Application

17063 - 2022 Roadway Modernization

17618 - Cretin Avenue Reconstruction (Marshall Avenue to St. Anthony Avenue)

Regional Solicitation - Roadways Including Multimodal Elements

Status:	Submitted
Submitted Date:	04/14/2022 11:13 AM

Primary Contact

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

Organization Information

Name:	ST PAUL, CITY OF

Jurisdictional Agency (if different):

Organization Type: City

Organization Website:

Address: DEPT OF PUBLIC WORKS-CITY HALL ANNEX

25 W 4TH ST #1500

*	ST PAUL	Minnesota	55101
	City	State/Province	Postal Code/Zip

County: Ramsey

Phone:* 651-266-9700 Ext.

Fax:

PeopleSoft Vendor Number 0000003222A22

Project Information

Project Name Cretin Avenue Reconstruction

Primary County where the Project is Located Ramsey

Cities or Townships where the Project is Located: Saint Paul

Jurisdictional Agency (If Different than the Applicant):

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

The City of Saint Paul is requesting funding for street reconstruction and pedestrian safety improvements to Cretin Avenue between Marshall Avenue and Saint Anthony Ave near I-94. The corridor is classified as an A-Minor Arterial Augmentor roadway. Planned improvements include full-depth reconstruction of pavement structure, adding a sidewalk on the west side of the street, reconstructing the existing sidewalk on the east side, pedestrian crossing improvements, full replacement of streetlights, replacement of signals, and ADA improvements. Pedestrian crossing improvements are planned at two locations where there are bus stops along the corridor - at Temple Court and Roblyn Avenue. Crossing improvements include marked crosswalks, median crossing islands, ADA compliant curb ramps, and new sidewalk bus stop pads. ADA improvements will include new curb ramps, APS buttons, and detectable warning surface/truncated domes. This project corridor also connects to the planned B Line BRT, which will have a station located at the northwest corner of Cretin Avenue and Marshall Avenue with service anticipated to begin in 2024.

(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.

Cretin Avenue (MSAS #124) from Marshall Avenue to Saint Anthony Ave (0.47 mi.), Roadway reconstruction (pavement, subgrade, curb/gutter), ADA Improvements, sidewalks, landscaping, drainage, signage/striping, signals, lighting, and stormwater management

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)

0.5

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 $2,027,605.00

Minimum of 20% of project total

Project Total $9,027,605.00

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

Match Percentage 22.46%

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

Source of Match Funds City of Saint Paul

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 City of Saint Paul

Functional Class of Road A-Minor Arterial Augmentor

Road System MSAS

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

Road/Route No. 124

i.e., 53 for CSAH 53

Name of Road Cretin Avenue

Example; 1st ST., MAIN AVE

Zip Code where Majority of Work is Being Performed 55104

(Approximate) Begin Construction Date 04/05/2027

(Approximate) End Construction Date 11/26/2027

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

From:
(Intersection or Address) Saint Anthony Avenue/Cretin Avenue

To:
(Intersection or Address) Marshall Avenue/Cretin Avenue

DO NOT INCLUDE LEGAL DESCRIPTION

Or At

Miles of Sidewalk (nearest 0.1 miles) 0.9

Miles of Trail (nearest 0.1 miles) 0

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

0

Primary Types of Work

BITUMINOUS BASE, BITUMINOUS SURFACE, SIDEWALK, CROSSING ISLAND, SIGNALS, LIGHTING, PED RAMPS, 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.

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

Goal B - Safety and Security: The regional transportation system is safe and secure for all users. (Chapter 2, Page 2.5)

o B1. Regional transportation partners will incorporate safety and security considerations for all modes and users throughout the processes of planning, funding, construction, and operation.

o B6. Regional transportation partners will use best practices to provide and improve facilities for safe walking and bicycling, since pedestrians and bicyclists are the most vulnerable users of the transportation system.

Goal C. Access to Destinations: A reliable, affordable, and efficient multimodal transportation system supports the prosperity of people and businesses by connecting them to destinations throughout the region and beyond. (Chapter 2, Page 2.10)

o Objectives D: Increase the number and share of trips taken using transit, carpools, bicycling, and walking.
o Objective E: Improve the availability of and quality of multimodal travel options for people of all ages and abilities to connect to jobs and other opportunities, particularly for historically under-represented populations.

o Strategy C1. Regional transportation partners will continue to work together to plan and implement transportation systems that are multimodal and provide connections between modes. The Metropolitan Council will prioritize regional projects that are multimodal and cost-effective and encourage investments to include appropriate provisions for bicycle and pedestrian travel.

Goal D. Competitive Economy: The regional

transportation system supports the economic competitiveness, vitality, and prosperity of the region and state. (Chapter 2, Page 2.26)

o Objective A. Improve multimodal access to regional job concentrations identified in Thrive MSP 2040.
Goal E. Healthy and Equitable Communities: The regional transportation system advances equity and contributes to communities? livability and sustainability while protecting the natural, cultural, and developed environments. (Chapter 2, Page 2.30)

o Objective A. Reduce transportation-related air emissions.

o Objective C. Increase the availability and attractiveness of transit, bicycling, and walking to encourage healthy communities through the use of active transportation options.

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.

Saint Paul Pedestrian Plan, pp. 70, 83

https://www.stpaul.gov/sites/default/files/Media%20Root/Public%20Works/Saint%20Paul%20Pedestrian%20Plan%20Body%20of%20Plan%205.8.19%20Compressed.pdf

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

Saint Paul 2040 Comprehensive Plan, pp. 73-76, 86-87

https://www.stpaul.gov/sites/default/files/2022-01/CSP_2040_CompPlan_FinalAdopted_101521.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: 01/13/2016

Link to plan: https://www.stpaul.gov/sites/default/files/Media%20Root/ADA%20Transiton%20Plan%20for%20Public%20Works_2016.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 MnDOTs 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.

Requirements - Roadways Including Multimodal Elements

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Mobilization (approx. 5% of total cost)	$300,000.00
Removals (approx. 5% of total cost)	$438,196.50
Roadway (grading, borrow, etc.)	$565,131.00
Roadway (aggregates and paving)	$1,284,412.50
Subgrade Correction (muck)	$0.00
Storm Sewer	$562,500.00
Ponds	$0.00
Concrete Items (curb & gutter, sidewalks, median barriers)	$443,137.50
Traffic Control	$172,500.00
Striping	$48,579.00
Signing	$37,500.00
Lighting	$581,100.00
Turf - Erosion & Landscaping	$203,317.50
Bridge	$0.00
Retaining Walls	$394,680.00
Noise Wall (not calculated in cost effectiveness measure)	$0.00
Traffic Signals	$840,000.00
Wetland Mitigation	$0.00
Other Natural and Cultural Resource Protection	$0.00
RR Crossing	$0.00
Roadway Contingencies	$2,374,630.80
Other Roadway Elements	$0.00

Totals	**$8,245,684.80**

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Path/Trail Construction	$0.00
Sidewalk Construction	$481,920.00
On-Street Bicycle Facility Construction	$0.00
Right-of-Way	$0.00
Pedestrian Curb Ramps (ADA)	$0.00
Crossing Aids (e.g., Audible Pedestrian Signals, HAWK)	$300,000.00
Pedestrian-scale Lighting	$0.00
Streetscaping	$0.00
Wayfinding	$0.00
Bicycle and Pedestrian Contingencies	$0.00
Other Bicycle and Pedestrian Elements	$0.00
Totals	**$781,920.00**

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	$9,027,604.80
Construction Cost Total	$9,027,604.80
Transit Operating Cost Total	$0.00

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

Existing Employment within 1 Mile:	29205
Existing Manufacturing/Distribution-Related Employment within 1 Mile:	3805
Existing Post-Secondary Students within 1 Mile:	9939
Upload Map	1649797487346_Regional Economy Map.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	N Cretin Ave, north of Roblyn Ave

Current AADT Volume	23100
Existing Transit Routes on the Project	63

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

Upload Transit Connections Map	1649797589553_Transit Connections Map.pdf

Please upload attachment in PDF form.

Response: Current Daily Person Throughput

Average Annual Daily Transit Ridership	0
Current Daily Person Throughput	30030.0

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:

Response:

The project is located in an area that is above the regional average for population in poverty. The census tract where the project is located has a low-income population of 28%, and 21% are people of color. These groups will benefit from the pedestrian safety improvements on the corridor. Pedestrian safety improvements have been identified in several City of Saint Paul planning documents, including the Saint Paul 2040 Comprehensive Plan and the Saint Paul Pedestrian Plan. Development of each of these plans included numerous public engagement opportunities aimed at reaching all areas of the city and to engage residents that are representative of Saint Paul's demographic diversity.
For the Saint Paul Pedestrian Plan, staff held targeted outreach meetings to ensure a full spectrum of Saint Paul residents had the opportunity to participate in the process, beyond those who responded to project surveys. Staff held meetings with teens, public housing residents, people learning English as a second language and elders. Engagement at Safe Summer Nights events in 2017 reached a large proportion of residents who: identify as a race other than white, are under 25, or have lower incomes. Plan recommendations that resulted from this outreach included adding sidewalks to fill gaps in the walking network ? including on the west side of Cretin Avenue - and improving safety for people crossing streets, such as the proposed crossing enhancements along Cretin Ave. In total, over 4,000 people provided input for the Pedestrian Plan through in-person events and online surveys.

As part of the City?s Comprehensive Plan, City Staff focused on reaching diverse communities. During the first phase of community engagement, staff spoke with more than 2,200 people at 67 events, generating more than 3,700 comments. Outreach was done at local community events,

through mailed questionnaires, and online surveys. On average, three events were held in each planning district, with 100 people engaged per district. During an engagement push from May-September 2016, more than 800 people of color were engaged. This represented approximately 50% of the total participants engaged during this period. For comparison people of color compose 40% of the citywide population(in 2010). The age of participants was also mostly representative of the city-wide population, if somewhat older.
Staff identified nine community priorities that were heard most through the public input process, two of which include public safety and road safety for pedestrians and bicyclists. Proposed improvements on Cretin Ave will help meet those community member priorities, including adding a sidewalk on the west side of the street, pedestrian crossing improvements, full replacement of streetlights, and ADA improvements.

(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.

Response:

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

The project will provide pedestrian safety improvements that will benefit equity populations, particularly those who rely on bus service for transportation. Many of the equity populations listed cannot drive a personal motor vehicle due to age, disability, or costs, including low-income populations, children, people with disabilities, youth, and older adults. The project will make it easier and safer to walk along the Cretin Ave corridor and cross the corridor, particularly for accessing bus stop locations. As stated earlier, the census tract where the project is located has a low-income population of 28%, and 21% are people of color.

Today, there are no street crossings to accommodate bus riders taking route 63 southbound to go from the east side of the street to the west side of the street either of the two bus stops on the corridor. Southbound transit riders are currently forced to cross four lanes of traffic on a high-volume roadway (23,100 AADT) without any crosswalks or other pedestrian safety infrastructure to access the bus stops on the west side of the street. The proposed reconstruction project will solve that by adding crosswalks and pedestrian crossing islands at both bus stop locations along the corridor. This will allow pedestrians and transit users to cross two lanes of traffic at a time and pause in the middle of the street in the crossing island before crossing the other two lanes. The project will also fill a sidewalk gap on the western side of the corridor ? a gap that was identified in the Saint Paul Comprehensive Plan and Saint Paul Pedestrian Plan. Filling this gap will make it easier for equity populations to walk along the corridor and reach destinations such as the commercial businesses and restaurants on Marshall Ave.

Measure C: Affordable Housing Access

Describe any affordable housing developmentsexisting, under construction, or plannedwithin 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.

Response:

There are 1,452 publicly subsidized rental housing units in census tracts within 1/2 mile of the project corridor. Specifically, there is an affordable housing development that is located only 0.5 miles away from the southern end of the project area on Portland Ave, just east of the University of St. Thomas. There are many destinations near the project area that affordable housing residents will have improved access to, including schools, restaurants, parks, and businesses. In addition, affordable housing residents will have access to the B Line BRT route on Marshall Avenue, which is anticipated to open for service in 2024. The proposed project will make it easier to access the B Line Station area on Marshall Ave/Cretin Ave by adding a sidewalk on the west side of the corridor, adding crossing islands and crosswalks on Cretin Ave, and making ADA improvements.

(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.	1649797913306_Socio-Economic Conditions Map.pdf

Measure A: Year of Roadway Construction

Year of Original Roadway Construction or Most Recent Reconstruction	Segment Length	Calculation	Calculation 2
1961	0.47	921.67	1961.0
	0	**922**	**1961**

Total Project Length

Total Project Length (as entered in "Project Information" form) 0.5

Average Construction Year

Weighted Year 1961

Total Segment Length (Miles)

Total Segment Length 0.47

Measure B: Geometric, Structural, or Infrastructure Improvements

Improved roadway to better accommodate freight movements: Yes

Response:

The project corridor has notable freight traffic that are driven by its proximity to I-94 and the WestRock recycling facility that is just north of the interstate. The project will increase the loading capacity of the roadway, and the final roadway design will verify that the intersection geometry at Marshall Avenue accommodates truck turning movements.

(Limit 700 characters; approximately 100 words)

Improved clear zones or sight lines: Yes

Response:

There are power poles at the northwest end of the corridor that will be removed as part of this project and will improve clear zones in that area. The existing power poles are located within 2? of the existing curb. In addition, the new crossing islands will help drivers be able to better see pedestrians crossing the street, which will enhance safety for both drivers and pedestrians.

(Limit 700 characters; approximately 100 words)

Improved roadway geometrics: Yes

Response:

Several roadway geometric improvements are proposed that will improve safety for all roadway users, particularly people walking. The biggest improvement is the addition of the crossing islands at two locations along the corridor with bus stops. The crossing islands will improve crossing safety and act as a traffic calming feature to slow motor vehicle traffic. Other geometric improvements include new curb and gutter and new sidewalks on both sides of the street. The project will also ensure that lane widths meet current standards and that storage length of left-turn lanes is appropriate for the given traffic volumes.

(Limit 700 characters; approximately 100 words)

Access management enhancements: Yes

Response:

Prior to final design, the project team will review all driveways along the corridor and ensure they meet city standards regarding width and geometry.

(Limit 700 characters; approximately 100 words)

Vertical/horizontal alignment improvements:

Response:

(Limit 700 characters; approximately 100 words)

Improved stormwater mitigation: Yes

Response:

The project will meet watershed requirements for storage and treatment of stormwater and will include underground stormwater storage and treatment.

(Limit 700 characters; approximately 100 words)

Signals/lighting upgrades: Yes

Response:

New street lighting will be provided along the entire corridor which will improve safety and comfort for pedestrians and motorists. New signals will be installed at Marshall Ave/Cretin Ave intersection.

(Limit 700 characters; approximately 100 words)

Other Improvements Yes

Response:

The project includes ADA improvements such as new curb ramps, APS push buttons, and detectable warning surfaces.

(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.	Synchro or HCM Reports
40.7	40.7	0	6233	6233	0	0	not applicable	1649800169520_Cretin Ave Existing (and Build) PM - Synchro Report.pdf
						0		

Vehicle Delay Reduced

Total Peak Hour Delay Reduced 0

Total Peak Hour Delay Reduced 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):
16.47	16.47	0
16	**16**	**0**

Total

Total Emissions Reduced: 0

Upload Synchro Report 1649800583821_Cretin Ave Existing (and Build) PM - Synchro Report.pdf

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

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

Total (CO, NOX, and VOC) Peak Hour Emissions without the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions with the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):
0	**0**	**0**

Total Parallel Roadway

Emissions Reduced on Parallel Roadways 0

Upload Synchro Report

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

New Roadway Portion:

Cruise speed in miles per hour with the project: 0

Vehicle miles traveled with the project: 0

Total delay in hours with the project: 0

Total stops in vehicles per hour with the project: 0

Fuel consumption in gallons: 0

Total (CO, NOX, and VOC) Peak Hour Emissions Reduced or Produced on New Roadway (Kilograms): 0

EXPLANATION of methodology and assumptions used:(Limit 1,400 characters; approximately 200 words)

Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):	0.0

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

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

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

Crash Modification Factor Used: *(Limit 700 Characters; approximately 100 words)*	Resurface pavement and Improve street lighting illuminance and uniformity
Rationale for Crash Modification Selected: *(Limit 1400 Characters; approximately 200 words)*	The Resurface pavement CMF was applied to all seven crashes on the Cretin corridor, as this would improve driving conditions. Improving street lighting only applies to night-time crashes on the corridor; that CMF was applied to one crash.
Project Benefit ($) from B/C Ratio	$631,795.00
Total Fatal (K) Crashes:	0
Total Serious Injury (A) Crashes:	0
Total Non-Motorized Fatal and Serious Injury Crashes:	0
Total Crashes:	7
Total Fatal (K) Crashes Reduced by Project:	0

Total Serious Injury (A) Crashes Reduced by Project:	0
Total Non-Motorized Fatal and Serious Injury Crashes Reduced by Project:	0
Total Crashes Reduced by Project:	1
Worksheet Attachment	1649945219658_Measure 6A Attachments - Cretin Ave.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 doesnt 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 roadways context (e.g., appropriate for the speed, volume, crossing distance, and other location attributes). Refer to the Regional Solicitation Resources web page for guidance links.

Response:

The project corridor is identified as a High Crash Corridor in the Saint Paul Roadway Safety Plan, which was based on review of fatal and serious injury crashes on Saint Paul streets from 2009 to 2013. The proposed reconstruction project will add two mid-block pedestrian crossing islands at the two bus stop locations along the corridor. The crossing islands will allow pedestrians and transit users to cross two lanes of traffic at a time instead of four and pause in the middle of the street in the crossing island before crossing the other two lanes. In addition to the crossing islands, these two mid-block locations will have new crosswalks and curb ramps added. Street crossing improvements will also be made at the intersection of Cretin Ave/Marshall St including new striped crosswalks, new signals, new APS push buttons, and new ADA compliant curb ramps. The City will evaluate adding RRFB?s and will follow best practice recommendations from FHWA.

(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: n/a

(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:

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

Response: n/a

(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:	n/a

(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:	n/a

(Limit 1,400 characters; approximately 200 words)

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

Response:	The new design includes pedestrian crossing islands in two locations, which will help reduce vehicle speeds by visually narrowing the street. The lane widths will remain the same as existing (11?), but the crossing islands are intended to have a traffic calming effect.

(Limit 2,800 characters; approximately 400 words)

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

Response:	The posted speed limit is 25 mph. The design speed is 30 mph. These speeds match the posted speed and design speed of existing conditions.

(Limit 1,400 characters; approximately 200 words)

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

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

Existing road configuration is a One-way, 3+ through lanes or	
Existing road configuration is a Two-way, 4+ through lanes	Yes
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	Yes
List the AADT	23100

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.)	Yes
Existing road is within 500 of 1+ shopping, dining, or entertainment destinations (e.g., grocery store, restaurant)	Yes
If checked, please describe: *(Limit 1,400 characters; approximately 200 words)*	There are multiple restaurants on the southwest corner of Marshall Ave/Cretin Ave, including Bark and Bite and Black Coffee and Waffle Bar.
Existing road is within 500 of other known pedestrian generators (e.g., school, civic/community center, senior housing, multifamily housing, regulatorily-designated affordable housing)	Yes
If checked, please describe: *(Limit 1,400 characters; approximately 200 words)*	The project is within 500? of multiple pedestrian generators, including the Town and Country Apartments and other multifamily residential complexes on Marshall Ave, and Caremate Home Health Care, which is also located on the south side of Marshall Ave.

Measure A: Multimodal Elements and Existing Connections

Response:

Planned multimodal improvements include adding a sidewalk on the west side of the street, pedestrian crossing improvements at two midblock locations and at Marshall Ave, full replacement of streetlights, and ADA improvements. The midblock pedestrian crossing improvements are planned at the two bus stops for Route 63 along the corridor - Temple Ct and Roblyn Ave - and will include pedestrian crossing islands, new ADA compliant curb ramps, and new crosswalks. The bus stops will also be updated with new concrete pads.

It is currently very difficult for transit users to cross Cretin Ave due to the 4-lane roadway configuration, the high volume of traffic (23,100 AADT), and the lack of midblock crossings or other pedestrian infrastructure. The addition of the sidewalk on the west side of the Cretin Ave corridor will increase safety and comfort for pedestrians, and it will also enhance connectivity to the planned B-Line BRT station that will run along Marshall Ave starting in 2024.

There are no existing or planned bike facilities on Cretin Ave. Existing bikeways are located on Pelham Boulevard, a parallel street to the west of Cretin Ave, and on Cleveland Ave, a parallel street to the east. Both of these bikeways are identified in the Saint Paul Bicycle Plan. The proposed project is not a RBTN corridor or alignment, but it does connect directly to the RBTN Tier 1 alignment on Marshall Avenue. Residents living on the north side of The Town & Country Club will have greatly improved access to the BRT station with a direct sidewalk connection down the west side of Cretin Ave.

(Limit 2,800 characters; approximately 400 words)

Transit Projects Not Requiring Construction

If the applicant is completing a transit application that is operations only, check the box and do not complete the remainder of the form. These projects will receive full points for the Risk Assessment.
Park-and-Ride and other transit construction projects require completion of the Risk Assessment below.

Check Here if Your Transit Project Does Not Require Construction

Measure A: Risk Assessment - Construction Projects

1.Public Involvement (20 Percent of Points)

Projects that have been through a public process with residents and other interested public entities are more likely than others to be successful. The project applicant must indicate that events and/or targeted outreach (e.g., surveys and other web-based input) were held to help identify the transportation problem, how the potential solution was selected instead of other options, and the public involvement completed to date on the project. The focus of this section is on the opportunity for public input as opposed to the quality of input. NOTE: A written response is required and failure to respond will result in zero points.

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

100%

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

50%

At least online/mail outreach effort specific to this project with the general public has been used to help identify the project need.

50%

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

25%

No outreach has led to the selection of this project.

0%

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

There have been no specific meetings or community outreach for this project to date, however, the City has done significant public engagement through the Saint Paul Comprehensive Plan and Saint Paul Pedestrian Plan which resulted in recommendations for this corridor. Several elements that are being implemented in this project were identified in those planning efforts, including filling the sidewalk gap on the west side of the street and improving crossings at key locations.

Response:

For the Saint Paul Pedestrian Plan, staff held targeted outreach meetings to ensure a full spectrum of Saint Paul residents participated in the processes, beyond those who responded to project surveys. Staff held meetings with teens, public housing residents, people learning English as a second language and elders. In total, over 4,000 people provided input for the Pedestrian Plan through in-person events and online surveys. Plan recommendations that resulted from this outreach included the desire to add sidewalks to fill gaps in the walking network and improving safety for people crossing streets, both of which are being addressed through this project along Cretin Ave.

(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.

Yes

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.

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 1649874217871_Cretin Ave Exhibit_20220413.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

100%

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

100%

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

80%

Historic/archeological property impacted; determination of adverse effect anticipated

40%

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

0%

Project is located on an identified historic bridge

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	Yes
50%	
Right-of-way, permanent or temporary easements, and/or MnDOT agreement/limited-use permit required - parcels identified	
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):	$9,027,604.80
Enter Amount of the Noise Walls:	$0.00
Total Project Cost subtract the amount of the noise walls:	$9,027,604.80
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
Cretin Ave Reconstruction_One Page Summary.pdf	One page project summary	400 KB
Cretin Avenue - Existing Conditions Photos.pdf	Existing conditions photos	935 KB
Level of Congestion Map.pdf	Level of congestion map	1.9 MB
Project Area Map_Cretin Ave Reconstruction.pdf	Project area map	779 KB
Regional Economy Map.pdf	Regional economy map	2.4 MB
Resolution 22-334 Regional Solicitation Projects.pdf	Resolution of Support from City of Saint Paul	96 KB
Socio-Economic Conditions Map.pdf	Socio-economic conditions map	2.5 MB
Transit Connections Map.pdf	Transit connections map	2.4 MB

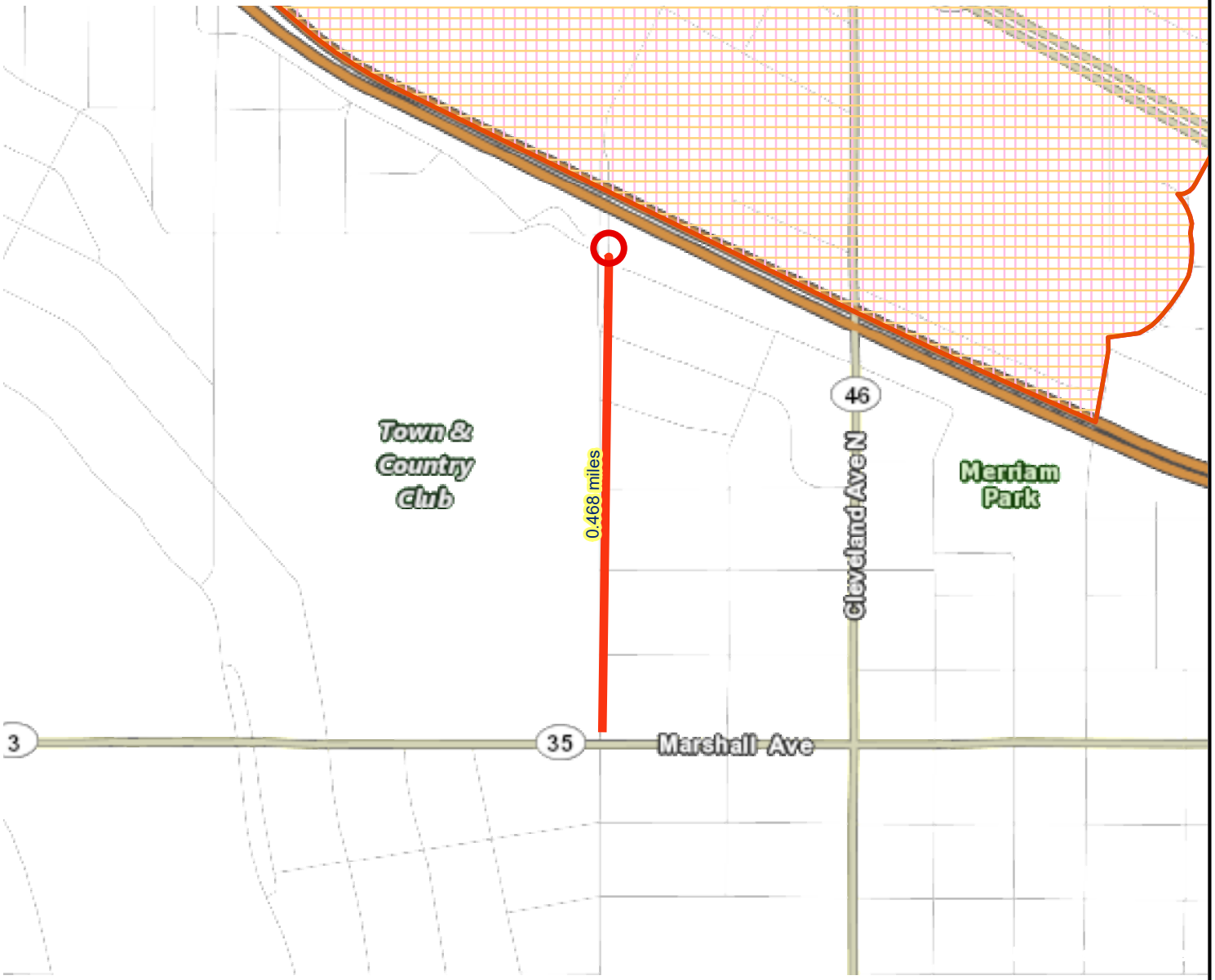
Regional Economy

Roadway Reconstruction/Modernization Project: Cretin Ave Improvements | Map ID: 1648064401627

Results

WITHIN ONE MI of project:
Postsecondary Students: 9939

Totals by City:
Minneapolis
Population: 8089
Employment: 1900
Mfg and Dist Employment: 138
St. Paul
Population: 24554
Employment: 27305
Mfg and Dist Employment: 3667



Project Points
Project
Manfacturing/Distribution Centers
Job Concentration Centers

0 0.075 0.15 0.3 0.45 0.6 Miles

Created: 3/23/2022
LandscapeRSA5

METROPOLITAN COUNCIL

Transit Connections

Roadway Reconstruction/Modernization Project: Cretin Ave Improvements | Map ID: 1648064401627

Results

Transit with a Direct Connection to project:
21 353 363 63 94
*Grand
*B Line

**indicates Planned Alignments*

Transit Market areas: 1

Project Points
Project
Project Area
Active Stop
Arterial Bus Rapid Transit

Commuter Rail
Dedicated Bus Rapid Transit
Highway Bus Rapid Transit
Light Rail
Arterial Bus Rapid Transit

Commuter Rail
Dedicated Bus Rapid Transit
Highway Bus Rapid Transit
Light Rail
Transit Routes

Arterial Bus Rapid Transit
Dedicated Bus Rapid Transit
Highway Bus Rapid Transit
Light Rail
Modern Streetcar

Undetermined
Arterial Bus Rapid Transit
Commuter Rail
Dedicated Bus Rapid Transit
Highway Bus Rapid Transit

Light Rail
Modern Streetcar
Undetermined

0 0.075 0.15 0.3 0.45 0.6 Miles

Created: 3/23/2022
LandscapeRSA3

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

METROPOLITAN COUNCIL

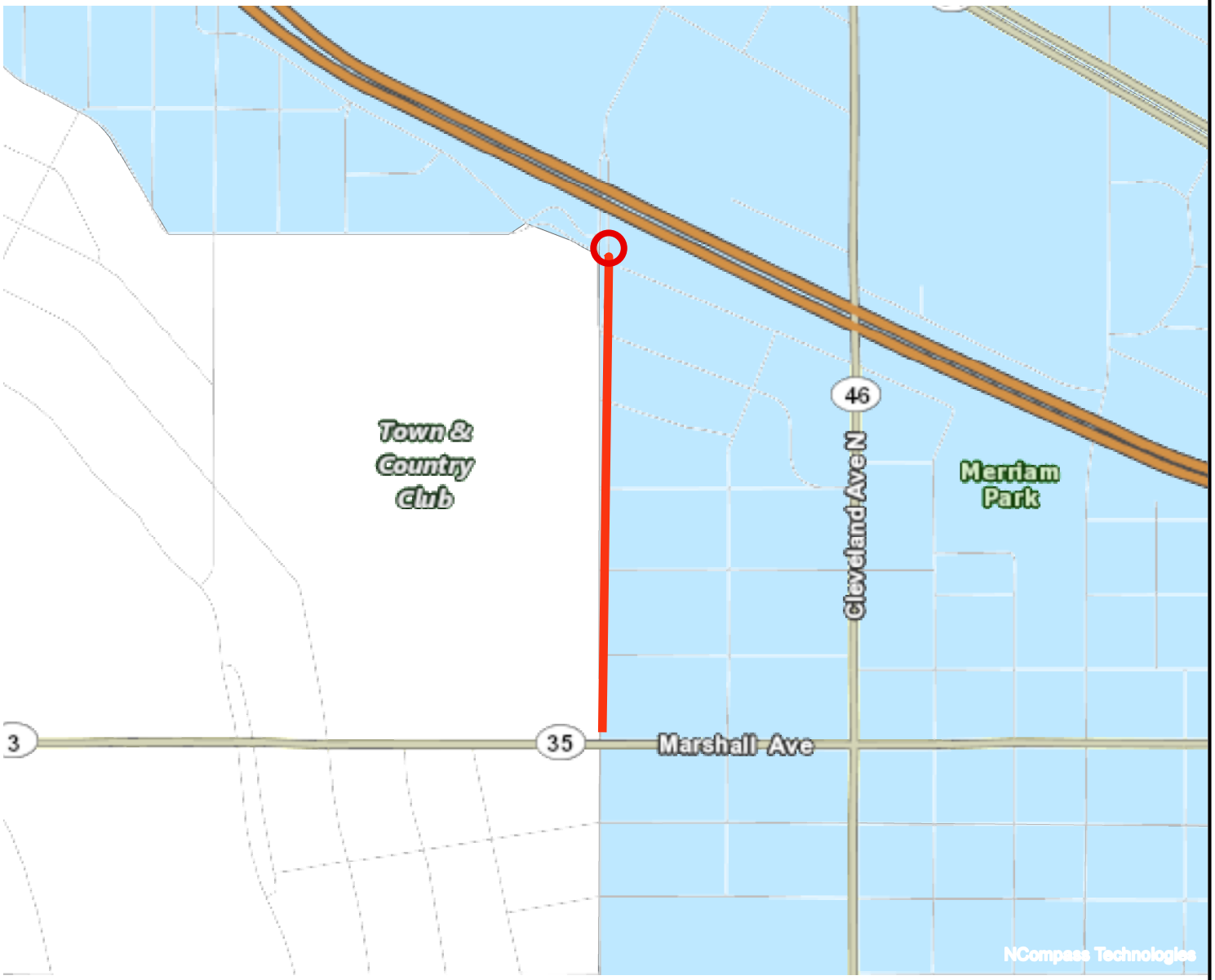
Socio-Economic Conditions

Roadway Reconstruction/Modernization Project: Cretin Ave Improvements | Map ID: 1648064401627

Results

Total of publicly subsidized rental housing units in census tracts within 1/2 mile: 1452

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



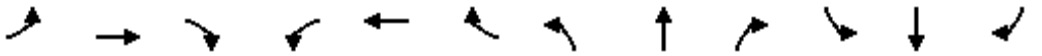
Points
Lines
Area of Concentrated Poverty
Regional Environmental Justice Area

0 0.075 0.15 0.3 0.45 0.6 Miles

Created: 3/23/2022
LandscapeRSA2

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

METROPOLITAN COUNCIL

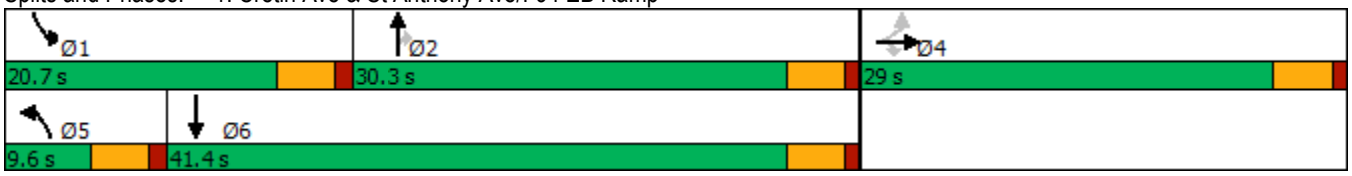


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	140	519	0	0	0	19	544	339	164	897	99
Future Volume (vph)	209	140	519	0	0	0	19	544	339	164	897	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		260	0		0	100		150	360		0
Storage Lanes	1		1	0		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.91	0.91	0.95
Frt			0.850						0.850		0.985	
Flt Protected	0.950	0.989					0.950			0.950	0.999	
Satd. Flow (prot)	1681	1750	1583	0	0	0	1770	3539	1583	1610	3336	0
Flt Permitted	0.950	0.989					0.950			0.950	0.948	
Satd. Flow (perm)	1681	1750	1583	0	0	0	1770	3539	1583	1610	3166	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			184						368		23	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1034			1203			2514			1110	
Travel Time (s)		23.5			27.3			68.6			30.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	227	152	564	0	0	0	21	591	368	178	975	108
Shared Lane Traffic (%)	18%									10%		
Lane Group Flow (vph)	186	193	564	0	0	0	21	591	368	160	1101	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1				1	2	1	1	2	
Detector Template	Left	Thru	Right				Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20				20	100	20	20	100	
Trailing Detector (ft)	0	0	0				0	0	0	0	0	
Detector 1 Position(ft)	0	0	0				0	0	0	0	0	
Detector 1 Size(ft)	20	6	20				20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm				Prot	NA	Perm	Prot	NA	
Protected Phases		4					5	2		1	6	
Permitted Phases	4		4						2			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4				5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0				5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5				9.5	22.5	22.5	9.5	22.5	
Total Split (s)	29.0	29.0	29.0				9.6	30.3	30.3	20.7	41.4	
Total Split (%)	36.3%	36.3%	36.3%				12.0%	37.9%	37.9%	25.9%	51.8%	
Maximum Green (s)	24.5	24.5	24.5				5.1	25.8	25.8	16.2	36.9	
Yellow Time (s)	3.5	3.5	3.5				3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0				1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5				4.5	4.5	4.5	4.5	4.5	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None				None	Max	Max	None	Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0					0	0		0	
Act Effct Green (s)	23.2	23.2	23.2				5.1	26.1	26.1	12.3	42.9	
Actuated g/C Ratio	0.31	0.31	0.31				0.07	0.35	0.35	0.16	0.57	
v/c Ratio	0.36	0.36	0.92				0.17	0.48	0.47	0.61	0.99	
Control Delay	23.2	23.1	39.9				38.7	21.8	4.6	39.8	37.6	
Queue Delay	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	
Total Delay	23.2	23.1	39.9				38.7	21.8	4.6	39.8	37.6	
LOS	C	C	D				D	C	A	D	D	
Approach Delay		33.2						15.7			37.9	
Approach LOS		C						B			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 75.2			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 29.7		Intersection LOS: C	
Intersection Capacity Utilization 66.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Cretin Ave & St Anthony Ave/I-94 EB Ramp



Queues
1: Cretin Ave & St Anthony Ave/I-94 EB Ramp

Lane Group	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	186	193	564	21	591	368	160	1101
v/c Ratio	0.36	0.36	0.92	0.17	0.48	0.47	0.61	0.99
Control Delay	23.2	23.1	39.9	38.7	21.8	4.6	39.8	37.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	23.1	39.9	38.7	21.8	4.6	39.8	37.6
Queue Length 50th (ft)	70	73	177	10	116	0	78	168
Queue Length 95th (ft)	133	136	#394	32	174	57	142	#284
Internal Link Dist (ft)		954			2434			1030
Turn Bay Length (ft)			260	100		150	360	
Base Capacity (vph)	550	572	642	120	1228	789	348	1112
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.34	0.88	0.17	0.48	0.47	0.46	0.99

Intersection Summary

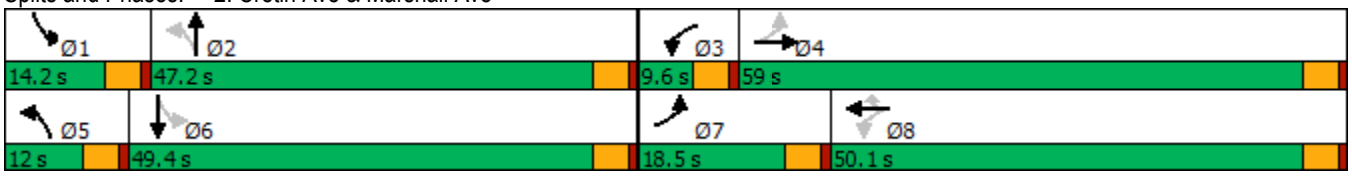
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	605	105	32	496	61	127	436	37	123	789	289
Future Volume (vph)	203	605	105	32	496	61	127	436	37	123	789	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	200		150	130		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.978				0.850		0.988			0.960	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1822	0	1770	1863	1583	1770	3497	0	1770	3398	0
Flt Permitted	0.125			0.090			0.092			0.337		
Satd. Flow (perm)	233	1822	0	168	1863	1583	171	3497	0	628	3398	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				126		7			44	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1823			1883			1854			2514	
Travel Time (s)		41.4			42.8			50.6			68.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	221	658	114	35	539	66	138	474	40	134	858	314
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	772	0	35	539	66	138	514	0	134	1172	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	18.5	59.0		9.6	50.1	50.1	12.0	47.2		14.2	49.4	
Total Split (%)	14.2%	45.4%		7.4%	38.5%	38.5%	9.2%	36.3%		10.9%	38.0%	
Maximum Green (s)	14.0	54.5		5.1	45.6	45.6	7.5	42.7		9.7	44.9	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	60.3	54.7		47.6	42.5	42.5	50.8	43.3		54.1	44.9	
Actuated g/C Ratio	0.48	0.43		0.38	0.34	0.34	0.40	0.34		0.43	0.36	
v/c Ratio	0.81	0.97		0.27	0.86	0.11	0.84	0.43		0.38	0.95	
Control Delay	46.0	61.6		23.7	54.2	0.3	65.7	33.6		24.8	54.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	46.0	61.6		23.7	54.2	0.3	65.7	33.6		24.8	54.4	
LOS	D	E		C	D	A	E	C		C	D	
Approach Delay		58.1			47.0			40.3			51.4	
Approach LOS		E			D			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 126.3			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 50.4		Intersection LOS: D	
Intersection Capacity Utilization 95.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 2: Cretin Ave & Marshall Ave



Queues
2: Cretin Ave & Marshall Ave

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	221	772	35	539	66	138	514	134	1172
v/c Ratio	0.81	0.97	0.27	0.86	0.11	0.84	0.43	0.38	0.95
Control Delay	46.0	61.6	23.7	54.2	0.3	65.7	33.6	24.8	54.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	61.6	23.7	54.2	0.3	65.7	33.6	24.8	54.4
Queue Length 50th (ft)	105	~645	15	413	0	70	176	68	496
Queue Length 95th (ft)	#226	#924	33	#594	0	#190	230	112	#651
Internal Link Dist (ft)		1743		1803			1774		2434
Turn Bay Length (ft)	430		200		150	130		100	
Base Capacity (vph)	281	794	128	673	652	164	1202	359	1237
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.97	0.27	0.80	0.10	0.84	0.43	0.37	0.95

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

1: Cretin Ave & St Anthony Ave/I-94 EB Ramp

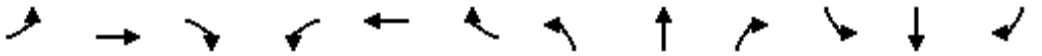
Direction	EB	NB	SB	All
Future Volume (vph)	868	902	1160	2930
Control Delay / Veh (s/v)	33	16	38	30
Queue Delay / Veh (s/v)	0	0	0	0
Total Delay / Veh (s/v)	33	16	38	30
Total Delay (hr)	8	4	12	24
Stops / Veh	0.66	0.52	0.59	0.59
Stops (#)	570	465	689	1724
Average Speed (mph)	12	20	11	15
Total Travel Time (hr)	14	21	22	57
Distance Traveled (mi)	170	429	244	843
Fuel Consumed (gal)	16	24	23	63
Fuel Economy (mpg)	10.6	17.9	10.8	13.5
CO Emissions (kg)	1.12	1.68	1.58	4.37
NOx Emissions (kg)	0.22	0.33	0.31	0.85
VOC Emissions (kg)	0.26	0.39	0.37	1.01
Unserved Vehicles (#)	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0

2: Cretin Ave & Marshall Ave

Direction	EB	WB	NB	SB	All
Future Volume (vph)	913	589	600	1201	3303
Control Delay / Veh (s/v)	58	47	40	51	50
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	58	47	40	51	50
Total Delay (hr)	15	8	7	17	46
Stops / Veh	0.78	0.79	0.71	0.83	0.79
Stops (#)	716	463	425	998	2602
Average Speed (mph)	12	14	14	14	14
Total Travel Time (hr)	25	15	15	40	95
Distance Traveled (mi)	315	210	211	572	1308
Fuel Consumed (gal)	28	17	16	42	103
Fuel Economy (mpg)	11.4	12.5	13.1	13.6	12.7
CO Emissions (kg)	1.94	1.18	1.12	2.94	7.18
NOx Emissions (kg)	0.38	0.23	0.22	0.57	1.40
VOC Emissions (kg)	0.45	0.27	0.26	0.68	1.66
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0	0

Network Totals

Number of Intersections	2
Control Delay / Veh (s/v)	41
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	41
Total Delay (hr)	70
Stops / Veh	0.69
Stops (#)	4326
Average Speed (mph)	14
Total Travel Time (hr)	152
Distance Traveled (mi)	2151
Fuel Consumed (gal)	165
Fuel Economy (mpg)	13.0
CO Emissions (kg)	11.55
NOx Emissions (kg)	2.25
VOC Emissions (kg)	2.68
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	82.4

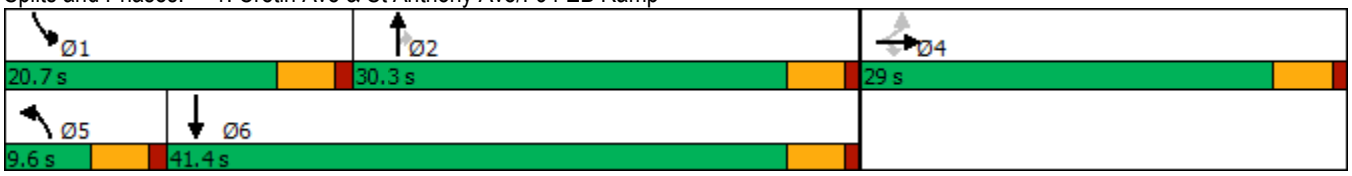


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	140	519	0	0	0	19	544	339	164	897	99
Future Volume (vph)	209	140	519	0	0	0	19	544	339	164	897	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		260	0		0	100		150	360		0
Storage Lanes	1		1	0		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.91	0.91	0.95
Frt			0.850						0.850		0.985	
Flt Protected	0.950	0.989					0.950			0.950	0.999	
Satd. Flow (prot)	1681	1750	1583	0	0	0	1770	3539	1583	1610	3336	0
Flt Permitted	0.950	0.989					0.950			0.950	0.948	
Satd. Flow (perm)	1681	1750	1583	0	0	0	1770	3539	1583	1610	3166	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			184						368		23	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1034			1203			2514			1110	
Travel Time (s)		23.5			27.3			68.6			30.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	227	152	564	0	0	0	21	591	368	178	975	108
Shared Lane Traffic (%)	18%									10%		
Lane Group Flow (vph)	186	193	564	0	0	0	21	591	368	160	1101	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1				1	2	1	1	2	
Detector Template	Left	Thru	Right				Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20				20	100	20	20	100	
Trailing Detector (ft)	0	0	0				0	0	0	0	0	
Detector 1 Position(ft)	0	0	0				0	0	0	0	0	
Detector 1 Size(ft)	20	6	20				20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex				Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA	Perm				Prot	NA	Perm	Prot	NA	
Protected Phases		4					5	2		1	6	
Permitted Phases	4		4						2			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4				5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0				5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5				9.5	22.5	22.5	9.5	22.5	
Total Split (s)	29.0	29.0	29.0				9.6	30.3	30.3	20.7	41.4	
Total Split (%)	36.3%	36.3%	36.3%				12.0%	37.9%	37.9%	25.9%	51.8%	
Maximum Green (s)	24.5	24.5	24.5				5.1	25.8	25.8	16.2	36.9	
Yellow Time (s)	3.5	3.5	3.5				3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0				1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5				4.5	4.5	4.5	4.5	4.5	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None				None	Max	Max	None	Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0					0	0		0	
Act Effct Green (s)	23.2	23.2	23.2				5.1	26.1	26.1	12.3	42.9	
Actuated g/C Ratio	0.31	0.31	0.31				0.07	0.35	0.35	0.16	0.57	
v/c Ratio	0.36	0.36	0.92				0.17	0.48	0.47	0.61	0.99	
Control Delay	23.2	23.1	39.9				38.7	21.8	4.6	39.8	37.6	
Queue Delay	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	
Total Delay	23.2	23.1	39.9				38.7	21.8	4.6	39.8	37.6	
LOS	C	C	D				D	C	A	D	D	
Approach Delay		33.2						15.7			37.9	
Approach LOS		C						B			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 75.2			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 29.7		Intersection LOS: C	
Intersection Capacity Utilization 66.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Cretin Ave & St Anthony Ave/I-94 EB Ramp



Queues
1: Cretin Ave & St Anthony Ave/I-94 EB Ramp

Lane Group	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	186	193	564	21	591	368	160	1101
v/c Ratio	0.36	0.36	0.92	0.17	0.48	0.47	0.61	0.99
Control Delay	23.2	23.1	39.9	38.7	21.8	4.6	39.8	37.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	23.1	39.9	38.7	21.8	4.6	39.8	37.6
Queue Length 50th (ft)	70	73	177	10	116	0	78	168
Queue Length 95th (ft)	133	136	#394	32	174	57	142	#284
Internal Link Dist (ft)		954			2434			1030
Turn Bay Length (ft)			260	100		150	360	
Base Capacity (vph)	550	572	642	120	1228	789	348	1112
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.34	0.88	0.17	0.48	0.47	0.46	0.99

Intersection Summary

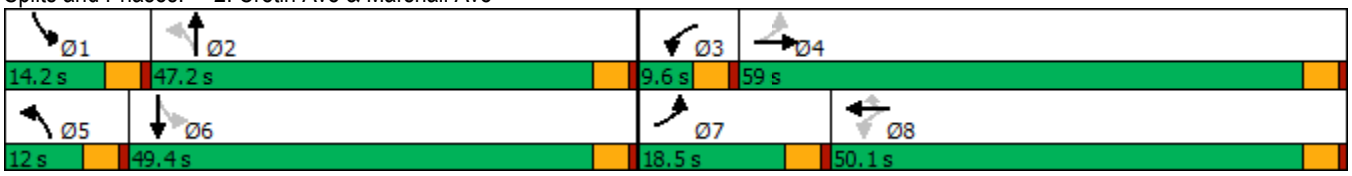
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	605	105	32	496	61	127	436	37	123	789	289
Future Volume (vph)	203	605	105	32	496	61	127	436	37	123	789	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	200		150	130		0	100		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.978				0.850		0.988			0.960	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1822	0	1770	1863	1583	1770	3497	0	1770	3398	0
Flt Permitted	0.125			0.090			0.092			0.337		
Satd. Flow (perm)	233	1822	0	168	1863	1583	171	3497	0	628	3398	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				126		7			44	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1823			1883			1854			2514	
Travel Time (s)		41.4			42.8			50.6			68.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	221	658	114	35	539	66	138	474	40	134	858	314
Shared Lane Traffic (%)												
Lane Group Flow (vph)	221	772	0	35	539	66	138	514	0	134	1172	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5	22.5	9.5	22.5		9.5	22.5	
Total Split (s)	18.5	59.0		9.6	50.1	50.1	12.0	47.2		14.2	49.4	
Total Split (%)	14.2%	45.4%		7.4%	38.5%	38.5%	9.2%	36.3%		10.9%	38.0%	
Maximum Green (s)	14.0	54.5		5.1	45.6	45.6	7.5	42.7		9.7	44.9	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		11.0			11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0		0			0	
Act Effct Green (s)	60.3	54.7		47.6	42.5	42.5	50.8	43.3		54.1	44.9	
Actuated g/C Ratio	0.48	0.43		0.38	0.34	0.34	0.40	0.34		0.43	0.36	
v/c Ratio	0.81	0.97		0.27	0.86	0.11	0.84	0.43		0.38	0.95	
Control Delay	46.0	61.6		23.7	54.2	0.3	65.7	33.6		24.8	54.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	46.0	61.6		23.7	54.2	0.3	65.7	33.6		24.8	54.4	
LOS	D	E		C	D	A	E	C		C	D	
Approach Delay		58.1			47.0			40.3			51.4	
Approach LOS		E			D			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 126.3			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 50.4		Intersection LOS: D	
Intersection Capacity Utilization 95.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 2: Cretin Ave & Marshall Ave



Queues
2: Cretin Ave & Marshall Ave

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	221	772	35	539	66	138	514	134	1172
v/c Ratio	0.81	0.97	0.27	0.86	0.11	0.84	0.43	0.38	0.95
Control Delay	46.0	61.6	23.7	54.2	0.3	65.7	33.6	24.8	54.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	61.6	23.7	54.2	0.3	65.7	33.6	24.8	54.4
Queue Length 50th (ft)	105	~645	15	413	0	70	176	68	496
Queue Length 95th (ft)	#226	#924	33	#594	0	#190	230	112	#651
Internal Link Dist (ft)		1743		1803			1774		2434
Turn Bay Length (ft)	430		200		150	130		100	
Base Capacity (vph)	281	794	128	673	652	164	1202	359	1237
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.97	0.27	0.80	0.10	0.84	0.43	0.37	0.95

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

1: Cretin Ave & St Anthony Ave/I-94 EB Ramp

Direction	EB	NB	SB	All
Future Volume (vph)	868	902	1160	2930
Control Delay / Veh (s/v)	33	16	38	30
Queue Delay / Veh (s/v)	0	0	0	0
Total Delay / Veh (s/v)	33	16	38	30
Total Delay (hr)	8	4	12	24
Stops / Veh	0.66	0.52	0.59	0.59
Stops (#)	570	465	689	1724
Average Speed (mph)	12	20	11	15
Total Travel Time (hr)	14	21	22	57
Distance Traveled (mi)	170	429	244	843
Fuel Consumed (gal)	16	24	23	63
Fuel Economy (mpg)	10.6	17.9	10.8	13.5
CO Emissions (kg)	1.12	1.68	1.58	4.37
NOx Emissions (kg)	0.22	0.33	0.31	0.85
VOC Emissions (kg)	0.26	0.39	0.37	1.01
Unserved Vehicles (#)	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0

2: Cretin Ave & Marshall Ave

Direction	EB	WB	NB	SB	All
Future Volume (vph)	913	589	600	1201	3303
Control Delay / Veh (s/v)	58	47	40	51	50
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	58	47	40	51	50
Total Delay (hr)	15	8	7	17	46
Stops / Veh	0.78	0.79	0.71	0.83	0.79
Stops (#)	716	463	425	998	2602
Average Speed (mph)	12	14	14	14	14
Total Travel Time (hr)	25	15	15	40	95
Distance Traveled (mi)	315	210	211	572	1308
Fuel Consumed (gal)	28	17	16	42	103
Fuel Economy (mpg)	11.4	12.5	13.1	13.6	12.7
CO Emissions (kg)	1.94	1.18	1.12	2.94	7.18
NOx Emissions (kg)	0.38	0.23	0.22	0.57	1.40
VOC Emissions (kg)	0.45	0.27	0.26	0.68	1.66
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0	0

Network Totals

Number of Intersections	2
Control Delay / Veh (s/v)	41
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	41
Total Delay (hr)	70
Stops / Veh	0.69
Stops (#)	4326
Average Speed (mph)	14
Total Travel Time (hr)	152
Distance Traveled (mi)	2151
Fuel Consumed (gal)	165
Fuel Economy (mpg)	13.0
CO Emissions (kg)	11.55
NOx Emissions (kg)	2.25
VOC Emissions (kg)	2.68
Unserved Vehicles (#)	0
Vehicles in dilemma zone (#)	0
Performance Index	82.4

Traffic Safety Benefit-Cost Calculation

Highway Safety Improvement Program (HSIP) Reactive Project

DEPARTMENT OF TRANSPORTATION

A. Roadway Description

Route	Cretin Avenue	**District**	Metro	**County**	Ramsey
Begin RP	2.11	**End RP**	2.57	**Miles**	0.460
Location	Marshall Avenue to 94 EB Ramp/St Anthony Avenue				

B. Project Description

Proposed Work	Pedestrian Safety Improvements		
Project Cost*	$9,027,605	**Installation Year**	2027
Project Service Life	20 years	**Traffic Growth Factor**	1.0%

** exclude Right of Way from Project Cost*

C. Crash Modification Factor

0.89	**Fatal (K) Crashes**	**Reference**	Resurface Pavement
0.89	**Serious Injury (A) Crashes**		
0.89	**Moderate Injury (B) Crashes**	**Crash Type**	All
0.89	**Possible Injury (C) Crashes**		
0.93	**Property Damage Only Crashes**		www.CMFclearinghouse.org

D. Crash Modification Factor (optional second CMF)

0.58	**Fatal (K) Crashes**	**Reference**	Improve street lighting illuminance and uniformity
0.58	**Serious Injury (A) Crashes**		
0.58	**Moderate Injury (B) Crashes**	**Crash Type**	Night-time crashes
0.58	**Possible Injury (C) Crashes**		
0.58	**Property Damage Only Crashes**		www.CMFclearinghouse.org

E. Crash Data

Begin Date	1/1/2019	**End Date**	12/31/2021	3 years
Data Source	MnCMAT2			

Crash Severity	All	Night-time crashes
K crashes	0	0
A crashes	0	0
B crashes	1	0
C crashes	1	1
PDO crashes	5	0

F. Benefit-Cost Calculation

$631,795	**Benefit (present value)**	**B/C Ratio = 0.07**
$9,027,605	**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
A crashes	$750,000
B crashes	$230,000
C crashes	$120,000
PDO crashes	$13,000

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

Real Discount Rate:	0.7%	Default
Traffic Growth Rate:	1.0%	**Revised**
Project Service Life:	20 years	**Revised**

G. Annual Benefit

Crash Severity	Crash Reduction	Annual Reduction	Annual Benefit
K crashes	0.00	0.00	$0
A crashes	0.00	0.00	$0
B crashes	0.11	0.04	$8,127
C crashes	0.53	0.18	$21,040
PDO crashes	0.36	0.12	$1,538
			$30,705

H. Amortized Benefit

Year	Crash Benefits	Present Value
2027	$30,705	$30,705
2028	$31,012	$30,796
2029	$31,322	$30,888
2030	$31,635	$30,980
2031	$31,952	$31,073
2032	$32,271	$31,165
2033	$32,594	$31,258
2034	$32,920	$31,351
2035	$33,249	$31,444
2036	$33,582	$31,538
2037	$33,917	$31,632
2038	$34,257	$31,726
2039	$34,599	$31,821
2040	$34,945	$31,916
2041	$35,295	$32,011
2042	$35,648	$32,106
2043	$36,004	$32,202
2044	$36,364	$32,298
2045	$36,728	$32,394
2046	$37,095	$32,490
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0
0	$0	$0

Total = $631,795

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

INCIDENTID	RTESYSCO	RTENUMBI	MEASURE	COUNTY_S	CITY_NAM	TOWNSHIP	MNDOT_D	STATE_PAT	TRIBAL_GC	LOCALID	ACCIDENT_	CRASH_MC	CRASH_DA	CRASH_YE	CRASH_DA	CRASH_HC	DIVIDEDRC	CRASHSEV	NUMBERKI	NUMBERO	MANNERO	FIRSTHARN	RELATIONT	LIGHTCONI	WEATHERF	WEATHERS	RDWYSURI	WORKZON	ROADWAY	INTERSECT	ROUTE_ID	BASIC_TYP
799159	5	124	2.129	62	Saint Paul		M	24		20035024	2E+08	2	18	2020	Tue	11		5	0	2		11	2	1	1	5	98	N CRETIN	AVE	05000239	90
977472	5	124	2.179	62	2396511			24		21249730	2.13E+08	12	4	2021	Sat	17	98	5	0	2	10	10	10	4	2	1	98	N CRETIN	/ IGLEHART	05000239	5
942233	5	124	2.19	62	Saint Paul		M	24		MC210067	2.13E+08	9	18	2021	Sat	10	98	5	0	2	10	10	2	1	1	1	98	N CRETIN	AVE	05000239	5
846981	5	124	2.272	62	Saint Paul		M	24		20223394	2.03E+08	10	17	2020	Sat	20	N	4	0	2	99	10	4	4	2	1	98	N CRETIN	AVE	05000239	90
938962	5	124	2.352	62	Saint Paul		M	24		21186728	2.13E+08	9	7	2021	Tue	11	S	3	0	2	11	10	4	1	1	1	98	N CRETIN	/ ROBLYN	05000239	6
810682	5	124	2.469	62	Saint Paul		M	24		20092929	2.01E+08	5	18	2020	Mon	8		5	0	2		12	90	1	1	1	98	N CRETIN	AVE	05000239	90
720028	5	124	2.51	62	Saint Paul		M	24		19404647	1.91E+08	5	15	2019	Wed	9	N	5	0	2	12	10	2	1	1	1	98	CRETIN	AVE TO 94 EB	05000239	7

CMF / CRF Details

CMF ID: 11027

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 [0.5 ft, 1.0 fc]

Category: Highway lighting

Study: *Development of crash modification factors for roadway illuminance: A matched case-control study*, Li et al., 2021

Star Quality Rating:	

Crash Modification Factor (CMF)	
Value:	0.581
Adjusted Standard Error:	
Unadjusted Standard Error:	0.137

Crash Reduction Factor (CRF)	
Value:	41.9 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	
Unadjusted Standard Error:	13.7

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:	
Time of Day:	Night

If countermeasure is intersection-based

Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Development Details

Date Range of Data Used:	2011 to 2014
Municipality:	Tampa
State:	FL
Country:	
Type of Methodology Used:	5

Sample Size Used:	

Other Details

Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Mar-16-2022
Comments:	CMF of increasing the average lighting level from [0.5 fc, 1.0 fc] to >1.0 fc

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CMF / CRF Details

CMF ID: 9290

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]

Crash Modification Factor (CMF)	
Value:	0.894
Adjusted Standard Error:	
Unadjusted Standard Error:	0.05

Crash Reduction Factor (CRF)	
Value:	10.6 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	
Unadjusted Standard Error:	5

Applicability

Crash Type:	All
Crash Severity:	K (fatal),A (serious injury),B (minor injury),C (possible injury)
Roadway Types:	Principal Arterial Other
Number of Lanes:	1-4
Road Division Type:	
Speed Limit:	25mph to 65mph
Area Type:	Urban
Traffic Volume:	2100 to 40500 *Annual Average Daily Traffic (AADT)*
Time of Day:	Not specified

If countermeasure is intersection-based

Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Development Details

Date Range of Data Used:	2004 to 2013
Municipality:	
State:	FL
Country:	USA
Type of Methodology Used:	1

Sample Size Used:	

Other Details

Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Jun-17-2018
Comments:	

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CMF / CRF Details

CMF ID: 9289

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:	Stars [View score details]

Crash Modification Factor (CMF)	
Value:	0.929
Adjusted Standard Error:	
Unadjusted Standard Error:	0.04

Crash Reduction Factor (CRF)	
Value:	7.1 *(This value indicates a **decrease** in crashes)*
Adjusted Standard Error:	
Unadjusted Standard Error:	4

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:	2100 to 40500 *Annual Average Daily Traffic (AADT)*
Time of Day:	Not specified

If countermeasure is intersection-based

Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Development Details

Date Range of Data Used:	2004 to 2013
Municipality:	
State:	FL
Country:	USA
Type of Methodology Used:	1

Sample Size Used:	

Other Details

Included in Highway Safety Manual?	No
Date Added to Clearinghouse:	Jun-17-2018
Comments:	

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

wsb

SCALE IN FEET
0 50 100

MARSHALL AVE

PROPOSED B-LINE BRT STATION

6' WALK | 6' WALK | VARIES | 8' MEDIAN REFUGE | 6' WALK

← 11' THRU
← 11' THRU
100 101 102 ↖ 11' LTL 103 104 105 106 107 108 109 ← 11' THRU 110 111 112 113 ← 11' THRU 114 115
→ 11' THRU
→ 11' THRU

CRETIN AVE

6' WALK | VARIES | 6' WALK | VARIES | 6' WALK | VARIES | 6' WALK

MARSHALL AVE | IGLEHART AVE | CARROLL AVE | ROBLYN AVE

LEGEND

- BITUMINOUS ROADWAY
- CONCRETE CURB & GUTTER / MEDIAN
- CONCRETE DRIVEWAY
- CONCRETE SIDEWALK
- TURF
- EXISTING SIGNAL
- PROPOSED TRAFFIC DIRECTION
- PROPERTY LINES

Date: Printed: 4/13/2022
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SAINT PAUL
MINNESOTA

Cretin Avenue Reconstruction
City of Saint Paul

Figure 1
Sheet 1 of 2
DRAFT CONCEPT - NOT FOR CONSTRUCTION
SUBJECT TO CHANGE IN DESIGN PHASE

wsb

SCALE IN FEET
0 50 100

6' WALK
VARIES
6' WALK
8' MEDIAN REFUGE
6' WALK
VARIES
6' WALK

← 11' THRU
← 11' THRU
→ 11' THRU
→ 11' THRU

116 117 118 119 120 121 122 123 124 125 126 127

CRETIN AVE

VARIES
6' WALK
VARIES
VARIES
6' WALK
VARIES
6' WALK

ANN ARBOR ST
TEMPLE CT
ST ANTHONY AVE
I 94
I 94

LEGEND

- BITUMINOUS ROADWAY
- CONCRETE CURB & GUTTER / MEDIAN
- CONCRETE DRIVEWAY
- CONCRETE SIDEWALK
- TURF
- EXISTING SIGNAL
- PROPOSED TRAFFIC DIRECTION
- PROPERTY LINES

Date: Printed: 4/13/2022
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SAINT PAUL
MINNESOTA

Cretin Avenue Reconstruction
City of Saint Paul

Figure 2
Sheet 2 of 2
DRAFT CONCEPT - NOT FOR CONSTRUCTION
SUBJECT TO CHANGE IN DESIGN PHASE

Project Name: Cretin Avenue Reconstruction

Applicant: City of Saint Paul
Project Location: Cretin Avenue – Marshall Avenue to Saint Anthony Avenue
Total Project Cost: $9,027,605
Requested Federal Award Amount: $7,000,000
Local Match: $2,027,605

Project Description:
The City of Saint Paul is requesting funding for street reconstruction and pedestrian safety improvements to Cretin Avenue between Marshall Avenue and Saint Anthony Ave near I-94. The corridor is classified as an A-Minor Arterial Augmentor roadway. Planned improvements include full-depth reconstruction of pavement structure, adding a sidewalk on the west side of the street, reconstructing the existing sidewalk on the east side, pedestrian crossing improvements, full replacement of streetlights, replacement of signals, and ADA improvements. Pedestrian crossing improvements are planned at two locations where there are bus stops along the corridor – at Temple Court and Roblyn Avenue. Crossing improvements include marked crosswalks, median crossing islands, ADA compliant curb ramps, and new sidewalk bus stop pads. ADA improvements will include new curb ramps, APS buttons, and detectable warning surface/truncated domes. This project corridor also connects to the planned B Line BRT, which will have a station located at the northwest corner of Cretin Avenue and Marshall Avenue with service anticipated to begin in 2024.

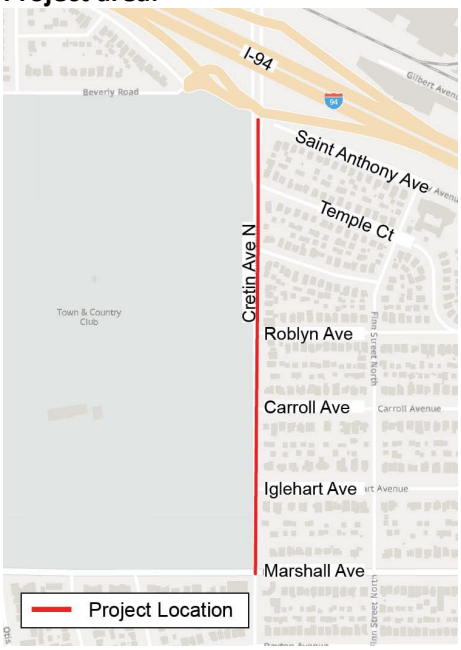
Project Benefits:

- New sidewalk on west side of street fills gap in walking network
- Improved bus stops and ADA accessibility on west side of street
- Reduced risk of crashes and conflicts between pedestrians and vehicles

Key Connections:

- Metro Transit Route 63
- I-94 located on northern end of corridor
- Connects to planned Metro Transit B Line BRT project on Marshall Avenue (Service anticipated to begin in 2024)
- New sidewalk on west side of street connects to existing sidewalks on Saint Anthony Avenue (N. extent) and Marshall Avenue (S. extent)

Project area:

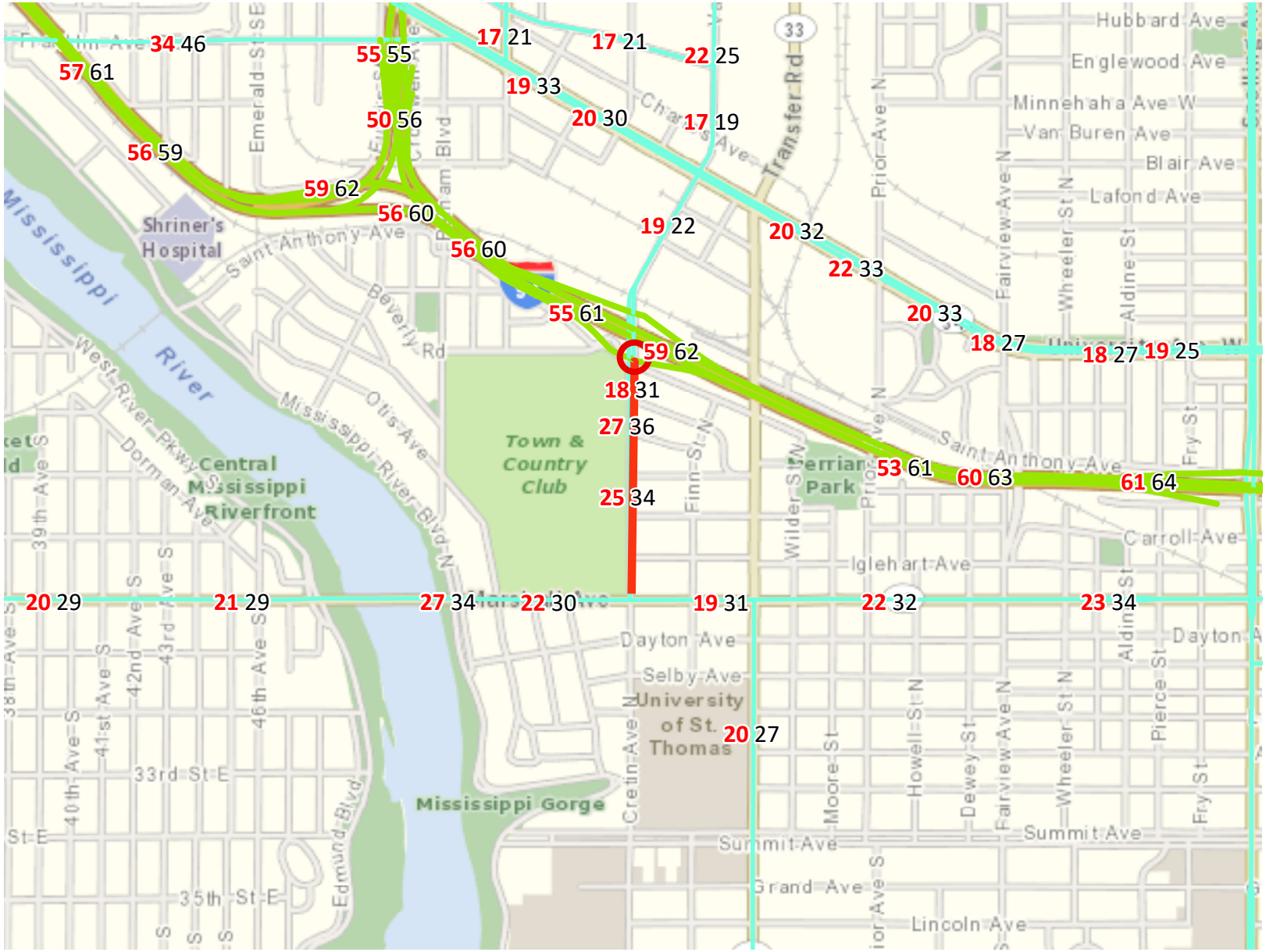


Existing conditions, looking south:

Cretin Avenue - Existing Conditions

Level of Congestion

Roadway Reconstruction/Modernization Project: Cretin Ave Improvements | Map ID: 1648064401627



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

0 0.175 0.35 0.7 1.05 1.4 Miles

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LandscapeRSA1

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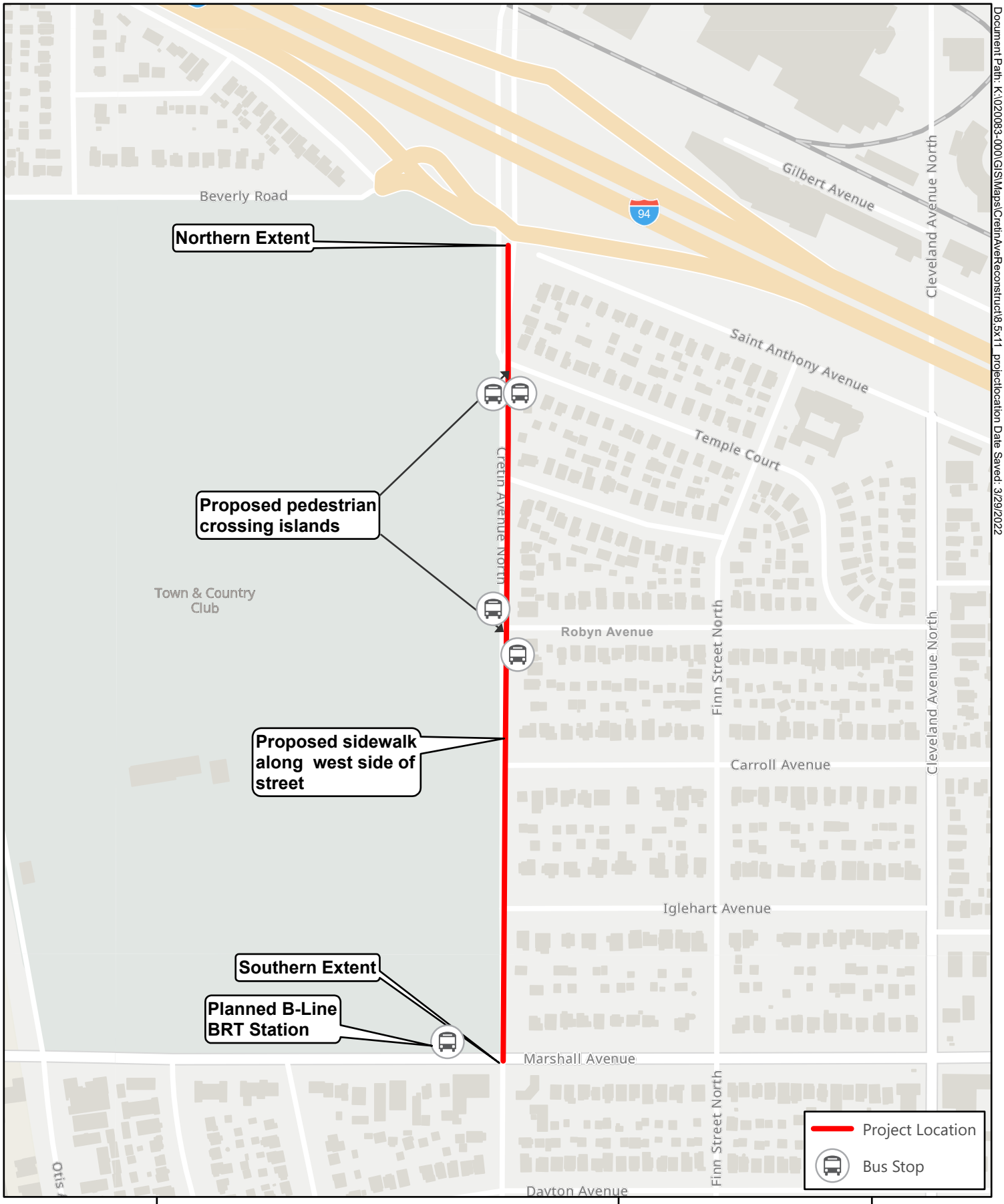

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Figure 1 - Project Location

Cretin Avenue Reconstruction
City of Saint Paul

N
0 400 Feet

SAINT PAUL MINNESOTA

wsb

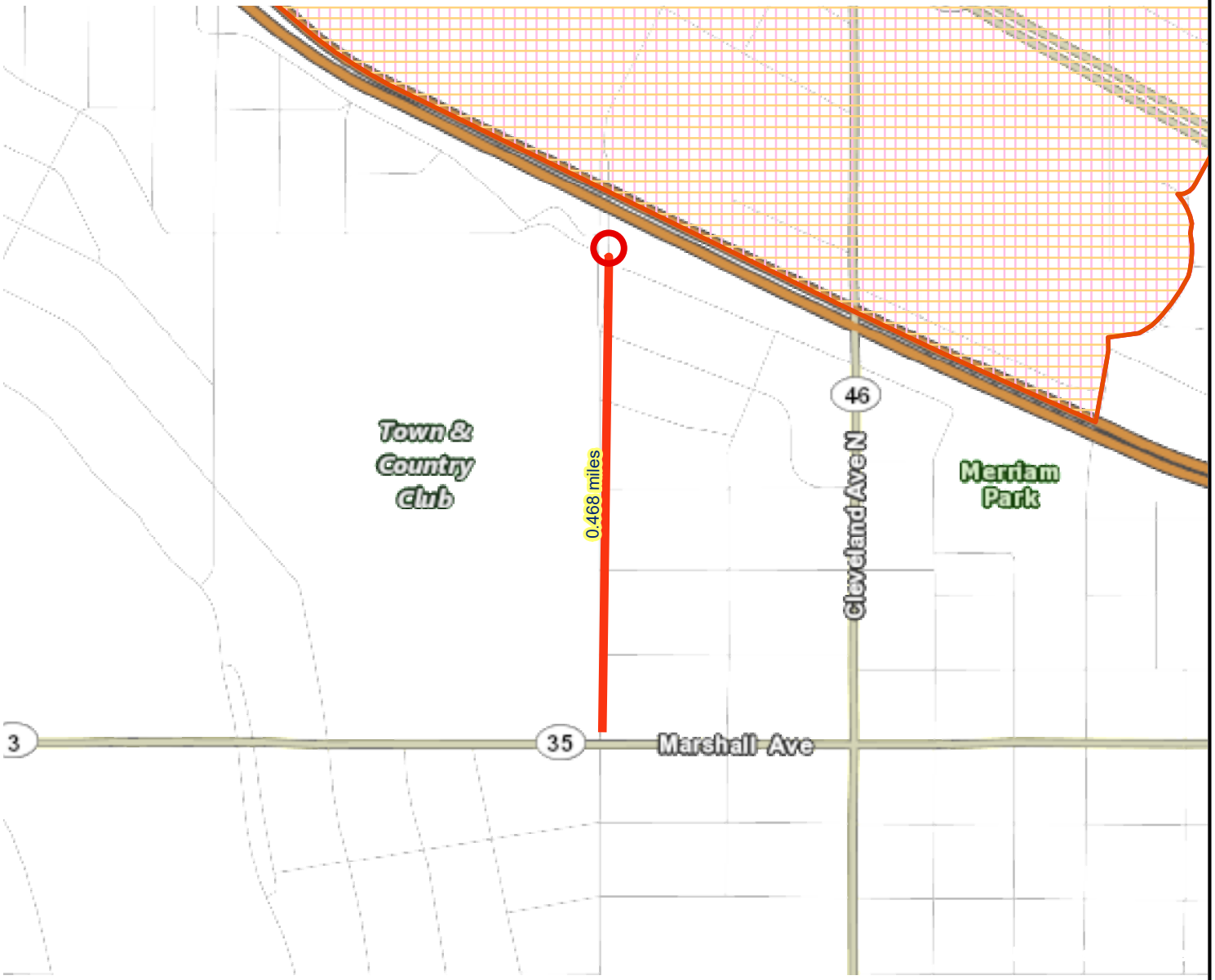
Regional Economy

Roadway Reconstruction/Modernization Project: Cretin Ave Improvements | Map ID: 1648064401627

Results

WITHIN ONE MI of project:
Postsecondary Students: 9939

Totals by City:
Minneapolis
Population: 8089
Employment: 1900
Mfg and Dist Employment: 138
St. Paul
Population: 24554
Employment: 27305
Mfg and Dist Employment: 3667



Project Points
Project
Manfacturing/Distribution Centers
Job Concentration Centers

0 0.075 0.15 0.3 0.45 0.6 Miles

Created: 3/23/2022
LandscapeRSA5

METROPOLITAN COUNCIL

City of Saint Paul

City Hall and Court House
15 West Kellogg Boulevard
Phone: 651-266-8560

Signature Copy

Resolution: RES 22-334

File Number: RES 22-334

Authorizing the Departments of Public Works and Parks and Recreation to submit project applications for federal funding into the 2022 Metropolitan Council Regional Solicitation Program and to authorize the commitment of a twenty percent local funding match plus engineering for any project that is awarded federal funding.

WHEREAS, the Departments of Public Works and Parks and Recreation are proposing to submit twelve project applications for federal funding into the 2022 Metropolitan Council Regional Solicitation Program for funding in years 2026 and 2027; and

WHEREAS, there is a required twenty percent local funding match to any project awarded to an agency under the Regional Solicitation Program; and

WHEREAS, the City commits to ensuring that all sidewalks and bikeways included in these project applications will be fully open for use and cleared of snow throughout the winter, either by City staff or by adjacent property owners per existing City ordinances; and

WHEREAS, the projects to be submitted by the City under the Metropolitan Council Regional Solicitation are as follows:

- Wabasha Street Reconstruct - 7th to 11th (Roadways)
- Minnehaha Avenue Reconstruct - Payne to 7th (Roadways)
- Fairview Avenue Reconstruct - Edgcumbe to Ford (Roadways)
- Cretin Avenue Reconstruct - I94 to Marshall (Roadways)
- Maryland Avenue Traffic Signal Modernization - Dale to White Bear (Traffic Management)
- Capital City Bikeway - Kellogg from W. 7th to John Ireland (Multiuse Trails)
- Capital City Bikeway - St. Peter/12th from 10th to John Ireland (Multiuse Trails)
- Point Douglas Regional Trail Phase 1 Construction (Multiuse Trails)
- Payne Avenue - Phalen Blvd to Maryland (Pedestrian Facilities)
- Arlington Avenue Sidewalk Infill - I35E to Edgerton (Pedestrian Facilities)
- Chelsea Heights Safe Routes to School (Safe Routes to School)
- Evie Carshare Expansion (Unique Projects 2024/2025 funding)

WHEREAS, these projects fall within appropriate funding categories and meet the conditions and requirements specified for eligibility of federal funding; now, therefore be it

RESOLVED, that the Council of the City of Saint Paul authorizes submission of the project applications for possible award of federal transportation funds through the Metropolitan Council Regional Solicitation Program; and be it finally

RESOLVED, that the Council of the City of Saint Paul authorizes the commitment of local funds on

a twenty percent match basis plus engineering for any project awarded federal funding under the Regional Solicitation Program.

ResolutionRES 22-334PassedMayor's OfficepassedSigned4/8/20224/6/2022Signed|DAYTHAt a meeting of the on , this Resolution was Signed.

Yea: 4 Councilmember Noecker, Councilmember Prince, Councilmember Jalali, and Councilmember Yang

Nay: 0

Absent: 3 Councilmember Brendmoen, Councilmember Thao, and Councilmember Tolbert

Vote Attested by Council Secretary Shari Moore **Date** 4/6/2022

Approved by the Mayor Melvin Carter III **Date** 4/8/2022

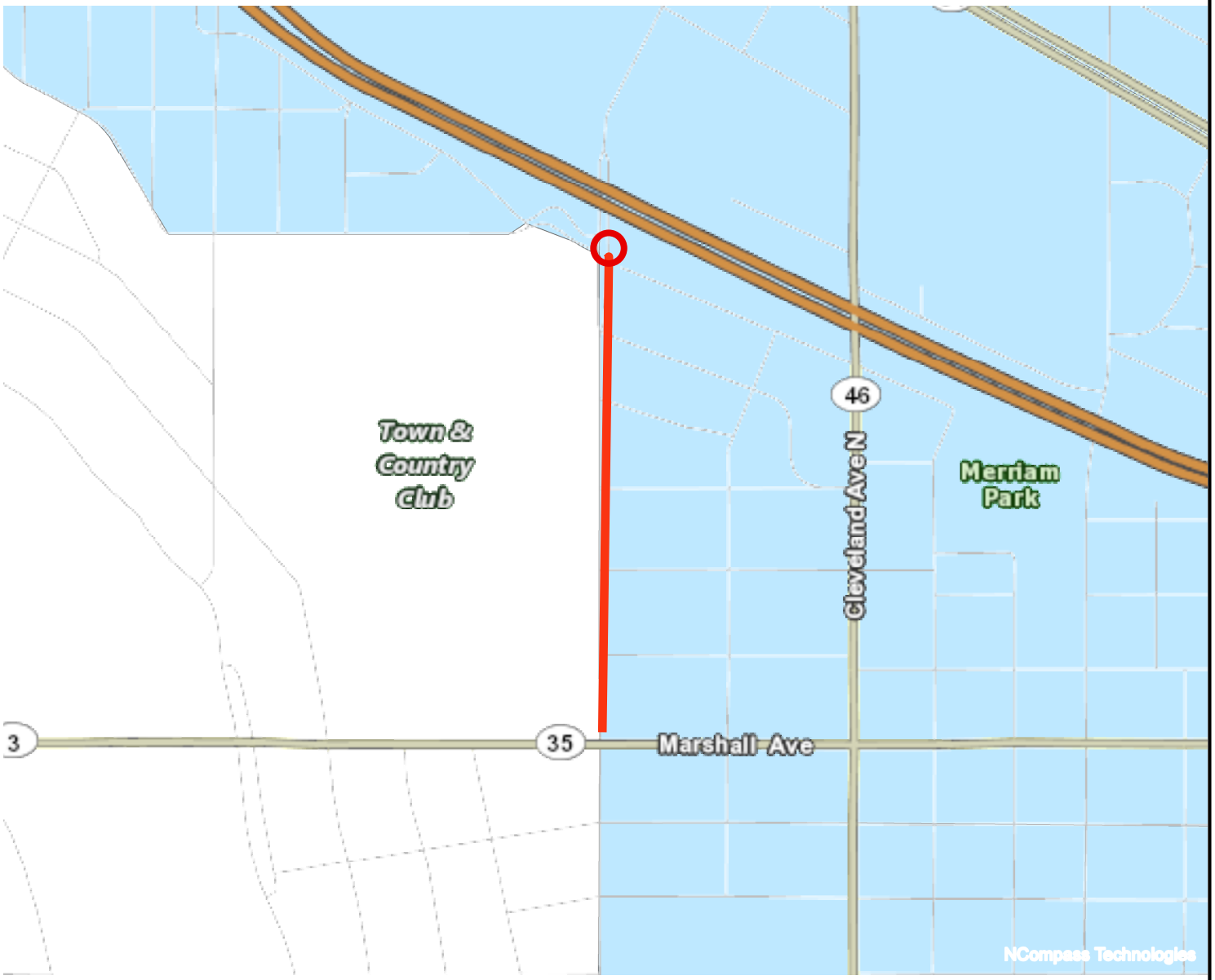
Socio-Economic Conditions

Roadway Reconstruction/Modernization Project: Cretin Ave Improvements | Map ID: 1648064401627

Results

Total of publicly subsidized rental housing units in census tracts within 1/2 mile: 1452

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



Points
Lines
Area of Concentrated Poverty
Regional Environmental Justice Area

0 0.075 0.15 0.3 0.45 0.6 Miles

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LandscapeRSA2

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Transit Connections

Roadway Reconstruction/Modernization Project: Cretin Ave Improvements | Map ID: 1648064401627

Results

Transit with a Direct Connection to project:
21 353 363 63 94
*Grand
*B Line

**indicates Planned Alignments*

Transit Market areas: 1

Project Points
Project
Project Area
Active Stop
Arterial Bus Rapid Transit

Commuter Rail
Dedicated Bus Rapid Transit
Highway Bus Rapid Transit
Light Rail
Arterial Bus Rapid Transit

Commuter Rail
Dedicated Bus Rapid Transit
Highway Bus Rapid Transit
Light Rail
Transit Routes

Arterial Bus Rapid Transit
Dedicated Bus Rapid Transit
Highway Bus Rapid Transit
Light Rail
Modern Streetcar

Undetermined
Arterial Bus Rapid Transit
Commuter Rail
Dedicated Bus Rapid Transit
Highway Bus Rapid Transit

Light Rail
Modern Streetcar
Undetermined

0 0.075 0.15 0.3 0.45 0.6 Miles

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LandscapeRSA3

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