



Application

17063 - 2022 Roadway Modernization

17508 - CSAH 32 (Penn Ave) Reconstruction Project

Regional Solicitation - Roadways Including Multimodal Elements

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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

Ext.

Fax:

PeopleSoft Vendor Number

0000028004A9

Project Information

Project Name

CSAH 32 (Penn Ave) Reconstruction Project

Primary County where the Project is Located

Hennepin

Cities or Townships where the Project is Located:

Richfield

Jurisdictional Agency (If Different than the Applicant):

The proposed project includes the reconstruction of the CSAH 32 (Penn Ave) corridor from approximately 125' south of 75th St to the TH 62 EB Ramps in the City of Richfield. CSAH 32 (Penn Ave) is currently classified as an A-Minor Arterial roadway that functions as a Reliever. The existing typical section includes a three-lane roadway with bikeable shoulders along the majority of the corridor. In terms of transit service, local transit Route 4 currently operates along CSAH 32 (Penn Ave). Attachment 2 provides an illustration of the project location.

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. Sections of curb have experienced settling, diminishing their ability to collect water and define the roadway edge. In addition, much of the corridor lacks a consistent boulevard space, making it uncomfortable for people who walk and roll. Accessibility and multimodal upgrades will greatly improve the safety and comfort for all users and promote a more predictable roadway environment. Photos showing the roadway's existing conditions can be found in Attachment 3.

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

The project objectives are to improve the accessibility, mobility, and safety for people walking, using transit, biking, and driving through implementation of complete streets best practices and design elements along the corridor. Attachment 4 illustrates a potential typical section for this roadway, and Attachment 5 shows the planning level concept.

This 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 and based on additional community input, data analysis, and environmental review.

- Roadway improvements; including the replacement of deteriorated pavement, pavement substructures, traffic signals, curb and gutter, and storm sewer structures.

- Safety improvements; although not shown on the potential concept, the installation of curb extensions and/or raised medians will be considered. These improvements will reduce the crossing distance for people walking and also calm traffic and manage the speeds of people driving.

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

- Bicycle improvements; such as the introduction of dedicated accommodations for people biking (contingent on the design process).

- Streetscaping improvements; such as the introduction of a boulevard space, lighting, and street furniture. Additionally, staff will evaluate the potential for burying overhead utilities as part of the design process.

(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 32 (Penn Ave) from 125' south of 75th St to the TH 62 EB ramps in the City of Richfield

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)

1.63

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)

Federal Amount \$7,000,000.00

Match Amount \$9,420,000.00

Minimum of 20% of project total

Project Total \$16,420,000.00

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

Match Percentage 57.37%

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: 2027

Select 2024 or 2025 for TDM and Unique projects only. For all other applications, select 2026 or 2027.

Additional Program Years:

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

Project Information-Roadways

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. 32

i.e., 53 for CSAH 53

Name of Road Penn Ave

Example; 1st ST., MAIN AVE

Zip Code where Majority of Work is Being Performed 55423

(Approximate) Begin Construction Date 04/05/2027

(Approximate) End Construction Date 11/17/2028

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

From:
(Intersection or Address) 125' south of 75th St

To:
(Intersection or Address) TH 62 EB Ramps

DO NOT INCLUDE LEGAL DESCRIPTION

Or At

Miles of Sidewalk (nearest 0.1 miles) 1.6

Miles of Trail (nearest 0.1 miles) 1.6

**Miles of Trail on the Regional Bicycle Transportation Network
(nearest 0.1 miles)** 0

Primary Types of Work

GRADING, AGG BASE, BIT BASE & SURFACE, STORM
WATER, BIKEWAY, SIDEWALK, ADA, SIGNALS,
STREETSCAPING, LIGHTING, CURB AND GUTTER

*Examples: GRADE, AGG BASE, BIT BASE, BIT SURF,
SIDEWALK, CURB AND GUTTER, STORM SEWER,
SIGNALS, LIGHTING, GUARDRAIL, BIKE PATH, PED RAMPS,
BRIDGE, PARK AND RIDE, ETC.*

BRIDGE/CULVERT PROJECTS (IF APPLICABLE)

Old Bridge/Culvert No.:

New Bridge/Culvert No.:

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

Requirements - All Projects

All Projects

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

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

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

A) Transportation System Stewardship (p 2.2-2.4)

Objectives A & B; Strategies A1 & A2

This project is needed as maintenance activities are no longer cost effective in extending the useful life of the roadway. Through the reconstruction project, improved or dedicated facilities that will benefit those walking, using transit, biking, and driving are anticipated to promote a range of transportation choices.

B) Safety and Security (p 2.5-2.9)

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

This project presents an opportunity to implement best practices and strategies to improve safety for all modes. Reallocating existing right of way for traffic calming design strategies such as streetscaping, raised medians, and boulevard spaces will promote safety and reduce crash risks; especially for vulnerable users.

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

C) Access to Destinations (p 2.10-2.25)

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

This project will provide improved multimodal access to several civic, residential, and commercial destinations along the corridor; including the South Education Center and Richfield Middle School. The corridor also is served by Metro Transit Route 4, which connects to Downtown Minneapolis, and serves as an important connector to TH 62 and I-35W.

D) Competitive Economy (p2.26-2.29)

Objectives A, B & C; Strategies D1, D3, D4, D5

CSAH 32 (Penn Ave) provides access to TH 62 and serves as a parallel route to I-35W, both Tier 1 regional truck corridors. The corridor is also important for the regional economy, with 32,000 jobs within 1-mile of the project. In addition, this project will reduce crashes and improve user behavior for those utilizing the corridor to access businesses and jobs.

E) Healthy and Equitable Communities (p 2.30-2.34)

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

The project will build on the robust engagement process completed in partnership with the City of Richfield in 2019 and 2020, where county and city staff sought input from a diverse group of stakeholders to understand existing conditions and future needs for the corridor. Additional engagement will take place during the design phase. The project will improve multimodal access well as improve first and last mile connections to transit service to improve the attractiveness of this transportation option.

F) Leveraging Transportation Investments to Guide Lane Use (p 2.35-2.41)

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

This project will better integrate CSAH 32 (Penn Ave) with the surrounding multimodal networks through complete street design strategies such as streetscaping, improved boulevard space, and enhanced multimodal facilities to create more consistent access for all users to the diverse land uses 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.

1. Hennepin County Board Resolution 22-0109
(Attachment 6)

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](https://www.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](https://www.hennepin.us/climate-action/-/media/climate-action/hennepin-county-climate-action-plan-final.pdf)

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

4. Hennepin County Complete Streets Policy

URL: [hennepin.us/completestreets](https://www.hennepin.us/completestreets)

5. Hennepin County Bike Plan (page 36)

URL: [hennepin.us/-/media/hennepinus/residents/transportation/biking/bicycle-transportation-plan.pdf](https://www.hennepin.us/-/media/hennepinus/residents/transportation/biking/bicycle-transportation-plan.pdf)

6. Hennepin County Pedestrian Plan (page 8)

URL: [hennepin.us/-/media/hennepinus/residents/transportation/documents/pedestrian-plan.pdf](https://www.hennepin.us/-/media/hennepinus/residents/transportation/documents/pedestrian-plan.pdf)

7. City of Richfield Sweet Streets Penn Ave
Corridor Study

- Penn Ave Corridor Study Summary (Attachment 7)

- Penn Ave Public Engagement Open House #1 and 2 Summary (Attachment 8)

8. City of Richfield Safe Routes to School Comprehensive Plan (page 36)

URL:

cms9files.revize.com/richfieldmn/Document_Center/Department/Public%20Works/Transportation/Bicycle%20&%20Pedestrian%20Planning/SRTSPlan.pdf

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 2022 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 the 2022 Regional Solicitation funding cycle, this requirement may include that the plan is updated within the past five years.

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

(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](https://www.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, per FHWA direction established 8/27/2008 and updated 6/27/2017. 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 and bridge projects must be identified as a principal arterial (non-freeway facilities only) or A-minor arterial as shown on the latest TAB approved roadway functional classification map.

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

Roadway 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 bridge clear span must exceed 20 feet.

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

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

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

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

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

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

Requirements - Roadways Including Multimodal Elements

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Mobilization (approx. 5% of total cost)	\$549,000.00
Removals (approx. 5% of total cost)	\$549,000.00
Roadway (grading, borrow, etc.)	\$1,133,000.00
Roadway (aggregates and paving)	\$2,793,000.00
Subgrade Correction (muck)	\$0.00
Storm Sewer	\$1,774,000.00
Ponds	\$0.00

Concrete Items (curb & gutter, sidewalks, median barriers)	\$36,000.00
Traffic Control	\$549,000.00
Striping	\$208,000.00
Signing	\$77,000.00
Lighting	\$680,000.00
Turf - Erosion & Landscaping	\$296,000.00
Bridge	\$0.00
Retaining Walls	\$0.00
Noise Wall (not calculated in cost effectiveness measure)	\$0.00
Traffic Signals	\$1,470,000.00
Wetland Mitigation	\$0.00
Other Natural and Cultural Resource Protection	\$0.00
RR Crossing	\$0.00
Roadway Contingencies	\$3,034,000.00
Other Roadway Elements	\$0.00
Totals	\$13,148,000.00

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Path/Trail Construction	\$540,000.00
Sidewalk Construction	\$510,000.00
On-Street Bicycle Facility Construction	\$636,000.00
Right-of-Way	\$0.00
Pedestrian Curb Ramps (ADA)	\$265,000.00
Crossing Aids (e.g., Audible Pedestrian Signals, HAWK)	\$15,000.00
Pedestrian-scale Lighting	\$0.00
Streetscaping	\$296,000.00
Wayfinding	\$0.00
Bicycle and Pedestrian Contingencies	\$755,000.00
Other Bicycle and Pedestrian Elements	\$255,000.00
Totals	\$3,272,000.00

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

Totals

Total Cost	\$16,420,000.00
Construction Cost Total	\$16,420,000.00
Transit Operating Cost Total	\$0.00

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

Existing Employment within 1 Mile:	35306
Existing Manufacturing/Distribution-Related Employment within 1 Mile:	1013
Existing Post-Secondary Students within 1 Mile:	0
Upload Map	1647185166126_2022 RS Map 02 - CSAH 32 (Penn Ave) Reconstruction Project - 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 32 (Penn Ave) north of CSAH 53 (66th St) - SEQ ID #42756

Current AADT Volume 12800

Existing Transit Routes on the Project 4, 515, 538, 540, 578, 600, 695

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

Upload Transit Connections Map 1647185518486_2022 RS Map 04 - CSAH 32 (Penn Ave) Reconstruction Project - Transit Connections.pdf

Please upload attachment in PDF form.

Response: Current Daily Person Throughput

Average Annual Daily Transit Ridership 0

Current Daily Person Throughput 16640.0

Measure B: 2040 Forecast ADT

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

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

OR

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

Forecast (2040) ADT volume

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:

As part of the Penn Ave Corridor Study, Hennepin County collaborated with the City of Richfield and community members to identify near-term, incremental, and long-term improvements for consideration along CSAH 32 (Penn Ave); including a 4-3 lane conversion to better accommodate people walking, using transit, and biking.

In the project area, the 2020 census estimated 29.4% of residents as non-white in the northern part of the corridor (Census Tract 27053024100) and 20% of residents as non-white in the southern portion of the corridor (Census Tract 27053024200); compared to 33% non-white residents in Hennepin County and 23% non-white residents in the state of Minnesota.

Response:

Sheridan Hills Elementary School, located two blocks west of CSAH 32 (Penn Ave), illustrates the growing BIPOC community in Richfield as more than 60% of its students are BIPOC.

Critical services and employment opportunities for people with autism or developmental disabilities are available along CSAH 32 (Penn Ave). Fraser School, located at Penn/64th, is Minnesota's largest provider of autism and early childhood mental health services. In addition, Arc Value Village, located at Penn/66th, employs people with intellectual and developmental disabilities and funds support programs across Minnesota.

The Penn Avenue Corridor Study included two open houses that occurred in November 2019 and July 2020 (online over seven days). Approximately 90 people attended the first open house and the virtual open house gathered more than 250

comments. Interpretation was available and promotional materials included the two most common languages of residents, English and Spanish, in parallel. More than 2,700 households and businesses near the corridor received postcards with project information along with an invitation to participate in the discussion. An iterative approach was followed in determining the optimal method(s) for collecting stakeholder input. The City of Richfield engaged with residents through open houses, social media, emails, a project website, and through posters.

Furthermore, Hennepin County collaborated with Richfield's Transportation Commission, Bike Walk Richfield, and the county's Active Transportation Committee to collect input from subject matter experts in multimodal transportation projects.

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

Measure B: Equity Population Benefits and Impacts

Describe the projects benefits to Black, Indigenous, and People of Color populations, low-income populations, children, people with disabilities, youth, and older adults. Benefits could relate to:

This is not an exhaustive list. A full response will support the benefits claimed, identify benefits specific to Equity populations residing or engaged in activities near the project area, identify benefits addressing a transportation issue affecting Equity populations 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.

The proposed project is anticipated to benefit people walking, using transit, and biking through proven design strategies that improve multimodal accessibility, mobility, and safety. A recent study published by the Governors Highway Safety Association, titled Analysis of Traffic Fatalities by Race and Ethnicity, suggests that BIPOC populations are over-represented in fatal crashes; citing a pedestrian fatality rate more than four times higher for Indigenous people when compared to white people.

Although contingent on the project development process, it's anticipated that a 3-lane configuration will be retained to manage user access and mobility; reducing the likelihood of rear-end, sideswipe, left-turn, and right-angle crashes when compared to a 4-lane undivided roadway.

Response:

CSAH 32 (Penn Ave) currently includes sidewalk facilities along both sides, however, they are located at the back-of-curb, include noncompliant side-slopes in many areas, and are showing signs of deterioration. Walking conditions are especially poor during winter months as there is inadequate space for snow storage. In addition, lighting conditions are relatively poor as the existing luminaires are not properly located along the corridor. The planning level concept identifies potential strategies to promote choices in transportation through the introduction of a multi-use trail facility on one side of CSAH 32 (Penn Ave) and a sidewalk facility on the opposite side; both supplemented with boulevard space. Also, the feasibility of dedicated on-road facilities for people biking will be evaluated as part of project development. Furthermore, it's anticipated that lighting will be upgraded to promote user comfort whenever walking along the corridor, across the

corridor, or waiting at transit stops. These additions will improve accessibility, mobility, and safety for multimodal users.

Specific community groups that are anticipated to experience improved accessibility, mobility, and safety include the following:

- Sheridan Hills Elementary School that includes a majority of students who are BIPOC
- Fraser School, Minnesota's largest provider of autism and early childhood mental health services
- Arc Value Village, which employs people with intellectual and developmental disabilities and also funds support programs across Minnesota

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 provide instructions on detour routes for all people traveling through the corridor. Access to adjacent buildings will be critical, and staff will seek out opportunities to minimize the duration and magnitude of negative impacts to nearby businesses and services 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 projects benefits to current and future affordable housing residents within ½ mile of the project. Benefits must relate to affordable housing residents. Examples may include:

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.

Through staff analysis, one existing and one proposed subsidized housing development was identified within 0.5 miles of the project area. Attachment 9 provides a map and additional detail on these properties, including unit sizes and affordability limits based on area median incomes. The proposed development will provide 63 income-restricted units at a mix of income levels, including 15 units reserved for people with disabilities. In addition to subsidized housing, data from the 2014-2018 American Community Survey indicates that the southern end of the project area contains naturally occurring affordable housing. Nearly 70% of the housing units in the area roughly bounded by I-494 and 72nd St are renter-occupied, and the median rent in this area is approximately 10% lower than the Hennepin County median. As identified in the Met Council generated Socio-Economic Conditions map, 754 subsidized units exist in census tracts within 0.5 miles of the project.

Response:

Residents of both subsidized and naturally occurring affordable housing will benefit substantially by the proposed project through improved facilities for people walking, using transit, biking, and driving to access critical destinations along the corridor and beyond. For families in the project area, the South Education Center High School, Richfield Middle School, and Sheridan Hills Elementary School are destinations which will experience improved multimodal access as CSAH 32 (Penn Ave) serves as a major walking and biking route for the students at these schools. A map showing key community resources, parks, schools, and places of worship near the proposed project is shown in Attachment 10.

The corridor is home to a mix of commercial businesses that provide employment opportunities

and daily necessities; including two grocery stores located near CSAH 32 (Penn Ave)/Crosstown. In addition, the nearby Southdale Center is home to public services and a significant employment base for the residents of the project area. Metro Transit Route 4 provides a direct connection from the project area to the Downtown Central Business District.

As residents of affordable housing are more likely to reach these destinations via modes other than the personal vehicle, the poor condition of sidewalk facilities, lack of boulevard space, uncomfortable biking accommodations, and minimal transit features negatively impacts this population. A reflection of the previous 4-lane road configuration and wide distances between curbs disrupts community cohesion through long crossing distances at non-signalized intersections and higher vehicle speeds. Traffic calming and complete streets elements implemented through the proposed project will improve access for affordable housing residents to schools, employment, and necessities.

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

Measure D: BONUS POINTS

Project is located in an Area of Concentrated Poverty:

Projects 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.

1646928322952_2022 RS Map 03 - CSAH 32 (Penn Ave) Reconstruction Project - Socio Economic Conditions.pdf

Measure A: Year of Roadway Construction

Year of Original Roadway Construction or Most Recent Reconstruction	Segment Length	Calculation	Calculation 2
2001	0.03	60.03	36.828
1964	1.0	1964.0	1204.908
1987	0.6	1192.2	731.411
	2	3216	1973

Total Project Length

Total Project Length (as entered in "Project Information" form) 1.63

Average Construction Year

Weighted Year 1973

Total Segment Length (Miles)

Total Segment Length 1.63

Measure B: Geometric, Structural, or Infrastructure Improvements

Improved roadway to better accommodate freight movements: Yes

Land use along Penn Ave from 75th to 68th is mainly residential; shifting to commercial from 68th St to Crosstown. CSAH 32 provides direct access to I-494 and TH 62; allowing users to avoid the confusing Crosstown Commons Area where not all movements involving I-35W/TH 62 are permitted.

Response:

This project will include a pavement design that supports the forecasted traffic loading, modifications to driveway operations to promote efficient deliveries, and upgrades to signals to improve travel time reliability. The design will incorporate complete streets to promote delivery via alternative transportation. A StreetLight analysis estimates 335 commercial vehicles daily along CSAH 32 (Attachment 11).

(Limit 700 characters; approximately 100 words)

Improved clear zones or sight lines:

Yes

The sight distance along Penn Ave from 75th St to 68th St is generally adequate. However, a number of deficiencies are present from 68th St to Crosstown that create the potential for right-angle crashes. Intersection radii are relatively wide, utility poles exist within the narrow boulevard space, and the Penn/64th intersection includes offset approaches.

Response:

The narrowing of curb radii will place more activity within user sight triangles. The introduction of a boulevard space (and potential burial of utilities) will allow for proper placement of vertical elements. In addition, reconstruction of the Penn/64th intersection will allow for proper design of the signals and intersection approaches.

(Limit 700 characters; approximately 100 words)

Improved roadway geometrics:

Yes

Penn Ave generally operates as a 3-lane that offers a balance of safety and mobility. However, very few vertical design elements (such as medians, curb extensions, and boulevard trees) exist to promote traffic calming. In addition, boulevard space is very limited, presenting challenges for snow storage.

Response:

This project presents an opportunity to reallocate space to reflect the surrounding land uses. Proven design strategies, such as medians, compact intersections, and wide boulevards will be considered to advance the county's Complete Streets policy. Furthermore, consideration will be given to routine maintenance operations to ensure that facilities are accessible throughout all times of year.

(Limit 700 characters; approximately 100 words)

Access management enhancements:

Yes

Approximately 130 access points (including 15 local streets, 60 commercial driveways, 12 multifamily driveways, and 43 private driveways) currently exists along this 1.63-mile segment. These conditions present a high frequency of conflicts that increase the likelihood of crashes and causes user discomfort.

Response:

This project presents an opportunity to complement the existing 3-lane by evaluating proven access management strategies, such as: access closure, access modification (i.e. converting full-access to right-in/right-out), access consolidation, and alternative routing. In addition, driveway aprons will be designed to minimize disruptions to people walking along the sidewalks.

(Limit 700 characters; approximately 100 words)

Vertical/horizontal alignment improvements:

Yes

The Penn/I-494 and Penn/Crosstown interchanges are relatively large since they experience significant user demand in terms of turning movements and lane changes. Characteristics such as channelized turn islands, dual left-turn lanes, and closely spaced traffic signals create challenges for promoting traffic calming along Penn Ave.

Response:

The proposed project will provide an opportunity to redesign Penn Ave at both termini to manage vehicle speeds as they enter the corridor from interchange areas. Complete streets best practices (such as compact intersections, raised medians, and greening) will be evaluated during project development to encourage slower speeds by people driving.

(Limit 700 characters; approximately 100 words)

Improved stormwater mitigation:

Yes

Penn Ave includes minimal greening as the width is approximately 50 ft with sidewalks located immediately adjacent to curbs; requiring water to be contained within existing storm infrastructure. The Penn/70th intersection was identified by MetCouncil's Localized Flood Map to be susceptible for flooding.

Response:

Staff will collaborate with the city, the Richfield/Bloomington WMO, & the Nine Mile Creek WD to explore BMPs to improve water quality and withstand desired flood events. Green space will be introduced by narrowing curbs, constructing medians, and designing compact intersections. Given the availability of park space and surface parking lots, underground stormwater storage will be explored.

(Limit 700 characters; approximately 100 words)

Signals/lighting upgrades:

Yes

The existing signals at Penn/75th and Penn/66th are in relatively good condition, and therefore, will be revised only as necessary. However, the signals at Penn/69th, Penn/64th, and Penn/Crosstown are nearing the end of their useful life and warrant replacement. The signal at Penn/64th is especially deficient as the mastarms in the SW and NE quadrants serve multiple approaches. In addition, the lighting conditions are poor as the existing poles are outdated and their frequency is inconsistent throughout the corridor.

Response:

The proposed project will upgrade signals to the latest technologies; including FYAs, APS, overhead lighting (as feasible), and ITS components.

(Limit 700 characters; approximately 100 words)

Other Improvements

Yes

Metro Transit's Network Next Study identifies Route 4, nicknamed the Johnson/Lyndale corridor, as a potential Bus Rapid Transit (BRT) service candidate in the 2030s. This project presents an opportunity to improve first/last mile connections to future BRT stations. (Url: metrotransit.org/Data/Sites/1/media/network-next/nn-corridor-profile-johnson-lyndale.pdf)

Response:

In addition, the segment between 68th and Crosstown, was originally developed when people driving were considered the priority user group. In recognition of the county's Complete Streets policy, the project development process will evaluate multimodal connections in this segment to complement the rapid redevelopment that's underway.

(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 Reduced by the Project:	Total Peak Hour Delay Reduced by the Project:	EXPLANATION of methodology used to calculate railroad crossing delay, if applicable.	Synchron or HCM Reports
14.0	13.0	1.0	1276	1276	1276.0	1276.0	N/A	164942674 9098_CSA H 32 (Penn Ave) Reconstruction Project - Synchro Report for Congestion .pdf

Vehicle Delay Reduced

Total Peak Hour Delay Reduced	1276.0
Total Peak Hour Delay Reduced	1276.0

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):
1.83	1.87	-0.04
2	2	0

Total

Total Emissions Reduced: -0.04

Upload Synchro Report 1649426833181_CSAH 32 (Penn Ave) Reconstruction Project
- Synchro Report for Emissions.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

Attachment 12 lists reported crashes (2019-2021), and Attachment 13 lists CMFs applied in the B/C Analysis.

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

01) Retroreflective backplates: SS, RE, LT, RA, & BIKE (1410, 15%)

02) Additional signal heads: RE, SS, LT, & RA (1414, 28%)

03) Bike lanes at signal: BIKE (3247, 20%)

Crash Modification Factor Used:

04) FYA perm: RE (7698, 10.8%)

05) Resurface pavement: RE, SS, LT, & RA (9298, 9.9%)

06) FYA prot/perm: RE, SS, LT, RA, & BIKE (9667, 12%)

07) Bike lanes on 2-lane: RE, SS, LT, RA, & PED (10727, 21.4%)

08) FYA prot/perm: RE, SS, LT, & RA (10915, 53.3%)

09) Decrease through lanes: RE, LT, RA, & BIKE (10990, 12%)

(Limit 700 Characters; approximately 100 words)

10) Improve lighting: PED (11026, 32.1%)

The Benefit/Cost Analysis evaluated the project corridor in nine separate sections (comprised of major intersections and segments) to target crash themes. Up to two (of the ten 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, using transit, biking, and driving.

Rationale for Crash Modification Selected:

The expected service life for each improvement was assumed to be 20 years based on service life values included in the 2022 Highway Safety Improvement Program criteria.

The overall crash reduction expected from the project is 18% (based on a 82% crash modification factor). Approximately 18% (4 crashes) of the total number of reported crashes for the years 2019-2021 will be reduced annually through the implementation of various safety countermeasures for this project.

(Limit 1400 Characters; approximately 200 words)

Project Benefit (\$) from B/C Ratio	\$8,666,776.00
Total Fatal (K) Crashes:	0
Total Serious Injury (A) Crashes:	1
Total Non-Motorized Fatal and Serious Injury Crashes:	0
Total Crashes:	72
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:

13

Worksheet Attachment

1649710695219_CSAH 32 (Penn Ave) Reconstruction Project
- BC Analysis 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 A: 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 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.

CSAH 32 (Penn Ave) was previously a 4-lane undivided roadway until two projects restriped the corridor to a 3-lane. The first segment, from 75th to CSAH 53 (66th St) was completed in 2014; while the second segment, from CSAH 53 (66th St) to TH 62 (Crosstown) was completed in 2021. Even though the 3-lane conversions provided some near-term safety benefits for people walking, a full reconstruction is necessary to introduce complete streets best practices for people walking along and across CSAH 32 (Penn Ave). A successful design was recently implemented along CSAH 35 (Portland Ave), from 77th St to CSAH 53 (66th St), located two miles east of this project.

Signalized intersections

The proposed project is anticipated to replace and/or upgrade each of the 5 signalized intersections on the corridor. Through the design process, the feasibility of raised medians will be explored at signalized intersections. Although contingent on the project development process, 22 high-visibility crosswalks at signalized intersections were identified in the planning level concept. Dedicated facilities for people biking will reduce conflicts between users crossing at signalized intersections. Also, the use of protected/permissive left-turn phasing, countdown timers, and APS will allow for safe and comfortable crossings. In addition, the use of ITS strategies will allow staff to optimize signal timing to maintain a reasonable balance of mobility and delay. Furthermore, existing intersection lighting conditions will be upgraded to provide adequate nighttime visibility.

Unsignalized intersections

The proposed project is anticipated to evaluate each of the 10 unsignalized intersections to

Response:

advance complete streets strategies. In addition, CSAH 32 (Penn Ave) includes a high frequency of commercial driveways along the segment from 68th St to Crosstown (TH 62). Therefore, the feasibility of access consolidation and raised medians will be explored as part of the project development process to decrease conflict points, reduce crossing distances, and eliminate the potential for dual-threat crashes. Similarly, sidewalk facilities will be designed to minimize unnecessary transitions at driveway aprons. Also, the use of a boulevard space will allow for proper placement of utilities, signs, and snow storage. Furthermore, existing intersection lighting conditions will be upgraded to provide adequate nighttime visibility.

Roundabout intersections

Although contingent on the project development process, no roundabouts are anticipated as part of the project.

Midblock locations

The proposed project will aim to encourage pedestrian crossings at intersections; however, mid-block crossings are not anticipated to be prohibited via the installation of barriers.

(Limit 2,800 characters; approximately 400 words)

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

Select one:

No

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, the distance between signalized intersections is not anticipated to increase as part of the CSAH 32 (Penn Ave) Reconstruction Project.

(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 identifies approximately 22 high visibility crosswalks that may be feasible as part of the CSAH 32 (Penn Ave) Reconstruction Project. Consideration for the introduction of both on-road bicycle lanes and a multi-use trail is anticipated to reduce conflicts between users whenever crossing at signalized and unsignalized intersections. In addition, consideration in the design process for raised medians will reduce the pedestrian crossing distance, provide pedestrian refuge, and decreased conflict points between people walking and people driving

(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 doesnt require much elevation change instead of pedestrian bridge with numerous switchbacks).

Response:

Although contingent on the project development process, no grade separated pedestrian crossings are anticipated to be introduced as part of the CSAH 32 (Penn Ave) 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 32 (Penn Ave) Reconstruction Project.

(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.).

The CSAH 32 (Penn Ave) Reconstruction Project will introduce proven design strategies to promote uniform, safe, and reasonable speeds by people driving along the corridor.

Segment design strategies

The project presents an opportunity to introduce design elements which reflect surrounding land uses. Expanded boulevard space will be introduced and the feasibility of raised medians will be evaluated to introduce vertical design elements that provide visual cues for people driving to encourage slower speeds. Green boulevard space will also be key in providing adequate space for snow storage and signs to ensure that sidewalk and pedestrian ramp areas remain walkable throughout all times of year. In addition, each of the approximate 130 access points (including 15 local streets, 60 commercial driveways, 12 multifamily driveways and 43 private driveways) will be redesigned and evaluated for consolidation during the design process; decreasing the number of conflict points along the corridor and minimizing uncomfortable disturbances to the pedestrian access route (PAR) whenever walking across driveways.

Response:

Multimodal facility changes

The existing sidewalk facilities along CSAH 32 (Penn Ave) include a narrow bituminous boulevard; offering marginal benefit to pedestrian safety and comfort. Expanded boulevard space will improve comfort and provide streetscaping cues for motorists. Although contingent on the project development process, on-street bicycle facilities will provide enhanced visibility for people biking and provide visual indications to motorists of roadway's purpose in supporting multimodal transportation options.

Intersection design strategies

Existing intersection radii are relatively wide and are anticipated to be narrowed as feasible through this reconstruction project. The narrowing of curb radii will increase sightlines for all users and promote slower speeds for turning traffic. At 5 signalized intersections along the corridor, it is anticipated that high visibility crosswalk markings will be introduced or upgraded to encourage safe and uniform motorist speeds. In addition, consideration for raised medians will be evaluated through the design process as an effective traffic calming strategy.

(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?

The current posted speed limit along CSAH 32 (Penn Ave) is 35 mph from 75th St to 68th St; decreasing to 30 mph for the segment from 68th St to TH 62 (Crosstown).

Response:

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, an increase in the existing speed limit is not anticipated. Project elements such as raised medians, curb extensions, streetscaping, and lane widths will 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 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 12800

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. If service was temporarily reduced for the pandemic but is expected to return to 2019 levels, consider 2019 service for this item.) 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. If service frequency was temporarily reduced for the pandemic but is expected to return to 2019 levels, consider 2019 frequency for this item.)

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

The CSAH 32 (Penn Ave) corridor serves Metro Transit local Route 4 service and provides a direct connection to local Route 515 service at the Penn/66th intersection.

A diverse mix of shopping, dining, and entertainment options are within 500' of the proposed project, which include (but are not limited to):

If checked, please describe:

- Aldi (Grocery)
- Lunds & Byerlys (Grocery)
- CVS (Pharmacy, Grocery, Shopping)
- Freewheel Bike Richfield (Bicycle Store)
- Fireside Foundry (Restaurant)
- Arc's Value Village Thrift Store (Shopping)
- Scandia Furniture (Shopping)

(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

CSAH 32 (Penn Ave) serves as a significant corridor for civic and educational destinations. The following schools are within 500' of the project area. Several of these schools are also paired with significant recreational and community assets which attract pedestrians of all ages and abilities.

- Fraser School, Minnesota's largest provider of autism and early childhood mental health services
- Sheridan Hills Elementary School
- Richfield Middle School
- South Education Center (High School)
- New Horizon Academy (Daycare Center)

If checked, please describe:

The corridor is also home to major residential developments, such as:

- Novo Apartments (192-Unit Market Rate Multifamily)
- Sheridan Court (30 Units Income-Restricted Housing for those with Disabilities)
- Concierge Apartments (Market Rate Multifamily)

While not a specific named development, the area generally bounded by 76th St, CSAH 32 (Penn Ave), Oliver Ave, and 74th St contain approximately 22 mid-rise (2-3 floor) apartment buildings constructed between 1959 and 1961. This type of construction offers an important form of naturally occurring affordable housing at the southern end of the project area.

(Limit 1,400 characters; approximately 200 words)

Measure A: Multimodal Elements and Existing Connections

The CSAH 32 (Penn Ave) Reconstruction Project is anticipated to retain a 3-lane configuration to balance user mobility and safety. An opportunity exists to eliminate the remnant four-lane undivided segment between 63rd St and TH 62 (Crosstown). Also, the feasibility of dedicated facilities for people biking will be evaluated as part of the project development; with consideration given to both on-street and off-street designs. An example of a recent multimodal reconstruction project may be observed at the nearby CSAH 35 (Portland Ave) corridor, between 77th St and Crosstown, located 2 miles east of this project.

Response:

Sidewalk facilities currently exist along both sides of CSAH 32 (Penn Ave), however, they are located at the back-of-curb, include severe side slopes, and are showing signs of deterioration. The replacement of sidewalk facilities, supplemented with a consistent boulevard, will improve separation for people walking. The improvements will be especially beneficial in the winter, as current conditions result in plowed snow from adjacent parking lots obstructing the walking paths.

Paved shoulders currently exist along both sides of CSAH 32 (Penn Ave), however, they are not designated for exclusive use by people biking. Contingent on project development, it's possible that the corridor will include both on-street facilities for people biking and a multi-use trail facility on one side (with a sidewalk facility on the other side). On-street bicycle facilities are intended for people who ride at a higher speed, wish to remain visible in traffic, and are comfortable riding adjacent to vehicles. Whereas, the multi-use trail facility is intended for people who wish to ride at a slower speed and desire additional separation from vehicles. These facility options will accommodate

people of all ages and abilities who choose to bike along CSAH 32 (Penn Ave). At this time, CSAH 32 (Penn Ave) is not currently on the RBTN, however, it does connect with the RBTN at the CSAH 53 (66th St) intersection. Also, CSAH 32 (Penn Ave) also connects to a planned bikeway on 70th St identified as a need in the county's 2040 Bicycle Transportation Plan. Furthermore, this project connects to a Tier 2 Regional Bicycle Barrier (TH 62/Crosstown).

Metro Transit local Route 4 currently operates along CSAH 32 (Penn Ave) with transit service offered approximately every 15 minutes during the day. Expanded waiting areas for transit customers, accessible landings, and lighting will improve loading/unloading procedures. In addition, the complete streets elements described above will provide first/last mile connections to promote transit as an attractive transportation option.

A map showing multimodal connections around the project area can be found in Attachment 14.

(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.

Yes

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.

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.

The CSAH 32 (Penn Ave) Reconstruction Project was selected for pursuit of Regional Solicitation funding based on the overall condition of roadway assets.

The City of Richfield, with support from Hennepin County, led public engagement efforts in 2019 and 2020 for determining a short-term and long-term vision for CSAH 32 (Penn Ave). Stakeholder interactions included two open houses, in November 2019 and July 2020, providing an opportunity for conversation. Approximately 90 people attended the first in-person open house, while the second virtual open house gathered approximately 250 comments. Interpretation was available and promotional materials included the two most common languages of residents, English and Spanish. More than 2,700 households and businesses near the corridor received postcards with project information and an invitation to participate in the discussion. The City of Richfield engaged with residents through social media, emails, a website, and through posters.

Response:

As a result, the City of Richfield developed a corridor planning study to summarize community input, themes, and local transportation goals. These outcomes are anticipated to inform the future design of CSAH 32 (Penn Ave) as part of reconstruction activities.

URL: richfieldsweetstreets.org/learn#penn-avenue-redesign-corridor-planning-study

(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 projects 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

1649722736490_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): \$16,420,000.00

Enter Amount of the Noise Walls: \$0.00

Total Project Cost subtract the amount of the noise walls: \$16,420,000.00

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	77 KB
Attachment 01 - Project Narrative.pdf	Attachment 01 - Project Narrative	316 KB
Attachment 02 - Project Location Map.pdf	Attachment 02 - Project Location Map	476 KB
Attachment 03 - Existing Roadway Condition Photos.pdf	Attachment 03 - Existing Roadway Condition Photos	1.7 MB
Attachment 04 - Potential Typical Section.pdf	Attachment 04 - Potential Typical Section	98 KB
Attachment 05 - Potential Concept.pdf	Attachment 05 - Potential Concept	6.5 MB
Attachment 06 - Hennepin County Board Resolution 22-0109.pdf	Attachment 06 - Hennepin County Board Resolution 22-0109	487 KB
Attachment 07 - Penn Ave Corridor Study Excerpt.pdf	Attachment 07 - Penn Ave Corridor Study Excerpt	955 KB
Attachment 08 - Community Engagement Summary.pdf	Attachment 08 - Community Engagement Summary	870 KB
Attachment 09 - Affordable Housing Access Map and Detail Summary.pdf	Attachment 09 - Affordable Housing Access Map and Detail Summary	1.3 MB
Attachment 10 - Socio-Economic Equity Map.pdf	Attachment 10 - Socio-Economic Equity Map	173 KB
Attachment 11 - Streetlight HCAADT Report.pdf	Attachment 11 - Streetlight HCAADT Report	99 KB
Attachment 12 - Crash Map and Detail Listing.pdf	Attachment 12 - Crash Map and Detail Listing	680 KB
Attachment 13 - Crash Modification Factors.pdf	Attachment 13 - Crash Modification Factors	1.1 MB
Attachment 14 - Multimodal Connections Map.pdf	Attachment 14 - Multimodal Connections Map	666 KB
Attachment 15 - City of Richfield Support Letter.pdf	Attachment 15 - City of Richfield Support Letter	315 KB
Attachment 16 - MnDOT Support Letter.pdf	Attachment 16 - MnDOT Support Letter	158 KB

Regional Economy

Roadway Reconstruction/Modernization Project: CSAH 32 (Penn Ave) Reconstruction Project | Map ID: 16468308679

Results

WITHIN ONE MI of project:
Postsecondary Students: 0

Totals by City:

Edina

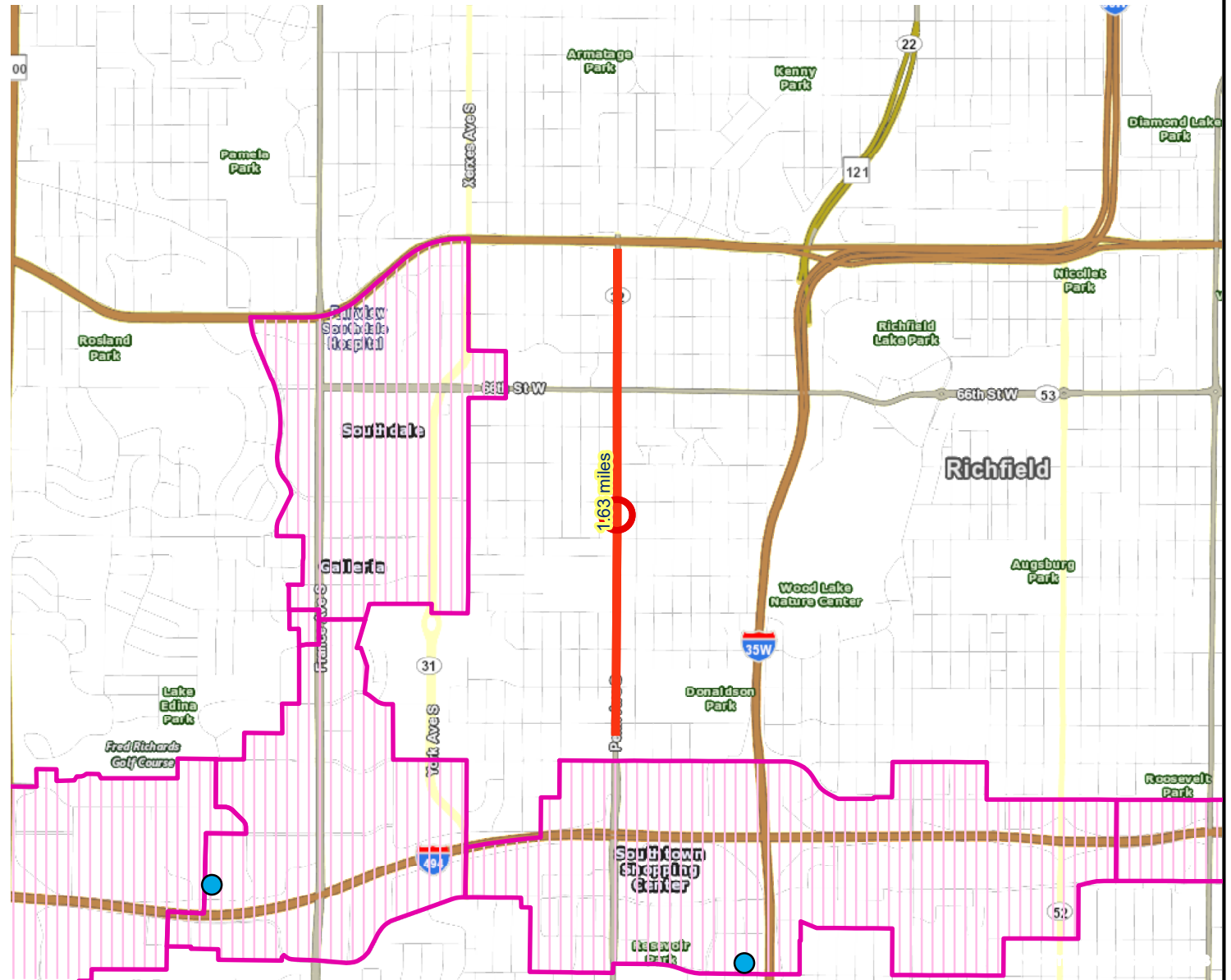
Population: 6717
Employment: 24680
Mfg and Dist Employment: 477

Minneapolis

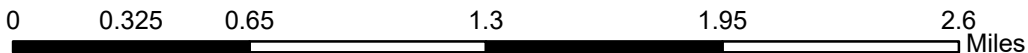
Population: 2051
Employment: 180
Mfg and Dist Employment: 0

Richfield

Population: 15839
Employment: 10446
Mfg and Dist Employment: 536



- Project Points
- Postsecondary Education Centers
- Job Concentration Centers
- Project
- Manufacturing/Distribution Centers



Created: 3/9/2022
LandscapeRSA5



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



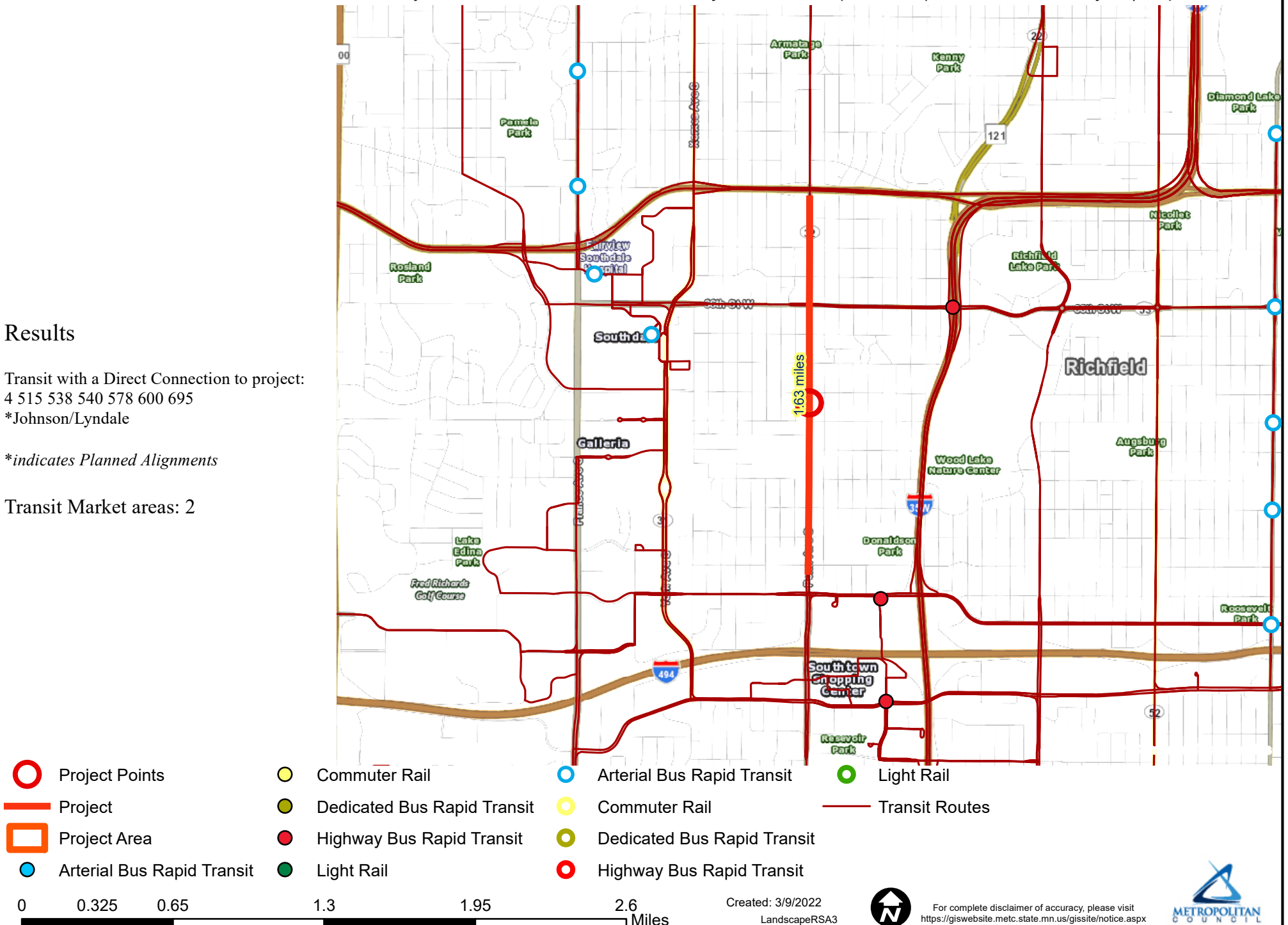
Transit Connections

Results

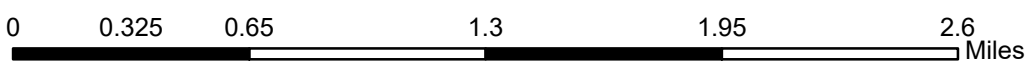
Transit with a Direct Connection to project:
4 515 538 540 578 600 695
*Johnson/Lyndale

**indicates Planned Alignments*

Transit Market areas: 2



- Project Points
- Project
- Project Area
- Arterial Bus Rapid Transit
- Commuter Rail
- Light Rail
- Dedicated Bus Rapid Transit
- Highway Bus Rapid Transit
- Light Rail
- Highway Bus Rapid Transit
- Transit Routes



Created: 3/9/2022
LandscapeRSA3



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

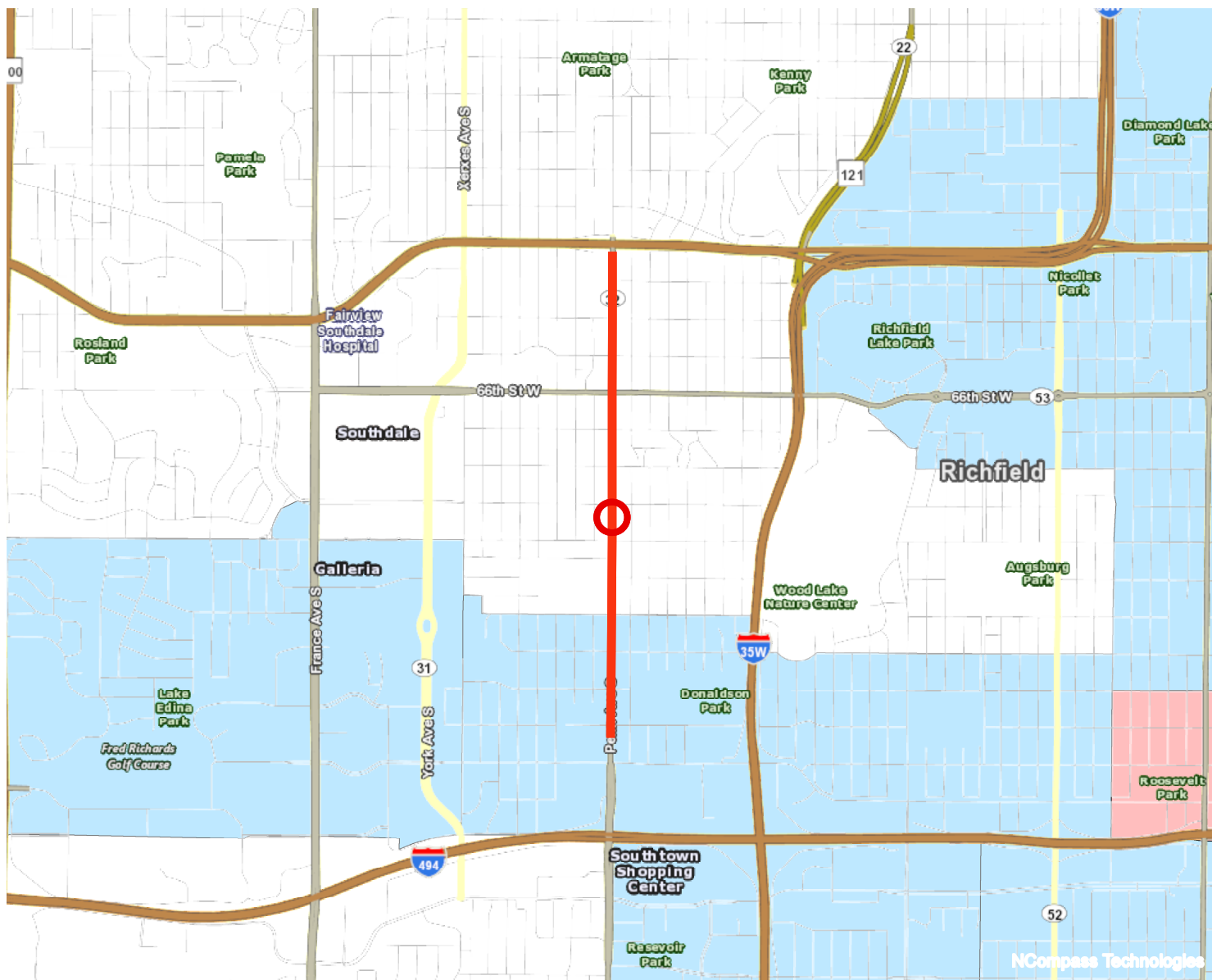


Socio-Economic Conditions

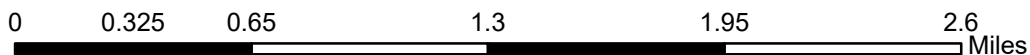
Results

Total of publicly subsidized rental housing units in census tracts within 1/2 mile: 754

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



- Points
- Area of Concentrated Poverty
- Lines
- Regional Environmental Justice Area



CSAH 32 (Penn Ave) Reconstruction Project

Synchro Report – Congestion Reduction

Existing conditions (AM Peak)

Penn Regional Solicitation	04/03/2022
Existing AM	
670: Penn Ave & 64th St	
Direction	All
Future Volume (vph)	1276
Total Delay / Veh (s/v)	14
CO Emissions (kg)	1.28
NOx Emissions (kg)	0.25
VOC Emissions (kg)	0.30

Proposed conditions (AM Peak)

Penn Regional Solicitation	04/03/2022
Build AM	
670: Penn Ave & 64th St	
Direction	All
Future Volume (vph)	1276
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.31
NOx Emissions (kg)	0.26
VOC Emissions (kg)	0.30

Existing conditions (AM Peak)

Penn Regional Solicitation
Existing AM

04/03/2022
670: Penn Ave & 64th St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	88	1	1	1	48	447	1	584
Future Volume (vph)	88	1	1	1	48	447	1	584
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		4		2		2
Permitted Phases	4		4		2		2	
Detector Phase	4	4	4	4	2	2	2	2
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	12.0	12.0	12.0	12.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	18.0	18.0	18.0	18.0	92.0	92.0	92.0	92.0
Total Split (%)	16.4%	16.4%	16.4%	16.4%	83.6%	83.6%	83.6%	83.6%
Yellow Time (s)	3.2	3.2	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
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	4.7	4.7	4.7

Lead/Lag

Lead-Lag Optimize?

Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	12.1	12.1		12.1	88.5	88.5	88.5	88.5
Actuated g/C Ratio	0.11	0.11		0.11	0.80	0.80	0.80	0.80
v/c Ratio	0.87	0.31		0.02	0.11	0.34	0.00	0.52
Control Delay	95.0	15.6		38.3	10.8	14.9	2.0	2.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	95.0	15.6		38.3	10.8	14.9	2.0	2.9
LOS	F	B		D	B	B	A	A
Approach Delay		68.3		38.3		14.5		2.9
Approach LOS		E		D		B		A

Intersection Summary

Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 101 (92%), Referenced to phase 2:NBSB, Start of 1st Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 15.5	Intersection LOS: B
Intersection Capacity Utilization 59.3%	ICU Level of Service B
Analysis Period (min) 15	

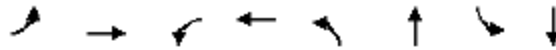
Splits and Phases: 670: Penn Ave & 64th St



Proposed conditions (AM Peak)

Penn Regional Solicitation
Build AM

04/03/2022
670: Penn Ave & 64th St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗		↕	↖	↗	↖	↗
Traffic Volume (vph)	88	1	1	1	48	447	1	584
Future Volume (vph)	88	1	1	1	48	447	1	584
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		4	1	6	5	2
Permitted Phases	4		4		6		2	
Detector Phase	4	4	4	4	1	6	5	2
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	12.0	5.0	12.0
Minimum Split (s)	20.0	20.0	20.0	20.0	9.5	20.0	9.5	20.0
Total Split (s)	20.0	20.0	20.0	20.0	9.5	35.5	9.5	35.5
Total Split (%)	30.8%	30.8%	30.8%	30.8%	14.6%	54.6%	14.6%	54.6%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.5	3.2	3.5	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.0	1.5	1.0	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.5	4.7	4.5	4.7
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes		Yes	
Recall Mode	None	None	None	None	None	Max	None	C-Max
Act Effct Green (s)	9.9	9.9		9.9	47.3	47.1	45.5	43.3
Actuated g/C Ratio	0.15	0.15		0.15	0.73	0.72	0.70	0.67
v/c Ratio	0.63	0.25		0.01	0.13	0.38	0.00	0.63
Control Delay	39.0	9.2		19.0	4.4	7.1	4.0	14.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	39.0	9.2		19.0	4.4	7.1	4.0	14.1
LOS	D	A		B	A	A	A	B
Approach Delay		28.9		19.0		6.9		14.1
Approach LOS		C		B		A		B

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 65
 Offset: 0 (0%), Referenced to phase 2:SBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 13.3 Intersection LOS: B
 Intersection Capacity Utilization 59.3% ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 670: Penn Ave & 64th St



CSAH 32 (Penn Ave) Reconstruction Project

Synchro Report – Emissions Reduction

Existing conditions (AM Peak)

Penn Regional Solicitation	04/03/2022
Existing AM	
670: Penn Ave & 64th St	
Direction	All
Future Volume (vph)	1276
Total Delay / Veh (s/v)	14
CO Emissions (kg)	1.28
NOx Emissions (kg)	0.25
VOC Emissions (kg)	0.30

Proposed conditions (AM Peak)

Penn Regional Solicitation	04/03/2022
Build AM	
670: Penn Ave & 64th St	
Direction	All
Future Volume (vph)	1276
Total Delay / Veh (s/v)	13
CO Emissions (kg)	1.31
NOx Emissions (kg)	0.26
VOC Emissions (kg)	0.30

Existing conditions (AM Peak)

Penn Regional Solicitation
Existing AM

04/03/2022
670: Penn Ave & 64th St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	88	1	1	1	48	447	1	584
Future Volume (vph)	88	1	1	1	48	447	1	584
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		4		2		2
Permitted Phases	4		4		2		2	
Detector Phase	4	4	4	4	2	2	2	2
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	12.0	12.0	12.0	12.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	18.0	18.0	18.0	18.0	92.0	92.0	92.0	92.0
Total Split (%)	16.4%	16.4%	16.4%	16.4%	83.6%	83.6%	83.6%	83.6%
Yellow Time (s)	3.2	3.2	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
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	4.7	4.7	4.7

Lead/Lag

Lead-Lag Optimize?

Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	12.1	12.1		12.1	88.5	88.5	88.5	88.5
Actuated g/C Ratio	0.11	0.11		0.11	0.80	0.80	0.80	0.80
v/c Ratio	0.87	0.31		0.02	0.11	0.34	0.00	0.52
Control Delay	95.0	15.6		38.3	10.8	14.9	2.0	2.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	95.0	15.6		38.3	10.8	14.9	2.0	2.9
LOS	F	B		D	B	B	A	A
Approach Delay		68.3		38.3		14.5		2.9
Approach LOS		E		D		B		A

Intersection Summary

Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 101 (92%), Referenced to phase 2:NBSB, Start of 1st Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 15.5	Intersection LOS: B
Intersection Capacity Utilization 59.3%	ICU Level of Service B
Analysis Period (min) 15	

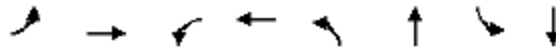
Splits and Phases: 670: Penn Ave & 64th St



Proposed conditions (AM Peak)

Penn Regional Solicitation
Build AM

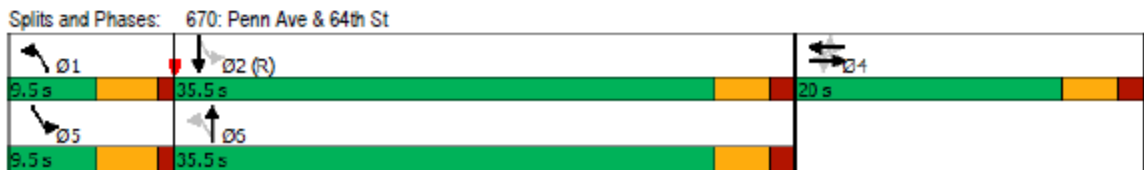
04/03/2022
670: Penn Ave & 64th St



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	88	1	1	1	48	447	1	584
Future Volume (vph)	88	1	1	1	48	447	1	584
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		4	1	6	5	2
Permitted Phases	4		4		6		2	
Detector Phase	4	4	4	4	1	6	5	2
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	12.0	5.0	12.0
Minimum Split (s)	20.0	20.0	20.0	20.0	9.5	20.0	9.5	20.0
Total Split (s)	20.0	20.0	20.0	20.0	9.5	35.5	9.5	35.5
Total Split (%)	30.8%	30.8%	30.8%	30.8%	14.6%	54.6%	14.6%	54.6%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.5	3.2	3.5	3.2
All-Red Time (s)	1.5	1.5	1.5	1.5	1.0	1.5	1.0	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)	4.7	4.7	4.7	4.7	4.5	4.7	4.5	4.7
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes		
Recall Mode	None	None	None	None	None	Max	None	C-Max
Act Effct Green (s)	9.9	9.9	9.9	9.9	47.3	47.1	45.5	43.3
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.73	0.72	0.70	0.67
v/c Ratio	0.63	0.25	0.01	0.01	0.13	0.38	0.00	0.63
Control Delay	39.0	9.2	19.0	4.4	7.1	4.0	14.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	39.0	9.2	19.0	4.4	7.1	4.0	14.1	
LOS	D	A	B	A	A	A	B	
Approach Delay		28.9		19.0		6.9		14.1
Approach LOS		C		B		A		B

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 65
 Offset: 0 (0%), Referenced to phase 2-SBTL, Start of 1st Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 13.3 Intersection LOS: B
 Intersection Capacity Utilization 59.3% ICU Level of Service B
 Analysis Period (min) 15



Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project



A. Roadway Description

Route	CSAH 32	District	Metro	County	Hennepin County
Begin RP	3.34	End RP	3.39	Miles	0.05
Location	At 75th St				

B. Project Description

Proposed Work	CSAH 32: Convert LT phasing from permissive only to FYA		
Project Cost*	\$16,420,000	Installation Year	2027
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 07698: Convert LT phasing from perm only to FYA (10.8% reduction)
Serious Injury (A) Crashes		
Moderate Injury (B) Crashes	Crash Type	CMF 07698: RE
Possible Injury (C) Crashes		
0.89 Property Damage Only Crashes		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

Fatal (K) Crashes	Reference	
Serious Injury (A) Crashes		
Moderate Injury (B) Crashes	Crash Type	
Possible Injury (C) Crashes		
Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date	1/1/2019	End Date	12/31/2021	3 years
Data Source	MnCMAT Version 2.0			
Crash Severity	CMF 07698: RE	None		
K crashes	0			
A crashes	0			
B crashes	0			
C crashes	0			
PDO crashes	1			

F. Benefit-Cost Calculation

\$9,186	Benefit (present value)	B/C Ratio = 0.01
\$16,420,000	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	\$1,500,000	Link: mndot.gov/planning/program/appendix_a.html Real Discount Rate 0.7% Traffic Growth Rate 0.5% Project Service Life 20 years
A crashes	\$750,000	
B crashes	\$230,000	
C crashes	\$120,000	
PDO crashes	\$13,000	

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	0.11	0.04	\$468
			\$468

H. Amortized Benefit

<u>Year</u>	<u>Crash Benefits</u>	<u>Present Value</u>	
2027	\$468	\$468	Total = \$9,186
2028	\$470	\$467	
2029	\$473	\$466	
2030	\$475	\$465	
2031	\$477	\$464	
2032	\$480	\$463	
2033	\$482	\$462	
2034	\$485	\$462	
2035	\$487	\$461	
2036	\$489	\$460	
2037	\$492	\$459	
2038	\$494	\$458	
2039	\$497	\$457	
2040	\$499	\$456	
2041	\$502	\$455	
2042	\$504	\$454	
2043	\$507	\$453	
2044	\$509	\$452	
2045	\$512	\$452	
2046	\$515	\$451	
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	\$0	

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project



A. Roadway Description

Route	CSAH 32	District	Metro	County	Hennepin County
Begin RP	3.39	End RP	4.07	Miles	0.68
Location	From 75th St to 69th St				

B. Project Description

Proposed Work	CSAH 32: Install bike lanes on 2-lane roadway and resurface pavement CSAH 32: Improve corridor lighting		
Project Cost*	\$16,420,000	Installation Year	2027
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 10727: Install bike lanes on 2-lane roadway (21.4% reduction)
Serious Injury (A) Crashes		CMF 09298: Resurface pavement (9.9% reduction)
0.71 Moderate Injury (B) Crashes	Crash Type	CMF 10727: SS & RA
Possible Injury (C) Crashes		CMF 09298: SS & RA
0.71 Property Damage Only Crashes		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

Fatal (K) Crashes	Reference	CMF 11026: Improve corridor lighting (32.1% reduction)
Serious Injury (A) Crashes		CMF 10727: Install bike lanes on 2-lane roadway (21.4 reduction)
0.53 Moderate Injury (B) Crashes	Crash Type	CMF 11026: Nighttime PED
Possible Injury (C) Crashes		CMF 10727: PED
Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date	1/1/2019	End Date	12/31/2021	3 years
Data Source	MnCMAT Version 2.0			
Crash Severity	CMF 10727: SS & RA CMF 09298: SS & RA	CMF 11026: Nighttime PED CMF 10727: PED		
K crashes	0	0		
A crashes	0	0		
B crashes	1	1		
C crashes	0	0		
PDO crashes	1	0		

F. Benefit-Cost Calculation

\$1,165,432	Benefit (present value)	B/C Ratio = 0.08
\$16,420,000	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	\$1,500,000	Link: mndot.gov/planning/program/appendix_a.html Real Discount Rate 0.7% Traffic Growth Rate 0.5% Project Service Life 20 years
A crashes	\$750,000	
B crashes	\$230,000	
C crashes	\$120,000	
PDO crashes	\$13,000	

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	0.76	0.25	\$58,113
C crashes	0.00	0.00	\$0
PDO crashes	0.29	0.10	\$1,265
			\$59,379

H. Amortized Benefit

Year	Crash Benefits	Present Value	
2027	\$59,379	\$59,379	Total = \$1,165,432
2028	\$59,676	\$59,261	
2029	\$59,974	\$59,143	
2030	\$60,274	\$59,026	
2031	\$60,575	\$58,908	
2032	\$60,878	\$58,791	
2033	\$61,182	\$58,675	
2034	\$61,488	\$58,558	
2035	\$61,796	\$58,442	
2036	\$62,105	\$58,326	
2037	\$62,415	\$58,210	
2038	\$62,727	\$58,094	
2039	\$63,041	\$57,979	
2040	\$63,356	\$57,864	
2041	\$63,673	\$57,749	
2042	\$63,991	\$57,634	
2043	\$64,311	\$57,520	
2044	\$64,633	\$57,405	
2045	\$64,956	\$57,291	
2046	\$65,281	\$57,178	
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	\$0	

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project



A. Roadway Description

Route	CSAH 32	District	Metro	County	Hennepin County
Begin RP	4.07	End RP	4.13	Miles	0.06
Location	At 69th St				

B. Project Description

Proposed Work	CSAH 32: Convert LT phasing from permissive only to FYA protected/permissive CSAH 32: Install additional primary signal head		
Project Cost*	\$16,420,000	Installation Year	2027
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 10915: Upgrade LT phasing to FYA prot/perm (53.3% reduction)
Serious Injury (A) Crashes		CMF 01414: Install additional primary signal head (28% reduction)
Moderate Injury (B) Crashes	Crash Type	CMF 10915: RE, LT, & RA
Possible Injury (C) Crashes		CMF 01414: RE, LT, & RA
0.44 Property Damage Only Crashes		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

Fatal (K) Crashes	Reference	
Serious Injury (A) Crashes		
Moderate Injury (B) Crashes	Crash Type	
Possible Injury (C) Crashes		
Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date	1/1/2019	End Date	12/31/2021	3 years
Data Source	MnCMAT Version 2.0			
Crash Severity	CMF 10915: RE, LT, & RA	CMF 01414: RE, LT, & RA	None	
K crashes	0			
A crashes	0			
B crashes	0			
C crashes	0			
PDO crashes	4			

F. Benefit-Cost Calculation

\$191,875	Benefit (present value)	B/C Ratio = 0.02
\$16,420,000	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	\$1,500,000	Link: mndot.gov/planning/program/appendix_a.html Real Discount Rate 0.7% Traffic Growth Rate 0.5% Project Service Life 20 years
A crashes	\$750,000	
B crashes	\$230,000	
C crashes	\$120,000	
PDO crashes	\$13,000	

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	2.26	0.75	\$9,776
			\$9,776

H. Amortized Benefit

<u>Year</u>	<u>Crash Benefits</u>	<u>Present Value</u>	
2027	\$9,776	\$9,776	Total = \$191,875
2028	\$9,825	\$9,757	
2029	\$9,874	\$9,737	
2030	\$9,923	\$9,718	
2031	\$9,973	\$9,699	
2032	\$10,023	\$9,679	
2033	\$10,073	\$9,660	
2034	\$10,123	\$9,641	
2035	\$10,174	\$9,622	
2036	\$10,225	\$9,603	
2037	\$10,276	\$9,584	
2038	\$10,327	\$9,565	
2039	\$10,379	\$9,546	
2040	\$10,431	\$9,527	
2041	\$10,483	\$9,508	
2042	\$10,535	\$9,489	
2043	\$10,588	\$9,470	
2044	\$10,641	\$9,451	
2045	\$10,694	\$9,432	
2046	\$10,748	\$9,414	
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	\$0	

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project



A. Roadway Description

Route	CSAH 32	District	Metro	County	Hennepin County
Begin RP	4.13	End RP	4.45	Miles	0.32
Location	From 69th St to CSAH 53 (66th St)				

B. Project Description

Proposed Work	CSAH 32: Install bike lanes on 2-lane roadway and resurface pavement		
Project Cost*	\$16,420,000	Installation Year	2027
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 10727: Install bike lanes on 2-lane roadway (21.4% reduction)
Serious Injury (A) Crashes		CMF 09298: Resurface pavement (9.9% reduction)
Moderate Injury (B) Crashes	Crash Type	CMF 10727: SS, RE, & RA
0.71 Possible Injury (C) Crashes		CMF 09298: SS, RE, & RA
0.71 Property Damage Only Crashes		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

Fatal (K) Crashes	Reference	
Serious Injury (A) Crashes		
Moderate Injury (B) Crashes	Crash Type	
Possible Injury (C) Crashes		
Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date	1/1/2019	End Date	12/31/2021	3 years
Data Source	MnCMAT Version 2.0			
Crash Severity	CMF 10727: SS, RE, & RA	CMF 09298: SS, RE, & RA	None	
K crashes	0			
A crashes	0			
B crashes	0			
C crashes	2			
PDO crashes	2			

F. Benefit-Cost Calculation

\$508,159	Benefit (present value)	B/C Ratio = 0.04
\$16,420,000	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	\$1,500,000	Link: mndot.gov/planning/program/appendix_a.html Real Discount Rate 0.7% Traffic Growth Rate 0.5% Project Service Life 20 years
A crashes	\$750,000	
B crashes	\$230,000	
C crashes	\$120,000	
PDO crashes	\$13,000	

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	0.58	0.19	\$23,360
PDO crashes	0.58	0.19	\$2,531
			\$25,891

H. Amortized Benefit

Year	Crash Benefits	Present Value	
2027	\$25,891	\$25,891	Total = \$508,159
2028	\$26,020	\$25,839	
2029	\$26,150	\$25,788	
2030	\$26,281	\$25,737	
2031	\$26,412	\$25,686	
2032	\$26,544	\$25,635	
2033	\$26,677	\$25,584	
2034	\$26,811	\$25,533	
2035	\$26,945	\$25,482	
2036	\$27,079	\$25,432	
2037	\$27,215	\$25,381	
2038	\$27,351	\$25,331	
2039	\$27,488	\$25,280	
2040	\$27,625	\$25,230	
2041	\$27,763	\$25,180	
2042	\$27,902	\$25,130	
2043	\$28,041	\$25,080	
2044	\$28,182	\$25,030	
2045	\$28,323	\$24,981	
2046	\$28,464	\$24,931	
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	\$0	

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project



A. Roadway Description

Route	CSAH 32	District	Metro	County	Hennepin County
Begin RP	4.45	End RP	4.51	Miles	0.06
Location	At CSAH 53 (66th St)				

B. Project Description

Proposed Work	CSAH 32: Reduce the number of through lanes on minor road from 2 to 1 CSAH 32: Install bike lanes at signalized intersection		
Project Cost*	\$16,420,000	Installation Year	2027
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 10990: Decrease number of thru lanes from 2 to 1 (12% reduction)
Serious Injury (A) Crashes		CMF 03247: Install bike lanes at signalized intersection (20% reduction)
0.88 Moderate Injury (B) Crashes	Crash Type	CMF 10990: RE, LT, RA, & BIKE
0.88 Possible Injury (C) Crashes		CMF 03247: BIKE
0.84 Property Damage Only Crashes		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

Fatal (K) Crashes	Reference	
Serious Injury (A) Crashes		
Moderate Injury (B) Crashes	Crash Type	
Possible Injury (C) Crashes		
Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date	1/1/2019	End Date	12/31/2021	3 years
Data Source	MnCMAT Version 2.0			
Crash Severity	CMF 10990: RE, LT, RA, & BIKE	CMF 03247: BIKE	None	
K crashes	0			
A crashes	0			
B crashes	2			
C crashes	5			
PDO crashes	9			

F. Benefit-Cost Calculation

\$953,897	Benefit (present value)	B/C Ratio = 0.06
\$16,420,000	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	\$1,500,000	Link: mndot.gov/planning/program/appendix_a.html Real Discount Rate 0.7% Traffic Growth Rate 0.5% Project Service Life 20 years
A crashes	\$750,000	
B crashes	\$230,000	
C crashes	\$120,000	
PDO crashes	\$13,000	

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	0.24	0.08	\$18,400
C crashes	0.60	0.20	\$24,000
PDO crashes	1.43	0.48	\$6,201
			\$48,601

H. Amortized Benefit

Year	Crash Benefits	Present Value	
2027	\$48,601	\$48,601	Total = \$953,897
2028	\$48,844	\$48,504	
2029	\$49,088	\$48,408	
2030	\$49,334	\$48,312	
2031	\$49,580	\$48,216	
2032	\$49,828	\$48,120	
2033	\$50,077	\$48,025	
2034	\$50,328	\$47,929	
2035	\$50,579	\$47,834	
2036	\$50,832	\$47,739	
2037	\$51,086	\$47,644	
2038	\$51,342	\$47,550	
2039	\$51,599	\$47,455	
2040	\$51,857	\$47,361	
2041	\$52,116	\$47,267	
2042	\$52,376	\$47,173	
2043	\$52,638	\$47,079	
2044	\$52,902	\$46,986	
2045	\$53,166	\$46,893	
2046	\$53,432	\$46,799	
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	\$0	

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project



A. Roadway Description

Route	CSAH 32	District	Metro	County	Hennepin County
Begin RP	4.51	End RP	4.7	Miles	0.19
Location	From CSAH 53 (66th St) to 64th St				

B. Project Description

Proposed Work	CSAH 32: Install bike lanes on 2-lane roadway and resurface pavement		
Project Cost*	\$16,420,000	Installation Year	2027
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 10727: Install bike lanes on 2-lane roadway (21.4% reduction)
Serious Injury (A) Crashes		CMF 09298: Resurface pavement (9.9% reduction)
0.71 Moderate Injury (B) Crashes	Crash Type	CMF 10727: SS, LT, & RA
0.71 Possible Injury (C) Crashes		CMF 09298: SS, LT, & RA
0.71 Property Damage Only Crashes		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

Fatal (K) Crashes	Reference	
Serious Injury (A) Crashes		
Moderate Injury (B) Crashes	Crash Type	
Possible Injury (C) Crashes		
Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date	1/1/2019	End Date	12/31/2021	3 years
Data Source	MnCMAT Version 2.0			
Crash Severity	CMF 10727: SS, LT, & RA	CMF 09298: SS, LT, & RA	None	
K crashes	0			
A crashes	0			
B crashes	4			
C crashes	1			
PDO crashes	4			

F. Benefit-Cost Calculation

\$2,086,126	Benefit (present value)	B/C Ratio = 0.13
\$16,420,000	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	\$1,500,000	Link: mndot.gov/planning/program/appendix_a.html Real Discount Rate 0.7% Traffic Growth Rate 0.5% Project Service Life 20 years
A crashes	\$750,000	
B crashes	\$230,000	
C crashes	\$120,000	
PDO crashes	\$13,000	

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	1.17	0.39	\$89,547
C crashes	0.29	0.10	\$11,680
PDO crashes	1.17	0.39	\$5,061
			\$106,288

H. Amortized Benefit

Year	Crash Benefits	Present Value	
2027	\$106,288	\$106,288	Total = \$2,086,126
2028	\$106,819	\$106,077	
2029	\$107,354	\$105,866	
2030	\$107,890	\$105,656	
2031	\$108,430	\$105,446	
2032	\$108,972	\$105,237	
2033	\$109,517	\$105,028	
2034	\$110,064	\$104,819	
2035	\$110,615	\$104,611	
2036	\$111,168	\$104,403	
2037	\$111,724	\$104,196	
2038	\$112,282	\$103,989	
2039	\$112,844	\$103,782	
2040	\$113,408	\$103,576	
2041	\$113,975	\$103,370	
2042	\$114,545	\$103,165	
2043	\$115,117	\$102,960	
2044	\$115,693	\$102,756	
2045	\$116,272	\$102,552	
2046	\$116,853	\$102,348	
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	\$0	

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project



A. Roadway Description

Route	CSAH 32	District	Metro	County	Hennepin County
Begin RP	4.7	End RP	4.76	Miles	0.06
Location	At 64th St				

B. Project Description

Proposed Work	CSAH 32: Convert LT phasing from permissive only to FYA protected/permissive CSAH 32: Install additional primary signal head		
Project Cost*	\$16,420,000	Installation Year	2027
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 10915: Upgrade LT phasing to FYA prot/perm (53.3% reduction)
Serious Injury (A) Crashes		CMF 01414: Install additional primary signal head (28% reduction)
Moderate Injury (B) Crashes	Crash Type	CMF 10915: SS & RE
0.34 Possible Injury (C) Crashes		CMF 01414: SS & RE
0.34 Property Damage Only Crashes		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

Fatal (K) Crashes	Reference	
Serious Injury (A) Crashes		
Moderate Injury (B) Crashes	Crash Type	
Possible Injury (C) Crashes		
Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date	1/1/2019	End Date	12/31/2021	3 years
Data Source	MnCMAT Version 2.0			
Crash Severity	CMF 10915: SS & RE	CMF 01414: SS & RE	None	
K crashes	0			
A crashes	0			
B crashes	0			
C crashes	1			
PDO crashes	1			

F. Benefit-Cost Calculation

\$577,770	Benefit (present value)	B/C Ratio = 0.04
\$16,420,000	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	\$1,500,000	Link: mndot.gov/planning/program/appendix_a.html Real Discount Rate 0.7% Traffic Growth Rate 0.5% Project Service Life 20 years
A crashes	\$750,000	
B crashes	\$230,000	
C crashes	\$120,000	
PDO crashes	\$13,000	

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	0.66	0.22	\$26,560
PDO crashes	0.66	0.22	\$2,877
			\$29,437

H. Amortized Benefit

<u>Year</u>	<u>Crash Benefits</u>	<u>Present Value</u>	
2027	\$29,437	\$29,437	Total = \$577,770
2028	\$29,585	\$29,379	
2029	\$29,732	\$29,321	
2030	\$29,881	\$29,262	
2031	\$30,031	\$29,204	
2032	\$30,181	\$29,146	
2033	\$30,332	\$29,088	
2034	\$30,483	\$29,031	
2035	\$30,636	\$28,973	
2036	\$30,789	\$28,915	
2037	\$30,943	\$28,858	
2038	\$31,097	\$28,801	
2039	\$31,253	\$28,743	
2040	\$31,409	\$28,686	
2041	\$31,566	\$28,629	
2042	\$31,724	\$28,572	
2043	\$31,883	\$28,516	
2044	\$32,042	\$28,459	
2045	\$32,202	\$28,403	
2046	\$32,363	\$28,346	
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	\$0	

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project



A. Roadway Description

Route	CSAH 32	District	Metro	County	Hennepin County
Begin RP	4.76	End RP	4.92	Miles	0.16
Location	From 64th St to TH 62 EB Ramps				

B. Project Description

Proposed Work	CSAH 32: Install bike lanes on 2-lane roadway and resurface pavement				
Project Cost*	\$16,420,000	Installation Year	2027		
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 10727: Install bike lanes on 2-lane roadway (21.4% reduction)
Serious Injury (A) Crashes		CMF 09298: Resurface pavement (9.9% reduction)
Moderate Injury (B) Crashes	Crash Type	CMF 10727: RE, LT, & RA
0.71 Possible Injury (C) Crashes		CMF 09298: RE, LT, & RA
0.71 Property Damage Only Crashes		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

Fatal (K) Crashes	Reference	
Serious Injury (A) Crashes		
Moderate Injury (B) Crashes	Crash Type	
Possible Injury (C) Crashes		
Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date	1/1/2019	End Date	12/31/2021	3 years
Data Source	MnCMAT Version 2.0			
Crash Severity	CMF 10727: RE, LT, & RA	CMF 09298: RE, LT, & RA	None	
K crashes	0			
A crashes	0			
B crashes	0			
C crashes	4			
PDO crashes	3			

F. Benefit-Cost Calculation

\$991,483	Benefit (present value)	B/C Ratio = 0.07
\$16,420,000	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	\$1,500,000	Link: mndot.gov/planning/program/appendix_a.html Real Discount Rate 0.7% Traffic Growth Rate 0.5% Project Service Life 20 years
A crashes	\$750,000	
B crashes	\$230,000	
C crashes	\$120,000	
PDO crashes	\$13,000	

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	1.17	0.39	\$46,720
PDO crashes	0.88	0.29	\$3,796
			\$50,516

H. Amortized Benefit

Year	Crash Benefits	Present Value	
2027	\$50,516	\$50,516	Total = \$991,483
2028	\$50,769	\$50,416	
2029	\$51,022	\$50,316	
2030	\$51,278	\$50,216	
2031	\$51,534	\$50,116	
2032	\$51,792	\$50,016	
2033	\$52,051	\$49,917	
2034	\$52,311	\$49,818	
2035	\$52,572	\$49,719	
2036	\$52,835	\$49,620	
2037	\$53,099	\$49,522	
2038	\$53,365	\$49,423	
2039	\$53,632	\$49,325	
2040	\$53,900	\$49,227	
2041	\$54,169	\$49,129	
2042	\$54,440	\$49,032	
2043	\$54,712	\$48,934	
2044	\$54,986	\$48,837	
2045	\$55,261	\$48,740	
2046	\$55,537	\$48,643	
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	\$0	

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project



A. Roadway Description

Route	<u>CSAH 32</u>	District	<u>Metro</u>	County	<u>Hennepin County</u>
Begin RP	<u>4.92</u>	End RP	<u>4.98</u>	Miles	<u>0.06</u>
Location	<u>At TH 62 EB Ramps</u>				

B. Project Description

Proposed Work	CSAH 32: Install retroreflective backplates CSAH 32: Upgrade LT phasing from protected/permissive to FYA		
Project Cost*	<u>\$16,420,000</u>	Installation Year	<u>2027</u>
Project Service Life	<u>20 years</u>	Traffic Growth Factor	<u>0.5%</u>

* exclude Right of Way from Project Cost

C. Crash Modification Factor

Fatal (K) Crashes	Reference	<u>CMF 01410: Install retroreflective backplates (15% reduction)</u>
<u>0.75</u> Serious Injury (A) Crashes		<u>CMF 09667: Upgrade LT phasing from prot/perm to FYA (12% reduction)</u>
<u>0.75</u> Moderate Injury (B) Crashes	Crash Type	<u>CMF 01410: SS, RE, LT, RA, & BIKE</u>
<u>0.75</u> Possible Injury (C) Crashes		<u>CMF 09667: SS, RE, LT, RA, & BIKE</u>
<u>0.75</u> Property Damage Only Crashes		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

Fatal (K) Crashes	Reference	<u></u>
Serious Injury (A) Crashes		<u></u>
Moderate Injury (B) Crashes	Crash Type	<u></u>
Possible Injury (C) Crashes		<u></u>
Property Damage Only Crashes		www.CMFclearinghouse.org

E. Crash Data

Begin Date	<u>1/1/2019</u>	End Date	<u>12/31/2021</u>	3 years
Data Source	<u>MnCMAT Version 2.0</u>			
Crash Severity	CMF 01410: SS, RE, LT, RA, & BIKE	CMF 09667: SS, RE, LT, RA, & BIKE	None	
K crashes	<u>0</u>			
A crashes	<u>1</u>			
B crashes	<u>1</u>			
C crashes	<u>2</u>			
PDO crashes	<u>8</u>			

F. Benefit-Cost Calculation

<u>\$2,182,848</u>	Benefit (present value)	B/C Ratio = 0.14
<u>\$16,420,000</u>	Cost	

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	\$1,500,000	Link: mndot.gov/planning/program/appendix_a.html Real Discount Rate 0.7% Traffic Growth Rate 0.5% Project Service Life 20 years
A crashes	\$750,000	
B crashes	\$230,000	
C crashes	\$120,000	
PDO crashes	\$13,000	

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	\$0
A crashes	0.25	0.08	\$63,000
B crashes	0.25	0.08	\$19,320
C crashes	0.50	0.17	\$20,160
PDO crashes	2.02	0.67	\$8,736
			\$111,216

H. Amortized Benefit

Year	Crash Benefits	Present Value	
2027	\$111,216	\$111,216	Total = \$2,182,848
2028	\$111,772	\$110,995	
2029	\$112,331	\$110,775	
2030	\$112,893	\$110,555	
2031	\$113,457	\$110,335	
2032	\$114,024	\$110,116	
2033	\$114,594	\$109,897	
2034	\$115,167	\$109,679	
2035	\$115,743	\$109,461	
2036	\$116,322	\$109,244	
2037	\$116,904	\$109,027	
2038	\$117,488	\$108,810	
2039	\$118,076	\$108,594	
2040	\$118,666	\$108,378	
2041	\$119,259	\$108,163	
2042	\$119,856	\$107,948	
2043	\$120,455	\$107,734	
2044	\$121,057	\$107,520	
2045	\$121,662	\$107,306	
2046	\$122,271	\$107,093	
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	\$0	

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
MINNESOTA



CSAH 32 (Penn Ave) Reconstruction Project

Attachment 05 | Potential Concept

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CSAH 32 (Penn Ave) Reconstruction Project

Attachment 05 | Potential Concept

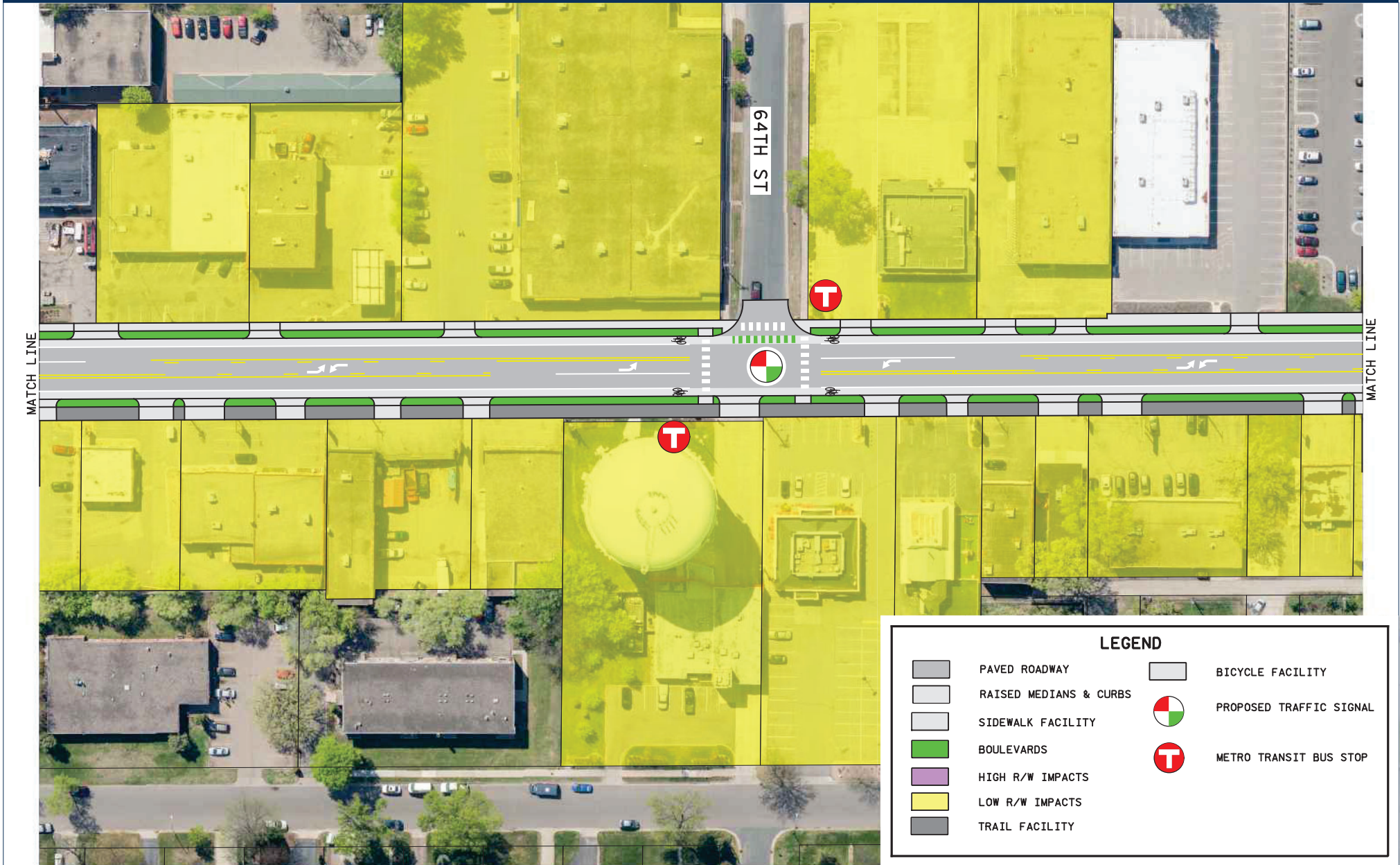
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CSAH 32 (Penn Ave) Reconstruction Project

Attachment 05 | Potential Concept

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CSAH 32 (Penn Ave) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
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CSAH 32 (Penn Ave) Reconstruction Project

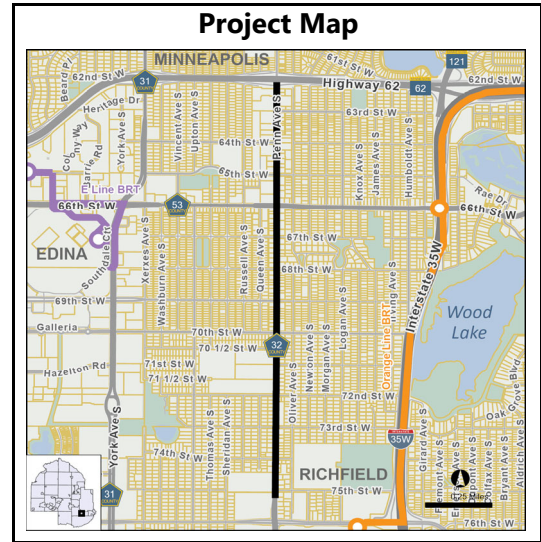
List of attachments

1. Project Narrative
2. Project Location Map
3. Existing Roadway Condition Photos
4. Potential Typical Section
5. Potential Concept
6. Hennepin County Board Resolution 22-0109
7. Penn Ave Corridor Study Excerpt
8. Community Engagement Summary
9. Affordable Housing Access Map and Detail Summary
10. Socio-Economic Equity Map
11. Streetlight HCAADT Report
12. Crash Map and Detail Listing
13. Crash Modification Factors
14. Multimodal Connections Map
15. City of Richfield Support Letter
16. MnDOT Support Letter

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 01 | Project Narrative

Project Name	
CSAH 32 (Penn Ave) Reconstruction Project	
City(ies)	
Richfield	
Commissioner District(s)	
5	
Capital Project Number	Project Category
CP 2120700	Reconstruction
Scoping Manager	Scoping Form Revision Dates
Emily Buell	4/8/2022



Project Summary
Reconstruct CSAH 32 (Penn Avenue) from approximately 125' south of 75th Street to the Crossotown (TH 62) eastbound ramps in the City of Richfield.

Roadway History
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. Segments of the curb have experienced settling, diminishing their ability to collect water and define the roadway edge. In addition, much of the corridor lacks a consistent boulevard space, making it uncomfortable for people who walk and roll.

Project Timeline

- Scoping: Q1 2022 - Q4 2023
- Design: Q1 2024 - Q4 2026
- R/W Acquisition: Q1 2025 - Q4 2026
- Bid Advertisement: Q1 2027
- Construction: Q2 2027 - Q4 2028

Project Delivery Responsibilities

- Preliminary Design: Consultant
- Final Design: Consultant
- Construction Services: Consultant

Project Description and Benefits
The proposed project will improve the accessibility, mobility, and safety for people walking, using transit, biking, and driving through the implementation of complete streets best practices. The project will include the replacement of deteriorated pavement, traffic signals, curb, and storm sewer structures. Specific safety improvements include the installation of curb extensions and raised medians to calm traffic and improve the experience for people crossing. Multimodal elements such as dedicated bicycle facilities, sidewalk, ADA upgrades, and streetscaping will improve the user experience for people walking, using transit, and biking.

Project Budget -	Project Level
Construction: \$	12,630,000
Cost Estimate Year:	2022
Construction Year:	2027
Annual Inflation Rate:	2.0%
Inflated Construction: \$	13,940,000
Design Services: \$	2,090,000
R/W Acquisition: \$	2,210,000
Other (Utility Burial): \$	-
Construction Services: \$	1,390,000
Contingency: \$	4,180,000
Total Project Budget: \$	23,810,000

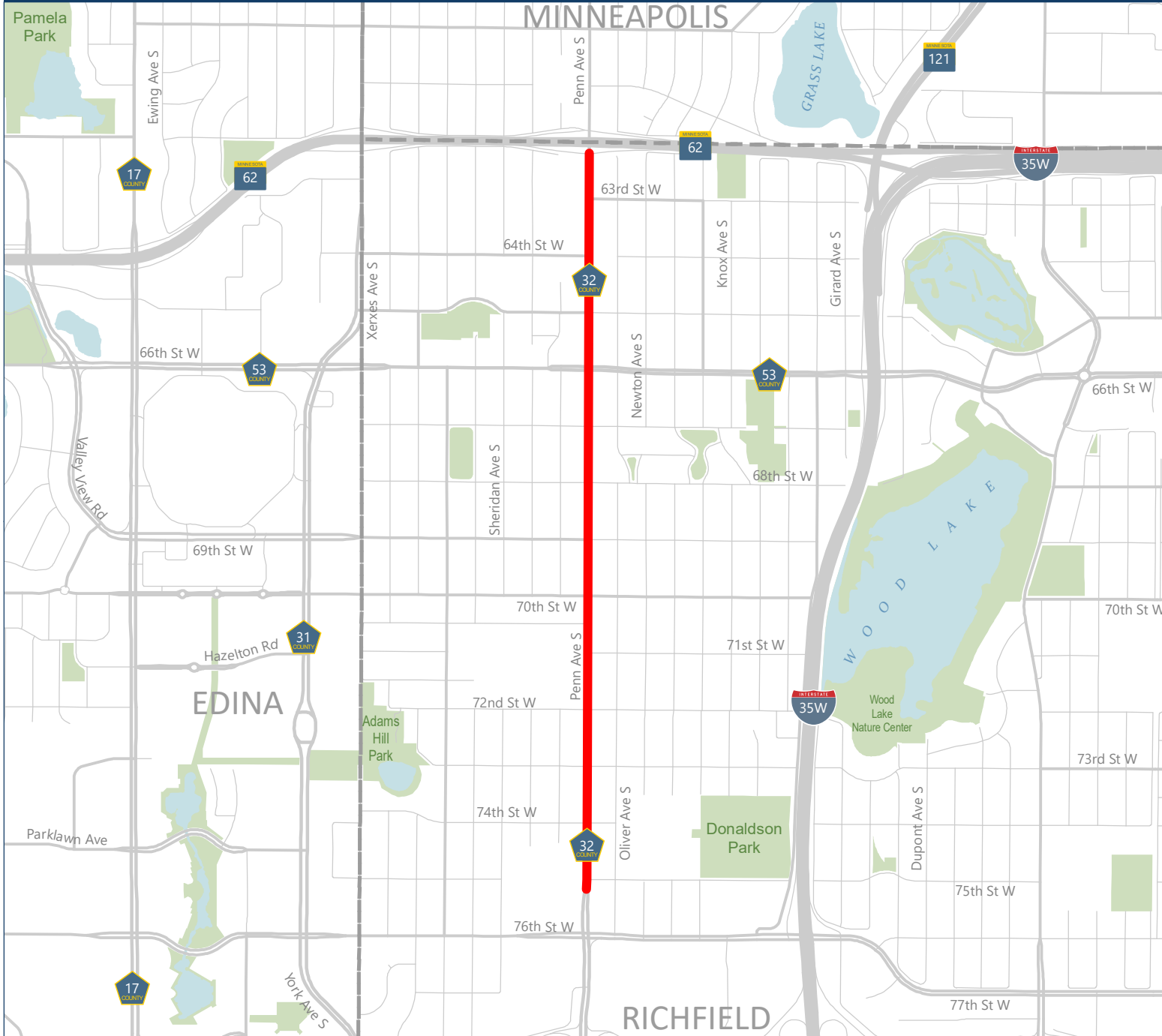
Project Risks & Uncertainties

Funding Notes
This project is eligible for federal funding through the Metropolitan Council's Regional Solicitation because of the roadway's functional classification as an A-Minor Arterial (Reliever).

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 02 | Project Location Map

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Key

 Project Location



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.

Published date: 3/8/2022



CSAH 32 (Penn Ave) Reconstruction Project

Attachment 03 | Existing Roadway Condition Photos



View of the existing 3-lane road configuration, looking north at 73th St.



The corridor has significant sidewalk deficiencies, including this obstruction of snow and missing pedestrian ramp looking north at 68th St.



Wide curb-to-curb distances and high vehicle speeds make unsignalized pedestrian crossing difficult.



Degraded pavement assets obstructing pedestrian crossings at 74th St.

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 03 | Existing Roadway Condition Photos



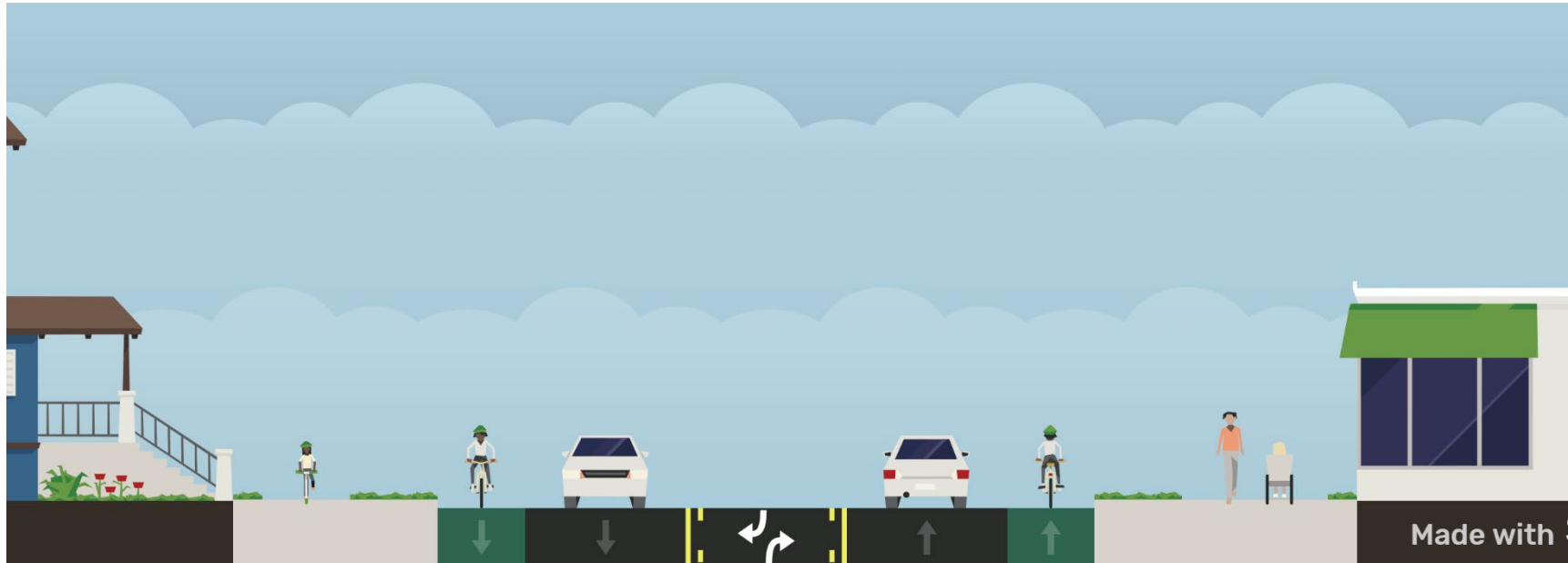
Cyclist utilizing the sidewalk, leading to potential user conflicts. Looking south at the 67th St intersection.



Riders waiting for Metro Transit Route 4 utilizing landscaping as seating. South of the 66th St intersection.

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 04 | Potential Typical Section



CSAH 32 (Penn Ave) Reconstruction Project

Attachment 05 | Potential Concept

HENNEPIN COUNTY
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CSAH 32 (Penn Ave) Reconstruction Project

Attachment 05 | Potential Concept

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CSAH 32 (Penn Ave) Reconstruction Project

Attachment 05 | Potential Concept

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CSAH 32 (Penn Ave) Reconstruction Project

Attachment 05 | Potential Concept

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Attachment 05 | Potential Concept

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CSAH 32 (Penn Ave) Reconstruction Project

Attachment 05 | Potential Concept

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CSAH 32 (Penn Ave) Reconstruction Project

Attachment 05 | Potential Concept

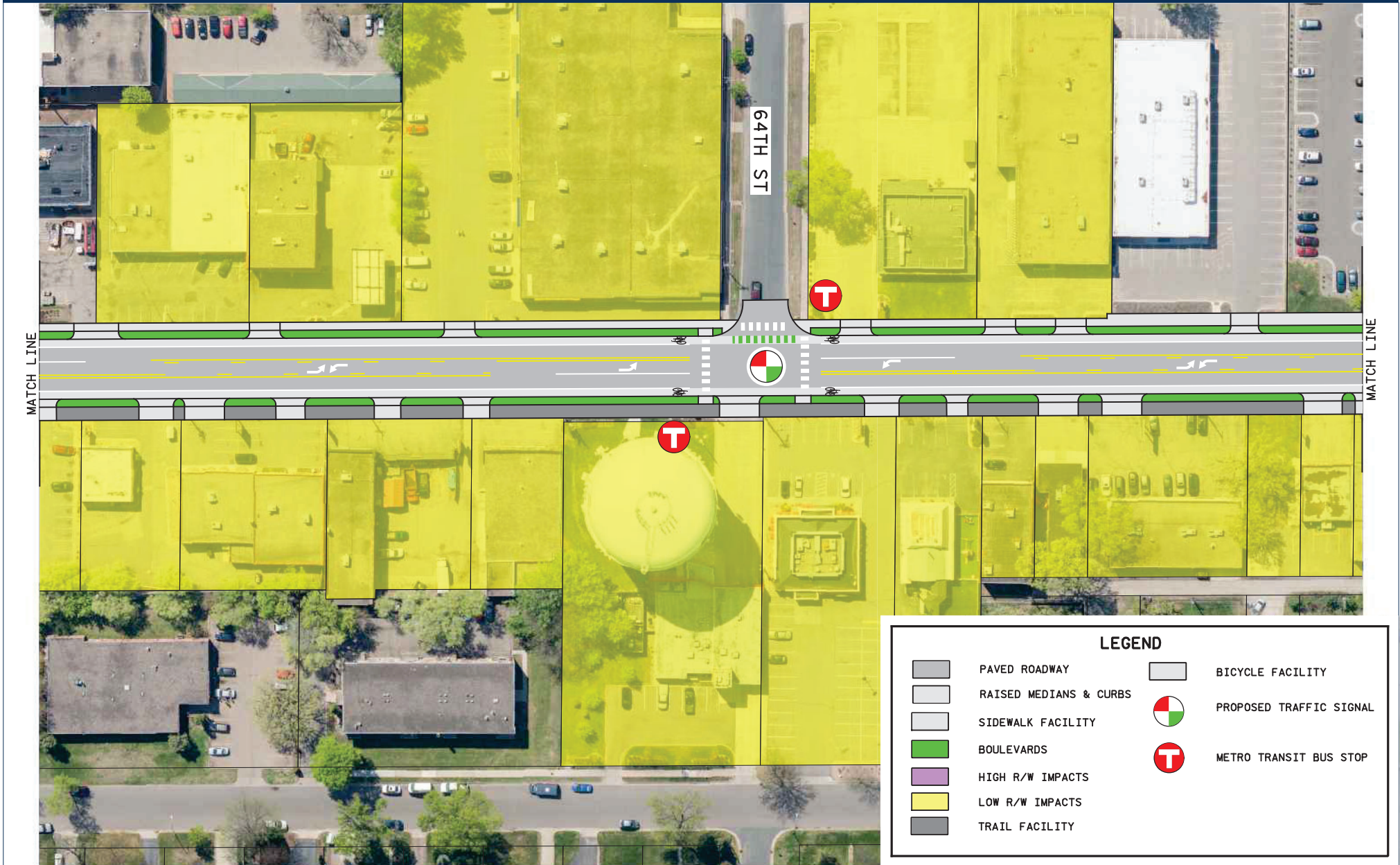
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CSAH 32 (Penn Ave) Reconstruction Project

Attachment 05 | Potential Concept

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CSAH 32 (Penn Ave) Reconstruction Project

Attachment 05 | Potential Concept

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CSAH 32 (Penn Ave) Reconstruction Project

Attachment 06 | Hennepin County Board Resolution 22-0109

HENNEPIN COUNTY MINNESOTA

Hennepin County, Board of Commissioners

RESOLUTION 22-0109

2022

The following resolution was moved by Commissioner Angela Conley and seconded by Commissioner Debbie Goettel:

BE IT RESOLVED, that Hennepin County be authorized to apply for federal funding through the Regional Solicitation for the following projects (separated by category) on various County State Aid Highways (CSAHs) throughout the county:

Roadway Reconstruction/Modernization

Projects programmed in the 2022-2026 CIP:

- Franklin Avenue (CSAH 5) from Lyndale Avenue (CSAH 22) to Blaisdell Avenue in Minneapolis
- Dayton River Road (CSAH 12) from Colburn Street to North Diamond Lake Road (CSAH 144) in Dayton and Champlin
- Lyndale Avenue (CSAH 22) from the Hennepin County Regional Railroad Authority (HCRRA) bridge to Franklin Avenue (CSAH 5) in Minneapolis

Projects identified in the county's 10-year work-plan, but not programmed in the 2022-2026 CIP:

- Penn Avenue (CSAH 32) from 75th Street to the Trunk Highway 62 South Ramp in Richfield
- Cedar Avenue (CSAH 152) from Lake Street (CSAH 3) to 24th Street in Minneapolis

Bridge Rehabilitation/Replacement

Project programmed in the 2022-2026 CIP:

- Bass Lake Road (CSAH 10) bridge over the Twin Lakes Inlet in Brooklyn Center and Crystal

Projects identified in the county's 10-year work-plan, but not programmed in the 2022-2026 CIP:

- Pioneer Trail (CSAH 1) bridge over the HCRRA corridor in Eden Prairie
- Eden Prairie Road (CSAH 4) bridge over Twin Cities and Western Railroad in Eden Prairie

Multiuse Trails/Bicycle and Pedestrian Facilities (sidewalks, streetscaping and improved accessibility)

Project partially programmed in the 2022-2026 CIP:

- Lake Street (CSAH 3) from Dupont Avenue to the Mississippi River

Project identified in the county's 10-year work-plan, but not programmed in the 2022-2026 CIP:

- Marshall Street NE (CSAH 23) from Third Avenue NE to Lowry Avenue NE (CSAH 153).

Project not currently identified in the county's 2022-2026 CIP or 10-year work-plan:

- Park Avenue (CSAH 33) and Portland Avenue (CSAH 35) from Lake Street (CSAH 3) to the I-94/I-35W Bridge in Minneapolis

Mobility and Safety

Projects not currently identified in the county's 10-year work-plan or 5-year CIP:

- Rockford Road (CSAH 9) and Northwest Boulevard (CSAH 61) in Plymouth
- Hemlock Lane (CSAH 61) and Elm Creek Boulevard (CSAH 130) in Maple Grove

The question was on the adoption of the resolution and there were 7 YEAS and 0 NAYS, as follows:

**County of Hennepin
Board of County Commissioners**

YEAS

NAYS

ABSTAIN

ABSENT

Marion Greene

Debbie Goettel

Irene Fernando

Angela Conley

Jeff Lunde

Chris LaTondresse

Kevin Anderson

RESOLUTION ADOPTED ON

3/22/2022

ATTEST:



Deputy/Clerk to the County Board



CSAH 32 (Penn Ave) Reconstruction Project

Attachment 07 | Penn Ave Corridor Study Excerpt



Penn Ave looking north from 65th Street



Prepared For Hennepin County and the City of Richfield

Prepared by Zan Associates

April 2021

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 07 | Penn Ave Corridor Study Excerpt

PROJECT OVERVIEW

The City of Richfield and Hennepin County are studying design improvements on Penn Avenue from Highway 62 to 68th Street. The project was initiated to identify safe, effective, and feasible transportation improvements for all users, which support positive redevelopment and investment in the area.

The purpose of this report is to document processes and findings of the corridor study, including the public engagement process, near-term improvements, and the ultimate corridor vision. This includes illustrations of some of the strategies that could be used along Penn Avenue. These illustrations are conceptual and not intended to be viewed as a final design plan.



Study area

CENTRAL QUESTIONS FOR THE STUDY:

Near-term improvements

What can be accomplished with the county's planned (summer 2021) maintenance project? Can all or some of the corridor be reconfigured from four lanes (two lanes in each direction) to three lanes (one lane in each direction with a shared center turn lane)? Can bikable shoulders be implemented?

Problem statement

What are the issues and opportunities facing the corridor? What improvements are needed to address those issues and how can they be phased over time as resources become available?

Corridor vision

What is the long-term vision for the corridor? What improvements can be made to balance the corridor constraints, city and county policy direction, and community desires for Penn Avenue? Can the corridor vision be accomplished without significant business/resident displacement?

Parking

Is there an adequate supply of parking along the corridor? Are there locations where additional on-street parking should be considered? Are there opportunities to implement district or shared parking in the area?

Access and circulation

What strategies could be implemented in partnership with the adjacent property owners to help reach a mutually beneficial corridor vision?

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 07 | Penn Ave Corridor Study Excerpt

BACKGROUND AND EXISTING CONDITIONS

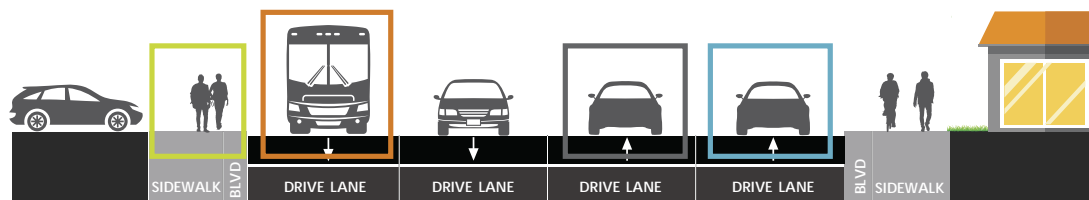
Penn is a primary north-south arterial reliever roadway through Richfield. It is under Hennepin County jurisdiction as County State Aid Highway 32 (CSAH 32) and serves as an important regional connection for all modes. Known locally as the Penn Central Corridor, Penn Avenue connects Richfield to Hwy 62 to the north and I-494 to the south, as well as neighboring cities of Minneapolis and Bloomington, while providing neighborhood access to Penn-Central businesses.

Penn Avenue is in need of repairs to address deteriorating pavement, and the City of Richfield's Comprehensive Plan – Richfield 2040, identifies the Penn Avenue corridor as potential redevelopment area with future Mixed Use development. The intent is to create a "traditional neighborhood corridor that is vibrant and pedestrian-oriented."

COMMUNITY CONTEXT

Land uses along the corridor are a mix of neighborhood commercial (restaurants, retail, offices, etc.), multi-unit residences, and institutional uses like the Fraser school offices and a fire station. In addition, construction of a 6-story residential development adjacent to the existing Lunds and Byerlys grocery store on the north end of the project is currently underway, and the city Housing and Redevelopment Authority has plans to develop the former "Bumper-to-Bumper" site at Penn Avenue and 65th Street as a multifamily residential building in the future.

EXISTING ROADWAY

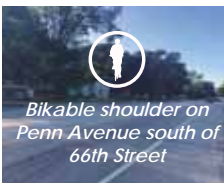


The existing right-of-way width is 66-feet, building front to building front except near the Penn Avenue and 66th St intersection where the right-of-way increases to 85-feet. The following illustrates the typical existing roadway design along Penn Avenue.



PEDESTRIANS

There are concrete sidewalks along both sides of Penn Avenue within the study area, and striped crosswalks across side streets along Penn Avenue at several intersections. The sidewalks are generally 5 to 6 feet wide with little or no separation from traffic lanes on Penn Avenue. There is also a shared-use trail on the southside of the noise wall along Hwy 62 that crosses Penn Avenue at the northern end of the study area and sidewalks and a trail crossing the corridor at 66th Street.



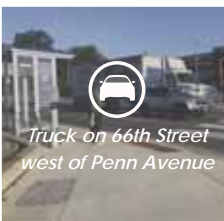
BIKES

There are no dedicated bicycle facilities along the corridor, but Penn Avenue is identified in the city's Bicycle Master Plan (2012) as a "future planned bicycle route." The 3-lane section of Penn Avenue south of 66th Street is striped with wide, bikable shoulders. Intersecting bicycle routes include an east-west trail at the north end of the study corridor, along Hwy 62 and an east-west shared-use path on 66th Street. Additionally, the Nine Mile Creek Regional Trail runs along 75th Street and crosses Penn Avenue 7 blocks to the south of the study corridor.



BUSES

Penn Avenue is a key transit corridor for Richfield with regularly scheduled buses running throughout the day. Penn Avenue is served by Metro Transit's Route 4 and express service with route 558. There is also local service (route 515) on 66th Street with bus stops at Penn Avenue. METRO Transit has also identified the study segment of Penn Avenue as a potential future rapid bus route (arterial BRT).







CARS AND TRUCKS

The posted speed limit is 30 mph and there are signalized intersections at Hwy 62, 64th Street and 66th Street. Traffic volumes were measured between 11,900 and 12,800 vehicles per day in 2016. Most businesses offer off-street parking. The only on-street parking is on the west-side of Penn Avenue between 66th Street and 67th Street and on both sides of Penn Avenue between 67th Street and 68th Street. Penn Avenue also serves as a freight corridor by providing first- and last- mile hauling connections to local customers and businesses. A 2018 traffic count on Penn Avenue south of I-494 (south of the study corridor) estimated 1,350 heavy commercial vehicles per day.

CSAH 32 (Penn Ave) Reconstruction Project






Attachment 07 | Penn Ave Corridor Study Excerpt

COMMUNITY VOICES



	 PHASE 1: UNDERSTANDING THE PROBLEM	 PHASE 2: DESIGNING THE TOOLBOX
 GOALS	<ul style="list-style-type: none"> ● Provide information on the study ● Connect with residents, businesses, and property owners ● Ask people about what works and what could be improved on Penn Avenue ● Discuss options for redevelopment opportunities 	<ul style="list-style-type: none"> ● Provide a study update ● Confirm the issues and opportunities ● Ask about community preferences for potential design strategies
 ACTIVITIES	<ul style="list-style-type: none"> MnDOT design workshop Penn Fest Open house Virtual survey Business listening sessions Richfield Transportation Commission 	<ul style="list-style-type: none"> Virtual open house (survey and business listening sessions) Richfield Transportation Commission

This study included a range of community engagement spread out over two overlapping phases. The goal of phase one was to collect input on issues and opportunities and the goal of phase two was to present a range of potential strategies and to ask about preferences.



FIRST OPEN HOUSE

VIRTUAL SURVEY  completed by 60 people	 NOVEMBER 14TH 2020	IN PERSON  about 90 attendees
MNDOT WORKSHOP  40 Transportation Professionals		PENN FEST  150+ Public Interactions

LISTENING SESSIONS

INCLUDED  14 conversations	 FEBRUARY 20TH 2020	WITH businesses & property owners
<i>Conducted on-site in the corridor</i>		

VIRTUAL OPEN HOUSE 2

INCLUDED  500+ visits	 JUNE 6 - JULY 13 2020	WITH 120+ survey responses & 160 interactive map comments
<i>Virtual engagement platform: https://arcg.is/01w8ev</i>		

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 07 | Penn Ave Corridor Study Excerpt



PENN AVENUE CORRIDOR STUDY

COMMUNITY VOICES



WHAT WE HEARD

The following is a summary of the key themes of the community engagement activities.



Many people want **safe pedestrian crossings**. Every Penn Avenue intersection in the study corridor was acknowledged as needing pedestrian crossing improvements. Those without traffic signals were most frequently identified.



Improved sidewalks and boulevards were a popular request for the entire Penn Avenue corridor. People said the existing facilities are in poor condition or are too close to the road.



Many people want **streetscape improvements** that improve the look of Penn Avenue and add more greenery. People said that the existing road is in poor condition and has too much pavement.



Many people said that **bike lanes** are needed throughout the corridor, but there was disagreement on what type of bicycle facility would be best to use on Penn Avenue. Some people requested better bike crossings at problem intersection such as the trail crossing south of Hwy 62.



Many people said a **road diet** (decreasing the number of vehicle through lanes) would allow traffic to keep moving and make left turns easier to and from Penn Avenue



Several people requested **on-street parking** on Penn Avenue to help access destinations such as the businesses south of 66th Street and the businesses near the intersection at 63rd Street.



There was disagreement about **roundabouts** on Penn Avenue with some people requesting them at problem intersections like 66th Street or 65th Street, while others were opposed to adding any roundabouts

Engaging the community at Penn Fest and Open House at Sheridan Hills Elementary School

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 07 | Penn Ave Corridor Study Excerpt

ISSUES AND OPPORTUNITIES



This map is a summary of the issues and opportunities identified throughout the community input process, and as a result of the technical analysis completed (e.g., crash data review, traffic analysis, etc.).

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 07 | Penn Ave Corridor Study Excerpt

ISSUES AND OPPORTUNITIES



This map is a summary of the issues and opportunities identified throughout the community input process, and as a result of the technical analysis completed (e.g., crash data review, traffic analysis, etc.).

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 07 | Penn Ave Corridor Study Excerpt

PROBLEM STATEMENT AND PRIORITIES

PROBLEM STATEMENT

A problem statement is a tool used to help evaluate potential design strategies. The problem statement for Penn Avenue was developed considering the constraints of the corridor, city and county policy guidance, and input from the community.



Penn Avenue needs improvement to facilitate community revitalization plans

- The comprehensive plan calls for mixed use redevelopment to support a vibrant and walkable neighborhood.
- The existing auto-oriented street and sidewalks do not support this vision.



Penn Avenue is not comfortable to walk

- It is not comfortable or convenient to walk along and across, and community feedback indicates that it feels unsafe.
- There are no features like boulevards and trees to create a positive walking experience.



Biking on Penn Avenue is not practical

- There are no dedicated bike facilities.
- Biking along the corridor is impractical for all but the most confident riders.



Very little green space or space for stormwater treatment and utilities

- Lack of a continuous boulevard means no space for trees or plantings to create vertical separation between the road and sidewalks.
- No space for stormwater treatment, snow storage, utilities, and signage means frequent sidewalk obstructions.








Vehicles need a functional roadway

- Pavement is deteriorating and in need of repairs.
- Left turns experience delays and queuing during peak periods.

MODAL PRIORITIES

The modal priorities for Penn Avenue were developed based on a combination of community input and city and county policy direction. These are intended to guide the evaluation of design concepts.

MODE	PRIORITY	DESIRED ELEMENTS OF FACILITIES
 Walking (along and across)	HIGHEST	Wide sidewalks, benches, shade, trees, lights, crosswalks, medians for refuge, safe vehicle speeds
 Driving to Penn Ave	HIGHEST	Dedicated left turn lanes, convenient driveway access, parking, aesthetic treatments
 Taking the bus	MEDIUM	Same as walking elements, accessible bus stops with benches, shelter, lighting, heat, garbage
 Biking	MEDIUM	Dedicated facilities, separation from vehicles, safe vehicle speeds
 Driving along Penn Ave	LOWEST	Convenient and reliable traffic flow, safe vehicle operations

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 07 | Penn Ave Corridor Study Excerpt

TOOLS AND STRATEGIES

The toolbox includes a range of improvement strategies that have been implemented in other places throughout Hennepin County and could be considered for Penn Avenue. This chart shows an evaluation of these tools' ability to meet the corridor vision. The evaluation criteria were developed considering the problem statement and modal priorities established through the study. The map that follows is an illustration of these tools. Review the Toolbox Memorandum for a more detailed description of each tool, including a review of the benefits and tradeoffs for each (see Appendix B).



Evaluation Criteria

	Road diet/3-lane conversion	Better sidewalks + boulevards	Enhanced pedestrian crossings	Flashing lights	Bike lanes or trails	Raised medians (reduced conflict points)	Streetscape improvements	Roundabout or signal improvement	On-street parking
Walk – along/across	●	●	●	●	●	●	●	●	
Bike – along/across	●	●	●	●	●	●	●	●	
Drive – to Penn Ave	●	●	●	●	●	●	●	●	
Drive – through Penn Ave	●	●	●	●	●	●	●	●	
Community Revitalization	●	●	●	●	●	●	●	●	
Green space/boulevard	●	●	●	●	●	●	●	●	

Evaluation of potential tools and strategies

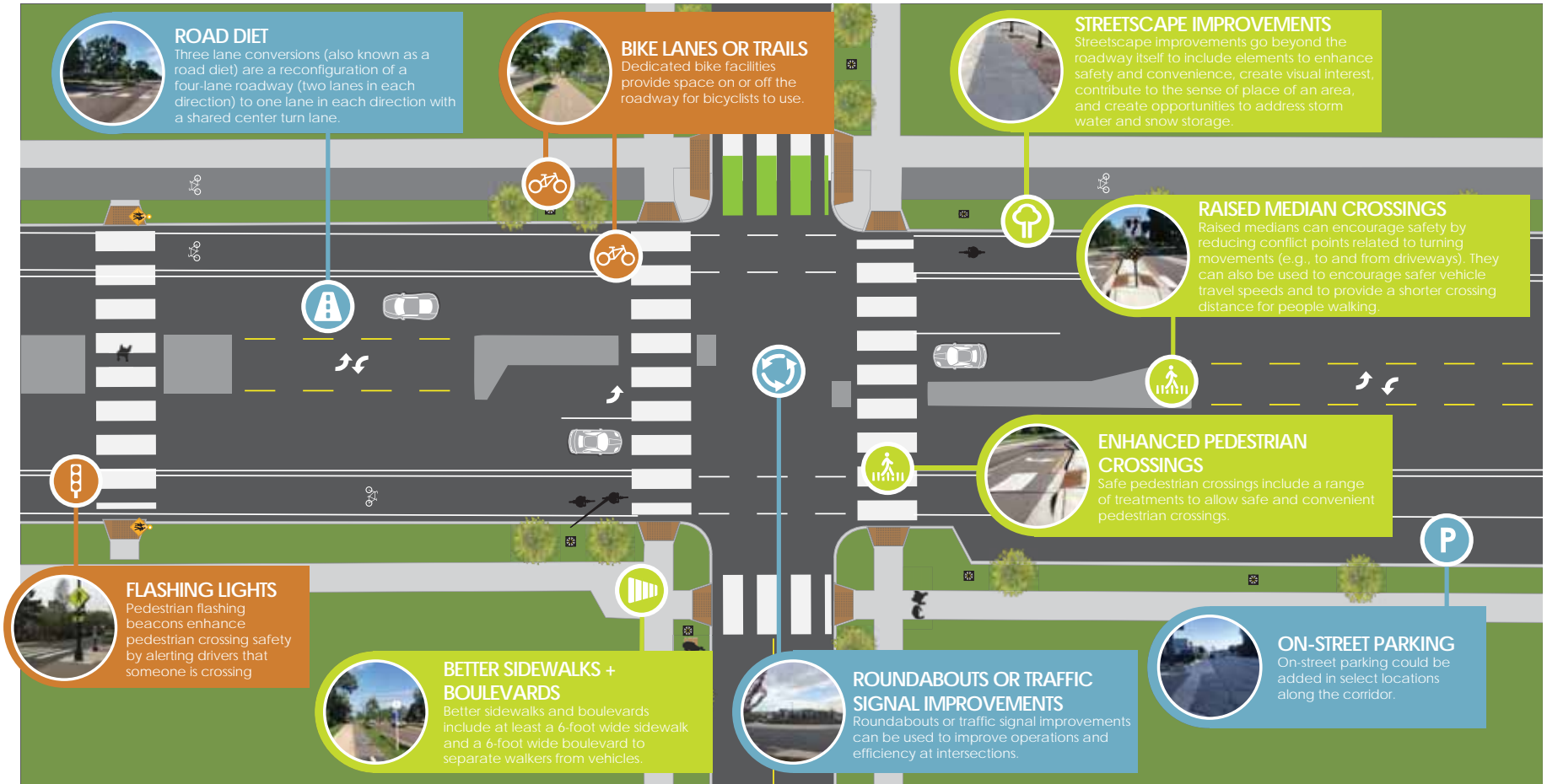
CSAH 32 (Penn Ave) Reconstruction Project

Attachment 07 | Penn Ave Corridor Study Excerpt



PENN AVENUE CORRIDOR STUDY

TYPICAL TOOLS AND STRATEGIES



This is a generic illustration of potential tools and strategies and is not intended to represent a specific location on Penn Avenue.

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 07 | Penn Ave Corridor Study Excerpt

PROJECT PHASING

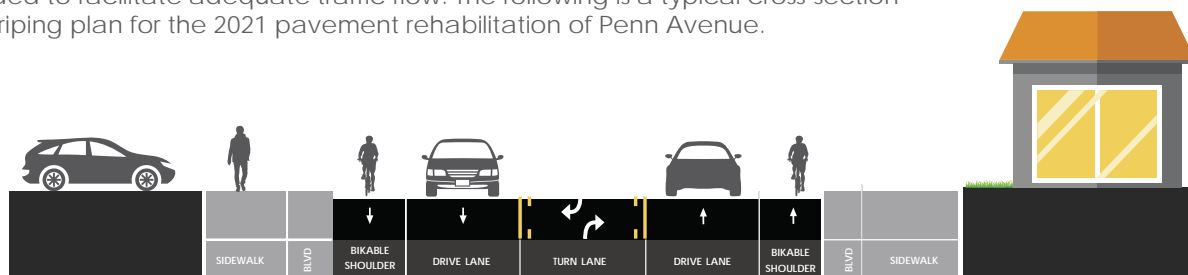
The study identifies a future vision for Penn Avenue which will be completed over time as funding is secured. The study also identifies near-term and intermediate improvements which will move the corridor toward the vision in incremental steps.

NEAR-TERM IMPROVEMENTS

Hennepin County is planning a pavement rehabilitation project for the study segment of Penn Avenue during the summer of the year 2021. As part of this process, the county completed a technical review of the existing and expected future vehicle traffic in the corridor to evaluate the feasibility of implementing a change from 4-lanes to 3-lanes along Penn Avenue using pavement markings as part of the rehabilitation project. This review included consideration for key population and demographic trends, land use, and planned development within the corridor. Based on existing and expected future traffic volumes, a road diet – which would reduce the number of vehicle travel lanes from four (two in each direction) to three (one in each direction) is feasible for much of the corridor. Exceptions include Penn Avenue north of 63rd Street where the entrances and exits to Hwy 62 necessitate extra lanes, and the approaches to 66th Street where turn lanes are needed to facilitate adequate traffic flow. The following is a typical cross-section illustrating this change. Refer to Appendix C for the full striping plan for the 2021 pavement rehabilitation of Penn Avenue.

INCREMENTAL STEPS

The incremental improvement recommendations are a series of spot improvements that should be implemented over time as opportunities arise (e.g., city and county funding, adjacent projects, etc.). These projects represent relatively low cost and high benefit solutions that will move the corridor toward the long term vision.



Typical Cross-Section for 2021 Pavement Project on Penn Avenue

NEAR-TERM (2021): County maintenance project	INCREMENTAL STEPS (FOR CONSIDERATION): Spot safety and operations improvements	LONG-TERM VISION (NO FUNDING IDENTIFIED): Full roadway reconstruction
<ul style="list-style-type: none">  Restriping project with road diet  Add bikable shoulders where feasible 	<ul style="list-style-type: none">  On-street bike lanes  Enhanced pedestrian crossings  Address sidewalk gap  Reconfigure Highway 62 bridge striping 	<ul style="list-style-type: none">  Reallocate space to create better places for people to walk and bike  Encourage parking and circulation improvements for adjacent properties  Find opportunities to implement green infrastructure improvements, street trees and plantings, and underground utilities

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 07 | Penn Ave Corridor Study Excerpt

LONG-TERM VISION

The *vision* for Penn Avenue includes reallocating roadway space to create room to improve safety and comfort for all modes of travel (including those who walk, bike, and roll), adding center left turn lanes to create better access to adjacent businesses, and adding consistent boulevards to allow for street trees and plantings, space for utilities, and better stormwater and snow storage. The corridor will maintain two-way vehicle traffic and will gain wider sidewalks and boulevards, improved pedestrian crossings, an off-street shared-use path for pedestrians and bicyclists, and a center turn lane in some areas to improve access.

To implement the vision, the number of vehicle lanes will be reduced from four lanes (two in each direction), to three lanes (one in each direction and a center turn lane) for most of the corridor (the approaches to 66th Street and to Hwy 62 require additional study). This will allow the space needed to accomplish the project goals to create a more functional, safe, and beautiful Penn Avenue without degrading traffic operations and without significant property takings.

DESIGN CONCEPTS

The following pages include illustrations of the corridor vision for each segment of the Penn Avenue study area at a concept level (cross-sections). These designs are not intended to be viewed as a final design plan. Additional engineering and design will be completed prior to implementation. In addition, this section identifies specific segments where additional improvement strategies should be pursued as funding becomes available, including:

Public/private partnership opportunities

Roadway improvements

Pedestrian improvements

Bike improvements

EVALUATION

The design concepts were evaluated based on their ability to meet the corridor vision using a high, medium, and low scoring based on the evaluation criteria. A high score means the design fully addresses the criterion/user/goal and a low score represents a lower level of accommodation or priority placed on that criterion/user/goal.

-  Walk – along/across
-  Bike – along/across
-  Drive – to Penn Ave
-  Drive – along Penn Ave
-  Community Revitalization
-  Green space/boulevard

Penn Ave looking north from 65th Street



CSAH 32 (Penn Ave) Reconstruction Project

Attachment 08 | Penn Ave Community Engagement Summary

Open House 1 Summary

NOVEMBER 25, 2019

Overview

The first open house for the Penn Avenue Corridor Study was held on November 14, 2019 from 4 to 7 p.m. at Sheridan Hills Elementary School in Richfield. The purpose of the open house was to provide an overview of the study and to collect feedback from community members on transportation and land use issues and opportunities in the Penn Avenue study corridor.

The meeting was conducted in an open house format where participants were asked to view project materials and leave comments with project staff, on comment forms or on project layouts. An online comment form was also posted on the project website and promoted as a virtual open house for those who could not attend the meeting in person. Project materials included aerial maps of the project corridor, a visioning exercise and poster boards that included information on the project background, purpose, timeline and goals. Approximately 90 people attended the open house. Approximately 150 comments were left on the project maps, 25 people filled out comment forms, and 57 people submitted online comments.



Participants share feedback on existing corridor conditions and needs with project staff



CSAH 32 (Penn Ave) Reconstruction Project

Attachment 08 | Penn Ave Community Engagement Summary

Penn Ave – Business Outreach for Wednesday, February 12, 2020

Homestead Pickin' Parlor with Marv: 10am to 10:30am

- Southwest Plumbing is the owner of the building; business has been there for 40 years
- Wants to see the center medians removed
- Parking is a problem; Tailwind Pediatric Dentistry allows customers to park in lot when closed
- 67th adding as additional parking
- Sidewalks need to be reestablished; people don't even know there where the sidewalk is
- Destination business
- Most people drive to business; few people take bus
- Heavily driven corridor – sometimes people stop at their business when driving by
- On-street parking would be helpful
- Supports traffic calming measures for the boulevard
- Priorities: Parking and walking priority one; vehicle traffic priority two
- Employees typically park in back lot
- Remove median better utilization of the boulevard
- Supports on-street parking
- Deliveries come to front of businesses regularly

Pat's Antiques & Something for Everyone with Bill (wife owns shop): 10:30am to 11am

- 35 years/Pat's Antiques
- 4-5 years/Something for Everyone
- Southtown Plumbing owns building
- Is debating on staying at the shop; daughter plans to take over the business
- Destination business
- Parking isn't great, but no one has complained
- Supports on-street parking
- Merge from 2 to 1 lane; many people speed here

Penn Autocare with Dan: 11am to 11:30am

- 25 years
- Deliveries sometimes, doesn't like 1-to-1 with turn lane
- Concerns related to trucks parking at Fireside
- Difficult to get in and out of business
- Most customers are local
- Not many people walk or take the bus; most drive
- Fireside using lot at night; causes issues for drop-offs at night

Quality Refrigeration with Bob (CFO) and wife: 11:30am to 12pm

- Main priority is getting in and out of business
- Uses 63 Ave. and use Oliver Ave. as an alternative access

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 08 | Penn Ave Community Engagement Summary

- Priority: addressing left turn issues, concerned with new development causing future issues with accessing business
- Avoids left hand turns during evening, rush hour – backup on Hwy 62
- On-street parking is not necessary
- 12 personal vehicles – 54 ft deliveries – use 3 times
- Looking forward to overheads utilities being removed
- Aesthetics: somewhat important
- The westbound yellowing flashing lights have improved traffic flow at Hwy 62

Car-X with Shannon (Manager): 12:30pm to 1pm

- No issues with parking
- Large trailer with deliveries once a week – uses Penn Ave
- Not many concerns related to speeding
- Some customers walk and take bus
- 30 years
- Car-X is owned by corporate
- Future to update the building

Penn Ave – Business Outreach for Wednesday, February 19, 2020

Andon Balloons with Dale Moore: 10am to 10:30am

- Previously located at 66 St. and 12 Ave.
- Destination businesses
- George Kosmides own the building
- Most people arrive by vehicle
- Crime/theft have been issues
- Supports on-street parking even if it means losing a lane
- Thinks aesthetics would help
- Very appreciative for meeting with him

Chipheads with Jared: 10:30am to 11am

- Destination business with most customers arriving via Hwy 62
- Some parking related issues
- Potholes and manholes on Penn Ave. are a huge issue for them
- They go to the homes and businesses
- Salon uses alley – Sits a Semi in the alleyway
- Employee parking and vehicles
- Likes how aesthetics are becoming better on corridor; hopes to see them continue
- Priority is improving the condition of the road
- Supports on-street parking

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 08 | Penn Ave Community Engagement Summary

- Potentially open to limit access
- Lots of issues in regard to parking in lots with nearby neighbors
- Some people we transit, walk, bus – not many
- Been here for over 20 years, but wouldn't be surprised about moving location

Lund's with Steve: 11am to 11:30am

- Since 1967 – 27 locations and 3 more stores coming
- Delivery schedule: 7am to 12 noon – 3 days a week via Penn Ave.
- Most people arrive by vehicles; some people walk and bike
- Supports keeping the road as is with two lanes each direction
- Parking lot is large enough for customers; doesn't feel like on street parking is necessary
- Customer have a challenge exiting onto Penn Ave., while entering is easier
- Rush hour is difficult, but signals at Hwy 62 help with congestion
- Losing 40 parking stalls with development
- They are looking at adding greenspace in front of business once development is complete
- Priorities: accessibility, adding more green space and curb appeal of the corridor

Assistance League with Terri Hudoba: 11:30am to 12pm

- Volunteer-based, open 5 days a week
- In addition to their thrift store, they offer a few programs:
 - Uniform giveaways
 - Literacy book to every school
 - Food/perishables
- They do not get deliveries because the loading dock is not connected to the building and most of their inventory comes in from customers through the front door
- Biggest issue is lack of parking, which is especially limited when Hub Hobby is busy and over the holidays
- They would love to see traffic on Penn Ave slow down
- Left turns need a turn lane for northbound into their parking lot
- Many of their customers rely on bus so it is very important to them that they are on a bus line and that bus amenities are high quality
- They consider Penn Ave a really good location for business transportation because they are near 62 and the bus
- They like that Penn Ave feels like small, non-big box businesses
- Would like better lighting for their parking lot so they would support new lighting for sidewalks and better landscaping
- Their sign is really important to their business so they can catch people driving by
- Teri also mention that the top of the exit ramp from eastbound 62 turning to southbound/Penn – the sightlines are bad due to the fence and it is dangerous

Scandia Furniture with Mike: 12pm to 12:30pm

- Will be at this location 4-years in March
- Location works well and Mike thinks it is an up and coming destination

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 08 | Penn Ave Community Engagement Summary

- Proximity next to 62 is important since people will drive from far away to shop at Scandia
- Parking is fine
- Deliveries—short truck park on 63rd St to make deliveries and it's not an issue
- Open for business 6-days a week
- Loading zone on the side would be helpful
- Slowing Penn Ave down would be good
- Crossing can be very dangerous to get to the Lunds and the Aldi
- Cut through traffic in alley is annoying – people will try

Hub Hobby Center with Todd: 12:30pm to 1pm

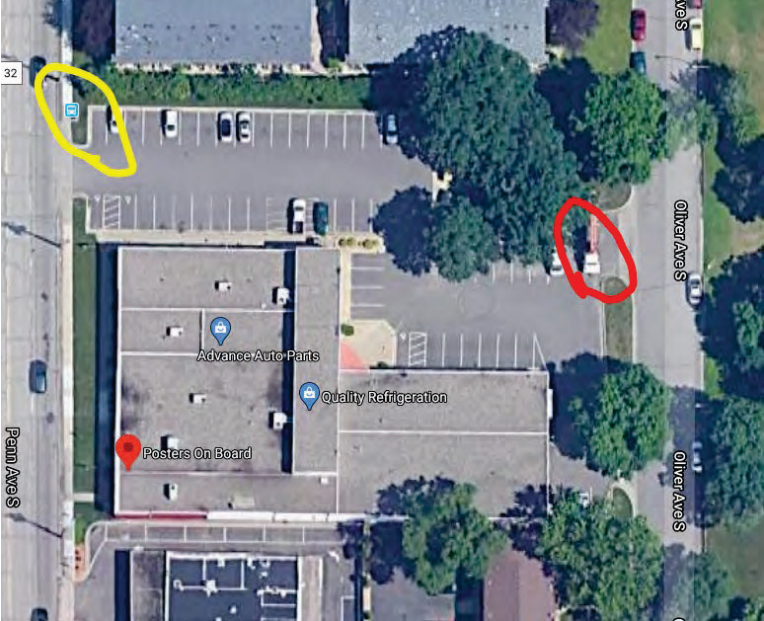
- Have been in the location since the early 80's
- Loading dock in back –loading dock has a dip issue on 64th Street, but Todd said the deliver drivers make do
- Construction impacts are a concern for Todd
- Most customers drive to get there since this is a destination shop
- Parking is an issue at over the Holidays (confirming what the Assistance League said about busy holiday time)
- Parallel parking on both sides of Penn Ave would be supported

Posters on Board with Becky & Steve: 1pm to 1:30pm

- Steve said that people turning left on southbound and northbound Penn at the same time can cause safety issues and traffic jams—other cars waiting behind the cars turning left will make it so vehicles turning left in the other direction can't get through
- Steve said he didn't think bike lanes are beneficial but also didn't seem all that opposed
- They said that Lund's and Aldi don't need parallel parking on their side since they have large lots
- 63rd and 64th ped crossings are dangerous
- Buses block access to parking lot when picking people up at the stop next to their driveway (see yellow circle below)
- Parking lot goes out to Oliver, which is a big benefit since it allows their customers to not have to turn left onto Penn Ave
- Landlord of their building (Quality Refrigeration) parks their truck in front of one of the Oliver St exits to keep people cutting through the parking lot (see rec circle below)
- Suggested limiting side street parking to 1-2 hours to help with turnover and snow plowing

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 08 | Penn Ave Community Engagement Summary





CSAH 32 (Penn Ave) Reconstruction Project

Attachment 08 | Penn Ave Community Engagement Summary

Open House 2 Summary

AUGUST 4, 2020

Overview

As part of the Penn Avenue Corridor Study, the City of Richfield and Hennepin County held a virtual open house to evaluate potential improvements on Penn Avenue between Hwy 62 and 68th Street. The virtual open house followed a first open house where we heard about the problems on Penn Avenue. There will be a third open house where we will gather feedback on alternative designs for Penn Avenue, when Hennepin County is ready to move a project further.



[The virtual open house](#) was open from July 6 to July 13, 2020 and included four short surveys and an interactive map. Below are the prompts and the number of unique comments for each survey and the interactive map.

Tool	Description	Count
What we've heard survey	Do the issues and opportunities listed provide a fair picture of Penn Avenue	33 responses
Problem statement survey	Does the problem statement accurately reflect how you view Penn Avenue	42 responses
Toolbox survey	Which improvements would you like to see used on Penn Avenue	35 responses
Interactive map	Place potential tools on a map of Penn Avenue where they would like to see improvements	68 tool icons added 91 comments
Open ended survey	Do you have any other feedback	11 responses



Promotion

The open house was promoted through multiple methods to reach a broad cross-section of the community. The following table shows the meeting promotions.

Promotion
Postcard to 2,700 properties from 70th Street to Hwy 62 and from Xerxes Avenue to I-35W
Social media posts by the City of Richfield (Facebook, Twitter, Sweet Streets website)
Postcard distributed to storefront business on Penn Avenue between Hwy 62 and 68th Avenue
Email to City of Richfield Council Members
Email to City of Richfield Sweet Streets Subscribers
Email to Hennepin County Transportation Subscribers
Shared link to open house with businesses/public groups
Post on city's message board at city hall
Sweet Streets lawn signs on Penn Avenue
Post on city's online calendar

Highlights

The following are the key findings from the virtual open house's online surveys and interactive map.



Many people want **safe pedestrian crossings**. Every Penn Avenue intersection in the study corridor was acknowledged as needing pedestrian crossing improvements.



Improved sidewalks and boulevards were a popular request for the entire Penn Avenue corridor. People said the existing facilities are in poor condition or are too close to the road.



Many people want **streetscape improvements** that improve the look of Penn Avenue and add more greenery. People said that the existing road is in poor condition and has too much pavement.

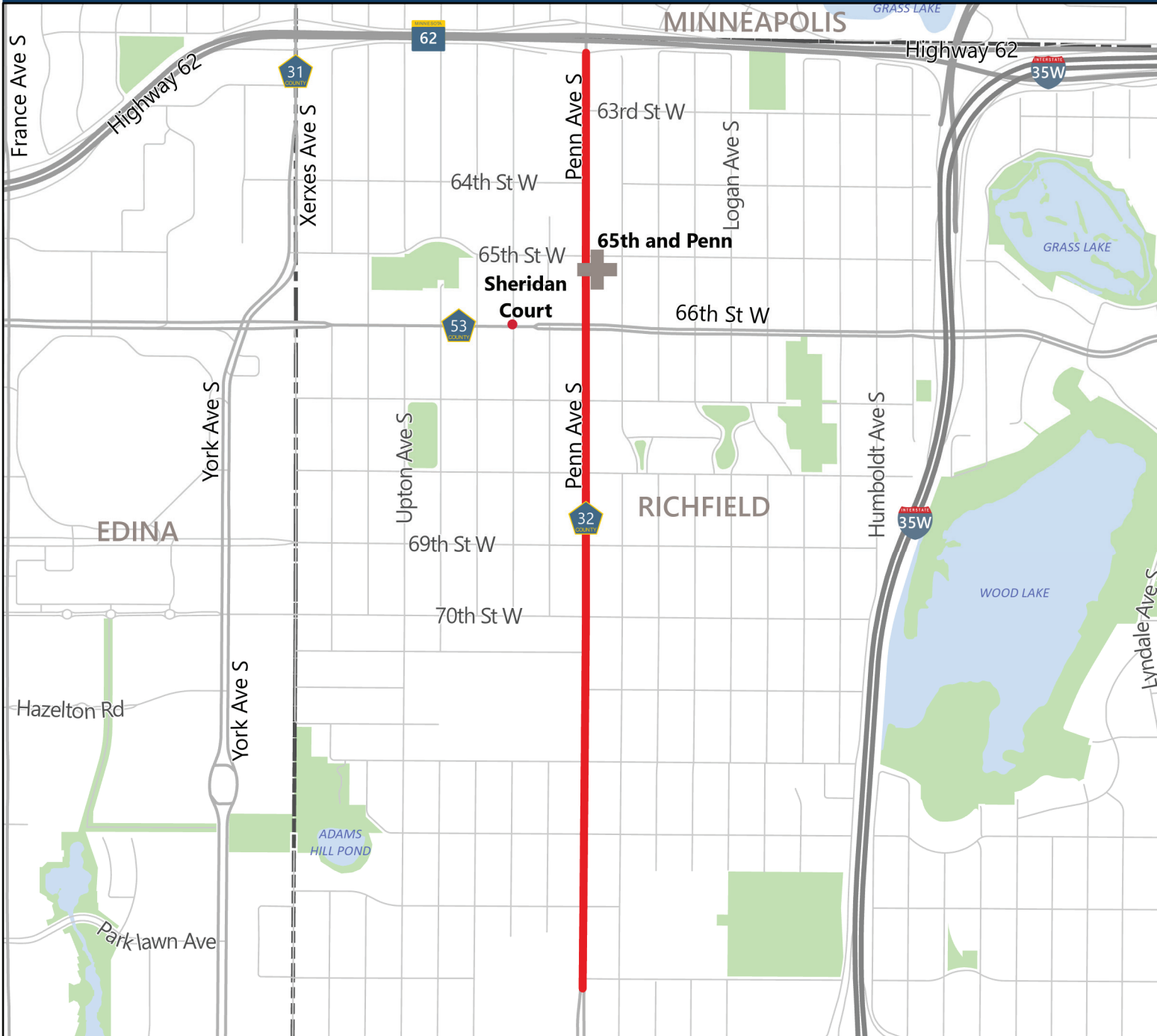


Many said that **bike lanes** are needed throughout the corridor, but there was disagreement on what type of bicycle facility would be best to use on Penn Avenue. Some people requested better bike crossings at problem intersection such as the trail crossing south of Hwy 62.



CSAH 32 (Penn Ave) Reconstruction Project

Attachment 09 | Affordable Housing Access Map and Detail Summary



Key

- Project Location

Population Served

- Family
- Elderly
- People with Disabilities
- Multiple
- Homeless
- No Information

Affordable Units

- 1-30
- 31-40
- 41-50
- 51-63

Construction Status

- Existing Affordable Housing
- Proposed or Under Construction

0 0.1 0.2 Miles

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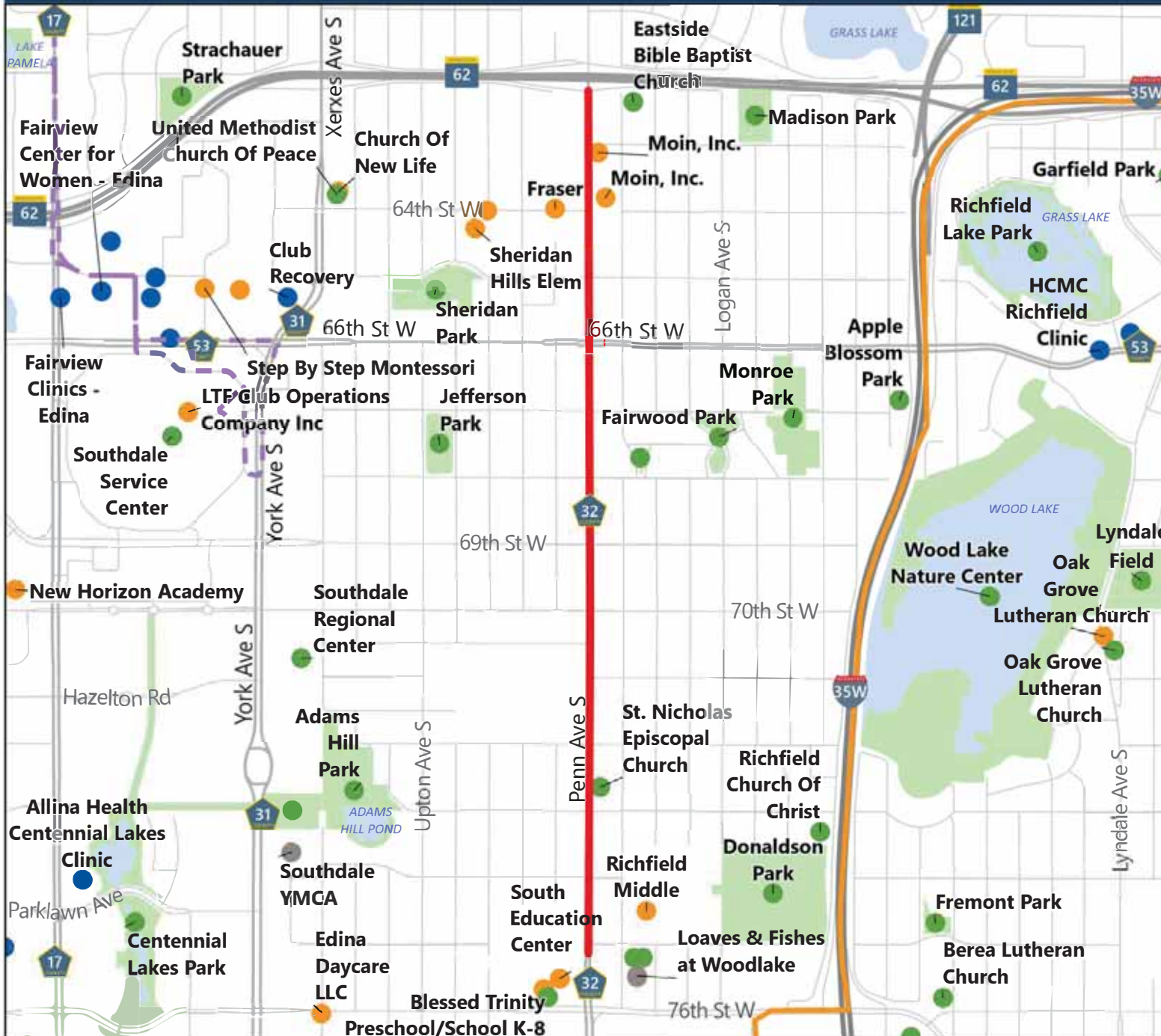


CSAH 32 (Penn Ave) Reconstruction Project
Attachment 10: Affordable Housing Access Map and Detail Summary

Location Name	Total Units	Affordable Units	30% AMI	50% AMI	60% AMI	0 BR	1 BR	2 BR	3 BR	4+ BR
Sheridan Court	30	30	30	0	0	0	29	1	0	0
65th and Penn (Proposed)	63	63								

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 10 | Socio-Economic Equity Map



Key

Project Location
Red Line

Resource Category

- Healthcare Facilities (Blue Dot)
- Schools & Childcare (Orange Dot)
- Community Facilities (Green Dot)
- Homeless Shelters (Purple Dot)
- Food Shelves (Grey Dot)

Arterial BRT Services

- Future E Line (Purple Line)

Highway BRT Services

- Orange Line (Orange Line)

0 0.25 0.5 Miles

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Published date: 3/16/2022



CSAH 32 (Penn Ave) Reconstruction Project

Attachment 11 | StreetLight HCAADT Report

Type of Travel	Zone Name	Average Daily Zone Traffic (Stl Index)	HCAADT to Index Ratio	Estimated HCAADT
Commercial	CSAH 012 & N of S Diamond Lake Rd	4447	0.3165	1400
Commercial	CSAH 032 & S of 68th St	1061	0.3165	335
Commercial	CSAH 152 S of 27th St E	6552	0.3165	2050
Commercial	CSAH 22 S of 25th St W	7719	0.3165	2450
Commercial	CSAH 5 W of Grand Ave	3102	0.3165	980

Example calculation: $4447 * 0.3165 = 1407$

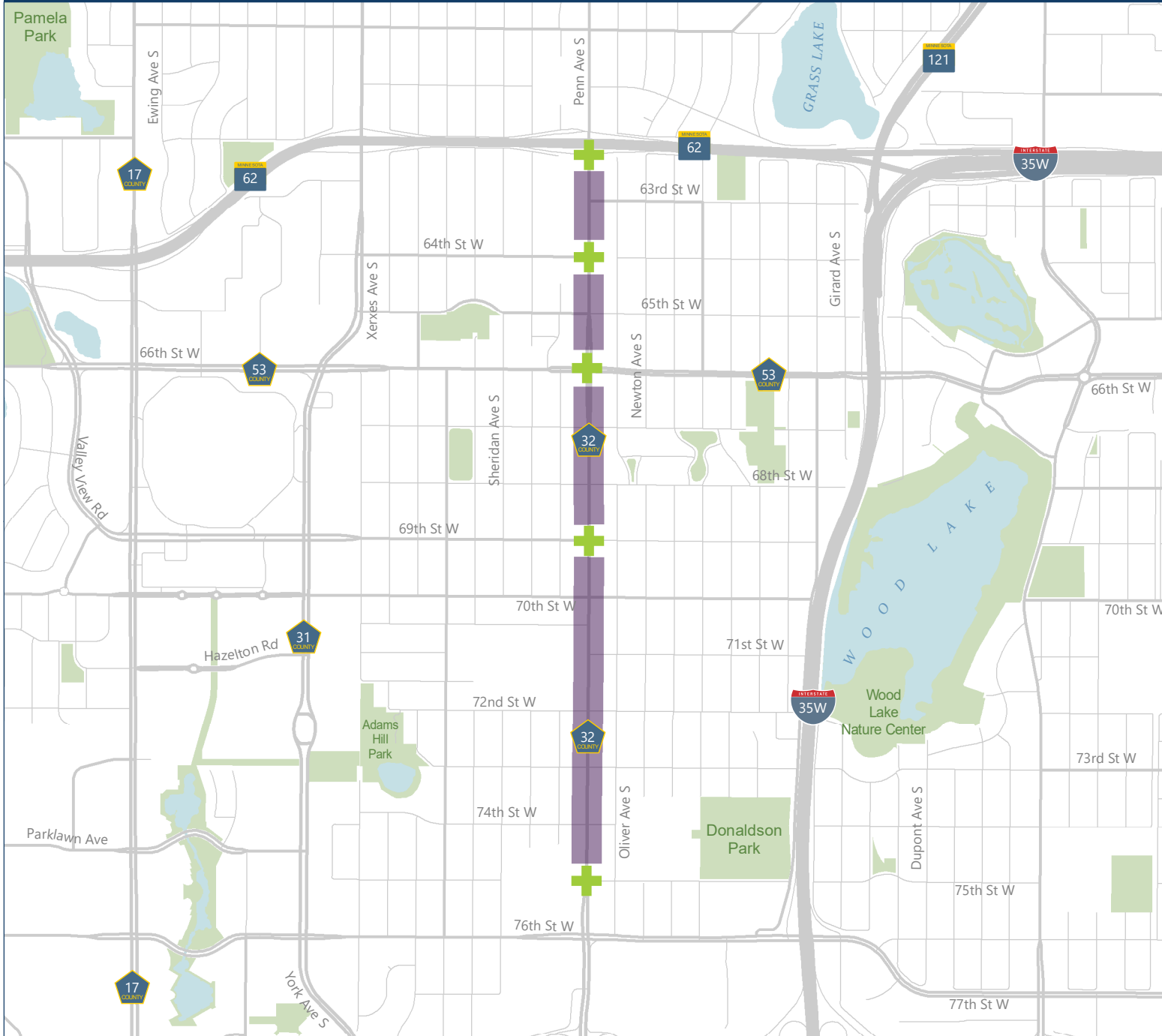
Type of Travel	Zone Name	Average Daily Zone Traffic (Stl Index)	2021 HCAADT	HCAADT to Index Ratio
Commercial	H019	1383	270	0.1952
Commercial	H045	14065	2950	0.2097
Commercial	H052	6362	2750	0.4323
Commercial	H118	1182	330	0.2792
Commercial	H120	9342	750	0.0803
Commercial	H146	3241	770	0.2376
Commercial	H250	6117	500	0.0817
Commercial	H251	4374	2050	0.4687
Commercial	H302	28750	3250	0.1130
Commercial	H313	4877	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	5203	2700	0.5189
Commercial	H571	11760	1450	0.1233
Commercial	H573	6757	6100	0.9028
Commercial	H610	10808	4100	0.3793
Commercial	H637	6878	1600	0.2326
Commercial	H649	2398	600	0.2502
Commercial	H745	8291	3350	0.4041
Commercial	H766	3945	1800	0.4563
Commercial	H807	13018	1900	0.1460

Average ratio **0.3165**

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 12 | Crash Map and Detail Listing

HENNEPIN COUNTY
MINNESOTA



Key

-  Crash Analysis Intersection
-  Crash Analysis Segment



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Published date: 3/21/2022



CSAH 32 (Penn Ave) Reconstruction Project

Attachment 12 | Crash Map and Detail Listing

Intersection A | At 75th Street

Incident ID	Roadway	Month	Day	Year	Hour	Sev	Number K's	Number of Veh	Contributing Factor	Latitude	Longitude
00802919	PENN AVE S	2	26	2020	22	5	0	2	4	44.8674	-93.3086745

Subtotal: 1

Segment B | From North of 75th Street to South of 69th Street

Incident ID	Roadway	Month	Day	Year	Hour	Sev	Number K's	Number of Veh	Contributing Factor	Latitude	Longitude
00781751	PENN AVE S	1	21	2020	7	3	0	1	1	44.869	-93.30866
00719087	PENN AVE S	5	10	2019	15	5	0	2	1	44.8727	-93.3086355
00979385	W 72ND ST	12	10	2021	13	5	0	1	62	44.8727	-93.3085901
00974999	PENN AVE S	11	21	2021	17	3	0	2	65	44.8763	-93.3086283

Subtotal: 4

Intersection C | At 69th Street

Incident ID	Roadway	Month	Day	Year	Hour	Sev	Number K's	Number of Veh	Contributing Factor	Latitude	Longitude
00705128	PENN AVE S	4	19	2019	15	5	0	2	4	44.8781	-93.3086116
00970652	PENN AVE S	11	1	2021	12	5	0	2	2	44.8782	-93.3086115
00739848	PENN AVE S	8	12	2019	15	5	0	2	74	44.8783	-93.3086142
00805779	W 69TH ST	4	1	2020	7	5	0	2	1	44.8781	-93.3086758

Subtotal: 4

Segment D | From North of 69th Street to South of CSAH 53 (66th Street)

Incident ID	Roadway	Month	Day	Year	Hour	Sev	Number K's	Number of Veh	Contributing Factor	Latitude	Longitude
00816862	PENN AVE S	6	28	2020	16	4	0	2	2	44.8791	-93.3086314
00766167	PENN AVE S	11	26	2019	11	4	0	2	2	44.8803	-93.3086468
00837575	W 67TH ST	8	20	2020	12	5	0	2	1	44.8817	-93.3085357
00682215	W 68TH ST	2	1	2019	13	5	0	2	99	44.88	-93.3088747
00909595	PENN AVE S	6	3	2021	12	4	0	2	70	44.881	-93.3086441
00767885	PENN AVE S	12	2	2019	18	5	0	2	1	44.8814	-93.3086424

Subtotal: 5

Note: Crashes highlighted in red were determined to not be located within the project limits.

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 12 | Crash Map and Detail Listing

Intersection E | At CSAH 53 (66th Street)

Incident ID	Roadway	Month	Day	Year	Hour	Sev	Number K's	Number of Veh	Contributing Factor	Latitude	Longitude
00897013	PENN AVE S	3	20	2021	18	4	0	2		44.8828	-93.3084746
00938258	PENN AVE S	8	30	2021	19	5	0	2	1	44.8831	-93.3084764
00736367	PENN AVE S	7	26	2019	23	3	0	1	1	44.8833	-93.3084781
00847550	PENN AVE S	10	19	2020	13	5	0	2		44.8835	-93.308479
00768941	PENN AVE S	12	7	2019	15	5	0	2	1	44.8835	-93.3084794
00762148	PENN AVE S	11	10	2019	17	5	0	2	1	44.8835	-93.3087916
00759798	PENN AVE S	11	5	2019	11	5	0	2	1	44.8836	-93.3087903
00691082	PENN AVE S	2	22	2019	14	5	0	2	74	44.8836	-93.3084798
00815953	PENN AVE S	5	29	2020	19	5	0	2	1	44.8837	-93.308788
00782467	PENN AVE S	1	22	2020	21	5	0	2	70	44.8837	-93.308788
00767616	PENN AVE S	12	2	2019	17	5	0	4	1	44.8838	-93.3087887
00705581	PENN AVE S	4	23	2019	8	5	0	2	1	44.8839	-93.3087891
00751636	W 66TH ST	10	2	2019	15	5	0	2	1	44.8835	-93.3093612
00769820	W 66TH ST	12	10	2019	14	4	0	3	70	44.8836	-93.3091069
00867890	W 66TH ST	12	13	2020	18	5	0	3	71	44.8835	-93.3090008
00762032	W 66TH ST	11	10	2019	17	5	0	3	1	44.8836	-93.3089728
00767044	W 66TH ST	12	1	2019	17	5	0	2	1	44.8835	-93.3089096
00930012	W 66TH ST	7	23	2021	22	3	0	2	1	44.8835	-93.3086761
00752763	W 66TH ST	10	7	2019	11	5	0	1	2	44.8836	-93.3086775
00736632	W 66TH ST	7	28	2019	14	4	0	2	74	44.8835	-93.3086486
00765739	W 66TH ST	11	27	2019	9	4	0	2	1	44.8836	-93.3086514
00840731	W 66TH ST	9	14	2020	8	3	0	2	63	44.8835	-93.3085697
00931913	W 66TH ST	7	29	2021	12	5	0	2	2	44.8835	-93.3085406
00694835	W 66TH ST	3	4	2019	19	4	0	2	2	44.8835	-93.3084881
00842518	W 66TH ST	9	23	2020	13	5	0	1	99	44.8836	-93.3084362
00741791	W 66TH ST	8	18	2019	16	4	0	2	2	44.8836	-93.3084262

Subtotal: 25

Segment F | From North of CSAH 53 (66th St) to South of 64th Street

Incident ID	Roadway	Month	Day	Year	Hour	Sev	Number K's	Number of Veh	Contributing Factor	Latitude	Longitude
00969778	PENN AVE S	10	28	2021	11	5	0	2	72	44.8839	-93.3084679
00930124	PENN AVE S	7	24	2021	12	5	0	2	2	44.8849	-93.3087948
00673789	PENN AVE S	1	3	2019	18	4	0	3	1	44.8852	-93.3085735
00910903	PENN AVE S	6	9	2021	11	3	0	2	1	44.8852	-93.308718
00763881	PENN AVE S	11	20	2019	13	3	0	2	2	44.8854	-93.3086601
00892701	PENN AVE S	2	24	2021	7	5	0	2	1	44.8854	-93.3086444
00935805	PENN AVE S	8	22	2021	11	5	0	2	2	44.8861	-93.3086568
00784381	PENN AVE S	1	29	2020	16	3	0	2	2	44.8862	-93.3086565
00704368	PENN AVE S	4	16	2019	17	3	0	2	2	44.8866	-93.308655
00767050	PENN AVE S	12	1	2019	17	5	0	1	1	44.8866	-93.3086549
00695841	PENN AVE S	3	7	2019	16	5	0	2	1	44.8868	-93.3086543

Subtotal: 10

Intersection G | At 64th Street

Incident ID	Roadway	Month	Day	Year	Hour	Sev	Number K's	Number of Veh	Contributing Factor	Latitude	Longitude
00752171	W 64TH ST	10	4	2019	12	4	0	1	99	44.8872	-93.3087767
00982788	W 64TH ST	12	22	2021	15	4	0	3	1	44.8872	-93.3087467
00807940	W 64TH ST	4	23	2020	14	5	0	2		44.8872	-93.3086696
00723643	PENN AVE S	6	1	2019	9	5	0	2		44.8888	-93.3086925

Subtotal: 2

Note: Crashes highlighted in red were determined to not be located within the project limits.

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 12 | Crash Map and Detail Listing

Segment H I From North of 64th Street to South of TH 62 EB Ramps

Incident ID	Roadway	Month	Day	Year	Hour	Sev	Number K's	Number of Veh	Contributing Factor	Latitude	Longitude
00864349	PENN AVE S	11	19	2020	13	4	0	2	2	44.889	-93.3086949
00682242	PENN AVE S	2	2	2019	9	3	0	1	90	44.8892	-93.3086917
00902098	W 63RD ST	4	23	2021	17	5	0	2		44.8889	-93.3086498
00893289	W 63RD ST	2	27	2021	14	5	0	2	1	44.8889	-93.3086296
00753446	PENN AVE S	10	9	2019	9	4	0	2	1	44.8892	-93.3086913
00706511	6310 PENN AV	4	23	2019	13	4	0	2	1	44.8893	-93.3086889
00971355	PENN AVE S	11	4	2021	10	5	0	2	1	44.8895	-93.3086866
00738094	PENN AVE S	8	3	2019	17	4	0	2	1	44.8896	-93.3086831
00800161	PENN AVE S	2	22	2020	17	5	0	2	99	44.8897	-93.3086829
00930347	PENN AVE S	7	25	2021	16	5	0	2	1	44.8897	-93.3086813
00786401	PENN AVE S	2	8	2020	12	5	0	1	75	44.8902	-93.3086724
00762419	PENN AVE S	11	13	2019	14	5	0	2	99	44.8874	-93.308658

Subtotal: 9

Intersection I I At TH 62 EB Ramps

Incident ID	Roadway	Month	Day	Year	Hour	Sev	Number K's	Number of Veh	Contributing Factor	Latitude	Longitude
00813638	PENN AVE S	6	9	2020	11	2	0	2	75	44.8903	-93.3086717
00805396	PENN AVE S	3	24	2020	15	4	0	1	1	44.8903	-93.3086706
00937894	PENN AVE S	9	1	2021	15	5	0	2	1	44.8903	-93.3086705
00681917	PENN AVE S	2	1	2019	9	4	0	2	1	44.8903	-93.3086703
00979408	PENN AVE S	12	10	2021	13	5	0	2	63	44.8903	-93.3086702
00979439	PENN AVE S	12	10	2021	15	5	0	2	2	44.8904	-93.30867
00931611	PENN AVE S	8	1	2021	12	3	0	2	1	44.8904	-93.3086699
00815278	PENN AVE S	6	18	2020	19	5	0	2	1	44.8904	-93.3086702
00942559	PENN AVE S	9	23	2021	17	5	0	2	1	44.8904	-93.3086705
00930113	RAMP728	7	24	2021	10	5	0	2	4	44.8904	-93.3086698
00912569	RAMP728	6	16	2021	17	5	0	2	2	44.8904	-93.3085989
00728461	RAMP771	6	18	2019	11	5	0	2	1	44.8904	-93.3086985
00683790	-- NOT ON RO	2	4	2019	6	5	0	1	70	44.8801	-93.3088529
00730855	-- NOT ON RO	7	1	2019	19	5	0	2		44.8833	-93.3089351
00740873	-- NOT ON RO	8	16	2019	17	5	0	2		44.8808	-93.3088834
00765214	-- NOT ON RO	11	25	2019	14	4	0	3	11	44.8888	-93.3088255
00781781	-- NOT ON RO	1	18	2020	22	5	0	2		44.8803	-93.3088224
00972751	-- NOT ON RO	11	11	2021	11	5	0	3	90	44.8871	-93.3086295

Subtotal: 12

Project Total: 72

Note: Crashes highlighted in red were determined to not be located within the project limits.

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 13 | Crash Modification Factors

RF DETAILS

CMF ID: 1410

ADD 3-INCH YELLOW RETROREFLECTIVE SHEETING TO SIGNAL BACKPLATES

DESCRIPTION:

PRIOR CONDITION: *NO PRIOR CONDITION(S)*

CATEGORY: INTERSECTION TRAFFIC CONTROL

STUDY: SAFETY IMPACT OF INCREASED TRAFFIC SIGNAL BACKBOARDS CONSPICUITY, SAYED ET AL., 2005

Star Quality Rating:  [VIEW SCORE DETAILS]

Rating Points Total: 120

Crash Modification Factor (CMF)

Value: 0.85

Adjusted Standard Error:

Unadjusted Standard Error: 0.005

Crash Reduction Factor (CRF)

Value: 15 (This value indicates a *decrease* in crashes)

Adjusted Standard Error:

Unadjusted Standard Error: 0.5

Applicability

Crash Type: All

Crash Severity: All

Roadway Types: Not specified

Number of Lanes:

Road Division Type:

Speed Limit:

Area Type: Urban

Traffic Volume:

Average Traffic Volume:

Time of Day: All

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 13 | Crash Modification Factors

CMF ID: 1414

ADD SIGNAL (ADDITIONAL PRIMARY HEAD)

DESCRIPTION:

PRIOR CONDITION: INTERSECTION HAS ONE PRIMARY SIGNAL HEAD PER APPROACH

CATEGORY: INTERSECTION TRAFFIC CONTROL

STUDY: [SAFETY BENEFITS OF ADDITIONAL PRIMARY SIGNAL HEADS, FELIPE ET AL., 1998](#)

Star Quality Rating: CANNOT BE RATED (INSUFFICIENT INFORMATION)

Rating Points Total:

Crash Modification Factor (CMF)

Value: 0.72

Adjusted Standard Error:

Unadjusted Standard Error:

Crash Reduction Factor (CRF)

Value: 28 (This value indicates a *decrease* in crashes)

Adjusted Standard Error:

Unadjusted Standard Error:

Applicability

Crash Type: All

Crash Severity: All

Roadway Types: Not specified

Number of Lanes:

Road Division Type:

Speed Limit:

Area Type: Urban

Traffic Volume:

Average Traffic Volume:

Time of Day:

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 13 | Crash Modification Factors

CMF ID: 3247

INSTALLATION OF BICYCLE LANES AT SIGNALIZED INTERSECTIONS

DESCRIPTION: INSTALLATION OF BICYCLE LANES AT SIGNALIZED INTERSECTIONS

PRIOR CONDITION: NO BICYCLE LANES, CYCLISTS SHARED THE ROADWAY WITH MOTOR VEHICLES

CATEGORY: BICYCLISTS

STUDY: [SAFETY PERFORMANCE FUNCTIONS FOR BICYCLE CRASHES IN NEW ZEALAND AND AUSTRALIA, TURNER ET AL., 2011](#)

Star Quality Rating:  [\[VIEW SCORE DETAILS\]](#)

Rating Points Total: 40

Crash Modification Factor (CMF)

Value: 0.8

Adjusted Standard Error:

Unadjusted Standard Error:

Crash Reduction Factor (CRF)

Value: 20 (This value indicates a *decrease* in crashes)

Adjusted Standard Error:

Unadjusted Standard Error:

Applicability

Crash Type: Vehicle/bicycle

Crash Severity: All

Roadway Types: All

Number of Lanes:

Road Division Type: All

Speed Limit:

Area Type: Urban and suburban

Traffic Volume:

Average Traffic Volume:

Time of Day: All

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 13 | Crash Modification Factors

CMF / CRF DETAILS

CMF ID: 7698

CHANGE FROM PERMISSIVE ONLY TO FLASHING YELLOW ARROW PERMISSIVE ONLY

DESCRIPTION: CHANGE FROM PERMISSIVE ONLY TO FYA - PERMISSIVE ONLY

PRIOR CONDITION: PERMISSIVE PHASING

CATEGORY: INTERSECTION TRAFFIC CONTROL

STUDY: SAFETY EFFECTIVENESS OF FLASHING YELLOW ARROW: EVALUATION OF 222 SIGNALIZED INTERSECTIONS IN NORTH CAROLINA, SIMPSON AND TROY, 2015Star Quality Rating:  [VIEW SCORE DETAILS]

Rating Points Total: 55

Crash Modification Factor (CMF)

Value: 0.892

Adjusted Standard Error:

Unadjusted Standard Error: 0.113

Crash Reduction Factor (CRF)

Value: 10.8 *(This value indicates a decrease in crashes)*

Adjusted Standard Error:

Unadjusted Standard Error: 11.3

Applicability

Crash Type: All

Crash Severity: All

Roadway Types: Not specified

Number of Lanes:

Road Division Type:

Speed Limit: 35-55

Area Type: Not specified

Traffic Volume:

Average Traffic Volume:

Time of Day: Not specified

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 13 | Crash Modification Factors

CMF ID: 9298

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: 0.901

Adjusted Standard Error:

Unadjusted Standard Error: 0.05

Crash Reduction Factor (CRF)

Value: 9.9 *(This value indicates a decrease in crashes)*

Adjusted Standard Error:

Unadjusted Standard Error: 5

Applicability

Crash Type: All

Crash Severity: All

Roadway Types: Principal Arterial Other

Number of Lanes: 1-4

Road Division Type:

Speed Limit: 25mph to 65mph

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

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 13 | Crash Modification Factors

LS

CMF ID: 9667

CHANGING LEFT TURN PHASING FROM PROTECTED-PERMISSIVE TO FLASHING YELLOW ARROW (FYA)

DESCRIPTION: CMFS ARE CALCULATED THE INTERSECTION LEVEL AND NOT THE TREATED APPROACH(ES) LEVEL.

PRIOR CONDITION: PROTECTED-PERMISSIVE OPERATION WITH CIRCULAR GREEN INDICATION FOR THE PERMISSIVE

CATEGORY: INTERSECTION TRAFFIC CONTROL

STUDY: [SAFETY EFFECTS OF FLASHING YELLOW ARROWS USED IN PROTECTED PERMITTED PHASING: COMPARISON OF FULL BAYES AND EMPIRICAL BAYES RESULTS, APPIAH ET](#)

IMAGE: [VIEW THE COUNTERMEASURE IMAGE.](#)

Star Quality Rating:  [\[VIEW SCORE DETAILS\]](#)

Rating Points Total: 120

Crash Modification Factor (CMF)

Value: 0.88

Adjusted Standard Error:

Unadjusted Standard Error: 0.053

Crash Reduction Factor (CRF)

Value: 12 *(This value indicates a decrease in crashes)*

Adjusted Standard Error:

Unadjusted Standard Error: 5.3

Applicability

Crash Type: All

Crash Severity: All

Roadway Types: Not specified

Number of Lanes:

Road Division Type:

Speed Limit:

Area Type: All

Traffic Volume:

Average Traffic Volume:

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 13 | Crash Modification Factors

CMF ID: 10727

INSTALL BICYCLE LANES

DESCRIPTION:

PRIOR CONDITION: NO BICYCLE LANE

CATEGORY: BICYCLISTS

STUDY: DEVELOPMENT OF CRASH MODIFICATION FACTORS FOR BICYCLE LANE ADDITIONS WHILE REDUCING LANE AND SHOULDER WIDTHS, 2021

Star Quality Rating:  [\[VIEW SCORE DETAILS\]](#)

Rating Points Total: 80

Crash Modification Factor (CMF)

Value: 0.7859

Adjusted Standard Error:

Unadjusted Standard Error: 0.3009

Crash Reduction Factor (CRF)

Value: 21.41 *(This value indicates a decrease in crashes)*

Adjusted Standard Error:

Unadjusted Standard Error: 30.09

Applicability

Crash Type: All

Crash Severity: All

Roadway Types: All

Number of Lanes:

Road Division Type: Undivided

Speed Limit:

Area Type: Urban

Traffic Volume: Minimum of 1000 to Maximum of 160504 Annual Average Daily Traffic (AADT)

Average Traffic Volume: 22895 Annual Average Daily Traffic (AADT)

Time of Day: All

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 13 | Crash Modification Factors

CMF ID: 10915

CHANGING LEFT TURN PHASING FROM PERMISSIVE TO FLASHING YELLOW ARROW (FYA)

DESCRIPTION: APPROACHES WITH PERMISSIVE LEFT TURN PHASE CHANGED TO THE FLASHING YELLOW ARROW (FYA). CMFS ARE CALCULATED AT THE INTERSECTION LEVEL AND NOT THE TREATED APPROACH(ES) LEVEL.

PRIOR CONDITION: PERMISSIVE LEFT TURN PHASING

CATEGORY: INTERSECTION TRAFFIC CONTROL

STUDY: FLASHING YELLOW ARROW SIGNAL SAFETY EVALUATION, STORM ET AL., 2020

Star Quality Rating:  [\[VIEW SCORE DETAILS\]](#)

Rating Points Total: 45

Crash Modification Factor (CMF)

Value: 0.467

Adjusted Standard Error:

Unadjusted Standard Error: 0.005

Crash Reduction Factor (CRF)

Value: 53.3 *(This value indicates a decrease in crashes)*

Adjusted Standard Error:

Unadjusted Standard Error: 0.5

Applicability

Crash Type: All

Crash Severity: All

Roadway Types: All

Number of Lanes:

Road Division Type: All

Speed Limit:

Area Type: All

Traffic Volume:

Average Traffic Volume:

Time of Day: All

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 13 | Crash Modification Factors

CMF ID: 10990

CHANGE NUMBER OF THROUGH LANES ON MINOR ROAD (FROM 2 TO 1)

DESCRIPTION:

PRIOR CONDITION: 2 THROUGH LANES ON MINOR ROAD APPROACHES

CATEGORY: INTERSECTION GEOMETRY

STUDY: DEVELOPMENT OF CRASH MODIFICATION FACTORS FOR INTERSECTIONS IN TOOWOOMBA CITY, AL-MARAFI ET AL., 2020

Star Quality Rating:  [\[VIEW SCORE DETAILS\]](#)

Rating Points Total: 80

Crash Modification Factor (CMF)

Value: 0.88

Adjusted Standard Error:

Unadjusted Standard Error: 0.047

Crash Reduction Factor (CRF)

Value: 12 *(This value indicates a decrease in crashes)*

Adjusted Standard Error:

Unadjusted Standard Error: 4.7

Applicability

Crash Type: All

Crash Severity: K (fatal),A (serious injury),B (minor injury),C (possible injury)

Roadway Types: All

Number of Lanes: 2 - 5

Road Division Type: All

Speed Limit:

Area Type: All

Traffic Volume:

Average Traffic Volume:

Time of Day: All

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 13 | Crash Modification Factors

CMF / CRF DETAILS

CMF ID: 11026

IMPROVE STREET LIGHTING ILLUMINANCE AND UNIFORMITY

DESCRIPTION: ADD OR UPDATE STREET LIGHTING TO CHANGE THE ILLUMINANCE AND UNIFORMITY ALONG A ROADWAY SEGMENT

PRIOR CONDITION: AVERAGE LIGHTING LEVEL IS [0 FT, 0.5FC]

CATEGORY: HIGHWAY LIGHTING

STUDY: DEVELOPMENT OF CRASH MODIFICATION FACTORS FOR ROADWAY ILLUMINANCE: A MATCHED CASE-CONTROL STUDY, LI ET AL., 2021

Star Quality Rating:  [\[VIEW SCORE DETAILS\]](#)

Rating Points Total: 115

Crash Modification Factor (CMF)

Value: 0.679

Adjusted Standard Error:

Unadjusted Standard Error: 0.129

Crash Reduction Factor (CRF)

Value: 32.1 *(This value indicates a decrease in crashes)*

Adjusted Standard Error:

Unadjusted Standard Error: 12.9

Applicability

Crash Type: All

Crash Severity: All

Roadway Types: Not specified

Number of Lanes:

Road Division Type:

Speed Limit:

Area Type: Urban and suburban

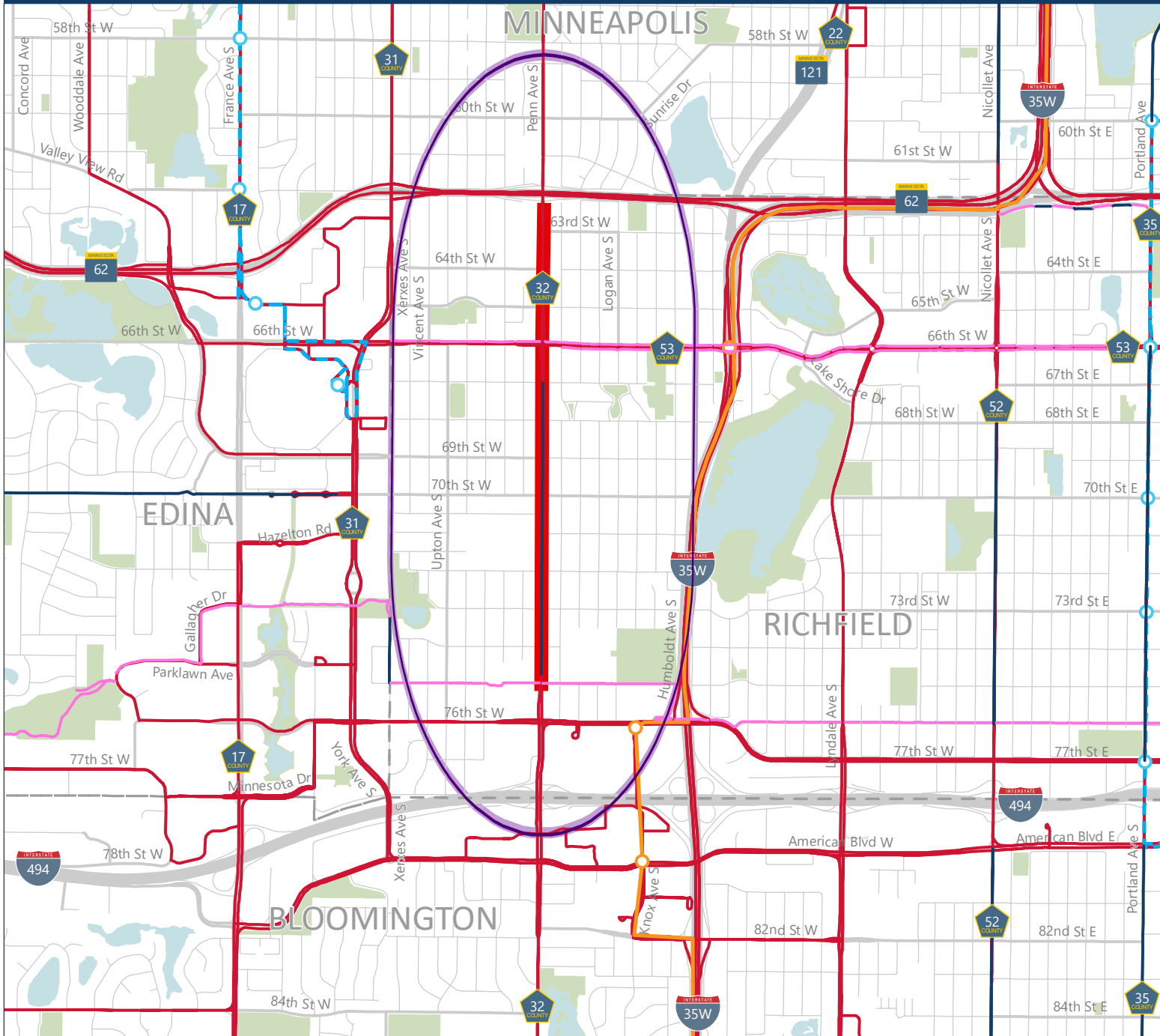
Traffic Volume:

Average Traffic Volume:

Time of Day: Night

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 14 | Multimodal Connections Map



Key

- █ Project Locations
- 1/2 mi Buffer
- Bikeways**
 - Off-Street
 - On-Street
- Transitway Stations**
 - Arterial BRT
 - Orange Line
- Transitway Alignments**
 - Orange Line BRT
 - - - Planned Arterial BRT
 - Transit Routes



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.

Published date: 4/12/2022



CSAH 32 (Penn Ave) Reconstruction Project

Attachment 15 | City of Richfield Support Letter



City Manager's Office

February 9, 2022

MAYOR

MARIA REGAN
GONZALEZ

CITY COUNCIL

SEAN HAYFORD OLEARY

MARY SUPPLE

SIMON TRAUTMANN

BEN WHALEN

CITY MANAGER

KATIE RODRIGUEZ

Carla Stueve
Hennepin County Transportation Department
Project Delivery Director
Public Works Facility
1600 Prairie Drive
Medina, MN 55340-5421

RE: Letter of Support for **CSAH 32 (Penn Avenue) – Roadway Reconstruction**
2022 Metropolitan Council Regional Solicitation for Federal Transportation Funding

Dear Carla Stueve:

The City of Richfield expresses much support for Hennepin County's CSAH 32 (Penn Avenue) Project grant application to be included in the 2022 Metropolitan Council Regional Solicitation for reconstruction of the Penn Avenue corridor within the City from 76th Street to Highway 62. The project would address existing issues and provide needed improvement to the quality of life for the residents and users of this corridor, including:

- Further investment in the Penn Central neighborhood
- Four-to-three lane conversions to improve safety where feasible
- Improved pedestrian accessibility and accommodations
- Improved snow storage with boulevards
- Improved and enhanced transit facilities
- Improved bicyclist accessibility (planned for in Hennepin County Bicycle System Plan)
- Undergrounding of parallel overhead utilities

Hennepin County's CSAH 32 (Penn Avenue) Reconstruction Project is consistent with Richfield's Comprehensive Plan which supports major improvements along this corridor in response to the aging infrastructure and lack of multi-modal accommodations.

Thank you for seeking funding for this project, the City of Richfield is looking forward to working with Hennepin County on its implementation.

Sincerely,

Maria Regan Gonzalez, Mayor

Katie Rodriguez, City Manager

CSAH 32 (Penn Ave) Reconstruction Project

Attachment 16 | MnDOT Support Letter



MnDOT Metro District
1500 West County Road B-2
Roseville, MN 55113

April 12, 2022

Carla Stueve, P.E.
Director and County Highway Engineer
Hennepin County

Re: MnDOT Letter for Hennepin County's Metropolitan Council/Transportation Advisory Board 2020 Regional Solicitation Funding Request for CSAH 32 (Penn Avenue) improvements

Carla,

This letter documents MnDOT Metro District's recognition for Hennepin County to pursue funding for the Metropolitan Council/Transportation Advisory Board's (TAB) 2022 Regional Solicitation for improvements on Penn Avenue.

As proposed, this project impacts MnDOT right-of-way on TH 62. As the agency with jurisdiction over TH 62, MnDOT will allow Hennepin County to seek improvements proposed in the applications. If funded, details of any future maintenance agreement will need to be determined during project development to define how the improvements will be maintained for the projects' useful life.

There is no funding from MnDOT currently planned or programmed for these projects. If they receive funding, continue to work with MnDOT Area staff to coordinate development and to review needs and opportunities for cooperation.

If you have questions or require additional information at this time, please reach out to April Crockett West Area Manager, at april.crockett@state.mn.us or 651-775-4347.

Sincerely,

**Michael
Barnes**

Digitally signed by
Michael Barnes
Date: 2022.04.12 09:51:12
-05'00'

Michael Barnes, PE Metro District Engineer

CC: April Crockett, Metro Area Manager; Molly McCartney, Metro Program Director; Dan Erickson, Metro State Aid Engineer