Application

01967 - 2014 Roadway Expansion

02294 - CSAH 78 Expansion from 139th Ln to CSAH 18

Regional Solicitation - Roadways Including Multimodal Elements

Status:	Submitted
Submitted Date:	11/26/2014 12:28 PM

Primary Contact

Name:*

Salutation	First Name	Middle Name	Last Name
	Jack	L	Forslund

Title: Multimodal Planning Manager

Department: Anoka County Transportation Division

Email: jack.forslund@co.anoka.mn.us

Address: 1440 Bunker Lake Boulevard NW

*

City	State/Province	Postal Code/Zip
Andover	Minnesota	55304-4005

Phone:*

Phone	Ext.
763-862-4230	

Fax: 763-862-4201

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

Organization Information

Name: ANOKA COUNTY

Jurisdictional Agency (if different):

Organization Type: County Government

Organization Website:

Address: 1440 BUNKER LAKE BLVD

*	ANDOVER	Minnesota	55304
	City	State/Province	Postal Code/Zip

County: Anoka

Phone:* 763-862-4200 Ext.

Fax:

PeopleSoft Vendor Number 0000003633A15

Project Information

Project Name CSAH 78 Expansion from 139th Ln to CSAH 18

Primary County where the Project is Located Anoka

Jurisdictional Agency (If Different than the Applicant):

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

Anoka County proposes the expansion of CSAH 78 (Hanson Blvd) in Andover to four lanes from 139th Ln to CSAH 18 (Crosstown Blvd) to improve mobility and safety in the corridor. With only two existing lanes for through traffic, the road is woefully underbuilt to handle the traffic it currently sees, let alone forecasted volumes for 2030. The road currently has an annual average daily traffic (AADT) count of 16,500, and by 2030 AADT is expected to jump to nearly 30,000 vehicles. Due to the lack of arterials in this part of Anoka County, CSAH 78 (an A Minor Expander Arterial) serves as the primary north-south roadway for the City and the large travelshed to the north.

Beyond serving as a roadway for regional trips and major commuter route, traffic along CSAH 78 is also driven by a series of destinations along the roadway segment including the largest elementary school in the state (Andover Elementary), Oakview Middle School, the most visited YMCA in the Metro, City Hall, two major commercial nodes. And, The roadway connects to DSTI, named by Inc. Magazine as one of the fastest growing manufacturers in the country. The roadway also serves Bunker Hills Regional Park, Andover High School, two fire stations, and the Anoka County Sheriffs Office and Highway Department. These destinations combine to create high levels of congestion, especially during the morning commute when school traffic (over 4,300 students in the three schools combined) mixes with commuters.

The CSAH 78 project will expand the heavily congested two-lane roadway to a four-lane divided facility with six-foot paved shoulders, thereby extending an existing four-lane section to make it four lanes from CSAH 1 (Coon Rapids Blvd) to CSAH 18. The project will also include improvements to the multiuse trail adjacent to

CSAH 78 along with a reconfiguration of intersections along the segment.

The proposed project will result in myriad benefits, including the following:

Lower emissions and reduced peak hour delay. Reduced emissions will also improve the travel quality of pedestrians and bicyclists using the adjacent trail.

Improved safety from lessened travel delay for emergency vehicles traveling through the corridor. Andover Fire Stations No. 1 and 3 and the Anoka County Sheriffs Office are on either end of the project area.

Greater resiliency due to the increased capacity in the corridor. When an incident happens, traffic will be able to flow around it using the additional lanes.

Overall, the CSAH 78 expansion will vastly improve the quality of peoples lives by allowing them to travel without the delay and congestion they currently face. Further, the improved multimodal facilities will continue to serve as a critical link between education, employment, and civic centers.

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

Project Length (Miles) 1.52

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 City of Andover 2008 Comprehensive Plan Update, Chapter 3 p 24, 30-37

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	$7,000,000.00
Match Amount	$4,604,000.00
Minimum of 20% of project total	
Project Total	$11,604,000.00
Match Percentage	39.68%
Minimum of 20% *Compute the match percentage by dividing the match amount by the project total*	
Source of Match Funds	Anoka County

Preferred Program Year

Select one:	2019

MnDOT State Aid Project Information: Roadway Projects

County, City, or Lead Agency	Anoka County
Functional Class of Road	A Minor Expander Arterial
Road System	CSAH
TH, CSAH, MSAS, CO. RD., TWP. RD., CITY STREET	
Name of Road	CSAH 78 (Hanson Blvd)
Example; 1st ST., MAIN AVE	
Zip Code where Majority of Work is Being Performed	55304
(Approximate) Begin Construction Date	03/01/2019
(Approximate) End Construction Date	11/30/2019

LOCATION

From: **(Intersection or Address)**	139th Ln
Do not include legal description; *Include name of roadway if majority of facility runs adjacent to a single corridor.*	
To: **(Intersection or Address)**	CSAH 18 (Crosstown Blvd
Type of Work	Bridge, Multiuse trails, Storm sewer, Grade, Paved Surface, ADA ramps
Examples: grading, aggregate base, bituminous base, bituminous surface, sidewalk, signals, lighting, guardrail, bicycle path, ped ramps, bridge, Park & Ride, etc.)	
Old Bridge/Culvert?	Yes
New Bridge/Culvert?	Yes
Structure is Over/Under **(Bridge or culvert name):**	Coon Creek

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Mobilization (approx. 5% of total cost)	$475,000.00
Removals (approx. 5% of total cost)	$475,000.00
Roadway (grading, borrow, etc.)	$1,883,000.00
Roadway (aggregates and paving)	$2,824,000.00
Subgrade Correction (muck)	$700,000.00
Storm Sewer	$2,375,000.00
Ponds	$100,000.00
Concrete Items (curb & gutter, sidewalks, median barriers)	$718,000.00
Traffic Control	$50,000.00
Striping	$80,000.00
Signing	$80,000.00
Lighting	$0.00
Turf - Erosion & Landscaping	$160,000.00
Bridge	$1,000,000.00
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	$0.00
Other Roadway Elements	$0.00
Totals	**$11,420,000.00**

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Path/Trail Construction	$120,000.00
Sidewalk Construction	$0.00
On-Street Bicycle Facility Construction	$0.00
Right-of-Way	$0.00

Pedestrian Curb Ramps (ADA)	$64,000.00
Crossing Aids (e.g., Audible Pedestrian Signals, HAWK)	$0.00
Pedestrian-scale Lighting	$0.00
Streetscaping	$0.00
Wayfinding	$0.00
Bicycle and Pedestrian Contingencies	$0.00
Other Bicycle and Pedestrian Elements	$0.00
Totals	**$184,000.00**

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	$11,604,000.00
Construction Cost Total	$11,604,000.00
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. Yes

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. Yes

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. Yes

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. Yes

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

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

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

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

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. Yes

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
City of Andover Resolution of Support.pdf	Resolution of Support: City of Andover	57 KB
CSAH 78 Attachments - FINAL.pdf	Figure 1: Project Limits and Context Figures 2-3: Roadway Improvements	2.9 MB

Reliever: Freeway Facility or

Facility being relieved

Number of hours per day volume exceeds capacity (based on the Congestion Report) 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:	Expander
Area	6.47
Project Length	1.52
Average Distance	4.2566
Upload Map	Definition.pdf

Measure B: Current Heavy Commercial Traffic

Location	141st to CR 16 (Andover Blvd)
Current daily heavy commercial traffic volume	4020.0

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	
Direct connection to or within a mile of a Manufacturing/Distribution Location	
Direct connection to or within a mile of an Educational Institution	
Project provides a direct connection to or within a mile of an existing local activity center identified in an adopted county or city plan	Yes
County or City Plan Reference (Limit 700 characters; approximately 100 words)	The CSAH 78 expansion will connect the two identified activity centers of Andover City Center Complex/Clocktower Commons on the north end of the project area and the Andover Station North on the south of the project area (City of Andover 2008 Comprehensive Plan Update). The activity centers contain high concentrations of commercial and industrial jobs, as well as local government services, schools, and recreational facilities.
Upload Map	Economy.pdf

Measure A: Current Daily Person Throughput

Location	141st to CR 16 (Andover Blvd)
Current AADT Volume	16500.0
Existing Transit Routes on the Project	N/A

Response: Current Daily Person Throughput

Average Annual Daily Transit Ridership	0
Current Daily Person Throughput	21450.0

Measure B: 2030 Forecast ADT

Use Metropolitan Council model to determine forecast (2030) ADT volume	
METC Staff - Forecast (2030) ADT volume	0
OR	
Approved county or city travel demand model to determine forecast (2030) ADT volume	Yes
Forecast (2030) ADT volume	29700.0

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	
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 CSAH 78 expansion will greatly aid children and people accessing jobs and public services. The project is in a census tract (502.22) with 36.5 percent of its residents under 18 years old, far above the Metros average of 24.9 percent (2012 5-Year ACS).

A primary benefit is a decrease in congestion on a road surrounded by three schools, which collectively have over 4,300 students. The road is roughly 35 percent over capacity and is expected to dramatically worsen by 2030. The congestion greatly increases the travel time to the schools, especially in the morning, and reduces the air quality near the schools.

The travel delays also impact children and others accessing the most-used YMCA in the Metro and City Hall within the project area. Plus, congestion increases response times from the areas fire stations or sheriffs office, which is particularly concerning for populations at higher risk for emergencies such as disabled people or the elderly.

CSAH 78s large travelshed includes an area above the regional average concentration of race/poverty, and the project will improve access to several job centers in the area.

The trail along CSAH 78 and other pedestrian facilities will enhance non-motorized access through the corridor. Bicycle and pedestrian facilities are particularly important for low-income residents, children, and others since the area lacks transit service.

Upload Map

Socio-Economic.pdf

Measure B: Affordable Housing

City/Township	Segment Length (Miles)
Andover	1.52
	2

Total Project Length

Total Project Length	1.52

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
Andover	1.52	1.52	47.0	1.0	47.0
		2	**47**	**1**	**47**

Affordable Housing Scoring - To Be Completed By Metropolitan Council Staff

Total Project Length (Miles)	1.52
Total Housing Score	47.0

Measure A: Year of Roadway Construction

Year of Original Roadway Construction or Most Recent Reconstruction	Roadway Segment Length (Miles)	Calculation	Calculation 2
1982.0	0.34	673.88	443.342
1983.0	0.56	1110.48	730.579
2002.0	0.26	520.52	342.447
2007.0	0.36	722.52	475.342
	2	**3027**	**1992**

Average Construction Year

Weighted Year	1991.71

Total Segment Length (Miles)

Total Segment Length	1.52

Measure A: Cost Effectiveness of Vehicle Delay Reduction

Total Project Cost from Cost Sheet	$11,604,000.00
Total Peak Hour Vehicle Delay Without The Project	65743.0
Total Peak Hour Vehicle Delay With The Project	31738.0
Total Peak Hour Vehicle Delay Reduced by Project	34005.0
Cost Effectiveness	$341.24
Synchro or HCM Reports	CSAH 78 - HCM.pdf

Measure B: Cost Effectiveness of Emissions Reduction

Total Project Cost from Cost Sheet	$11,604,000.00
Total Peak Hour Kilograms Reduced by Project	0.82
Cost Effectiveness	$14,151,219.51
Synchro or HCM Reports	CSAH 78 - HCM.pdf

Measure A: Benefit/Cost of Crash Reduction

Project Benefit/Cost Ratio	0.59
Worksheet Attachment	CSAH 78 Complete Analysis.pdf

Measure A: Transit Connections

Existing Routes Directly Connected to the Project	N/A
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	0
Transitway Ridership	0

Measure B: Bicycle and Pedestrian Connections

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

As shown in Figure 1, the CSAH 78 corridor currently contains a multiuse trail adjacent to the road throughout the project area. The trail is part of a larger trail system connecting users to all parts of Andover and the greater region. The CSAH 78 portion of the trail provides access to an existing regional trail running along CSAH 116 (Bunker Lake Blvd) on the south edge of the project.

A sidewalk along CR 16 provides pedestrian access between the projects trails and Andover High School to the west.

The CSAH 78 bridge offers a non-motorized crossing of Coon Creek. All signalized intersections include crosswalks on all sides of the intersection, and minor intersections have them running parallel to CSAH 78.

The projects non-motorized facilities will provide direct access to high pedestrian-traffic activity centers identified in the City of Andover 2008 Comprehensive Plan Update:

Andover Station and Andover Station North, a walkable mixed-use neighborhood on the south end of the project with commercial, residential, recreational, industrial and civic destinations. The development area includes an internal network of sidewalks to aid pedestrian mobility between destinations.

Andover City Center Complex and Clocktower Commons, an area on the north end of the project with commercial Andover City Hall, a YMCA, Andover Elementary School and Sunshine Park.

Measure C: Multimodal Facilities

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

The existing high quality multiuse trail adjacent to CSAH 78 and crosswalks throughout the corridor will be improved as part of the project to ensure that the safety, security and traveling comfort of non-motorized travelers are enhanced. The expanded bridge in the project area will provide a non-motorized crossing of Coon Creek, and intersections will include marked ADA compliant crosswalks.

The projects shoulders will provide a level of resiliency to the non-motorized network, offering an alternate path through the corridor in the event of an incident requiring a temporary closure of the trail.

A median will be included to help provide a pedestrian refuge in the center of CSAH 78.

The proposed project is in a Transit Market Area IV according to the Metropolitan Councils 2030 Transportation Policy Plan, meaning that the area can only support Dial-a-Ride and limited peak period express service. This project does not directly incorporate transit facilities, but the included trail does help provide non-motorized access to transit service approximately two miles away and the Northstar Commuter Rail Line station at Riverdale Blvd in Coon Rapids.

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 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

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

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

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

Yes

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

9)Letting

Anticipated Letting Date 11/12/2018

CITY OF ANDOVER

1685 CROSSTOWN BOULEVARD N.W. • ANDOVER, MINNESOTA 55304 • (763) 755-5100
FAX (763) 755-8923 • WWW.ANDOVERMN.GOV

November 18, 2014

Douglas W. Fischer, P.E.
County Engineer
Anoka County Highway Department
1440 Bunker lake Blvd. NW
Andover, MN 5304

RE: REGIONAL FUNDING SOLICITATION – CSAH 78

Dear Doug,

The City of Andover is writing this letter in regards to this year's federal funding solicitation. We understand that Anoka County would like to submit an application for the expansion and reconstruction of CSAH 78 in our community.

This letter is in support of the project and for Anoka County to pursue federal funding. The City of Andover and Anoka County continue to coordinate their efforts in improving the area's transportation issues. We feel this project will help address safety and mobility issues occurring in the area.

If you have any further questions in regard to the project on the city's end, please feel free to contact us.

Sincerely,

Michael R. Gamache
Mayor
City of Andover

CITY OF ANDOVER
COUNTY OF ANOKA
STATE OF MINNESOTA

RES. NO. R089-14

SUPPORTING ANOKA COUNTY FEDERAL FUNDING APPLICATION FOR CSAH 78

WHEREAS, CSAH 78 is an "A" minor arterial reliever route that provides an important north-south transportation connection in Anoka County, and,

WHEREAS, traffic volumes on CSAH 78 have been increasing over the past decade and are expected to continue to increase in the future as the cities in and around the roadway continue to grow, and,

WHEREAS, existing and future traffic volumes are such that safety is a concern at intersections and along some segments of the corridor, and,

WHEREAS, existing and future traffic volumes are such that congestion is and will continue to negatively impact the ability of the corridor to move traffic, and

WHEREAS, Anoka County has identified this corridor as needing safety and capacity improvements, and,

WHEREAS, Anoka County and the City of Andover have worked together in the past to improve the area's transportation system, and,

WHEREAS, Anoka County would like to submit an application to the Transportation Advisory Board to the Metropolitan Council for 2017 - 2019 to receive federal transportation funds to make capacity and safety improvements on CSAH 78.

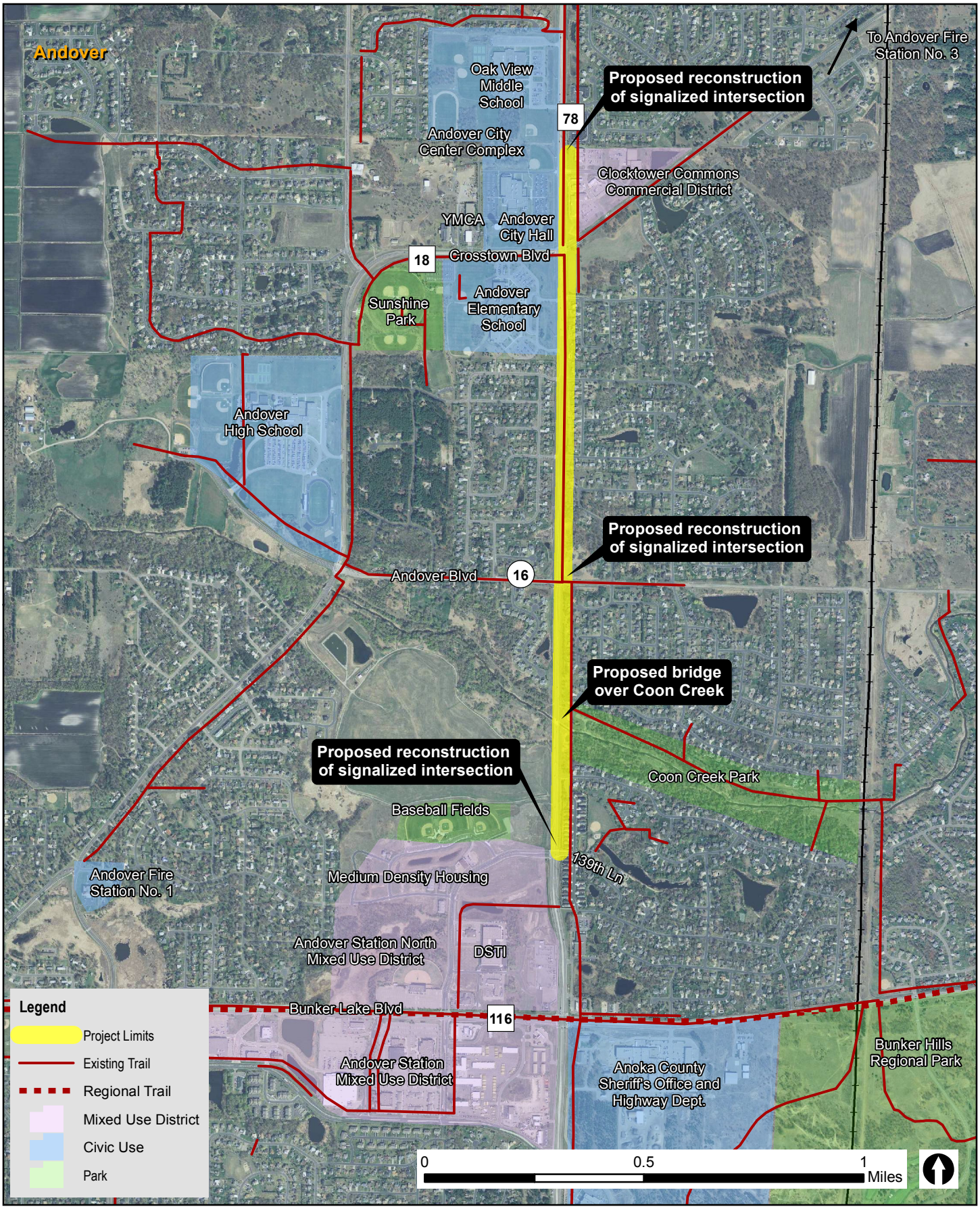
NOW THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF ANDOVER, MINNESOTA:

That the City of ANDOVER supports Anoka County in preparing and submitting an application for CSAH 78 in the Roadway Expansion category.

Adopted by the Andover City Council this 18th day of November, 2014

Michael R. Gamache - Mayor

Michelle Hartner – Deputy City Clerk



Project Limits

CSAH 78 Expansion from 139th Ln to CSAH 18

Anoka County

Figure 1

Proposed Improvements - North

CSAH 78 Expansion from 139th Ln to CSAH 18

Anoka County

Figure 2

Proposed Improvements - South

CSAH 78 Expansion from 139th Ln to CSAH 18

Anoka County

Figure 3

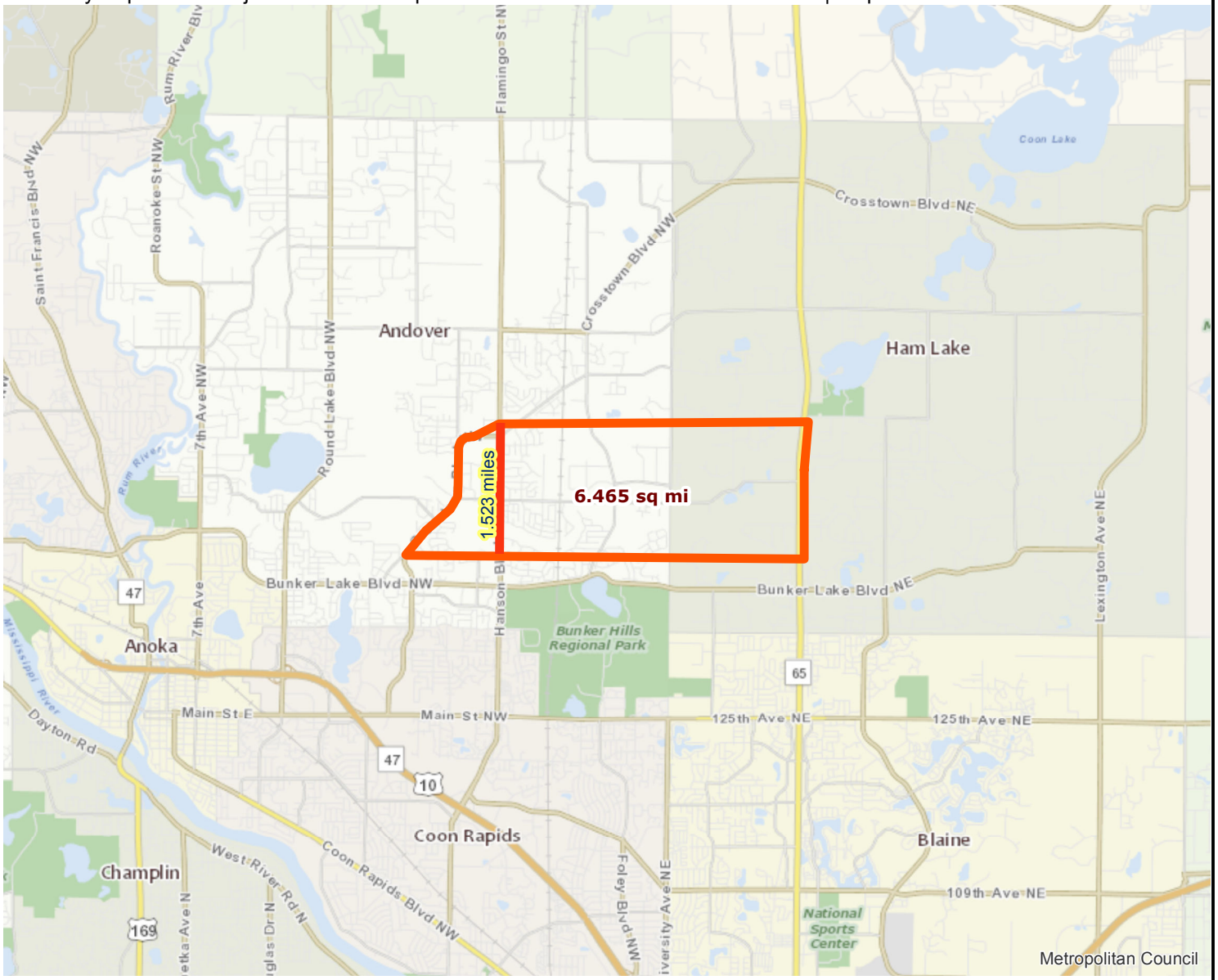
Roadway Area Definition

Roadway Expansion Project: CSAH 78 Expansion from 139th Ln to Crosstown Blvd | Map ID: 1415294166966

Results

Project Length: 1.523 miles

Project Area: 6.465 sq mi



Project

Project Area

0 1 2 4 6 8 Miles

Created: 11/6/2014

LandscapeRSA1

METROPOLITAN COUNCIL

Regional Economy

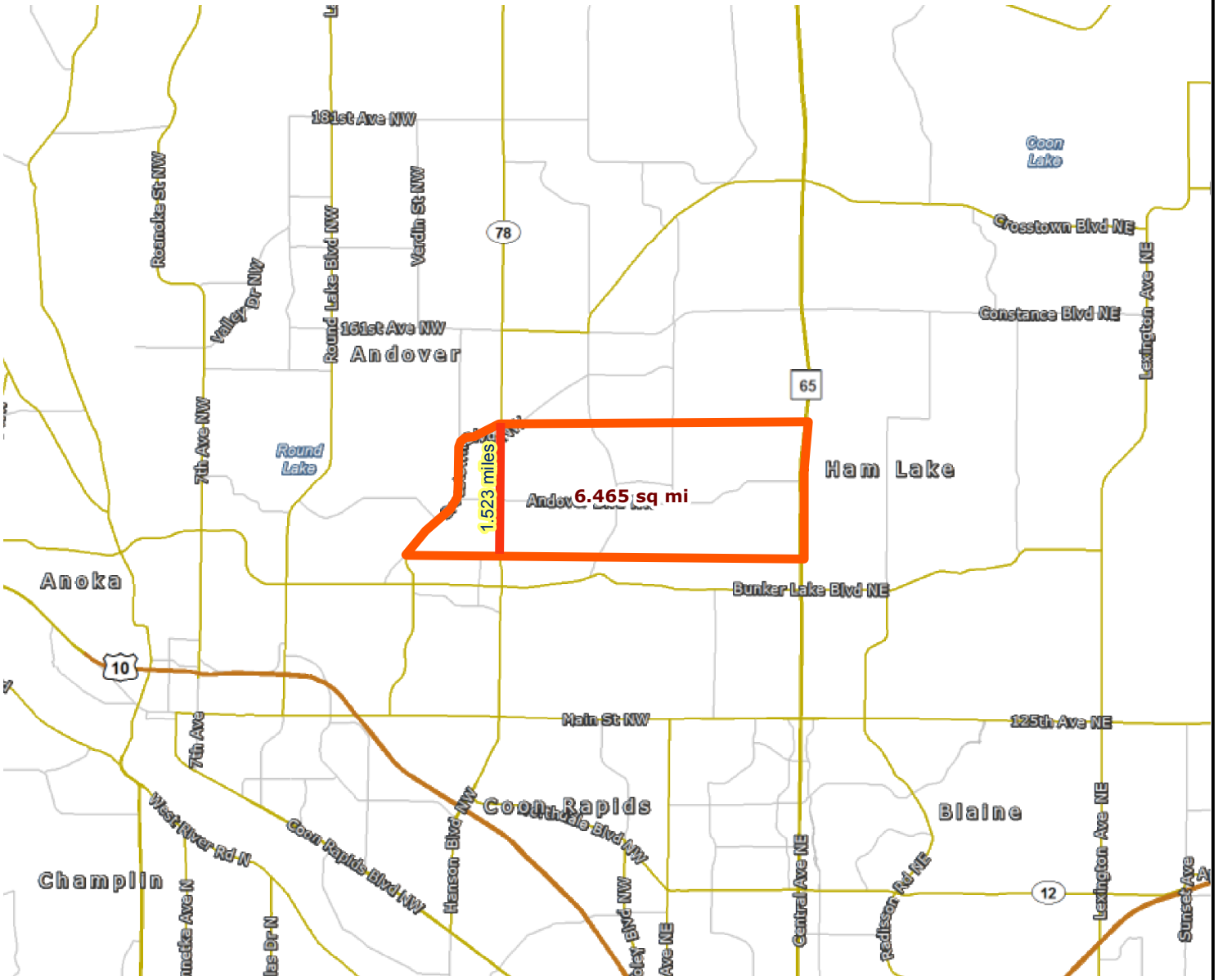
Roadway Expansion Project: CSAH 78 Expansion from 139th Ln to Crosstown Blvd | Map ID: 1415294166966

Results

Project **NOT IN** area of Job Concentration.

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

Project **NOT CONNECTED** to area of Education Institutions.



Project

Project Area

0 1 2 4 6 8 Miles

Created: 11/6/2014
LandscapeRSA5

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

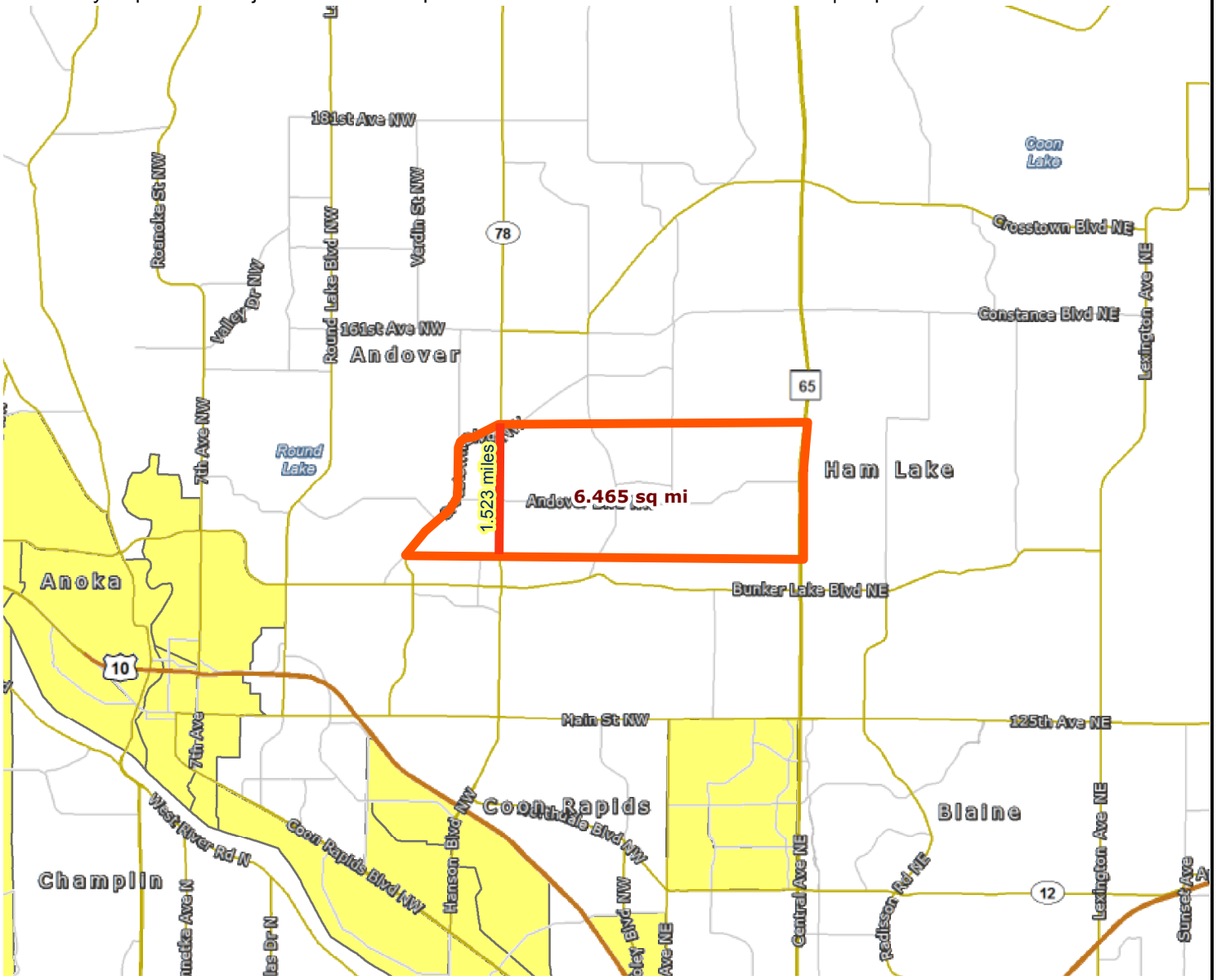
METROPOLITAN COUNCIL

Socio-Economic Conditions

Roadway Expansion Project: CSAH 78 Expansion from 139th Ln to Crosstown Blvd | Map ID: 1415294166966

Results

Project **NOT IN** any area of concentrated poverty.



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

0 1 2 4 6 8 Miles

Created: 11/6/2014
LandscapeRSA2

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

METROPOLITAN COUNCIL

3: CSAH 78 & CSAH 16

Direction	All
Volume (vph)	2267
Total Delay / Veh (s/v)	29
CO Emissions (kg)	2.48
NOx Emissions (kg)	0.48
VOC Emissions (kg)	0.57

3: CSAH 78 & CSAH 16

Direction	All
Volume (vph)	2267
Total Delay / Veh (s/v)	14
CO Emissions (kg)	1.90
NOx Emissions (kg)	0.37
VOC Emissions (kg)	0.44

3: CSAH 78 & CSAH 16

Direction	All
Volume (vph)	2267
Total Delay / Veh (s/v)	29
CO Emissions (kg)	2.48
NOx Emissions (kg)	0.48
VOC Emissions (kg)	0.57

3: CSAH 78 & CSAH 16

Direction	All
Volume (vph)	2267
Total Delay / Veh (s/v)	14
CO Emissions (kg)	1.90
NOx Emissions (kg)	0.37
VOC Emissions (kg)	0.44

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
	CSAH 78	From 139th Lane to 150th Avenue			Andover	1/1/2011	12/31/2013

Description of Proposed Work: Install a through lane in each direction. Install a median.

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		1						**2**
		C	6					1			**7**
	Property Damage	**PD**	7		1	1	1				**10**
% Change in Crashes *Use Crash Modification Factors Clearinghouse	Fatal	**F**									
	PI	**A**						-65%			
		B	-71%		-82%						
		C	-71%					-65%			
	Property Damage	**PD**	-71%		-82%	-66%	-65%				
Change in Crashes = No. of crashes **x** % change in crashes	Fatal	**F**									
	PI	**A**						**-0.65**			**-0.65**
		B	**-0.71**		**-0.82**						**-1.53**
		C	**-4.26**					**-0.65**			**-4.91**
	Property Damage	**PD**	**-4.97**		**-0.82**	**-0.66**	**-0.65**				**-7.10**

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

Project Cost (exclude Right of Way): **$ 11,764,000**

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	**-0.65**	**-0.22**	**$ 550,000**	**$ 119,167**
B	**-1.53**	**-0.51**	**$ 160,000**	**$ 81,600**
C	**-4.91**	**-1.64**	**$ 81,000**	**$ 132,570**
PD	**-7.10**	**-2.37**	**$ 7,400**	**$ 17,513**
Total				**$ 350,850**

B/C= 0.52

Using present worth values,

B= $ 6,137,741

C= $ 11,764,000

See "Calculations" sheet for amortization.

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

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
	CSAH 78	At CR 18 (Crosstown Boulevard0			Andover	1/1/2011	12/31/2013

Description of Proposed Work: Install a through lane in each direction. Pavement improvement.

			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									
		B									
		C	2								2
	Property Damage	PD									
% Change in Crashes *Use Crash Modification Factors Clearinghouse	Fatal	F									
	PI	A									
		B									
		C	-86%								
	Property Damage	PD									
Change in Crashes = No. of crashes x % change in crashes	Fatal	F									
	PI	A									
		B									
		C	-1.72								-1.72
	Property Damage	PD									

Year (Safety Improvement Construction)	2018
Project Cost (exclude Right of Way)	$ 11,764,000
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			$ 550,000	
B			$ 160,000	
C	-1.72	-0.57	$ 81,000	$ 46,440
PD			$ 7,400	
Total				$ 46,440

B/C= 0.07

Using present worth values,

B= $ 812,418

C= $ 11,764,000

See "Calculations" sheet for amortization.

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

CSAH 78 - created on 11-03-2014 by imsd1jac

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
04	02000078	004+00.559	0402000078	4.559	S		1	2	U
04	02000078	004+00.559	0402000078	4.559	N		1	2	U
04	02000078	004+00.928	0402000078	4.928	Z		1	0	U
04	02000078	005+00.118	0402000078	5.118	Z		2	2	U
04	02000078	005+00.120	0402000078	5.120	Z		2	2	U
04	02000078	005+00.138	0402000078	5.138	Z		1	2	U
04	02000078	005+00.178	0402000078	5.178	Z		1	2	U
04	02000078	005+00.178	0402000078	5.178	Z		1	2	U
04	02000078	005+00.178	0402000078	5.178	S		1	2	U
04	02000078	005+00.178	0402000078	5.178	Z		1	2	U
04	02000078	005+00.178	0402000078	5.178	Z		1	2	U
04	02000078	005+00.178	0402000078	5.178	Z		1	2	U
04	02000078	005+00.178	0402000078	5.178	Z		1	2	U
04	02000078	005+00.215	0402000078	5.215	Z		1	2	U
04	02000078	005+00.425	0402000078	5.425	Z		2	2	U
04	02000078	005+00.463	0402000078	5.463	Z		1	2	U
04	02000078	005+00.640	0402000078	5.640	Z		1	2	U
04	02000078	005+00.644	0402000078	5.644	S		1	2	U
04	02000078	005+00.660	0402000078	5.660	Z		1	2	U
04	02000078	005+00.825	0402000078	5.825	Z		1	2	U
04	02000078	005+00.883	0402000078	5.883	Z		1	3	U

ATP	CO
VEH 1 WAS SB HANSON BLVD AND WENT THRU RED LIGHT AT 139 LN NW CRASHING INTO VEH 2 WHICH WAS WB 139	2
AT 0838 HOURS ON 3/20/13 I WAS DISAPTCHED TO A PROPERTY DAMAGED ACCIDENT WITH TWO CARS INVOLVED AT	2
	2
UNIT #1 WAS STOPPING IN TRAFFIC FOR THE RED LIGHT AT THE INTERSECTION OF HANSON BLVD AND ANDOVER BL	2
DRIVER OF VEHICLE 1 MN PLATE 803AJV IDENTIFIED BY MN DL. DRIVER STATED HE WAS TRAVELING NORTH ON H	2
UNIT 1 WAS NORTBOUND ON HANSON BLVD NW WHEN THEY STARTED TO MOVE INTO THE TURN LANE TO GO EASTBOUND	2
UNIT 3 REAR ENDED UNIT 2 WHICH CAUSED UNIT 2 TO REAR END UNIT 1.	2
VEH #1 FAILED TO STOP FOR THE RED LIGHT AND T-BONED VEH #2. DRIVER VEH #1 CITED.	2
GROUP OF VEHICLES WERE HEADED S/B HANSON BLVD NW WHEN FIRST FEW VEHICLES STOPPED AS THE SEMAPHORE L	2
UNIT 1 TURNED LEFT IN FRONT OF UNIT 2 AND THEY COLLIDED. UNIT 2 TRIED TO CORRECT PATH AND OVERTURN	2
DRIVER OF VEHICLE 1 MN VEH. 130JWM IDENTIFIED DRIVER BY MN DL. DRIVER STATED SHE WAS TRAVELING NOR	2
V1 MN PLATE 179GYL D1 IDENTIFIED BY MN DL. D1 STATED HE WAS TRAVELING NORTH ON HANSON BLVD AND WAS	2
AT 1343 HOURS ON 11/16/13 I WAS DISPATCHED TO THE LOCATION OF A PERSONAL INJURY ACCIDENT. UPON ARR	2
	2
VEHICLES #1, #2 AND #3 WERE ALL ON SOUTH BOUND HANSON BLVD NW, STOPPED IN TRAFFIC DUE TO THE RED SI	2
VEH 1 REARENDED VEH 2 AS IT WAS STOPPED WAITING IN TRAFFIC. SEE LOCAL ICR	2
UNIT#1 WAS WAITING FOR A VEHICLE TO TURN LEFT ONTO 148TH LN NW. UNIT#3 CRASHED INTO UNIT#2. UNIT#	2
AT 1632 HOURS ON 9/6/12 I WAS DISPATCHED TO A PROPERTY DAMAGE ACCIDENT AT HANSON BLVD NW AND 148TH	2
UNIT#2 WAS STOPPED IN TRAFFIC BEHIND A LINE OF OTHER VEHICLES WAITING TO TURN LEFT INTO ANDOVER ELE	2
V1 STOPPED WAITING TO TURN WEST INTO SCHOOL LOT V2 STOPPED BEHIND V1 V3 SLOWING TO STOP BEHIND V2	2
V # 2 IS STOPPED IN TRAFFIC N/B ON HANSON BLVD JUST SOUTH OF CROSSTOWN BLVD. V # 1 IS BEHIND V # 2.	2

CITY	DOW	MONTH	DAY	YEAR	TIME	SEV	NUM_KILLED	NUM_VEH	JUNC	SL
0088	4-Wed	2	15	2012	0720	N	0	2	4	55
0088	4-Wed	3	20	2013	0838	N	0	2	7	55
0088	3-Tue	4	3	2012	1730	N	0	2	0	55
0088	2-Mon	1	7	2013	1820	N	0	2	4	55
0088	3-Tue	2	12	2013	1757	C	0	3	2	55
0088	7-Sat	11	19	2011	1357	N	0	1	1	55
0088	3-Tue	1	25	2011	0738	C	0	3	4	55
0088	2-Mon	6	6	2011	2013	C	0	2	4	55
0088	7-Sat	10	29	2011	1214	N	0	2	4	55
0088	3-Tue	9	25	2012	1900	B	0	2	4	50
0088	2-Mon	2	11	2013	1826	B	0	3	2	55
0088	3-Tue	10	8	2013	1729	N	0	2	1	55
0088	7-Sat	11	16	2013	1343	A	0	2	5	55
0088	4-Wed	7	13	2011	1645	N	0	3	1	55
0088	3-Tue	3	26	2013	0723	C	0	4	1	55
0088	5-Thu	1	12	2012	0730	C	0	2	4	55
0088	2-Mon	3	26	2012	1552	C	0	4	4	55
0088	5-Thu	9	6	2012	1632	N	0	2	7	30
0088	3-Tue	1	17	2012	1625	C	0	2	1	55
0088	2-Mon	4	23	2012	1529	N	0	4	1	35
0088	2-Mon	8	22	2011	1749	C	0	2	4	50

TYPE	DIAG	LOC1	TCD	LIT	WTHR1	WTHR2	SURF	CHAR	DESGN	ACC_NUM
1	3	1	1	2	1	1	1	2	5	120460106
1	5	1	1	1	1	0	1	1	3	130810116
1	1	0	98	1	1	0	1	0	0	121280032
1	1	1	1	4	1	99	1	2	8	130090004
1	1	1	1	7	1	1	1	1	8	130430215
51	7	2	98	1	4	7	5	1	8	113240111
1	1	1	1	2	2	0	1	1	8	110250281
1	9	1	1	1	1	0	1	1	5	111580003
1	1	1	1	1	1	0	1	1	8	113040071
1	3	1	1	3	1	1	1	1	8	122690214
1	1	1	1	7	2	2	1	1	8	130430214
1	1	1	98	1	1	1	1	1	5	132850034
1	8	1	1	1	3	0	2	1	7	133200112
1	1	1	98	1	1	1	1	1	8	112340054
1	1	1	1	1	1	0	1	1	8	130900041
1	1	1	98	2	2	2	1	1	8	120120110
1	1	1	98	1	2	0	1	2	8	120860110
1	1	1	98	1	1	0	1	1	8	122510131
1	1	1	98	1	1	0	1	2	8	120170144
1	1	1	8	1	1	0	1	1	8	121220139
1	1	1	1	1	1	0	1	1	5	112340255

CR 18 at CSAH 78 - created on 11-18-2014

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	DOW	MONTH	DAY	YEAR
07	02000018	002+00.406	0702000018	2.406	E		1	2	U	V1 WAS STOPPED AT RED LIGHT WAITING TO TURN NB HAN	2	0088	2-Mon	3	19	2012
07	02000018	002+00.408	0702000018	2.408	Z		1	2	U	DRIVER #1 WAS UNABLE TO STOP ON SNOW COVERED ROADS	2	0088	2-Mon	1	23	2012

																PERSON1									
TIME	SEV	NUM_KILLED	NUM_VEH	JUNC	SL	TYPE	DIAG	LOC1	TCD	LIT	WTHR1	WTHR2	SURF	CHAR	DESGN	ACC_NUM	VTYPE	DIR	ACT	FAC1	FAC2	POSN	INJ	EQP	PHYS	AGE
2025	N	0	2	4	55	1	1	1	1	4	3	0	2	1	3	120790218	1	3	1	18	0	1	N	4	2	44
0724	C	0	3	4	45	1	1	1	1	2	4	0	3	1	8	120230142	2	7	1	3	0	1	N	4	1	16

Countermeasure(s)	Crash Type	Crash Severity	Area Type	Road Type	Daily Traffic Volume (veh/day)	Ref	Effectiveness				Study Type
							Crash Reduction Factor / Function	Std Error	Range		
									Low	High	
Increase number of lanes	All	All			<5,000/lane	15	20				
	All	All			>5,000/lane	15	31				
	All	All				15	10				
	All	All				15	20				
	All	All				15	22				
	All	All				15	25				
	All	All				15	25				
	All	All				15	25				
	All	Fatal				15	39				
	All	Injury				15	23				
	All	PDO				15	27				
	Head-on	All			<5,000/lane	15	38				
	Head-on	All			>5,000/lane	15	44				
	Head-on	All				15	53				
	Head-on	All				15	53				
	Head-on	PDO				15	50				
	Left-turn	All				15	71				
	Left-turn	PDO				15	67				
	ROR	All				15	44				
	ROR	All				15	26				
	ROR	All				15	44				
	ROR	All				15	44				
	ROR	PDO				15	50				
	Overturn	All			<5,000/lane	15	42				
	Overturn	All			>5,000/lane	15	52				
	Rear-end	All			<5,000/lane	15	42				
	Rear-end	All			>5,000/lane	15	52				
	Rear-end	All				15	32				
	Rear-end	All				15	32				
	Rear-end	All				15	40				
	Rear-end	All				15	53				
	Rear-end	PDO				15	53				

Countermeasure(s)	Crash Type	Crash Severity	Area Type	Road Type	Daily Traffic Volume (veh/day)	Ref	Effectiveness				Study Type
							Crash Reduction Factor / Function	Std Error	Range		
									Low	High	
Increase number of lanes (cont'd)	Right-angle	All			<5,000/lane	15	35				
	Right-angle	All			>5,000/lane	15	45				
	Right-angle	All				15	15				
	Right-angle	PDO				15	46				
	Sideswipe	All			<5,000/lane	15	38				
	Sideswipe	All			>5,000/lane	15	44				
	Sideswipe	All				15	30				
	Sideswipe	All				15	30				
	Sideswipe	All				15	35				
	Sideswipe	PDO				15	64				
Increase vertical grade by 1%	All	All	Rural	2-lane		23	-1.6P; P=percent grade (absolute value)				
Install acceleration/ deceleration lanes	All	All				15	26				
	All	All	All	All		1	10				
	All	All				15	10				
	All	All				15	10				
	All	All				15	10				
	All	All				15	25				
	All	All				15	75				
	Rear-end	All				15	75				
	Sideswipe	All				15	75				
Install channelized lane	All	All				15	67				
	All	PDO				15	62				
	Rear-end	All				15	93				
Install climbing lane (where large difference between car and truck speed)	All	Fatal/ Injury	Rural	2-lane		38	33				

- Countermeasure: Install raised median

CMF	CRF(%)	Quality	Crash Type	Crash Severity	Area Type	Reference	Comments
0.61	39	★★★★☆	All	All		Schultz et al., 2011	

-

0.56	44	★★★★☆	All	Fatal,Serious injury		Schultz et al., 2011	

-

0.29	70.77	★★★☆☆	All	All	Urban	Schultz et al., 2008	

-

0.45	55.43	★★★☆☆	Angle	All	Urban	Schultz et al., 2008	

-

0.86	14	★★★☆☆	All	All	Urban	Yanmaz-Tuzel and Ozbay, 2010	

- 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 CSAH 78 between 139th Lane and 150th Avenue

Improvements include the expansion from a 2 to 4 lane facility and installation of a median.

CR1=Increase number of lanes
CR2=Install a raised median

CR=1 – (1-CR1)*(1-CR2)

Run off Road/Head On/Sideswipe: CR=1 – (1-.44)*(1-.39) = .65
Right Angle: CR=1 – (1-.45)*(1-.39) = .66
Left-Turn: CR=1 – (1-.71)*(1-.39) = .82
Rear End: CR=1 – (1-.52)*(1-.39) = .71

Dual CRF for CSAH 78 at CR 18

Improvements include the expansion from a 2 to 4 lane facility and pavement improvement.

CR1=Increase number of lanes
CR2=Pavement improvement

CR=1 – (1-CR1)*(1-CR2)

Rear End: CR=1 – (1-.52)*(1-.70) = .86

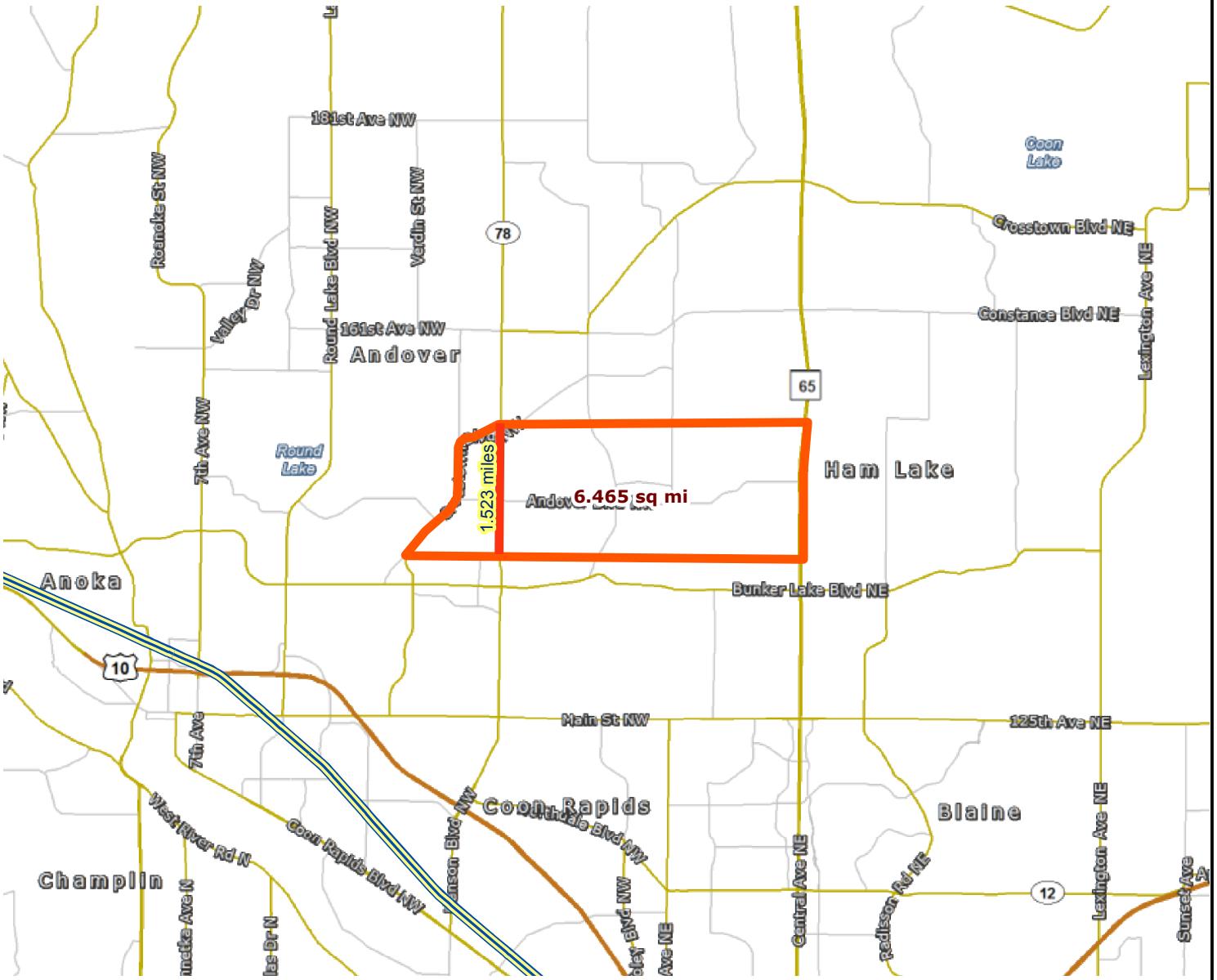
Transit Connections

Roadway Expansion Project: CSAH 78 Expansion from 139th Ln to Crosstown Blvd | Map ID: 1415294166966

Results

Transit with a Direct Connection to project:
-- NONE --

**indicates Planned Alignments*



Project
Project Area
Transitway
Northstar Line

0 1 2 4 6 8 Miles

Created: 11/6/2014
LandscapeRSA3

METROPOLITAN COUNCIL