



Application

01967 - 2014 Roadway Expansion

02223 - 77th Street Underpass

Regional Solicitation - Roadways Including Multimodal Elements

Status: Submitted
Submitted Date: 12/01/2014 3:52 PM

Primary Contact

Name:* Jeff B Pearson
Salutation First Name Middle Name Last Name

Title: Transportation Engineer

Department:

Email: jpearson@cityofrichfield.org

Address: 6700 Portland Ave S

***** Richfield Minnesota 55423
City State/Province Postal Code/Zip

Phone:* 612-861-9791
Phone Ext.

Fax:

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

Organization Information

Name: RICHFIELD,CITY OF

Jurisdictional Agency (if different):

Organization Type:

City

Organization Website:

Address:

6700 PORTLAND AVE S

*

RICHFIELD

Minnesota

55423

City

State/Province

Postal Code/Zip

County:

Hennepin

Phone:*

612-861-9700

Ext.

Fax:

PeopleSoft Vendor Number

0000004028A1

Project Information

Project Name

77th Street TH 77 Underpass

Primary County where the Project is Located

Hennepin

Jurisdictional Agency (If Different than the Applicant):

MnDOT (Portion)

The proposed 77th Street underpass connects 77th Street east and west of TH 77 (Cedar Ave) to eliminate a gap in the Minor Reliever network. The project will connect Bloomington and Longfellow Avenues. The project includes the following elements as shown on Figure 1:

1. Construct 0.36 mile of a new four-lane divided road connecting 77th street to the realigned Longfellow Avenue on the east side of Trunk Highway (TH) 77
2. Construct new bridge on TH 77 carrying TH 77 over 77th Street
3. Reconstruct the southbound TH 77 to westbound I-494 ramp
4. Reconstruct the westbound I-494 to northbound TH 77 ramp
5. Reconstruct the west TH 77 frontage road over new 77th Street
6. Construct 6 ft wide sidewalk along the south side of 77th Street
7. Construct 10 ft wide multi-use regional trail along north side of 77th Street (links to Nine Mile Creek Regional Trail and the Intercity Regional Trail)

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

The project will address regional traffic issues on the I-494 corridor through Richfield and Bloomington. The I-494 Corridor Study (1990s) acknowledged that there is a limited ability to expand I-494. The study identified 77th Street as part of an arterial system to carry short- to medium-length trips in the I-494 corridor. The City of Richfield has since reconstructed 77th Street from

I-35W to Cedar Avenue. The project is the last link in the system. The need for a connection across TH 77 has also been identified by Three Rivers Park District as part of the Intercity Regional Trail to provide pedestrian/bicycle connectivity from Richfield to Bloomington.

The project will have several benefits, including:

- Keeps short- to medium-length trips off I-494, freeing up capacity for longer regional trips

- Provides access for existing commercial development and future redevelopment adjacent to I-494, the airport and Mall of America influence area

- Provides secondary access to air freight businesses along Longfellow Avenue

- Provides a connection under TH 77, a major barrier to pedestrian/bicycle travel

- Fills a gap in the sidewalk and trail network (Figures 2 and 3)

- Improves access to Metro Transit South Bus Garage

- Will allow rerouting of bus routes to shorten travel time for transit riders (currently have to access the freeway system - either TH 77 or I-494 to get from one side of TH 77 to the other)

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

Project Length (Miles)

0.36

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.

City Comprehensive Plan: Chapter 6, Page 15 as well as the sidewalk and trail plans (Attachment - Figures 2 and 3)

2001 I-494 FEIS: Page 3-27 (Frontage Road System), Page 4-13 (Access Mitigation)

Identified as Planned A Minor Arterial

Connection to Local Planning

The extension of 77th Street is consistent with the Long Term Comprehensive Plan for the Minneapolis-St. Paul International Airport.

77th Street underpass alignment identified on pages 38-39 of the Three Rivers Park District's Nine Mile Creek Regional Trail Master Plan to be utilized as part of the future trail extension to MN Valley Wildlife Refuge in Bloomington.

The project is consistent with policies and strategies in the Metropolitan Council Regional 2030 Transportation Policy Plan and the draft 2040 TPP. See attachment Connections to Planning.

Project Funding

Are you applying for funds from another source(s) to implement this project?	Yes
If yes, please identify the source(s)	State Bonding via Local Road Improvement Program
Federal Amount	\$7,000,000.00
Match Amount	\$8,000,000.00

Minimum of 20% of project total

Project Total	\$15,000,000.00
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Match Percentage	53.33%
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Minimum of 20%

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

Source of Match Funds State/Local/City Funds
 Preferred Program Year
 Select one: 2017 (Roadway Projects Only)

MnDOT State Aid Project Information: Roadway Projects

County, City, or Lead Agency City of Richfield

Functional Class of Road A Minor Arterial

Road System City Street

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

Name of Road 77th Street

Example; 1st ST., MAIN AVE

Zip Code where Majority of Work is Being Performed 55423

(Approximate) Begin Construction Date 04/25/2016

(Approximate) End Construction Date 06/29/2018

LOCATION

From:
(Intersection or Address) 77th St & Bloomington Ave

*Do not include legal description;
 Include name of roadway if majority of facility
 runs adjacent to a single corridor.*

To:
(Intersection or Address) 77th St & Longfellow Ave

Type of Work grading, agg base, bit surface, sidewalk, multi-use trail, ped ramps, bridges, lighting

*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? Yes

Structure is Over/Under
(Bridge or culvert name): Under new TH 77 Bridge

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Mobilization (approx. 5% of total cost)	\$515,000.00
Removals (approx. 5% of total cost)	\$280,000.00
Roadway (grading, borrow, etc.)	\$1,825,000.00

Roadway (aggregates and paving)	\$675,000.00
Subgrade Correction (muck)	\$0.00
Storm Sewer	\$675,000.00
Ponds	\$100,000.00
Concrete Items (curb & gutter, sidewalks, median barriers)	\$300,000.00
Traffic Control	\$205,000.00
Striping	\$20,000.00
Signing	\$85,000.00
Lighting	\$240,000.00
Turf - Erosion & Landscaping	\$100,000.00
Bridge	\$7,090,000.00
Retaining Walls	\$365,000.00
Noise Wall	\$0.00
Traffic Signals	\$0.00
Wetland Mitigation	\$0.00
Other Natural and Cultural Resource Protection	\$0.00
RR Crossing	\$0.00
Roadway Contingencies	\$2,000,000.00
Other Roadway Elements	\$170,000.00
Totals	\$14,645,000.00

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Path/Trail Construction	\$150,000.00
Sidewalk Construction	\$65,000.00
On-Street Bicycle Facility Construction	\$0.00
Right-of-Way	\$0.00
Pedestrian Curb Ramps (ADA)	\$15,000.00
Crossing Aids (e.g., Audible Pedestrian Signals, HAWK)	\$0.00
Pedestrian-scale Lighting	\$0.00
Streetscaping	\$125,000.00
Wayfinding	\$0.00
Bicycle and Pedestrian Contingencies	\$0.00
Other Bicycle and Pedestrian Elements	\$0.00

Totals

\$355,000.00

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	\$15,000,000.00
Construction Cost Total	\$15,000,000.00
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 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. 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 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
2223 Richfield Synchro.pdf	Synchro	80 KB
Attachment - Question 2A.docx	Question 2A Attachment	13 KB
ConnectionstoPlanning.pdf	Connections to Local Planning: Relevant pages from Richfield Comprehensive Plan and Nine Mile Creek Master Plan.	2.2 MB
Figure 1 77th Street Underpass Concept Layout.pdf	Figure 1: Concept Layout	1.4 MB
Figures 2 and 3 Sidewalks and Trails.pdf	Figures 2 and 3 - Sidewalks and Trails	499 KB
MnDOT Support Letter.pdf	MnDOT Support Letter	38 KB
RdwayAreaDef.pdf	Roadway Area Definition	728 KB
RegionalEcon.pdf	Regional Economy	1.5 MB
Richfield - 77th Street Funding Commitment Letter.pdf	Richfield Funding Commitment Letter	369 KB
SocioEcon.pdf	Socio Economic	1.5 MB
TransitCon.pdf	Transit Connections	1.6 MB

Reliever: Freeway Facility or

Facility being relieved	I-494
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				0
1:00am - 2:00am				0
2:00am - 3:00am				0
3:00am - 4:00am				0
4:00am - 5:00am				0

5:00am - 6:00am	0
6:00am - 7:00am	0
7:00am - 8:00am	0
8:00am - 9:00am	0
9:00am - 10:00am	0
10:00am - 11:00am	0
11:00am - 12:00pm	0
12:00pm - 1:00pm	0
1:00pm - 2:00pm	0
2:00pm - 3:00pm	0
3:00pm - 4:00pm	0
4:00pm - 5:00pm	0
5:00pm - 6:00pm	0
6:00pm - 7:00pm	0
7:00pm - 8:00pm	0
8:00pm - 9:00pm	0
9:00pm - 10:00pm	0
10:00pm - 11:00pm	0
11:00pm - 12:00am	0

Expander/Augmentor/Non-Freeway Principal Arterial

Select one:

Area	0.901
Project Length	0.405
Average Distance	2.2247
Upload Map	Roadway Area Definition.pdf

Measure B: Current Heavy Commercial Traffic

Location	Longfellow and 77th Street
Current daily heavy commercial traffic volume	1300.0

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

As shown on the Regional Economy map, the project will link Richfield with two major job concentration centers: The Minneapolis-St. Paul International Airport and the Mall of America. The project is also within one mile of four Post Secondary Education Centers located in the I-494 corridor.

County or City Plan Reference (Limit 700 characters; approximately 100 words)

The project will also connect to local activity centers. The Richfield I-494 Corridor Plan shows development of mixed use Office, Hotel and High Density Housing in the area south of 77th Street. This plan is included in the City of Richfield Comprehensive Plan. See attached Connections to Planning.

Upload Map

Regional Economy.pdf

Measure A: Current Daily Person Throughput

Location	77 St Underpass - see attachment 2A
Current AADT Volume	2525.0
Existing Transit Routes on the Project	515, 540

Response: Current Daily Person Throughput

Average Annual Daily Transit Ridership	2541.0
Current Daily Person Throughput	5824.0

Measure B: 2030 Forecast ADT

Use Metropolitan Council model to determine forecast (2030) ADT volume

METC Staff - Forecast (2030) ADT volume	0
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OR

Approved county or city travel demand model to determine forecast (2030) ADT volume	Yes
Forecast (2030) ADT volume	13850.0

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.

Benefits:

-Bicycle and pedestrian improvements:
Bicycle/pedestrian underpass will provide safer and more convenient bicycle and pedestrian connections. Low-income populations who rely on bicycling/walking will benefit from improved connections across two major barriers: TH 77 and I-494. This connection will provide an alternative route and access to Airport and the South Loop and also a trail connection to the Minnesota River Recreational Area.

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

-Transit improvements: Improved transit routes and connections will improve convenience and safety for low-income and minority populations who rely on transit and will improve access to jobs and entertainment in the South Loop and the Airport.

Negative impacts and mitigation: The project is not expected to negatively impact low-income populations, people of color, children, people with disabilities, and the elderly. The right-of-way acquisition for the project will be limited to the Motel 6 located north of 77th Street.

Measure B: Affordable Housing

City/Township	Segment Length (Miles)
City of Richfiel	0.36
	0

Total Project Length

Total Project Length	0.36
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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 Richfiel	0.36	0.36	76.0	1.0	76.0
		0	76	1	76

Affordable Housing Scoring - To Be Completed By Metropolitan Council Staff

Total Project Length (Miles)	0.36
Total Housing Score	76.0

Measure A: Year of Roadway Construction

Year of Original Roadway Construction or Most Recent Reconstruction	Roadway Segment Length (Miles)	Calculation	Calculation 2
0	0.36	0	0
	0	0	0

Average Construction Year

Weighted Year	0
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Total Segment Length (Miles)

Total Segment Length 0.36

Measure A: Cost Effectiveness of Vehicle Delay Reduction

Total Project Cost from Cost Sheet \$15,000,000.00

Total Peak Hour Vehicle Delay Without The Project 6.638472E8

Total Peak Hour Vehicle Delay With The Project 6.625872E8

Total Peak Hour Vehicle Delay Reduced by Project 1260000.0

Cost Effectiveness \$11.90

Synchro or HCM Reports Richfield 77th Street - Delay and Emissions calculations.pdf

Measure B: Cost Effectiveness of Emissions Reduction

Total Project Cost from Cost Sheet \$15,000,000.00

Total Peak Hour Kilograms Reduced by Project 26.0

Cost Effectiveness \$576,923.08

Synchro or HCM Reports Richfield 77th Street - Delay and Emissions calculations.pdf

Measure A: Benefit/Cost of Crash Reduction

Project Benefit/Cost Ratio 0.2

Worksheet Attachment Documentation for safety measure calculation for E 77th Street extension project.pdf

Measure A: Transit Connections

Existing Routes Directly Connected to the Project 440, 470, 472, 475, 476, 477, 478, 479, 491, 492, 515, 540

Planned Transitways directly connected to the project (alignment and mode determined and identified in the 2030 TPP) N/A

Upload Map Transit Connections.pdf

Response

Met Council Staff Data Entry Only

Route Ridership 1926979.0

Transitway Ridership 0

Measure B: Bicycle and Pedestrian Connections

The multi-use trail and sidewalk included in the project will connect to the following existing facilities as shown on Figures 2 and 3:

-77th Street west of project: sidewalk connection to job centers and residential areas

-Washington Park trail: connection to Nine Mile Creek Regional Trail across Richfield and Edina with connections to residential, job centers, parks and planned connection to additional regional trails in Hopkins

-Cedar Ave sidewalk: connections to residential, job centers

-77th Street east of project: sidewalk connection to 24th Ave S, across I-494 to job centers: Mall of America, Airport, South Loop District in Bloomington

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

The project will provide a connection underneath TH 77, a major barrier to pedestrian/bicycle travel in Richfield and Bloomington. The project will also link to existing pedestrian/bicycle connections across I-494, another major barrier. The trail and sidewalk connections will reduce the travel distance between multi-family housing in Richfield and the MOA by 1 mile.

Planned connections include the following:

-Intercity Regional Trail: trail connecting Minneapolis, Richfield, Bloomington with the Minnesota River. Construction 2015/2016

-Minnesota River State Trail

Measure C: Multimodal Facilities

Ped/transit elements: Project does not include transit elements. Metro Transit has indicated that they will reroute one or two local routes on Bloomington Ave. to utilize the 77th Street Underpass in order to make the routes more efficient. The Metro Transit south bus garage is located on the east side of TH 77 just to the south of the terminus of this project. This connection will provide more direct connections for buses returning to the bus garage as well as active routes.

Ped/bike elements: Project includes a 10 ft wide multiuse trail along the north side and sidewalk along the south side of 77th Street. Trail will become part of the Nine Mile Creek Regional Trail connecting to Hopkins, Edina, Richfield, Minneapolis, and Bloomington. Sidewalk, trail, and curb ramp will be ADA compliant.

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

Existing ped elements: This is a new road so there are no existing ped elements on the route; however, the project connects to existing sidewalks along Longfellow Ave, 77th St, 24th Ave, Cedar Ave. & Nine Mile Creek Reg. Trail.

Integrates: The project provides separate facilities safe for bikers and peds. The trail will be comfortable for a wide range of ages and abilities. The city will provide year-round maintenance so the trail can be used safely. The sidewalk/trail will provide a connection underneath TH 77, a major barrier to bike/pedestrian travel in Richfield and Bloomington.

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 Yes

100%

Stakeholders have been identified

40%

Stakeholders have not been identified or contacted

0%

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

Layout or Preliminary Plan completed Yes

100%

Layout or Preliminary Plan started

50%

Layout or Preliminary Plan has not been started

0%

Anticipated date or date of completion

3) Environmental Documentation (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 Yes
50%

Document not started

0%

Anticipated date or date of completion/approval 03/31/2015

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

100%

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

100%

Right-of-way or easements required, offers made Yes

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

11/30/2015

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

Yes

50%

Construction plans have not been started

0%

Anticipated date or date of completion

11/30/2015

9)Letting

Anticipated Letting Date

02/29/2016

Emissions calculations for E. 77th Street underpass project

The purpose of this attachment is to document the calculation process for the E. 77th Street underpass project in the City of Richfield for the Metropolitan Council Regional Solicitation application process. The emissions calculations for this project differ from the stated process in the application. The deviation from the standard process is due to the fact that this project involves construction of a new roadway, which involves a system-wide change in traffic flow rather than congestion reduction due to improvements on existing roadways which generally does not change traffic flow on a system level.

The emissions calculations were based on the total system vehicle delay for the peak hour from the Metropolitan Council's regional Travel Demand Model with and without the E. 77th Street underpass. Vehicle emission rates from Synchro were used to calculate the emission reductions based on total vehicle delay.

Table 1: Peak Hour Total Vehicle Hours Traveled

	VHT
No Build	184,402
Build	184,052
Variance	-350

The calculations for the emissions are as follows:

Fuel consumed in gallons (due to total vehicle delay): $0.7329 \times \text{Total Vehicle Delay (hours)}$

CO emissions = $69.9 \text{ grams/gallon} \times \text{fuel consumed (gallons)}$

NOx emissions = $13.6 \text{ grams/gallon} \times \text{fuel consumed (gallons)}$

VOC emissions = $16.2 \text{ grams/gallon} \times \text{fuel consumed (gallons)}$

Inserting the vehicle delay from the travel demand model, the emissions are calculated to be:

Before project:

Fuel consumed = $0.7329 \times 184,402 = 135,148$ gallons

CO emissions = $69.9 \times 135,148 = 9,446,861$ grams = 9,447 kg

NOx emissions = $13.6 \times 135,148 = 1,838,012$ grams = 1,838 kg

VOC emissions = $16.2 \times 135,148 = 2,189,398$ grams = 2,189 kg

After project:

Fuel consumed = $0.7329 \times 184,052 = 134,892$ gallons

CO emissions = $69.9 \times 134,892 = 9,428,951$ grams = 9,429 kg

NOx emissions = $13.6 \times 134,892 = 1,834,531$ grams = 1,834 kg

VOC emissions = $16.2 \times 134,892 = 2,185,250$ grams = 2,185 kg

Change in emissions due to project:

CO emissions: $9,429 \text{ kg} - 9,447 \text{ kg} = -18 \text{ kg}$ (18 kg reduction)

NOx emissions: $1,834 \text{ kg} - 1,838 \text{ kg} = -4 \text{ kg}$ (4 kg reduction)

VOC emissions: $2,185 \text{ kg} - 2,189 \text{ kg} = -4 \text{ kg}$ (4 kg reduction)

City of Richfield

- The intersection of 66th Street and Portland Avenue (CSAH 35) will be improved in 2008 as a two-lane roundabout. Future maintenance of the roundabout will be the responsibility of Hennepin County.
- Lyndale Bridge over I-494 will be replaced in 2010. A single-point diamond interchange will be constructed in this location due to the need for additional capacity on the existing bridge. Once constructed, maintenance of the bridge will be the responsibility of Mn/DOT.
- 76th Street, from TH 77 to 77th Street, will be reconstructed in 2010 with a Parkway design, with streetscape elements and bike lanes. When completed, 76th Street will become part of the Nine Mile Creek Regional Trail.
- An underpass of 77th Street under TH 77 is planned for construction sometime after year 2009-11.
- A 2008 study of arterials in Richfield will produce a design guide that will be shared with the County and serve as the basis for discussing the reconstruction of county roads.

Coordination with Other Jurisdictions

The City of Richfield should coordinate with adjacent jurisdictions (i.e., Bloomington, Edina and Minneapolis) as well as Hennepin County, the MAC and Mn/DOT when planning future improvements. Coordination among jurisdictions may provide opportunities for collaboration that could benefit all agencies and the public. This may

result in financial and time savings through economies of scale as well as potentially reducing construction impacts to residents through the coordination of projects.

2030 Traffic Forecasts

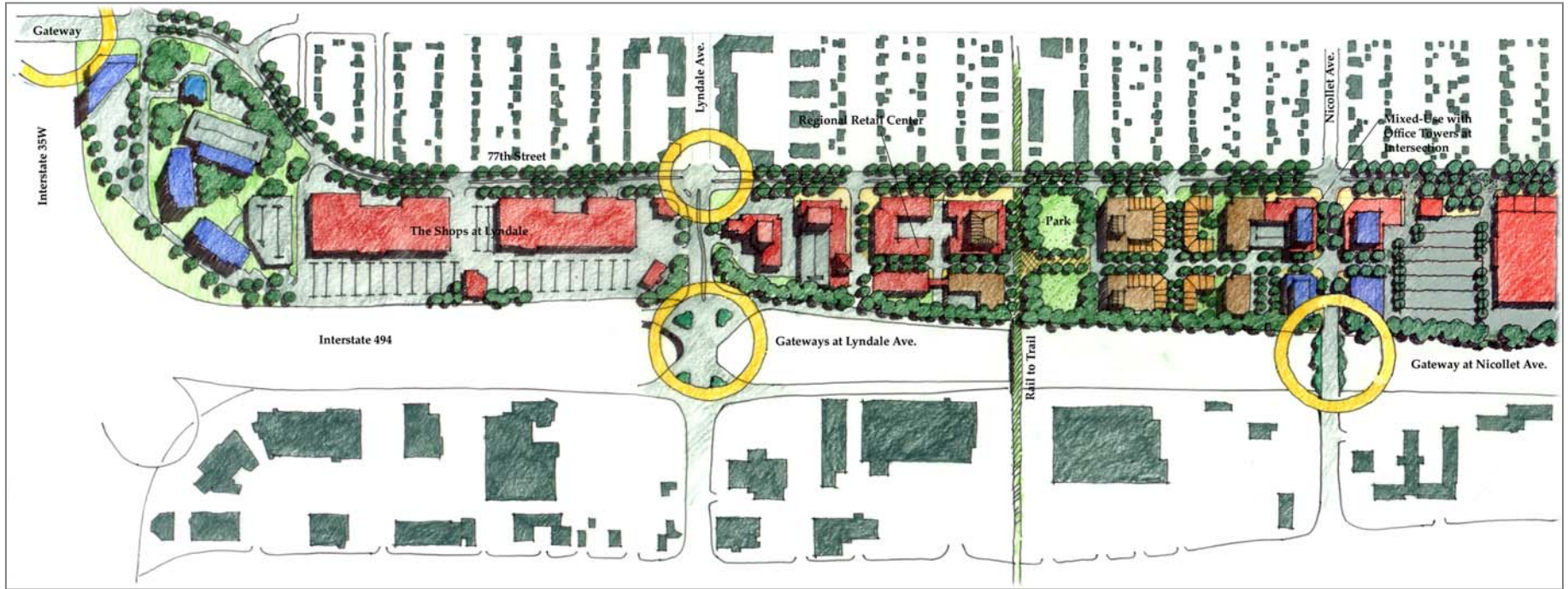
The pattern and intensity of travel within a city is directly related to the distribution and magnitude of households, population and employment within the city, neighboring communities and the region as a whole. This section provides an overview of the existing land use pattern in the City of Richfield.

In addition to addressing existing transportation needs, the Transportation Plan anticipates future transportation needs. Land use, travel patterns, population and employment change over time affect the efficiency and adequacy of the transportation network. This section also outlines expected changes in the city's land use pattern, households, population and employment, which will then be the basis for estimating future travel demand within the city. Finally, this section is designed to assist the City in developing a transportation system that supports land use and provides safe and efficient movement of people and goods.

Land Use

Richfield is a mature, first-ring suburb that is now largely developed. While this does not mean that there will be no change or growth within the community, it does mean

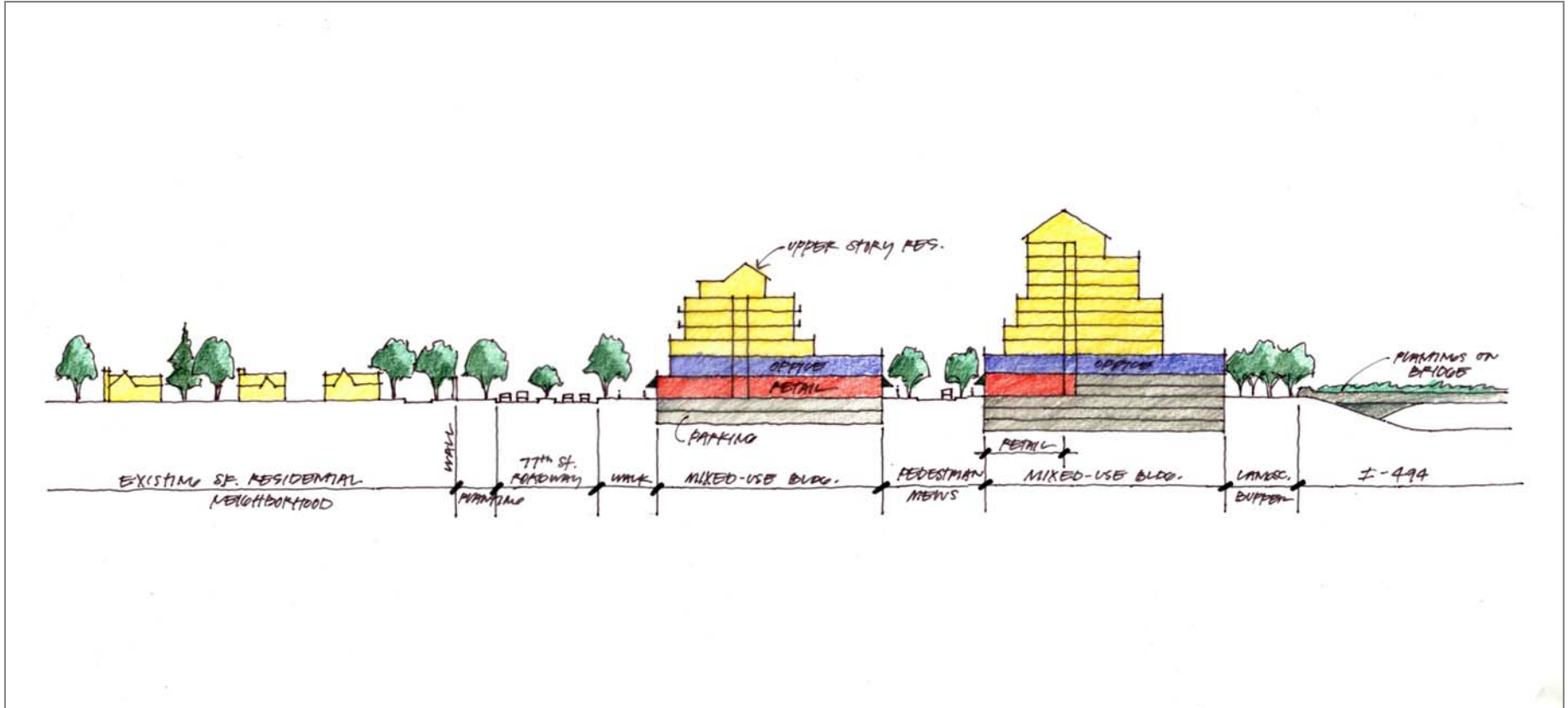
Illustrative Master Plan (West)

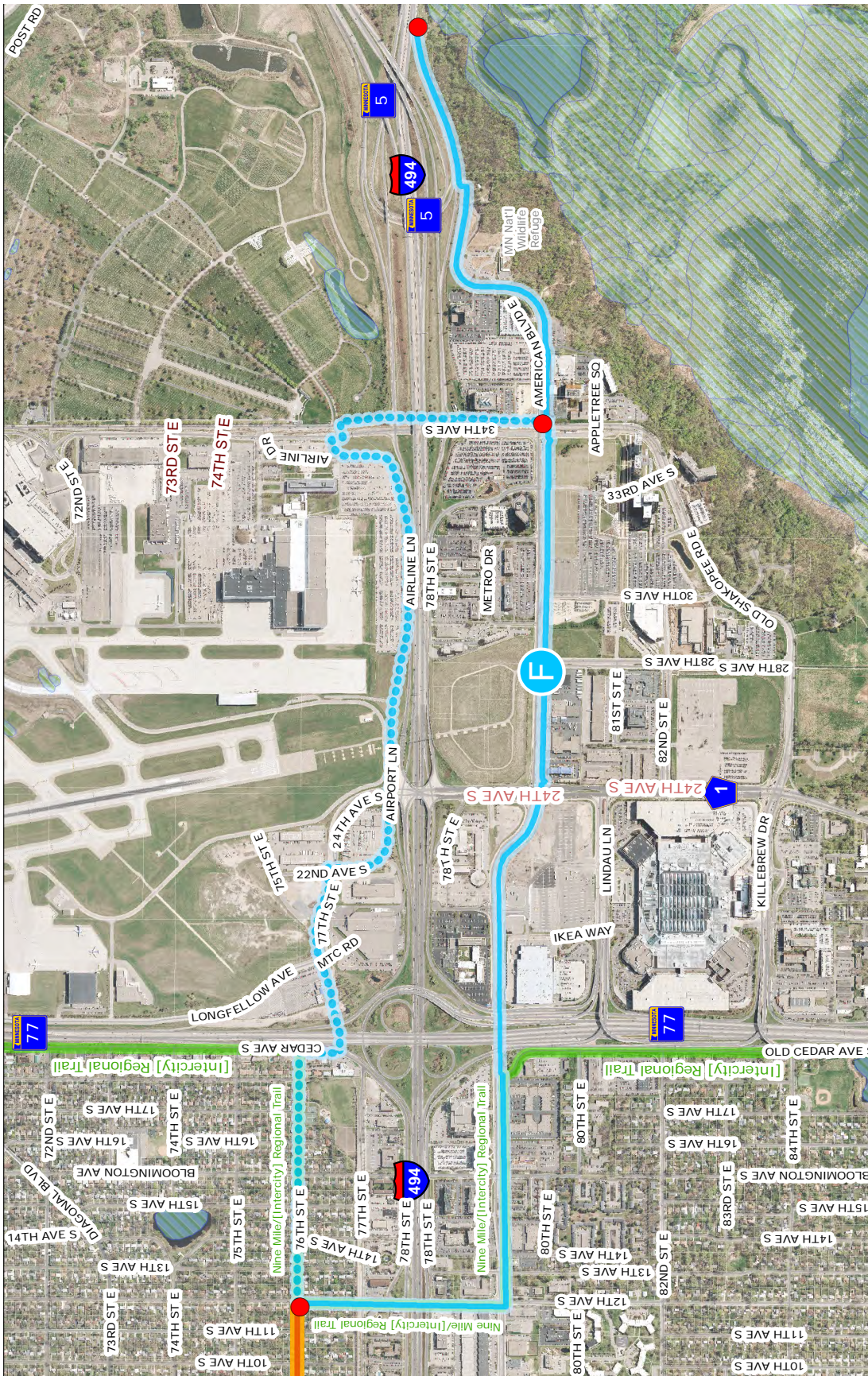


Illustrative Master Plan (East)

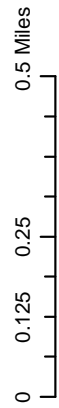


Illustrative Section





Nine Mile Creek Regional Trail | Bloomington



Map prepared by Three Rivers Park District Planning Department - AR September 11, 2013

This GIS Data is provided "as is" without warranty of any representation of accuracy, timeliness, or completeness. The user acknowledges and accepts the limitations of the Data, including the fact that the Data is dynamic and is in a constant state of maintenance, correction, and update.

Figure 16
Bloomington Segment of the Nine Mile Creek Regional Trail
 Source: Three Rivers Park District

Bloomington Segment

Location and Status

The Bloomington segment of the regional trail is 3.25 miles long and connects to Minnesota Valley National Wildlife Refuge Visitor Center (Figure 16). This segment utilizes existing sidewalk and trail facilities for much of its length.

The Bloomington segment of the regional trail is planned to utilize the Intercity Regional Trail from 76th Street south along 12th Avenue over I-494 via a new pedestrian/bicycle bridge to American Boulevard and then east to Old Cedar Avenue. At Old Cedar Avenue, the Intercity Regional Trail Corridor extends south to the 86th Street Bikeway and Nine Mile Creek Regional Trail continues east under TH 77 along American Boulevard to the existing trail crossing of the Minnesota River at I-494 adjacent to the Minnesota Valley National Wildlife Refuge Visitor Center. The American Boulevard segment of trail is designated as an enhanced pedestrian way by the Bloomington ATP. As an enhanced pedestrian way, Bloomington envisions this trail segment design to focus on enhancing pedestrian movement in a comfortable streetscape setting while accommodating bicyclists.

Full realization of the Bloomington segment is contingent on the ability to secure additional right-of-way, improve the TH 77 underpass crossing to better accommodate the trail, and improve the existing sidewalk/trail for almost the entire length of the segment.

Given the complexities of these factors, and Richfield's support for an alternative route through the MAC property, an alternative route is also identified as part of this Master Plan.

MAC Alternative Option

The MAC alternative option utilizes the existing segment of the Intercity Regional Trail segment along 76th Street from 12th Avenue to Cedar Avenue in Richfield. From Cedar Avenue, the alternative route crosses TH 77 by way of a future TH 77 underpass at 77th Street. This underpass will serve as a reliever to the I-494 corridor and is a high priority for Richfield. From the TH 77 underpass, the trail is located on the north side of 77th Street and extends east to 24th Avenue.

At 24th Avenue, the trail continues south and east along Airport Lane to 34th Avenue through right-of-way under jurisdictional control of MAC and MnDOT. Access to the Minneapolis-St. Paul Airport and Hiawatha LRT is feasible at 34th Avenue and access to Fort Snelling State Park is possible via Post Road. At 34th Avenue the trail will extend south under I-494 via a new diverging diamond interchange that is currently under construction to American Boulevard in Bloomington. From the 34th Avenue/American Boulevard intersection, the trail east along American Boulevard to Minnesota Valley National Wildlife Refuge Visitor Center.

This alternative will be further pursued if American Boulevard is determined to not be feasible. Implementation of this segment is also contingent on agreement between Richfield, MAC, Bloomington and the Park District, that the MAC Alternative Option is preferred over the Bloomington segment, and Richfield and MAC securing the necessary funding, approvals, and support to implement the TH 77 underpass, redevelop the immediate area, and extend the regional trail through MAC property.

Context and Destinations

The Bloomington segment is located adjacent to a mix of land uses related to the I-494 corridor and airport.

The Bloomington segment is located within the South Loop District. This area's current land uses are a mix of office, industrial, and hospitality. Bloomington's South Loop calls for this area to transition to a greater variety of uses, including high density residential at the east end of the segment. The Alternative MAC Option is adjacent to large parking lots, Metro Transit garage, warehouses, runways, and Fort Snelling Cemetery.

Key destinations along or near the corridor include the Minneapolis-St. Paul Airport, Hiawatha LRT (blue line), Mall of America, IKEA, and Minnesota Valley National Wildlife Refuge. The Minnesota Valley National Wildlife Refuge offers opportunities for hiking, cross-country skiing, hunting, and fishing and has an impressive visitor center with classrooms, interpretive displays, bookstore, and information kiosks.

The eastern trail terminus will provide connections to Dakota County's Big Rivers Regional Trail, Minnesota State Trail: Fort Snelling State Park Connection, and an extensive trail system of the Minnesota Valley National Wildlife Refuge.

The Nine Mile Creek Regional Trail also connects to Metro Transit bus routes 5, 54, 440, 542, and 552 in Bloomington.

Natural Resources

Significant natural resources associated with this trail segment are not along the trail corridor, but rather at the regional trail's terminus at the Minnesota Valley National Wildlife Refuge.

The Minnesota Valley National Wildlife Refuge comprises over 14,000 acres and spans 99 miles along the Minnesota River. In Bloomington, the Minnesota Valley National Wildlife Refuge is described by the US Fish and Wildlife Services "... as a green belt of large marsh areas bordered by office buildings, highways, residential areas, and

grain terminals." Located directly on the Minnesota River, the refuge encompasses significant terrain, a wide variety of both upland and lowland plant communities, and a great diversity of wildlife.

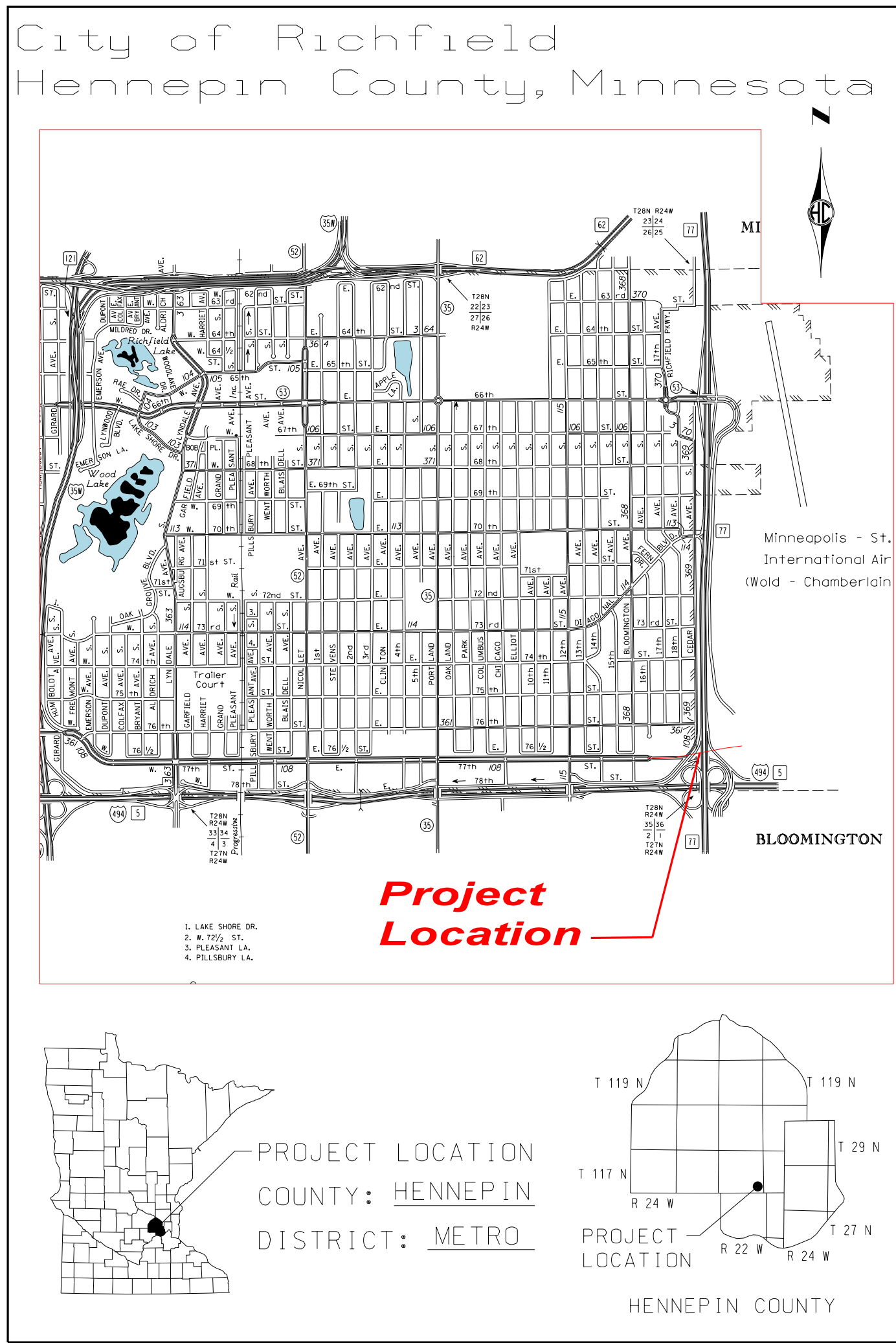
The refuge is managed specifically for wildlife and is home to coyotes, bald eagles, trout, prothonotary warblers, and numerous waterfowl and migratory birds. The MLCCS classifies the adjacent areas as predominantly artificial surfaces and cultural vegetation (Appendix C). The eastern termini at the Minnesota Valley National Wildlife Refuge includes areas of forests, herbaceous landcover, wetland, and open water.

Species of Special Concern

The Minnesota Department of Natural Resources has documented the following important species near the trail corridor Upland Sandpiper, Forster's Tern, Blanding's Turtle, Colonial Waterbird, and Bald Eagles. None of these species are anticipated to be negatively affected by the trail corridor.

Acquisition Needs

Trail easements would be required along 12th Avenue and American Boulevard as well as portions of 34th Avenue for the Alternative MAC Option.



LEGEND

- Proposed Roadway Built Over Inplace Roadway
- Proposed Roadway
- Proposed Islands / Medians
- Proposed Shoulder
- Proposed Bituminous Path
- Proposed Concrete Walk
- Proposed Bridges

- Proposed Traffic Directional Arrows
- Existing Right of Way
- Proposed Right of Way
- Proposed Temporary Easement
- Approximate Construction Limits
- Proposed Total RW Acquisition
- Driveway Remnant Area (To Become Greenspace)
- P** Partial Taking
- xxxx** Access Closed

LAYOUT HISTORY:

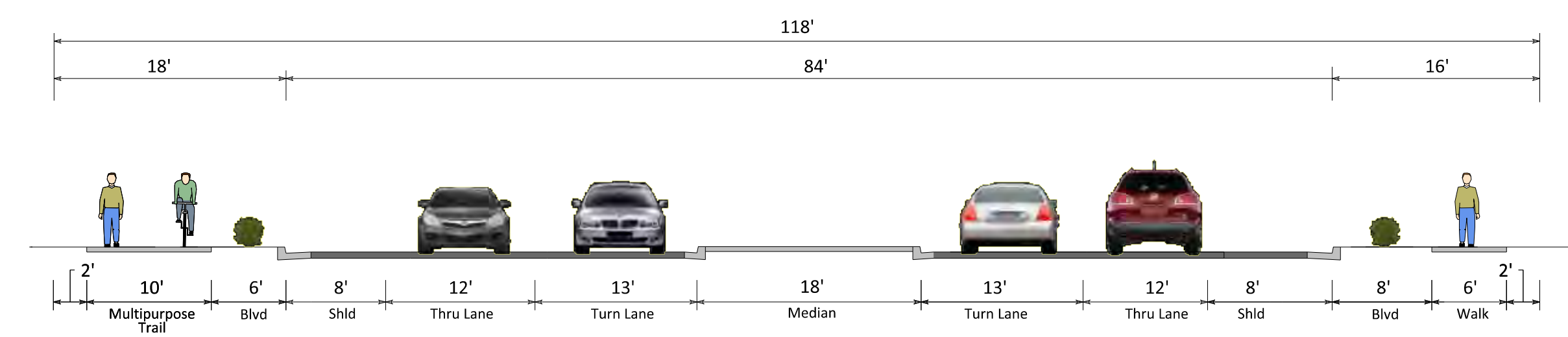
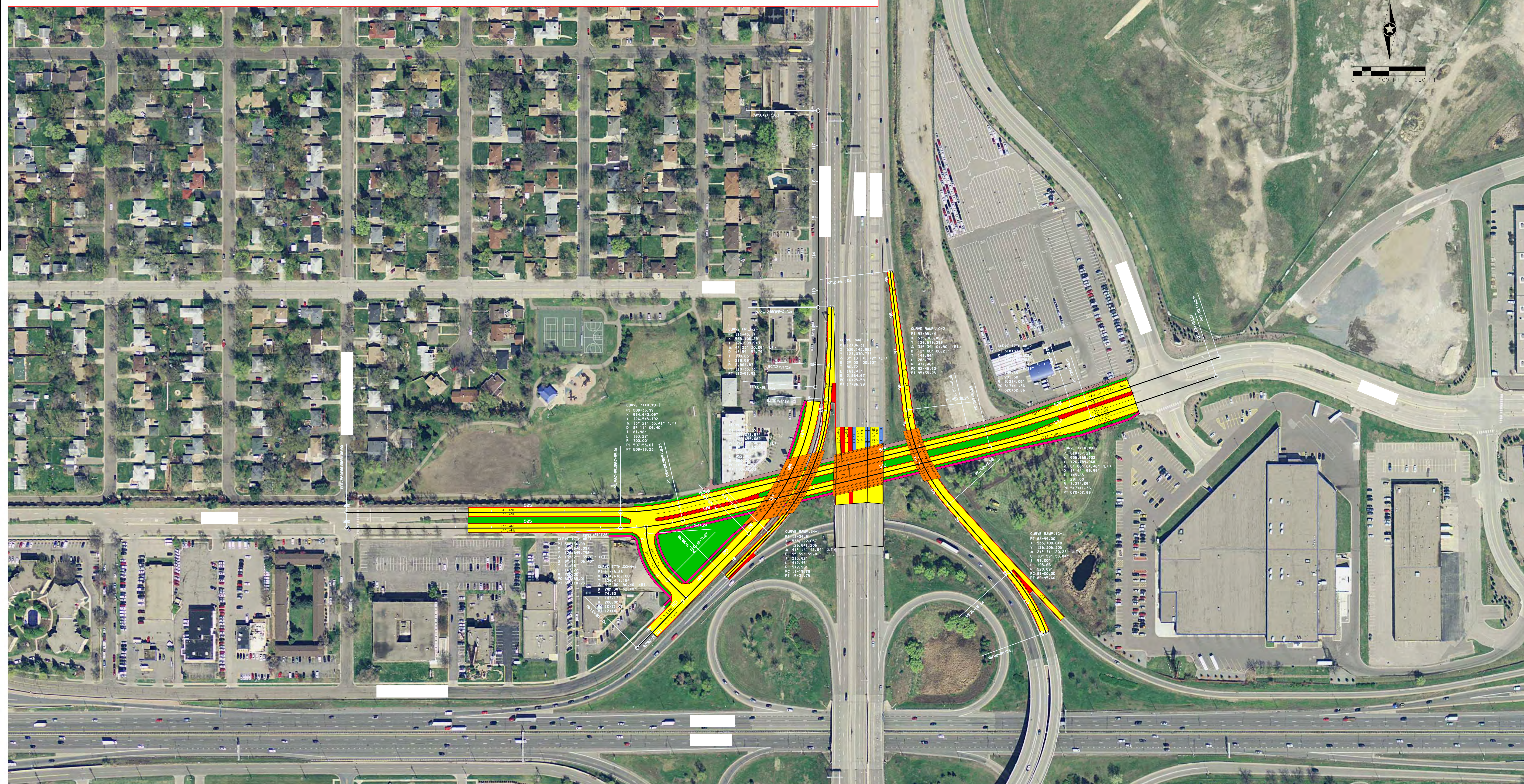
77th Street Improvements

Bloomington Ave to Longfellow Dr

PROPOSED LAYOUT

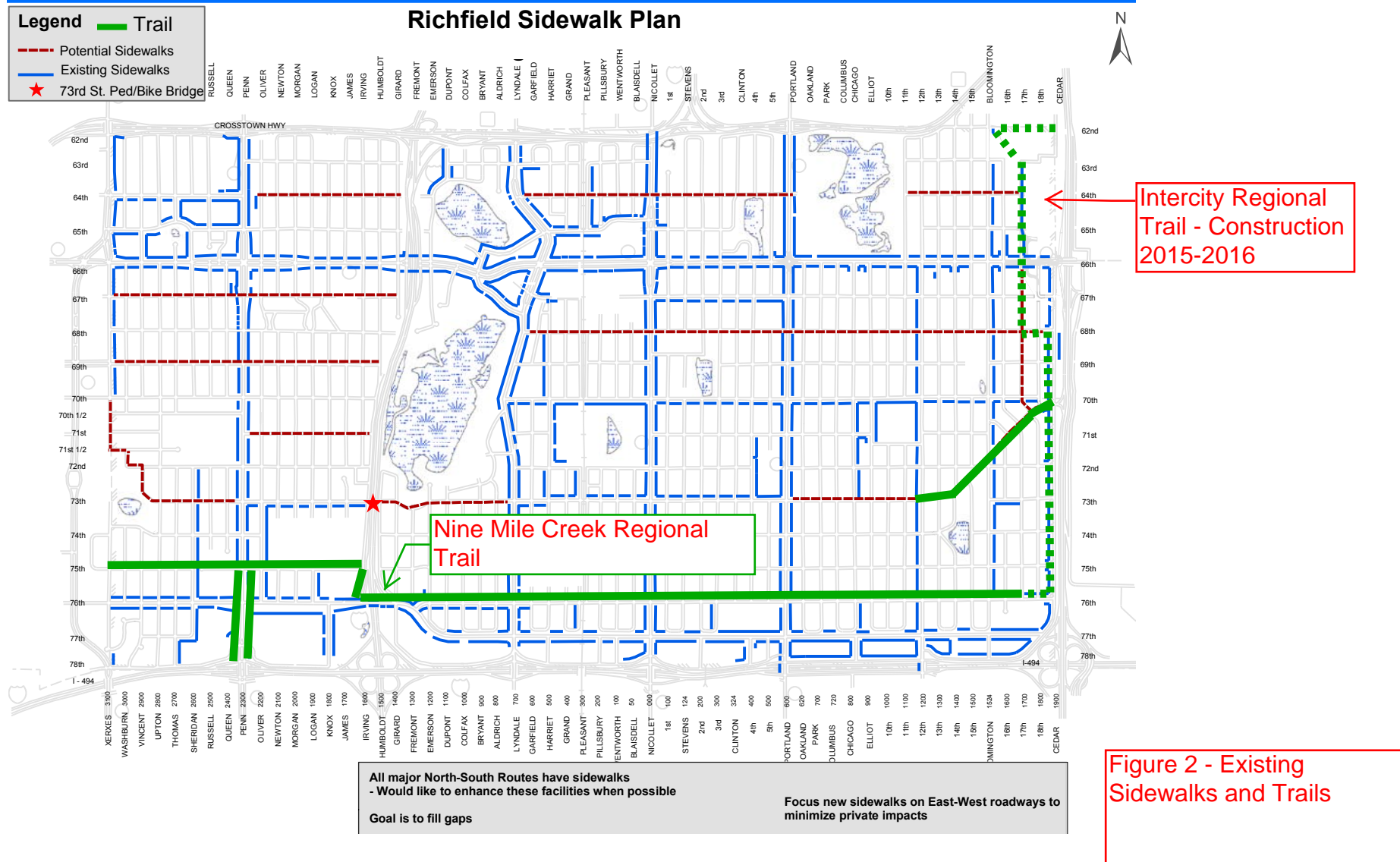
November, 2014

Figure 1



77th Street Section

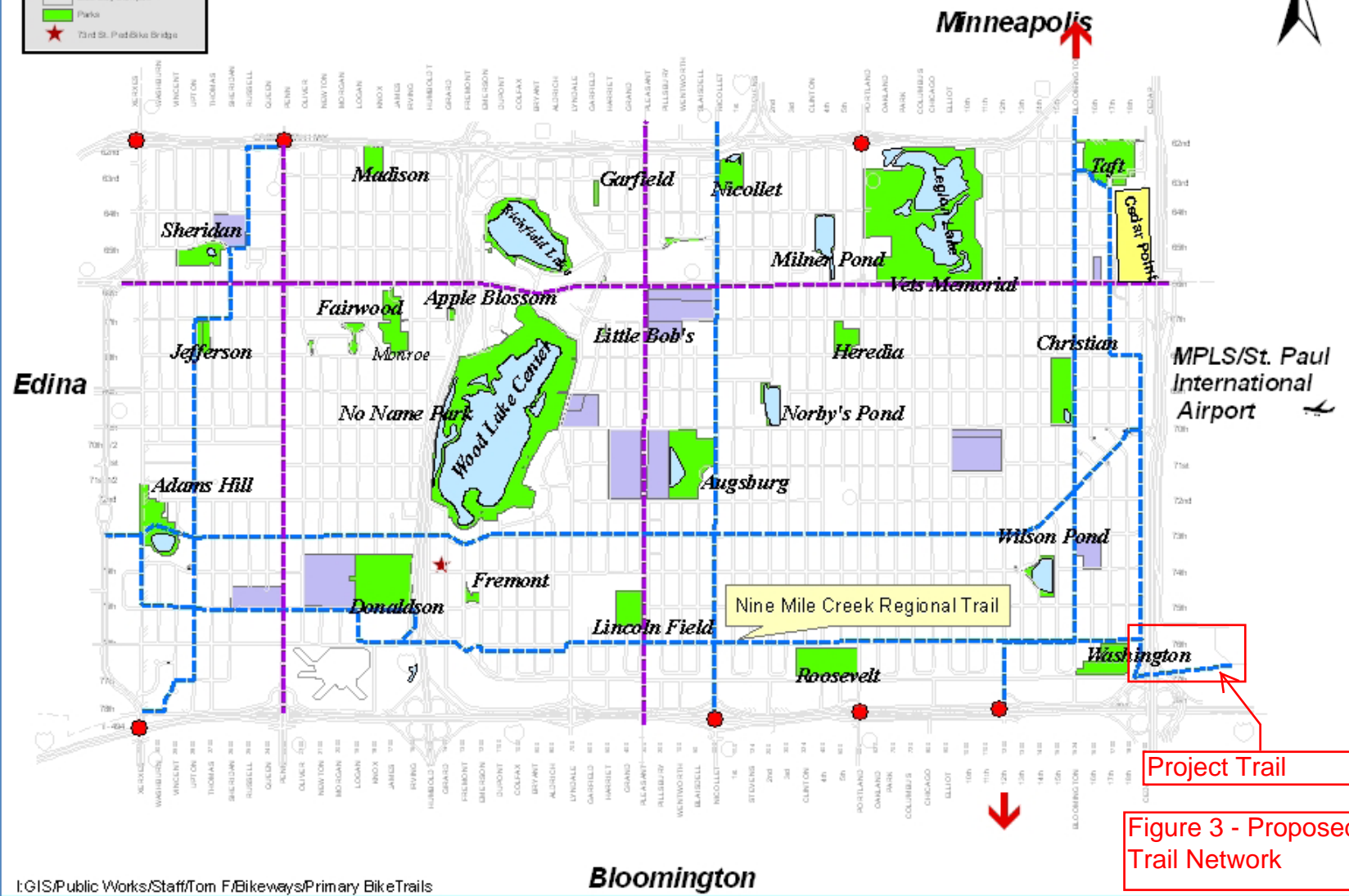
**Richfield Sidewalks and Existing/
Soon to be Constructed Trails**



RICHFIELD PROPOSED PRIMARY BIKE TRAILS

Legend

- Spot Improvements
- Future Bike Trails
- Proposed Primary Bike Trails
- Schools
- Best Buy Campus
- Parks
- ★ Third St. Ped/Bike Bridge



I:GIS/Public Works/Staff/Tom F/Bikeways/Primary Bike Trails

Project Trail

Figure 3 - Proposed Trail Network



Minnesota Department of Transportation

Metro District
1500 West County Road B-2
Roseville, MN 5511

November 25, 2014

Jeff Pearson
Transportation Engineer
City of Richfield
6700 Portland Avenue
Richfield, MN 55423

RE: Regional Solicitation Application for the 77th St. Underpass of Highway 77

Dear Mr. Pearson:

Thank you for requesting a letter of support from MnDOT for the Metropolitan Council's 2014 Regional Solicitation. Your application for the 77th St. Underpass of Highway 77 project impacts MnDOT right of way on Highway 77.

MnDOT, as the agency with jurisdiction over Highway 77, supports the application for 77th St. Underpass. Details of a future maintenance agreement with the city will be determined during project development to define how the project will be maintained for the project's useful life.

This project currently has no funding from MnDOT.

Sincerely,

A handwritten signature in blue ink that reads "Scott McBride".

Scott McBride, P.E.
Metro District Engineer

Cc: Elaine Koustoukos, Metropolitan Council
April Crockett, MnDOT Metro District – West Area Manager

An Equal Opportunity Employer



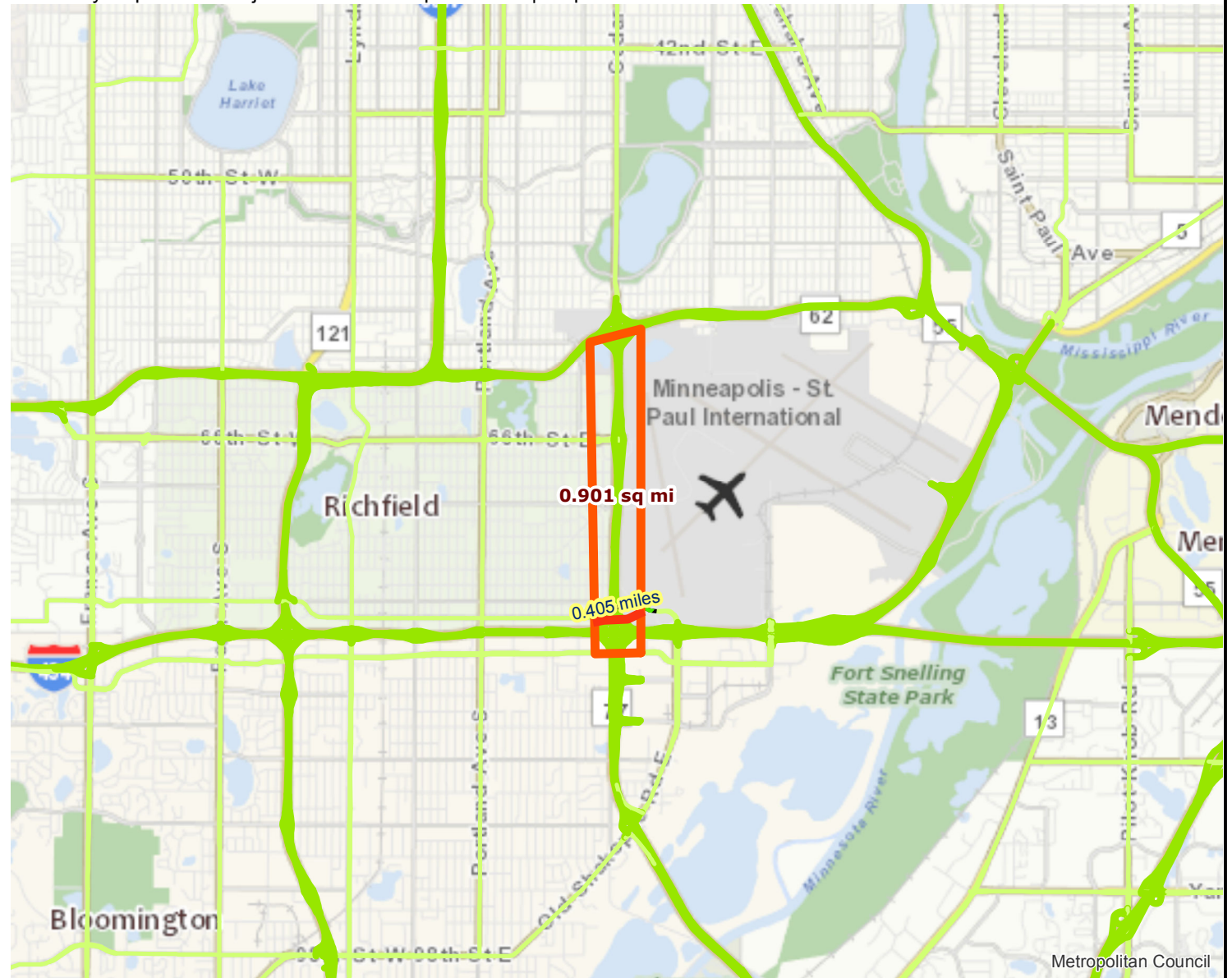
Roadway Area Definition

Roadway Expansion Project: 77thStUnderpassTH77 | Map ID: 1419947119513

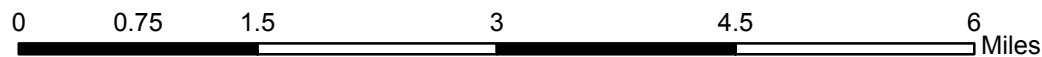
Results

Project Length: 0.405 miles

Project Area: 0.901 sq mi



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



Created: 12/30/2014
LandscapeRSA1



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Regional Economy

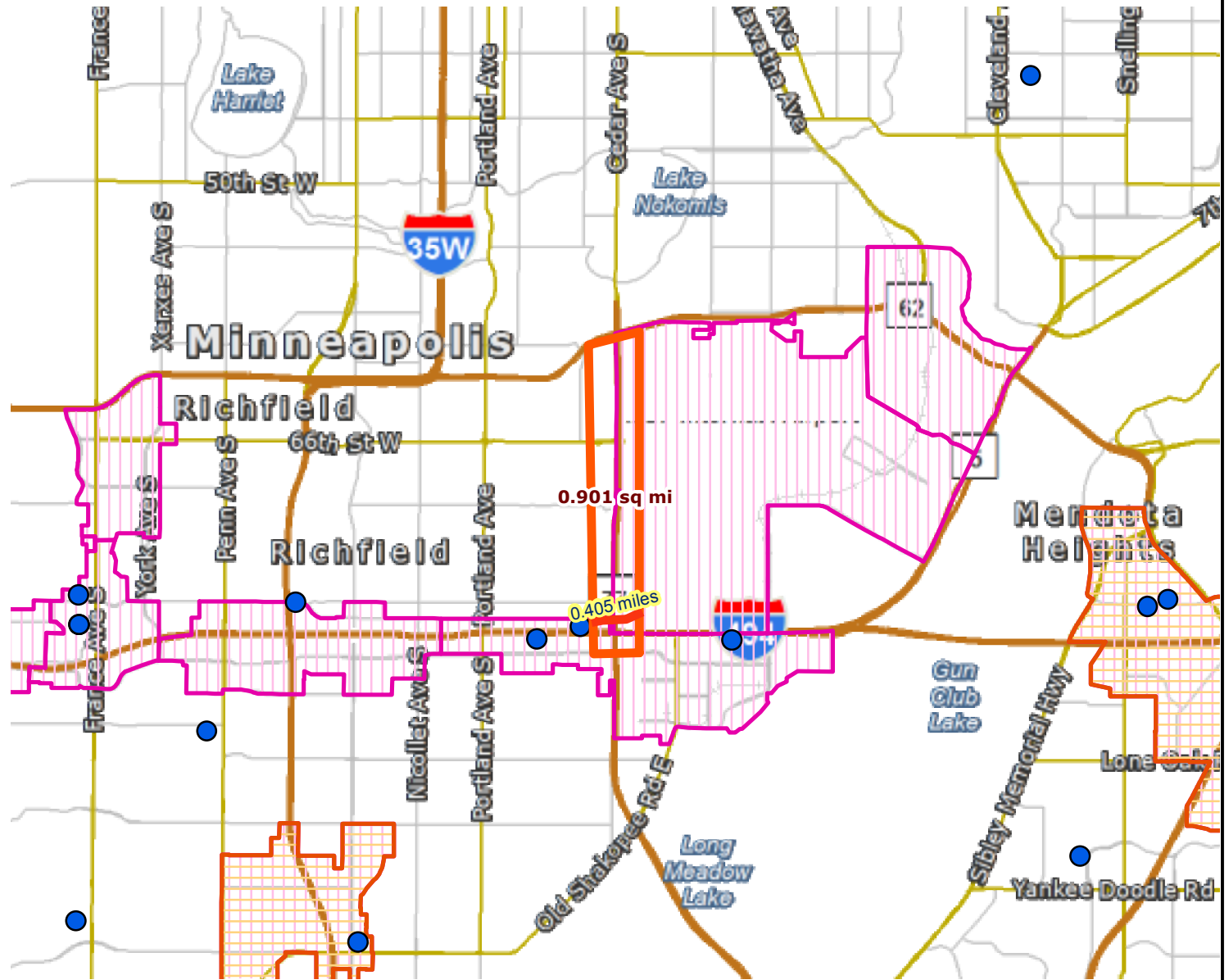
Roadway Expansion Project: 77thStUnderpassTH77 | Map ID: 1419947119513

Results

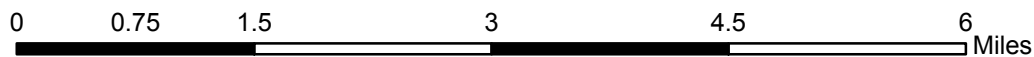
Project **IN** area of Job Concentration.

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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Public Works Department

December 1, 2014

Ms. Elaine Koutsoukos
Transportation Advisory Board Coordinator
Metropolitan Council
390 Robert Street North
St. Paul, MN 55101

MAYOR
DEBBIE GOETTEL

CITY COUNCIL
PAT ELLIOTT
TOM FITZHENRY
EDWINA GARCIA
SUZANNE M. SANDAHL

CITY MANAGER
STEVEN L. DEVICH

Re: 77th Street Underpass – Surface Transportation Program Grant Application
City of Richfield

Ms. Koutsoukos:

The City of Richfield is pleased to submit its grant application for the 77th Street Underpass project. As the agency applying for the Surface Transportation Program grant and as the owner of the roadway, the City of Richfield commits to funding the required local match and to own, operate and maintain the roadway for its useful life.

The city has been working to complete this project to connect 77th Street, a planned A Minor Arterial. The project will provide benefits to the regional transportation system by providing an alternative to I-494 for short- to medium-length trips in Richfield and Bloomington. The city has coordinated with MnDOT to develop concept designs for the underpass of Trunk Highway (TH) 77. MnDOT staff has been supportive of the project.

The City of Richfield looks forward to working with the Metropolitan Council and MnDOT should this project be selected. If you have any questions, please feel free to contact me.

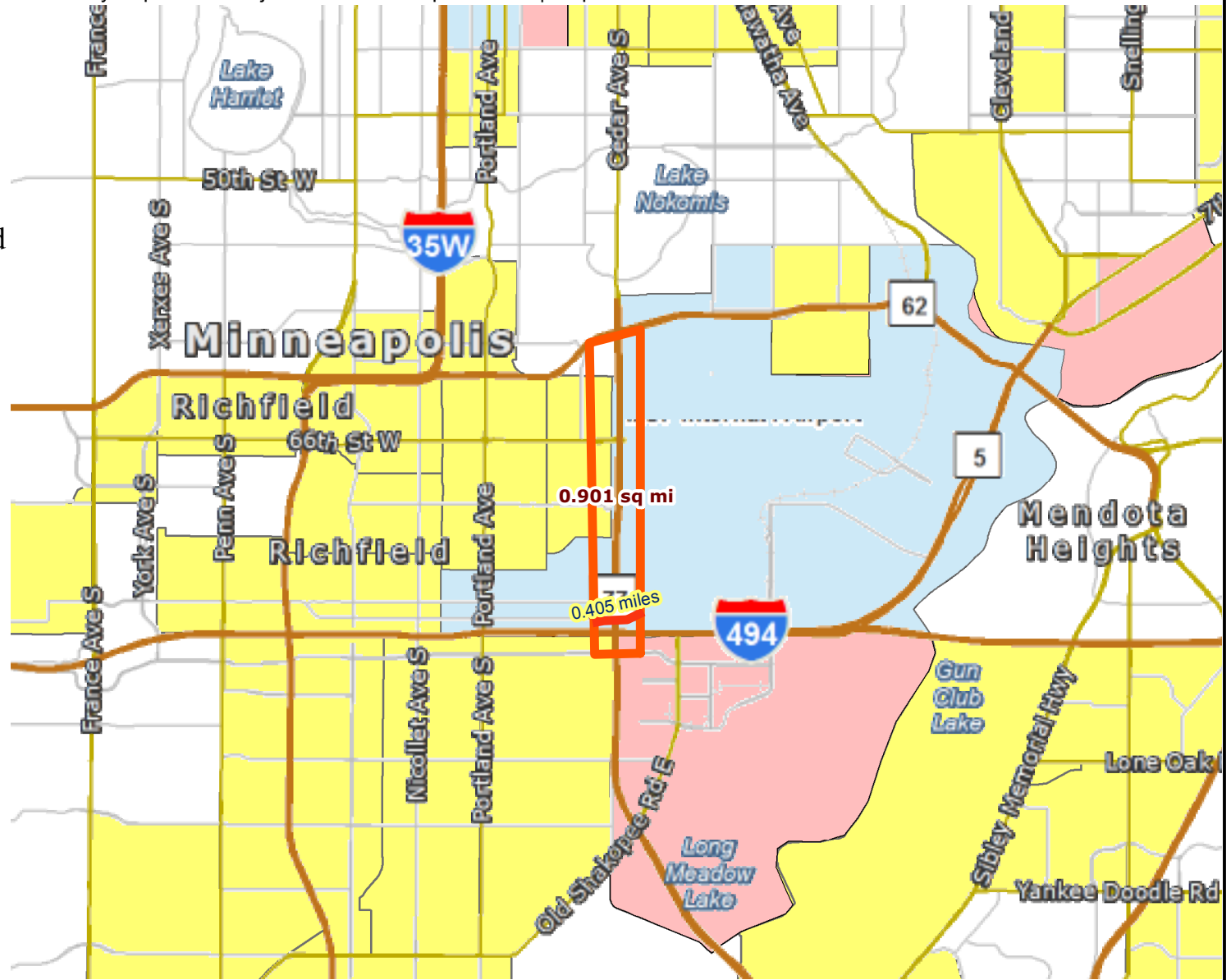
Sincerely,

Mike Eastling
Public Works Director

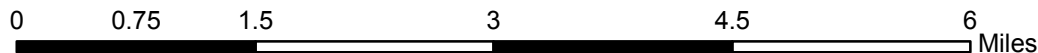
The Urban Hometown

Results

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



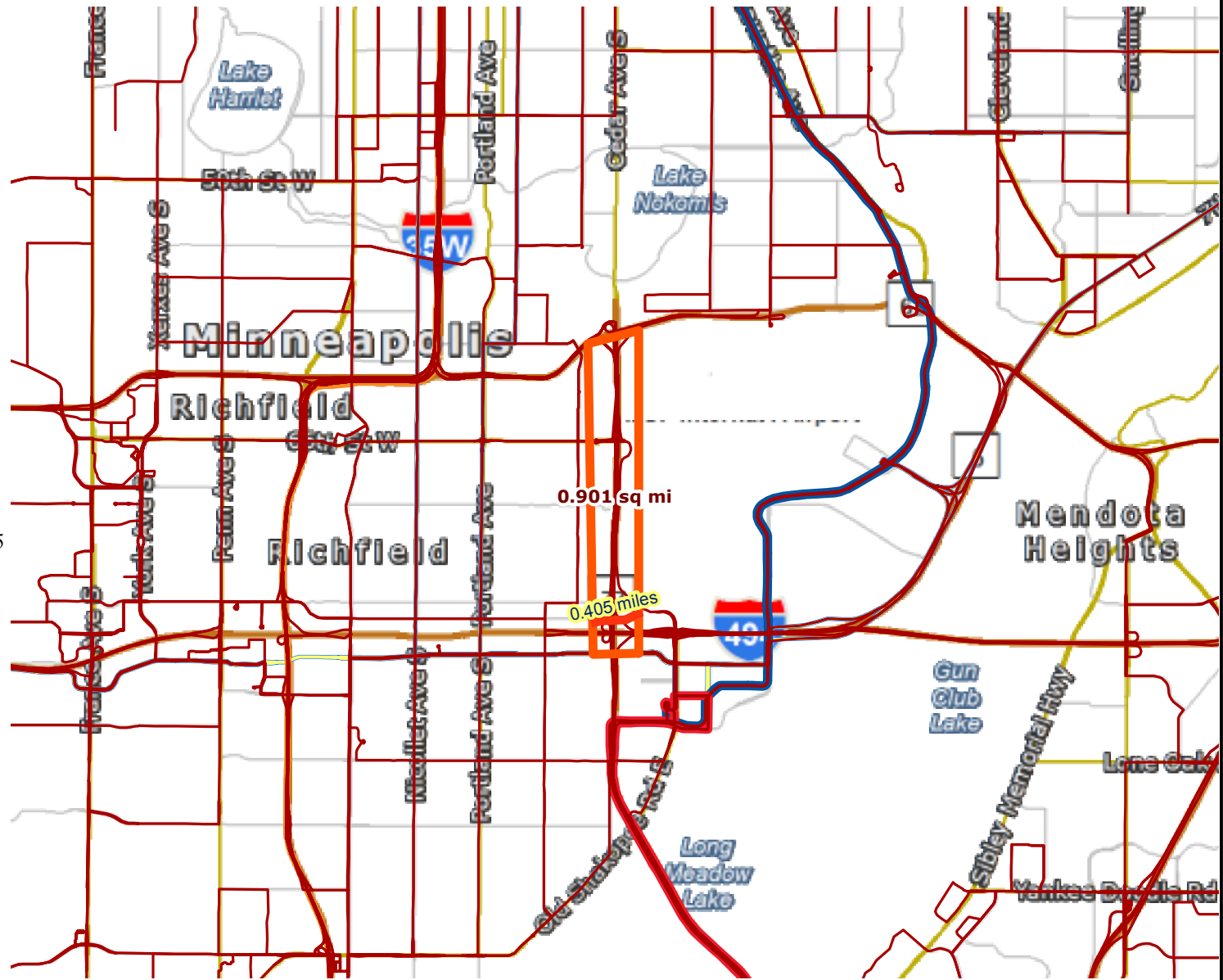
- Project Area
- Project
- Racially concentrated area of poverty
- Concentrated area of poverty
- Above reg'l avg conc of race/poverty




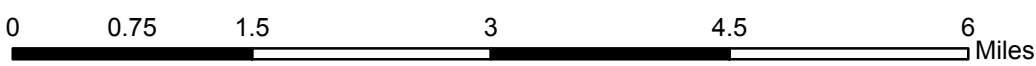
Results

Transit with a Direct Connection to project:
 440 470 472 475 476 477 478 479 491 492 515
 540

*indicates Planned Alignments



 Project	Transitway	Planned Alignments
 Project Area	 Blue Line	 Arterial BRT
 Transit Routes	 Red Line	 BRT, Orange Line



Created: 12/30/2014
 LandscapeRSA3



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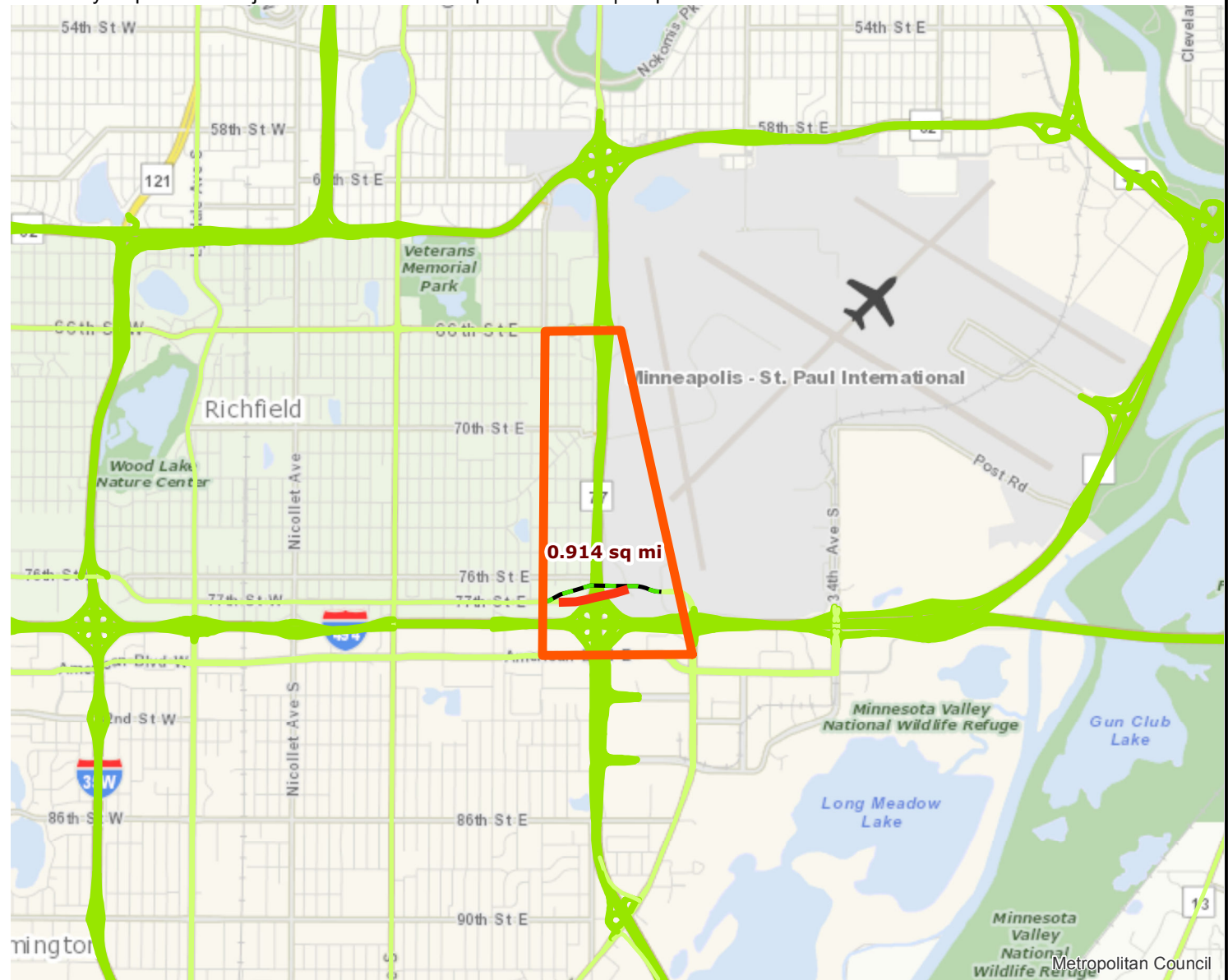
Roadway Area Definition

Roadway Expansion Project: 77th Street Underpass of TH77 | Map ID: 1416434066311

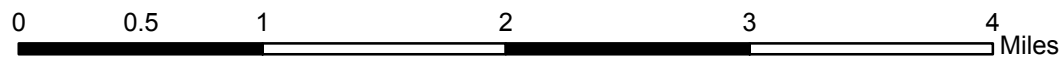
Results

Project Length: 0.355 miles

Project Area: 0.914 sq mi



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



Created: 11/19/2014
LandscapeRSA1



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



Metropolitan Council

Regional Economy

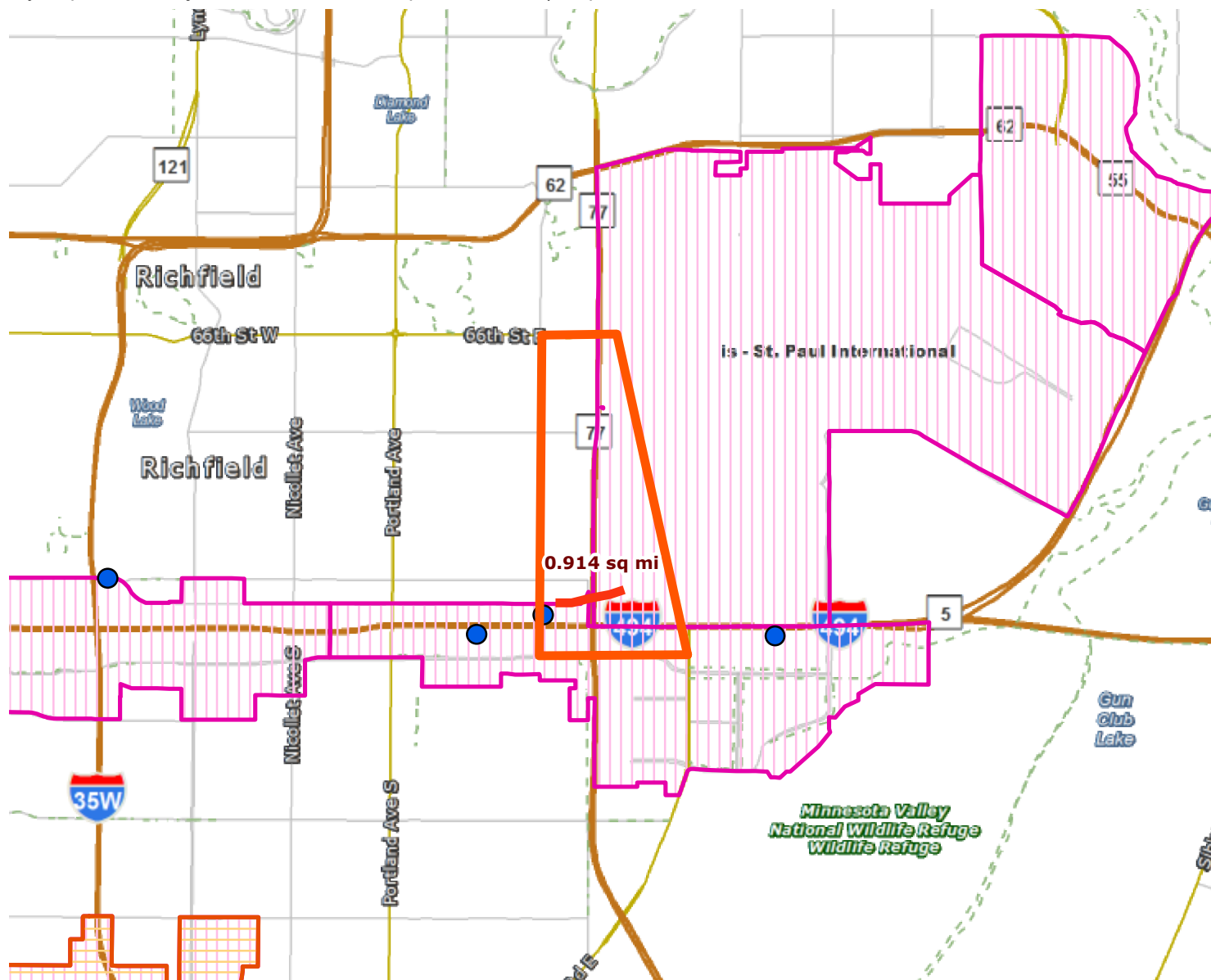
Roadway Expansion Project: 77th Street Underpass of TH77 | Map ID: 1416434066311

Results

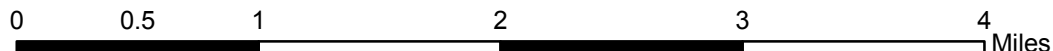
Project **IN** area of Job Concentration.

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: 11/19/2014
LandscapeRSA5



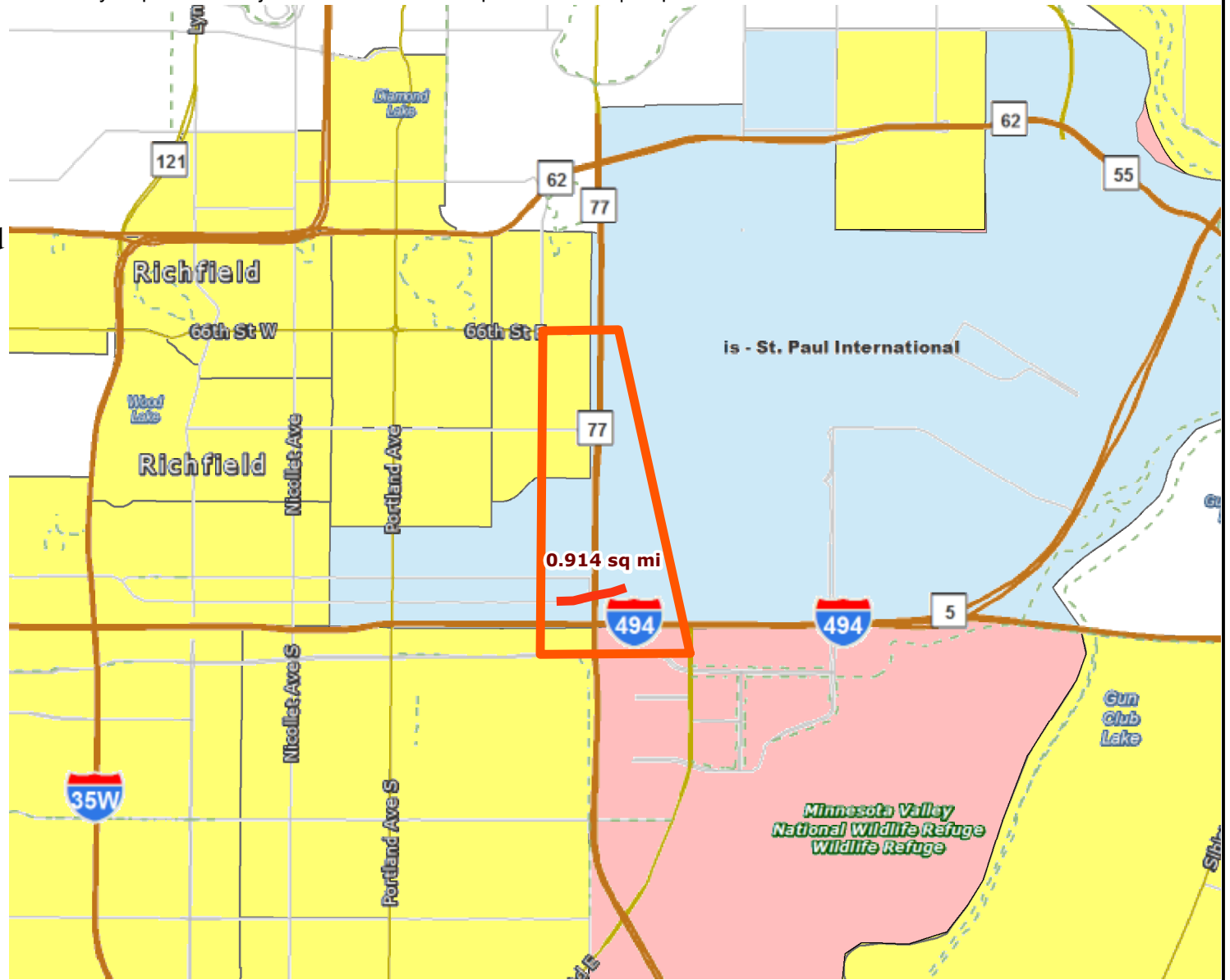
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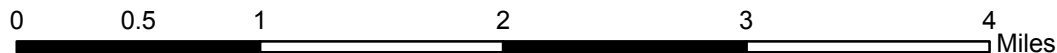
Socio-Economic Conditions Roadway Expansion Project: 77th Street Underpass of TH77 | Map ID: 1416434066311

Results

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



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



Created: 11/19/2014
LandscapeRSA2



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



Emissions calculations for E. 77th Street underpass project

The purpose of this attachment is to document the calculation process for the E. 77th Street underpass project in the City of Richfield for the Metropolitan Council Regional Solicitation application process. The emissions calculations for this project differ from the stated process in the application. The deviation from the standard process is due to the fact that this project involves construction of a new roadway, which involves a system-wide change in traffic flow rather than congestion reduction due to improvements on existing roadways which generally does not change traffic flow on a system level.

The emissions calculations were based on the total system vehicle delay for the peak hour from the Metropolitan Council's regional Travel Demand Model with and without the E. 77th Street underpass. Vehicle emission rates from Synchro were used to calculate the emission reductions based on total vehicle delay.

Table 1: Peak Hour Total Vehicle Hours Traveled

	VHT
No Build	184,402
Build	184,052
Variance	-350

The calculations for the emissions are as follows:

Fuel consumed in gallons (due to total vehicle delay): $0.7329 \times \text{Total Vehicle Delay (hours)}$

CO emissions = $69.9 \text{ grams/gallon} \times \text{fuel consumed (gallons)}$

NOx emissions = $13.6 \text{ grams/gallon} \times \text{fuel consumed (gallons)}$

VOC emissions = $16.2 \text{ grams/gallon} \times \text{fuel consumed (gallons)}$

Inserting the vehicle delay from the travel demand model, the emissions are calculated to be:

Before project:

Fuel consumed = $0.7329 \times 184,402 = 135,148$ gallons

CO emissions = $69.9 \times 135,148 = 9,446,861$ grams = 9,447 kg

NOx emissions = $13.6 \times 135,148 = 1,838,012$ grams = 1,838 kg

VOC emissions = $16.2 \times 135,148 = 2,189,398$ grams = 2,189 kg

After project:

Fuel consumed = $0.7329 \times 184,052 = 134,892$ gallons

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Change in emissions due to project:

CO emissions: $9,429 \text{ kg} - 9,447 \text{ kg} = -18 \text{ kg}$ (18 kg reduction)

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VOC emissions: $2,185 \text{ kg} - 2,189 \text{ kg} = -4 \text{ kg}$ (4 kg reduction)

Documentation for safety measure calculation for E. 77th Street extension/underpass project.

- 1) *Identify the parallel roadway(s) that will be affected by the project.*

The project will draw traffic from American Parkway, I-494, and CSAH 53 (E. 66th Street) due to E. 77th Street's role as a reliever route.

- 2) *Using crash data for the most recent three years, calculate the existing crash rate for the parallel roadway(s) identified in Step 1.*

Crash information for the American Parkway, I-494, and CSAH 53 (E. 66th Street) corridors were requested and received from MnDOT. The crash rate information is as follows:

American Parkway (12th Avenue to 24th Avenue):

Location	Number of Crashes	Daily Entering Vehicles	Crash Rate*			Severity Rate	
			Calculated	Average**	Critical***	Calculated	Average**
American Blvd between 12th Avenue and 24th Avenue (2011-2013)	77	12,300	5.72			8.61	
Metro District				3.4	4.26		4.7
Statewide				3.2	4.03		4.4

I-494 (12th Avenue to 24th Avenue):

Location	Number of Crashes	Daily Entering Vehicles	Crash Rate*			Severity Rate	
			Calculated	Average**	Critical***	Calculated	Average**
I-494 between 12th Avenue and 24th Avenue (2011-2013)	217	134,500	1.47			1.96	
Metro District				1.0	1.14		1.4
Statewide				1.1	1.19		1.4

Note: This includes only crashes on the mainline, 12th Avenue ramps, and 24th Avenue ramps that are impacted by the construction of the E. 77th Street extension.

CSAH 53 (E. 66th Street):

Location	Number of Crashes	Daily Entering Vehicles	Crash Rate*			Severity Rate	
			Calculated	Average**	Critical***	Calculated	Average**
E 66th Street between 12th Avenue and TH 77 (2011-2013)	42	13,400	2.86			4.36	
Metro District				4.4	5.33		5.9
Statewide				3.7	4.57		5.0

Crash information was also provided for the existing segments of E. 77th Street (12th Avenue to Cedar Avenue and Longfellow Avenue to I-494). The proposed project will connect these two segments together.

E. 77th Street (12th Avenue to Cedar Avenue):

Location	Number of Crashes	Daily Entering Vehicles	Crash Rate*			Severity Rate	
			Calculated	Average**	Critical***	Calculated	Average**
E. 77th Street between 12th Avenue and Cedar Avenue (2011-2013)	4	2,200	3.61			5.41	
Metro District				3.4	6.73		4.7
Statewide				3.2	6.43		4.4

E. 77th Street (Longfellow Avenue to I-494):

Location	Number of Crashes	Daily Entering Vehicles	Crash Rate*			Severity Rate	
			Calculated	Average**	Critical***	Calculated	Average**
E. 77th Street between Longfellow Avenue and I-494 (2011-2013)	1	4,000	0.50			0.50	
Metro District				3.4	5.79		4.7
Statewide				3.2	5.51		4.4

Crash rates included intersection- and interchange-related crashes.

- 3) *Identify the daily traffic volume that will be relocated from the parallel roadway(s) to the new roadway.*

The volumes projected to be diverted from parallel roadways were determined using the latest version of the Met Council's Travel Demand Model. The model found that the following daily volumes would be diverted onto the E. 77th Street extension:

- From CSAH 53 (66th Street): 800 vehicles/day
- From I-494: 3,000 vehicles/day
- From American Blvd: 1,900 vehicles/day

- 4) *Calculate the number of crashes on the parallel roadway(s) using the existing crash rate from Step 2 and the relocated traffic volume to determine the change in number of crashes due to the relocated traffic volume.*

The projected number of crashes on CSAH 53 (66th Street), I-494, and American Blvd with the rerouted traffic volumes was calculated using the following formula:

$$\text{Projected number of crashes (3-Year Period)} = \text{Existing number of crashes (3-Year Period)} * \frac{\text{Projected ADT}}{\text{Existing ADT}}$$

American Parkway:

77 crashes * (12,300-1,900) / 12,300 = 65.1 crashes (3-Year Period) = 21.7 crashes per year

(11.9 crashes attributed to the 1,900 diverted vehicles)

I-494:

217 crashes * (134,500-3,000) / 134,500 = 212.2 crashes (3-Year Period) = 70.7 crashes per year

(4.8 crashes attributed to the 4,000 diverted vehicles)

CSAH 53 (E. 66th Street):

42 crashes * (13,400-800) / 13,400 = 39.5 crashes (3-Year Period) = 13.3 crashes per year

(2.5 crashes attributed to the 900 diverted vehicles)

- 5) *Identify the average crash rate for the new roadway using MnDOT's average crash rates by roadway type. Using the average crash rate for the new roadway, calculate the number of crashes related to the relocated traffic.*

The proposed E. 77th Street extension will be constructed as a 4-Lane divided urban roadway, which has an average crash rate of 3.4 crashes per million entering vehicles per mile (including intersection crashes). However, portions of the roadway are already in existence, and the proposed project will simply connect those existing segments. The crash rates for the existing segments were 3.61 and 0.50 crashes per million entering vehicles per mile. Since the existing segments are of about equal length, the crash rates can be averaged together for a segment crash rate of 2.1 crashes per million entering vehicles per mile.

This crash rate projection is considered conservative as well because the proposed connection would only add one additional access point to the roadway along approximately 1/3 mile of segment length. Higher amounts of access points generally correlate to higher crash rates along urban roadway corridors.

The number of crashes on this segment is projected to be:

(3 years) * (0.36 miles segment length) * (365 days/year) * (11,200 vehicles/day) * (2.1 crashes per million entering vehicles per mile of roadway) / 1,000,000 = 9.3 crashes (3-Year Period)

- 6) *Calculate the crash reduction factor using the existing number of crashes on the existing parallel roadways (Step 4) compared to the estimated crashes calculated for the new roadway (Step 5) due to the relocated traffic volume.*

Projected number of crashes on new roadway: 9.3

Existing number of crashes on parallel roadways: 336

Crashes on existing roadways attributed to traffic that would be diverted: 19.2

Crash reduction factor = Future crashes / existing crashes = $(336 - 19.2 + 9.3) / 336 = 0.97$

- 7) *The calculated crash reduction factor should be used in the HSIP B/C worksheet.*

See attached B/C worksheet.

HES

worksheet

Control Section	T.H. / Roadway	Location	Beginning Ref. Pt.	Ending Ref. Pt.	State, County, City or Township	Study Period Begins	Study Period Ends
	E 77th Street	Bloomington Ave S to Longfellow Ave S			Hennepin Co.	1/1/2011	12/31/2013

Description of Proposed Work
Construct E. 77th Street extension as 4-lane divided urban roadway.

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				1				1
	Personal Injury (PI)	A	2			1				3
		B	12	3	2	2	2		2	23
		C	39	7	2	18	3		4	73
	Property Damage	PD	130	50	3	8	22	5	18	236

% Change in Crashes (FHWA CRF Clearinghouse)	Fatal	F									
	Personal Injury (PI)	A	-3%								
		B	-3%	-3%	-3%	-3%	-3%			-3%	
		C	-3%	-3%	-3%	-3%	-3%			-3%	
	Property Damage	PD	-3%	-3%	-3%	-3%	-3%	-3%	-3%	-3%	

Change in Crashes = No. of crashes X % change in crashes	Fatal	F									-0.03	
	Personal Injury (PI)	A	-0.06									-0.09
		B	-0.36	-0.09	-0.06	-0.06	-0.06			-0.06		-0.69
		C	-1.17	-0.21	-0.06	-0.54	-0.09			-0.12		-2.19
	Property Damage	PD	-3.90	-1.50	-0.09	-0.24	-0.66	-0.15		-0.54		-7.08

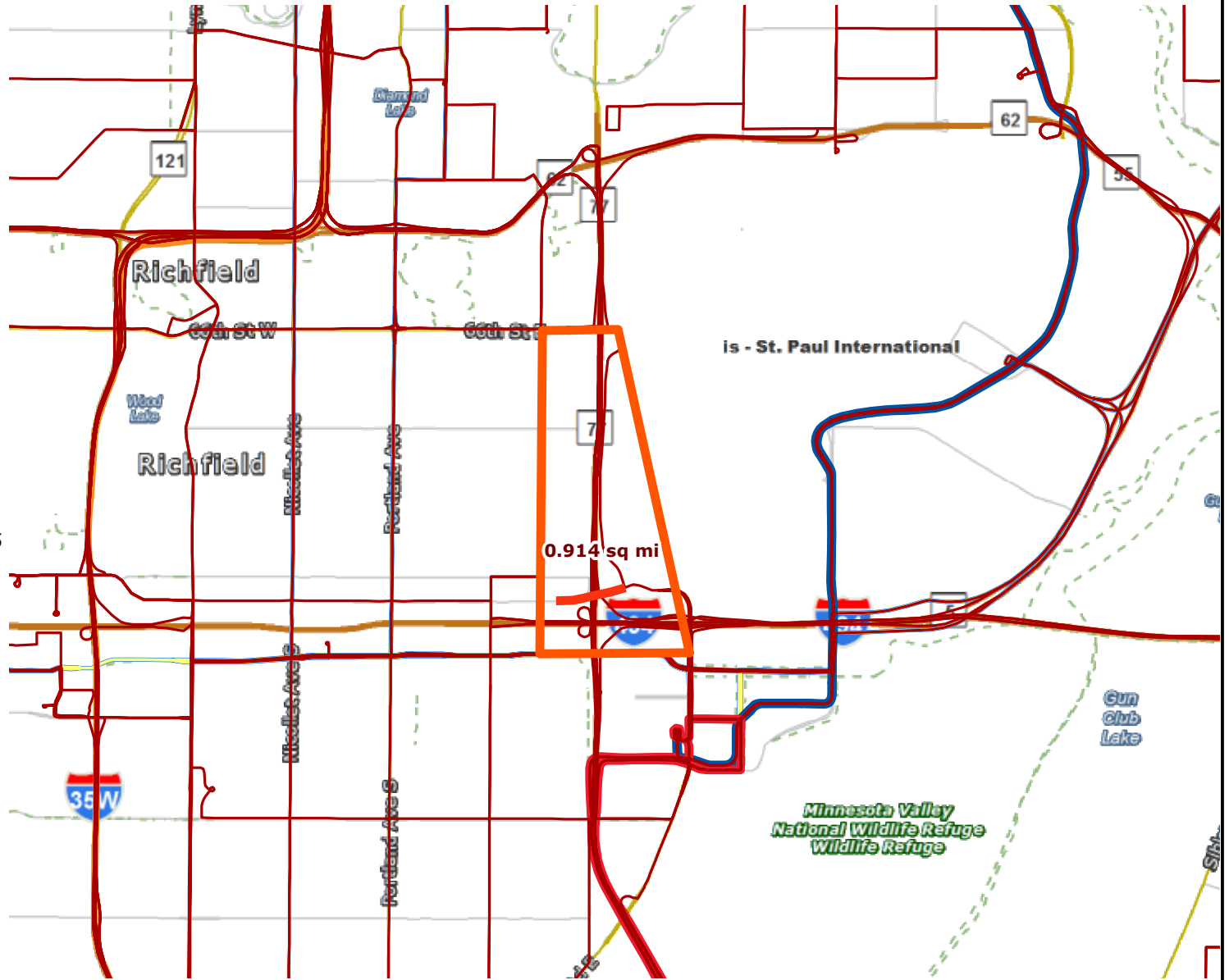
Year (Safety Improvement Construction) **2016**

		Type of Crash	Study Period: Change in Crashes	Annual Change in Crashes	Cost per Crash	Annual Benefit
Project Cost (exclude Right of Way)	\$ 15,000,000					
Right of Way Costs (optional)		F	-0.03	-0.01	\$ 6,800,000	\$ 68,000
Traffic Growth Factor	2%	A	-0.09	-0.03	\$ 390,000	\$ 11,700
Capital Recovery		B	-0.69	-0.23	\$ 121,000	\$ 27,830
1. Discount Rate	4.5%	C	-2.19	-0.73	\$ 75,000	\$ 54,750
2. Project Service Life (n)	20	PD	-7.08	-2.36	\$ 12,000	\$ 28,320
		Total				\$ 190,600

B/C= 0.20

Using present worth values,
B= \$ 3,058,263
C= \$ 15,000,000
 See "Calculations" sheet for amortization.

Office of Traffic, Safety and Operations
November 2007

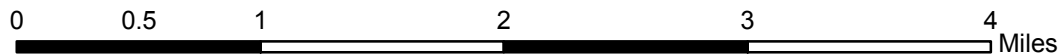


Results

Transit with a Direct Connection to project:
 440 470 472 475 476 477 478 479 491 492 515
 540

*indicates Planned Alignments

- Project
- Project Area
- Transitway**
- Blue Line
- Red Line
- BRT, Orange Line
- Arterial BRT
- Planned Alignments



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 LandscapeRSA3



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

