Application

01968 - 2014 Roadway Reconstruction/Modernization

02187 - Broadway Street NE Reconstruction

Regional Solicitation - Roadways Including Multimodal Elements

Status:	Submitted
Submitted Date:	12/01/2014 3:54 PM

Primary Contact

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	Phone		Ext.	
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What Grant Programs are you most interested in?	Regional Solicitation - Bicycle and Pedestrian Facilities			

Organization Information

Name:	MINNEAPOLIS,CITY OF
Jurisdictional Agency (if different):	

Organization Type:	City
Organization Website:	http://www.ci.minneapolis.mn.us/
Address:	DEPT OF PUBLIC WORKS
	309 2ND AVE S #300

*	MINNEAPOLIS	Minnesota	55401
	City	State/Province	Postal Code/Zip

County:	Hennepin
Phone:*	612-673-3884 Ext.
Fax:	
PeopleSoft Vendor Number	0000020971A2

Project Information

Project Name	Broadway Street NE Reconstruction
Primary County where the Project is Located	Hennepin
Jurisdictional Agency (If Different than the Applicant):	

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

This project will reconstruct approximately 0.8 miles of Broadway Street NE from Stinson Boulevard to Industrial Boulevard in the City of Minneapolis. This roadway is an A Minor Reliever and an identified Truck Route. The roadway will be restriped from a four-lane roadway to a two-lane roadway with center turn lanes. A major component of this project is the construction of currently missing multimodal elements including adding 0.7 miles of sidewalk and construction of a new bicycle facility along the 0.8-mile project area. The sidewalk will be added to the north side of Broadway Street NE and the off-street, multi-use trail will be constructed on the south side of the street. See Project Layout in Figure 1.

The project is located within one of the regions most important industrial areas, with an identified job concentration and manufacturing/distribution center. Broadway Street NE is one of the Citys busiest truck routes with nearly 2,000 heavy commercial vehicles per day. With easy access to two I-35W interchanges and direct access to TH 280, the projects strategic location make it advantageous for existing distribution centers such as UPS and JJ Taylor Distribution Company (Figure 2). Broadway Street NE is an A Minor Reliever roadway that provides traffic relief to I-35W. As a reliever roadway, it is important for the Broadway Street NE corridor to function efficiently for all vehicles, including heavy commercial trucks. The proposed three-lane roadway design would better accommodate trucks turning into industrial facilities along Broadway Street NE and will reduce wait times and improve safety (1.91 B-C Safety Rating) for through-traffic.

The project area is identified in the Minneapolis Pedestrian Master Plan (October 2009) as an area

of low pedestrian network connectivity due to its lack of sidewalks and large block sizes. The existing sidewalk gaps make it difficult for users to walk to and from transit stops to job locations in the area. In fact, the City has received complaints from people about that lack of sidewalks and safe pedestrian facilities in the project area. There are three bus routes that connect to the project area, including Bus Route 30, a high frequency route with seven stops in the project area. The proposed sidewalk additions will improve walkability for all pedestrians, including transit users.

The project is located less that one mile from The Quarry retail area, which is an important local activity center for the northeastern neighborhoods of Minneapolis. Many local residents to the south use Broadway Street NE to access The Quarry. The project is also located within census tracts that are above the regional average of populations of color/poverty and adjacent to a concentrated area of poverty to the north.

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

Project Length (Miles) 0.79

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

Minneapolis City-Wide Action Plan Appendices Citywide Ten-Year Transportation Action Plan (July 17, 2009) Page 24

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 $3,265,600.00

Match Amount	$816,400.00
Minimum of 20% of project total	
Project Total	$4,082,000.00
Match Percentage	20.0%
Minimum of 20% *Compute the match percentage by dividing the match amount by the project total*	
Source of Match Funds	City of Minneapolis

Preferred Program Year

Select one:	2018

MnDOT State Aid Project Information: Roadway Projects

County, City, or Lead Agency	City of Minneapolis
Functional Class of Road	A Minor Reliever
Road System	MSAS
TH, CSAH, MSAS, CO. RD., TWP. RD., CITY STREET	
Name of Road	Broadway Street NE
Example; 1st ST., MAIN AVE	
Zip Code where Majority of Work is Being Performed	55413
(Approximate) Begin Construction Date	05/01/2018
(Approximate) End Construction Date	12/01/2018

LOCATION

From: **(Intersection or Address)**	Stinson Boulevard
Do not include legal description; *Include name of roadway if majority of facility runs adjacent to a single corridor.*	
To: **(Intersection or Address)**	Industrial Boulevard
Type of Work	GRADE, AGG BASE, BIT BASE, BIT SURF, SIDEWALK, SIGNALS, LIGHTING, CURB AND GUTTER, BIKE PATH, PED RAMPS
Examples: grading, aggregate base, bituminous base, bituminous surface, sidewalk, signals, lighting, guardrail, bicycle path, ped ramps, bridge, Park & Ride, etc.)	
Old Bridge/Culvert?	No
New Bridge/Culvert?	No
Structure is Over/Under **(Bridge or culvert name):**	N/A

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Mobilization (approx. 5% of total cost)	$200,000.00
Removals (approx. 5% of total cost)	$335,000.00
Roadway (grading, borrow, etc.)	$55,000.00
Roadway (aggregates and paving)	$1,295,000.00
Subgrade Correction (muck)	$0.00
Storm Sewer	$65,000.00
Ponds	$0.00
Concrete Items (curb & gutter, sidewalks, median barriers)	$205,000.00
Traffic Control	$80,000.00
Striping	$25,000.00
Signing	$25,000.00
Lighting	$0.00
Turf - Erosion & Landscaping	$50,000.00
Bridge	$0.00
Retaining Walls	$0.00
Noise Wall	$0.00
Traffic Signals	$500,000.00
Wetland Mitigation	$0.00
Other Natural and Cultural Resource Protection	$0.00
RR Crossing	$0.00
Roadway Contingencies	$200,000.00
Other Roadway Elements	$130,000.00
Totals	**$3,165,000.00**

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Path/Trail Construction	$85,000.00
Sidewalk Construction	$125,000.00
On-Street Bicycle Facility Construction	$0.00
Right-of-Way	$0.00
Pedestrian Curb Ramps (ADA)	$20,000.00

Crossing Aids (e.g., Audible Pedestrian Signals, HAWK)	$0.00
Pedestrian-scale Lighting	$615,000.00
Streetscaping	$0.00
Wayfinding	$7,000.00
Bicycle and Pedestrian Contingencies	$65,000.00
Other Bicycle and Pedestrian Elements	$0.00
Totals	**$917,000.00**

Specific Transit and TDM Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Fixed Guideway Elements	$0.00
Stations, Stops, and Terminals	$0.00
Support Facilities	$0.00
Transit Systems (e.g. communications, signals, controls, fare collection, etc.)	$0.00
Vehicles	$0.00
Transit and TDM Contingencies	$0.00
Other Transit and TDM Elements	$0.00
Totals	**$0.00**

Transit Operating Costs

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

Totals

Total Cost	$4,082,000.00
Construction Cost Total	$4,082,000.00
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 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 projected 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. Yes

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. Yes

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 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.

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 sufficienty 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 Rehabilitiation Projects Only

11.The bridge must have a sufficienty 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
8680 Figure 1_Broadway.pdf	Figure 1-1 to 1-3 - Project Layout	1.6 MB
Figure2_Broadway_Improvements.pdf	Figure 2 - Proposed Improvements	1.4 MB
RdwayAreaDef.pdf	Roadway Area Definition	702 KB
Regional Solicitation Application Letter 2014.pdf	Letter of commitment of local match funds.	404 KB
RegionalEcon.pdf	Regional Economy	2.0 MB
SocioEcon.pdf	Socio Economic	2.0 MB
TransitCon.pdf	Transit Connections	2.0 MB

Reliever: Freeway Facility or

Facility being relieved	I-35W
Number of hours per day volume exceeds capacity (based on the Congestion Report)	3.0

Reliever: Non-Freeway Facility or

Facility being relieved	
Number of hours per day volume exceeds capacity (based on the table below)	0

Non-Freeway Facility Volume/Capacity Table

Hour	NB/EB Volume	SB/WB Volume	Capacity	Volume exceeds capacity
12:00am - 1:00am				
1:00am - 2:00am				
2:00am - 3:00am				
3:00am - 4:00am				
4:00am - 5:00am				
5:00am - 6:00am				
6:00am - 7:00am				
7:00am - 8:00am				
8:00am - 9:00am				
9:00am - 10:00am				
10:00am - 11:00am				

11:00am - 12:00pm

12:00pm - 1:00pm

1:00pm - 2:00pm

2:00pm - 3:00pm

3:00pm - 4:00pm

4:00pm - 5:00pm

5:00pm - 6:00pm

6:00pm - 7:00pm

7:00pm - 8:00pm

8:00pm - 9:00pm

9:00pm - 10:00pm

10:00pm - 11:00pm

11:00pm - 12:00am

Expander/Connector/Augmentor/Non-Freeway Principal Arterial

Select one:

Area	0.522
Project Length	0.787
Average Distance	0.6633
Upload Map	RdwyAreaDef.pdf

Measure B: Current Heavy Commercial Traffic

Location	Broadway Street NE from Taft Street NE to Industrial Boulevard
Current daily heavy commercial traffic volume	1957.0

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	Yes
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	

County or City Plan Reference (Limit 700 characters; approximately 100 words)	See Regional Economy map.
Upload Map	RgnlEconomy.pdf

Measure A: Current Daily Person Throughput

Location	Broadway Street NE at Hoover Street
Current AADT Volume	13600.0
Existing Transit Routes on the Project	30

Response: Current Daily Person Throughput

Average Annual Daily Transit Ridership	209.0
Current Daily Person Throughput	17889.0

Measure B: 2030 Forecast ADT

Use Metropolitan Council model to determine forecast (2030) ADT volume	Yes
METC Staff - Forecast (2030) ADT volume	11000.0
OR	
Approved county or city travel demand model to determine forecast (2030) ADT volume	No
Forecast (2030) ADT volume	0

Measure A: Project Location and Impact to Disadvantaged Populations

Select one:

Project located in Racially Concentrated Area of Poverty	
Project located in Concentrated Area of 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.	Yes

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

The project is located within census tracts that are above the regional average of populations of color/poverty and adjacent to a concentrated area of poverty. Improving access to jobs is especially critical for these populations. The project will improve access to a key job concentration center (see Regional Economy map) that supports many blue-collar manufacturing/distribution jobs, such as UPS, JJ Taylor, and several truck facilities.

Filling sidewalk gaps and adding trail facilities will provide better multi-modal access for people who work in the project area and may live the adjacent Concentrated Areas of Poverty to the north. A bus route runs on Broadway Street NE; however, the existing sidewalk gaps make it difficult for users to access transit stops in the project area. For low-income households without an automobile and people who do not drive (i.e., children, elderly, people with disabilities), transit is an essential public service that connects people to opportunities such as jobs, education, and retail. The project is located less that one mile from The Quarry shopping area, which is an important local activity center for the northeastern neighborhoods of Minneapolis.

The project will improve safety and comfort for people with disabilities by filling sidewalk gaps and improving sidewalks. The project will improve all pedestrian crossings to be ADA compliant.

Upload Map

SocioEconomic.pdf

Measure B: Affordable Housing

City/Township	Segment Length (Miles)
City of Minneapolis	0.79

Total Project Length

Total Project Length	0.79

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
City of Minneapolis	0.79	0.79	97.0	1.0	97.0
		1	**97**	**1**	**97**

Affordable Housing Scoring - To Be Completed By Metropolitan Council Staff

Total Project Length (Miles)	0.79
Total Housing Score	97.0

Measure A: Year of Roadway Construction

Year of Original Roadway Construction or Most Recent Reconstruction	Roadway Segment Length (Miles)	Calculation	Calculation 2
1982.0	0.13	257.66	326.152
1964.0	0.66	1296.24	1640.81
	1	**1554**	**1967**

Average Construction Year

Weighted Year	1966.962

Total Segment Length (Miles)

Total Segment Length	0.79

Measure B: Geometric, Structural, or Infrastructure Improvements

The project will reconstruct approximately 0.8 miles of Broadway Street NE from Stinson Boulevard to Industrial Boulevard. This will improve pavement strength to handle the nearly 2,000 heavy commercial vehicles that use this designated truck route daily.

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

Many sidewalks in the project area do not meet the guidelines set forth in the City of Minneapoliss Street and Sidewalk Design Guidelines. The project will widen and improve existing sidewalks within the project area. The current sidewalks and crosswalks are not in compliance with Americans with Disabilities standards. The project will improve all pedestrian crossings to be ADA compliant.

Measure A: Cost Effectiveness of Vehicle Delay Reduction

Total Project Cost from Cost Sheet	$4,082,000.00
Total Peak Hour Vehicle Delay Without The Project	45237.0
Total Peak Hour Vehicle Delay With The Project	53220.0
Total Peak Hour Vehicle Delay Reduced by Project	-7983
Cost Effectiveness	($511.34)
Synchro or HCM Reports	Broadway- Stinson HCM Reports.pdf

Measure B: Cost Effectiveness of Emissions Reduction

Total Project Cost from Cost Sheet	$4,082,000.00
Total Peak Hour Kilograms Reduced by Project	-0.15
Cost Effectiveness	($27,213,333.33)
Synchro or HCM Reports	Broadway- Stinson HCM Reports.pdf

Measure A: Benefit/Cost of Crash Reduction

Project Benefit/Cost Ratio	1.91
Worksheet Attachment	Broadway Analysis.pdf

Measure A: Transit Connections

Existing Routes Directly Connected to the Project	25, 30, 61
Planned Transitways directly connected to the project (alignment and mode determined and identified in the 2030 TPP)	N/A
Upload Map	Transit.pdf

Response

Met Council Staff Data Entry Only

Route Ridership	1093192.0
Transitway Ridership	0

Measure B: Bicycle and Pedestrian Connections

The proposed project will include an off-street, multi-use trail facility on the south side of Broadway Street NE that will connect to the Minneapolis Diagonal trail at the projects western boundary, Stinson Boulevard. The Minneapolis Diagonal Trail goes north underneath I-35W and connects to the Grand Rounds Trail. It also provides access to The Quarry commercial development and residential and park areas on the north side of I-35W. The Quarry is zoned as a Community Shopping Center District in the City of Minneapolis zoning plan.

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

A similar project on Industrial Boulevard is identified in the City of Minneapolis Capital Improvement Projects, Proposed: 2015-2019 Capital Plan (May 15, 2014). The project will provide traffic-related improvements and fill sidewalk gaps along Industrial Boulevard from Broadway Street NE to I-35W. The existing sidewalk gaps make it difficult for users to walk to and from transit stops to job locations in this industrial area. The proposed sidewalk along the north side of Broadway Street NE will connect to these planned sidewalk improvements at Industrial Boulevard, creating a continuous and consistent pedestrian environment in the area. Construction of the Industrial Boulevard project is planned for 2017.

Measure C: Multimodal Facilities

There is currently 0.1 miles of sidewalk on the north side Broadway Street NE and no bicycle facilities. This existing sidewalk will be widened as part of the project and extended 0.7 miles east to fill sidewalk gaps in the project area. The project will also include an off-street, multi-use trail facility on the south side of Broadway Street NE. Providing safe and secure pedestrian and bicycle facilities along Broadway Street NE may encourage people to walk or bike from residential areas on the north side of I-35W to their jobs in this industrial job center.

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

Bus Route 30 is a high frequency route that runs along Broadway Street NE. Route 25 runs along Stinson Boulevard and Route 61 runs along Industrial Boulevard. The area is identified in the Minneapolis Pedestrian Master Plan as an area of low pedestrian network connectivity due to its lack of sidewalks and large block sizes. The existing sidewalk gaps make it difficult for users to walk to and from bus stops in the project area to job locations in this industrial area. The proposed project will provide safe, pedestrian-friendly facilities for all transit users in the area.

The project will also benefit vehicles and trucks that use Broadway Street NE by providing a three-lane roadway that better accommodates trucks turning into industrial facilities and reduces wait time and improves safety for through-traffic.

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 Yes

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 Yes

50%

Layout or Preliminary Plan has not been started

0%

Anticipated date or date of completion 10/01/2016

3)Environmental Documentation (10 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%

Document in progress; environmental impacts identified

50%

Document not started Yes

0%

Anticipated date or date of completion/approval 03/01/2017

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 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%

Unknown impacts to historic/archaeological resources

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 (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 Yes

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

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 12/01/2017

9)Letting

Anticipated Letting Date 04/01/2018

Communications/Projects/8680 Regional Solicitation City of Mpls 10th Ave Bridge/ Broadway-CG/8680 Figure 1_Broadway.indd

Project Layout

Broadway Street NE Regional Solicitation Roadway Reconstruction/Modernization
City of Minneapolis, MN

Figure 1-1

Communications/Projects/8680 Regional Solicitation City of Mpls 10th Ave Bridge/ Broadway-CG/8680 Figure 1_Broadway.indd

Project Layout

Broadway Street NE Regional Solicitation Roadway Reconstruction/Modernization
City of Minneapolis, MN

Figure 1-2

Communications/Projects/8680 Regional Solicitation City of Mpls 10th Ave Bridge/ Broadway-CG/8680 Figure 1_Broadway.indd

Project Layout

Broadway Street NE Regional Solicitation Roadway Reconstruction/Modernization
City of Minneapolis, MN

Figure 1-3

Proposed Improvements

Broadway Street NE Regional Solicitation Roadway Reconstruction/Modernization

City of Minneapolis, MN

Figure 2

Roadway Area Definition

Roadway Reconstruction/Modernization Project: Broadway St NE | Map ID: 1419953139691

Results

Project Length: 0.787 miles

Project Area: 0.522 sq mi

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

0 0.25 0.5 1 1.5 2 Miles

Created: 12/30/2014
LandscapeRSA1

METROPOLITAN COUNCIL

Minneapolis
City of Lakes

Department of Public Works

Steven A Kotke, P.E.
City Engineer
Director

350 South 5th Street - Room 203
Minneapolis MN 55415

Office 612 673-3000
Fax 612 673-3565
TTY 612 673-2157

December 1, 2014

Ms. Elaine Koutsoukos
Metropolitan Council
390 North Robert Street
St. Paul, Minnesota 55101

RE: 2014 Regional Solicitation Applications

Dear Ms. Koutsoukos,

The City of Minneapolis Department of Public Works is submitting a series of applications for the 2014 Regional Solicitation for Federal Transportation Funds. The applications and the required matching funds have been authorized by the Minneapolis City Council as described in the Official Proceedings of the Council meeting of November 14, 2014. The relevant action is excerpted below:

> *The TRANSPORTATION & PUBLIC WORKS and WAYS & MEANS Committees submitted the following reports:*
> *T&PW & W&M - Your Committee, having under consideration the 2014 Regional Solicitation for Federal Transportation Funds, now recommends:*
> *a) That the proper City officers be authorized to submit a series of applications for federal transportation funds through the Metropolitan Council's Regional Solicitation Program, as set forth in Petn. No. 277734; and*
> *b) That the proper City officers be authorized to commit local funds per federal requirement to support the approved projects.*
> *On roll call, the result was:*
> *Ayes: Reich, Frey, Gordon, Yang, Warsame, Goodman, Cano, Bender, Quincy, A. Johnson, Palmisano, President Johnson (12)*
> *Noes: (0)*
> *Absent: Glidden (1)*
> *The report was adopted.*

The specific applications are described in the attached "Request for City Council Committee Action."

Thank you for the opportunity to submit these applications.

Sincerely,

Steven A. Kotke, P.E.
City Engineer, Director of Public Works

Request for City Council Committee Action from the Department of Public Works

Date: November 10, 2014

To: Honorable Kevin Reich, Chair Transportation & Public Works Committee
Referral to: Honorable John Quincy, Chair Ways and Means/Budget Committee

Subject: **City of Minneapolis Submission for 2014 Regional Solicitation for Federal Transportation Funds**

Recommendation:

A. Authorize proper city officers to submit a series of applications for federal transportation funds through the Metropolitan Council's Regional Solicitation Program.
B. Authorize proper city officers to commit local funds per federal requirement to support the approved projects.

Previous Directives:

- None

Department Information:

Prepared by: Steven Hay, P.E., Transportation Planner, Transp. Planning & Programming, 673-3884
Don Elwood, P.E., Director, Transportation Planning & Engineering, 673-3622

Approved by: _____

Steven A. Kotke, P.E., Director of Public Works

Presenter in Committee: Steven Hay, P.E., Transportation Planner, Transportation Planning & Programming

Reviews

Permanent Review Committee (PRC):	Approval N/A
Civil Rights Approval	Approval N/A
Policy Review Group (PRG):	Approval N/A

Financial Impact
Action is within the Business Plan

Community Impact
Living Well: Minneapolis is safe and livable and has an active and connected way of life.
Great Places: Natural and built spaces work together and our environment is protected.
A City that Works: City government runs well and connects to the community it serves.

Supporting Information
The City will prepare a series of applications for the 2014 Regional Solicitation for Federal Transportation Funds in response to the current Metropolitan Council solicitation. Below is a summary of the eligible project areas along with a brief description of eligible city projects. Each submission will require a minimum local match for construction in addition to the costs for design, engineering, administration and any additional construction costs to fully fund the project. The available funding is for construction in 2018 and 2019.

The Regional Solicitation for federal transportation project funding is part of the Metropolitan Council's federally-required continuing, comprehensive, and cooperative transportation planning process for the Twin Cities Metropolitan Area. The funding program and related rules and requirements are established by the U.S. Department of Transportation (USDOT) and administered locally through collaboration with the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the Minnesota Department of Transportation (MnDOT).

The following list of projects will be submitted in each program area.

Project Name	Program	Requested Amount	Minimum Local Match Required
8th Street South	Roadways	$7,000,000	$1,750,000
Broadway Street NE	Roadways	$7,000,000	$1,750,000
10th Avenue SE Bridge Rehabilitation	Roadways	$7,000,000	$1,750,000
40th Street Bicycle & Pedestrian Bridge over I-35@	Bicycle & Pedestrian Facilities	$1,600,000	$400,000
U of M Protected Bikeways	Bicycle & Pedestrian Facilities	$1,000,000	$250,000
High Quality Connection between Orange Line Transit Station at Lake Street and the Midtown Greenway	Bicycle & Pedestrian Facilities	$2,880,000	$720,000
North Loop Pedestrian Improvements	Bicycle & Pedestrian Facilities	$1,000,000	$250,000
Emerson & Freemont Avenues North Pedestrian Improvements	Bicycle & Pedestrian Facilities	$1,000,000	$250,000
High School Transit Connections	Bicycle & Pedestrian Facilities	$1,000,000	$250,000
Totals		$29,480,000	$7,370,000

Regional Solicitation Programs
Recently, the Metropolitan Council and the Transportation Advisory Board (TAB) carried out an extensive evaluation and redesign of the Regional Solicitation. Projects will now be submitted and evaluated based on mode rather than federal funding program (i.e., STP, CMAQ, and TAP). The application process has been streamlined and the modal approach provides TAB with more flexibility to match federal funding to the highest performing projects that are submitted.

Applications are now grouped into three primary modal evaluation categories with each category including several sub-categories as detailed below:

1. Roadways Including Multimodal Elements
    - Roadway Expansion
    - Roadway Reconstruction/Modernization
    - Roadway System Management
    - Bridges
2. Bicycle and Pedestrian Facilities
    - Multiuse Trails and Bicycle Facilities
    - Pedestrian Facilities
    - Safe Routes to School Infrastructure
3. Transit and Travel Demand Management (TDM) Projects
    - Transit Expansion
    - Travel Demand Management
    - Transit System Modernization

The City will submit 9 funding applications in the following program categories:

1. Roadways including Multimodal Elements
   Roadway Reconstruction
    - 8th Street S (Hennepin to Chicago)
    - Broadway Street NE (Stinson to Industrial Boulevard)

   Bridges
    - 10th Avenue SE Bridge Rehabilitation

2. Bicycle & Pedestrian Facilities
   Multiuse Trails & Bicycle Facilities
    - 40th Street Pedestrian & Bicycle Bridge over I-35W
    - U of M Protected Bikeways (19th Ave SE/15th Ave SE – Riverside Ave to NE Diagonal)
    - High Quality Connection between Orange Line Transit Station at Lake Street and the Midtown Greenway

   Pedestrian Facilities
    - North Loop Pedestrian Improvements
    - Emerson & Fremont Avenues North

   Safe Routes to School Infrastructure
    - High School Transit Connections

Details of the 9 proposed projects are described below.

Roadways including Multimodal Elements

8th Street South
This project will reconstruct 0.72 miles of 8th Street in downtown from Hennepin Avenue to Chicago Avenue. The project will consist of complete removal and replacement of the pavement, curb and gutter, and driveways. The project will also include landscaping, pedestrian level street lighting, and upgraded signals where warranted. Sidewalks may also be replaced and widened, particularly at bus stop locations.

Broadway Street NE
This project will reconstruct approximately 0.8 miles of Broadway Street NE from Stinson Boulevard to Industrial Boulevard. A major component of this project is the construction of multimodal elements including the filling of sidewalk gaps and the construction of some type of bicycle facility. The bicycle facility could be on-street bike lanes or an off-street multiuse trail.

10th Avenue SE Bridge Rehabilitation

This project proposes to rehabilitate the reinforced concrete 10th Avenue Bridge over the Mississippi River. This will address the ongoing deterioration of concrete areas on the bridge's spandrel columns, floor beams, arches, and deck. The total construction cost for the bridge rehabilitation is approximately $13 Million to $28 Million, depending on specific elements of the project. A previous federal allocation of $3.3 Million must be turned back in order to be eligible to apply for funds through this Regional Solicitation.

Bicycle and Pedestrian Facilities

40th Street Pedestrian Bridge Over 35W

This project is the renovation of the 40th Street Pedestrian Bridge over 35W to include trail widening, structural improvements, and aesthetic enhancements. This project is part of the RiverLake Greenway Corridor from the Chain of Lakes to the Mississippi River. The bridge is functionally obsolete and marginally serves its current purpose. As a primary bicycle artery for Minneapolis, the bridge should meet current geometric standards for a shared-use facility to safely convey pedestrians and bicyclists over I-35W. The proposed project would widen the deck of the bridge to accommodate bicycle users, raise the bridge, and improve its aesthetics.

U of M Protected Bikeways

Protected bikeways would be installed on 19th Avenue SE from Riverside Avenue, across the 10th Avenue Bridge to University Avenue, and on 15th Avenue SE from University Avenue to Como Avenue, then continuing north to the NE Diagonal Trail, the exact alignment north of Como Avenue is still to be determined.

High Quality Connection between Orange Line Transit Station at Lake Street and the Midtown Greenway

This is one of the key project elements of the Transit Access Project at 35W and Lake Street. This will be an important connection linking transit users at the proposed Bus Rapid Transit station to the Midtown Greenway, which today is an important east-west pedestrian and bicycle facility and in the future will contain additional fixed rail transit service. The connection will accommodate both pedestrians and bicyclists, with enhancements in the form of public art, landscaping and place-making.

North Loop Pedestrian Improvements

This project would include the implementation of a variety of pedestrian-related improvements to the North Loop Neighborhood. These improvements would likely include signal upgrades, ADA-compliant curb ramps, enhanced crosswalks, pedestrian level street lighting, and landscaping.

Emerson and Freemont Avenues North

Enhancements to the pedestrian realm would be implemented on Emerson Avenue North from Plymouth Avenue to 33rd Avenue North and on Freemont Avenue North from Plymouth Avenue to 44th Avenue North. These improvements would likely include pedestrian bumpouts at select locations, ADA-compliant curb ramps, signal enhancements, improved crosswalks, and landscaping. These improvements will be coordinated with the development and implementation of Metro Transit's Arterial BRT D-Line.

High School Transit Connections

This project will prioritize pedestrian safety improvements near high schools, focusing on access to nearby transit stops. Minneapolis high school students currently receive free or discounted Go-To Cards in lieu of yellow school bus service, making these transit connections vital. High schools are only recently eligible for federal Safe Routes funding, while they represent a large proportion of student walkers and bikers in the city.

Regional Economy

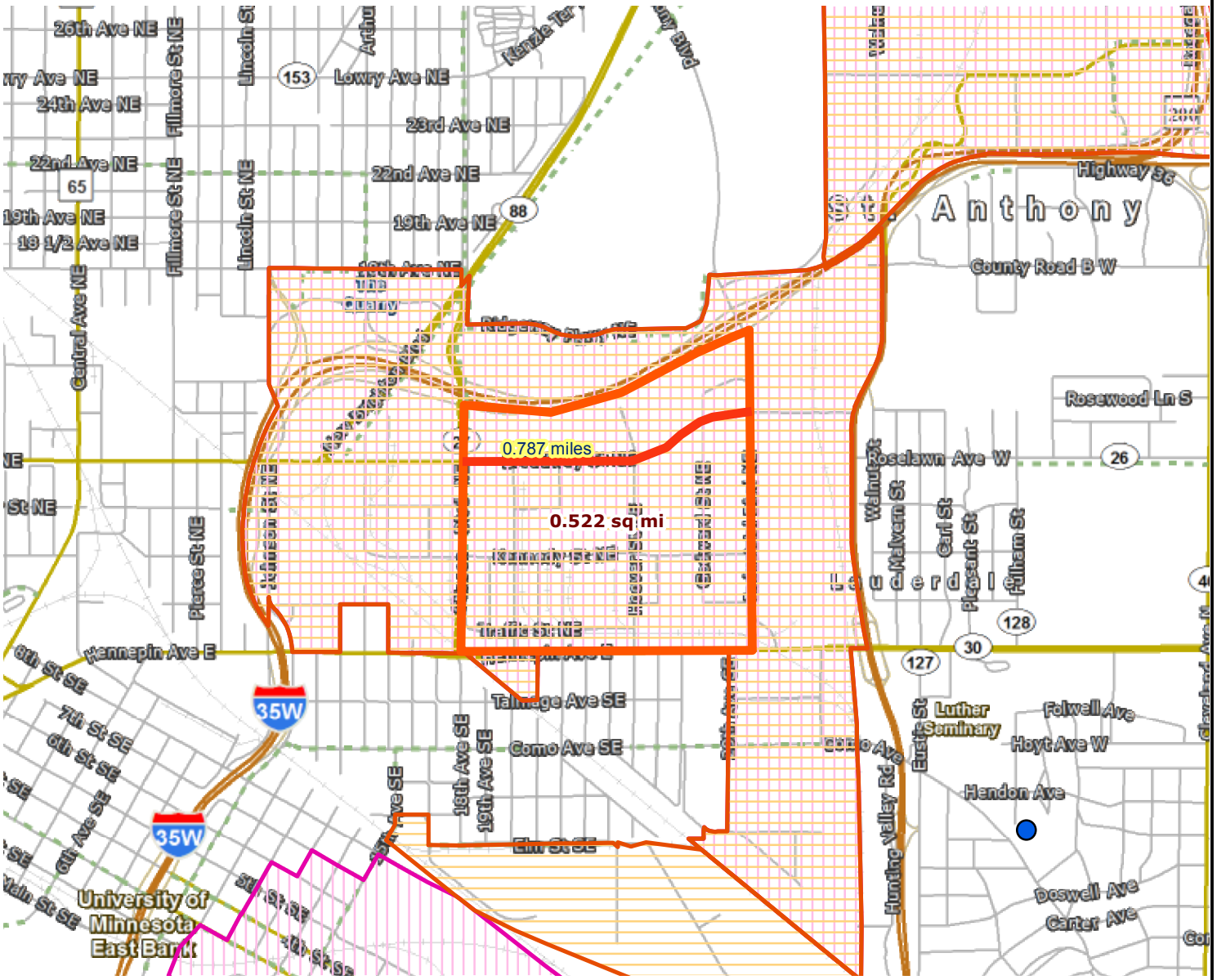
Roadway Reconstruction/Modernization Project: Broadway St NE | Map ID: 1419953139691

Results

Project **IN** area of Job Concentration.

Project **IN** area of Manufacturing and Distribution.

Project **WITHIN ONE MI** of area of Education Institutions.



Created: 12/30/2014
LandscapeRSA5

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

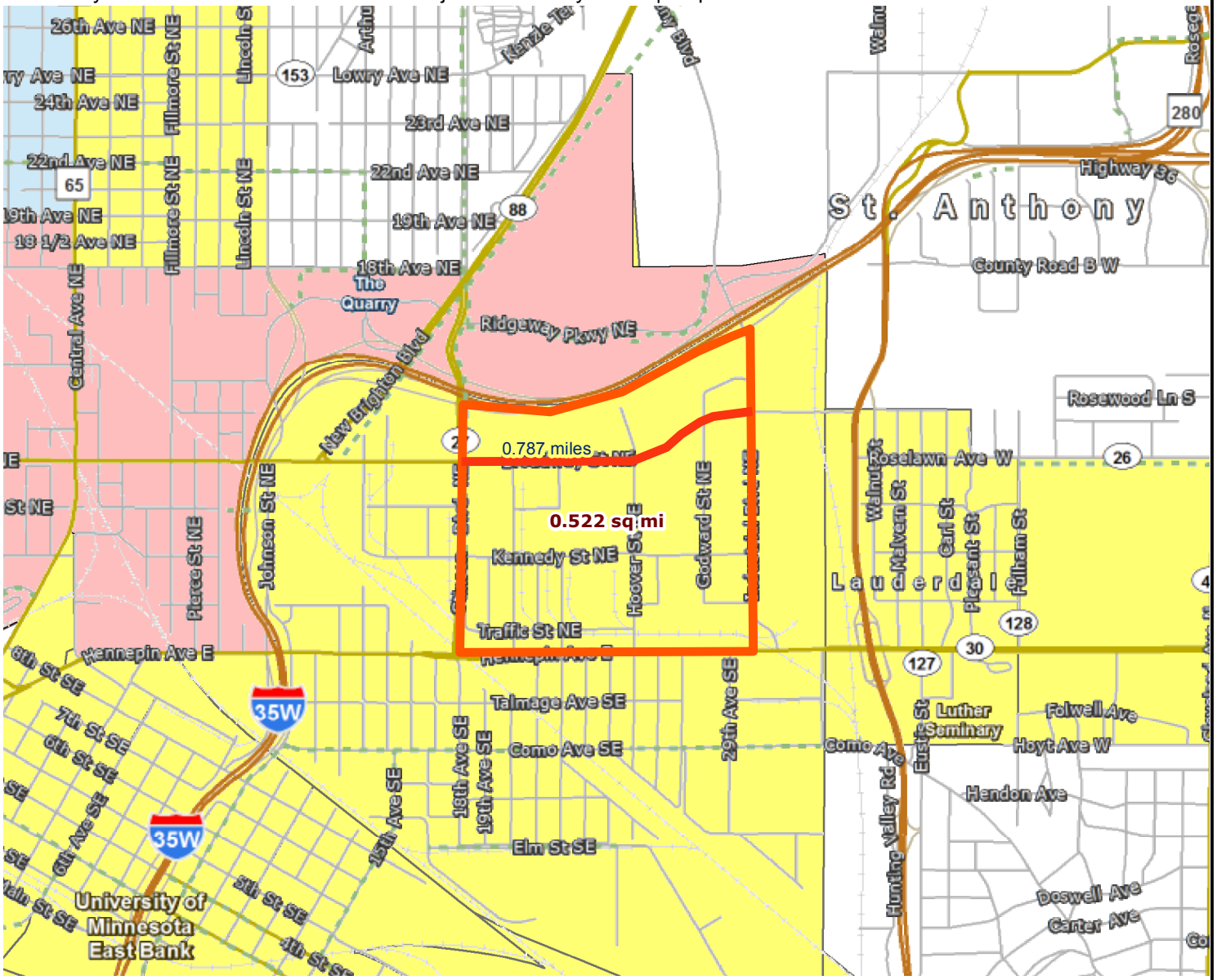
METROPOLITAN COUNCIL

Socio-Economic Conditions

Roadway Reconstruction/Modernization Project: Broadway St NE | Map ID: 1419953139691

Results

Project **IN** area of above average concentration of race or poverty.



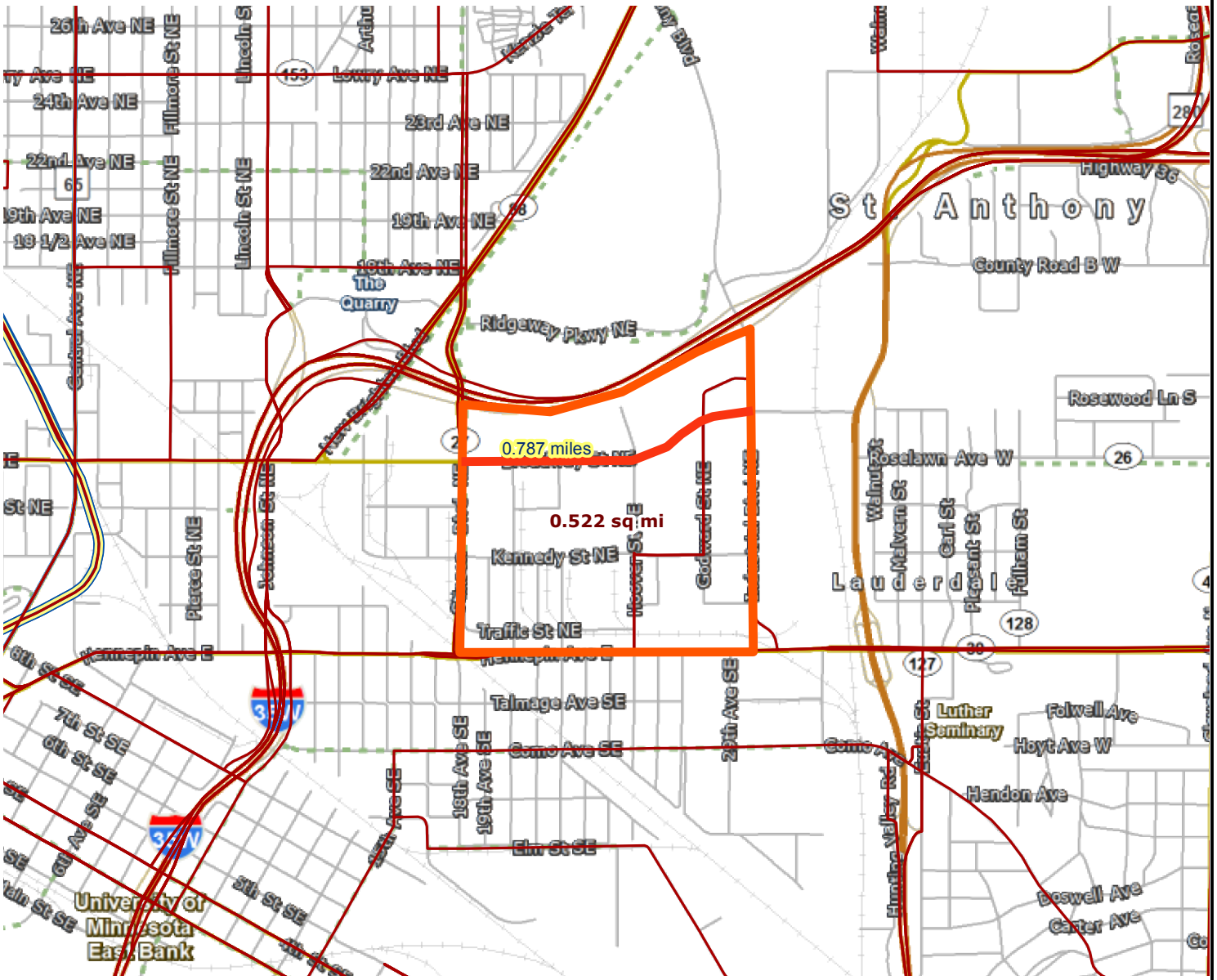
Transit Connections

Roadway Reconstruction/Modernization Project: Broadway St NE | Map ID: 1419953139691

Results

Transit with a Direct Connection to project:
25 30 61

**indicates Planned Alignments*



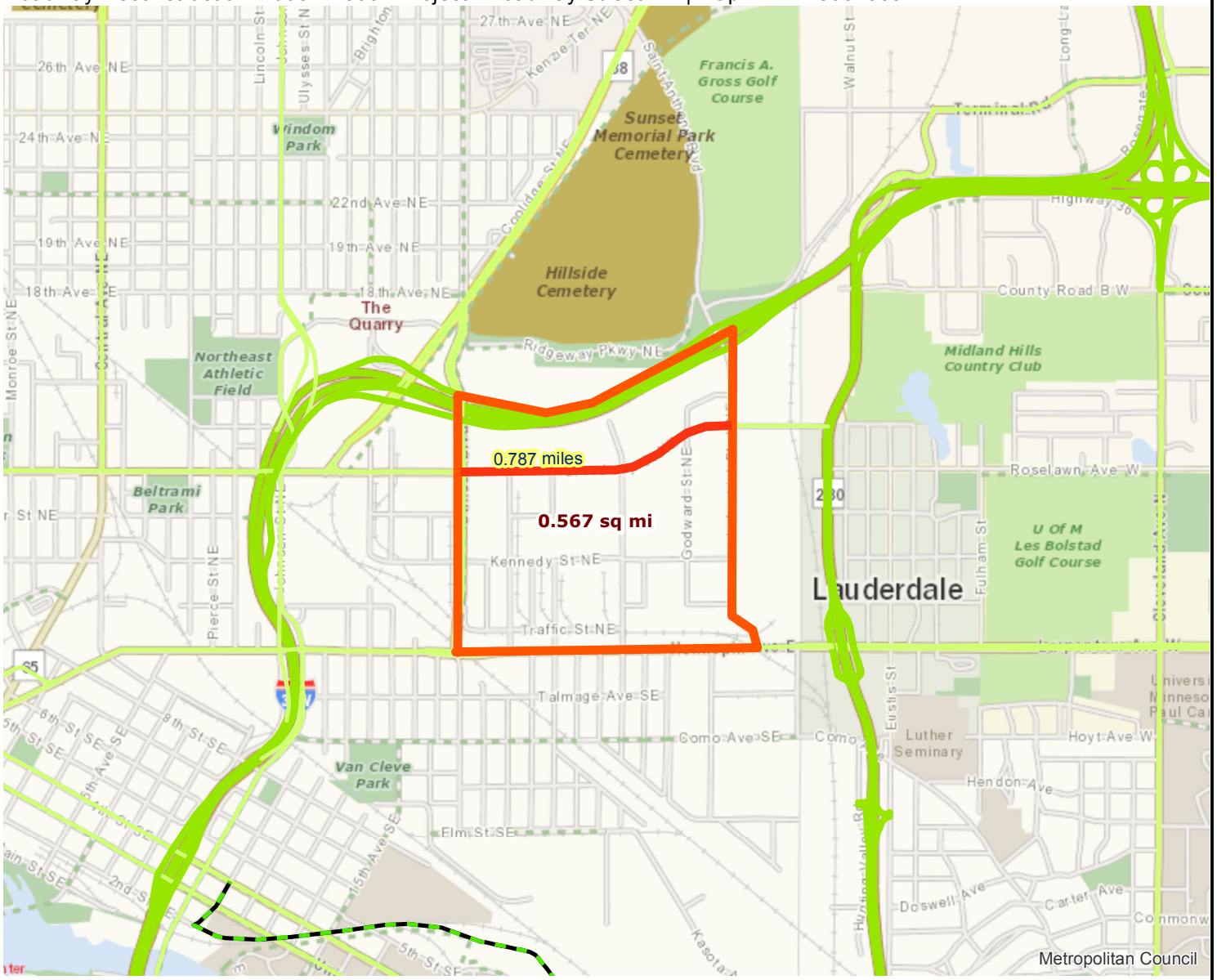
Roadway Area Definition

Roadway Reconstruction/Modernization Project: Broadway Street NE | Map ID: 1415051969121

Results

Project Length: 0.787 miles

Project Area: 0.567 sq mi



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

0 0.275 0.55 1.1 1.65 2.2 Miles

Created: 11/3/2014
LandscapeRSA1

METROPOLITAN COUNCIL

Regional Economy

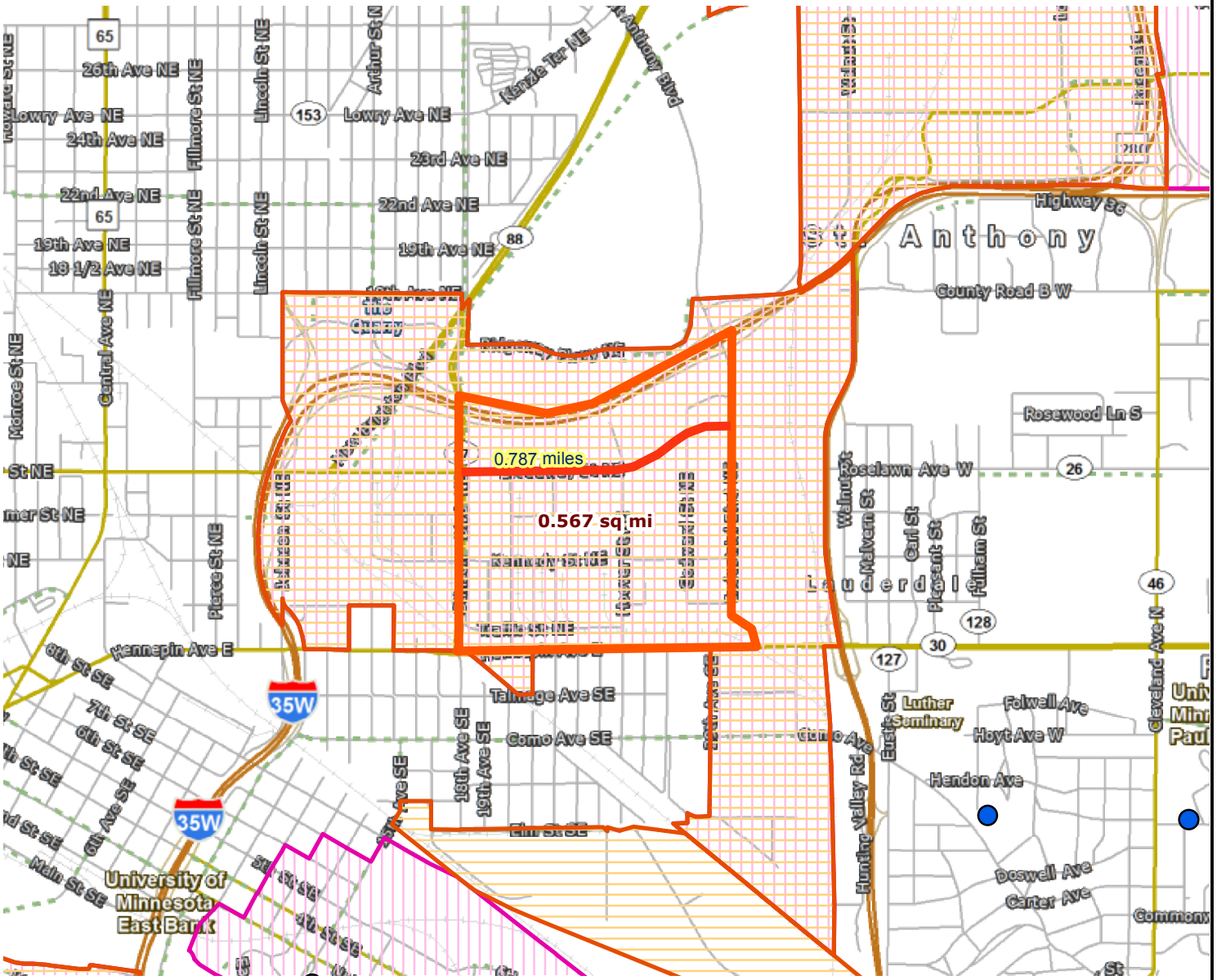
Roadway Reconstruction/Modernization Project: Broadway Street NE | Map ID: 1415051969121

Results

Project **IN** area of Job Concentration.

Project **IN** area of Manufacturing and Distribution.

Project **WITHIN ONE MI** of area of Education Institutions.



Created: 11/3/2014
LandscapeRSA5

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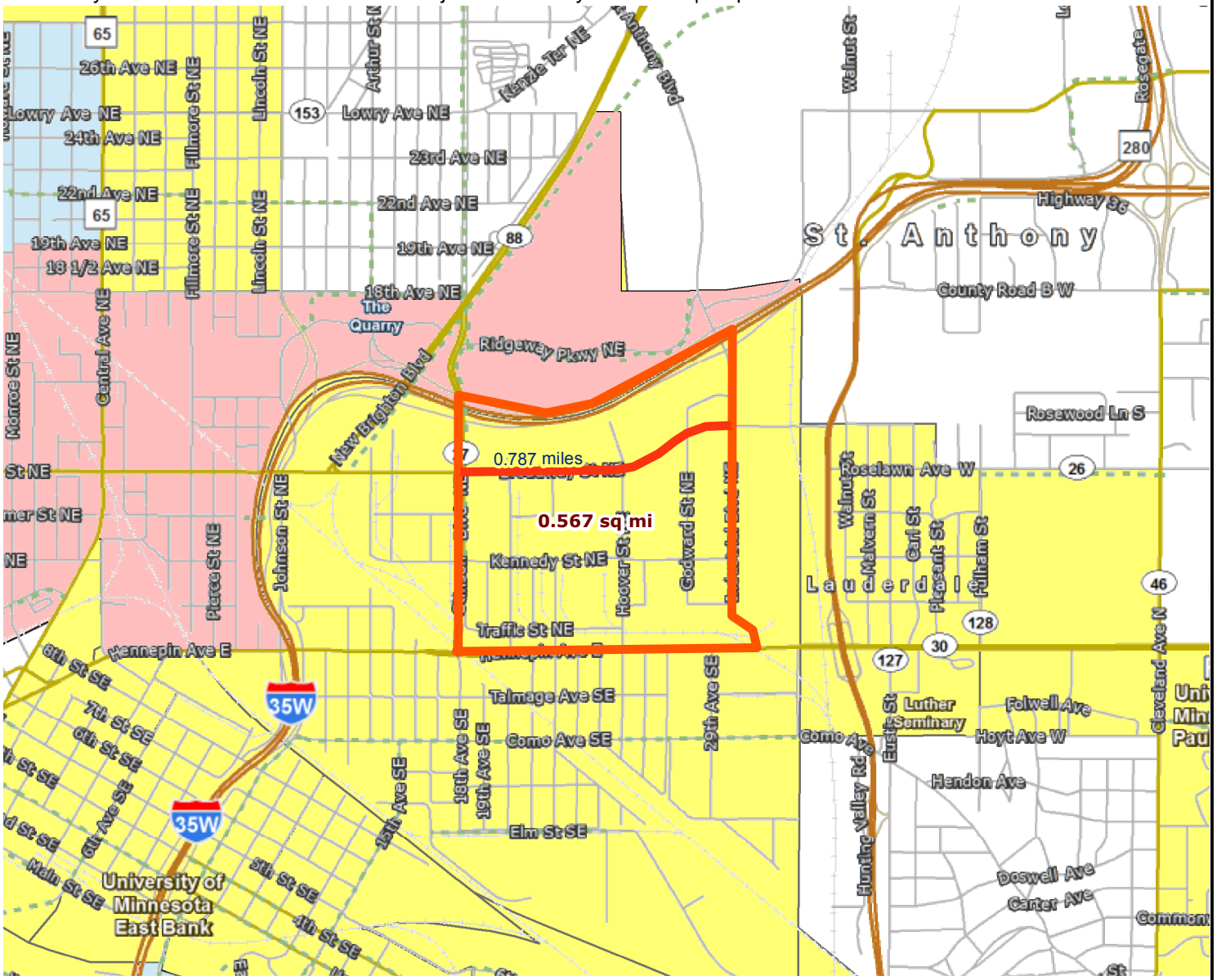
METROPOLITAN COUNCIL

Socio-Economic Conditions

Roadway Reconstruction/Modernization Project: Broadway Street NE | Map ID: 1415051969121

Results

Project **IN** area of above average concentration of race or poverty.



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

0 0.275 0.55 1.1 1.65 2.2 Miles

Created: 11/3/2014
LandscapeRSA2

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METROPOLITAN COUNCIL

8: Stinson Pkwy & Broadway St

Direction	All
Volume (vph)	2661
Total Delay / Veh (s/v)	17
CO Emissions (kg)	3.14
NOx Emissions (kg)	0.61
VOC Emissions (kg)	0.73

8: Stinson Pkwy & Broadway St

Direction	All
Volume (vph)	2661
Total Delay / Veh (s/v)	20
CO Emissions (kg)	3.25
NOx Emissions (kg)	0.63
VOC Emissions (kg)	0.75

8: Stinson Pkwy & Broadway St

Direction	All
Volume (vph)	2661
Total Delay / Veh (s/v)	17
CO Emissions (kg)	3.14
NOx Emissions (kg)	0.61
VOC Emissions (kg)	0.73

8: Stinson Pkwy & Broadway St

Direction	All
Volume (vph)	2661
Total Delay / Veh (s/v)	20
CO Emissions (kg)	3.25
NOx Emissions (kg)	0.63
VOC Emissions (kg)	0.75

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
	Broadway Ave	From Stinson Blvd to Industrial Blvd			Minneapolis	1/1/2011	12/31/2013

Description of Proposed Work: Convert Broadway from a 4-lane facility to a 3-lane facility, includes a full reconstruction of the roadway (improve pavement)

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	6, 90, 99 Other	Total
Study Period: Number of Crashes	Fatal	**F**									
	Personal Injury (PI)	**A**				1					**1**
		B	1			2					**3**
		C	4		1	7				1	**13**
	Property Damage	**PD**	6	4		10		3		5	**28**
% Change in Crashes *Use Crash Modification Factors Clearinghouse	Fatal	**F**									
	PI	**A**				-50%					
		B	-79%			-50%					
		C	-79%		-63%	-50%				-63%	
	Property Damage	**PD**	-79%	-68%		-50%		-68%		-68%	
Change in Crashes = No. of crashes **X** % change in crashes	Fatal	**F**									
	PI	**A**				**-0.50**					**-0.50**
		B	**-0.79**			**-1.00**					**-1.79**
		C	**-3.16**		**-0.63**	**-3.50**				**-0.63**	**-7.92**
	Property Damage	**PD**	**-4.74**	**-2.72**		**-5.00**		**-2.04**		**-3.40**	**-17.90**

Year (Safety Improvement Construction): **2018**

Project Cost (exclude Right of Way): **$ 4,082,000**

Right of Way Costs (optional):

Traffic Growth Factor: **3%**

Capital Recovery

1. **Discount Rate:** 4.5%
2. **Project Service Life (n):** 20

Type of Crash	Study Period: Change in Crashes	Annual Change in Crashes	Cost per Crash	Annual Benefit
F			**$ 1,100,000**	
A	**-0.50**	**-0.17**	**$ 550,000**	**$ 91,667**
B	**-1.79**	**-0.60**	**$ 160,000**	**$ 95,467**
C	**-7.92**	**-2.64**	**$ 81,000**	**$ 213,840**
PD	**-17.90**	**-5.97**	**$ 7,400**	**$ 44,153**
Total				**$ 445,127**

B/C= 1.91

Using present worth values,

B= $ 7,787,009

C= $ 4,082,000

See "Calculations" sheet for amortization.

Office of Traffic, Safety and Technology **September 2014**

Broadway Street (CSAH 66) from Stinson Blvd to Industrial Blvd (2011 - 2013)- created on 11-17-2014 by rile1che

Crash data is managed by the Mn/DOT Office of Traffic, Safety, and Operations.

SYS	NUM	REF_POINT	GIS_ROUTE	GIS_TM	RD_DIR	ELEM	RELY	INV	R_U	ATP	CO	CITY
05	25850333	000+00.042	0525850333	0.042	Z		1	3	U	SQUAD RESPONDED TO A PI AT ABOVE ADDRESS. VICTIM WAS S/B EXITING BOYER FORD PARKING LOT. W/B RIGHT	27	2585
05	25850333	000+00.128	0525850333	0.128	Z		1	3	U	UNIT 1 SAID UNIT 2 WAS YELLING AT HIM, RAMMED HIM AND TOOK OFF. UNIT 2 SAID UNIT1, WIT WHO WAS IN	27	2585
05	25850333	000+00.129	0525850333	0.129	Z		1	3	U	UNIT 3 WAITING TO MAKE A LEFT TURN WITH UNIT 2 STOPPED BEHIND UNIT 3. UNIT 1 STRUCK THE REAR OF UNI	27	2585
05	25850333	000+00.260	0525850333	0.260	Z		2	3	U	VEH 1-3 WERE TRAVELING WB ON BROADWAY ST NE. VEH 3 STOPPED FOR EB TRAFFIC TO MAKE A SB TURN ON TO	27	2585
05	25850333	000+00.263	0525850333	0.263	Z		2	3	U	WITNESS SAW THE LISTED SUSPECT SEMI-TRUCK DRIVING W/B ON BROADWAY, TURN N/B INTO PARKING LOT AT ABO	27	2585
05	25850333	000+00.456	0525850333	0.456	Z		1	3	U	BOTH VEHS WERE EAST ON BROADWAY. VEH 2 SLOWED IN TRAFFIC DUE TO A RED LIGHT AND OTHER TRAFFIC. V'	27	2585
05	25850333	000+00.458	0525850333	0.458	E		1	3	U	. THE SEMAPHORE WAS CYCLING FROM GREEN TO BLANK TO RED ADN THEN BACK TO GREEN. THE MPLS TRAFFIC S	27	2585
05	25850333	000+00.458	0525850333	0.458	E		1	3	U	VE3HICLE #1 EB BROADWAY DROVE AROUND TWO OTHER VEHICLES AND INTO ONCOMING EASTBOUND TRAFFIC AND STR	27	2585
05	25850333	000+00.458	0525850333	0.458	Z		1	3	U	UNIT 2, MN 315GRL, STOPPED AT RED LIGHT ON EB BROADWAY AT HOOVER, IN RIGHT HAND LANE. UNIT 1, UNKNO	27	2585
05	25850333	000+00.459	0525850333	0.459	Z		1	3	U	UNIT 2 WAS WEST BOUND, STOPPED AT RED LIGHT. UNIT 1 WAS W/B IN RIGHT LANE. LOST CONTROL AND SPUN OU	27	2585
05	25850333	000+00.460	0525850333	0.460	Z		1	3	U	VEH 1 AND 2 BOTH TARVELING WB ON BROADWAY ST NE APPROACHING INTERSECTION AT HOOVER ST NE. VEH #2 W	27	2585
05	25850333	000+00.460	0525850333	0.460	Z		1	3	U	ROAD CONDITIONS WERE VERY POOR DUE TO A BAD SNOW/SLIT STORM. UNIT 1 AND UNIT 2 WERE BOTH WB ON BROA	27	2585
04	27000027	000+00.500	0427000027	0.500	Z		1	3	U	DRIVE OF VEHICLE #1 GOING WB ON BROADWAY ST NE. DRIVER OF VEHICLE #2 EB ON BROADWAY TURNING NB ON S	27	2585
~~04~~	~~27000027~~	~~000+00.500~~	~~0427000027~~	~~0.500~~	~~Z~~	~~—~~	~~1~~	~~3~~	~~U~~	~~VEHICLE 2 WAS STOPPED AT THE TRAFFIC LIGHT AT STINSON BLVD NE AND BROADWAY ST NE WAITING FOR AN ONC~~	~~27~~	~~2585~~
04	27000027	000+00.500	0427000027	0.500	Z		1	3	U	V1 SKIDDED DOWN HILL INTO V2 (METRO TRANSIT BUS) WHICH WAS STOPPED AT THE BUS STOP LOADING/UNLOADIN	27	2585
05	25850334	000+00.639	0525850334	0.639	Z		1	3	U	UNIT 1 WAS TRAVELING SOUTHBOUND ON INDUSTRIAL BLVD. THE DRIVER ADMITTED TO RUNNING THE RED LIGHT A	27	2585
05	25850334	000+00.640	0525850334	0.640	Z		1	3	U	UNIT 1, A ST ANTHONY PD SQUAD, IS RESPONDING CODE 3 NB ON INDUSTRIAL BLVD. UNIT 2 EB ON BROADWAY S	27	2585
05	25850334	000+00.640	0525850334	0.640	Z		1	0	U		27	2585
05	25850334	000+00.640	0525850334	0.640	Z		1	3	U	ON 07-28-2011 AT APPROX 1658 HOURS OFFICERS RESPONDED TO LISTED LOCATION ON A POSSIBLE PI. UPON OFF	27	2585
05	25850334	000+00.640	0525850334	0.640	Z		1	3	U	UNIT 1 WAS TRAVELLING EAST ON BROADWAY ST NE ENTERING THE INTERSECTION AT INDUSTRIAL BLVD. UNIT 2	27	2585
~~05~~	~~25850334~~	~~000+00.640~~	~~0525850334~~	~~0.640~~	~~Z~~	~~—~~	~~2~~	~~0~~	~~U~~	~~—~~	~~27~~	~~2585~~
~~05~~	~~25850334~~	~~000+00.641~~	~~0525850334~~	~~0.641~~	~~S~~	~~—~~	~~1~~	~~3~~	~~U~~	~~THE DRIVER OF VEHICLE #1 EXPERIENCED A MEDICAL ISSUE WHILE DRIVING AND REARENDED VEHICLE #2. DRIVER~~	~~27~~	~~2585~~
05	25850333	000+00.670	0525850333	0.670	Z		1	0	U		27	2585
05	25850333	000+00.670	0525850333	0.670	Z		1	3	U	UNIT 1 WAS CROSSING THE INTERSECTION NB ON GODWARD ST NE. UNIT 2 WAS TRAVELING WB ON BROADWAY ST N	27	2585
05	25850333	000+00.670	0525850333	0.670	Z		1	0	U		27	2585
05	25850333	000+00.671	0525850333	0.671	Z		1	3	U	VEH 1 WAS TRAVELLING WB ON BROADWAY ST NE MAKING A LEFT TURN ONTO GODWARD ST NE WHEN HE WAS STRUCK	27	2585
05	25850333	000+00.712	0525850333	0.712	Z		2	0	U		27	2585
05	25850333	000+00.752	0525850333	0.752	N		2	3	U	VEH1 WAS EAST ON BROADWAY AND ATTEMPTING TO MAKE A LEFT TURN INTO A PRIVATE DRIVEWAY. VEH2 WAS WEST	27	2585
05	25850333	000+00.785	0525850333	0.785	Z		1	3	U	ABOVE VEHICLE ONE WAS TURNING SB ONTO INDUSTRIAL BLVD NE FROM WB BROADWAY ST NE AND STRUCK VEHICLE	27	2585
05	25850333	000+00.785	0525850333	0.785	Z		1	0	U		27	2585
05	25850333	000+00.785	0525850333	0.785	Z		1	3	U	UNIT 1 COMING EB ON BROADWAY ST. UNIT 2 COMING WB ON BROADWAY ST ATTEMPTING A LEFT TURN FAILING TO	27	2585
05	25850333	000+00.785	0525850333	0.785	Z		1	3	U	VEHICLE 2 WAS TRAVELING EB ON BROADWAY ST NE IN THE SOUTH LANE IN MIDDLE OF THE INTERSECTION WITH I	27	2585
05	25850333	000+00.800	0525850333	0.800	Z		1	3	U	VEH #2 WB ON BROADWAY ST NE WITH GREEN TRAFFIC LIGHT, TURNING LEFT (SB) ONTO INDUSTRIAL BLVD. DRIVE	27	2585
05	25850333	000+00.800	0525850333	0.800	Z		1	3	U	THE VEHICLE BEHIND UNIT # 2 IS THE LISTED WITNESS. THE WITNESS SAID THAT HE AND UNIT # 2 WERE BOTH	27	2585
~~04~~	~~27000066~~	~~006+00.620~~	~~0427000066~~	~~6.620~~	~~Z~~	~~—~~	~~1~~	~~3~~	~~U~~	~~UNIT#1 WAS NB ON STINSON AND UNIT#2 WAS SB ON STINSON. BOTH UNITS HAD A GREEN LIGHT FOR NB AND SB T~~	~~27~~	~~2585~~
~~04~~	~~27000066~~	~~006+00.620~~	~~0427000066~~	~~6.620~~	~~Z~~	~~—~~	~~1~~	~~3~~	~~U~~	~~VEHICLE #1 WAS TRAVELLING SB ON STINSON BLVD NE AND MAKING A LEFT TURN FROM THE LEFT TURN LANE ONTO~~	~~27~~	~~2585~~
04	27000066	006+00.620	0427000066	6.620	Z		1	0	U		27	2585
04	27000066	006+00.620	0427000066	6.620	Z		1	3	U	DRIVER OF VEHICLE #1 WAS SB ON STINSON BLVD NE AND COLLIDED IN THE INTERSECTION WITH VEHICLE #2, WH	27	2585
04	27000066	006+00.620	0427000066	6.620	Z		1	3	U	VEHICLE 1 WAS SB ON STINSON BL AND STRUCK VEHICLE 2 AS IT WAS WB ON BROADWAY ST NE. SEE OFFENSE REP	27	2585
04	27000066	006+00.620	0427000066	6.620	Z		1	3	U	ABOVE VEHICLE ONE WAS TRAVELING NB ON STINSON BLVD NE IN FAR RIGHT LANE. ACCORDING TO BOTH WITNESS	27	2585
04	27000066	006+00.620	0427000066	6.620	Z		1	3	U	VEHICLE 1 EASTBOUND BROADWAY IN RT LANE VEHICLE 2 NORTHBOUND ON STINSON IN LEFT LAND. WITNESSES SA	27	2585
04	27000066	006+00.620	0427000066	6.620	Z		1	3	U	UNIT 2 ATTEMPTING A LEFT TURN FRON WB BROADWAY TO GO SB ON STINSON BLVD, DID NOT SEE UNIT 1 COMING	27	2585
04	27000066	006+00.620	0427000066	6.620	Z		1	3	U	VEH1 WAS TRAVELLING WESTBOUND ON BROADWAY ST NE AT STINSON BLV. NE. VEH1 DID NOT SEE PERSON ON BIKE	27	2585
04	27000066	006+00.620	0427000066	6.620	Z		1	3	U	UNIT 2 STOPPED AT RED LIGHT WAS STRUCK IN THE REAR BY UNIT 1.	27	2585
04	27000066	006+00.620	0427000066	6.620	Z		1	3	U	UNIT # 2 WAS E/B ON BROADWAY ST NE ENTERING THE INTERSECTION OF STINSON BLVD NE ON A GREEN LIGHT.	27	2585
04	27000066	006+00.620	0427000066	6.620	Z		1	0	U		27	2585
04	27000066	006+00.620	0427000066	6.620	Z		1	3	U	UNIT 1 IS A CITY OF MPLS SAND TRUCK WHICH WAS WB ON BROADWAY ST NE ATTEMPTING TO MAKE A U-TURN WHEN	27	2585
04	27000066	006+00.622	0427000066	6.622	Z		1	3	U	BOTH VEHICLES WERE EAST BOUND ON BROADWAY ST NE APPROACHING STINSON BLVD. VEHICLE #1 WAS IN THE LE	27	2585
04	27000066	006+00.623	0427000066	6.623	Z		1	3	U	UNIT # 2 WAS STOPPED FOR A RED LIGHT ON BROADWAY ST NE AT STINSON BLVD NE. UNIT # 1 WAS TRAVELLING	27	2585
04	27000066	006+00.648	0427000066	6.648	Z		2	3	U	VEH #2 WAS TRAVELING WB ON BROADWAY ST NE ON THE INSIDE LANE, VEH #1 WAS ALSO WB ON BROADWAY ST NE	27	2585

																					PERSON1
DOW	MONTH	DAY	YEAR	TIME	SEV	NUM_KILLED	NUM_VEH	JUNC	SL	TYPE	DIAG	LOC1	TCD	LIT	WTHR1	WTHR2	SURF	CHAR	DESGN	ACC_NUM	VTYPE
2-Mon	5	20	2013	1607	C	0	2	1	35	1	5	1	98	1	1	1	1	1	5	131400120	1
1-Sun	5	19	2013	1210	N	0	2	2	30	1	2	1	98	7	2	0	1	1	5	131390004	1
5-Thu	10	31	2013	0745	N	0	3	2	30	1	1	1	4	2	2	0	2	2	5	133040032	1
4-Wed	8	7	2013	1340	C	0	3	7	30	1	1	1	98	1	1	0	1	2	5	132190128	1
5-Thu	5	10	2012	1009	A	0	1	1	30	26	5	1	98	1	1	1	1	1	5	121310069	35
1-Sun	7	22	2012	1300	N	0	2	4	30	1	1	1	1	1	1	0	1	2	5	122040065	1
5-Thu	12	15	2011	0824	B	0	2	7	30	1	5	1	1	1	2	0	2	6	5	113490097	2
4-Wed	3	6	2013	1215	N	0	2	7	30	1	5	1	1	1	2	0	1	6	5	130650134	4
7-Sat	11	19	2011	1800	N	0	2	4	40	1	2	1	1	4	4	0	5	6	5	113230328	1
6-Fri	4	12	2013	0745	N	0	2	4	35	1	1	1	1	1	2	2	5	1	5	131020053	34
3-Tue	3	13	2012	0613	B	0	2	4	30	1	1	1	1	4	1	0	1	2	5	120730020	1
5-Thu	4	18	2013	1530	C	0	2	4	35	1	1	1	1	1	5	3	4	1	5	131100056	2
2-Mon	12	10	2012	1455	C	0	2	4	30	1	5	1	1	1	1	0	5	1	5	123450251	1
~~2-Mon~~	~~4~~	~~11~~	~~2011~~	~~1732~~	~~C~~	~~0~~	~~2~~	~~4~~	~~30~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~3~~	~~111010139~~	~~1~~
2-Mon	12	9	2013	1354	N	0	2	4	30	2	1	1	98	1	1	1	5	2	8	133430245	1
5-Thu	4	26	2012	2210	C	0	2	4	30	1	5	1	1	4	1	1	1	1	5	121180016	2
4-Wed	2	1	2012	1902	C	0	3	4	30	1	5	1	1	4	2	6	2	1	3	120330002	1
4-Wed	12	11	2013	1010	N	0	3	0	30	1	5	0	1	1	1	0	5	0	0	140140147	1
5-Thu	7	28	2011	1648	N	0	2	7	30	1	5	4	1	1	1	1	1	1	5	112090201	4
4-Wed	11	2	2011	1340	N	0	2	4	40	1	5	1	1	1	2	3	1	1	5	113060129	1
~~4-Wed~~	~~7~~	~~18~~	~~2012~~	~~0422~~	~~N~~	~~0~~	~~2~~	~~0~~	~~30~~	~~1~~	~~2~~	~~0~~	~~98~~	~~4~~	~~2~~	~~0~~	~~1~~	~~0~~	~~0~~	~~122360046~~	~~2~~
~~6-Fri~~	~~4~~	~~1~~	~~2011~~	~~0755~~	~~B~~	~~0~~	~~2~~	~~7~~	~~30~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~2~~	~~0~~	~~2~~	~~1~~	~~5~~	~~110910208~~	~~35~~
3-Tue	3	19	2013	2130	N	0	2	0	30	1	5	0	4	4	2	0	3	0	0	131130105	3
3-Tue	11	15	2011	2140	N	0	2	4	30	1	5	1	4	4	1	0	1	6	5	113190275	1
3-Tue	11	13	2012	1155	C	0	2	0	10	1	1	0	90	1	1	0	1	0	0	123520051	1
3-Tue	6	18	2013	1640	N	0	2	4	30	1	9	1	98	1	1	0	1	1	5	131690155	1
6-Fri	8	24	2012	1330	N	0	2	0	35	1	1	0	98	1	1	0	1	0	0	122700112	1
5-Thu	3	22	2012	1516	N	0	2	2	30	1	9	1	98	1	2	0	1	2	5	120820080	35
3-Tue	12	13	2011	0721	C	0	2	4	40	1	3	1	1	2	2	3	2	1	5	113470030	1
3-Tue	10	1	2013	0815	N	0	2	0	40	1	5	0	1	1	1	0	1	0	0	133090067	1
2-Mon	11	25	2013	1211	C	0	2	4	40	1	5	1	1	1	2	0	1	1	5	133290093	3
2-Mon	7	1	2013	0829	B	0	2	4	40	1	5	1	1	1	1	1	1	1	5	131820052	4
3-Tue	12	31	2013	0930	N	0	2	7	30	1	90	1	1	1	2	0	4	1	5	133650188	35
4-Wed	10	12	2011	1027	N	0	2	4	45	1	6	1	1	1	2	2	1	1	5	112850178	1
~~6-Fri~~	~~5~~	~~20~~	~~2011~~	~~1046~~	~~C~~	~~0~~	~~2~~	~~7~~	~~30~~	~~1~~	~~8~~	~~1~~	~~1~~	~~1~~	~~3~~	~~0~~	~~2~~	~~1~~	~~3~~	~~111400095~~	~~1~~
~~3-Tue~~	~~7~~	~~16~~	~~2013~~	~~0047~~	~~C~~	~~0~~	~~2~~	~~4~~	~~30~~	~~1~~	~~3~~	~~1~~	~~1~~	~~4~~	~~1~~	~~0~~	~~1~~	~~1~~	~~5~~	~~131970004~~	~~1~~
2-Mon	1	10	2011	0510	N	0	2	0	30	1	90	0	98	4	4	0	3	0	0	110450076	1
6-Fri	4	19	2013	0250	N	0	2	7	30	1	90	1	1	4	4	7	4	1	5	131090051	3
7-Sat	7	30	2011	1810	N	0	2	4	30	1	5	1	1	1	1	1	1	1	5	112110148	1
7-Sat	5	19	2012	0928	N	0	2	4	30	1	5	1	1	1	1	1	1	1	5	121400035	1
4-Wed	11	14	2012	0935	C	0	2	4	30	1	5	1	1	1	1	0	1	1	5	123190079	1
3-Tue	10	29	2013	0735	N	0	2	4	30	1	5	1	1	2	2	0	1	1	5	133020032	1
5-Thu	10	11	2012	0810	C	0	1	4	30	6	5	1	1	1	2	0	1	1	5	122850029	1
7-Sat	7	13	2013	1029	C	0	2	4	30	1	1	1	1	1	2	0	1	1	5	131940056	2
6-Fri	2	4	2011	0930	C	0	2	4	30	1	6	1	1	1	2	2	2	1	5	110350215	2
2-Mon	2	28	2011	0450	N	0	2	0	30	1	9	0	1	1	1	0	1	0	0	110910191	3
7-Sat	12	29	2012	0020	N	0	2	4	30	3	2	1	1	4	2	2	2	1	5	123640006	31
5-Thu	1	27	2011	0614	N	0	2	4	30	1	2	1	1	4	2	2	5	1	5	110270110	1
3-Tue	9	13	2011	1521	N	0	2	1	30	1	1	1	1	1	2	2	1	1	5	112570068	1
6-Fri	1	21	2011	1430	N	0	2	1	30	1	90	1	98	1	2	0	4	1	5	110210355	1

										PERSON2											PERSON3			
DIR	ACT	FAC1	FAC2	POSN	INJ	EQP	PHYS	AGE	SEX	VTYPE	DIR	ACT	FAC1	FAC2	POSN	INJ	EQP	PHYS	AGE	SEX	VTYPE	DIR	ACT	FAC1
7	1	15	0	1	C	4	1	54	F	1	5	54	2	0	1	C	4	1	23	M				
7	11	9	0	1	N	99	1	21	M	2	7	13	1	0	1	N	99	1	33	M				
7	1	15	0	1	N	4	1	50	M	3	7	1	1	0	1	N	4	1	45	F	1	7		
7	1	99	0	1	N	4	1	25	M	1	7	6	1	0	1	C	4	1	27	M	1	7		
7	5	10	0	1	N	99	99	900	Z															
3	14	4	3	1	N	99	1	27	M	1	3	10	1	0	1	N	4	1	43	F				
5	6	2	10	1	N	4	1	53	M	1	3	1	1	0	1	B	4	1	51	F				
7	1	1	1	1	N	4	1	50	M	1	3	2	8	2	1	N	0	0	901	Z				
3	1	1	1	1	N	4	1	28	F	31	3	10	46	61	1	N	99	99	900	Z				
7	11	1	0	1	N	4	1	41	M	1	7	1	46	0	1	N	4	1	38	F				
7	1	1	0	1	N	4	1	60	M	1	7	1	15	0	1	C	4	1	51	M				
7	1	4	46	1	C	4	1	59	M	31	7	1	1	1	1	N	4	1	58	M				
3	4	2	0	1	C	4	1	46	F	4	7	1	1	0	1	N	4	1	47	M				
~~1~~	~~11~~	~~1~~	~~1~~	~~1~~	~~C~~	~~4~~	~~1~~	~~51~~	~~F~~	~~3~~	~~1~~	~~1~~	~~15~~	~~1~~	~~1~~	~~N~~	~~4~~	~~1~~	~~59~~	~~F~~				
5	1	46	61	1	N	4	1	21	M															
0	1	1	1	1	C	4	1	22	M	1	5	1	5	0	1	N	4	1	22	F				
1	1	2	3	1	N	4	1	37	M	3	3	1	1	0	1	N	99	1	41	F	31	7		
5	11	0	0	1	N	0	0	20	M	1	5	10	0	0	1	N	0	0	902	M	99	0		
7	1	2	0	1	N	4	1	28	M	1	3	1	1	0	1	N	4	1	30	M				
7	6	2	90	1	N	4	1	24	F	1	3	1	1	1	1	N	4	1	70	M				
~~5~~	~~14~~	~~0~~	~~0~~	~~1~~	~~N~~	~~4~~	~~0~~	~~37~~	~~M~~	~~4~~	~~5~~	~~1~~	~~0~~	~~0~~	~~1~~	~~N~~	~~0~~	~~0~~	~~48~~	~~M~~				
~~5~~	~~11~~	~~1~~	~~0~~	~~1~~	~~N~~	~~4~~	~~1~~	~~35~~	~~M~~	~~1~~	~~5~~	~~1~~	~~90~~	~~0~~	~~1~~	~~B~~	~~4~~	~~1~~	~~72~~	~~M~~				
1	1	0	0	1	N	4	0	34	M	3	6	1	0	0	1	N	0	0	40	M				
7	1	1	0	1	N	4	1	43	M	1	1	34	2	0	1	N	4	1	21	M				
1	6	0	0	1	C	3	0	37	M	2	3	8	0	0	1	N	4	0	40	M				
5	6	99	0	1	N	99	1	22	M	1	0	0	0	0	1	N	0	0	901	Z				
7	10	0	0	1	N	0	0	900	M	4	7	16	0	0	1	N	4	0	59	M				
3	6	10	0	1	N	4	1	48	M	1	7	11	1	0	1	N	4	1	51	F				
3	1	1	1	1	C	4	1	44	M	4	6	6	2	10	1	C	4	1	41	M				
3	1	0	0	1	N	4	0	29	F	1	1	6	0	0	1	N	4	0	27	M				
3	1	1	0	1	C	4	1	55	M	3	6	6	0	0	1	N	4	1	20	M				
5	6	10	10	1	N	4	1	68	M	1	3	1	1	1	1	B	4	1	39	F				
7	6	1	0	1	N	4	1	48	M	1	3	1	1	0	1	N	99	98	902	Z				
3	1	1	1	1	N	4	1	43	M	1	1	6	5	15	1	N	4	1	34	F				
~~1~~	~~1~~	~~1~~	~~0~~	~~1~~	~~C~~	~~4~~	~~1~~	~~42~~	~~M~~	~~1~~	~~5~~	~~6~~	~~2~~	~~0~~	~~1~~	~~N~~	~~4~~	~~1~~	~~18~~	~~F~~				
~~1~~	~~1~~	~~1~~	~~0~~	~~1~~	~~C~~	~~4~~	~~1~~	~~32~~	~~M~~	~~1~~	~~5~~	~~6~~	~~1~~	~~0~~	~~1~~	~~N~~	~~4~~	~~1~~	~~23~~	~~M~~				
3	1	0	0	1	N	0	0	23	M	1	1	6	0	0	1	N	4	0	58	F				
5	1	15	61	1	N	99	1	21	M	35	7	1	1	1	1	N	4	1	44	M				
1	1	2	1	1	N	4	1	45	F	1	3	1	1	1	1	N	4	3	21	M				
3	1	1	1	1	N	4	1	69	F	1	1	1	2	15	1	N	2	1	23	F				
3	1	2	0	1	C	4	1	60	M	2	1	1	1	0	1	C	4	1	49	M				
6	6	2	33	1	N	4	1	27	F	3	3	1	1	0	1	N	4	1	31	F				
7	3	2	0	1	N	4	1	26	F	53	5	1	1	0	21	C	12	1	26	M				
3	1	15	0	1	N	4	1	33	F	1	3	11	1	0	1	N	4	1	37	M				
3	1	1	1	1	N	4	1	54	M	1	5	1	5	15	1	C	99	1	20	M				
1	1	0	0	1	N	4	0	55	F	1	7	1	0	0	1	N	4	0	56	F				
7	7	15	0	1	N	4	1	60	M	31	7	1	1	1	1	N	4	1	43	M				
3	1	1	1	1	N	4	1	22	M	35	5	5	10	15	1	N	99	99	899	Z				
7	11	1	1	1	N	4	1	60	F	1	7	1	15	15	1	N	99	99	33	M				
7	1	1	0	1	N	4	1	57	F	1	7	1	4	0	1	N	4	1	40	M				


PERSON4
FAC2
POSN
INJ
EQP
PHYS
AGE
SEX
VTYPE
DIR
ACT
FAC1
FAC2
POSN
INJ
EQP
PHYS
AGE
SEX

- Countermeasure: Converting four-lane roadways to three-lane roadways with center turn lane (road diet)

CMF	CRF(%)	Quality	Crash Type	Crash Severity	Area Type	Reference	Comments
0.47	53	★★★★☆	All	All	Suburban	Persaud et. al, 2010	

-

0.748	25.2	★★★★☆	All	All	Urban	Pawlovich et al., 2006	CMF calculation is for reduction ... [*read more*]

-

0.812	18.8	★★★★☆	All	All	Urban	Pawlovich et al., 2006	CMF calculation is for reduction ... [*read more*]

▾ Countermeasure: Narrow cross section (4 to 3 lanes with two way left-turn lane)

CMF	CRF(%)	Quality	Crash Type	Crash Severity	Area Type	Reference	Comments
0.63	37	★★★☆☆	All	All	Urban	Gates et al., 2007	
1	0	★★★☆☆	All	Fatal,Serious injury,Minor injury	Urban	Gates et al., 2007	
0.54	46	★★★☆☆	All	Property damage only (PDO)	Urban	Gates et al., 2007	
0.76	24	★★★☆☆	Angle	All	Urban	Gates et al., 2007	
0.69	31	★★★☆☆	Rear end	All	Urban	Gates et al., 2007	
0.63	37	★★★☆☆	Angle	All	Urban	Gates et al., 2007	

- Countermeasure: Improve pavement friction (increase skid resistance)

CMF	CRF(%)	Quality	Crash Type	Crash Severity	Area Type	Reference	Comments
0.799	20.1	★★★★☆	All	All	All	Lyon and Persaud, 2008	
0.667	33.3	★★★★☆	All	All	All	Lyon and Persaud, 2008	
0.819	18.1	★★★★☆	All	All	All	Lyon and Persaud, 2008	
0.797	20.3	★★★★☆	All	All	All	Lyon and Persaud, 2008	
1.271	-27.1	★★★★☆	All	All	All	Lyon and Persaud, 2008	
0.426	57.4	★★★★☆	Wet road	All	All	Lyon and Persaud, 2008	
0.372	62.8	★★★★☆	Wet road	All	All	Lyon and Persaud,	

0.575	42.5	★★★★☆	Rear end,Wet road	All		Lyon and Persaud, 2008
0.59	41	★★★☆☆	All	All	All	Lyon and Persaud, 2008
0.589	41.1	★★★☆☆	All	All	All	Lyon and Persaud, 2008
0.361	63.9	★★★☆☆	Wet road	All	All	Lyon and Persaud, 2008
0.304	69.6	★★★☆☆	Rear end	All	All	Lyon and Persaud, 2008
0.943	5.7	★★★☆☆	Rear end	All	All	Lyon and Persaud, 2008
0.504	49.6	★★★☆☆	Rear end	All	All	Lyon and Persaud, 2008

0.221	77.9	★★★☆☆	Rear end,Wet road	All	All	Lyon and Persaud, 2008
0.787	21.3	★★★☆☆	Angle	All	All	Lyon and Persaud, 2008
0.828	17.2	★★★☆☆	Angle	All	All	Lyon and Persaud, 2008
0.898	10.2	★★★☆☆	Angle	All	All	Lyon and Persaud, 2008
0.799	20.1	★★★☆☆	Angle,Wet road	All	All	Lyon and Persaud, 2008
0.47	53	★★★☆☆	Angle,Wet road	All	All	Lyon and Persaud, 2008
0.828	17.2	★★★☆☆	Angle,Wet road	All	All	Lyon and Persaud, 2008

Dual CRF for 8th Street Pedestrian injury Crashes

Convert Broadway from a 4-lane facility to a 3-lane facility, includes a full reconstruction of the roadway (improve pavement)

CR1=4-lane to 3-lane conversion
CR2=Improve pavement friction

CR=1 – (1-CR1)*(1-CR2)

All: CR=1 – (1-.37)*(1-.41) = .63
All (PDO): CR=1 – (1-.46)*(1-.41) = .68
Angle: CR=1 – (1-.37)*(1-.21) = .50
Rear End: CR=1 – (1-.31)*(1-.70) = .79

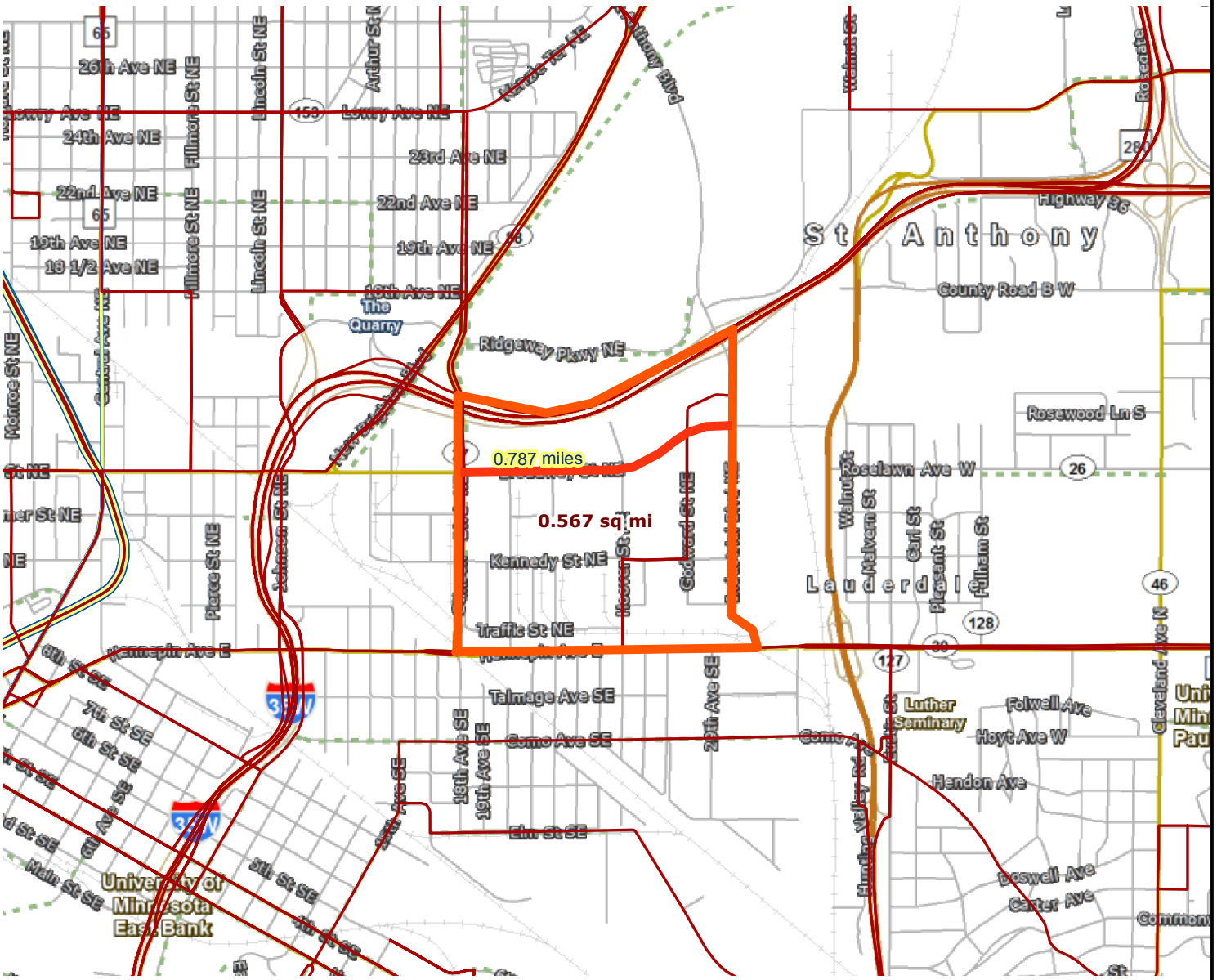
Transit Connections

Roadway Reconstruction/Modernization Project: Broadway Street NE | Map ID: 1415051969121

Results

Transit with a Direct Connection to project:
25 30 61

**indicates Planned Alignments*



Project
Project Area
Transit Routes
Transitway
Northstar Line
Planned Alignments
Arterial BRT

0 0.275 0.55 1.1 1.65 2.2 Miles

Created: 11/3/2014
LandscapeRSA3

METROPOLITAN COUNCIL