



Application

01967 - 2014 Roadway Expansion

01984 - TH 41 Expansion

Regional Solicitation - Roadways Including Multimodal Elements

Status: Submitted
Submitted Date: 12/01/2014 3:08 PM

Primary Contact

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	<small>City</small>	<small>State/Province</small>	<small>Postal Code/Zip</small>	
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	<small>Phone</small>	<small>Ext.</small>		
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What Grant Programs are you most interested in?	Regional Solicitation - Roadways Including Multimodal Elements			

Organization Information

Name: CARVER COUNTY

Jurisdictional Agency (if different):

Organization Type:

County Government

Organization Website:

Address:

PUBLIC WORKS

11360 HWY 212 W #1

*

COLOGNE

Minnesota

55322-9133

City

State/Province

Postal Code/Zip

County:

Carver

Phone:*

Ext.

Fax:

PeopleSoft Vendor Number

0000026790A12

Project Information

Project Name

Trunk Highway 41 Expansion

Primary County where the Project is Located

Carver

Jurisdictional Agency (If Different than the Applicant):

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

The proposed project is an expansion of Minnesota State Trunk Highway (TH) 41 approximately one mile in length between TH 212 (Principal Arterial) and CSAH 14/Pioneer Trail (A Minor Expander) in the City of Chaska. This A-Minor Expander is currently a two-lane undivided highway and will be expanded to a four-lane divided facility. Please see Figure 1 for a map of the project area. The proposed project is a result of continuous growth in the area; average annual daily traffic is currently 17,400 vehicles and is expected to increase to 24,000 vehicles by 2030. Given current volumes of traffic and expected demand, the existing two-lane facility is no longer adequate and poses significant safety and congestion issues during peak periods. In recognition of these issues, MnDOT has initiated design for the TH 41 expansion, and the City of Chaska has initiated improvements to Hundertmark Road at TH 41, as shown in Figure 2. MnDOT and the City of Chaska fully support this application for federal funding.

TH 41 is a critical link in the roadway system of the western metropolitan area, providing direct access to three Trunk Highways (TH 7, TH 212, and TH 169) and a network of local east-west A- Minor Arterials (e.g., CSAH 10, CSAH 61 and CSAH 14). The proposed project is also the primary north-south connector through Chaska, and is the only roadway that runs from the northern border of the city to the southern border at the Minnesota River. TH 41 is a critical link between Highway 212 and the citys Business and Industrial Parks to the north (as identified in the City of Chaskas Comprehensive Plan), and connects historic downtown Chaska with the citys traditional New Town neighborhoods, area schools, medical facilities, and commercial centers at Pioneer Trail and Hundertmark Road.

TH 41 was last reconstructed in 1977 when the

population of Chaska was approximately 8,350 people; the city has since nearly tripled in size to 23,770 people. In anticipation of growth along the corridor, the City of Chaska Comprehensive Plan notes that the roadway is currently over capacity, and recommends that TH 41 from Hundertmark Road to the north city border be improved to a four-lane divided highway. By 2030, 35,700 people are anticipated to call Chaska home, and with TH 212 opening as a full freeway in 2008, TH 41 has become an even more critical link both within Chaska and to the greater metro area.

The proposed project will reduce delay and relieve congestion on TH 41, providing reliable access for ambulances from Chaska and surrounding communities to the emergency room at the recently-expanded Two Twelve Medical Center, while bestowing daily benefits for the transit riders, students on school buses, commuters, and freight haulers traveling in the corridor.

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

Project Length (Miles) 0.97

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 Carver County Roadway Systems Plan Chapter 3, page 23, City of Chaska Comprehensive Plan Chapter 5, page 16

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 \$2,639,000.00

Minimum of 20% of project total

Project Total \$9,639,000.00

Match Percentage 27.38%

Minimum of 20%

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

Source of Match Funds State of Minnesota, Carver County, City of Chaska

Preferred Program Year

Select one: 2018

MnDOT State Aid Project Information: Roadway Projects

County, City, or Lead Agency Carver County

Functional Class of Road A Minor Expander

Road System TH

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

Name of Road TH 41

Example: 1st ST., MAIN AVE

Zip Code where Majority of Work is Being Performed 55318

(Approximate) Begin Construction Date 05/01/2018

(Approximate) End Construction Date 06/01/2019

LOCATION

From:
(Intersection or Address) TH 212

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

To:
(Intersection or Address) CSAH 14

Type of Work Roadway Grading, Roadway Paving, Retaining Walls, Signals,
Curb and Gutter, Storm Sewer, Sidewalk

*Examples: grading, aggregate base, bituminous base, bituminous surface,
sidewalk, signals, lighting, guardrail, bicycle path, ped ramps, bridge,
Park & Ride, etc.)*

Old Bridge/Culvert? No

New Bridge/Culvert? No

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

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES**Cost**

Mobilization (approx. 5% of total cost)	\$400,000.00
Removals (approx. 5% of total cost)	\$400,000.00
Roadway (grading, borrow, etc.)	\$2,100,000.00
Roadway (aggregates and paving)	\$2,560,000.00
Subgrade Correction (muck)	\$305,000.00
Storm Sewer	\$480,000.00
Ponds	\$160,000.00
Concrete Items (curb & gutter, sidewalks, median barriers)	\$300,000.00
Traffic Control	\$520,000.00
Striping	\$40,000.00
Signing	\$40,000.00
Lighting	\$80,000.00
Turf - Erosion & Landscaping	\$320,000.00
Bridge	\$0.00
Retaining Walls	\$670,000.00
Noise Wall	\$0.00
Traffic Signals	\$350,000.00
Wetland Mitigation	\$160,000.00
Other Natural and Cultural Resource Protection	\$0.00
RR Crossing	\$0.00
Roadway Contingencies	\$720,000.00
Other Roadway Elements	\$0.00
Totals	\$9,605,000.00

Specific Bicycle and Pedestrian Elements**CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES****Cost**

Path/Trail Construction	\$0.00
Sidewalk Construction	\$24,000.00
On-Street Bicycle Facility Construction	\$0.00
Right-of-Way	\$0.00
Pedestrian Curb Ramps (ADA)	\$10,000.00
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	\$34,000.00

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	\$9,639,000.00
Construction Cost Total	\$9,639,000.00
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
2014 11 25 Project Area Map & Hundertmark Rd Layout.pdf	TH 41 Project Area Map; Hundertmark Road Improvements Layout	1.4 MB
Chaska Letter of Support.pdf	Letter of Support from City of Chaska	145 KB
Hwy 41 Expansion from TH 212 to CSAH 1 MnDOT letter of support.pdf	Letter of Support from MnDOT	57 KB

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	3.76
Project Length	0.97
Average Distance	3.8763
Upload Map	Roadway Area Definition.pdf

Measure B: Current Heavy Commercial Traffic

Location	TH 41 between Highway 212 and Hundertmark Road
Current daily heavy commercial traffic volume	830.0

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 Yes

Direct connection to or within a mile of an Educational Institution Yes

Project provides a direct connection to or within a mile of an existing local activity center identified in an adopted county or city plan Yes

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

TH 41 provides critical access to major manufacturing and distribution centers located in northern Chaska, and it connects these centers to Highway 212. This segment of TH 41 also provides direct access to the Chaska Commons area, identified in the City of Chaska Comprehensive Plan as a Community Commercial Center. Chaska Commons has absorbed the majority of new commercial development in the area with more than 500,000 square feet of retail and commercial space, as well as the recently-expanded Two-Twelve Medical Center and Emergency Room. Additionally, more than 5,800 students attend ten K-12 educational institutions within one mile of TH 41.

Upload Map

Regional Economy.pdf

Measure A: Current Daily Person Throughput

Location	TH 41 between Highway 212 and Hundertmark Road
Current AADT Volume	17400.0
Existing Transit Routes on the Project	687, 690, 694, 695, 697, 698, 699

Response: Current Daily Person Throughput

Average Annual Daily Transit Ridership	3537.0
Current Daily Person Throughput	26157.0

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 24000.0

Measure A: Project Location and Impact to Disadvantaged Populations

Select one:

Project located in Racially Concentrated Area of Poverty

Project located in Concentrated Area of Poverty

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

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

The proposed project will offer significant benefits to the large concentration of children living and attending school near the project.

The American Community Survey shows that the two census tracts adjacent to the project have a higher concentration of children (26% and 35%) than the seven-county metro as a whole (24%), and more than 5,800 students attend one of the ten schools in the vicinity of the project. See Figure 1 for a map of the project area. Expansion of TH 41 and intersection improvements at Hundertmark Road and Pioneer Trail will reduce congestion and delay for the many school buses using the roadway, benefitting students and bus operations.

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

TH 41 also provides an essential connection to TH 212 for an area with an above-regional average concentration of race/poverty. Improved operations and reduced delay on TH 41 will be a benefit to all commuter and freight traffic using the corridor to access job concentrations in downtown Chaska, manufacturing centers in northern Chaska, or employment clusters in the greater Twin Cities region as a whole.

Finally, the multiuse trail facility adjacent to the project will be retained and enhanced by improved ADA-compliant pedestrian crossings at Hundertmark Road and Pioneer Trail. Project construction will incorporate proper noise, dust, and traffic mitigation and will not negatively impact people living in the project area.

[Upload Map](#)

[Socio-Economic Conditions.pdf](#)

Measure B: Affordable Housing

City/Township	Segment Length (Miles)
City of Chaska	0.97
	1

Total Project Length

Total Project Length	0.97
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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 Chaska	0.97	0.97	65.0	1.0	65.0
		1	65	1	65

Affordable Housing Scoring - To Be Completed By Metropolitan Council Staff

Total Project Length (Miles)	0.97
Total Housing Score	65.0

Measure A: Year of Roadway Construction

Year of Original Roadway Construction or Most Recent Reconstruction	Roadway Segment Length (Miles)	Calculation	Calculation 2
1977.0	0.97	1917.69	1977.0
	1	1918	1977

Average Construction Year

Weighted Year	1977.0
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Total Segment Length (Miles)

Total Segment Length	0.97
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Measure A: Cost Effectiveness of Vehicle Delay Reduction

Total Project Cost from Cost Sheet	\$9,639,000.00
Total Peak Hour Vehicle Delay Without The Project	194494.0
Total Peak Hour Vehicle Delay With The Project	90973.0
Total Peak Hour Vehicle Delay Reduced by Project	103521.0
Cost Effectiveness	\$93.11
Synchro or HCM Reports	TH 41 Synchro Analysis_Existing & Improved Condition.pdf

Measure B: Cost Effectiveness of Emissions Reduction

Total Project Cost from Cost Sheet	\$9,639,000.00
Total Peak Hour Kilograms Reduced by Project	2.14
Cost Effectiveness	\$4,504,205.61
Synchro or HCM Reports	TH 41 Synchro Analysis_Existing & Improved Condition.pdf

Measure A: Benefit/Cost of Crash Reduction

Project Benefit/Cost Ratio	0.6
Worksheet Attachment	TH 41 Benefit-Cost Analysis.pdf

Measure A: Transit Connections

Existing Routes Directly Connected to the Project	687, 690, 694, 695, 697, 698, 699
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	844893.0
Transitway Ridership	0

Measure B: Bicycle and Pedestrian Connections

The City of Chaska and Carver County Comprehensive Plans support the installation of trails along collector and arterial roadways where possible. Consistent with these local policies, MnDOT constructed a multi-use trail along the east side of TH 41 to provide the appropriate facilities to link with city and county trail systems. TH 41 and the trail beside it act as a spine through Chaska, linking new commercial development at Chaska Commons to the shops, restaurants and offices in historic downtown Chaska, and connecting natural amenities and recreational opportunities such as Chaska's river levee trail system, Hazeltine National Golf Club, and the Minnesota Valley State Trail.

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

The TH 41 trail also links to similar multi-use trails that serve nearby schools on the north side of Hundertmark Road and both sides of Pioneer Trail, as well as a network of existing and planned trails around Lake Grace and Lake Jonathan, and through the neighborhoods east and west of TH 41. By 2030, Carver County intends to connect the TH 41 trail to a planned regional trail along TH 5, and to a regional trail along the Twin Cities and Western Railroad line, as stated in the Carver County Comprehensive Plan.

The proposed project includes installation of new ADA-compliant crossings and pedestrian refuges at Hundertmark Road and Pioneer Trail while maintaining the multi-use trail along TH 41.

Measure C: Multimodal Facilities

The proposed project safely integrates all modes of transportation. It will allow for efficient movement of commuter vehicles, freight, and buses through currently congested intersections at Hundertmark Road and Pioneer Trail. The new four-lane divided facility will provide ADA-compliant crossings and a center refuge for pedestrians and bicyclists as they cross TH 41 to access trails and bus stops. These improvements will serve to further strengthen the links between the TH 41 multi-use trail and the large network of off-street multi-use trails in the area.

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

Six SouthWest Transit express bus routes bound for downtown Minneapolis, the University of Minnesota, and the Target Campus in Brooklyn Center use TH 41 during the morning and evening peak period. These routes serve two nearby park-and-ride facilities: Clover Fields and East Creek Station. The TH 41 expansion will reduce delays for commuters accessing these park and rides, and will reduce transit delays on each of the express bus routes by adding additional capacity to the roadway and reducing congestion. TH 41 is also heavily used by school buses bound for one of the ten schools in the project area. The TH 41 expansion will benefit students, teachers, and parents by reducing bus idling time, ensuring reliable trip times, and reducing time and costs for school district bus operations.

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 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

50%

Document not started

Yes

0%

Anticipated date or date of completion/approval

12/01/2016

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/listing on the National Register of Historic Places located in the project area, and project is not located on an identified historic bridge

100%

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

80%

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

40%

Unknown impacts to historic/archaeological resources Yes

0%

Anticipated date or date of completion of historic/archeological review: 10/01/2016

Project is located on an identified historic bridge

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

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

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

100%

Project is an independent bikeway/walkway project covered by the bikeway/walkway Negative Declaration statement; letter of support received

100%

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

80%

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

30%

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

0%

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

Right-of-way or easements not required

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 Yes

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

01/01/2017

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%

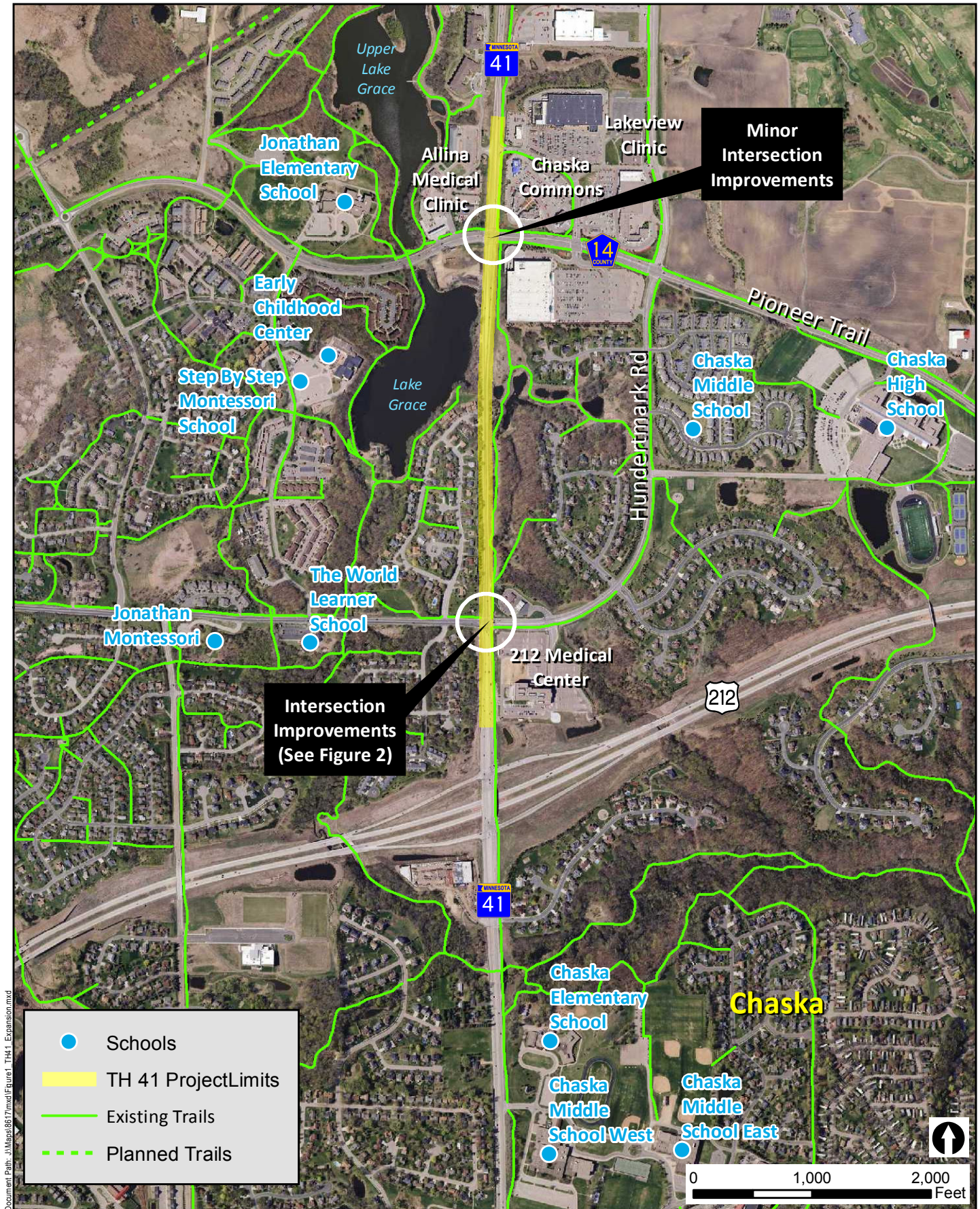
Anticipated date or date of completion

10/01/2017

9)Letting

Anticipated Letting Date

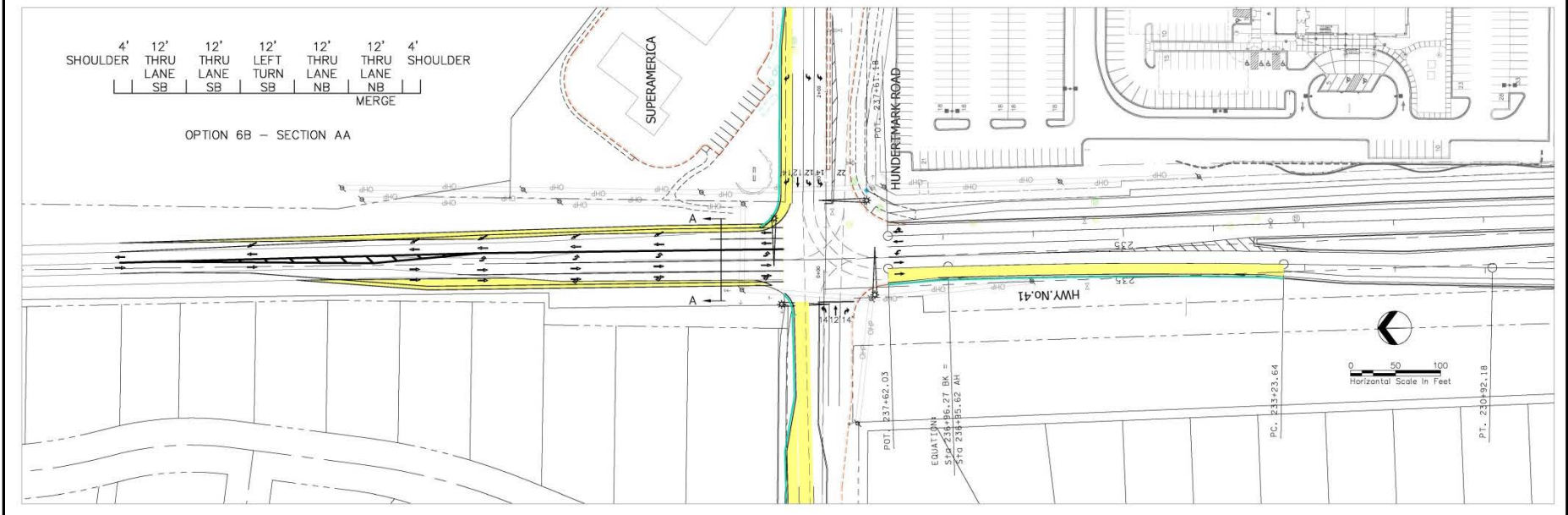
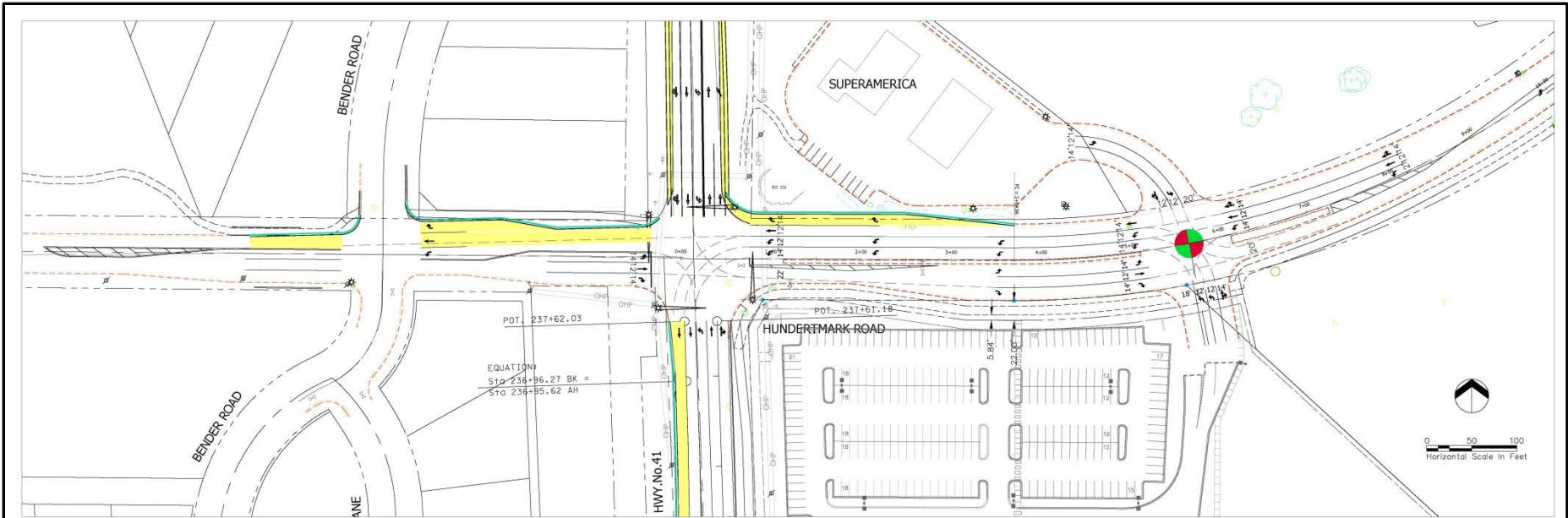
05/01/2018



Project Limits

TH 41 Roadway Expansion from TH 212 to Pioneer Trail
 Carver County, MN

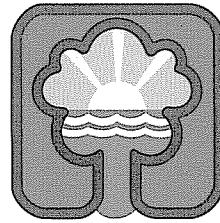
Figure 1



Hundertmark Road Improvements Layout

City of Chaska

Figure 2



Chaska

December 1, 2014

Ms. Elaine Koutsoukos, TAB Coordinator
Metropolitan Council
390 North Robert Street
Saint Paul, MN 55101

SUBJECT: APPLICATION FOR REGIONAL SOLICITATION FUNDS FOR TH 41 Expansion

Dear Ms. Koutsoukos,

The City of Chaska has been notified that Carver County is submitting an application for regional solicitation funding for the proposed TH 41 expansion between TH 212 and CSAH 14 (Pioneer Trail), through the City of Chaska. The proposed project will expand existing roadway from a two-lane undivided highway to a four-lane divided facility to relieve existing congestion and safety issues during peak periods. TH 41 is a critical link in the roadway system in the western metropolitan area and is the primary north-south connector through Chaska.

The project is supported in local and Carver County planning documents, and is significant to the Minneapolis/St. Paul Metropolitan region. Therefore, we strongly support funding to be granted to help this important project move forward.

The City of Chaska supports this funding application and acknowledges Carver County's cost share policy. The city is willing to provide a portion of the local match funds for this project if Carver County is successful in securing regional solicitation funding from the Metropolitan Council. If you should have any questions, feel free to contact the City Engineer at 952-227-7525 or bmonk@chaskamn.com.

Sincerely,

Matt Podhradsky
City Administrator

MP/sp



Minnesota Department of Transportation

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

November 25, 2014

Lyndon Robjent
Division Director, County Engineer
Carver County Public Works
11360 Highway 212, Suite 1
Cologne, MN 55322

RE: Regional Solicitation Application for Highway 41 Expansion from Highway 212 to CSAH 14

Dear Mr. Robjent:

Thank you for requesting a letter of support from MnDOT for the Metropolitan Council's 2014 Regional Solicitation. Your application for the Highway 41 expansion from Highway 212 to CSAH 14 project impacts MnDOT right of way on Highway 41.

MnDOT, as the agency with jurisdiction over Highway 41, supports the application on this portion of the Highway 41 corridor. Details of a future maintenance agreement with the county will be determined during project development to define how the project will be maintained for the project's useful life.

There is a MnDOT project in the STIP in 2017 at Highway 41 and Hundertmark Road to install a southbound thru lane from westbound Hundertmark Rd to southbound Highway 41 and extend a left turn lane in the amount of \$390,000.

Sincerely,

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

Scott McBride, P.E.
Metro District Engineer

Cc: Elaine Koustoukos, Metropolitan Council
Jon Solberg, MnDOT Metro District - South Area Manager

An Equal Opportunity Employer



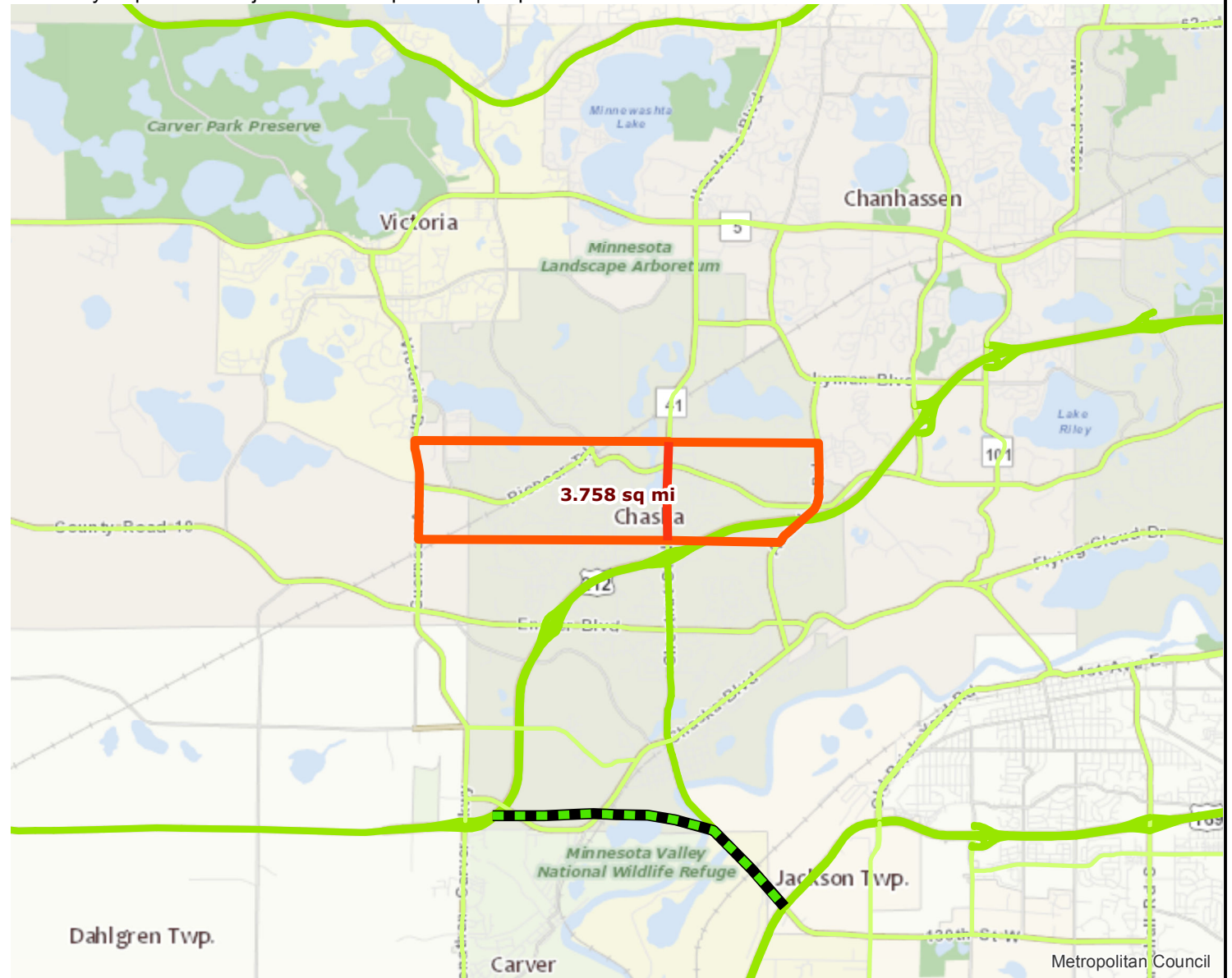
Roadway Area Definition

Roadway Expansion Project: TH 41 Expansion | Map ID: 1414709023205

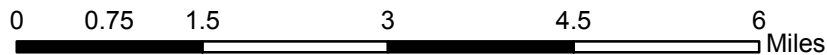
Results

Project Length: 0.965 miles

Project Area: 3.758 sq mi



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



Created: 10/30/2014
LandscapeRSA1



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



Regional Economy

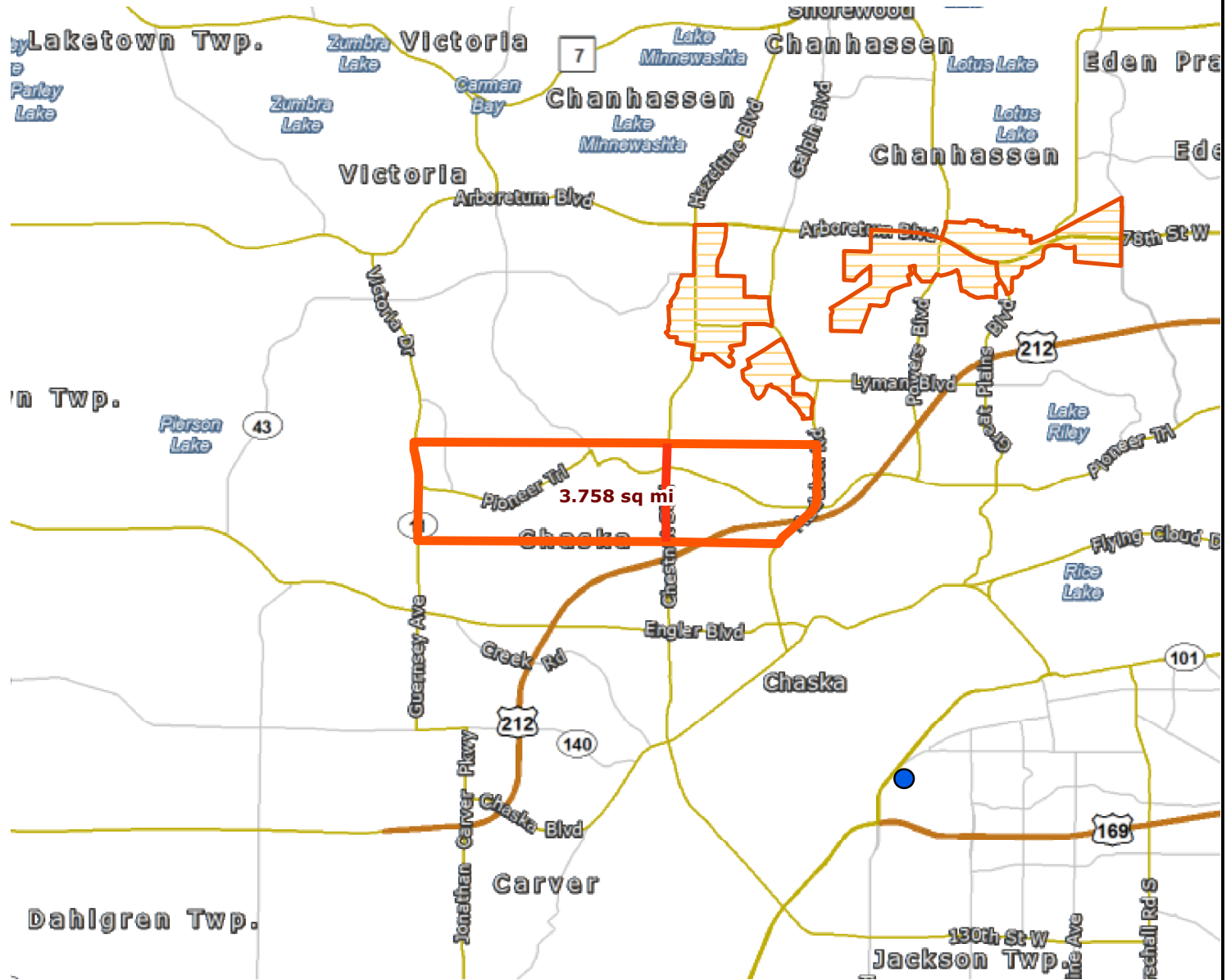
Roadway Expansion Project: TH 41 Expansion | Map ID: 1414709023205

Results

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

Project **WITHIN ONE MI** of area of Manufacturing and Distribution.

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



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



Created: 10/30/2014
LandscapeRSA5

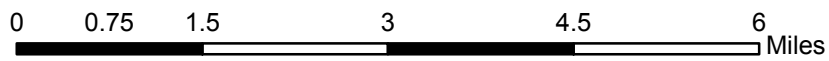
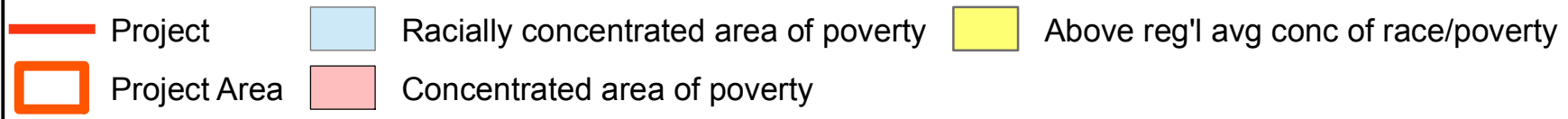
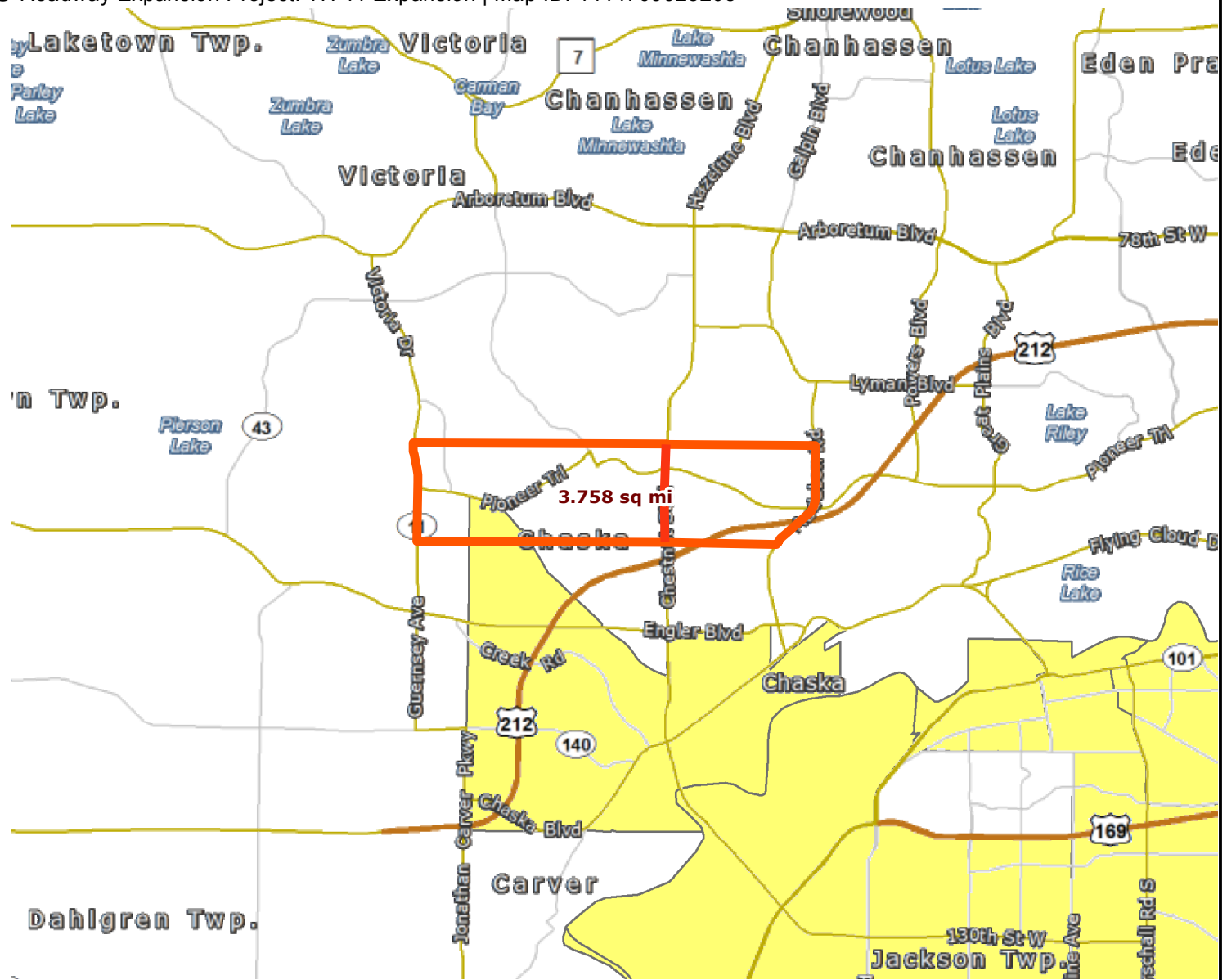


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Results

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



Created: 10/30/2014
LandscapeRSA2



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3: CSAH 41 & Hundertmark Rd/Hundetmark Rd

Direction	All
Volume (vph)	3137
Total Delay / Veh (s/v)	62
CO Emissions (kg)	4.77
NOx Emissions (kg)	0.93
VOC Emissions (kg)	1.11

3: CSAH 41 & Hundertmark Rd/Hundetmark Rd

Direction	All
Volume (vph)	3137
Total Delay / Veh (s/v)	29
CO Emissions (kg)	3.27
NOx Emissions (kg)	0.64
VOC Emissions (kg)	0.76





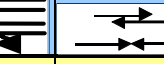

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HSIP worksheet

Control Section		T.H. / Roadway	Location				Beginning Ref. Pt.	Ending Ref. Pt.	State, County, City or Township	Study Period Begins	Study Period Ends
		CSAH 41	From Pioneer Trail to Hundertmark Rd						Chaska	1/1/2011	12/31/2013
Description of Proposed Work		Convert from 2 to 4 lane facility, installing 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			6, 90, 99		
									Pedestrian	Other	Total
Study Period: Number of Crashes	Fatal	F									
	Personal Injury (PI)	A									
		B									
		C	8		1	3					12
Property Damage	PD	22	1	1						24	
% Change in Crashes <small>*Use Crash Modification Factors Clearinghouse</small>	Fatal	F									
	PI	A									
		B									
		C	-86%		-92%	-84%					
Property Damage	PD	-86%	-84%	-92%							
Change in Crashes <small>= No. of crashes X % change in crashes</small>	Fatal	F									
	PI	A									
		B									
		C	-6.88		-0.92	-2.52					-10.32
Property Damage	PD	-18.92	-0.84	-0.92						-20.68	
Year (Safety Improvement Construction)		2018									
Project Cost (exclude Right of Way)		\$ 9,639,000	Type of Crash	Study Period: Change in Crashes	Annual Change in Crashes	Cost per Crash	Annual Benefit	<div style="border: 1px solid black; padding: 5px; display: inline-block;">B/C= 0.60</div> <i>Using present worth values,</i> B= \$ 5,766,882 C= \$ 9,639,000 <i>See "Calculations" sheet for amortization.</i>			
Right of Way Costs (optional)			F			\$ 1,100,000					
Traffic Growth Factor		3%	A			\$ 550,000					
Capital Recovery			B			\$ 160,000					
1. Discount Rate		4.5%	C	-10.32	-3.44	\$ 81,000	\$ 278,640				
2. Project Service Life (n)		20	PD	-20.68	-6.89	\$ 7,400	\$ 51,011				
			Total				\$ 329,651				

Office of Traffic, Safety and Technology
September 2014

TH 41 - created on 10-31-2014 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
03	00000041	004+00.118	0300000041	4.142	S		A	3	U
03	00000041	004+00.118	0300000041	4.142	Z		1	1	U
03	00000041	004+00.118	0300000041	4.142	Z		1	3	U
03	00000041	004+00.118	0300000041	4.142	S		1	1	U
03	00000041	004+00.118	0300000041	4.142	S		1	1	U
03	00000041	004+00.118	0300000041	4.142	S		1	1	U
03	00000041	004+00.118	0300000041	4.142	Z		1	1	U
03	00000041	004+00.118	0300000041	4.142	Z		1	1	U
03	00000041	004+00.118	0300000041	4.142	Z		2	3	U
03	00000041	004+00.118	0300000041	4.142	S		2	1	U
03	00000041	004+00.118	0300000041	4.142	Z		1	3	U
03	00000041	004+00.118	0300000041	4.142	Z		1	1	U
03	00000041	004+00.118	0300000041	4.142	S		1	3	U
03	00000041	004+00.118	0300000041	4.142	Z		A	3	U
03	00000041	004+00.118	0300000041	4.142	N		1	3	U
03	00000041	004+00.118	0300000041	4.142	N		1	1	U
03	00000041	004+00.118	0300000041	4.142	Z		A	1	U
03	00000041	004+00.120	0300000041	4.144	Z		1	1	U
03	00000041	004+00.122	0300000041	4.146	S		2	1	U
03	00000041	004+00.122	0300000041	4.146	Z		3	0	U
03	00000041	004+00.133	0300000041	4.157	N		2	1	U
03	00000041	004+00.134	0300000041	4.158	Z		1	1	U
03	00000041	004+00.146	0300000041	4.170	Z		1	3	U
03	00000041	004+00.174	0300000041	4.198	N	-	2	1	U
03	00000041	004+00.178	0300000041	4.202	S		2	3	U
03	00000041	004+00.218	0300000041	4.242	Z		2	1	U
03	00000041	004+00.243	0300000041	4.267	S		2	3	U
03	00000041	004+00.368	0300000041	4.392	Z		1	1	U
03	00000041	004+00.368	0300000041	4.392	S		2	3	U
03	00000041	004+00.414	0300000041	4.438	Z		2	1	U
03	00000041	004+00.487	0300000041	4.511	Z		2	1	U
03	00000041	004+00.638	0300000041	4.662	S		1	1	U
03	00000041	004+00.642	0300000041	4.666	Z		2	3	U
03	00000041	004+00.718	0300000041	4.742	Z		1	1	U
03	00000041	004+00.737	0300000041	4.761	N		1	3	U
03	00000041	004+00.737	0300000041	4.761	Z		A	1	U
03	00000041	004+00.737	0300000041	4.761	N		1	1	U

	CO	CITY	DOW	MONTH	DAY	YEAR	TIME	SEV
ATP DRIVER OF U1 STATED HE TRIED TO STOP BUT SLID THRO	10	0645	3-Tue	1	4	2011	2312	C
V1 WAS IN LEFT TURN LANE DECIDED TO GO STRAIGHT AND SIDESWIPE V2 WHO WAS IN THROUGH LANE. NO INJUR	10	0645	1-Sun	1	30	2011	1250	N
VEH 1 SB ON HWY 41 STOPPED FOR EMERGENCY VEHICLE (LIGHTS ON AS WELL AS SIREN). VEH 2 ALSO STOPPED	10	0645	7-Sat	4	23	2011	1034	C
-V1, V2 AND V3 WERE S/B MN 41 -TRAFFIC WAS STOP AND GO -V3 STOPPED IN TRAFFIC -V2 STOPPED BEHIND V3	10	0645	4-Wed	6	15	2011	1637	N
-V1 AND V2 WERE S/B 41 -TRAFFIC WAS STOP AND GO BECAUSE OF THE TRAFFIC LIGHT AT 41/HUNDERTMARK. -TR	10	0645	6-Fri	11	11	2011	1726	N
V/1, V/2, AND V/3 ALL SOUTH ON MNTH 41. V/2 AND V/3 STOPPED FOR THE RED LIGHT AT HUNDERTMARK. V/	10	0645	6-Fri	11	11	2011	1623	N
V/1 AND V/2 BOTH SOUTH ON MNTH 41, APPROACHING HUNDERTMARK ROAD. V/2 SLOWING FOR STOPPING TRAFFIC	10	0645	3-Tue	12	27	2011	1655	C
UNIT 2 WAS STOPPED IN TRAFFIC WAITING FOR SEMAPHORE WHEN UNIT 1 REAR-ENDED IT.	10	0645	5-Thu	5	24	2012	1528	N
-V1, V2, V3 AND V4 WERE S/B 41. -V1 WAS BEHIND V2. -V2 WAS BEHIND V3 -V3 WAS BEHIND V4 -V2, V3, V	10	0645	6-Fri	8	10	2012	1322	N
DRIVER OF MOTORCYCLE OVER CORRECTED AFTER MOTORCYCLE BEGAN SKIDDING OUT FROM UNDER HIM. THE DRIVER D	10	0645	4-Wed	8	22	2012	1442	B
V/1 AND V/2 BOTH SOUTH ON MNTH 41, AT HUNDERTMARK ROAD. V/2 DRIVER TOLD ME THAT HE HAD STOPPED IN	10	0645	4-Wed	9	12	2012	0340	N
UNIT 2 WAS SLOWING IN TRAFFIC NEARING A RED SEMAPHORE. DRIVER OF UNIT 1 DID NOT SLOW FAST ENOUGH A	10	0645	6-Fri	10	19	2012	1323	N
VEHICLE #1 WAS TRAVELING NORTHBOUND ON HWY 41, DID	10	0645	7-Sat	2	2	2013	1536	C
UNIT 1 WAS NB MNTH 41 WHEN UNIT 2 VEERED INTO ITS LANE. DRIVER OF UNIT 2 FELT UNIT 2 WAS FOLLOWING	10	0645	4-Wed	5	22	2013	1253	C
#REF!	10	0645	6-Fri	7	26	2013	1940	N
DRIVER OF THE HONDA REPORTED TRAVELING WEST ON HUN	10	0645	5-Thu	8	1	2013	1726	N
BOTH VEHICLES IN THE RIGHT TURN LANE ON 41SB. V2 SLOWED TO A STOP AT THE LIGHT AND V1 REAR ENDED V	10	0645	6-Fri	8	2	2013	0948	C
V1 SLOWED FOR LIGHT UP AHEAD IN TRAFFIC, DRIVER OF V2 STATED SHE WAS NOT FAMILIAR WITH AREA AND WA	10	0645	3-Tue	1	10	2012	1901	N
V2 WAS N/B ON HWY 41 NORTH OF HWY 212 IN THE LEFT LANE SLOWING IN HEAVY TRAFFIC. V1 REARENDED V2.	10	0645	5-Thu	7	26	2012	1120	C
DRIVER OF THE FORD FUSION REPORTED STOPPING IN TRAFFIC FOR THE STOP LIGHT AND WAS REAR ENDED BY THE	10	0645	3-Tue	7	31	2012	1200	C
BOTH VEHICLES TRAVELING SOUTH ON HWY 41 APPROACHING THE INTERSECTION OF HUNDERTMARK RD. TRAFFIC ST	10	0645	5-Thu	1	5	2012	1753	N
V1 WAS N/B ON HWY. 41 NORTH OF HUNDERTMARK RD., WH	10	0645	4-Wed	1	25	2012	2042	C
DRIVER OF VEHICLE #1 WAS HEADING SOUTHBOUND MNTH 41. HE OBSERVED DRIVER OF VEHICLE #2 HIT HIS BRAKE	10	0645	5-Thu	6	27	2013	2200	N
-ALL VEHICLES S/B 41 -V2 AND V3 STOPPED IN TRAFFIC -DV2 SAID SHE SAW V1 COMING UP FAST FROM THE REA	10	0645	6-Fri	5	18	2012	1311	N
VEHICLE #2 CRASHED INTO THE REAR OF VEHICLE #1, CAUSING IT TO CRASH INTO THE REAR OF A TRUCK THAT H	10	0645	6-Fri	10	25	2013	1453	N
V/1 AND V/2 BOTH SOUTH ON MNTH 41, V/2 LEAD VEHICLE. TRAFFIC SLOWED IN FRONT OF V/2, AND THE DRIVE	10	0645	7-Sat	7	14	2012	1133	N
V2 WAS STOPPED IN THE SOUTHBOUND LANE OF MNTH 41 DUE TO TRAFFIC AT THE INTERSECTION OF MNTH 41 AND	10	0645	5-Thu	7	14	2011	0755	C
-ALL VEHICLES SB MNTH 41 NORTH OF HUNDERTMARK -DV2 & DV3 SAID THEY WERE STOPPED IN TRAFFIC -D1 ISN`	10	0645	6-Fri	1	4	2013	1627	N
V/1 AND V/2 BOTH SOUTH BOUND ON MNTH 41, SOUTH OF PIONEER TRAIL. V/2 HAD STOPPED FOR TRAFFIC STOPP	10	0645	7-Sat	11	2	2013	1357	N
CRASH OCCURED MN41/CANYOND ROAD, SOUTHBOUND. WITNESS, DRACHEVA, HAD BEEN IN THE LEFT LANE. TRAFF	10	0645	7-Sat	11	2	2013	1343	C
UNIT #1 REAR-ENDED A TYPE B SCHOOL BUS THAT WAS SLOWING IN TRAFFIC. THE DRIVER OF UNIT #1 STATED H	10	0645	5-Thu	8	9	2012	1658	N
V3 STOPPED IN BACKED UP TRAFFIC. V2 STOPPED DIRECTLY BEHIND. V1 WAS UNABLE TO STOP BEFORE HITTING	10	0645	5-Thu	8	22	2013	1553	N
DRIVER OF V2 STATED SHE WAS NB ON HWY.41, STOPPED IN TRAFFIC AT PIONEER TRAIL WHEN V1 STRUCK HER VE	10	0645	3-Tue	9	20	2011	0758	N
V1 SOUTH ON 41 DID NOT YEILD TO RED SEMAPORE AND S	10	0645	4-Wed	7	25	2012	1504	N
DRIVER OF THE BUICK REPORTED BEING STOPPED IN THE LEFT LANE OF N/B 41 AT PIONEER WHEN HE WAS REAR E	10	0645	6-Fri	8	19	2011	1302	C
	10	0645	7-Sat	12	24	2011	2243	C
	10	0645	5-Thu	1	31	2013	1558	N

NUM_KILLED	NUM_VEH	JUNC	SL	TYPE	DIAG	LOC1	TCD	LIT	WTHR1	WTHR2	SURF	CHAR	DESGN	ACC_NUM	PERSON1		
															VTYPE	DIR	ACT
0	2	4	50	1	3	1	1	4	2	0	2	1	5	110050002	1	5	32
0	2	4	50	1	2	1	1	1	1	0	1	2	8	110320124	2	1	1
0	2	7	50	1	1	1	98	1	2	0	1	3	8	111360039	1	3	9
0	3	1	30	1	1	1	98	1	3	0	2	1	3	111720097	2	5	1
0	3	4	50	1	1	1	1	1	1	0	1	1	8	113180044	1	5	1
0	2	4	50	1	1	1	1	1	1	0	1	1	8	113200019	1	5	1
0	3	7	40	1	1	1	1	1	1	0	1	4	8	113610233	1	5	1
0	2	7	50	1	1	1	98	1	2	3	2	1	8	121470208	1	5	1
0	2	1	50	1	1	1	1	1	1	0	1	2	8	122230097	1	5	1
0	4	4	50	1	1	1	1	1	3	0	2	1	8	122480276	1	5	1
0	1	2	50	11	3	1	14	1	1	1	1	7	7	122860122	11	3	3
0	2	7	40	1	1	1	1	1	2	3	2	4	8	122930237	3	5	11
0	2	2	50	1	1	1	1	1	1	2	1	1	8	130330205	1	5	1
0	2	4	50	1	5	1	1	1	3	2	2	1	7	131420096	2	6	6
0	2	1	45	1	1	1	98	1	1	0	1	1	5	132070174	1	1	1
0	2	4	30	1	1	1	1	1	1	0	1	1	3	132140220	4	7	90
0	3	4	50	1	5	1	1	1	1	0	1	1	8	132140254	3	1	11
0	2	4	55	1	1	1	1	4	1	0	1	1	3	120230479	1	5	1
0	2	1	45	1	1	1	1	1	1	0	1	3	8	122120236	1	5	1
0	2	0	55	1	1	0	98	1	1	0	1	0	0	122490077	4	1	1
0	2	1	40	1	1	1	98	4	1	0	1	1	3	120080116	3	1	1
0	2	4	50	1	1	1	1	4	1	0	1	1	8	131820218	1	5	11
0	2	4	50	1	1	1	1	1	1	1	1	1	6	121390095	1	5	1
0	2	1	45	7	98	1	98	6	2	0	2	1	8	120270206	51	7	34
0	2	1	50	1	1	1	98	1	2	0	1	1	3	132980093	3	5	1
0	3	7	50	1	1	1	1	1	1	0	1	1	8	121970142	4	5	1
0	2	1	50	1	1	1	98	1	2	2	99	1	6	111950079	1	5	1
0	2	7	40	1	1	1	98	1	1	0	1	3	8	130070228	3	5	1
0	2	1	50	1	1	1	98	1	1	1	1	1	8	133060093	1	5	1
0	3	1	55	1	1	1	1	1	1	0	1	1	8	133070138	1	5	11
0	2	1	50	1	1	1	98	1	1	0	1	2	8	122230209	1	5	1
0	2	4	50	1	1	1	1	1	1	0	1	1	3	132420233	2	5	13
0	2	1	50	1	1	1	98	1	1	1	2	4	3	112630125	1	1	1
0	3	4	50	1	1	1	1	1	1	0	1	1	3	122200207	1	5	1
0	2	4	50	1	1	1	1	1	1	0	1	1	5	112310193	1	1	11
0	2	4	45	1	5	1	1	4	1	0	1	1	3	120030277	2	5	1
0	2	4	50	1	1	1	1	1	1	0	1	1	1	130320285	1	1	11

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	
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▪

0.29	70.77	★★★★★	All	All	Urban	Schultz et al., 2008	
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0.45	55.43	★★★★★	Angle	All	Urban	Schultz et al., 2008	
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0.86	14	★★★★★	All	All	Urban	Yanmaz-Tuzel and Ozbay, 2010	
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Desktop Reference for Crash Reduction Factors

Roadway Departure Crashes

Countermeasure(s)	Crash Type	Crash Severity	Area Type	Road Type	Daily Traffic Volume (veh/day)	Ref	Effectiveness			Study Type
							Crash Reduction Factor / Function	Range		
								Std Error	Low	
	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			

Increase number of lanes

Desktop Reference for Crash Reduction Factors

Roadway Departure Crashes

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)				
	All	All				15	26				
Install acceleration/deceleration lanes	All	All	All	All		1	10				
	All	All				15	10				
	All	All				15	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				
	All	Fatal/Injury	Rural	2-lane		38	33				
Install climbing lane (where large difference between car and truck speed)	All	Fatal/Injury	Rural	2-lane		38	33				

Dual CRF for TH 41

Improvements include a 2 lane to 4 lane conversion and installing a median. Additionally, a dual WBL turn lane will be added and a lengthening of the NBL turn lane will be completed. It was determined that the crashes benefit the most from the following factors.

The raised median factor used was for an urban environment since curb and gutter will be implemented.

CR1=Increase Number of Lanes

CR2=Install a raised median

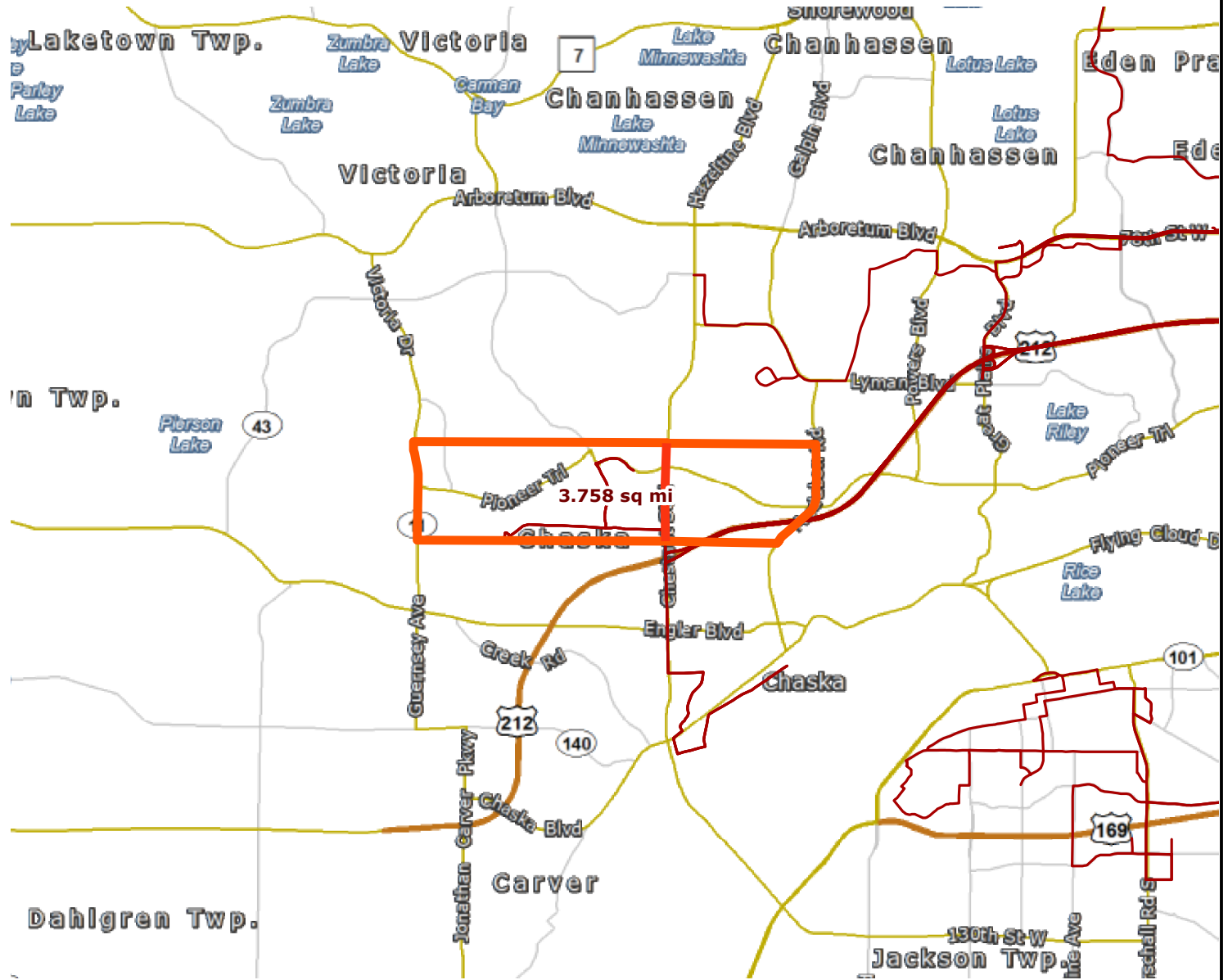
$$CR=1 - (1-CR1)*(1-CR2)$$

Run off Road/Head On/Sideswipe: $CR=1 - (1-.44)*(1-.71) = .84$

Right Angle: $CR=1 - (1-.45)*(1-.71) = .84$

Left-Turn: $CR=1 - (1-.71)*(1-.71) = .92$

Rear End: $CR=1 - (1-.52)*(1-.71) = .86$



Results

Transit with a Direct Connection to project:
687 690 694 695 697 698 699

**indicates Planned Alignments*

- Project
- Transit Routes
- Project Area

