



Application

01969 - 2014 Roadway System Management

02088 - Saint Paul Downtown Traffic Signal System Enhancements Program

Regional Solicitation - Roadways Including Multimodal Elements

Status: Submitted
Submitted Date: 12/01/2014 11:59 AM

Primary Contact

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Salutation First Name Middle Name Last Name

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25 4th Street West

***** Saint Paul Minnesota 55102
City State/Province Postal Code/Zip

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Phone Ext.

Fax: 651-298-4559

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

Saint Paul Downtown Traffic Signal Enhancements Program

Primary County where the Project is Located

Hennepin

Jurisdictional Agency (If Different than the Applicant):

This project aims to improve traffic signal operations, incident and emergency management, and event management in downtown Saint Paul through the installation of new signal controllers, fiber optic connections, changeable message signs, traffic management center upgrades, and signal timing modifications. Each of these items is key to developing and maintaining a modern transportation system in this critical area of Minnesota.

The majority of the traffic signal controllers in use downtown Saint Paul are legacy 170 controllers, which have limited functionality. Additionally, most are not a part of the City's fiber optic network. Through this project, modern controllers would be installed and equipment and connected to the existing fiber optic backbone, allowing for holistic management and operation of the roadway network. These changes would enable the City of Saint Paul to accommodate the signal operation needs of future multi-modal projects, including the East & West 7th Street bus rapid transit lines, the Riverview Corridor, and the Downtown Bike Loop.

The ability to provide real-time information to commuters, visitors, and residents of downtown Saint Paul is a key component of any emergency or incident management plan in the Twin Cities. This project proposes to place changeable message signs in and around downtown to provide information about emergencies, road closures, declared snow emergencies, and events. The signs would be placed at strategic locations in downtown and along Shepard Road and Warner Road to manage vehicle routing when issues arise.

Upgrades to Saint Paul's traffic management centers, including updating the City's traffic control

Brief Project Description (Limit 2,800 characters; approximately 400 words)

software, would ensure that the City is capable of meeting future needs of transit and bicycling routes, allow for increased emergency management capabilities, and allow for monitoring of the changeable message sign system.

Despite substantial changes in downtown Saint Paul, an area wide signal timing plan has not been reexamined in over a dozen years. A comprehensive examination of the downtown timing plans for the peak periods and events would be expected to provide a significant reduction in delay, reducing fuel use and emissions. On average, signal timing optimization of coordinated signal systems result in a 13.8% reduction in delay (ITS Benefits: The Case of Traffic Signal Control Systems, Skabardonis, Alexander). As a side benefit, the creation of a simulation model for downtown Saint Paul would allow the City to identify opportunities to modify roadway geometry to accommodate planned multi-modal facilities, including the East & West 7th Street bus rapid transit lines, the Riverview Corridor, and the Downtown Bike Loop.

Include location, road name/functional class, type of improvement, etc.

Project Length (Miles)

3.6

Connection to Local Planning:

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 MnDOT 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.

Connection to Local Planning

Page 19 of the Saint Paul Downtown Development Strategy (SPDDS) identifies a need for a better overall system of transportation management to help manage event-related congestion.

Page 20 of the SPDDS outlines a desire to Support improved transit to downtown, including light rail transit, bus rapid transit, and commuter and high-speed rail.

Page T5 of the Citys Comprehensive Plan expresses a need to [e]xamine alternatives to enhance safety through right-of-way design, including narrowing or removing lanes on roads.

Page T13 of the Citys Comprehensive Plan declares that the Citys parking management toolbox must be expanded.

Page T27 of the Citys Comprehensive Plan directs the City to improve access to information about construction, detours, and events.

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 \$2,222,800.00

Match Amount \$555,700.00

Minimum of 20% of project total

Project Total \$2,778,500.00

Match Percentage 20.0%

Minimum of 20%

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

Source of Match Funds Local

Preferred Program Year

Select one: 2018

MnDOT State Aid Project Information: Roadway Projects

County, City, or Lead Agency

City of Saint Paul Department of Public Works

Functional Class of Road	Principal Arterial, A & B Minor Arterial, Collector, Local
Road System	TH, CSAH, MSAS, & CITY STREET
<i>TH, CSAH, MSAS, CO. RD., TWP. RD., CITY STREET</i>	
Name of Road	Multiple downtown Saint Paul roadways
<i>Example; 1st ST., MAIN AVE</i>	
Zip Code where Majority of Work is Being Performed	55102
(Approximate) Begin Construction Date	03/01/2018
(Approximate) End Construction Date	12/31/2015
LOCATION	
From: (Intersection or Address)	Shepard Road/Warner Road to South, Walnut Street to West, and Shepard at Otto - See Maps
<i>Do not include legal description; Include name of roadway if majority of facility runs adjacent to a single corridor.</i>	
To: (Intersection or Address)	14th Street to North, Lafayette Road to East and Warner at Childs
Type of Work	Fiber optic cable & changeable message sign installation, traffic signal controller replacement, , traffic signal retiming, TMC upgrades
<i>Examples: grading, aggregate base, bituminous base, bituminous surface, sidewalk, signals, lighting, guardrail, bicycle path, ped ramps, bridge, Park & Ride, etc.)</i>	
Old Bridge/Culvert?	No
New Bridge/Culvert?	No
Structure is Over/Under (Bridge or culvert name):	NA

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Mobilization (approx. 5% of total cost)	\$121,750.00
Removals (approx. 5% of total cost)	\$121,750.00
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)	\$100,000.00

Traffic Control	\$100,000.00
Striping	\$0.00
Signing	\$0.00
Lighting	\$0.00
Turf - Erosion & Landscaping	\$0.00
Bridge	\$0.00
Retaining Walls	\$0.00
Noise Wall	\$0.00
Traffic Signals	\$1,250,000.00
Wetland Mitigation	\$0.00
Other Natural and Cultural Resource Protection	\$0.00
RR Crossing	\$0.00
Roadway Contingencies	\$185,000.00
Other Roadway Elements	\$500,000.00
Totals	\$2,378,500.00

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
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Fixed Guideway Elements	\$0.00
Stations, Stops, and Terminals	\$0.00
Support Facilities	\$400,000.00
Transit Systems (e.g. communications, signals, controls, fare collection, etc.)	\$0.00
Vehicles	\$0.00
Transit and TDM Contingencies	\$0.00
Other Transit and TDM Elements	\$0.00
Totals	\$400,000.00

Transit Operating Costs

OPERATING COSTS	Cost
Transit Operating Costs	\$0.00
Totals	\$0.00

Totals

Total Cost	\$2,778,500.00
Construction Cost Total	\$2,778,500.00
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 2030 Transportation Policy Plan (amended 2013), the 2030 Regional Parks Policy Plan (amended 2013), and the 2030 Water Resources Management Policy Plan (2005).

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

2. 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

3. Applicants must not submit an application for the same project in more than one funding sub-category.

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

4. 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. Expansion, reconstruction/modernization, and bridges must be between \$1,000,000 and \$7,000,000. Roadway system management must be between \$250,000 and \$7,000,000.

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

5. The project must comply with the Americans with Disabilities Act.

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

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

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

7. 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

8. 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

9. 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

10. The project applicant must send written notification regarding the proposed project to all affected communities and other levels and units of government prior to submitting the application.

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

Requirements - Roadways Including Multimodal Elements

Expansion and Reconstruction/Modernization Projects Only

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

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

2. Federal funds are available for roadway construction and reconstruction on new alignments or within existing right-of-way, including associated construction and excavation, bridges, or installation of traffic signals, signs, utilities, bikeway or walkway components and transit components.

The project must exclude costs for right-of-way, studies, preliminary engineering, design, or construction engineering. Noise barriers, drainage projects, fences, landscaping, etc., are not eligible for funding unless included as part of a larger project, which is otherwise eligible.

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

Bridge Projects Only

3. The bridge project 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.

4. Bridges selected in previous Bridge Improvement and Replacement solicitations (1994-2011) are not eligible. A previously selected project is not eligible unless it has been withdrawn or sunset prior to the deadline for proposals in this solicitation.

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

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

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

6. 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 sub-categories. Rail-only bridges are ineligible for funding.

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

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

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

8. Project limits for bridge projects are limited from abutment to abutment.

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

9. The project must exclude costs for studies, preliminary engineering, design, construction engineering, and right-of-way.

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

Bridge Replacement Projects Only

10. The bridge must have a sufficiency rating less than 50. Additionally, it must also be classified as structurally deficient or functionally obsolete.

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

Bridge Rehabilitation Projects Only

11. The bridge must have a sufficiency rating less than 80. Additionally, it must also be classified as structurally deficient or functionally obsolete.

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

Other Attachments

File Name	Description	File Size
DTSSEP Letter-signed.pdf	A letter discussing the merits of the project.	70 KB
ProjectLocation.pdf	Project location map.	187 KB
ProjectOverview.pdf	Overview map of proposed controller replacements, signals to be connected to fiber optic network, and locations of proposed changeable message signs.	1.0 MB
RdwayAreaDef.pdf	Roadway Area Definition	821 KB
RegionalEcon.pdf	Regional Economy	1.7 MB
ResolutionSigned.pdf	City Council resolution committing to provide the local contribution to the Saint Paul Downtown Traffic Signal Enhancements Program.	130 KB
SocioEcon.pdf	Socio Economic	1.8 MB
TransitCon.pdf	Transit Connections	1.8 MB

Measure A: Functional Classification

Address how the project fulfills its role in the regional economy as identified by its current functional classification. If the project serves a system of routes, respond using the route with the highest functional classification. This system must include a Non-Freeway Principal Arterial or an "A" Minor Arterial.

Reference the Roadway Area Definition map generated at the beginning of the application process. Report the total area and project length, as depicted on the Roadway Project Summary map, to calculate the average distance between the project route (highest functional classification) and the closest parallel A Minor Arterials or Principal Arterials on both sides of the project.

Upload the "Roadway Area Definition" map used for this measure.

Area	5.042
Project Length	4.114
Average Distance	1.2256
Upload Map	Rdwy.pdf

Measure B: Current Heavy Commercial Traffic

Location	7th Street (TH 5) between Kellogg Boulevard and Saint Peter Street
Current daily heavy commercial traffic volume	420.0

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

Select all that apply:

Direct connection to or within a mile of a Job Concentration	Yes
Direct connection to or within a mile of a Manufacturing/Distribution Location	
Direct connection to or within a mile of an Educational Institution	Yes
Project provides a direct connection to or within a mile of an existing local activity center identified in an adopted county or city plan	Yes

County or City Plan Reference

Response (Limit 700 characters; approximately 100 words)

Upload Map	Econ.pdf
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Measure A: Current Daily Person Throughput

Location	Kellogg Boulevard west of Smith Avenue
Current AADT Volume	26700.0
Existing Transit Routes on the Project	21, 53, 54, 61, 63, 64, 70, 74, 94, 265, 275, 285, 294, 350, 351, 353, 361, 364, 417, 480, 484, 489

Response - Daily Person Throughput

Average Annual Daily Transit Ridership	19725.0
Current Daily Person Throughput	54435.0

Measure B: 2030 Forecast ADT

Use Metropolitan Council model to determine forecast (2030) ADT volume	Yes
METC Staff - Forecast (2030) ADT volume	38000.0
OR	
Approved county or city travel demand model to determine forecast (2030) ADT volume	
Forecast (2030) ADT volume	0

Measure A: Project Location and Impact to Disadvantaged Populations

Select one:

Project located in Racially Concentrated Area of Poverty Yes

Project located in Concentrated Area of Poverty

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

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

This project will benefit the noted populations in several ways, some of which are noted below:

Current technologies have provided new avenues of connecting with the public, but often times information posted to websites, sent via text message, or released via social media do not reach impoverished or elderly populations as effectively. The installation of changeable message signs in downtown will allow for the distribution of information regarding emergencies, incidents, or events to those who don't have unfettered access to modern technology.

Response (Limit 1,400 characters; approximately 200 words)

Upgrading existing traffic signal controllers will allow for easier accommodation of future BRT routes and bicycle facilities. As noted in Choice, Place, and Opportunity, transit is an essential public service for households without automobiles.

Downtown Saint Paul is home to many government agencies. With that, persons accessing vital government services, including services assisting the poor and elderly. Improving traffic operations, enabling better transit access, and better allowing for the construction of bicycle facilities would be of great benefit to several of the noted populations.

Upload Map

Socio.pdf

Measure B: Affordable Housing

City/Township	Segment Length (Miles)
Saint Paul	3.6
	4

Total Project Length

Total Project Length 3.6

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
Saint Paul	3.6	3.6	98.0	1.0	98.0
		4	98	1	98

Affordable Housing Scoring - To Be Completed By Metropolitan Council Staff

Total Project Length (Miles) 3.6
Total Housing Score 98.0

Measure A: Equipment Improvements and Installation Year

Equipment to be Improved 170 signal controllers, copper interconnect
Date of Equipment Installation 12/31/1992

Measure A: Cost Effectiveness of Vehicle Delay Reduction

Total Project Cost from Cost Sheet \$2,778,500.00
Total Peak Hour Vehicle Delay Without The Project 109981.5
Total Peak Hour Vehicle Delay With The Project 99562.2
Total Peak Hour Vehicle Delay Reduced by Project 10419.3
Cost Effectiveness \$266.67
Synchro or HCM Reports KelloggRobertSynchro.pdf

Measure B: Cost Effectiveness of Emissions Reduction

Total Project Cost from Cost Sheet \$2,778,500.00
Total Peak Hour Kilograms Reduced by Project 0.21
Cost Effectiveness \$13,230,952.38
Synchro or HCM Reports KelloggRobertSynchro.pdf

Measure A: Benefit/Cost of Crash Reduction

Project Benefit/Cost Ratio	0
Worksheet Attachment	Crashes.pdf

Measure A: Transit Connections

Existing Routes Directly Connected to the Project	3, 16, 21, 53, 54, 61, 62, 63, 64, 67, 68, 70, 71, 74, 75, 94, 262, 265, 275, 285, 294, 350, 351, 353, 355, 361, 364, 365, 375, 417, 452, 480, 484, 489, 860, METRO Green Line
Planned Transitways directly connected to the project (alignment and mode determined and identified in the 2030 TPP)	Robert Street BRT, East 7th Street BRT, West 7th Street BRT
Upload Map	Transit.pdf

Response

Met Council Staff Data Entry Only

Route Ridership	3.7901363E7
Transitway Ridership	4684800.0

Measure B: Bicycle and Pedestrian Connections

Downtown Saint Paul is unquestionably an area of high pedestrian traffic. It's mix of dense commercial, residential, government and entertainment land uses promotes walking like few places in the region. Nearly all roadways in the project area have sidewalks on both sides of the street. The downtown sidewalk network is also connected to several trails, including the Sam Morgan Regional Trail, the Indian Mounds Trail, the Bruce Vento Regional Trail.

Response (Limit 1,400 characters; approximately 200 words)

In addition to the existing trail connections to downtown, bike lanes are currently provided on sections of Jackson Street, Sibley Street, Broadway Street, and Wabasha Street. Future plans call for a "downtown bike loop" of off-street bike facilities on Saint Peter Street, Kellogg Boulevard, Jackson Street, and 10th Street. Funding has been established to design and construct the Jackson Street prior to the completion of this project.

Measure C: Multimodal Facilities

Response (Limit 1,400 characters; approximately 200 words)

Part of the impetus of the improvements planned with this project is to better accommodate future transit and bicycle facilities. The proposed BRT lines on 7th Street, Robert Street, the proposed transit solutions on the Gateway and Riverview Corridors and the downtown off-street bicycle facilities will require signal operation capabilities not present in the legacy 170 controllers currently in use throughout downtown. The lack of high bandwidth communication to these signals would limit the City's ability to manage the interests of the multitude of transit routes requesting priority to avoid additional stops.

The proposed project will aid pedestrians, bicyclists, and motorists by improving traffic signal timings and providing information regarding emergencies, incidents, closures, and events via changeable message signs.

Transit Projects Not Requiring Construction

If the applicant is completing a transit or TDM application, only Park-and-Ride and other construction projects require completion of the Risk Assessment below. Check the box below if the project does not require the Risk Assessment fields, and do not complete the remainder of the form. These projects will receive full points for the Risk Assessment.

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

100%

Stakeholders have been identified

40%

Stakeholders have not been identified or contacted

0%

Yes

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

Yes

0%

Anticipated date or date of completion

07/31/2017

3)Environmental Documentation (10 Percent of Points)

EIS

EA

PM

Document Status:

Document approved (include copy of signed cover sheet)

100%

Document submitted to State Aid for review

75%

Document in progress; environmental impacts identified

50%

Document not started

Yes

0%

Anticipated date or date of completion/approval

07/31/2017

4)Review of Section 106 Historic Resources (15 Percent of Points)

No known potential for archaeological resources, no historic resources known to be eligible for/listed on the National Register of Historic Places located in the project area, and project is not located on an identified historic bridge

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%

Unknown impacts to historic/archaeological resources

Yes

0%

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

07/31/2017

Project is located on an identified historic bridge

5)Review of Section 4f/6f Resources (15 Percent of Points)

(4f is publicly owned parks, recreation areas, historic sites, wildlife or waterfowl refuges; 6f is outdoor recreation lands where Land and Water Conservation Funds were used for planning, acquisition, or development of the property)

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

100%

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%

Adverse effects (land conversion) to Section 4f/6f resources likely

30%

Unknown impacts to Section 4f/6f resources in the project area Yes

0%

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

Right-of-way or easements not required Yes

100%

Right-of-way or easements has/have been acquired

100%

Right-of-way or easements required, offers made

75%

Right-of-way or easements required, appraisals made

50%

Right-of-way or easements required, parcels identified

25%

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

0%

Right-of-way or 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)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

12/31/2017

9)Letting

Anticipated Letting Date

01/31/2018



CITY OF SAINT PAUL
Christopher B. Coleman, Mayor

*Traffic Engineering Division
Paul St. Martin, Manager
800 City Hall Annex
25 W. Fourth Street
Saint Paul, MN 55102-1660*

*Telephone: 651-266-6200
Fax: 651-298-4559*

Dear Technical Advisory Committee, Programming Committee, and/or other designees,

The Saint Paul Downtown Traffic Signal Enhancements project has great potential to improve the City of Saint Paul's ability to manage all modes of transportation in the downtown area. Upgrading signal controllers, communication capabilities, traffic management resources and installing changeable message signs will provide the City with the tools to increase traffic capacity, accommodate new bicycle and high-frequency transit routes, and provide information about emergencies, events, and incidents directly to roadway users.

Due to the constraints of the existing application process, the benefits of this project cannot be accurately measured by the automated score that will be generated by this application. The scope of this project cannot be captured by examining an individual intersection, and any length based measure cannot be applied in a logical manner to this intersection-based project. Future iterations of the application will likely provide the means to better review projects of this type, but eligible and beneficial projects like this one should not be overlooked merely for reasons of compatibility with the application.

The Saint Paul Downtown Traffic Signal Enhancements project will include signal timing modifications at over 100 intersections, and the connection of over 50 intersections to the City's fiber-optic network. Small improvements in signal operations due to these changes would aggregate into a substantial delay reduction for the tens of thousands of motorists, pedestrians, bicyclists, and transit users entering and exiting downtown each day, whether the improvements come from more consistent time synchronization of coordinated corridors, improved phasing, or cycle length optimization.

While none of the project elements directly correspond to crash reduction factors, changes in signal timing based on a holistic approach may result in safety improvements at individual intersections. This project would also give the City the opportunity to review pedestrian timings and change intervals to ensure that all of downtown is in compliance with applicable standards. Additionally, the benefits to emergency and incident management gained by the installation of changeable message signs would doubtlessly result in a safer downtown for all.

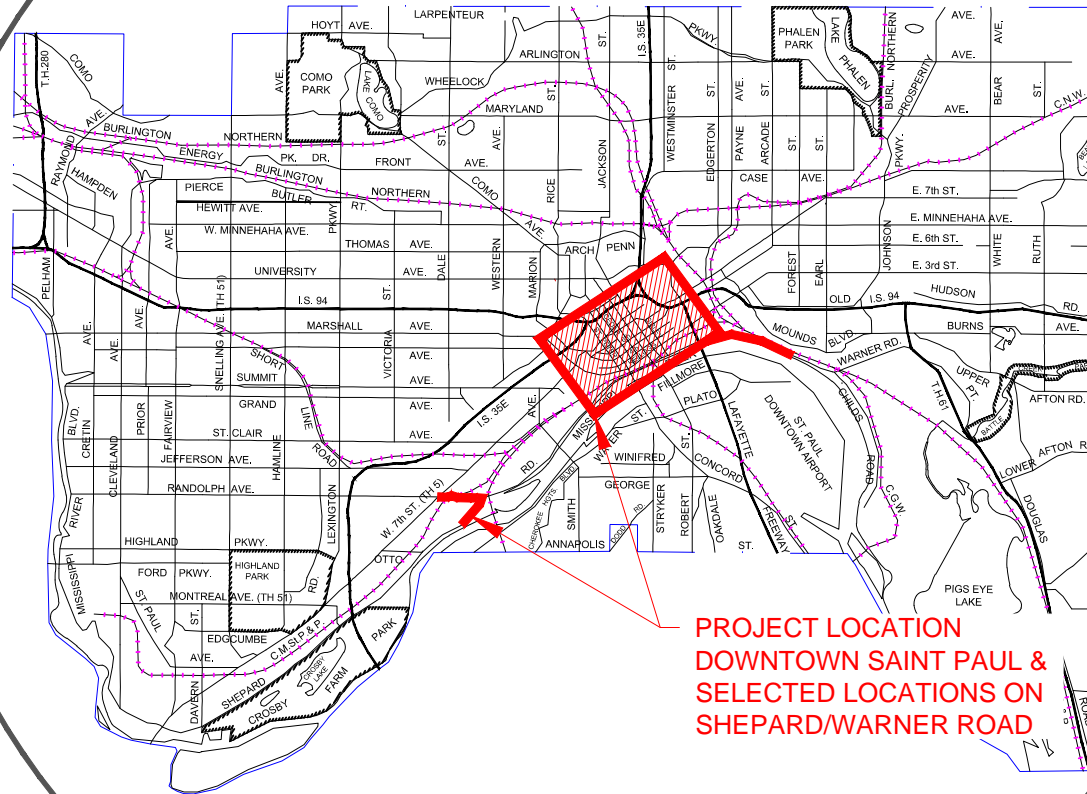
Please consider the above items when evaluating the Saint Paul Downtown Traffic Signal Enhancements project. The City of Saint Paul is committed to a modern, efficient, multi-modal transportation system, and this project would ensure that management of this vital activity center can effectively meet the demands of those goals.

Sincerely,

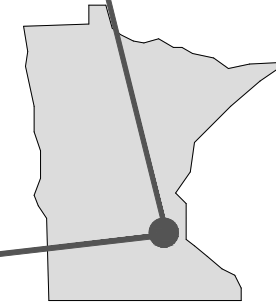
Mike Klobucar, P.E.
Civil Engineer
City of Saint Paul Department of Public Works



CITY OF SAINT PAUL



**PROJECT LOCATION
DOWNTOWN SAINT PAUL &
SELECTED LOCATIONS ON
SHEPARD/WARNER ROAD**



PREPARED BY TRAFFIC ENGINEERING DIVISION FOR THE CITY OF ST. PAUL DEPARTMENT OF PUBLIC WORKS

SAINT PAUL DOWNTOWN TRAFFIC SIGNAL ENHANCEMENT PROGRAM





PROJECT LOCATION

11/20/14

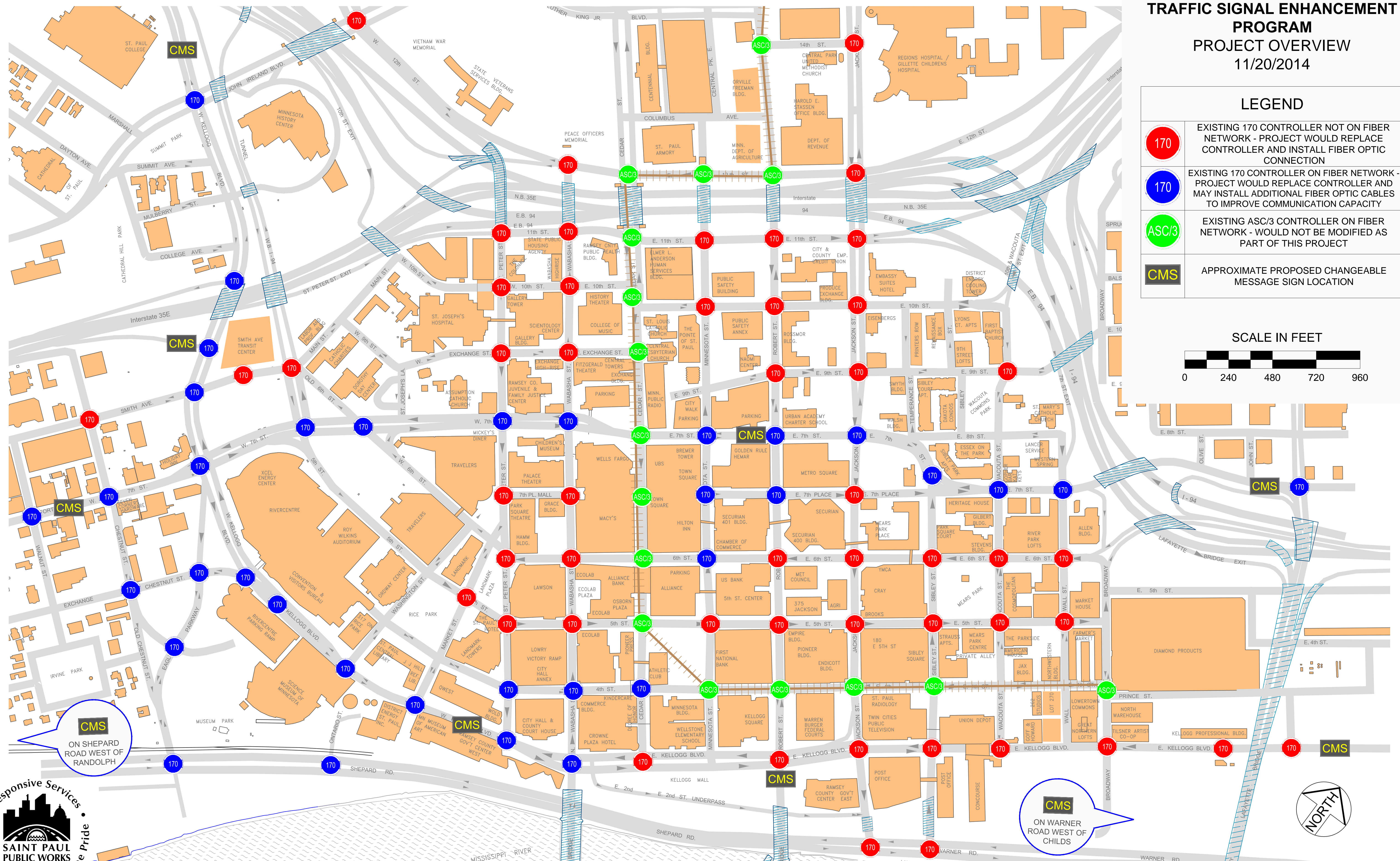
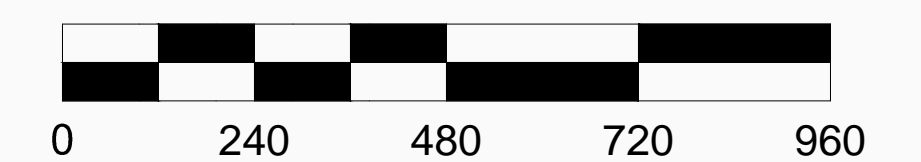


DOWNTOWN SAINT PAUL TRAFFIC SIGNAL ENHANCEMENT PROGRAM PROJECT OVERVIEW 11/20/2014

LEGEND

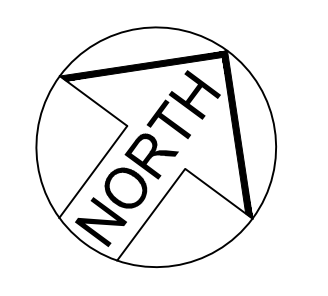
	EXISTING 170 CONTROLLER NOT ON FIBER NETWORK - PROJECT WOULD REPLACE CONTROLLER AND INSTALL FIBER OPTIC CONNECTION
	EXISTING 170 CONTROLLER ON FIBER NETWORK - PROJECT WOULD REPLACE CONTROLLER AND MAY INSTALL ADDITIONAL FIBER OPTIC CABLES TO IMPROVE COMMUNICATION CAPACITY
	EXISTING ASC/3 CONTROLLER ON FIBER NETWORK - WOULD NOT BE MODIFIED AS PART OF THIS PROJECT
	APPROXIMATE PROPOSED CHANGEABLE MESSAGE SIGN LOCATION

SCALE IN FEET



CMS
ON SHEPARD
ROAD WEST OF
RANDOLPH

CMS
ON WARNER
ROAD WEST OF
CHILD'S



Z:\TRAFFIC\PROJECTS\2017\DTSE\APP\APPLICATION\CAD\PROPOSAL.DWG



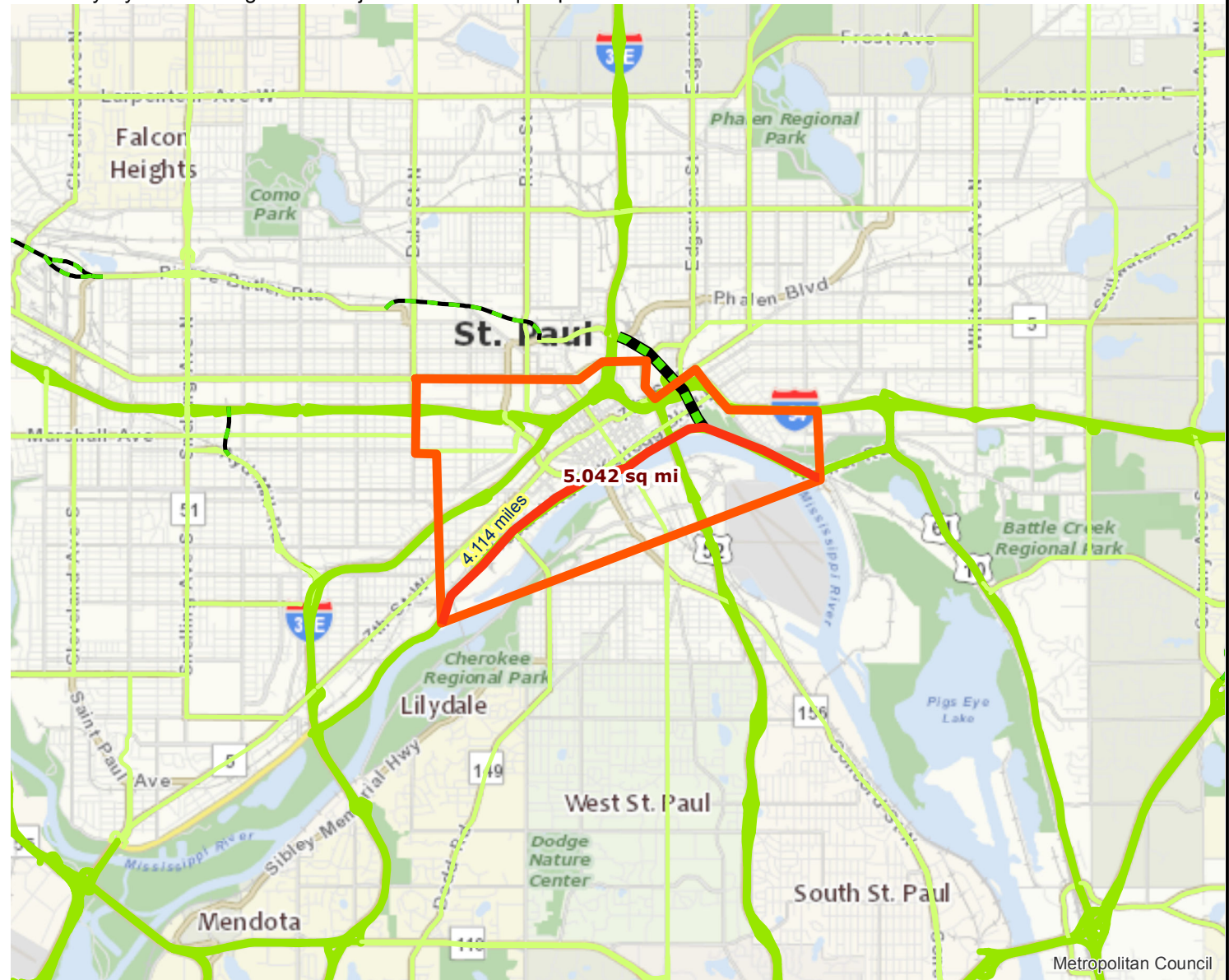
Roadway Area Definition

Roadway System Management Project: SPDTSEP | Map ID: 1419959169709

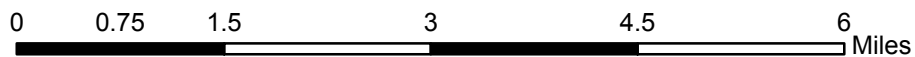
Results

Project Length: 4.114 miles

Project Area: 5.042 sq mi



- Project
- Principal Arterials
- Principal Arterials Planned
- Project Area
- A Minor Arterials
- A Minor Arterials Planned



Created: 12/30/2014
LandscapeRSA1



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Regional Economy

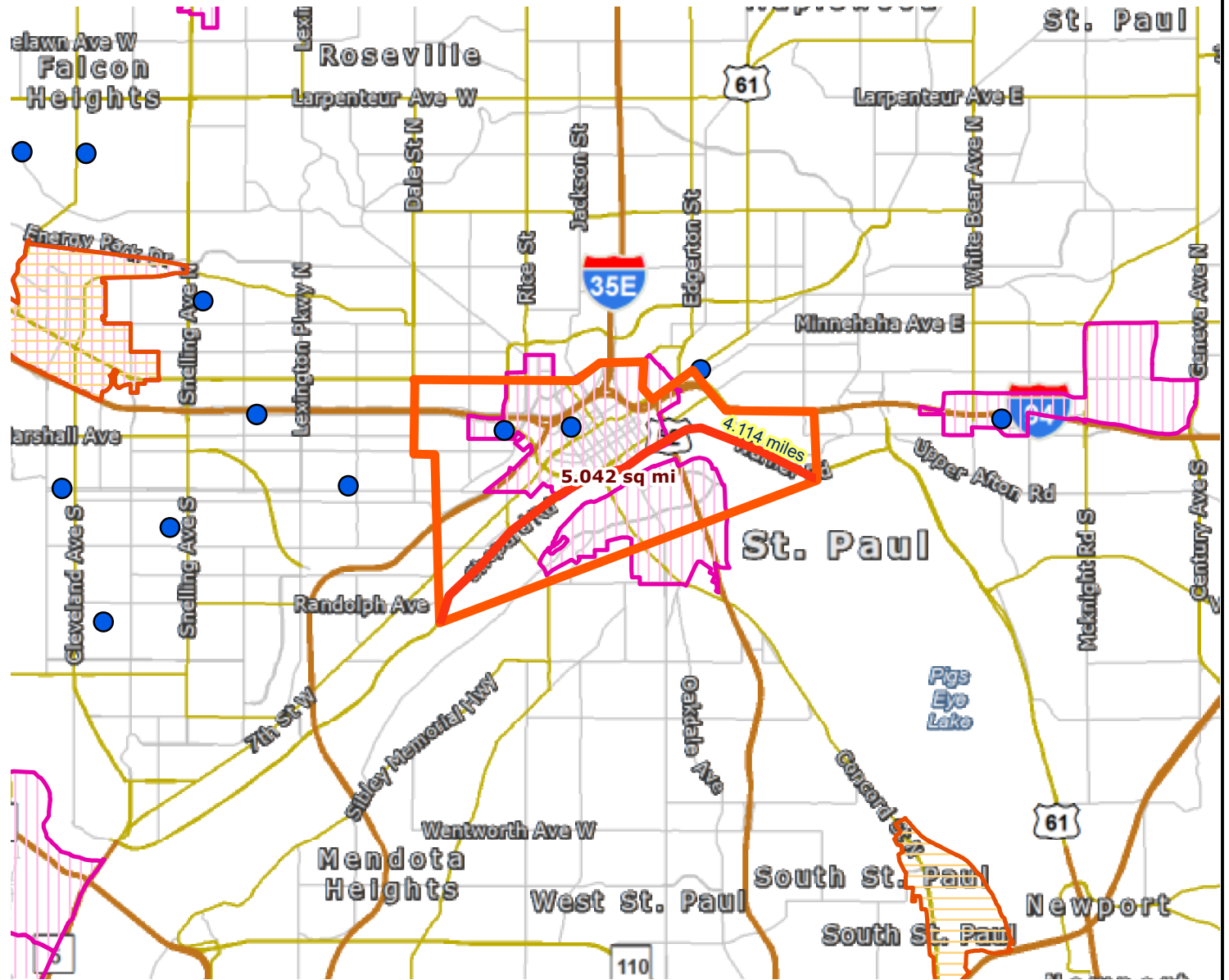
Roadway System Management Project: SPDTSEP | Map ID: 1419959169709

Results

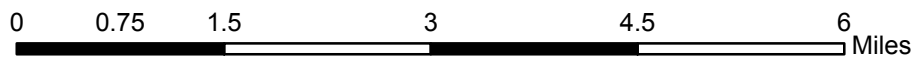
Project **IN** area of Job Concentration.

Project **NOT IN** to area of Manufacturing and Distribution.

Project **CONNECTED** to area of Education Institutions.



- Project
- PostSecondary Education Centers
- Job Concentration Centers
- Project Area
- Manufacturing/Distribution Centers



Created: 12/30/2014
LandscapeRSA5



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City of Saint Paul

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

Signature Copy

Resolution: RES 14-1921

File Number: RES 14-1921

Authorizing the Department of Public Works to prepare and submit project applications into the Metropolitan Council's Regional Solicitation Process for potential federal funding for projects in years 2018 and 2019, and to commit the local funding match requirement if the Department is awarded the federal funding.

WHEREAS, the Metropolitan Council has released its Regional Solicitation for project applications for potential federal funding in years 2018 and 2019, and

WHEREAS, the Department of Public Works is proposing to submit ~~six~~ seven project applications into the Metropolitan Council's Regional Solicitation process, and

WHEREAS, the ~~six~~ seven project applications being proposed are:

- Replacement of the Kellogg Boulevard/3rd Street Bridge #62080
- Trout Brook Road Extension from Prince Street to Lafayette/Kittson
- Pierce Butler East Extension Ph. II - Arundel to east of Western
- Margaret Street Bicycle Boulevard - Forest Street to McKnight Road
- Rehabilitation of Indian Mounds Park Trail - T.H. 61 to Bruce Vento Trail
- Saint Paul Downtown Traffic Signal Enhancements Program
- The Samuel H. Morgan to Bruce Vento Nature Sanctuary Bicycle and Pedestrian Bridge, and

WHEREAS, if any of the above named projects get selected to receive federal funding the City is prepared to commit to a local funding match of 20% of the total project(s) cost which is a requirement to securing the federal funds, and

WHEREAS, the Mayor, pursuant to Section 10.07.1 of the Charter of the City of Saint Paul, does certify that there will be funds made available for appropriation in future Capital Improvement Budgets if federal funds are awarded to any of the projects listed above; so


THEREFORE BE IT RESOLVED, by the Council of the City of Saint Paul to authorize the Department of Public Works to prepare and submit project applications for federal funding through the Metropolitan Council's Regional Solicitation Process as referenced in this resolution, and

BE IT FURTHER RESOLVED, by the Council of the City of Saint Paul that local funding will be made available as a match to any and all federal funds that are awarded to any of the projects referenced in this resolution. These funds will be identified and made available in future years capital improvement budgets.

At a meeting of the City Council on 11/12/2014, this Resolution was Passed.

Yea: 7 Councilmember Bostrom, Councilmember Brendmoen, City Council President Lantry, Councilmember Stark, Councilmember Thao, Councilmember Thune, and Councilmember Tolbert

Nay: 0

Vote Attested by 
Council Secretary Trudy Moloney

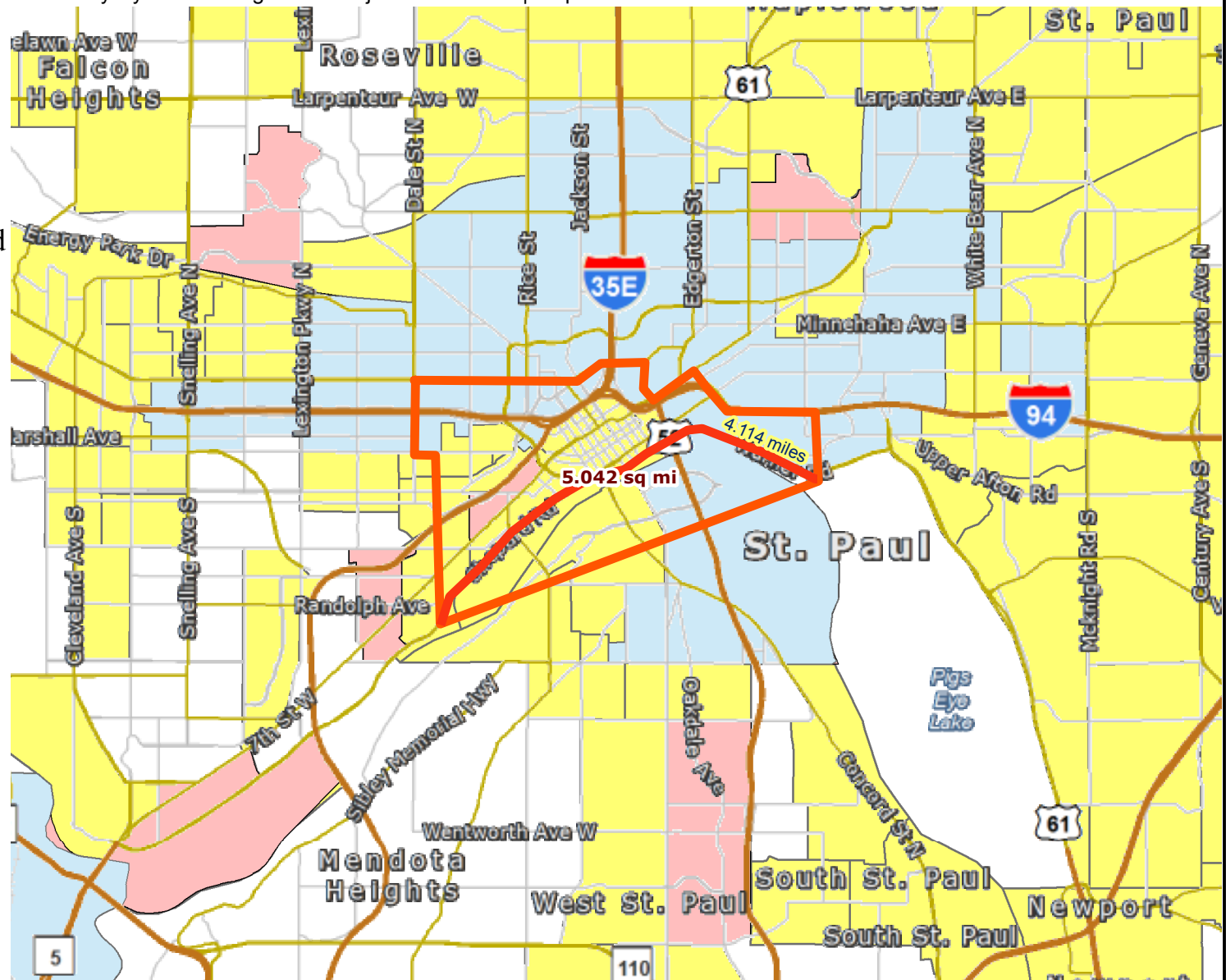
Date 11/12/2014

Approved by the Mayor 
Chris Coleman

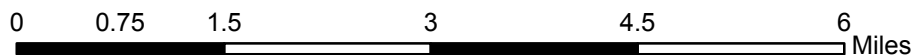
Date 11/17/2014

Results

Project **IN** a racially concentrated area of poverty.



- Project
- Racially concentrated area of poverty
- Above reg'l avg conc of race/poverty
- Concentrated area of poverty

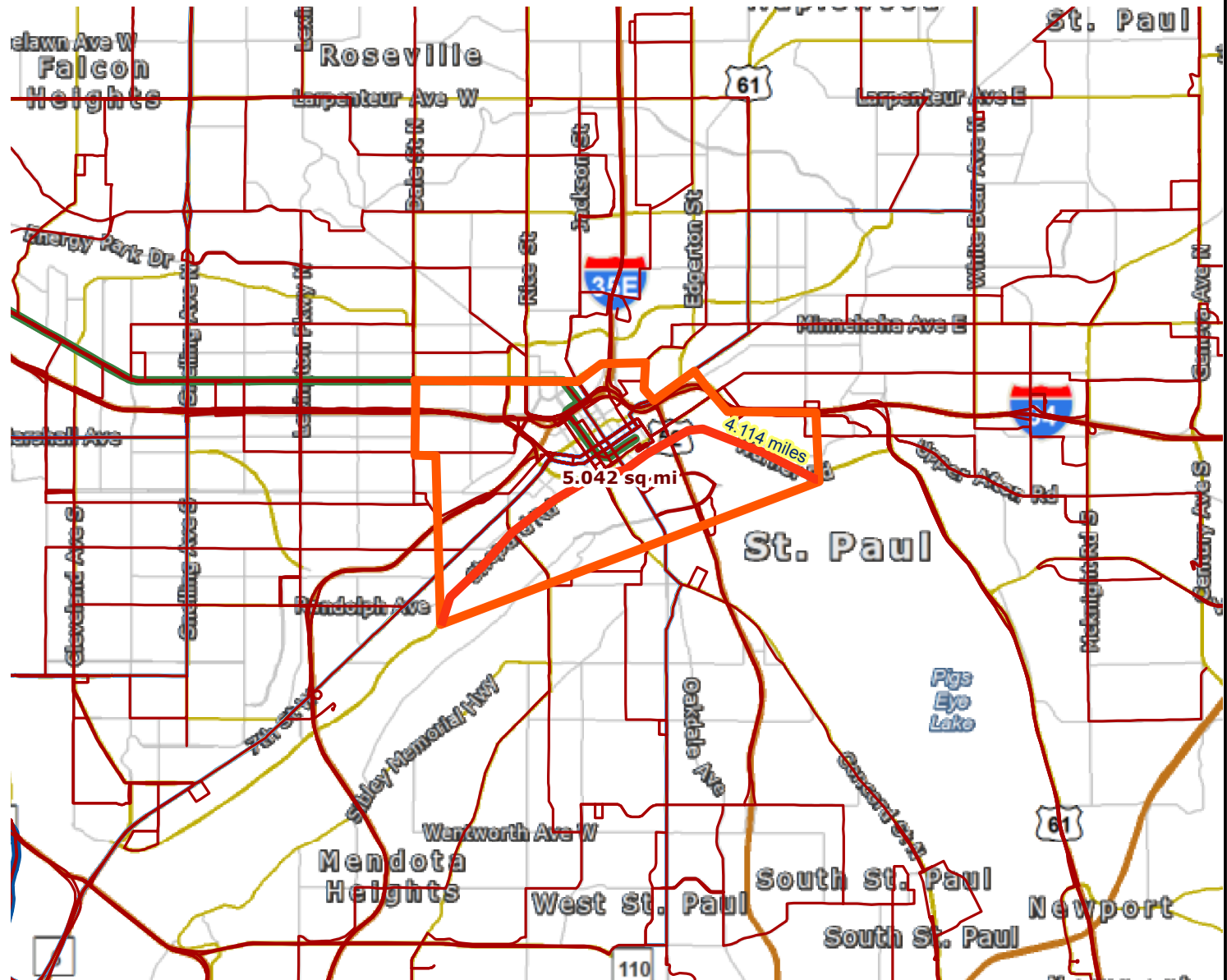


Created: 12/30/2014
LandscapeRSA2



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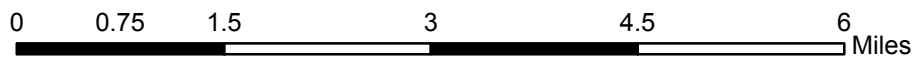
Results

Transit with a Direct Connection to project:
 3 16 21 54 62 63 67 68 70 71 75
 94 262 294 350 351 353 361 364 417 452 480
 484 489
 *Robert

*indicates Planned Alignments

— Project
 — Transit Routes
 — Green Line
 — Blue Line
 — Arterial BRT

Project Area
 — Planned Alignments



Created: 12/30/2014
 LandscapeRSA3



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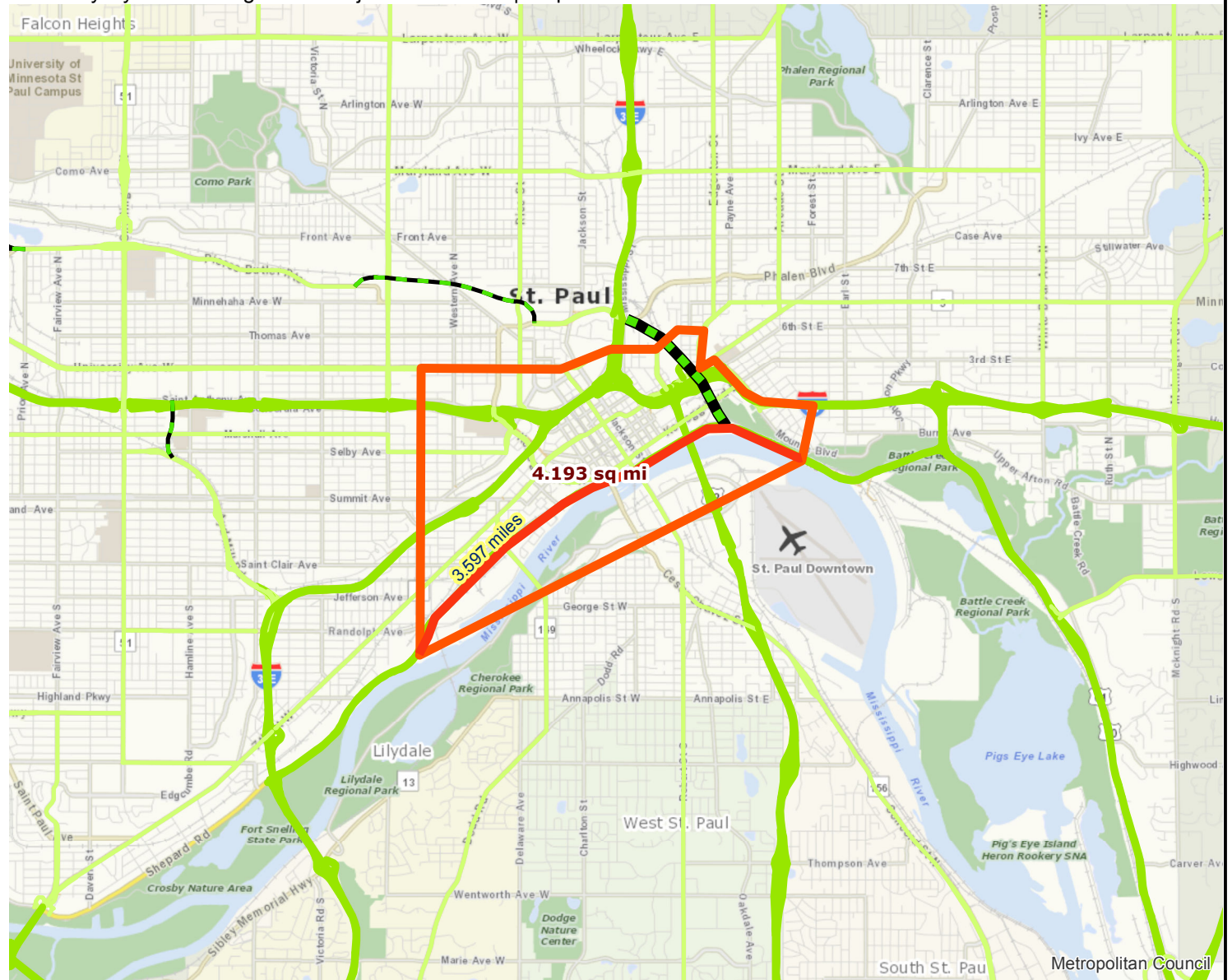
Roadway Area Definition

Roadway System Management Project: SPDTSEP | Map ID: 1416859081873

Results

Project Length: 3.597 miles

Project Area: 4.193 sq mi



- Project
- Project Area
- Principal Arterials
- A Minor Arterials
- - - Principal Arterials Planned
- - - A Minor Arterials Planned



Created: 11/24/2014
LandscapeRSA1



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



Regional Economy

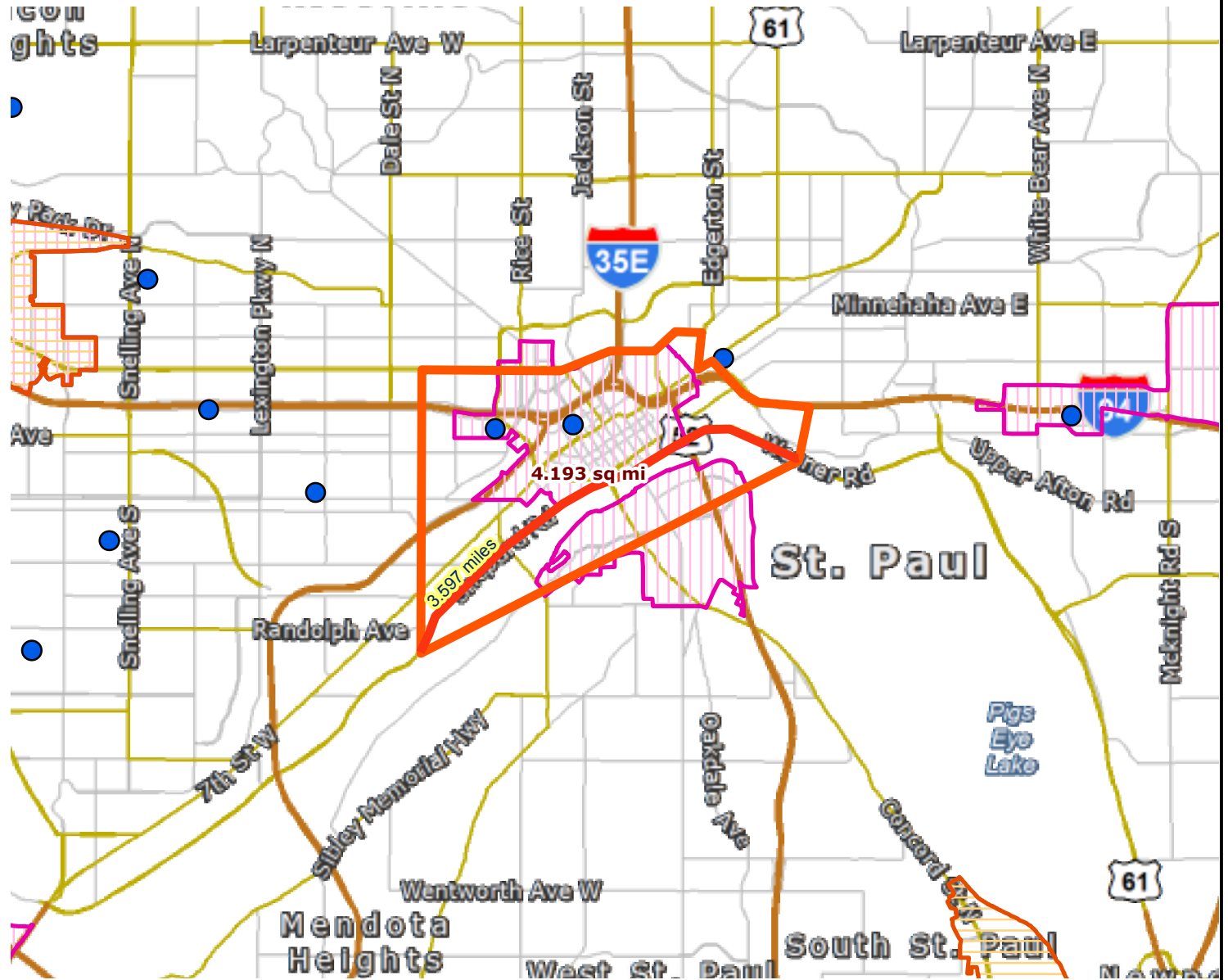
Roadway System Management Project: SPDTSEP | Map ID: 1416859081873

Results

Project **IN** area of Job Concentration.

Project **NOT IN** to area of Manufacturing and Distribution.

Project **CONNECTED** to area of Education Institutions.



- Project
- PostSecondary Education Centers
- Job Concentration Centers
- Project Area
- Manufacturing/Distribution Centers



Created: 11/24/2014
LandscapeRSA5

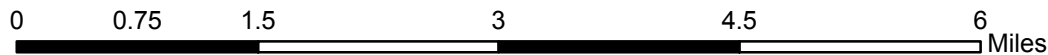
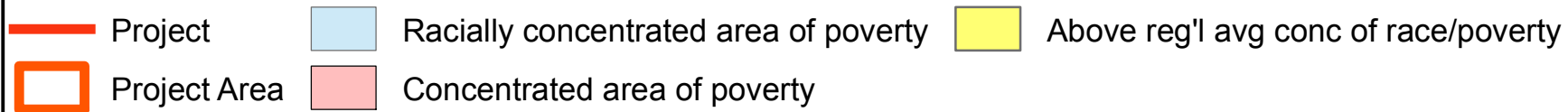
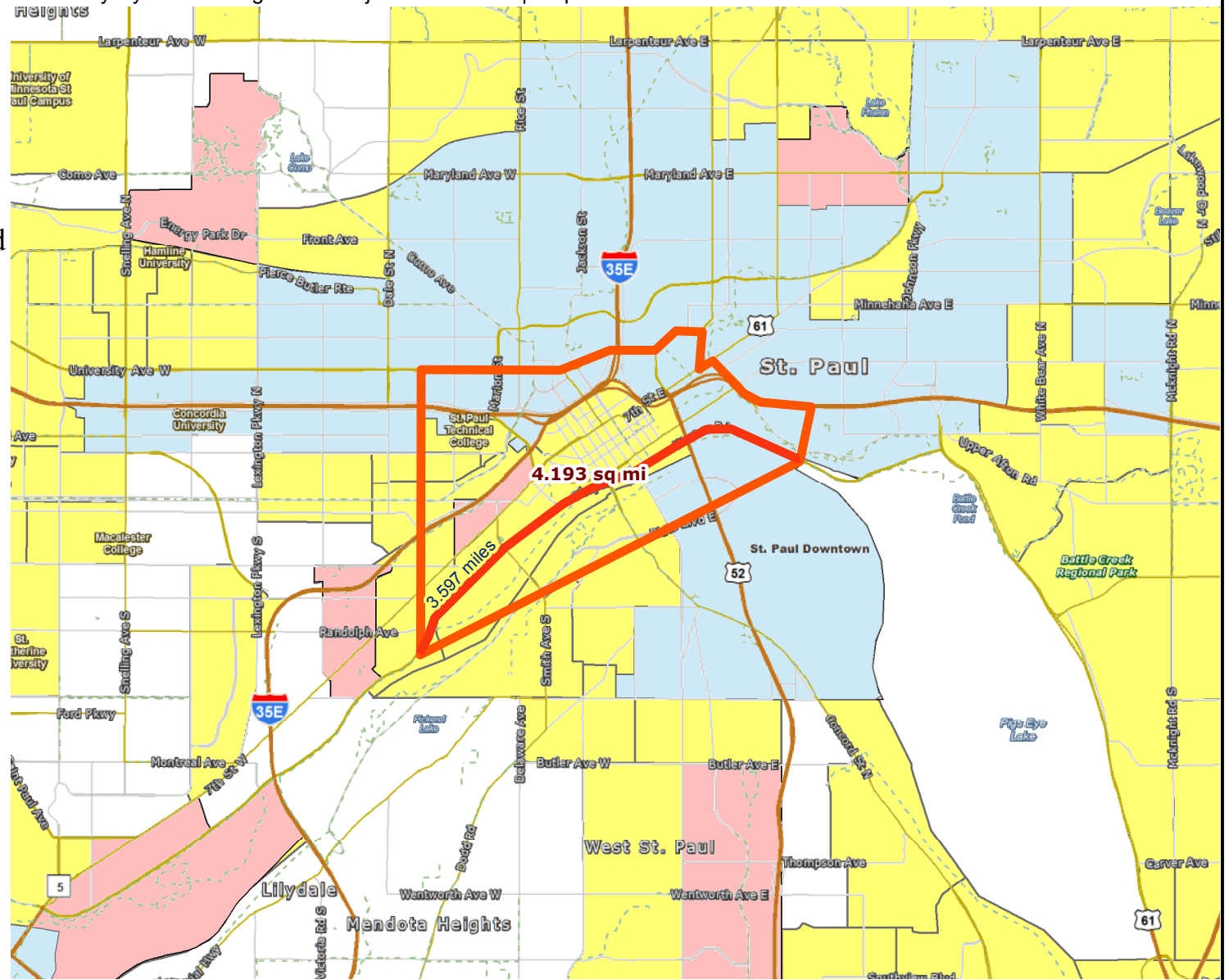


For complete disclaimer of accuracy, please visit
<http://giswebsite.metc.state.mn.us/gisitenew/notice.aspx>



Results

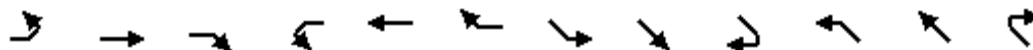
Project IN a racially concentrated area of poverty.



HCM Signalized Intersection Capacity Analysis

83: Robert Street & Kellogg Boulevard

PM Peak Hour
Existing Timings



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑↑↑	↑	↑	↑↑↑	↑		↑↑	↑		↑↑	↑
Volume (vph)	1	868	238	315	552	55	158	480	525	4	538	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.5	6.0	6.0		6.0	6.0		6.0	6.0
Lane Util. Factor		0.91	1.00	0.86	0.86	1.00		0.95	1.00		0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected		1.00	1.00	0.95	0.99	1.00		0.99	1.00		1.00	1.00
Satd. Flow (prot)		5085	1583	1522	4753	1583		3496	1583		3538	1583
Flt Permitted		0.94	1.00	0.14	0.67	1.00		0.64	1.00		0.95	1.00
Satd. Flow (perm)		4776	1583	223	3213	1583		2268	1583		3366	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1	964	264	350	613	61	176	533	583	4	598	140
RTOR Reduction (vph)	0	0	132	0	0	35	0	0	174	0	0	77
Lane Group Flow (vph)	0	965	132	175	788	26	0	709	409	0	602	63
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)		27.3	27.3	43.0	43.0	43.0		45.0	45.0		45.0	45.0
Effective Green, g (s)		27.3	27.3	43.0	43.0	43.0		45.0	45.0		45.0	45.0
Actuated g/C Ratio		0.27	0.27	0.43	0.43	0.43		0.45	0.45		0.45	0.45
Clearance Time (s)		6.0	6.0	4.5	6.0	6.0		6.0	6.0		6.0	6.0
Vehicle Extension (s)		3.0	3.0	2.5	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1303	432	241	1554	680		1020	712		1514	712
v/s Ratio Prot				c0.08	0.06							
v/s Ratio Perm		0.20	0.08	c0.23	0.16	0.02		c0.31	0.26		0.18	0.04
v/c Ratio		0.74	0.30	0.73	0.51	0.04		0.70	0.57		0.40	0.09
Uniform Delay, d1		33.1	28.8	20.5	20.8	16.5		22.0	20.4		18.4	15.8
Progression Factor		1.18	1.55	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		3.8	1.8	9.8	0.2	0.1		3.9	3.3		0.2	0.2
Delay (s)		42.9	46.6	30.3	21.0	16.6		25.9	23.7		18.6	16.0
Level of Service		D	D	C	C	B		C	C		B	B
Approach Delay (s)		43.6			22.3			24.9			18.1	
Approach LOS		D			C			C			B	

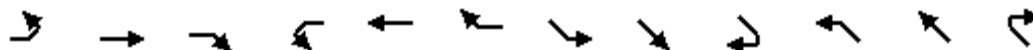
Intersection Summary

HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	92.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

83: Robert Street & Kellogg Boulevard

PM Peak Hour
Optimized Timings



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑↑↑	↑	↑	↑↑↑	↑		↑↑	↑		↑↑	↑
Volume (vph)	1	868	238	315	552	55	158	480	525	4	538	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	4.5	6.0	6.0		6.0	6.0		6.0	6.0
Lane Util. Factor		0.91	1.00	0.86	0.86	1.00		0.95	1.00		0.95	1.00
Frt		1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected		1.00	1.00	0.95	0.99	1.00		0.99	1.00		1.00	1.00
Satd. Flow (prot)		5085	1583	1522	4753	1583		3496	1583		3538	1583
Flt Permitted		0.94	1.00	0.14	0.67	1.00		0.65	1.00		0.95	1.00
Satd. Flow (perm)		4776	1583	217	3232	1583		2292	1583		3366	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1	964	264	350	613	61	176	533	583	4	598	140
RTOR Reduction (vph)	0	0	141	0	0	37	0	0	162	0	0	74
Lane Group Flow (vph)	0	965	123	175	788	24	0	709	421	0	602	66
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)		25.0	25.0	38.0	38.0	38.0		45.0	45.0		45.0	45.0
Effective Green, g (s)		25.0	25.0	38.0	38.0	38.0		45.0	45.0		45.0	45.0
Actuated g/C Ratio		0.26	0.26	0.40	0.40	0.40		0.47	0.47		0.47	0.47
Clearance Time (s)		6.0	6.0	4.5	6.0	6.0		6.0	6.0		6.0	6.0
Vehicle Extension (s)		3.0	3.0	2.5	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1256	416	203	1428	633		1085	749		1594	749
v/s Ratio Prot				c0.08	0.05							
v/s Ratio Perm		0.20	0.08	c0.27	0.17	0.02		c0.31	0.27		0.18	0.04
v/c Ratio		0.77	0.29	0.86	0.87dl	0.04		0.65	0.56		0.38	0.09
Uniform Delay, d1		32.3	28.0	21.4	21.9	17.4		19.1	17.9		16.0	13.7
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		4.6	1.8	29.0	0.4	0.1		3.1	3.0		0.2	0.2
Delay (s)		36.9	29.8	50.4	22.3	17.5		22.1	21.0		16.2	14.0
Level of Service		D	C	D	C	B		C	C		B	B
Approach Delay (s)		35.3			26.8			21.6			15.8	
Approach LOS		D			C			C			B	

Intersection Summary

HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	92.9%	ICU Level of Service	F
Analysis Period (min)	15		
dl Defacto Left Lane. Recode with 1 though lane as a left lane.			
c Critical Lane Group			

83: Robert Street & Kellogg Boulevard

Direction	All
Volume (vph)	3859
Total Delay / Veh (s/v)	25
Total Delay (hr)	27
CO Emissions (kg)	3.80
NOx Emissions (kg)	0.74
VOC Emissions (kg)	0.88

83: Robert Street & Kellogg Boulevard

Direction	All
Volume (vph)	3859
Total Delay / Veh (s/v)	23
Total Delay (hr)	25
CO Emissions (kg)	3.65
NOx Emissions (kg)	0.71
VOC Emissions (kg)	0.85

HSIP worksheet	Control Section	T.H. / Roadway	Location			Beginning Ref. Pt.	Ending Ref. Pt.	State, County, City or Township	Study Period Begins	Study Period Ends
		952A	Kellogg Boulevard & Robert Street			131.000	131		1/1/2011	12/31/2013
	Description of Proposed Work		Signal timing optimization, signal controller upgrade, fiber optic connection							

Accident Diagram Codes	1 Rear End	2 Sideswipe Same Direction	3 Left Turn Main Line	5 Right Angle	4,7 Ran off Road	8, 9 Head On/ Sideswipe - Opposite Direction	Pedestrian	Other	Total

Study Period: Number of Crashes	Fatal	F								
	Personal Injury (PI)	A								
		B								
		C								
Property Damage	PD	12	11	9	19		1		3	55

% Change in Crashes <small>*Use Crash Modification Factors Clearinghouse</small>	Fatal	F								
	PI	A								
		B								
		C								
Property Damage	PD	0%	0%	0%	0%		0%		0%	

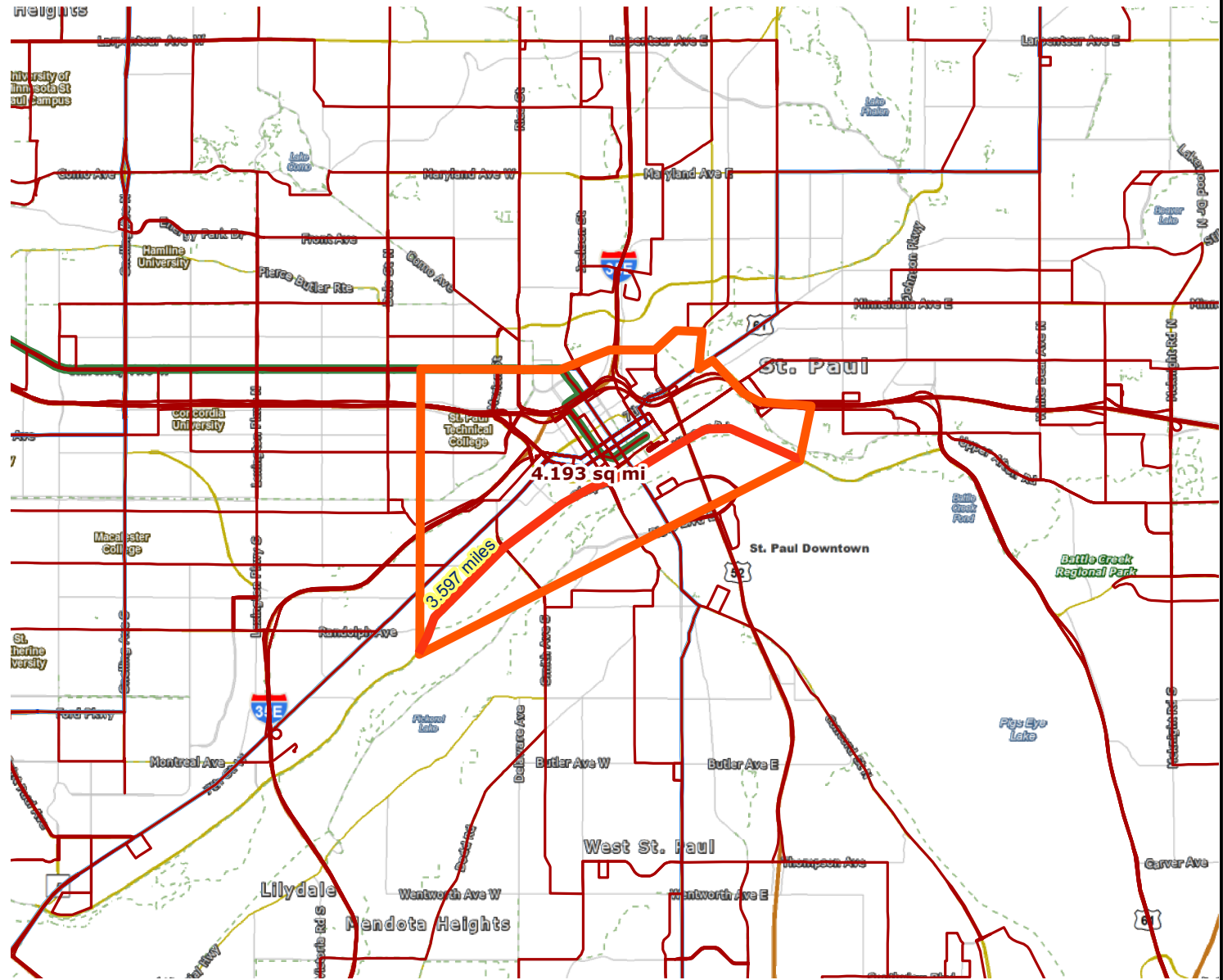
Change in Crashes <small>= No. of crashes X % change in crashes</small>	Fatal	F								
	PI	A								
		B								
		C								
Property Damage	PD	0.00	0.00	0.00	0.00		0.00		0.00	

Year (Safety Improvement Construction) **2018**

Project Cost (exclude Right of Way)	\$2,778,500.00	Type of Crash	Study Period: Change in Crashes	Annual Change in Crashes	Cost per Crash	Annual Benefit
Right of Way Costs (optional)		F			\$ 1,100,000	
Traffic Growth Factor	1%	A			\$ 550,000	
Capital Recovery		B			\$ 160,000	
1. Discount Rate	4.5%	C			\$ 81,000	
2. Project Service Life (n)	5	PD			\$ 7,400	
		Total			\$ -	

B/C= 0.00

Using present worth values,
B= \$ -
C= \$ 2,778,500
 See "Calculations" sheet for amortization.



Results

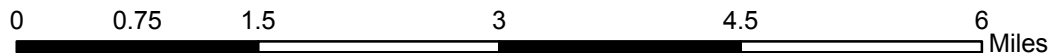
Transit with a Direct Connection to project:

3 16 21 54 62 67 68 71 75 94 262
417 452 480 484 489

*Robert

*indicates Planned Alignments

— Project
 — Transit Routes
 — Transitway
 — Planned Alignments
 Project Area
— Green Line
— Arterial BRT



Created: 11/24/2014
LandscapeRSA3



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

