Shoulder Widening Prioritization Study

MnDOT District 4 – Detroit Lakes

Prepared by:

May 2018

SRF No. 017 10686

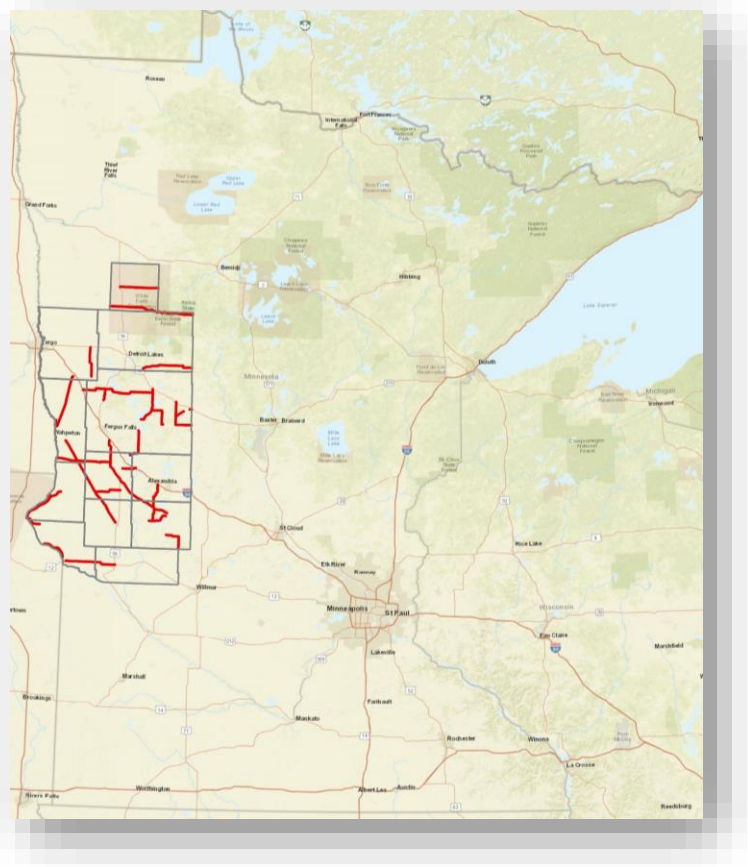
Table of Contents

H:\Projects\10000\10686\TS\Task 7 - Documentation\Report\Final\D4ShoulderWideningStudy_FINAL Report_20180503.docx

Introduction

SRF Consulting Group assisted the Minnesota Department of Transportation (MnDOT) District 4 in using a data-driven approach to evaluate and prioritize locations for widening shoulders of roadways where existing shoulders are less than six feet wide (see Figure 1). All two-lane two-way State Highways in District 4 with shoulder widths less than six feet were included in the study. Locations were prioritized based on the development of a tool that uses performance-based quantitative and qualitative measures. This prioritization tool was designed to give District 4 staff the ability to communicate project needs and priorities to elected officials, residents, and stakeholders.

Figure 1. Study Segments



This report documents the development of shoulder widening evaluation criteria, guidelines for prioritizing segments, and recommendations for the implementation of shoulder widening projects. The process to develop this information included reviewing the benefits and functions of shoulder lanes to identify potential evaluation measures and conducting a literature review to identify best practices for prioritizing transportation improvement projects. Further, coordination with numerous District 4 functional groups occurred to ensure localized needs were met for all functional areas.

Literature Review

Shoulders serve many functions and offer many advantages:

1. Shoulders provide an area for emergency parking.
2. Shoulders provide an area for evasive action and for recovery if the driver inadvertently strays beyond the travel lane.
3. Shoulders improve highway capacity and driver comfort.
4. Shoulders improve lateral support and drainage for the pavement.
5. Shoulders provide lateral clearance for highway appurtenances and for snow removal.
6. Shoulders provide an area for pedestrians and bicyclists.
7. Shoulders provide an area that can function as a turn lane or bypass lane, if so designated.
8. Shoulders provide an area for maintaining roadway lights, signs or signals.

Research was conducted to further identify potential evaluation measures based on the benefits and functions of shoulders and to identify best practices for prioritizing transportation improvement projects. The following summarizes key findings:

MnDOT – Road Design Manual[1]

Chapter 4 of the design manual identifies safety, mobility, traffic composition (i.e. trucks or recreational vehicles), lateral support, maintenance issues, environmental impacts, and the ability to facilitate drainage as key elements to consider with shoulders. Findings from this source support the evaluation criteria developed for this study.

Texas DOT – Systematic Approach to Project Selection for Highway Widening[2]

This source reviews current design standards for shoulder widths, identifies safety effects of shoulder widths, and develops a prioritization process for selecting corridors for shoulder widening. Findings from this source support the data-driven approach to prioritizing locations for widening.

FHWA – Mitigation Strategies for Design Exceptions[3]

This source focuses on the traffic and safety implications of shoulder widths. Findings from this source support the data-driven approach to quantifying changes in safety and mobility.

[1] MnDOT: https://roaddesign.dot.state.mn.us/
[2] Texas Department of Transportation: http://ftp.dot.state.tx.us/pub/txdot-info/trf/hsip/widening-memo.pdf
[3] FHWA: https://safety.fhwa.dot.gov/geometric/pubs/mitigationstrategies/chapter3/3_shoulderwidth.cfm

FHWA – Highway Safety Manual[4]

This source documents the safety benefits of various shoulders widths based on the physical and operational characteristics of the roadway. This source supports the predictive safety analysis approach included in the evaluation process.

North Carolina DOT – Strategic Transportation Investments[5]

The North Carolina DOT developed a process to prioritize transportation projects using a data-driven approach while providing the flexibility to incorporate localized needs. This source supports the development of prioritization scenarios that weight various study objectives based on needs of the area. The prioritization process for this study was modeled after the North Carolina DOT's process. An example of their weighting system is illustrated in Figure 2.

Figure 2. Example Prioritization Weighting System

Regional Impact Standard Ranking – Criteria and Weights *(Note: Choose minimum of four criteria and determine percent weights; total points for any given project cannot exceed 100)*					
Criteria	**0 Points**	**5 Points**	**15 Points**	**25 Points**	**30 Points**
Existing Congestion 30 % Weight	Volume to capacity less than 0.3	Volume to capacity between 0.30 and 0.49	Volume to capacity between 0.50 and 0.69	Volume to capacity between 0.70 and 1.0	Volume to Capacity Over 1.0
Criteria	**0 Points**	**10 Points**	**20 Points**	**25 Points**	
Safety Score 25 % weight	SPOT safety points less than 30	SPOT safety points between 31-50	SPOT safety points between 51-65	SPOT safety points greater than 66	
Criteria	**0 Points**	**20 Points**			
Corridor Continuity 20 % Weight	Project does not complete of continue corridor improvement	Project does continue corridor improvement			

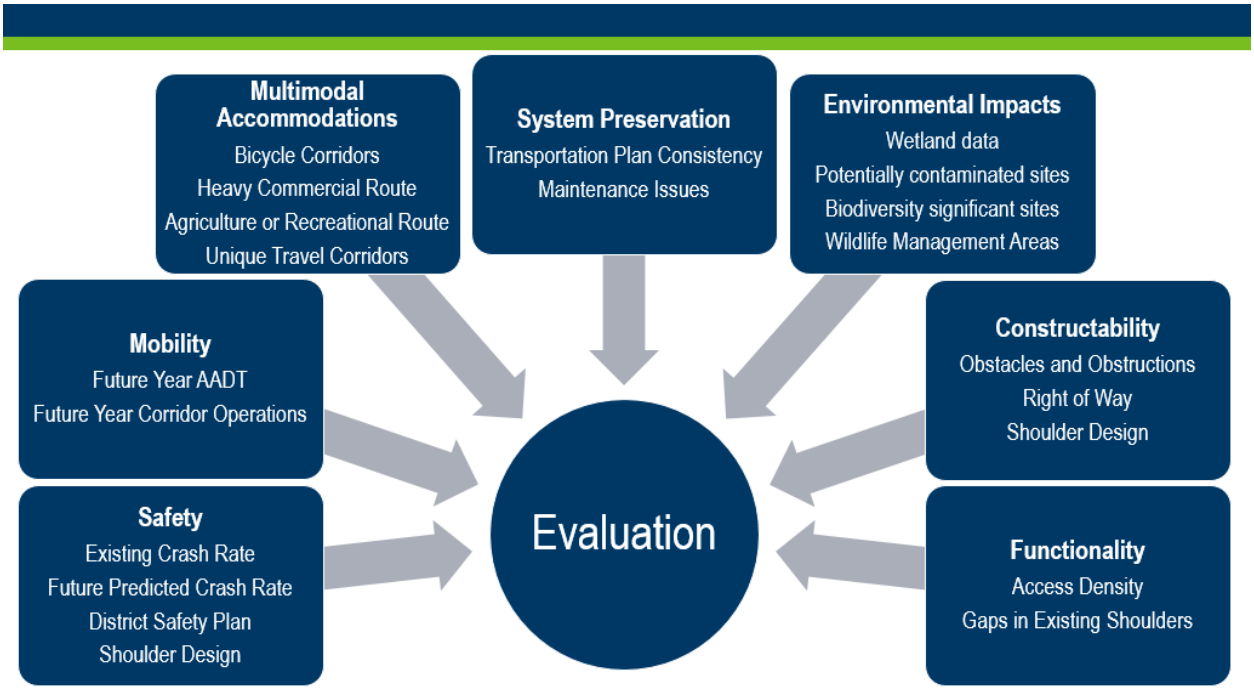
[4] FHWA: https://safety.fhwa.dot.gov/rsdp/hsm.aspx

[5] North Carolina Department of Transportation: https://www.ncdot.gov/strategictransportationinvestments/

Shoulder Widening Evaluation Criteria

Based on research conducted by SRF Consulting Group, Inc. and coordination with District 4 staff, a process was developed for evaluating corridor segments that establishes the need for shoulder widening, evaluates the complexities of project delivery, and reviews the cost-effectiveness of shoulder widening. The evaluation criteria are based on several categories of engineering factors including safety, mobility, multimodal accommodations, system preservation, environmental impacts, constructability, and functionality. For each category, an evaluation objective(s) was identified with a measure(s) for comparison, as illustrated in Figure 3.

Figure 3. Evaluation Criteria and Objectives



The following summarizes the objectives, evaluation criteria and measures for comparison. Each evaluation scoring criteria received a score ranging from zero to three, with zero being least beneficial with respect to shoulder widening. The scoring thresholds were developed using a tiered approach based on the range of the evaluation measures. Appendix A summarizes the scoring thresholds used for each evaluation criteria.

Safety

Roadway segments were evaluated based on existing safety issues as well as future year predicted safety issues. Segments with safety concerns were prioritized for shoulder widening as wider shoulders improve safety. Segments received a safety score based on the following evaluation criteria

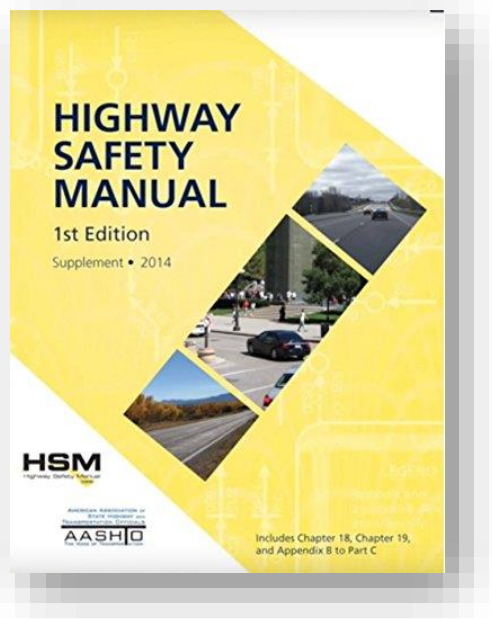
Existing Crash Rate

Crash rates were calculated for each roadway segment.

- Segments with an **existing crash rate below the average crash rate** are assumed to have the lowest safety risk and **received the lowest score**.
- Segments with an **existing crash rate between the average crash rate and critical crash rate** are assumed to have a moderate risk and **received a higher score**.
- Segments with an **existing crash rate greater than the critical crash rate** are assumed to have the greatest risk and **received the highest score**.

Future Year Predicted Crash Rate

Predicted future year crash rates were calculated using projected traffic volumes and the Highway Safety Manual (HSM) crash prediction methodology. This methodology considers shoulder width and shoulder type. Crash rates were calculated for each segment under a future year no build and future year build (6-foot paved shoulder) condition.

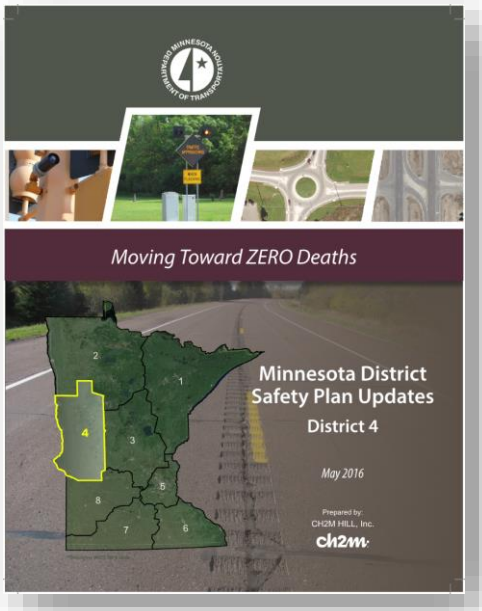


- Segments expected to have the **largest reduction in future year predicted crash rate** received the largest safety benefit from a 6-foot paved shoulder and **received the highest score**.
- Segments expected to have the **lowest reduction in future year predicted crash rate** receive the smallest safety benefit and **received the lowest score**.

District Safety Plan

Segments identified as being high priority in MnDOT's District 4 Safety Plan received a safety score. This plan is not available online, but it can be requested from District 4 staff. Segments were identified in the Safety Plan as being high priority if at least three of the following risk factors were present:

- ADT Range (greater than 3,500)
- Severe Lane Departure Density (greater than the statewide average)
- Access Density (Greater than 8 accesses per mile)
- Critical Radius Curve Density (Greater than 0.1 critical radius curves per mile)
- Edge Risk Assessment (Edge risk of 2 or 3, based on roadway edge and clear zone)



Scoring was as follows:

- Segments with **all five of the risk factors** present **received the highest score**.
- Segments **not identified as high priority** in the District Safety Plan **received the lowest score**.

Shoulder Design

A comprehensive review of the existing shoulders by District 4 staff determined if the shoulders meet design standards.

- Segments with shoulders that **do not meet design standards** are assumed to be less safe and **received the highest score**.
- Segments with shoulders that **do meet design standards** are assumed to be the safest and **received the lowest score**.

Mobility

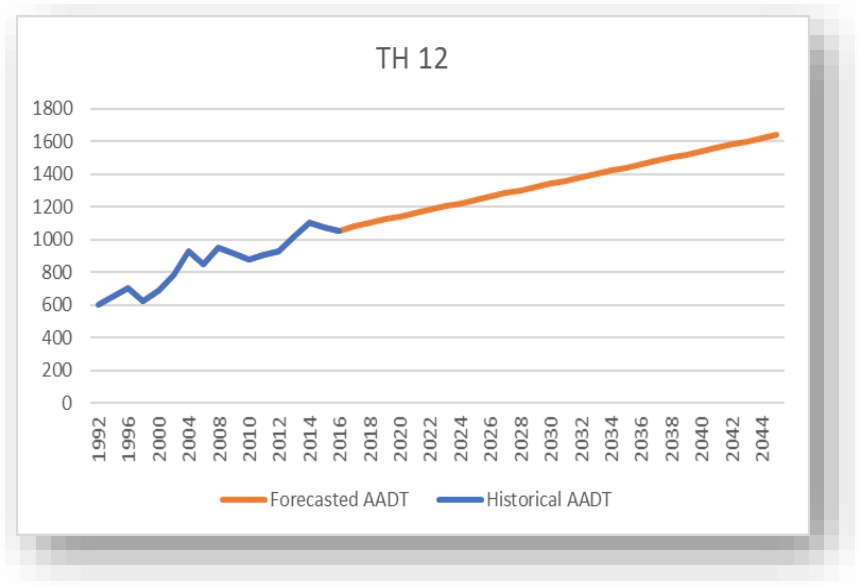
Segments with high projected future traffic volumes and operational issues were identified. Segments for shoulder widening were prioritized to benefit the most users. Segments received a mobility score based on the following evaluation criteria:

Future Year AADT

Future year 2045 traffic volume projections were developed using a historical trendline analysis (see Figure 4) of daily traffic volumes provided by MnDOT[6]:

- Segments with the **highest projected traffic volumes** received the **highest score** because a larger number of users would benefit from shoulder widening.
- Segments with the **lowest projected traffic volumes** received the lowest score because a smaller number of users would benefit from shoulder widening.

Figure 4. Trendline Analysis Example



Future Year Corridor Operations

Future year Level of Service (LOS) was calculated for each segment using Highway Capacity Manual (HCM) methodology[7]. This methodology considers peak hour traffic volumes, shoulder width, access density, heavy commercial vehicles, and passing/no passing opportunities. Segments with the **worst LOS** for any given direction or peak period received the **highest score** because shoulders improve highway capacity and driver comfort.

[6] MnDOT Traffic Forecasting & Analysis: http://dotapp9.dot.state.mn.us/tfa/
[7] FHWA Highway Capacity Manual: http://hcm.trb.org/?qr=1

Multimodal Accommodations

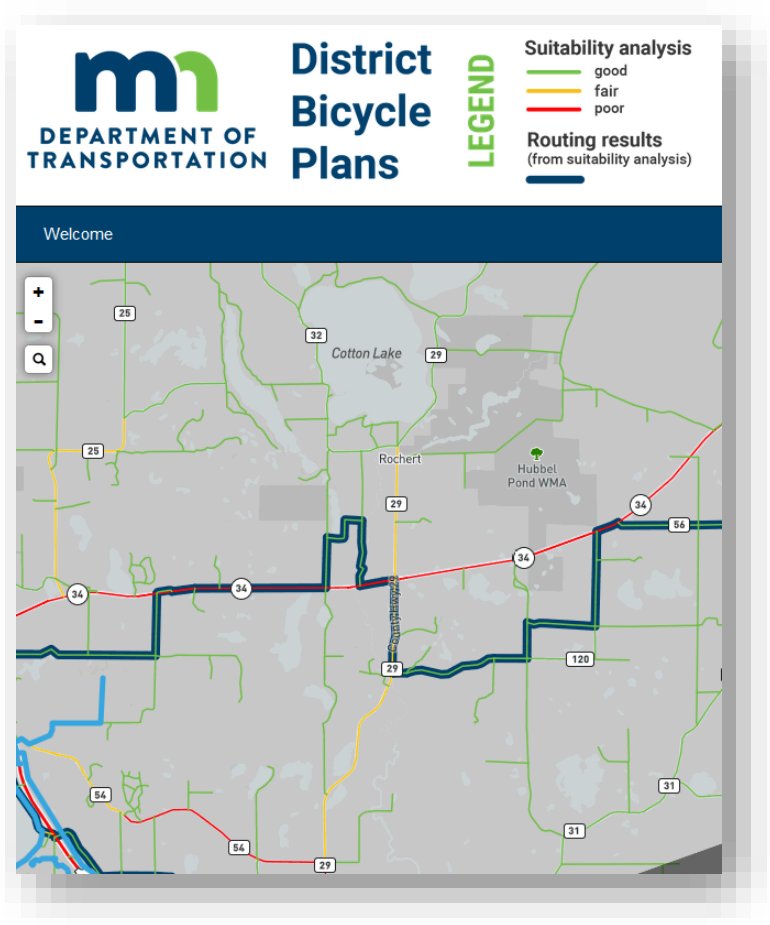
This objective identifies roadway segments that experience multiple modes of transportation. Segments with multiple modes were prioritized for shouldering widening as the widening would benefit unique and non-motorized users. Segments received a multimodal use score based on the following evaluation criteria:

Bicycle Corridors

Segments identified as being part of a route in the MnDOT's District Bicycle Plan Suitability Analysis[8] were identified. These routes are rated as either good, fair, or poor in the suitability analysis.

- Segments **identified as being part of a route and rated poor** received the highest score as locations planned for bicycle use should be prioritized.
- Segments **not identified as being part of a route** received the **lowest score**.

Figure 5. District Bicycle Plan Example



[8] MnDOT District Bicycle Plans: http://wikimapping.net/wikimap/MNDOTDistrict.html

Heavy Commercial Route

Heavy commercial truck percentages were calculated for each study segment using published HCAADT and AADT data.[9] Shoulders provide an area for emergency parking and improve lateral separation for vehicles.

- Segments with the **highest percentage** of heavy commercial received the **highest score**.
- Segments with the **lowest percentage** of heavy commercial received the **lowest score**.

Agricultural or Recreational Route

Segments identified by District 4 Staff as agricultural or recreational routes that would benefit from wider shoulders were mapped.

- Segments **identified as agricultural and recreational routes** received the **highest score**.
- Segments **not identified as agricultural or recreational routes** received the **lowest score**.

Unique Travel Corridor

Segments identified by District 4 Staff as unique travel corridors (i.e. Amish users, high pedestrian corridors, etc.) that would benefit from wider paved shoulders were mapped. These segments were prioritized as they are likely to have an increase in non-motorized users compared to other segments.

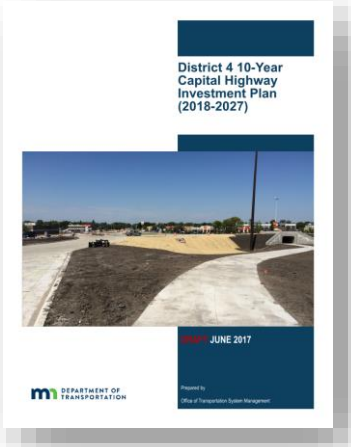
- Segments **identified as unique travel corridors** received the **highest score**.
- Segments **not identified as unique travel corridors** received the **lowest score**.

[9] MnDOT Traffic Forecasting & Analysis: http://dotapp9.dot.state.mn.us/tfa/

System Preservation

This objective involves identifying roadway segments that have planned or programmed improvements or have maintenance issues. Segments were prioritized based on current plans to make improvements or where maintenance issues were identified. Segments received a system preservation score based on the following evaluation criteria:

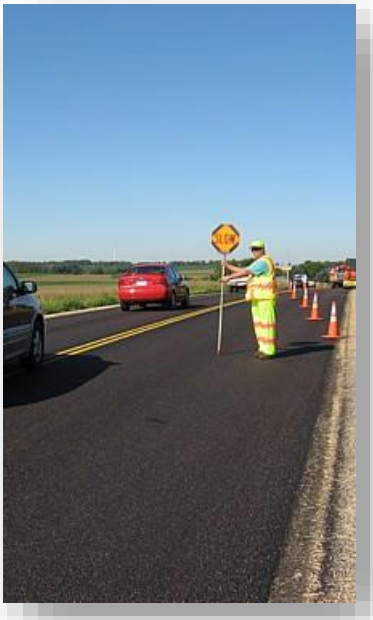
Transportation Plan Consistency



Segments that are in MnDOT's District 4 10-year Capital Highway Investment Plan[10] (CHIP) were identified.

- Segments included in projects that are **programmed or planned** have already been identified as high priority; therefore, these segments received the **highest score**.
- Segments that are **not identified** in the 10-year CHIP received the **lowest score**.

Maintenance Issues



District 4 staff provided a list of segments with maintenance issues. The primary maintenance issues identified include segments with:

- Steep slopes
- Narrow shoulders
- Loose shoulder material
- Shoulders prone to erosion

Shoulders improve lateral support and drainage for pavement.

- Segments with **identified maintenance issues** received the **highest score**.
- Segments **without identified maintenance issues** received the **lowest score**.

[10] MnDOT Capital Highway Investment Plan: http://www.dot.state.mn.us/planning/10yearplan/index.html

Environmental Impacts

This objective identifies locations that are at risk for environmental implications. Segments were prioritized to minimize risk (i.e. least amount of potential impact) when delivering a project. Segments received an environmental impact score based on the following evaluation criteria:

Impacted Wetlands

The number of potential acres of impacted wetlands were calculated for each segment. Wetlands data was obtained from the U.S. Fish & Wildlife Service's National Wetlands Inventory[11] and was mapped. Wetlands that are within 150 feet of the roadway centerline are assumed to be potentially impacted.

- Segments with the **largest number of impacted wetland acres** received the **lowest score**.
- Segments with the **lowest number of impacted wetland acres** received the **highest score**.

Potentially Contaminated Sites

Sites identified by the Minnesota Pollution Control Agency as potentially contaminated[12] were mapped. Potentially contaminated sites that are within 150 feet of the roadway centerline are assumed to be potentially impacted.

- Segments with the **highest number of potentially contaminated sites** received the **lowest score**.
- Segments with the **lowest number of potentially contaminated sites** received the **highest score**.

MCBS Biodiversity Sites

Sites identified as biodiversity significant[13] by the Minnesota County Biological Survey (MCBS) were mapped. Sites of biodiversity significance that are within 150 feet of the roadway centerline are assumed to be potentially impacted.

- Segments with the **highest number of impacted biodiversity significant sites** received the **lowest score**.
- Segments with the **lowest number of impacted biodiversity significant sites** received the **highest score**.

[11] U.S. Fish and Wildlife National Wetlands Inventory: https://www.fws.gov/wetlands/data/data-download.html
[12] MN PCA Potentially Contaminated Sites: https://www.pca.state.mn.us/data/contaminated-sites-data
[13] Biological Survey Sites of Biodiversity Significance: https://gisdata.mn.gov/dataset/biota-mcbs-sites-of-biodiversity

Wildlife Management Area

Locations identified as Wildlife Management Areas[14] (WMA) by the Minnesota Department of Natural Resources were mapped. WMAs within 150 feet of the roadway centerline are assumed to be potentially impacted.

- Segments with the **highest number of impacted WMA acres** received the **lowest score**.
- Segments with the **lowest number of impacted WMA acres** received the **highest score**.

Constructability

This objective identifies construction risks associated with project delivery. Segments were prioritized to minimize risk (i.e. least amount of potential impact) when delivering a project. Segments received a constructability score based on the following evaluation criteria:

Bridge Density

Bridges identified in MnDOT's bridge database (not available online) that are located along the study segments were mapped. Scoring was based on bridge density as shoulder widening may require bridge widening.

- Segments with the **lowest density of bridges per mile** have the least risk of needing bridge replacements and received the **highest score**.
- Segments with the **highest density of bridges per mile** have the most risk of needing bridge replacements and received the **lowest score**.

Culvert Density

MnDOT's hydraulic infrastructure (HydInfra) information (not available online) application was used to map all culverts located along the study segments. Scoring was based on culvert density as shoulder widening may require replacement of culverts.

- Segments with **the lowest density of culverts per mile** are assumed to have the least risk of needing culverts replaced and received the **highest score**.
- Segments with the **highest density of culverts per mile** are assumed to have the highest risk of needing culverts replaced and received the **lowest score**.

[14] MN Department of Natural Resources WMAs: https://gisdata.mn.gov/dataset/bdry-dnr-wildlife-mgmt-areas-pub

Building Density

Buildings located within 150 feet of the study segments were identified and mapped (not available online). Scoring was based on building density as shoulder widening may require the displacement of a building structure.

- Segments with the **lowest density of buildings per mile** are assumed to have the least risk in the amount of buildings impacted and received the **highest score**.
- Segments with the **highest density of buildings per mile** are assumed to have the most risk in the amount of buildings impacted and received the **lowest score**.

Right of Way

District 4 staff provided a list of segments with prescriptive right of way.

- Segments **without prescriptive right of way** or **that are not through tribal land** are assumed to present the least risk for right of way acquisition and received the **highest score**.
- Segments **with prescriptive right of way** or **that are through tribal land** are assumed to present the greatest risk for right of way acquisition and received the **lowest score**.

Shoulder Design

A comprehensive review of the existing shoulders by District 4 staff determined if the shoulders meet design standards. Scoring was based on whether the shoulders meet standards because if the shoulder does meet standards, the shoulder was likely designed and constructed to standards but is not the desired 6-foot in width.

- Segments with shoulders that **meet design standards** are assumed to be the easiest to deliver and received the **highest score**.
- Segments with shoulders that **do not meet design standards** are assumed to be the most difficult to deliver and received the **lowest score**.

Functionality

This objective identifies locations that could functionally benefit from wider shoulders. Segments were prioritized based on high access density and where there are "short" gaps and desired shoulder width. The segments received a functionality score based on the following evaluation criteria:

Access Density

Access density was obtained from MnDOT's District 4 Safety Plan (not available online). Scoring was based on access density as it is expected that the functionality and safety of the segment would be improved with wider shoulders to account for the higher number of access points.

- Segments with the **highest access density** received the **highest score**.
- Segments with the **lowest access density** received the **lowest score**.

Gaps in Existing Shoulders

Segments with existing gaps in shoulder width were identified using data received from District 4. These locations were mapped and prioritized so gaps in system could be addressed.

- Segments **with an existing gap in shoulder width** received the **highest score**.
- Segments **without a gap in shoulder width** received the **lowest score.**

Summary of Evaluation Criteria & Objectives

Table 1 includes a summary of the above evaluation criteria and objectives.

Table 1. Summary of Evaluation Criteria and Objectives

Objectives	Criteria	Measure	Prioritization
Safety	Existing Crash Rate	Comparison to Average and Critical Crash Rates	Safety improvement
	Future Predicted Crash Rate	Reduction in Crash Rate	
	District Safety Plan	Ranking from District Plan	
	Shoulder Design	Meets or Does Not Meet Standards	
Mobility	Future Year AADT	AADT	Number of users and their mobility experience
	Future Year Corridor Operations	Level of Service	
Multimodal Accommodations	Bicycle Corridors	Yes or No	Unique segments or segments with non-motorized users
	Heavy Commercial Route	Yes or No	
	Agriculture or Recreational Route	Yes or No	
	Unique Travel Corridors	Yes or No	
System Preservation	Transportation Plan Consistency	Planned or Programmed	Existing priority
	Maintenance Issues	Yes or No	
Environmental Impacts	Wetlands	Impacted Acres	Potential risk to deliver project – need to scope appropriately
	Potentially Contaminated Sites	Number of Sites	
	Biodiversity Significant Sites	Number of Sites	
	Wildlife Management Areas	Impacted Acres	
Constructability	Obstacles and Obstructions	Density per Mile	Potential risk to deliver project – need to scope appropriately
	Right of Way	Prescriptive	
Functionality	Access Density	Density per Mile	User benefits
	Gaps in Existing Shoulders	Yes or No	

Prioritization Scenarios

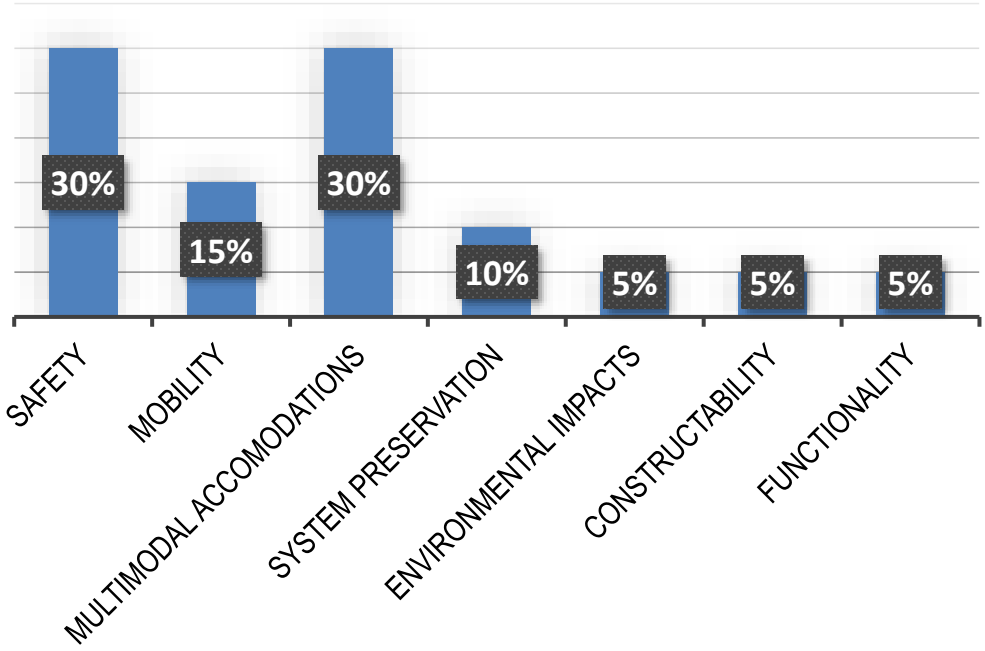
While it would be desirable to implement shoulder widening on all segments in which a need has been identified, other factors play a role in delivering a project, such as funding; therefore, three prioritization scenarios were considered to identify the most important corridors to address:

1. **Project Need:** Prioritizes segments by emphasizing safety and multimodal accommodations while also considering mobility benefits. These received higher weight because of user expectations.
2. **Project Delivery:** Prioritizes segments by emphasizing minimal environmental impacts and constructability issues while also considering mobility benefits.
3. **Benefit-Cost:** Prioritizes segments based on their benefits relative to cost.

For the first two scenarios, each objective was scored as previously described but each evaluation criterion was given a weight. This was to ensure that the evaluation criterion was not artificially being prioritized based on having more objectives within it. See Figures 6 and 7 for the weighting used for both the Project Need and the Project Delivery scenarios, respectively. For the third scenario, segments were ranked based on their cost-effectiveness, which is detailed on Page 18.

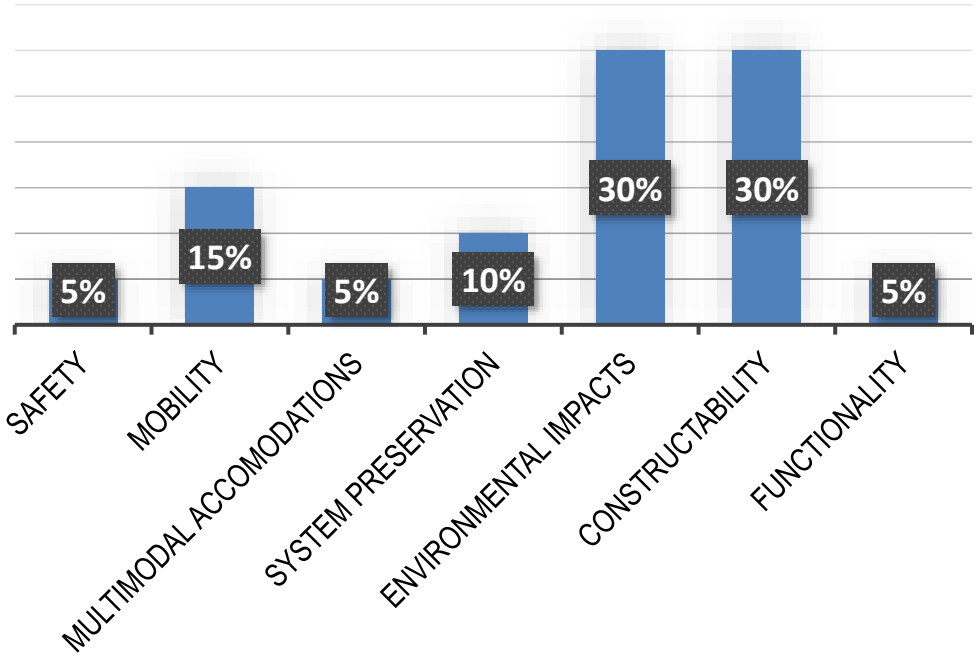
Project Need

Figure 6. Project Need Prioritization Weighting



Project Delivery

Figure 7. Project Delivery Prioritization Weighting



Benefit-Cost Analysis

The objective of the Benefit-Cost Analysis (BCA) is to bring all the direct effects of a transportation investment into a common measure (dollars), and to allow for the fact that benefits accrue over a long period while costs are incurred primarily in the initial years. The BCA provides an indication of the economic desirability of a project, but decision-makers must weigh the results against other considerations, effects, and impacts of the project. Projects are considered cost-effective if the benefit-cost ratio is greater than 1.0. The larger the ratio number, the greater the benefits per unit cost.

For this study, primary factors included crash reduction, travel time savings, and initial construction costs. For the crash reduction, the future and existing crash rates were determined as previously detailed. To determine the estimated cost of a crash event, the district-wide distribution of crash severities was combined with MnDOT estimates for crash event costs to determine the cost of an "average" crash event. This cost, combined with existing and forecast AADTs, segment lengths, and crash rates for each segment, were used to estimate the net reduction in crash costs. The estimated travel time savings were determined based on predicted average travel speeds with and without shoulder widening. This, along with the segment length and an assumed value-of-time for an average user of each segment, were used to estimate the value of the decrease in travel time for each segment.

Costs for shoulder widening were estimated based on the existing shoulder material, width, and length. This cost was adjusted to account for components of the initial capital cost that have value beyond the lifetime of the roadway. For example, materials can be salvaged when the roadway is replaced and grading would not need to be redone in the future, etc. For this study, costs were estimated at a high-level and do not account for segment-specific costs that could occur such as reconstruction of culverts, wetland impacts, additional right-of-way needed, or poor or contaminated soils. Assumptions for estimated construction costs are provided in Appendix B.

Recommendations

Based on discussions with District 4 staff, improvements for safety and non-motorized users was identified as key in the decision-making process to prioritize segments for shoulder widening. Therefore, the project need prioritization scenario was recommended to be used as the basis for determining the order in which to implement shoulder widening projects in District 4. This scenario ranks all rural two-lane segments with existing shoulder widths less than six-feet by need using evaluation criteria that has been developed based on national and local research and characteristics unique to District 4.

The rankings for project need were divided into five tiers (Tiers 1-5) with Tier 1 including the top 20 scoring segments. Tier 1 segments are included in Figure 8. These are also detailed in Table 2. The rankings for project delivery were divided into three tiers (Tiers A-C) with Tier A including the top 30 segments. For benefit-cost, the numerical BCA result is provided. Appendix C includes the ranking for each prioritization scenario for all segments.

Figure 8. Tier 1 Prioritized Segments

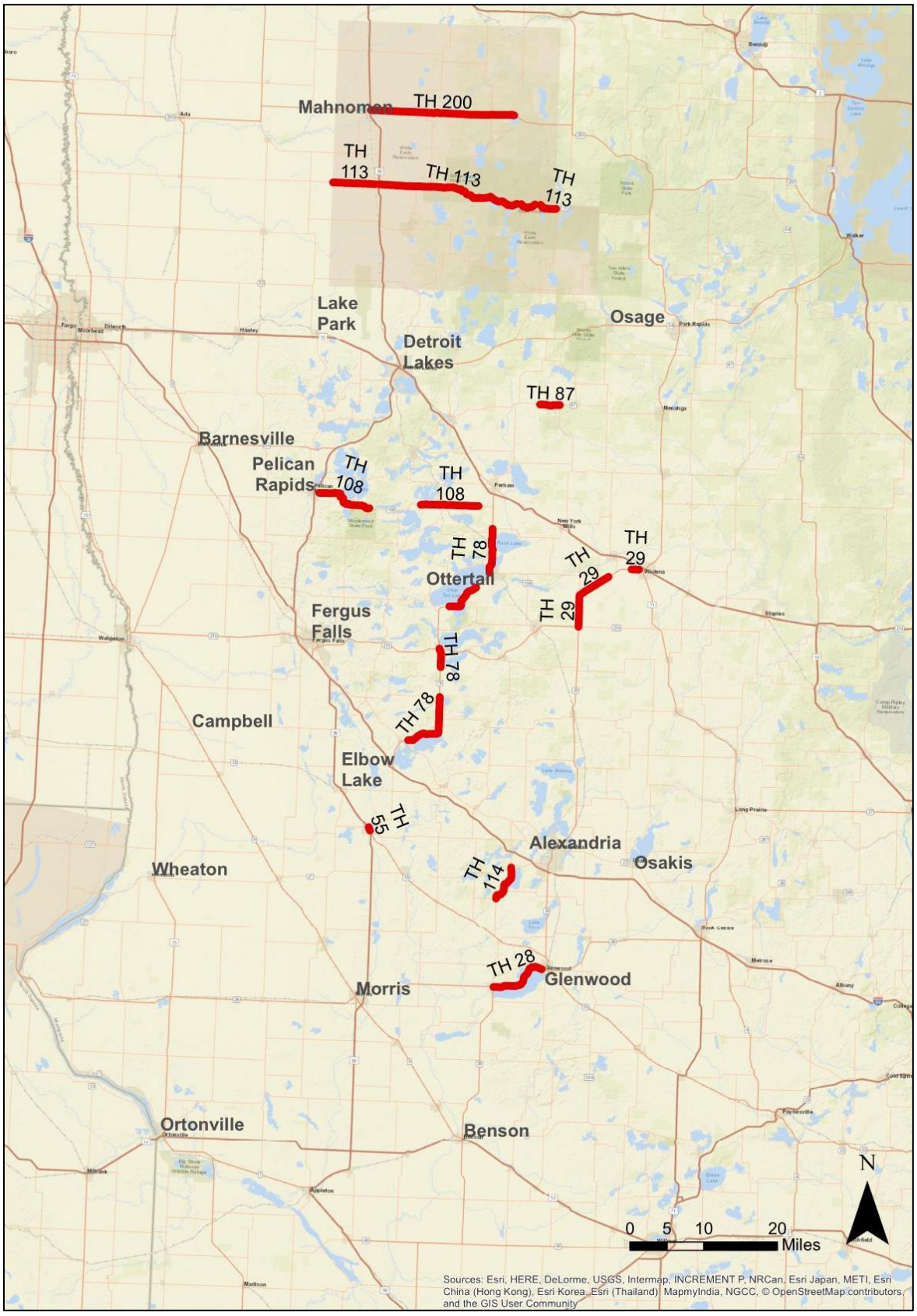


Table 2. Recommended Tier 1 Segments

Rank	Route	From	To	Score
1	TH 200	E of TH 59 N of Mahnomen	W of CSAH 3	62.08
2	TH 78	S of TH 210	.3 Mi NE of CR82 (E of Ashby)	60.75
3	TH 113	E of CSAH 3	W of CR 35	58.92
4	TH 113	E of TH59	W of CSAH 3	56.08
5	TH 108	S of Westmill Ave in Pelican Rapids	N of CR67	55.42
6	TH 78	SW of CSAH5	NE of Cloverlead Road	55.17
6	TH 87	E of CSAH 41 in Evergreen	W of CSAH 43	55.17
8	TH 28	E of CSAH 24 in Long Beach	W of 65th t NW (W of Glenwood)	55.08
9	TH 113	E of CSAH35	W of Utopia Bay Lane by Becker County	54.75
10	TH 55	SE of CSAH 8	.19 Mi NW of CSAH 2 in Barrett	54.67
11	TH 78	S of CSAH14	N of CSAH 1	54.08
12	TH 200	E of CSAH 3	W of CSAH 7	53.75
13	TH 28	E of TH 114 in Starbuck	W of 5th ST NW in Glenwood	52.75
14	TH 78	S of CSAH 1	N of S JCT TH 78 & TH 108 in Ottertail	50.92
15	TH 114	S of TH 27	N of Co Rd 26SW	50.58
16	TH 78	S of TH 210 (S of Battle Lake)	N of CR114	49.50
17	TH 108	E of Engstrom Beach Road/Beaver Dam Rd	W of CR 49	49.33
18	TH 113	E of CR102 (Mahnomen Co Boundary)	W of Railroad Street in Waubun	48.33
19	TH 29	NE of CSAH 50 (Main Ave) in Deer Creek	W of CSAH 75	48.25
20	TH 29	E of CSAH 75	W of TH 29	48.17
20	TH 29	SW of CSAH 50/Main Ave in Deer Creek	N of TH210	48.17

Evaluation & Prioritization Tool

A tool was developed that uses Microsoft Excel and Arc GIS to evaluate and prioritize District 4 roadways for shoulder widening. The primary features/functions of the tool include:

1. Comines data sets from various sources.
2. Data can be updated in the future.
3. Evaluates shoulder widening using both quantitative and qualitative measures.
4. Uses scoring criteria developed with input from District 4 staff to prioritize segments based on several categories of engineering factors which include:
    a. Safety
    b. Mobility
    c. Multimodal Accommodations
    d. System Preservation
    e. Environmental Impacts
    f. Constructability
    g. Functionality
5. Calculates a benefit-cost ratio for each segment.
6. Prioritizes all segments based on the three prioritization scenarios.
7. ArcGIS Maps for Office can be used to produce maps in Microsoft Excel.
8. Data can be exported from Microsoft Excel in GIS format.
9. Data can be exported from Microsoft Excel as a .kmz file which can be used in Google Earth

Instructions for using the tool are included in the Microsoft Excel file and have been documented in the *Prioritization Tool Instructions Memorandum* dated May 3, 2018, which can be found in Appendix D.

Appendix A

Scoring Thresholds

District 4 Shoulder Widening Prioritization Study
Scoring Thresholds

Safety	Existing Crash Rate	Criteria	Less Than Average	Between Average and Critical		Above Critical
		Score	0	2		3
	Future Predicted Crash Rate (Reduction)	Criteria	0	0-.05	0.05-0.10	>=0.10
		Score	0	1	2	3
	District Safety Plan (Ranking)	Criteria	Not Identified as High Priority	3 Stars	4 Stars	5 Stars
		Score	0	1	2	3
	Shoulder Design (Meets or Does Not Meet Standards)	Criteria	No Data	Neither meet design standards	One meets design standards	Both meet design standards
		Score	3	3	2	0
Mobility	Future Year AADT	Criteria	<150	150-800	800-1500	>=1500
		Score	0	1	2	3
	Future Year Corridor Operations (LOS)	Criteria	A	B	C	D
		Score	0	1	2	3
Multimodal Accomodations	Bicycle Corridor	Criteria	No	Yes (Poor)	Yes(Fair)	Yes (Good)
		Score	0	3	2	1
	Heavey Commercial Route (HCAADT)	Criteria	<8%	10-12%	12-15%	>=15%
		Score	0	1	2	3
	Agriculture or Recreational Use Corridor	Criteria	No	Rec	Ag	Both
		Score	0	2	2	3
	Unique Travel Corridor	Criteria	No			Yes
		Score	0			3
System Preservation	Transportation Plan Consistency (Planned or Programmed)	Criteria	Neither	Planned	Programmed/Planned	Programmed
		Score	0	1	2	3
	Maintenance Issues	Criteria	No			Yes
		Score	0			3
Environmental Impacts	Impacted Wetlands (Acres)	Criteria	0	5	10	10
		Score	3	2	1	0
	Potentially Contaminated (Sites)	Criteria	0	1	2	3
		Score	3	2	1	0
	MCBS Biodiversity Sites (Acres)	Criteria	0	10	20	20
		Score	3	2	1	0
	Wildlife Management Area (Acres)	Criteria	0	10	50	50
		Score	3	2	1	0
Constructability	Right of Way Impacts (Prescriptive)	Criteria	Usual			Prescriptive
		Score	3			0
	Number of Bridges per Mile	Criteria	0	0.2	0.4	0.4
	Number of Culverts per Mile	Criteria	0	4	10	10
		Score	3	2	1	0
	Number of Buildings	Criteria	0	1	<5	>=5
			0	1	5	5
		Score	3	2	1	0
	Shoulder Design	Criteria	No Data	Neither meet design standards	One meets design standards	Both meet design standards
		Score	0	0	2	3
Functionality	Access Density	Criteria	<5	5-8	8-10	>=10
			5	8	10	10
		Score	0	1	2	3
	Gaps in Existing Shoulder	Criteria	No			Yes
		Score	0			3

Appendix B

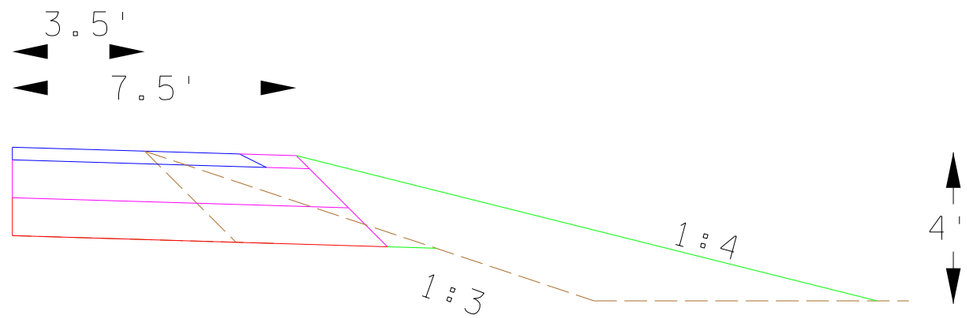
Cost Estimate Assumptions

SRF Consulting Group, Inc. | Engineers Planners Designers

District 4 Shoulder Assessment
Concept Cost Estimate (Per Mile)
Prepared By: SRF Consulting Group, Inc., Date: October 24, 2017

ITEM DESCRIPTION		UNIT	*UNIT PRICE	Widening Existing 2' Paved Shoulder to 6' Paved Shoulder		Widening Existing 4' Paved Shoulder to 6' Paved Shoulder		Widening Existing 2' Gravel Shoulder to 6' Paved Shoulder		Widening Existing 4' Gravel Shoulder to 6' Paved Shoulder		Widening Existing 2' Paved Shoulder to 6' Paved Shoulder + Ditch Widening	
				EST. QUANTITY	EST. AMOUNT	EST. QUANTITY	EST. AMOUNT	EST. QUANTITY	EST. AMOUNT	EST. QUANTITY	EST. AMOUNT	EST. QUANTITY	EST. AMOUNT
PAVING AND GRADING COSTS													
2106 Excavation - common & subgrade		cu. yd.	$6.50	4,522	$29,393	5,304	$34,476	4,217	$27,411	5,261	$34,197	16,067	$104,436
2106 Common Embankment (CV)		cu. yd.	$4.00	7,185	$28,740	6,383	$25,532	7,940	$31,760	7,146	$28,584	7,404	$29,616
2106 Granular Subgrade (CV)		cu. yd.	$16.00	3,673	$58,768	3,673	$58,768	3,673	$58,768	3,673	$58,768	3,673	$58,768
Mainline Shoulder Pavement	(1)	sq. yd.	$23.00	7,040	$161,920	7,040	$161,920	7,040	$161,920	7,040	$161,920	7,040	$161,920
Removals - Pavement		sq. yd.	$7.50	2,347	$17,603	4,694	$35,205					2,347	$17,603
Rumble Strips		lin. ft.	$.20	10,560	$2,112	10,560	$2,112	10,560	$2,112	10,560	$2,112	10,560	$2,112
SUBTOTAL PAVING AND GRADING COSTS:					**$298,536**		**$318,013**		**$281,971**		**$285,581**		**$374,455**
DRAINAGE, UTILITIES AND EROSION CONTROL													
Drainage - rural extensions	(2)	lin. ft.	$300	36	$10,800	24	$7,200	45	$13,500	36	$10,800	36	$10,800
Turf Establishment & Erosion Control		10%			$30,000		$32,000		$28,000		$29,000		$37,000
SUBTOTAL DRAINAGE, UTILITIES AND EROSION CONTROL					**$40,800**		**$39,200**		**$41,500**		**$39,800**		**$47,800**
SIGNING & STRIPING COSTS													
Mainline Signing (C&D)	(3)	each	$650	6	$3,900	6	$3,900	6	$3,900	6	$3,900	6	$3,900
Mainline Striping		lin. Ft.	$1	10560	$10,560	10560	$10,560	10560	$10,560	10560	$10,560	10560	$10,560
SUBTOTAL SIGNING & STRIPING COSTS:					**$14,460**		**$14,460**		**$14,460**		**$14,460**		**$14,460**
***ESTIMATED SUBTOTAL CONSTRUCTION COSTS:**					**$353,796**		**$371,673**		**$337,931**		**$339,841**		**$436,715**
MISCELLANEOUS COSTS													
Mobilization		5%			$18,000		$19,000		$17,000		$17,000		$22,000
Non Quantified Minor Items (10% to 30%)		10%			$35,000		$37,000		$34,000		$34,000		$44,000
Traffic Control		3%			$11,000		$11,000		$10,000		$10,000		$13,000
SUBTOTAL MISCELLANEOUS COSTS:					**$64,000**		**$67,000**		**$61,000**		**$61,000**		**$79,000**
***ESTIMATED TOTAL CONSTRUCTION COSTS without Contingency:**					**$417,796**		**$438,673**		**$398,931**		**$400,841**		**$515,715**
Contingency or "risk" (10% to 30%)		15%			$63,000		$66,000		$60,000		$60,000		$77,000
***ESTIMATED TOTAL CONSTRUCTION COSTS PLUS CONTINGENCY:**					**$480,796**		**$504,673**		**$458,931**		**$460,841**		**$592,715**

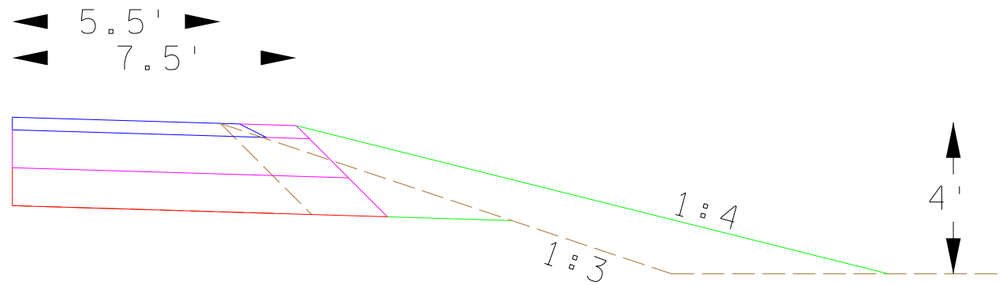
NOTE: (1) Assumes 4" bituminous pavement with 12" aggregate base CL 5.
(2) Includes cost for pipe length & remove & relay end sections. Assumes 3 centerline culverts per mile.
(3) Assumes 3 relocated signs per side of roadway.
* Based on 2016 bid price information.
Right of Way impacts not included. Could be significant with Right of Way less than 60ft each side of centerline.
Wetland Impacts not included.



Common Exc. - 11.56 sf
Common Emb. - 18.37 sf
Granular Emb. - 9.39 sf

Existing 2' Paved/3.5' Usable to 6' Paved/7.5' Usable

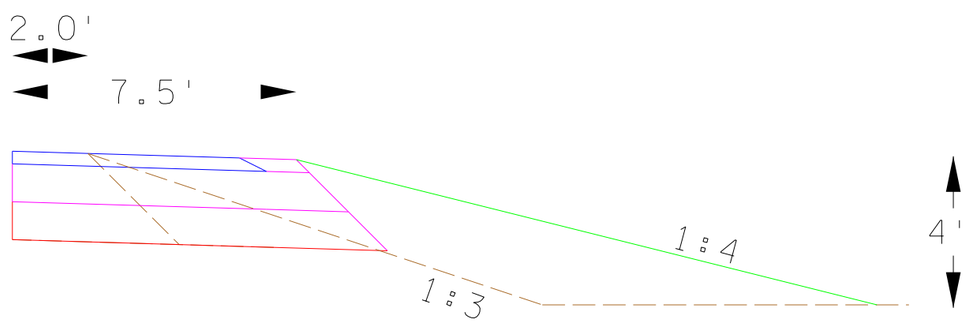
Assumptions:
4' Inslope Depth
4" Shoulder Pvmt & 12" Agg Base (Proposed & Existing)
1:3 Existing Slope



Common Exc. - 13.56 sf
Common Emb. - 16.32 sf
Granular Emb. - 9.39 sf

Existing 4' Paved/5.5' Usable to 6' Paved/7.5' Usable

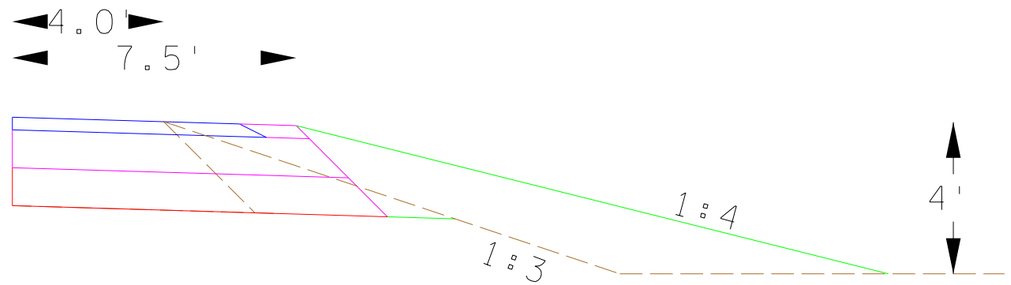
Assumptions:
4' Inslope Depth
4" Shoulder Pvmt & 12" Agg Base (Proposed and Existing)
1:3 Existing Slope



Common Exc. - 10.78 sf
Common Emb. - 20.30 sf
Granular Emb. - 9.39 sf

Existing 2' Gravel to 6' Paved/7.5' Usable

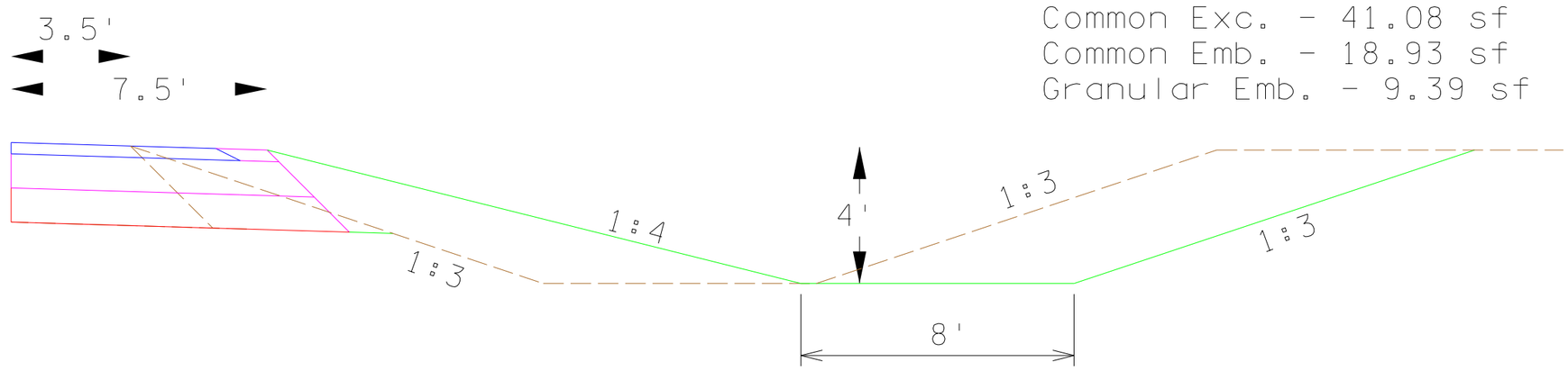
Assumptions:
4' Inslope Depth
4" Shoulder Pvmt & 12" Agg Base (Proposed)
4" Surface Gravel & 12" Agg Base (Existing)
1:3 Existing Slope



Common Exc. - 13.45 sf
Common Emb. - 18.27 sf
Granular Emb. - 9.39 sf

Existing 4' Gravel to 6' Paved/7.5' Usable

Assumptions:
4' Inslope Depth
4" Shoulder Pvmt & 12" Agg Base (Proposed)
4" Surface Gravel & 12" Agg Base (Existing)
1:3 Existing Slope



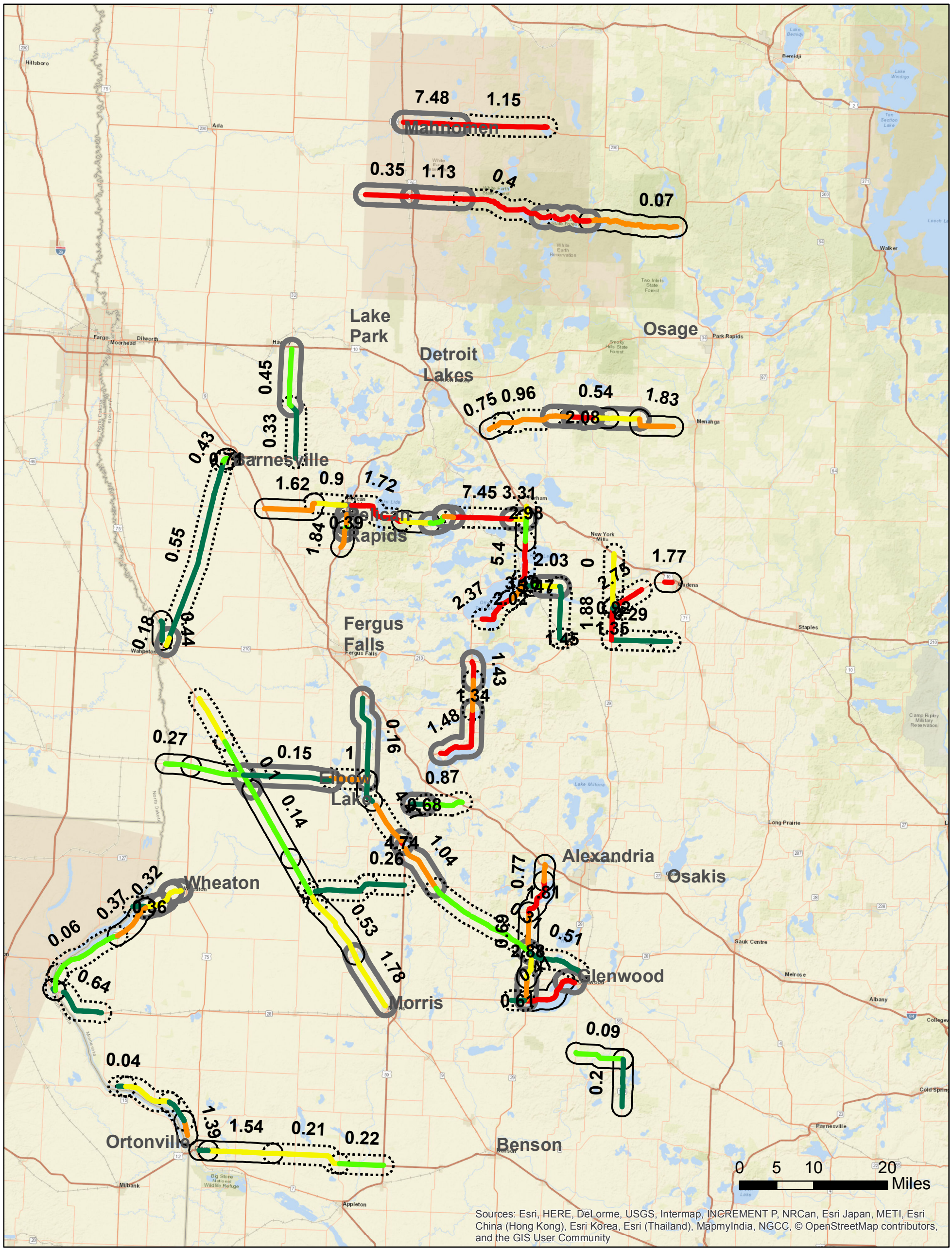
Common Exc. - 41.08 sf
Common Emb. - 18.93 sf
Granular Emb. - 9.39 sf

Existing 2' Paved/3.5' Usable to 6' Paved/7.5' Usable with Ditch Widening

Assumptions:
4' Inslope Depth
4" Shoulder Pvmt & 12" Agg Base (Proposed and Existing)
1:3 Existing Slope

Appendix C

Evaluation and Prioritization Results



Document Path: L:\Projects\10686\mxd\Project Prioritization.mxd

Ranking based on Project Need

- Tier 1 (1 - 20)
- Tier 2 (21 - 40)
- Tier 3 (41 - 60)
- Tier 4 (61 - 80)
- Tier 5 (81 - 104)

Ranking based on Project Delivery

- Tier A (1 - 30)
- Tier B (31 - 60)
- Tier C (61 - 104)

Project Benefit-Cost Ratio

X.X Benefit Cost Ratio

N

SRF Consulting Group, Inc.

Project Prioritization

District 4 Shoulder Widening Prioritization Study

Figure 1

017 10686

District 4 Shoulder Widening Prioritization Study
Evaluation of Segments

Segment Information					Safety				Mobility			Multimodal Accomodations
Segment ID	Route Name	From	To	Length	Crash rate less than average, between average and critical, or greater than critical	Difference between 2045 Build and 2045 No Build predicted crash rate	District Safety Plan - Risk Assessment	Shoulder Design	2045 AADT	Worst Existing Peak Hour LOS	Worst 2045 Peak Hour LOS	Pedestrian and Bicycle Corridors
6	TH 9	W of 6th St NW in Barnesville	N of CSAH 16	24.9	Less Than Average	0.04	No	Neither meet design standards	750	A	A	0
7	TH 9	SE of CR 8	NW of CSAH 4	6.6	Between Average and Critical	0.01	No	Neither meet design standards	650	A	A	0
40	TH 9	SE of 7th St in Donnelly	NE of CSAH 5 in Morris	8.1	Less Than Average	0.04	No	Neither meet design standards	2650	C	C	0
46	TH 9	S of CSAH16	N of E JCT TH 9 and 210	1.1	Between Average and Critical	0.01	No	Neither meet design standards	850	A	A	1
65	TH 9	SE of TH55	NW of CSAH 20 in Tintah	2.1	Less Than Average	0.01	No	One meets design standards	450	A	A	0
68	TH 9	SE of CR6	NW of CSAH9 in Donnelly	8.6	Less Than Average	0.02	No	Neither meet design standards	1500	A	A	0
87	TH 9	SE of CR33	NW of CR6	1.2	Between Average and Critical	0.02	No	Neither meet design standards	1100	A	A	0
89	TH 9	SW of 2nd Ave SW W of Barnesville	NE of CR51	0.6	Less Than Average	0.05	No	Neither meet design standards	900	A	A	0
94	TH 9	SE of CSAH31	NW of 140th N of Herman	4.7	Less Than Average	0.02	No	Neither meet design standards	700	A	A	0
111	TH 9	SE of CSAH 4 in Campbell	NW of TH 55	2.4	Between Average and Critical	0.01	No	Neither meet design standards	450	A	A	0
122	TH 9	SE of CSAH 19 and Putman St Tintah	NW of CSAH 31	10.7	Less Than Average	0.02	No	One meets design standards	600	A	A	0
127	TH 9	NE of 165th Ave S	E of 6th St SW	0.4	Less Than Average	0.07	No	Neither meet design standards	1150	A	A	0
133	TH 9	SE of 140th St	NW of 8th ST E in Herman	0.6	Less Than Average	0.02	No	One meets design standards	800	A	A	0
10	TH 87	E of CR 31	NW of CR47	6.8	Less Than Average	0.08	3	One meets design standards	1500	B	B	0
16	TH 87	E of CR 45	W of N JCT CSAH 47	4.2	Less Than Average	0.08	3	One meets design standards	1050	A	A	0
32	TH 87	W of 590th Ave County Border	E of S JCT CSAH47 and TH87	5.4	Less Than Average	0.08	3	Neither meet design standards	1450	A	A	0
45	TH 87	NW of CR150	W of CSAH 31	2.2	Between Average and Critical	0.06	3	One meets design standards	1450	B	A	0
48	TH 87	E of CSAH 43	W of CR45	2.2	Less Than Average	0.03	3	One meets design standards	1150	A	A	0
140	TH 87	E of CR39	W of CSAH 41	2.8	Between Average and Critical	0.05	No	One meets design standards	1250	B	A	0
145	TH 87	E of CSAH 41 in Evergreen	W of CSAH 43	2.7	Between Average and Critical	0.17	3	One meets design standards	1600	B	B	0
37	TH 79	S of CSAH 24	W of CSAH10	1.7	Between Average and Critical	0.03	No	Both meet design standards	1700	A	A	0
137	TH 79	E of CSAH10	W of I-94	5.1	Between Average and Critical	0.03	3	Neither meet design standards	1800	B	B	0
11	TH 78	S of CSAH 1	N of S JCT TH 78 & TH 108 in Ottertai	0.7	Less Than Average	0.09	3	Neither meet design standards	4800	C	B	3
17	TH 78	S of CSAH14	N of CSAH 1	5.4	Less Than Average	0.12	5	Neither meet design standards	6400	C	C	0
41	TH 78	S of S JCT TH 108 and CSAH14	NE of CSAH 5	2.8	Less Than Average	0.12	3	Neither meet design standards	2100	C	B	0
54	TH 78	S of TH 210 (S of Battle Lake)	N of CR114	2.6	Less Than Average	0.08	3	Neither meet design standards	2250	B	A	0
99	TH 78	S of TH 210	.3 Mi NE of CR82 (E of Ashby)	9.4	Between Average and Critical	0.08	4	Neither meet design standards	1200	B	B	0
100	TH 78	S of CR114	N of CSAH 12	4.0	Less Than Average	0.09	3	Neither meet design standards	1950	B	A	0
101	TH 78	SW of CSAH5	NE of Cloverlead Road	5.1	Less Than Average	0.17	3	Neither meet design standards	1750	C	C	2
138	TH 78	S of W TH 10 on and off ramp	N of N JCT tH78 and TH108	1.8	Between Average and Critical	0.02	No	One meets design standards	8200	C	C	0
153	TH 78	S of TH 108	N of CSAH 14 and N Boedigheimer Dr	3.0	Less Than Average	0.03	No	One meets design standards	6350	B	B	0
14	TH 75	SE of CR 155	N of TH 210	2.7	Between Average and Critical	0.02	No	Both meet design standards	1550	A	A	0
2	TH 7	S of CR 68 and CR 34	N of Golf Course Rd	2.1	Between Average and Critical	0.08	5	Neither meet design standards	1000	B	B	1
97	TH 7	E of CR53	W of CSAH3	1.0	Less Than Average	0.02	4	Neither meet design standards	200	A	A	0
120	TH 7	E of CSAH 3	NW of CSAH9	6.6	Between Average and Critical	0.09	4	Neither meet design standards	450	C	B	1
150	TH 7	SE of CSAH9	NW of CR68	3.3	Between Average and Critical	0.06	No	Neither meet design standards	500	B	A	1
19	TH 59	S of CSAH 3	N of CSAH 28	1.0	Less Than Average	0.00	No	One meets design standards	4900	B	B	0
31	TH 59	S of CSAH 82	N of JCT TH 59 and TH55	11.5	Less Than Average	0.01	No	One meets design standards	2000	B	A	0
80	TH 59	S of CR 49 and TH59	NW of 2nd Ave NW in Elbow Lake	3.2	Less Than Average	0.00	No	One meets design standards	2650	B	A	0
81	TH 59	S of Lake Region Ave (S of Pelican Rapids)	N of CSAH 3	1.2	Less Than Average	0.00	No	One meets design standards	4750	B	B	0
93	TH 59	S of CSAH28	NE of Dump Road (N of Erhard)	2.4	Between Average and Critical	0.02	No	One meets design standards	4750	B	B	0
104	TH 59	N of Barrett (JCT of TH 59 and Co Hwy 8)	of Elbow Lake (JCT of Th 59 and TH 5	6.0	Less Than Average	0.16	No	Neither meet design standards	2700	B	A	3
43	TH 55	E of TH 75	W of TH 9	7.2	Less Than Average	0.01	No	Neither meet design standards	1200	A	A	0
63	TH 55	SE of CSAH 8	.19 Mi NW of CSAH 2 in Barrett	0.5	Between Average and Critical	0.10	No	Neither meet design standards	2850	B	B	0
72	TH 55	SE of W JCT TH114 and TH55	NW of Aurora Ave in Lowry	0.7	Less Than Average	0.08	No	Neither meet design standards	2350	B	A	0
115	TH 55	E of CSAH11 and TH 55	W of TH 59 and TH 55	5.0	Between Average and Critical	0.11	No	Neither meet design standards	750	C	B	1
116	TH 55	E of TH 9 N	W of CSAH 11/Main St in Wendell	11.8	Less Than Average	0.02	No	One meets design standards	650	A	A	0
129	TH 55	SE of TH 59 and TH55 in Barrett	NW of TH27 and CSAH 5 in Hoffman	6.6	Less Than Average	0.06	No	Neither meet design standards	1150	A	A	0
147	TH 55	SE of N JCT TH 55 and CSAH 28 (Lowry)	NW of TH29	6.7	Less Than Average	0.02	3	Neither meet design standards	1400	A	A	0
148	TH 55	E of Bois de Sioux River Bridge/Ndakota Borde	W of TH 75	3.5	Less Than Average	0.01	No	Neither meet design standards	1400	A	A	0
152	TH 55	SE of Main Ave W in Hoffman	NW of TH 114	14.7	Less Than Average	0.02	No	Neither meet design standards	950	A	A	0
123	TH 32	SE of CSAH 10	N of TH34/CSAH35	7.4	Less Than Average	0.02	No	Neither meet design standards	1100	A	A	0
124	TH 32	.32 M S of TH10	NW of CSAH 10	7.8	Less Than Average	0.02	No	One meets design standards	1350	A	A	0
8	TH 29	E of CSAH 75	W of TH 29	1.0	Between Average and Critical	0.03	No	Neither meet design standards	4600	B	B	0
26	TH 29	NE of CSAH 50 (Main Ave) in Deer Creek	W of CSAH 75	4.3	Between Average and Critical	0.06	No	Neither meet design standards	3000	B	B	0
109	TH 29	SW of CSAH 50/Main Ave in Deer Creek	N of TH210	4.3	Between Average and Critical	0.03	3	Neither meet design standards	2750	A	A	0
136	TH 29	SE of CSAH 50/Main Ave in Deer Creek	NE of TH 106/1st St	0.3	Less Than Average	0.03	No	Neither meet design standards	2600	B	A	0
25	TH 28	.07 NE of TH10 change	S W of TH 27	0.4	Between Average and Critical	0.02	No	Both meet design standards	1800	A	A	0
77	TH 28	E of TH 114 in Starbuck	W of 5th ST NW in Glenwood	6.7	Less Than Average	0.00	3	Neither meet design standards	5400	B	B	3
106	TH 28	SE of CSAH 2 E of Browns Valley	W of Garfield St in Beardsley	6.5	Less Than Average	0.04	No	Neither meet design standards	850	B	B	1
125	TH 28	E of T-219	W of John St in Starbuck	1.8	Between Average and Critical	0.01	No	Neither meet design standards	2800	B	A	0
131	TH 28	E of CSAH 24 in Long Beach	W of 65th t NW (W of Glenwood)	1.4	Between Average and Critical	0.00	3	Neither meet design standards	6800	C	C	0
13	TH 27	NE of TH 117	SW of 635th Ave	2.1	Less Than Average	0.02	3	Neither meet design standards	1000	B	A	0
24	TH 27	E of CSAH 11 Herman	W of 75th Ave	7.5	Less Than Average	0.00	No	Neither meet design standards	950	A	A	1
73	TH 27	SW of CSAH 3	24 Mi N of TH28 (NW of Browns Valle	9.8	Between Average and Critical	0.01	No	Neither meet design standards	500	B	B	0
75	TH 27	N of TH 28 (NW of Browns Valley)	24 Mi N of TH28 (NW of Browns Valle	2.3	Between Average and Critical	0.01	No	Neither meet design standards	550	B	A	0
84	TH 27	W of CSAH 7	E of 635 Ave	2.3	Less Than Average	0.04	3	Neither meet design standards	950	A	A	0
96	TH 27	SW of TH117	NE of CSAH 3	5.5	Between Average and Critical	0.06	3	Neither meet design standards	750	A	A	0
108	TH 27	E of TH 54 and CR 35	W of TH 59	5.0	Between Average and Critical	0.02	3	Neither meet design standards	750	A	A	0
134	TH 27	NE of CSAH7	SW of 16th St in Wheaton	1.3	Less Than Average	0.03	No	Neither meet design standards	1500	B	A	0
9	TH 210	E of CSAH 75	W of 640th Ave	1.5	Less Than Average	0.01	No	Neither meet design standards	1200	A	A	0
74	TH 210	E of TH29	W of CSAH75	6.5	Between Average and Critical	0.02	No	One meets design standards	950	B	A	0
35	TH 200	E of CSAH 3	W of CSAH 7	12.0	Between Average and Critical	0.10	No	Neither meet design standards	1400	A	A	0
91	TH 200	E of TH 59 N of Mahnomen	W of CSAH 3	7.5	Less Than Average	0.33	3	Neither meet design standards	3050	D	C	0
1	TH 12	E of TH 75	W of CR 23 and CR 36	8.8	Less Than Average	0.06	No	Neither meet design standards	1650	B	A	0
23	TH 12	.25 E of TH 75	W of 75th Ave	1.2	Less Than Average	0.04	No	Neither meet design standards	1700	B	A	0
39	TH 12	E of CR 23	W of TH 119 and CSAH 5	9.5	Between Average and Critical	0.01	No	Neither meet design standards	1000	A	A	0
121	TH 12	E of CSAH 5 and TH 119	W of TH 59	6.0	Between Average and Critical	0.01	No	Neither meet design standards	1150	A	A	0
64	TH 117	.36 Mi of TH 117, CSAH19, CSAH21	NE of TH27	1.8	Less Than Average	0.02	3	Neither meet design standards	350	A	A	0
38	TH 114	N of W JCT TH55 and TH114	S of Co Road 26 SW	5.2	Between Average and Critical	0.04	4	Neither meet design standards	1200	A	A	0
69	TH 114	S of TH 27	N of Co Rd 26SW	5.2	Between Average and Critical	0.05	4	Neither meet design standards	2350	A	A	0
92	TH 114	SE of I-94 offramp onto TH114	N of TH27	2.3	Between Average and Critical	0.05	4	Neither meet design standards	900	A	A	0
103	TH 114	S of CWSAH24	N of W 7th St in Starbuck	2.9	Between Average and Critical	0.00	3	Neither meet design standards	2250	A	A	0
144	TH 114	S of S JCT CSAH28 (S of Lowry)	N of CSAH 24	3.2	Between Average and Critical	0.00	4	Neither meet design standards	2250	A	A	0
4	TH 113	E of CSAH 3	W of CR 35	11.4	Between Average and Critical	0.08	5	Neither meet design standards	550	C	B	0
58	TH 113	E of CSAH 37	.81 mi W of TH 71	12.8	Between Average and Critical	0.02	3	One meets design standards	200	A	A	0
66	TH 113	E of CSAH35	f Utopia Bay Lane by Becker County Bo	5.8	Between Average and Critical	0.03	5	Neither meet design standards	250	A	A	0
71	TH 113	E of TH59	W of CSAH 3	7.0	Between Average and Critical	0.10	3	Neither meet design standards	1350	B	B	0
149	TH 113	E of CR102 (Mahnomen Co Boundary)	W of Railroad Street in Waubun	5.7	Less Than Average	0.02	No	One meets design standards	1300	A	A	1
3	TH 108	E of CR30	W of 2nd St NW in Pelican Rapids	4.2	Between Average and Critical	0.07	3	Neither meet design standards	1550	A	A	0
20	TH 108	E of Buchanan Rd/Ottertail	W of CR 61	1.5	Less Than Average	0.19	3	Neither meet design standards	2450	B	B	0
22	TH 108	E of JCT Buc han Rd/TH78 & CSAH14	W of Buchanan Rd in Ottertail	1.2	Less Than Average	0.27	No	Neither meet design standards	2850	C	C	0
30	TH 108	E of JCT CR49 and 420th Ave	W of TH 78	2.0	Less Than Average	0.09	3	Neither meet design standards	2400	B	A	0
36	TH 108	S of Westmill Ave in Pelican Rapids	N of CR67	8.1	Between Average and Critical	0.15	4	Neither meet design standards	1300	C	C	2
53	TH 108	E of CR61 in Henning	W of TH108 and CSAH 52	2.3	Between Average and Critical	0.14	3	Neither meet design standards	1800	B	A	0
90	TH 108	E of CR67	W of CSAH 41	4.0	Between Average and Critical	0.05	3	Neither meet design standards	900	B	A	0
105	TH 108	S of JCT CSAH 52	N of JCT CSAH 16	7.2	Between Average and Critical	0.20	3	Neither meet design standards	1300	C	B	0
112	TH 108	E of I94 and CSAH19	SW of CR30	7.5	Between Average and Critical	0.13	3	Neither meet design standards	1550	A	A	0
130	TH 108	E of E JCT CSAH41	W of CSAH85	2.3	Less Than Average	0.00	No	One meets design standards	1100	C	C	0
143	TH 108	E of CSAH 16	W of Balmoral Ave and TH108	0.6	Between Average and Critical	0.04	No	Neither meet design standards	1950	A	A	0
154	TH 108	E of CSAH 85	W of Beaver Dam Rd	1.3	Between Average and Critical	0.07	3	One meets design standards	1750	B	A	0
155	TH 108	E of Engstrom Beach Road/Beaver Dam Rd	W of CR 49	7.9	Less Than Average	0.29	5	Neither meet design standards	1750	B	B	0
62	TH 106	S of TH 10	N of Soule Ave E in Deer Creek	7.0	Less Than Average	0.00	No	Neither meet design standards	1850	A	A	2
52	TH 104	E of CSAH 19	SW of CSAH29	6.7	Between Average and Critical	0.02	3	Neither meet design standards	300	A	A	0
88	TH 104	SE of CSAH29	4 Mi N of W JCT TH104 and TH 9	6.4	Between Average and Critical	0.02	No	One meets design standards	700	A	A	0

	Multimodal Accomodations				System Preservation		Environmental Impacts				Constructability					Functionality	
Segment ID	HCAADT	Identified Agriculture or Recreational Use Corridors	Indian Reservation	Unique Travel Corridor	Transportation Plan Consistency	Maintenance Issues	Impacted Wetlands (Acres)	Potentially Contaminated Sites - Minnesota Pollution Control Agency (Sites)	MCBS Biodiverty Sites (Acres)	Wildlife Mangement Area (Acres)	Right of Way Impacts (Acres)	Number of Bridges per Mile	Number of Culverts per Mile	Number of Buildings per mile	Shoulder Design2	Access Density (Access points per mile)	Gaps in Existing Shoulder (Miles)
6	8.8%	Ag	No	No	Planned	Yes	8.8	1.0	17.3	0.0	Usual	0.5	7.3	0.2	Neither meet design standards	2.9	0.0
7	15.1%	Ag	No	No	Neither	Yes	0.5	0.0	0.0	0.0	Usual	0.3	4.7	0.0	Neither meet design standards	2.1	0.0
40	14.1%	Ag	No	No	Neither	Yes	2.5	2.0	0.0	0.0	Usual	0.0	2.3	3.6	Neither meet design standards	2.0	0.0
46	8.9%	Ag	No	No	Planned	Yes	0.0	0.0	0.0	0.0	Usual	0.0	6.6	0.0	Neither meet design standards	5.8	0.0
65	29.5%	Ag	No	No	Programmed	Yes	0.0	1.0	0.0	0.0	Usual	0.5	0.0	1.0	One meets design standards	1.6	0.0
68	17.0%	Ag	No	No	Neither	Yes	8.4	0.0	0.0	5.8	Usual	0.0	5.7	0.2	Neither meet design standards	2.0	0.0
87	18.0%	Ag	No	No	Neither	Yes	1.0	1.0	0.0	0.0	Usual	0.0	8.2	1.6	Neither meet design standards	2.0	0.0
89	9.0%	Ag	No	No	Planned	Yes	0.1	0.0	0.0	0.0	Usual	1.8	10.9	0.0	Neither meet design standards	5.6	0.0
94	23.5%	Ag	No	No	Programmed	Yes	1.0	2.0	0.0	0.0	Usual	0.0	2.5	1.3	Neither meet design standards	1.5	0.0
111	19.1%	Ag	No	No	Neither	Yes	0.0	0.0	0.0	0.0	Usual	1.7	3.8	2.5	Neither meet design standards	1.5	0.0
122	29.5%	Ag	No	No	Programmed	Yes	0.0	0.0	29.1	0.0	Usual	0.7	0.2	0.3	One meets design standards	1.4	0.0
127	9.1%	Ag	No	No	Planned	Yes	0.1	0.0	0.0	0.0	Usual	0.0	10.4	0.0	Neither meet design standards	2.2	0.0
133	22.5%	Ag	No	No	Programmed	Yes	0.3	3.0	0.0	0.0	Usual	0.0	9.7	8.1	One meets design standards	2.0	0.0
10	3.5%	No	No	Amish/Pedestrian	Programmed	Yes	17.5	7.0	2.8	0.0	Usual	0.3	11.9	2.2	One meets design standards	10.3	0.0
16	1.2%	No	No	Amish/Pedestrian	Programmed	Yes	3.2	2.0	0.6	0.0	Usual	0.2	9.6	0.5	One meets design standards	9.5	0.0
32	2.9%	No	No	Amish/Pedestrian	Programmed	Yes	1.4	1.0	4.7	0.0	Usual	0.2	10.3	1.1	Neither meet design standards	9.5	0.0
45	4.8%	No	No	Amish/Pedestrian	Programmed/planned	Yes	2.4	2.0	0.0	0.0	Usual	0.0	13.6	1.8	One meets design standards	10.3	0.0
48	1.6%	No	No	Amish/Pedestrian	Programmed	Yes	0.0	5.0	4.5	0.0	Usual	0.0	8.2	1.4	One meets design standards	9.5	0.0
140	1.7%	No	No	Amish/Pedestrian	Programmed	Yes	6.2	1.0	0.0	0.0	Usual	0.0	8.6	1.8	One meets design standards	10.3	0.0
145	3.5%	No	No	Amish/Pedestrian	Programmed	Yes	2.8	0.0	0.0	0.0	Usual	0.4	7.7	4.4	One meets design standards	5.1	0.0
37	7.0%	Ag	No	No	Neither	No	3.8	0.0	0.0	2.5	Usual	0.0	4.0	1.2	Both meet design standards	6.7	0.0
137	6.4%	Ag	No	No	Neither	No	3.0	1.0	0.0	0.0	Usual	0.4	4.1	2.9	Neither meet design standards	2.4	0.0
11	3.8%	Both	No	Amish/Pedestrian	Neither	No	0.1	0.0	0.0	0.0	Usual	0.0	10.7	17.4	Neither meet design standards	6.1	0.0
17	5.2%	Both	No	Amish/Pedestrian	Neither	No	5.8	2.0	0.0	0.0	Usual	0.2	12.3	3.5	Neither meet design standards	5.1	0.0
41	7.2%	Both	No	Amish/Pedestrian	Neither	No	0.4	2.0	0.0	0.0	Usual	0.4	14.6	8.9	Neither meet design standards	25.9	0.0
54	7.9%	Both	No	Amish/Pedestrian	Programmed	No	6.4	0.0	2.7	0.0	Usual	0.0	3.9	0.4	Neither meet design standards	9.6	0.0
99	6.0%	Both	No	Amish/Pedestrian	Programmed	Yes	19.0	0.0	8.6	5.9	Usual	0.0	4.1	2.6	Neither meet design standards	8.3	0.0
100	7.6%	Both	No	Amish/Pedestrian	Programmed	No	1.2	3.0	0.0	0.0	Usual	0.0	3.5	1.2	Neither meet design standards	4.8	0.0
101	6.5%	Both	No	Amish/Pedestrian	Neither	No	2.8	2.0	0.0	8.5	Usual	0.0	9.8	10.4	Neither meet design standards	10.1	0.0
138	5.2%	Both	No	Amish/Pedestrian	Neither	No	0.0	3.0	0.0	0.0	Usual	0.6	10.7	0.0	One meets design standards	4.3	0.0
153	4.9%	Both	No	Amish/Pedestrian	Neither	No	1.8	3.0	0.0	0.0	Usual	0.0	7.7	1.0	One meets design standards	10.4	0.0
14	10.3%	Ag	No	No	Neither	No	0.0	0.0	0.0	0.0	Usual	1.5	0.7	0.4	Both meet design standards	3.3	0.0
2	2.7%	No	No	No	Neither	Yes	0.0	0.0	0.3	0.0	Prescriptive	0.0	6.7	9.1	Neither meet design standards	5.4	0.0
97	20.6%	No	No	No	Neither	Yes	0.3	0.0	0.9	0.0	Prescriptive	1.0	2.9	0.0	Neither meet design standards	1.4	0.0
120	9.6%	No	No	No	Neither	Yes	3.0	1.0	60.2	0.0	Prescriptive	0.2	5.3	4.6	Neither meet design standards	7.6	0.0
150	1.0%	No	No	No	Neither	Yes	1.5	0.0	31.8	3.2	Prescriptive	0.3	7.6	3.0	Neither meet design standards	4.9	0.0
19	12.9%	Both	No	No	Neither	No	1.1	0.0	0.0	0.0	Usual	0.0	3.8	0.0	One meets design standards	9.1	0.0
31	11.7%	Ag	No	Amish/Pedestrian	Neither	No	3.1	1.0	0.0	0.0	Usual	0.0	3.0	0.4	One meets design standards	6.8	0.0
80	12.3%	Ag	No	Amish/Pedestrian	Neither	No	7.2	1.0	0.0	0.0	Usual	0.0	1.2	0.3	One meets design standards	3.3	0.0
81	12.7%	Both	No	Amish/Pedestrian	Neither	No	0.3	0.0	0.0	0.0	Usual	0.0	5.0	0.8	One meets design standards	9.1	0.0
93	13.0%	Both	No	Amish/Pedestrian	Neither	No	1.4	5.0	0.0	0.0	Usual	0.4	3.0	0.8	One meets design standards	9.1	0.0
104	12.5%	Ag	No	No	Planned	No	7.2	0.0	0.0	0.0	Usual	0.0	6.0	1.8	Neither meet design standards	0.8	0.0
43	28.4%	Ag	No	No	Programmed	No	0.0	0.0	0.0	0.0	Usual	0.3	0.7	0.3	Neither meet design standards	4.4	0.0
63	12.0%	Ag	No	No	Planned	Yes	0.0	0.0	0.0	0.0	Usual	0.0	8.5	12.7	Neither meet design standards	2.3	0.5
72	7.2%	Ag	No	No	Neither	Yes	0.0	1.0	0.0	0.0	Usual	0.0	1.5	0.0	Neither meet design standards	3.4	0.0
115	17.4%	Ag	No	No	Neither	No	3.2	0.0	0.0	6.3	Usual	0.0	8.8	5.6	Neither meet design standards	3.1	0.0
116	23.1%	Ag	No	No	Programmed	No	0.6	1.0	0.0	0.0	Usual	0.2	0.8	0.6	One meets design standards	1.2	0.0
129	15.9%	Ag	No	No	Programmed	Yes	3.1	1.0	1.6	0.0	Usual	0.2	5.4	0.3	Neither meet design standards	2.6	0.0
147	10.0%	Ag	No	No	Neither	Yes	8.0	3.0	0.0	0.9	Usual	0.0	4.6	0.0	Neither meet design standards	3.5	0.0
148	26.6%	Ag	No	No	Programmed	No	0.5	0.0	0.0	0.0	Usual	1.4	0.0	0.0	Neither meet design standards	4.4	0.0
152	16.1%	Both	No	No	Neither	Yes	10.3	5.0	0.7	1.7	Usual	0.1	5.4	0.0	Neither meet design standards	1.4	0.0
123	25.0%	Ag	No	No	Programmed	No	6.3	1.0	5.7	0.0	Usual	0.0	11.5	0.0	Neither meet design standards	3.5	0.0
124	18.6%	Ag	No	No	Programmed	No	7.4	0.0	2.4	0.0	Usual	0.0	10.3	0.0	One meets design standards	11.0	0.0
8	8.8%	Both	No	Amish/Pedestrian	Neither	No	0.1	1.0	0.0	0.0	Usual	0.0	8.9	3.0	Neither meet design standards	9.3	0.0
26	7.8%	Both	No	Amish/Pedestrian	Neither	No	5.3	1.0	0.0	0.0	Usual	0.0	5.5	1.2	Neither meet design standards	9.3	0.0
109	11.8%	Both	No	Amish/Pedestrian	Neither	No	7.1	1.0	11.0	0.0	Usual	0.0	2.8	0.7	Neither meet design standards	8.1	0.0
136	7.3%	Both	No	Amish/Pedestrian	Neither	No	0.0	0.0	0.0	0.0	Usual	0.0	3.0	8.9	Neither meet design standards	4.5	0.0
25	10.0%	Ag	No	No	Neither	No	0.0	0.0	0.0	0.0	Usual	0.0	2.4	7.3	Both meet design standards	3.0	0.0
77	8.6%	Both	No	No	Programmed	Yes	22.2	9.0	0.0	0.0	Usual	0.0	4.3	0.0	Neither meet design standards	4.8	0.0
106	12.1%	Ag	No	No	Neither	No	0.8	1.0	21.1	0.0	Usual	0.0	4.9	3.5	Neither meet design standards	1.7	0.0
125	6.9%	Ag	No	No	Planned	No	0.4	1.0	2.8	1.2	Usual	0.0	5.6	0.0	Neither meet design standards	4.1	0.0
131	8.8%	Both	No	No	Programmed	Yes	1.3	4.0	0.0	0.0	Usual	0.0	8.0	0.0	Neither meet design standards	4.5	0.0
13	9.9%	Ag	No	No	Programmed	Yes	0.1	0.0	3.4	0.0	Usual	0.0	5.6	1.4	Neither meet design standards	7.0	0.0
24	11.7%	Ag	No	No	Neither	No	8.9	0.0	0.0	0.0	Usual	0.0	3.9	0.3	Neither meet design standards	3.6	0.0
73	14.0%	Ag	No	No	Neither	Yes	0.3	1.0	11.4	0.0	Usual	0.4	4.8	1.6	Neither meet design standards	7.6	0.0
75	13.4%	Ag	No	No	Neither	Yes	0.9	0.0	0.9	0.0	Usual	0.4	3.5	4.4	Neither meet design standards	7.6	0.0
84	9.9%	Ag	No	No	Programmed	Yes	0.5	0.0	0.9	0.0	Usual	0.9	2.6	0.4	Neither meet design standards	7.0	0.0
96	13.1%	Ag	No	No	Programmed	Yes	0.0	0.0	7.8	0.0	Usual	0.5	4.9	0.4	Neither meet design standards	3.5	0.0
108	10.5%	Ag	No	No	Neither	No	1.0	1.0	0.0	0.0	Usual	0.0	2.8	0.0	Neither meet design standards	8.3	0.0
134	9.6%	Ag	No	No	Programmed	Yes	0.5	2.0	0.0	0.0	Usual	0.0	1.6	1.6	Neither meet design standards	2.6	0.0
9	8.3%	Both	No	No	Planned	No	5.1	1.0	0.0	0.0	Usual	0.0	2.7	2.7	Neither meet design standards	12.0	0.0
74	9.3%	Both	No	No	Planned	No	10.8	3.0	0.7	0.0	Usual	0.3	2.8	1.4	One meets design standards	6.0	0.0
35	9.6%	Both	Yes	Amish/Pedestrian	Neither	Yes	17.7	1.0	20.8	0.0	Prescriptive	0.1	6.1	0.0	Neither meet design standards	1.6	0.0
91	10.0%	Both	Yes	Amish/Pedestrian	Neither	Yes	4.9	1.0	0.0	0.0	Prescriptive	0.1	9.1	5.0	Neither meet design standards	3.4	0.0
1	22.9%	Ag	No	No	Neither	Yes	7.2	0.0	20.7	0.0	Usual	0.1	3.3	0.1	Neither meet design standards	3.3	0.0
23	11.6%	Ag	No	No	Neither	Yes	0.3	0.0	0.0	0.0	Usual	0.0	2.4	3.2	Neither meet design standards	3.1	0.0
39	28.8%	Ag	No	No	Neither	Yes	9.3	0.0	7.0	0.0	Usual	0.3	4.3	0.2	Neither meet design standards	3.5	0.0
121	17.1%	Ag	No	No	Neither	No	1.3	1.0	3.0	0.0	Usual	0.2	3.8	0.0	Neither meet design standards	3.2	0.0
64	1.9%	No	No	No	Neither	No	11.7	0.0	41.3	31.5	Usual	1.1	0.0	0.0	Neither meet design standards	2.2	0.0
38	8.4%	Rec	No	No	Neither	Yes	10.7	0.0	1.1	2.5	Usual	0.0	2.5	0.0	Neither meet design standards	12.8	0.0
69	8.4%	Rec	No	No	Neither	Yes	6.6	3.0	0.0	0.0	Usual	0.0	3.6	0.0	Neither meet design standards	12.8	0.0
92	7.4%	Rec	No	No	Neither	Yes	4.4	1.0	0.0	0.0	Usual	0.9	3.1	0.0	Neither meet design standards	12.8	0.0
103	9.1%	Rec	No	No	Planned	Yes	1.5	2.0	9.6	0.0	Usual	0.0	2.8	0.0	Neither meet design standards	3.7	0.0
144	9.0%	Rec	No	No	Planned	No	5.1	0.0	0.6	0.0	Usual	0.0	3.8	0.0	Neither meet design standards	4.8	0.0
4	18.2%	Rec	Yes	No	Neither	Yes	14.3	0.0	12.5	0.0	Usual	0.0	2.9	2.2	Neither meet design standards	5.1	0.0
58	33.3%	Rec	Yes	No	Neither	Yes	9.3	0.0	140.3	0.0	Usual	0.0	3.5	0.0	One meets design standards	2.3	0.0
66	26.4%	Rec	Yes	No	Neither	Yes	1.2	0.0	9.9	0.0	Usual	0.0	2.1	0.2	Neither meet design standards	4.2	0.0
71	13.8%	Rec	Yes	No	Neither	Yes	9.4	0.0	0.0	0.0	Usual	0.1	3.1	2.1	Neither meet design standards	8.8	0.0
149	23.3%	Both	Yes	No	Planned	Yes	5.6	0.0	2.1	0.0	Usual	0.2	1.0	0.9	One meets design standards	3.5	0.0
3	7.0%	Both	No	No	Neither	No	1.8	2.0	0.0	0.0	Prescriptive	0.0	2.6	0.0	Neither meet design standards	3.2	0.0
20	8.5%	No	No	No	Neither	No	0.0	0.0	0.0	0.0	Prescriptive	0.0	3.4	4.8	Neither meet design standards	4.7	0.0
22	8.6%	No	No	No	Neither	No	0.1	2.0	0.0	0.0	Prescriptive	0.0	3.2	19.3	Neither meet design standards	4.8	0.0
30	9.7%	Rec	No	No	Neither	Yes	0.4	0.0	0.0	0.0	Prescriptive	0.0	2.5	1.0	Neither meet design standards	9.5	0.0
36	9.6%	Rec	No	No	Neither	Yes	17.8	3.0	0.0	0.0	Prescriptive	0.1	5.4	5.9	Neither meet design standards	1.3	0.0
53	8.2%	No	No	No	Neither	No	1.8	0.0	0.0	0.0	Prescriptive	0.0	1.7	0.4	Neither meet design standards	10.1	0.0
90	11.8%	Rec	No	No	Neither	Yes	2.1	0.0	0.8	0.0	Prescriptive	0.0	5.0	1.0	Neither meet design standards	3.8	0.0
105	6.8%	No	No	No	Neither	No	10.7	2.0	0.0	0.0	Prescriptive	0.0	3.3	3.2	Neither meet design standards	4.0	0.0
112	6.5%	Both	No	No	Neither	No	3.4	0.0	0.0	0.1	Prescriptive	0.1	4.4	0.1	Neither meet design standards	10.3	0.0
130	9.9%	Rec	No	No	Neither	Yes	1.4	1.0	0.0	0.0	Prescriptive	0.0	4.7	15.8	One meets design standards	10.2	0.0
143	8.4%	No	No	No	Neither	No	0.2	0.0	0.0	0.0	Prescriptive	0.0	3.5	5.2	Neither meet design standards	4.0	0.0
154	10.0%	Rec	No	No	Neither	Yes	1.5	1.0	0.0	0.0	Prescriptive	0.0	3.9	7.9	One meets design standards	14.2	0.0
155	10.0%	Rec	No	No	Neither	Yes	16.0	7.0	0.0	0.0	Prescriptive	0.0	2.3	6.4	Neither meet design standards	2.1	0.0
62	8.7%	Rec	No	No	Programmed	No	16.3	4.0	38.7	0.0	Usual	0.1	3.5	0.9	Neither meet design standards	10.3	0.0
52	16.4%	No	No	No	Neither	Yes	4.5	0.0	0.1	0.0	Usual	0.1	3.9	0.0	Neither meet design standards	2.9	0.0
88	13.2%	No	No	No	Neither	Yes	4.8	2.0	5.5	0.0	Usual	0.0	1.7	0.0	One meets design standards	8.8	0.0

District 4 Shoulder Widening Prioritization Study
Segment Scoring

Segment Information					Safety				Mobility			Multimodal Accomodations					System Preservation		Environmental Impacts				Constructability					Functionality	
Segment ID	Route Name	From	To	Length	Crash rate less than expected, between expected and critical, or greater than critical	Difference between 2045 Build and 2045 No Build predicted crash rate	District Safety Plan - Risk Assessment	Shoulder Design	2045 AADT	Worst Existing Peak Hour LOS	Worst 2045 Peak Hour LOS	Pedestrian and Bicycle Corridors	Truck Route - HCAADT	Identified Agriculture or Recreational Use Corridors	Indian Reservation	Unique Travel Corridor	Transportation Plan Consistency	Maintenance Issues	Impacted Wetlands (Acres)	Potentially Contaminated Sites (Minnesota Pollution Control Agency Sites)	MCBS Biodiverty Sites (Acres)	Wildlife Mangement Area (Acres)	Right of Way Impacts (Acres)	Number of Bridges	Number of Culverts	Number of Buildings (per mile)	Shoulder Design	Access Density (Access points per mile)	Gaps in Existing Shoulder
6	TH 9	W of 6th St NW in Barnesville	N of CSAH 16	24.91	0	1	0	3	1	0	0	0	1	2	0	0	1	3	2	2	2	3	3	1	2	3	0	0	0
7	TH 9	SE of CR 8	NW of CSAH 4	6.64	2	1	0	3	1	0	0	0	3	2	0	0	0	3	3	3	3	3	3	2	2	3	0	0	0
40	TH 9	SE of 7th St in Donnelly	NE of CSAH 5 in Morris	8.09	0	1	0	3	3	2	2	0	2	2	0	0	0	3	3	1	3	3	3	3	3	2	0	0	0
46	TH 9	S of CSAH16	N of E JCT TH 9 and 210	1.06	2	1	0	3	2	0	0	1	1	2	0	0	1	3	3	3	3	3	3	3	2	3	0	1	0
65	TH 9	SE of TH55	NW of CSAH 20 in Tintah	2.07	0	1	0	2	1	0	0	0	3	2	0	0	3	3	3	2	3	3	3	1	3	3	2	0	0
68	TH 9	SE of CR6	NW of CSAH9 in Donnelly	8.61	0	1	0	3	3	0	0	0	3	2	0	0	0	3	2	3	3	3	3	3	2	3	0	0	0
87	TH 9	SE of CR33	NW of CR6	1.23	2	1	0	3	2	0	0	0	3	2	0	0	0	3	3	2	3	3	3	3	2	2	0	0	0
89	TH 9	SW of 2nd Ave SW W of Barnesville	NE of CR51	0.55	0	2	0	3	2	0	0	0	1	2	0	0	1	3	3	3	3	3	3	1	1	3	0	1	0
94	TH 9	SE of CSAH31	NW of 140th N of Herman	4.73	0	1	0	3	1	0	0	0	3	2	0	0	3	3	3	1	3	3	3	3	3	2	0	0	0
111	TH 9	SE of CSAH 4 in Campbell	NW of TH 55	2.37	2	1	0	3	1	0	0	0	3	2	0	0	0	3	3	3	3	3	3	1	3	2	0	0	0
122	TH 9	SE of CSAH 19 and Putman St Tintah	NW of CSAH 31	10.66	0	1	0	2	1	0	0	0	3	2	0	0	1	3	3	3	1	3	3	1	3	3	2	0	0
127	TH 9	NE of 165th Ave S	E of 6th St SW	0.38	0	2	0	3	2	0	0	0	1	2	0	0	1	3	3	3	3	3	3	3	1	3	0	0	0
133	TH 9	SE of 140th St	NW of 8th ST E in Herman	0.62	0	1	0	2	2	0	0	0	3	2	0	0	3	3	3	0	3	3	3	3	2	1	2	0	0
10	TH 87	E of CR 31	NW of CR47	6.81	0	2	1	2	3	1	1	0	0	0	0	3	3	3	1	0	3	3	3	2	1	2	2	3	0
16	TH 87	E of CR 45	W of N JCT CSAH 47	4.18	0	2	1	2	2	0	0	0	0	0	0	3	3	3	3	1	3	3	3	2	2	3	2	2	0
32	TH 87	W of 590th Ave County Border	E of S JCT CSAH47 and TH87	5.35	0	2	1	3	2	0	0	0	0	0	0	3	3	3	3	2	3	3	3	3	1	2	0	2	0
45	TH 87	NW of CR150	W of CSAH 31	2.21	2	2	1	2	2	1	0	0	0	0	0	3	2	3	3	1	3	3	3	3	1	2	2	3	0
48	TH 87	E of CSAH 43	W of CR45	2.18	0	1	1	2	2	0	0	0	0	0	0	3	3	3	3	0	3	3	3	3	2	2	2	2	0
140	TH 87	E of CR39	W of CSAH 41	2.80	2	2	0	2	2	1	0	0	0	0	0	3	3	3	2	2	3	3	3	3	2	2	2	3	0
145	TH 87	E of CSAH 41 in Evergreen	W of CSAH 43	2.71	2	3	1	2	3	1	1	0	0	0	0	3	3	3	3	3	3	3	3	2	2	2	2	1	0
37	TH 79	S of CSAH 24	W of CSAH10	1.74	2	1	0	0	3	0	0	0	0	2	0	0	0	0	3	3	3	3	3	3	2	2	3	1	0
137	TH 79	E of CSAH10	W of I-94	5.12	2	1	1	3	3	1	1	0	0	2	0	0	0	0	3	2	3	3	3	2	2	2	0	0	0
11	TH 78	S of CSAH 1	N of S JCT TH 78 & TH 108 in Otterta	0.75	0	2	1	3	3	2	1	3	0	0	3	0	0	0	3	3	3	3	3	3	1	1	0	1	0
17	TH 78	S of CSAH14	N of CSAH 1	5.38	0	3	3	3	3	2	2	0	0	0	3	0	0	0	2	1	3	3	3	3	1	2	0	1	0
41	TH 78	S of S JCT TH 108 and CSAH14	NE of CSAH 5	2.81	0	3	1	3	3	2	1	0	0	0	3	0	0	0	3	1	3	3	3	3	2	1	1	0	3	0
54	TH 78	S of TH 210 (S of Battle Lake)	N of CR114	2.57	0	2	1	3	3	1	0	0	0	0	3	0	0	0	2	3	3	3	3	3	3	3	0	2	0
99	TH 78	S of TH 210	.3 Mi NE of CR82 (E of Ashby)	9.37	2	2	2	3	2	1	1	0	0	0	3	0	3	3	1	3	3	3	3	3	2	2	0	2	0
100	TH 78	S of CR114	N of CSAH 12	4.04	0	2	1	3	3	1	0	0	0	0	3	0	3	3	3	0	3	3	3	3	3	2	0	0	0
101	TH 78	SW of CSAH5	NE of Cloverlead Road	5.08	0	3	1	3	3	2	2	2	0	3	0	3	0	0	3	1	3	3	3	3	2	1	0	3	0
138	TH 78	S of W TH 10 on and off ramp	N of N JCT tH78 and TH108	1.78	2	1	0	2	3	2	2	0	0	3	0	3	0	0	3	0	3	3	3	1	1	3	2	0	0
153	TH 78	S of TH 108	N of CSAH 14 and N Boedigheimer Dr	3.00	0	1	0	2	3	1	1	0	0	3	0	3	0	0	3	0	3	3	3	3	2	2	2	3	0
14	TH 75	SE of CR 155	N of TH 210	2.67	2	1	0	0	3	0	0	0	1	2	0	0	0	0	3	0	3	3	3	3	1	3	3	3	0	0
2	TH 7	S of CR 68 and CR 34	N of Golf Course Rd	2.08	2	2	3	3	2	1	1	1	0	0	0	0	0	3	3	3	3	3	0	3	2	1	0	1	0
97	TH 7	E of CR53	W of CSAH3	1.02	0	1	2	3	1	0	0	0	0	3	0	0	0	3	3	3	3	3	0	1	3	3	0	0	0
120	TH 7	E of CSAH 3	NW of CSAH9	6.57	2	2	2	3	1	2	1	1	1	0	0	0	0	3	3	2	1	3	0	3	2	2	0	1	0
150	TH 7	SE of CSAH9	NW of CR68	3.31	2	2	0	3	1	1	0	1	0	0	0	0	0	3	3	3	1	3	0	2	2	2	0	0	0
19	TH 59	S of CSAH 3	N of CSAH 28	1.04	0	1	0	2	3	1	1	0	2	3	0	0	0	0	3	3	3	3	3	3	3	3	2	2	0
31	TH 59	S of CSAH 82	N of JCT TH 59 and TH55	11.49	0	1	0	2	3	1	0	0	1	2	0	0	3	0	0	3	2	3	3	3	3	3	3	1	0
80	TH 59	S of CR 49 and TH59	NW of 2nd Ave NW in Elbow Lake	3.21	0	1	0	2	3	1	0	0	2	2	0	3	0	0	2	2	3	3	3	3	3	3	2	0	0
81	TH 59	S of Lake Region Ave (S of Pelican Rapids)	N of CSAH 3	1.20	0	2	1	3	3	1	1	0	2	3	0	0	0	0	3	3	3	3	3	3	2	3	2	2	0
93	TH 59	S of CSAH28	NE of Dump Road (N of Erhard)	2.36	2	1	0	2	3	1	1	0	0	2	0	3	0	0	3	0	3	3	3	3	1	3	3	2	0
104	TH 59	N of Barrett (JCT of TH 59 and Co Hwy 8)	of Elbow Lake (JCT of Th 59 and TH 5	6.00	0	3	0	3	3	1	0	3	2	2	0	0	1	0	2	3	3	3	3	3	2	2	0	0	0
43	TH 55	E of TH 75	W of TH 9	7.21	0	1	0	3	2	0	0	0	0	3	2	0	0	3	0	3	3	3	3	3	2	3	3	0	0
63	TH 55	SE of CSAH 8	.19 Mi NW of CSAH 2 in Barrett	0.47	2	3	0	3	3	1	1	0	2	2	0	0	1	3	3	3	3	3	3	3	2	1	0	0	3
72	TH 55	SE of W JCT TH114 and TH55	NW of Aurora Ave in Lowry	0.67	0	2	0	3	3	1	0	0	0	2	0	0	0	3	3	2	3	3	3	3	3	3	0	0	0
115	TH 55	E of CSAH11 and TH 55	W of TH 59 and TH 55	4.98	2	3	0	3	1	2	1	1	3	2	0	0	0	0	3	3	3	3	3	3	2	1	0	0	0
116	TH 55	E of TH 9 N	W of CSAH 11/Main St in Wendell	11.81	0	1	0	2	1	0	0	0	3	2	0	0	3	0	3	2	3	3	3	3	3	2	0	2	0
129	TH 55	SE of TH 59 and TH55 in Barrett	NW of TH27 and CSAH 5 in Hoffman	6.65	0	2	0	3	2	0	0	0	3	2	0	0	3	3	3	2	3	3	3	3	2	3	0	0	0
147	TH 55	SE of N JCT TH 55 and CSAH 28 (Lowry)	NW of TH29	6.73	0	1	1	3	2	0	0	0	1	2	0	0	0	3	2	0	3	3	3	3	2	3	0	0	0
148	TH 55	of Bois de Sioux River Bridge/Ndakota Bord	W of TH 75	3.51	0	1	0	3	2	0	0	0	0	3	2	0	0	0	3	3	3	3	3	3	1	3	3	0	0
152	TH 55	SE of Main Ave W in Hoffman	NW of TH 114	14.69	0	1	0	3	2	0	0	0	0	3	3	0	0	0	3	1	0	3	3	3	3	2	3	0	0	0
123	TH 32	SE of CSAH 10	N of TH34/CSAH35	7.36	0	1	0	3	2	0	0	0	0	3	2	0	0	0	3	0	2	2	3	3	3	3	1	3	0	0	0
124	TH 32	.32 M S of TH10	NW of CSAH 10	7.79	0	1	0	2	2	0	0	0	0	3	2	0	0	0	3	0	2	3	3	3	3	3	1	3	2	3	0
8	TH 29	E of CSAH 75	W of TH 29	1.01	2	1	0	3	3	1	1	0	0	1	3	0	0	0	3	2	3	3	3	3	3	2	2	0	2	0
26	TH 29	NE of CSAH 50 (Main Ave) in Deer Creek	W of CSAH 75	4.33	2	2	0	3	3	1	1	0	0	3	0	3	0	0	2	2	3	3	3	3	2	2	0	2	0
109	TH 29	SW of CSAH 50/Main Ave in Deer Creek	N of TH210	4.30	2	1	1	3	3	0	0	0	1	3	0	3	0	0	2	2	2	3	3	3	3	3	3	2	0	0
136	TH 29	SE of CSAH 50/Main Ave in Deer Creek	NE of TH 106/1st St	0.34	0	1	0	3	3	1	0	0	0	3	0	3	0	0	3	3	3	3	3	3	3	3	1	0	0	0
25	TH 28	.07 NE of TH10 change	S W of TH 27	0.41	2	1	0	0	3	0	0	0	1	2	0	0	0	0	3	3	3	3	3	3	3	3	1	3	0	0
77	TH 28	E of TH 114 in Starbuck	W of 5th ST NW in Glenwood	6.68	0	1	1	3	3	1	1	3	1	3	0	0	3	3	1	0	3	3	3	3	2	3	0	0	0
106	TH 28	SE of CSAH 2 E of Browns Valley	W of Garfield St in Beardsley	6.54	0	1	0	3	2	1	1	1	2	2	0	0	0	0	3	2	1	3	3	3	2	2	0	0	0
125	TH 28	E of T-219	W of John St in Starbuck	1.79	2	1	0	3	3	1	0	0	0	2	0	0	1	0	3	2	3	3	3	3	2	3	0	0	0
131	TH 28	E of CSAH 24 in Long Beach	W of 65th t NW (W of Glenwood)	1.37	2	1	1	3	3	2	2	0	1	3	0	0	3	3	3	0	3	3	3	3	2	3	0	0	0
13	TH 27	NE of TH 117	SW of 635th Ave	2.13	0	1	1	3	2	1	0	0	1	2	0	0	3	3	3	3	3	3	3	3	2	2	0	1	0
24	TH 27	E of CSAH 11 Herman	W of 75th Ave	7.47	0	1	0	3	2	0	0	1	1	2	0	0	0	0	2	3	3	3	3	3	3	3	0	0	0
73	TH 27	SW of CSAH 3	24 Mi N of TH28 (NW of Browns Valle	9.78	2	1	0	3	1	1	1	0	2	2	0	0	0	3	3	2	2	3	3	1	2	2	0	1	0
75	TH 27	N of TH 28 (NW of Browns Valley)	24 Mi N of TH28 (NW of Browns Valle	2.29	2	1	0	3	1	1	0	0	2	2	0	0	0	3	3	3	3	3	3	1	3	2	0	1	0
84	TH 27	W of CSAH 7	E of 635 Ave	2.29	0	1	1	3	2	0	0	0	1	2	0	0	3	3	3	3	3	3	3	1	3	3	0	1	0
96	TH 27	SW of TH117	NE of CSAH 3	5.48	2	2	1	3	1	0	0	0	2	2	0	0	3	3	3	3	3	3	3	1	2	3	0	0	0
108	TH 27	E of TH 54 and CR 35	W of TH 59	5.00	2	1	1	3	1	0	0	0	1	2	0	0	0	0	3	2	3	3	3	3	3	3	0	2	0
134	TH 27	NE of CSAH7	SW of 16th St in Wheaton	1.29	0	1	0	3	3	1	0	0	1	2	0	0	0	3	3	1	3	3	3	3	2	3	0	0	0
9	TH 210	E of CSAH 75	W of 640th Ave	1.49	0	1	0	3	2	0	0	0	1	3	0	0	1	0	2	2	3	3	3	3	2	3	0	3	0
74	TH 210	E of TH29	W of CSAH75	6.48	2	1	0	2	2	1	0	0	1	3	0	0	1	0	1	0	3	3	3	2	3	2	2	1	0
35	TH 200	E of CSAH 3	W of CSAH 7	12.00	2	2	0	3	2	0	0	0	1	3	3	3	0	3	1	2	1	3	0	3	2	3	0	0	0
91	TH 200	E of TH 59 N of Mahnomen	W of CSAH 3	7.55	0	3	1	3	3	3	2	0	1	3	3	3	0	3	3	2	3	3	0	3	2	1	0	0	0
1	TH 12	E of TH 75	W of CR 23 and CR 36	8.77	0	2	0	3	3	1	0	0	0	3	2	0	0	0	3	2	3	1	3	3	3	3	3	0	0	0
23	TH 12	.25 E of TH 75	W of 75th Ave	1.24	0	1	0	3	3	1	0	0	1	2	0	0	0	0	3	3	3	3	3	3	3	3	2	0	0	0
39	TH 12	E of CR 23	W of TH 119 and CSAH 5	9.47	2	1	0	3	3	2	0	0	0	3	2	0	0	0	3	2	3	3	3	3	2	2	3	0	0	0
121	TH 12	E of CSAH 5 and TH 119	W of TH 59	5.99	2	1	0	3	3	2	0	0	0	3	2	0	0	0	3	2	3	3	3	3	3	3	3	0	0	0
64	TH 117	.36 Mi of TH 117, CSAH19, CSAH21	NE of TH27	1.80	0	1	1	3	1	0	0	0	0	0	0	0	0	0	1	3	1	2	3	1	1	3	3	0	0	0
38	TH 114	N of W JCT TH55 and TH114	S of Co Road 26 SW	5.19	2	1	2	3	2	0	0	0	1	2	0	0	0	0	3	1	3	3	3	3	3	3	3	0	3	0
69	TH 114	S of TH 27	N of Co Rd 26SW	5.25	2	2	2	3	3	0	0	0	1	2	0	0	0	3	2	0	3	3	3	3	3	3	3	0	3	0
92	TH 114	SE of I-94 offramp onto TH114	N of TH27	2.26	2	2	2	3	2	0	0	0	0	2	0	0	0	0	3	3	2	3	3	3	1	3	3	0	3	0
103	TH 114	S of CWSAH24	N of W 7th St in Starbuck	2.85	2	1	1	3	3	0	0	0	1	2	0	0	1	3	3	1	3	3	3	3	3	3	3	0	0	0
144	TH 114	S of S JCT CSAH28 (S of Lowry)	N of CSAH 24	3.20	2	1	2	3	3	0	0	0	1	2	0	0	1	0	2	3	3	3	3	3	3	3	0	0	0	0
4	TH 113	E of CSAH 3	W of CR 35	11.45	2	2	3	3	1	2	1	0	3	2	3	0	0	3	1	3	2	3	3	3	3	2	0	1	0	0
58	TH 113	E of CSAH 37	.81 mi W of TH 71	12.77	2	1	1	2	3	1	0	0	3	2	3	0	0	3	2	3	1	3	3	3	3	3	3	2	0	0
66	TH 113	E of CSAH35	Utopia Bay Lane by Becker County B	5.82	2	1	3	3	1	0	0	0	0	3	2	3	0	0	3	3	3	3	3	3	3	3	3	0	0	0
71	TH 113	E of TH59	W of CSAH 3	7.01	2	2	1	3	2	1	1	0	2	2	3	0	0	3	2	3	3	3	3	3	3	3	2	0	2	0
149	TH 113	E of CR102 (Mahnomen Co Boundary)	W of Railroad Street in Waubun	5.73	0	1	0	2	2	0	0	1	3	3	3	0	1	3	2	3	3	3	3	3	3	3	2	0	0	0
3	TH 108	E of CR30	W of 2nd St NW in Pelican Rapids	4.20	2	2	1	3	3	0	0	0	0	3	0	0	0	0	3	1	3	3	0	3	3	3	0	0	0	0
20	TH 108	E of Buchanan Rd/Ottertail	W of CR 61	1.46	0	3	1	3	3	1	1	0	1	2	0	0	0	0	3	3	3	3	0	3	3	2	0	0	0	0
22	TH 108	E of JCT Buc han Rd/TH78 & CSAH14	W of Buchanan Rd in Ottertail	1.25	0	3	0	3	3	2	2	0	1	0	0	0	0	0	3	1	3	3	0	3	3	1	0	0	0	0
30	TH 108	E of JCT CR49 and 420th Ave	W of TH 78	2.00	0	2	1	3	3	1	0	0	1	2	0	0	0	0	3	3	3	3	3	3	3	2	0	2	0	0
36	TH 108	S of Westmill Ave in Pelican Rapids	N of CR67	8.12	2	3	2	3	2	2	2	2	1	2	0	0	0	0	3	1	0	3	3	0	3	2	1	0	0	0
53	TH 108	E of CR61 in Henning	W of TH108 and CSAH 52	2.34	2	3	1	3	3	1	0	0	1	0	0	0	0	0	3	3	3	3	0	3	3	3	0	3	0	0
90	TH 108	E of CR67	W of CSAH 41	3.99	2	1	1	3	2	1	0	0	1	2	0	0	0	0	3	3	3	3	0	3	2	2	0	0	0	0
105	TH 108	S of JCT CSAH 52	N of JCT CSAH 16	7.17	2	3	1	3	2	2	1	0	0	0	0	0	0	0	1	1	3	3	0	3	3	2	0	0	0	0
112	TH 108	E of I94 and CSAH19	SW of CR30	7.50	2	3	1	3	3	0	0	0	0	3	0	0	0	0	3	3	3	3	0	3	2	3	0	3	0	0
130	TH 108	E of E JCT CSAH41	W of CSAH85	2.35	0	1	0	2	2	2	2	0	1	2	0	0	0	0	3	3	2	3	3	0	3	2	1	2	3	0
143	TH 108	E of CSAH 16	W of Balmoral Ave and TH108	0.58	2	1	0	3	3	0	0	0	1	0	0	0	0	0	3	3	3	3	0	3	3	1	0	0	0	0
154	TH 108	E of CSAH 85	W of Beaver Dam Rd	1.27	2	2	1	2	3	1	0	0	1	2	0	0	0	0	3	3	2	3	3	0	3	3	1	2	3	0
155	TH 108	E of Engstrom Beach Road/Beaver Dam Rd	W of CR 49	7.85	0	3	3	3	3	1	1	0	1	2	0	0	0	0	3	1	0	3	3	0	3	3	1	0	0	0
62	TH 106	S of TH 10	N of Soule Ave E in Deer Creek	6.96	0	1	0	3	3	0	0	0	2	1	2	0	0	0	3	0	1	0	1	3	3	3	3	3	0	0
52	TH 104	E of CSAH 19	SW of CSAH29	6.68	2	1	1	3	1	0	0	0	3	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0	0	0
88	TH 104	SE of CSAH29	4 Mi N of W JCT TH104 and TH 9	6.40	2	1	0	2	1	0	0	0	2	0	0	0	0	0	3	3	1	3	3	3	3	3	3	2	2	0

District 4 Shoulder Widening Prioritization Study
Benefit-Cost Analysis

Segment Information					Travel Time -Build	Safety	Costs	Ratio		
Segment ID	Route Name	From	To	Length	Net Travel Time Savings	Predicted Crash Cost savings	Total Costs (Less Remaining Capital Value)	Total Benefits	Total Costs	
52	TH 104	E of CSAH 19	SW of CSAH29	6.7	$ 254	$ 62,158	$ 658,897	$ 62,411	$ 658,897	0.09
88	TH 104	SE of CSAH29	4 Mi N of W JCT TH104 and TH 9	6.4	$ 495	$ 128,587	$ 631,617	$ 129,082	$ 631,617	0.20
62	TH 106	S of TH 10	N of Soule Ave E in Deer Creek	7.0	$ 726	$ -	$ 657,094	$ 726	$ 657,094	0.00
3	TH 108	E of CR30	W of 2nd St NW in Pelican Rapids	4.2	$ 1,572	$ 725,859	$ 805,063	$ 727,431	$ 805,063	0.90
20	TH 108	E of Buchanan Rd/Ottertail	W of CR 61	1.5	$ 824	$ 951,741	$ 274,826	$ 952,565	$ 274,826	3.47
22	TH 108	E of JCT Buc han Rd/TH78 & CSAH14	W of Buchanan Rd in Ottertail	1.2	$ 960	$ 1,332,036	$ 233,925	$ 1,332,995	$ 233,925	5.70
30	TH 108	E of JCT CR49 and 420th Ave	W of TH 78	2.0	$ 554	$ 651,714	$ 197,048	$ 652,267	$ 197,048	3.31
36	TH 108	S of Westmill Ave in Pelican Rapids	N of CR67	8.1	$ 3,613	$ 2,626,325	$ 1,524,933	$ 2,629,938	$1,524,933	1.72
53	TH 108	E of CR61 in Henning	W of TH108 and CSAH 52	2.3	$ 948	$ 894,257	$ 439,976	$ 895,205	$ 439,976	2.03
90	TH 108	E of CR67	W of CSAH 41	4.0	$ 823	$ 248,804	$ 748,685	$ 249,628	$ 748,685	0.33
105	TH 108	S of JCT CSAH 52	N of JCT CSAH 16	7.2	$ 2,327	$ 2,531,994	$ 1,346,388	$ 2,534,321	$1,346,388	1.88
112	TH 108	E of I94 and CSAH19	SW of CR30	7.5	$ 2,652	$ 2,322,134	$ 1,438,922	$ 2,324,786	$1,438,922	1.62
130	TH 108	E of E JCT CSAH41	W of CSAH85	2.3	$ 191	$ -	$ 221,860	$ 191	$ 221,860	0.00
143	TH 108	E of CSAH 16	W of Balmoral Ave and TH108	0.6	$ 190	$ 78,641	$ 54,515	$ 78,831	$ 54,515	1.45
154	TH 108	E of CSAH 85	W of Beaver Dam Rd	1.3	$ 55	$ 216,672	$ 125,680	$ 216,727	$ 125,680	1.72
155	TH 108	E of Engstrom Beach Road/Beaver Dam Rd	W of CR 49	7.9	$ 2,071	$ 5,771,157	$ 775,086	$ 5,773,227	$ 775,086	7.45
4	TH 113	E of CSAH 3	W of CR 35	11.4	$ 2,055	$ 880,460	$ 2,195,394	$ 882,515	$2,195,394	0.40
58	TH 113	E of CSAH 37	.81 mi W of TH 71	12.8	$ 334	$ 80,115	$ 1,206,532	$ 80,449	$1,206,532	0.07
66	TH 113	E of CSAH35	W of Utopia Bay Lane by Becker County Bound	5.8	$ 293	$ 73,562	$ 820,742	$ 73,855	$ 820,742	0.09
71	TH 113	E of TH59	W of CSAH 3	7.0	$ 2,609	$ 1,519,465	$ 1,343,859	$ 1,522,074	$1,343,859	1.13
149	TH 113	E of CR102 (Mahnomen Co Boundary)	W of Railroad Street in Waubun	5.7	$ 990	$ 187,997	$ 541,047	$ 188,987	$ 541,047	0.35
38	TH 114	N of W JCT TH55 and TH114	S of Co Road 26 SW	5.2	$ 977	$ 352,063	$ 511,802	$ 353,040	$ 511,802	0.69
69	TH 114	S of TH 27	N of Co Rd 26SW	5.2	$ 1,356	$ 935,642	$ 517,777	$ 936,998	$ 517,777	1.81
92	TH 114	SE of I-94 offramp onto TH114	N of TH27	2.3	$ 233	$ 171,032	$ 223,313	$ 171,265	$ 223,313	0.77
103	TH 114	S of CWSAH24	N of W 7th St in Starbuck	2.9	$ 716	$ 43,002	$ 281,302	$ 43,718	$ 281,302	0.16
144	TH 114	S of S JCT CSAH28 (S of Lowry)	N of CSAH 24	3.2	$ 791	$ 46,175	$ 315,597	$ 46,966	$ 315,597	0.15
64	TH 117	.36 Mi of TH 117, CSAH19, CSAH21	NE of TH27	1.8	$ 130	$ 23,908	$ 337,582	$ 24,038	$ 337,582	0.07
1	TH 12	E of TH 75	W of CR 23 and CR 36	8.8	$ 2,541	$ 1,277,154	$ 828,525	$ 1,279,695	$ 828,525	1.54
23	TH 12	.25 E of TH 75	W of 75th Ave	1.2	$ 373	$ 132,700	$ 117,376	$ 133,074	$ 117,376	1.13
39	TH 12	E of CR 23	W of TH 119 and CSAH 5	9.5	$ 1,158	$ 183,851	$ 895,117	$ 185,009	$ 895,117	0.21
121	TH 12	E of CSAH 5 and TH 119	W of TH 59	6.0	$ 760	$ 121,059	$ 566,267	$ 121,818	$ 566,267	0.22
35	TH 200	E of CSAH 3	W of CSAH 7	12.0	$ 3,827	$ 2,632,394	$ 2,302,334	$ 2,636,220	$2,302,334	1.15
91	TH 200	E of TH 59 N of Mahnomen	W of CSAH 3	7.5	$ 7,251	$ 10,590,055	$ 1,416,350	$10,597,305	$1,416,350	7.48
9	TH 210	E of CSAH 75	W of 640th Ave	1.5	$ 218	$ 43,888	$ 140,295	$ 44,106	$ 140,295	0.31
74	TH 210	E of TH29	W of CSAH75	6.5	$ 791	$ 178,552	$ 611,810	$ 179,343	$ 611,810	0.29
13	TH 27	NE of TH 117	SW of 635th Ave	2.1	$ 369	$ 74,928	$ 210,102	$ 75,297	$ 210,102	0.36
24	TH 27	E of CSAH 11 Herman	W of 75th Ave	7.5	$ 882	$ 53,258	$ 736,731	$ 54,140	$ 736,731	0.07
73	TH 27	SW of CSAH 3	2.24 Mi N of TH28 (NW of Browns Valley)	9.8	$ 653	$ 55,949	$ 964,897	$ 56,602	$ 964,897	0.06
75	TH 27	N of TH 28 (NW of Browns Valley)	2.24 Mi N of TH28 (NW of Browns Valley)	2.3	$ 172	$ 12,929	$ 226,338	$ 13,100	$ 226,338	0.06
84	TH 27	W of CSAH 7	E of 635 Ave	2.3	$ 549	$ 141,257	$ 438,307	$ 141,805	$ 438,307	0.32
96	TH 27	SW of TH117	NE of CSAH 3	5.5	$ 955	$ 391,615	$ 1,050,652	$ 392,571	$1,050,652	0.37
108	TH 27	E of TH 54 and CR 35	W of TH 59	5.0	$ 460	$ 126,174	$ 493,618	$ 126,634	$ 493,618	0.26
134	TH 27	NE of CSAH7	SW of 16th St in Wheaton	1.3	$ 335	$ 85,810	$ 127,163	$ 86,145	$ 127,163	0.68
25	TH 28	.07 NE of TH10 change	S W of TH 27	0.4	$ 93	$ 31,233	$ 40,807	$ 31,325	$ 40,807	0.77
77	TH 28	E of TH 114 in Starbuck	W of 5th ST NW in Glenwood	6.7	$ 4,414	$ 268,774	$ 659,629	$ 273,188	$ 659,629	0.41
106	TH 28	SE of CSAH 2 E of Browns Valley	W of Garfield St in Beardsley	6.5	$ 851	$ 412,914	$ 645,457	$ 413,765	$ 645,457	0.64
125	TH 28	E of T-219	W of John St in Starbuck	1.8	$ 567	$ 103,177	$ 168,785	$ 103,743	$ 168,785	0.61
131	TH 28	E of CSAH 24 in Long Beach	W of 65th t NW (W of Glenwood)	1.4	$ 1,175	$ 68,054	$ 135,109	$ 69,229	$ 135,109	0.51
8	TH 29	E of CSAH 75	W of TH 29	1.0	$ 578	$ 175,629	$ 99,438	$ 176,208	$ 99,438	1.77
26	TH 29	NE of CSAH 50 (Main Ave) in Deer Creek	W of CSAH 75	4.3	$ 1,551	$ 1,174,648	$ 426,971	$ 1,176,199	$ 426,971	2.75
109	TH 29	SW of CSAH 50/Main Ave in Deer Creek	N of TH210	4.3	$ 704	$ 570,375	$ 424,146	$ 571,079	$ 424,146	1.35
136	TH 29	SE of CSAH 50/Main Ave in Deer Creek	NE of TH 106/1st St	0.3	$ 100	$ 30,467	$ 33,181	$ 30,567	$ 33,181	0.92
123	TH 32	SE of CSAH 10	N of TH34/CSAH35	7.4	$ 942	$ 236,120	$ 726,476	$ 237,062	$ 726,476	0.33
124	TH 32	.32 M S of TH10	NW of CSAH 10	7.8	$ 1,243	$ 342,544	$ 768,939	$ 343,786	$ 768,939	0.45
43	TH 55	E of TH 75	W of TH 9	7.2	$ 1,000	$ 144,171	$ 680,872	$ 145,171	$ 680,872	0.21
63	TH 55	SE of CSAH 8	.19 Mi NW of CSAH 2 in Barrett	0.5	$ 170	$ 221,109	$ 46,707	$ 221,279	$ 46,707	4.74
72	TH 55	SE of W JCT TH114 and TH55	NW of Aurora Ave in Lowry	0.7	$ 348	$ 189,267	$ 65,910	$ 189,615	$ 65,910	2.88
115	TH 55	E of CSAH11 and TH 55	W of TH 59 and TH 55	5.0	$ 1,586	$ 703,598	$ 702,597	$ 705,184	$ 702,597	1.00
116	TH 55	E of TH 9 N	W of CSAH 11/Main St in Wendell	11.8	$ 868	$ 163,188	$ 1,115,598	$ 164,056	$1,115,598	0.15
129	TH 55	SE of TH 59 and TH55 in Barrett	NW of TH27 and CSAH 5 in Hoffman	6.6	$ 1,775	$ 681,934	$ 656,061	$ 683,709	$ 656,061	1.04
147	TH 55	SE of N JCT TH 55 and CSAH 28 (Lowry)	NW of TH29	6.7	$ 1,132	$ 336,794	$ 663,971	$ 337,926	$ 663,971	0.51
148	TH 55	E of Bois de Sioux River Bridge/Ndakota Border	W of TH 75	3.5	$ 582	$ 88,869	$ 331,275	$ 89,451	$ 331,275	0.27
152	TH 55	SE of Main Ave W in Hoffman	NW of TH 114	14.7	$ 1,662	$ 449,492	$ 1,449,268	$ 451,155	$1,449,268	0.31
19	TH 59	S of CSAH 3	N of CSAH 28	1.0	$ 635	$ 37,233	$ 102,639	$ 37,868	$ 102,639	0.37
31	TH 59	S of CSAH 82	N of JCT TH 59 and TH55	11.5	$ 2,702	$ 180,304	$ 1,133,334	$ 183,006	$1,133,334	0.16
80	TH 59	S of CR 49 and TH59	NW of 2nd Ave NW in Elbow Lake	3.2	$ 1,013	$ 62,511	$ 316,625	$ 63,524	$ 316,625	0.20
81	TH 59	S of Lake Region Ave (S of Pelican Rapids)	N of CSAH 3	1.2	$ 716	$ 45,297	$ 118,074	$ 46,014	$ 118,074	0.39
104	TH 59	N of Barrett (JCT of TH 59 and Co Hwy 8)	S of Elbow Lake (JCT of Th 59 and TH 54)	6.0	$ 4,101	$ 3,894,800	$ 871,446	$ 3,898,901	$ 871,446	4.47
93	TH 59	S of CSAH28	NE of Dump Road (N of Erhard)	2.4	$ 1,417	$ 425,901	$ 232,694	$ 427,318	$ 232,694	1.84
2	TH 7	S of CR 68 and CR 34	N of Golf Course Rd	2.1	$ 570	$ 273,688	$ 196,878	$ 274,258	$ 196,878	1.39
97	TH 7	E of CR53	W of CSAH3	1.0	$ 49	$ 7,852	$ 190,970	$ 7,901	$ 190,970	0.04
120	TH 7	E of CSAH 3	NW of CSAH9	6.6	$ 1,121	$ 400,545	$ 1,232,536	$ 401,666	$1,232,536	0.33
150	TH 7	SE of CSAH9	NW of CR68	3.3	$ 425	$ 160,905	$ 466,666	$ 161,331	$ 466,666	0.35
14	TH 75	SE of CR 155	N of TH 210	2.7	$ 278	$ 111,901	$ 252,155	$ 112,180	$ 252,155	0.44
11	TH 78	S of CSAH 1	N of S JCT TH 78 & TH 108 in Ottertail	0.7	$ 899	$ 450,945	$ 142,957	$ 451,845	$ 142,957	3.16
17	TH 78	S of CSAH14	N of CSAH 1	5.4	$ 9,460	$ 5,563,427	$ 1,032,848	$ 5,572,886	$1,032,848	5.40
41	TH 78	S of S JCT TH 108 and CSAH14	NE of CSAH 5	2.8	$ 1,637	$ 1,087,266	$ 539,063	$ 1,088,904	$ 539,063	2.02
54	TH 78	S of TH 210 (S of Battle Lake)	N of CR114	2.6	$ 1,281	$ 705,656	$ 493,365	$ 706,937	$ 493,365	1.43
99	TH 78	S of TH 210	.3 Mi NE of CR82 (E of Ashby)	9.4	$ 1,461	$ 1,366,834	$ 924,881	$ 1,368,295	$ 924,881	1.48
100	TH 78	S of CR114	N of CSAH 12	4.0	$ 1,799	$ 1,040,004	$ 775,707	$ 1,041,803	$ 775,707	1.34
101	TH 78	SW of CSAH5	NE of Cloverlead Road	5.1	$ 2,796	$ 2,310,035	$ 974,550	$ 2,312,831	$ 974,550	2.37
138	TH 78	S of W TH 10 on and off ramp	N of N JCT tH78 and TH108	1.8	$ 1,888	$ 522,143	$ 175,779	$ 524,031	$ 175,779	2.98
153	TH 78	S of TH 108	N of CSAH 14 and N Boedigheimer Dr	3.0	$ 2,434	$ 698,106	$ 295,656	$ 700,540	$ 295,656	2.37
37	TH 79	S of CSAH 24	W of CSAH10	1.7	$ 12	$ 116,475	$ 171,538	$ 116,487	$ 171,538	0.68
137	TH 79	E of CSAH10	W of I-94	5.1	$ 1,103	$ 437,780	$ 505,139	$ 438,883	$ 505,139	0.87
10	TH 87	E of CR 31	NW of CR47	6.8	$ 2,501	$ 1,254,392	$ 1,306,596	$ 1,256,892	$1,306,596	0.96
16	TH 87	E of CR 45	W of N JCT CSAH 47	4.2	$ 934	$ 552,360	$ 801,302	$ 553,294	$ 801,302	0.69
32	TH 87	W of 590th Ave County Border	E of S JCT CSAH47 and TH87	5.4	$ 849	$ 963,711	$ 528,301	$ 964,560	$ 528,301	1.83
45	TH 87	NW of CR150	W of CSAH 31	2.2	$ 803	$ 315,756	$ 423,728	$ 316,559	$ 423,728	0.75
48	TH 87	E of CSAH 43	W of CR45	2.2	$ 126	$ 116,917	$ 215,592	$ 117,043	$ 215,592	0.54
140	TH 87	E of CR39	W of CSAH 41	2.8	$ 748	$ 271,327	$ 537,718	$ 272,075	$ 537,718	0.51
145	TH 87	E of CSAH 41 in Evergreen	W of CSAH 43	2.7	$ 1,009	$ 1,082,106	$ 520,382	$ 1,083,116	$ 520,382	2.08
6	TH 9	W of 6th St NW in Barnesville	N of CSAH 16	24.9	$ 4,547	$ 1,284,199	$ 2,353,677	$ 1,288,747	$2,353,677	0.55
7	TH 9	SE of CR 8	NW of CSAH 4	6.6	$ 237	$ 41,373	$ 627,184	$ 41,610	$ 627,184	0.07
40	TH 9	SE of 7th St in Donnelly	NE of CSAH 5 in Morris	8.1	$ 3,289	$ 1,422,378	$ 798,752	$ 1,425,666	$ 798,752	1.78
46	TH 9	S of CSAH16	N of E JCT TH 9 and 210	1.1	$ 108	$ 18,157	$ 99,847	$ 18,265	$ 99,847	0.18
65	TH 9	SE of TH55	NW of CSAH 20 in Tintah	2.1	$ 126	$ 19,567	$ 195,593	$ 19,693	$ 195,593	0.10
68	TH 9	SE of CR6	NW of CSAH9 in Donnelly	8.6	$ 1,519	$ 450,031	$ 849,390	$ 451,550	$ 849,390	0.53
87	TH 9	SE of CR33	NW of CR6	1.2	$ 168	$ 49,192	$ 120,998	$ 49,360	$ 120,998	0.41
89	TH 9	SW of 2nd Ave SW W of Barnesville	NE of CR51	0.6	$ 118	$ 44,834	$ 103,672	$ 44,953	$ 103,672	0.43
94	TH 9	SE of CSAH31	NW of 140th N of Herman	4.7	$ 243	$ 98,289	$ 447,129	$ 98,532	$ 447,129	0.22
111	TH 9	SE of CSAH 4 in Campbell	NW of TH 55	2.4	$ 63	$ 20,775	$ 223,594	$ 20,839	$ 223,594	0.09
122	TH 9	SE of CSAH 19 and Putman St Tintah	NW of CSAH 31	10.7	$ 368	$ 145,238	$ 1,006,897	$ 145,606	$1,006,897	0.14
127	TH 9	NE of 165th Ave S	E of 6th St SW	0.4	$ 109	$ 50,757	$ 71,937	$ 50,866	$ 71,937	0.71
133	TH 9	SE of 140th St	NW of 8th ST E in Herman	0.6	$ 57	$ 15,581	$ 58,427	$ 15,639	$ 58,427	0.27

SRF Consulting Group, Inc.

District 4 Shoulder Widening Prioritization Study
Ranking of Segments Based on Project Need

							30%	15%	30%	10%	5%	5%	5%	
Segment ID	SEQ_NO	Rank	Route Name	From	To	Length	Safety	Mobility	Multimodal Accomodations	System Preservation	Environmental Impacts	Constructability	Functionality	Score
91	2998	1	TH 200	E of TH 59 N of Mahnomen	W of CSAH 3	7.55	58.33	83.33	66.67	50.00	91.67	50.00	0.00	62.08
99	1834	2	TH 78	S of TH 210	.3 Mi NE of CR82 (E of Ashby)	9.37	75.00	50.00	40.00	100.00	83.33	58.33	33.33	60.75
4	2990	3	TH 113	E of CSAH 3	W of CR 35	11.45	83.33	33.33	53.33	50.00	75.00	66.67	16.67	58.92
71	2989	4	TH 113	E of TH59	W of CSAH 3	7.01	66.67	50.00	46.67	50.00	91.67	66.67	33.33	56.08
36	3968	5	TH 108	S of Westmill Ave in Pelican Rapids	N of CR67	8.12	83.33	66.67	33.33	50.00	58.33	50.00	0.00	55.42
101	3989	6	TH 78	SW of CSAH5	NE of Cloverlead Road	5.08	58.33	83.33	53.33	0.00	83.33	50.00	50.00	55.17
145	113	6	TH 87	E of CSAH 41 in Evergreen	W of CSAH 43	2.71	66.67	66.67	20.00	100.00	100.00	66.67	16.67	55.17
131	4485	8	TH 28	E of CSAH 24 in Long Beach	W of 65th t NW (W of Glenwood)	1.37	58.33	83.33	26.67	100.00	75.00	66.67	0.00	55.08
66	128	9	TH 113	E of CSAH35	W of Utopia Bay Lane by Becker County Bound	5.82	75.00	16.67	53.33	50.00	100.00	75.00	0.00	54.75
63	1844	10	TH 55	SE of CSAH 8	.19 Mi NW of CSAH 2 in Barrett	0.47	66.67	66.67	26.67	66.67	100.00	50.00	50.00	54.67
17	4011	11	TH 78	S of CSAH14	N of CSAH 1	5.38	75.00	83.33	40.00	0.00	75.00	50.00	16.67	54.08
35	2993	12	TH 200	E of CSAH 3	W of CSAH 7	12.00	58.33	33.33	66.67	50.00	58.33	66.67	0.00	53.75
77	4483	13	TH 28	E of TH 114 in Starbuck	W of 5th ST NW in Glenwood	6.68	41.67	66.67	46.67	100.00	58.33	66.67	0.00	52.75
11	4072	14	TH 78	S of CSAH 1	N of S JCT TH 78 & TH 108 in Ottertail	0.75	50.00	66.67	60.00	0.00	100.00	41.67	16.67	50.92
69	1344	15	TH 114	S of TH 27	N of Co Rd 26SW	5.25	75.00	50.00	20.00	50.00	66.67	75.00	50.00	50.58
54	3934	16	TH 78	S of TH 210 (S of Battle Lake)	N of CR114	2.57	50.00	50.00	40.00	50.00	91.67	75.00	33.33	49.50
155	4081	17	TH 108	E of Engstrom Beach Road/Beaver Dam Rd	W of CR 49	7.85	75.00	66.67	20.00	50.00	58.33	58.33	0.00	49.33
149	3723	18	TH 113	E of CR102 (Mahnomen Co Boundary)	W of Railroad Street in Waubun	5.73	25.00	33.33	66.67	66.67	91.67	91.67	0.00	48.33
26	4034	19	TH 29	NE of CSAH 50 (Main Ave) in Deer Creek	W of CSAH 75	4.33	58.33	66.67	40.00	0.00	83.33	58.33	33.33	48.25
8	3994	20	TH 29	E of CSAH 75	W of TH 29	1.01	50.00	66.67	46.67	0.00	91.67	58.33	33.33	48.17
109	3984	20	TH 29	SW of CSAH 50/Main Ave in Deer Creek	N of TH210	4.30	58.33	50.00	46.67	0.00	75.00	75.00	33.33	48.17
96	5946	22	TH 27	SW of TH117	NE of CSAH 3	5.48	66.67	16.67	26.67	100.00	100.00	50.00	0.00	48.00
2	389	23	TH 7	S of CR 68 and CR 34	N of Golf Course Rd	2.08	83.33	50.00	6.67	50.00	100.00	50.00	16.67	47.83
41	4071	24	TH 78	S of S JCT TH 108 and CSAH14	NE of CSAH 5	2.81	58.33	66.67	40.00	0.00	83.33	33.33	50.00	47.83
93	3954	25	TH 59	S of CSAH28	NE of Dump Road (N of Erhard)	2.36	41.67	66.67	53.33	0.00	75.00	75.00	33.33	47.67
154	3967	26	TH 108	E of CSAH 85	W of Beaver Dam Rd	1.27	58.33	50.00	20.00	50.00	91.67	75.00	50.00	46.83
58	129	26	TH 113	E of CSAH 37	.81 mi W of TH 71	12.77	50.00	16.67	53.33	50.00	75.00	91.67	0.00	46.83
45	115	26	TH 87	NW of CR150	W of CSAH 31	2.21	58.33	33.33	20.00	83.33	83.33	66.67	50.00	46.83
112	3970	26	TH 108	E of I94 and CSAH19	SW of CR30	7.50	75.00	50.00	20.00	0.00	100.00	66.67	50.00	46.83
10	116	30	TH 87	E of CR 31	NW of CR47	6.81	41.67	66.67	20.00	100.00	58.33	58.33	50.00	46.83
100	3937	31	TH 78	S of CR114	N of CSAH 12	4.04	50.00	50.00	40.00	50.00	75.00	66.67	0.00	46.58
92	1352	32	TH 114	SE of I-94 offramp onto TH114	N of TH27	2.26	75.00	33.33	13.33	50.00	91.67	58.33	50.00	46.50
38	4486	33	TH 114	N of W JCT TH55 and TH114	S of Co Road 26 SW	5.19	66.67	33.33	20.00	50.00	83.33	75.00	50.00	46.42
140	112	33	TH 87	E of CR39	W of CSAH 41	2.80	50.00	33.33	20.00	100.00	83.33	75.00	50.00	46.42
104	1842	35	TH 59	N of Barrett (JCT of TH 59 and Co Hwy 8)	S of Elbow Lake (JCT of Th 59 and TH 54)	6.00	50.00	50.00	46.67	16.67	91.67	58.33	0.00	45.67
103	4529	36	TH 114	S of CWSAH24	N of W 7th St in Starbuck	2.85	58.33	50.00	20.00	66.67	83.33	75.00	0.00	45.58
129	1841	37	TH 55	SE of TH 59 and TH55 in Barrett	NW of TH27 and CSAH 5 in Hoffman	6.65	41.67	33.33	33.33	100.00	91.67	66.67	0.00	45.42
32	111	38	TH 87	W of 590th Ave County Border	E of S JCT CSAH47 and TH87	5.35	50.00	33.33	20.00	100.00	91.67	50.00	33.33	44.75
115	1836	39	TH 55	E of CSAH11 and TH 55	W of TH 59 and TH 55	4.98	66.67	33.33	40.00	0.00	100.00	50.00	0.00	44.50
81	6736	40	TH 59	S of Lake Region Ave (S of Pelican Rapids)	N of CSAH 3	1.20	25.00	66.67	53.33	0.00	100.00	83.33	33.33	44.33
120	338	41	TH 7	E of CSAH 3	NW of CSAH9	6.57	75.00	33.33	13.33	50.00	75.00	58.33	16.67	44.00
46	6218	42	TH 9	S of CSAH16	N of E JCT TH 9 and 210	1.06	50.00	33.33	26.67	66.67	100.00	66.67	16.67	43.83
138	4013	43	TH 78	S of W TH 10 on and off ramp	N of N JCT tH78 and TH108	1.78	41.67	83.33	40.00	0.00	75.00	58.33	0.00	43.67
30	4014	44	TH 108	E of JCT CR49 and 420th Ave	W of TH 78	2.00	50.00	50.00	20.00	50.00	100.00	66.67	33.33	43.50
144	4516	44	TH 114	S of S JCT CSAH28 (S of Lowry)	N of CSAH 24	3.20	66.67	50.00	20.00	16.67	91.67	75.00	0.00	43.50
53	3999	46	TH 108	E of CR61 in Henning	W of TH108 and CSAH 52	2.34	75.00	50.00	6.67	0.00	100.00	75.00	50.00	43.25
16	110	47	TH 87	E of CR 45	W of N JCT CSAH 47	4.18	41.67	33.33	20.00	100.00	83.33	75.00	33.33	43.08
40	5756	48	TH 9	SE of 7th St in Donnelly	NE of CSAH 5 in Morris	8.09	33.33	83.33	26.67	50.00	83.33	66.67	0.00	43.00
87	1874	49	TH 9	SE of CR33	NW of CR6	1.23	50.00	33.33	33.33	50.00	91.67	58.33	0.00	42.50
39	5801	49	TH 12	E of CR 23	W of TH 119 and CSAH 5	9.47	50.00	33.33	33.33	50.00	91.67	58.33	0.00	42.50
1	335	49	TH 12	E of TH 75	W of CR 23 and CR 36	8.77	41.67	50.00	33.33	50.00	75.00	75.00	0.00	42.50
13	5948	52	TH 27	NE of TH 117	SW of 635th Ave	2.13	41.67	33.33	20.00	100.00	100.00	58.33	16.67	42.25
84	5949	52	TH 27	W of CSAH 7	E of 635 Ave	2.29	41.67	33.33	20.00	100.00	100.00	58.33	16.67	42.25
90	3965	54	TH 108	E of CR67	W of CSAH 41	3.99	58.33	33.33	20.00	50.00	100.00	58.33	0.00	41.42
3	4051	54	TH 108	E of CR30	W of 2nd St NW in Pelican Rapids	4.20	66.67	50.00	20.00	0.00	83.33	75.00	0.00	41.42
134	5966	56	TH 27	NE of CSAH7	SW of 16th St in Wheaton	1.29	33.33	50.00	20.00	100.00	83.33	66.67	0.00	41.00
62	3997	57	TH 106	S of TH 10	N of Soule Ave E in Deer Creek	6.96	33.33	50.00	33.33	50.00	41.67	75.00	50.00	40.83
68	5758	58	TH 9	SE of CR6	NW of CSAH9 in Donnelly	8.61	33.33	50.00	33.33	50.00	91.67	66.67	0.00	40.42
7	6210	59	TH 9	SE of CR 8	NW of CSAH 4	6.64	50.00	16.67	33.33	50.00	100.00	58.33	0.00	40.42
48	114	60	TH 87	E of CSAH 43	W of CR45	2.18	33.33	33.33	20.00	100.00	75.00	75.00	33.33	40.17
73	5941	61	TH 27	SW of CSAH 3	2.24 Mi N of TH28 (NW of Browns Valley)	9.78	50.00	33.33	26.67	50.00	83.33	41.67	16.67	40.08
94	1853	62	TH 9	SE of CSAH31	NW of 140th N of Herman	4.73	33.33	16.67	33.33	100.00	83.33	66.67	0.00	40.00
111	6205	62	TH 9	SE of CSAH 4 in Campbell	NW of TH 55	2.37	50.00	16.67	33.33	50.00	100.00	50.00	0.00	40.00
52	4464	64	TH 104	E of CSAH 19	SW of CSAH29	6.68	58.33	16.67	20.00	50.00	100.00	75.00	0.00	39.75
133	1882	65	TH 9	SE of 140th St	NW of 8th ST E in Herman	0.62	25.00	33.33	33.33	100.00	75.00	66.67	0.00	39.58
153	4012	66	TH 78	S of TH 108	N of CSAH 14 and N Boedigheimer Dr	3.00	25.00	66.67	40.00	0.00	75.00	75.00	50.00	39.50
130	3966	67	TH 108	E of E JCT CSAH41	W of CSAH85	2.35	25.00	66.67	20.00	50.00	91.67	66.67	50.00	38.92
75	5976	68	TH 27	N of TH 28 (NW of Browns Valley)	2.24 Mi N of TH28 (NW of Browns Valley)	2.29	50.00	16.67	26.67	50.00	100.00	50.00	16.67	38.83
19	3969	69	TH 59	S of CSAH 3	N of CSAH 28	1.04	25.00	66.67	33.33	0.00	100.00	91.67	33.33	38.75
137	1363	70	TH 79	E of CSAH10	W of I-94	5.12	58.33	66.67	13.33	0.00	91.67	50.00	0.00	38.58
65	5956	71	TH 9	SE of TH55	NW of CSAH 20 in Tintah	2.07	25.00	16.67	33.33	100.00	91.67	75.00	0.00	38.33
121	5794	71	TH 12	E of CSAH 5 and TH 119	W of TH 59	5.99	50.00	33.33	33.33	0.00	91.67	75.00	0.00	38.33
124	944	71	TH 32	.32 M S of TH10	NW of CSAH 10	7.79	25.00	33.33	33.33	50.00	91.67	75.00	50.00	38.33
43	6206	74	TH 55	E of TH 75	W of TH 9	7.21	33.33	33.33	33.33	50.00	100.00	66.67	0.00	38.33
152	4489	75	TH 55	SE of Main Ave W in Hoffman	NW of TH 114	14.69	33.33	33.33	40.00	50.00	58.33	66.67	0.00	38.25
89	929	76	TH 9	SW of 2nd Ave SW W of Barnesville	NE of CR51	0.55	41.67	33.33	20.00	66.67	100.00	41.67	16.67	38.08
127	1008	77	TH 9	NE of 165th Ave S	E of 6th St SW	0.38	41.67	33.33	20.00	66.67	100.00	58.33	0.00	38.08
122	5953	78	TH 9	SE of CSAH 19 and Putman St Tintah	NW of CSAH 31	10.66	25.00	16.67	33.33	100.00	83.33	75.00	0.00	37.92
148	6207	79	TH 55	E of Bois de Sioux River Bridge/Ndakota Border	W of TH 75	3.51	33.33	33.33	33.33	50.00	100.00	58.33	0.00	37.92
20	4067	80	TH 108	E of Buchanan Rd/Ottertail	W of CR 61	1.46	58.33	66.67	6.67	0.00	100.00	66.67	0.00	37.83
80	1837	81	TH 59	S of CR 49 and TH59	NW of 2nd Ave NW in Elbow Lake	3.21	25.00	50.00	46.67	0.00	83.33	91.67	0.00	37.75
136	4033	82	TH 29	SE of CSAH 50/Main Ave in Deer Creek	NE of TH 106/1st St	0.34	33.33	50.00	40.00	0.00	100.00	58.33	0.00	37.42
72	4487	83	TH 55	SE of W JCT TH114 and TH55	NW of Aurora Ave in Lowry	0.67	41.67	50.00	13.33	50.00	91.67	75.00	0.00	37.33
123	925	84	TH 32	SE of CSAH 10	N of TH34/CSAH35	7.36	33.33	33.33	33.33	50.00	83.33	58.33	0.00	37.08
31	1835	85	TH 59	S of CSAH 82	N of JCT TH 59 and TH55	11.49	25.00	50.00	40.00	0.00	91.67	91.67	16.67	37.00
23	378	86	TH 12	.25 E of TH 75	W of 75th Ave	1.24	33.33	50.00	20.00	50.00	100.00	66.67	0.00	36.83
105	3998	87	TH 108	S of JCT CSAH 52	N of JCT CSAH 16	7.17	75.00	50.00	0.00	0.00	66.67	66.67	0.00	36.67
22	4068	88	TH 108	E of JCT Buc han Rd/TH78 & CSAH14	W of Buchanan Rd in Ottertail	1.25	50.00	83.33	6.67	0.00	83.33	58.33	0.00	36.58
97	342	89	TH 7	E of CR53	W of CSAH3	1.02	50.00	16.67	20.00	50.00	100.00	58.33	0.00	36.42
125	4472	90	TH 28	E of T-219	W of John St in Starbuck	1.79	50.00	50.00	13.33	16.67	91.67	66.67	0.00	36.08
108	1819	91	TH 27	E of TH 54 and CR 35	W of TH 59	5.00	58.33	16.67	20.00	0.00	91.67	75.00	33.33	36.00
147	4480	92	TH 55	SE of N JCT TH 55 and CSAH 28 (Lowry)	NW of TH29	6.73	41.67	33.33	20.00	50.00	66.67	66.67	0.00	35.17
74	3981	93	TH 210	E of TH29	W of CSAH75	6.48	41.67	33.33	26.67	16.67	58.33	75.00	16.67	34.67
9	5898	94	TH 210	E of CSAH 75	W of 640th Ave	1.49	33.33	33.33	26.67	16.67	83.33	66.67	50.00	34.67
88	2377	95	TH 104	SE of CSAH29	4 Mi N of W JCT TH104 and TH 9	6.40	41.67	16.67	13.33	50.00	83.33	91.67	33.33	34.42
106	5940	96	TH 28	SE of CSAH 2 E of Browns Valley	W of Garfield St in Beardsley	6.54	33.33	50.00	33.33	0.00	75.00	58.33	0.00	34.17
116	1838	96	TH 55	E of TH 9 N	W of CSAH 11/Main St in Wendell	11.81	25.00	16.67	33.33	50.00	91.67	91.67	0.00	34.17
150	6729	98	TH 7	SE of CSAH9	NW of CR68	3.31	58.33	16.67	6.67	50.00	83.33	50.00	0.00	33.67
143	3987	99	TH 108	E of CSAH 16	W of Balmoral Ave and TH108	0.58	50.00	50.00	6.67	0.00	100.00	58.33	0.00	32.42
6	6231	100	TH 9	W of 6th St NW in Barnesville	N of CSAH 16	24.91	33.33	16.67	20.00	66.67	75.00	50.00	0.00	31.42
24	1875	101	TH 27	E of CSAH 11 Herman	W of 75th Ave	7.47	33.33	33.33	26.67	0.00	91.67	75.00	0.00	31.33
25	5977	102	TH 28	.07 NE of TH10 change	S W of TH 27	0.41	25.00	50.00	20.00	0.00	100.00	83.33	0.00	30.17
14	6221	102	TH 75	SE of CR 155	N of TH 210	2.67	25.00	50.00	20.00	0.00	100.00	83.33	0.00	30.17
37	1832	104	TH 79	S of CSAH 24	W of CSAH10	1.74	25.00	50.00	13.33	0.00	100.00	83.33	16.67	29.00
64	5947	105	TH 117	.36 Mi of TH 117, CSAH19, CSAH21	NE of TH27	1.80	41.67	16.67	0.00	0.00	58.33	58.33	0.00	20.83

SRF Consulting Group, Inc.

District 4 Shoulder Widening Prioritization Study
Ranking of Segments Based on Project Delivery

							5%	15%	5%	10%	30%	30%	5%	
Segment ID	SEQ_NO	Rank	Route Name	From	To	Length	Safety	Mobility	Multimodal Accomodations	System Preservation	Environmental Impacts	Constructability	Functionality	Score
145	113	1	TH 87	E of CSAH 41 in Evergreen	W of CSAH 43	2.71	66.67	66.67	20.00	100.00	100.00	66.67	16.67	75.17
19	3969	2	TH 59	S of CSAH 3	N of CSAH 28	1.04	25.00	66.67	33.33	0.00	100.00	91.67	33.33	72.08
149	3723	3	TH 113	E of CR102 (Mahnomen Co Boundary)	W of Railroad Street in Waubun	5.73	25.00	33.33	66.67	66.67	91.67	91.67	0.00	71.25
81	6736	4	TH 59	S of Lake Region Ave (S of Pelican Rapids)	N of CSAH 3	1.20	25.00	66.67	53.33	0.00	100.00	83.33	33.33	70.58
131	4485	5	TH 28	E of CSAH 24 in Long Beach	W of 65th t NW (W of Glenwood)	1.37	58.33	83.33	26.67	100.00	75.00	66.67	0.00	69.25
154	3967	6	TH 108	E of CSAH 85	W of Beaver Dam Rd	1.27	58.33	50.00	20.00	50.00	91.67	75.00	50.00	68.92
63	1844	7	TH 55	SE of CSAH 8	.19 Mi NW of CSAH 2 in Barrett	0.47	66.67	66.67	26.67	66.67	100.00	50.00	50.00	68.83
54	3934	8	TH 78	S of TH 210 (S of Battle Lake)	N of CR114	2.57	50.00	50.00	40.00	50.00	91.67	75.00	33.33	68.67
140	112	9	TH 87	E of CR39	W of CSAH 41	2.80	50.00	33.33	20.00	100.00	83.33	75.00	50.00	68.50
30	4014	10	TH 108	E of JCT CR49 and 420th Ave	W of TH 78	2.00	50.00	50.00	20.00	50.00	100.00	66.67	33.33	67.67
99	1834	11	TH 78	S of TH 210	.3 Mi NE of CR82 (E of Ashby)	9.37	75.00	50.00	40.00	100.00	83.33	58.33	33.33	67.42
71	2989	12	TH 113	E of TH59	W of CSAH 3	7.01	66.67	50.00	46.67	50.00	91.67	66.67	33.33	67.33
16	110	13	TH 87	E of CR 45	W of N JCT CSAH 47	4.18	41.67	33.33	20.00	100.00	83.33	75.00	33.33	67.25
130	3966	14	TH 108	E of E JCT CSAH41	W of CSAH85	2.35	25.00	66.67	20.00	50.00	91.67	66.67	50.00	67.25
53	3999	15	TH 108	E of CR61 in Henning	W of TH108 and CSAH 52	2.34	75.00	50.00	6.67	0.00	100.00	75.00	50.00	66.58
31	1835	16	TH 59	S of CSAH 82	N of JCT TH 59 and TH55	11.49	25.00	50.00	40.00	0.00	91.67	91.67	16.67	66.58
66	128	17	TH 113	E of CSAH35	W of Utopia Bay Lane by Becker County Bound	5.82	75.00	16.67	53.33	50.00	100.00	75.00	0.00	66.42
13	5948	18	TH 27	NE of TH 117	SW of 635th Ave	2.13	41.67	33.33	20.00	100.00	100.00	58.33	16.67	66.42
84	5949	18	TH 27	W of CSAH 7	E of 635 Ave	2.29	41.67	33.33	20.00	100.00	100.00	58.33	16.67	66.42
46	6218	20	TH 9	S of CSAH16	N of E JCT TH 9 and 210	1.06	50.00	33.33	26.67	66.67	100.00	66.67	16.67	66.33
129	1841	21	TH 55	SE of TH 59 and TH55 in Barrett	NW of TH27 and CSAH 5 in Hoffman	6.65	41.67	33.33	33.33	100.00	91.67	66.67	0.00	66.25
91	2998	21	TH 200	E of TH 59 N of Mahnomen	W of CSAH 3	7.55	58.33	83.33	66.67	50.00	91.67	50.00	0.00	66.25
103	4529	23	TH 114	S of CWSAH24	N of W 7th St in Starbuck	2.85	58.33	50.00	20.00	66.67	83.33	75.00	0.00	65.58
40	5756	24	TH 9	SE of 7th St in Donnelly	NE of CSAH 5 in Morris	8.09	33.33	83.33	26.67	50.00	83.33	66.67	0.00	65.50
65	5956	25	TH 9	SE of TH55	NW of CSAH 20 in Tintah	2.07	25.00	16.67	33.33	100.00	91.67	75.00	0.00	65.42
116	1838	25	TH 55	E of TH 9 N	W of CSAH 11/Main St in Wendell	11.81	25.00	16.67	33.33	50.00	91.67	91.67	0.00	65.42
124	944	25	TH 32	.32 M S of TH10	NW of CSAH 10	7.79	25.00	33.33	33.33	50.00	91.67	75.00	50.00	65.42
72	4487	28	TH 55	SE of W JCT TH114 and TH55	NW of Aurora Ave in Lowry	0.67	41.67	50.00	13.33	50.00	91.67	75.00	0.00	65.25
37	1832	28	TH 79	S of CSAH 24	W of CSAH10	1.74	25.00	50.00	13.33	0.00	100.00	83.33	16.67	65.25
134	5966	30	TH 27	NE of CSAH7	SW of 16th St in Wheaton	1.29	33.33	50.00	20.00	100.00	83.33	66.67	0.00	65.17
23	378	31	TH 12	.25 E of TH 75	W of 75th Ave	1.24	33.33	50.00	20.00	50.00	100.00	66.67	0.00	65.17
14	6221	32	TH 75	SE of CR 155	N of TH 210	2.67	25.00	50.00	20.00	0.00	100.00	83.33	0.00	64.75
25	5977	32	TH 28	.07 NE of TH10 change	S W of TH 27	0.41	25.00	50.00	20.00	0.00	100.00	83.33	0.00	64.75
45	115	32	TH 87	NW of CR150	W of CSAH 31	2.21	58.33	33.33	20.00	83.33	83.33	66.67	50.00	64.75
112	3970	32	TH 108	E of I94 and CSAH19	SW of CR30	7.50	75.00	50.00	20.00	0.00	100.00	66.67	50.00	64.75
88	2377	36	TH 104	SE of CSAH29	4 Mi N of W JCT TH104 and TH 9	6.40	41.67	16.67	13.33	50.00	83.33	91.67	33.33	64.42
38	4486	37	TH 114	N of W JCT TH55 and TH114	S of Co Road 26 SW	5.19	66.67	33.33	20.00	50.00	83.33	75.00	50.00	64.33
48	114	38	TH 87	E of CSAH 43	W of CR45	2.18	33.33	33.33	20.00	100.00	75.00	75.00	33.33	64.33
52	4464	39	TH 104	E of CSAH 19	SW of CSAH29	6.68	58.33	16.67	20.00	50.00	100.00	75.00	0.00	63.92
80	1837	40	TH 59	S of CR 49 and TH59	NW of 2nd Ave NW in Elbow Lake	3.21	25.00	50.00	46.67	0.00	83.33	91.67	0.00	63.58
144	4516	41	TH 114	S of S JCT CSAH28 (S of Lowry)	N of CSAH 24	3.20	66.67	50.00	20.00	16.67	91.67	75.00	0.00	63.50
43	6206	42	TH 55	E of TH 75	W of TH 9	7.21	33.33	33.33	33.33	50.00	100.00	66.67	0.00	63.33
68	5758	42	TH 9	SE of CR6	NW of CSAH9 in Donnelly	8.61	33.33	50.00	33.33	50.00	91.67	66.67	0.00	63.33
20	4067	44	TH 108	E of Buchanan Rd/Ottertail	W of CR 61	1.46	58.33	66.67	6.67	0.00	100.00	66.67	0.00	63.25
122	5953	45	TH 9	SE of CSAH 19 and Putman St Tintah	NW of CSAH 31	10.66	25.00	16.67	33.33	100.00	83.33	75.00	0.00	62.92
2	389	46	TH 7	S of CR 68 and CR 34	N of Golf Course Rd	2.08	83.33	50.00	6.67	50.00	100.00	50.00	16.67	62.83
58	129	47	TH 113	E of CSAH 37	.81 mi W of TH 71	12.77	50.00	16.67	53.33	50.00	75.00	91.67	0.00	62.67
32	111	48	TH 87	W of 590th Ave County Border	E of S JCT CSAH47 and TH87	5.35	50.00	33.33	20.00	100.00	91.67	50.00	33.33	62.67
127	1008	49	TH 9	NE of 165th Ave S	E of 6th St SW	0.38	41.67	33.33	20.00	66.67	100.00	58.33	0.00	62.25
69	1344	49	TH 114	S of TH 27	N of Co Rd 26SW	5.25	75.00	50.00	20.00	50.00	66.67	75.00	50.00	62.25
96	5946	51	TH 27	SW of TH117	NE of CSAH 3	5.48	66.67	16.67	26.67	100.00	100.00	50.00	0.00	62.17
92	1352	52	TH 114	SE of I-94 offramp onto TH114	N of TH27	2.26	75.00	33.33	13.33	50.00	91.67	58.33	50.00	61.92
77	4483	53	TH 28	E of TH 114 in Starbuck	W of 5th ST NW in Glenwood	6.68	41.67	66.67	46.67	100.00	58.33	66.67	0.00	61.92
8	3994	54	TH 29	E of CSAH 75	W of TH 29	1.01	50.00	66.67	46.67	0.00	91.67	58.33	33.33	61.50
90	3965	55	TH 108	E of CR67	W of CSAH 41	3.99	58.33	33.33	20.00	50.00	100.00	58.33	0.00	61.42
93	3954	55	TH 59	S of CSAH28	NE of Dump Road (N of Erhard)	2.36	41.67	66.67	53.33	0.00	75.00	75.00	33.33	61.42
1	335	57	TH 12	E of TH 75	W of CR 23 and CR 36	8.77	41.67	50.00	33.33	50.00	75.00	75.00	0.00	61.25
94	1853	58	TH 9	SE of CSAH31	NW of 140th N of Herman	4.73	33.33	16.67	33.33	100.00	83.33	66.67	0.00	60.83
148	6207	58	TH 55	E of Bois de Sioux River Bridge/Ndakota Border	W of TH 75	3.51	33.33	33.33	33.33	50.00	100.00	58.33	0.00	60.83
153	4012	60	TH 78	S of TH 108	N of CSAH 14 and N Boedigheimer Dr	3.00	25.00	66.67	40.00	0.00	75.00	75.00	50.00	60.75
101	3989	61	TH 78	SW of CSAH5	NE of Cloverlead Road	5.08	58.33	83.33	53.33	0.00	83.33	50.00	50.00	60.58
10	116	62	TH 87	E of CR 31	NW of CR47	6.81	41.67	66.67	20.00	100.00	58.33	58.33	50.00	60.58
133	1882	63	TH 9	SE of 140th St	NW of 8th ST E in Herman	0.62	25.00	33.33	33.33	100.00	75.00	66.67	0.00	60.42
4	2990	64	TH 113	E of CSAH 3	W of CR 35	11.45	83.33	33.33	53.33	50.00	75.00	66.67	16.67	60.17
125	4472	65	TH 28	E of T-219	W of John St in Starbuck	1.79	50.00	50.00	13.33	16.67	91.67	66.67	0.00	59.83
100	3937	66	TH 78	S of CR114	N of CSAH 12	4.04	50.00	50.00	40.00	50.00	75.00	66.67	0.00	59.50
109	3984	67	TH 29	SW of CSAH 50/Main Ave in Deer Creek	N of TH210	4.30	58.33	50.00	46.67	0.00	75.00	75.00	33.33	59.42
3	4051	68	TH 108	E of CR30	W of 2nd St NW in Pelican Rapids	4.20	66.67	50.00	20.00	0.00	83.33	75.00	0.00	59.33
7	6210	69	TH 9	SE of CR 8	NW of CSAH 4	6.64	50.00	16.67	33.33	50.00	100.00	58.33	0.00	59.17
87	1874	69	TH 9	SE of CR33	NW of CR6	1.23	50.00	33.33	33.33	50.00	91.67	58.33	0.00	59.17
39	5801	69	TH 12	E of CR 23	W of TH 119 and CSAH 5	9.47	50.00	33.33	33.33	50.00	91.67	58.33	0.00	59.17
121	5794	69	TH 12	E of CSAH 5 and TH 119	W of TH 59	5.99	50.00	33.33	33.33	0.00	91.67	75.00	0.00	59.17
26	4034	73	TH 29	NE of CSAH 50 (Main Ave) in Deer Creek	W of CSAH 75	4.33	58.33	66.67	40.00	0.00	83.33	58.33	33.33	59.08
104	1842	74	TH 59	N of Barrett (JCT of TH 59 and Co Hwy 8)	S of Elbow Lake (JCT of Th 59 and TH 54)	6.00	50.00	50.00	46.67	16.67	91.67	58.33	0.00	59.00
11	4072	75	TH 78	S of CSAH 1	N of S JCT TH 78 & TH 108 in Ottertail	0.75	50.00	66.67	60.00	0.00	100.00	41.67	16.67	58.83
136	4033	76	TH 29	SE of CSAH 50/Main Ave in Deer Creek	NE of TH 106/1st St	0.34	33.33	50.00	40.00	0.00	100.00	58.33	0.00	58.67
97	342	77	TH 7	E of CR53	W of CSAH3	1.02	50.00	16.67	20.00	50.00	100.00	58.33	0.00	58.50
89	929	78	TH 9	SW of 2nd Ave SW W of Barnesville	NE of CR51	0.55	41.67	33.33	20.00	66.67	100.00	41.67	16.67	58.08
108	1819	79	TH 27	E of TH 54 and CR 35	W of TH 59	5.00	58.33	16.67	20.00	0.00	91.67	75.00	33.33	58.08
24	1875	80	TH 27	E of CSAH 11 Herman	W of 75th Ave	7.47	33.33	33.33	26.67	0.00	91.67	75.00	0.00	58.00
22	4068	81	TH 108	E of JCT Buc han Rd/TH78 & CSAH14	W of Buchanan Rd in Ottertail	1.25	50.00	83.33	6.67	0.00	83.33	58.33	0.00	57.83
143	3987	82	TH 108	E of CSAH 16	W of Balmoral Ave and TH108	0.58	50.00	50.00	6.67	0.00	100.00	58.33	0.00	57.83
75	5976	83	TH 27	N of TH 28 (NW of Browns Valley)	2.24 Mi N of TH28 (NW of Browns Valley)	2.29	50.00	16.67	26.67	50.00	100.00	50.00	16.67	57.17
9	5898	83	TH 210	E of CSAH 75	W of 640th Ave	1.49	33.33	33.33	26.67	16.67	83.33	66.67	50.00	57.17
111	6205	85	TH 9	SE of CSAH 4 in Campbell	NW of TH 55	2.37	50.00	16.67	33.33	50.00	100.00	50.00	0.00	56.67
138	4013	86	TH 78	S of W TH 10 on and off ramp	N of N JCT tH78 and TH108	1.78	41.67	83.33	40.00	0.00	75.00	58.33	0.00	56.58
17	4011	86	TH 78	S of CSAH14	N of CSAH 1	5.38	75.00	83.33	40.00	0.00	75.00	50.00	16.67	56.58
137	1363	88	TH 79	E of CSAH10	W of I-94	5.12	58.33	66.67	13.33	0.00	91.67	50.00	0.00	56.08
123	925	89	TH 32	SE of CSAH 10	N of TH34/CSAH35	7.36	33.33	33.33	33.33	50.00	83.33	58.33	0.00	55.83
115	1836	90	TH 55	E of CSAH11 and TH 55	W of TH 59 and TH 55	4.98	66.67	33.33	40.00	0.00	100.00	50.00	0.00	55.33
120	338	91	TH 7	E of CSAH 3	NW of CSAH9	6.57	75.00	33.33	13.33	50.00	75.00	58.33	16.67	55.25
155	4081	92	TH 108	E of Engstrom Beach Road/Beaver Dam Rd	W of CR 49	7.85	75.00	66.67	20.00	50.00	58.33	58.33	0.00	54.75
35	2993	93	TH 200	E of CSAH 3	W of CSAH 7	12.00	58.33	33.33	66.67	50.00	58.33	66.67	0.00	53.75
62	3997	94	TH 106	S of TH 10	N of Soule Ave E in Deer Creek	6.96	33.33	50.00	33.33	50.00	41.67	75.00	50.00	53.33
36	3968	95	TH 108	S of Westmill Ave in Pelican Rapids	N of CR67	8.12	83.33	66.67	33.33	50.00	58.33	50.00	0.00	53.33
147	4480	96	TH 55	SE of N JCT TH 55 and CSAH 28 (Lowry)	NW of TH29	6.73	41.67	33.33	20.00	50.00	66.67	66.67	0.00	53.08
41	4071	97	TH 78	S of S JCT TH 108 and CSAH14	NE of CSAH 5	2.81	58.33	66.67	40.00	0.00	83.33	33.33	50.00	52.42
73	5941	98	TH 27	SW of CSAH 3	2.24 Mi N of TH28 (NW of Browns Valley)	9.78	50.00	33.33	26.67	50.00	83.33	41.67	16.67	52.17
105	3998	99	TH 108	S of JCT CSAH 52	N of JCT CSAH 16	7.17	75.00	50.00	0.00	0.00	66.67	66.67	0.00	51.25
152	4489	100	TH 55	SE of Main Ave W in Hoffman	NW of TH 114	14.69	33.33	33.33	40.00	50.00	58.33	66.67	0.00	51.17
74	3981	101	TH 210	E of TH29	W of CSAH75	6.48	41.67	33.33	26.67	16.67	58.33	75.00	16.67	50.92
106	5940	102	TH 28	SE of CSAH 2 E of Browns Valley	W of Garfield St in Beardsley	6.54	33.33	50.00	33.33	0.00	75.00	58.33	0.00	50.83
150	6729	103	TH 7	SE of CSAH9	NW of CR68	3.31	58.33	16.67	6.67	50.00	83.33	50.00	0.00	50.75
6	6231	104	TH 9	W of 6th St NW in Barnesville	N of CSAH 16	24.91	33.33	16.67	20.00	66.67	75.00	50.00	0.00	49.33
64	5947	105	TH 117	.36 Mi of TH 117, CSAH19, CSAH21	NE of TH27	1.80	41.67	16.67	0.00	0.00	58.33	58.33	0.00	39.58

District 4 Shoulder Widening Prioritization Study
Ranking of Segments Based on Benefit-Cost

Segment ID	SEQ_NO	Rank	Route Name	From	To	Length	B/C Ratio
91	2998	1	TH 200	E of TH 59 N of Mahnomen	W of CSAH 3	7.55	7.48
155	4081	2	TH 108	E of Engstrom Beach Road/Beaver Dam Rd	W of CR 49	7.85	7.45
22	4068	3	TH 108	E of JCT Buc han Rd/TH78 & CSAH14	W of Buchanan Rd in Ottertail	1.25	5.70
17	4011	4	TH 78	S of CSAH14	N of CSAH 1	5.38	5.40
63	1844	5	TH 55	SE of CSAH 8	.19 Mi NW of CSAH 2 in Barrett	0.47	4.74
104	1842	6	TH 59	N of Barrett (JCT of TH 59 and Co Hwy 8)	S of Elbow Lake (JCT of Th 59 and TH 54)	6.00	4.47
20	4067	7	TH 108	E of Buchanan Rd/Ottertail	W of CR 61	1.46	3.47
30	4014	8	TH 108	E of JCT CR49 and 420th Ave	W of TH 78	2.00	3.31
11	4072	9	TH 78	S of CSAH 1	N of S JCT TH 78 & TH 108 in Ottertail	0.75	3.16
138	4013	10	TH 78	S of W TH 10 on and off ramp	N of N JCT tH78 and TH108	1.78	2.98
72	4487	11	TH 55	SE of W JCT TH114 and TH55	NW of Aurora Ave in Lowry	0.67	2.88
26	4034	12	TH 29	NE of CSAH 50 (Main Ave) in Deer Creek	W of CSAH 75	4.33	2.75
101	3989	13	TH 78	SW of CSAH5	NE of Cloverlead Road	5.08	2.37
153	4012	14	TH 78	S of TH 108	N of CSAH 14 and N Boedigheimer Dr	3.00	2.37
145	113	15	TH 87	E of CSAH 41 in Evergreen	W of CSAH 43	2.71	2.08
53	3999	16	TH 108	E of CR61 in Henning	W of TH108 and CSAH 52	2.34	2.03
41	4071	17	TH 78	S of S JCT TH 108 and CSAH14	NE of CSAH 5	2.81	2.02
105	3998	18	TH 108	S of JCT CSAH 52	N of JCT CSAH 16	7.17	1.88
93	3954	19	TH 59	S of CSAH28	NE of Dump Road (N of Erhard)	2.36	1.84
32	111	20	TH 87	W of 590th Ave County Border	E of S JCT CSAH47 and TH87	5.35	1.83
69	1344	21	TH 114	S of TH 27	N of Co Rd 26SW	5.25	1.81
40	5756	22	TH 9	SE of 7th St in Donnelly	NE of CSAH 5 in Morris	8.09	1.78
8	3994	23	TH 29	E of CSAH 75	W of TH 29	1.01	1.77
36	3968	24	TH 108	S of Westmill Ave in Pelican Rapids	N of CR67	8.12	1.72
154	3967	25	TH 108	E of CSAH 85	W of Beaver Dam Rd	1.27	1.72
112	3970	26	TH 108	E of I94 and CSAH19	SW of CR30	7.50	1.62
1	335	27	TH 12	E of TH 75	W of CR 23 and CR 36	8.77	1.54
99	1834	28	TH 78	S of TH 210	.3 Mi NE of CR82 (E of Ashby)	9.37	1.48
143	3987	29	TH 108	E of CSAH 16	W of Balmoral Ave and TH108	0.58	1.45
54	3934	30	TH 78	S of TH 210 (S of Battle Lake)	N of CR114	2.57	1.43
2	389	31	TH 7	S of CR 68 and CR 34	N of Golf Course Rd	2.08	1.39
109	3984	32	TH 29	SW of CSAH 50/Main Ave in Deer Creek	N of TH210	4.30	1.35
100	3937	33	TH 78	S of CR114	N of CSAH 12	4.04	1.34
35	2993	34	TH 200	E of CSAH 3	W of CSAH 7	12.00	1.15
23	378	35	TH 12	.25 E of TH 75	W of 75th Ave	1.24	1.13
71	2989	36	TH 113	E of TH59	W of CSAH 3	7.01	1.13
129	1841	37	TH 55	SE of TH 59 and TH55 in Barrett	NW of TH27 and CSAH 5 in Hoffman	6.65	1.04
115	1836	38	TH 55	E of CSAH11 and TH 55	W of TH 59 and TH 55	4.98	1.00
10	116	39	TH 87	E of CR 31	NW of CR47	6.81	0.96
136	4033	40	TH 29	SE of CSAH 50/Main Ave in Deer Creek	NE of TH 106/1st St	0.34	0.92
3	4051	41	TH 108	E of CR30	W of 2nd St NW in Pelican Rapids	4.20	0.90
137	1363	42	TH 79	E of CSAH10	W of I-94	5.12	0.87
25	5977	43	TH 28	.07 NE of TH10 change	S W of TH 27	0.41	0.77
92	1352	44	TH 114	SE of I-94 offramp onto TH114	N of TH27	2.26	0.77
45	115	45	TH 87	NW of CR150	W of CSAH 31	2.21	0.75
127	1008	46	TH 9	NE of 165th Ave S	E of 6th St SW	0.38	0.71
16	110	47	TH 87	E of CR 45	W of N JCT CSAH 47	4.18	0.69
38	4486	48	TH 114	N of W JCT TH55 and TH114	S of Co Road 26 SW	5.19	0.69
37	1832	49	TH 79	S of CSAH 24	W of CSAH10	1.74	0.68
134	5966	50	TH 27	NE of CSAH7	SW of 16th St in Wheaton	1.29	0.68
106	5940	51	TH 28	SE of CSAH 2 E of Browns Valley	W of Garfield St in Beardsley	6.54	0.64
125	4472	52	TH 28	E of T-219	W of John St in Starbuck	1.79	0.61
6	6231	53	TH 9	W of 6th St NW in Barnesville	N of CSAH 16	24.91	0.55
48	114	54	TH 87	E of CSAH 43	W of CR45	2.18	0.54
68	5758	55	TH 9	SE of CR6	NW of CSAH9 in Donnelly	8.61	0.53
131	4485	56	TH 28	E of CSAH 24 in Long Beach	W of 65th t NW (W of Glenwood)	1.37	0.51
147	4480	57	TH 55	SE of N JCT TH 55 and CSAH 28 (Lowry)	NW of TH29	6.73	0.51
140	112	58	TH 87	E of CR39	W of CSAH 41	2.80	0.51
124	944	59	TH 32	.32 M S of TH10	NW of CSAH 10	7.79	0.45
14	6221	60	TH 75	SE of CR 155	N of TH 210	2.67	0.44
89	929	61	TH 9	SW of 2nd Ave SW W of Barnesville	NE of CR51	0.55	0.43
77	4483	62	TH 28	E of TH 114 in Starbuck	W of 5th ST NW in Glenwood	6.68	0.41
87	1874	63	TH 9	SE of CR33	NW of CR6	1.23	0.41
4	2990	64	TH 113	E of CSAH 3	W of CR 35	11.45	0.40
81	6736	65	TH 59	S of Lake Region Ave (S of Pelican Rapids)	N of CSAH 3	1.20	0.39
96	5946	66	TH 27	SW of TH117	NE of CSAH 3	5.48	0.37
19	3969	67	TH 59	S of CSAH 3	N of CSAH 28	1.04	0.37
13	5948	68	TH 27	NE of TH 117	SW of 635th Ave	2.13	0.36
149	3723	69	TH 113	E of CR102 (Mahnomen Co Boundary)	W of Railroad Street in Waubun	5.73	0.35
150	6729	70	TH 7	SE of CSAH9	NW of CR68	3.31	0.35
90	3965	71	TH 108	E of CR67	W of CSAH 41	3.99	0.33
123	925	72	TH 32	SE of CSAH 10	N of TH34/CSAH35	7.36	0.33
120	338	73	TH 7	E of CSAH 3	NW of CSAH9	6.57	0.33
84	5949	74	TH 27	W of CSAH 7	E of 635 Ave	2.29	0.32
9	5898	75	TH 210	E of CSAH 75	W of 640th Ave	1.49	0.31
152	4489	76	TH 55	SE of Main Ave W in Hoffman	NW of TH 114	14.69	0.31
74	3981	77	TH 210	E of TH29	W of CSAH75	6.48	0.29
148	6207	78	TH 55	E of Bois de Sioux River Bridge/Ndakota Border	W of TH 75	3.51	0.27
133	1882	79	TH 9	SE of 140th St	NW of 8th ST E in Herman	0.62	0.27
108	1819	80	TH 27	E of TH 54 and CR 35	W of TH 59	5.00	0.26
94	1853	81	TH 9	SE of CSAH31	NW of 140th N of Herman	4.73	0.22
121	5794	82	TH 12	E of CSAH 5 and TH 119	W of TH 59	5.99	0.22
43	6206	83	TH 55	E of TH 75	W of TH 9	7.21	0.21
39	5801	84	TH 12	E of CR 23	W of TH 119 and CSAH 5	9.47	0.21
88	2377	85	TH 104	SE of CSAH29	4 Mi N of W JCT TH104 and TH 9	6.40	0.20
80	1837	86	TH 59	S of CR 49 and TH59	NW of 2nd Ave NW in Elbow Lake	3.21	0.20
46	6218	87	TH 9	S of CSAH16	N of E JCT TH 9 and 210	1.06	0.18
31	1835	88	TH 59	S of CSAH 82	N of JCT TH 59 and TH55	11.49	0.16
103	4529	89	TH 114	S of CWSAH24	N of W 7th St in Starbuck	2.85	0.16
144	4516	90	TH 114	S of S JCT CSAH28 (S of Lowry)	N of CSAH 24	3.20	0.15
116	1838	91	TH 55	E of TH 9 N	W of CSAH 11/Main St in Wendell	11.81	0.15
122	5953	92	TH 9	SE of CSAH 19 and Putman St Tintah	NW of CSAH 31	10.66	0.14
65	5956	93	TH 9	SE of TH55	NW of CSAH 20 in Tintah	2.07	0.10
52	4464	94	TH 104	E of CSAH 19	SW of CSAH29	6.68	0.09
111	6205	95	TH 9	SE of CSAH 4 in Campbell	NW of TH 55	2.37	0.09
66	128	96	TH 113	E of CSAH35	' of Utopia Bay Lane by Becker County Bour	5.82	0.09
24	1875	97	TH 27	E of CSAH 11 Herman	W of 75th Ave	7.47	0.07
64	5947	98	TH 117	.36 Mi of TH 117, CSAH19, CSAH21	NE of TH27	1.80	0.07
58	129	99	TH 113	E of CSAH 37	.81 mi W of TH 71	12.77	0.07
7	6210	100	TH 9	SE of CR 8	NW of CSAH 4	6.64	0.07
73	5941	101	TH 27	SW of CSAH 3	2.24 Mi N of TH28 (NW of Browns Valley)	9.78	0.06
75	5976	102	TH 27	N of TH 28 (NW of Browns Valley)	2.24 Mi N of TH28 (NW of Browns Valley)	2.29	0.06
97	342	103	TH 7	E of CR53	W of CSAH3	1.02	0.04
62	3997	104	TH 106	S of TH 10	N of Soule Ave E in Deer Creek	6.96	0.00
130	3966	105	TH 108	E of E JCT CSAH41	W of CSAH85	2.35	0.00

Appendix D

Prioritization Tool Instructions Memorandum

SRF Consulting Group, Inc. | Engineers Planners Designers

Memorandum

SRF No. 017 10686.00

To: Justin Knopf, PE
MnDOT District 4

From: Leif Garnass, PE, PTOE, Senior Associate
Matt Knight, AICP, Associate
Misty Biswas, Engineer

Date: May 3, 2018

Subject: Prioritization Tool Instructions
District 4 Shoulder Widening Prioritization Study

Introduction

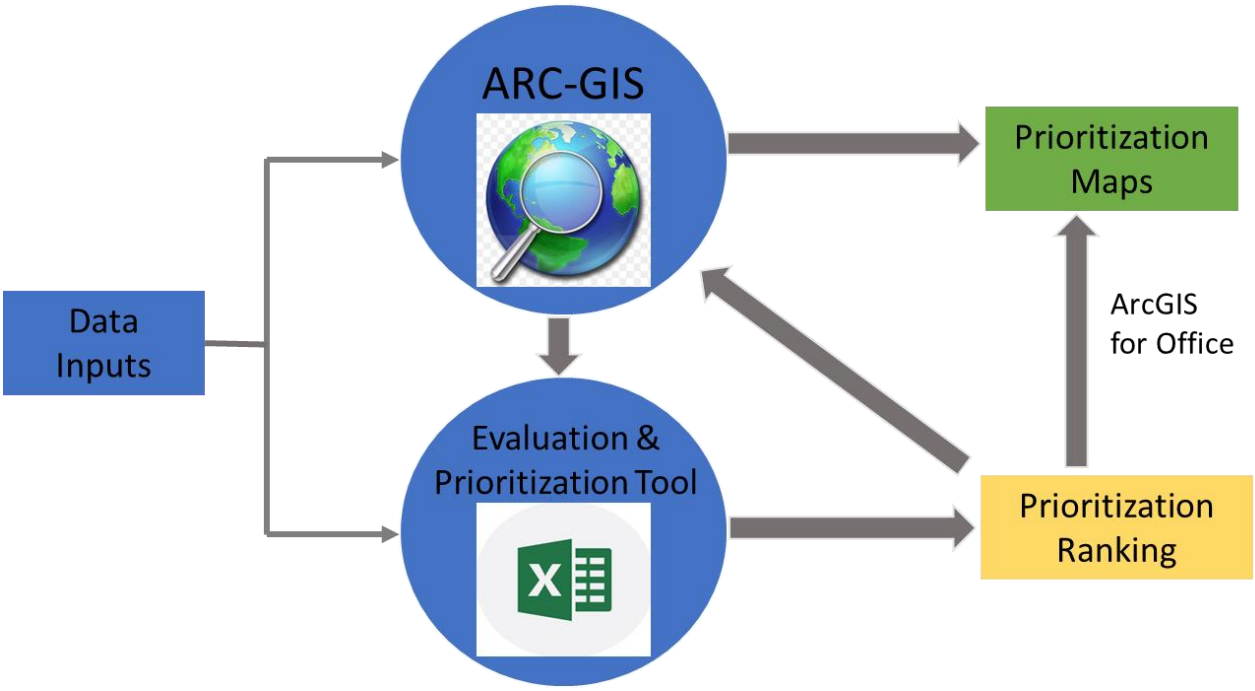
SRF Consulting Group assisted the Minnesota Department of Transportation (MnDOT) District 4 in using a data-driven approach to evaluate and prioritize locations for widening shoulders of roadways where existing shoulders are less than six feet wide. All two-lane two-way State Highways in District 4 with shoulder widths less than six feet were included in the study. Locations were prioritized using a tool developed based on performance-based quantitative and qualitative measures. This prioritization tool was designed to give District 4 staff the ability to communicate project needs and priorities to elected officials, residents, and stakeholders.

This memorandum documents the structure of the prioritization tool, the methodology and assumptions used in developing the tool, and instructions on updating the tool. This memorandum should be read while viewing the tool. The results of the evaluation and prioritization are documented in the Shoulder Widening Prioritization Study Report.

Tool Structure

The evaluation and prioritization tool was developed using Microsoft Excel and ArcGIS. Data that was readily available in ArcGIS was spatially joined to the study segments and exported into tabular format. Excel was then used to complete the evaluation and prioritization process. Results of the evaluation and prioritization can be mapped using ArcGIS Maps for Office or exported in a format that can be mapped using ArcGIS. Figure 1 illustrates the structure of the tool.

Figure 1. Tool Structure



Evaluation & Prioritization Tool (Microsoft Excel Spreadsheet)

The primary component of the tool was developed in Microsoft Excel. Excel was chosen because it is a widely used program and understood by most users. The functions of the Excel spreadsheet include:

- Combine all data into one data set
- Calculate safety and mobility evaluation measures
- Calculate benefit-cost ratios
- Rank segments based on project need, project delivery, and benefit-cost

The tabs within the spreadsheet are grouped into the following four categories:

1. **Instructions and Assumptions –** Contains instructions on using the tool and assumptions that went into the development of the tool.
2. **Data and Scoring Criteria –** Displays all the data incorporated into the evaluation and the scoring criteria that was developed to prioritize the segments.
3. **Evaluation and Prioritization –** Displays the data in a format that is easy to understand and ranks the segments based on project need, project delivery, and benefit-cost.
4. **Calculations –** Contains all of the calculations used for the safety and mobility evaluation measures.

The following documents the purpose, methodology, and user inputs for each of the tabs within the Shoulder Widening Prioritization Tool spreadsheet.

Instructions and Assumptions (Yellow Tabs)

Instructions Tab

The Instructions tab gives the user an overview of the function of each tab within the spreadsheet and indicates which data can be updated. It also gives the user instruction on how to export data and how to use the interactive map.

Assumptions Tab

The Assumptions tab provides the source of the data used and documents the assumptions and methodologies used in the evaluation and prioritization process.

Data and Scoring Criteria (Green Tabs)

Segment Data Tab

The Segment Data tab contains all the data collected and used as part of the evaluation and prioritization process. The columns with a green header were either imported from ArcGIS or manually entered and can be updated. The columns with a yellow header are calculated values and should not be updated, as they will be updated automatically. The following summarizes the data and data source within each column of the Segment Data tab.

Segment Location Data (Columns A-H)

Columns A-C contain unique identification numbers that are used to join the data sets together. The FID number was developed in the GIS database. The FID AADT and Sequence numbers were included in the GIS database that contained the AADT data. The Sequence number was used as the unique identification number for each segment within the Excel spreadsheet.

Columns D-H contain the segment descriptions and segment length. The route name and length were imported from ArcGIS. The street name and start and end locations were manually entered into the spreadsheet. This values in Column D-H can be updated.

Shoulder Information (Columns I-L)

These columns contain shoulder material and width information. This information was provided by MnDOT District 4 in Excel format. The values in these columns can be updated in this tab.

Safety (Columns M-V)

These columns display the safety data for each segment. Column M displays the number of crashes for each segment. This data was obtained from MnCMAT, imported to ArcGIS, and then joined to the corresponding segment using the "spatial join" function within ArcGIS. The values in Column M can be updated when new crash data is available. This can be done by manually updating Column M or using ArcGIS to join the crashes to the corresponding segments using the "spatial join" function.

Columns N-O display the existing crash rate for each segment and whether the rate is lower than the average crash rate, between the average and critical crash rate, or higher than the critical crash rate. These values were calculated in the red calculation tabs using AADT, number of years, segment length, and the number of crashes. The AADT, segment length, and number of crashes can be updated in this tab and the crash rate will update automatically.

Columns P-Q and S-T display the predicted crash rates for each segment under a year 2045 no build and year 2045 build (6-foot paved shoulder) condition. These values were calculated in in the red calculation tabs using Highway Safety Manual (HSM) methodology. Column R and Column Q compare the predicted rates to the average and critical rates. This information was not used as part of the evaluation; therefore, these columns have been hidden.

Column V displays the number of risk factors that were identified for each segment as part of the MnDOT District Safety Plan. These values can be updated if the Plan is updated.

Mobility (Columns W-AF)

Columns W and X displays the existing AADT and projected future year 2045 AADT. The existing AADT data was linked to the segments in ArcGIS. These values can be updated in the Segment Data tab and all calculations that use existing AADT will automatically be updated. The future year 2045 values were calculated using a historical trendline analysis that can be found in the calculation tabs.

Columns Y-AF display the existing and future year 2045 LOS. These values were calculated using Highway Capacity Manual methodology. The calculations and assumptions can be found in the calculation tabs.

Multimodal Accommodations (Columns AG-AL)

Column AG display the data relating to pedestrian and bicycle corridors. This data was obtained from MnDOT's District Bicycle Plan Suitability Analysis, mapped in ArcGIS, and then imported into the spreadsheet. This information can be updated.

Columns AH-AI display the heavy truck volume and heavy truck percentage. The heavy truck volume data was obtained from MnDOT GIS files. The percentage of heavy trucks was calculated by dividing the number of heavy trucks by the existing AADT. This information can be updated.

Columns AJ-AL display information relating to unique travel corridors. This information was provided by MnDOT District 4 and can be updated.

System Preservation (Columns AM-AN)

These columns display the data with regards to transportation plan consistency and existing maintenance issues. This information was provided by MnDOT District 4 and can be updated.

Environmental Impacts (Columns AO-AR)

Columns AO-AR display data relating to environmentally sensitive areas. This data was obtained from the U.S. Fish & Wildlife Service's National Wetlands Inventory, the Minnesota Pollution Control Agency, the Minnesota County Biological Survey, and the Minnesota Department of Natural Resources. This data was mapped in ArcGIS and spatially joined to the study segments.

Constructability (Column AS-AW)

Column AS displays the segments with prescriptive right of way. This information was provided by MnDOT District 4 and can be updated in this tab.

Columns AT-AV display the number of bridges, culverts, and buildings for each segment. The bridge data was obtained from MnDOT's bridge database. The culvert data was obtained from MnDOT's hydraulic infrastructure (HydInfra). The building data was collected using aerial photography. This data was mapped in ArcGIS and spatially joined to the study segments. These values are converted to a density in the evaluation tab. This information can be updated in this tab.

Column AW indicates whether or not the shoulders meet design standards. This information was provided by MnDOT District 4 and can be updated in this tab.

Functionality (Columns AX-AY)

Columns AX-AY display access density and segments with existing gaps in shoulder width. The access density was obtained from the MnDOT District Safety Plans. The shoulder gap data was developed through a review of all segments. This information can be updated in this tab.

Scoring Criteria Tab

The Scoring Criteria tab docuements the scoring thresholds used for each evaluation measure. These values can be updated and the results of the evaluation and prioritization will be updated in in the subsequent tabs.

Evaluation and Prioritization (Gray Tabs)

Evaluation Tab

The Evaluation tab displays the data from the Segment Data tab in a manner that relates to the evaluation scoring and that can be easily understood. The evaluation measures are grouped by objective. This tab links to the Segment Data tab and updates automatically.

Scoring Tab

The Scoring tab assigns a numeric score to the values in the Evaluation tab. This tab links to the Segment Data and Scoring Criteria tabs. The values in this tab do not need to be updated.

Benefit-Cost Tab

The Benefit-Cost tab calculates the benefits and costs associated with widening shoulders and displays a benefit-cost ratio for each segment. The input data for the calculations comes from the Segment Data and Calculation tabs. Any updates to this information should be made in the Segment Data tab (i.e. existing AADT, future year AADT, segment length, etc.) The benefit-cost assumptions are documented in this tab and can be updated.

Project Need Prioritization Tab

The Project Need Prioritization tab sorts the segments based on the project need objectives ranking criteria. The data is read in from the Scoring tab and weighted based on the values in cells H6:N6. The weighted values in these cells can be updated.

Project Delivery Prioritization Tab

The Project Delivery Prioritization tab sorts the segments based on the project delivery objectives ranking criteria. The data is read in from Scoring tab and weighted based on the values in cells H6:N6. The weighted values in these cells can be updated.

Benefit-Cost Prioritization Tab

The Benefit-Cost Prioritization tab sorts the segments based on benefit-cost ratio. The data is read in from the Benefit-Cost tab.

Calculations (Red Tabs)

The red tabs include all of the calculations used for the safety and mobility objectives. The calculations used as part of the evaluation include:

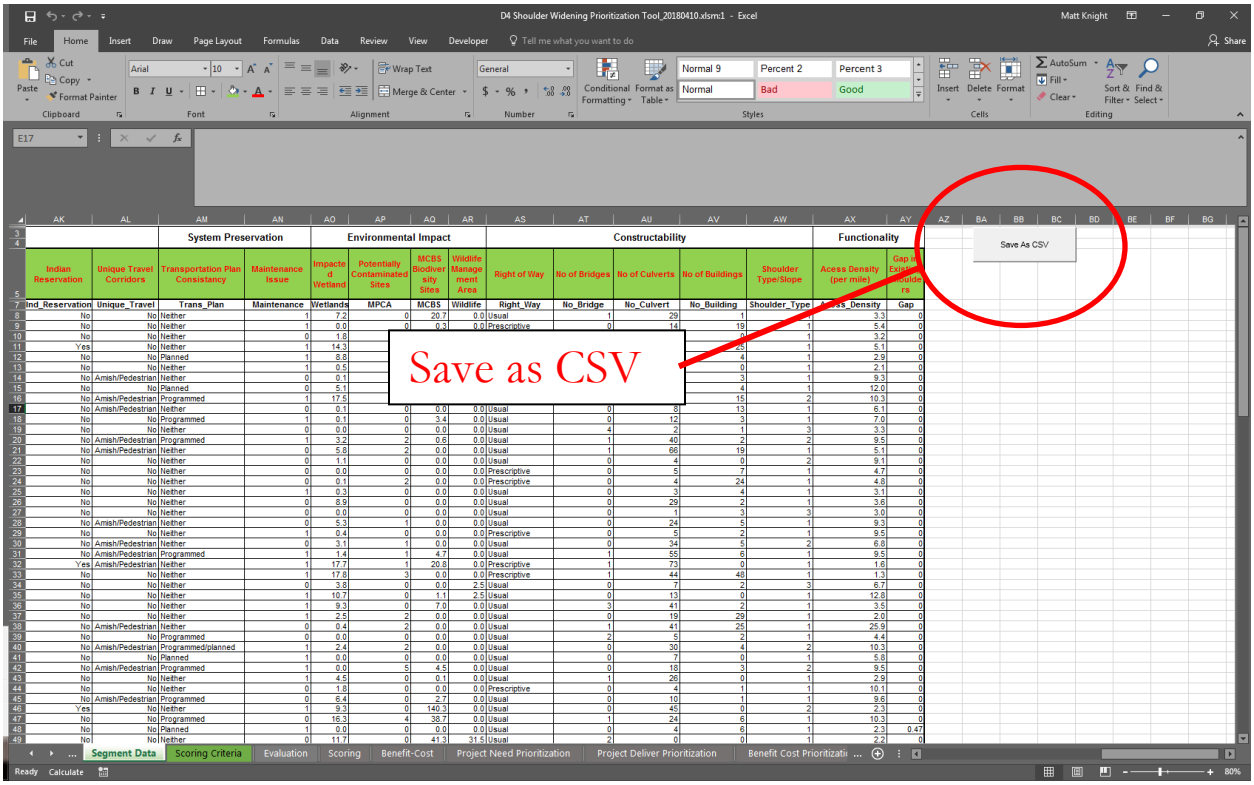
- Existing crash rates
- Future year 2045 no build and build crash rates (HSM Methodology)
- Future year 2045 projected daily traffic volumes (Trendline Analysis)
- Existing and future year 2045 level of service (HCM Methodology)

The assumptions made for these calculations are documented within each tab and can be updated. Updates to the inputs should be made in the Segment Data tab.

GIS Mapping

The data and prioritization scenarios within the tool have been formatted in a manner that can easily be mapped in ArcGIS. A macro has been created that allows the user to export the data within the Segment Data tab by clicking on the button located at the top-right corner of the table (See Figure 2).

Figure 2. Save as CSV Function



When clicked, the data is saved as a .csv file that is GIS "ready" in the same directory that the spreadsheet is located. The data can be joined to the segments in ArcGIS using the sequence number. Project Need, Project Delivery, and Benefit-Cost Prioritization data can also be mapped in ArcGIS using the sequence number.

Future Updates

The tool was designed in a manner that allows it to be updated in the future as conditions change. The columns in the Segment Data tab with a green header contain the input data that can be updated. Updates made to these inputs will carry through the subsequent tabs and the prioritization scenarios will automatically update.

The weight given to each of the evaluation criteria can also be updated as the District's needs change. This can be done within the Project Need and Project Delivery Prioritization tabs. Cells I6:O6 can be adjusted as needed.

For additional question or comments regarding the Evaluation and Prioritization tool, please contact:

Justin Knopf
MnDOT District 4
justin.knopf@state.mn.us

Leif Garnass
SRF Consulting Group, Inc.
lgarnass@srfconsulting.com

Matt Knight
SRF Consulting Group, Inc.
mknight@srfconsulting.com