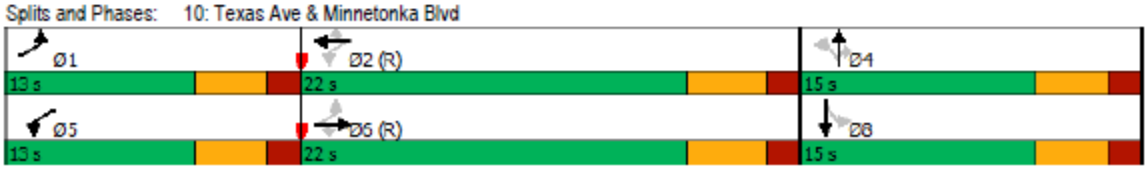
Synchro Report for existing conditions (AM Peak) CSAH 5 and Texas Ave

10: Texas Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	53	338	33	46	297	29	39	53	57	40	49
Future Volume (vph)	53	338	33	46	297	29	39	53	57	40	49
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			4			8
Permitted Phases	6		6	2		2	4		4	8	
Detector Phase	1 6	6		2 5	2		4	4	4	8	8
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	20.0	20.0	13.0	20.0	20.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	13.0	22.0	22.0	13.0	22.0	22.0	15.0	15.0	15.0	15.0	15.0
Total Split (%)	26.0%	44.0%	44.0%	26.0%	44.0%	44.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	5.1	5.1	4.7	5.1	5.1		4.7	4.7	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?											
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	31.8	28.0	28.0	30.0	25.5	25.5		8.7	8.7	8.7	8.7
Actuated g/C Ratio	0.64	0.56	0.56	0.60	0.51	0.51		0.17	0.17	0.17	0.17
v/c Ratio	0.15	0.36	0.05	0.09	0.38	0.05		0.66	0.18	0.24	0.52
Control Delay	4.7	11.6	0.1	4.5	13.0	0.1		35.0	1.5	20.0	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	4.7	11.6	0.1	4.5	13.0	0.1		35.0	1.5	20.0	12.5
LOS	A	B	A	A	B	A		C	A	C	B
Approach Delay		9.2			10.8			24.0			14.0
Approach LOS		A			B			C			B

Intersection Summary	
Cycle Length: 50	
Actuated Cycle Length: 50	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of 1st Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 12.7	Intersection LOS: B
Intersection Capacity Utilization 45.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: Texas Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Texas Ave

HCM 6th Roundabout — 10: Texas Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	533	461	210	260
Demand Flow Rate, veh/h	547	474	218	265
Vehicles Circulating, veh/h	190	251	546	496
Vehicles Exiting, veh/h	571	513	191	229
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.6	8.4	7.9	8.1
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	547	474	218	265
Cap Entry Lane, veh/h	1137	1068	791	832
Entry HV Adj Factor	0.975	0.972	0.965	0.979
Flow Entry, veh/h	533	461	210	260
Cap Entry, veh/h	1108	1038	763	815
V/C Ratio	0.481	0.444	0.276	0.318
Control Delay, s/veh	8.6	8.4	7.9	8.1
LOS	A	A	A	A
95th %tile Queue, veh	3	2	1	1

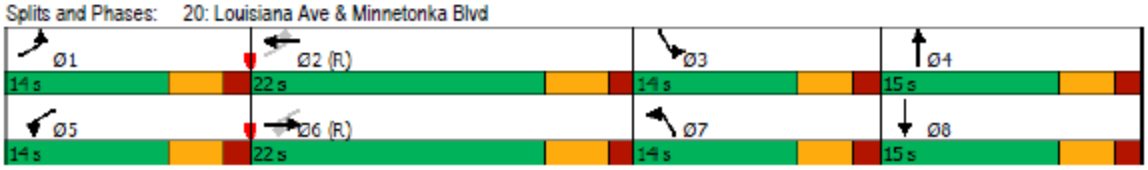
Synchro Report for existing conditions (AM Peak) CSAH 5 and Louisiana Ave

20: Louisiana Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	111	338	66	28	165	171	77	213	202	146
Future Volume (vph)	111	338	66	28	165	171	77	213	202	146
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Prot	NA	Prot	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	2		6	6		2				
Detector Phase	1 2	6		5 6	2		7	4	3	8
Switch Phase										
Minimum Initial (s)	6.0	12.0	12.0	6.0	12.0	12.0	6.0	7.0	6.0	7.0
Minimum Split (s)	14.0	20.0	20.0	14.0	20.0	20.0	14.0	15.0	14.0	15.0
Total Split (s)	14.0	22.0	22.0	14.0	22.0	22.0	14.0	15.0	14.0	15.0
Total Split (%)	21.5%	33.8%	33.8%	21.5%	33.8%	33.8%	21.5%	23.1%	21.5%	23.1%
Yellow Time (s)	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	5.1	5.1	4.7	5.1	5.1	4.7	4.7	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	28.5	25.8	25.8	30.4	19.8	19.8	8.1	8.4	9.3	11.7
Actuated g/C Ratio	0.44	0.40	0.40	0.47	0.30	0.30	0.12	0.13	0.14	0.18
v/c Ratio	0.28	0.54	0.12	0.12	0.34	0.36	0.40	0.62	0.93	0.36
Control Delay	10.6	21.8	0.3	9.4	20.7	5.1	31.5	27.5	72.8	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	21.8	0.3	9.4	20.7	5.1	31.5	27.5	72.8	19.2
LOS	B	C	A	A	C	A	C	C	E	B
Approach Delay		16.1			11.9			28.4		46.0
Approach LOS		B			B			C		D

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 24.6	Intersection LOS: C
Intersection Capacity Utilization 57.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 20: Louisiana Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Louisiana Ave

HCM 6th Roundabout — 20: Louisiana Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	16.6
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	656	465	391	471
Demand Flow Rate, veh/h	669	479	400	483
Vehicles Circulating, veh/h	462	494	819	336
Vehicles Exiting, veh/h	357	725	312	637
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	21.3	13.1	21.0	9.8
Approach LOS	C	B	C	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	669	479	400	483
Cap Entry Lane, veh/h	861	834	599	980
Entry HV Adj Factor	0.981	0.971	0.979	0.975
Flow Entry, veh/h	656	465	391	471
Cap Entry, veh/h	845	810	586	955
V/C Ratio	0.777	0.575	0.668	0.493
Control Delay, s/veh	21.3	13.1	21.0	9.8
LOS	C	B	C	A
95th %tile Queue, veh	8	4	5	3

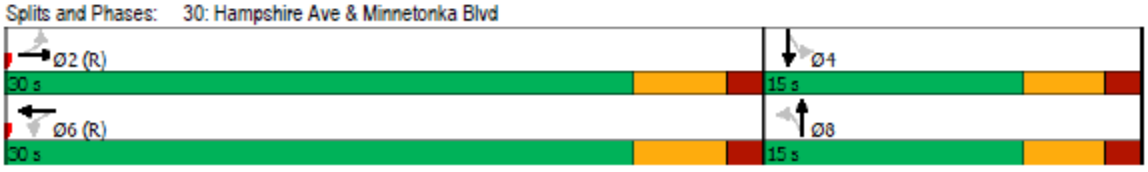
Synchro Report for existing conditions (AM Peak) CSAH 5 and Hampshire Ave

30: Hampshire Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	1	532	6	336	22	5	27	15
Future Volume (vph)	1	532	6	336	22	5	27	15
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	12.0	12.0	12.0	12.0	7.0	7.0	7.0	7.0
Minimum Split (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0
Total Split (s)	30.0	30.0	30.0	30.0	15.0	15.0	15.0	15.0
Total Split (%)	66.7%	66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.1		5.1		4.7		4.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		31.0		31.0		7.5		7.5
Actuated g/C Ratio		0.69		0.69		0.17		0.17
v/c Ratio		0.59		0.39		0.26		0.41
Control Delay		8.0		5.5		15.0		16.8
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		8.0		5.5		15.0		16.8
LOS		A		A		B		B
Approach Delay		8.0		5.5		15.0		16.8
Approach LOS		A		A		B		B

Intersection Summary	
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 8.2	Intersection LOS: A
Intersection Capacity Utilization 46.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 30: Hampshire Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Hampshire Ave

HCM 6th Roundabout — 30: Hampshire Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	746	480	70	114
Demand Flow Rate, veh/h	767	493	72	117
Vehicles Circulating, veh/h	96	55	705	476
Vehicles Exiting, veh/h	497	722	158	72
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.6	6.4	6.7	5.8
Approach LOS	B	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	767	493	72	117
Cap Entry Lane, veh/h	1251	1305	672	849
Entry HV Adj Factor	0.973	0.973	0.969	0.971
Flow Entry, veh/h	746	480	70	114
Cap Entry, veh/h	1217	1270	652	825
V/C Ratio	0.613	0.378	0.107	0.138
Control Delay, s/veh	10.6	6.4	6.7	5.8
LOS	B	A	A	A
95th %tile Queue, veh	4	2	0	0

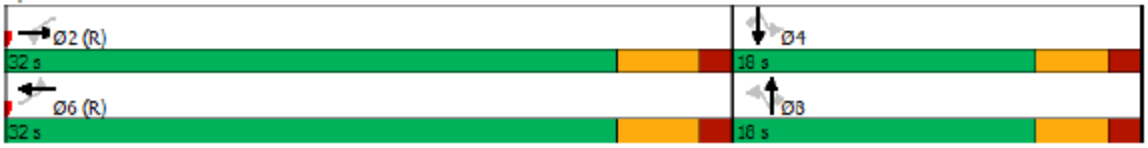
Synchro Report for existing conditions (AM Peak) CSAH 5 and Dakota Ave

40: Dakota Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	22	523	60	295	75	51	77	90	99	47
Future Volume (vph)	22	523	60	295	75	51	77	90	99	47
Turn Type	D.Pm	NA	D.Pm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2		6		8			4	
Permitted Phases	6		2		8		8	4		4
Detector Phase	6	2	2	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	32.0	32.0	32.0	32.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	64.0%	64.0%	64.0%	64.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1		4.7	4.7		4.7	4.7
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	28.5	28.5	28.5	28.5		11.7	11.7		11.7	11.7
Actuated g/C Ratio	0.57	0.57	0.57	0.57		0.23	0.23		0.23	0.23
v/c Ratio	0.12	0.74	0.40	0.44		0.74	0.25		0.82	0.20
Control Delay	6.5	14.7	13.4	7.4		38.3	5.5		40.8	5.6
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	6.5	14.7	13.4	7.4		38.3	5.5		40.8	5.6
LOS	A	B	B	A		D	A		D	A
Approach Delay		14.2		8.5		26.0			31.9	
Approach LOS		B		A		C			C	

Intersection Summary	
Cycle Length: 50	
Actuated Cycle Length: 50	
Offset: 18 (36%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 17.4	Intersection LOS: B
Intersection Capacity Utilization 72.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 40: Dakota Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Dakota Ave

HCM 6th Roundabout — 40: Dakota Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	19.8
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	835	547	293	347
Demand Flow Rate, veh/h	854	568	306	354
Vehicles Circulating, veh/h	362	252	892	550
Vehicles Exiting, veh/h	542	946	324	270
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	30.7	10.1	17.5	10.7
Approach LOS	D	B	C	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	854	568	306	354
Cap Entry Lane, veh/h	954	1067	556	787
Entry HV Adj Factor	0.977	0.963	0.959	0.979
Flow Entry, veh/h	835	547	293	347
Cap Entry, veh/h	932	1027	533	771
V/C Ratio	0.895	0.532	0.551	0.450
Control Delay, s/veh	30.7	10.1	17.5	10.7
LOS	D	B	C	B
95th %tile Queue, veh	13	3	3	2

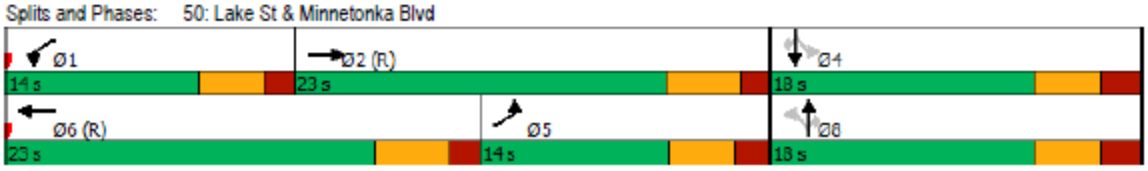
Synchro Report for existing conditions (AM Peak) CSAH 5 and Vernon Ave/ Lake St W

50: Lake St & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	11	661	122	413	51	19	429	41	27	14
Future Volume (vph)	11	661	122	413	51	19	429	41	27	14
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	12.0	6.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	20.0	14.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	14.0	23.0	14.0	23.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	25.5%	41.8%	25.5%	41.8%	32.7%	32.7%	32.7%	32.7%	32.7%	32.7%
Yellow Time (s)	3.2	3.6	3.2	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	5.1	4.7	5.1		5.2	5.2	5.2	5.2	5.2
Lead/Lag	Lag	Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	6.9	23.7	9.0	32.3		9.6	9.6	9.6	9.6	9.6
Actuated g/C Ratio	0.13	0.43	0.16	0.59		0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.09	0.61	0.52	0.25		0.42	0.79	0.30	0.10	0.04
Control Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
LOS	C	B	C	A		C	B	C	B	A
Approach Delay		16.6		12.4		15.4			17.6	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 55	
Actuated Cycle Length: 55	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 50: Lake St & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Vernon Ave/Lake St W

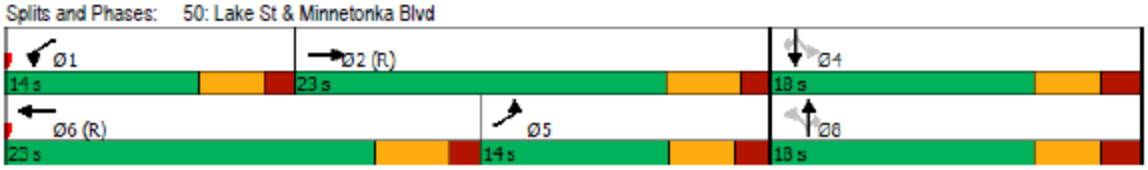
Timings
Minnetonka Blvd - Build AM Peak

50: Lake St & Minnetonka Blvd
11/29/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	11	661	122	413	51	19	429	41	27	14
Future Volume (vph)	11	661	122	413	51	19	429	41	27	14
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	12.0	6.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	20.0	14.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	14.0	23.0	14.0	23.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	25.5%	41.8%	25.5%	41.8%	32.7%	32.7%	32.7%	32.7%	32.7%	32.7%
Yellow Time (s)	3.2	3.6	3.2	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	5.1	4.7	5.1		5.2	5.2	5.2	5.2	5.2
Lead/Lag	Lag	Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	6.9	23.7	9.0	32.3		9.6	9.6	9.6	9.6	9.6
Actuated g/C Ratio	0.13	0.43	0.16	0.59		0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.09	0.61	0.52	0.25		0.42	0.79	0.30	0.10	0.04
Control Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
LOS	C	B	C	A		C	B	C	B	A
Approach Delay		16.6		12.4		15.4			17.6	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 55	
Actuated Cycle Length: 55	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 50: Lake St & Minnetonka Blvd



CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Synchro Report – Emission Reduction

Existing conditions (AM Peak)

10: Texas Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1103
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.35
NOx Emissions (kg)	0.26
VOC Emissions (kg)	0.31

Proposed conditions (AM Peak)

10: Texas Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1102
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.38
NOx Emissions (kg)	0.27
VOC Emissions (kg)	0.32

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

20: Louisiana Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1627
Total Delay / Veh (s/v)	25
CO Emissions (kg)	2.37
NOx Emissions (kg)	0.46
VOC Emissions (kg)	0.55

Proposed conditions (AM Peak)

20: Louisiana Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1627
Total Delay / Veh (s/v)	0
CO Emissions (kg)	2.07
NOx Emissions (kg)	0.40
VOC Emissions (kg)	0.48

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

30: Hampshire Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1069
Total Delay / Veh (s/v)	8
CO Emissions (kg)	1.08
NOx Emissions (kg)	0.21
VOC Emissions (kg)	0.25

Proposed conditions (AM Peak)

30: Hampshire Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1069
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.22
NOx Emissions (kg)	0.24
VOC Emissions (kg)	0.28

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

40: Dakota Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1505
Total Delay / Veh (s/v)	17
CO Emissions (kg)	2.00
NOx Emissions (kg)	0.39
VOC Emissions (kg)	0.46

Proposed conditions (AM Peak)

40: Dakota Ave & Minnetonka Blvd

Direction	All
Future Volume (vph)	1504
Total Delay / Veh (s/v)	0
CO Emissions (kg)	1.91
NOx Emissions (kg)	0.37
VOC Emissions (kg)	0.44

For intersection delay in the proposed condition, refer to full Synchro report.

Existing conditions (AM Peak)

50: Lake St & Minnetonka Blvd

Direction	All
Future Volume (vph)	1895
Total Delay / Veh (s/v)	15
CO Emissions (kg)	2.90
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

Proposed conditions (AM Peak)

50: Lake St & Minnetonka Blvd

Direction	All
Future Volume (vph)	1895
Total Delay / Veh (s/v)	15
CO Emissions (kg)	2.89
NOx Emissions (kg)	0.56
VOC Emissions (kg)	0.67

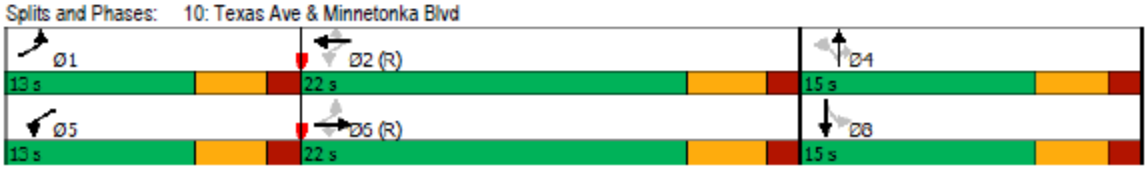
Synchro Report for existing conditions (AM Peak) CSAH 5 and Texas Ave

10: Texas Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	53	338	33	46	297	29	39	53	57	40	49
Future Volume (vph)	53	338	33	46	297	29	39	53	57	40	49
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases	1	6		5	2			4			8
Permitted Phases	6		6	2		2	4		4	8	
Detector Phase	1 6	6		2 5	2		4	4	4	8	8
Switch Phase											
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.0	20.0	20.0	13.0	20.0	20.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	13.0	22.0	22.0	13.0	22.0	22.0	15.0	15.0	15.0	15.0	15.0
Total Split (%)	26.0%	44.0%	44.0%	26.0%	44.0%	44.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	5.1	5.1	4.7	5.1	5.1		4.7	4.7	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?											
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	31.8	28.0	28.0	30.0	25.5	25.5		8.7	8.7	8.7	8.7
Actuated g/C Ratio	0.64	0.56	0.56	0.60	0.51	0.51		0.17	0.17	0.17	0.17
v/c Ratio	0.15	0.36	0.05	0.09	0.38	0.05		0.66	0.18	0.24	0.52
Control Delay	4.7	11.6	0.1	4.5	13.0	0.1		35.0	1.5	20.0	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	4.7	11.6	0.1	4.5	13.0	0.1		35.0	1.5	20.0	12.5
LOS	A	B	A	A	B	A		C	A	C	B
Approach Delay		9.2			10.8			24.0			14.0
Approach LOS		A			B			C			B

Intersection Summary	
Cycle Length: 50	
Actuated Cycle Length: 50	
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of 1st Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 12.7	Intersection LOS: B
Intersection Capacity Utilization 45.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: Texas Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Texas Ave

HCM 6th Roundabout — 10: Texas Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	533	461	210	260
Demand Flow Rate, veh/h	547	474	218	265
Vehicles Circulating, veh/h	190	251	546	496
Vehicles Exiting, veh/h	571	513	191	229
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.6	8.4	7.9	8.1
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	547	474	218	265
Cap Entry Lane, veh/h	1137	1068	791	832
Entry HV Adj Factor	0.975	0.972	0.965	0.979
Flow Entry, veh/h	533	461	210	260
Cap Entry, veh/h	1108	1038	763	815
V/C Ratio	0.481	0.444	0.276	0.318
Control Delay, s/veh	8.6	8.4	7.9	8.1
LOS	A	A	A	A
95th %tile Queue, veh	3	2	1	1

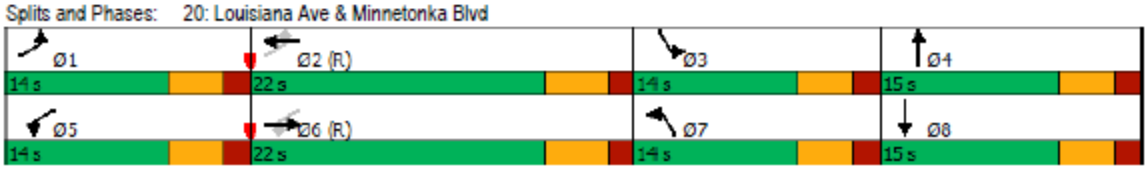
Synchro Report for existing conditions (AM Peak) CSAH 5 and Louisiana Ave

20: Louisiana Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	111	338	66	28	165	171	77	213	202	146
Future Volume (vph)	111	338	66	28	165	171	77	213	202	146
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Prot	NA	Prot	NA
Protected Phases	1	6		5	2		7	4	3	8
Permitted Phases	2		6	6		2				
Detector Phase	1 2	6		5 6	2		7	4	3	8
Switch Phase										
Minimum Initial (s)	6.0	12.0	12.0	6.0	12.0	12.0	6.0	7.0	6.0	7.0
Minimum Split (s)	14.0	20.0	20.0	14.0	20.0	20.0	14.0	15.0	14.0	15.0
Total Split (s)	14.0	22.0	22.0	14.0	22.0	22.0	14.0	15.0	14.0	15.0
Total Split (%)	21.5%	33.8%	33.8%	21.5%	33.8%	33.8%	21.5%	23.1%	21.5%	23.1%
Yellow Time (s)	3.2	3.6	3.6	3.2	3.6	3.6	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	5.1	5.1	4.7	5.1	5.1	4.7	4.7	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	28.5	25.8	25.8	30.4	19.8	19.8	8.1	8.4	9.3	11.7
Actuated g/C Ratio	0.44	0.40	0.40	0.47	0.30	0.30	0.12	0.13	0.14	0.18
v/c Ratio	0.28	0.54	0.12	0.12	0.34	0.36	0.40	0.62	0.93	0.36
Control Delay	10.6	21.8	0.3	9.4	20.7	5.1	31.5	27.5	72.8	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	21.8	0.3	9.4	20.7	5.1	31.5	27.5	72.8	19.2
LOS	B	C	A	A	C	A	C	C	E	B
Approach Delay		16.1			11.9			28.4		46.0
Approach LOS		B			B			C		D

Intersection Summary	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 0 (0%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 24.6	Intersection LOS: C
Intersection Capacity Utilization 57.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 20: Louisiana Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Louisiana Ave

HCM 6th Roundabout — 20: Louisiana Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	16.6
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	656	465	391	471
Demand Flow Rate, veh/h	669	479	400	483
Vehicles Circulating, veh/h	462	494	819	336
Vehicles Exiting, veh/h	357	725	312	637
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	21.3	13.1	21.0	9.8
Approach LOS	C	B	C	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	669	479	400	483
Cap Entry Lane, veh/h	861	834	599	980
Entry HV Adj Factor	0.981	0.971	0.979	0.975
Flow Entry, veh/h	656	465	391	471
Cap Entry, veh/h	845	810	586	955
V/C Ratio	0.777	0.575	0.668	0.493
Control Delay, s/veh	21.3	13.1	21.0	9.8
LOS	C	B	C	A
95th %tile Queue, veh	8	4	5	3

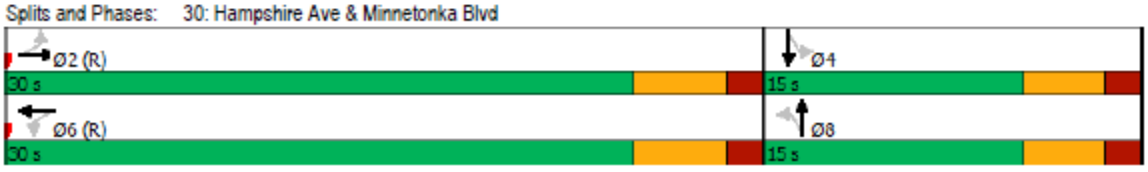
Synchro Report for existing conditions (AM Peak) CSAH 5 and Hampshire Ave

30: Hampshire Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	1	532	6	336	22	5	27	15
Future Volume (vph)	1	532	6	336	22	5	27	15
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	12.0	12.0	12.0	12.0	7.0	7.0	7.0	7.0
Minimum Split (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0
Total Split (s)	30.0	30.0	30.0	30.0	15.0	15.0	15.0	15.0
Total Split (%)	66.7%	66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.1		5.1		4.7		4.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)		31.0		31.0		7.5		7.5
Actuated g/C Ratio		0.69		0.69		0.17		0.17
v/c Ratio		0.59		0.39		0.26		0.41
Control Delay		8.0		5.5		15.0		16.8
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		8.0		5.5		15.0		16.8
LOS		A		A		B		B
Approach Delay		8.0		5.5		15.0		16.8
Approach LOS		A		A		B		B

Intersection Summary	
Cycle Length: 45	
Actuated Cycle Length: 45	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 8.2	Intersection LOS: A
Intersection Capacity Utilization 46.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 30: Hampshire Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Hampshire Ave

HCM 6th Roundabout — 30: Hampshire Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	746	480	70	114
Demand Flow Rate, veh/h	767	493	72	117
Vehicles Circulating, veh/h	96	55	705	476
Vehicles Exiting, veh/h	497	722	158	72
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.6	6.4	6.7	5.8
Approach LOS	B	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	767	493	72	117
Cap Entry Lane, veh/h	1251	1305	672	849
Entry HV Adj Factor	0.973	0.973	0.969	0.971
Flow Entry, veh/h	746	480	70	114
Cap Entry, veh/h	1217	1270	652	825
V/C Ratio	0.613	0.378	0.107	0.138
Control Delay, s/veh	10.6	6.4	6.7	5.8
LOS	B	A	A	A
95th %tile Queue, veh	4	2	0	0

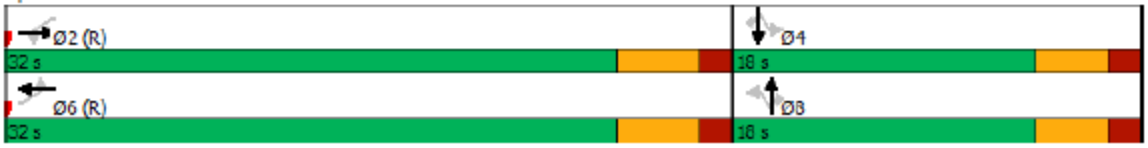
Synchro Report for existing conditions (AM Peak) CSAH 5 and Dakota Ave

40: Dakota Ave & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	22	523	60	295	75	51	77	90	99	47
Future Volume (vph)	22	523	60	295	75	51	77	90	99	47
Turn Type	D.Pm	NA	D.Pm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2		6		8			4	
Permitted Phases	6		2		8		8	4		4
Detector Phase	6	2	2	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	32.0	32.0	32.0	32.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	64.0%	64.0%	64.0%	64.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1		4.7	4.7		4.7	4.7
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	28.5	28.5	28.5	28.5		11.7	11.7		11.7	11.7
Actuated g/C Ratio	0.57	0.57	0.57	0.57		0.23	0.23		0.23	0.23
v/c Ratio	0.12	0.74	0.40	0.44		0.74	0.25		0.82	0.20
Control Delay	6.5	14.7	13.4	7.4		38.3	5.5		40.8	5.6
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	6.5	14.7	13.4	7.4		38.3	5.5		40.8	5.6
LOS	A	B	B	A		D	A		D	A
Approach Delay		14.2		8.5		26.0			31.9	
Approach LOS		B		A		C			C	

Intersection Summary	
Cycle Length: 50	
Actuated Cycle Length: 50	
Offset: 18 (36%), Referenced to phase 2:EBWB and 6:EBWB, Start of 1st Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 17.4	Intersection LOS: B
Intersection Capacity Utilization 72.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 40: Dakota Ave & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Dakota Ave

HCM 6th Roundabout — 40: Dakota Ave & Minnetonka Blvd
Minnetonka Blvd - Build AM Peak — 11/29/2023

Intersection	
Intersection Delay, s/veh	19.8
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	835	547	293	347
Demand Flow Rate, veh/h	854	568	306	354
Vehicles Circulating, veh/h	362	252	892	550
Vehicles Exiting, veh/h	542	946	324	270
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	30.7	10.1	17.5	10.7
Approach LOS	D	B	C	B

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	854	568	306	354
Cap Entry Lane, veh/h	954	1067	556	787
Entry HV Adj Factor	0.977	0.963	0.959	0.979
Flow Entry, veh/h	835	547	293	347
Cap Entry, veh/h	932	1027	533	771
V/C Ratio	0.895	0.532	0.551	0.450
Control Delay, s/veh	30.7	10.1	17.5	10.7
LOS	D	B	C	B
95th %tile Queue, veh	13	3	3	2

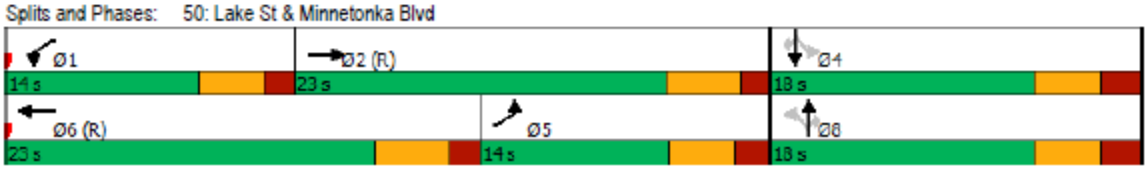
Synchro Report for existing conditions (AM Peak) CSAH 5 and Vernon Ave/ Lake St W

50: Lake St & Minnetonka Blvd
Minnetonka Blvd - Existing AM Peak 12/05/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	11	661	122	413	51	19	429	41	27	14
Future Volume (vph)	11	661	122	413	51	19	429	41	27	14
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	12.0	6.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	20.0	14.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	14.0	23.0	14.0	23.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	25.5%	41.8%	25.5%	41.8%	32.7%	32.7%	32.7%	32.7%	32.7%	32.7%
Yellow Time (s)	3.2	3.6	3.2	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	5.1	4.7	5.1		5.2	5.2	5.2	5.2	5.2
Lead/Lag	Lag	Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	6.9	23.7	9.0	32.3		9.6	9.6	9.6	9.6	9.6
Actuated g/C Ratio	0.13	0.43	0.16	0.59		0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.09	0.61	0.52	0.25		0.42	0.79	0.30	0.10	0.04
Control Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
LOS	C	B	C	A		C	B	C	B	A
Approach Delay		16.6		12.4		15.4			17.6	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 55	
Actuated Cycle Length: 55	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 50: Lake St & Minnetonka Blvd



Synchro Report for proposed conditions (AM Peak) CSAH 5 and Vernon Ave/Lake St W

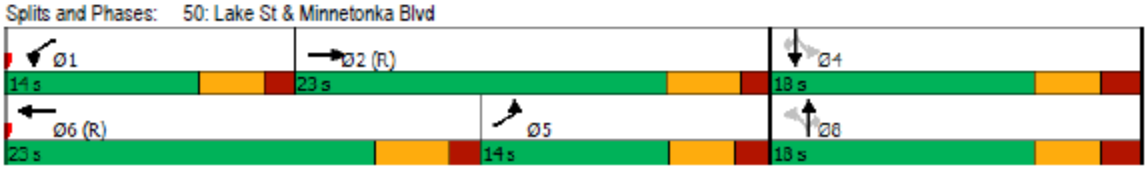
Timings
Minnetonka Blvd - Build AM Peak

50: Lake St & Minnetonka Blvd
11/29/2023

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	11	661	122	413	51	19	429	41	27	14
Future Volume (vph)	11	661	122	413	51	19	429	41	27	14
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	6.0	12.0	6.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	20.0	14.0	20.0	15.0	15.0	15.0	15.0	15.0	15.0
Total Split (s)	14.0	23.0	14.0	23.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	25.5%	41.8%	25.5%	41.8%	32.7%	32.7%	32.7%	32.7%	32.7%	32.7%
Yellow Time (s)	3.2	3.6	3.2	3.6	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	1.7	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	5.1	4.7	5.1		5.2	5.2	5.2	5.2	5.2
Lead/Lag	Lag	Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	6.9	23.7	9.0	32.3		9.6	9.6	9.6	9.6	9.6
Actuated g/C Ratio	0.13	0.43	0.16	0.59		0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.09	0.61	0.52	0.25		0.42	0.79	0.30	0.10	0.04
Control Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	16.5	28.0	7.6		24.9	13.5	22.5	18.2	0.1
LOS	C	B	C	A		C	B	C	B	A
Approach Delay		16.6		12.4		15.4			17.6	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 55	
Actuated Cycle Length: 55	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 50: Lake St & Minnetonka Blvd



Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route CSAH 5 **District** Metro **County** Hennepin County

Begin RP 5.97 **End RP** 6.18 **Miles** 0.21

Location From Xylon Ave to Texas Ave

B. Project Description

Proposed Work Introduce TWLTL along 2-lane roadway and resurface pavement (from Xylon Ave to Virginia Ave)
Install continuous raised median and resurface pavement (from Virginia Ave to Texas Ave)

Project Cost* $20,800,000 **Installation Year** 2028

Project Service Life 20 years **Traffic Growth Factor** 0.5%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

	Fatal (K) Crashes	**Reference**	CMF 02338: Introduce TWLTL on 2-lane (31.4% reduction)
	Serious Injury (A) Crashes		CMF 09300: Resurface Pavement (14.7% reduction)
0.69	**Moderate Injury (B) Crashes**	**Crash Type**	CMF 02338: All Crashes
	Possible Injury (C) Crashes		CMF 09300: RE, SS, LT, RA, OR, & HO
0.59	**Property Damage Only Crashes**		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

	Fatal (K) Crashes	**Reference**	CMF 03034: Install continuous raised median (39% reduction)
	Serious Injury (A) Crashes		CMF 09300: Resurface Pavement (14.7% reduction)
	Moderate Injury (B) Crashes	**Crash Type**	CMF 03034: All Crashes
	Possible Injury (C) Crashes		CMF 09300: RE, SS, LT, RA, OR, & HO
	Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date 1/1/2020 **End Date** 12/31/2022 3 years

Data Source MnCMAT Version 2.0

Crash Severity	CMF 02338: All Crashes CMF 09300: RE, SS, LT, RA, OR, & HO	CMF 03034: All Crashes CMF 09300: RE, SS, LT, RA, OR, & HO
K crashes	0	0
A crashes	0	0
B crashes	1	0
C crashes	0	0
PDO crashes	2	5

F. Benefit-Cost Calculation

$589,493 **Benefit (present value)**

$20,800,000 **Cost**

B/C Ratio = 0.03

Proposed project expected to reduce 1 crashes annually, 0 of which involving fatality or serious injury.

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	$1,600,000
A crashes	$800,000
B crashes	$250,000
C crashes	$130,000
PDO crashes	$15,000

Link: mndot.gov/planning/program/appendix_a.html

Real Discount Rate: 0.8% Default

Traffic Growth Rate: 0.5% **Revised**

Project Service Life: 20 years **Revised**

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	0.00	0.00	$0
B crashes	0.31	0.10	$26,167
C crashes	0.00	0.00	$0
PDO crashes	0.83	0.28	$4,150
			$30,317

H. Amortized Benefit

Year	Crash Benefits	Present Value
2028	$30,317	$30,317
2029	$30,468	$30,226
2030	$30,621	$30,136
2031	$30,774	$30,047
2032	$30,928	$29,957
2033	$31,082	$29,868
2034	$31,238	$29,779
2035	$31,394	$29,691
2036	$31,551	$29,602
2037	$31,709	$29,514
2038	$31,867	$29,426
2039	$32,026	$29,339
2040	$32,187	$29,251
2041	$32,347	$29,164
2042	$32,509	$29,078
2043	$32,672	$28,991
2044	$32,835	$28,905
2045	$32,999	$28,819
2046	$33,164	$28,733
2047	$33,330	$28,647
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0

Total = $589,493

NOTE:
This calculation relies on the real discount rate, which accounts for inflation. No further discounting is necessary.

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route CSAH 5 **District** Metro **County** Hennepin County

Begin RP 6.18 **End RP** 6.24 **Miles** 0.06

Location At Texas Ave

B. Project Description

Proposed Work Change intersection control device from traffic signal to roundabout

Project Cost* $20,800,000 **Installation Year** 2028

Project Service Life 20 years **Traffic Growth Factor** 0.5%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

	Fatal (K) Crashes	**Reference** CMF 00225: Change ICD to roundabout (48% reduction)
0.52	**Serious Injury (A) Crashes**	
	Moderate Injury (B) Crashes	**Crash Type** CMF 00225: All Crashes
0.52	**Possible Injury (C) Crashes**	
0.52	**Property Damage Only Crashes**	www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

	Fatal (K) Crashes	**Reference** Not Applicable
	Serious Injury (A) Crashes	
	Moderate Injury (B) Crashes	**Crash Type** Not Applicable
	Possible Injury (C) Crashes	
	Property Damage Only Crashes	www.CMFclearinghouse.org

E. Crash Data

Begin Date 1/1/2020 **End Date** 12/31/2022 3 years

Data Source MnCMAT Version 2.0

Crash Severity	CMF 00225: All Crashes	None
K crashes	0	0
A crashes	2	0
B crashes	0	0
C crashes	2	0
PDO crashes	4	0

F. Benefit-Cost Calculation

$5,973,349	**Benefit (present value)**
$20,800,000	**Cost**

B/C Ratio = 0.29

Proposed project expected to reduce 2 crashes annually, 1 of which involving fatality or serious injury.

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	$1,600,000
A crashes	$800,000
B crashes	$250,000
C crashes	$130,000
PDO crashes	$15,000

Link: mndot.gov/planning/program/appendix_a.html

Real Discount Rate: 0.8% Default

Traffic Growth Rate: 0.5% **Revised**

Project Service Life: 20 years **Revised**

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	0.96	0.32	$256,000
B crashes	0.00	0.00	$0
C crashes	0.96	0.32	$41,600
PDO crashes	1.92	0.64	$9,600
			$307,200

H. Amortized Benefit

Year	Crash Benefits	Present Value
2028	$307,200	$307,200
2029	$308,736	$306,286
2030	$310,280	$305,374
2031	$311,831	$304,465
2032	$313,390	$303,559
2033	$314,957	$302,656
2034	$316,532	$301,755
2035	$318,115	$300,857
2036	$319,705	$299,961
2037	$321,304	$299,069
2038	$322,910	$298,179
2039	$324,525	$297,291
2040	$326,147	$296,406
2041	$327,778	$295,524
2042	$329,417	$294,645
2043	$331,064	$293,768
2044	$332,719	$292,893
2045	$334,383	$292,022
2046	$336,055	$291,153
2047	$337,735	$290,286
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0

Total = $5,973,349

NOTE:
This calculation relies on the real discount rate, which accounts for inflation. No further discounting is necessary.

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route CSAH 5 **District** Metro **County** Hennepin County

Begin RP 6.24 **End RP** 6.68 **Miles** 0.44

Location From Texas Ave to Louisiana Ave

B. Project Description

Proposed Work Install continuous raised median and resurface pavement
Introduce multi-use trail facility and improve pedestrian crossings

Project Cost* $20,800,000 **Installation Year** 2028

Project Service Life 20 years **Traffic Growth Factor** 0.5%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

	Fatal (K) Crashes	**Reference**	CMF 03034: Install continuous raised median (39% reduction)
0.52	**Serious Injury (A) Crashes**		CMF 09300: Resurface Pavement (14.7% reduction)
	Moderate Injury (B) Crashes	**Crash Type**	CMF 03034: All Crashes
0.52	**Possible Injury (C) Crashes**		CMF 09300: RE, SS, LT, RA, OR, & HO
0.52	**Property Damage Only Crashes**		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

	Fatal (K) Crashes	**Reference**	CMF 00176: Install median without crosswalk (39% reduction)
	Serious Injury (A) Crashes		CMF 09250: Introduce multi-use trail facility (25% reduction)
	Moderate Injury (B) Crashes	**Crash Type**	CMF 00176: Ped Crashes
	Possible Injury (C) Crashes		CMF 09250: Bike Crashes
	Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date 1/1/2020 **End Date** 12/31/2022 3 years

Data Source MnCMAT Version 2.0

Crash Severity	CMF 03034: All Crashes CMF 09300: RE, SS, LT, RA, OR, & HO	CMF 00176: Ped Crashes CMF 09250: Bike Crashes
K crashes	0	0
A crashes	1	0
B crashes	0	0
C crashes	3	0
PDO crashes	12	0

F. Benefit-Cost Calculation

$4,262,234	**Benefit (present value)**
$20,800,000	**Cost**

B/C Ratio = 0.21

Proposed project expected to reduce 3 crashes annually, 1 of which involving fatality or serious injury.

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	$1,600,000
A crashes	$800,000
B crashes	$250,000
C crashes	$130,000
PDO crashes	$15,000

Link: mndot.gov/planning/program/appendix_a.html

Real Discount Rate: 0.8% Default

Traffic Growth Rate: 0.5% **Revised**

Project Service Life: 20 years **Revised**

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	0.48	0.16	$128,000
B crashes	0.00	0.00	$0
C crashes	1.44	0.48	$62,400
PDO crashes	5.76	1.92	$28,800
			$219,200

H. Amortized Benefit

Year	Crash Benefits	Present Value
2028	$219,200	$219,200
2029	$220,296	$218,548
2030	$221,397	$217,897
2031	$222,504	$217,249
2032	$223,617	$216,602
2033	$224,735	$215,957
2034	$225,859	$215,315
2035	$226,988	$214,674
2036	$228,123	$214,035
2037	$229,264	$213,398
2038	$230,410	$212,763
2039	$231,562	$212,130
2040	$232,720	$211,498
2041	$233,883	$210,869
2042	$235,053	$210,241
2043	$236,228	$209,616
2044	$237,409	$208,992
2045	$238,596	$208,370
2046	$239,789	$207,750
2047	$240,988	$207,131
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0

Total = $4,262,234

NOTE:
This calculation relies on the real discount rate, which accounts for inflation. No further discounting is necessary.

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route CSAH 5 **District** Metro **County** Hennepin County

Begin RP 6.68 **End RP** 6.74 **Miles** 0.06

Location At Louisiana Ave

B. Project Description

Proposed Work Change intersection control device from traffic signal to roundabout

Project Cost* $20,800,000 **Installation Year** 2028

Project Service Life 20 years **Traffic Growth Factor** 0.5%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

	Fatal (K) Crashes	**Reference**	CMF 00225: Change ICD to roundabout (48% reduction)
	Serious Injury (A) Crashes		
0.52	**Moderate Injury (B) Crashes**	**Crash Type**	CMF 00225: All Crashes
0.52	**Possible Injury (C) Crashes**		
0.52	**Property Damage Only Crashes**		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

	Fatal (K) Crashes	**Reference**	Not Applicable
	Serious Injury (A) Crashes		
	Moderate Injury (B) Crashes	**Crash Type**	Not Applicable
	Possible Injury (C) Crashes		
	Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date 1/1/2020 **End Date** 12/31/2022 3 years

Data Source MnCMAT Version 2.0

Crash Severity	CMF 00225: All Crashes	None
K crashes	0	0
A crashes	0	0
B crashes	1	0
C crashes	2	0
PDO crashes	15	0

F. Benefit-Cost Calculation

$2,286,673	**Benefit (present value)**
$20,800,000	**Cost**

B/C Ratio = 0.11

Proposed project expected to reduce 3 crashes annually, 0 of which involving fatality or serious injury.

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	$1,600,000
A crashes	$800,000
B crashes	$250,000
C crashes	$130,000
PDO crashes	$15,000

Link: mndot.gov/planning/program/appendix_a.html

Real Discount Rate: 0.8% Default

Traffic Growth Rate: 0.5% **Revised**

Project Service Life: 20 years **Revised**

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	0.00	0.00	$0
B crashes	0.48	0.16	$40,000
C crashes	0.96	0.32	$41,600
PDO crashes	7.20	2.40	$36,000
			$117,600

H. Amortized Benefit

Year	Crash Benefits	Present Value
2028	$117,600	$117,600
2029	$118,188	$117,250
2030	$118,779	$116,901
2031	$119,373	$116,553
2032	$119,970	$116,206
2033	$120,570	$115,860
2034	$121,172	$115,516
2035	$121,778	$115,172
2036	$122,387	$114,829
2037	$122,999	$114,487
2038	$123,614	$114,147
2039	$124,232	$113,807
2040	$124,853	$113,468
2041	$125,478	$113,130
2042	$126,105	$112,794
2043	$126,735	$112,458
2044	$127,369	$112,123
2045	$128,006	$111,790
2046	$128,646	$111,457
2047	$129,289	$111,125
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0

Total = $2,286,673

NOTE:
This calculation relies on the real discount rate, which accounts for inflation. No further discounting is necessary.

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route CSAH 5 **District** Metro **County** Hennepin County

Begin RP 6.74 **End RP** 6.93 **Miles** 0.19

Location From Louisiana Ave to Hampshire Ave

B. Project Description

Proposed Work Install continuous raised median and resurface pavement
Introduce multi-use trail facility and improve pedestrian crossings

Project Cost* $20,800,000 **Installation Year** 2028

Project Service Life 20 years **Traffic Growth Factor** 0.5%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

	Fatal (K) Crashes	**Reference**	CMF 03034: Install continuous raised median (39% reduction)
	Serious Injury (A) Crashes		CMF 09300: Resurface Pavement (14.7% reduction)
	Moderate Injury (B) Crashes	**Crash Type**	CMF 03034: All Crashes
	Possible Injury (C) Crashes		CMF 09300: RE, SS, LT, RA, OR, & HO
0.52	**Property Damage Only Crashes**		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

	Fatal (K) Crashes	**Reference**	CMF 00176: Install median without crosswalk (39% reduction)
	Serious Injury (A) Crashes		CMF 09250: Introduce multi-use trail facility (25% reduction)
	Moderate Injury (B) Crashes	**Crash Type**	CMF 00176: Ped Crashes
	Possible Injury (C) Crashes		CMF 09250: Bike Crashes
	Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date 1/1/2020 **End Date** 12/31/2022 3 years

Data Source MnCMAT Version 2.0

Crash Severity	CMF 03034: All Crashes CMF 09300: RE, SS, LT, RA, OR, & HO	CMF 00176: Ped Crashes CMF 09250: Bike Crashes
K crashes	0	0
A crashes	0	0
B crashes	0	0
C crashes	0	0
PDO crashes	6	0

F. Benefit-Cost Calculation

$280,001	**Benefit (present value)**	**B/C Ratio = 0.02**
$20,800,000	**Cost**	

Proposed project expected to reduce 1 crashes annually, 0 of which involving fatality or serious injury.

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	$1,600,000
A crashes	$800,000
B crashes	$250,000
C crashes	$130,000
PDO crashes	$15,000

Link: mndot.gov/planning/program/appendix_a.html

Real Discount Rate: 0.8% Default

Traffic Growth Rate: 0.5% **Revised**

Project Service Life: 20 years **Revised**

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	0.00	0.00	$0
B crashes	0.00	0.00	$0
C crashes	0.00	0.00	$0
PDO crashes	2.88	0.96	$14,400
			$14,400

H. Amortized Benefit

Year	Crash Benefits	Present Value
2028	$14,400	$14,400
2029	$14,472	$14,357
2030	$14,544	$14,314
2031	$14,617	$14,272
2032	$14,690	$14,229
2033	$14,764	$14,187
2034	$14,837	$14,145
2035	$14,912	$14,103
2036	$14,986	$14,061
2037	$15,061	$14,019
2038	$15,136	$13,977
2039	$15,212	$13,936
2040	$15,288	$13,894
2041	$15,365	$13,853
2042	$15,441	$13,811
2043	$15,519	$13,770
2044	$15,596	$13,729
2045	$15,674	$13,689
2046	$15,753	$13,648
2047	$15,831	$13,607
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0

Total = $280,001

NOTE:
This calculation relies on the real discount rate, which accounts for inflation. No further discounting is necessary.

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route CSAH 5 **District** Metro **County** Hennepin County

Begin RP 6.93 **End RP** 6.99 **Miles** 0.06

Location At Hampshire Ave

B. Project Description

Proposed Work Change intersection control device from traffic signal to roundabout

Project Cost* $20,800,000 **Installation Year** 2028

Project Service Life 20 years **Traffic Growth Factor** 0.5%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

	Fatal (K) Crashes	**Reference**	CMF 00225: Change ICD to roundabout (48% reduction)
	Serious Injury (A) Crashes		
	Moderate Injury (B) Crashes	**Crash Type**	CMF 00225: All Crashes
0.52	**Possible Injury (C) Crashes**		
0.52	**Property Damage Only Crashes**		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

	Fatal (K) Crashes	**Reference**	Not Applicable
	Serious Injury (A) Crashes		
	Moderate Injury (B) Crashes	**Crash Type**	Not Applicable
	Possible Injury (C) Crashes		
	Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date 1/1/2020 **End Date** 12/31/2022 3 years

Data Source MnCMAT Version 2.0

Crash Severity	CMF 00225: All Crashes	None
K crashes	0	0
A crashes	0	0
B crashes	0	0
C crashes	2	0
PDO crashes	4	0

F. Benefit-Cost Calculation

$995,559	**Benefit (present value)**	**B/C Ratio = 0.05**
$20,800,000	**Cost**	

Proposed project expected to reduce 1 crashes annually, 0 of which involving fatality or serious injury.

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	$1,600,000
A crashes	$800,000
B crashes	$250,000
C crashes	$130,000
PDO crashes	$15,000

Link: mndot.gov/planning/program/appendix_a.html

Real Discount Rate: 0.8% Default

Traffic Growth Rate: 0.5% **Revised**

Project Service Life: 20 years **Revised**

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	0.00	0.00	$0
B crashes	0.00	0.00	$0
C crashes	0.96	0.32	$41,600
PDO crashes	1.92	0.64	$9,600
			$51,200

H. Amortized Benefit

Year	Crash Benefits	Present Value
2028	$51,200	$51,200
2029	$51,456	$51,048
2030	$51,713	$50,896
2031	$51,972	$50,744
2032	$52,232	$50,593
2033	$52,493	$50,443
2034	$52,755	$50,292
2035	$53,019	$50,143
2036	$53,284	$49,994
2037	$53,551	$49,845
2038	$53,818	$49,696
2039	$54,087	$49,549
2040	$54,358	$49,401
2041	$54,630	$49,254
2042	$54,903	$49,107
2043	$55,177	$48,961
2044	$55,453	$48,816
2045	$55,731	$48,670
2046	$56,009	$48,525
2047	$56,289	$48,381
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0

Total = $995,559

NOTE:
This calculation relies on the real discount rate, which accounts for inflation. No further discounting is necessary.

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route CSAH 5 **District** Metro **County** Hennepin County

Begin RP 6.99 **End RP** 7.18 **Miles** 0.19

Location From Hampshire Ave to Dakota Ave

B. Project Description

Proposed Work Install continuous raised median and resurface pavement
Introduce multi-use trail facility and improve pedestrian crossings

Project Cost* $20,800,000 **Installation Year** 2028

Project Service Life 20 years **Traffic Growth Factor** 0.5%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

	Fatal (K) Crashes	**Reference**	CMF 03034: Install continuous raised median (39% reduction)
	Serious Injury (A) Crashes		CMF 09300: Resurface Pavement (14.7% reduction)
	Moderate Injury (B) Crashes	**Crash Type**	CMF 03034: All Crashes
	Possible Injury (C) Crashes		CMF 09300: RE, SS, LT, RA, OR, & HO
0.52	**Property Damage Only Crashes**		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

	Fatal (K) Crashes	**Reference**	CMF 00176: Install median without crosswalk (39% reduction)
	Serious Injury (A) Crashes		CMF 09250: Introduce multi-use trail facility (25% reduction)
	Moderate Injury (B) Crashes	**Crash Type**	CMF 00176: Ped Crashes
	Possible Injury (C) Crashes		CMF 09250: Bike Crashes
	Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date 1/1/2020 **End Date** 12/31/2022 3 years

Data Source MnCMAT Version 2.0

Crash Severity	CMF 03034: All Crashes CMF 09300: RE, SS, LT, RA, OR, & HO	CMF 00176: Ped Crashes CMF 09250: Bike Crashes
K crashes	0	0
A crashes	0	0
B crashes	0	0
C crashes	0	0
PDO crashes	8	0

F. Benefit-Cost Calculation

$373,335	**Benefit (present value)**	**B/C Ratio = 0.02**
$20,800,000	**Cost**	

Proposed project expected to reduce 2 crashes annually, 0 of which involving fatality or serious injury.

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	$1,600,000
A crashes	$800,000
B crashes	$250,000
C crashes	$130,000
PDO crashes	$15,000

Link: mndot.gov/planning/program/appendix_a.html

Real Discount Rate: 0.8% Default

Traffic Growth Rate: 0.5% **Revised**

Project Service Life: 20 years **Revised**

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	0.00	0.00	$0
B crashes	0.00	0.00	$0
C crashes	0.00	0.00	$0
PDO crashes	3.84	1.28	$19,200
			$19,200

H. Amortized Benefit

Year	Crash Benefits	Present Value
2028	$19,200	$19,200
2029	$19,296	$19,143
2030	$19,392	$19,086
2031	$19,489	$19,029
2032	$19,587	$18,972
2033	$19,685	$18,916
2034	$19,783	$18,860
2035	$19,882	$18,804
2036	$19,982	$18,748
2037	$20,081	$18,692
2038	$20,182	$18,636
2039	$20,283	$18,581
2040	$20,384	$18,525
2041	$20,486	$18,470
2042	$20,589	$18,415
2043	$20,692	$18,360
2044	$20,795	$18,306
2045	$20,899	$18,251
2046	$21,003	$18,197
2047	$21,108	$18,143
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0

Total = $373,335

NOTE:
This calculation relies on the real discount rate, which accounts for inflation. No further discounting is necessary.

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route CSAH 5 **District** Metro **County** Hennepin County

Begin RP 7.18 **End RP** 7.24 **Miles** 0.06

Location At Dakota Ave

B. Project Description

Proposed Work Change intersection control device from traffic signal to roundabout

Project Cost* $20,800,000 **Installation Year** 2028

Project Service Life 20 years **Traffic Growth Factor** 0.5%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

	Fatal (K) Crashes	**Reference**	CMF 00225: Change ICD to roundabout (48% reduction)
	Serious Injury (A) Crashes		
	Moderate Injury (B) Crashes	**Crash Type**	CMF 00225: All Crashes
0.52	**Possible Injury (C) Crashes**		
0.52	**Property Damage Only Crashes**		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

	Fatal (K) Crashes	**Reference**	Not Applicable
	Serious Injury (A) Crashes		
	Moderate Injury (B) Crashes	**Crash Type**	Not Applicable
	Possible Injury (C) Crashes		
	Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date 1/1/2020 **End Date** 12/31/2022 3 years

Data Source MnCMAT Version 2.0

Crash Severity	CMF 00225: All Crashes	None
K crashes	0	0
A crashes	0	0
B crashes	0	0
C crashes	2	0
PDO crashes	6	0

F. Benefit-Cost Calculation

$1,088,892	**Benefit (present value)**
$20,800,000	**Cost**

B/C Ratio = 0.06

Proposed project expected to reduce 2 crashes annually, 0 of which involving fatality or serious injury.

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	$1,600,000
A crashes	$800,000
B crashes	$250,000
C crashes	$130,000
PDO crashes	$15,000

Link: mndot.gov/planning/program/appendix_a.html

Real Discount Rate: 0.8% Default

Traffic Growth Rate: 0.5% **Revised**

Project Service Life: 20 years **Revised**

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	0.00	0.00	$0
B crashes	0.00	0.00	$0
C crashes	0.96	0.32	$41,600
PDO crashes	2.88	0.96	$14,400
			$56,000

H. Amortized Benefit

Year	Crash Benefits	Present Value
2028	$56,000	$56,000
2029	$56,280	$55,833
2030	$56,561	$55,667
2031	$56,844	$55,501
2032	$57,128	$55,336
2033	$57,414	$55,172
2034	$57,701	$55,007
2035	$57,990	$54,844
2036	$58,280	$54,680
2037	$58,571	$54,518
2038	$58,864	$54,355
2039	$59,158	$54,194
2040	$59,454	$54,032
2041	$59,751	$53,872
2042	$60,050	$53,711
2043	$60,350	$53,551
2044	$60,652	$53,392
2045	$60,955	$53,233
2046	$61,260	$53,075
2047	$61,566	$52,917
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0

Total = $1,088,892

NOTE:
This calculation relies on the real discount rate, which accounts for inflation. No further discounting is necessary.

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route CSAH 5 **District** Metro **County** Hennepin County

Begin RP 7.24 **End RP** 7.71 **Miles** 0.47

Location From Dakota Ave to Vernon Ave

B. Project Description

Proposed Work Install continuous raised median and resurface pavement
Introduce multi-use trail facility and improve pedestrian crossings

Project Cost* $20,800,000 **Installation Year** 2028

Project Service Life 20 years **Traffic Growth Factor** 0.5%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

	Fatal (K) Crashes	**Reference**	CMF 03034: Install continuous raised median (39% reduction)
	Serious Injury (A) Crashes		CMF 09300: Resurface Pavement (14.7% reduction)
0.52	**Moderate Injury (B) Crashes**	**Crash Type**	CMF 03034: All Crashes
0.52	**Possible Injury (C) Crashes**		CMF 09300: RE, SS, LT, RA, OR, & HO
0.52	**Property Damage Only Crashes**		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

	Fatal (K) Crashes	**Reference**	CMF 00176: Install median without crosswalk (39% reduction)
	Serious Injury (A) Crashes		CMF 09250: Introduce multi-use trail facility (25% reduction)
	Moderate Injury (B) Crashes	**Crash Type**	CMF 00176: Ped Crashes
	Possible Injury (C) Crashes		CMF 09250: Bike Crashes
	Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date 1/1/2020 **End Date** 12/31/2022 3 years

Data Source MnCMAT Version 2.0

Crash Severity	CMF 03034: All Crashes CMF 09300: RE, SS, LT, RA, OR, & HO	CMF 00176: Ped Crashes CMF 09250: Bike Crashes
K crashes	0	0
A crashes	0	0
B crashes	2	0
C crashes	3	0
PDO crashes	9	0

F. Benefit-Cost Calculation

$3,188,898	**Benefit (present value)**	**B/C Ratio = 0.16**
$20,800,000	**Cost**	

Proposed project expected to reduce 3 crashes annually, 0 of which involving fatality or serious injury.

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	$1,600,000
A crashes	$800,000
B crashes	$250,000
C crashes	$130,000
PDO crashes	$15,000

Link: mndot.gov/planning/program/appendix_a.html

Real Discount Rate: 0.8% Default

Traffic Growth Rate: 0.5% **Revised**

Project Service Life: 20 years **Revised**

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	0.00	0.00	$0
B crashes	0.96	0.32	$80,000
C crashes	1.44	0.48	$62,400
PDO crashes	4.32	1.44	$21,600
			$164,000

H. Amortized Benefit

Year	Crash Benefits	Present Value
2028	$164,000	$164,000
2029	$164,820	$163,512
2030	$165,644	$163,025
2031	$166,472	$162,540
2032	$167,305	$162,056
2033	$168,141	$161,574
2034	$168,982	$161,093
2035	$169,827	$160,614
2036	$170,676	$160,136
2037	$171,529	$159,659
2038	$172,387	$159,184
2039	$173,249	$158,710
2040	$174,115	$158,238
2041	$174,986	$157,767
2042	$175,861	$157,297
2043	$176,740	$156,829
2044	$177,624	$156,362
2045	$178,512	$155,897
2046	$179,404	$155,433
2047	$180,301	$154,970
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0

Total = $3,188,898

NOTE:
This calculation relies on the real discount rate, which accounts for inflation. No further discounting is necessary.

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route CSAH 5 **District** Metro **County** Hennepin County

Begin RP 7.71 **End RP** 7.74 **Miles** 0.03

Location At Vernon Ave

B. Project Description

Proposed Work No CMFs Proposed - Minimal scope of work planned at intersection

Project Cost* $20,800,000 **Installation Year** 2028

Project Service Life 20 years **Traffic Growth Factor** 0.5%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

Fatal (K) Crashes

Serious Injury (A) Crashes

Moderate Injury (B) Crashes

Possible Injury (C) Crashes

Property Damage Only Crashes

Reference No CMFs Proposed

Crash Type Not Applicable

www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

Fatal (K) Crashes

Serious Injury (A) Crashes

Moderate Injury (B) Crashes

Possible Injury (C) Crashes

Property Damage Only Crashes

Reference Not Applicable

Crash Type Not Applicable

www.CMFclearinghouse.org

E. Crash Data

Begin Date 1/1/2020 **End Date** 12/31/2022 3 years

Data Source MnCMAT Version 2.0

Crash Severity	None	None
K crashes	0	0
A crashes	0	0
B crashes	0	0
C crashes	1	0
PDO crashes	4	0

F. Benefit-Cost Calculation

$0 **Benefit (present value)**

$20,800,000 **Cost**

B/C Ratio = 0.00

Proposed project expected to reduce 0 crashes annually, 0 of which involving fatality or serious injury.

F. Analysis Assumptions

Crash Severity	Crash Cost
K crashes	$1,600,000
A crashes	$800,000
B crashes	$250,000
C crashes	$130,000
PDO crashes	$15,000

Link: mndot.gov/planning/program/appendix_a.html

Real Discount Rate: 0.8% Default

Traffic Growth Rate: 0.5% **Revised**

Project Service Life: 20 years **Revised**

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	0.00	0.00	$0
B crashes	0.00	0.00	$0
C crashes	0.00	0.00	$0
PDO crashes	0.00	0.00	$0
			$0

H. Amortized Benefit

Year	Crash Benefits	Present Value
2028	$0	$0
2029	$0	$0
2030	$0	$0
2031	$0	$0
2032	$0	$0
2033	$0	$0
2034	$0	$0
2035	$0	$0
2036	$0	$0
2037	$0	$0
2038	$0	$0
2039	$0	$0
2040	$0	$0
2041	$0	$0
2042	$0	$0
2043	$0	$0
2044	$0	$0
2045	$0	$0
2046	$0	$0
2047	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0

Total = $0

NOTE:
This calculation relies on the real discount rate, which accounts for inflation. No further discounting is necessary.

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA

0 50 100
SCALE IN FEET

Figure 1

Job #16612
11/21/2023
Minnetonka Boulevard Grant Application Sheets

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA

Job #16612
11/21/2023
Minnetonka Boulevard Grant Application Sheets

Figure 2

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA

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SCALE IN FEET

Figure 3

Job #16612
11/21/2023
Minnetonka Boulevard Grant Application Sheets

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA

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SCALE IN FEET

Figure 4

Job #16612
11/21/2023
Minnetonka Boulevard Grant Applcation Sheets

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA

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SCALE IN FEET

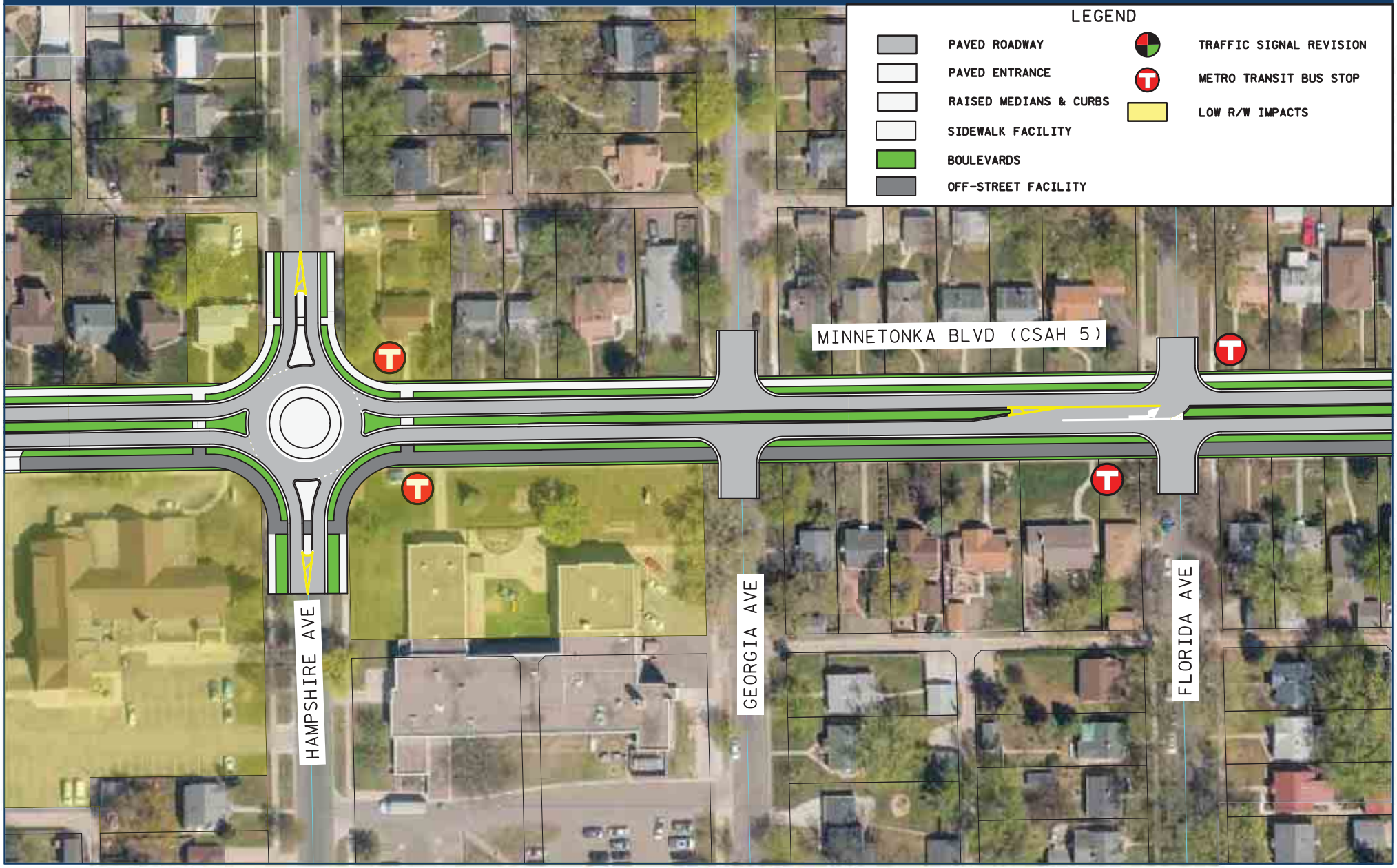
Figure 5

Job #16612
11/21/2023
Minnetonka Boulevard Grant Applcation Sheets

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA



Job #16612
11/21/2023
Minnetonka Boulevard Grant Applcation Sheets

Figure 6

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA

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SCALE IN FEET

Figure 7

Job #16612
11/21/2023
Minnetonka Boulevard Grant Applcation Sheets

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA

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SCALE IN FEET

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Figure 8

Job #16612
11/21/2023
Minnetonka Boulevard Grant Applcation Sheets

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA

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SCALE IN FEET

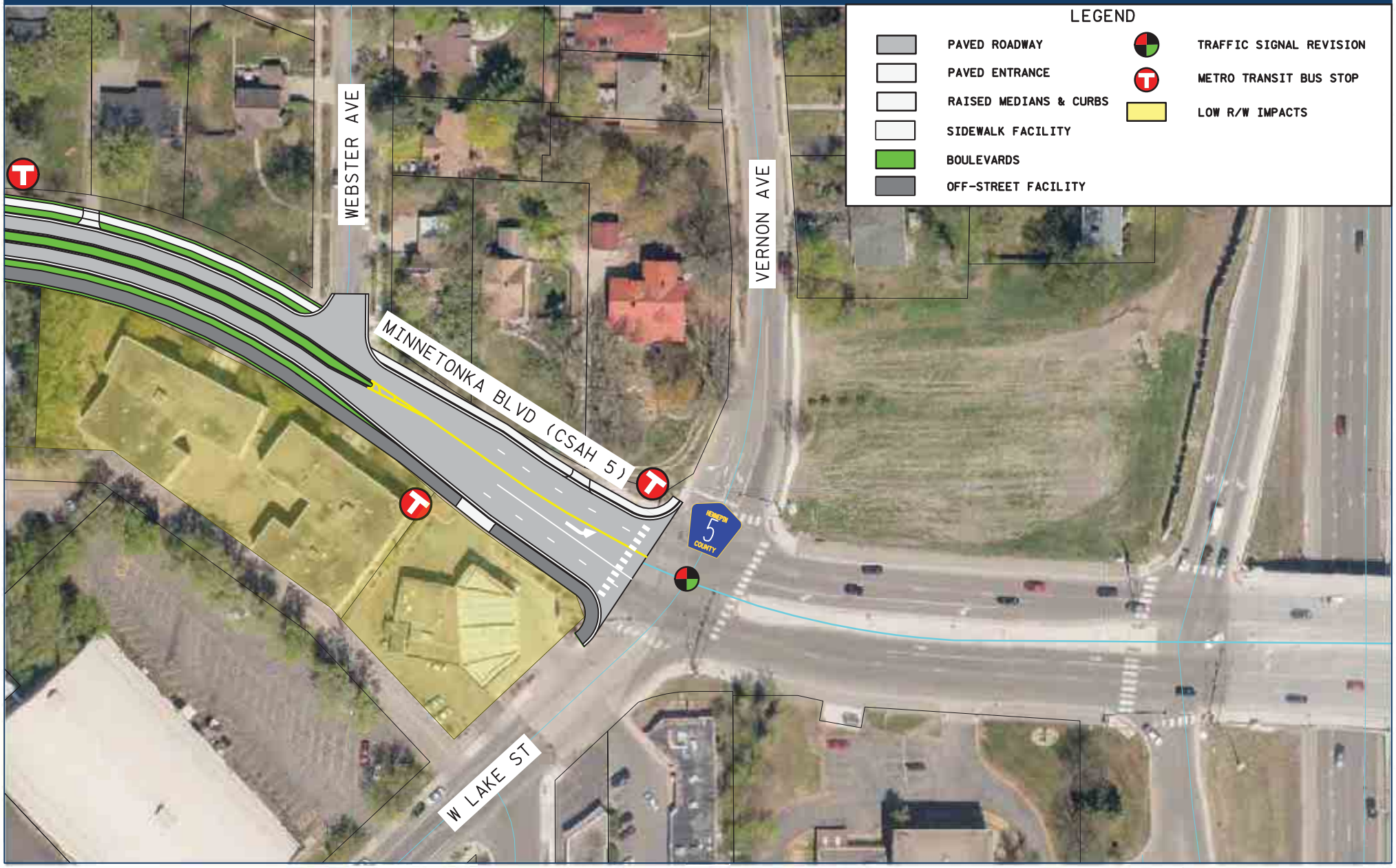
Figure 9

Job #16612
11/21/2023
Minnetonka Boulevard Grant Application Sheets

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA



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SCALE IN FEET

Figure 10

Job #16612
11/21/2023
Minnetonka Boulevard Grant Applcation Sheets

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 00 | List of Attachments

1. Project Narrative
2. Project Location Map
3. Existing Condition Photos
4. Potential Typical Sections
5. Potential Concept
6. Hennepin County 2024-2028 Transportation CIP
7. Hennepin County Enhanced Bikeway Network Study Maps
8. 2040 Forecast Traffic Volumes
9. Community Engagement Summary
10. Disadvantaged Communities and Resources Map
11. Affordable Housing Access Map and Detail Summary
12. Hennepin County Streetlight Analysis
13. Crash Map and Detail Listing
14. Crash Modification Factors
15. Multimodal Connections Map
16. City of St. Louis Park Support Letter
17. Three Rivers Park District Support Letter

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 01 | Project Narrative

HENNEPIN COUNTY
MINNESOTA

Project Name
CSAH 5 (Minnetonka Boulevard) Reconstruction Project

City(ies)
St. Louis Park

Commisioner District(s)
3

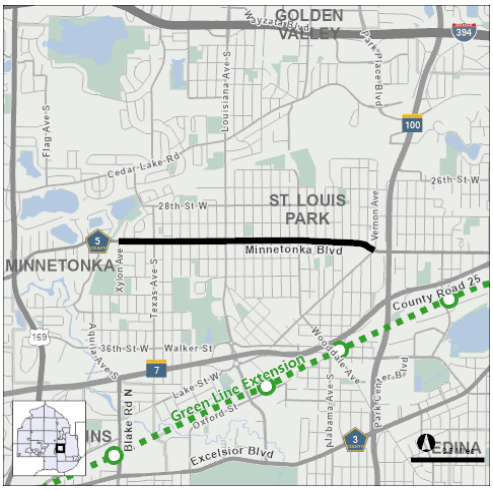
Capital Project Number
2168000

Project Category
Roadway Reconstruction

Scoping Manager
James Weatherly

Scoping Form Revision Dates
11/29/2023

Project Map



Project Summary
Reconstruct Minnetonka Boulevard (CSAH 5) from Xylon Avenue to Vernon Avenue in the City of St. Louis Park.

Roadway History
The existing roadway (last reconstructed in the 1950's) is nearing the end of its useful life and warrants replacement. Routine maintenance activities are no longer cost effective in preserving assets. The current roadway consists of a 2-lane undivided configuration, with turn lanes at key intersections, and an on-street bicycle facility. Although sidewalks are provided along both sides of the roadway, they do not provide a positive user experience. Many intersections include ADA accommodations that do not meet current design requirements, causing challenges for people with limited mobility. Minnetonka Boulevard (CSAH 5) serves as a Tier 1 Regional Bike Transportation Network (RBTN) corridor and provides access to the North Cedar Lake Regional Trail, another Tier 1 RBTN alignment, as well as several other north/west bicycle facilities which connect to future Green Line Extension light rail stations.

Project Description and Benefits
The proposed project will include new pavement, curb, storm water utilities, sidewalk, ADA accommodations, and traffic signals. It is anticipated that proven traffic calming strategies (such as raised medians, curb extensions, and streetscaping) will be introduced to improve the crossing experiences for people walking and to manage vehicle speeds. Of specific note, is consideration for a continuous raised median to improve safety through access managemnet. Also, each of the signalized intersections within the project area will be evaluated to determine the recommended intersection control device, including consideration for roundabout control. In addition, further investigation will take place as part of the design process to determine the feasibility of dedicated accommodations for people biking as part of this project.

Project Risks & Uncertainities
Introduction of roundabouts at locations currently operating under signalized control will likely have right of way impacts. In addition, the desired adjustments to the vertical curve present at Texas Avenue will require significant changes to the surrounding topography.

Initial Project Timeline

Scoping:	Q3 2022 - Q4 2024
Design:	Q1 2025 - Q4 2027
R/W Acquisition:	Q1 2026 - Q4 2027
Bid Advertisement:	Q1 2028
Construction:	Q2 2028 - Q4 2029

Project Delivery Responsibilities

Preliminary Design:	Consultant
Final Design:	Consultant
Construction Services:	Hennepin County

Project Budget -		Project Level
Construction:	$	16,000,000
Cost Estimate Year:		2023
Construction Year:		2028
Annual Inflation Rate:		2.0%
Inflated Construction:	$	17,670,000
Design Services:	$	3,530,000
R/W Acquisition:	$	3,190,000
Other (Utility Burial):	$	-
Construction Services:	$	-
Contingency:	$	5,300,000
Total Project Budget:	**$**	**29,690,000**

Funding Notes
Eligible for federal funding through the Metropolitan Council's Regional Solicitation given the function classification of A-Minor Reliever.

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 01 | Project Location Map

Disclaimer: This map (i) is furnished "AS IS" with no representation as to completeness or accuracy; (ii) is furnished with no warranty of any kind; and (iii) is not suitable for legal, engineering or surveying purposes. Hennepin County shall not be liable for any damage, injury or loss resulting from this map.

N

0 0.5 1 Miles

Publication date: 10/16/2023

Data sources (if applicable):

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 03 | Existing Condition Photos

Many sections of the existing roadway, sidewalk and gutter pan are experiencing significant cracking and are in generally poor condition, as demonstrated above.

Existing bike infrastructure pictured above east of the Dakota Ave intersection.

Existing stormwater infrastructure including curb and gutter are deteriorated, leading to areas of localized flooding issues.

Existing on-street bike infrastructure does not accommodate all ages and abilities, and sidewalks are at back of curb in some locations.

Hennepin County Public Works
1600 Prairie Drive, Medina, MN 55340
612-596-0300 | hennepin.us

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 03 | Existing Condition Photos

Intersection of Dakota Ave and Minnetonka Blvd (CSAH 5) pictured above.

Many intersections along Minnetonka Blvd (CSAH 5) like Dakota Ave and Minnetonka Blvd (CSAH 5) lack ADA compliant pedestrian ramps.

Limited Crossing enhancements create an uncomfortable experience for people walking and rolling at unsignalized intersections.

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 04 | Potential Typical Sections

Figure 1 | Potential typical section along CSAH 5 (Minnetonka Blvd) from Xylon Ave to Virginia Ave

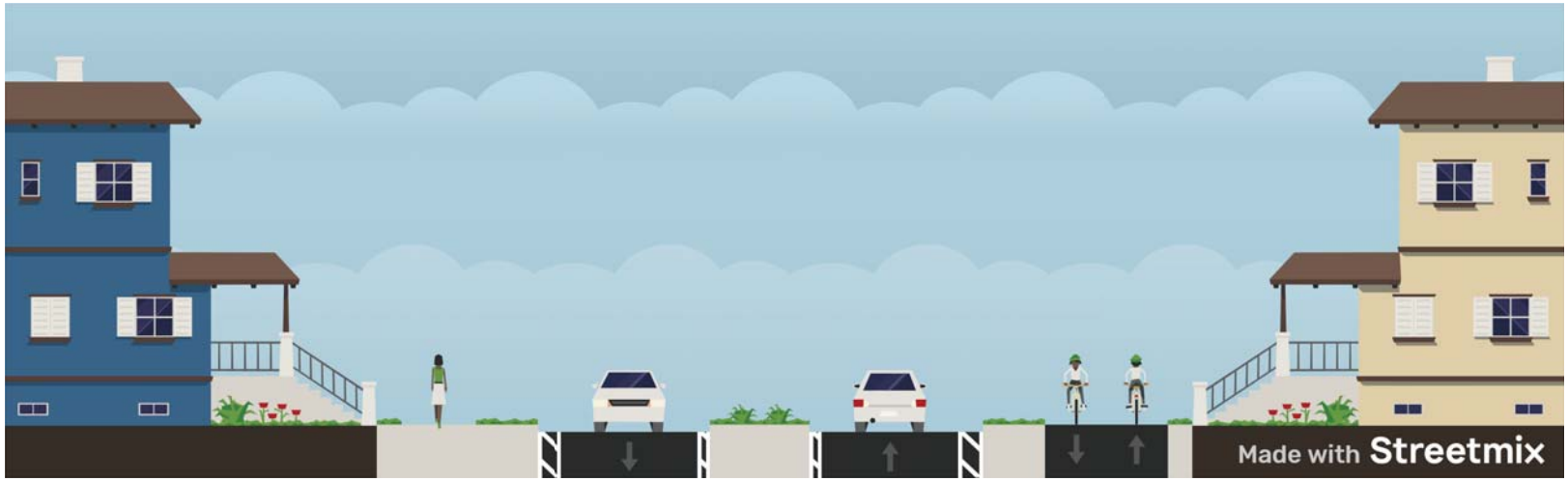


Figure 2 | Potential typical section along CSAH 5 (Minnetonka Blvd) from Virginia Ave to Vernon Ave

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA

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SCALE IN FEET

Figure 1

Job #16612
11/21/2023
Minnetonka Boulevard Grant Application Sheets

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA

Job #16612
11/21/2023
Minnetonka Boulevard Grant Application Sheets

Figure 2

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA

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SCALE IN FEET

Figure 3

Job #16612
11/21/2023
Minnetonka Boulevard Grant Application Sheets

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA

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SCALE IN FEET

Figure 4

Job #16612
11/21/2023
Minnetonka Boulevard Grant Applcation Sheets

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA

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SCALE IN FEET

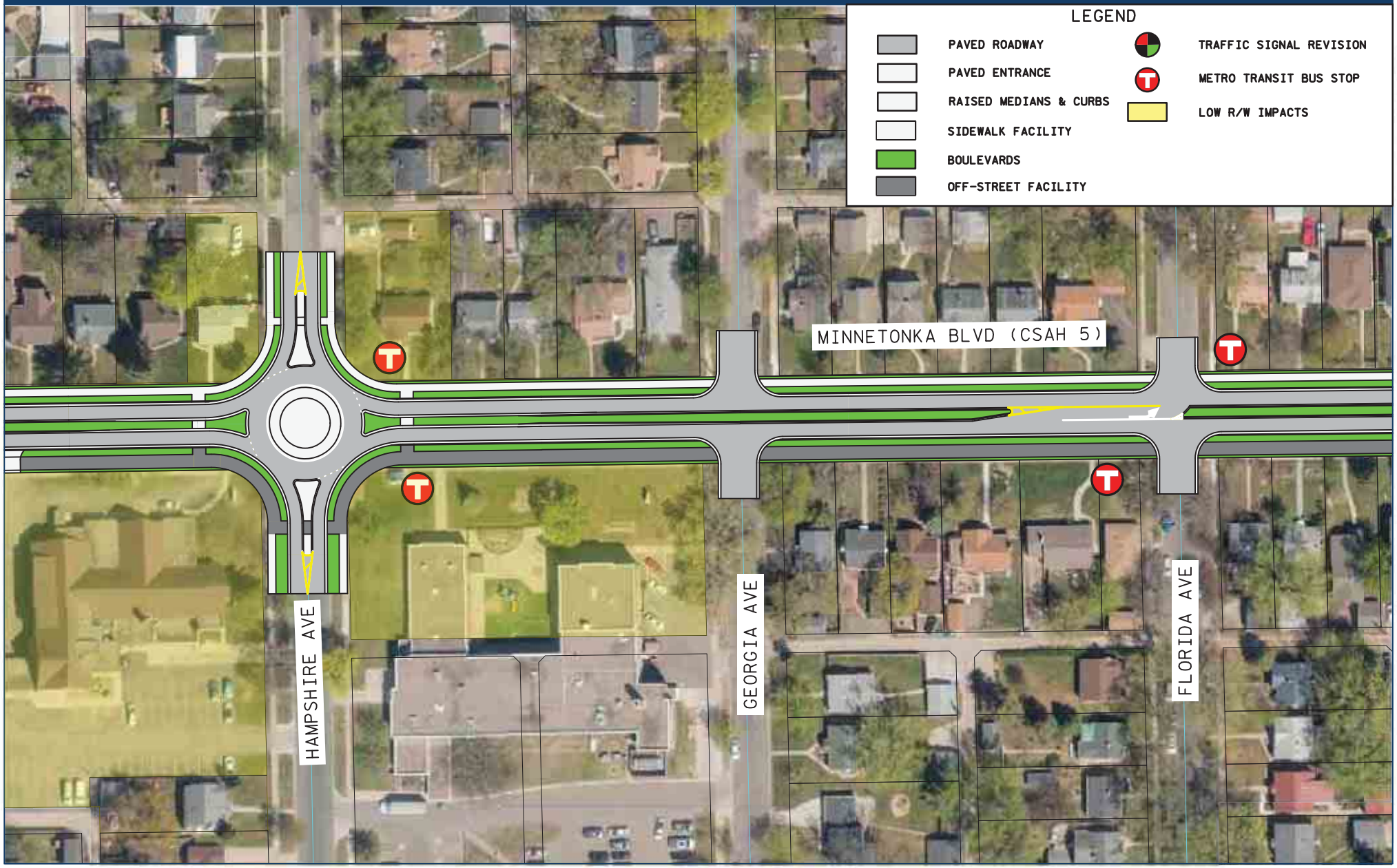
Figure 5

Job #16612
11/21/2023
Minnetonka Boulevard Grant Applcation Sheets

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA



Job #16612
11/21/2023
Minnetonka Boulevard Grant Applcation Sheets

Figure 6

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA

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SCALE IN FEET

Figure 7

Job #16612
11/21/2023
Minnetonka Boulevard Grant Applcation Sheets

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA

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SCALE IN FEET

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Figure 8

Job #16612
11/21/2023
Minnetonka Boulevard Grant Applcation Sheets

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA

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SCALE IN FEET

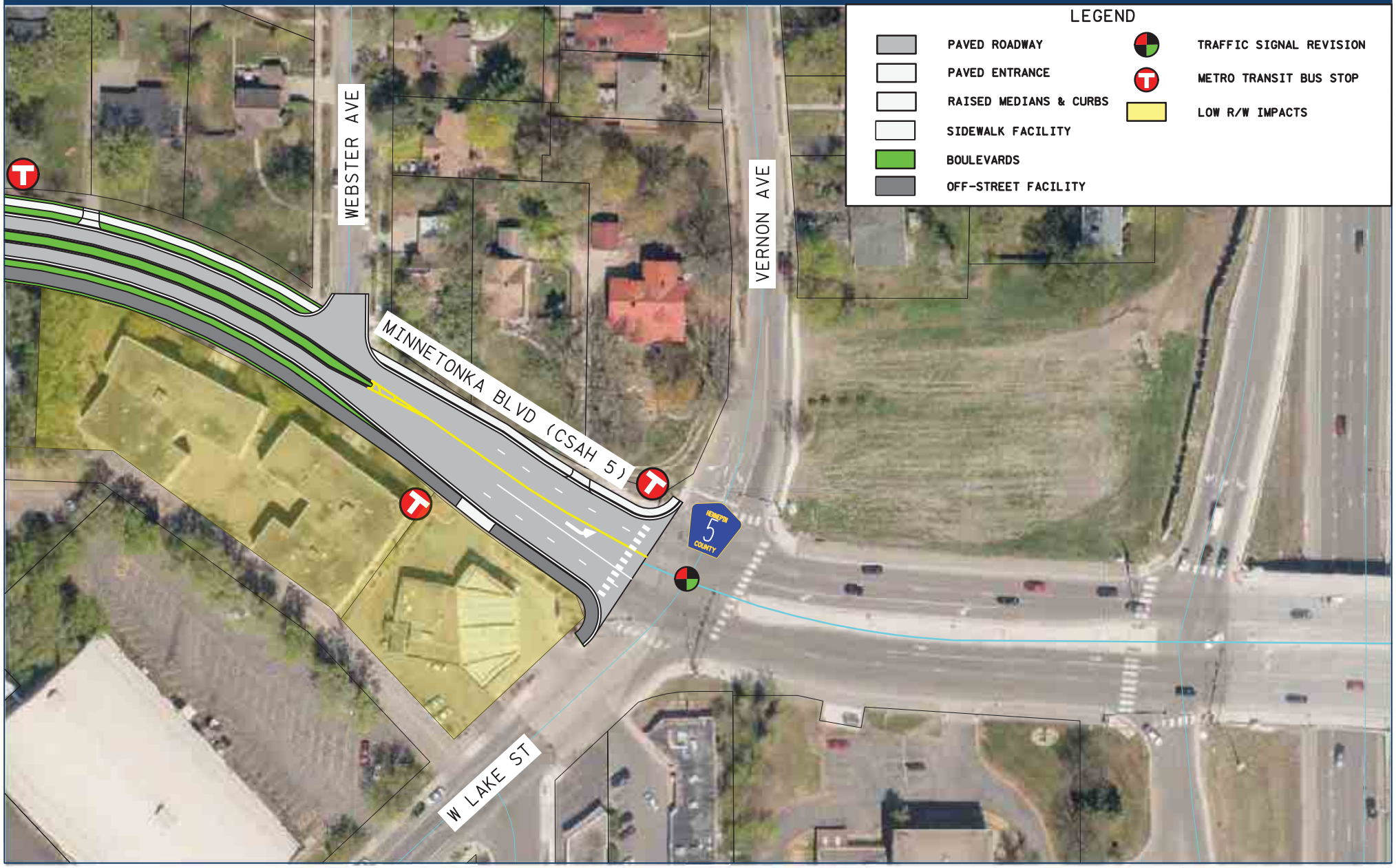
Figure 9

Job #16612
11/21/2023
Minnetonka Boulevard Grant Application Sheets

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA



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SCALE IN FEET

Figure 10

Job #16612
11/21/2023
Minnetonka Boulevard Grant Applcation Sheets

APITAL BUDGET AND 2024-2028 CAPITAL IMPROVEMENT PROGRAM

Project Name: 2168000 CSAH 5 - Reconst Mntka Blvd fr Xylon to Vernon Ave
Major Program: Public Works
Department: Transportation Roads & Bridges

Funding Start: 2025
Funding Completion: 2028

Summary:

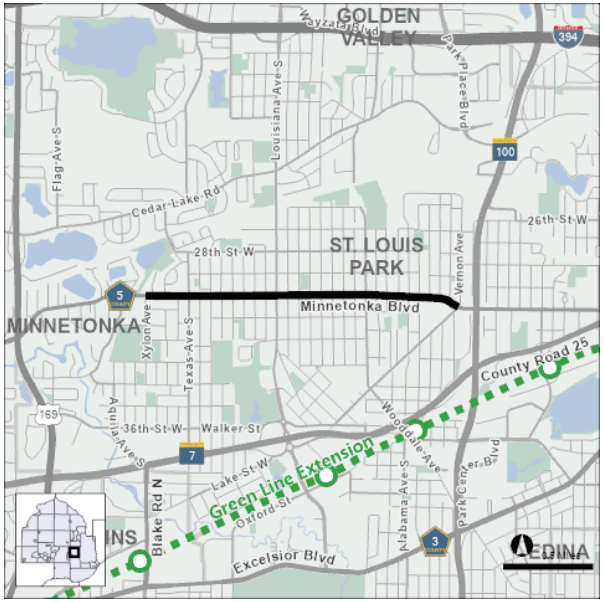
Reconstruct Minnetonka Boulevard (CSAH 5) from Xylon Avenue to Vernon Avenue in the City of St. Louis Park.

Purpose & Description:

The existing roadway (last reconstructed in 1964) is nearing the end of its useful life and warrants replacement. Routine maintenance activities are no longer cost effective in preserving assets. The roadway was originally constructed as concrete pavement that has since received bituminous overlays over its concrete surface. These conditions are undesirable as they result in premature cracking in the surface at the pre-existing joints. Sidewalks exist on both sides of the roadway, separated by a boulevard, that provide a relatively comfortable experience for people walking along Minnetonka Boulevard (CSAH 5). However, crossing Minnetonka Boulevard (CSAH 5) is often challenging as the corridor lacks Complete & Green Streets design strategies such as curb extensions, raised medians, and crossing beacons. Also, many intersections do not satisfy current ADA design requirements, presenting challenges for people with limited mobility, especially at signalized intersections. Furthermore, on-road bicycle lanes are provided for peolple biking; however, they currently lack physical separation between people driving.

The City of St. Louis Park has indicated that existing water utilities are in relatively poor condition within the project limits, reporting two relatively significant watermain breaks that occurred in 2022 that created hardships for nearby property owners. In response, the city has demonstrated an interest to replace its water utilities in conjunction with a roadway reconstruction project to reduce impacts to users. In addition, the city has expressed interest in exploring intersection design options at Texas Avenue, Louisiana Avenue, and Dakota Avenue to improve mobility, safety, and accessibility for multimodal users.

The proposed project is anticipated to include new assets, including pavement, curb, storm water structures, sidewalk facilities, and traffic signals. The future roadway configuration will be determined as part of the project development process based on community engagement, data analysis, and environmental review. Complete and Green Streets strategies (such as curb extensions, raised medians, and streetscaping), will also be considered to benefit people walking, using transit, and biking along and across Minnetonka Boulevard (CSAH 5). The proposed project is Phase 2 (of 3) for improvements along Minnetonka Boulevard (CSAH 5), occurring after the completion of Capital Project CP 2168100.



REVENUE	Budget To-Date	Act & Enc	Balance	2024	2025	2026	2027	2028	Future	Total
Federal - Other - Roads								5,600,000	1,400,000	7,000,000
Mn/DOT State Aid - Regular					2,000,000	1,453,000	300,000	3,160,000	6,552,000	13,465,000
St Louis Park						117,000	270,000	690,000	1,638,000	2,715,000
Total					**2,000,000**	**1,570,000**	**570,000**	**9,450,000**	**9,590,000**	**23,180,000**

EXPENSE	Budget To-Date	Act & Enc	Balance	2024	2025	2026	2027	2028	Future	Total
Right of Way						130,000	520,000			650,000
Construction								7,000,000	7,650,000	14,650,000
Consulting					1,750,000	1,180,000				2,930,000
Contingency					250,000	260,000	50,000	2,450,000	1,940,000	4,950,000
Total					**2,000,000**	**1,570,000**	**570,000**	**9,450,000**	**9,590,000**	**23,180,000**

BOARD APPROVED: 2024 CAPITAL BUDGET AND 2024-2028 CAPITAL IMPROVEMENT PROGRAM

Project Name: 2168000 CSAH 5 - Reconst Mntka Blvd fr Xylon to Vernon Ave
Major Program: Public Works
Department: Transportation Roads & Bridges

Funding Start: 2025
Funding Completion: 2028

Current Year's CIP Process Summary	Budget To-Date	2024	2025	2026	2027	2028	Future	Total
Department Requested			2,000,000	1,570,000	570,000	9,450,000	9,590,000	23,180,000
Administrator Proposed			2,000,000	1,570,000	570,000	9,450,000	9,590,000	23,180,000
CBTF Recommended			2,000,000	1,570,000	570,000	9,450,000	9,590,000	23,180,000
Board Approved Final			2,000,000	1,570,000	570,000	9,450,000	9,590,000	23,180,000

Scheduling Milestones (major phases only):

Activity	Anticipated Timeframe
Planning	Q3 2022 - Q4 2024
Design	Q1 2025 - Q4 2027
Bid Advertisement	Q1 2028
Construction	Q2 2028 - Q4 2029
Completion	2030

Project's Effect on the Operating Budget:

Additional planning and design work is required to determine the project's anticipated impact to Transportation Department staff or annual operating costs.

Project's Effect on County Priorities:

This project will reduce disparities in the transportation domain and vehicle miles traveled per capita by creating new safe, accessible connections for those walking, biking, and using transit along Minnetonka Boulevard (CSAH 5). In addition, green streets elements will have a positive impact on water impairments in Lake Hiawatha.

Changes from Prior CIP:

- This is a new project request by Transportation Project Delivery for the 2024-2028 Transportation CIP to reconstruct Minnetonka Boulevard (CSAH 5) from Xylon Avenue to Vernon Avenue in the City of St. Louis Park.

Board Resolutions / Supplemental Information:

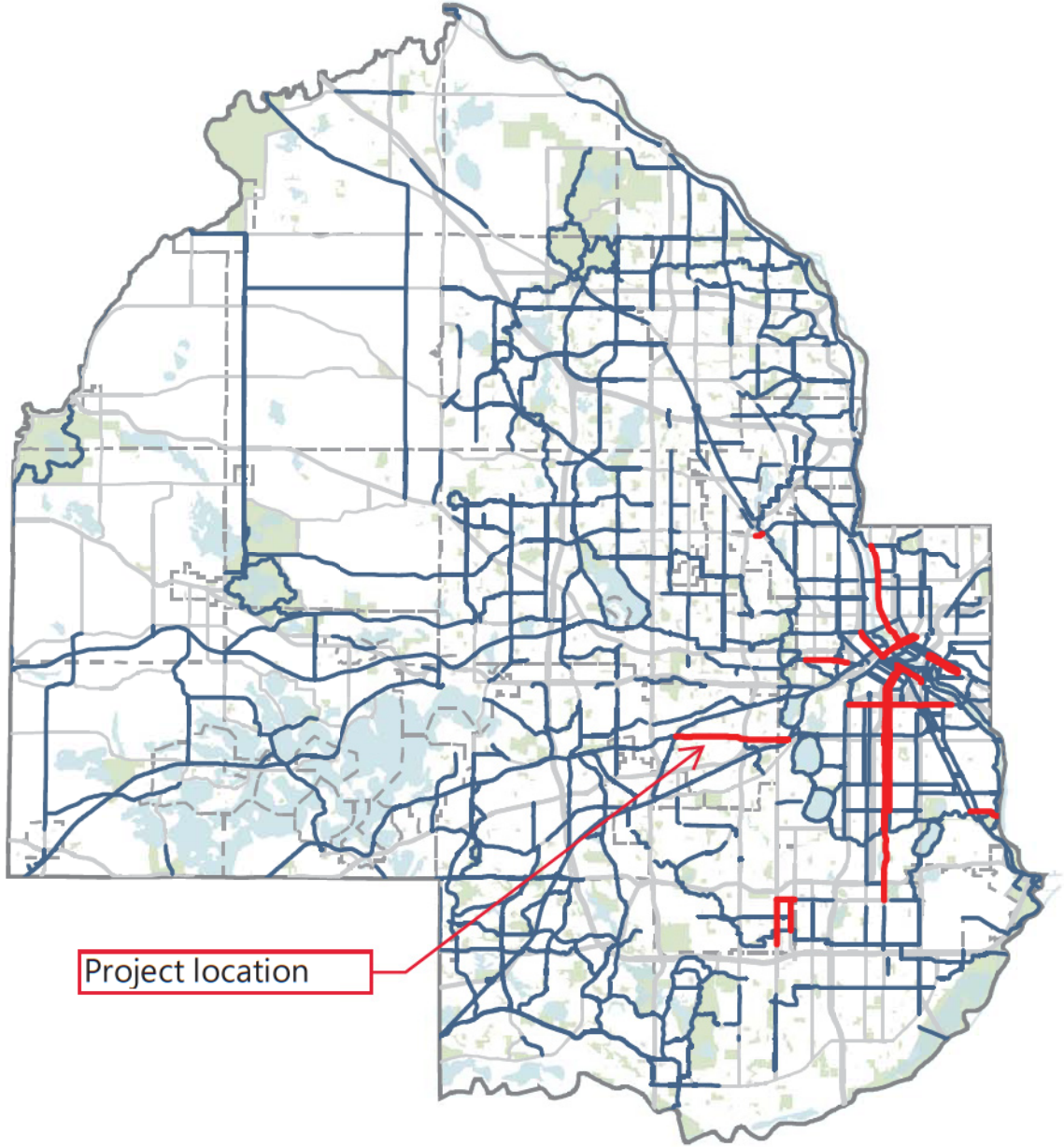
Project Budget Notes:
The $7.0 million in Federal funds requested as future budget authority has not yet been awarded to Hennepin County. It's been entered as a placeholder in preparation of the Metropolitan Council's 2024 Regional Solicitation.

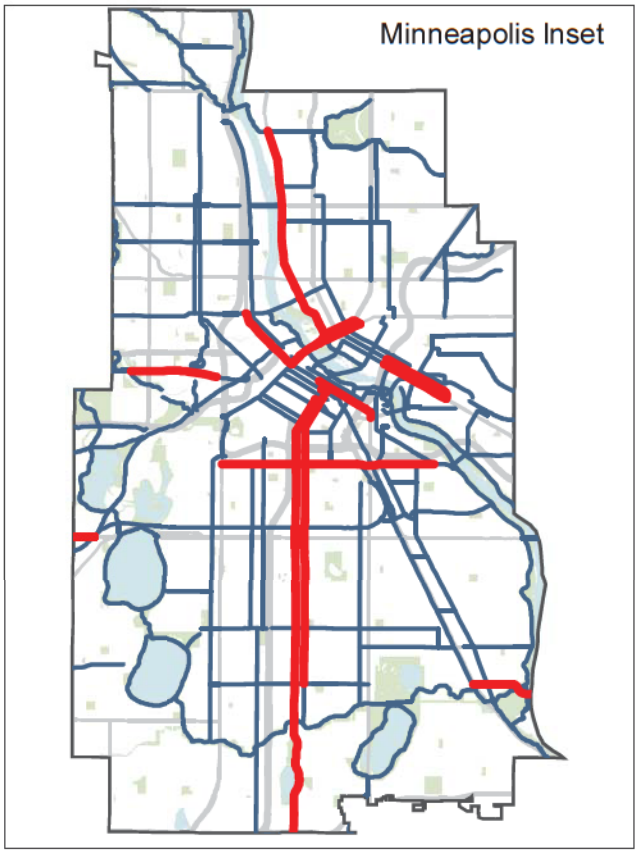
Last Year's CIP Process Summary	Budget To-Date	2023	2024	2025	2026	2027	Future	Total
Department Requested								
Administrator Proposed								
CBTF Recommended								
Board Approved Final								

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 07 | Hennepin County Enhanced Bikeway Study Maps

HENNEPIN COUNTY
MINNESOTA





Hennepin Proposed Enhanced Bikeway

Open Bikeway

0 8 16 Miles

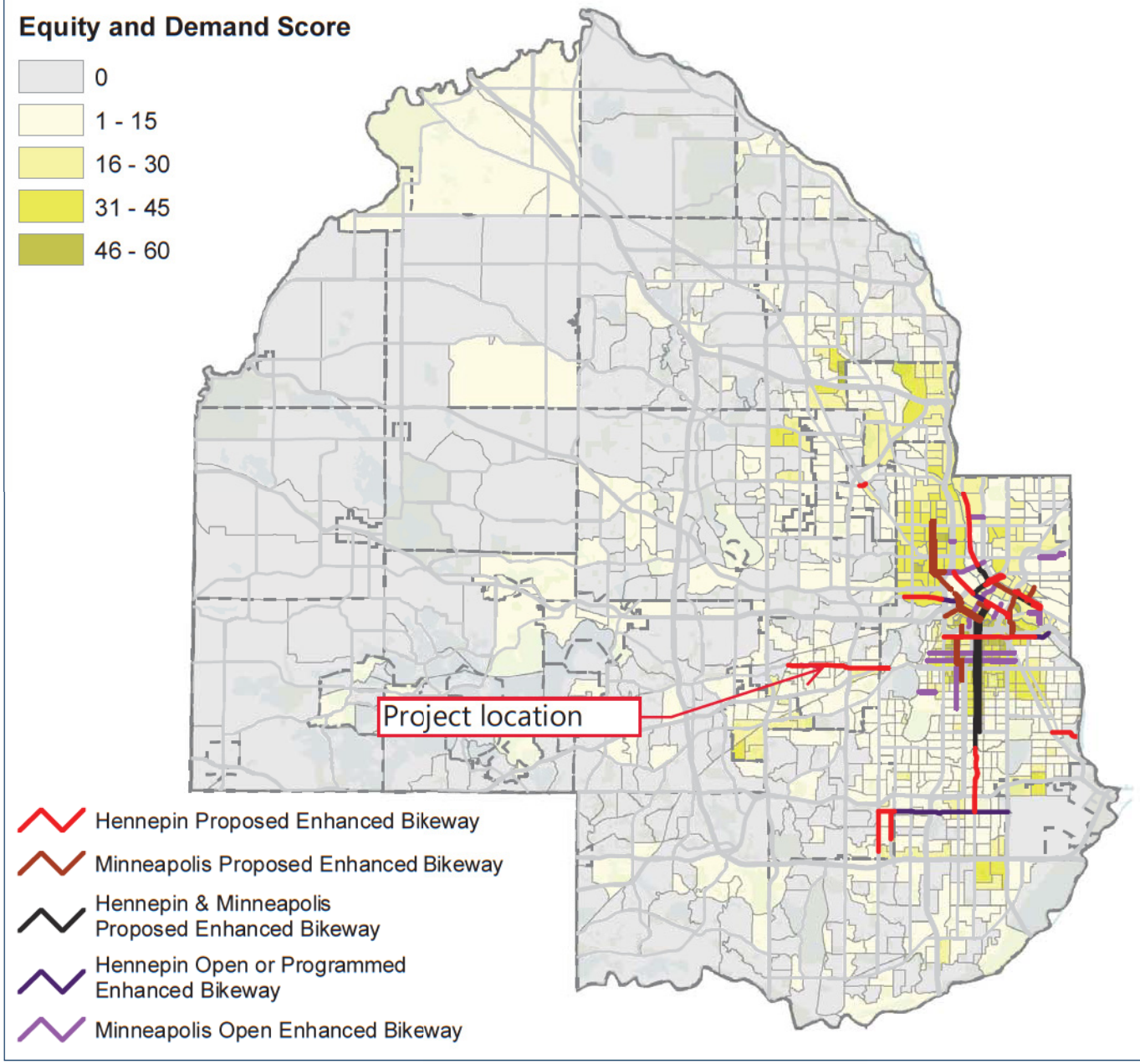
N

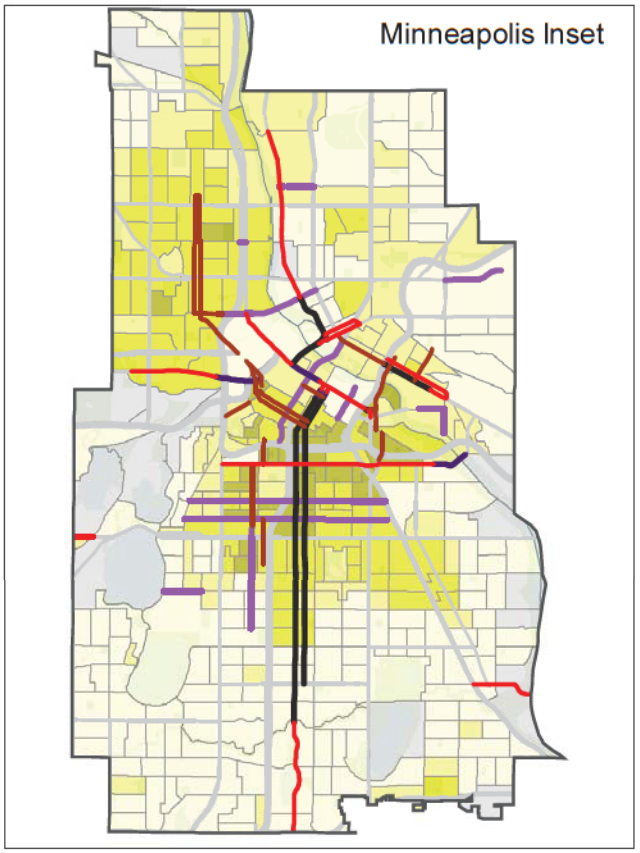
Hennepin County Public Works

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 07 | Hennepin County Enhanced Bikeway Study Maps

HENNEPIN COUNTY
MINNESOTA





Equity and demand scores were calculated by summing scores using three criteria: areas of concentrated poverty, population density, percentage of households with no vehicle. Highly-scored areas should get more investment consideration based on these measures.

Area of concentrated poverty: Yes=20, No=0
*Population density: 20,15,10,5,0
*Households with no vehicle: 20,15,10,5,0

*These criteria were grouped into five categories and scored using the natural breaks classification scheme

Source: Metropolitan Council, 2012-2016 American Community Survey

Hennepin County Public Works

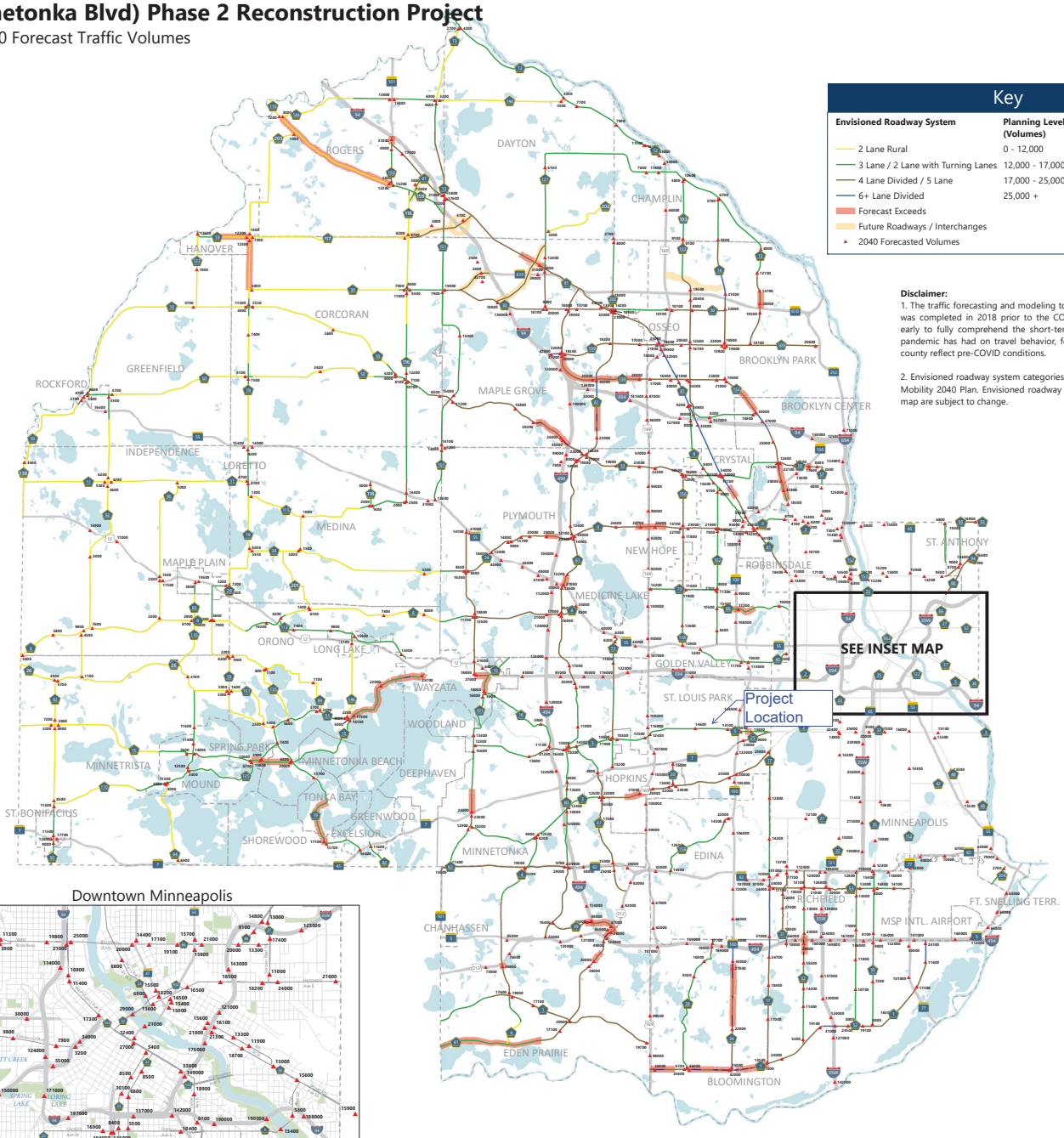
Envisioned roadway system and right-of-way needs

Transportation Planning | Hennepin County Public Works

HENNEPIN COUNTY
MINNESOTA

CSHA 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 08 | 2040 Forecast Traffic Volumes



Key

Envisioned Roadway System	Planning Level Thresholds (Volumes)	Right of Way
2 Lane Rural	0 - 12,000	146' - 166'
3 Lane / 2 Lane with Turning Lanes	12,000 - 17,000	90' - 110'
4 Lane Divided / 5 Lane	17,000 - 25,000	126' - 152'
6+ Lane Divided	25,000 +	154' +
Forecast Exceeds		
Future Roadways / Interchanges		
2040 Forecasted Volumes		

Disclaimer:

1. The traffic forecasting and modeling to identify future roadway needs was completed in 2018 prior to the COVID-19 pandemic. As it is too early to fully comprehend the short-term and long-term impacts the pandemic has had on travel behavior, forecasts and modeling for the county reflect pre-COVID conditions.

2. Envisioned roadway system categories were developed as part of the Mobility 2040 Plan. Envisioned roadway configurations reflected in this map are subject to change.

Downtown Minneapolis

Publication date: 7/13/2023

Data sources: SRF Consulting, Hennepin County Transportation Planning

N 0 5 10 Miles

Minnetonka Boulevard reconstruction

We heard you!

Hennepin County is reevaluating the current use and design of Minnetonka Boulevard between Highway 100 and France Avenue, and is developing a plan for the corridor to better serve current and future users. From May 2021-September 2021, the project team went out into the community, posted signage and decals, sent out a mailing, and offered an online commenting map to hear from as many stakeholders as possible. This report summarizes all the feedback we received during this phase of engagement.

At a glance

Phase 1	**221**	**266**
May 2021 - November 2021	online comment mapping comments	survey responses

Next steps

The project team will use the input gathered from the public and begin to create different improvement options for the project corridor. These improvements will be shared online at **hennepin.us/minnetonka-boulevard** in early 2022.

Contact us

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jason.staebell@hennepin.us
Phone: 612-596-0371

Survey results

Minnetonka Boulevard reconstruction

Summer 2021 survey

In June, we mailed out a survey to residents and businesses within approximately two blocks of the project area. The survey was also available to take online.

266 responses

Pedestrian safety is a concern, with a desire for improved lighting and crosswalks.

There is a need for better biking infrastructure, protected bike lanes and bikeway connections.

Results showed that residents worry about traffic speeds and desire calming measures.

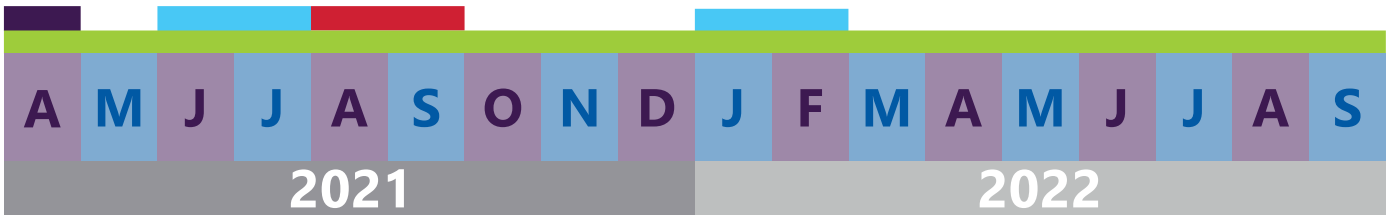
Survey results favor redirecting traffic to higher volume roads (like Hwy 7) to help reduce congestion.

Sidewalks and streets are poorly maintained. Many of the sidewalks are currently too close to the roadway.

Many people are in favor of adding trees and plantings along the roadway.

There is some interest in adding public transportation stops and shelters.

Engagement timeline



Key

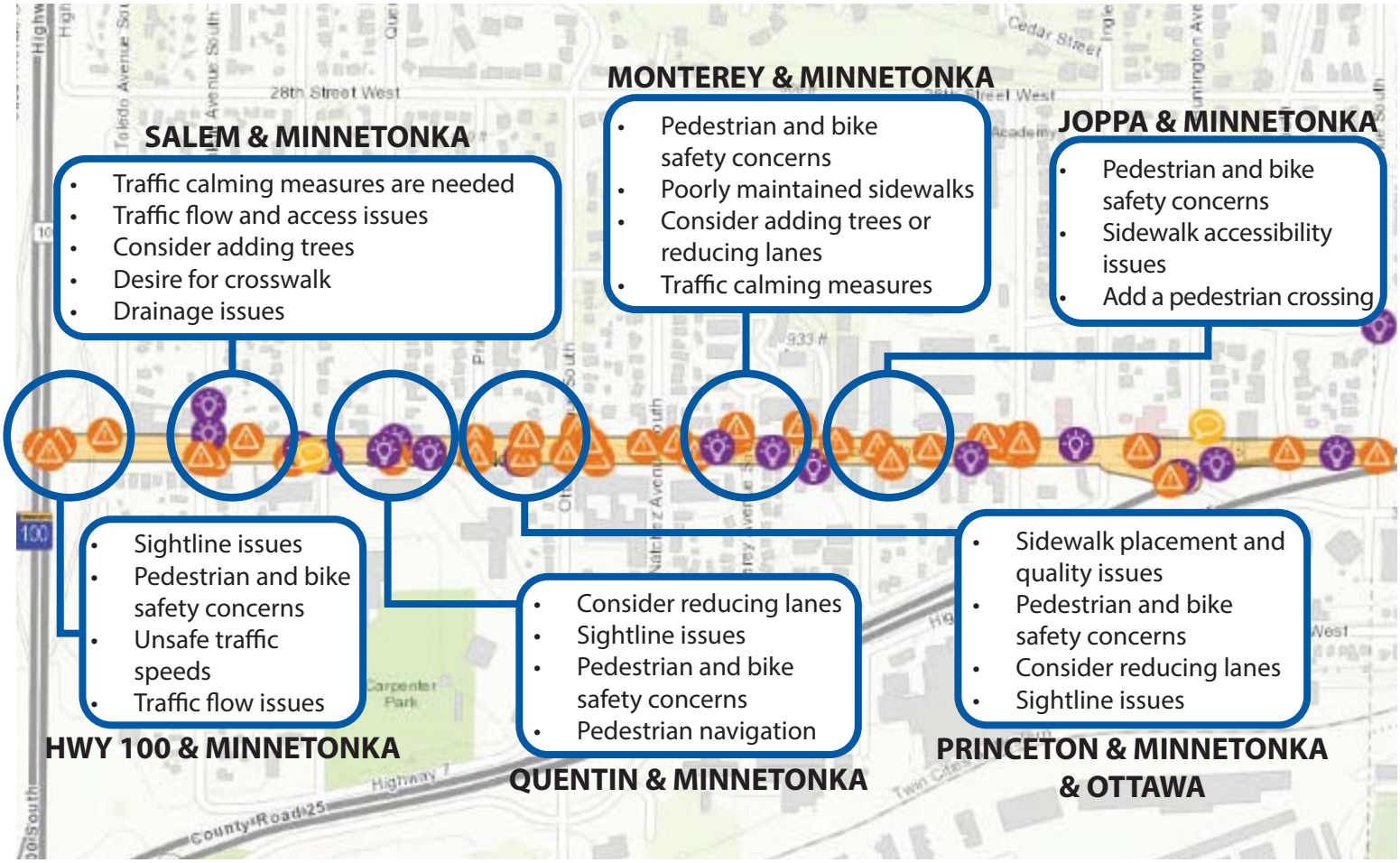
- Demographic research
- Open houses and pop-up events
- Project website, social media, and email updates
- Sidewalk decals and outdoor signage

Comment map

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project
Attachment 09 | Community Engagement Summary

In May 2021, we launched an online comment map that allowed people to provide location-specific feedback on ideas and opportunities (shown as purple icons with a lightbulb), concerns (shown as orange icons with a safety triangle), or general comments (shown as yellow icons with a speech bubble). Folks were given the option of adding new comments or replying to existing comments. People could also participate by "liking" or "disliking" comments. **221 comments were received and 147 replies were made.**

Main themes at key areas



Common themes

Desire for safer crossings and sidewalks

Speeding is a concern

Many areas have sightline issues

Traffic flow issues need resolving

Prioritize pedestrian and bicycle safety

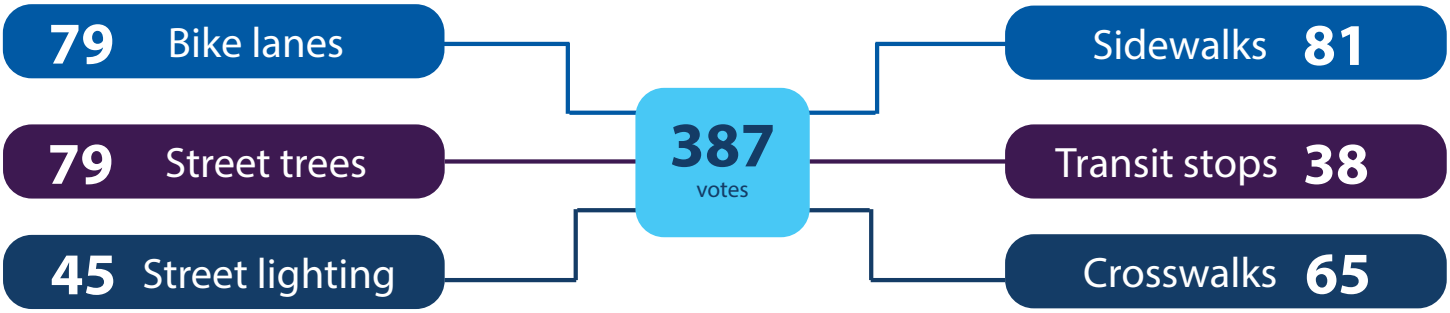
Parktacular

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project
Attachment 09 | Community Engagement Summary

We hosted a booth at the St. Louis Park Parktacular community event on June 19, 2021. Around 100 people of all ages participated in two interactive activities to provide their feedback for the project.

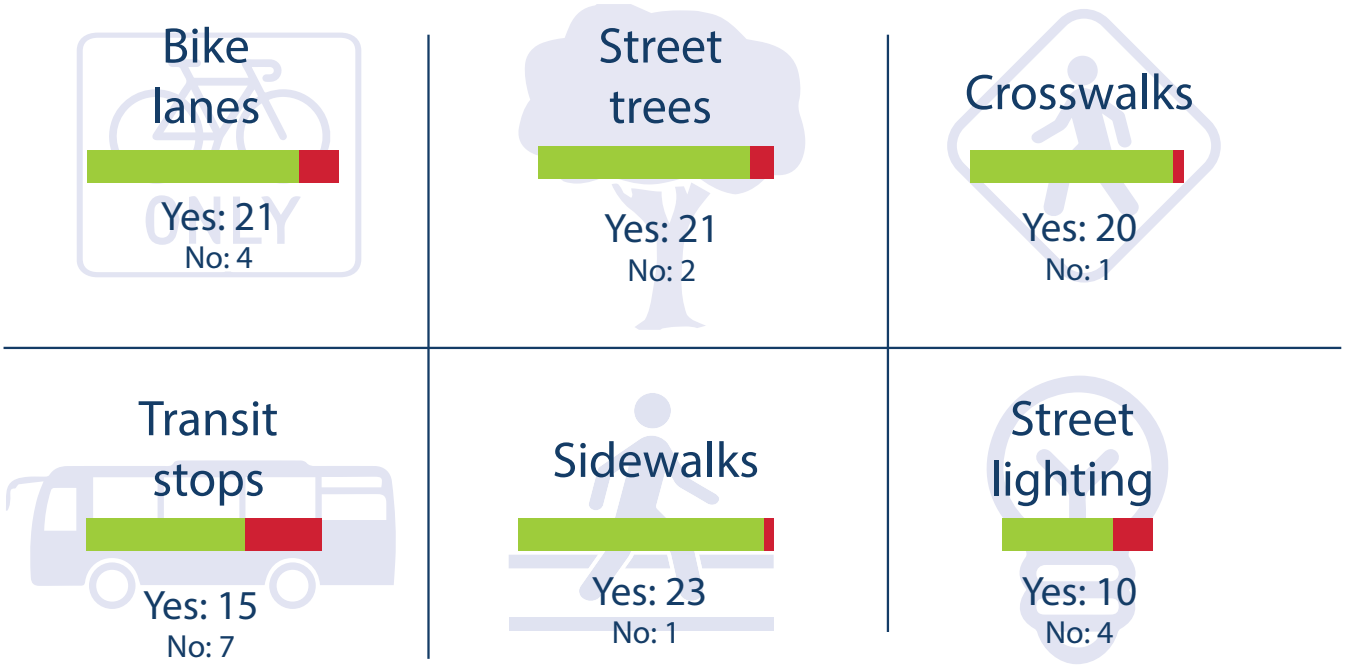
Improvement type preferences mason jar activity

The voting exercise invited participants to place colorful pompoms in jars corresponding with several potential improvements to Minnetonka Boulevard, to indicate which ones they would like to see the most.



Visual preference board activity summary

The visual preference board was designed to collect input on concepts for improvements to Minnetonka Boulevard. People were asked to place green stickers on things that they liked, and orange stickers on things they did not.



Participant comments

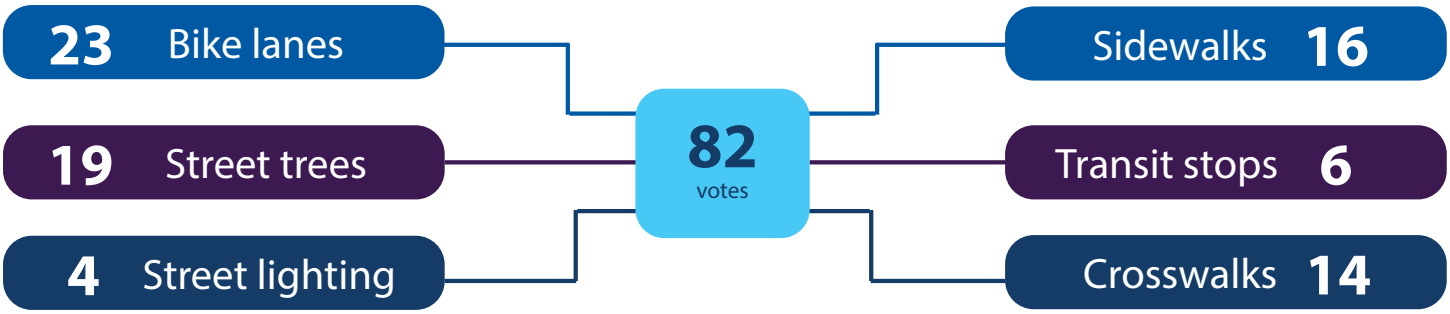
- **Don't take street lanes away**
- **Existing street trees need water**
- **Protected 4 lanes with a center turn lane**
- **Put in a flashing light for pedestrians**
- **Put in downward street lights to reduce light pollution**
- **Direct traffic to higher-volume roads**
- **Consider adding a roundabout**

Skateapalooza

We hosted a booth at the St. Louis Park Skateapalooza community event on July 27, 2021. Around 50 people of all ages participated in two interactive activities to provide their feedback for the project.

Improvement type preferences mason jar activity

The voting exercise invited participants to place colorful pompoms in jars corresponding with several potential improvements to Minnetonka Boulevard, to indicate which ones they would like to see the most.



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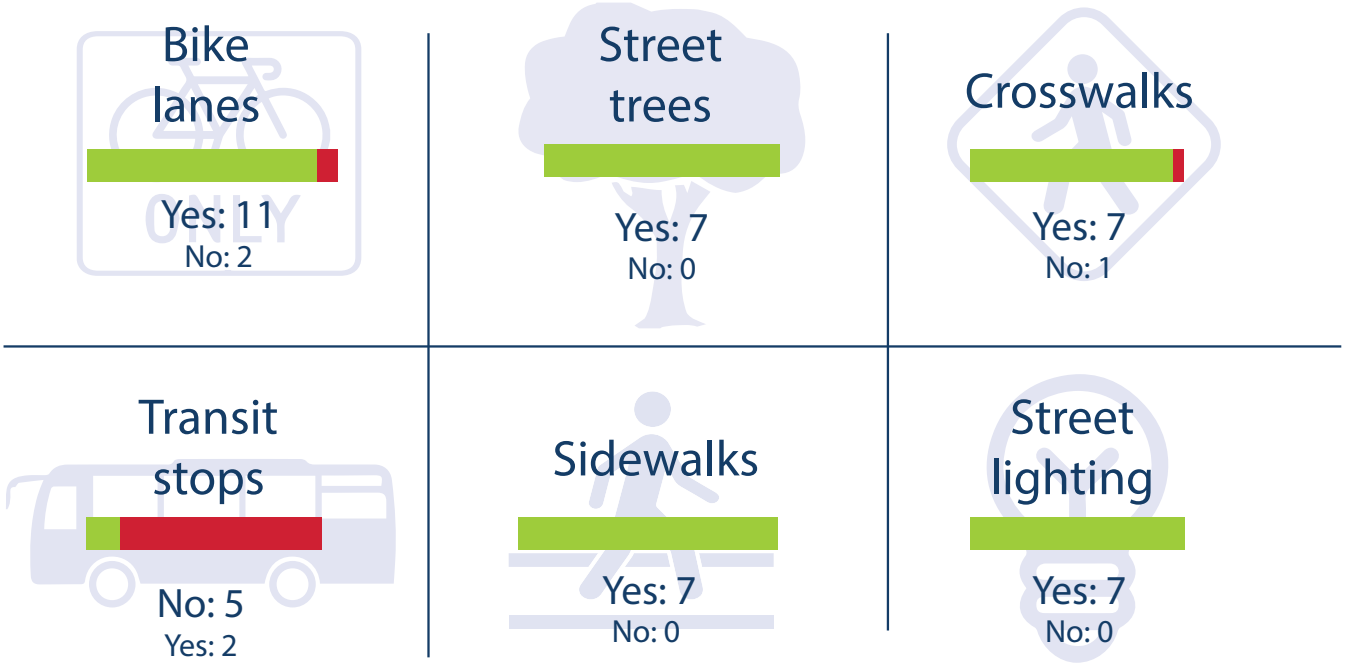


Participant comments

- **Plant native trees — plan for a hot future**
- **Consider recruiting organizations or volunteers to maintain plantings & trees**
- **Consider adding more benches/outdoor chairs for people with disabilities**

Outdoor signage and sidewalk decals

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project
Attachment 09 | Community Engagement Summary

Outdoor signage

Outdoor signs, which included a brief summary of the project, a text-to-vote activity, and a way to stay informed, were placed outside of city hall and along the corridor near the Minnetonka Boulevard and Highway 100 intersection. The signs provided an innovative way to engage with folks who have little to no access to the Internet.

Outdoor sign design

Outdoor sign in front of city hall

Sidewalk decals

Similar to the outdoor signage, sidewalk decals were placed along the corridor at intersections with pedestrian crossings and/or stop lights to notify interested parties about the project and engage with them outside of the traditional online and in-person methods.

Sidewalk decal design

Sidewalk decal at pedestrian crossing across from city hall

Minnetonka Boulevard reconstruction

We heard you!

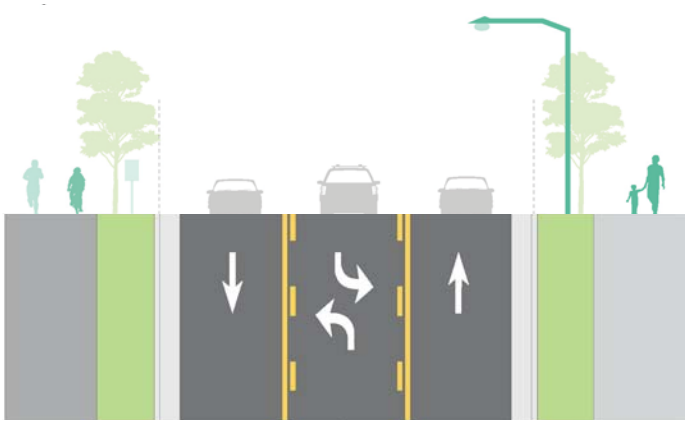
In winter of 2021-22, we introduced two potential roadway concepts for the project. We created an online input experience that allowed folks to learn more about the roadway concepts, rank how they felt about them, and provide location-specific comments as well as general feedback. We also distributed paper copies of the ranking survey and flyers to local businesses and organizations, held an open house on April 26 and attended Ecotacular on June 18. Between the feedback submitted via comment cards, the online comment map, the survey, and in person conversation, we received over 440 comments.

At a glance

Phase 2 December 2021 - June 2022	**~330** online comments/reactions	**~110** in person comments

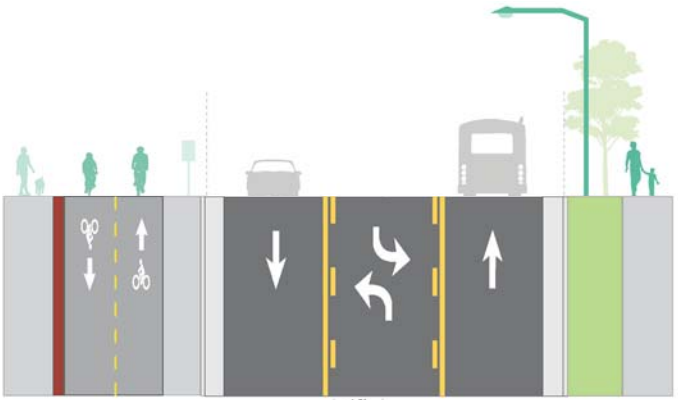
Concept A

- 3-lane roadway
- Multi-use trail on both sides
- Boulevards on both sides



Concept B

- 3-lane roadway
- Sidewalks on both sides
- Boulevards on both sides
- Two-way raised bike lane on north side



Comment summary

Main themes

Prioritize additional green space

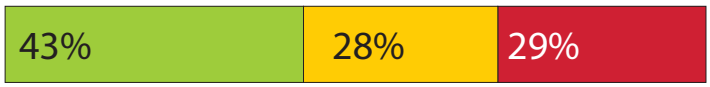
Concern with buses blocking traffic

General support for 4-3 lane conversion

Prioritize pedestrian and bicycle safety

Concept A

Results

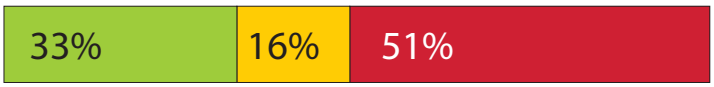


Top comment themes

- Strong support for additional green space
- Support for 4-3 lane conversion
- Appreciate that this design requires less pedestrian and bicycle crossing
- Desire for additional safety measures for pedestrians and bikers (putting flashing lights at some intersections or adding crosswalks)
- Concern with buses blocking traffic
- Some desire to look at alternatives to traditional asphalt/concrete roads
- Some access concerns

Concept B

Results



Top comment themes

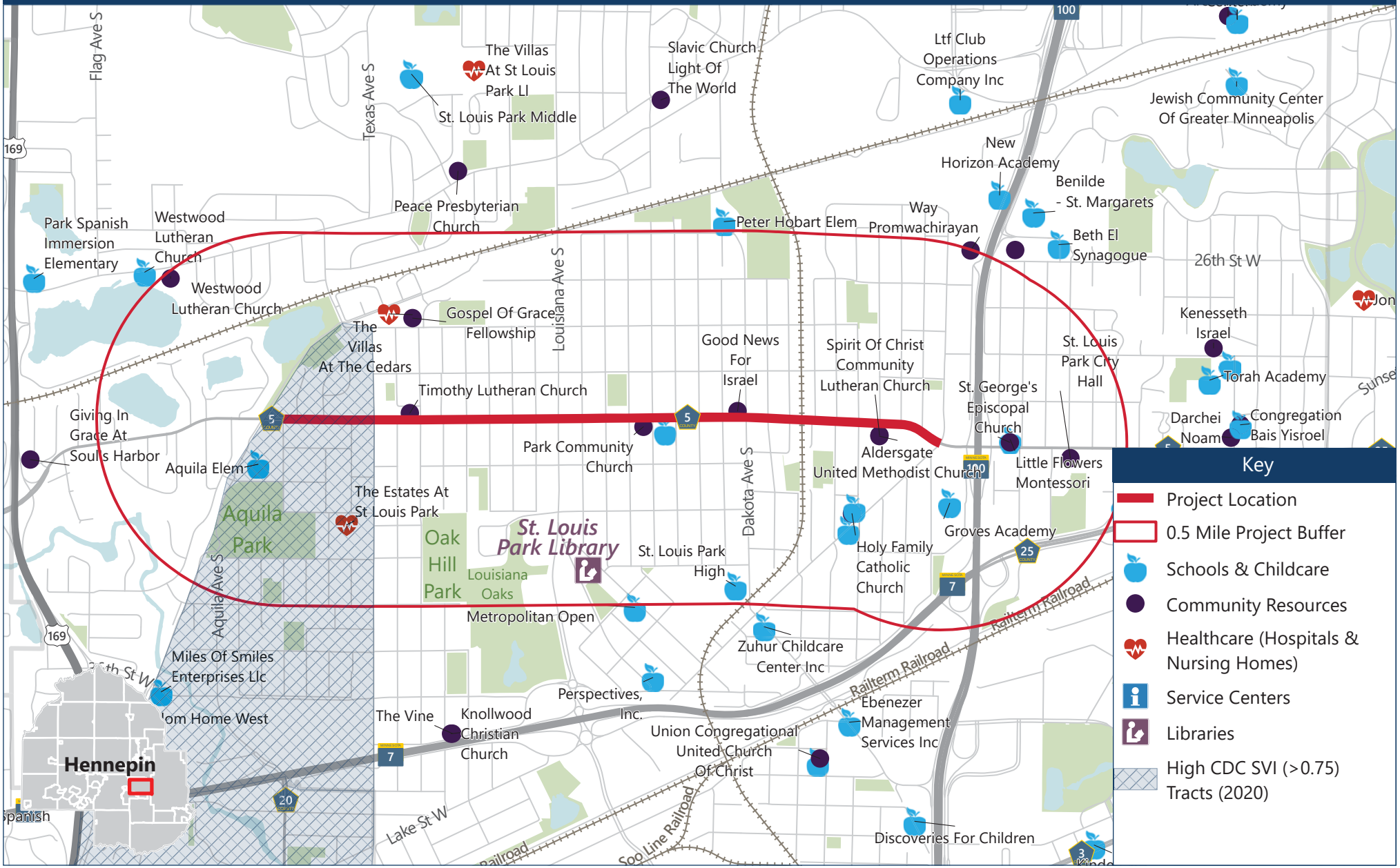
- Support for 4-3 lane conversion
- Concern with buses blocking traffic
- Support for the two-way raised bike lane
- Concern with less green space
- Desire for additional safety measures for pedestrians and bikers (putting flashing lights at some intersections or adding crosswalks)
- Appreciate that this design separates bicycle and pedestrian traffic
- Desire to have a turn in spot for buses
- Some concern about traffic backups

To stay updated on project progress, visit the website at:
hennepin.us/minnetonka-boulevard

Hennepin

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 10 | Disadvantaged Communities and Resources Map



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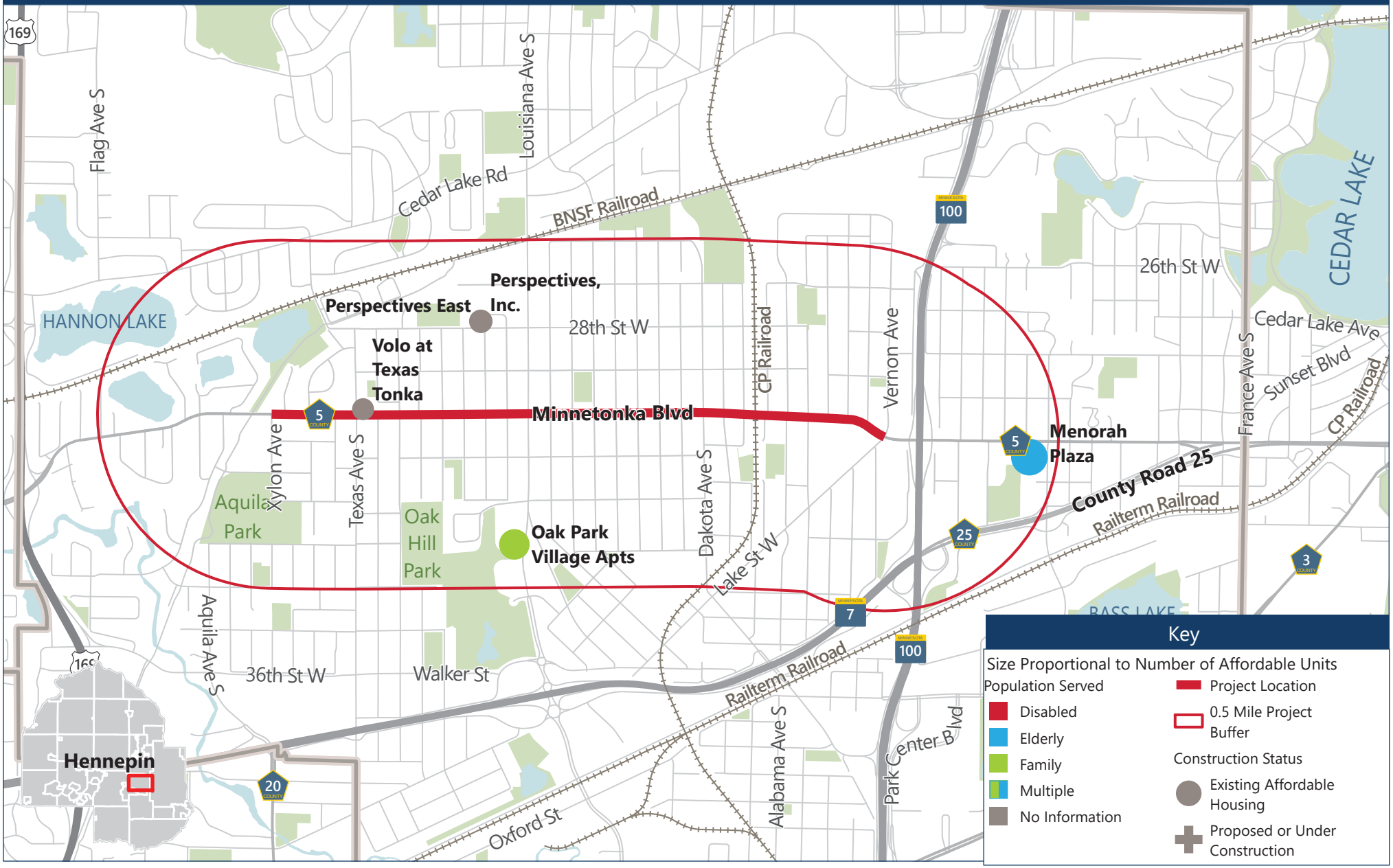
Publication date: 11/9/2023

Data sources (if applicable):

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 11 | Affordable Housing Access Map and Detail Summary



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Publication date: 11/6/2023

Data sources (if applicable):

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 11 | Affordable Housing Access Map and Detail Summary

Property ID	Property Name	Total Units	Affordable Units	30% AMI	50% AMI	60% AMI	0 BR	1 BR	2 BR	3 BR	4 BR
3248	Menorah Plaza	155	155	155	0	0	12	134	9	0	0
3301	Oak Park Village Apts	100	100	100	0	0	0	27	45	28	0
3962	Perspectives, Inc.	32	30	30	0	0	0	4	12	4	0
4849	Perspectives East	36	36	0	0	36	0	0	0	0	0
15742	Volo at Texas Tonka	112	23	0	23	0	7	12	4	0	0

AMI: Area Median Income

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 12 | Hennepin County Streetlight Analysis

Type of Travel	Zone Name	Truck - StL Truck Index	HCAADT to Index Ratio	**Estimated HCAADT**
Commercial	CSAH 005 & E of Louisiana Ave	2058	0.2910	**600**
Commercial	CSAH 023 & N of 28th Ave NE	11578	0.2910	**3350**
Commercial	CSAH 030 & W of Jefferson Hwy	1658	0.2910	**485**
Commercial	CSAH 152 & S of 36th St E	5993	0.2910	**1750**
Commercial	CSAH 153 & W of Stinson Pkwy	2512	0.2910	**730**

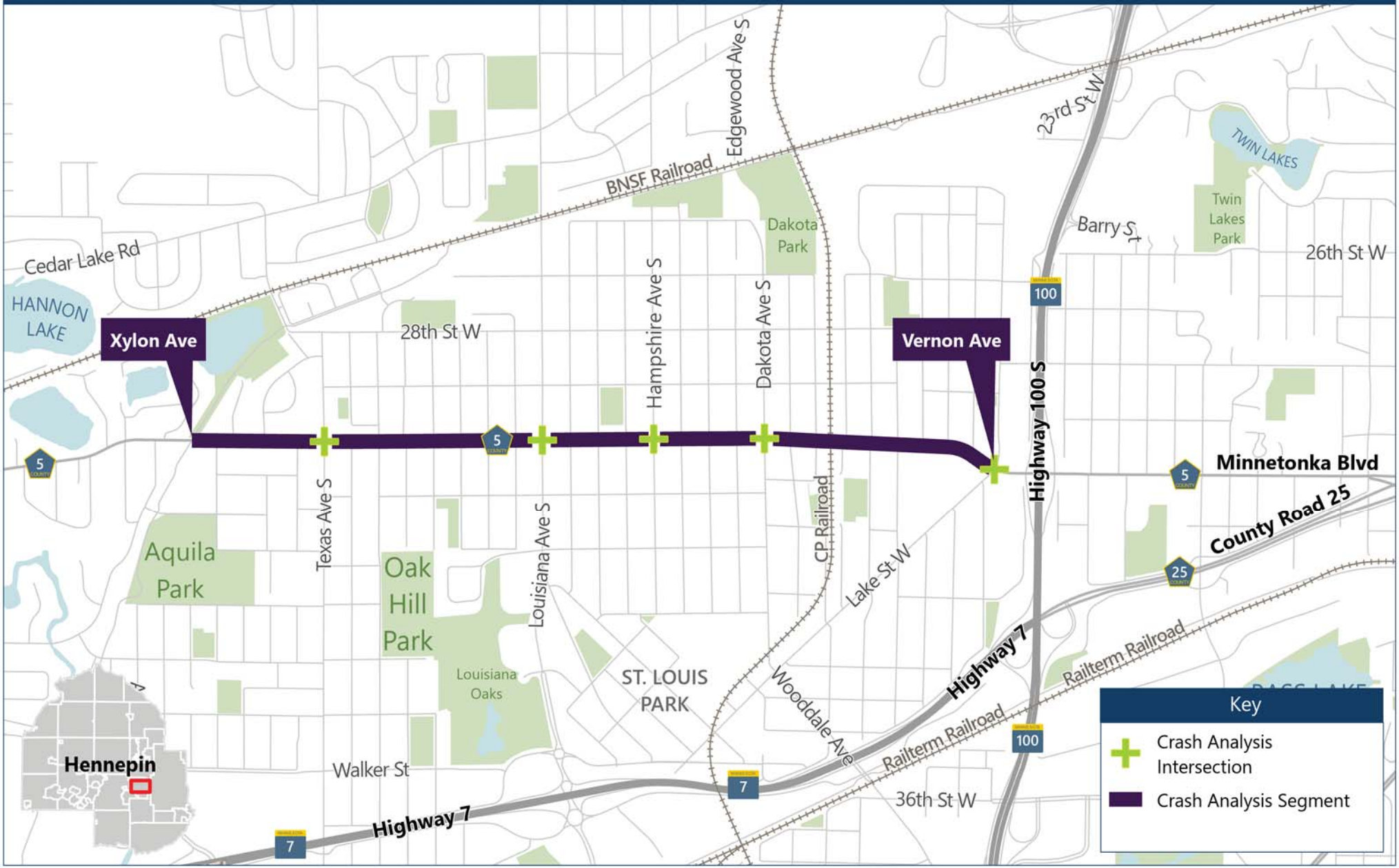
Example calculation: 2058*0.2910=600

Type of Travel	Zone Name	Truck - StL Truck Index	2021 HCAADT	HCAADT to Index Ratio
Commercial	H019	1383	270	0.1952
Commercial	H045	14065	2950	0.2097
Commercial	H052	6363	2750	0.4322
Commercial	H118	1182	330	0.2792
Commercial	H120	9342	750	0.0803
Commercial	H146	3240	770	0.2377
Commercial	H250	6116	500	0.0818
Commercial	H251	4374	2050	0.4687
Commercial	H302	28750	3250	0.1130
Commercial	H313	4876	1300	0.2666
Commercial	H315	3686	920	0.2496
Commercial	H404	1756	890	0.5068
Commercial	H443	5276	2850	0.5402
Commercial	H488	1173	225	0.1918
Commercial	H543	2906	960	0.3304
Commercial	H570	5202	2700	0.5190
Commercial	H571	11759	1450	0.1233
Commercial	H610	10808	4100	0.3793
Commercial	H637	6878	1600	0.2326
Commercial	H649	2398	600	0.2502
Commercial	H745	8290	3350	0.4041
Commercial	H766	3945	1800	0.4563
Commercial	H807	13019	1900	0.1459

Average ratio **0.2910**

CSAH 5 (Minnetonka Blvd) Reconstruction Project

Attachment 13 | Crash Map and Detail Listing



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Publication date: 6/7/2023

Data sources (if applicable):

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 13 | Crash Map and Detail Listing

Segment A | From Xylon Ave to Texas Ave

Incident ID	Roadway	Month	Day	Year	Basic Type	Severity	Number K's	Number of Veh	Latitude	Longitude
01031053	MINNETONKA BLVD	6-Jun	28	2022	Bike	Minor Injury	0	2	44.94945	-93.38586
01063614	MINNETONKA BLVD	12-Dec	6	2022	Rear End	Property Damage Only	0	2	44.94945	-93.38586
01062821	MINNETONKA BLVD	12-Dec	1	2022	Rear End	Property Damage Only	0	2	44.94944	-93.38203
00823035	MINNETONKA BLVD	7-Jul	31	2020	Rear End	Property Damage Only	0	2	44.94943	-93.38187
00839992	MINNETONKA BLVD	9-Sep	9	2020	Rear End	Property Damage Only	0	2	44.94943	-93.38189
01023671	MINNETONKA BLVD	5-May	19	2022	Rear End	Property Damage Only	0	4	44.94942	-93.38143
00987382	XYLON AVE S	1-Jan	7	2022	Single Vehicle Run Off Road	Property Damage Only	0	1	44.94944	-93.38586
00871472	UTAH AVE S	12-Dec	28	2020	Rear End	Property Damage Only	0	2	44.94940	-93.38197
	Subtotal:	8								

Intersection B | At Texas Ave

Incident ID	Roadway	Month	Day	Year	Basic Type	Severity	Number K's	Number of Veh	Latitude	Longitude
00782386	MINNETONKA BLVD	1-Jan	22	2020	Left Turn	Property Damage Only	0	2	44.94941	-93.38089
01005287	MINNETONKA BLVD	2-Feb	10	2022	Angle	Possible Injury	0	3	44.94941	-93.38090
01010994	MINNETONKA BLVD	3-Mar	5	2022	Angle	Serious Injury	0	2	44.94941	-93.38089
00904581	MINNETONKA BLVD	5-May	7	2021	Angle	Serious Injury	0	2	44.94941	-93.38088
01038014	MINNETONKA BLVD	8-Aug	3	2022	Rear End	Property Damage Only	0	3	44.94941	-93.38079
00871356	TEXAS AVE S	12-Dec	28	2020	Rear End	Property Damage Only	0	2	44.94925	-93.38090
00935858	TEXAS AVE S	8-Aug	22	2021	Rear End	Property Damage Only	0	2	44.94941	-93.38090
00932244	TEXAS AVE S	8-Aug	4	2021	Rear End	Possible Injury	0	2	44.94943	-93.38090
	Subtotal:	8								

Segment C | From Texas Ave to Louisiana Ave

Incident ID	Roadway	Month	Day	Year	Basic Type	Severity	Number K's	Number of Veh	Latitude	Longitude
01048924	MINNETONKA BLVD	9-Sep	30	2022	Single Vehicle Run Off Road	Possible Injury	0	1	44.94945	-93.37900
00972422	MINNETONKA BLVD	11-Nov	9	2021	Rear End	Property Damage Only	0	2	44.94945	-93.37846
00909696	MINNETONKA BLVD	6-Jun	3	2021	Left Turn	Serious Injury	0	2	44.94946	-93.37834
00847919	MINNETONKA BLVD	10-Oct	20	2020	Single Vehicle Run Off Road	Property Damage Only	0	1	44.94946	-93.37817
00968941	MINNETONKA BLVD	10-Oct	24	2021	Rear End	Property Damage Only	0	2	44.94948	-93.37741
01032119	MINNETONKA BLVD	7-Jul	4	2022	Rear End	Possible Injury	0	2	44.94949	-93.37703
01038573	MINNETONKA BLVD	8-Aug	7	2022	Rear End	Property Damage Only	0	2	44.94949	-93.37644
00838212	MINNETONKA BLVD	8-Aug	31	2020	Single Vehicle Run Off Road	Property Damage Only	0	1	44.94950	-93.37595
01017780	MINNETONKA BLVD	4-Apr	15	2022	Rear End	Property Damage Only	0	3	44.94950	-93.37590
01002065	MINNETONKA BLVD	1-Jan	26	2022	Single Vehicle Run Off Road	Property Damage Only	0	1	44.94950	-93.37381
00975651	MINNETONKA BLVD	11-Nov	24	2021	Rear End	Property Damage Only	0	2	44.94950	-93.37340
01028406	MINNETONKA BLVD	6-Jun	13	2022	Rear End	Property Damage Only	0	2	44.94951	-93.37254
00907890	MINNETONKA BLVD	5-May	25	2021	Rear End	Possible Injury	0	2	44.94951	-93.37240
00944378	RHODE ISLAND AVE S	10-Oct	2	2021	Rear End	Property Damage Only	0	2	44.94948	-93.37833
00912259	OREGON AVE S	6-Jun	15	2021	Rear End	Property Damage Only	0	2	44.94949	-93.37460
00798915	-- NOT ON ROADWAY --	2-Feb	18	2020	Single Vehicle Run Off Road	Property Damage Only	0	1	44.94962	-93.37757
	Subtotal:	16								

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 13 | Crash Map and Detail Listing

Intersection D | At Louisiana Ave

Incident ID	Roadway	Month	Day	Year	Basic Type	Severity	Number K's	Number of Veh	Latitude	Longitude
00778288	MINNETONKA BLVD	1-Jan	10	2020	Sideswipe Same Direction	Property Damage Only	0	2	44.94954	-93.37090
00893770	MINNETONKA BLVD	3-Mar	1	2021	Rear End	Property Damage Only	0	2	44.94954	-93.37088
00885940	MINNETONKA BLVD	1-Jan	22	2021	Angle	Property Damage Only	0	2	44.94954	-93.37085
01035695	MINNETONKA BLVD	7-Jul	23	2022	Angle	Possible Injury	0	2	44.94954	-93.37084
01070001	MINNETONKA BLVD	12-Dec	25	2022	Angle	Property Damage Only	0	2	44.94954	-93.37084
00848118	MINNETONKA BLVD	10-Oct	20	2020	Rear End	Property Damage Only	0	2	44.94954	-93.37082
01055944	MINNETONKA BLVD	11-Nov	5	2022	Sideswipe Same Direction	Property Damage Only	0	2	44.94954	-93.37067
00818186	LOUISIANA AVENUE S	7-Jul	6	2020	Rear End	Property Damage Only	0	2	44.94938	-93.37084
00811583	LOUISIANA AVENUE S	5-May	25	2020	Left Turn	Property Damage Only	0	2	44.94949	-93.37084
00800539	LOUISIANA AVENUE S	2-Feb	24	2020	Left Turn	Possible Injury	0	3	44.94950	-93.37084
00901302	LOUISIANA AVENUE S / MINNETONKA BLVD	4-Apr	18	2021	Angle	Minor Injury	0	2	44.94950	-93.37084
01029022	LOUISIANA AVENUE S	6-Jun	11	2022	Left Turn	Property Damage Only	0	2	44.94949	-93.37084
01044582	LOUISIANA AVENUE S	9-Sep	8	2022	Angle	Property Damage Only	0	2	44.94957	-93.37085
00886087	LOUISIANA AVENUE S	1-Jan	23	2021	Sideswipe Opposing	Property Damage Only	0	2	44.94959	-93.37085
01070200	LOUISIANA AVENUE S	12-Dec	21	2022	Left Turn	Property Damage Only	0	2	44.94958	-93.37085
00785460	LOUISIANA AVENUE S	2-Feb	4	2020	Rear End	Property Damage Only	0	2	44.94960	-93.37085
00862761	LOUISIANA AVENUE S	11-Nov	11	2020	Rear End	Property Damage Only	0	2	44.94961	-93.37085
00849201	LOUISIANA AVENUE S	10-Oct	5	2020	Sideswipe Same Direction	Property Damage Only	0	2	44.94978	-93.37085
	Subtotal:	18								

Segment E | From Louisiana Ave to Hampshire Ave

Incident ID	Roadway	Month	Day	Year	Basic Type	Severity	Number K's	Number of Veh	Latitude	Longitude
00897805	MINNETONKA BLVD	3-Mar	26	2021	Rear End	Property Damage Only	0	2	44.94954	-93.37084
01040847	MINNETONKA BLVD	8-Aug	20	2022	Rear End	Property Damage Only	0	2	44.94956	-93.36927
00890700	MINNETONKA BLVD	2-Feb	15	2021	Head On	Property Damage Only	0	2	44.94957	-93.36887
00890113	MINNETONKA BLVD	2-Feb	12	2021	Rear End	Property Damage Only	0	2	44.94957	-93.36698
01011097	MINNETONKA BLVD	3-Mar	6	2022	Angle	Property Damage Only	0	2	44.94956	-93.36628
00801044	IDAHO AVE S	2-Feb	27	2020	Angle	Property Damage Only	0	2	44.94953	-93.36695
	Subtotal:	6								

Intersection F | At Hampshire Ave

Incident ID	Roadway	Month	Day	Year	Basic Type	Severity	Number K's	Number of Veh	Latitude	Longitude
00900312	MINNETONKA BLVD	4-Apr	12	2021	Angle	Property Damage Only	0	2	44.94956	-93.36581
01068663	MINNETONKA BLVD	12-Dec	22	2022	Rear End	Property Damage Only	0	2	44.94956	-93.36580
01034601	MINNETONKA BLVD	7-Jul	18	2022	Rear End	Property Damage Only	0	2	44.94956	-93.36570
01067236	MINNETONKA BLVD	12-Dec	19	2022	Rear End	Possible Injury	0	2	44.94956	-93.36570
00786524	MINNETONKA BLVD	2-Feb	9	2020	Sideswipe - Opposite Direction	Possible Injury	0	2	44.94956	-93.36553
01030235	HAMPSHIRE AVE S	6-Jun	23	2022	Rear End	Property Damage Only	0	2	44.94956	-93.36569
	Subtotal:	6								

Segment G | From Hampshire Ave to Dakota Ave

Incident ID	Roadway	Month	Day	Year	Basic Type	Severity	Number K's	Number of Veh	Latitude	Longitude
01021270	MINNETONKA BLVD	5-May	6	2022	Rear End	Property Damage Only	0	3	44.94957	-93.36458
01055155	MINNETONKA BLVD	11-Nov	1	2022	Rear End	Property Damage Only	0	2	44.94957	-93.36446
01049594	MINNETONKA BLVD	10-Oct	4	2022	Rear End	Property Damage Only	0	3	44.94958	-93.36416
00968121	MINNETONKA BLVD	10-Oct	20	2021	Rear End	Property Damage Only	0	2	44.94961	-93.36216
00817191	MINNETONKA BLVD	6-Jun	30	2020	Rear End	Property Damage Only	0	2	44.94961	-93.36187
00871060	MINNETONKA BLVD	12-Dec	27	2020	Rear End	Property Damage Only	0	2	44.94961	-93.36116
00936178	MINNETONKA BLVD	8-Aug	24	2021	Rear End	Property Damage Only	0	2	44.94962	-93.36084
01040063	MINNETONKA BLVD	8-Aug	16	2022	Rear End	Property Damage Only	0	2	44.94962	-93.36064
	Subtotal:	8								

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 13 | Crash Map and Detail Listing

Intersection H | At Dakota Ave

Incident ID	Roadway	Month	Day	Year	Basic Type	Severity	Number K's	Number of Veh	Latitude	Longitude
00970122	MINNETONKA BLVD	10-Oct	29	2021	Rear End	Property Damage Only	0	2	44.94962	-93.36060
01051564	MINNETONKA BLVD	10-Oct	14	2022	Angle	Possible Injury	0	3	44.94962	-93.36060
01016647	MINNETONKA BLVD	4-Apr	8	2022	Rear End	Property Damage Only	0	2	44.94962	-93.36055
01050457	MINNETONKA BLVD	10-Oct	8	2022	Rear End	Property Damage Only	0	2	44.94961	-93.36036
00971654	MINNETONKA BLVD	11-Nov	3	2021	Rear End	Possible Injury	0	2	44.94960	-93.35991
00810876	DAKOTA AVE S	5-May	19	2020	Pedestrian	Property Damage Only	0	1	44.94932	-93.36059
01040962	DAKOTA AVE S	8-Aug	21	2022	Left Turn	Possible Injury	0	2	44.94962	-93.36060
00890103	DAKOTA AVE S	2-Feb	12	2021	Rear End	Property Damage Only	0	2	44.94962	-93.36060
	Subtotal:	8								

Segment I | From Dakota Ave to Vernon Ave

Incident ID	Roadway	Month	Day	Year	Basic Type	Severity	Number K's	Number of Veh	Latitude	Longitude
01065441	MINNETONKA BLVD	12-Dec	14	2022	Rear End	Possible Injury	0	3	44.94958	-93.35936
01070682	MINNETONKA BLVD	12-Dec	27	2022	Rear End	Property Damage Only	0	2	44.94951	-93.35685
01026360	MINNETONKA BLVD	6-Jun	3	2022	Rear End	Property Damage Only	0	2	44.94949	-93.35563
01066284	MINNETONKA BLVD	12-Dec	16	2022	Angle	Property Damage Only	0	2	44.94949	-93.35563
00930765	MINNETONKA BLVD	7-Jul	27	2021	Rear End	Property Damage Only	0	5	44.94949	-93.35560
00987251	MINNETONKA BLVD	1-Jan	7	2022	Angle	Property Damage Only	0	2	44.94947	-93.35447
00817865	MINNETONKA BLVD	7-Jul	4	2020	Single Vehicle Run Off Road	Minor Injury	0	1	44.94925	-93.35142
00872712	MINNETONKA BLVD	1-Jan	4	2021	Sideswipe Opposing	Property Damage Only	0	2	44.94895	-93.35055
00865195	MINNETONKA BLVD	11-Nov	25	2020	Single Vehicle Run Off Road	Minor Injury	0	1	44.94894	-93.35067
00903000	MINNETONKA BLVD	4-Apr	29	2021	Sideswipe Same Direction	Property Damage Only	0	2	44.94890	-93.35036
01012475	MINNETONKA BLVD	3-Mar	14	2022	Rear End	Property Damage Only	0	3	44.94872	-93.34990
00867969	BLACKSTONE AVE S	12-Dec	13	2020	Angle	Property Damage Only	0	2	44.94951	-93.35675
00893353	W ALABAMA AVE	2-Feb	27	2021	Angle	Possible Injury	0	2	44.94951	-93.35563
00808909	YOSEMITE AVE S	5-May	1	2020	Rear End	Possible Injury	0	2	44.94946	-93.35320
	Subtotal:	14								

Intersection J | At Vernon Ave

Incident ID	Roadway	Month	Day	Year	Basic Type	Severity	Number K's	Number of Veh	Latitude	Longitude
00895793	MINNETONKA BLVD	3-Mar	15	2021	Rear End	Property Damage Only	0	2	44.94869	-93.34979
00805961	MINNETONKA BLVD	4-Apr	2	2020	Rear End	Property Damage Only	0	2	44.94868	-93.34976
01037640	LAKE ST	8-Aug	3	2022	Rear End	Possible Injury	0	2	44.94847	-93.35019
00970206	LAKE ST	10-Oct	30	2021	Left Turn	Property Damage Only	0	2	44.94853	-93.35012
00869704	LAKE ST	12-Dec	23	2020	Left Turn	Property Damage Only	0	2	44.94858	-93.35005
	Subtotal:	5								
	Grand Total:	97								

Reported Crashes Located Outside of the Project Area

Incident ID	Roadway	Month	Day	Year	Basic Type	Severity	Number K's	Number of Veh	Latitude	Longitude
~~00911868~~	~~MINNETONKA BLVD~~	~~6-Jun~~	~~13~~	~~2021~~	~~Single Vehicle Run Off Road~~	~~Property Damage Only~~	~~0~~	~~1~~	~~44.94962~~	~~-93.36089~~
~~01000373~~	~~LOUISIANA AVENUE S~~	~~1-Jan~~	~~21~~	~~2022~~	~~Rear End~~	~~Possible Injury~~	~~0~~	~~2~~	~~44.94934~~	~~-93.37084~~
~~00800447~~	~~LOUISIANA AVENUE S~~	~~2-Feb~~	~~24~~	~~2020~~	~~Sideswipe Same Direction~~	~~Property Damage Only~~	~~0~~	~~2~~	~~44.94941~~	~~-93.37084~~
~~00848861~~	~~LOUISIANA AVENUE S~~	~~10-Oct~~	~~22~~	~~2020~~	~~Rear End~~	~~Property Damage Only~~	~~0~~	~~2~~	~~44.94977~~	~~-93.37085~~
~~01051247~~	~~DAKOTA AVE S~~	~~10-Oct~~	~~12~~	~~2022~~	~~Sideswipe Opposing~~	~~Property Damage Only~~	~~0~~	~~2~~	~~44.94946~~	~~-93.36059~~
~~01065038~~	~~LAKE ST~~	~~12-Dec~~	~~12~~	~~2022~~	~~Rear End~~	~~Property Damage Only~~	~~0~~	~~2~~	~~44.94836~~	~~-93.35037~~
~~00939489~~	~~LAKE ST~~	~~9-Sep~~	~~9~~	~~2021~~	~~Sideswipe Same Direction~~	~~Property Damage Only~~	~~0~~	~~2~~	~~44.94837~~	~~-93.35035~~
~~00820195~~	~~FLORIDA AVE S~~	~~7-Jul~~	~~17~~	~~2020~~	~~Single Vehicle Other~~	~~Property Damage Only~~	~~0~~	~~1~~	~~44.94944~~	~~-93.36311~~
~~01062863~~	~~FLORIDA AVE S~~	~~12-Dec~~	~~3~~	~~2022~~	~~Other~~	~~Property Damage Only~~	~~0~~	~~3~~	~~44.94978~~	~~-93.36312~~
~~00970423~~	~~YOSEMITE AVE S~~	~~10-Oct~~	~~30~~	~~2021~~	~~Rear End~~	~~Property Damage Only~~	~~0~~	~~2~~	~~44.94952~~	~~-93.35320~~
	Subtotal:	10								

CMF / CRF DETAILS

CMF ID: 176

INSTALL RAISED MEDIAN WITH UNMARKED CROSSWALK (UNCONTROLLED)

DESCRIPTION:

PRIOR CONDITION: UNMARKED CROSSWALK WITH NO RAISED MEDIAN AT AN UNCONTROLLED PEDESTRIAN CROSSING.

CATEGORY: PEDESTRIANS

STUDY: *SAFETY EFFECTS OF MARKED VERSUS UNMARKED CROSSWALKS AT UNCONTROLLED LOCATIONS: EXECUTIVE SUMMARY AND RECOMMENDED GUIDELINES*, ZEGEER ET

Star Quality Rating:	★★☆☆☆ [VIEW SCORE DETAILS]
Rating Points Total:	70

Crash Modification Factor (CMF)

Value:	0.61
Adjusted Standard Error:	
Unadjusted Standard Error:	0.4

Crash Reduction Factor (CRF)

Value:	39 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	
Unadjusted Standard Error:	40

Applicability

Crash Type:	Vehicle/pedestrian
Crash Severity:	All
Roadway Types:	Principal Arterial Other
Street Type:	
Minimum Number of Lanes:	3
Maximum Number of Lanes:	8
Number of Lanes Direction:	
Number of Lanes Comment:	

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 14 | Crash Modification Factors

Road Division Type:	
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	Urban and Suburban
Traffic Volume:	Minimum of 15000 Average Daily Traffic (ADT)
Average Traffic Volume:	
Time of Day:	All

If countermeasure is intersection-based

Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	
Average Major Road Volume :	
Average Minor Road Volume :	

Development Details

Date Range of Data Used:	1994 to 1998
Municipality:	
State:	AZ,CA,FL,KS,LA,MD,MA,MO,NC,OH,OR,PA,TX,UT,WA,WI
Country:	USA
Type of Methodology Used:	Non-regression cross-section
Sample Size (crashes):	9 crashes

Other Details

Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Dec 01, 2009
Comments:	The study design was a simple comparison of crash rates, controlling for pedestrian and traffic volume.

VIEW THE FULL STUDY DETA

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CMF / CRF DETAILS

CMF ID: 225

CONVERT SIGNALIZED INTERSECTION TO MODERN ROUNDABOUT

DESCRIPTION:

PRIOR CONDITION: *NO PRIOR CONDITION(S)*

CATEGORY: INTERSECTION GEOMETRY

STUDY: *NCHRP REPORT 572: APPLYING ROUNDABOUTS IN THE UNITED STATES*, RODEGERDTS ET AL., 2007

Star Quality Rating:	[VIEW SCORE DETAILS]
Rating Points Total:	85

Crash Modification Factor (CMF)

Value:	0.52
Adjusted Standard Error:	0.06
Unadjusted Standard Error:	0.05

Crash Reduction Factor (CRF)

Value:	48 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	6
Unadjusted Standard Error:	5

Applicability

Crash Type:	All
Crash Severity:	All
Roadway Types:	Not Specified
Street Type:	
Minimum Number of Lanes:	1
Maximum Number of Lanes:	2
Number of Lanes Direction:	
Number of Lanes Comment:	

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 14 | Crash Modification Factors

Road Division Type:	
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	All
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	

If countermeasure is intersection-based

Intersection Type:	Roadway/roadway (not interchange related)
Intersection Geometry:	Not Specified
Traffic Control:	Signalized
Major Road Traffic Volume:	
Minor Road Traffic Volume:	
Average Major Road Volume :	
Average Minor Road Volume :	

Development Details

Date Range of Data Used:	
Municipality:	
State:	
Country:	
Type of Methodology Used:	Before/after using empirical Bayes or full Bayes

Other Details

Included in Highway Safety Manual?	Yes. HSM lists this CMF in **bold** font to indicate that it has the highest reliability since it has an adjusted standard erro less.
Date Added to Clearinghouse:	Dec 01, 2009
Comments:	Countermeasure name changed to match HSM

VIEW THE FULL STUDY DETA

EXPORT DETAIL PAGE AS PDF

CMF / CRF DETAILS

CMF ID: 2338

INSTALL TWLTL (TWO-WAY LEFT TURN LANE) ON TWO LANE ROAD

DESCRIPTION:

PRIOR CONDITION: *NO PRIOR CONDITION(S)*

CATEGORY: ROADWAY

STUDY: *SAFETY EVALUATION OF INSTALLING CENTER TWO-WAY LEFT-TURN LANES ON TWO-LANE ROADS*, LYON ET AL., 2008

Star Quality Rating:	[VIEW SCORE DETAILS]
Rating Points Total:	120

Crash Modification Factor (CMF)

Value:	0.686
Adjusted Standard Error:	
Unadjusted Standard Error:	0.057

Crash Reduction Factor (CRF)

Value:	31.4 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	
Unadjusted Standard Error:	5.7

Applicability

Crash Type:	All
Crash Severity:	All
Roadway Types:	Not Specified
Street Type:	
Minimum Number of Lanes:	2
Maximum Number of Lanes:	2
Number of Lanes Direction:	
Number of Lanes Comment:	

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 14 | Crash Modification Factors

Road Division Type:	Divided by TWLTL
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	All
Traffic Volume:	
Average Traffic Volume:	
Time of Day:	All

If countermeasure is intersection-based

Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	
Average Major Road Volume :	
Average Minor Road Volume :	

Development Details

Date Range of Data Used:	1991 to 2004
Municipality:	
State:	CA
Country:	
Type of Methodology Used:	Before/after using empirical Bayes or full Bayes

Other Details

Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Dec 01, 2009
Comments:	

VIEW THE FULL STUDY DETA

EXPORT DETAIL PAGE AS PDF

CMF / CRF DETAILS

CMF ID: 3034

INSTALL RAISED MEDIAN

DESCRIPTION:

PRIOR CONDITION: NO RAISED MEDIAN

CATEGORY: ACCESS MANAGEMENT

STUDY: *ANALYZING RAISED MEDIAN SAFETY IMPACTS USING BAYESIAN METHODS*, SCHULTZ ET AL., 2011

Star Quality Rating:	★★☆☆☆ [VIEW SCORE DETAILS]
Rating Points Total:	35

Crash Modification Factor (CMF)

Value:	0.61
Adjusted Standard Error:	
Unadjusted Standard Error:	

Crash Reduction Factor (CRF)

Value:	39 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	
Unadjusted Standard Error:	

Applicability

Crash Type:	All
Crash Severity:	All
Roadway Types:	Not specified
Street Type:	
Minimum Number of Lanes:	
Maximum Number of Lanes:	
Number of Lanes Direction:	
Number of Lanes Comment:	

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 14 | Crash Modification Factors

Road Division Type:	Divided by Median
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	
Traffic Volume:	Minimum of 10000 to Maximum of 55000 Average Daily Traffic (ADT)
Average Traffic Volume:	
Time of Day:	All

If countermeasure is intersection-based

Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	
Average Major Road Volume :	
Average Minor Road Volume :	

Development Details

Date Range of Data Used:	1998 to 2008
Municipality:	
State:	UT
Country:	USA
Type of Methodology Used:	Before/after using empirical Bayes or full Bayes
Sample Size (site-years):	32 site-years before, 28 site-years after

Other Details

Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Jul 15, 2011
Comments:	The number of crashes in the after period were not reported in this study, however, they have been recorded as 300 t points as a beneift of doubt for one or more of the following: (1) number of miles/sites in the reference/treatment grc number of crashes in the references/treatment group, (3) reporting AADTs for the aggregate dataset but not for the dataset used for CMF development.

VIEW THE FULL STUDY DETA

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CMF / CRF DETAILS

CMF ID: 9250

INSTALL SHARED PATH

DESCRIPTION:

PRIOR CONDITION: NO SHARED PATH PRESENT

CATEGORY: BICYCLISTS

STUDY: *STATEWIDE ANALYSIS OF BICYCLE CRASHES*, ALLURI ET AL., 2017

Star Quality Rating:	★★☆☆☆ [VIEW SCORE DETAILS]
Rating Points Total:	50

Crash Modification Factor (CMF)

Value:	0.75
Adjusted Standard Error:	
Unadjusted Standard Error:	

Crash Reduction Factor (CRF)

Value:	25 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	
Unadjusted Standard Error:	

Applicability

Crash Type:	Vehicle/bicycle
Crash Severity:	All
Roadway Types:	Principal Arterial Other
Street Type:	
Minimum Number of Lanes:	6
Maximum Number of Lanes:	6
Number of Lanes Direction:	
Number of Lanes Comment:	

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 14 | Crash Modification Factors

Road Division Type:	Divided by Median
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	Urban
Traffic Volume:	Minimum of 5700 to Maximum of 98500 Annual Average Daily Traffic (AADT)
Average Traffic Volume:	42085 Annual Average Daily Traffic (AADT)
Time of Day:	Not specified

If countermeasure is intersection-based

Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	
Average Major Road Volume :	
Average Minor Road Volume :	

Development Details

Date Range of Data Used:	2011 to 2014
Municipality:	
State:	FL
Country:	
Type of Methodology Used:	Regression cross-section
Sample Size (crashes):	2049 crashes
Sample Size (miles):	1209 miles

Other Details

Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Jun 17, 2018
Comments:	Minor arterial, major collector, and minor collector facility types were also included.

VIEW THE FULL STUDY DETA

EXPORT DETAIL PAGE AS PDF

CMF / CRF DETAILS

CMF ID: 9300

RESURFACE PAVEMENT

DESCRIPTION:

PRIOR CONDITION: *NO PRIOR CONDITION(S)*

CATEGORY: ROADWAY

STUDY: *TIME SERIES TRENDS OF THE SAFETY EFFECTS OF PAVEMENT RESURFACING*, PARK ET AL., 2017

Star Quality Rating:	[VIEW SCORE DETAILS]
Rating Points Total:	105

Crash Modification Factor (CMF)

Value:	0.853
Adjusted Standard Error:	
Unadjusted Standard Error:	0.074

Crash Reduction Factor (CRF)

Value:	14.7 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	
Unadjusted Standard Error:	7.4

Applicability

Crash Type:	All
Crash Severity:	All
Roadway Types:	Principal Arterial Other
Street Type:	
Minimum Number of Lanes:	1
Maximum Number of Lanes:	4
Number of Lanes Direction:	
Number of Lanes Comment:	

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 14 | Crash Modification Factors

Road Division Type:	
Minimum Speed Limit:	25
Maximum Speed Limit:	65
Speed Unit:	mph
Speed Limit Comment:	
Area Type:	Urban
Traffic Volume:	Minimum of 2100 to Maximum of 40500 Annual Average Daily Traffic (AADT)
Average Traffic Volume:	8659 Annual Average Daily Traffic (AADT)
Time of Day:	Not specified

If countermeasure is intersection-based

Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	
Average Major Road Volume :	
Average Minor Road Volume :	

Development Details

Date Range of Data Used:	2004 to 2013
Municipality:	
State:	FL
Country:	USA
Type of Methodology Used:	Before/after using comparison group
Sample Size (crashes):	1157 crashes before
Sample Size (sites):	195 sites before, 195 sites after
Sample Size (miles):	115.44 miles before, 115.44 miles after

Other Details

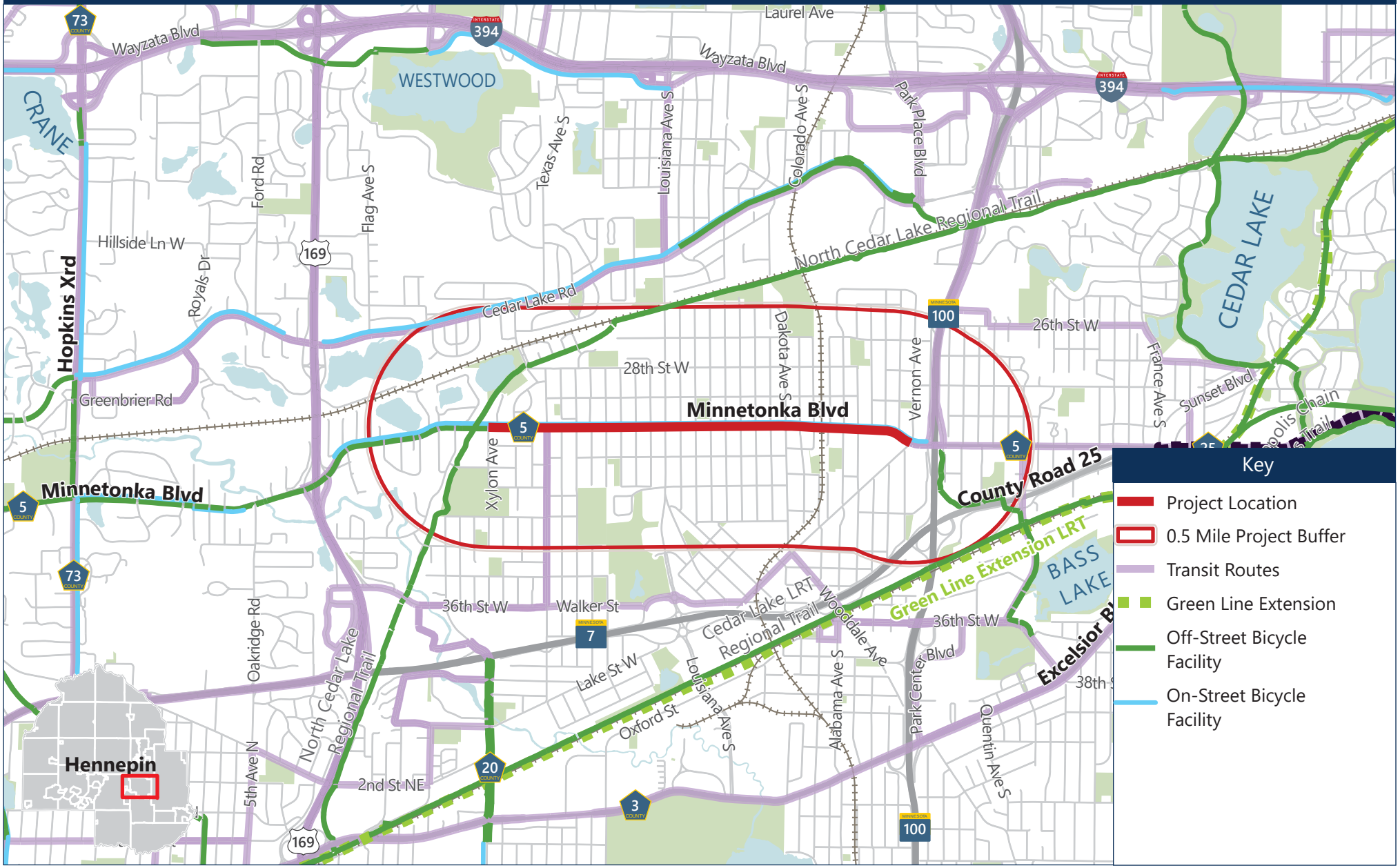
Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Jun 17, 2018
Comments:	Second year after treatment implementation

VIEW THE FULL STUDY DETA

EXPORT DETAIL PAGE AS PDF

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 15 | Multimodal Connections Map



Disclaimer: This map (i) is furnished "AS IS" with no representation as to completeness or accuracy; (ii) is furnished with no warranty of any kind; and (iii) is not suitable for legal, engineering or surveying purposes. Hennepin County shall not be liable for any damage, injury or loss resulting from this map.

N

0 0.75 1.5 Miles

Publication date: 10/5/2023

Data sources (if applicable):

November 6, 2023

Carla Stueve, P.E.
Director and County Highway Engineer
Hennepin County Transportation Project Delivery
1600 Prairie Drive
Medina, MN 55340

RE: Support for Regional Solicitation Application
Minnetonka Blvd (CSAH 5) Roadway Reconstruction Project – Xylon Ave to Vernon Ave

Dear Ms. Stueve:

The City of St. Louis Park hereby expresses its support for Hennepin County's Regional Solicitation federal funding application for the reconstruction of CSAH 5 (Minnetonka Blvd) from Xylon Ave to Vernon Ave.

Minnetonka Boulevard between Trunk Highway TH169 and France Avenue is a Hennepin County road and is one of the few continuous west-to-east roadway connections in the City of St. Louis Park. The roadway needs modernization to better accommodate all modes of travel, pedestrian, bicycle, transit, and vehicle.

This project will involve the reconstruction of the existing roadway and will include, but not limited to, the following elements: new pavement, curb, stormwater structures, traffic signals, sidewalk facilities, and ADA accommodations. The preferred typical section will be determined as part of the project development process based on characteristics of the project area, values of the community, as well as the infrastructure, safety, and user needs. It is anticipated that these proposed improvements will improve accessibility, safety, and mobility for people walking, biking, and driving; thereby enhancing the livability and quality of life for St. Louis Park and Hennepin County residents.

We understand that the city will likely be required to cost participate in this project as outlined in the county's cost participation policy. Specific details regarding cost participation and maintenance responsibilities are anticipated to be determined during the design process as project development is advanced.

Thank you for making us aware of this application and project, and the opportunity to provide support. The city looks forward to working with you on this project.

Sincerely,

Debra M Heiser, P.E.
Engineering director

CC: Kim Keller, City manager
Hennepin County staff- Emily Buell, Jason Pieper

ThreeRivers
PARK DISTRICT

CSAH 5 (Minnetonka Blvd) Phase 2 Reconstruction Project

Attachment 17 | Three Rivers Park District Support Letter

December 1, 2023

Carla Stueve, P.E.
Director and County Highway Engineer
Hennepin County Transportation Project Delivery
1600 Prairie Drive
Medina, MN 55340

Dear Ms. Stueve:

Three Rivers Park District hereby expresses its support for Hennepin County's Regional Solicitation federal funding application for the reconstruction of CSAH 5 (Minnetonka Blvd) from Xylon Ave to Vernon Ave in the City of St. Louis Park.

This project will involve the reconstruction of the existing roadway and will include, but not limited to, the following elements: new pavement, curb, stormwater structures, traffic signals, sidewalk facilities, and ADA accommodations. The preferred typical section will be determined as part of the project development process based on characteristics of the project area, values of the community, as well as the infrastructure, safety, and user needs. It is anticipated that these proposed improvements will provide additional accessibility, safety, and mobility for people walking, biking, and driving; thereby enhancing the livability and quality of life for St. Louis Park and Hennepin County residents.

In recognition of the future CP Rail Regional Trail, which is anticipated to cross the CSAH 5 (Minnetonka Blvd) corridor along the project corridor, Three Rivers Park District acknowledges that the park district may be asked to cost participate in this project as outlined in the county's cost participation policy. Specific details regarding cost participation and maintenance responsibilities are anticipated to be determined during the design process as project development is advanced.

Thank-you for making us aware of this application and project, and the opportunity to provide support. Three Rivers Park District looks forward to working with you on this project.

Sincerely,

Boe R. Carlson

Boe R. Carlson, Superintendent
Three Rivers Park District