Application

04775 - 2016 Roadway System Management

05064 - SW Metro Regional CMAQ

Regional Solicitation - Roadways Including Multimodal Elements

Status:	Submitted
Submitted Date:	07/13/2016 1:48 PM

Primary Contact

Name:*		Michael	Joseph	Fairbanks
	Salutation	First Name	Middle Name	Last Name
Title:	Principal Engineer			
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What Grant Programs are you most interested in?	Regional Solicitation - Roadways Including Multimodal Elements			

Organization Information

Name:	STATE OF MN

Jurisdictional Agency (if different):	
Organization Type:	State Government
Organization Website:	
Address:	MN DOT MS725 1500 W COUNTY RD B2 #250
*	ROSEVILLE (City) Minnesota (State/Province) 55113 (Postal Code/Zip)
County:	Ramsey
Phone:*	651-366-3452 Ext.
Fax:	
PeopleSoft Vendor Number	0000024577A36

Project Information

Project Name	SW Metro Regional CMAQ
Primary County where the Project is Located	Hennepin
Jurisdictional Agency (If Different than the Applicant):	Hennepin County and City of Eden Prairie
Brief Project Description (Limit 2,800 characters; approximately 400 words) *Include location, road name/functional class, type of improvement, etc.*	The Signal re-timing and infrastructure enhancement project will execute a timely signal coordination project between the State of Minnesota, Hennepin County, and the City of Eden Prairie. This includes adding Ethernet communications (fiber optic cable) and intersection surveillance using CCTV (closed circuit television cameras). The project will also upgrade signal cabinets, signal controllers and MMU's (Malfunction Management Units) to current standards.
TIP Description Guidance (will be used in TIP if the project is selected for funding)	ITS Signal Cameras, Communication Installations, and Upgrades
Project Length (Miles)	7.0

Project Funding

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

If yes, please identify the source(s)

Federal Amount	$1,440,000.00
Match Amount	$360,000.00

Minimum of 20% of project total

Project Total	$1,800,000.00
Match Percentage	20.0%

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

Source of Match Funds	State, County and City Funds

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

Preferred Program Year

Select one:	2020

For TDM projects, select 2018 or 2019. For Roadway, Transit, or Trail/Pedestrian projects, select 2020 or 2021.

Additional Program Years:

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

Project Information: Roadway Projects

County, City, or Lead Agency	Hennepin County, Eden Prairie, MnDOT is leading solicitation.
Functional Class of Road	CSAH 61 is an A-Minor Expander CSAH 39 is an A-Minor Reliever TH 494 is a Principal Arterial Eden Prairie Road is an Other Arterial
Road System	This project will have signals on TH 494, CSAH 61, CSAH 39, and Eden Prairie Road.

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

Road/Route No.	61

i.e., 53 for CSAH 53

Name of Road	CSAH 61 - Flying Cloud Drive CSAH 39 - Valley View Road Prairie Center Drive

Example; 1st ST., MAIN AVE

Zip Code where Majority of Work is Being Performed	55344
(Approximate) Begin Construction Date	07/01/2019
(Approximate) End Construction Date	06/26/2020

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

From: (Intersection or Address)	CSAH 61 @ Pioneer Trail
To: (Intersection or Address)	CSAH 61 at Valley View Rd/TH 212 EB Ramp

DO NOT INCLUDE LEGAL DESCRIPTION

Or At	Prairie Center Drive from CSAH 61 and back (Loop)
Primary Types of Work	ITS and Signal

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):	

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Mobilization (approx. 5% of total cost)	$90,000.00
Removals (approx. 5% of total cost)	$0.00
Roadway (grading, borrow, etc.)	$0.00
Roadway (aggregates and paving)	$0.00
Subgrade Correction (muck)	$0.00
Storm Sewer	$0.00
Ponds	$0.00
Concrete Items (curb & gutter, sidewalks, median barriers)	$0.00
Traffic Control	$90,000.00
Striping	$0.00
Signing	$0.00
Lighting	$0.00
Turf - Erosion & Landscaping	$0.00

Bridge	$0.00
Retaining Walls	$0.00
Noise Wall (do not include in cost effectiveness measure)	$0.00
Traffic Signals	$1,620,000.00
Wetland Mitigation	$0.00
Other Natural and Cultural Resource Protection	$0.00
RR Crossing	$0.00
Roadway Contingencies	$0.00
Other Roadway Elements	$0.00
Totals	**$1,800,000.00**

Specific Bicycle and Pedestrian Elements

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

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
Substotal	$0.00
Other Costs - Administration, Overhead,etc.	$0.00

Totals

Total Cost	$1,800,000.00
Construction Cost Total	$1,800,000.00
Transit Operating Cost Total	$0.00

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, the 2040 Regional Parks Policy Plan (2015), 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 objectives and strategies that relate to the project.

List the goals, objectives, strategies, and associated pages:

This project will do the following:

Increase safety (by reducing delay)

Maintaining infrastructure in a state of good repair (updating current cabinets and controllers)

Reducing congestion (by increasing through put)

Improving efficiency and reliability (re-timing coordinates signals better)

Creating environmental sustainability (reduces vehicle omissions)

See page 2.4 of the 2040 TPP

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

List the applicable documents and pages:

Minnesota

STRATEGIC HIGHWAY

SAFETY PLAN

See page 28

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

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

5.Applicants that are not 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.
Roadway Expansion: *$1,000,000 to $7,000,000*
Roadway Reconstruction/ Modernization: *$1,000,000 to $7,000,000*
Roadway System Management *$250,000 to $7,000,000*
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.

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

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

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

10.The owner/operator of the facility must operate and maintain the project for the useful life of the improvement.

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

11.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

12.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

13.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.

Roadway Expansion and Reconstruction/Modernization projects only:

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

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

Bridge Rehabilitation/Replacement 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.

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

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

6. The bridge must have a sufficiency rating less than 80 for rehabilitation projects and less than 50 for replacement projects. Additionally, the bridge must also be classified as structurally deficient or functionally obsolete.

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

Requirements - Roadways Including Multimodal Elements

Measure A: Functional Classification

Area	10.354
Project Length	7.1
Average Distance	1.4583
Upload Map	

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

Existing Employment within 1 Mile:	42403.0
Existing Manufacturing/Distribution-Related Employment within 1 Mile:	14731.0
Existing Students:	4253.0
Upload Map	1467737832425_SW Metro Regional Econ.pdf

Measure C: Current Heavy Commercial Traffic

Location:	Flying Cloud @ Technology Drive
Current daily heavy commercial traffic volume:	580
Date heavy commercial count taken:	7/8/2016

Measure D: Freight Elements

Response (Limit 1,400 characters; approximately 200 words)	The improved efficiency in the re-timing of these corridors will help eliminate needless starting and stopping of the freight company trucks. The regional scope of this project will help alleviate congestion on 3 primary roadways (Flying Cloud Drive, Valley View Road, and Prairie Center Drive). Plus, the additional time savings at the intersections of TH 494 and (Prairie Center Drive, Flying Cloud Drive, and Valley View Road) will help TH 494 be more efficient as there are no delays to the freeway system from back-ups on the ramps.

Measure A: Current Daily Person Throughput

Location	Flying Cloud Drive @ Technology Drive
Current AADT Volume	31500.0
Existing Transit Routes on the Project	684, 687, 690, 691, 692, 694, 695, 697, 698, 699, 902-METRO Green Line
Upload Transit Map	1467748952232_SW Metro Transit Conn.pdf

Response - Daily Person Throughput

Average Annual Daily Transit Ridership	0
Current Daily Person Throughput	40950.0

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: Project Location and Impact to Disadvantaged Populations

Select one:

Project located in Area of Concentrated Poverty with 50% or more of residents are people of color (ACP50):

Project located in Area of Concentrated Poverty:	
Projects census tracts are above the regional average for population in poverty or population of color:	Yes
Project located in a census tract that is below the regional average for population in poverty or populations of color or includes children, people with disabilities, or the elderly:	

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

A majority of the project is located in an area of Above Regional Average Concentration of Race/Poverty.

Positive Benefits include:

Increase safety to low-income populations by providing safer travel through the corridors.

Maintaining infrastructure in a state of good repair which reduces the need to close the roadway and provides reliable travel times and time saving efficiencies to the traveling public.

Reducing congestion not only helps alleviate the roadway users burdens of time but also helps the local population with short trip destinations.

Creating environmental sustainability by reducing omissions and keeping the population from localized vehicle exhaust pollution.

Negative Impacts include:

Efficiency and Reliability leads to more traffic.

Safety for traveling public from efficiency and reliability doesn't equate to pedestrian safety.

Attraction of short trip destinations increases congestion which is being mitigated by the project.

Mitigation includes weighing both the traveling public's need for more reliable commutes with the locals need for accommodations. This project will need to weigh both of these and determine a successful solution.

The response should address the benefits, impacts, and mitigation for the populations affected by the project.

Upload Map	1467753966158_SW Metro Socio-Economic.pdf

Measure B: Affordable Housing

City/Township	Segment Length in Miles (Population)
Eden Prairie	7.1
	7

Total Project Length

Total Project Length (Total Population)	7.0

Affordable Housing Scoring - To Be Completed By Metropolitan Council Staff

City/Township	Segment Length (Miles)	Total Length (Miles)	Score	Segment Length/Total Length	Housing Score Multiplied by Segment percent
		0	**0**	**0**	**0**

Affordable Housing Scoring - To Be Completed By Metropolitan Council Staff

Total Project Length (Miles)	7.1
Total Housing Score	0

Measure A: Equipment Improvements and Installation Year

Equipment to be Improved	Signal System ITS (Cabinet/Controller and Comm)
Date of Equipment Installation (year)	12/17/1997

Measure A: Congestion Reduction/Air Quality

Total Peak Hour Delay Per Vehicle Without The Project	Total Peak Hour Delay Per Vehicle With The Project	Total Peak Hour Delay Per Vehicle Reduced by Project	Volume (Vehicles per hour)	Total Peak Hour Delay Reduced by the Project:	EXPLANATION of methodology used to calculate railroad crossing delay, if applicable.	Synchro or HCM Reports

1914.0	1551.0	363.0	4970	1804110.0	Total Peak Hour Delay and Volume are based on 33 intersections. The initial signal that was modeled was Flying Cloud Drive at Prairie Center drive.	1467988478347_Summary MOE - CMAQ.pdf

Total Delay

Total Peak Hour Delay Reduced	1804110.0

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

Total (CO, NOX, and VOC) Peak Hour Emissions Per Vehicle without the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions Per Vehicle with the Project (Kilograms):	Total (CO, NOX, and VOC) Peak Hour Emissions Reduced Per Vehicle by the Project (Kilograms):	Volume (Vehicles Per Hour):	Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):
466.62	440.88	25.74	1.0	25.74
467	**441**		**1**	**26**

Total

Total Emissions Reduced:	25.74
Upload Synchro Report	1467997197830_Summary MOE - CMAQ.pdf

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

Total Parallel Roadways

Emissions Reduced on Parallel Roadways	0
Upload Synchro Report	

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:	0.92
Rationale for Crash Modification Selected:	Based on CMF information found in the "Changes in Crash Risk Following Re-Timing of Traffic Signal Change Intervals". This corresponds to a CRF of (8%) - [which is a decrease] for the retiming effort. Includes "ALL" crash types and "ALL" crash severity as stated in the Crash Modification Factors Clearinghouse.
(Limit 1400 Characters; approximately 200 words)	
Project Benefit ($) from B/C Ratio	$4,881,562.00
Worksheet Attachment	1468259813342_SW CMAQ Benefit Cost worksheet.xls

Roadway projects that include railroad grade-separation elements:

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

Measure A: Multimodal Elements and Existing Connections

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

Within the project limits there are two city parks (Purgatory Creek and Willow) with access to their trail system plus numerous pedestrian/bicycle accommodations including multi-use trails. A multi-use trail is located on the East side of Flying Cloud Drive (from Anderson Lakes Parkway to Valley View Road). There are also multi-use trails along Prairie Center Drive (from Flying Cloud Drive to Valley View Road) and along Valley View Road (from Prairie Center Drive to Bryant Lake Drive). Pedestrian accommodations are also provided by sidewalks on Prairie Center Drive from Valley View Drive to Preserve Boulevard). To accommodate pedestrian needs, all pedestrian signal timing will be reviewed and adjusted to reflect the latest requirements in the MnMUTCD. Pedestrians will be counted during the data collection task and considered when developing the signal timing plans. During the signal timing implementation pedestrian activity will again be observed to verify that all pedestrians are able to cross in a safe manner. This will enhance pedestrian safety at all intersections in the project.

The SW Transit Station facility exists at the intersection of Prairie Center Drive and Technology Drive. Also of interest is the Eden Prairie Center Mall and Hennepin Technical College.

Transit Projects Not Requiring Construction

If the applicant is completing a transit or TDM 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

1)Project Scope (5 Percent of Points)

Meetings or contacts with stakeholders have occurred Yes

100%

Stakeholders have been identified

40%

Stakeholders have not been identified or contacted

0%

2)Layout or Preliminary Plan (5 Percent of Points)

Layout or Preliminary Plan completed

100%

Layout or Preliminary Plan started

50%

Layout or Preliminary Plan has not been started

0%

Anticipated date or date of completion

3)Environmental Documentation (5 Percent of Points)

EIS

EA

PM Yes

Document Status:

Document approved (include copy of signed cover sheet) 100%

Document submitted to State Aid for review 75% date submitted

Document in progress; environmental impacts identified; review request letters sent

50%

Document not started Yes

0%

Anticipated date or date of completion/approval

4)Review of Section 106 Historic Resources (10 Percent of Points)

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

100%

Historic/archeological review under way; determination of no historic properties affected or no adverse effect anticipated

80%

Historic/archaeological review under way; determination of adverse effect anticipated

40%

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

0%

Anticipated date or date of completion of historic/archeological review:

Project is located on an identified historic bridge

5)Review of Section 4f/6f Resources (10 Percent of Points)

4(f) Does the project impacts any public parks, public wildlife refuges, public golf courses, wild & scenic rivers or public private historic properties?
6(f) Does the project impact any public parks, public wildlife refuges, public golf courses, wild & scenic rivers or historic property that was purchased or improved with federal funds?

No Section 4f/6f resources located in the project area Yes

100%

No impact to 4f property. The project is an independent bikeway/walkway project covered by the bikeway/walkway Negative Declaration statement; letter of support received

100%

Section 4f resources present within the project area, but no known adverse effects

80%

Project impacts to Section 4f/6f resources likely coordination/documentation has begun

50%

Project impacts to Section 4f/6f resources likely coordination/documentation has not begun

30%

Unsure if there are any impacts to Section 4f/6f resources in the project area

0%

6)Right-of-Way (15 Percent of Points)

Right-of-way, permanent or temporary easements not required Yes

100%

Right-of-way, permanent or temporary easements has/have been acquired

100%

Right-of-way, permanent or temporary easements required, offers made

75%

Right-of-way, permanent or temporary easements required, appraisals made

50%

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

25%

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

0%

Right-of-way, permanent or temporary easements identification has not been completed

0%

Anticipated date or date of acquisition

7)Railroad Involvement (25 Percent of Points)

No railroad involvement on project

Yes

100%

Railroad Right-of-Way Agreement is executed (include signature page)

100%

Railroad Right-of-Way Agreement required; Agreement has been initiated

60%

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

40%

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

0%

Anticipated date or date of executed Agreement

8)Interchange Approval (15 Percent of Points)*

**Please contact Karen Scheffing at MnDOT (Karen.Scheffing@state.mn.us or 651-234-7784) to determine if your project needs to go through the Metropolitan Council/MnDOT Highway Interchange Request Committee.*

Project does not involve construction of a new/expanded interchange or new interchange ramps

Yes

100%

Interchange project has been approved by the Metropolitan Council/MnDOT Highway Interchange Request Committee

100%

Interchange project has not been approved by the Metropolitan Council/MnDOT Highway Interchange Request Committee

0%

9)Construction Documents/Plan (10 Percent of Points)

Construction plans completed/approved (include signed title sheet)

100%

Construction plans submitted to State Aid for review

75%

Construction plans in progress; at least 30% completion

50%

Construction plans have not been started Yes

0%

Anticipated date or date of completion 05/24/2019

10)Letting

Anticipated Letting Date 07/19/2019

Measure A: Cost Effectiveness

Total Project Cost (entered in Project Cost Form): $1,800,000.00

Enter Amount of the Noise Walls: $0.00

Total Project Cost subtract the amount of the noise walls: $1,800,000.00

Points Awarded in Previous Criteria

Cost Effectiveness $0.00

Other Attachments

File Name	Description	File Size
After - PM PEAK_140 Vol Added & Re-Optimized - Report.pdf	After Synchro Analysis of Flying Cloud Drive @ Prairie Center Drive to establish MOE and Emissions for Section 5 of application.	22 KB
Before - PM PEAK_110 Vol Added - Report.pdf	Before Synchro Analysis of Flying Cloud Drive @ Prairie Center Drive to establish MOE and Emissions for Section 5 of application.	22 KB
Eden Prairie SW Metro Regional CMAQ_Letter of Support.pdf	Eden Prairie Letter of Support	296 KB
RADSwCMAQMnDOTRSM.pdf	RADSwCMAQMnDOTRSM	224 KB
RECSwCMAQMnDOTRSM.pdf	RECSwCMAQMnDOTRSM	281 KB
SECSwCMAQMnDOTRSM.pdf	SECSwCMAQMnDOTRSM	259 KB
TRNSwCMAQMnDOTRSM.pdf	TRNSwCMAQMnDOTRSM	315 KB

Regional Economy

Roadway System Management Project: SW Metro Regional CMAQ | Map ID: 1465827464902

Results

WITHIN ONE MI of project:

Total Population: 30342
Total Employment: 42403
Mfg and Dist Employment: 14731

Postsecondary Students:
4253

Project

Project Area

0 1 2 4 6 8 Miles

Created: 6/13/2016
LandscapeRSA5

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

METROPOLITAN COUNCIL

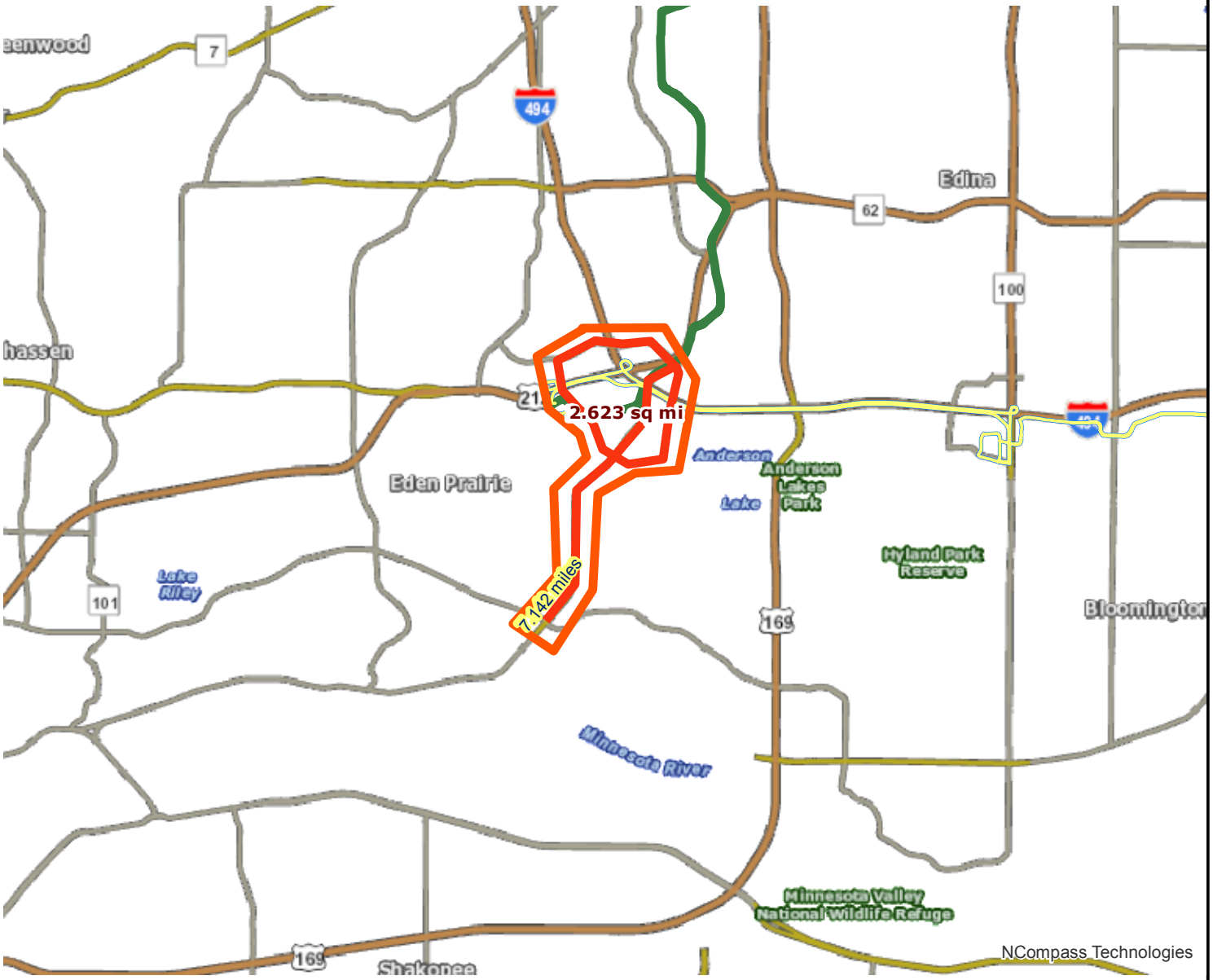
Transit Connections

Roadway System Management Project: SW Metro Regional CMAQ | Map ID: 1465827464902

Results

Transit with a Direct Connection to project:
684 687 690 691 692 694 695 697 698 699
*American
*Green Line Extension

**indicates Planned Alignments*



Project
Project Area
Planned Alignments
Light Rail, Green Line Extension
Arterial BRT

0 1 2 4 6 8 Miles

Created: 6/13/2016
LandscapeRSA3

For complete disclaimer of accuracy, please visit
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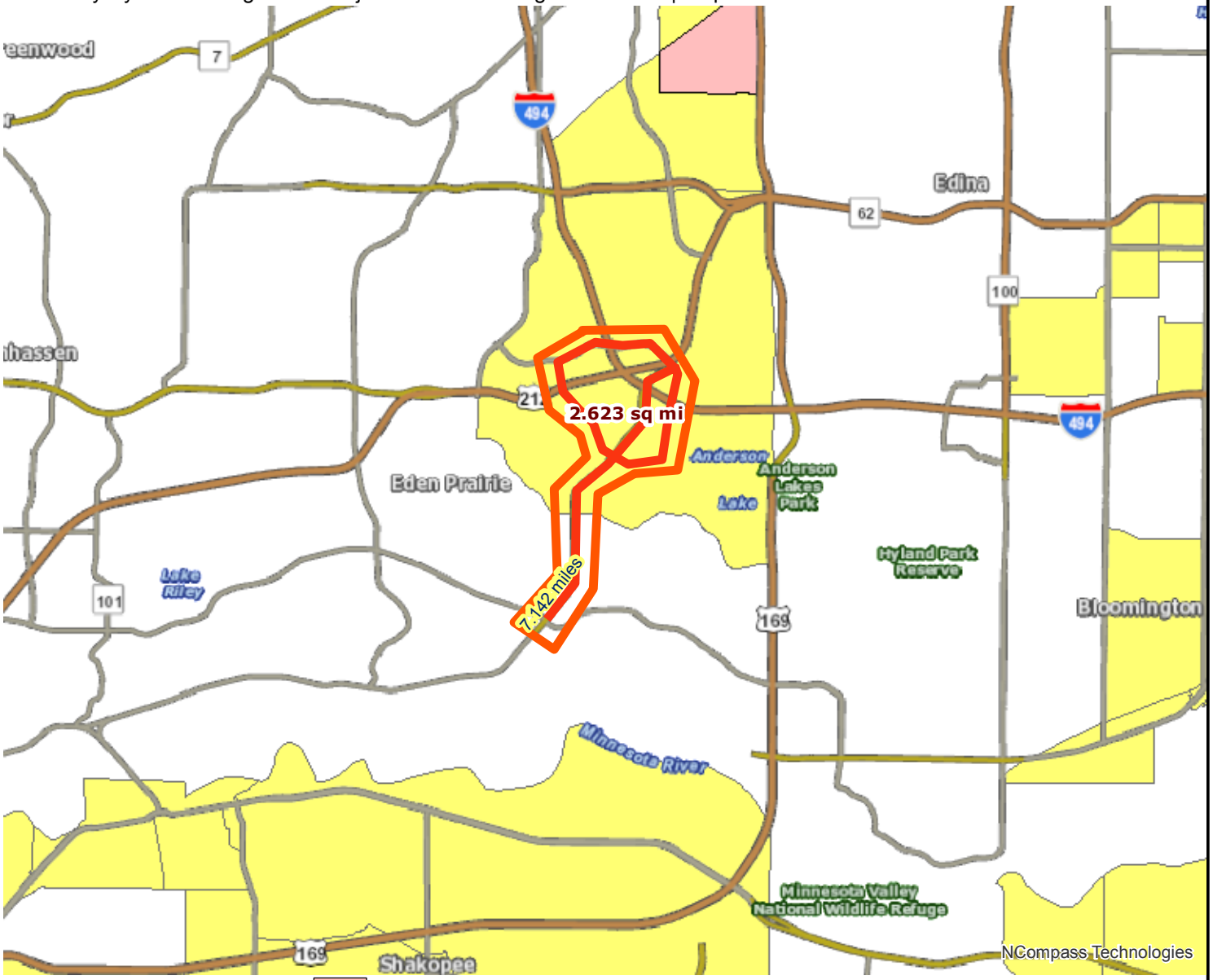
METROPOLITAN COUNCIL

Socio-Economic Conditions

Roadway System Management Project: SW Metro Regional CMAQ | Map ID: 1465827464902

Results

Project census tracts are above the regional average for population in poverty or population of color:
(0 to 18 Points)



Project

Project Area

Area of Concentrated Povertry > 50% residents of color

Area of Concentrated Poverty

Above reg'l avg conc of race/poverty

0 1 2 4 6 8 Miles

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METROPOLITAN COUNCIL

		Single intersection	Multiple intersections
Synchro MOE's for 2020 CMAQ Applications		Flying Cloud at Prairie Center Drive	33 intersection
Delay	**Total Project Cost**	$3,000	$99,000
	(Before) Delay/Vehicle without Project (sec)	58	1914
	(After) Delay/Vehicle with Project (sec)	47	1551
	Delay/Vehicle Reduced by Project (sec)	11	363
	Intersection Volume (veh)	4970	164010
	Total (Volume Weighted) Delay Reduced by Project (Hrs)	15	501
Emissions CO	**(Before) Total CO Emissions without Project (kg)**	9.91	327.03
	(After) Total CO Emissions with Project (kg)	9.37	309.21
	Total CO Emissions Reduced by Project (kg)	0.54	17.82
Emissions NOx	**(Before) Total NOx Emissions without Project (kg)**	1.93	63.69
	(After) Total Nox Emissions with Project (kg)	1.82	60.06
	Total NOx Emissions Reduced by Project (kg)	0.11	3.63
Emissions VOC	**(Before) Total VOC Emissions without Project (kg)**	2.3	75.9
	(After) Total VOC Emissions with Project (kg)	2.17	71.61
	Total VOC Emissions Reduced by Project (kg)	0.13	4.29
	Sum of CO, NOx, & VOC Total Reduced Emissions (kg)	0.78	25.74

NOTES:

There are 33 intersections (12 Hennepin Co, 12 Eden Prairie, & 9 State)

Delay output is in seconds per vehicle

Emissions output is in kg per peakhour not per vehicle (including all vehicles)

		Single intersection	Multiple intersections
Synchro MOE's for 2020 CMAQ Applications		Flying Cloud at Prairie Center Drive	33 intersection
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NOTES:

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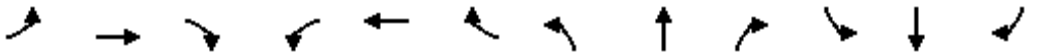
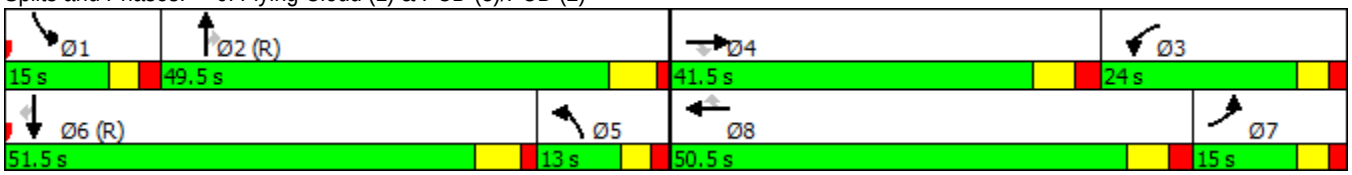


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	520	360	470	500	80	200	670	160	160	1150	110
Future Volume (vph)	140	520	360	470	500	80	200	670	160	160	1150	110
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1900	1950	1900	1900	1950	1900
Lane Width (ft)	12	12	12	12	12	12	14	12	14	14	12	14
Storage Length (ft)	300		360	480		275	350		300	450		200
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3558	3668	1641	3558	3668	1641	3698	3668	1706	3698	3668	1706
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3558	3668	1641	3558	3668	1641	3698	3668	1706	3698	3668	1706
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			214			159			176			176
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		1443			884			1962			1132	
Travel Time (s)		24.6			15.1			29.7			17.2	
Peak Hour 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
Growth Factor	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	154	572	396	517	550	88	220	737	176	176	1265	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	154	572	396	517	550	88	220	737	176	176	1265	121
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	12.0	41.5	41.5	12.0	16.5	16.5	12.0	37.0	37.0	12.0	37.0	37.0
Total Split (s)	15.0	41.5	41.5	24.0	50.5	50.5	13.0	49.5	49.5	15.0	51.5	51.5
Total Split (%)	11.5%	31.9%	31.9%	18.5%	38.8%	38.8%	10.0%	38.1%	38.1%	11.5%	39.6%	39.6%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	1.5	1.5	2.0	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.5	6.5	5.0	6.5	6.5	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	22.7	32.3	32.3	20.6	30.2	30.2	8.0	45.0	45.0	9.6	46.6	46.6
Actuated g/C Ratio	0.17	0.25	0.25	0.16	0.23	0.23	0.06	0.35	0.35	0.07	0.36	0.36
v/c Ratio	0.25	0.63	0.70	0.92	0.65	0.17	0.97	0.58	0.25	0.64	0.96	0.17
Control Delay	49.1	46.5	26.3	70.1	55.8	4.7	94.7	19.9	2.1	70.3	58.8	8.2
Queue Delay	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 Delay	49.1	46.5	26.3	70.1	55.8	4.7	94.7	19.9	2.1	70.3	58.8	8.2
LOS	D	D	C	E	E	A	F	B	A	E	E	A
Approach Delay		39.7			58.3			31.7			56.2	
Approach LOS		D			E			C			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 114 (88%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 47.4	Intersection LOS: D
Intersection Capacity Utilization 88.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Flying Cloud (1) & PCD (3)/PCD (2)



6: Flying Cloud (1) & PCD (3)/PCD (2)

Direction	EB	WB	NB	SB	All
Future Volume (vph)	1122	1155	1133	1562	4972
Control Delay / Veh (s/v)	40	58	32	56	47
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	40	58	32	56	47
Total Delay (hr)	12	19	10	24	65
Stops / Veh	0.71	0.84	0.65	0.81	0.76
Stops (#)	802	965	738	1263	3768
Average Speed (mph)	15	8	22	11	13
Total Travel Time (hr)	20	24	19	32	95
Distance Traveled (mi)	307	193	421	335	1256
Fuel Consumed (gal)	28	30	31	45	134
Fuel Economy (mpg)	11.0	6.4	13.6	7.4	9.4
CO Emissions (kg)	1.95	2.11	2.16	3.15	9.37
NOx Emissions (kg)	0.38	0.41	0.42	0.61	1.82
VOC Emissions (kg)	0.45	0.49	0.50	0.73	2.17
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	16	2	17	55	90

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	520	360	470	500	80	200	670	160	160	1150	110
Future Volume (vph)	140	520	360	470	500	80	200	670	160	160	1150	110
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1900	1950	1900	1900	1950	1900
Lane Width (ft)	12	12	12	12	12	12	14	12	14	14	12	14
Storage Length (ft)	300		360	480		275	350		300	450		200
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3558	3668	1641	3558	3668	1641	3698	3668	1706	3698	3668	1706
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3558	3668	1641	3558	3668	1641	3698	3668	1706	3698	3668	1706
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			203			188			198			208
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		1443			884			1962			1132	
Travel Time (s)		24.6			15.1			29.7			17.2	
Peak Hour 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
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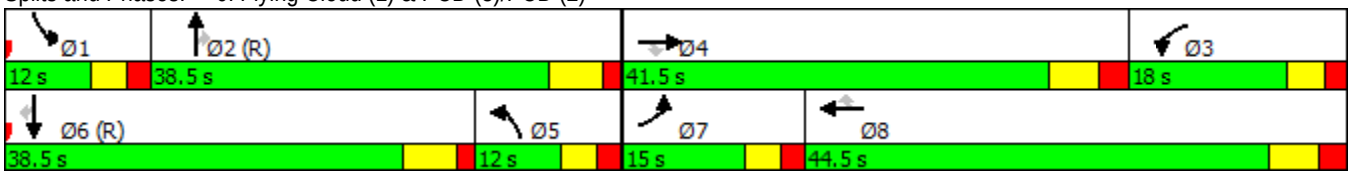
Adj. Flow (vph)	154	572	396	517	550	88	220	737	176	176	1265	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	154	572	396	517	550	88	220	737	176	176	1265	121
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	12.0	41.5	41.5	12.0	16.5	16.5	12.0	37.0	37.0	12.0	37.0	37.0
Total Split (s)	15.0	41.5	41.5	18.0	44.5	44.5	12.0	38.5	38.5	12.0	38.5	38.5
Total Split (%)	13.6%	37.7%	37.7%	16.4%	40.5%	40.5%	10.9%	35.0%	35.0%	10.9%	35.0%	35.0%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	1.5	1.5	2.0	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.5	6.5	5.0	6.5	6.5	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	9.2	31.0	31.0	17.0	38.8	38.8	7.0	32.5	32.5	7.0	32.5	32.5
Actuated g/C Ratio	0.08	0.28	0.28	0.15	0.35	0.35	0.06	0.30	0.30	0.06	0.30	0.30
v/c Ratio	0.52	0.55	0.65	0.94	0.42	0.13	0.94	0.68	0.27	0.75	1.17	0.19
Control Delay	54.7	35.2	21.1	65.3	22.8	0.4	96.3	38.0	4.1	75.7	110.7	1.5
Queue Delay	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 Delay	54.7	35.2	21.1	65.3	22.8	0.4	96.3	38.0	4.1	75.7	110.7	1.5
LOS	D	D	C	E	C	A	F	D	A	E	F	A
Approach Delay		32.9			40.1			44.0			98.3	
Approach LOS		C			D			D			F	

Intersection Summary		
Area Type:	Other	
Cycle Length: 110		
Actuated Cycle Length: 110		
Offset: 58 (53%), Referenced to phase 2:NBT and 6:SBT, Start of 1st Green		
Natural Cycle: 125		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.17		
Intersection Signal Delay: 57.7		Intersection LOS: E
Intersection Capacity Utilization 88.9%		ICU Level of Service E
Analysis Period (min) 15		

Splits and Phases: 6: Flying Cloud (1) & PCD (3)/PCD (2)



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Control Delay / Veh (s/v)	33	40	44	98	58
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	33	40	44	98	58
Total Delay (hr)	10	13	14	43	80
Stops / Veh	0.70	0.60	0.74	0.75	0.70
Stops (#)	783	689	839	1177	3488
Average Speed (mph)	17	11	18	7	12
Total Travel Time (hr)	18	18	23	50	109
Distance Traveled (mi)	307	193	421	335	1256
Fuel Consumed (gal)	26	23	35	57	142
Fuel Economy (mpg)	11.7	8.4	12.0	5.8	8.9
CO Emissions (kg)	1.83	1.62	2.45	4.01	9.91
NOx Emissions (kg)	0.36	0.31	0.48	0.78	1.93
VOC Emissions (kg)	0.42	0.37	0.57	0.93	2.30
Unserved Vehicles (#)	0	0	0	181	181
Vehicles in dilemma zone (#)	16	5	34	70	125

July 13, 2016

EDEN PRAIRIE
LIVE • WORK • DREAM

OFC 952 949 8300
FAX 952 949 8390
TDD 952 949 8399

8080 Mitchell Rd
Eden Prairie, MN
55344-4485

edenprairie.org

Mike Fairbanks
Metro Traffic Signal Operations & DB Engineer
MnDOT Metro Division
1500 W. County Road B-2
Roseville, MN 55113

RE: SW Metro Regional CMAQ Solicitation

Mike –

The City of Eden Prairie has been working cooperatively with MnDOT and Hennepin County in submitting an application for regional solicitation funding for the Southwest Metro Regional CMAQ project. The City of Eden Prairie is supportive of the project, which will improve the operation, safety and management of the multi-modal transportation network within Eden Prairie's busy Major Center Area. The project will also help manage the interaction of the transportation network with the proposed Southwest Light Rail Transit project.

Eden Prairie, as the agency with jurisdiction over Prairie Center Drive and a number of other roadways in the project area, strongly encourages and supports approval of the SW Metro Regional CMAQ project to receive federal solicitation funding. The City of Eden Prairie is committed to funding its portion of the local cost share for the project. The City will also work cooperatively with MnDOT and Hennepin County on any future maintenance agreements required by the project.

Sincerely,

Rick Getschow
City Manager

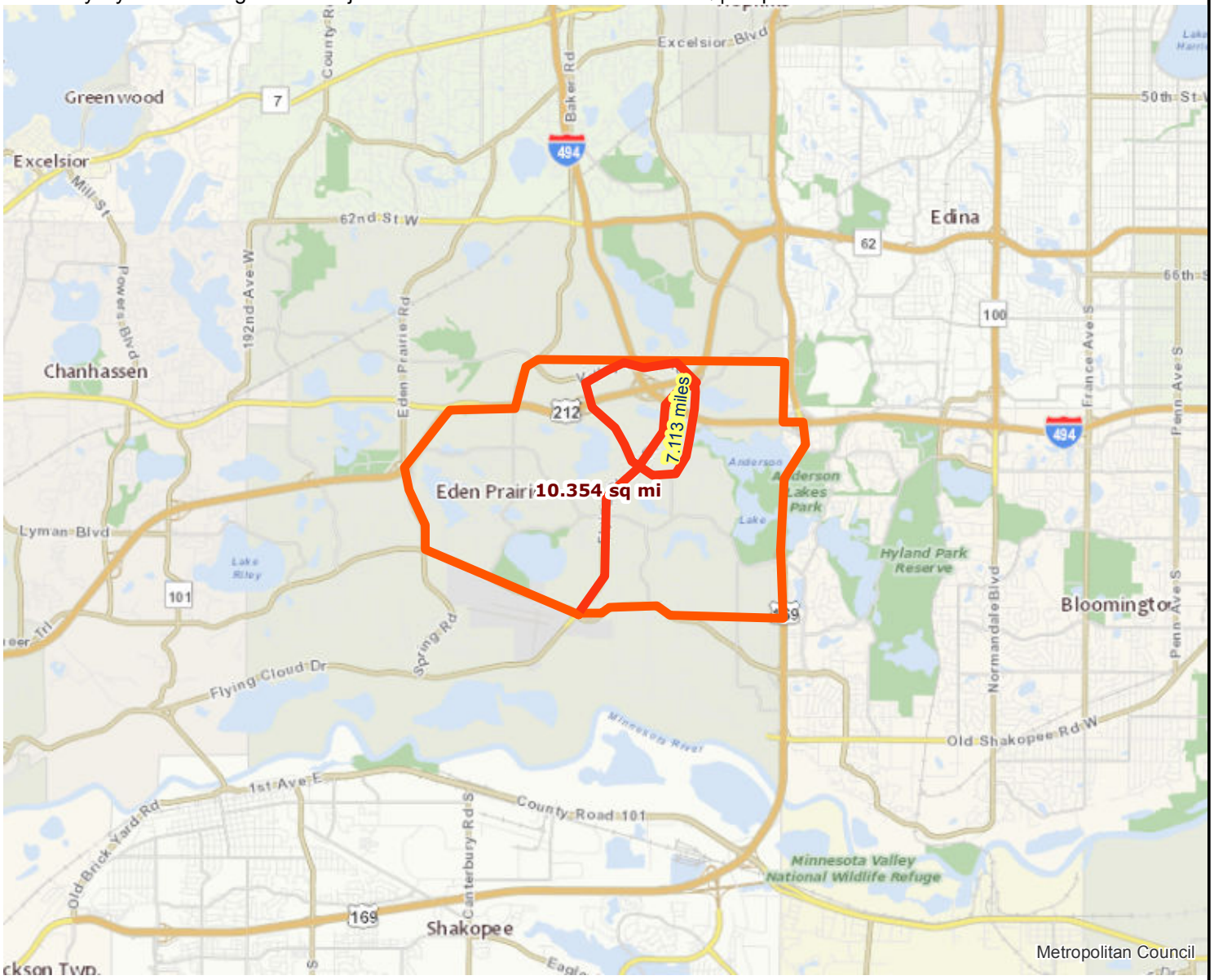
Roadway Area Definition

Roadway System Management Project: MnDOT 05064 SW Metro CMAQ | Map ID: 1471960693926

Results

Project Length: 7.113 miles

Project Area: 10.354 sq mi



Project

Project Area

0 1 2 4 6 8 Miles

Created: 8/23/2016

LandscapeRSA1

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

METROPOLITAN COUNCIL

Regional Economy

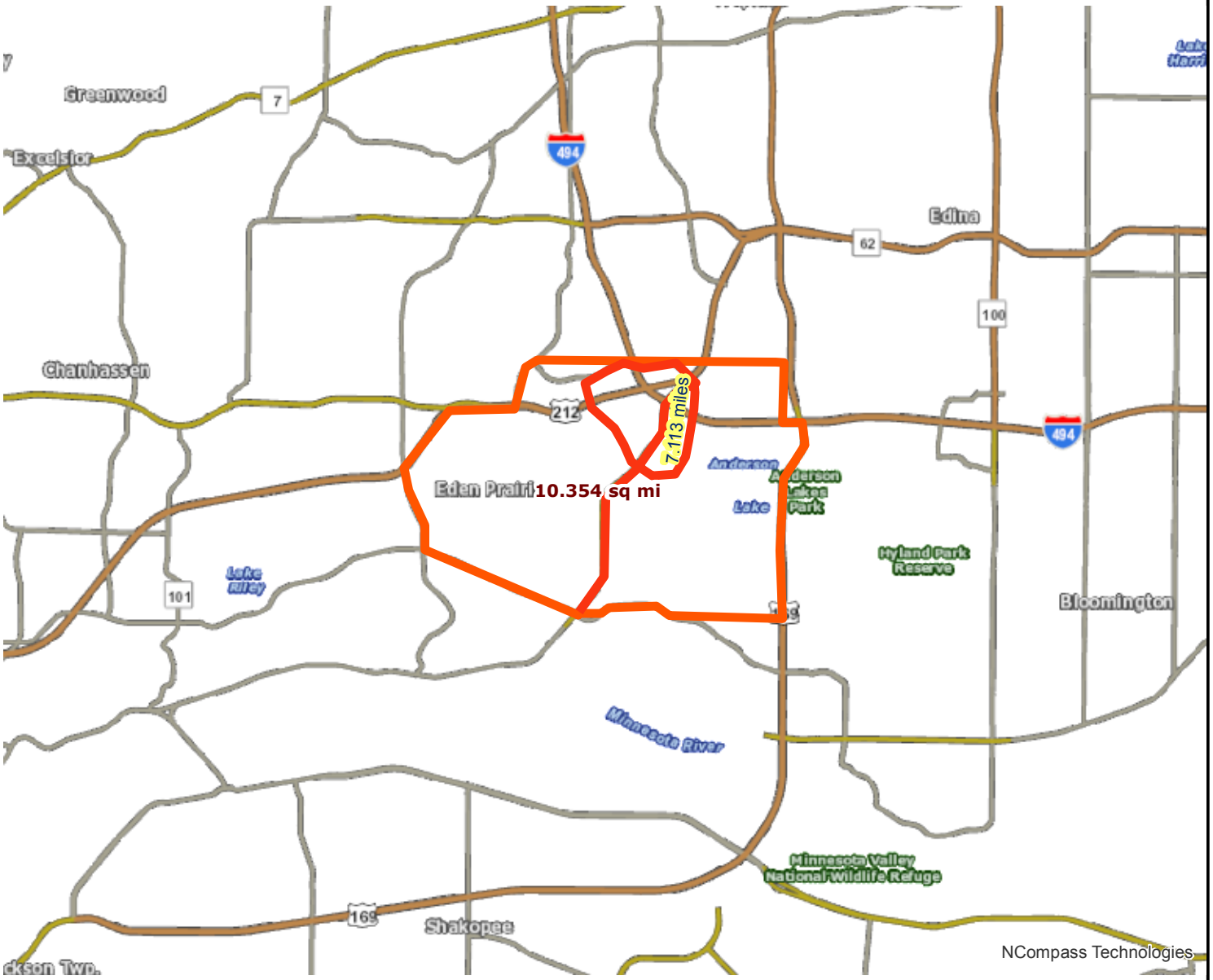
Roadway System Management Project: MnDOT 05064 SW Metro CMAQ | Map ID: 1471960693926

Results

WITHIN ONE MI of project:

Total Population: 32299
Total Employment: 42472
Mfg and Dist Employment: 14732

Postsecondary Students:
4253



Project

Project Area

0 1 2 4 6 8 Miles

Created: 8/23/2016
LandscapeRSA5

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

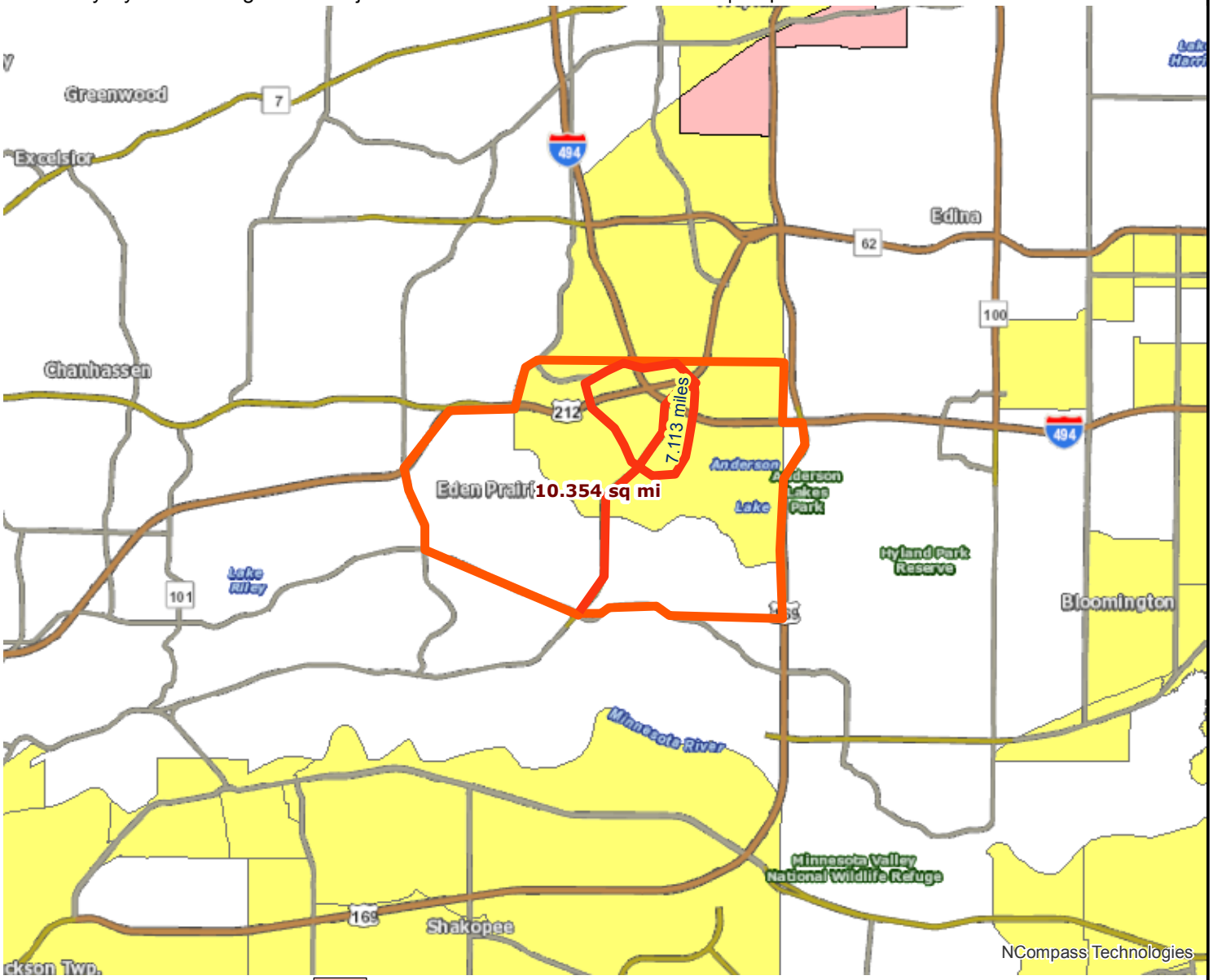
METROPOLITAN COUNCIL

Socio-Economic Conditions

Roadway System Management Project: MnDOT 05064 SW Metro CMAQ | Map ID: 1471960693926

Results

Project census tracts are above the regional average for population in poverty or population of color:
(0 to 18 Points)



Project

Project Area

Area of Concentrated Povertry > 50% residents of color

Area of Concentrated Poverty

Above reg'l avg conc of race/poverty

0 1 2 4 6 8 Miles

Created: 8/23/2016
LandscapeRSA2

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

METROPOLITAN COUNCIL

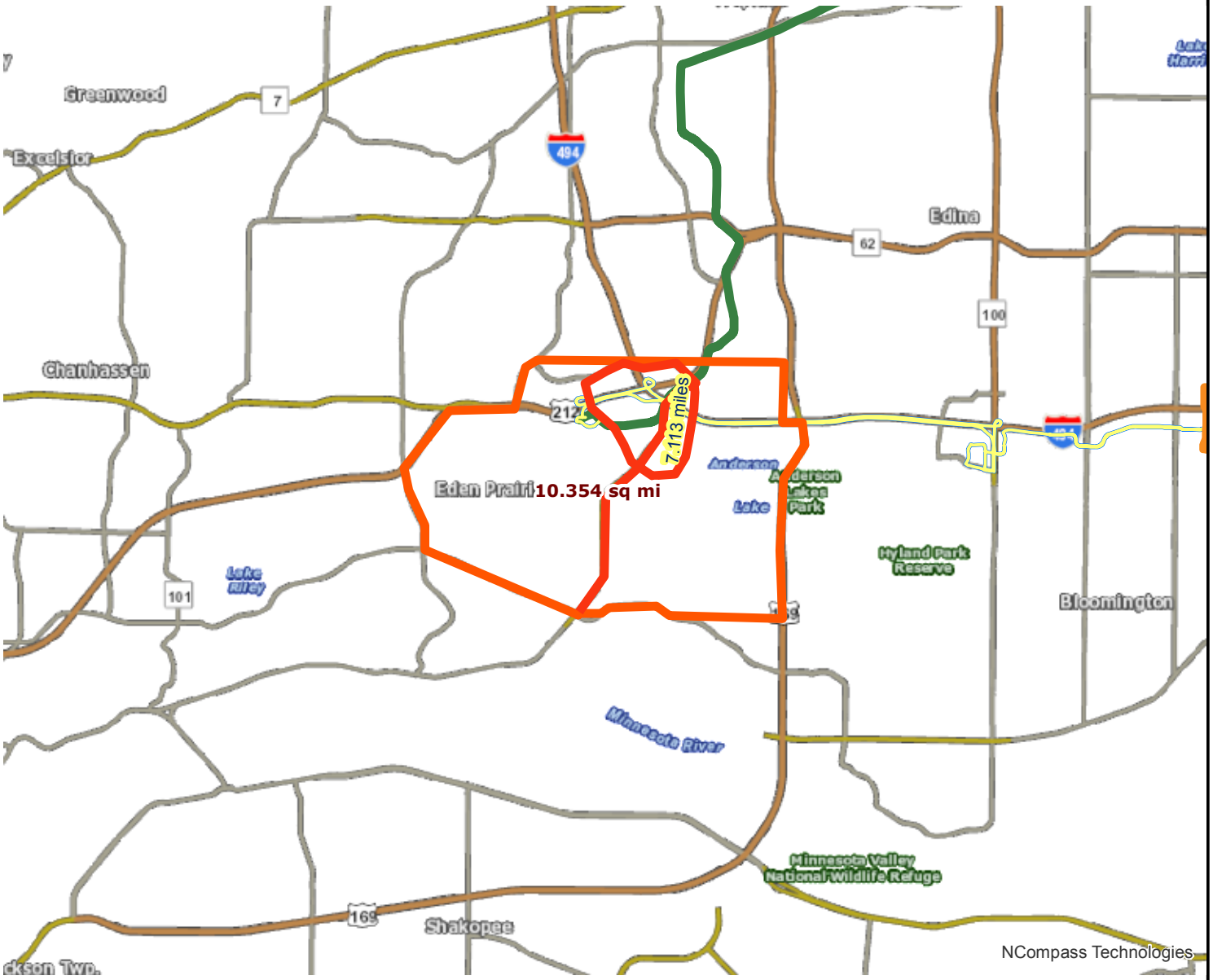
Transit Connections

Roadway System Management Project: MnDOT 05064 SW Metro CMAQ | Map ID: 1471960693926

Results

Transit with a Direct Connection to project:
684 687 690 691 692 694 695 697 698 699
*American
*Green Line Extension

**indicates Planned Alignments*



Project
Project Area
Planned Alignments
Arterial BRT
BRT, Orange Line
Light Rail, Green Line Extension

0 1 2 4 6 8 Miles

Created: 8/23/2016
LandscapeRSA3

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

METROPOLITAN COUNCIL

B/C worksheet

Control Section	T.H. / Roadway	Location	Beginning Ref. Pt.	Ending Ref. Pt.	State, County, City or Township	Study Period Begins	Study Period Ends
		Flying Cloud Drive			Eden Prairie	1/1/2013	12/31/2015

Description of Proposed Work: ATMS - (15?) signal interconnect & cameras

			Accident Diagram Codes 1	2	3	5	4, 7	8, 9	Pedestrian	6, 90, 98, 99 Other	Total
Study Period: Number of Crashes	Fatal	F			1		1				**2**
	Personal Injury (PI)	A	1		1	1					**3**
		B	10	1	6	11		4		3	**35**
		C	37	2	8	24	3	3		10	**87**
	Property Damage	PD	137	32	35	57	11	12		24	**308**
% Change in Crashes *Use FHWA cmfclearinghouse for Crash Reduction Factors	Fatal	F			-8%		-8%				
	PI	A	-8%		-8%	-8%					
		B	-8%	-8%	-8%	-8%		-8%		-8%	
		C	-8%	-8%	-8%	-8%	-8%	-8%		-8%	
	Property Damage	PD	-8%	-8%	-8%	-8%	-8%	-8%		-8%	
Change in Crashes = No. of crashes **x** % change in crashes	Fatal	F			**-0.08**		**-0.08**				**-0.16**
	PI	A	**-0.08**		**-0.08**	**-0.08**					**-0.24**
		B	**-0.80**	**-0.08**	**-0.48**	**-0.88**		**-0.32**		**-0.24**	**-2.80**
		C	**-2.96**	**-0.16**	**-0.64**	**-1.92**	**-0.24**	**-0.24**		**-0.80**	**-6.96**
	Property Damage	PD	**-10.96**	**-2.56**	**-2.80**	**-4.56**	**-0.88**	**-0.96**		**-1.92**	**-24.64**

Year (Safety Improvement Construction): **2020**

Project Cost (exclude Right of Way): **$ 1,800,000**

Right of Way Costs (optional): **$ -**

Traffic Growth Factor: **3%**

Capital Recovery

1. **Discount Rate:** **4.5%**
2. **Project Service Life (n):** **10**

Type of Crash	Study Period: Change in Crashes	Annual Change in Crashes	Cost per Crash	Annual Benefit
F	-0.16	-0.05	$ 1,140,000	$ 60,856
A	-0.24	-0.08	$ 570,000	$ 45,642
B	-2.80	-0.93	$ 170,000	$ 158,812
C	-6.96	-2.32	$ 83,000	$ 192,736
PD	-24.64	-8.22	$ 7,600	$ 62,478
Total				$ 520,523

B/C= 2.71

Using present worth values,

B= $ 4,881,562

C= $ 1,800,000

See "Calculations" sheet for amortization.

Updated 12-10-2015

Amortizing…

Year	Crash Benefits	Present Worth Benefits	Present Worth Costs
2020	$ 520,523	$ 520,523	$ 1,800,000
2021	$ 536,139	$ 513,052	
2022	$ 552,223	$ 505,687	
2023	$ 568,790	$ 498,429	
2024	$ 585,854	$ 491,274	
2025	$ 603,429	$ 484,222	
2026	$ 621,532	$ 477,272	
2027	$ 640,178	$ 470,421	
2028	$ 659,383	$ 463,669	
2029	$ 679,165	$ 457,013	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
0	$ -	$ -	
	Totals =	**$ 4,881,562 (B)**	**$ 1,800,000 (C)**

year (n)= 1, 2, 3,….
discount rate (i) = 7%

Crash Benefits (@ year n) = $(\text{Crash Benefits})_{n-1}$ X (1 + Traffic Growth Factor)

Present Worth Benefits (@ year n) = $(\text{Crash Benefits})_n$ X $1/(1 + \text{Discount Rate})^n$