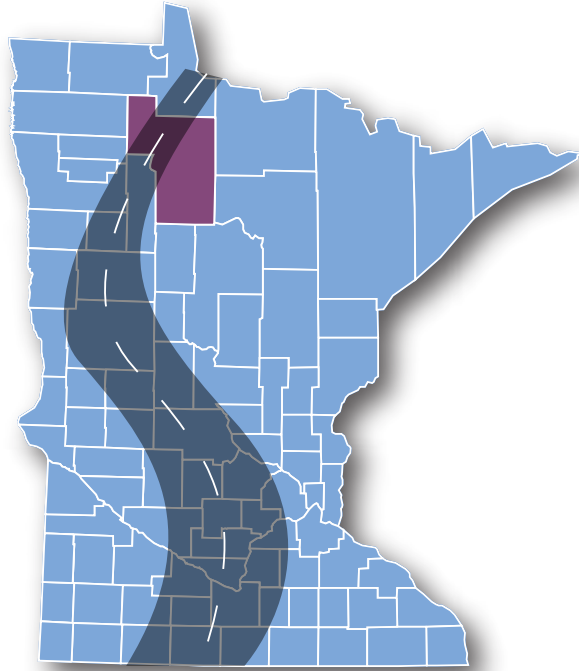


Beltrami County

COUNTY ROADWAY



Safety

PLAN

Moving Toward **ZERO** Deaths

April 2020



DEPARTMENT OF
TRANSPORTATION

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Executive Summary

This Safety Plan for Beltrami County was prepared as part of the County Road Safety Plan update process (CRSP 2). It aligns with the state's Strategic Highway Safety Plan (SHSP) and supports the state's Towards Zero Deaths (TZD) program. This safety plan was developed in a collaborative effort with county safety stakeholders to reduce severe crashes or those involving fatalities and serious injuries. This plan process utilizes a data-driven approach, documents at-risk locations, identifies effective and proven safety improvement strategies, and recommends safety projects to better position the county to compete for available federal safety funds in the Highway Safety Improvement Program (HSIP).

The first round of the County Roadway Safety Plans (CRSP 1) began in 2009 and was completed in 2014. Increased investments in local safety projects and implementation of these low-cost and high-impact safety strategies have contributed to a 22 percent reduction in the number of fatal crashes on the county system while at the same period the state system showed a 3 percent reduction in fatal crashes.

To date, nearly 85 percent of Minnesota counties have participated in HSIP with more than \$86 million in safety improvements deployed across the county system. In the 5-year period following completion of Beltrami County's initial safety plan (2013 to 2018), the County secured approximately \$3.5 million in HSIP funding to support implementation of 21 safety projects such as enhanced edgelines, shoulder rumble strips and shoulder paving, signing, chevrons in curves, street lights, and intersection dynamic warning systems.

This Beltrami County Safety Plan includes:

- Description of Safety Focus Areas (Section 3.1)
- Identification of a short list of high-priority low-cost strategies (Section 3.3)
- Candidate location for highway safety funds, which are considered at-risk location (Appendix D)
- Development of \$13.4 million recommended safety projects – these projects are actual application for HSIP funds (Appendix F)

This information is provided to Beltrami County to reduce the number of severe crashes on their highway system and it is understood that the final decision to implement any of the recommended projects resides with the Beltrami County Engineer. The County is encouraged to coordinate with MnDOT to pursue a partnership that identifies a path toward implementation for projects that involve State trunk highways and/or right-of-way. This Plan does NOT set requirements or mandates, is NOT a standard and is neither intended to be, NOR does it establish, a legal standard of care.

In an effort to help reduce the potential exposure to claims of negligence associated with motor vehicle crashes on Beltrami County's highway system, three key points should be considered:

1. Federal law (23 U.S.C. Section 409) established that information generated as part of the statewide safety planning process is considered privileged and unavailable to the public. The privileged status includes crash data, where value/detail has been added by analysts

during the safety planning process (for example; computation of crash rates, disaggregation of crashes by type or severity, documentation of contributing factors), the lists of at-risk locations, and information supporting the development and evaluation of potential safety projects. The federal law and the privileged status of the safety information was upheld by the U. S. Supreme Court in the case of *Pierce County (Washington) v. Guillen*.

2. Minnesota tort law provides for discretionary immunity for decisions made by agency officials when there is documentation of the decision and evidence of consideration of social, economic, and political issues. To help establish immunity for decisions relative to moving forward with development of recommended safety improvement projects, the County Engineer is encouraged to prepare a memorandum/plan of action for the County Board. This document would identify the projects selected for implementation and those they choose to dismiss and why.
3. Minnesota tort law also provides for official immunity for decisions made by agency staff where there is written documentation of the thought process supporting project development and implementation.

As with any transportation plan, the expected shelf life of this document is not infinite. The distribution of crashes can change over time as well as roadway and traffic conditions that can contribute to the occurrence of crashes. This Plan contains \$13 million of potential safety projects, which could provide Beltrami County with a sufficient backlog of projects for approximately 5 years. As a result, Beltrami County is encouraged to consider periodically updating this Safety Plan to continue to reduce fatalities and serious injuries on Minnesota roadways.

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Acronyms and Abbreviations

AADT	annual average daily traffic
AASHTO	American Association of State Highway and Transportation Officials
ADT	average daily traffic
ATP	Area Transportation Partnership
CR	County Road
CRSP	County Roadway Safety Plan
CSAH	county state aid highway
EV	entering vehicles
FAST	Fixing America's Surface Transportation Act
FHWA	U.S. Federal Highway Administration
HSIP	Highway Safety Improvement Program
LED	light-emitting diode
MAP-21	Moving Ahead for Progress in the 21st Century Act
MnDOT	Minnesota Department of Transportation
mph	miles per hour
MVMT	million vehicle miles traveled
NCHRP	National Cooperative Highway Research Program
NV	no value
RE + SSSD	rear end and sideswipe same direction
RCI	reduced conflict intersection
RRFB	rectangular rapid flash beacon
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SHSP	Strategic Highway Safety Plan
TZD	Toward Zero Deaths
vpd	vehicle(s) per day

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This CRSP 2 was developed in collaboration with FHWA, MnDOT Office of State Aid and Office of Traffic Engineering.

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1.0 Introduction

County safety stakeholders and the Minnesota Department of Transportation (MnDOT) have collaborated to reduce fatalities and serious injuries on local roadways to achieve Minnesota's vision of zero roadway fatalities. The first major initiative was the development of County Roadway Safety Plans (known as CRSP 1), which began in 2009 and was completed in 2014 (CH2M HILL and SRF Consulting Group, Inc., 2014). Counties began implementing the CRSP 1 recommended safety projects in 2013 and have made significant progress.

MnDOT Highway Safety Improvement Program (HSIP) managers indicated local agency participation in the HSIP program has specifically increased due to:

- CRSP 1 development and resulting safety projects
- Dedicated safety funding for safety strategies
- Technical assistance

Emphasis on local roadways and CRSP as a planning and implementation tool, have become integral to the statewide safety program. In 2016, County engineers and MnDOT initiated an update of the CRSPs (known as CRSP 2) to further reduce fatalities and serious injuries on Minnesota local roadways. CRSP 2 is more collaborative, utilizes the most current safety data, and provides a refreshed list of HSIP eligible safety projects. This CRSP 2 document outlines results of a comprehensive safety analysis that used crash data and roadway characteristics to identify the most crucial County transportation safety planning needs and associated safety treatments to reduce fatal and serious injury related crashes.

As part of this CRSP 2 development, the following tasks were completed.

- Review of all county road segments, curves, and intersections
- Data-driven review of crashes on county roadways
- Summary of safety focus areas and priority crash types
- List of recommended high priority safety strategies
- Prioritized list of locations that are most at-risk for severe crashes
- Prioritized list of recommended safety projects – specific strategies at specific locations

1.1 Background

Efforts to reduce statewide traffic fatalities and achieve Minnesota's long-term zero fatality vision requires increasing local agency involvement in the State's safety program. Local agencies are responsible for more than 90 percent of the State's roadway miles and approximately 60 percent of severe crashes (those involving a fatality or serious injury) occur on local Minnesota roads. As a result, the Minnesota's 2007 *Strategic Highway Safety Plan* (SHSP) (MnDOT, 2007) and the current 2014 SHSP identified the need to fully engage local road authorities in statewide highway safety program.

MnDOT, the U.S. Federal Highway Administration (FHWA), and Minnesota's county engineers partnered to establish the CRSP 1 initiative that developed CRSPs for all 87 Minnesota counties. This multiagency effort had two key components:

1. MnDOT dedicated approximately 50 percent of HSIP funds to support implementation of safety projects along the county roadway system. Prior to this, virtually all safety funds were used for projects along State trunk highways.
2. MnDOT provided technical assistance to all 87 counties to analyze and document the outcome of a systemwide systemic risk assessment, prioritize each county's roadway facilities, and share a list of recommended, high priority safety projects for at-risk locations.

Counties have implemented safety treatments using a variety of methods and funding sources. To date, nearly 85 percent of Minnesota counties have participated in HSIP with more than \$86 million in safety improvements deployed across the county system. The most common types of safety projects implemented were relatively low-cost and highly effective in reducing severe crashes. Examples of these countermeasures include:

- Enhanced edgelines and rumble strips along rural segments
- Chevrons in curves and street lighting
- Upgraded traffic signs and intersection markings

A further breakdown of typical safety projects implemented by Minnesota counties is shown in Table 1-1.

Table 1-1. County Implemented Safety Projects

HSIP Approved 2008-2016	No. of projects	HSIP Funding
Segments		
Edgeline Improvements	195	\$44,718,352.48
Geometrics ^a	2	\$370,000.00
Guardrails	3	\$314,820.00
Shoulder Improvements	40	\$8,844,196.90
Rumble Strips	27	\$4,697,091.00
Signing	2	\$204,705.00
Surface Improvements	1	\$288,000.00
Turn Lanes	4	\$874,500.00
<u>Total Segments</u>	<u>274</u>	<u>\$60.31 million</u>
Curves		
Chevrons	38	\$7,728,821.80
Geometrics	1	\$157,500.00
<u>Total Curves</u>	<u>39</u>	<u>\$7.89 million</u>
Intersections		
Geometrics	21	\$9,993,750.00
Lighting	33	\$4,654,055.00
Miscellaneous Improvements	5	\$1,007,068.00
Signing	21	\$2,161,464.00
<u>Total Intersections</u>	<u>80</u>	<u>\$17.82 million</u>
Totals	393	\$86.01 million

Note:

^a Geometrics refers to geometric improvements or changes such as changing a stop-controlled intersection to a roundabout or change of curve horizontal or vertical curvature.

The impact of the increased investment in local safety projects has been dramatic. While the number of fatal crashes has increased nationally, the fatal crashes in Minnesota continue to steadily decline. Since 2013, there has been an approximate 3 percent reduction of fatal crashes on the State system and a 22 percent reduction in the number of fatal crashes on the county system (Figure 1-1). This time period coincides with the completion of CRSP 1 plans and the implementation of the associated safety projects. This CRSP 2 will be instrumental in achieving continued declines in fatal and serious injury crashes.

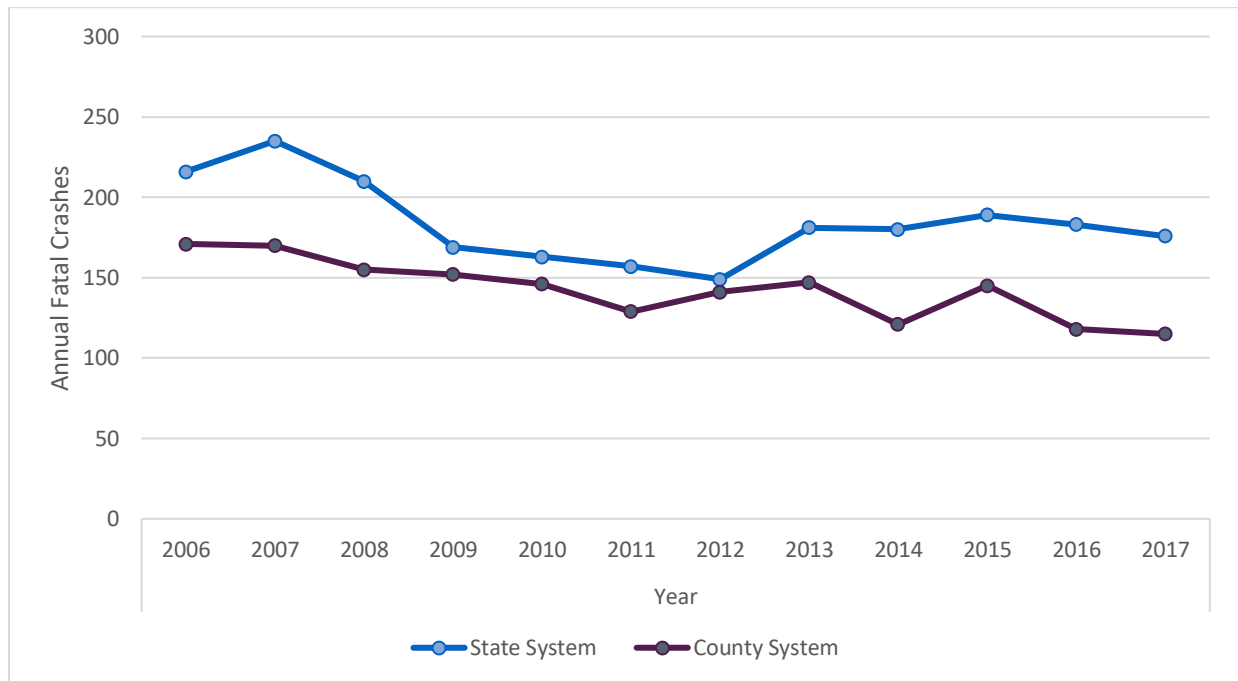


Figure 1-1. Fatal Crashes along Minnesota Roads

1.2 National Context

The HSIP is a core federal-aid program that began in 2005 with the authorization of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users or SAFETEA-LU. SAFETEA-LU required all States to develop data-driven, multidisciplinary SHSPs focused on reducing fatalities and serious injuries on all public roadways. Subsequent transportation legislation, the Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation Act (FAST), signed in 2015 and extends through 2020, continued to focus transportation funding on improving safety for all public roadways. FAST also required data-driven SHSPs, identification of system priorities, strategies and countermeasures, target setting, and evaluation of safety performance measures.

The trendline of fatalities throughout the United States and in Minnesota (Figure 1-2), indicates HSIP investments have resulted in lives saved and injuries prevented since 2005. However, traffic crashes still pose a major public health issue in the United States. In 2017, approximately 37,000 people were killed in traffic crashes; an average of 101 people killed every day (FARS, 2017).

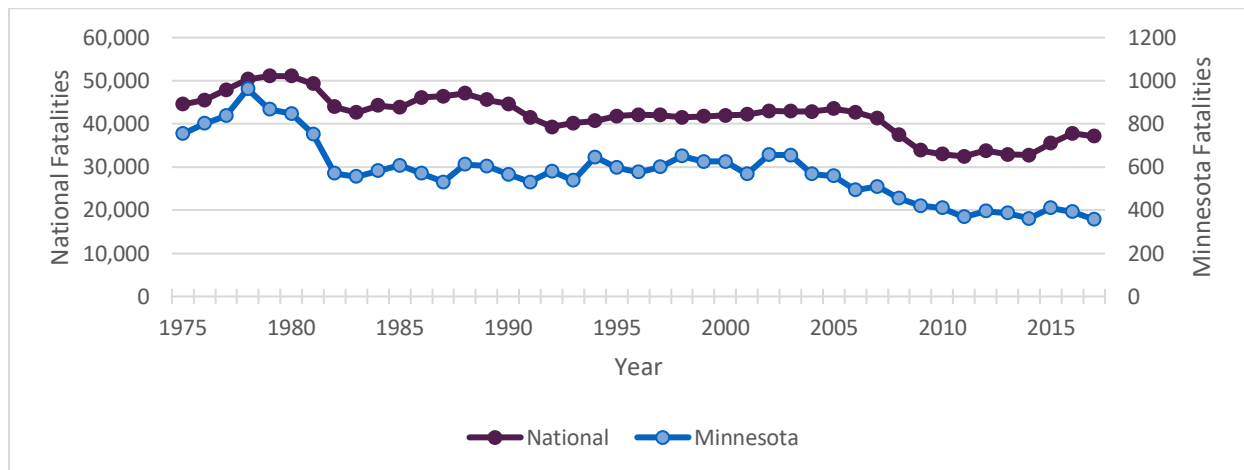


Figure 1-2. Trend in Traffic Fatalities in United States and Minnesota

Achieving greater results and realizing the vision of zero fatalities requires continuous improvements to transportation safety planning and program management. Each state may allocate their transportation and HSIP funding in the manner that addresses their unique needs. The legislative requirement to address safety on all roads is founded on two key facts:

1. Nationally, local governments own and operate almost 76 percent of all public roads (FHWA, 2019) and approximately 35 percent of traffic fatalities occur along these roads (FARS, 2017).
2. Historically, state departments of transportation manage the statewide safety programs, and, in most states, majority of safety funding has been dedicated to improvements along the state highway system.

States can only achieve significant severe crash reductions if safety on local roads is an integral part of each state's safety planning and investment efforts. In response to federal legislation, all states have accepted an oversight role for safety across all roads in the state and a number of states have dedicated a portion of their HSIP funds to local system improvements. However, only a few states have successfully integrated local agencies into statewide safety planning efforts, Minnesota being one of them.

1.3 State Context

Starting in 2007, Minnesota's SHSP highlighted the need to improve safety of all public roads, including local roads. The current SHSP (2014) continues to emphasize local roads and the plan identified 20 focus areas based on data analysis and stakeholder outreach. The top four focus areas include:

- Lane Departure (46 percent of severe crashes)
- Intersections (42 percent of severe crashes)
- Unbelted Occupants (35 percent of severe crashes)
- Impaired Roadway Users (26 percent of severe crashes)

Total severe crash percentages will be greater than 100 percent because crashes may have multiple contributing factors. For example, an impaired driver may run off the road resulting in a severe injury. In this situation, the crash would be counted as both Lane Departure and Impaired Roadway User focus areas. The SHSP also identified Minnesota's high priority infrastructure-based safety strategies and countermeasures, including:

- Lane Departure
 - Center and edge rumble strips
 - Enhanced pavement markings (6-inch edgelines and embedded markings)
 - Center buffers
 - Wider/paved shoulders
- Intersections
 - Enhanced traffic signs and markings
 - Street lights
 - Dynamic intersection warning systems
 - Roundabouts
 - Red light running enforcement assistance (confirmation lights)
 - Restricted/channelized intersections (along divided roadways)

1.4 Beltrami County – Local System Description

There are approximately 139,000 miles of roadways in Minnesota. Counties own and operate almost 45,000 miles (32 percent) of those roadways. Approximately 32,000 of these roadway miles are paved (70 percent) and the remaining 13,000 miles have a gravel surface. Statewide analysis of County roads indicated a majority of the severe crashes occurred on paved rather than gravel roadways, 90 percent and 10 percent, respectively. As a result, the focus of CRSP 2 is on paved County roads.

Figure 1-3 shows Beltrami County roads and county boundary. The Beltrami County Highway Department in Minnesota is responsible for maintenance and management of a system that includes (full lists of analyzed locations including segments, intersections, and curves can be found in Appendix A):

- 715 total miles of county roads, of which 407 miles have a paved surface and 308 miles have a gravel surface
- 464 miles of county state-aid highways (CSAH) roadways, which are eligible for direct State Trunk Highway funding
- 251 miles of county roads
- 32 miles of unorganized township roads
- 124 bridges in the County and township system
- 1,057 intersections: county highways/roads intersecting with state highways, other county roads, city streets, and township roads
- 596 horizontal curves

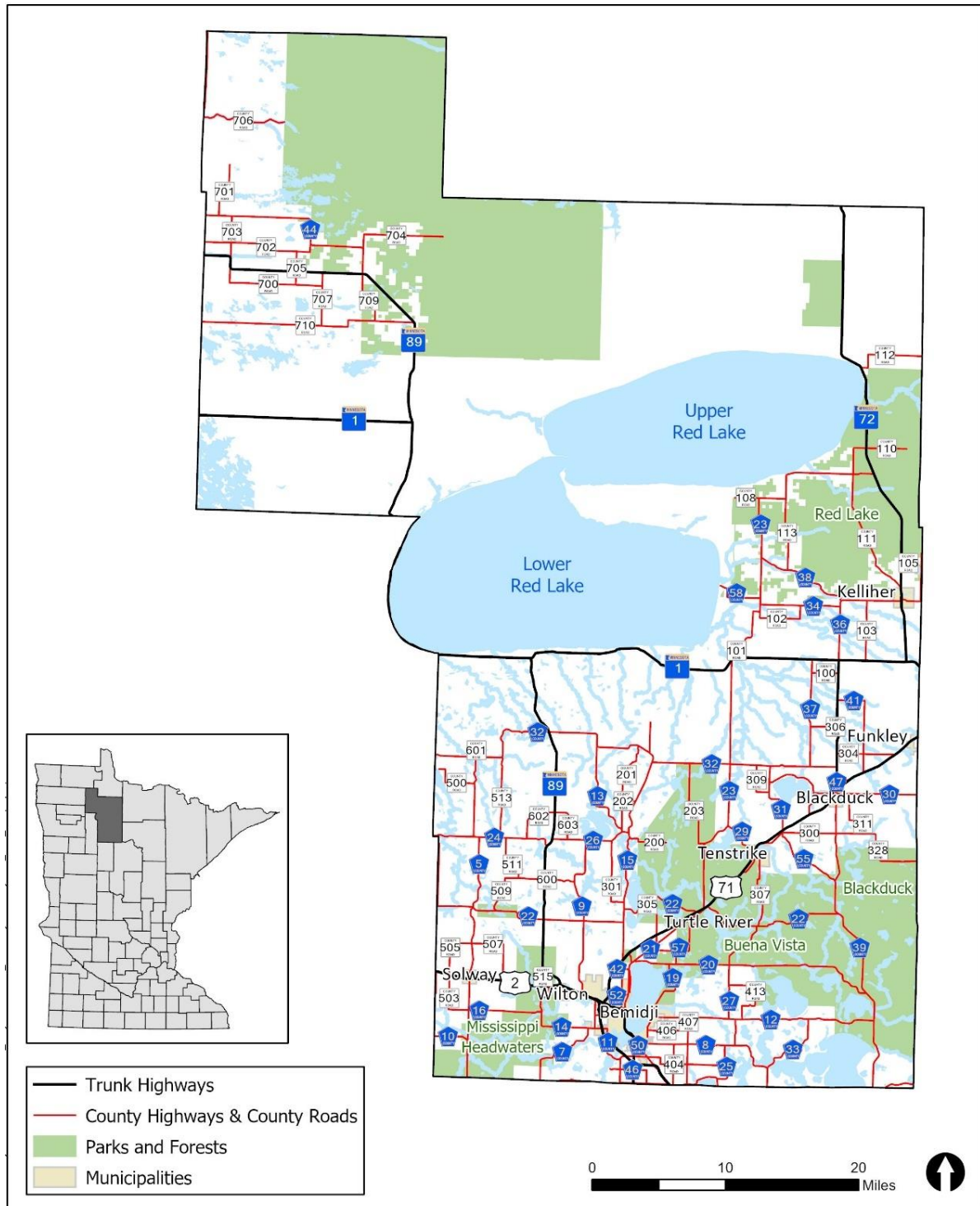


Figure 1-3. Beltrami County Map

In the 5-year period following completion of Beltrami County's initial safety plan (2013 to 2017), the County secured approximately \$3.5 million in HSIP funding to support implementation of 21 safety projects along roadway segments, curves, and intersections (Table 1-2). These safety projects included enhanced edgelines, shoulder rumble strips and shoulder paving, signing, chevrons in curves, street lights, and intersection dynamic warning systems.

Table 1-2. Beltrami County Highway Safety Improvement Program Overview

Project Description	No. of Projects	Project Cost
<i>Segments</i>		
Enhanced Edgelines	6	\$740,000
Shoulder Rumble Strips	2	\$958,000
Shoulder Paving	7	\$742,000
Sign Installation	1	\$99,000
<i>Total Segments</i>	<i>16</i>	<i>\$2.54 million</i>
<i>Curves</i>		
Chevron Installation	1	\$632,000
<i>Total Curves</i>	<i>1</i>	<i>\$632,000</i>
<i>Intersections</i>		
Street Lighting	2	\$202,000
Dynamic Warning System	2	\$114,000
<i>Total Intersections</i>	<i>4</i>	<i>\$316,000</i>
<i>Total Projects</i>	<i>21</i>	<i>\$3.49 million</i>

2.0 Approach

CRSP 2 aligns with the Minnesota SHSP and supports the TZD statewide target of fewer than 300 traffic fatalities and 850 serious injuries by the year 2020.

In recognition of the TZD Program, Beltrami County identified the following goals for this update:

- Provide the basis for a shared understanding of the approach used to analyze and address safety on Beltrami County's roadway system
- Provide improved understanding of the effectiveness (at reducing crashes) of safety and maintenance strategies
- Document a prioritized list of HSIP-eligible projects and safety-related maintenance activities
- Document safety issues in Beltrami County's small cities and townships
- Provide information to increase understanding of pedestrian safety issues
- Conduct a data-driven safety analysis of the county's roadway system
- Identify and prioritize candidate locations for safety investment
- Develop safety projects – with specific strategies at specific locations

The CRSP 1 and CRSP 2 approach has been to work closely with county safety stakeholders to establish program goals and develop a collaborative, data-driven plan along with safety treatments at appropriate locations to direct the local safety program. This was accomplished through data analysis, identification of safety emphasis areas, development of a comprehensive list of safety strategies, coordination with safety stakeholders through meetings and workshops, narrow the list of strategies to county specific strategies, identify safety projects and develop the safety plan. Workshop and meeting summaries can be found in Appendix B. This section of the plan discusses the project approach in more detail.

2.1 Proactive Systemic Safety Analysis

From the beginning of the Federal highway safety program in the 1970s, the primary method for conducting a safety analysis largely involved a reactive approach by searching along highway systems for high-crash locations. A corridor segment or intersection is generally considered a high-crash location if the severe crash rate exceeds the severe critical crash rate. Using this methodology was a barrier to local systems participating in the statewide safety program because no locations along the local roadway systems met the high-crash definition. As a result, almost all safety investments were made along the state's system of trunk highways.

Minnesota's 2007 SHSP prioritized increasing the level of local highway agency involvement in statewide safety planning efforts (MnDOT, 2007). Following adoption of the SHSP, MnDOT and Minnesota's county engineers developed a new safety analysis process to supplement the high-crash location search. This systemic risk assessment, which uses a data-driven process, looked at crash patterns to determine high-risk locations that would be safety investment candidates. The five key steps in the CRSP systemic process include:

1. Conduct a crash analysis that includes reviewing each of the approximate 2,500 statewide locations along the county roadway system where severe (fatal + serious injury) crashes occurred during a 5-year study period (2011 to 2015).
2. Identify roadway and traffic characteristics common at locations with severe crashes.
3. Adopt a list of risk factors that show locations with a specific risk factor and a higher density (number of severe crashes per mile, curve, or intersection per year) of crashes rather than locations that don't contain this risk factor.
4. Conduct a census of each county system of roadway segments, curves, and intersections and record the number of risk factors at each location.
5. Prioritize the county roadway system for safety investment based on the number of risk factors at each location. The greater the number of risk factors, the greater the risk of a severe crash and, therefore, the higher the priority the candidate location is for safety investment.

This systemic risk analysis was conducted across all 87 counties as part of the CRSP 1 efforts. At the end of that project, a final review concluded that the new process was successful. More than \$300 million in low-cost safety improvements along the county system were identified and over \$86 million of HSIP-funded CRSP safety projects were implemented in CRSP programs.

Successful CRSP project implementation led the FHWA to approve and adopt this systemic risk analysis technique as a model for their own, national, data-driven safety analysis initiative. Most significantly, the systemic approach allowed agencies to move from a reactive approach of addressing severe crashes to a proactive approach of deploying safety projects at high priority at-risk locations.

Based on success in the CRSP 1 effort, this CRSP 2 systemic risk analysis follows the same five key steps used in the CRSP 1 effort.

2.2 Safety Workshop

In addition to the technical analysis, an integral part of CRSP 2 included holding a safety workshop. Beltrami County's workshop was held on August 8, 2017 at the County Administration Building (refer to Appendix C for details). This workshop was attended by 24 of the county's safety partners representing engineering, enforcement, education, and emergency response.

CRSP Project Team Primary workshop goals included creating a shared understanding of the technical approach to updating the CRSP, having participants identify what they consider important themes to advance road safety in Beltrami County, and providing feedback to help the County prioritize infrastructure safety strategies. Figure 2-1 shows the participants at the Beltrami County Safety Workshop.



Figure 2-1. Beltrami County Safety Workshop

During the workshop, the CRSP 2 Project Team outlined the technical approach and described key parts of the data-driven analytical process, including the proactive systemic risk evaluation, and provided an overview of the county system crash data. Participants in the workshop identified key safety themes, including:

- Educating participants about safety strategies, emphasizing that not all strategies are equally effective at reducing crashes
- Understanding challenges faced by enforcement – specifically the increase in impaired driving associated with drugs (as opposed to alcohol) and Inattentive/Distracted Driving
- Increasing outreach efforts to small cities and townships to share information about Beltrami County's roadway safety priorities
- Enhancing pedestrian safety strategies by adding sidewalks and trails in key locations
- Reinvigorating a Beltrami County safe community coalition

Finally, a voting exercise was conducted that provided workshop participants an opportunity to indicate their support for a variety of infrastructure-based safety strategies. The intended use of the results was to either provide additional context as to why certain strategies may be better than others, proven effective versus tried strategies, or to confirm that the strategies are proactive and proven effective at mitigating severe crashes based on national research. Workshop materials are included in Appendix C. The strategies receiving the most support included:

- Installing roundabouts at both rural and urban intersections (instead of traffic signals)
- Installing street lighting at rural intersections
- Adding chevron warning signs in rural curves
- Improving road edges (enhanced pavement markings, edge rumble strips, and shoulder paving) and roadsides (providing clear areas by removing obstacles)

3.0 Crash Analysis

The CRSP 2 is based on a data-driven analytical process to identify optimal safety investment candidates. A data-driven process is necessary, so all crash types and roadway facilities are not mistakenly considered equal candidates for safety projects. However, prior studies show that while crashes involving fatalities and serious injuries are widely scattered across Minnesota's local system of roads (an average of 0.006 severe crashes per mile per year), these crashes are neither uniformly nor randomly scattered. As a result, analysis of crash data and roadway system characteristics are necessary to support prioritization, which is an integral part of the strategic safety planning process.

The level of statewide safety funding is not sufficient to support wide deployment of projects that address all crash types. Therefore, states are encouraged to adopt a short list of safety focus areas among the categories that include the greatest number of severe crashes. Focusing safety investment on the top-ranked focus areas is likely to result in the greatest opportunity for crash reduction derived from a data-driven analytical process. This process involved three steps:

1. Disaggregate crash types into categories (focus areas) defined by FHWA, then rank each category based on the number of crashes that involve fatalities and serious injuries (severe crashes).
2. Identify the types of roadway facilities at which the priority crash types occur in the greatest numbers.
3. Identify high priority safety countermeasures/strategies linked to the specific crash types.

3.1 Safety Focus Areas

Consistent with FHWA guidance, Minnesota adopted the number of fatal and serious injury (severe crashes) vehicle related crashes as the safety performance measure underlying development of the CRSP 2. Crash data from the 5-year period 2011 through 2015 were assembled, analyzed, and disaggregated into 20 safety focus areas. In addition to disaggregating by safety focus area, severe crashes were also disaggregated by state highways versus county roadways. This 2011 to 2015 timeframe was selected as the study period since Minnesota's new crash records system was not populated with enough years of more recent data at the onset of this update effort to support a 5-year study period.

Based on statewide data analysis, the most frequent contributing factors for severe crashes are given priority in Minnesota's SHSP (MnDOT, 2014) as Safety Focus Areas, which are shown in Figure 3-1. The colors of the target also correspond with the colors in Table 3-1, which will be discussed shortly.



Figure 3-1. Focus Area Priorities

The analysis reviewed statewide crash data across all systems. Crashes that occurred along the County jurisdiction was disaggregated by the state, Area Transportation Partnership (ATP) and county levels also including Greater Minnesota Area and Metro areas. Table 3-1 shows crashes at the statewide level and within the Greater Minnesota Area and Metro areas for all systems and county system only. Table 3-2 shows the same crashes but for ATP 2 and for Beltrami County.

Assigning crashes to the safety focus areas often involves double or triple counting because the number of severe crashes documented is greater than the actual number of crashes across the state and county systems. Multiple counting is the result from a crash potentially having many contributing factors. An example could be a single severe crash involving an unbelted, older driver at an intersection. This crash would include driver behavior of unbelted and the older driver safety focus areas. Therefore, the actual number of crashes across the state and county systems may be lower than the total number of crashes when broken down by safety focus areas.

Figure 3-2 shows the various ATPs throughout the state. The analysis relied on statewide and district level crash trends because in most cases, the total number of severe crashes that occur in a 5-year timeframe within a single county, is too small and would not be considered statistically reliable. To have a statistically reliable dataset at any level, a minimum of 500 crashes is required (Minnesota Local Road Research Board, 1998).

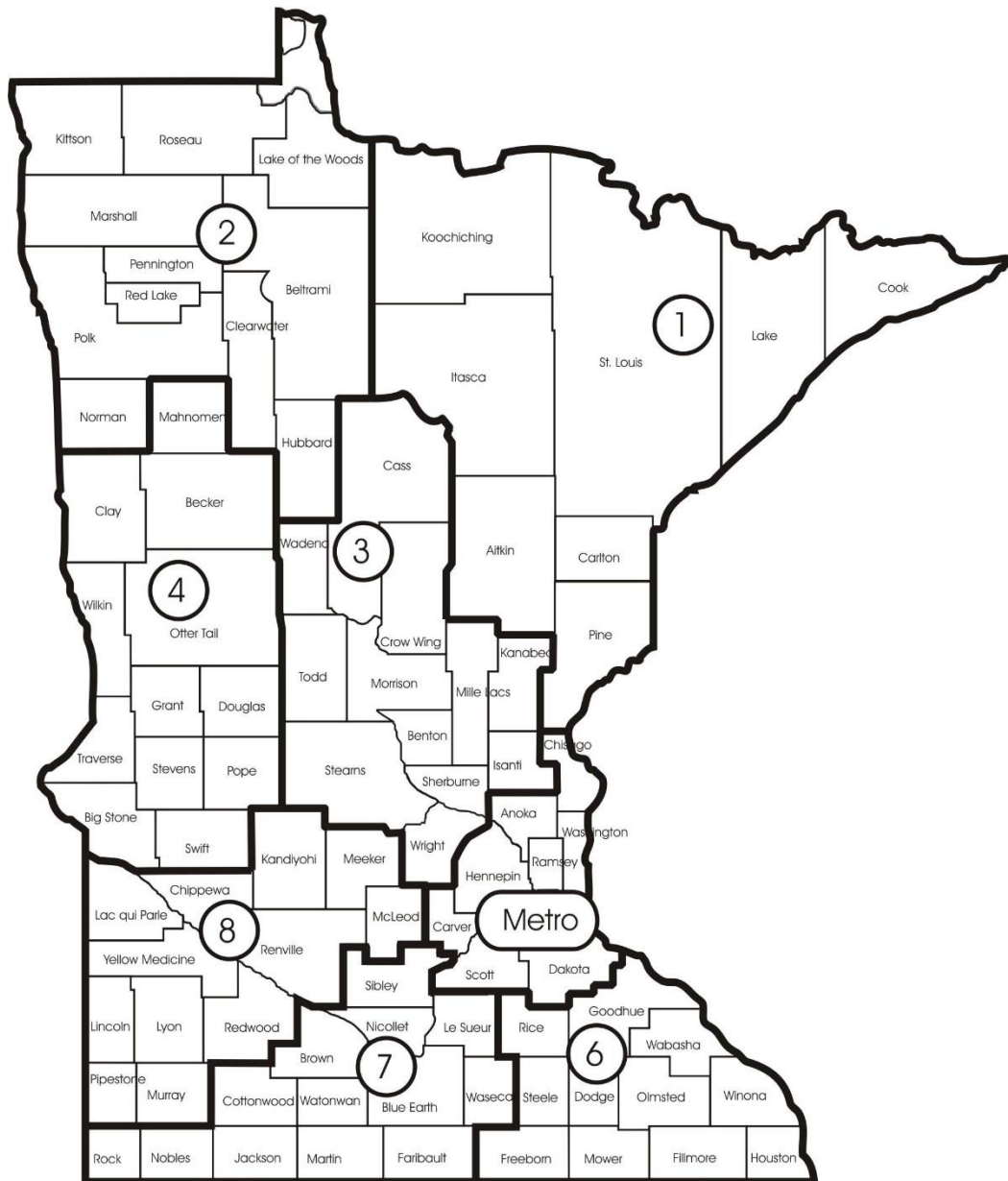


Figure 3-2. Minnesota's Eight Area Transportation Partnerships

Results of the analysis were consistent among Greater Minnesota, ATP 2, and Beltrami County and support adoption of the following infrastructure-based safety focus areas:

- Lane Departure (run-off-road and head-on)
- Intersections
- Non-motorized (pedestrians/bicyclists)

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Table 3-1. Minnesota Crash Focus Areas

Focus Area ^a	Statewide All Systems	Statewide All Systems	Statewide County System ^b	Statewide County System ^b	Greater Minnesota All Systems	Greater Minnesota All Systems	Greater Minnesota County System	Greater Minnesota County System	Metro All Systems	Metro All Systems	Metro County System	Metro County System
Total Severe Crashes ^c	6,512	100%	2,516	100%	3,896	100%	1,486	100%	2,616	100%	1,030	100%
Lane Departure	2,931	45%	1,234	49%	2,037	52%	886	60%	894	34%	348	34%
Run-Off-Road	1,872	29%	858	34%	1,420	36%	703	47%	452	17%	155	15%
Head-On ^d	1,059	16%	376	15%	617	16%	183	12%	442	17%	193	19%
Intersection	2,647	41%	1,069	42%	1,364	35%	475	32%	1,283	49%	594	58%
Speed	1,190	18%	440	17%	763	20%	306	21%	427	16%	134	13%
Inattentive/Distracted Driver	1,209	19%	417	17%	747	19%	253	17%	462	18%	164	16%
Unbelted	2,223	34%	910	36%	1,558	40%	652	44%	665	25%	258	25%
Impaired	1,404	22%	591	23%	933	24%	410	28%	471	18%	181	18%
Motorcycle	1,156	18%	514	20%	642	16%	309	21%	514	20%	205	20%
Older	1,085	17%	364	14%	723	19%	211	14%	362	14%	153	15%
Younger	1,086	17%	425	17%	689	18%	259	17%	397	15%	166	16%
Pedestrian ^e	657	10%	224	9%	213	5%	51	3%	444	17%	173	17%
Bicyclist	270	4%	98	4%	87	2%	27	2%	183	7%	71	7%
Unlicensed	663	10%	227	9%	354	9%	123	8%	309	12%	104	10%
Work Zone	98	2%	26	1%	46	1%	13	1%	52	2%	13	1%
Commercial Vehicles	638	10%	168	7%	440	11%	103	7%	198	8%	65	6%
Trains	31	<1%	11	<1%	29	1%	11	1%	2	<1%	0	0%
Deer/Animal	135	2%	72	3%	117	3%	59	4%	18	1%	13	1%
Winter Weather	747	11%	267	11%	539	14%	178	12%	208	8%	89	9%

Notes:

^a Focus-area definitions are consistent with those from the 2014-2019 Minnesota SHSP unless otherwise noted.

^b Identified via crash report attribute 'Route System' values 4 and 7.

^c Source: MnDOT Crash Database, retrieved November 22, 2016; Fatal + Incapacitating Injury, 2011-2015

^d Includes sideswipe opposite direction omits deer/animal.

^e Includes crashes with the 'Accident Type' attribute value 7.

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Table 3-2. Beltrami County Crash Focus Areas

Focus Area ^a	District 2 All Systems	District 2 All Systems	District 2 County System ^b	District 2 County System ^b	Beltrami County All Systems	Beltrami County All Systems	Beltrami County County System	Beltrami County County System
Total Severe Crashes ^c	300	100%	110	100%	78	100%	26	100%
Lane Departure	170	57%	69	63%	42	54%	14	54%
Run-Off-Road	117	39%	55	50%	28	36%	10	38%
Head-On ^d	53	18%	14	13%	14	18%	4	15%
Intersection	90	30%	25	23%	19	24%	6	23%
Speed	52	17%	21	19%	14	18%	6	23%
Inattentive/Distracted Driver	54	18%	12	11%	14	18%	3	12%
Unbelted	141	47%	54	49%	31	40%	11	42%
Impaired	89	30%	41	37%	32	41%	15	58%
Motorcycle	28	9%	18	16%	4	5%	3	12%
Older	52	17%	13	12%	13	17%	2	8%
Younger	56	19%	20	18%	19	24%	9	35%
Pedestrian ^e	9	3%	4	4%	6	8%	3	12%
Bicyclist	8	3%	2	2%	1	1%	1	4%
Unlicensed	34	11%	9	8%	10	13%	2	8%
Work Zone	2	1%	1	1%	0	0%	0	0%
Commercial Vehicles	35	12%	5	5%	5	6%	1	4%
Trains	2	1%	1	1%	0	0%	0	0%
Deer/Animal	10	3%	6	5%	1	1%	1	4%
Winter Weather	46	15%	15	14%	13	17%	3	12%

Notes:

^a Focus-area definitions are consistent with those from the 2014-2019 Minnesota SHSP unless otherwise noted.

^b Identified via crash report attribute 'Route System' values 4 and 7.

^c Source: MnDOT Crash Database, retrieved November 22, 2016; Fatal + Incapacitating Injury, 2011-2015

^d Includes sideswipe opposite direction omits deer/animal.

^e Includes crashes with the 'Accident Type' attribute value 7.

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3.2 Roadway Facilities

As part of the data-driven prioritization process, crash trees were developed using statewide (Figure 3-3) and Beltrami County (Figure 3-4) data to document a disaggregation by state versus local systems, by rural versus urban areas, and by roadway segment versus intersection related crashes.

A statewide crash tree was developed because the results would not meet the threshold to be considered statistically significant since there were five severe crashes per year on Beltrami County only roadways. The percentages associated with the various disaggregation between statewide and county values varied slightly, the key takeaways were the same and suggest the following priorities for Beltrami County:

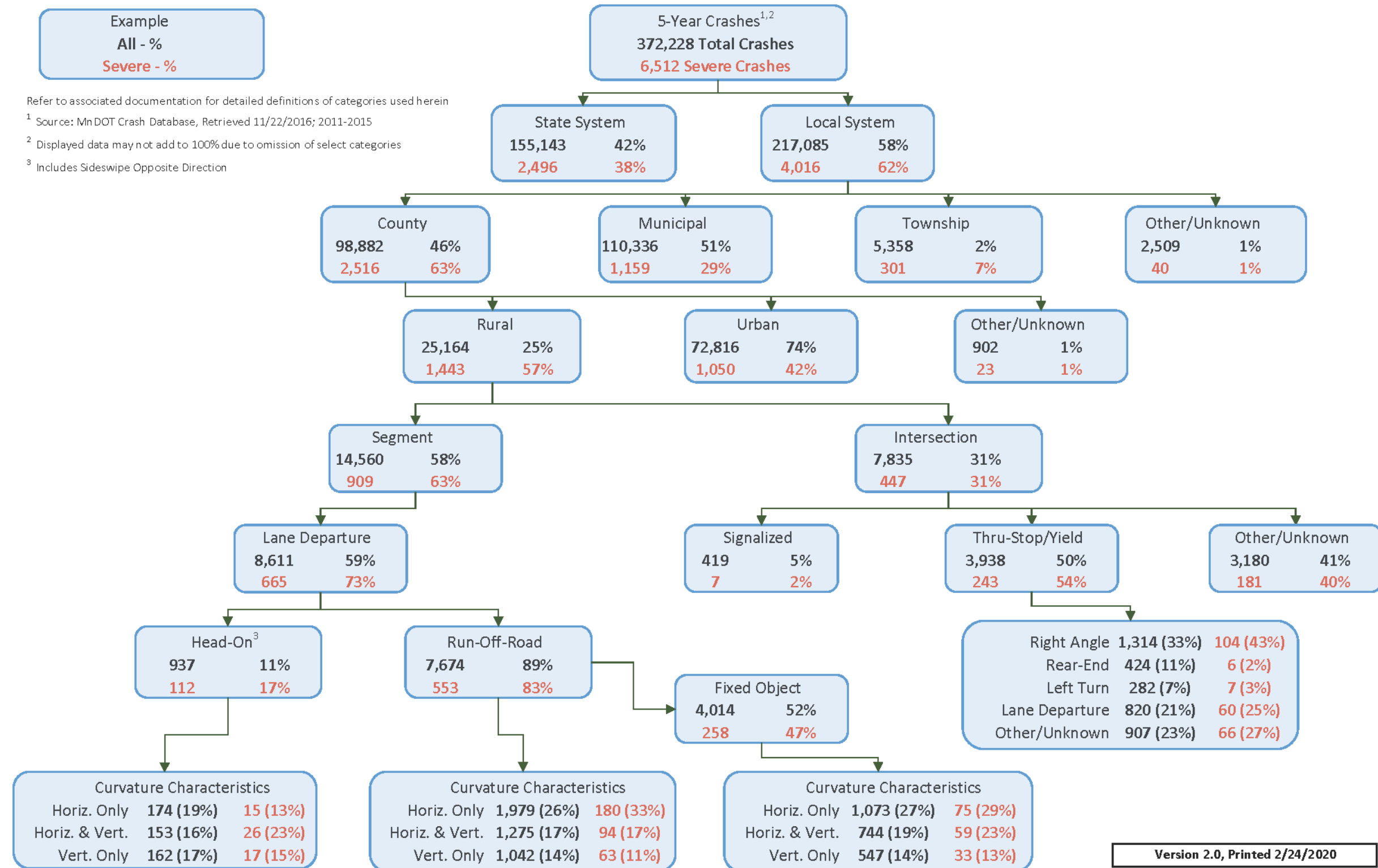
- Rural roadways (96 percent of severe crashes)
- Lane Departure crashes along segments (65 percent), including both single-vehicle run-off-road (82 percent) and multi-vehicle head-on (18 percent)
- Lane Departure crashes in curves (72 percent)
- Right-angle crashes at through/stop controlled rural Intersections

The four bullets above are shown visually in Beltrami County's rural crash tree. Ninety-six percent of the severe crashes in a rural environment is found in the fourth row, first box from the left, titled Rural. Following the tree down to the segment box shows 68 percent of severe crashes and stepping down twice below the Lane Departure box shows that "Run-Off-Road severe crashes comprise 82 percent of Lane Departure and the other 18 percent were identified in the Head-On box. For Lane Departure crashes in curves, the 72 percent is calculated by adding up severe crashes in the Curvature Characteristics boxes for horizontal and/or vertical curvature related divided by the total number of Lane Departure crashes.

Additional analysis of severe crashes was conducted to help focus attention on the portion of county roadway system at higher risk. This analysis concluded that paved county roadways across the state account for approximately 70 percent of roadway miles but around 94 percent of severe crashes. Paved county roadways also have a crash density (0.02 severe crashes per mile per year) that is 10 times higher than the crash density on gravel roads. This information supports the focus of the analytical process on paved county roadways. The severe crash over-representation along paved county roads also has been documented in North Dakota, South Dakota, and Iowa. The proportion of paved versus gravel roads and the distribution of severe crashes varies from state to state, but the trend is the same in each case, with severe crashes overrepresented along paved county roadways.

Detailed analysis of severe crashes was also extended to rural county roadway intersections. Based on a sample of over 11,000 rural intersections (all Phase 1 counties), county roadway intersections with state highways and other county roadways accounted for 36 percent of intersections but 72 percent of severe crashes. County roadway intersections with township roads accounted for 64 percent of intersections but only 28 percent of severe crashes. County roadway intersections with state highways and other county roadways also have a crash density (0.03 severe crashes per intersection per year) that is 5 times higher than at county roadway intersections with township roads. This information supports the decision to focus the remainder of the analytical process on county roadway intersections with state highways and other county roadways.

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Figure 3-3. Minnesota Statewide Crash Tree - County Rural System

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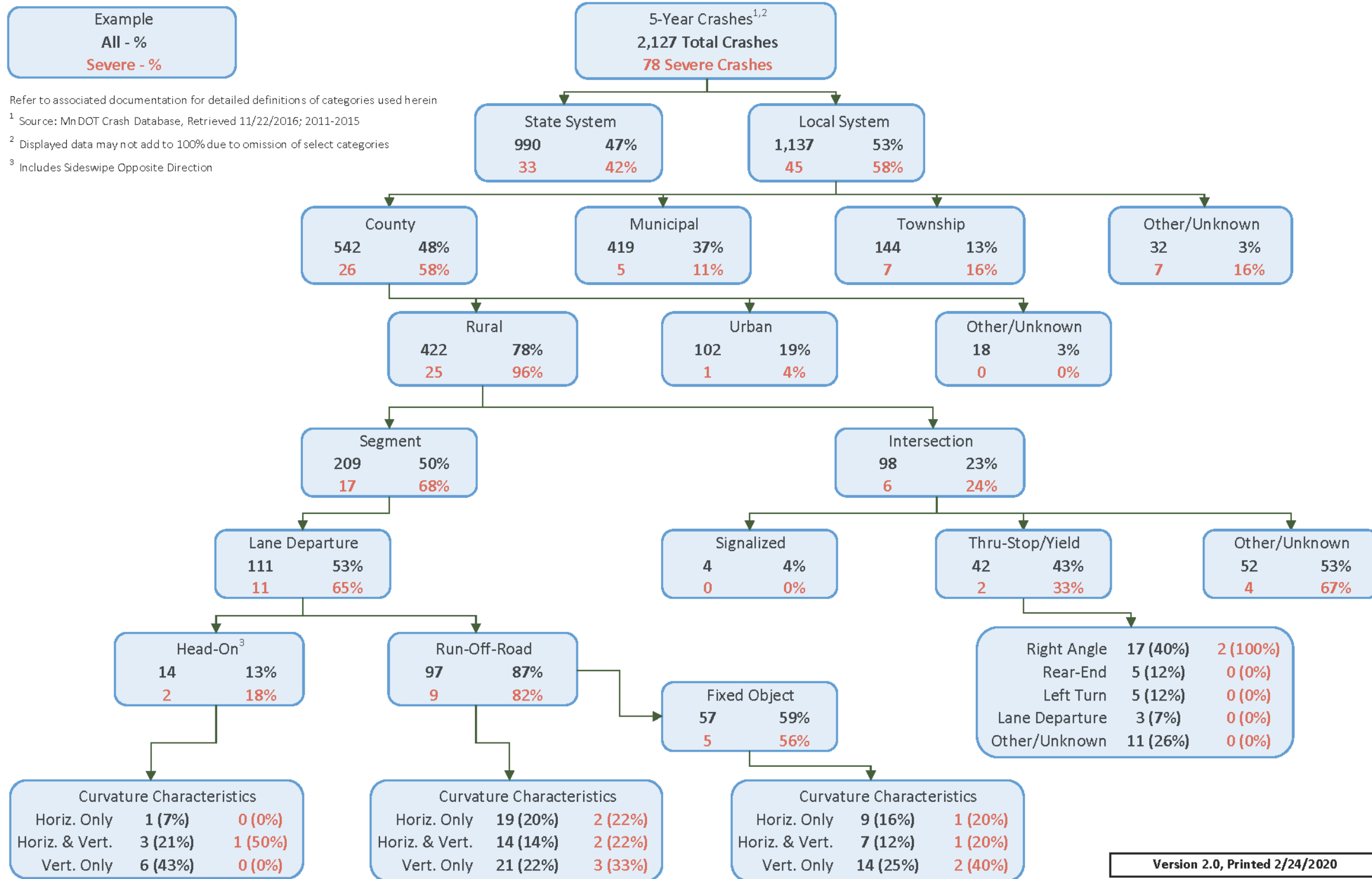


Figure 3-4. Beltrami County Crash Tree – County Rural System

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3.3 Safety Strategies and Countermeasures

Adoption of the Lane Departure, Intersections, and Non-motorized safety focus areas began the process for determining appropriate safety strategies. Several safety research reports were reviewed, including:

- National Cooperative Highway Research Program's (NCHRP's) Report 500 Series (2003-2009)
- FHWA's Crash Modification Factor Clearinghouse (2014)
- American Association of State Highway and Transportation Officials' (AASHTO's) Highway Safety Manual (2010)

Following the review, priority was given to adopted safety focus areas to reduce the number of potential infrastructure-related safety strategies from more than 100 to around 60. From there, Beltrami County screened the list of strategies based on factors such as proven effectiveness (to reduce severe crashes), implementation cost, consistency with Minnesota's SHSP priorities, probability of being supported by HSIP funding, prior experience and acceptance in Beltrami County, and safety partner input. This process resulted in selection of the 42 priority safety strategies listed below for use in the subsequent safety project development exercise.

- Rural Segments
 - Center Rumble Strip (Including New Mumble Design – Figure 3-5)
 - Shoulder/Edgeline Rumble Strip
 - Buffers Between Opposing Lanes (Figure 3-6)
 - Safety Edge
 - Enhanced Edgeline (6" & 8")
 - Shoulder Paving (2', 4', and 6')
 - Clear Zone Maintenance/Enhancements
 - Ditch/Embankment Improvements
- Rural Curves
 - Chevrons (Figure 3-7)
 - Delineators
 - Dynamic Curve Signing
 - Lighting
 - Clear Zone Maintenance/Enhancements
 - Reconstruct TT Intersections to Single-T Intersection

- Rural Intersections
 - Upgrade Signs and Pavement Markings
 - Street Lights (and approaches - Figure 3-8)
 - All-Way Stop/Yield
 - Light-emitting Diode (LED) Stop Signs (Figure 3-9)
 - Reduced Conflict Intersection (RCI) (Figure 3-13)
 - Rural Intersection Conflict Warning System (RICWS)
 - Offset T-Intersection (Convert 4-legged intersection to 2 3-legged intersection)
 - Roundabout
 - Turn Lanes (Offset, Channelized)
 - Continuous Green T (Signalized)
 - Remove Skew
- Urban Segments
 - Access Management
 - Bike Lane/Boulevard
 - Urbanization (make it feel urban)
 - Dynamic Speed Feedback Sign (Figure 3-11)
- Urban Intersections
 - Signalized RCIs
 - Confirmation Lights (Figure 3-10)
 - Traffic Enforcement Cameras
 - Pedestrian Countdown Timers
 - Leading Pedestrian Intervals
 - Curb Extensions
 - Center Island Medians (Pedestrian Refuge Island– Figure 3-12)
 - Roundabout (including Mini Roundabout – Figure 3-14)
 - Urbanization (make it feel urban)
 - Rectangular Rapid Flash Beacon (RRFB)
 - High-Intensity Activated Crosswalk Beacon (HAWK - Figure 3-15)
 - Flashing Yellow Arrow (FYA)
 - Turn Lanes (Offset, Channelized)

After reducing the number of safety strategies to these shown, data analysis of the roadway network continued to identify the prioritized locations and correlate the appropriate treatments to develop effective recommended projects.



Figure 3-5. Mumble Strip Design – Traditional versus Mumble Strips
Wave-shaped design produced less external noise than MnDOT's current design

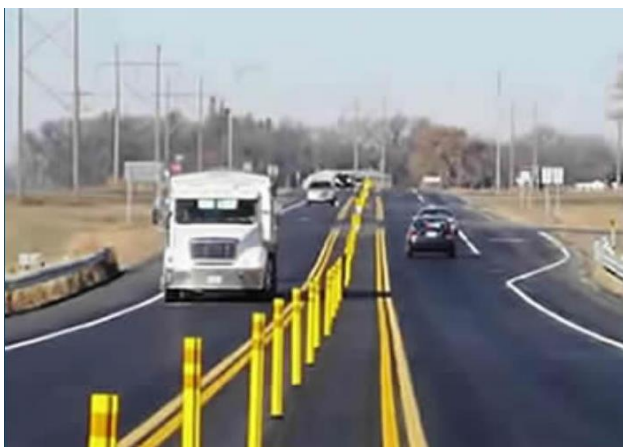


Figure 3-6. Buffers Between Opposing Lanes



Figure 3-7. Chevrons



Figure 3-8. Street Light



Figure 3-9. Light-emitting Diode Stop Sign



Figure 3-10. Confirmation Light



Figure 3-11. Dynamic Speed Feedback Sign



Figure 3-12. Center Island Medians (Pedestrian Refuge Island)

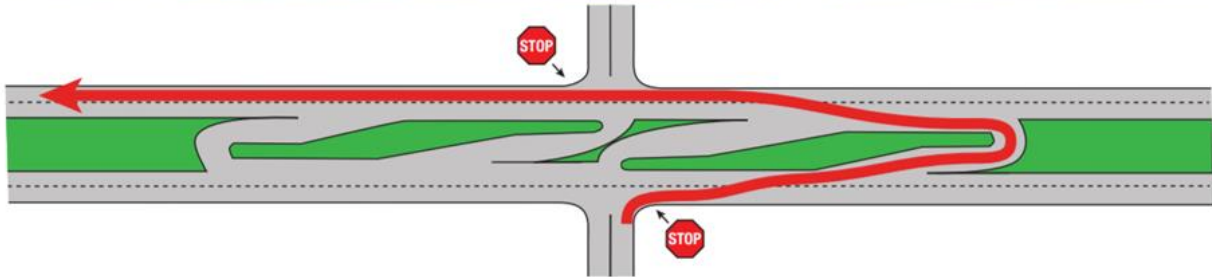


Figure 3-13. Reduced Conflict Intersections (RCI)



Figure 3-14. Mini Roundabout



Figure 3-15. High-Intensity Activated Crosswalk Beacon (HAWK) or Pedestrian Hybrid Beacon (PHB)

4.0 System Evaluation

The analytical approach that underlies CRSP 2 is a proactive systemic safety evaluation that identifies, evaluates, and prioritizes roadway safety deficiencies based on crash risk.

Prior to undertaking Minnesota CRSPs, the traditional method supporting safety project development for HSIP in Minnesota involved searching across the state's highway system for intersections and roadway segments with multiple crashes – considered high-crash locations. Around the time that MnDOT adopted increasing local agency involvement in the HSIP, they also recognized that reliance on the high-crash method of analysis presented two major problems. First, the method was entirely reactive – crashes had to occur before any safety investments could be made. This resulted in the public asking agencies after a severe crash occurred – “How many people have to die before something is done?” Under this high-crash analytical method, crashes had to occur and be counted prior to making safety improvements.

Experience suggested that when using the high-crash methodology there were only a few locations across Minnesota's expansive local system that would qualify as a high-crash location. Relying on this method alone was a barrier to deploying safety improvement projects along local systems.

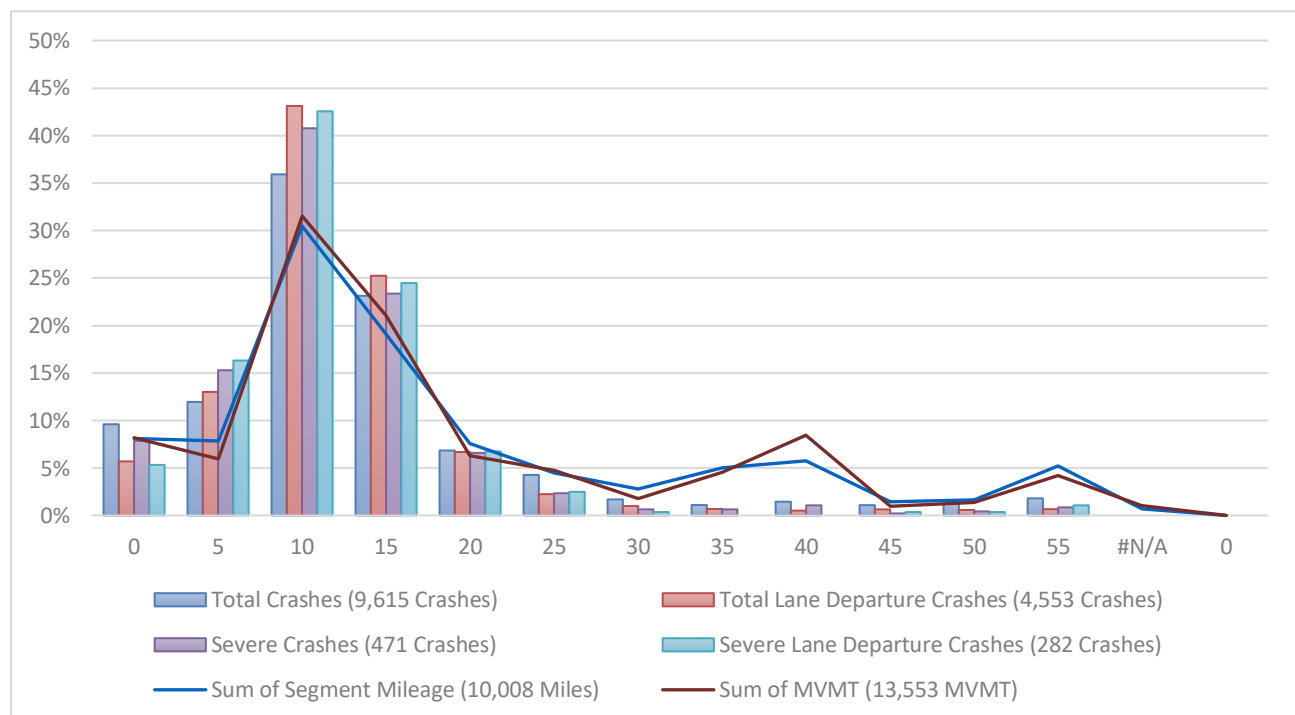
The solution to these problems was development of a new safety analysis approach – the proactive systemic method that resulted from collaboration between MnDOT and the counties. The underlying premise for this systemic process is that severe crashes along the county roadway system are infrequent and widely scattered – 0.01 severe crashes per year per mile across the 45,000-mile county system. However, the expectation was that these severe crashes were neither uniformly nor randomly scattered and that a set of roadway characteristics could be found at severe crash locations that could help predict where crashes were most likely to occur at future locations.

The systemic process used for CRSP 2 was refined from the CRSP 1 effort. While both analyses consisted of reviewing basic roadway and traffic characteristics along the county system that documented severe crashes, CRSP 2 increased the total number of data elements collected as well as expanded the detail of prior data elements across segments, intersections and curves. For example, the data element “Alignment Skew” in CRSP 1 had a binary option (yes/no) however data analysts for CRSP 2 data collection efforts measured the actual angle of skew to the nearest five degrees. In total, there were 79 unique data elements collected for the CRSP 1 effort for segments, intersections, and curves in rural and urban areas. There was an approximate 50 percent increase (117) in the total number of data elements that were collected for CRSP 2. This additional detail resulted in the generation of more risk factors through a crash frequency analysis leading to a more comprehensive prioritization effort. The following sections describe in more detail how risk factors were identified and the subsequent prioritization process.

4.1 Risk Factor Identification

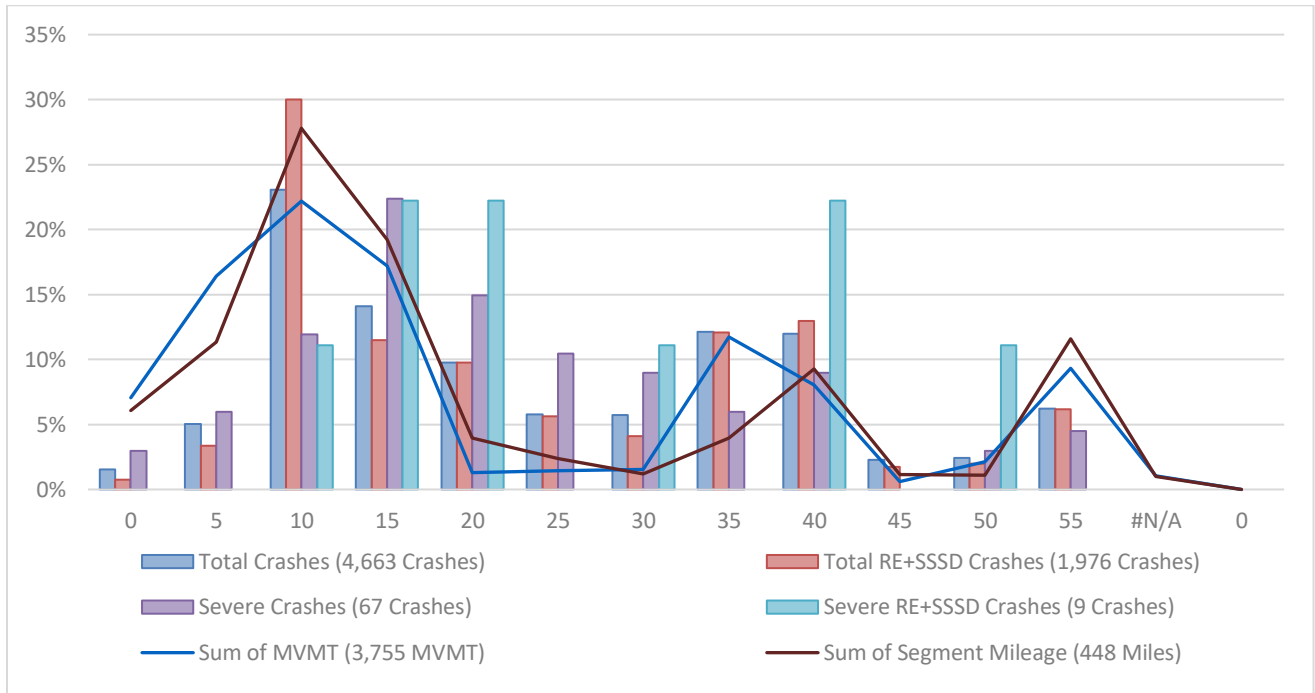
The process of identifying risk factors for CRPS 2 followed a similar process to that of CRSP 1; review the locations with severe crashes, note the roadway and traffic characteristics, and test for over-representation. Examples of the results of the testing for over-representation include:

- **Rural Segments:** Segments where access density (field entrances + private driveways + public road intersections/mile of roadway) is between 5 and 15 per mile accounted for 71 percent of all severe crashes and 79 percent of severe Lane Departure crashes versus 57 percent of rural roadway miles (Figure 4-1).
- **Urban Segments:** Segments where access density is between 20 and 40 per mile accounted for 49 percent of all severe crashes and 56 percent of severe rear-end plus sideswipe same direction crashes versus 21 percent of urban roadway miles in Greater Minnesota (Figure 4-2).
- **Rural Intersections:** Intersections with total entering traffic volumes exceeding 2,000 vehicles per day accounted for 71 percent of all severe crashes and 81 percent of severe right-angle crashes versus 35 percent of all rural intersections (Figure 4-3).
- **Urban Intersections:** Intersections with traffic signal control in Greater Minnesota accounted for 56 percent of all severe crashes, 65 percent of severe right-angle crashes, and 50 percent of both severe rear-end and pedestrian/bike crashes versus 28 percent of system intersections (Figure 4-4).



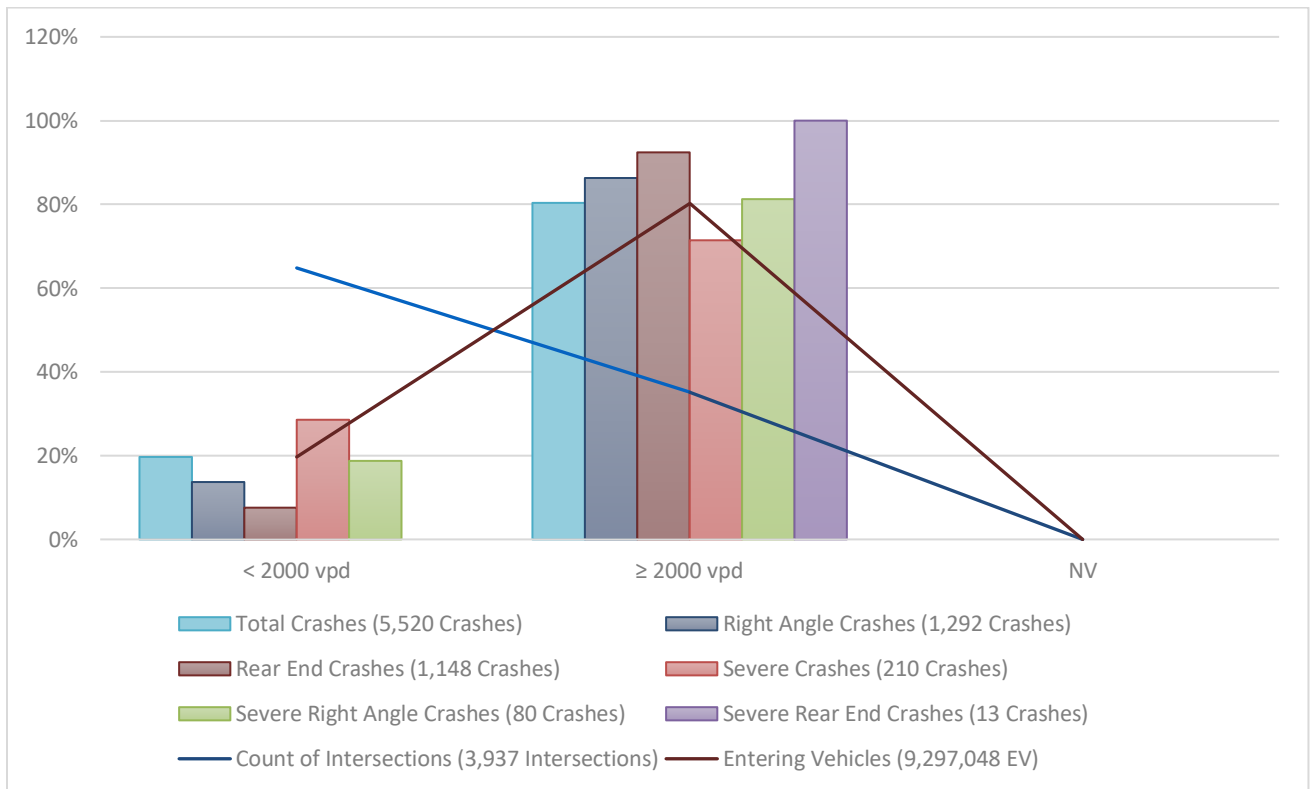
Note: MVMT = million vehicle miles traveled

Figure 4-1. Systemic Risk Factor Rural Segment Access Density



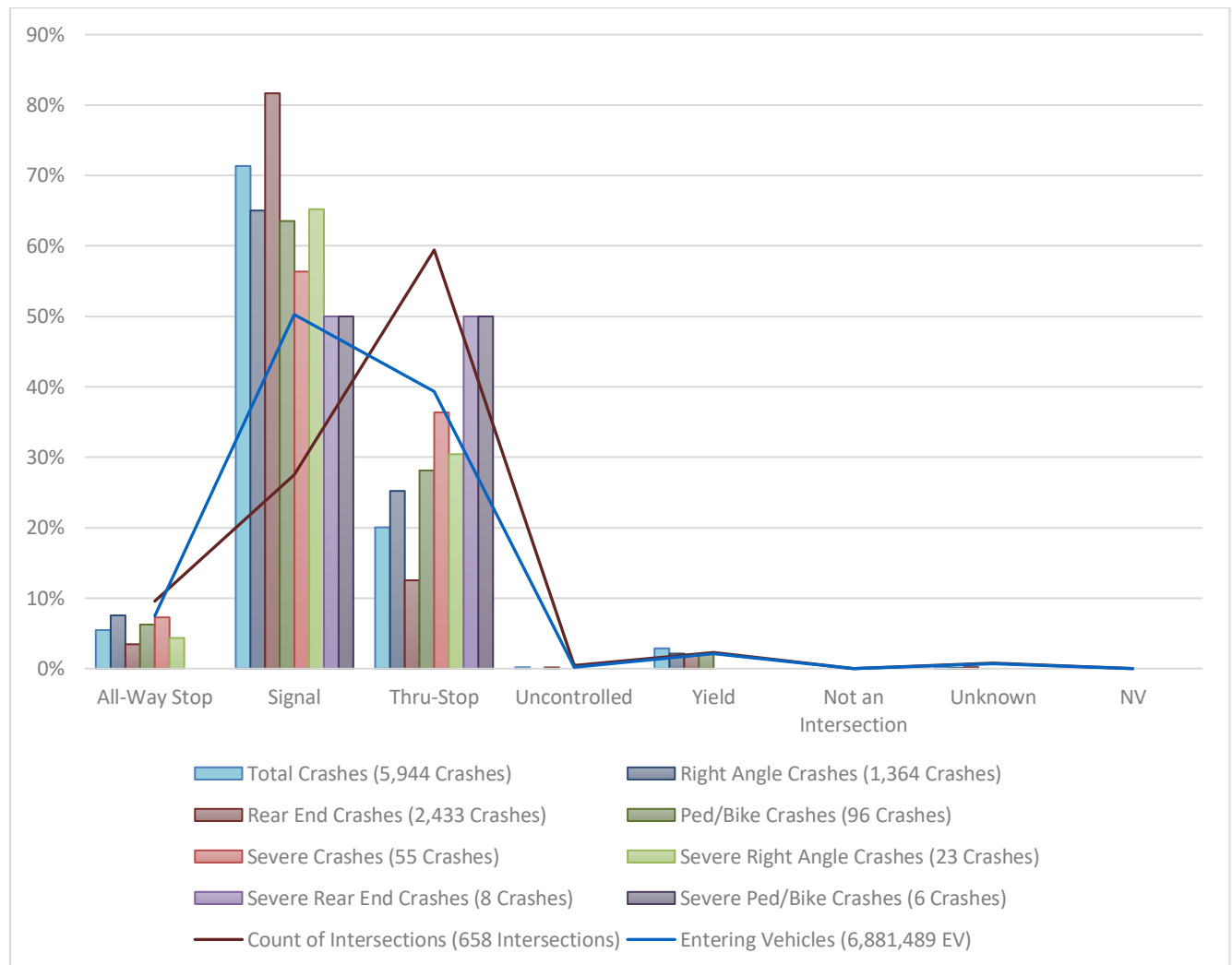
Notes: RE + SSSD = rear end and sideswipe same direction; MVMT = million vehicle miles traveled

Figure 4-2. Systemic Risk Factor Urban Segment Access Density



Notes: EV = entering vehicles; NV = no value; vpd = vehicles per day

Figure 4-3. Systemic Risk Factor Rural Intersection Total Entering Traffic Volume



Note: EV = entering vehicles

Figure 4-4. Systemic Risk Factor Urban Intersection Traffic Control Device

In addition to testing each risk factor for over-representation, tests were also conducted to demonstrate that increasing numbers of risk factors were associated with greater risk, as measured by the density of crashes. Examples of the testing results for increased crash density include:

- Rural Intersections: Intersections with three or more risk factors present had severe crash densities two to five times higher than the average for all rural intersections (Figure 4-5).
- Rural Curves: Curves with five or more risk factors present had severe crash densities and severe Lane Departure crash densities as much as five times higher than the average for all rural curves (Figure 4-6).

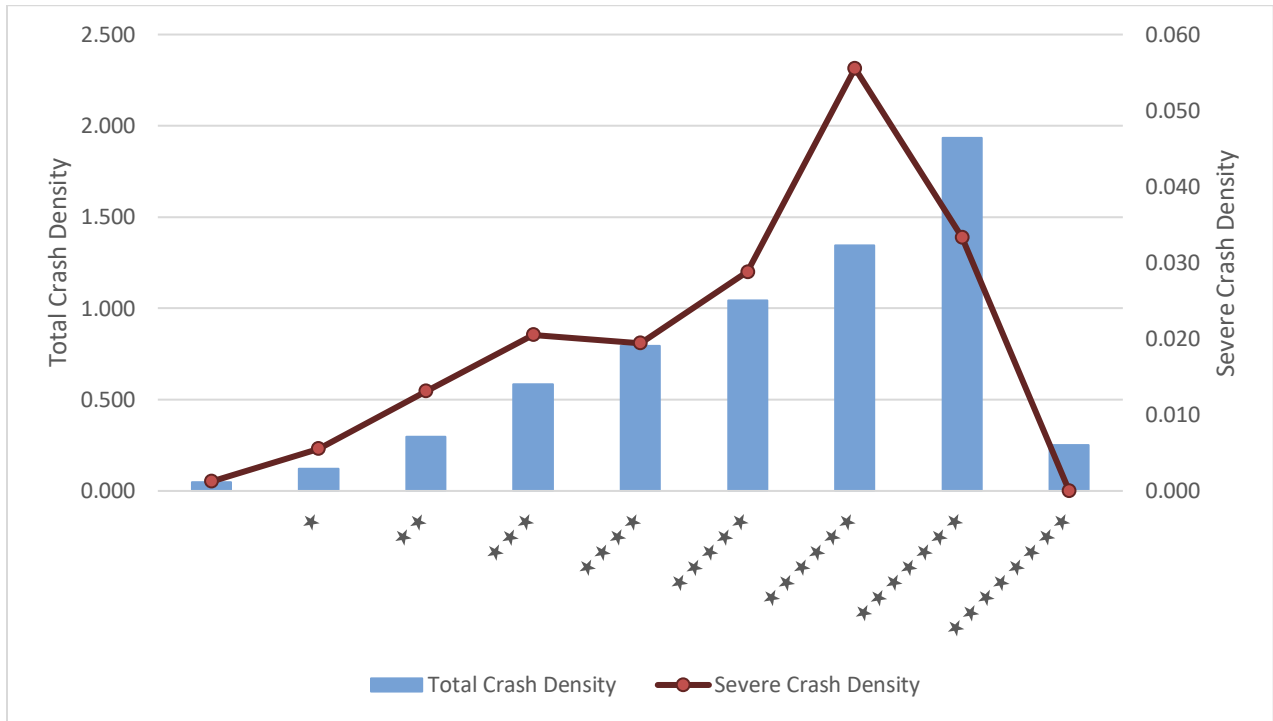


Figure 4-5. Rural Intersection Crash Density Distribution Versus Systemic Risk Rating

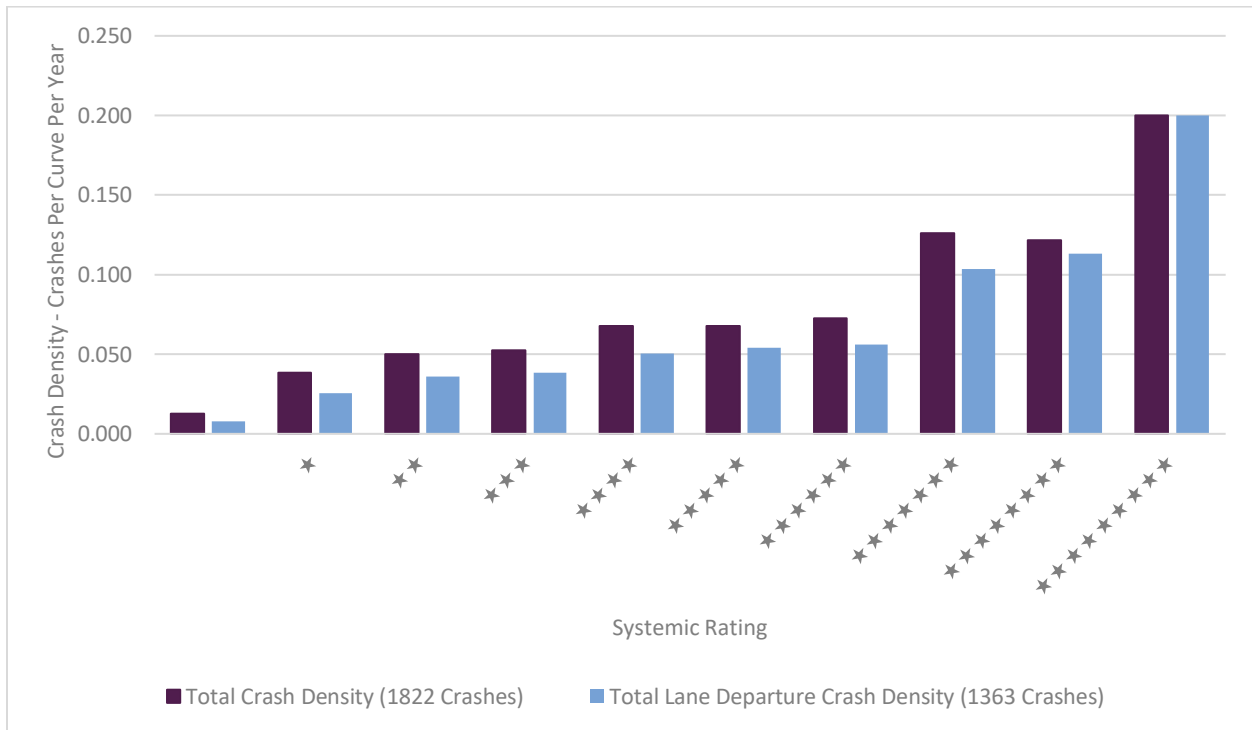


Figure 4-6. Rural Curve Crash Density Distribution Versus Systemic Risk Rating

The results of over-representation testing and severe crash distribution along with additional data recommended the use of an expanded list of risk factors for Beltrami County. The adopted risk factors for rural segments, curves and intersections plus urban segments and intersections in Beltrami County are documented in Tables 4-1 through 4-6.

Table 4-1. Rural Segment Risk Factors

Risk Factor	Risk Factor Criteria
<i>Speed Limit</i>	55 miles per hour or greater
<i>Traffic Volume</i>	500 to 2,500 vehicles per day (single Vehicle crashes)
<i>Traffic Volume</i>	1,500 vehicles per day and greater (multiple Vehicle crashes)
<i>Access Density</i>	More than 7 accesses (driveways, field entrances, and public streets), but less than 18
<i>Curve Density</i>	1 or more curves per mile
<i>Edge Risk</i>	2 with no shoulder or steep slopes or 3 deficiencies (no shoulder, steep slope, or fixed objects)

Table 4-2. Rural and Urban Curves Risk Factors

Risk Factor	Rural Risk Factor Criteria	Urban Risk Factor Criteria
<i>Speed Limit</i>	-	45 mph to 55 mph
<i>Radius</i>	500 feet to 1,400 feet	200 feet to 800 feet
<i>Traffic Volume</i>	600 to 1,300 vehicles per day	1,750 to 3,750 vehicles per day
<i>Lane Width</i>	Less than 12 feet	Less than 12 feet
<i>Shoulder Type</i>	None, gravel, composite	None, gravel
<i>Outside Shoulder Width</i>	0 to 4 feet	None
<i>Cross Section Width</i>	28 to 34 feet	Less than 26 feet
<i>Adjacent Intersection</i>	Roadway or railroad crossing	Roadway or railroad crossing
<i>Visual Trap</i>	Present	Present
<i>Lighting</i>	None	None
<i>Outside Edge Risk</i>	2 or 3 deficiencies (no shoulder, steep slope, or fixed objects)	3 deficiencies (no shoulder, steep slope, or fixed objects)

Table 4-3. Rural Intersection Risk Factors

Risk Factor	Risk Factor Criteria
<i>Context Zone</i>	Commercial, industrial, mixed use, or residential
<i>Total Entering Traffic Volume</i>	Volume $\geq 2,000$ vehicles per day
<i>Traffic Volume Cross Product</i>	Greater than 1,000,000 vehicles per day ²
<i>Number of Entering Legs</i>	4
<i>Alignment Skew</i>	Greater than 10 degrees
<i>Adjacent Railroad Crossing</i>	Present
<i>Adjacent Curve</i>	Horizontal, vertical, or both
<i>Commercial Development</i>	Present
<i>Previous STOP Sign</i>	Greater than 5 miles
<i>Major Road Speed Limit</i>	60 miles per hour or greater
<i>Major Road Lane Configuration</i>	Left/through/through/right, and turn/bypass

Table 4-4. Urban Segment Risk Factors

Risk Factor	Risk Factor Criteria
<i>Context Zone</i>	Commercial and mixed use
<i>Speed Limit</i>	35 to 45 miles per hour
<i>Lane Width</i>	10 to 11.5 feet
<i>Edgeline Striping</i>	None
<i>Parking</i>	Present
<i>Traffic Volume</i>	Greater than 7,500 vehicles per day
<i>Access Density</i>	Greater than 20 accesses (driveways and public streets)
<i>Cross Section</i>	Multi-lane
<i>Edge Risk</i>	3 deficiencies (no shoulder, steep slope, or fixed objects)
<i>Shoulder Width</i>	Less than 3 feet

Table 4-5. Urban Intersection Risk Factors/Vehicle Related Crashes

Risk Factor	Risk Factor Criteria
<i>Context Zone</i>	Commercial
<i>Traffic Control</i>	Signal
<i>Total Entering Traffic Volume</i>	Greater than 12,000 vehicles per day
<i>Traffic Volume Cross Product</i>	Greater than 30,000,000 vehicles per day
<i>Number of Entering Legs</i>	4
<i>Major Road Cross Section</i>	Divided
<i>Skew</i>	Greater than 10 degrees
<i>Commercial Development</i>	Present
<i>Major Road Speed Limit</i>	40 miles per hour and greater
<i>Minor Road Speed Limit</i>	35 miles per hour and greater
<i>Major Road Left Turn Phasing</i>	Any type of permitted operation
<i>Major Road Lane Configuration.</i>	2 left turn lanes OR 2 or more through lanes

Table 4-6. Urban Intersection Risk Factors/Pedestrian/Bike Related Crashes

Risk Factor	Risk Factor Criteria
<i>Traffic Signal</i>	Present
<i>Total Entering ADT</i>	12,000 and greater
<i>Adjacent Development</i>	Present
<i>Number of Lanes Crossed</i>	4 or more
<i>Presence of Sidewalk</i>	Some or none
<i>Crossing Type</i>	Markings only

4.2 Prioritization of Candidate Locations

The analytical process applied the adopted risk factors to Beltrami County's roadway segments, curves, and intersections to generate a priority listing – the greater the number of locational risk factors, the higher the candidate priority for safety project development. The overall objective was to use the risk factors to identify a minority of the county system that contained a majority of severe crashes and designate these locations as high priority candidates.

The number of risk factors varies by facility type, from a low of three risk factors for urban intersections related to Pedestrian/Bike crashes to a high of twelve risk factors for urban intersections related to Vehicle crashes. The distribution of severe crashes by risk factors also varies by facility type. As a result, the threshold for designating locations as high priority also varied, from a low of two for urban segments to a high of six for Vehicle Related urban intersections. However, across all counties, the sliding scale of risk factors generally resulted in between 20 percent and 50 percent of the system designated as high priority for safety project development. This was considered a reasonable fraction of the county system based on factors such as the amount of HSIP funding available, the typical cost of safety projects, the extraordinarily low density of severe crashes, and the goal of widely deploying safety projects across the county system.

Results of the prioritization process in Beltrami County include identifying the following high priority candidate locations for safety project development. Tables 4-7 through 4-12 show an example (first 10 projects) of the full project lists included in Appendix D:

- Rural Segments:
 - 93 segments (375 miles) evaluated
 - 57 segments (238 miles) designated as high priority (three or more risk factors)
- Rural Curves:
 - 354 curves evaluated
 - 163 curves designated as high priority (four or more risk factors)
- Rural Intersections:
 - 211 intersections evaluated
 - 74 intersections designated as high priority (three or more risk factors)
- Urban Segments:
 - 26 segments (33 miles) evaluated
 - 10 segments (7.73 miles) designated as high priority (two or more risk factors)
- Urban Intersections (Vehicle Related):
 - 14 intersections evaluated
 - 2 intersections designated as high priority (six or more risk factors)
- Urban Intersections (Pedestrian/Bike Related):
 - 14 intersections evaluated
 - 3 intersections designated as high priority (four or more risk factors)

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Table 4-7. Rural Segment Prioritization – Example Table

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Length (Miles)	ADT [vpd]	Speed Limit	ADT Rural Single-Vehicle	ADT Rural Multi-Vehicle	Access Density	Curve Density	Edge Risk	Total Stars
3	1	12.004	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	6.0	645	★	★		★	★	★	★★★★★
8	2	15.003	CSAH	15	Grange Rd NW	Great Divide Rd NW	7.1	2,165	★	★	★	★	★		★★★★★
80	3	8.003	CSAH	8	Swenson Rd SE	Beltrami County Line	5.0	1,925	★	★	★	★	★		★★★★★
2	4	12.003	CSAH	12	1.67 miles E of Lake Ave NE	Parkers Lake Rd NE	4.1	1,750	★	★	★	★			★★★★★
6	5	14.001	CSAH	14	Becida Rd SW	0.33 miles N of Juneberry Rd NW	5.4	1,060	★	★		★		★	★★★★★
14	6	20.001	CSAH	20	Bemidji Rd NE	Big Bass Rd NE	2.6	2,745	★		★		★	★	★★★★★
15	7	20.002	CSAH	20	Big Bass Rd NE	Parkers Lake Rd NE	4.5	970	★	★		★		★	★★★★★
17	8	21.003	CSAH	21	Glidden Rd NE	Island View Dr NE	6.1	1,540	★	★	★	★			★★★★★
21	9	22.003	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	7.0	555	★	★		★	★		★★★★★
23	10	22.005	CSAH	22	Hwy 71	Long Lake Dr NE	4.4	570	★	★		★		★	★★★★★

See Appendix D for complete table of prioritized locations

Notes: ADT = average daily traffic

CRSP 2 ID Example: 1.001: 1 = Route Number 1; 001 = First Segment

Table 4-8. Rural Curve Prioritization – Example Table

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Speed Limit [mph]	Radius [Feet]	ADT [vpd]	Lane Width [Feet]	Shoulder Type	Total Cross Section Width [Feet]	Adjacent Intersection	Visual Trap	Lighting	Outside Edge Risk	Total Stars
65	1	15.021	CSAH	15	Great Divide Rd NW	Markus Rd NE		★	★	★		★	★		★		★★★★★★
59	2	15.015	CSAH	15	Great Divide Rd NW	Markus Rd NE		★	★	★		★	★		★		★★★★★★
151	3	24.014	CSAH	24	Centerline Rd NW	Hwy 89		★			★	★	★	★	★		★★★★★★
14	4	12.007	CSAH	12	Parkers Lake Rd NE	Mission Rd NE		★	★		★	★	★		★		★★★★★★
64	5	15.020	CSAH	15	Great Divide Rd NW	Markus Rd NE		★	★	★		★	★		★		★★★★★★
148	6	24.011	CSAH	24	Centerline Rd NW	Hwy 89		★		★	★	★			★	★	★★★★★★
247	7	39.012	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE		★		★		★	★	★	★		★★★★★★
258	8	4.002	CSAH	4	0.25 miles E of Sunnyside Rd SE	Forest Rd	★	★			★		★	★	★		★★★★★★
285	9	5.023	CSAH	5	Aure Rd NW	Lumberjack Rd NW		★		★	★	★	★		★		★★★★★★
43	10	14.002	CSAH	14	Becida Rd SW	0.33 miles N of Juneberry Rd NW	★	★			★		★	★	★		★★★★★★

See Appendix D for complete table of prioritized locations.

Notes: CR = County Road; mph = mile(s) per hour;

CRSP 2 ID Example: 1.001: 1 = Route Number 1; 001 = First Curve

Table 4-9. Rural Intersection Prioritization - Example Table

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Context Zone	Entering ADT or Cross Product ^a	Leg Configuration	Alignment Skew [Degrees]	Adjacent Railroad Crossing	Adjacent Curve	Adjacent Development	Previous STOP [> 5 Miles]	Major Approach Speed Limit	Major Approach Turn Lane Configuration	Tiebreaker Crash Cost	Total Stars
142	1	5.007	CSAH	5	Hwy 2 E	★	★	★		★	★	★	★		★	\$170,000	★★★★★★★
34	2	2.007	CSAH	2	USTH 2	★	★	★		★	★		★	★	★	\$0	★★★★★★★
152	3	52.001	CSAH	52	USTH 71	★	★	★	★		★				★	\$11,710,200	★★★★★★★
3	4	11.030	CSAH	11	USTH 2	★	★	★			★		★	★		\$757,000	★★★★★★★
167	5	9.001	CSAH	9	USTH 2	★	★	★	★				★		★	\$406,400	★★★★★★★
45	6	21.037	CSAH	21	USTH 71	★	★	★	★		★					\$280,400	★★★★★★★
193	7	501.002	CR	501	USTH 2		★	★	★	★			★		★	\$181,800	★★★★★★★
137	8	47.009	CSAH	47	USTH 71	★	★	★	★		★	★				\$174,000	★★★★★★★
87	9	30.014	CSAH	30	USTH 71	★	★	★	★		★	★				\$102,600	★★★★★★★
44	10	21.035	CSAH	21	Island View Dr NE	★		★	★		★	★	★			\$0	★★★★★★★

See Appendix D for complete table of prioritized locations.

Notes:^a Units of measure differ. Entering ADT is vpd, cross product is vpd²
CRSP 2 ID Example: 1.001: 1 = Route Number 1; 001 = First Intersection

Table 4-10. Urban Segment Prioritization – Example Table

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Length [Miles]	ADT [vpd]	Context Zone	Speed Limit	Lane Width	Edgeline Striping	Parking	ADT-U	Access Density	Cross Section and Design	Edge Risk	Shoulder Width	Total Stars
12	1	21.001	CSAH	21	Paul Bunyan Dr NW	24 th St NW	0.07	8,240						★	★				★★
5	2	12.001	CSAH	12	1 St E	Power Dam Rd NE	1.58	5,060		★					★				★★
7	3	15.001	CSAH	15	30 St NW	Anne St NW	0.50	7,200	★						★				★★
11	4	19.001	CSAH	19	Power Dam Rd NE	Elliot Rd NE	1.06	2,050		★					★				★★
15	5	52.001	CSAH	52	Hwy 71	Bemidji Ave N	1.49	5,375	★						★				★★
18	6	7.002	CSAH	7	Adams Ave NW	Jefferson Ave NW	0.96	4,750	★						★				★★
19	7	8.001	CSAH	8	Paul Bunyan Dr SE	Lake Ave SE	0.83	4,750		★					★				★★
22	8	402.001	CR	402	0.31 miles W of Jackson Ave SW	Jackson Ave SW	0.31	260				★			★				★★
24	9	404.002	CR	404	0.38 miles E of Washington Ave S	Paul Bunyan Rd SE	0.63	1,350	★						★				★★
25	10	406.001	CR	406	Lake Ave NE	0.30 miles E of Lake Ave NE	0.30	810		★					★				★★

See Appendix D for complete table of prioritized locations.

Note: CRSP 2 ID Example: 1.001: 1 = Route Number 1; 001 = First Segment

Table 4-11. Urban Intersection Prioritization Vehicle Related - Example Table

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Context Zone	Traffic Control Device	Entering ADT or Cross Product ^a	Leg Configuration	Major Division Type	Alignment Skew [Degrees]	Adjacent Development	Major/Minor Approach Speed Limit	Major Approach Left Turn Lane Phasing	Major Approach Turn Lane Configuration	Tiebreaker Crash Cost	Total Stars
14	1	50.001	CSAH	50	678	★	★	★	★	★		★		★	★	\$686,800	★★★★★★★
11	2	21.001	CSAH	21	Paul Bunyan Dr NW	★	★	★	★	★		★	★		★	\$342,800	★★★★★★★
8	3	15.005	CSAH	15	Anne St NW		★		★				★	★		\$7,800	★★★★
1	4	8.001	CSAH	8	Paul Bunyan Dr SE				★		★		★			\$7,800	★★★
13	5	21.007	CSAH	21	Anne St NW	★		★	★							\$7,800	★★★
3	6	8.007	CSAH	8	Grant Ave SE				★							\$410,400	★
10	7	17.006	CSAH	17	Bemidji Ave N								★			\$264,800	★
7	8	15.004	CSAH	15	Irvine Ave NW								★			\$189,600	★
4	9	15.001	CSAH	15	Irvine Ave NW								★			\$181,800	★
9	10	17.005	CSAH	17	Shorecrest Rd NE						★					\$177,800	★

See Appendix D for complete table of prioritized locations.

Notes: ^a Units of measure differ. Entering ADT is vpd, cross product is vpd².
CRSP 2 ID Example: 1.001: 1 = Route Number 1; 001 = First Intersection

Table 4-12. Urban Intersection Prioritization Pedestrian/Bike Related Safety Project Development – Example Table

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Traffic Control Device	Entering ADT	Adjacent Development	Max Number of Lanes Crossed	Presence of Sidewalk	Pedestrian Crossing Type	Tiebreaker Crash Cost	Total Stars
14	1	50.001	CSAH	50	678	★	★	★	★	★	★	\$686,800	★★★★★★
11	2	21.001	CSAH	21	Paul Bunyan Dr NW	★	★	★	★		★	\$342,800	★★★★★
8	3	15.005	CSAH	15	Anne St NW	★			★	★	★	\$7,800	★★★★
1	4	8.001	CSAH	8	Paul Bunyan Dr SE				★	★		\$7,800	★★
3	5	8.007	CSAH	8	Grant Ave SE					★		\$410,400	★
10	6	17.006	CSAH	17	Bemidji Ave N					★		\$264,800	★
7	7	15.004	CSAH	15	Irvine Ave NW					★		\$189,600	★
4	8	15.001	CSAH	15	Irvine Ave NW					★		\$181,800	★
9	9	17.005	CSAH	17	Shorecrest Rd NE					★		\$177,800	★
12	10	21.004	CSAH	21	29 St NW					★		\$102,600	★

See Appendix D for complete table of prioritized locations.

Note: CRSP 2 ID Example: 1.001: 1 = Route Number 1; 001 = First Intersection

5.0 Beyond Infrastructure – County Highway Collaboration to Improve Local Road Safety

The focus of CRSP is to identify recommended priority safety projects at priority site locations within the County highway department’s area of responsibility—namely, roadway infrastructure or engineering. However, the CRSP 2 process and this Plan recognize that severe traffic crashes are often largely due to poor driving behavior such as willful disregard for traffic laws and traffic control devices (e.g., texting while driving, not stopping at stop signs, red-light-running, speeding). Consequently, infrastructure safety improvements (e.g., rumble strips, improved intersection signing, etc.) are enhanced when deployed as part of a comprehensive and community-wide traffic safety approach. This section of the Plan looks beyond infrastructure safety improvements to guide county engineering staff to further engage with Regional TZD efforts through interdisciplinary collaboration to improve safety on county roads.

Traffic crashes are complex occurrences that often have multiple crash contributors. Traffic crashes may result from any combination of overlapping crash factors including the roadway or driving environment, the vehicle, and driver behavior. Figure 5-1 illustrates the complex interrelationship among these three crash contributors.

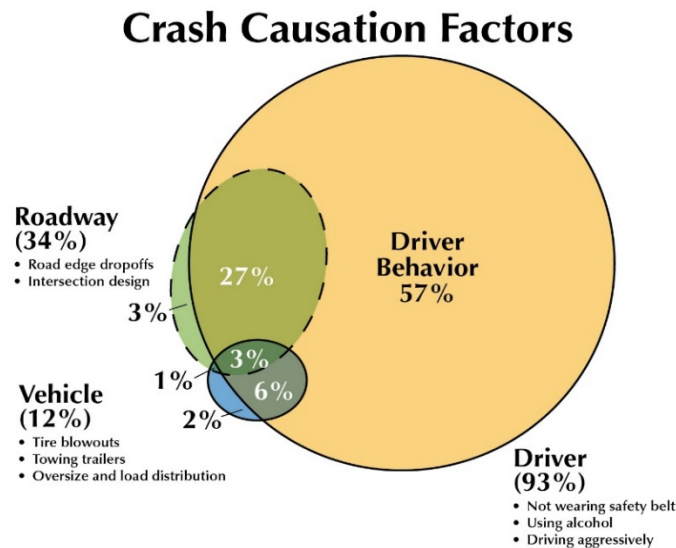


Figure 5-1. Crash Causation Factors¹

Source: *Human Factors and Highway Safety, FHWA Office of Safety Programs*

¹ Figure 5-1 indicates the percentage of crashes influenced by each factor alone represented by non-overlapping sections (driver behavior is yellow, roadway is green, and vehicle is blue) while those sections that do overlap with other crash factors indicate the complex occurrence where multiple factors contribute to a crash. The percentages in the parentheses indicate the total influence a crash factor has to all crashes, whether exclusive or contributing with other factors.

These crash causation factors indicate that 93 percent of traffic crashes are due, in part, to the driver. Research supports, and CRSP 2 workshop participants across the state observed, that driver inattention/distractions, driver decision errors/poor judgment, and poor driver performance are primary factors contributing to traffic crashes (NHTSA, 2015a).

Minnesota statewide crash data from 2011 through 2015 was reviewed during CRSP 2 and revealed the following crash factors for the county road system.

- 49 percent Lane Departure while operating a motor vehicle
- 41 percent Intersection Related
- 36 percent Unbelted Motorists
- 22 percent Impaired Driver
- 19 percent Inattentive/Distracted Driver
- 18 percent Speed Related

The risk factors and their percentages, when added together, exceed 100 percent because severe crashes typically involve multiple overlapping factors working in unison to contribute to the crash (e.g., an impaired driver who was driving too fast and departed his lane). In addition to infrastructure safety needs, CRSP 2 workshop participants discussed common themes and expressed concern about the growing number of drivers who:

- Use their smartphone
- Drive under the influence of alcohol and drugs
- Are/have unbelted motorists
- Drive at unsafe speeds
- Fail to stop or yield at stop-through intersections

Minnesota's county highway staff recognizes that engineering and infrastructure investments alone will not eliminate all fatal and severe crashes until motorists also make safer choices. Therefore, county road safety efforts must reach beyond infrastructure or engineering safety strategies and actively support a comprehensive, multi-disciplinary approach to road safety. This approach includes, but is not limited to, effective local traffic law enforcement, public education that touts the risks associated with poor driving choices, and emergency medical responses to effectively treat and transfer crash victims to the appropriate level of hospital care. Leveraging local infrastructure strategies with driver behavior-related safety strategies strengthens the safety impact of county efforts to reduce severe crashes.

5.1 County Highway Engineering Coordination with Minnesota Toward Zero Deaths Program

To foster interdisciplinary cooperation and engagement at the state, regional, and local level, the statewide Minnesota TZD Program employs an integrated approach of engineering, enforcement, education, emergency medical and trauma services, and more (e.g., supportive and informed judicial staff and strong traffic safety legislation) to move Minnesota toward its zero fatality vision. In addition to the statewide TZD Program efforts, regional partnerships created in eight Minnesota geographic areas promote local-level TZD efforts. Each Regional TZD partnership has a local steering committee, co-led by MnDOT and State Patrol District personnel, to foster cooperation, establish safety priorities and initiatives, and leverage resources.

Minnesota's 87 counties are encouraged to collaborate with local driver-behavior safety partners and with the county's Regional TZD Program Coordinator to improve safety on local roadways. See Appendix E for Regional TZD Coordinator contact information.

5.2 Collaborations to Strengthen Local Road Safety

Following are a few examples of infrastructure-based safety strategies enhanced through interdisciplinary TZD collaboration.

- **Cooperatively conduct county road safety presentations with the assistance of local law enforcement and local safety coalition members.** Extend invitations to local law enforcement and safety coalition members to cooperatively participate in road safety presentations for county board or other public meetings on crash-causation and trends, effective safety countermeasures, and local support needed. Safety presentations that include behavioral safety partners reinforce awareness that preventing roadway deaths cannot be achieved through infrastructure improvements alone but require a comprehensive, interdisciplinary approach.
- **Deploy Lane Departure infrastructure safety strategies coupled with enhanced enforcement and public outreach.** To maximize the expected safety benefit of the Lane Departure safety strategies – such as centerline and edgeline rumble or mumble strips, high visibility pavement markings, and adding or widening edgelines – integrate increased enforcement presence at targeted, high-risk locations and timeframes. Coupling infrastructure strategies with additional enforcement, along with public media outreach about the problem/risk, infrastructure deployment and the added enforcement, will improve safety and reduce risky driver behavior by strengthening the public's perceived risk of being stopped.
- **Cooperatively deploy roving dynamic speed display signs, with extra enforcement, to reduce speed.** Speed is a persistent contributor to traffic deaths on Minnesota roads and reductions in speed related crashes have proven difficult. Roving dynamic speed display signs are changeable message signs activated by radar, or other speed-sensing devices, that display an approaching driver's traveling speed. This driver feedback in conjunction with visible enforcement puts the driver on notice to slow down. Deployment of dynamic speed display signs to reduce speed requires the cooperative effort of highway agencies and law enforcement as well as local media to inform the public.
- **Support the expanded use of red light running confirmation lights coupled with enhanced enforcement.** To reduce the most common type of serious crash at signalized intersections (right-angle crashes), an innovative, low-cost red light running confirmation enforcement light enables one officer to monitor an intersection from a downstream location to directly observe red light running violations and issue citations more effectively and safely without requiring pursuit through the intersection. Red light running confirmation lights require only one officer and, because the confirmation lights come on the same instant as the red light of the signal, officers spend less time in court. Red light running confirmation lights require strong collaboration between county engineering and local law enforcement. In addition, public education and media outreach about the red light running confirmation lights, with supporting enforcement, deters drivers from high-risk red light running.

- **Consider the use of road safety audits and other crash analysis approaches to gain post-crash perspectives of severe crash causation and potential safety improvements.** Although a cornerstone of the CRSP 2 process is the systemic analyses of roadway risk factors contributing to severe crashes and to proactively apply a safety treatment to priority locations to prevent a severe crash, if a fatal or serious injury crash occurs, consider engaging a multi-disciplinary safety team to share perspectives. Local safety stakeholders representing engineering, enforcement, education, and education outreach or local TZD Safe Road Coalition members can offer valuable insight to both the roadway and driver behavior components of a severe crash, its causation, and interdisciplinary approaches to improving the roadway safety and maximizing the impact of infrastructure safety strategies.

Although the focus of the CRSPs is to identify priority infrastructure safety investments at high-risk locations, county highway staff recognize the importance of reaching beyond infrastructure and implementing a collaborative, multi-disciplinary approach to improving road safety, an approach that aligns with the statewide Minnesota TZD Program and the Minnesota SHSP.

6.0 Safety Project Development and Recommended Projects

This CRSP document is developed with a focus on proven effective strategies that can be widely implemented at low-cost and at several locations with a higher probability of risk of severe crashes. A systemic deployment of strategies is implemented to address risk of potential for severe crashes where the crash densities are too low to warrant a spot analysis. In Minnesota, the crash densities are approximately 0.01 severe crashes per mile per year across the county roadway system, which is not statistically significant when observed individually. In the CRSP 2 approach, the presence of a crash is viewed as complimentary to the risk analysis rather than a sole influencer. Additionally, since HSIP provides limited funding, low-cost strategies allow for wider deployment and treatment of more at-risk locations on the county system.

6.1 Safety Project Development Technical Process

The first step in the safety project development process involved documenting existing roadway and traffic volume characteristics of each candidate location and then working through a checklist that considers how these features influence selection of a particular recommended strategy. After the initial check, the second step is developing a **decision tree** for candidate locations. Multiple iterations and refinement went into the development of the six unique decision trees for CRSP 2 that helped guide safety strategies for:

- Rural Segments (See Figure 6-1)
- Rural Curves (See Figure 6-2)
- Rural Intersections (See Figure 6-3)
- Urban Segments (See Figure 6-4)
- Urban Intersections – Vehicle Related (See Figure 6-5)
- Urban Intersections – Ped/Bike Related (See Figure 6-6)

The final step in the technical process of updating the Beltrami CRSP involves developing a list of recommended safety projects – a specific infrastructure-based safety strategy for each of the identified high priority locations. The updating process for CRSP 2 is more complex and comprehensive than CRSP 1 because Beltrami County has already implemented many of the recommended safety projects identified in CRSP 1. Additionally, CRSP 2 has a large number of strategies that are eligible to compete for HSIP funding.

The process for safety project development utilizes a technical approach to limit subjectivity that could be exhibited when making countermeasure recommendations. Collaboration with County staff was also necessary so that the final lists of recommended projects will be the most impactful and reduce the associated risk and/or address prior crash history at high priority locations. Key points associated with the individual crash trees are described in the following paragraphs and illustrated in the accompanying figures.

6.2 Rural Segments

Preventing Lane Departure crashes, both single vehicle run-off the road and cross center head-on collisions, is the primary focus of safety project development along rural segments. Crash data indicate that single-vehicle crashes are over-represented where traffic volumes are between 500 and 2,500 vehicles per day and multiple Vehicle crashes are over-represented where traffic volumes are 1,500 vehicles per day and greater. This suggests, for single-vehicle related crashes, implementing road edge improvements such as enhanced edgelines or edge/shoulder rumble strips along lower volume segments would be the most beneficial to address the associated risk. As for multi-vehicle related crashes, a combination of edge and centerline improvements such as center rumble strips or center buffers should be implemented along higher volume segments.

Other factors considered include lane width and the presence of noise sensitive receivers (residences, schools, etc.). Implementation of edge rumble strips result in the perception that the width of the road has been narrowed which can increase complaints about vehicle noise in a more residentially dense area. One experimental countermeasure that can improve road edge safety as well as reduce the noise from vehicles striking rumble strips is a newer technology called sinusoidal rumble strips, or mumble strips. Since this is still an experimental strategy and not widely deployed, further research and performance evaluation should be considered before wide deployment. If lane widths are 12 feet, edge rumble strips are recommended. However, if lane widths are less than 12 feet, then enhanced edgelines are recommended, which can consist of, for example, 6-inch edgelines or embedded wet-reflective pavement markings.

Project implementation typically focuses lower cost strategies (enhanced edgelines) on roadways with less volume where crash densities are low and the highest cost strategies (center buffers) are reserved for application along only the highest volume roadways.

6.3 Rural Curves

Preventing Lane Departure crashes is the primary focus of rural curve safety project development. Safety literature and Minnesota's crash data indicates that the risk of a Lane Departure crash in curves decreases with increasing length of curve radius. However, reconstructing curves to increase their radius typically costs between \$500,000 and \$1,000,000 per curve. There are approximately 30,000 curves along Minnesota's county road system; therefore, reconstruction was not considered a feasible strategy to implement statewide due to limited funding. Instead, a number of lower cost safety strategies for curves were identified and include enhanced warning signs to improve navigation through curves, address slippery surfaces in curves with a history of crashes related to adverse pavement conditions, clear zone maintenance to reduce the severity of crashes when vehicles run off the road, and convert curves with multiple-T intersections to single-T intersections.

When deciding on a package of enhanced warning signs, the primary factor considered is the speed differential between the posted speed limit on the curve approach and either the posted advisory speed in the curve or an inferred advisory speed computed using a formula that accounts for curve radius, super-elevation, and pavement friction. A speed differential of 5 miles per hour typically results in use of an advanced curve warning sign (if not already in-place), 10 miles per hour suggests the use of an advanced sign plus a speed advisory, and a 15 mile per hour differential suggests the use of an advanced sign, a speed advisory, and chevrons.

If the curve has a radius in the critical range and has a visual trap, chevrons would be recommended regardless of the speed differential.

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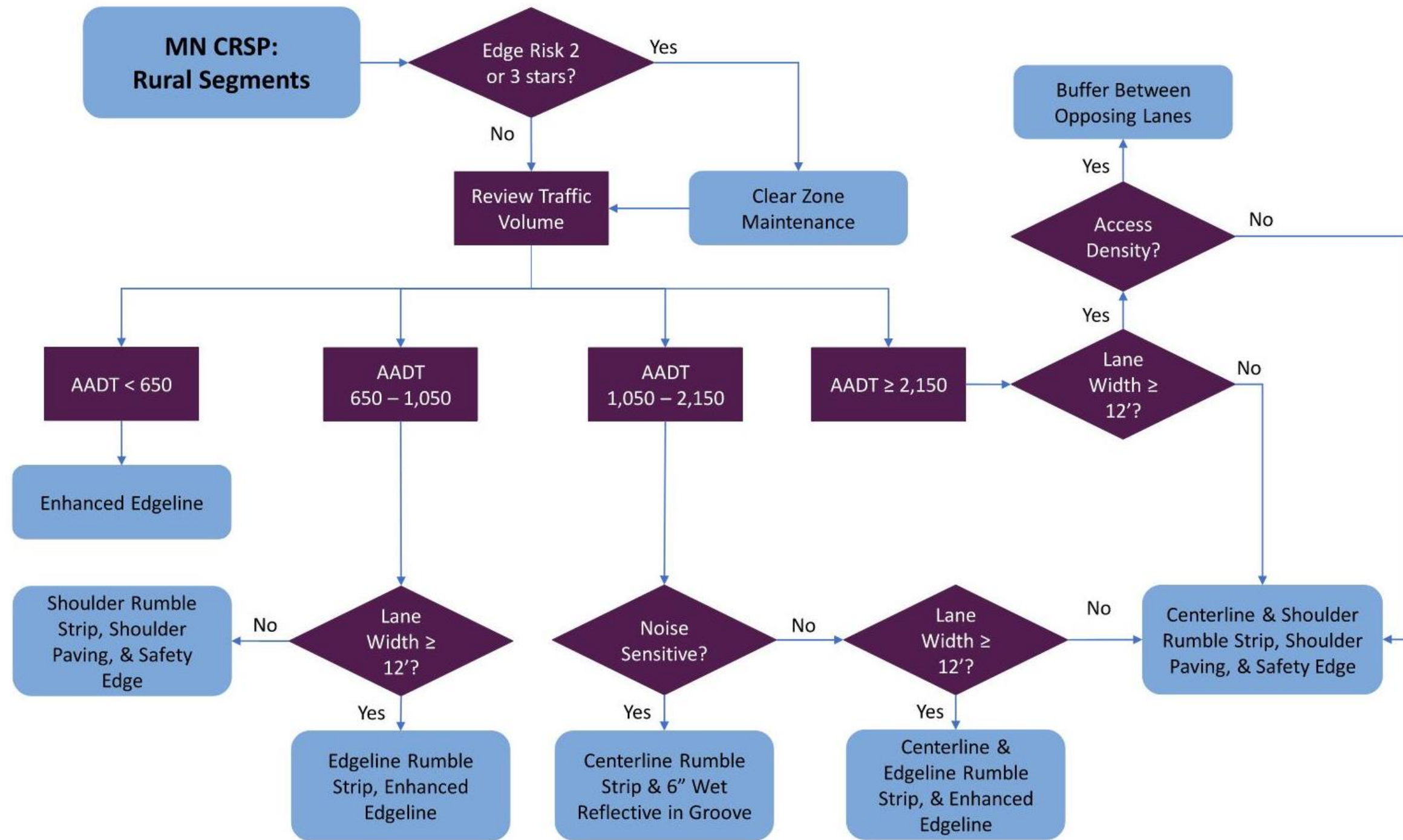


Figure 6-1. Rural Segment Safety Project Decision Tree

Note: Locations that do not satisfy any case explicitly outlined in the decision trees are not automatically assigned a project and are separately considered for manual project assignment.

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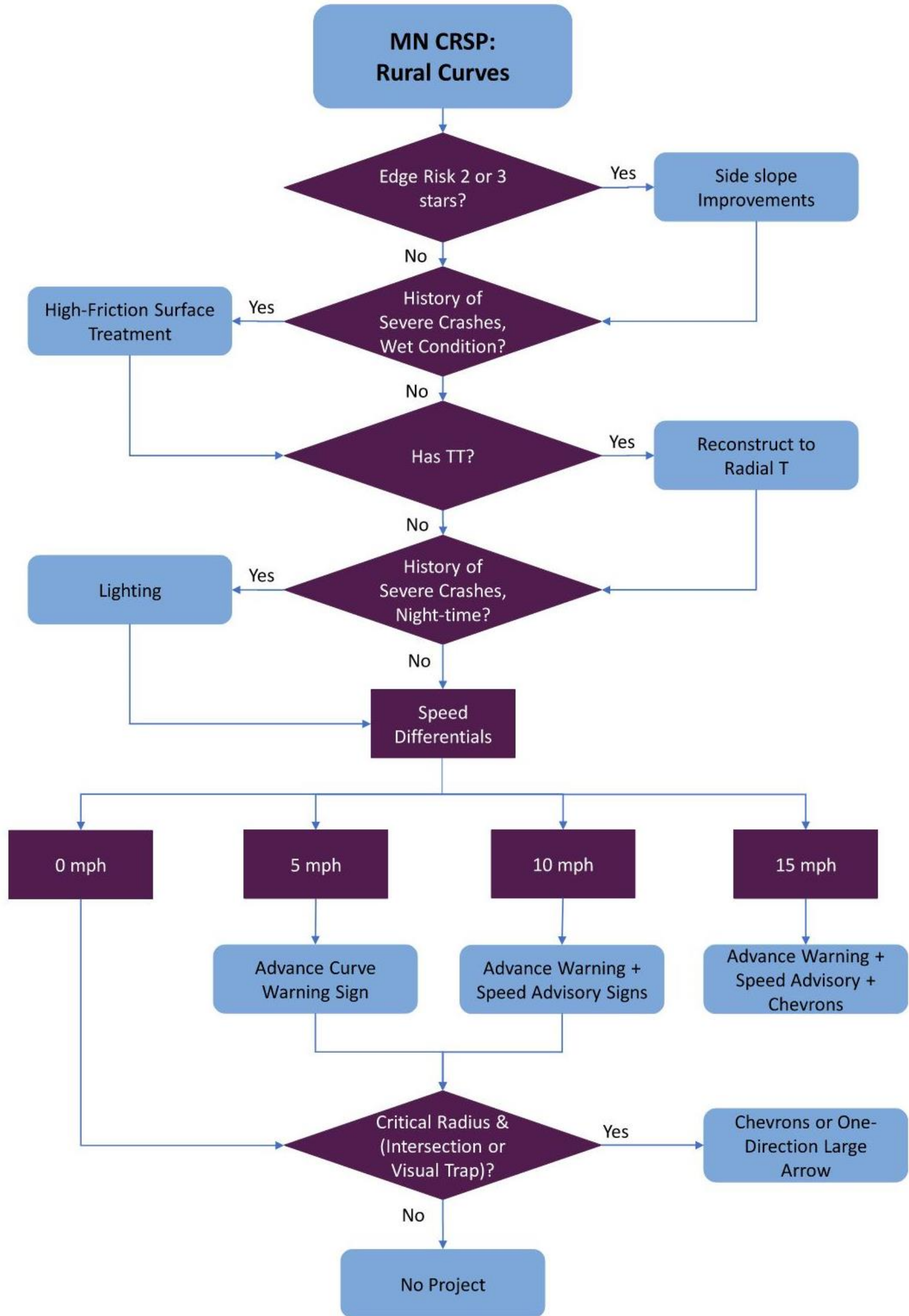


Figure 6-2. Rural Curve Safety Project Decision Tree

Note: locations which do not satisfy any case explicitly outlined in the decision trees are not automatically assigned a project and are separately considered for manual project assignment

* Cross-product is the product of the Entering Major AADT * Entering Minor AADT

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6.4 Rural Intersections

In Minnesota, a right-angle collision is the most common type of severe crash at rural intersections. County-selected strategies for this collision type have been very effective at mitigating these crashes. Strategies have included enhancing intersection related traffic signs and pavement markings, adding street lights, providing a dynamic warning system, and geometric upgrades (turning lanes, reduced conflict intersections, and roundabouts). Implementing these strategies range from a few thousand dollars for upgraded traffic signs and pavement markings to around \$1 million for reduced conflict intersections and roundabouts. The volume of traffic through the intersection and the roadway geometry were key factors considered when assigning a particular strategy to a specific intersection.

The crash analysis indicated that rural intersections with lower traffic volumes have fewer severe crashes than comparable intersections with higher volumes. Therefore, projects with lower costs were focused on for at-risk intersections with a variety of traffic volumes while projects of medium to higher costs were focused on for at-risk intersections with higher traffic volumes.

The cross section and geometry of the major roadway were also considered during project development. Since reduced conflict intersections are most appropriately applied at intersections where the mainline has a divided cross section, they were only considered at locations where county roadways intersect with four-lane divided state highways. Application of rural roundabouts were only considered at intersections where the volume cross product (multiplication of major approaching volume with minor approaching volume) was equal to or exceeded 40 million. In other words, if an existing STOP controlled intersection met or exceeded the traffic volume that warrants a traffic signal, the project team recommended implementing a roundabout.

The occurrence of a prior severe crash was a prerequisite for suggesting higher cost strategies as a way of limiting the number of candidate locations consistent with the limitations in available safety funding. Additionally, to recommend a feasible number of projects with an appropriate associated cost, higher cost strategies were reserved for unique situations due to the limited amount of transportation safety funding available.

6.5 Urban Segments

The most common type of severe crashes along urban roadway segments are two-vehicle, rear-end and head-on crashes. The most commonly recommended project involves separating opposing traffic lanes and using this space to accommodate left-turning vehicles by converting wide two-lane or four-lane undivided roadways to either three-lane or five-lane cross sections. Key factors that were developed through the analysis that were considered during project development included roadway cross section, the volume of traffic, and access density.

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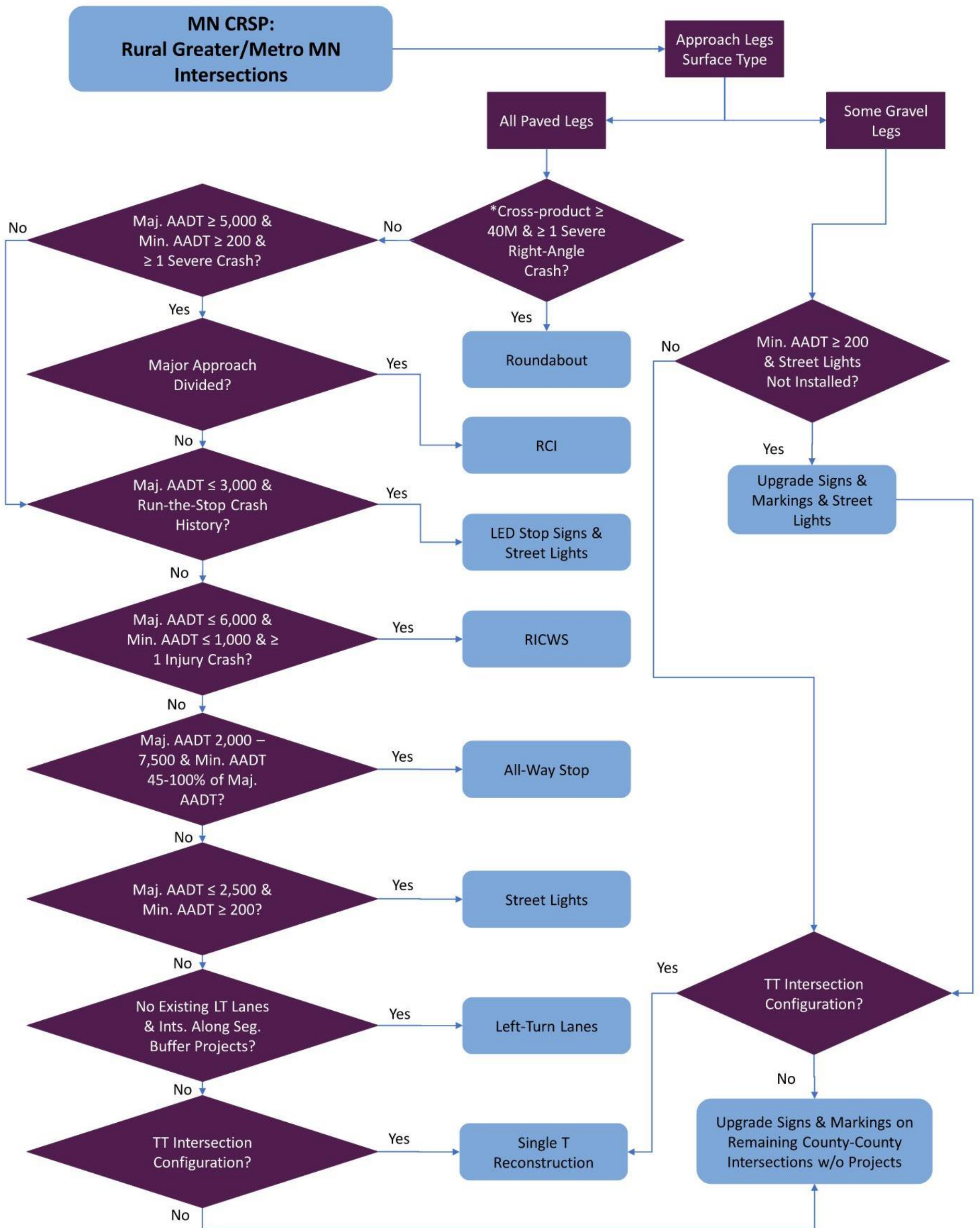


Figure 6-3. Rural Intersection Safety Project Decision Tree

Note: locations which do not satisfy any case explicitly outlined in the decision trees are not automatically assigned a project and are separately considered for manual project assignment

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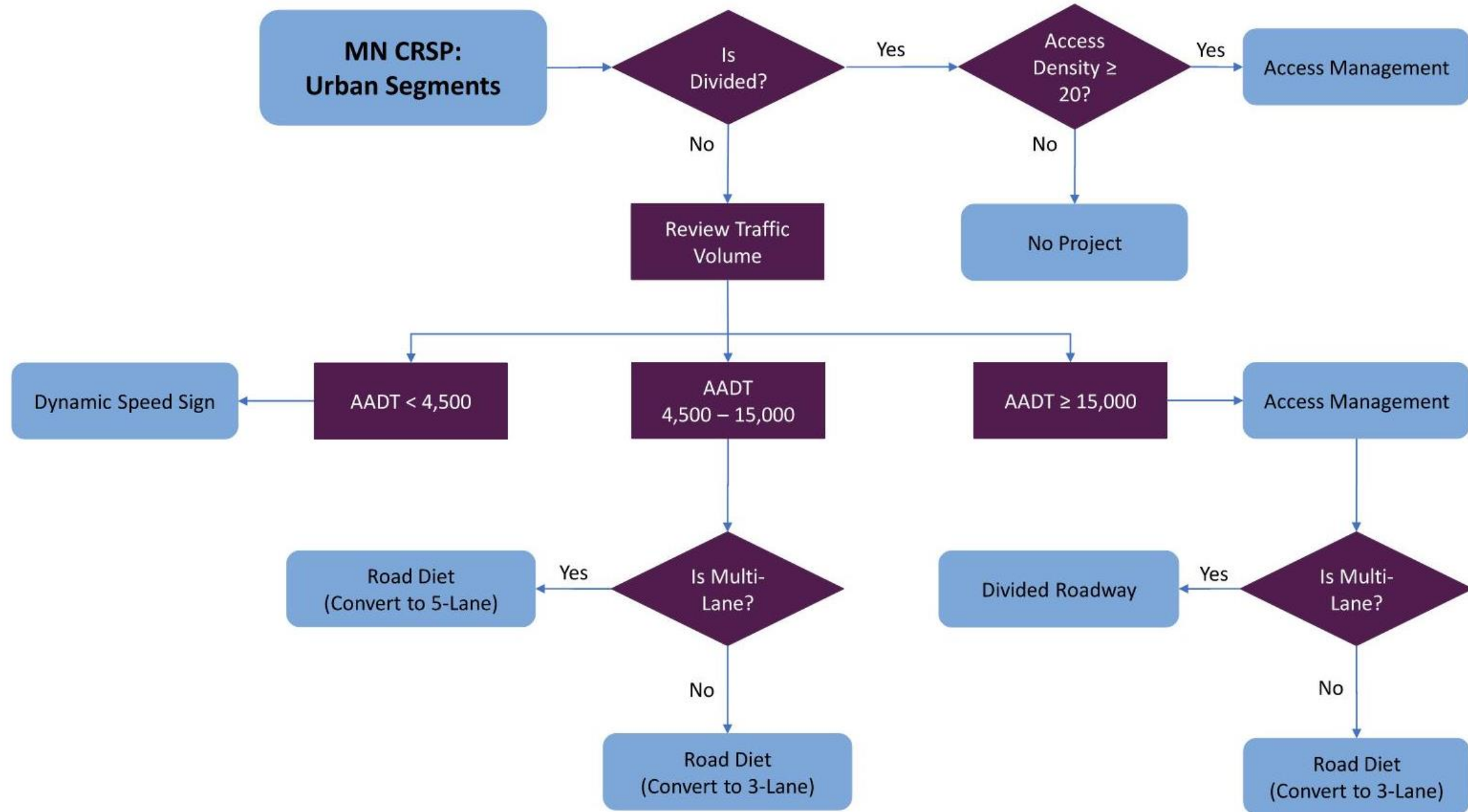


Figure 6-4. Urban Segment Safety Project Decision Tree

Note: Locations that do not satisfy any case explicitly outlined in the decision trees are not automatically assigned a project and are separately considered for manual project assignment.

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6.6 Urban Intersections - Vehicle Related Crashes

In Minnesota, a right-angle collision between two vehicles is the most common type of severe crash at urban intersections. County-selected safety strategies at urban intersections include: improving intersection geometry at unsignalized locations since installing traffic signals is not a safety strategy, adding confirmation lights to assist law enforcement to more efficiently address red light running, upgrading signal hardware, and converting to signalized reduced conflict intersections at locations already controlled by traffic signals.

Key considerations include the current type of intersection control, the volume of traffic through the intersection, the cross section of the major roadway, and the presence of a prior severe crash.

6.7 Urban Intersections - Pedestrian/Bike Related Crashes

In urban areas, majority of severe pedestrian/bike related crashes occur at intersections and the majority of these occur at intersections controlled by traffic signals. This suggests that traffic signals by themselves are not a safety strategy for pedestrians and bicyclists. Primary objectives for this type of project development include:

- Avoiding the addition of traffic signals at unsignalized intersections and instead focusing on reducing the crossing distance that pedestrians and bicyclists must traverse by adding curb extensions or median refuge islands.
- Adding pedestrian activated devices such as rectangular rapid flash beacons and high intensity activated crosswalk beacons.
- Adding proven effective strategies at already signalized intersections, such as countdown timers and a leading pedestrian interval, which provides pedestrians with a 3 to 5 second head start before providing vehicles with a green light.

Key factors considered during the project development process include intersection control, the traffic volume, and the roadway cross section.

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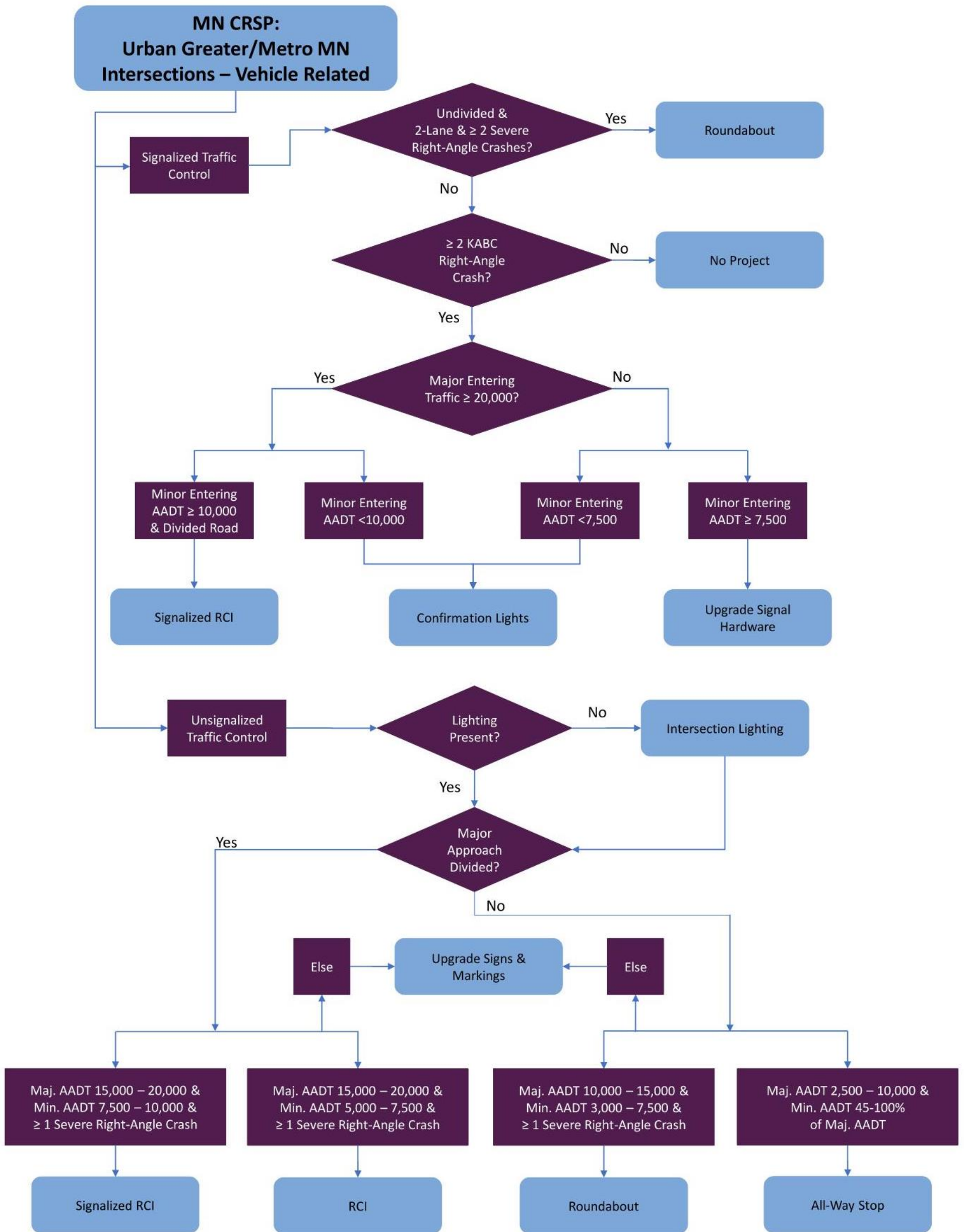


Figure 6-5. Urban Intersections – Vehicle Related Safety Project Decision Tree

Note: locations which do not satisfy any case explicitly outlined in the decision trees are not automatically assigned a project and are separately considered for manual project assignment

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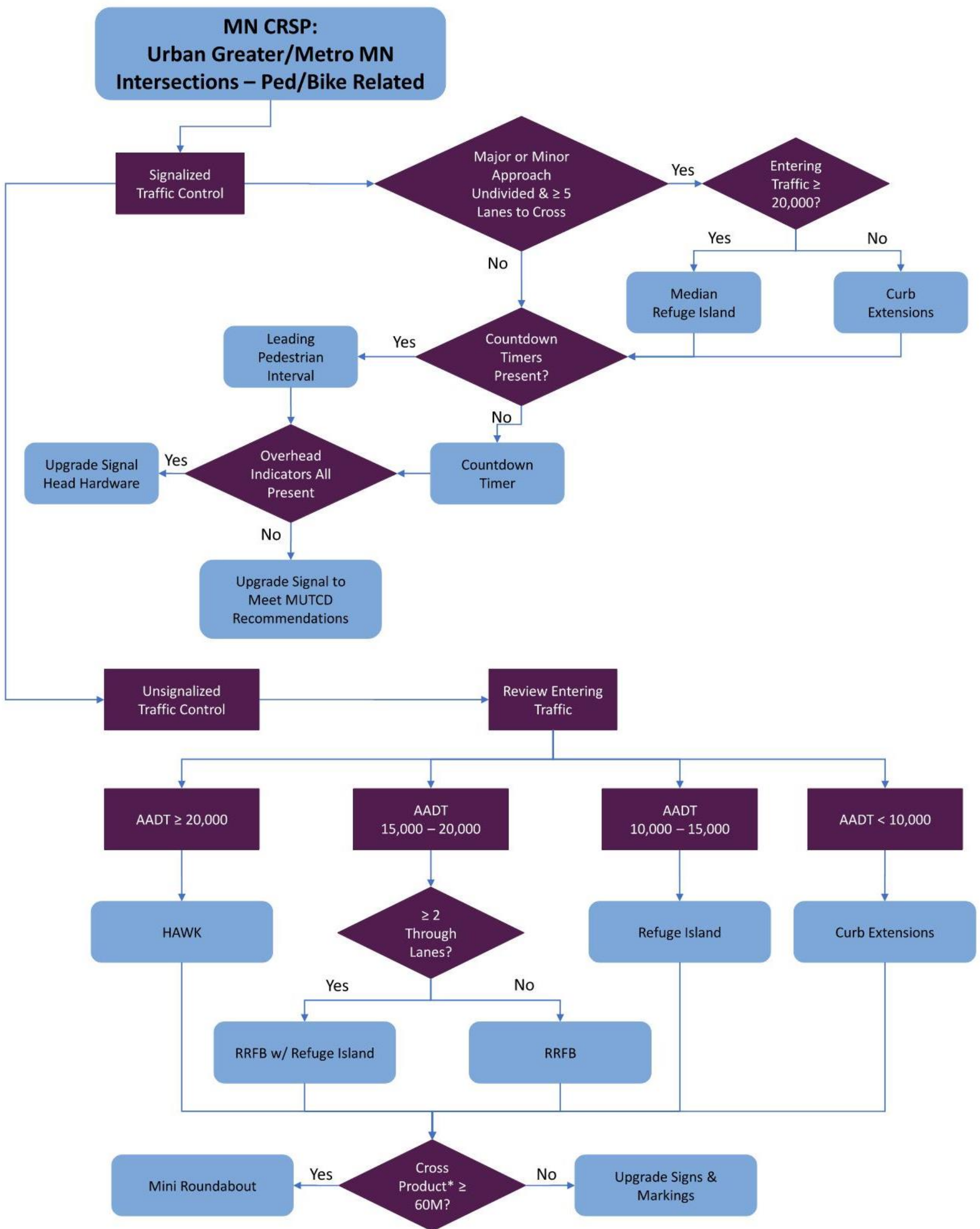


Figure 6-6. Urban Intersections – Pedestrian/Bike-Related Safety Project Decision Tree

Note: locations which do not satisfy any case explicitly outlined in the decision trees are not automatically assigned a project and are separately considered for manual project assignment

* Cross-product is the product of the Entering Major AADT * Entering Minor AADT

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6.8 Recommended Safety Project Overview

The systemic risk assessment process identified at-risk locations that were considered priorities for safety project development and decision trees document the process that considered roadway features, traffic volumes, and the presence of prior crashes. This resulted in identification of a recommended safety project(s). An overview of the recommended projects is provided in the following paragraphs and summarized in Table 6-1. The full list of recommended projects can be found in Appendix F and the corresponding maps with project locations can be found in Appendix G.

- Rural Segments: 19 projects/\$2,410,000
 - Buffer Between Opposing Lanes (2 projects)
 - Clear Zone Maintenance (1)
 - 6" Wet Reflective in Groove (4)
 - Centerline Rumble Strip (7)
 - Shoulder Rumble Strip (1)
 - Enhanced Edgeline (4)
- Rural Curves: 12 projects/\$625,800
 - Clear Zone Maintenance (6)
 - Curve Lighting (1)
 - Chevrons/Arrow Board (5)
- Rural Intersections: 53 projects/\$9,613,500
 - Upgraded Signs & Markings (12)
 - All-Way STOP Conversion (1)
 - Street Lights (9)
 - Left & Right Turn Lanes (15)
 - LED STOP (7)
 - Reduced Conflict Intersection (RCI) (3)
 - All Approach Rural Intersection Conflict Warning System (RICWS) (3)
 - Roundabout (3)
- Urban Segments: 7 projects/\$462,000
 - Road Diet Convert to 3-Lane (3)
 - Sidewalk (4)
- Urban Intersections (Vehicle Related): 2 projects/\$3,000
 - Confirmation Lights (2)
- Urban Intersections (pedestrian/bike related): 7 projects/\$284,000
 - Curb Extension (1)
 - Countdown Timers (2)
 - Leading Pedestrian Interval (1)
 - Upgrade Signal Head Hardware (1)
 - Update Signal to Meet MUTCD Recommendation (2)

Table 6-1. Summary of Beltrami County Recommended Safety Projects


Project Type Category	Number of Projects	Estimated Cost
Rural		
Segments	19	\$2,410,000
Curves	12	\$625,800
Intersections	53	\$9,613,500
<i>Total Rural</i>	<i>84</i>	<i>\$12.65 million</i>
Urban		
Segments	7	\$462,000
Intersections (Vehicle)	2	\$3,000
Intersections (Ped/Bike)	7	\$284,000
<i>Total Urban</i>	<i>16</i>	<i>\$749,000</i>
Total	99	\$13.40 million

One additional task that was completed as part of the overall safety project development process for Beltrami County was compiling project information in a single sheet in order to streamline the process for counties applying for HSIP funding. The HSIP submission form (Figure 6-7) includes; a description of the location, crash history, a summary of the systemic risk factors, a list of alternative strategies considered, identification of the recommended project, and estimated project cost. HSIP Submission forms for every recommended project can be found in Appendix H.

Rural Intersection on CSAH 15 at Great Divide Rd NW

Roadway Information

Description: Great Divide Rd NW
 County: Beltrami
 Area Type: Rural
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 15
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 1,430
 Minor ADT: 270
 Total Entering ADT: 1,700



Crash Data
5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	1	0	1	0
Density (per curve per yr):	0.2	0.0	0.2	0.0
Rate (per MVM):	0.3	0.0	0.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Residential	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	1,700	≥ 2,000	
Leg Configuration:	T	X	
Alignment Skew (degrees):	15	≥ 10	★
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach	T	LTTR or TB	
Turn Lane Configuration:			
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	1	\$250,000
LED Stop:	Proactive	\$7,500	Each	1	\$7,500
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single T:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$257,500

Systemic Project

Notes -

Project Page #: 28
 Curve ID: 15.056
 Date: 11/1/2018

CRSP 2

Figure 6-7. Sample Highway Safety Improvement Program Submission Form

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7.0 References

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Appendix A – List of Analyzed Locations

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Rural Segment List for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Segment ID	CRSP 2 ID	Route System	Route No.	Start Description	End Description	Length [Miles]	Context Zone	Edge Risk	ADT [vpd]	Lane Width [Feet]	Access Density [access per mile]	Total Lane Departure Crashes	Fatal Lane Departure Crashes	Total HO+SSO Crashes	Severe HO+SSO Crashes
1	S.04.4.1.001	1.001	CSAH	1	0.75 miles S of the Beltrami County Line	Beltrami County Line	5.75	Natural	2S	400	12	5.0	0	0	0	0
2	S.04.4.12.003	12.003	CSAH	12	1.67 miles E of Lake Ave NE	Parkers Lake Rd NE	4.09	Residential	1	1,750	12.5	13.4	6	0	4	0
3	S.04.4.12.004	12.004	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	6.02	Natural	2S	645	12.5	8.1	2	0	0	0
4	S.04.4.12.005	12.005	CSAH	12	Mission Rd NE	Scenic Hwy NE	5.09	Natural	2S	490	12.5	9.2	1	0	0	0
5	S.04.4.13.001	13.001	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	7.74	Agricultural	1	165	12.5	8.0	1	0	0	0
6	S.04.4.14.001	14.001	CSAH	14	Becida Rd SW	0.33 miles N of Juneberry Rd NW	5.38	Agricultural	2S	1,060	11	15.3	7	0	1	0
7	S.04.4.14.002	14.002	CSAH	14	0.33 miles N of Juneberry Rd NW	U.S. Rte 2	2.08	Residential	1	735	12	22.6	2	0	0	0
8	S.04.4.15.003	15.003	CSAH	15	Grange Rd NW	Great Divide Rd NW	7.12	Residential	1	2,165	12.5	14.5	6	0	5	0
9	S.04.4.15.004	15.004	CSAH	15	Great Divide Rd NW	Markus Rd NE	6.61	Natural	2C	870	11	5.7	12	0	2	0
10	S.04.4.15.005	15.005	CSAH	15	Red Clover St	S Boundary Rd	2.29	Agricultural	2C	760	11	11.8	1	0	0	0
11	S.04.4.16.001	16.001	CSAH	16	Centerline Rd NW	Wilton Hill Rd NW	5.50	Agricultural	1	400	11	11.6	1	0	0	0
12	S.04.4.19.002	19.002	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE	4.18	Residential	1	1,190	13	10.5	8	2	4	2
13	S.04.4.2.001	2.001	CSAH	2	0.09 miles E of Monroe Ave SW	U.S. Rte 2	3.57	Agricultural	1	725	12	18.0	1	0	1	0
14	S.04.4.20.001	20.001	CSAH	20	Bemidji Rd NE	Big Bass Rd NE	2.64	Residential	2S	2,745	12.5	24.6	4	1	2	0
15	S.04.4.20.002	20.002	CSAH	20	Big Bass Rd NE	Parkers Lake Rd NE	4.51	Natural	2S	970	11.5	10.9	4	0	2	0
16	S.04.4.20.003	20.003	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	11.43	Natural	2C	440	12	6.7	4	0	2	0
17	S.04.4.21.003	21.003	CSAH	21	Glidden Rd NE	Island View Dr NE	6.08	Residential	1	1,540	12.5	15.6	7	0	3	0
18	S.04.4.21.004	21.004	CSAH	21	Island View Dr NE	Hwy 71	0.74	Residential	1	1,050	12.5	21.8	1	1	0	0
19	S.04.4.22.001	22.001	CSAH	22	Beltrami Co Rd 3	Hwy 89	8.41	Natural	1	445	12	6.8	3	0	1	0
20	S.04.4.22.002	22.002	CSAH	22	Hwy 89	Irvine Ave NW	6.00	Agricultural	1	1,150	12	15.8	4	0	2	0
21	S.04.4.22.003	22.003	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	7.05	Residential	2C	555	11.5	17.7	4	0	0	0
22	S.04.4.22.004	22.004	CSAH	22	0.10 miles N of US-71 Old	US-71 Old	0.10	Residential	1	570	12	28.8	0	0	0	0
23	S.04.4.22.005	22.005	CSAH	22	Hwy 71	Long Lake Dr NE	4.45	Residential	2S	570	12	10.6	0	0	0	0
24	S.04.4.22.006	22.006	CSAH	22	3.19 miles E of Long Lake Dr NE	2.40 miles W of Co Rd 39	6.84	Natural	1	125	12.5	2.6	1	0	0	0
25	S.04.4.23.001	23.001	CSAH	23	Hwy 71	Newcomb Ln NE	4.89	Residential	1	845	12	11.3	3	0	0	0
26	S.04.4.23.002	23.002	CSAH	23	Newcomb Ln NE	Nebish Rd NE	6.95	Agricultural	1	395	12.5	10.4	4	0	3	0
27	S.04.4.23.003	23.003	CSAH	23	Nebish Rd NE	Hwy 1	7.75	Agricultural	1	245	12.5	7.2	1	0	1	0
28	S.04.4.23.005	23.005	CSAH	23	Cormant Rd NE	Battle River Rd NE	3.48	Agricultural	1	100	12	7.2	0	0	0	0
29	S.04.4.23.007	23.007	CSAH	23	Bushy Lane Rd NE	Hwy 72	8.41	Agricultural	1	90	11	4.2	0	0	0	0
30	S.04.4.24.001	24.001	CSAH	24	Beltrami County Line	Debs Rd NW	2.91	Agricultural	1	250	12	7.9	0	0	0	0
31	S.04.4.24.002	24.002	CSAH	24	Centerline Rd NW	Hwy 89	5.52	Natural	1	500	12	8.2	2	0	1	0
32	S.04.4.25.001	25.001	CSAH	25	E Grace Lake Rd Se	Roosevelt Rd SE	3.31	Natural	2S	320	12	14.2	0	0	0	0
33	S.04.4.26.001	26.001	CSAH	26	Hwy 89	Irvine Ave NW	5.99	Agricultural	1	255	12.5	9.3	3	0	1	0
34	S.04.4.27.001	27.001	CSAH	27	Roosevelt Rd SE	Power Dam Rd NE	2.00	Agricultural	1	690	12.5	12.5	0	0	0	0
35	S.04.4.27.002	27.002	CSAH	27	Power Dam Rd NE	Birchmont Beach Rd NE	4.07	Natural	1	595	12	7.9	0	0	0	0
36	S.04.4.27.003	27.003	CSAH	27	Birchmont Beach Rd NE	Turtle River Lake Rd NE	3.93	Residential	1	290	12	13.5	2	0	0	0
37	S.04.4.29.001	29.001	CSAH	29	3rd Ave N	Hwy 71	0.15	Recreational	1	505	12	54.1	0	0	0	0
38	S.04.4.29.002	29.002	CSAH	29	Hwy 71	Swinburne Ct NW	1.26	Natural	1	255	12	14.3	0	0	0	0
39	S.04.4.29.003	29.003	CSAH	29	Swinburne Ct NW	Everts Rd NE	2.22	Residential	2S	255	12	14.4	0	0	0	0
40	S.04.4.30.001	30.001	CSAH	30	Hines Rd NE	Carl Ave	5.55	Residential	1	710	12	18.7	1	0	0	0
41	S.04.4.30.002	30.002	CSAH	30	Carl Ave	Hwy 71	0.17	Commercial	1	2,175	12	46.8	0	0	0	0
42	S.04.4.30.003	30.003	CSAH	30	Hwy 71	0.53 miles E of 4th St E	1.10	Residential	1	1,305	12	30.0	1	0	1	0
43	S.04.4.30.004	30.004	CSAH	30	0.53 miles E of 4th St E	Berg Rd NE	5.24	Agricultural	2S	1,050	11	9.5	4	1	0	0
44	S.04.4.31.001	31.001	CSAH	31	Hwy 71	Hwy 71	2.01	Agricultural	2S	95	11	13.9	0	0	0	0

Rural Segment List for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Segment ID	CRSP 2 ID	Route System	Route No.	Start Description	End Description	Length [Miles]	Context Zone	Edge Risk	ADT [vpd]	Lane Width [Feet]	Access Density [access per mile]	Total Lane Departure Crashes	Fatal Lane Departure Crashes	Total HO+SSO Crashes	Severe HO+SSO Crashes
45	S.04.4.31.002	31.002	CSAH	31	Hwy 71	Nebish Rd NE	5.62	Agricultural	2S	285	12	11.9	1	0	0	0
46	S.04.4.32.001	32.001	CSAH	32	Beltrami County Line	Hwy 89	10.57	Agricultural	2S	235	11	7.4	0	0	0	0
47	S.04.4.32.002	32.002	CSAH	32	Hwy 89	Irvine Ave NE	8.76	Agricultural	2C	415	11	11.0	3	0	2	0
48	S.04.4.32.003	32.003	CSAH	32	Irvine Ave NE	Everts Rd NE	5.86	Agricultural	1	385	11	9.7	1	0	0	0
49	S.04.4.32.004	32.004	CSAH	32	Everts Rd NE	Hwy 72	8.07	Agricultural	1	385	11	10.0	3	0	1	0
50	S.04.4.33.001	33.001	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	5.80	Natural	1	1,055	11	10.0	4	0	1	0
51	S.04.4.34.001	34.001	CSAH	34	Pioneer Rd NE	Corral Rd NE	6.02	Agricultural	1	195	12.5	7.5	0	0	0	0
52	S.04.4.35.001	35.001	CSAH	35	Hwy 71	Blackduck Lake Rd NE	1.93	Agricultural	1	270	12.5	20.2	0	0	0	0
53	S.04.4.36.001	36.001	CSAH	36	hwy 1	Shevlin Ave SW	8.56	Agricultural	2S	445	12	10.5	1	0	0	0
54	S.04.4.36.002	36.002	CSAH	36	Shevlin Ave SW	Clark Ave S	0.44	Residential	1	500	12	42.8	0	0	0	0
55	S.04.4.36.003	36.003	CSAH	36	Clark Ave S	0.97 miles E of Clark Ave S	0.97	Commercial	2S	280	12	11.4	0	0	0	0
56	S.04.4.36.004	36.004	CSAH	36	0.97 miles E of Clark Ave S	0	0.49	Agricultural	2S	260	12	12.2	0	0	0	0
57	S.04.4.39.001	39.001	CSAH	39	0.09 miles N or the Beltrami County Line	Power Dam Rd NE	5.08	Natural	2C	420	12	7.9	1	0	1	1
58	S.04.4.39.002	39.002	CSAH	39	Power Dam Rd NE	Turtle River Lake Rd NE	9.28	Natural	2C	485	12.5	8.1	2	0	0	0
59	S.04.4.39.003	39.003	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE	8.24	Natural	2C	515	11	9.2	2	0	2	0
60	S.04.4.39.004	39.004	CSAH	39	Beighley Rd NE	Co Rd 47	0.77	Agricultural	1	740	11	16.9	0	0	0	0
61	S.04.4.4.001	4.001	CSAH	4	0.25 miles E of Sunnyside Rd SE	Forest Rd	3.31	Residential	2S	270	12	17.5	0	0	0	0
62	S.04.4.43.001	43.001	CSAH	43	Hwy 71	0.57 miles SW of Main St	0.90	Agricultural	1	125	11.5	7.8	0	0	0	0
63	S.04.4.43.002	43.002	CSAH	43	0.57 miles SW of Main St	Hwy 71	1.00	Agricultural	1	125	11.5	19.1	0	0	0	0
64	S.04.4.46.001	46.001	CSAH	46	Jackson Ave SW	Hwy 71	1.50	Agricultural	1	610	12	20.1	1	0	1	0
65	S.04.4.47.001	47.001	CSAH	47	Hwy 71	Hwy 71	0.76	Residential	1	1,010	12	43.7	0	0	0	0
66	S.04.4.47.002	47.002	CSAH	47	Hwy 71	0.32 miles N of Hwy 71	0.32	Residential	1	570	12	74.1	0	0	0	0
67	S.04.4.47.003	47.003	CSAH	47	0.32 miles N of Hwy 71	Hwy 72	0.41	Agricultural	1	570	12	17.3	0	0	0	0
68	S.04.4.48.001	48.001	CSAH	48	0.51 miles W of Sportsmen Rd SW	Fern Lake Rd SW	1.51	Agricultural	1	185	12.5	12.6	0	0	0	0
69	S.04.4.5.001	5.001	CSAH	5	Beltrami County Line	Russell Dr NW	6.90	Agricultural	1	275	12.5	8.5	2	0	1	0
70	S.04.4.5.002	5.002	CSAH	5	Russell Dr NW	Hwy 2	0.38	Agricultural	2S	460	12	15.6	0	0	0	0
71	S.04.4.5.003	5.003	CSAH	5	Hwy 2	Old Jefferson Dr NW	0.64	Agricultural	2S	690	11	24.8	0	0	0	0
72	S.04.4.5.004	5.004	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	10.48	Agricultural	2S	390	11	10.0	2	0	2	0
73	S.04.4.5.005	5.005	CSAH	5	Aure Rd NW	Lumberjack Rd NW	6.09	Agricultural	1	255	11	8.5	0	0	0	0
74	S.04.4.50.002	50.002	CSAH	50	Miles Ave SE	U.S. Rte 2	2.69	Commercial	1	3,800	13	3.3	2	0	1	0
75	S.04.4.54.001	54.001	CSAH	54	0.18 miles SW of Forest Rt 2171 Rd	Beltrami County Line	1.85	Natural	1	100	12.5	1.6	0	0	0	0
76	S.04.4.57.002	57.002	CSAH	57	0.05 miles S of Main Ave W	Bemidji Rd NE	0.72	Residential	2S	395	12	16.7	0	0	0	0
77	S.04.4.59.001	59.001	CSAH	59	Bemidji Rd NE	Hwy 71	0.82	Natural	1	1,450	12	15.9	0	0	0	0
78	S.04.4.7.001	7.001	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	7.10	Agricultural	1	1,350	12.5	12.5	11	0	3	0
79	S.04.4.8.002	8.002	CSAH	8	Lake Ave SE	Swenson Rd SE	6.62	Agricultural	1	2,130	12.5	15.0	5	0	1	1
80	S.04.4.8.003	8.003	CSAH	8	Swenson Rd SE	Beltrami County Line	4.97	Residential	1	1,925	12.5	15.5	7	0	1	0
81	S.04.4.9.001	9.001	CSAH	9	U.S. Rte 2	Grange Rd NW	5.65	Agricultural	1	2,150	12	15.2	3	0	1	0
82	S.04.4.9.002	9.002	CSAH	9	Grange Rd NW	Great Divide Rd NW	6.93	Agricultural	2S	370	12	8.2	2	0	1	0
83	S.04.4.90.001	90.001	CSAH	90	U.S. Rte 2	Stevens Ave	0.16	Residential	2S	725	10	43.1	0	0	0	0
84	S.04.4.92.001	92.001	CSAH	92	Summit Ave	Brandl Dr NW	0.31	Campus	1	400	12	44.9	0	0	0	0
85	S.04.4.93.001	93.001	CSAH	93	Main St W	Clark Ave N	0.22	Residential	1	85	12	73.7	0	0	0	0
86	S.04.4.94.001	94.001	CSAH	94	Kelliher Rd SW	Clark Ave N	0.40	Residential	1	160	12	64.4	0	0	0	0
87	S.04.7.305.002	305.002	CR	305	Hwy 71	Island View Dr NE	2.97	Residential	1	255	11	11.8	0	0	0	0
88	S.04.7.401.001	401.001	CR	401	Beltrami Line Rd	Woodward Dr SW	1.81	Agricultural	1	535	11	13.8	1	0	1	0

Rural Segment List for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Segment ID	CRSP 2 ID	Route System	Route No.	Start Description	End Description	Length [Miles]	Context Zone	Edge Risk	ADT [vpd]	Lane Width [Feet]	Access Density [access per mile]	Total Lane Departure Crashes	Fatal Lane Departure Crashes	Total HO+SSO Crashes	Severe HO+SSO Crashes
89	S.04.7.403.001	403.001	CR	403	0.24 miles N of Belmtrami Line Rd	30th St SE	1.26	Agricultural	2S	115	12	8.7	0	0	0	0
90	S.04.7.404.003	404.003	CR	404	Paul Bunyan Rd SE	Van Burn Ave SE	2.49	Residential	1	690	11	17.7	0	0	0	0
91	S.04.7.407.001	407.001	CR	407	0.21 miles N of Beltrami Line Rd	Roosevelt Rd SE	2.81	Agricultural	2S	245	11	11.4	2	0	0	0
92	S.04.7.407.002	407.002	CR	407	Roosevelt Rd SE	Power Dam Rd NE	2.03	Agricultural	1	180	12	14.3	0	0	0	0
93	S.04.7.515.001	515.001	CR	515	U.S. Rte 2	Hwy 89	1.44	Residential	1	610	12.5	20.9	0	0	0	0
Total							374.47						157	5	56	4

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Rural Curve List for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Curve

List No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Speed Limit [mph]	Radius [Feet]	Area Type	ADT [vpd]	Lane Width [Feet]	Shoulder Type	Outside Shoulder Width [Feet]	Total Cross Section Width [ft]	Adjacent Intersection	Visual Trap	Lighting	Outside Edge Risk
1	1.001	CSAH	1	0.75 miles S of the Beltrami County Line	Beltrami County Line	55	4,216	Rural	400	12.0	Paved	1	26	None	None	None	1
2	11.001	CSAH	11	Washington Ave S	15th St SW	55	1,102	Suburban	1,050	12.5	Paved	8	41	None	None	None	1
3	11.002	CSAH	11	Washington Ave S	15th St SW	55	1,155	Suburban	3,400	12.5	Paved	8	41	Intersection	None	None	1
4	11.003	CSAH	11	Washington Ave S	15th St SW	55	1,726	Suburban	3,400	12.5	Paved	8	41	Intersection	None	None	1
5	11.004	CSAH	11	Washington Ave S	15th St SW	55	1,298	Suburban	3,400	12.5	Paved	8	41	Intersection	None	None	1
6	11.005	CSAH	11	Washington Ave S	15th St SW	55	1,605	Suburban	3,400	12.5	Paved	8	41	Intersection	None	None	1
7	11.006	CSAH	11	Washington Ave S	15th St SW	55	1,148	Suburban	3,400	12.5	Paved	8	41	Intersection	None	None	1
8	11.007	CSAH	11	0.20 miles N of Florence Ct NW	U.S. Rte 2	55	828	Suburban	3,300	12.5	Composite	9	43	None	None	None	1
9	11.008	CSAH	11	0.20 miles N of Florence Ct NW	U.S. Rte 2	55	728	Suburban	3,300	12.5	Composite	9	43	Intersection	None	None	1
10	11.009	CSAH	11	0.20 miles N of Florence Ct NW	U.S. Rte 2	55	138	Suburban	3,300	12.5	Composite	9	43	Intersection	None	None	1
11	12.004	CSAH	12	1.67 miles E of Lake Ave NE	Parkers Lake Rd NE	55	3,120	Rural	1,750	12.5	Curb & Gutter	8	41	None	None	None	1
12	12.005	CSAH	12	1.67 miles E of Lake Ave NE	Parkers Lake Rd NE	55	3,633	Rural	1,750	12.5	Paved	6	37	Intersection	None	None	1
13	12.006	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	55	1,103	Rural	720	12.5	Composite	3.5	32	None	None	None	1
14	12.007	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	55	1,241	Rural	720	12.5	Composite	3.5	32	Intersection	None	None	1
15	12.008	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	55	4,903	Rural	720	12.5	Composite	3.5	32	None	None	None	1
16	12.009	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	55	7,124	Rural	720	12.5	Composite	3.5	32	None	None	None	1
17	12.010	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	55	5,541	Rural	490	12.5	Composite	3.5	32	None	None	None	1
18	12.011	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	55	2,885	Rural	490	12.5	Composite	3.5	32	None	None	None	1
19	12.012	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	55	4,413	Rural	490	13.5	Composite	3.5	34	None	None	None	1
20	12.013	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	55	3,003	Rural	490	12.5	Composite	3.5	32	None	None	None	1
21	12.014	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	55	1,426	Rural	490	12.5	Composite	3.5	32	None	None	None	1
22	12.015	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	55	3,183	Rural	490	12.5	Composite	3.5	32	None	None	None	1
23	12.016	CSAH	12	Mission Rd NE	Scenic Hwy NE	55	3,048	Rural	490	12.5	Composite	3.5	32	Intersection	None	None	1
24	12.017	CSAH	12	Mission Rd NE	Scenic Hwy NE	55	1,542	Rural	490	12.5	Composite	3.5	32	Intersection	None	None	1
25	12.018	CSAH	12	Mission Rd NE	Scenic Hwy NE	55	2,873	Rural	490	12.5	Composite	3.5	32	Intersection	None	None	1
26	12.019	CSAH	12	Mission Rd NE	Scenic Hwy NE	55	2,224	Rural	490	12.5	Composite	3.5	32	Intersection	None	None	1
27	12.020	CSAH	12	Mission Rd NE	Scenic Hwy NE	55	4,711	Rural	490	12.5	Composite	3.5	32	Intersection	None	None	1
28	12.021	CSAH	12	Mission Rd NE	Scenic Hwy NE	55	1,925	Rural	490	12.5	Composite	3.5	32	Intersection	None	None	1
29	12.022	CSAH	12	Mission Rd NE	Scenic Hwy NE	55	1,500	Rural	490	12.5	Composite	3.5	32	Intersection	None	None	1
30	13.001	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	55	1,102	Rural	165	12.5	Gravel	4	33	Intersection	None	None	1
31	13.002	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	55	1,150	Rural	165	12.5	Gravel	4	33	Intersection	None	None	1
32	13.003	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	55	1,192	Rural	165	12.5	Gravel	4	33	None	None	None	1
33	13.004	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	55	1,106	Rural	165	12.5	Gravel	4	33	None	None	None	1
34	13.005	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	55	1,091	Rural	165	12.5	Gravel	4	33	None	None	None	2C
35	13.006	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	55	1,078	Rural	165	12.5	Gravel	6.5	38	None	None	None	1
36	13.007	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	55	1,077	Rural	165	12.5	Gravel	4	33	Intersection	None	None	1
37	13.008	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	55	1,276	Rural	165	12.5	Gravel	3	31	Intersection	None	None	1
38	13.009	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	55	3,363	Rural	165	12.5	Gravel	4	33	None	None	None	1
39	13.010	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	55	1,784	Rural	165	12.5	Gravel	5	35	None	None	None	1
40	13.011	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	55	1,734	Rural	165	12.5	Gravel	4.5	34	Intersection	None	None	1
41	13.012	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	55	1,925	Rural	165	12.5	Gravel	4	33	None	None	None	1
42	13.013	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	55	288	Rural	165	12.5	Gravel	5	35	Intersection	None	None	1

Rural Curve List for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Curve

List No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Speed Limit [mph]	Radius [Feet]	Area Type	ADT [vpd]	Lane Width [Feet]	Shoulder Type	Outside Shoulder Width [Feet]	Total Cross Section Width [ft]	Adjacent Intersection	Visual Trap	Lighting	Outside Edge Risk
43	14.002	CSAH	14	Becida Rd SW	0.33 miles N of Juneberry Rd NW	55	710	Suburban	580	11.5	Gravel	2	27	Intersection	PRESENT	None	2C
44	14.003	CSAH	14	Becida Rd SW	0.33 miles N of Juneberry Rd NW	55	1,403	Suburban	580	12.0	Paved	7	38	None	None	None	1
45	14.004	CSAH	14	Becida Rd SW	0.33 miles N of Juneberry Rd NW	55	1,586	Suburban	580	12.0	Paved	6.5	37	Intersection	None	None	1
46	14.005	CSAH	14	0.33 miles N of Juneberry Rd NW	U.S. Rte 2	55	1,299	Suburban	580	12.5	Paved	8	41	None	None	None	1
47	14.006	CSAH	14	0.33 miles N of Juneberry Rd NW	U.S. Rte 2	55	988	Suburban	580	12.5	Paved	8	41	None	None	None	1
48	15.001	CSAH	15	Grange Rd NW	Great Divide Rd NW	55	1,235	Rural	2,000	13.0	Composite	12	50	None	None	None	1
49	15.002	CSAH	15	Grange Rd NW	Great Divide Rd NW	55	2,997	Suburban	2,000	13.0	Composite	12	50	Intersection	None	None	1
50	15.003	CSAH	15	Grange Rd NW	Great Divide Rd NW	55	1,759	Suburban	2,000	13.0	Composite	12	50	Intersection	None	None	1
51	15.004	CSAH	15	Grange Rd NW	Great Divide Rd NW	55	1,280	Suburban	2,000	13.0	Composite	11	48	None	None	None	1
52	15.005	CSAH	15	Grange Rd NW	Great Divide Rd NW	55	1,542	Suburban	2,000	13.0	Composite	NV	26	NV	None	None	1
53	15.006	CSAH	15	Grange Rd NW	Great Divide Rd NW	55	2,049	Suburban	2,000	13.0	Composite	NV	26	NV	None	None	1
54	15.010	CSAH	15	Grange Rd NW	Great Divide Rd NW	55	906	Suburban	2,000	13.0	Composite	10.5	47	Intersection	None	None	1
55	15.011	CSAH	15	Grange Rd NW	Great Divide Rd NW	55	1,608	Suburban	2,000	13.0	Composite	12	50	None	None	None	1
56	15.012	CSAH	15	Grange Rd NW	Great Divide Rd NW	55	856	Suburban	2,000	13.0	Composite	10	46	None	None	None	1
57	15.013	CSAH	15	Grange Rd NW	Great Divide Rd NW	55	897	Suburban	2,000	13.0	Composite	11	48	Intersection	None	None	1
58	15.014	CSAH	15	Hwy 89	Irvine Ave NW	55	3,000	Suburban	540	13.0	Composite	11	48	Intersection	None	None	1
59	15.015	CSAH	15	Great Divide Rd NW	Markus Rd NE	55	755	Rural	860	11.0	Gravel	4	30	Intersection	None	None	2C
60	15.016	CSAH	15	Great Divide Rd NW	Markus Rd NE	55	671	Rural	860	11.0	Gravel	4	30	None	None	None	2C
61	15.017	CSAH	15	Great Divide Rd NW	Markus Rd NE	55	2,363	Rural	860	11.0	Gravel	4	30	None	None	None	2C
62	15.018	CSAH	15	Great Divide Rd NW	Markus Rd NE	55	1,186	Rural	860	11.5	Gravel	3	29	None	None	None	1
63	15.019	CSAH	15	Great Divide Rd NW	Markus Rd NE	55	1,783	Rural	940	11.0	Paved	3	28	None	None	None	1
64	15.020	CSAH	15	Great Divide Rd NW	Markus Rd NE	55	1,250	Rural	940	11.0	Paved	3	28	Intersection	None	None	1
65	15.021	CSAH	15	Great Divide Rd NW	Markus Rd NE	55	613	Rural	940	11.0	Gravel	4	30	Intersection	None	None	1
66	16.001	CSAH	16	Centerline Rd NW	Wilton Hill Rd NW	55	902	Rural	400	11.5	Gravel	5	33	None	None	None	2C
67	16.002	CSAH	16	Centerline Rd NW	Wilton Hill Rd NW	55	922	Rural	400	11.5	Gravel	4	31	None	None	None	1
68	19.001	CSAH	19	Power Dam Rd NE	Elliot Rd NE	40	1,159	Suburban	1,900	13.0	Paved	8	42	Intersection	None	Present	1
69	19.002	CSAH	19	Power Dam Rd NE	Elliot Rd NE	50	882	Suburban	1,900	13.0	Paved	8	42	None	None	None	1
70	19.004	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE	55	1,094	Rural	1,200	13.0	Composite	10	46	Intersection	None	None	1
71	19.005	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE	55	2,314	Rural	1,200	12.5	Paved	6	37	Intersection	None	None	1
72	19.006	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE	55	683	Rural	1,200	12.5	Curb & Gutter	2	29	None	None	None	2C
73	19.007	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE	55	1,192	Rural	1,200	12.5	Curb & Gutter	2	29	None	None	None	1
74	19.008	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE	55	862	Rural	1,200	12.5	Curb & Gutter	2	29	None	None	None	2C
75	19.009	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE	55	474	Rural	1,200	12.5	Curb & Gutter	2	29	None	None	None	1
76	2.001	CSAH	2	0.09 miles E of Monroe Ave SW	U.S. Rte 2	55	771	Rural	450	11.5	Gravel	5	33	Railroad	None	None	1
77	20.001	CSAH	20	Bemidji Rd NE	Big Bass Rd NE	55	571	Suburban	3,450	12.5	Paved	9	43	Intersection	None	None	1
78	20.002	CSAH	20	Bemidji Rd NE	Big Bass Rd NE	55	753	Suburban	3,450	12.0	Paved	3	30	None	None	None	1
79	20.004	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	55	2,603	Rural	600	12.0	Gravel	5	34	None	None	None	1
80	20.005	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	55	1,872	Rural	600	12.0	Gravel	5	34	None	None	None	1
81	20.006	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	55	5,236	Rural	600	12.0	Gravel	5	34	None	None	None	1
82	20.007	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	55	2,110	Rural	600	12.0	Gravel	3	30	None	None	None	1
83	20.008	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	55	1,310	Rural	265	12.0	Gravel	5	34	None	None	None	1
84	20.009	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	55	1,895	Rural	265	12.0	Gravel	5	34	None	None	None	1

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85	20.010	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	55	1,421	Rural	265	12.0	Gravel	5	34	Intersection	None	None	1
86	20.011	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	55	2,447	Rural	265	12.0	Composite	4	32	None	None	None	1
87	20.012	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	55	1,108	Rural	340	12.0	Composite	7	38	Intersection	None	None	1
88	20.013	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	55	1,126	Rural	340	12.0	Gravel	4	32	Intersection	None	None	1
89	20.014	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	55	2,249	Rural	340	12.0	Composite	6	36	None	None	None	1
90	20.015	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	55	1,096	Rural	340	12.0	Gravel	4	32	None	None	None	1
91	20.016	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	55	1,066	Rural	340	12.0	Gravel	5	34	Intersection	None	None	1
92	20.017	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	55	1,057	Rural	340	12.0	Gravel	4	32	Intersection	None	None	1
93	21.002	CSAH	21	29th St NE	Glidden Rd NE	55	2,521	Suburban	2,800	12.5	Paved	10	45	INTERSECTION	PRESENT	NONE	1
94	21.003	CSAH	21	Island View Dr NE	Hwy 71	55	645	Rural	1,050	14.0	Composite	11	50	INTERSECTION	NONE	NONE	1
95	22.001	CSAH	22	Beltrami Co Rd 3	Hwy 89	55	1,308	Rural	240	12.5	Composite	8	41	Intersection	None	None	1
96	22.002	CSAH	22	Beltrami Co Rd 3	Hwy 89	55	891	Rural	550	13.0	Composite	6	38	Intersection	None	None	1
97	22.003	CSAH	22	Beltrami Co Rd 3	Hwy 89	55	1,091	Rural	550	12.5	Composite	7	39	None	None	None	1
98	22.004	CSAH	22	Beltrami Co Rd 3	Hwy 89	55	3,904	Rural	550	12.5	Composite	9	43	None	None	None	1
99	22.005	CSAH	22	Beltrami Co Rd 3	Hwy 89	55	10,662	Rural	550	12.5	Composite	6	37	None	None	None	1
100	22.006	CSAH	22	Beltrami Co Rd 3	Hwy 89	55	1,107	Rural	550	12.5	Composite	7	39	Intersection	PRESENT	None	1
101	22.007	CSAH	22	Beltrami Co Rd 3	Hwy 89	55	1,102	Rural	550	12.5	Composite	8.5	42	Intersection	None	None	1
102	22.008	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	1,156	Suburban	1,100	11.0	Composite	9	40	None	None	None	1
103	22.009	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	1,010	Suburban	1,100	11.0	Composite	7	36	None	None	None	2C
104	22.010	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	727	Suburban	720	11.5	Composite	8	39	Intersection	None	None	1
105	22.011	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	1,964	Suburban	720	11.5	Composite	6	35	Intersection	None	None	1
106	22.012	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	787	Suburban	720	11.5	Composite	10	43	Intersection	None	None	2C
107	22.013	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	752	Suburban	720	11.5	Composite	9	41	Intersection	None	None	1
108	22.014	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	788	Suburban	720	11.5	Composite	5	33	Intersection	None	None	1
109	22.015	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	2,191	Suburban	720	11.5	Composite	6	35	None	None	None	1
110	22.016	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	657	Suburban	370	11.0	Composite	8	38	Intersection	None	None	2C
111	22.017	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	744	Suburban	370	11.0	Composite	7	36	Intersection	None	None	1
112	22.018	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	1,818	Suburban	370	11.5	Composite	5	33	Intersection	None	None	1
113	22.019	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	1,629	Suburban	370	11.5	Composite	5	33	Intersection	None	None	1
114	22.020	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	2,010	Suburban	370	12.0	Composite	8	40	None	None	None	1
115	22.021	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	788	Suburban	370	12.0	Composite	7	38	Intersection	None	None	1
116	22.022	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	1,037	Suburban	370	12.0	Composite	7	38	Intersection	None	None	1
117	22.023	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	1,036	Suburban	370	12.0	Composite	7	38	Intersection	None	None	1
118	22.024	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	1,253	Suburban	370	12.0	Composite	7	38	Intersection	None	None	1
119	22.025	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	986	Suburban	615	12.0	Composite	10	44	Intersection	None	None	1
120	22.026	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	55	1,054	Suburban	495	12.0	Gravel	3	30	Intersection	None	None	1
121	22.027	CSAH	22	Hwy 71	Long Lake Dr NE	55	1,418	Suburban	570	12.0	Gravel	6	36	None	None	None	1
122	22.028	CSAH	22	Hwy 71	Long Lake Dr NE	55	1,908	Suburban	570	12.0	Gravel	4	32	Intersection	None	None	1
123	22.029	CSAH	22	Hwy 71	Long Lake Dr NE	55	959	Suburban	570	12.0	Composite	8	40	Intersection	None	None	1
124	22.040	CSAH	22	Long Lake Dr NE	3.19 miles E of Long Lake Dr NE	55	1,097	Suburban	125	12.0	Paved	2	28	Intersection	None	None	1
125	22.042	CSAH	22	Long Lake Dr NE	3.19 miles E of Long Lake Dr NE	55	425	Suburban	125	12.0	Paved	3	30	None	None	None	1
126	22.043	CSAH	22	Long Lake Dr NE	3.19 miles E of Long Lake Dr NE	55	745	Suburban	125	12.0	Paved	3	30	None	None	None	1

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127	22.044	CSAH	22	Long Lake Dr NE	3.19 miles E of Long Lake Dr NE	55	328	Suburban	125	12.0	Paved	3	30	Intersection	None	None	2C
128	22.045	CSAH	22	Long Lake Dr NE	3.19 miles E of Long Lake Dr NE	55	522	Suburban	125	12.0	Paved	3	30	None	None	None	1
129	22.046	CSAH	22	Long Lake Dr NE	3.19 miles E of Long Lake Dr NE	55	319	Suburban	125	12.0	Paved	3	30	Intersection	None	None	1
130	23.001	CSAH	23	Hwy 71	Newcomb Ln NE	55	961	Rural	640	12.0	Gravel	4	32	Intersection	None	None	1
131	23.002	CSAH	23	Newcomb Ln NE	Nebish Rd NE	55	1,805	Rural	640	12.0	Gravel	4	32	Intersection	None	None	1
132	23.003	CSAH	23	Newcomb Ln NE	Nebish Rd NE	55	1,451	Rural	640	12.0	Gravel	4	32	Intersection	None	None	1
133	23.004	CSAH	23	Newcomb Ln NE	Nebish Rd NE	55	1,891	Rural	640	12.0	Gravel	4	32	Intersection	None	None	1
134	23.005	CSAH	23	Newcomb Ln NE	Nebish Rd NE	55	736	Rural	640	12.0	Gravel	4	32	Intersection	None	None	1
135	23.006	CSAH	23	Nebish Rd NE	Hwy 1	55	274	Rural	150	13.0	Gravel	6	38	Intersection	None	None	1
136	23.015	CSAH	23	Shotley Rd NE	Bushy Lane Rd NE	55	1,628	Rural	120	11.5	Gravel	5	33	None	None	None	1
137	23.016	CSAH	23	Shotley Rd NE	Bushy Lane Rd NE	55	1,556	Rural	120	11.3	Gravel	5	32.5	None	None	None	1
138	24.001	CSAH	24	Beltrami County Line	Debs Rd NW	55	1,581	Rural	250	12.0	Gravel	5	34	Intersection	None	None	1
139	24.002	CSAH	24	Beltrami County Line	Debs Rd NW	55	1,542	Rural	250	12.0	Gravel	5	34	None	None	None	1
140	24.003	CSAH	24	Beltrami County Line	Debs Rd NW	55	3,319	Rural	250	12.0	Gravel	5	34	None	None	None	2C
141	24.004	CSAH	24	Beltrami County Line	Debs Rd NW	55	1,458	Rural	250	12.0	Gravel	5	34	None	None	None	2C
142	24.005	CSAH	24	Beltrami County Line	Debs Rd NW	55	1,635	Rural	250	12.0	Gravel	5	34	None	None	None	1
143	24.006	CSAH	24	Aure Rd NW	Lumberjack Rd NW	55	417	Rural	255	12.0	Gravel	6	36	Intersection	None	None	1
144	24.007	CSAH	24	Centerline Rd NW	Hwy 89	55	6,569	Rural	500	12.0	Gravel	4	32	None	None	None	1
145	24.008	CSAH	24	Centerline Rd NW	Hwy 89	55	1,209	Rural	500	12.0	Gravel	3	30	None	None	None	3
146	24.009	CSAH	24	Centerline Rd NW	Hwy 89	55	2,236	Rural	500	12.0	Gravel	3.5	31	Intersection	None	None	1
147	24.010	CSAH	24	Centerline Rd NW	Hwy 89	55	2,119	Rural	500	12.0	Gravel	4	32	Intersection	None	None	1
148	24.011	CSAH	24	Centerline Rd NW	Hwy 89	55	1,142	Rural	500	11.0	Composite	4.5	31	None	None	None	3
149	24.012	CSAH	24	Centerline Rd NW	Hwy 89	55	2,152	Rural	500	12.0	Gravel	4	32	Intersection	None	None	1
150	24.013	CSAH	24	Centerline Rd NW	Hwy 89	55	814	Rural	500	12.0	Composite	3.5	31	None	None	None	1
151	24.014	CSAH	24	Centerline Rd NW	Hwy 89	55	812	Rural	500	12.0	Composite	3.5	31	Intersection	Present	None	1
152	25.001	CSAH	25	E Grace Lake Rd Se	Roosevelt Rd SE	55	1,148	Rural	320	11.5	Composite	7.5	38	Intersection	None	None	1
153	25.002	CSAH	25	E Grace Lake Rd Se	Roosevelt Rd SE	55	1,504	Rural	320	11.5	Composite	6.5	36	Intersection	None	None	1
154	25.003	CSAH	25	E Grace Lake Rd Se	Roosevelt Rd SE	55	1,456	Rural	320	11.5	Composite	7	37	Intersection	None	None	1
155	25.004	CSAH	25	E Grace Lake Rd Se	Roosevelt Rd SE	55	6,930	Rural	320	12.0	Gravel	5	34	None	None	None	1
156	26.001	CSAH	26	Hwy 89	Irvine Ave NW	55	1,407	Rural	230	12.5	Gravel	4	33	Intersection	None	None	1
157	26.002	CSAH	26	Hwy 89	Irvine Ave NW	55	2,740	Rural	230	12.5	Gravel	4	33	None	None	None	1
158	26.003	CSAH	26	Hwy 89	Irvine Ave NW	55	2,179	Rural	230	12.5	Gravel	3	31	None	None	None	1
159	26.004	CSAH	26	Hwy 89	Irvine Ave NW	55	1,552	Rural	540	12.5	Gravel	3.5	32	Intersection	None	None	1
160	27.001	CSAH	27	Roosevelt Rd SE	Power Dam Rd NE	55	1,248	Rural	690	12.5	Paved	10	45	None	None	None	1
161	27.002	CSAH	27	Roosevelt Rd SE	Power Dam Rd NE	55	1,413	Rural	690	12.5	Paved	6	37	None	None	None	1
162	27.003	CSAH	27	Roosevelt Rd SE	Power Dam Rd NE	55	2,524	Rural	690	12.5	Paved	6	37	None	None	None	1
163	27.004	CSAH	27	Roosevelt Rd SE	Power Dam Rd NE	55	1,597	Rural	690	12.5	Paved	6	37	None	None	None	1
164	27.005	CSAH	27	Roosevelt Rd SE	Power Dam Rd NE	55	996	Rural	690	12.5	Paved	6	37	Intersection	None	None	1
165	27.006	CSAH	27	Roosevelt Rd SE	Power Dam Rd NE	55	844	Rural	690	12.5	Composite	6	37	None	None	None	1
166	27.007	CSAH	27	Power Dam Rd NE	Birchmont Beach Rd NE	55	3,061	Rural	630	12.0	Composite	6	36	None	None	None	1
167	27.008	CSAH	27	Power Dam Rd NE	Birchmont Beach Rd NE	55	1,377	Rural	630	12.0	Composite	8	40	None	None	None	1
168	27.009	CSAH	27	Power Dam Rd NE	Birchmont Beach Rd NE	55	4,679	Rural	540	12.0	Composite	9	42	None	None	None	1

Rural Curve List for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Curve

List No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Speed Limit [mph]	Radius [Feet]	Area Type	ADT [vpd]	Lane Width [Feet]	Shoulder Type	Outside Shoulder Width [Feet]	Total Cross Section Width [ft]	Adjacent Intersection	Visual Trap	Lighting	Outside Edge Risk
169	27.010	CSAH	27	Birchmont Beach Rd NE	Turtle River Lake Rd NE	55	1,167	Rural	290	12.0	Composite	10	44	Intersection	None	None	1
170	27.011	CSAH	27	Birchmont Beach Rd NE	Turtle River Lake Rd NE	55	2,827	Rural	290	12.0	Composite	11	46	None	None	None	1
171	27.012	CSAH	27	Birchmont Beach Rd NE	Turtle River Lake Rd NE	55	985	Rural	290	12.0	Composite	9.5	43	None	None	None	1
172	27.013	CSAH	27	Birchmont Beach Rd NE	Turtle River Lake Rd NE	55	1,291	Rural	290	12.0	Composite	8.5	41	Intersection	None	None	1
173	27.014	CSAH	27	Birchmont Beach Rd NE	Turtle River Lake Rd NE	55	970	Rural	290	12.0	Composite	8.5	41	None	None	None	1
174	29.003	CSAH	29	Hwy 71	Swinburne Ct NW	55	1,512	Rural	255	12.0	Gravel	2	28	None	None	None	2S
175	29.004	CSAH	29	Hwy 71	Swinburne Ct NW	55	1,219	Rural	255	12.0	Gravel	6	36	Intersection	None	None	1
176	29.005	CSAH	29	Swinburne Ct NW	Everts Rd NE	55	829	Rural	255	12.0	Composite	6	36	Intersection	None	None	1
177	29.006	CSAH	29	Swinburne Ct NW	Everts Rd NE	55	1,139	Rural	255	12.0	Composite	8	40	Intersection	None	None	1
178	29.007	CSAH	29	Swinburne Ct NW	Everts Rd NE	55	1,525	Rural	255	12.0	Composite	4	32	Intersection	None	None	1
179	29.008	CSAH	29	Swinburne Ct NW	Everts Rd NE	55	960	Rural	255	12.0	Composite	4	32	Intersection	None	None	1
180	30.001	CSAH	30	Hines Rd NE	Carl Ave	55	1,229	Suburban	325	12.0	Gravel	6	36	None	None	None	1
181	30.002	CSAH	30	Hines Rd NE	Carl Ave	55	1,621	Suburban	325	12.0	Gravel	5	34	None	None	None	1
182	30.003	CSAH	30	Hines Rd NE	Carl Ave	55	1,884	Suburban	325	12.0	Gravel	5	34	None	None	None	1
183	30.004	CSAH	30	Hines Rd NE	Carl Ave	55	1,145	Suburban	325	12.0	Gravel	4	32	Intersection	None	None	1
184	30.005	CSAH	30	Hines Rd NE	Carl Ave	55	3,366	Suburban	325	12.0	Gravel	5	34	None	None	None	1
185	30.006	CSAH	30	Hines Rd NE	Carl Ave	55	1,819	Suburban	325	12.0	Gravel	5	34	None	None	None	1
186	30.007	CSAH	30	Hines Rd NE	Carl Ave	55	2,818	Suburban	325	12.0	Gravel	4	32	None	None	None	1
187	30.008	CSAH	30	Hines Rd NE	Carl Ave	55	1,166	SUBURBAN	325	11.0	Gravel	5.5	33	Intersection	None	None	1
188	30.009	CSAH	30	Hines Rd NE	Carl Ave	55	1,658	Suburban	670	11.0	Gravel	5.5	33	None	None	None	1
189	30.010	CSAH	30	Hines Rd NE	Carl Ave	55	1,404	Suburban	670	11.0	Gravel	4	30	None	None	None	1
190	30.011	CSAH	30	0.53 miles E of 4th St E	Berg Rd NE	55	1,018	Rural	1,050	11.0	Gravel	4	30	None	None	None	1
191	30.012	CSAH	30	0.53 miles E of 4th St E	Berg Rd NE	55	979	Rural	1,050	11.0	Gravel	3	28	None	None	None	1
192	30.013	CSAH	30	0.53 miles E of 4th St E	Berg Rd NE	55	984	Rural	1,050	11.0	Gravel	3	28	None	None	None	1
193	30.014	CSAH	30	0.53 miles E of 4th St E	Berg Rd NE	55	841	Rural	1,050	11.0	Gravel	4	30	None	None	None	1
194	31.004	CSAH	31	Hwy 71	Nebish Rd NE	55	816	Rural	310	12.0	Composite	5.5	35	None	None	None	1
195	31.005	CSAH	31	Hwy 71	Nebish Rd NE	55	1,595	Rural	310	12.0	Composite	5.5	35	Intersection	None	None	1
196	31.006	CSAH	31	Hwy 71	Nebish Rd NE	55	954	Rural	310	12.0	Composite	6	36	Intersection	None	None	1
197	32.001	CSAH	32	Beltrami County Line	Hwy 89	55	1,494	Rural	145	12.0	Composite	3	30	None	None	None	2C
198	32.002	CSAH	32	Beltrami County Line	Hwy 89	55	999	Rural	145	12.0	Gravel	5	34	None	None	None	2C
199	32.003	CSAH	32	Beltrami County Line	Hwy 89	55	1,337	Rural	145	12.0	Gravel	1.5	27	Intersection	None	None	3
200	32.004	CSAH	32	Beltrami County Line	Hwy 89	55	3,395	Rural	145	12.0	Composite	5	34	Intersection	None	None	2C
201	32.005	CSAH	32	Beltrami County Line	Hwy 89	55	4,835	Rural	145	12.0	Gravel	2.5	29	None	None	None	1
202	32.006	CSAH	32	Aure Rd NW	Lumerjack Rd NW	55	956	Rural	40	12.0	Gravel	3	30	None	None	None	1
203	32.007	CSAH	32	Beltrami County Line	Hwy 89	55	729	Rural	270	12.0	Gravel	4	32	None	None	None	1
204	32.008	CSAH	32	Beltrami County Line	Hwy 89	55	1,308	Rural	270	12.0	Gravel	4	32	None	None	None	1
205	32.009	CSAH	32	Beltrami County Line	Hwy 89	55	759	Rural	270	12.0	Gravel	4	32	None	None	None	1
206	32.010	CSAH	32	Beltrami County Line	Hwy 89	55	1,191	Rural	270	12.0	Gravel	3	30	None	None	None	2C
207	32.011	CSAH	32	Beltrami County Line	Hwy 89	55	780	Rural	270	12.0	Gravel	3	30	Intersection	None	None	1
208	32.012	CSAH	32	Beltrami County Line	Hwy 89	55	735	Rural	270	12.0	Gravel	4	32	None	None	None	1
209	32.013	CSAH	32	Beltrami County Line	Hwy 89	55	1,915	Rural	270	12.0	Gravel	3.5	31	None	None	None	1
210	32.014	CSAH	32	Beltrami County Line	Hwy 89	55	958	Rural	270	12.0	Gravel	3.5	31	Intersection	None	None	1

Rural Curve List for Beltrami County

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211	32.015	CSAH	32	Beltrami County Line	Hwy 89	55	1,973	Rural	270	12.0	Gravel	3	30	None	None	None	1
212	32.016	CSAH	32	Beltrami County Line	Hwy 89	55	789	Rural	270	12.0	Gravel	3	30	None	None	None	1
213	32.017	CSAH	32	Beltrami County Line	Hwy 89	55	810	Rural	270	12.0	Composite	5	34	None	None	None	1
214	32.018	CSAH	32	Hwy 89	Irvine Ave NE	55	813	Rural	415	12.0	Composite	6	36	None	None	None	1
215	32.019	CSAH	32	Hwy 89	Irvine Ave NE	55	798	Rural	415	12.0	Gravel	5	34	Intersection	Present	None	1
216	32.020	CSAH	32	Hwy 89	Irvine Ave NE	55	986	Rural	415	12.0	Gravel	4	32	None	None	None	2C
217	32.021	CSAH	32	Hwy 89	Irvine Ave NE	55	969	Rural	415	12.0	Gravel	7	38	None	None	None	1
218	32.022	CSAH	32	Hwy 89	Irvine Ave NE	55	1,320	Rural	415	12.0	Composite	6	36	Intersection	None	None	1
219	32.023	CSAH	32	Everts Rd NE	Hwy 72	55	857	Rural	385	12.0	Gravel	3	30	None	None	None	1
220	32.024	CSAH	32	Everts Rd NE	Hwy 72	55	828	Rural	385	12.0	Gravel	3	30	None	None	None	1
221	32.025	CSAH	32	Everts Rd NE	Hwy 72	55	1,051	Rural	385	12.0	Gravel	3	30	Intersection	None	None	1
222	33.001	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	55	1,771	Rural	1,600	11.0	Gravel	2	26	None	None	None	1
223	33.002	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	55	1,151	Rural	1,600	11.0	Gravel	2	26	None	None	None	1
224	33.003	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	55	575	Rural	1,600	11.0	Gravel	4	30	Intersection	None	None	1
225	33.004	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	55	825	Rural	1,600	11.0	Gravel	2	26	Intersection	None	None	1
226	33.005	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	55	691	Rural	1,600	11.0	Gravel	2	26	None	None	None	1
227	33.006	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	55	1,105	Rural	375	12.0	Composite	11	46	Intersection	None	None	1
228	33.007	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	55	714	Rural	375	12.0	Composite	12	48	None	None	None	1
229	33.008	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	55	699	Rural	375	12.0	Composite	12	48	Intersection	None	None	1
230	33.009	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	55	1,130	Rural	375	12.0	Composite	12	48	Intersection	None	None	1
231	35.001	CSAH	35	Hwy 71	Blackduck Lake Rd NE	55	364	Rural	270	13.0	Composite	6	38	Intersection	None	None	1
232	35.002	CSAH	35	Hwy 71	Blackduck Lake Rd NE	55	729	Rural	270	13.0	Composite	6	38	Intersection	Present	None	1
233	35.003	CSAH	35	Hwy 71	Blackduck Lake Rd NE	55	695	Rural	270	13.0	Composite	7	40	None	None	None	1
234	35.004	CSAH	35	Hwy 71	Blackduck Lake Rd NE	55	685	Rural	270	13.0	Composite	6.5	39	None	None	None	1
235	36.001	CSAH	36	hwy 1	Shevlin Ave SW	55	1,148	Rural	425	12.0	Composite	9	42	Intersection	None	None	1
236	39.001	CSAH	39	0.09 miles N or the Beltrami County Line	Power Dam Rd NE	55	2,838	Rural	420	12.5	Composite	6.5	38	None	None	None	1
237	39.002	CSAH	39	0.09 miles N or the Beltrami County Line	Power Dam Rd NE	55	1,515	Rural	420	12.5	Composite	10	45	Intersection	None	None	1
238	39.003	CSAH	39	0.09 miles N or the Beltrami County Line	Power Dam Rd NE	55	3,030	Rural	420	12.5	Composite	10	45	Intersection	None	None	1
239	39.004	CSAH	39	0.09 miles N or the Beltrami County Line	Power Dam Rd NE	55	1,493	Rural	420	12.5	Composite	10	45	Intersection	None	None	1
240	39.005	CSAH	39	Power Dam Rd NE	Turtle River Lake Rd NE	55	6,982	Rural	630	12.5	Composite	6.5	38	None	None	None	1
241	39.006	CSAH	39	Power Dam Rd NE	Turtle River Lake Rd NE	55	1,892	Rural	630	12.5	Composite	7.5	40	None	None	None	1
242	39.007	CSAH	39	Power Dam Rd NE	Turtle River Lake Rd NE	55	1,963	Rural	440	12.5	Composite	7.5	40	Intersection	None	None	1
243	39.008	CSAH	39	Power Dam Rd NE	Turtle River Lake Rd NE	55	960	Rural	440	12.0	Composite	12	48	None	None	None	1
244	39.009	CSAH	39	Power Dam Rd NE	Turtle River Lake Rd NE	55	3,712	Rural	440	12.0	Composite	7	38	None	None	None	1
245	39.010	CSAH	39	Power Dam Rd NE	Turtle River Lake Rd NE	55	1,553	Rural	440	12.0	Gravel	4	32	Intersection	None	None	1
246	39.011	CSAH	39	Power Dam Rd NE	Turtle River Lake Rd NE	55	1,069	Rural	440	12.0	Gravel	3	30	None	None	None	1
247	39.012	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE	55	990	Rural	440	11.0	Gravel	6	34	Intersection	Present	None	2C
248	39.013	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE	55	2,506	Rural	440	11.0	Gravel	3	28	None	None	None	1
249	39.014	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE	55	1,152	Rural	440	11.0	Gravel	5	32	Intersection	None	None	1
250	39.015	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE	55	1,448	Rural	440	11.0	Gravel	4	30	Intersection	None	None	2C
251	39.016	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE	55	4,808	Rural	440	11.0	Gravel	3	28	None	None	None	1
252	39.017	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE	55	2,773	Rural	440	11.0	Gravel	3	28	Intersection	None	None	1

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253	39.018	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE	55	1,996	Rural	440	11.0	Gravel	3	28	None	None	None	1
254	39.019	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE	55	3,745	Rural	440	11.0	Gravel	3	28	None	None	None	1
255	39.020	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE	55	2,313	Rural	440	11.0	Gravel	3	28	None	None	None	1
256	39.021	CSAH	39	Beighley Rd NE	Co Rd 47	55	1,500	Rural	740	11.0	Gravel	3	28	None	None	None	1
257	4.001	CSAH	4	0.25 miles E of Sunnyside Rd SE	Forest Rd	55	812	Suburban	270	12.0	Gravel	5	34	Intersection	None	None	1
258	4.002	CSAH	4	0.25 miles E of Sunnyside Rd SE	Forest Rd	55	790	Suburban	270	12.0	Gravel	5	34	Intersection	Present	None	1
259	4.003	CSAH	4	0.25 miles E of Sunnyside Rd SE	Forest Rd	55	4,771	Suburban	270	12.0	Gravel	2	28	Intersection	None	None	1
260	4.004	CSAH	4	E Grace Lake Rd Se	Roosevelt Rd SE	55	843	Suburban	270	12.0	Gravel	3	30	Intersection	None	None	1
261	43.001	CSAH	43	Hwy 71	0.57 miles SW of Main St	55	234	Rural	125	12.0	Gravel	6	36	Intersection	None	None	1
262	43.002	CSAH	43	Hwy 71	0.57 miles SW of Main St	55	645	Rural	125	12.0	Gravel	4	32	None	None	None	1
263	43.003	CSAH	43	Hwy 71	0.57 miles SW of Main St	55	777	Rural	125	12.0	Composite	8	40	Intersection	None	None	1
264	48.001	CSAH	48	0.51 miles W of Sportsmen Rd SW	Fern Lake Rd SW	55	238	Rural	390	12.5	Gravel	7.5	40	Intersection	None	None	1
265	5.001	CSAH	5	Beltrami County Line	Russell Dr NW	55	9,826	Rural	290	12.5	Composite	6	37	Intersection	None	None	1
266	5.002	CSAH	5	Beltrami County Line	Russell Dr NW	55	29,067	Rural	290	12.0	Composite	8	40	None	None	None	1
267	5.003	CSAH	5	Russell Dr NW	Hwy 2	55	595	Rural	445	11.0	Gravel	2	26	None	None	None	2S
268	5.004	CSAH	5	Russell Dr NW	Hwy 2	55	538	Rural	445	11.0	Gravel	2	26	Railroad	None	None	2S
269	5.005	CSAH	5	Hwy 2	Old Jefferson Dr NW	55	1,453	Rural	690	11.0	Gravel	3	28	Intersection	None	None	1
270	5.006	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	55	8,815	Rural	690	11.0	Gravel	2	26	None	None	None	2S
271	5.007	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	55	1,132	Rural	690	11.0	Gravel	3	28	None	None	None	1
272	5.008	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	55	1,778	Rural	400	12.0	Gravel	3	30	None	None	None	1
273	5.009	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	55	3,234	Rural	400	12.0	Gravel	3	30	None	None	None	1
274	5.010	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	55	1,945	Rural	400	12.0	Gravel	3	30	None	None	None	1
275	5.011	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	55	825	Rural	400	12.0	Gravel	3	30	None	None	None	1
276	5.012	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	55	626	Rural	400	12.0	Gravel	3	30	None	None	None	1
277	5.013	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	55	485	Rural	400	12.0	Gravel	4	32	None	None	None	1
278	5.014	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	55	903	Rural	400	12.0	Gravel	3.5	31	Intersection	None	None	1
279	5.017	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	55	1,438	Rural	400	12.0	Gravel	7	38	Intersection	None	None	1
280	5.018	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	55	2,005	Rural	255	12.0	Gravel	5.5	35	Intersection	None	None	1
281	5.019	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	55	878	Rural	255	12.0	Gravel	6	36	None	None	None	1
282	5.020	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	55	2,145	Rural	255	12.0	Gravel	5	34	None	None	None	1
283	5.021	CSAH	5	Aure Rd NW	Lumberjack Rd NW	55	823	Rural	255	12.0	Composite	7	38	Intersection	Present	None	1
284	5.022	CSAH	5	Aure Rd NW	Lumberjack Rd NW	55	3,486	Rural	255	11.0	Composite	5.5	33	None	None	None	1
285	5.023	CSAH	5	Aure Rd NW	Lumberjack Rd NW	55	736	Rural	255	11.0	Composite	6	34	Intersection	None	None	1
286	5.024	CSAH	5	Aure Rd NW	Lumberjack Rd NW	55	933	Rural	255	11.0	Composite	5	32	None	None	None	1
287	5.025	CSAH	5	Aure Rd NW	Lumberjack Rd NW	55	1,623	Rural	255	11.0	Composite	5	32	Intersection	None	None	1
288	5.026	CSAH	5	Aure Rd NW	Lumberjack Rd NW	55	716	Rural	255	11.0	Composite	5	32	None	None	None	1
289	5.027	CSAH	5	Aure Rd NW	Lumberjack Rd NW	55	728	Rural	255	11.0	Composite	4	30	None	None	None	NV
290	50.001	CSAH	50	Miles Ave SE	U.S. Rte 2	55	6,530	Suburban	3,800	19.0	Paved	3	44	Intersection	None	None	1
291	50.002	CSAH	50	Miles Ave SE	U.S. Rte 2	55	5,166	Suburban	3,800	12.5	Paved	3	31	Intersection	None	None	1
292	50.003	CSAH	50	Miles Ave SE	U.S. Rte 2	55	2,216	Suburban	5,700	12.5	Paved	10	45	Intersection	None	None	1
293	50.004	CSAH	50	Miles Ave SE	U.S. Rte 2	55	3,619	Suburban	3,800	12.5	Paved	10	45	Intersection	None	None	1
294	52.001	CSAH	52	Hwy 71	Bemidji Ave N	30	566	Suburban	3,600	12.5	Paved	9	43	Intersection	None	None	1

Rural Curve List for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Curve

List No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Speed Limit [mph]	Radius [Feet]	Area Type	ADT [vpd]	Lane Width [Feet]	Shoulder Type	Outside Shoulder Width [Feet]	Total Cross Section Width [ft]	Adjacent Intersection	Visual Trap	Lighting	Outside Edge Risk
295	52.002	CSAH	52	Hwy 71	Bemidji Ave N	30	560	Suburban	3,600	12.5	Composite	12.5	50	None	None	None	1
296	54.001	CSAH	54	0.18 miles SW of Forest Rt 2171 Rd	Beltrami County Line	55	1,402	Rural	100	13.0	Paved	5.5	37	Intersection	None	None	1
297	54.002	CSAH	54	0.18 miles SW of Forest Rt 2171 Rd	Beltrami County Line	55	2,908	Rural	100	13.0	Paved	5	36	Intersection	None	None	1
298	54.003	CSAH	54	0.18 miles SW of Forest Rt 2171 Rd	Beltrami County Line	55	2,329	Rural	100	13.0	Paved	4	34	None	None	None	1
299	54.004	CSAH	54	0.18 miles SW of Forest Rt 2171 Rd	Beltrami County Line	55	2,129	Rural	100	13.0	Paved	4	34	None	None	None	1
300	54.005	CSAH	54	0.18 miles SW of Forest Rt 2171 Rd	Beltrami County Line	55	786	Rural	100	13.0	Paved	5	36	None	None	None	2C
301	57.001	CSAH	57	Bemidji Rd NE	0.07 miles E of Raspberry Ct NE	55	255	Suburban	510	12.0	Gravel	3	30	Intersection	None	None	1
302	58.001	CSAH	58	Resv Hwy 18	Pioneer Rd NE	55	657	Rural	100	12.0	Gravel	5	34	Intersection	None	None	1
303	58.002	CSAH	58	Resv Hwy 18	Pioneer Rd NE	55	2,678	Rural	100	12.0	Gravel	2	28	None	None	None	1
304	59.001	CSAH	59	Bemidji Rd NE	Hwy 71	55	3,829	Rural	1,450	12.0	Gravel	5	34	None	None	None	2C
305	59.002	CSAH	59	Bemidji Rd NE	Hwy 71	55	443	Rural	1,450	12.0	Gravel	5	34	None	None	None	1
306	59.003	CSAH	59	Bemidji Rd NE	Hwy 71	55	492	Rural	1,450	12.0	Gravel	5	34	None	None	None	2C
307	7.001	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	55	818	Rural	970	13.0	Composite	8.5	43	None	None	None	1
308	7.002	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	55	2,674	Rural	970	13.0	Composite	7	40	None	None	None	1
309	7.003	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	55	1,050	Rural	970	13.0	Composite	7	40	Intersection	None	None	1
310	7.004	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	55	820	Rural	970	13.0	Composite	8	42	Intersection	None	None	1
311	7.005	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	55	834	Rural	970	13.0	Composite	7	40	Intersection	None	None	1
312	7.006	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	55	867	Rural	970	13.0	Composite	8	42	None	None	None	1
313	7.007	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	55	1,375	Rural	970	13.0	Composite	7	40	None	None	None	1
314	7.008	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	55	949	Rural	970	13.0	Composite	8	42	Intersection	None	None	1
315	7.009	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	55	815	Rural	1,750	13.0	Composite	7	40	Intersection	None	None	1
316	7.010	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	55	1,279	Rural	1,750	13.0	Composite	7	40	None	None	None	1
317	7.011	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	55	254	Rural	1,750	17.0	Gravel	2	38	Intersection	PRESENT	None	1
318	8.001	CSAH	8	Lake Ave SE	Swenson Rd SE	55	1,703	Rural	1,600	12.5	Composite	10	45	None	None	None	1
319	8.002	CSAH	8	Lake Ave SE	Swenson Rd SE	55	1,146	Rural	1,600	12.5	Composite	9.5	44	Intersection	None	None	1
320	8.003	CSAH	8	Lake Ave SE	Swenson Rd SE	55	1,723	Rural	1,600	12.5	Composite	10.5	46	None	None	None	1
321	8.004	CSAH	8	Swenson Rd SE	Beltrami County Line	55	12,897	Rural	1,600	12.0	Composite	10	44	None	None	None	1
322	8.005	CSAH	8	Swenson Rd SE	Beltrami County Line	55	1,445	Rural	1,600	12.0	Composite	10	44	Intersection	None	None	1
323	8.006	CSAH	8	Swenson Rd SE	Beltrami County Line	55	1,964	Rural	1,600	12.0	Composite	10	44	None	None	None	1
324	8.007	CSAH	8	Swenson Rd SE	Beltrami County Line	55	934	Rural	1,600	12.0	Composite	10	44	Intersection	None	None	1
325	8.008	CSAH	8	Swenson Rd SE	Beltrami County Line	55	872	Rural	1,600	12.0	Composite	11	46	Intersection	None	None	1
326	8.009	CSAH	8	Swenson Rd SE	Beltrami County Line	55	840	Rural	1,600	12.0	Composite	10.5	45	Intersection	None	None	1
327	8.010	CSAH	8	Swenson Rd SE	Beltrami County Line	55	2,704	Rural	1,600	12.0	Composite	10	44	None	None	None	1
328	8.011	CSAH	8	Swenson Rd SE	Beltrami County Line	55	834	Rural	1,600	12.0	Composite	11	46	Intersection	None	None	1
329	9.001	CSAH	9	U.S. Rte 2	Grange Rd NW	55	1,083	Suburban	2,150	12.5	Composite	6	37	Intersection	None	None	1
330	9.002	CSAH	9	U.S. Rte 2	Grange Rd NW	55	2,030	Suburban	2,150	12.5	Paved	5	35	None	None	None	1
331	9.003	CSAH	9	U.S. Rte 2	Grange Rd NW	55	1,992	Suburban	2,150	12.5	Paved	6	37	None	None	None	1
332	9.004	CSAH	9	U.S. Rte 2	Grange Rd NW	55	1,616	Suburban	2,150	12.5	Composite	7	39	Intersection	None	None	1
333	9.005	CSAH	9	Grange Rd NW	Great Divide Rd NW	55	2,400	Rural	370	12.0	Gravel	6	36	Intersection	None	None	1
334	9.006	CSAH	9	Grange Rd NW	Great Divide Rd NW	55	1,612	Rural	370	12.0	Gravel	6	36	Intersection	None	None	1
335	9.007	CSAH	9	Grange Rd NW	Great Divide Rd NW	55	6,140	Rural	370	12.0	Gravel	7	38	Intersection	None	None	1
336	9.008	CSAH	9	Grange Rd NW	Great Divide Rd NW	55	1,101	Rural	370	12.0	Composite	8	40	None	None	None	1

Rural Curve List for Beltrami County

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List No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Speed Limit [mph]	Radius [Feet]	Area Type	ADT [vpd]	Lane Width [Feet]	Shoulder Type	Outside Shoulder Width [Feet]	Total Cross Section Width [ft]	Adjacent Intersection	Visual Trap	Lighting	Outside Edge Risk
337	9.009	CSAH	9	Grange Rd NW	Great Divide Rd NW	55	1,106	Rural	370	12.0	Composite	8	40	Intersection	PRESENT	None	1
338	305.001	CR	305	Hwy 71	Island View Dr NE	55	397	Suburban	130	12.0	Composite	6.5	37	None	None	None	2C
339	305.002	CR	305	Hwy 71	Island View Dr NE	55	458	Suburban	130	12.0	Composite	4	32	None	None	None	2C
340	305.003	CR	305	Hwy 71	Island View Dr NE	55	486	Suburban	130	12.0	Composite	8	40	None	None	None	2C
341	305.004	CR	305	Hwy 71	Island View Dr NE	55	623	Suburban	130	12.0	Gravel	4	32	None	None	None	2C
342	305.005	CR	305	Hwy 71	Island View Dr NE	55	259	Suburban	130	12.0	Gravel	4.5	33	None	None	None	2C
343	305.006	CR	305	Hwy 71	Island View Dr NE	55	713	Suburban	130	12.0	Gravel	5	34	None	None	None	2C
344	305.007	CR	305	Hwy 71	Island View Dr NE	55	255	Suburban	130	12.0	Gravel	4.5	33	None	None	None	1
345	305.008	CR	305	Hwy 71	Island View Dr NE	55	241	Suburban	130	12.0	Gravel	4	32	None	None	None	1
346	305.009	CR	305	Hwy 71	Island View Dr NE	55	639	Suburban	130	12.0	Gravel	6	36	None	None	None	1
347	305.011	CR	305	Hwy 71	Island View Dr NE	55	830	Suburban	130	12.0	Gravel	5	34	None	None	None	2C
348	305.012	CR	305	Hwy 71	Island View Dr NE	55	497	Suburban	130	12.0	Gravel	4	32	None	None	None	1
349	307.004	CR	307	Turtle River Lake Rd NE	0.51 miles S of Main St E	55	1,128	Rural	35	13.0	Paved	6	38	None	None	None	1
350	402.001	CR	402	0.31 miles W of Jackson Ave SW	Jackson Ave SW	30	1,936	Suburban	260	11.0	Gravel	3.5	29	None	None	None	2C
351	402.002	CR	402	0.31 miles W of Jackson Ave SW	Jackson Ave SW	30	375	Suburban	260	11.0	Gravel	4	30	Intersection	None	None	2C
352	402.003	CR	402	0.31 miles W of Jackson Ave SW	Jackson Ave SW	30	478	Suburban	260	11.0	Gravel	3.5	29	Intersection	None	None	2C
353	509.001	CR	509	Beltrami Co Rd 3	Hwy 89	55	177	Rural	550	12.0	Gravel	6	36	Intersection	None	None	1
354	515.001	CR	515	U.S. Rte 2	Hwy 89	55	142	Rural	610	12.5	Composite	5	35	Intersection	None	None	1

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Rural Intersection List for Beltrami County

CRSP2 ID Example: 1.001: 1- CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Area Type	Context Zone	Total Entering ADT [vpd]	Volume Cross Product [vpd ²]	Leg Configuration	Alignment Skew [Degrees]	Adjacent RR Crossing	Adjacent Curve	Adjacent Development	Previous STOP (>5mi)	Major Approach Speed Limit	Major Approach Turn Lane Configuration	K	A	B	C	PDO	Crash Cost
1	11.001	CSAH	11	Washington Ave SW	Small Town	Residential	7,200	7,200,000	X	0	None	None	None	<5	50	LTR	0	0	2	0	3	\$363,400
2	11.005	CSAH	11	Monroe Ave SW	Small Town	Residential	2,465	534,000	T	0	None	Horizontal	None	<5	55	TR	0	0	0	0	1	\$7,800
3	11.030	CSAH	11	USTH 2	Small Town	Industrial	19,342	38,338,200	X	0	None	Horizontal	None	<5	65	LTR	0	0	2	3	20	\$757,000
4	12.001	CSAH	12	1st St E	Small Town	Residential	9,320	18,688,000	X	0	None	None	Present	<5	40	T	0	0	0	0	4	\$31,200
5	12.004	CSAH	12	5th St NE	Small Town	Residential	7,720	13,362,000	X	0	None	None	None	<5	40	T	0	0	0	0	2	\$15,600
6	12.005	CSAH	12	Mill St NE	Small Town	Residential	5,570	2,397,000	X	0	None	None	None	<5	40	T	0	0	0	0	3	\$23,400
7	12.009	CSAH	12	Lake Ave NE	Small Town	Residential	4,625	3,281,250	T	20	None	None	None	>5	45	LR	0	0	0	1	1	\$94,800
8	12.017	CSAH	12	Sunnyside Rd NE	Rural	Agriculture	1,840	157,500	X	0	None	None	None	<5	45	TR	0	0	0	0	0	\$0
9	12.025	CSAH	12	Parkers Lake Rd NE	Rural	Agriculture	1,550	389,025	T	5	None	None	None	<5	45	T	0	0	0	0	0	\$0
10	12.026	CSAH	12	Swenson Rd NE	Rural	Agriculture	1,065	248,400	T	0	None	None	None	<5	45	T	0	0	0	0	0	\$0
11	12.028	CSAH	12	Big Lake Rd NE	Rural	Agriculture	765	32,400	T	0	None	None	None	>5	45	T	0	0	0	0	0	\$0
12	12.036	CSAH	12	Mission Rd SE	Rural	Agriculture	678	91,875	X	0	None	None	None	>5	45	T	0	0	0	0	0	\$0
13	12.050	CSAH	12	Scenic Hwy NE	Rural	Agriculture	1,085	286,650	X	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
14	13.001	CSAH	13	Great Divide Rd NW	Rural	Agriculture	468	31,763	T	20	None	Horizontal	None	>5	55	T	0	0	0	0	0	\$0
15	13.002	CSAH	13	Polaris Rd NW	Rural	Agriculture	220	9,075	T	20	None	Horizontal	None	>5	55	T	0	0	0	0	0	\$0
16	13.008	CSAH	13	Lumberjack Rd NW	Rural	Agriculture	498	34,238	T	0	None	Horizontal	None	>5	55	TR	0	0	0	0	1	\$7,800
17	14.011	CSAH	14	Trengove Rd NW	Rural	Agriculture	780	116,000	T	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
18	14.019	CSAH	14	USTH 2	Small Town	Residential	1,155	194,750	T	10	None	None	Present	>5	65	TTR	0	0	0	1	0	\$87,000
19	14.021	CSAH	14	USTH 2	Rural	Agriculture	4,960	974,775	T	0	None	Horizontal	None	<5	65	TTR	0	0	1	1	3	\$280,400
20	15.017	CSAH	15	3316	Rural	Natural	4,050	0	T	25	None	Horizontal	None	<5	45	TR	0	0	1	0	0	\$170,000
21	15.018	CSAH	15	4642	Rural	Commercial	6,375	8,808,750	T	20	None	Horizontal	Present	<5	45	TR	0	0	0	0	2	\$15,600
22	15.041	CSAH	15	Grange Rd NW	Rural	Agriculture	4,475	2,642,500	T	0	None	None	None	>5	55	TR	0	0	0	1	1	\$94,800
23	15.043	CSAH	15	Island View Dr NW	Rural	Commercial	3,150	1,430,000	T	0	None	None	Present	>5	55	TR	0	0	0	0	0	\$0
24	15.044	CSAH	15	Silver Lake Rd NW	Rural	Residential	2,148	295,000	T	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
25	15.055	CSAH	15	Lindgren Lake Rd NW	Rural	Residential	2,020	40,000	T	0	None	Horizontal	None	<5	55	T	0	0	0	0	0	\$0
26	15.056	CSAH	15	Great Divide Rd NW	Rural	Residential	1,700	386,100	T	15	None	Horizontal	None	>5	55	T	0	0	0	1	0	\$87,000
27	15.058	CSAH	15	Artic Rd NW	Rural	Agriculture	880	17,200	T	25	None	None	None	<5	55	T	0	0	0	0	1	\$7,800
28	15.060	CSAH	15	Nebish Rd NE	Rural	Agriculture	1,093	173,250	T	15	None	None	None	>5	55	T	0	0	0	0	2	\$15,600
29	15.063	CSAH	15	LumberJack Rd	Rural	Agriculture	1,058	176,375	T	45	None	Horizontal	None	>5	55	T	0	0	0	1	1	\$94,800
30	19.018	CSAH	19	Birchmont Beach Rd NE	Rural	Natural	1,685	582,000	T	0	None	None	None	>5	55	TR	0	0	0	1	1	\$94,800
31	2.001	CSAH	2	N Plantagenet Rd SW	Rural	Agriculture	1,745	709,500	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
32	2.003	CSAH	2	Washington Ave SW	Rural	Agriculture	7,910	6,063,000	X	0	None	None	None	>5	65	LTR	0	0	0	0	3	\$23,400
33	2.004	CSAH	2	Polk Ave SW	Rural	Agriculture	678	61,275	T	0	None	None	Present	<5	55	T	0	0	0	1	0	\$87,000
34	2.007	CSAH	2	USTH 2	Rural	Residential	9,950	4,275,000	X	0	Present	Horizontal	None	>5	65	LTR	0	0	0	0	0	\$0
35	20.001	CSAH	20	Bemidji Rd NE	Rural	Agriculture	4,850	4,830,000	T	0	None	Horizontal	None	<5	45	LT	1	0	1	0	1	\$11,177,800
36	20.007	CSAH	20	Hazelwood Rd NE	Rural	Residential	1,043	70,325	T	0	None	None	None	<5	55	T	0	0	0	0	1	\$7,800
37	20.014	CSAH	20	Parkers Lake Rd NE	Rural	Residential	1,200	325,775	X	0	None	None	None	<5	55	T	0	0	0	0	1	\$7,800
38	20.040	CSAH	20	Scenic Hwy NE	Rural	Residential	765	123,050	X	45	None	Vertical	None	>5	55	TR	0	0	0	0	0	\$0
39	21.014	CSAH	21	Selma Dr NE	Rural	Residential	5,845	1,372,000	T	0	None	None	None	<5	55	TR	0	0	0	0	0	\$0
40	303.003	CSAH	21	Selma Dr NE	Rural	Residential	735	120,050	T	10	None	None	None	<5	30	T	0	0	0	0	0	\$0
41	21.017	CSAH	21	Glidden Rd NE	Rural	Residential	3,525	2,030,000	T	20	None	Horizontal	None	<5	55	TR	0	0	0	0	0	\$0

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42	21.024	CSAH	21	CSAH 57	Rural	Agriculture	1,805	395,250	T	50	None	None	None	<5	55	TR	0	0	0	0	0	\$0
43	21.028	CSAH	21	Wildwood Rd NE	Rural	Residential	1,745	302,250	X	50	None	None	None	<5	55	TR	0	0	0	0	0	\$0
44	21.035	CSAH	21	Island View Dr NE	Rural	Commercial	1,495	467,250	X	50	None	Horizontal	Present	>5	55	TR	0	0	0	0	0	\$0
45	21.037	CSAH	21	USTH 71	Rural	Residential	3,725	2,767,500	X	35	None	Horizontal	None	>5	55	LTR	0	0	1	1	3	\$280,400
46	22.007	CSAH	22	Buzzle Rd NW	Rural	Natural	603	28,875	T	0	None	Horizontal	None	<5	55	T	0	0	0	0	0	\$0
47	22.014	CSAH	22	MNTH 89	Rural	Agriculture	2,675	1,413,750	X	0	None	None	None	>5	55	TR	0	0	0	0	1	\$7,800
48	22.030	CSAH	22	Wildwood Rd NE	Rural	Residential	610	35,425	T	0	None	Horizontal	None	<5	55	T	0	0	0	0	1	\$7,800
49	22.044	CSAH	22	USTH 71	Rural	Agriculture	3,505	1,637,250	X	0	None	Horizontal	None	>5	60	LTR	0	0	0	2	2	\$189,600
50	22.045	CSAH	22	USTH 71	Rural	Agriculture	2,985	769,500	T	0	None	None	None	>5	60	TR	0	0	0	0	1	\$7,800
51	22.055	CSAH	22	Long Lake Dr NE	Rural	Natural	493	26,875	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
52	22.056	CSAH	22	Three Culverts Rd NE	Rural	Natural	143	2,188	T	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
53	22.063	CSAH	22	Scenic Hwy NE	Rural	Agriculture	503	27,500	T	10	None	Horizontal	None	>5	55	T	0	0	0	0	0	\$0
54	23.005	CSAH	23	CR-203	Rural	Natural	693	33,600	X	40	None	Horizontal	None	>5	55	T	0	0	0	0	0	\$0
55	23.010	CSAH	23	Everts Rd NE	Rural	Natural	905	169,600	X	0	None	Horizontal	None	<5	55	T	0	0	0	0	1	\$7,800
56	23.018	CSAH	23	Nebish Rd NE	Rural	Agriculture	523	52,938	X	0	None	None	None	>5	55	T	0	0	0	0	1	\$7,800
57	23.023	CSAH	23	MNTH 1	Rural	Agriculture	305	0	T	0	None	Horizontal	None	>5	55	T	0	0	0	0	0	\$0
58	23.024	CSAH	23	MNTH 1	Rural	Agriculture	250	5,119	T	60	None	None	None	<5	55	T	0	0	0	0	0	\$0
59	23.025	CSAH	23	MNTH 1	Rural	Agriculture	353	14,488	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
60	23.026	CSAH	23	Quiring Rd NE	Rural	Agriculture	105	1,856	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
61	23.029	CSAH	23	Pioneer Rd NE	Rural	Agriculture	83	875	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
62	23.030	CSAH	23	Cormant Rd NE	Rural	Agriculture	183	5,163	T	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
63	23.031	CSAH	23	Battle Rd NE	Rural	Agriculture	150	5,000	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
64	23.035	CSAH	23	Battle River Rd NE	Rural	Agriculture	185	8,500	X	0	None	Horizontal	None	>5	55	T	0	0	0	0	0	\$0
65	23.038	CSAH	23	Shotley Rd NE	Rural	Agriculture	80	1,500	X	0	None	None	None	Unknown	Unknown	NV	0	0	0	0	0	\$0
66	23.048	CSAH	23	Waldo Rd NE	Rural	Agriculture	135	1,800	X	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
67	23.049	CSAH	23	MNTH 72	Rural	Natural	890	49,800	T	25	None	None	None	>5	55	T	0	0	1	0	0	\$170,000
68	24.001	CSAH	24	Beltrami Co Rd 3	Rural	Agriculture	270	5,000	T	0	None	Horizontal	None	>5	55	T	0	0	0	0	0	\$0
69	24.006	CSAH	24	Boreal Rd NW	Rural	Agriculture	535	17,500	T	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
70	24.007	CSAH	24	Buzzle Rd NW	Rural	Agriculture	528	13,750	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
71	24.008	CSAH	24	Red Maple Rd NW	Rural	Natural	513	6,250	T	0	None	Horizontal	None	<5	55	T	0	0	0	0	0	\$0
72	24.014	CSAH	24	MNTH 89	Rural	Agriculture	2,975	1,998,750	X	25	None	Horizontal	None	>5	55	TR	0	0	0	1	0	\$87,000
73	25.006	CSAH	25	Wolf Lake Dr SE	Rural	Natural	333	4,000	X	0	None	Horizontal	None	<5	55	T	0	0	0	0	0	\$0
74	26.001	CSAH	26	MNTH 89	Rural	Natural	1,665	178,250	T	10	None	Horizontal	None	>5	55	TR	0	0	0	0	0	\$0
75	26.002	CSAH	26	Silver Maple Rd NW	Rural	Agriculture	245	3,450	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
76	26.003	CSAH	26	Puposky Rd NW	Rural	Agriculture	248	4,025	X	25	None	Horizontal	None	>5	55	T	0	0	1	0	0	\$170,000
77	27.004	CSAH	27	Lamon Rd NE	Rural	Agriculture	935	192,150	X	10	None	None	None	>5	55	T	0	0	0	0	0	\$0
78	29.001	CSAH	29	3rd Ave N	Small Town	Commercial	408	29,138	X	0	None	None	None	<5	35	T	0	0	0	0	2	\$15,600
79	29.003	CSAH	29	USTH 71	Rural	Agriculture	2,985	769,500	X	0	None	Horizontal	None	>5	55	LTR	0	0	1	1	0	\$257,000
80	29.012	CSAH	29	Sharp Rock Rd NE	Rural	Agriculture	313	14,663	X	0	None	Horizontal	None	<5	55	T	0	0	0	0	0	\$0
81	3.001	CSAH	3	Pinewood Rd NW	Rural	Agriculture	318	19,388	T	0	None	None	None	<5	55	T	0	0	0	0	1	\$7,800
82	3.002	CSAH	3	CR 87	Rural	Agriculture	203	6,188	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0

Rural Intersection List for Beltrami County

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List No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Area Type	Context Zone	Total Entering ADT [vpd]	Volume Cross Product [vpd ²]	Leg Configuration	Alignment Skew [Degrees]	Adjacent RR Crossing	Adjacent Curve	Adjacent Development	Previous STOP (>5mi)	Major Approach Speed Limit	Major Approach Turn Lane Configuration	K	A	B	C	PDO	Crash Cost
83	3.003	CSAH	3	CR 86	Rural	Agriculture	287	20,130	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
84	3.007	CSAH	3	CR 80	Rural	Agriculture	287	20,130	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
85	30.001	CSAH	30	Hines Rd NE	Rural	Agriculture	410	29,369	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
86	30.009	CSAH	30	Pass Rd NE	Rural	Agriculture	1,520	186,975	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
87	30.014	CSAH	30	USTH 71	Small Town	Commercial	5,000	5,947,500	X	10	None	Horizontal	Present	<5	45	LTR	0	0	0	1	2	\$102,600
88	30.018	CSAH	30	Main St S	Small Town	Commercial	2,820	1,815,875	X	45	None	None	Present	<5	30	T	0	0	0	0	1	\$7,800
89	30.019	CSAH	30	1st St NE	Small Town	Commercial	2,658	1,493,875	X	0	None	None	Present	<5	30	T	0	0	0	0	0	\$0
90	30.025	CSAH	30	Summit Hall Rd NE	Rural	Agriculture	1,105	57,750	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
91	31.001	CSAH	31	USTH 71	Rural	Agriculture	2,738	101,250	T	0	None	None	None	<5	55	TR	0	0	0	0	2	\$15,600
92	31.004	CSAH	31	Hines Rd NE	Rural	Agriculture	433	37,975	5-Leg	45	None	None	None	>5	55	T	0	0	0	0	0	\$0
93	31.005	CSAH	31	USTH 71	Rural	Agriculture	2,855	418,500	X	25	None	HORIZONTAL	None	<5	55	LTR	0	0	0	0	1	\$7,800
94	31.011	CSAH	31	Birchwood Rd NE	Rural	Agriculture	335	7,750	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
95	31.013	CSAH	31	Nebish Rd NE	Rural	Agriculture	478	35,613	X	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
96	32.006	CSAH	32	Boreal Rd NW	Rural	Natural	290	5,400	T	0	None	Horizontal	None	>5	55	T	0	0	0	0	0	\$0
97	32.015	CSAH	32	MNTH 89	Rural	Agriculture	1,893	530,875	X	20	None	None	None	>5	55	TR	0	1	1	0	0	\$760,000
98	32.020	CSAH	32	Polaris Rd NW	Rural	Agriculture	470	22,825	T	15	None	Horizontal	None	<5	55	T	0	0	0	0	0	\$0
99	32.023	CSAH	32	CR-203	Rural	Agriculture	415	11,550	X	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
100	32.025	CSAH	32	Obrien Creek Rd NE	Rural	Agriculture	403	6,738	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
101	32.028	CSAH	32	Corlan Rd NE	Rural	Agriculture	415	11,550	X	0	None	None	None	>5	55	T	0	0	0	0	1	\$7,800
102	32.030	CSAH	32	MNTH 72	Rural	Agriculture	2,493	1,428,000	X	0	None	None	None	>5	55	T	0	0	0	0	3	\$23,400
103	34.001	CSAH	34	Shiloh Dr NE	Rural	Agriculture	208	2,438	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
104	34.003	CSAH	34	Corral Rd NE	Rural	Agriculture	523	41,438	T	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
105	35.001	CSAH	35	USTH 71	Rural	Agriculture	2,835	364,500	T	0	None	Horizontal	None	<5	55	T	0	0	0	0	2	\$15,600
106	36.001	CSAH	36	MNTH 1	Rural	Agriculture	1,463	265,625	TT	0	None	None	None	>5	55	T	0	0	0	0	2	\$15,600
107	36.003	CSAH	36	Battle River Rd NE	Rural	Agriculture	463	15,938	T	0	None	Horizontal	None	>5	55	T	0	0	0	0	0	\$0
108	36.005	CSAH	36	Willow Creek Rd NE	Rural	Agriculture	738	118,750	X	0	None	None	None	<5	55	T	0	0	0	0	1	\$7,800
109	36.008	CSAH	36	Lakin Ave	Small Town	Commercial	595	47,500	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
110	36.009	CSAH	36	MNTH 72	Small Town	Commercial	1,625	343,750	T	0	None	None	None	>5	30	T	0	0	0	0	1	\$7,800
111	36.010	CSAH	36	Clark Ave	Small Town	Commercial	2,335	1,252,500	X	0	None	None	Present	<5	30	T	0	0	0	0	0	\$0
112	36.011	CSAH	36	Gould Ave	Small Town	Commercial	693	89,700	X	0	None	None	None	<5	30	T	0	0	0	0	0	\$0
113	36.014	CSAH	36	Flowing Well Rd NE	Rural	Agriculture	363	26,650	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
114	37.003	CSAH	37	Stenson Rd NE	Rural	Agriculture	113	3,150	X	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
115	37.008	CSAH	37	Buckeye Rd NE	Rural	Agriculture	78	1,238	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
116	37.009	CSAH	37	MNTH 1	Rural	Agriculture	333	8,388	X	0	None	None	None	>5	55	TR	0	0	0	0	0	\$0
117	38.003	CSAH	38	Sunflower Rd NE	Rural	Agriculture	93	1,313	T	0	None	None	None	>5	55	T	0	0	0	1	0	\$87,000
118	39.029	CSAH	39	Hines Rd NE	Rural	Natural	495	24,200	T	40	None	Horizontal	None	>5	55	T	0	0	0	0	0	\$0
119	39.037	CSAH	39	Lookout Tower Rd NE	Rural	Agriculture	648	33,925	X	0	None	None	None	<5	55	T	0	0	0	0	1	\$7,800
120	39.041	CSAH	39	Main St S	Rural	Agriculture	1,465	405,150	T	0	None	Horizontal	None	>5	55	T	0	0	0	0	0	\$0
121	4.001	CSAH	4	Sunnyside Rd SE	Rural	Agriculture	393	33,075	X	0	None	None	None	<5	55	T	0	0	0	0	1	\$7,800
122	4.007	CSAH	4	Wolf Lake Dr SE	Rural	Natural	455	43,200	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
123	41.001	CSAH	41	USTH 71	Rural	Agriculture	1,353	68,250	T	0	None	Horizontal	None	>5	55	T	0	0	0	0	0	\$0

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124	41.002	CSAH	41	Three Mile Rd NE	Rural	Agriculture	168	6,563	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
125	41.007	CSAH	41	MNTH 72	Rural	Agriculture	1,443	59,500	X	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
126	43.001	CSAH	43	USTH 71	Rural	Natural	2,763	168,750	X	15	None	Horizontal	None	<5	55	TR	0	0	0	0	0	\$0
127	43.003	CSAH	43	Main St W	Small Town	Commercial	155	3,750	X	0	None	None	None	<5	30	T	0	0	0	0	0	\$0
128	43.004	CSAH	43	USTH 71	Rural	Industrial	2,763	168,750	X	0	None	Horizontal	None	<5	55	TR	0	0	0	0	1	\$7,800
129	44.001	CSAH	44	Dylan Rd NW	Rural	Agriculture	1,428	288,896	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
130	44.002	CSAH	44	Flintlock Rd NW	Rural	Agriculture	75	900	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
131	44.008	CSAH	44	Ose Rd NW	Rural	Agriculture	95	1,950	TT	0	None	None	None	<5	55	T	0	0	0	1	0	\$87,000
132	44.010	CSAH	44	Dicks Parkway Rd	Rural	Agriculture	88	1,650	TT	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
133	44.012	CSAH	44	MNTH 89	Rural	Agriculture	350	9,600	X	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
134	46.002	CSAH	46	N Plantagenet Rd SW	Rural	Agriculture	1,135	320,650	X	0	None	None	None	<5	55	T	0	0	1	1	1	\$264,800
135	46.005	CSAH	46	Washington Ave SW	Rural	Agriculture	4,625	948,150	X	0	None	Vertical	None	<5	55	LTTR	0	0	2	1	3	\$450,400
136	47.001	CSAH	47	USTH 71	Rural	Agriculture	3,500	1,796,875	T	0	None	Horizontal	None	<5	55	LTTR	0	0	0	0	1	\$7,800
137	47.009	CSAH	47	USTH 71	Small Town	Commercial	2,360	1,255,500	X	10	None	Horizontal	Present	<5	55	TR	0	0	0	2	0	\$174,000
138	47.014	CSAH	47	One Mile Rd NE	Rural	Agriculture	603	18,525	T	0	None	Horizontal	None	<5	55	T	0	0	0	0	0	\$0
139	47.015	CSAH	47	MNTH 72	Rural	Agriculture	1,885	456,000	X	20	None	Horizontal	None	<5	55	TR	0	0	0	0	0	\$0
140	5.003	CSAH	5	Fredenburg Rd SW	Rural	Agriculture	265	10,750	T	0	None	Horizontal	None	<5	55	T	0	0	0	0	0	\$0
141	5.005	CSAH	5	Trengove Rd NW	Rural	Agriculture	610	79,219	X	0	None	None	None	>5	55	T	0	0	0	0	1	\$7,800
142	5.007	CSAH	5	Hwy 2 E	Small Town	Commercial	7,890	4,968,000	X	0	Present	Horizontal	Present	>5	55	LTTR	0	0	1	0	0	\$170,000
143	5.008	CSAH	5	2nd St NW	Small Town	Commercial	725	24,150	X	0	None	Horizontal	Present	<5	30	T	0	0	0	0	0	\$0
144	5.012	CSAH	5	Thoren Dr NW	Rural	Agriculture	643	53,138	X	10	None	None	None	<5	55	T	0	0	0	0	1	\$7,800
145	5.014	CSAH	5	Grange Rd NW	Rural	Agriculture	795	152,000	X	0	None	Horizontal	None	>5	55	T	0	0	0	0	0	\$0
146	5.023	CSAH	5	Aure Rd NW	Rural	Agriculture	628	63,750	T	0	None	None	None	>5	55	T	0	0	0	0	1	\$7,800
147	5.024	CSAH	5	Aure Rd	Rural	Agriculture	380	31,875	T	0	None	Horizontal	None	>5	55	T	0	0	0	0	1	\$7,800
148	5.028	CSAH	5	Teddy Rd NW	Rural	Agriculture	288	8,288	X	15	None	Horizontal	None	<5	55	T	0	0	0	0	0	\$0
149	5.031	CSAH	5	LumberJack Rd NW	Rural	Agriculture	398	35,438	X	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
150	50.006	CSAH	50	Grant Ave SE	Small Town	Residential	4,145	1,224,000	T	0	None	Horizontal	None	<5	35	TR	0	0	0	0	0	\$0
151	50.008	CSAH	50	23rd St SE	Small Town	Residential	5,000	4,560,000	X	40	Present	None	None	<5	55	TR	0	0	1	0	2	\$185,600
152	52.001	CSAH	52	USTH 71	Small Town	Commercial	12,642	33,303,800	X	10	None	Horizontal	None	<5	55	LTTR	1	0	2	3	14	\$11,710,200
153	56.002	CSAH	56	USTH 71	Rural	Agriculture	2,758	155,250	T	5	None	Horizontal	None	<5	55	TR	0	0	0	0	0	\$0
154	59.003	CSAH	59	USTH 71	Rural	Agriculture	4,517	4,214,400	X	20	None	Horizontal	None	<5	55	LTTR	0	1	0	4	3	\$961,400
155	6.001	CSAH	6	Adams Ave NW	Rural	Residential	5,000	5,527,500	X	0	None	None	None	<5	55	TR	0	0	0	1	2	\$102,600
156	6.003	CSAH	6	Norton Ave	Small Town	Residential	8,525	17,467,500	X	0	None	None	None	<5	30	T	0	0	0	1	7	\$141,600
157	7.011	CSAH	7	CSAH 14	Rural	Residential	3,034	2,190,400	T	0	None	None	None	>5	55	LT	0	0	1	0	1	\$177,800
158	7.013	CSAH	7	Adams Ave NW	Rural	Agriculture	5,700	6,682,500	X	0	None	None	None	<5	55	TR	0	0	1	5	1	\$612,800
159	7.016	CSAH	7	1059	Rural	Residential	4,050	0	T	0	None	None	None	<5	55	LT	0	0	0	1	11	\$172,800
160	7.017	CSAH	7	1058	Rural	Commercial	8,025	12,150,000	T	0	None	None	Present	<5	55	LT	0	0	0	0	0	\$0
161	7.019	CSAH	7	Jefferson Ave SW	Small Town	Commercial	11,700	32,900,000	X	0	None	None	Present	<5	55	LTR	0	0	0	3	7	\$315,600
162	8.020	CSAH	8	Van Buren Ave SE	Rural	Agriculture	2,680	144,375	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
163	8.021	CSAH	8	Sunnyside Rd SE	Rural	Agriculture	2,113	403,750	X	0	None	None	None	<5	55	T	0	0	1	0	0	\$170,000
164	8.025	CSAH	8	Wolf Lake Dr SE	Rural	Agriculture	1,760	256,000	T	0	None	None	None	<5	55	T	0	0	0	1	0	\$87,000

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CRSP2 ID Example: 1.001: 1- CRSP2 ID Example: 1.001: 1- Route Number, 001 = First Segment

List No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Area Type	Context Zone	Total Entering ADT [vpd]	Volume Cross Product [vpd ²]	Leg Configuration	Alignment Skew [Degrees]	Adjacent RR Crossing	Adjacent Curve	Adjacent Development	Previous STOP (>5mi)	Major Approach Speed Limit	Major Approach Turn Lane Configuration	K	A	B	C	PDO	Crash Cost
165	8.026	CSAH	8	Swenson Rd SE	Rural	Agriculture	2,745	1,832,000	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
166	8.039	CSAH	8	Mission Rd SE	Rural	Agriculture	3,000	1,760,000	T	0	None	Horizontal	None	<5	55	TR	0	0	1	1	1	\$264,800
167	9.001	CSAH	9	USTH 2	Rural	Residential	17,100	32,142,500	X	20	None	None	None	>5	55	LTTR	0	0	1	2	8	\$406,400
168	9.018	CSAH	9	Grange Rd NW	Rural	Agriculture	2,410	1,127,125	X	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
169	9.024	CSAH	9	Spencer Rd NW	Rural	Agriculture	420	18,500	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
170	9.027	CSAH	9	Great Divide Rd NW	Rural	Agriculture	485	42,550	T	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
171	90.001	CSAH	90	1st St	Small Town	Residential	3,380	133,600	T	0	None	None	None	<5	55	LTT	0	1	0	1	1	\$684,800
172	93.003	CSAH	93	Clark Ave	Small Town	Residential	1,718	652,625	X	0	None	None	None	<5	30	T	0	0	0	0	0	\$0
173	94.004	CSAH	94	Clark Ave	Small Town	Residential	1,068	18,375	X	0	None	None	None	<5	30	T	0	0	0	0	0	\$0
174	100.001	CR	100	MNTH 72	Rural	Agriculture	1,423	31,500	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
175	103.001	CR	103	MNTH 1	Rural	Agriculture	1,138	41,250	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
176	105.001	CR	105	MNTH 72	Rural	Agriculture	838	6,225	X	0	None	None	None	<5	55	T	0	0	0	1	0	\$87,000
177	110.001	CR	110	MNTH 72	Rural	Agriculture	848	14,525	X	0	None	None	None	>5	55	T	0	0	0	0	0	\$0
178	111.001	CR	111	MNTH 72	Rural	Agriculture	963	52,038	T	20	None	Horizontal	None	>5	55	T	0	0	0	0	0	\$0
179	112.001	CR	112	MNTH 72	Rural	Agriculture	703	8,625	X	30	None	Horizontal	None	<5	55	T	0	0	0	0	0	\$0
180	201.001	CR	201	Artic Rd NW	Rural	Agriculture	130	2,200	T	5	None	None	None	<5	55	T	0	0	0	0	0	\$0
181	301.006	CR	301	Great Divide Rd NW	Rural	Agriculture	1,219	41,440	X	25	None	Horizontal	None	>5	55	T	0	0	0	0	0	\$0
182	302.001	CR	302	USTH 71	Rural	Agriculture	1,233	39,000	T	20	None	Horizontal	None	<5	55	T	0	0	0	0	0	\$0
183	304.001	CR	304	MNTH 72	Rural	Agriculture	1,420	28,000	T	0	None	None	None	<5	55	T	0	0	0	1	0	\$87,000
184	304.004	CR	304	USTH 71	Rural	Agriculture	1,320	26,000	T	0	None	Horizontal	None	<5	55	T	0	0	0	0	0	\$0
185	305.004	CR	305	USTH 71	Rural	Agriculture	3,395	624,000	X	30	None	None	None	<5	55	LTR	0	0	1	0	2	\$185,600
186	306.002	CR	306	MNTH 72	Rural	Agriculture	1,425	35,000	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
187	311.001	CR	311	Lookout Tower Rd NE	Rural	Agriculture	80	844	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
188	403.003	CR	403	30th St SE	Rural	Agriculture	443	30,388	X	0	None	None	None	<5	55	T	0	1	0	0	0	\$590,000
189	404.003	CR	404	Industrial Park Dr SE	Small Town	Industrial	1,635	384,750	T	0	None	Horizontal	None	<5	55	T	0	0	0	0	1	\$7,800
190	404.010	CR	404	Sunnyside Rd SE	Rural	Agriculture	288	10,413	X	0	None	None	None	<5	55	T	0	1	0	0	1	\$597,800
191	406.005	CR	406	Sunnyside Rd NE	Rural	Agriculture	235	9,900	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
192	501.001	CR	501	350th St	Rural	Agriculture	252	15,860	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
193	501.002	CR	501	USTH 2	Rural	Agriculture	3,565	446,550	X	15	Present	None	None	>5	55	LTTR	0	0	0	2	1	\$181,800
194	503.005	CR	503	USTH 2	Rural	Agriculture	3,438	284,963	X	15	Present	None	None	<5	55	LTTR	0	0	1	0	0	\$170,000
195	507.001	CR	507	USTH 2	Rural	Natural	8,470	5,226,000	X	20	None	Horizontal	None	<5	55	LTTR	0	0	2	0	5	\$379,000
196	509.002	CR	509	Preservation Rd NW	Rural	Agriculture	215	10,800	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
197	515.001	CR	515	USTH 2	Rural	Agriculture	9,060	5,154,500	X	5	None	Horizontal	None	<5	55	LTTR	0	0	0	0	2	\$15,600
198	515.006	CR	515	MNTH 89	Rural	Agriculture	2,480	663,375	T	0	None	Horizontal	None	<5	55	TR	0	0	1	0	0	\$170,000
199	600.002	CR	600	MNTH 89	Rural	Agriculture	2,068	229,125	X	0	None	None	None	>5	55	TR	0	0	0	0	0	\$0
200	602.004	CR	602	MNTH 89	Rural	Agriculture	1,578	42,625	X	0	None	None	None	<5	55	TR	0	0	0	0	0	\$0
201	700.001	CR	700	MNTH 89	Rural	Agriculture	223	1,088	TT	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
202	700.008	CR	700	Carmel Rd NW	Rural	Agriculture	28	113	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
203	700.010	CR	700	Jelle Rd NW	Rural	Agriculture	25	100	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
204	702.002	CR	702	Flintlock Rd NW	Rural	Agriculture	80	975	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
205	702.006	CR	702	Carmel Rd NW	Rural	Agriculture	85	1,300	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0

Rural Intersection List for Beltrami County

CRSP2 ID Example: 1.001: 1= CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Area Type	Context Zone	Total Entering ADT [vpd]	Volume Cross Product [vpd ²]	Leg Configuration	Alignment Skew [Degrees]	Adjacent RR Crossing	Adjacent Curve	Adjacent Development	Previous STOP (>5mi)	Major Approach Speed Limit	Major Approach Turn Lane Configuration	K	A	B	C	PDO	Crash Cost
206	703.001	CR	703	MNTH 89	Rural	Agriculture	440	6,375	TT	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
207	705.001	CR	705	MNTH 89	Rural	Agriculture	458	13,813	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
208	707.001	CR	707	Thorhult Rd NW	Rural	Agriculture	23	88	T	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
209	707.003	CR	707	MNTH 89	Rural	Agriculture	430	2,125	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
210	709.001	CR	709	Thorhult Rd NW	Rural	Agriculture	18	38	X	0	None	None	None	<5	55	T	0	0	0	0	0	\$0
211	710.010	CR	710	MNTH 89	Rural	Agriculture	223	1,613	TT	0	None	None	None	<5	55	T	0	0	0	0	1	\$7,800
Crash Summary																	2	5	29	50	164	\$35,509,200

Urban Segment List for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Length [Miles]	Context Zone	Cross Section	Design	Speed Limit [mph]	Sidewalk	Access Density [access per mile]	ADT [vpd]	Total Crashes	Severe Crashes	Total HO+SSO Crashes	Severe HO+SSO Crashes
1	11.001	CSAH	11	Washington Ave S	15th St SW	3.05	Residential	2-Lane	Undivided	55	None	17.38	2,555	8	0	2	0
2	11.002	CSAH	11	15th St SW	Division St W	1.01	Residential	2-Lane	Undivided	55	None	23.67	3,400	9	0	1	0
3	11.003	CSAH	11	Divisino St W	0.20 miles N of Florence Ct NW	2.01	Residential	2-Lane	Undivided	55	None	34.76	3,300	11	0	0	0
4	11.004	CSAH	11	0.20 miles N of Florence Ct NW	U.S. Rte 2	0.54	Commercial	2-Lane	Undivided	55	None	9.27	3,300	2	0	0	0
5	12.001	CSAH	12	1st St E	Power Dam Rd NE	1.58	Residential	2-Lane	Undivided	40	None	40.61	5,060	19	1	0	0
6	12.002	CSAH	12	Lake Ave NE	1.67 miles E of Lake Ave NE	1.67	Residential	2-Lane	Undivided	55	None	22.10	1,750	5	0	1	0
7	15.001	CSAH	15	30h St NW	Anne St NW	0.50	Commercial	2-Lane	Undivided	45	None	33.71	7,200	4	0	0	0
8	15.002	CSAH	15	Anne St NW	Grange Rd NW	5.51	Residential	2-Lane	Undivided	45	None	23.59	4,235	57	2	3	0
9	17.001	CSAH	17	0.09 miles N of 29th St NE	Bemidji Ave N	0.89	Residential	2-Lane	Undivided	30	None	58.62	630	3	0	0	0
10	17.002	CSAH	17	Annebelle St NE	Bemidji Ave N	1.35	Residential	2-Lane	Undivided	30	None	52.43	605	5	0	0	0
11	19.001	CSAH	19	Power Dam Rd NE	Elliot Rd NE	1.06	Residential	2-Lane	Undivided	40	None	26.46	2,050	2	0	0	0
12	21.001	CSAH	21	Paul Bunyan Dr NW	24th St NW	0.07	Residential	2-Lane	Undivided	30	Both Sides	128.09	8,240	2	0	0	0
13	21.002	CSAH	21	29th St NE	Glidden Rd NE	3.13	Residential	2-Lane	Undivided	55	None	37.12	5,515	14	0	3	0
14	50.001	CSAH	50	Grant Ave S	Miles Ave SE	0.13	Commercial	2-Lane	Undivided	55	None	15.15	3,615	3	0	1	0
15	52.001	CSAH	52	Hwy 71	Bemidji Ave N	1.49	Commercial	2-Lane	Undivided	30	None	30.11	5,375	19	0	0	0
16	6.001	CSAH	6	Adams Ave NW	Middle School Ave NW	0.73	Residential	2-Lane	Undivided	45	None	17.80	3,350	8	0	1	0
17	6.002	CSAH	6	Middle School Ave NW	Norton Ave NW	0.87	Agricultural	2-Lane	Undivided	45	None	27.67	3,550	2	0	0	0
18	7.002	CSAH	7	Adams Ave NW	Jefferson Ave NW	0.96	Commercial	2-Lane	Undivided	45	None	35.57	4,750	17	0	0	0
19	8.001	CSAH	8	Paul Bunyan Dr SE	Lake Ave SE	0.83	Residential	2-Lane	Undivided	35	Both Sides	59.11	4,750	6	0	0	0
20	303.001	CR	303	Shorecrest Rd NE	Bemidji Ave N	0.36	Residential	2-Lane	Undivided	30	None	41.99	740	0	0	0	0
21	305.001	CR	305	Bemidji Rd NE	Hwy 71	0.70	Residential	2-Lane	Undivided	45	None	25.74	390	0	0	0	0
22	402.001	CR	402	0.31 miles W of Jackson Ave SW	Jackson Ave SW	0.31	Residential	2-Lane	Undivided	45	None	38.96	260	0	0	0	0
23	404.001	CR	404	Washington Ave S	0.38 miles E of Washington Ave S	0.38	Residential	2-Lane	Undivided	55	None	37.33	1,570	0	0	0	0
24	404.002	CR	404	0.38 miles E of Washington Ave S	Paul Bunyan Rd SE	0.63	Commercial	2-Lane	Undivided	55	None	22.29	1,350	1	0	0	0
25	406.001	CR	406	Lake Ave NE	0.30 miles E of Lake Ave NE	0.30	Residential	2-Lane	Undivided	40	None	37.07	810	0	0	0	0
26	406.002	CR	406	0.30 miles E of Lake Ave NE	Tyler Ave NE	2.92	Residential	2-Lane	Undivided	40	None	8.21	165	3	0	0	0
Total						32.97								200	3	12	0

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Urban Intersection List for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Area Type	Context Zone	Traffic Control Device	Total Entering ADT [vpd]	Volume Cross Product [vpd ²]	Leg Configuration	Major Division Type	Alignment Skew [Degrees]	Adjacent Development	Major Approach Speed Limit [mph]	Minor Approach Speed Limit [mph]	Major Approach Left Turn Lane Phasing	Major Approach Turn Lane Configuration	Max Number of Lanes Crossed	Presence of Sidewalk	Pedestrian Crossing Type	K	A	B	C	PDO	Crash Cost
1	8.001	CSAH	8	Paul Bunyan Dr SE	Urban	Residential	Thru-Stop	8,875	17,171,250	X	Undivided	40	None	55	30	N/A	TR	4	Some	None	0	0	0	0	1	\$7,800
2	8.003	CSAH	8	Scott Ave SE	Urban	Residential	Thru-Stop	4,843	439,375	T	Undivided	0	None	35	30	N/A	T	2	Some	None	0	0	0	1	2	\$102,600
3	8.007	CSAH	8	Grant Ave SE	Urban	Residential	Thru-Stop	5,335	2,778,750	X	Undivided	0	None	35	30	N/A	T	2	Some	None	0	0	0	4	8	\$410,400
4	15.001	CSAH	15	Irvine Ave NW	Suburban	Residential	Thru-Stop	10,025	13,986,250	T	Undivided	0	None	45	30	N/A	T	2	Some	None	0	0	0	2	1	\$181,800
5	15.002	CSAH	15	Irvine Ave NW	Suburban	Residential	Thru-Stop	7,500	0	T	Undivided	0	None	45	30	N/A	T	2	None	None	0	0	0	0	0	\$0
6	15.003	CSAH	15	Irvine Ave NW	Suburban	Residential	Thru-Stop	10,950	25,875,000	T	Undivided	0	None	45	30	N/A	T	2	None	None	0	0	0	1	0	\$87,000
7	15.004	CSAH	15	Irvine Ave NW	Suburban	Residential	Thru-Stop	6,900	0	T	Undivided	0	None	45	30	N/A	T	2	None	None	0	0	0	2	2	\$189,600
8	15.005	CSAH	15	Anne St NW	Suburban	Residential	Signal	10,500	25,740,000	X	Undivided	0	None	45	30	Permitted	LTR	4	None	Markings	0	0	0	0	1	\$7,800
9	17.005	CSAH	17	Shorecrest Rd NE	Suburban	Residential	Thru-Stop	680	67,200	T	Undivided	10	None	30	30	N/A	T	2	None	None	0	0	1	0	1	\$177,800
10	17.006	CSAH	17	Bemidji Ave N	Suburban	Residential	Thru-Stop	5,720	672,000	T	Undivided	0	None	55	30	N/A	TR	3	None	None	0	0	1	1	1	\$264,800
11	21.001	CSAH	21	Paul Bunyan Dr NW	Urban	Commercial	Signal	16,825	61,237,500	X	Mixed	0	Present	35	35	Protected	LLT	4	All	Markings	0	0	1	1	11	\$342,800
12	21.004	CSAH	21	29th St NW	Urban	Residential	Thru-Stop	8,100	0	X	Undivided	5	None	35	30	N/A	T	2	Some	None	0	0	0	1	2	\$102,600
13	21.007	CSAH	21	Anne St NW	Suburban	Commercial	Thru-Stop	11,900	34,080,000	X	Undivided	5	None	35	30	N/A	TR	3	None	None	0	0	0	0	1	\$7,800
14	50.001	CSAH	50	678	Urban	Commercial	Signal	12,592	35,420,700	X	Curb	0	Present	35	30	Permitted/Protected	LTT	5	Some	Markings	0	0	2	3	11	\$686,800
Crash Summary																					0	0	5	16	42	\$2,569,600

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Appendix B – Meeting Minutes/Summaries

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Milestone Meeting #1

PREPARED BY: Cheri Marti/CH2M
COUNTY: Beltrami County
MEETING DATE: February 22, 2017
MEETING TIME: 9:00 am – 12:00 pm CST
LOCATION: Beltrami County Office
2491 Adams Avenue NW
Bemidji, MN 56601
CONSULTANT TEAM: Howard Preston/CH2M, Cheri Marti/CH2M, Renae Kuehl/SRF

Objectives

The primary objectives of this meeting are to: a) provide an update on project progress, b) review initial assessment of county safety project implementation impact, c) identify county goals/outcomes of CRSP Update process, and d) review alternative crash analyses approaches.

Agenda Items

- 1. Welcome, Introductions and Project Progress [9:00a-9:20a]**
 - a. Process schedule – review county milestone and working group meetings
 - b. County data collection update
- 2. Review: County Project Implementation [9:20a-9:50a]**
 - a. Review of safety projects implemented from previous CRSP (*what, where, when, funding*)
 - b. Crash analysis of completed projects
- 3. Discussion: County-Specific Desires of CRSP Update Process [9:50a-10:50a]**
 - a. Review draft outline of county's *Roadway Safety Plan*
 - b. County goals and intended outcomes of CRSP Update (*what and how*)
 - a. Preferred system components for detailed analysis and project recommendations
- 4. Break [10:50a-11:05a]**
- 5. Review: County Crash History [11:05a-11:30a]**
 - a. Focus Areas
 - b. Crash Trees
 - c. Map of Severe Crashes
- 6. Preview of Upcoming Tasks [11:30a-11:55a]**
 - a. Safety Countermeasures/Strategies
 - b. Safety Workshop Format Options
- 7. Wrap-Up [11:55a-12:00p]**
 - a. What's Next
 - b. Action Items

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Milestone Meeting #1

PREPARED BY: Renae Kuehl/SRF
COUNTY: Beltrami County
MEETING DATE: February 22, 2017
MEETING TIME: 9:00pm – Noon
LOCATION: Beltrami County Office; 2491 Adams Ave NW, Bemidji, MN 56601
ATTENDEES: Sulmaan Khan/MnDOT State Aid
John Noehring/Beltrami County
Bruce Hasbargen/Beltrami County
Howard Preston/CH2M
Cheri Marti/CH2M
Renae Kuehl/SRF

Objectives

The primary objectives of this meeting are to: a) provide an update on project progress, b) review initial assessment of county safety project implementation impact, c) identify county goals/outcomes of CRSP Update process, and d) review alternative crash analyses approaches.

Action Items

Beltrami County

- Beltrami County will identify which curves have changed and provide the new radius to Ann Johnson (Ann.Johnson@peservicesmn.com).
- Beltrami County will review their roadway network segmentation and confirm if any changes are needed. Bruce will send a map with changes to Ann Johnson (Ann.Johnson@peservicesmn.com)
- Beltrami County will follow up with Veronica Richfield (Veronica.Richfield@ch2m.com) and Ann Johnson (Ann.Johnson@peservicesmn.com) on any outstanding data items as soon as possible.
- Beltrami County staff will review and update their implemented projects spreadsheet and will send to Veronica Richfield (Veronica.Richfield@ch2m.com) and Ann Johnson (Ann.Johnson@peservicesmn.com) by as soon as possible.
- Beltrami County will notify Veronica Richfield (Veronica.Richfield@ch2m.com) of what analysis options they are interested in pursuing by mid-March.
- Beltrami County will review the Big Book of Ideas and confirm what strategies they want considered for their agency and will notify Veronica Richfield (Veronica.Richfield@ch2m.com) by early May.
- Beltrami County will sit down with county staff to discuss the format of the workshop they would like to host and decide by May

CH2M/SRF Team

- After all county meetings are complete, CH2M/SRF team will develop a summary of all report/process and workshop format preferences from all counties and will share with all counties.

- Sulmaan Khan will follow-up with MnDOT staff on the status of Beltrami County paying MnDOT for their share of the safety plan.

Discussion Items

1. Welcome, Introductions and Project Progress

a. Process schedule – review county milestone and working group meetings

No Comments

b. County data collection update

- Beltrami County staff provided the following input on their desires for the CRSP at the data meeting held with Ann Johnson in the Fall of 2016:
 - Include urban segments in analysis
 - Striping: Where and how often should the county be adding striping?
 - Stop bars?
 - Shoulders?
 - Right of way clearing?
 - Where and how to maintain striping?
 - How does clearing right of way impact safety?
 - Is there a way to prioritize crash reduction factors vs. cost?
 - Pavement condition index for whole system
 - No need to analyze state aid streets
- Beltrami County has rebuilt some roads and softened some curves so the radius has changed. ***ACTION ITEM: Beltrami County will identify which curves have changed and provide the new radius to Ann Johnson (Ann.Johnson@peservicesmn.com).***
- ***ACTION ITEM: Beltrami County will review their roadway network segmentation and confirm if any changes are needed. Bruce will send a map with changes to Ann Johnson (Ann.Johnson@peservicesmn.com).***
- ***ACTION ITEM: Beltrami County will follow up with Veronica Richfield (Veronica.Richfield@ch2m.com) and Ann Johnson (Ann.Johnson@peservicesmn.com) on any outstanding data items as soon as possible.***

2. Review: County Project Implementation

a. Review of safety projects implemented from previous CRSP (*what, where, when, funding*)

- ***ACTION ITEM: Beltrami County staff will review and update their implemented projects spreadsheet and will send to Veronica Richfield (Veronica.Richfield@ch2m.com) and Ann Johnson (Ann.Johnson@peservicesmn.com) by as soon as possible.***

b. Crash analysis of completed projects

No Comments

3. Discussion: County-Specific Desires of CRSP Update Process

a. Review draft outline of county's Roadway Safety Plan

- There is a research project being conducted by the LRRB right now on striping that Beltrami is interested in seeing the results of. Bruce is the chair of this project.

- Two Central questions Beltrami is seeking assistance through the CRSP update process:
 - How does the County decide what strategies are best to implement first? Is there a way to prioritize how to identify where to put money? For example:
 - Is it more important to implement edgeline striping or chevrons?
 - Is there more value in putting money in a striping program or clear zone clearing?
 - Once a safety strategy is determined to be a priority, how do counties prioritize the placement of the safety strategy (i.e. if 100 miles of rumbles are suggested, how to decide where is the best placement or location of the rumbles)?
 - Locations that have been identified as part of safety plan? Locations with a certain ADT?
 - Is there a way to prioritize where to place striping (6-inch edgeline) based on other variables?
- Beltrami County is doing maintenance every year, is there information about what maintenance activities are a high-benefit, low-cost improvement that should be done first? I.e. should the county first focus on painting stop bars or clearing clear zone?
- Some issues Beltrami is dealing with are – objects in the clear zone, signs in the right of way (resort signs), illegal mailboxes, etc. It has been challenging to work with business owners to get signs moved. Beltrami County is working to develop a policy on business sign placement but is still struggling with how to deal with the signs that are already in place. Beltrami County would like some information about the safety importance of removing hazards from the clear zone in the report.
- Beltrami County is working to develop a Right of Way ordinance that is expected to be completed by the Safety workshop; may be a key message opportunity for the workshop.
- Beltrami County plans to take this safety plan to the county board to show the importance of safety. Having some information about the other E's in the report is still important to tell the whole story of collaboration between the 4 E's, to present this as a message that engineering can't fix everything. Beltrami County would like the plan to help build the awareness of safety to hopefully help reestablish a safety coalition in the county again.
- Beltrami County would like some information about how to justify the importance of installing safety strategies in locations where there has not been a crash (e.g., how to prioritize where to implement 6-inch stripe instead of everywhere).
- Would be helpful to have discussion with the Board on proactive/systemic safety approach vs. reactive/crash location approach.
- Beltrami County would appreciate a CRSP one-pager to help educate board members on what the CRSP is. Especially to help board members understand why they should install a safety strategy at a location where there has not been a crash. They have at least three to four new board members since the last safety plan was developed.
- Beltrami County would appreciate something to help them track the projects that they have implemented on an annual basis. Rather than trying to do it all at one time for the past 7 years which is challenging and time consuming. Maybe the CRSP could include a form to use to track implemented projects and MnDOT State Aid can send out an annual reminder for counties to fill out the form.

- *ACTION ITEM: After all county meetings are complete, CH2M/SRF team will develop a summary of all report/process and workshop format preferences from all counties and will share with all counties.*

b. County goals and intended outcomes of CRSP Update (*what and how*)

- **Preferred system components for detailed analysis and project recommendations**
 - *ACTION ITEM: Beltrami County will notify Veronica Richfield (Veronica.Richfield@ch2m.com) of what analysis options they are interested in pursuing by mid-March.*

4. Review: County Crash History

a. Focus Areas

Impaired and lane departure crashes are high.

b. Crash Trees

No Comment

c. Map of Severe Crashes

No Comment

5. Preview of Upcoming Tasks

a. Safety Countermeasures/Strategies

- In the past, board members and the public were not happy about chevrons being installed on curves, they felt it impacted the view of the landscape and they were not justified since no one had run off the road at that curve yet.
- *ACTION ITEM: Beltrami County will review the Big Book of Ideas and confirm what strategies they want considered for their agency and will notify Veronica Richfield (Veronica.Richfield@ch2m.com) by early May.*

b. Safety Workshop Format Options

- When Beltrami was interested in implementing a local option sales tax, they held a variety of meetings with county board members and the public to educate them on the need. The benefit of these meetings was to gain support for the tax so that when it came to a vote, it was an easy decision. Beltrami County may be interested in a similar approach for the safety workshops.
- *ACTION ITEM: Beltrami County will sit down with county staff to discuss the format of the workshop they would like to host and decide by May.*

6. Wrap-Up

- What's Next - Working Group Meeting #2 in St. Cloud on April 6th, 2017 (with Webinar option) to discuss research/literature review findings of priority safety strategies selected by the Phase 1 counties.
- Action Items – See full list on the first page of this summary
- *ACTION ITEM: Sulmaan Khan will follow-up with MnDOT staff on the status of Beltrami County paying MnDOT for their share of the safety plan.*



Project Review Meeting

PREPARED BY: Nicole Buehne/SRF
COUNTY: Beltrami County
MEETING DATE: July 17, 2017
MEETING TIME: 9:00 – 11:00am CST
LOCATION: Beltrami County Office; 2491 Adams Ave NW, Bemidji, MN 56601
ATTENDEES: Bruce Hasbargen (via Phone)/Beltrami County
Howard Preston/Jacobs
Nicole Buehne/SRF (via Phone)

Meeting Goal

Review the project prioritization and strategy suggestions for Hennepin County.

Input from the County

- When asked about HFST, County uses Chip Seal
- County is comfortable with confirmation lights
- They have a project on Intersection - CSAH 5

Meeting Action Items

- Changing High Friction Surface Treatment (HFST) on Curve Project List to Surface Treatment (ST)
- Send Beltrami County KMZ maps of all project locations for ease of review – Robert (Jacobs)
- Check in with Beltrami County staff on the status of their project list review by July 25 – Howard (Jacobs)
- Tentative deadline for reviewing all lists is 3 weeks from now (August 3) – Beltrami County Staff

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Appendix C – Workshop Material

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**COUNTY ROADWAY
Safety Plan**
Toward **ZERO** Deaths

Beltrami County County Roadway Safety Plan Workshop

August 8, 2017

County Roadway Safety Plan Updates

Welcome and Introductions

- County staff
- MnDOT staff
- Consultant team
- Workshop attendees

Beltrami County Workshop Goals

1. Create a shared understanding of:
 - County Road Safety Plans (CRSP)
 - Beltrami County's infrastructure safety approach
 - Effective, infrastructure safety strategies to reduce severe crashes
2. Develop prioritized lists of safety strategies for Highway Safety Improvement Program (HSIP) eligible projects and safety-related maintenance activities.

Agenda Review

WORKSHOP AGENDA		
Beltrami County Safety Workshop		
PREPARED BY:	CH2M, Inc.	
WORKSHOP DATE:	Tuesday, August 8, 2017	
WORKSHOP TIME:	8:30 Registration, 9:00 AM – 3:00 PM CDT	
LOCATION:	Beltrami County Administration Building, Commissioner's Board Room 701 Minnesota Ave NW, Bemidji, MN 56601	
Workshop Agenda		
8:30 Registration and Refreshments		
Welcome, Introductions, and Workshop Goals		
<ul style="list-style-type: none"> • Create a shared understanding of CRSP and Beltrami County's infrastructure roadway safety approach. • Develop a more comprehensive understanding of effective infrastructure safety and maintenance strategies to reduce severe crashes. 	Cheri Marti, CH2M/ Bruce Heibergren, County Engineer	
9:00	<ul style="list-style-type: none"> • Develop prioritized lists of safety strategies for Highway Safety Improvement Program (HSIP) eligible projects and safety related maintenance activities. 	
Agenda Overview		
County Roadway Safety Plan (CRSP) Update and Safety Strategies Overview		
<ul style="list-style-type: none"> • Overview of CRSP and MN T2D Goals 	MADDT	
9:30	<ul style="list-style-type: none"> • Discussion: What is important to enhance road safety in the county? • Statewide Performance Measures and Data-Driven Safety Analysis • Overview of Proactive Systemic Safety Approach 	All Derek Lauer Howard Preston, CH2M
10:15	Break (10 Minutes)	
10:25	<ul style="list-style-type: none"> • Beltrami County Implemented Safety Projects and County Implementation Approach 	Howard Preston/ Bruce Heibergren
10:40	<ul style="list-style-type: none"> • Beltrami County Crash Data Overview and Focus Areas 	Howard Preston
11:00	Safety & Maintenance Strategies Presentation & Discussion	CH2M, All
12:00	Break for Lunch (10 Minutes)	
12:30	Continued: Safety & Maintenance Strategy Presentation & Discussion	
2:00	Strategy Writing Exercise + Break	All
2:20	Writing Results & Discussion	All
2:50	Next Steps and Workshop Evaluation	CH2M
3:00	Adjourn	
SAFETY WORKSHOP		CH2M, INC.
		1

Handouts Review

Left Pocket:

- Agenda
- PPT Slides
- Implemented Projects Table
- State Crash Trees
- County Crash trees
- Evaluation Form – Part A
- Strategies Handout
- Big book of ideas
- Evaluation Form – Part B

Right Pocket:

- CRSP one-pager
- Research/Strategy one-pagers
- TZD One-pager
- Data Driven Safety Analysis (DDSA) One-pager (FHWA)



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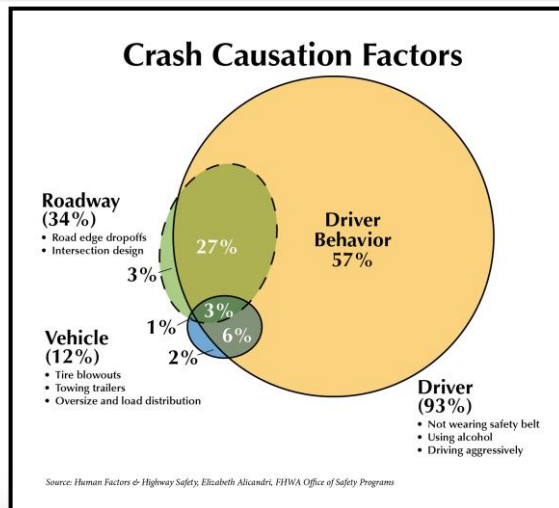
Overview Presentations

County Roadway Safety Plan Updates

County Roadway Safety Plan (CRSP) Update

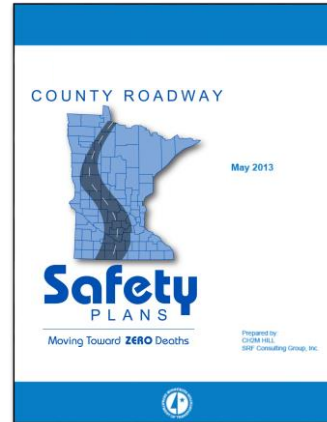
- Overview of CRSP
- Minnesota Toward Zero Deaths (TZD) Goals
- *Discussion: What is important to advance road safety in the county?*
- Statewide Performance Measures
- Data-Driven Safety Analysis (DDSA)

Crash Contributing Factors



What is a County Roadway Safety Plan or “CRSP”?

- CRSP is a plan identifying priority safety concerns and suggested infrastructure improvements.
 - Location-specific safety concerns
 - Prioritized list of suggested safety improvements
- In 2014, initial plan completed for each of the 87 Minnesota counties in partnership with MnDOT and the Federal Highway Administration.
- The “CRSP Update” is an effort to review and update the initial CRSPs to advance safety on county roadways.



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Why the need for County Roadway Safety Plans?

- 60% of severe crashes (fatality or serious injury) occur on local roadways; **most severe are on county roads.**
- Local agencies are responsible for more than 90% of the state’s roadway miles.
- The majority of roadway safety investments have been made on the state system.

“It will be impossible to achieve Minnesota’s long-term goal of zero fatalities if minimal investment is made to address safety on local roadways”
 Mitch Rasmussen, Assistant
 Commissioner State Aid
 Division



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What is the goal of County Road Safety Plans?

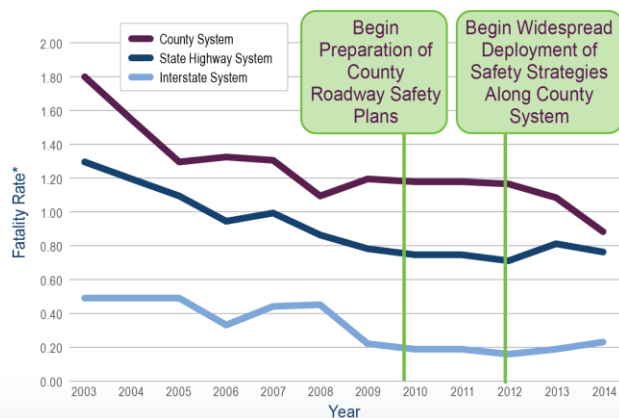
To support the statewide initiative of moving Minnesota Toward Zero Deaths or Minnesota TZD through **continued reduction of fatal and serious injury crashes on county roadways.**

- Aligns with the Minnesota Strategic Highway Safety Plan (SHSP)
- Supports the statewide goal of fewer than 300 fatalities and fewer than 850 serious injuries by 2020.



What are the initial results of county road safety improvements?

The implementation of nearly \$60 million of road safety improvements from 2012 to 2014. During this time, Minnesota's **county system** *fatality rate decreased 25%



What will the CRSP updated plans include?

- Review of all county road segments, curves and intersections
- Data-driven review of crashes on county roads over the last five years
- Summary of safety focus areas and crash types (e.g., lane departure)
- List of recommended high priority safety strategies
- Prioritized list of locations that are most at risk for severe crashes
- Prioritized list of location-specific safety strategies to consider for county implementation

What is next?



CRSP Update - Phase 1 (15 Counties)



CRSP Project Team

Project Oversight:

- MnDOT State Aid – Mark Vizecky
- MnDOT Traffic, Safety and Technology – Derek Leuer

Project Analysis & CRSP Plan Development

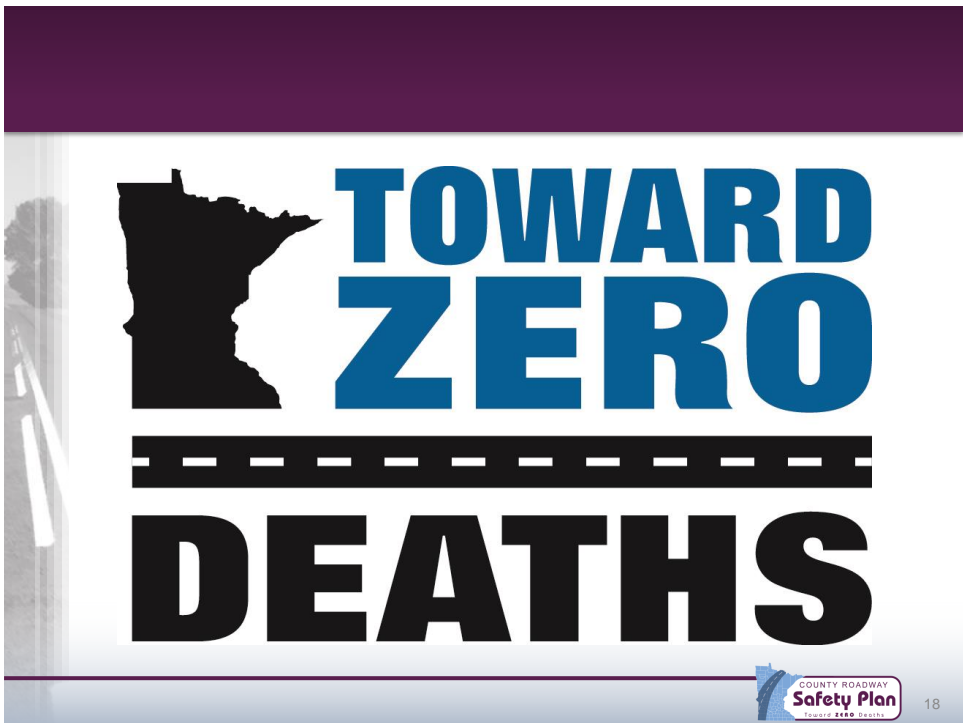
- CH2M Team including SRF Consulting Group and P.E. Services



COUNTY ROADWAY
Safety Plan
Toward **ZERO** Deaths

Minnesota Toward Zero Deaths

County Roadway Safety Plan Updates



**TOWARD
ZERO
DEATHS**

COUNTY ROADWAY
Safety Plan
Toward **ZERO** Deaths

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What is Toward Zero Deaths (TZD)?

- Based on premise that even one traffic-related death on our roads is unacceptable
- Adopted in Minnesota in 2003
- TZD uses a data-driven, interdisciplinary approach using the “4Es” of traffic safety:
 1. Education
 2. Enforcement
 3. Engineering
 4. Emergency medical and trauma services

<http://www.minnesotatzd.org>

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What is Toward Zero Deaths (TZD)?

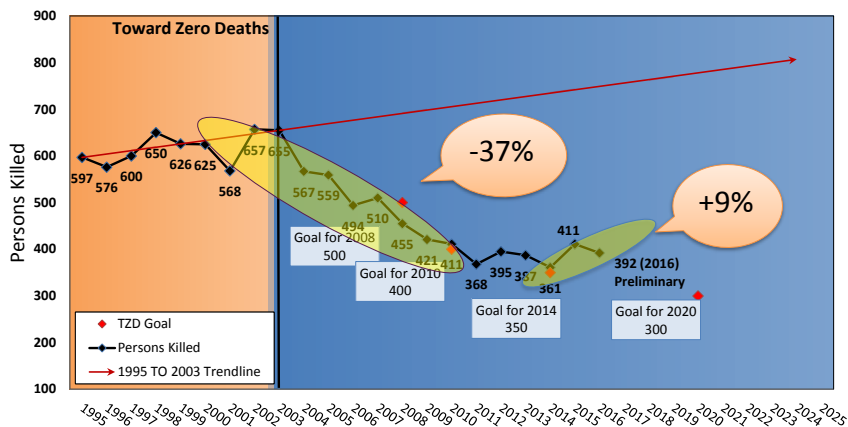
- TZD program teams work in partnership with community and corridor groups across the state to improve the traffic safety.
- Minnesota TZD Program provides technical assistance, materials, and guidance to local safety groups committed to reducing fatalities and severe injuries.
- Need to be open to a new safety approach, embracing:
 - New safety partners (including locals)
 - New strategies
- Commitment to change how MN safety program is delivered

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Minnesota Roadway Fatalities



Now: National Towards Zero Deaths



<http://www.towardzerodeaths.org/>

Discussion

What is important to advance road safety in the county?



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Statewide Performance Measures

County Roadway Safety Plan Updates

Statewide Performance Measures

- Every Year, Minnesota receives ~\$30 Million Federal Highway safety funding
- Highway Safety Improvements Program (HSIP)
- Minnesota shares HSIP funding with the local governing agencies (about 50%)

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Statewide Performance Measures

- The Federal Highway Administration requires states to set goals to quantify the total number of fatal and serious injury crashes
- There are five main targets for how we will be evaluated:
 - Fatalities (total people killed)
 - Serious Injuries (total people with serious injuries)
 - Fatality Rate
 - Serious Injury Rate
 - Non-Motorized Fatal and Serious Injuries
- If we don't make these targets, we will start to lose flexibility

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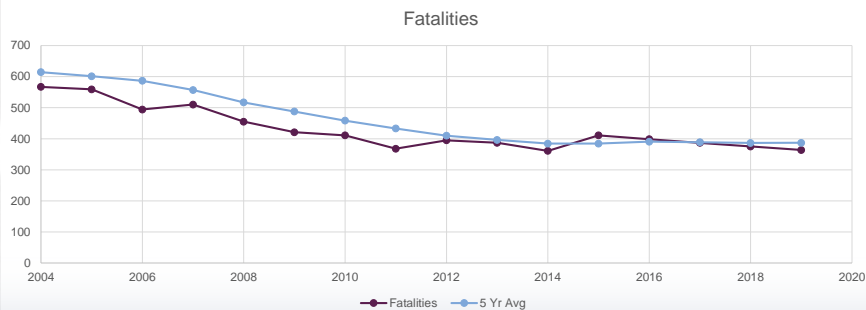


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Statewide Performance Measures

Target is 375 Fatalities (2018)

- 3% annualized reduction from 2015
- Trend has been flat over last 6 years
- Takes into consideration ~5% decrease in 2016
- 12 fatality reduction per year (2016-2018)



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Why this is important!

- Fatal and Serious Injuries are widely distributed across the system.
- We need every county, city, and MnDOT District to contribute.
- If targets are not getting met, we will start to lose flexibility with what can and cannot be funded.
- These crashes effect real people and their families.
- It's the right thing to do!

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MN 2018 Performance Measures/Goals

Fatalities -375

Fatality Rate – 0.62 (lowest in state history)

Serious Injuries – 1935

Serious Injury Rate – 3.19

Non-Motorized Performance Measure – 348
(250 pedestrian, 98 bike)



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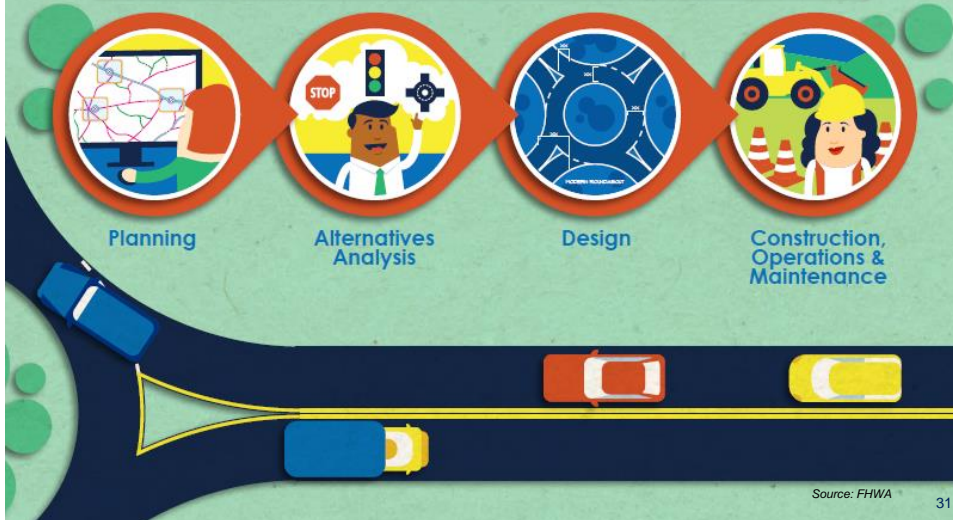
Data-Driven Safety Analysis (DDSA)

Integrating Safety Performance into **ALL**
Transportation Investment Decisions

County Roadway Safety Plan Updates

Where can DDSA be applied in the Project Development Process?

Use Data. Target Investments. Save Lives.



DDSA Minnesota Case Study Video





Overview of Proactive Systemic Safety Approach

County Roadway Safety Plan Updates

Safety Plan Objectives

The primary objectives of the County Roadway Safety Plan:

- Conducting a data-driven **safety analysis** of the county roadway system
- Identifying and prioritizing **candidate locations** for safety investment
- Developing **safety projects** – specific strategies at specific locations

Systemic Risk Assessment

- Traditional method for conducting a safety analysis: **“high crash” locations**
- This method was a barrier to local system participation in statewide safety programs because there are few to no locations on local systems that meet the state criteria for designation as “high crash”

The solution for local system safety analyses =
Systemic Risk Analysis

What is a Systemic Risk Assessment?

- **Analytical approach** identifies and prioritizes safety deficiencies on roads based on risk of crash (vs. density of crashes).
- **Identifies risk factors** based on roadway and traffic characteristics common to locations with fatal and injury crash histories.
- **Prioritizes the road system for safety investment** by documenting the number of risk factors present at each location. The greater the number of risk factors present at any location, the greater the risk and the higher the priority as a candidate for safety investment.

What is the benefit of a systemic process?

- **It works** – it is approved by FHWA as a data-driven process to identify safety improvement projects, including those considered eligible for Highway Safety Improvement Program (HSIP) funding.
- **It leads to implementation** – the process has identified more than \$300M of low-cost safety improvement projects along local systems in Minnesota.
 - MnDOT has directed more than \$60M of HSIP funds to support implementation along local systems.
- **It allows agencies to proactively deploy safety projects** on at-risk locations.

With the systemic process, the answer to “*How many people have to die before you do something?*” – is Zero!

Overview of the Local Safety Planning & Systemic Process



Risk Factor Identification

Segments:

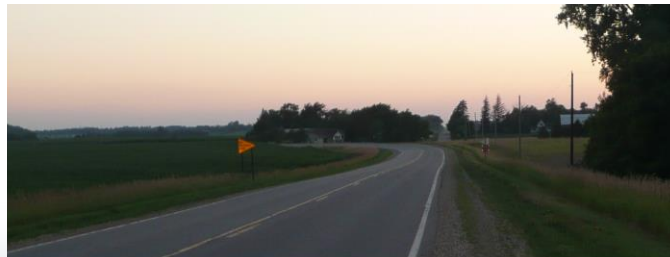
- Density of Road Departure
- Traffic Volume
- Critical Curve Radius
- Access Density
- Edge Risk Assessment



Risk Factor Identification

Curves:

- ADT Range
- Radius Range
- Severe Crash on Curve
- Intersection on Curve
- Visual Trap on Curve



Risk Factor Identification

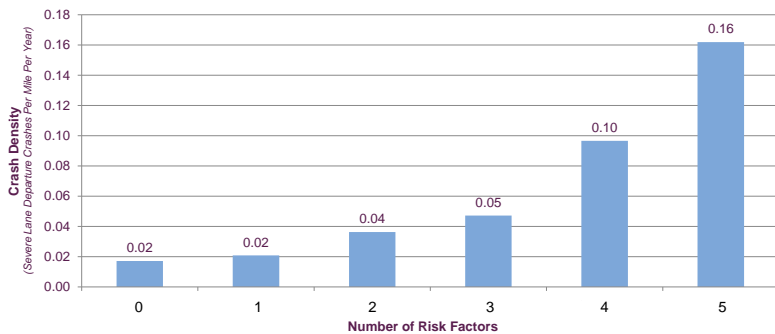
Intersections

- Skewed Approach
- On/near curve
- Volume
- Proximity to railroad crossing
- Proximity to last STOP sign
- Intersection related crashes
- Commercial Development in Quadrant



Systemic Safety Approach Works!

Higher priority segments have higher crash densities



Low
Priority



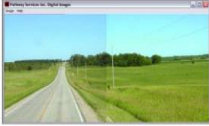
High
Priority

Project Form & Impact of Having a Safety Plan

CSAH 34 from CSAH 35 to PERHAM CORP LMTS Project
Agency: Otter Tail County

Roadway Data

Type: CSAH
Number: 34
Start: CSAH 35
End: PERHAM CORP LMTS
City/Town: Rural
County: Otter Tail
ATP: 4
ADT: 1148
Facility Type: 2 Lane
Lane Width: 11
Shoulder Width: 7
Shoulder Type: gravel
Length (miles): 0.8
Runble Installed: No



Crash Data
2009-2009 Mn/CMAT Crash Data 5 years

	Total	Road Dept	K+A
Crashes	19	11	1
Density (per mile per year)	0.44	0.32	0.03
Rate (per MV/M)	1.05	0.77	0.07

Ranking Criteria

	Value	Criterion	Risk Ranking
ADT Range	1148	600 to 1199	*
RD Density	0.32	0.06	*
Access Density	11.32	10.80	**
Curve Critical Radius Density	0.59	0.35	*
Edge Risk	3	2 or 3	*****

Short List of Strategies Considered

Description	Type	Cost per mi	Mileage	Cost	Notes - R# #eligible 2010
2' Shoulder Paver/Safety Wedge	Proactive	\$40,000	4.8	\$1,920,000	HSIP Project selection adjusted for Lisha McDonald
Runble Strip	Proactive	\$3,000	0.0	\$0	Lake, Paul Lake and Rosch
Runble Strip	Proactive	\$3,500	0.0	\$0	Lake, Paul Lake and Rosch
6" edgelines	Proactive	\$650	0.0	\$0	Lake shoreline properties
Ground In Wet Reflective Markings	Proactive	\$8,500	2.0	\$16,750	

Implementation Cost

Federal Funds	\$188,884
Local Match (10% of Total project cost)	\$20,988
Total Project Cost	\$209,882

Rank: 1
Segment ID: 34.01
Date: 4/27/2011

Over a 4-year period:

- **Over 85% of Minnesota counties** secured HSIP funding for at least one project.
- More than **\$60M of HSIP funds** were directed to supporting the implementation of safety projects on the county system.



Implemented Safety Projects and County Implementation Approach

County Roadway Safety Plan Updates

County Implemented Projects (Phase 1)

Phase 1 Counties Implemented Projects ^a			Crash Reduction Factors	Pool of Applicable Severe Crashes ^b		
Segment Projects	Number of Miles with Segment Projects	Cost	CRF by Strategy ^c	Greater MN Crashes	District 2 Crashes	Beltrami County Crashes
6" Edgeline	1,128.9	\$885,619	10% - 45%			
Pave Shoulders	293.9	\$6,759,757	20% - 30%			
Ground-In Wet Reflective Markings	604.5	\$1,822,735	10% - 45%	918	70	18
Rumble Strips	672.4	\$317,588	20% - 40%			
Reconstruction	167.4	\$7,627,031	Varies			
Subtotal		\$17,412,730				
Intersection Projects			CRF by Strategy ^c	Greater MN Crashes	District 2 Crashes	Beltrami County Crashes
Street Lighting	347	\$979,722	25% - 40%			
Upgraded Signs	429	\$296,091	15% - 40%			
Upgraded Markings	525	\$143,884	15% - 40%	475	25	6
Reconstruction	10	\$1,608,000	Varies			
Subtotal		\$3,027,697				
Curve Projects			CRF by Strategy ^c	Greater MN Crashes	District 2 Crashes	Beltrami County Crashes
Chevrons	2,029	\$10,639,439	20% - 30%			
Advanced Warning Sign	262	\$111,227	20% - 40%			
Rumble Strips	268	\$468,104	20% - 40%	482	33	8
Pave Shoulders	481	\$9,869,664	20% - 30%			
Subtotal		\$21,088,434				
Total Cost		\$41,528,861				

^a Range of Implementation 2007 - 2016; Counties: Beltrami, Carlton, Chisago, Crow Wing, Freeborn, Goodhue, McLeod, Meeker, Moorison, Olmsted, Otter Tail, Saint Louis, Stearns, Wright

^b Applicable 2011-2015 Severe Crashes were queried by - County: Route System = '4' & '7' AND Segments: Relation to Intersection = '1' & '98'; OR Intersections: Relation to Intersection = '2', '3', '4', '5', '6', & '7'; OR Curves: Roadway Characteristic = '5', '6', '7' & '8'

^c Crash Reduction Factors identified from www.cmfclearinghouse.org

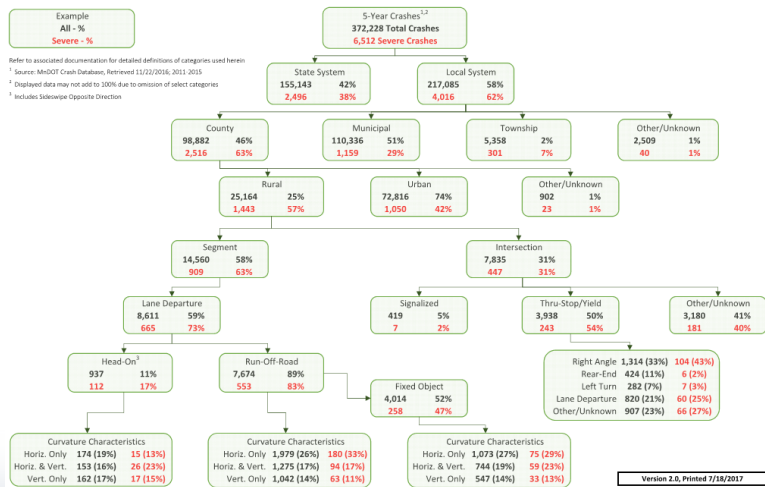


Beltrami County Crash Data Overview and Safety Focus Areas

County Roadway Safety Plan Updates

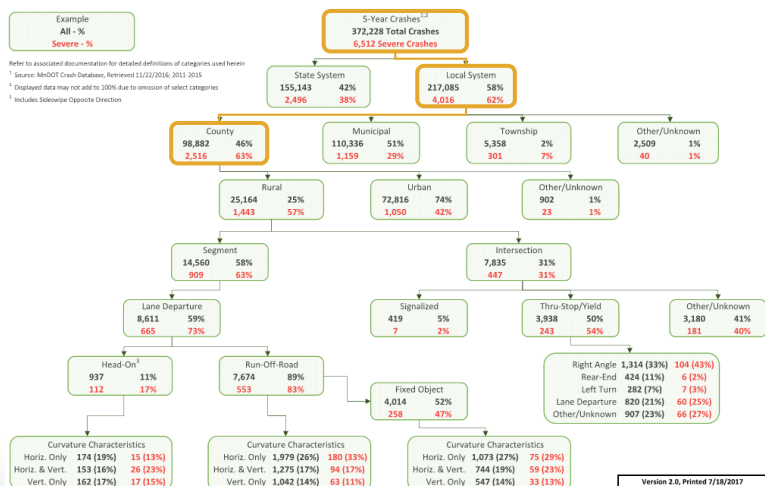
Statewide Crash Tree

Minnesota Statewide Crash Tree - County Rural System



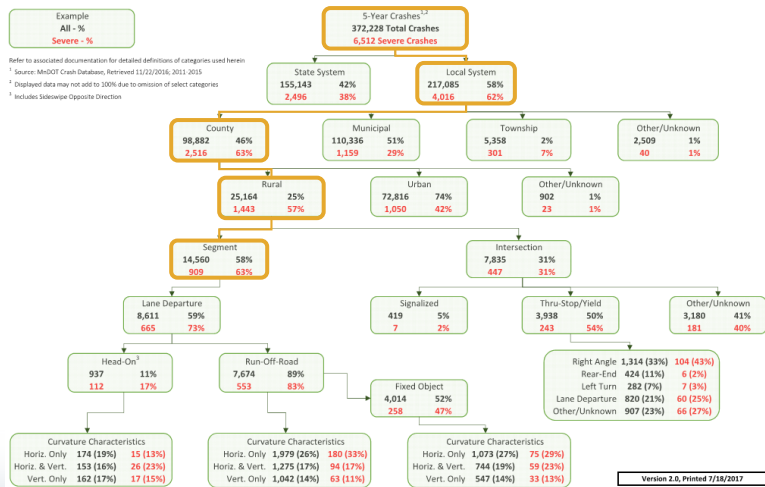
Statewide Crash Tree

Minnesota Statewide Crash Tree - County Rural System



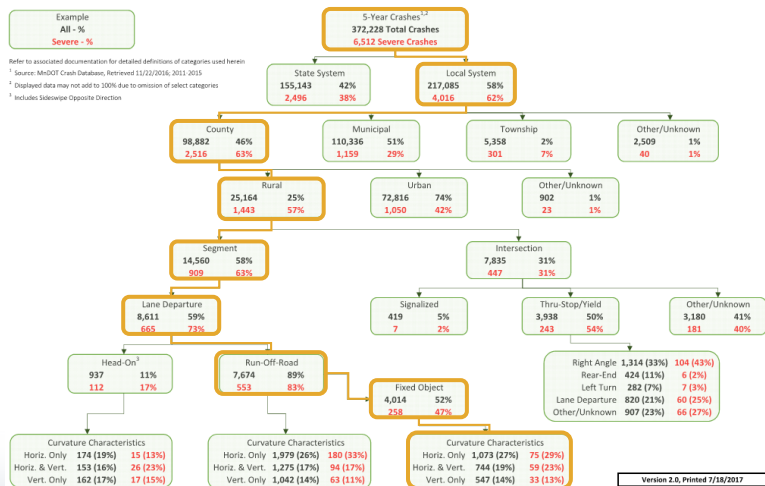
Statewide Crash Tree

Minnesota Statewide Crash Tree - County Rural System



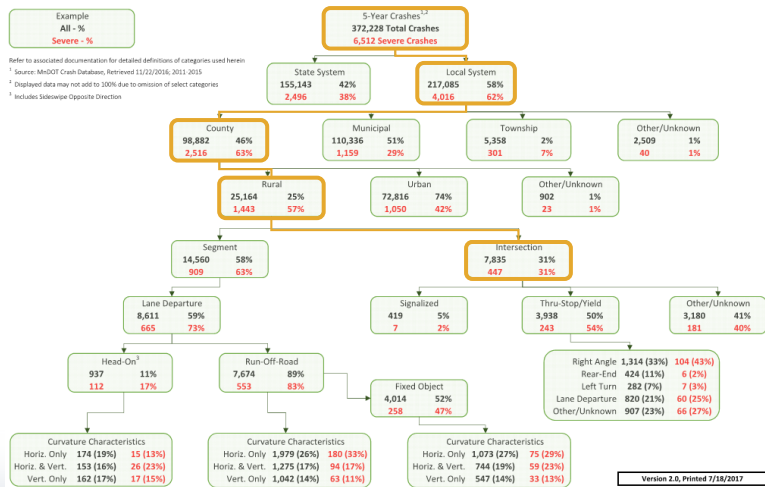
Statewide Crash Tree

Minnesota Statewide Crash Tree - County Rural System



Statewide Crash Tree

Minnesota Statewide Crash Tree - County Rural System



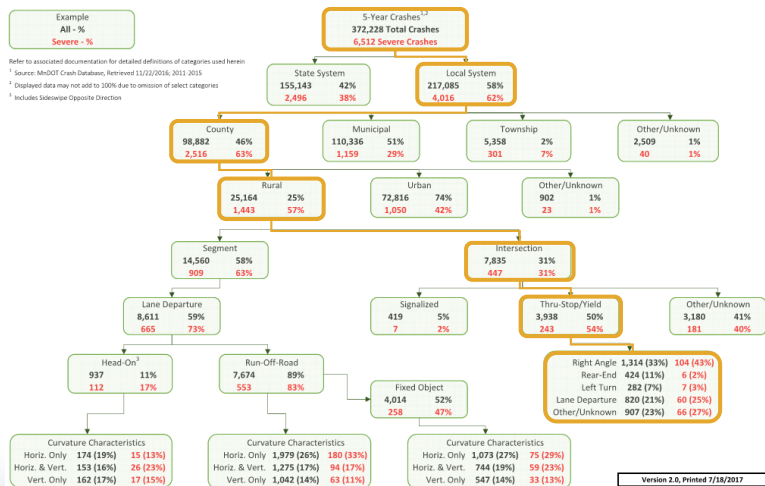
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Statewide Crash Tree

Minnesota Statewide Crash Tree - County Rural System



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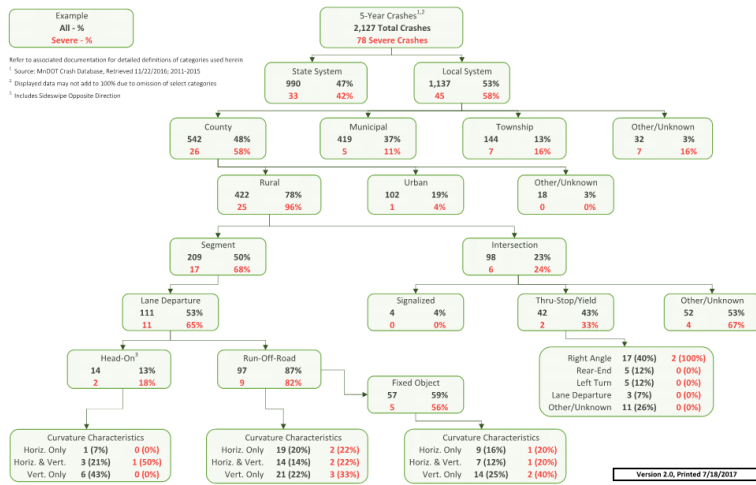
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Statewide Crash Tree – Key Takeways

- A focus on supporting safety investment on local systems – especially county roadways
- A Primary focus on **rural county roadways**
- A secondary focus on urban county roadways and municipal streets
- A primary focus on **lane departure** crashes along **rural road segments (including curves)**
- A secondary focus on thru/stop controlled intersections

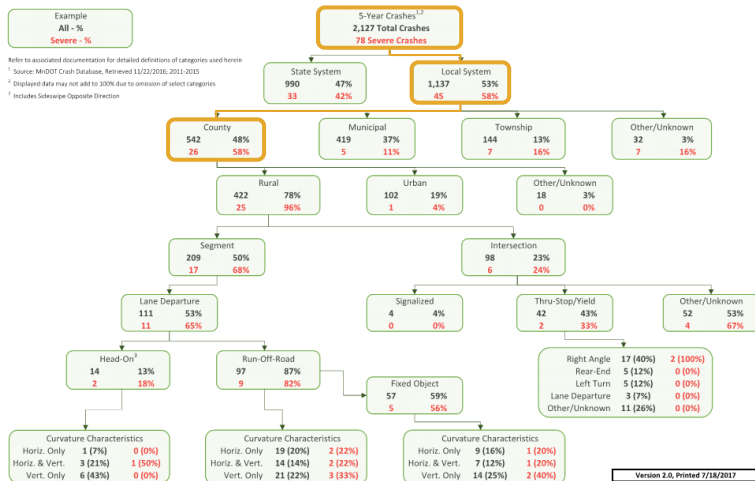
Beltrami County Crash Tree

Beltrami County Crash Tree - County Rural System



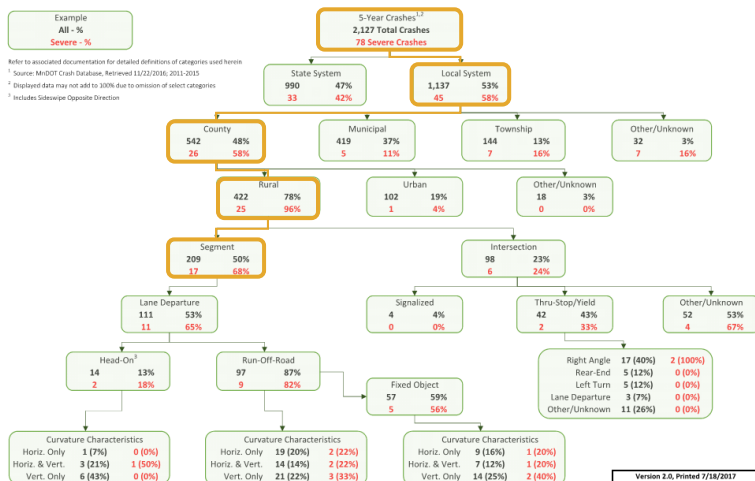
Beltrami County Crash Tree

Beltrami County Crash Tree - County Rural System



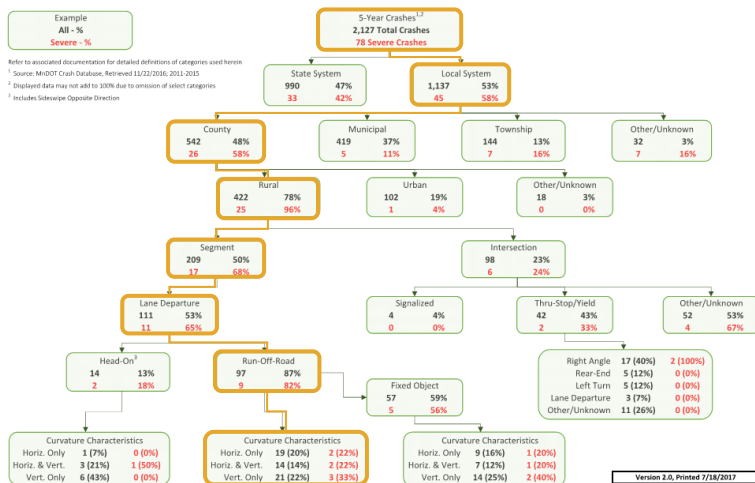
Beltrami County Crash Tree

Beltrami County Crash Tree - County Rural System



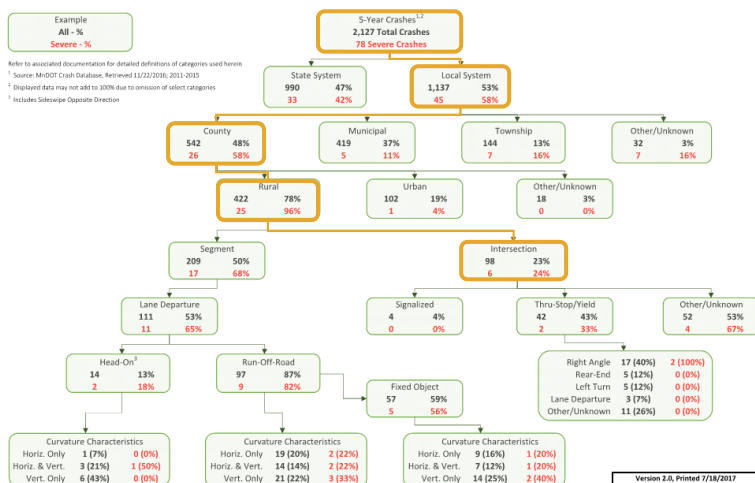
Beltrami County Crash Tree

Beltrami County Crash Tree - County Rural System

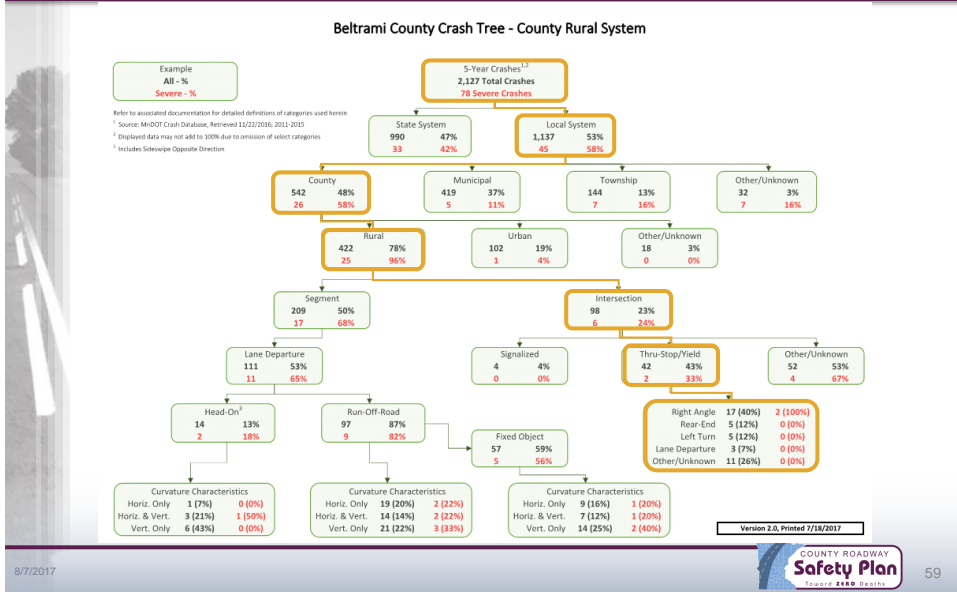


Beltrami County Crash Tree

Beltrami County Crash Tree - County Rural System



Beltrami County Crash Tree



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Beltrami County Crash Tree – Key Takeaways

- A primary focus on the County's **rural roadways**.
- A secondary focus on the County's urban roadways.
- A primary focus on **lane departure** crashes along **rural road segments (including curves)**.
- A secondary focus on Right Angle collisions at rural Thru/STOP controlled intersections.
- The focus on Lane Departure and Right Angle collisions is the first step in developing and prioritizing a short list of potential safety countermeasures.

8/7/2017

60

Statewide Focus Areas

Focus Area ¹	Statewide		Greater Minnesota		Metro	
	All Systems	County System ²	All Systems	County System	All Systems	County System
Total Severe Crashes³	6,512	2,516	3,896	1,486	2,616	1,030
Lane Departure	2,931 45%	1,234 49%	2,037 52%	886 60%	894 34%	348 34%
Run-Off-Road	1,872 29%	858 34%	1,420 36%	703 47%	452 17%	155 15%
Head-On ⁴	1,059 16%	376 15%	617 16%	183 12%	442 17%	193 19%
Intersection	2,647 41%	1,069 42%	1,364 35%	475 32%	1,283 49%	594 58%
Speed	1,190 18%	440 17%	763 20%	306 21%	427 16%	134 13%
Inattentive	1,209 19%	417 17%	747 19%	253 17%	462 18%	164 16%
Unbelted	2,223 34%	910 36%	1,558 40%	652 44%	665 25%	258 25%
Impaired	1,404 22%	591 23%	933 24%	410 28%	471 18%	181 18%
Motorcycle	1,156 18%	514 20%	642 16%	309 21%	514 20%	205 20%
Older	1,085 17%	364 14%	723 19%	211 14%	362 14%	153 15%
Younger	1,086 17%	425 17%	689 18%	259 17%	397 15%	166 16%
Nonmotorists	927 14%	322 13%	300 8%	78 5%	627 24%	244 24%
Pedestrian ⁵	657 10%	224 9%	213 5%	51 3%	444 17%	173 17%
Bicyclist	270 4%	98 4%	87 2%	27 2%	183 7%	71 7%
Unlicensed	663 10%	227 9%	354 9%	123 8%	309 12%	104 10%
Work Zone	98 2%	26 1%	46 1%	13 1%	52 2%	13 1%
Commercial Vehicles	638 10%	168 7%	440 11%	103 7%	198 8%	65 6%
Trains	31 <1%	11 <1%	29 1%	11 1%	2 <1%	0 0%
Deer/Animal	135 2%	72 3%	117 3%	59 4%	18 1%	13 1%
Winter Weather	747 11%	267 11%	539 14%	178 12%	208 8%	89 9%

¹ Focus Area definitions consistent with those from the 2014-2019 Minnesota Strategic Highway Safety Plan unless otherwise noted
² Identified via crash report attribute 'Route System' values 4 and 7
³ Source: MnDOT Crash Database, Retrieved 11/22/2016; Fatal + Incapacitating Injury, 2011-2015
⁴ Includes Sideswipe Opposite Direction; Omits Deer/Animal
⁵ Includes crashes with the 'Accident Type' attribute value 7

Version 1.4, Printed 1/31/2017

Beltrami County Focus Areas

Focus Area ¹	District 2		Beltrami County	
	All Systems	County System ²	All Systems	County System
Total Severe Crashes³	300	110	78	26
Lane Departure	170 57%	69 63%	42 54%	14 54%
Run-Off-Road	117 39%	55 50%	28 36%	10 38%
Head-On ⁴	53 18%	14 13%	14 18%	4 15%
Intersection	90 30%	25 23%	19 24%	6 23%
Speed	52 17%	21 19%	14 18%	6 23%
Inattentive	54 18%	12 11%	14 18%	3 12%
Unbelted	141 47%	54 49%	31 40%	11 42%
Impaired	89 30%	41 37%	32 41%	15 58%
Motorcycle	28 9%	18 16%	4 5%	3 12%
Older	52 17%	13 12%	13 17%	2 8%
Younger	56 19%	20 18%	19 24%	9 35%
Nonmotorists	17 6%	6 5%	7 9%	4 15%
Pedestrian ⁵	9 3%	4 4%	6 8%	3 12%
Bicyclist	8 3%	2 2%	1 1%	1 4%
Unlicensed	34 11%	9 8%	10 13%	2 8%
Work Zone	2 1%	1 1%	0 0%	0 0%
Commercial Vehicles	35 12%	5 5%	5 6%	1 4%
Trains	2 1%	1 1%	0 0%	0 0%
Deer/Animal	10 3%	6 5%	1 1%	1 4%
Winter Weather	46 15%	15 14%	13 17%	3 12%

¹ Focus Area definitions consistent with those from the 2014-2019 Minnesota Strategic Highway Safety Plan unless otherwise noted
² Identified via crash report attribute 'Route System' values 4 and 7
³ Source: MnDOT Crash Database, Retrieved 11/22/2016; Fatal + Incapacitating Injury, 2011-2015
⁴ Includes Sideswipe Opposite Direction; Omits Deer/Animal
⁵ Includes crashes with the 'Accident Type' attribute value 7

Version 1.5, Printed 2/1/2017



COUNTY ROADWAY
Safety Plan
Toward **ZERO** Deaths

**Beltrami County
Safety Strategies Discussion**

County Roadway Safety Plan Updates

Rural Segments

8/7/2017 64

Centerline Rumble Strip

Crash Reduction Factor

- 40% head-on/sideswipe crashes

Typical Installation Costs

- \$3,600 per mile

Severe Crashes: 2



8/7/2017

65

Buffers Between Opposing Lanes

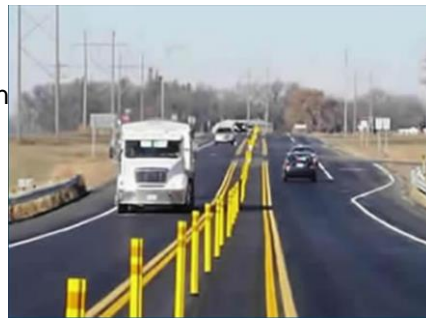
Crash Reduction Factor

- 50% for all crashes & 100% for head-on crashes (based on TH 5 in Lake Elmo)

Typical Installation Costs

- \$150,000 to \$500,000 per mile

Severe Crashes: 2



8/7/2017

66

Shoulder/ Edgeline Rumble Strips

Crash Reduction Factor

- 20% run off road crashes

Typical Installation Costs

- \$5,850 per mile

Severe Crashes: 9



8/7/2017

67

Safety Edge

Crash Reduction Factor

- 5% to 10% for all crashes

Typical Installation Costs

- \$10,000 to \$20,000 per mile

Severe Crashes: 9



8/7/2017

68

Enhanced Edgeline (6" & 8")

Crash Reduction Factor

- 10% to 45% all rural serious crashes (6")

Typical Installation Costs

- \$2,000 per mile

Severe Crashes: 11



8/7/2017

69

Shoulder Paving (2', 4', 6')

Crash Reduction Factor

- 20% to 30% run-off-the-road crashes (with shoulder rumble) (2' only)

Typical Installation Costs

- \$54,000 per mile + \$5,850 per mile (for Edge Rumble)

Severe Crashes: 9



8/7/2017

70

Clear Zone Maintenance/ Enhancements

Crash Reduction Factor

- Fatal, serious & minor Injury crashes: increase of 28% to decrease of 18%

Typical Installation Costs

- \$50,000 to \$500,000 per mile

Severe Crashes: 5



8/7/2017

71

Ditch/ Embankment Improvements

Crash Reduction Factor

- 32% to 41% (adding new guardrail to embankment- run off road crashes)

Typical Installation Costs

- \$500,000 to \$1M per mile

Severe Crashes: 9



8/7/2017

72

Shoulder Maintenance

Crash Reduction Factor

- Not Available

Typical Installation Costs

- \$1,500 per mile

Severe Crashes: 9



Guardrail Installation/Upgrades

Crash Reduction Factor

- Not Available

Typical Installation Costs

- \$25,000 each

Severe Crashes: Not Available



Rural Curves



Chevrons

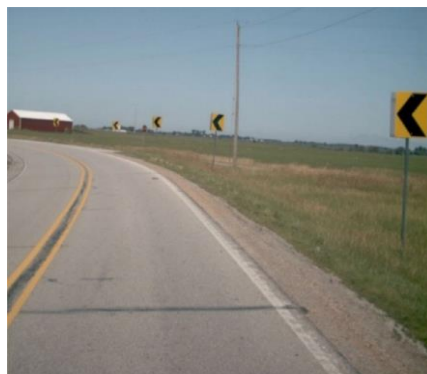
Crash Reduction Factor

- 20% to 30%

Typical Installation Costs

- \$3,960 per curve

Severe Crashes: 8



Delineators

Crash Reduction Factor

- 18% to 34% non-intersection, head-on, run-off-road, sideswipe, nighttime crash types

Typical Installation Costs

- \$500 per curve

Severe Crashes: 8



8/7/2017

77

Dynamic Curve Signing

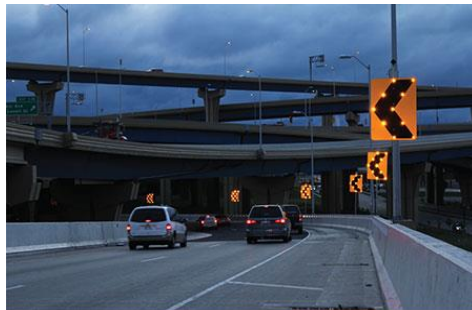
Crash Reduction Factor

- Not Available

Typical Installation Costs

- \$50,000 per curve

Severe Crashes: 8



8/7/2017

78

Lighting

Crash Reduction Factor

- See Rural Intersections

Typical Installation Costs

- See Rural Intersections

Severe Crashes: 8



8/7/2017

79

Clear Zone Maintenance/ Enhancements

Crash Reduction Factor

- Fatal, serious, & minor injury crashes: increase of 28% to decrease of 18%

Typical Installation Costs

- \$10,000 to \$250,000 per curve

Severe Crashes: 2



8/7/2017

80

Reconstruct (TT to a Single T Intersection)

Crash Reduction Factor

- Not Available

Typical Installation Costs

- \$150,000 to \$300,000 per curve

Severe Crashes: 8



8/7/2017



81

Rural Intersections



8/7/2017

82

Upgrade Signs and Pavement Markings

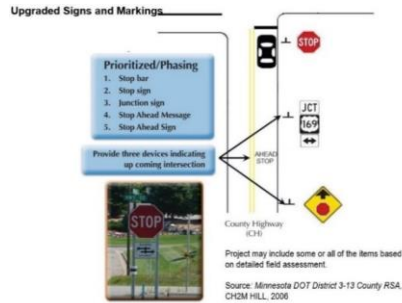
Crash Reduction Factor

- 40% upgrade of all signs and pavement marking
- 15% for STOP AHEAD pavement marking

Typical Installation Costs

- \$2,640 per approach

Severe Crashes: 6



Typical Markings:

- STOP bars
- STOP AHEAD pavement markings
- In-lane turn arrows
- Rail grade crossing markings

Streetlights (and Approaches)

Crash Reduction Factor

- 25% to 40% of nighttime crashes

Typical Installation Costs

- \$6,000 per light

Severe Crashes: 6



All-Way Stop/ Yield

Crash Reduction Factor

- Not Available

Typical Installation Costs

- \$1,000 per intersection

Severe Crashes: 6



Remove Skew/ Realign Intersections

Crash Reduction Factor

- 0% to 33%

• Severe Crashes: 6

Typical Installation Costs

- \$150,000 to \$300,000 per intersection



Clear Sight Triangles

Crash Reduction Factor

- 20%
- Severe Crashes: 6

Typical Installation Costs

- \$3,000 per intersection

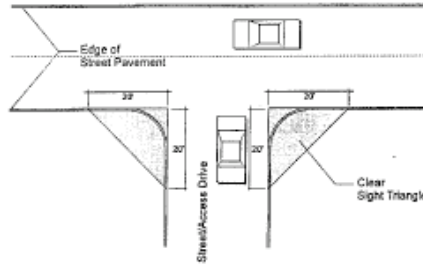


Figure 18: Clear Sight Triangles

8/7/2017



87

Restricted Crossing U-Turn (RCUT) Intersection

Crash Reduction Factor

- 17% all crashes
- 100% angle crashes

Typical Installation Costs

- \$750,000 per intersection

Severe Crashes: 6



8/7/2017



88

Rural Intersection Conflict Warning System (RICWS)

Crash Reduction Factor

- 50% all crashes
- 75% severe right angle crashes

Typical Installation Costs

- \$50,000 per intersection

Severe Crashes: 6



8/7/2017

89

Offset T-Intersection

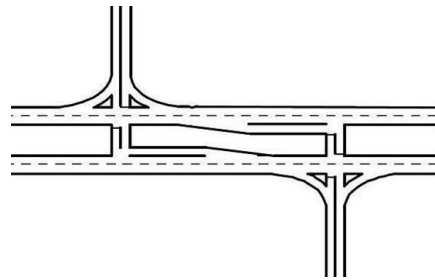
Crash Reduction Factor

- All crash types & severities
53%

Typical Installation Costs

- \$150,000 to \$300,000 per intersection

Severe Crashes: 6



8/7/2017

90

Roundabout

Crash Reduction Factor

- 20% to 50% all crashes
- 60% to 90% right-angle crashes

Typical Installation Costs

- \$1,000,000 per intersection

Severe Crashes: 6



8/7/2017

91

Turn Lanes (Offset, Channelized)

Crash Reduction Factor

- Create positive offset left turn lanes - ~35% (all + severe crashes)
- Channelize right turn lanes – 43% to 60% (all crash severities)

Typical Installation Costs

- \$75,000 to \$250,000

Severe Crashes: 6



8/7/2017

92

Improve Slopes

Crash Reduction Factor

- Not Available

Typical Installation Costs

- \$3,000 per entrance

Severe Crashes: 6



8/7/2017



93

Urban Segments



8/7/2017

94

Access Management

Crash Reduction Factor

- 5% to 31%
- **Severe Crashes: 1**

Typical Installation Costs

- \$360,000 per mile



8/7/2017

95

Bike Lane/ Boulevard

Crash Reduction Factor

- Approximately 60% (Some studies have noted increases)



Typical Installation Costs

- Repurposing existing road ~\$5,000 per mile
- New Construction of Separated Boulevard ~\$500,000 per mile



Severe Crashes: 0

8/7/2017

96

Urbanization (Make it Feel Urban)

Crash Reduction Factor

- Not Available

Typical Installation Costs

- \$500,000 to \$1,000,000 per mile

Severe Crashes: 1



8/7/2017

97

Dynamic Speed Feedback Sign

Crash Reduction Factor

- 5% - 7% all crashes

Typical Installation Costs

- \$30,000 per location

Severe Crashes: 1



8/7/2017

98

Urban Intersections



Signalized RCUT

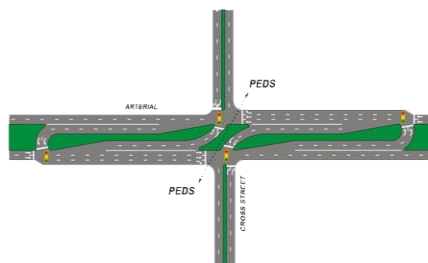
Crash Reduction Factor

- Not Available

Typical Installation Costs

- \$1 to \$5 million

Severe Crashes: 0



Confirmation Lights

Crash Reduction Factor

- 25% to 84% reduction in violations

Typical Installation Costs

- \$1,200 per two approaches

Severe Crashes: 0



8/7/2017

101

Pedestrian Countdown Timers

Crash Reduction Factor

- 25% vehicle/pedestrian crashes

Typical Installation Costs

- \$12,000 per intersection

Severe Crashes: 0



8/7/2017

102

Leading Pedestrian Intervals

Crash Reduction Factor

- Up to 60% pedestrian/ vehicle crashes

Typical Installation Costs

- \$600 per intersection

Severe Crashes: 0



8/7/2017

103

Curb Extensions

Crash Reduction Factor

- Increase in vehicles yielding to pedestrians

Typical Installation Costs

- \$36,000 per corner

Severe Crashes: 0



8/7/2017

104

Center Island Medians

Crash Reduction Factor

- 46% in vehicle/pedestrian crashes

Typical Installation Costs

- \$24,000 per approach

Severe Crashes: 0



8/7/2017

105

Roundabout (Including Mini Roundabout)

Crash Reduction Factor

- 20% to 50% all crashes
- 60% to 90% right-angle crashes

Typical Installation Costs

- \$4,200,000 per intersection

Severe Crashes: 0



8/7/2017

106

Rectangular Rapid Flash Beacon (RRFB)

Crash Reduction Factor

- 75% of drivers yield to pedestrians

Typical Installation Costs

- \$15,000

Severe Crashes: 0



Michael Frederick, City of St. Petersburg, FL

8/7/2017



107

High-Intensity Activated Crosswalk Beacon (HAWK)

Crash Reduction Factor

- 69% Vehicle/Pedestrian

Typical Installation Costs

- \$50,000 to \$120,000

Severe Crashes: 0



8/7/2017



108

Flashing Yellow Arrow (FYA)

Crash Reduction Factor

- 19.4% left turn crashes

Typical Installation Costs

- Not Available

Severe Crashes: 0



8/7/2017

109

Turn Lanes (Offset, Channelized)

Crash Reduction Factor

- 27%

Typical Installation Costs

- \$150,000 to \$500,000

Severe Crashes: 0



8/7/2017

110

Urbanization (Make it Feel Urban)

Crash Reduction Factor

- Not Available

Typical Installation Costs

- \$250,000 to \$500,000 per intersection

Severe Crashes: 0



8/7/2017



111

Workshop Wrap-Up

Next Steps:

- Beltrami County Safety Workshop Summary
- County review/approval of recommended projects
- CRSP draft report
- Transportation Committee meeting presentation

Workshop Evaluation – We value your feedback!

Thank you for your participation and input!



112

Questions?

Contact:

- Bruce Hasbargen- Beltrami County Engineer
bruce.hasbargen@co.beltrami.mn.us 218-333-8180
- Mark Vizecky – MnDOT State Aid
Mark.vizecky@state.mn.us 651-366-3839



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Rural Segment Strategies

Strategies	Crash Reduction Factor	Typical Installation Cost	Severe Crashes
Install centerline rumble strips	40% head-on/sideswipe crashes	\$3,600 per mile	2
Reallocate total two-lane roadway width (lane and shoulder) to include a narrow "buffer median"	50% all crashes 100% head-on crashes	\$150,000 to \$500,000 per mile	2
Install shoulder/edgeline rumble strips (sinusoidal)	20% run-off-road crashes	\$5,850 per mile	9
Eliminate shoulder drop offs by installing a safety edge	5% to 10% all crashes	\$10,000 to \$20,000 per mile	9
Provide enhanced pavement markings (e.g., 6")	10% to 45% rural severe crashes	\$2,000 per mile	11
Widen and/or pave shoulders	20% to 30% run-off-road crashes	\$54,000 per mile	9
Maintain or enhance the clear zone	28% <i>increase</i> to 18% decrease	\$50,000 to \$500,000 per mile	5
Remove/relocate objects in hazardous locations (trees, signs, etc.)	<i>Not Available</i>	<i>Not Available</i>	5
Remove non-compliant mailboxes	<i>Not Available</i>	<i>Not Available</i>	5
Ditch/embankment improvements	32% to 41%	\$500,000 to \$1,000,000 per mile	9
Improve road and shoulder maintenance	<i>Not Available</i>	\$1,500 per mile	9
Install or upgrade guardrail	<i>Not Available</i>	\$25,000 each	<i>Not Available</i>

Note: Severe (KA) crashes on the Beltrami County roadway system between 2011-2015

Rural Horizontal Curve Strategies

Strategies	Crash Reduction Factor	Typical Installation Cost	Severe Crashes
Install chevrons	20% to 30%	\$3,960 per curve	8
Install delineators	18% to 34%	\$500 per curve	8
Implement dynamic curve signing	<i>Not Available</i>	\$50,000 per curve	8
Extend or install lighting	<i>See Rural Intersections</i>		8
Maintain or enhance the clear zone	28% <i>increase</i> to 18% decrease	\$10,000 to \$250,000 per curve	2
Reconstruct TT to single T Intersection (<i>remove visual trap</i>)	<i>Not Available</i>	\$150,000 to \$300,000 per curve	8

Note: Severe (KA) crashes on the Beltrami County roadway system between 2011-2015

Rural Intersection Strategies

Strategies	Crash Reduction Factor	Typical Installation Cost	Severe Crashes
Upgrade signs and pavement markings	40% - Upgrade all signs and pavement markings	\$2,640 per approach	6
STOP bars	<i>Not Available</i>	<i>Not Available</i>	6
STOP AHEAD pavement markings	15%	<i>Not Available</i>	6
In-lane turn arrows	<i>Not Available</i>	<i>Not Available</i>	6
Rail grade crossing markings	<i>Not Available</i>	<i>Not Available</i>	0
Install lighting	25% to 40% nighttime crashes	\$6,000 per light	6
Convert to All-Way STOP	<i>Not Available</i>	\$1,000 per intersection	6
Remove skew/realign intersection	0% to 33%	\$150,000 to \$300,000 per intersection	6
Clear sight triangles	20%	\$3,000 per intersection	6
Restricted crossing u-turn intersection	17% all crashes 100% angle crashes	\$750,000 per intersection	6
Rural intersection conflict warning system	50% all crashes 75% severe angle crashes	\$50,000 per intersection	6
Offset T intersection	53%	\$150,000 to \$300,000 per intersection	6
Roundabout	20% to 50% all crashes 60% to 90% angle crashes	\$1,000,000 per intersection	6
Turn lanes (offset, channelized)	35% - Positive offset 43% to 60% - Channelized	\$75,000 to \$250,000	6
Improve slopes	<i>Not Available</i>	\$3,000 per entrance	6

Note: Severe (KA) crashes on the Beltrami County roadway system between 2011-2015

Urban Segment Strategies

Strategies	Crash Reduction Factor	Typical Installation Cost	Severe Crashes
Improve access management	5% to 31%	\$360,000 per mile	1
Install bike lane or bike boulevard	0% to 60%	\$5,000 per mile - Repurpose \$500,000 per mile - New	0
Urbanization	<i>Not Available</i>	\$500,000 to \$1,000,000 per mile	1
Implement dynamic speed feedback sign	5% to 7%	\$30,000 per location	1

Note: Severe (KA) crashes on the Beltrami County roadway system between 2011-2015

Urban Intersection Strategies

Strategies	Crash Reduction Factor	Typical Installation Cost	Severe Crashes
Convert to signalized Reduced Conflict Intersection (RCI)	<i>Not Available</i>	\$1,000,000 to \$5,000,000 per intersection	0
Install red-light confirmation lights	25% to 84% reduction in violations	\$1,200 per two approaches	0
Pedestrian countdown timers	25% vehicle-pedestrian crashes	\$12,000 per intersection	0
Leading pedestrian intervals	60% vehicle-pedestrian crashes	\$600 per intersection	0
Curb extensions	<i>Increase in vehicles yielding to pedestrians</i>	\$36,000 per corner	0
Median refuge islands	46% vehicle-pedestrian crashes	\$24,000 per approach	0
Convert to roundabout	20% to 50% all crashes 60% to 90% angle crashes	\$4,200,000 per intersection	0
Rectangular Rapid Flash Beacon (RRFB)	<i>75% of vehicles yielding to pedestrians</i>	\$15,000 per location	0
High Intensity Activated Crosswalk (HaWK)	69% vehicle-pedestrian crashes	\$50,000 to \$120,000 per location	0
Flashing yellow arrow	19% left turn crashes	<i>Not Available</i>	0
Turn lanes (offset, channelized)	27%	\$150,000 to \$500,000 per turn lane	0

Note: Severe (KA) crashes on the Beltrami County roadway system between 2011-2015

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County Roadway Safety Plan Updates

The Big Book of Ideas

Prepared for:
Beltrami County

Prepared by:
ch2mSM Team

August 2017

Version 1.1

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List of Strategies

Rural Segments

- Centerline Rumble Strip
 - Sinusoidal Rumble “Mumble” Strips included
- Shoulder/Edgeline Rumble Strips
 - Sinusoidal Rumble “Mumble” Strips included
- Buffers Between Opposing Lanes
- Safety Edge
- Enhanced Edgeline (6” & 8”)
- Shoulder Paving (2’, 4’, 6’)
- Clear Zone Maintenance/Enhancements
- Ditch/embankment Improvements

Rural Curves

- Chevrons
- Delineators
- Dynamic Curve Signing
- Lighting
- Clear Zone Maintenance/Enhancements
- Reconstruct [TT to a Single T intersection]

Rural Intersections

- Upgrade Signs and Pavement Markings
- Streetlights (and approaches)
- All-Way Stop/Yield
- Restricted Crossing U-Turn (RCUT) Intersection
- Rural Intersection Conflict Warning System (RICWS)
- Offset T-Intersection
- Roundabout
- Turn Lanes (Offset, Channelized)
- Remove Skew / Realign Intersections

- Continuous Green T

Urban Segments

- Access Management
- Bike Lane/Boulevard
- Urbanization (make it feel urban)
- Dynamic Speed Feedback Sign

Urban Intersections

- Signalized RCUT
- Confirmation Lights
- Pedestrian Countdown Timers
- Leading Pedestrian Intervals
- Curb Extensions
- Center Island Medians
- Roundabout (including Mini Roundabout)
- Urbanization (make it feel urban)
- Rectangular Rapid Flash Beacon (RRFB)
- High-Intensity Activated crossWalk Beacon (HAWK)
- Flashing Yellow Arrow (FYA)
- Turn Lanes (Offset, Channelized)

Rural Segments

Strategy	Crash Reduction Factor*	Typical Installation Costs
Centerline Rumble Strip	40% head-on/sideswipe crashes	\$3,600 per mile
Shoulder/Edgeline Rumble Strip	20% run off road crashes	\$5,850 per mile
Buffers Between Opposing Lanes	50% for all crashes & 100% for head-on crashes [based on TH 5 in Lake Elmo, MN]	\$150,000 to \$500,000 per mile
Safety Edge	5% to 10% [§]	\$10,000 to \$20,000 per mile
Enhanced Edgeline (6" & 8")	10% to 45% all rural serious crashes (6")	\$2,000 per mile
Shoulder Paving (2', 4', 6')	20% to 30% run-off-the-road crashes (with shoulder rumble) (2' only)	\$54,000 per mile + \$5,850 per mile (for Edge Rumble)
Clear Zone Maintenance/Enhancements	Fatal, Serious & Minor Injury Crashes: Increase of 28% to Decrease of 18%	\$50,000 to \$500,000 per mile
Ditch/Embankment Improvements	32% to 41% (Adding new guardrail to embankments – Run off road crashes)	\$500,000 to \$1M per mile
Notes: * - Crash reduction factors based on review of CMF Clearinghouse and other published research § - For all crashes		



Centerline Rumble Strips

Source: Mitigation Strategies for Design Exceptions (FHWA, FHWA-SA-07-011)



Shoulder Rumble Strips

Source: Mitigation Strategies for Design Exceptions (FHWA, FHWA-SA-07-011)



Edgeline Rumble Strips

Source: Proven Countermeasures, Longitudinal Rumble Strips and Stripes on 2-Lane Roads (FHWA)



Buffers Between Opposing Lanes

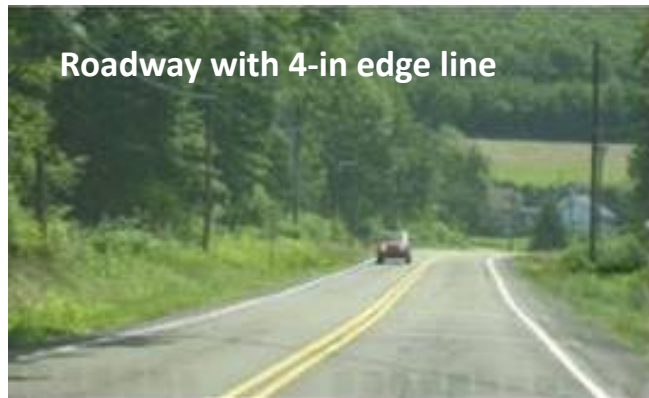
TH 14 in District 7

Source: MnDOT Presentation @ 2014 TZD Conference



Safety Edge

Source: FHWA Public Roads (Sept/Oct 2014; Vol. 78 No. 2)



Roadway with 4-in edge line

Enhanced Edgeline

Source: Low-Cost Treatments for Horizontal Curve Safety (FHWA, FHWA-SA-07-002)



Roadway with 8-in edge line

Enhanced Edgeline

Source: Low-Cost Treatments for Horizontal Curve Safety (FHWA, FHWA-SA-07-002)



Shoulder Paving

Source: https://mntransportationresearch.files.wordpress.com/2014/06/dsc_8665nv.jpg?w=672&h=372&crop=1



Clear Zone Maintenance

Source: <https://nativeengineering.files.wordpress.com/2016/12/3.jpg?w=300&h=204>



Ditch/Embankment Improvements

Source: <http://www.roadex.org/wp-content/uploads/elearning/drainage/5/521.jpg>

Rural Curves

Strategy	Crash Reduction Factor*	Typical Installation Costs
Chevrons	20% to 30%	\$3,960 per curve
Delineators	18% to 34%†	\$500 per curve
Dynamic Curve Signing	Not Available	\$50,000 per curve
Lighting	See Rural Intersections	See Rural Intersections
Clear Zone Maintenance/Enhancements	Fatal, Serious & Minor Injury Crashes: Increase of 28% to Decrease of 18%	\$10,000 - \$250,000 per curve
Reconstruct → TT to Single T Intersection	Not Available	\$150,000 - \$300,000 per curve

Notes:

* - Crash reduction factors based on review of CMF Clearinghouse and other published research

† - Non-intersection, head-on, run-off-road, sideswipe, Nighttime crash types



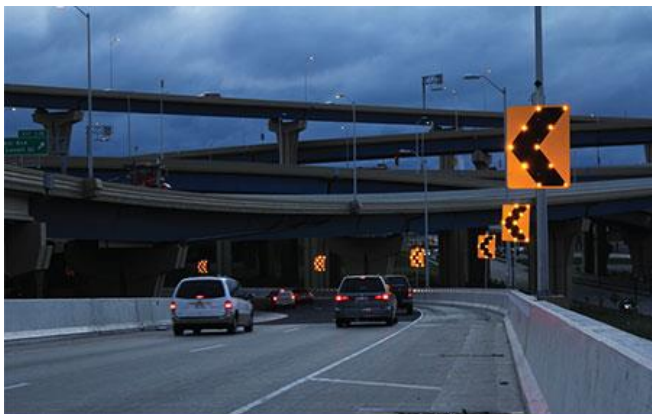
Chevrons

Source: Low Cost Traffic Engineering Improvements: A Primer (FHWA, FHWA-OP-03-078)



Delineators

Source: Low-Cost Treatments for Horizontal Curve Safety (FHWA, FHWA-SA-07-002)



Dynamic Curve Signing

Source: FHWA, Sequential Dynamic Curve Warning System: Product Safety Performance Evaluation (2011)



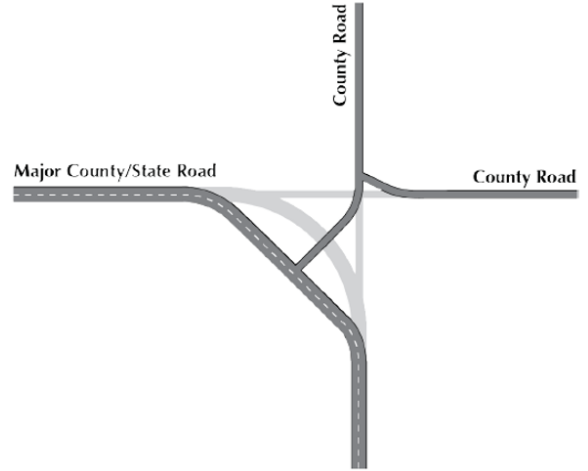
Street Lights

Source: Mitigation Strategies for Design Exceptions (FHWA FHWA-SA-07-011)



Clear Zone Maintenance

Source: <https://nativeengineering.files.wordpress.com/2016/12/3.jpg?w=300&h=204>



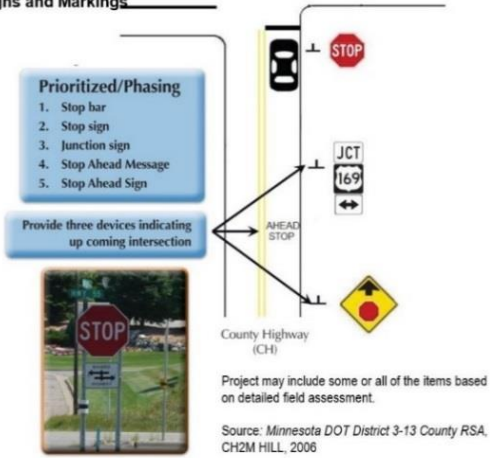
TT to T Intersection Reconstruction

Source: MnDOT 2015 Traffic Safety Fundamentals Handbook

Rural Intersection

Strategy	Crash Reduction Factor*	Typical Installation Costs
Upgrade Signs and Pavement Markings	40% upgrade of all signs and pavement markings/ 15% for STOP AHEAD pavement marking	\$2,640 per approach†
Streetlights (and approaches)	25% to 40% of nighttime crashes	\$6,000 per light
All-Way Stop/Yield	Not Available	\$1,000 per intersection
Restricted Crossing U-Turn (RCUT) Intersection	17% all crashes/ 100% angle crashes	\$750,000 per intersection
Rural Intersection Conflict Warning System (RICWS)	50% all crashes/ 75% severe right angle crashes	\$50,000 per intersection
Offset T-Intersection (Convert 4-legged intersection to 2 3-legged intersection)	All Crash Types & Severities 53%	\$150,000 - \$300,000 per intersection
Roundabout	20% to 50% all crashes/ 60% to 90% right-angle crashes	\$1,000,000 per intersection
Turn Lanes (Offset, Channelized)	Create Positive Offset Left Turn Lanes - ~35% (All + Severe Crashes) Channelize Right Turn Lanes - 43% - 60% (All crash severities)	\$75,000 - \$250,000
Remove Skew	0% - 33%	\$150,000 - \$300,000 per intersection
Continuous Green T (Signalized) §	Angle Crashes – 96.8% Injury Crashes – 70% Total Crashes – 60%	\$300,000 per intersection
<p>Notes:</p> <p>* - Crash reduction factors based on review of CMF Clearinghouse and other published research</p> <p>† - Includes \$540 per STOP sign, \$540 per junction sign assembly, \$600 per STOP AHEAD sign, \$600 per STOP AHEAD pavement marking message, and \$360 per stop bar</p> <p>§ - Source: https://safety.fhwa.dot.gov/intersection/innovative/others/casestudies/fhwas09016/fhwas09016.pdf</p> <p>@ - 2-star quality studies only</p> <p>^ - http://www.dot.state.mn.us/trafficeng/safety/medianaccelerationlanestudy.pdf</p> <p>δ – Source: http://www.its.umn.edu/Publications/ResearchReports/reportdetail.html?id=2330</p>		

Upgraded Signs and Markings



Street Lights

Source: Mitigation Strategies for Design Exceptions (FHWA, FHWA-SA-07-011)

Upgrade Signs and Pavement Markings

Source: Minnesota CRSP



All-Way Stop Controlled intersection

Source: http://www.ite.org/uiig/images/type/clip_image010.jpg

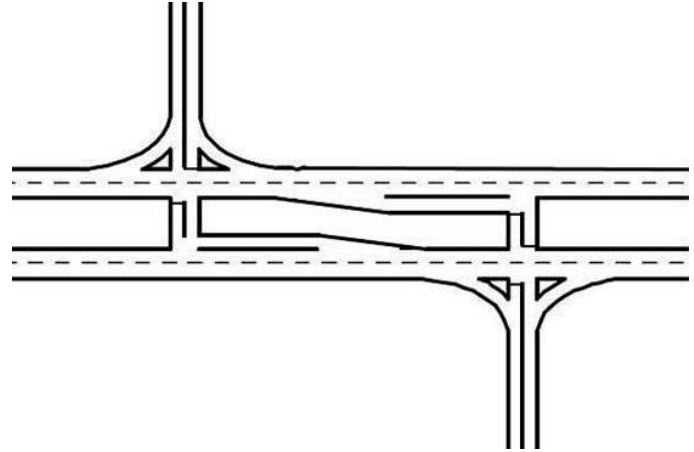


Restricted Crossing U-Turn Intersections

Source: Field Evaluation of a Restricted Crossing U-turn Intersection (FHWA, FHWA-HRT-11-067)



Rural Intersection Conflict Warning System
Source: MnDOT Traffic Engineering (<http://www.dot.state.mn.us/trafficeng/signals/conflictwarning.html>)



Offset T-Intersection
Source: Alternative Intersections/Interchanges: Informational Report (FHWA, FHWA-HRT-09-060)



Roundabout
Source: Innovative Intersection Safety Improvement Strategies and Management Practices: A Domestic Scan (FHWA, FHWA-SA-06-016)



Offset Right Turn Lane
Source: Review of Iowa's Rural Intersection Crashes: Application of Methodology for Identifying Intersections for IDS (MnDOT, MN/RC 2007-27)



Before



After

Remove Skew

Source: Google Earth



Continuous Green T Intersection

Source: St. Louis County, Minnesota

Urban Segments

Strategy	Crash Reduction Factor*	Typical Installation Costs
Access Mgmt (Access Mgmt Plan)	5% to 31%	\$360,000 per mile [§]
Bike Lane/Boulevard	Approximately 60% (Some studies have noted increases)	Repurposing existing road ~\$5,000 per mile New Construction of Separated Boulevard ~ \$500,000 per mile
Urbanization (make it feel urban)	Not Available	\$500,000 - \$1,000,000 per mile
Dynamic Speed Feedback Sign	All crashes 5% - 7%	\$30,000 per location

Notes:
 * - Crash reduction factors based on review of CMF Clearinghouse and other published research
 § - For management of unsignalized intersection movements within a corridor that has a divided median. Typical project may include minor street diverters, signed turn restrictions, and median closings.



Before



After

Access Management

Source: Mitigation Strategies for Design Exceptions (FHWA, FHWA-SA-07-011)



Bicycle Boulevard

Source: Minnesota's Best Practices for Pedestrian/Bicycle Safety (MnDOT, Report 2013-22)



Bike Lane

Source: Minnesota's Best Practices for Pedestrian/Bicycle Safety (MnDOT, Report 2013-22)



Rural Design - TH 2 Approaching Floodwood, MN



Urban Design - TH 2 in Floodwood, MN

Urbanization

Source: Google Street View

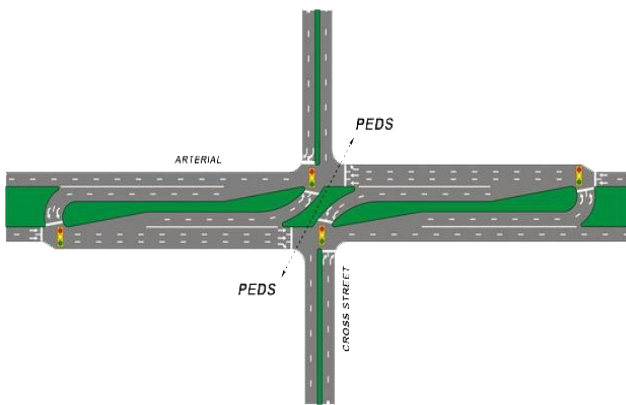


Dynamic Speed Feedback Sign

Source: <http://1x57.com/wp-content/uploads/2011/06/25-mph-regulatory-speed-limit-sign-with-radar-sign1-173x300.jpg>

Urban Intersections

Strategy	Crash Reduction Factor [*]	Typical Installation Costs
Signalized RCUT	Not Available	\$1 to \$5 million
Confirmation Lights	25% to 84% reduction in violations	\$1,200 per two approaches
Pedestrian Countdown Times	25% vehicle/pedestrian crashes	\$12,000 per intersection
Leading Pedestrian Intervals	Up to 60% pedestrian/vehicle crashes	\$600 per intersection
Curb Extensions	Increase in vehicles yielding to pedestrians	\$36,000 per corner
Center Island Medians	46% in vehicle/pedestrian crashes	\$24,000 per approach
Roundabout (including Mini Roundabout)	20% to 50% all crashes/ 60% to 90% right-angle crashes	\$4,200,000 per intersection
Urbanization (make it feel urban)	Not Available	\$250,000 - \$500,000 per intersection
Rectangular Rapid Flash Beacon (RRFB)	75% of drivers yield to pedestrians	\$15,000
High-Intensity Activated crossWalk Beacon (HAWK)	69% Vehicle/Pedestrian	\$50,000 to \$120,000
Flashing Yellow Arrow (FYA) --> Note: Permitted to FYA	19.4% left turn crashes	
Turn Lanes (Offset, Channelized)	27%	\$150,000 to \$500,000
Notes: * - Crash reduction factors based on review of CMF Clearinghouse and other published research a – Virginia DOT Report: https://www.railstotrails.org/resourcehandler.ashx?id=4063		



Signalized RCUT

Source: Kentucky Transportation Cabinet; Congestion Toolbox



Confirmation Lights

Source: MnDOT 2015 Traffic Safety Fundamentals Handbook



Pedestrian Countdown Timer

Source: Oakland MTC: Bicycle/Pedestrian Safety Toolbox



Leading Pedestrian Interval

Source: <https://bikeuptowndotorg.files.wordpress.com/2012/04/2012-04-15-09-56-491.jpg>



Curb Extensions

Source: <http://www.fhwa.dot.gov/publications/research/safety/pedbike/05085/images/fig205.jpg>



Center Island Medians

Source: http://safety.fhwa.dot.gov/provencountermeasures/images/sa12_011.jpg



Roundabout

Source: Innovative Intersection Safety Improvement Strategies and Management Practices: A Domestic Scan (FHWA, FHWA-SA-06-016)



Urbanization

Source: Google Earth Street View



Urbanization

Source: Google Earth Street View



Michael Frederick, City of St. Petersburg, FL

Rectangular Rapid Flash Beacon

Source: <http://www.fhwa.dot.gov/publications/publicroads/11mayjun/images/do1.jpg>



HAWK

Source: http://www.fhwa.dot.gov/publications/research/safety/10045/images/hawk_027.jpg



Flashing Yellow Arrow

Source: <http://safety.fhwa.dot.gov/newsletter/safetycompass/2012/winter/images/rfb.png>



Channelized Right Turn Lane

Source: <http://www.ops.fhwa.dot.gov/publications/fhwahop12004/images/c4b.jpg>



Beltrami County Safety Workshop

WORKSHOP DATE: Tuesday, August 8, 2017

MEETING TIME: 8:30 Registration; 9:00 AM – 3:00 PM CDT

LOCATION: Beltrami County Administration Building, Commissioner’s Board Room
701 Minnesota Ave NW, Bemidji, MN 56601

Attendees

- Derek Leuer, MnDOT
- Mark Vizecky, MnDOT
- Howard Preston, CH2M
- Cheri Marti, CH2M
- Renae Kuehl, SRF
- Bruce Hasbargen, Beltrami County
- Brad Norland, Minnesota State Patrol
- Keith Winger, Beltrami County Commissioner
- Mike Wedin, MN State Patrol
- Lou Tasa, MnDOT
- Greg Liedl, Bemidji Area Schools
- Tim Lutz, Kelliher School
- Kay Mack, Beltrami County
- Jeff Erickson, MnDOT
- Tim Donaghue, MnDOT
- John Noehring, Beltrami County Hwy
- Matt McFarland, Headwaters Regional Development Commission
- Ed Geving, Beltrami County Hwy
- Christina Regas, City of Blackduck
- Philip Hodapp, Sheriff
- Holly Kostrzewski, MnDOT TZD
- Reed Olson, Beltrami County
- Christopher Muller, Beltrami County Emergency Management
- Michelle Rognerud, MnDOT

Workshop Goals

Welcome, Introductions, and Workshop Goals

- Create a shared understanding of CRSP and Beltrami County’s infrastructure roadway safety approach.
 - Develop a more comprehensive understanding of effective infrastructure safety and maintenance strategies to reduce severe crashes.
 - Develop prioritized lists of safety strategies for Highway Safety Improvement Program (HSIP) eligible projects and safety-related maintenance activities. Created
-

County Roadway Safety Plan Update and Safety Strategies Overview

Overview of CRSP and MN TZD

- Derek gave an overview of the topics above
- Crash totals do not include ATV crashes unless the crash included a vehicle.

Discussion: What is important to advance road safety in the county?

- Education that the engineering department (Bruce Hasbargen) has given to the board has been very helpful. Helps the board members understand the impact the strategies have and can discuss with residents.
- Workshops like today are helpful in educating those that deal with the public as to why various strategies are in the field. Examples – safety edge, rumbles, etc.
- The biggest problem dealing with now is DUI (narcotics) rather than DWI (alcohol). They have become very prevalent, outnumbering DWI arrests. DUI arrests have skyrocketed. This is an issue in the iron range as well. NHTSA funding restricts law enforcement from doing DUI/DWI patrol during the day. Hours that they are required to patrol is 10pm-2am. These are considered overtime shifts – would be easier to fill daytime overtime shifts rather than overnight overtime shifts.
- Distracted/careless driving is a huge problem.
- Presence of law enforcement makes a difference in driver behavior.
- A lot of the TZD messaging is from MnDOT, statewide and from the metro area. Beltrami County needs to make the message local and raise the awareness of traffic safety locally.
- It would be appreciated if the county board could reach out to small cities and small townships, by coming to city council meetings and reporting on what the county is up to related to safety. There is a disconnect between the smaller agencies and the county.
- Pedestrian safety is a concern in a few locations. There are some locations where installing pedestrian trails/sidewalks would be beneficial. It would be great if the county could consider building trails/sidewalks
- Beltrami County does not currently have a county safe community coalition. In the past, there has been a group, but the county has struggled to keep a lead coordinator. The county is interested in getting this group going again.
- Pavement conditions are poor in some locations, there is concern that the pavement itself may be causing safety issues. Poor roadways have impacted EMS getting to crashes safely/timely.

Overview of Statewide Performance Measures and Data-Driven Safety Analysis

- Derek gave an overview of the topics above
- Would be interesting to see the number of vehicle registrations vs. fatalities back in 1974 when fatalities were at their peak (approximately 1,050/year), compared to today. The number of vehicle miles traveled may be a better reference to compare fatalities.

Overview of Proactive Systemic Safety Approach

- Howard gave an overview of the proactive safety approach
- County and law enforcement get calls from the public asking “How many people have to die/get injured before you do something at this location?” Understanding the proactive systemic safety approach will help county staff to answer these questions.

Beltrami County Implemented Safety Projects and County Implementation Approach

- Bruce gave an overview of safety projects that have been implemented since their plan was completed. Beltrami County has been very aggressive in implementing projects from the initial plans. Almost all the projects in the plan have been completed. Rumble strips, chevrons, roundabout, etc.

- If you consider cost, the county can build three miles of one lane of a roadway (~ \$3M) or implement all the projects in the County Road Safety Plan. The cost for one severe/fatal crash can cost millions of dollars.
- Beltrami is now installing rumble strips and the safety wedge with all new construction or reconstruction projects as a standard practice. They don't rely solely on safety funding to implement these strategies.

Beltrami County Crash Data Overview and Focus Areas

- Howard reviewed the statewide and countywide rural and urban crash trees
- Howard reviewed wright county focus areas
- Meeting participants shared that the data presented during this segment is very educational and helped to learn where the data comes from and how it is analyzed and prioritized. It helps people understand how decisions were made and why improvements were made at various locations.
- Meeting participants commended MnDOT for looking at and making safety decisions based on data that clearly shows where the need is, that allowed local agencies to get the funding needed to make local roads safer.

Safety & Maintenance Strategies Presentation & Discussion

- Howard reviewed the following strategies to consider
- Beltrami County is currently not installing rumble stripEs (paint in the rumble)
- Beltrami County does not get complaints from the public about rumble strip noise, but they do get complaints from the bike community. Beltrami county installs the bike-friendly rumbles that have a gap in the rumbles for bikers to transition from each side of the rumbles on a flat surface.
- The sinusoidal vs. regular (Minnesota) rumbles didn't have an impact on motorcycles, based on tests that were performed at MnROAD.
- Installation of the safety edge has helped reduce maintenance for shoulder edge.
- ROW maintenance is key and is done year round. Staff currently do their own informal prioritization of when to maintain various items in the ROW. The CRSP will help to inform maintenance decisions as well.
- Clear zone maintenance also helps with improving the line of sight, so drivers can see animals on the side of the road.
- Next year, 10 miles of the 400 miles of county road in Beltrami will be reconstructed.
- Reconstructing intersections with two intersections on the tangent – Beltrami has been working on doing this in a few locations.
- Beltrami County has installed stop bars and "STOP AHEAD" pavement markings at many intersections.
- At locations where the stop bar is painted father into the intersection, Beltrami maintenance staff have received complaints from truck drivers that taking a left-turn from the mainline onto the side street can be challenging with a car stopped at the stop bar.
- Beltrami upgraded to 36" size STOP signs when improvements were being made.
- When clearing sight triangles, the biggest concern is cutting vegetation on private property.

- Restricted Crossing U-Turn (RCUT) intersections
 - There were two locations suggested in the CRSP, but they have not been built yet. Beltrami has plans to discuss these locations with MnDOT district staff soon.
 - When these intersection types have been proposed in the past, township staff have not been in favor of them. County staff would appreciate having township staff see the presentation that was given today on the topic. Possibly have Howard attend a meeting to present on the topic. Or possibly the business owners on corridors that have an RCUT in place come and present on their experience.
 - Here is an educational video about trucks driving through RCUT intersections: <https://www.youtube.com/watch?v=WebW5JZnrT8>
 - Education is a huge component of installing these types on intersections
- Rural Intersection Conflict Warning System (RICWS) – Beltrami County is putting in one of these systems this year.
- Roundabouts
 - There is an intersection outside the High School that has conflicting traffic coming into the high school and commuter traffic.
 - Videos that can be used to educate public/students on driving roundabouts:
 - Roundabout Myths (10 Myth Version) - <https://youtu.be/4qvoml8LMb8>
 - Roundabout Myths (3 Myth Version) - <https://youtu.be/HLDdWJzDFyl>
 - How about a roundabout? The Minnesota Experience <https://youtu.be/xuvqCIEjPxQ>
 - Navigating a multi-lane roundabout: <https://youtu.be/CEhNboz5Gpk>
 - Could find a parking lot and setup cones to let people test driving it
 - A lot of tools area available to help educate people on driving roundabouts
 - For elderly – make placements that have a roundabout and use matchbox cars to practice driving the route.
- Hwy 200 and CSAH 71 – has a T intersection (in a neighboring county) that has a flashing advance warning sign prior to the stop sign that seems to be effective.

Strategy Voting Exercise

- Meeting participants voted on the various strategies. Each participant was given 10 dots to use to place their votes on various strategies on a poster on the wall.

Voting Results and Discussion

- Howard reviewed the voting results. Strategies that got the top votes (eight or more votes) were:
 - Center rumble strips (8)
 - Safety edge (11)
 - Widen/Pave shoulders (8)
 - Removing objects in the clear zone (9)
 - Install chevrons (10)
 - Street lighting (11)
 - Remove intersection skew (8)
 - Roundabouts (19)

- Prior to voting it would have been be good to know:
 - Items that Bruce is already going to do/already doing
 - Keep in mind what things cost when voting
- Possibly let people vote on the handouts so they have images to go along with the strategies.

Next Steps and Workshop Evaluation

- Meeting summary will be provided to Bruce, to share with meeting participants.
- One meeting participant shared that he learned a lot and was very glad he decided to come to the workshop

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Appendix D – List of Prioritized Locations

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Rural Segment Prioritization for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Length [miles]	ADT [vpd]	Speed Limit	ADT Rural Single-Vehicle	ADT Rural Multi-Vehicle	Access Density	Curve Density	Edge Risk	Total Stars
3	1	12.004	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	6.0	645	★	★		★	★	★	★★★★★
8	2	15.003	CSAH	15	Grange Rd NW	Great Divide Rd NW	7.1	2,165	★	★	★	★	★		★★★★★
80	3	8.003	CSAH	8	Swenson Rd SE	Beltrami County Line	5.0	1,925	★	★	★	★	★		★★★★★
2	4	12.003	CSAH	12	1.67 miles E of Lake Ave NE	Parkers Lake Rd NE	4.1	1,750	★	★	★	★			★★★★
6	5	14.001	CSAH	14	Becida Rd SW	0.33 miles N of Juneberry Rd NW	5.4	1,060	★	★		★		★	★★★★
14	6	20.001	CSAH	20	Bemidji Rd NE	Big Bass Rd NE	2.6	2,745	★		★		★	★	★★★★
15	7	20.002	CSAH	20	Big Bass Rd NE	Parkers Lake Rd NE	4.5	970	★	★		★		★	★★★★
17	8	21.003	CSAH	21	Glidden Rd NE	Island View Dr NE	6.1	1,540	★	★	★	★			★★★★
21	9	22.003	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	7.0	555	★	★		★	★		★★★★
23	10	22.005	CSAH	22	Hwy 71	Long Lake Dr NE	4.4	570	★	★		★		★	★★★★
31	11	24.002	CSAH	24	Centerline Rd NW	Hwy 89	5.5	500	★	★		★	★		★★★★
34	12	27.001	CSAH	27	Roosevelt Rd SE	Power Dam Rd NE	2.0	690	★	★		★	★		★★★★
43	13	30.004	CSAH	30	0.53 miles E of 4th St E	Berg Rd NE	5.2	1,050	★	★		★		★	★★★★
50	14	33.001	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	5.8	1,055	★	★		★	★		★★★★
59	15	39.003	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE	8.2	515	★	★		★	★		★★★★
60	16	39.004	CSAH	39	Beighley Rd NE	Co Rd 47	0.8	740	★	★		★	★		★★★★
67	17	47.003	CSAH	47	0.32 miles N of Hwy 71	Hwy 72	0.4	570	★	★		★	★		★★★★
71	18	5.003	CSAH	5	Hwy 2	Old Jefferson Dr NW	0.6	690	★	★			★	★	★★★★
77	19	59.001	CSAH	59	Bemidji Rd NE	Hwy 71	0.8	1,450	★	★		★	★		★★★★
78	20	7.001	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	7.1	1,350	★	★		★	★		★★★★
79	21	8.002	CSAH	8	Lake Ave SE	Swenson Rd SE	6.6	2,130	★	★	★	★			★★★★
81	22	9.001	CSAH	9	U.S. Rte 2	Grange Rd NW	5.7	2,150	★	★	★	★			★★★★
4	23	12.005	CSAH	12	Mission Rd NE	Scenic Hwy NE	5.1	490	★			★	★	★	★★★★
32	24	25.001	CSAH	25	E Grace Lake Rd Se	Roosevelt Rd SE	3.3	320	★			★	★	★	★★★★
39	25	29.003	CSAH	29	Swinburne Ct NW	Everts Rd NE	2.2	255	★			★	★	★	★★★★
46	26	32.001	CSAH	32	Beltrami County Line	Hwy 89	10.6	235	★			★	★	★	★★★★
55	27	36.003	CSAH	36	Clark Ave S	0.97 miles E of Clark Ave S	1.0	280	★			★	★	★	★★★★
70	28	5.002	CSAH	5	Russell Dr NW	Hwy 2	0.4	460	★			★	★	★	★★★★
72	29	5.004	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	10.5	390	★			★	★	★	★★★★
7	30	14.002	CSAH	14	0.33 miles N of Juneberry Rd NW	U.S. Rte 2	2.1	735	★	★			★		★★★
9	31	15.004	CSAH	15	Great Divide Rd NW	Markus Rd NE	6.6	870	★	★			★		★★★
10	32	15.005	CSAH	15	Red Clover St	S Boundary Rd	2.3	760	★	★		★			★★★
12	33	19.002	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE	4.2	1,190		★		★	★		★★★
13	34	2.001	CSAH	2	0.09 miles E of Monroe Ave SW	U.S. Rte 2	3.6	725	★	★		★			★★★
20	35	22.002	CSAH	22	Hwy 89	Irvine Ave NW	6.0	1,150	★	★		★			★★★
25	36	23.001	CSAH	23	Hwy 71	Newcomb Ln NE	4.9	845	★	★		★			★★★
35	37	27.002	CSAH	27	Power Dam Rd NE	Birchmont Beach Rd NE	4.1	595	★	★		★			★★★
40	38	30.001	CSAH	30	Hines Rd NE	Carl Ave	5.5	710	★	★			★		★★★
74	39	50.002	CSAH	50	Miles Ave SE	U.S. Rte 2	2.7	3,800	★		★		★		★★★
88	40	401.001	CR	401	Beltrami Line Rd	Woodward Dr SW	1.8	535	★	★		★			★★★
90	41	404.003	CR	404	Paul Bunyan Rd SE	Van Burn Ave SE	2.5	690	★	★		★			★★★
5	42	13.001	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	7.7	165	★			★	★		★★★
30	43	24.001	CSAH	24	Beltrami County Line	Debs Rd NW	2.9	250	★			★	★		★★★
36	44	27.003	CSAH	27	Birchmont Beach Rd NE	Turtle River Lake Rd NE	3.9	290	★			★	★		★★★
38	45	29.002	CSAH	29	Hwy 71	Swinburne Ct NW	1.3	255	★			★	★		★★★
44	46	31.001	CSAH	31	Hwy 71	Hwy 71	2.0	95	★			★		★	★★★
45	47	31.002	CSAH	31	Hwy 71	Nebish Rd NE	5.6	285	★			★		★	★★★

Rural Segment Prioritization for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Length [miles]	ADT [vpd]	Speed Limit	ADT Rural Single-Vehicle	ADT Rural Multi-Vehicle	Access Density	Curve Density	Edge Risk	Total Stars
53	48	36.001	CSAH	36	hwy 1	Shevlin Ave SW	8.6	445	★			★		★	★★★
56	49	36.004	CSAH	36	0.97 miles E of Clark Ave S	0	0.5	260	★			★		★	★★★
61	50	4.001	CSAH	4	0.25 miles E of Sunnyside Rd SE	Forest Rd	3.3	270	★			★		★	★★★
62	51	43.001	CSAH	43	Hwy 71	0.57 miles SW of Main St	0.9	125	★			★	★		★★★
73	52	5.005	CSAH	5	Aure Rd NW	Lumberjack Rd NW	6.1	255	★			★	★		★★★
76	53	57.002	CSAH	57	0.05 miles S of Main Ave W	Bemidji Rd NE	0.7	395	★			★		★	★★★
82	54	9.002	CSAH	9	Grange Rd NW	Great Divide Rd NW	6.9	370	★			★		★	★★★
87	55	305.002	CR	305	Hwy 71	Island View Dr NE	3.0	255	★			★	★		★★★
89	56	403.001	CR	403	0.24 miles N of Beltrami Line Rd	30th St SE	1.3	115	★			★		★	★★★
91	57	407.001	CR	407	0.21 miles N of Beltrami Line Rd	Roosevelt Rd SE	2.8	245	★			★		★	★★★
18	58	21.004	CSAH	21	Island View Dr NE	Hwy 71	0.7	1,050		★			★		★★
22	59	22.004	CSAH	22	0.10 miles N of US-71 Old	US-71 Old	0.1	570	★		★				★★
37	60	29.001	CSAH	29	3rd Ave N	Hwy 71	0.1	505			★		★		★★
41	61	30.002	CSAH	30	Carl Ave	Hwy 71	0.2	2,175			★				★★
54	62	36.002	CSAH	36	Shevlin Ave SW	Clark Ave S	0.4	500			★		★		★★
64	63	46.001	CSAH	46	Jackson Ave SW	Hwy 71	1.5	610	★			★			★★
65	64	47.001	CSAH	47	Hwy 71	Hwy 71	0.8	1,010			★		★		★★
66	65	47.002	CSAH	47	Hwy 71	0.32 miles N of Hwy 71	0.3	570			★		★		★★
83	66	90.001	CSAH	90	U.S. Rte 2	Stevens Ave	0.2	725			★			★	★★
93	67	515.001	CR	515	U.S. Rte 2	Hwy 89	1.4	610	★		★				★★
1	68	1.001	CSAH	1	0.75 miles S of the Beltrami County Line	Beltrami County Line	5.7	400	★					★	★★
11	69	16.001	CSAH	16	Centerline Rd NW	Wilton Hill Rd NW	5.5	400	★			★			★★
16	70	20.003	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	11.4	440	★				★		★★
24	71	22.006	CSAH	22	3.19 miles E of Long Lake Dr NE	2.40 miles W of Co Rd 39	6.8	125	★				★		★★
26	72	23.002	CSAH	23	Newcomb Ln NE	Nebish Rd NE	7.0	395	★			★			★★
27	73	23.003	CSAH	23	Nebish Rd NE	Hwy 1	7.7	245	★			★			★★
28	74	23.005	CSAH	23	Cormant Rd NE	Battle River Rd NE	3.5	100	★			★			★★
33	75	26.001	CSAH	26	Hwy 89	Irvine Ave NW	6.0	255	★			★			★★
47	76	32.002	CSAH	32	Hwy 89	Irvine Ave NE	8.8	415	★			★			★★
48	77	32.003	CSAH	32	Irvine Ave NE	Everts Rd NE	5.9	385	★			★			★★
49	78	32.004	CSAH	32	Everts Rd NE	Hwy 72	8.1	385	★			★			★★
51	79	34.001	CSAH	34	Pioneer Rd NE	Corral Rd NE	6.0	195	★			★			★★
52	80	35.001	CSAH	35	Hwy 71	Blackduck Lake Rd NE	1.9	270	★				★		★★
57	81	39.001	CSAH	39	0.09 miles N of the Beltrami County Line	Power Dam Rd NE	5.1	420	★			★			★★
58	82	39.002	CSAH	39	Power Dam Rd NE	Turtle River Lake Rd NE	9.3	485	★			★			★★
68	83	48.001	CSAH	48	0.51 miles W of Sportsmen Rd SW	Fern Lake Rd SW	1.5	185	★			★			★★
69	84	5.001	CSAH	5	Beltrami County Line	Russell Dr NW	6.9	275	★			★			★★
75	85	54.001	CSAH	54	0.18 miles SW of Forest Rt 2171 Rd	Beltrami County Line	1.9	100	★				★		★★
92	86	407.002	CR	407	Roosevelt Rd SE	Power Dam Rd NE	2.0	180	★			★			★★
42	87	30.003	CSAH	30	Hwy 71	0.53 miles E of 4th St E	1.1	1,305		★					★
19	88	22.001	CSAH	22	Beltrami Co Rd 3	Hwy 89	8.4	445	★						★
29	89	23.007	CSAH	23	Bushy Lane Rd NE	Hwy 72	8.4	90	★						★
63	90	43.002	CSAH	43	0.57 miles SW of Main St	Hwy 71	1.0	125					★		★
84	91	92.001	CSAH	92	Summit Ave	Brandl Dr NW	0.3	400							

Rural Segment Prioritization for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Length [miles]	ADT [vpd]	Speed Limit	ADT Rural Single-Vehicle	ADT Rural Multi-Vehicle	Access Density	Curve Density	Edge Risk	Total Stars
85	92	93.001	CSAH	93	Main St W	Clark Ave N	0.2	85							
86	93	94.001	CSAH	94	Kelliher Rd SW	Clark Ave N	0.4	160							

Total Length (Miles) 374.47

Stars	Count	Percent	Count of Stars --	Percent of Stars --	80	43	9	65	43	25
★★★★★	0	0%								
★★★★★	3	3%								
★★★★	26	28%								
★★★	28	30%								
★★	29	31%								
★	4	4%								
	3	3%								
Total	93	100%			86%	46%	10%	70%	46%	27%

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Rural Curve Prioritization for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Curve

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Speed Limit [mph]	Radius [Feet]	ADT [vpd]	Lane Width [Feet]	Shoulder Type	Total Cross Section Width [Feet]	Adjacent Intersection	Visual Trap	Lighting	Outside Edge Risk	Total Stars
65	1	15.021	CSAH	15	Great Divide Rd NW	Markus Rd NE		★	★	★		★	★		★		★★★★★
59	2	15.015	CSAH	15	Great Divide Rd NW	Markus Rd NE		★	★	★		★	★		★		★★★★★
151	3	24.014	CSAH	24	Centerline Rd NW	Hwy 89		★			★	★	★	★	★		★★★★★
14	4	12.007	CSAH	12	Parkers Lake Rd NE	Mission Rd NE		★	★		★	★	★		★		★★★★★
64	5	15.020	CSAH	15	Great Divide Rd NW	Markus Rd NE		★	★	★		★	★		★		★★★★★
148	6	24.011	CSAH	24	Centerline Rd NW	Hwy 89		★		★	★	★			★	★	★★★★★
247	7	39.012	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE		★		★		★	★	★	★		★★★★★
258	8	4.002	CSAH	4	0.25 miles E of Sunnyside Rd SE	Forest Rd	★	★			★		★	★	★		★★★★★
285	9	5.023	CSAH	5	Aure Rd NW	Lumberjack Rd NW		★		★	★	★	★		★		★★★★★
43	10	14.002	CSAH	14	Becida Rd SW	0.33 miles N of Juneberry Rd NW	★	★			★		★	★	★		★★★★★
268	11	5.004	CSAH	5	Russell Dr NW	Hwy 2		★		★		★	★		★	★	★★★★★
70	12	19.004	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE		★	★		★		★		★		★★★★★
190	13	30.011	CSAH	30	0.53 miles E of 4th St E	Berg Rd NE		★	★	★		★			★		★★★★★
311	14	7.005	CSAH	7	Beltrami Line Rd SW	Adams Ave NW		★	★		★		★		★		★★★★★
224	15	33.003	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE		★		★		★	★		★		★★★★★
310	16	7.004	CSAH	7	Beltrami Line Rd SW	Adams Ave NW		★	★		★		★		★		★★★★★
77	17	20.001	CSAH	20	Bemidji Rd NE	Big Bass Rd NE	★	★	★				★		★		★★★★★
93	18	21.002	CSAH	21	29th St NE	Glidden Rd NE	★		★				★	★	★		★★★★★
215	19	32.019	CSAH	32	Hwy 89	Irvine Ave NE		★				★	★	★	★		★★★★★
309	20	7.003	CSAH	7	Beltrami Line Rd SW	Adams Ave NW		★	★		★		★		★		★★★★★
110	21	22.016	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★	★		★			★		★		★★★★★
301	22	57.001	CSAH	57	Bemidji Rd NE	0.07 miles E of Raspberry Ct NE	★	★			★		★		★		★★★★★
187	23	30.008	CSAH	30	Hines Rd NE	Carl Ave	★			★	★		★		★		★★★★★
13	24	12.006	CSAH	12	Parkers Lake Rd NE	Mission Rd NE		★	★		★	★			★		★★★★★
60	25	15.016	CSAH	15	Great Divide Rd NW	Markus Rd NE		★	★	★		★			★		★★★★★
72	26	19.006	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE		★	★		★	★			★		★★★★★
73	27	19.007	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE		★	★		★	★			★		★★★★★
74	28	19.008	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE		★	★		★	★			★		★★★★★
94	29	21.003	CSAH	21	Island View Dr NE	Hwy 71		★	★		★		★		★		★★★★★
100	30	22.006	CSAH	22	Beltrami Co Rd 3	Hwy 89		★			★		★	★	★		★★★★★
130	31	23.001	CSAH	23	Hwy 71	Newcomb Ln NE		★	★			★	★		★		★★★★★
134	32	23.005	CSAH	23	Newcomb Ln NE	Nebish Rd NE		★	★			★	★		★		★★★★★
179	33	29.008	CSAH	29	Swinburne Ct NW	Everts Rd NE		★			★	★	★		★		★★★★★
191	34	30.012	CSAH	30	0.53 miles E of 4th St E	Berg Rd NE		★	★	★		★			★		★★★★★
192	35	30.013	CSAH	30	0.53 miles E of 4th St E	Berg Rd NE		★	★	★		★			★		★★★★★
193	36	30.014	CSAH	30	0.53 miles E of 4th St E	Berg Rd NE		★	★	★		★			★		★★★★★
232	37	35.002	CSAH	35	Hwy 71	Blackduck Lake Rd NE		★			★		★	★	★		★★★★★
249	38	39.014	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE		★		★		★	★		★		★★★★★
269	39	5.005	CSAH	5	Hwy 2	Old Jefferson Dr NW			★	★		★	★		★		★★★★★
271	40	5.007	CSAH	5	Old Jefferson Dr NW	Aure Rd NW		★	★	★		★			★		★★★★★
283	41	5.021	CSAH	5	Aure Rd NW	Lumberjack Rd NW		★			★		★	★	★		★★★★★
286	42	5.024	CSAH	5	Aure Rd NW	Lumberjack Rd NW		★		★	★	★			★		★★★★★
287	43	5.025	CSAH	5	Aure Rd NW	Lumberjack Rd NW				★	★	★	★		★		★★★★★
288	44	5.026	CSAH	5	Aure Rd NW	Lumberjack Rd NW		★		★	★	★			★		★★★★★
289	45	5.027	CSAH	5	Aure Rd NW	Lumberjack Rd NW		★		★	★	★			★		★★★★★
314	46	7.008	CSAH	7	Beltrami Line Rd SW	Adams Ave NW		★	★		★		★		★		★★★★★
337	47	9.009	CSAH	9	Grange Rd NW	Great Divide Rd NW		★			★		★	★	★		★★★★★
111	48	22.017	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★	★		★			★		★		★★★★★
199	49	32.003	CSAH	32	Beltrami County Line	Hwy 89		★				★	★		★	★	★★★★★
225	50	33.004	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE		★		★		★	★		★		★★★★★
267	51	5.003	CSAH	5	Russell Dr NW	Hwy 2		★		★		★			★	★	★★★★★
270	52	5.006	CSAH	5	Old Jefferson Dr NW	Aure Rd NW			★	★		★			★	★	★★★★★

Rural Curve Prioritization for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Curve

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Speed Limit [mph]	Radius [Feet]	ADT [vpd]	Lane Width [Feet]	Shoulder Type	Total Cross Section Width [Feet]	Adjacent Intersection	Visual Trap	Lighting	Outside Edge Risk	Total Stars
351	53	402.002	CR	402	0.31 miles W of Jackson Ave SW	Jackson Ave SW		★		★	★		★		★		★★★★★
352	54	402.003	CR	402	0.31 miles W of Jackson Ave SW	Jackson Ave SW		★		★	★		★		★		★★★★★
9	55	11.008	CSAH	11	0.20 miles N of Florence Ct NW	U.S. Rte 2	★	★	★				★		★		★★★★★
315	56	7.009	CSAH	7	Beltrami Line Rd SW	Adams Ave NW		★			★		★		★		★★★★
75	57	19.009	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE			★		★	★			★		★★★★
313	58	7.007	CSAH	7	Beltrami Line Rd SW	Adams Ave NW		★	★		★				★		★★★★
328	59	8.011	CSAH	8	Swenson Rd SE	Beltrami County Line		★			★		★		★		★★★★
319	60	8.002	CSAH	8	Lake Ave SE	Swenson Rd SE		★			★		★		★		★★★★
317	61	7.011	CSAH	7	Beltrami Line Rd SW	Adams Ave NW						★	★	★	★		★★★★
29	62	12.022	CSAH	12	Mission Rd NE	Scenic Hwy NE					★	★	★		★		★★★★
61	63	15.017	CSAH	15	Great Divide Rd NW	Markus Rd NE			★	★		★			★		★★★★
132	64	23.003	CSAH	23	Newcomb Ln NE	Nebish Rd NE			★			★			★		★★★★
7	65	11.006	CSAH	11	Washington Ave S	15th St SW	★		★				★		★		★★★★
31	66	13.002	CSAH	13	Great Divide Rd NW	10 Mile Dr NW		★				★	★		★		★★★★
91	67	20.016	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE		★				★			★		★★★★
95	68	22.001	CSAH	22	Beltrami Co Rd 3	Hwy 89		★			★		★		★		★★★★
230	69	33.009	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE		★			★		★		★		★★★★
312	70	7.006	CSAH	7	Beltrami Line Rd SW	Adams Ave NW		★	★		★				★		★★★★
10	71	11.009	CSAH	11	0.20 miles N of Florence Ct NW	U.S. Rte 2	★		★				★		★		★★★★
104	72	22.010	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★	★					★		★		★★★★
326	73	8.009	CSAH	8	Swenson Rd SE	Beltrami County Line		★			★		★		★		★★★★
54	74	15.010	CSAH	15	Grange Rd NW	Great Divide Rd NW	★		★				★		★		★★★★
63	75	15.019	CSAH	15	Great Divide Rd NW	Markus Rd NE			★	★		★			★		★★★★
177	76	29.006	CSAH	29	Swinburne Ct NW	Everts Rd NE		★			★		★		★		★★★★
3	77	11.002	CSAH	11	Washington Ave S	15th St SW	★		★				★		★		★★★★
226	78	33.005	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE		★		★		★			★		★★★★
53	79	15.006	CSAH	15	Grange Rd NW	Great Divide Rd NW	★		★			★			★		★★★★
108	80	22.014	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★	★					★		★		★★★★
120	81	22.026	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★				★		★		★		★★★★
183	82	30.004	CSAH	30	Hines Rd NE	Carl Ave	★				★		★		★		★★★★
188	83	30.009	CSAH	30	Hines Rd NE	Carl Ave	★			★	★				★		★★★★
189	84	30.010	CSAH	30	Hines Rd NE	Carl Ave	★			★	★				★		★★★★
257	85	4.001	CSAH	4	0.25 miles E of Sunnyside Rd SE	Forest Rd	★				★		★		★		★★★★
260	86	4.004	CSAH	4	E Grace Lake Rd Se	Roosevelt Rd SE	★				★		★		★		★★★★
15	87	12.008	CSAH	12	Parkers Lake Rd NE	Mission Rd NE			★		★	★			★		★★★★
16	88	12.009	CSAH	12	Parkers Lake Rd NE	Mission Rd NE			★		★	★			★		★★★★
23	89	12.016	CSAH	12	Mission Rd NE	Scenic Hwy NE					★	★	★		★		★★★★
24	90	12.017	CSAH	12	Mission Rd NE	Scenic Hwy NE					★	★	★		★		★★★★
25	91	12.018	CSAH	12	Mission Rd NE	Scenic Hwy NE					★	★	★		★		★★★★
26	92	12.019	CSAH	12	Mission Rd NE	Scenic Hwy NE					★	★	★		★		★★★★
27	93	12.020	CSAH	12	Mission Rd NE	Scenic Hwy NE					★	★	★		★		★★★★
28	94	12.021	CSAH	12	Mission Rd NE	Scenic Hwy NE					★	★	★		★		★★★★
30	95	13.001	CSAH	13	Great Divide Rd NW	10 Mile Dr NW		★				★	★		★		★★★★
36	96	13.007	CSAH	13	Great Divide Rd NW	10 Mile Dr NW		★				★	★		★		★★★★
37	97	13.008	CSAH	13	Great Divide Rd NW	10 Mile Dr NW		★				★	★		★		★★★★
62	98	15.018	CSAH	15	Great Divide Rd NW	Markus Rd NE		★	★			★			★		★★★★
76	99	2.001	CSAH	2	0.09 miles E of Monroe Ave SW	U.S. Rte 2		★				★	★		★		★★★★
87	100	20.012	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE		★			★		★		★		★★★★
88	101	20.013	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE		★				★	★		★		★★★★
92	102	20.017	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE		★				★	★		★		★★★★
96	103	22.002	CSAH	22	Beltrami Co Rd 3	Hwy 89		★			★		★		★		★★★★
101	104	22.007	CSAH	22	Beltrami Co Rd 3	Hwy 89		★			★		★		★		★★★★

Rural Curve Prioritization for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Curve

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Speed Limit [mph]	Radius [Feet]	ADT [vpd]	Lane Width [Feet]	Shoulder Type	Total Cross Section Width [Feet]	Adjacent Intersection	Visual Trap	Lighting	Outside Edge Risk	Total Stars
106	105	22.012	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★	★					★		★		★★★★
107	106	22.013	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★	★					★		★		★★★★
122	107	22.028	CSAH	22	Hwy 71	Long Lake Dr NE	★				★		★		★		★★★★
131	108	23.002	CSAH	23	Newcomb Ln NE	Nebish Rd NE			★			★	★		★		★★★★
133	109	23.004	CSAH	23	Newcomb Ln NE	Nebish Rd NE			★			★	★		★		★★★★
145	110	24.008	CSAH	24	Centerline Rd NW	Hwy 89		★				★			★	★	★★★★
150	111	24.013	CSAH	24	Centerline Rd NW	Hwy 89		★			★	★			★		★★★★
152	112	25.001	CSAH	25	E Grace Lake Rd Se	Roosevelt Rd SE		★			★		★		★		★★★★
164	113	27.005	CSAH	27	Roosevelt Rd SE	Power Dam Rd NE		★	★				★		★		★★★★
165	114	27.006	CSAH	27	Roosevelt Rd SE	Power Dam Rd NE		★	★		★				★		★★★★
167	115	27.008	CSAH	27	Power Dam Rd NE	Birchmont Beach Rd NE		★	★		★				★		★★★★
169	116	27.010	CSAH	27	Birchmont Beach Rd NE	Turtle River Lake Rd NE		★			★		★		★		★★★★
172	117	27.013	CSAH	27	Birchmont Beach Rd NE	Turtle River Lake Rd NE		★			★		★		★		★★★★
176	118	29.005	CSAH	29	Swinburne Ct NW	Everts Rd NE		★			★		★		★		★★★★
178	119	29.007	CSAH	29	Swinburne Ct NW	Everts Rd NE					★	★	★		★		★★★★
196	120	31.006	CSAH	31	Hwy 71	Nebish Rd NE		★			★		★		★		★★★★
200	121	32.004	CSAH	32	Beltrami County Line	Hwy 89					★	★	★		★		★★★★
207	122	32.011	CSAH	32	Beltrami County Line	Hwy 89		★				★	★		★		★★★★
210	123	32.014	CSAH	32	Beltrami County Line	Hwy 89		★				★	★		★		★★★★
213	124	32.017	CSAH	32	Beltrami County Line	Hwy 89		★			★	★			★		★★★★
218	125	32.022	CSAH	32	Hwy 89	Irvine Ave NE		★			★		★		★		★★★★
221	126	32.025	CSAH	32	Everts Rd NE	Hwy 72		★				★	★		★		★★★★
227	127	33.006	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE		★			★		★		★		★★★★
229	128	33.008	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE		★			★		★		★		★★★★
235	129	36.001	CSAH	36	hwy 1	Shevlin Ave SW		★			★		★		★		★★★★
250	130	39.015	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE					★	★	★		★		★★★★
252	131	39.017	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE					★	★	★		★		★★★★
256	132	39.021	CSAH	39	Beighley Rd NE	Co Rd 47			★	★		★			★		★★★★
259	133	4.003	CSAH	4	0.25 miles E of Sunnyside Rd SE	Forest Rd	★				★		★		★		★★★★
263	134	43.003	CSAH	43	Hwy 71	0.57 miles SW of Main St		★			★		★		★		★★★★
278	135	5.014	CSAH	5	Old Jefferson Dr NW	Aure Rd NW		★				★	★		★		★★★★
284	136	5.022	CSAH	5	Aure Rd NW	Lumberjack Rd NW					★	★	★		★		★★★★
302	137	58.001	CSAH	58	Resv Hwy 18	Pioneer Rd NE		★				★	★		★		★★★★
307	138	7.001	CSAH	7	Beltrami Line Rd SW	Adams Ave NW		★	★		★				★		★★★★
324	139	8.007	CSAH	8	Swenson Rd SE	Beltrami County Line		★			★		★		★		★★★★
325	140	8.008	CSAH	8	Swenson Rd SE	Beltrami County Line		★			★		★		★		★★★★
341	141	305.004	CR	305	Hwy 71	Island View Dr NE	★	★			★				★		★★★★
343	142	305.006	CR	305	Hwy 71	Island View Dr NE	★	★			★				★		★★★★
354	143	515.001	CR	515	U.S. Rte 2	Hwy 89			★		★		★		★		★★★★
5	144	11.004	CSAH	11	Washington Ave S	15th St SW	★		★				★		★		★★★★
57	145	15.013	CSAH	15	Grange Rd NW	Great Divide Rd NW	★		★				★		★		★★★★
78	146	20.002	CSAH	20	Bemidji Rd NE	Big Bass Rd NE	★	★	★						★		★★★★
115	147	22.021	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★	★					★		★		★★★★
127	148	22.044	CSAH	22	Long Lake Dr NE	3.19 miles E of Long Lake Dr NE	★	★					★		★		★★★★
129	149	22.046	CSAH	22	Long Lake Dr NE	3.19 miles E of Long Lake Dr NE	★	★					★		★		★★★★
223	150	33.002	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE		★			★	★			★		★★★★
329	151	9.001	CSAH	9	U.S. Rte 2	Grange Rd NW	★		★				★		★		★★★★
342	152	305.005	CR	305	Hwy 71	Island View Dr NE	★	★			★				★		★★★★
344	153	305.007	CR	305	Hwy 71	Island View Dr NE	★	★			★				★		★★★★
345	154	305.008	CR	305	Hwy 71	Island View Dr NE	★	★			★				★		★★★★
346	155	305.009	CR	305	Hwy 71	Island View Dr NE	★	★			★				★		★★★★
348	156	305.012	CR	305	Hwy 71	Island View Dr NE	★	★			★				★		★★★★

Rural Curve Prioritization for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Curve

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Speed Limit [mph]	Radius [Feet]	ADT [vpd]	Lane Width [Feet]	Shoulder Type	Total Cross Section Width [Feet]	Adjacent Intersection	Visual Trap	Lighting	Outside Edge Risk	Total Stars
4	157	11.003	CSAH	11	Washington Ave S	15th St SW	★		★				★		★		★★★★
6	158	11.005	CSAH	11	Washington Ave S	15th St SW	★		★				★		★		★★★★
49	159	15.002	CSAH	15	Grange Rd NW	Great Divide Rd NW	★		★				★		★		★★★★
50	160	15.003	CSAH	15	Grange Rd NW	Great Divide Rd NW	★		★				★		★		★★★★
294	161	52.001	CSAH	52	Hwy 71	Bemidji Ave N		★	★				★		★		★★★★
332	162	9.004	CSAH	9	U.S. Rte 2	Grange Rd NW	★		★				★		★		★★★★
52	163	15.005	CSAH	15	Grange Rd NW	Great Divide Rd NW	★		★			★			★		★★★★
295	164	52.002	CSAH	52	Hwy 71	Bemidji Ave N		★	★						★		★★★
331	165	9.003	CSAH	9	U.S. Rte 2	Grange Rd NW	★		★						★		★★★
66	166	16.001	CSAH	16	Centerline Rd NW	Wilton Hill Rd NW		★				★			★		★★★
246	167	39.011	CSAH	39	Power Dam Rd NE	Turtle River Lake Rd NE		★				★			★		★★★
56	168	15.012	CSAH	15	Grange Rd NW	Great Divide Rd NW	★		★						★		★★★
71	169	19.005	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE			★				★		★		★★★
116	170	22.022	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★						★		★		★★★
117	171	22.023	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★						★		★		★★★
214	172	32.018	CSAH	32	Hwy 89	Irvine Ave NE		★			★				★		★★★
276	173	5.012	CSAH	5	Old Jefferson Dr NW	Aure Rd NW		★				★			★		★★★
308	174	7.002	CSAH	7	Beltrami Line Rd SW	Adams Ave NW			★		★				★		★★★
58	175	15.014	CSAH	15	Hwy 89	Irvine Ave NW	★						★		★		★★★
102	176	22.008	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★				★				★		★★★
103	177	22.009	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★				★				★		★★★
119	178	22.025	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★						★		★		★★★
124	179	22.040	CSAH	22	Long Lake Dr NE	3.19 miles E of Long Lake Dr NE	★						★		★		★★★
347	180	305.011	CR	305	Hwy 71	Island View Dr NE	★				★				★		★★★
17	181	12.010	CSAH	12	Parkers Lake Rd NE	Mission Rd NE					★	★			★		★★★
18	182	12.011	CSAH	12	Parkers Lake Rd NE	Mission Rd NE					★	★			★		★★★
19	183	12.012	CSAH	12	Parkers Lake Rd NE	Mission Rd NE					★	★			★		★★★
20	184	12.013	CSAH	12	Parkers Lake Rd NE	Mission Rd NE					★	★			★		★★★
21	185	12.014	CSAH	12	Parkers Lake Rd NE	Mission Rd NE					★	★			★		★★★
22	186	12.015	CSAH	12	Parkers Lake Rd NE	Mission Rd NE					★	★			★		★★★
32	187	13.003	CSAH	13	Great Divide Rd NW	10 Mile Dr NW		★				★			★		★★★
33	188	13.004	CSAH	13	Great Divide Rd NW	10 Mile Dr NW		★				★			★		★★★
34	189	13.005	CSAH	13	Great Divide Rd NW	10 Mile Dr NW		★				★			★		★★★
40	190	13.011	CSAH	13	Great Divide Rd NW	10 Mile Dr NW						★	★		★		★★★
48	191	15.001	CSAH	15	Grange Rd NW	Great Divide Rd NW		★			★				★		★★★
67	192	16.002	CSAH	16	Centerline Rd NW	Wilton Hill Rd NW		★				★			★		★★★
83	193	20.008	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE		★				★			★		★★★
85	194	20.010	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE						★	★		★		★★★
86	195	20.011	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE					★	★			★		★★★
90	196	20.015	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE		★				★			★		★★★
97	197	22.003	CSAH	22	Beltrami Co Rd 3	Hwy 89		★			★				★		★★★
105	198	22.011	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★						★		★		★★★
112	199	22.018	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★						★		★		★★★
113	200	22.019	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★						★		★		★★★
118	201	22.024	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★						★		★		★★★
123	202	22.029	CSAH	22	Hwy 71	Long Lake Dr NE	★						★		★		★★★
126	203	22.043	CSAH	22	Long Lake Dr NE	3.19 miles E of Long Lake Dr NE	★	★							★		★★★
128	204	22.045	CSAH	22	Long Lake Dr NE	3.19 miles E of Long Lake Dr NE	★	★							★		★★★
138	205	24.001	CSAH	24	Beltrami County Line	Debs Rd NW						★	★		★		★★★
146	206	24.009	CSAH	24	Centerline Rd NW	Hwy 89						★	★		★		★★★
147	207	24.010	CSAH	24	Centerline Rd NW	Hwy 89						★	★		★		★★★
149	208	24.012	CSAH	24	Centerline Rd NW	Hwy 89						★	★		★		★★★

Rural Curve Prioritization for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Curve

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Speed Limit [mph]	Radius [Feet]	ADT [vpd]	Lane Width [Feet]	Shoulder Type	Total Cross Section Width [Feet]	Adjacent Intersection	Visual Trap	Lighting	Outside Edge Risk	Total Stars
153	209	25.002	CSAH	25	E Grace Lake Rd Se	Roosevelt Rd SE					★		★		★		★★★
154	210	25.003	CSAH	25	E Grace Lake Rd Se	Roosevelt Rd SE					★		★		★		★★★
156	211	26.001	CSAH	26	Hwy 89	Irvine Ave NW						★	★		★		★★★
159	212	26.004	CSAH	26	Hwy 89	Irvine Ave NW						★	★		★		★★★
160	213	27.001	CSAH	27	Roosevelt Rd SE	Power Dam Rd NE		★	★						★		★★★
166	214	27.007	CSAH	27	Power Dam Rd NE	Birchmont Beach Rd NE			★		★				★		★★★
171	215	27.012	CSAH	27	Birchmont Beach Rd NE	Turtle River Lake Rd NE		★			★				★		★★★
173	216	27.014	CSAH	27	Birchmont Beach Rd NE	Turtle River Lake Rd NE		★			★				★		★★★
174	217	29.003	CSAH	29	Hwy 71	Swinburne Ct NW						★			★	★	★★★
175	218	29.004	CSAH	29	Hwy 71	Swinburne Ct NW		★					★		★		★★★
180	219	30.001	CSAH	30	Hines Rd NE	Carl Ave	★				★				★		★★★
181	220	30.002	CSAH	30	Hines Rd NE	Carl Ave	★				★				★		★★★
182	221	30.003	CSAH	30	Hines Rd NE	Carl Ave	★				★				★		★★★
184	222	30.005	CSAH	30	Hines Rd NE	Carl Ave	★				★				★		★★★
185	223	30.006	CSAH	30	Hines Rd NE	Carl Ave	★				★				★		★★★
186	224	30.007	CSAH	30	Hines Rd NE	Carl Ave	★				★				★		★★★
194	225	31.004	CSAH	31	Hwy 71	Nebish Rd NE		★			★				★		★★★
195	226	31.005	CSAH	31	Hwy 71	Nebish Rd NE					★		★		★		★★★
197	227	32.001	CSAH	32	Beltrami County Line	Hwy 89					★	★			★		★★★
198	228	32.002	CSAH	32	Beltrami County Line	Hwy 89		★				★			★		★★★
202	229	32.006	CSAH	32	Aure Rd NW	Lumerjack Rd NW		★				★			★		★★★
203	230	32.007	CSAH	32	Beltrami County Line	Hwy 89		★				★			★		★★★
204	231	32.008	CSAH	32	Beltrami County Line	Hwy 89		★				★			★		★★★
205	232	32.009	CSAH	32	Beltrami County Line	Hwy 89		★				★			★		★★★
206	233	32.010	CSAH	32	Beltrami County Line	Hwy 89		★				★			★		★★★
208	234	32.012	CSAH	32	Beltrami County Line	Hwy 89		★				★			★		★★★
212	235	32.016	CSAH	32	Beltrami County Line	Hwy 89		★				★			★		★★★
216	236	32.020	CSAH	32	Hwy 89	Irvine Ave NE		★				★			★		★★★
219	237	32.023	CSAH	32	Everts Rd NE	Hwy 72		★				★			★		★★★
220	238	32.024	CSAH	32	Everts Rd NE	Hwy 72		★				★			★		★★★
228	239	33.007	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE		★			★				★		★★★
231	240	35.001	CSAH	35	Hwy 71	Blackduck Lake Rd NE					★		★		★		★★★
233	241	35.003	CSAH	35	Hwy 71	Blackduck Lake Rd NE		★			★				★		★★★
234	242	35.004	CSAH	35	Hwy 71	Blackduck Lake Rd NE		★			★				★		★★★
237	243	39.002	CSAH	39	0.09 miles N or the Beltrami County Line	Power Dam Rd NE					★		★		★		★★★
238	244	39.003	CSAH	39	0.09 miles N or the Beltrami County Line	Power Dam Rd NE					★		★		★		★★★
239	245	39.004	CSAH	39	0.09 miles N or the Beltrami County Line	Power Dam Rd NE					★		★		★		★★★
240	246	39.005	CSAH	39	Power Dam Rd NE	Turtle River Lake Rd NE			★		★				★		★★★
241	247	39.006	CSAH	39	Power Dam Rd NE	Turtle River Lake Rd NE			★		★				★		★★★
242	248	39.007	CSAH	39	Power Dam Rd NE	Turtle River Lake Rd NE					★		★		★		★★★
243	249	39.008	CSAH	39	Power Dam Rd NE	Turtle River Lake Rd NE		★			★				★		★★★
245	250	39.010	CSAH	39	Power Dam Rd NE	Turtle River Lake Rd NE						★	★		★		★★★
248	251	39.013	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE				★		★			★		★★★
251	252	39.016	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE				★		★			★		★★★
253	253	39.018	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE				★		★			★		★★★
254	254	39.019	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE				★		★			★		★★★
255	255	39.020	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE				★		★			★		★★★
262	256	43.002	CSAH	43	Hwy 71	0.57 miles SW of Main St		★				★			★		★★★
265	257	5.001	CSAH	5	Beltrami County Line	Russell Dr NW					★		★		★		★★★
275	258	5.011	CSAH	5	Old Jefferson Dr NW	Aure Rd NW		★				★			★		★★★
291	259	50.002	CSAH	50	Miles Ave SE	U.S. Rte 2	★						★		★		★★★
316	260	7.010	CSAH	7	Beltrami Line Rd SW	Adams Ave NW		★			★				★		★★★

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322	261	8.005	CSAH	8	Swenson Rd SE	Beltrami County Line					★		★		★		★★★
336	262	9.008	CSAH	9	Grange Rd NW	Great Divide Rd NW		★			★				★		★★★
350	263	402.001	CR	402	0.31 miles W of Jackson Ave SW	Jackson Ave SW				★	★				★		★★★
8	264	11.007	CSAH	11	0.20 miles N of Florence Ct NW	U.S. Rte 2	★		★						★		★★★
45	265	14.004	CSAH	14	Becida Rd SW	0.33 miles N of Juneberry Rd NW	★						★		★		★★★
51	266	15.004	CSAH	15	Grange Rd NW	Great Divide Rd NW	★		★						★		★★★
69	267	19.002	CSAH	19	Power Dam Rd NE	Elliot Rd NE	★		★						★		★★★
121	268	22.027	CSAH	22	Hwy 71	Long Lake Dr NE	★				★				★		★★★
125	269	22.042	CSAH	22	Long Lake Dr NE	3.19 miles E of Long Lake Dr NE	★	★							★		★★★
222	270	33.001	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE				★		★			★		★★★
290	271	50.001	CSAH	50	Miles Ave SE	U.S. Rte 2	★						★		★		★★★
292	272	50.003	CSAH	50	Miles Ave SE	U.S. Rte 2	★						★		★		★★★
293	273	50.004	CSAH	50	Miles Ave SE	U.S. Rte 2	★						★		★		★★★
339	274	305.002	CR	305	Hwy 71	Island View Dr NE	★	★							★		★★★
55	275	15.011	CSAH	15	Grange Rd NW	Great Divide Rd NW	★		★						★		★★★
330	276	9.002	CSAH	9	U.S. Rte 2	Grange Rd NW	★		★						★		★★★
338	277	305.001	CR	305	Hwy 71	Island View Dr NE	★	★							★		★★★
340	278	305.003	CR	305	Hwy 71	Island View Dr NE	★	★							★		★★★
84	279	20.009	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE						★			★		★★
318	280	8.001	CSAH	8	Lake Ave SE	Swenson Rd SE					★				★		★★
335	281	9.007	CSAH	9	Grange Rd NW	Great Divide Rd NW							★		★		★★
327	282	8.010	CSAH	8	Swenson Rd SE	Beltrami County Line					★				★		★★
334	283	9.006	CSAH	9	Grange Rd NW	Great Divide Rd NW							★		★		★★
2	284	11.001	CSAH	11	Washington Ave S	15th St SW	★								★		★★
12	285	12.005	CSAH	12	1.67 miles E of Lake Ave NE	Parkers Lake Rd NE							★		★		★★
143	286	24.006	CSAH	24	Aure Rd NW	Lumberjack Rd NW							★		★		★★
157	287	26.002	CSAH	26	Hwy 89	Irvine Ave NW						★			★		★★
273	288	5.009	CSAH	5	Old Jefferson Dr NW	Aure Rd NW						★			★		★★
68	289	19.001	CSAH	19	Power Dam Rd NE	Elliot Rd NE			★				★				★★
79	290	20.004	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE						★			★		★★
80	291	20.005	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE						★			★		★★
81	292	20.006	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE						★			★		★★
82	293	20.007	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE						★			★		★★
11	294	12.004	CSAH	12	1.67 miles E of Lake Ave NE	Parkers Lake Rd NE					★				★		★★
35	295	13.006	CSAH	13	Great Divide Rd NW	10 Mile Dr NW		★							★		★★
38	296	13.009	CSAH	13	Great Divide Rd NW	10 Mile Dr NW						★			★		★★
41	297	13.012	CSAH	13	Great Divide Rd NW	10 Mile Dr NW						★			★		★★
42	298	13.013	CSAH	13	Great Divide Rd NW	10 Mile Dr NW							★		★		★★
46	299	14.005	CSAH	14	0.33 miles N of Juneberry Rd NW	U.S. Rte 2	★								★		★★
47	300	14.006	CSAH	14	0.33 miles N of Juneberry Rd NW	U.S. Rte 2	★								★		★★
89	301	20.014	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE					★				★		★★
98	302	22.004	CSAH	22	Beltrami Co Rd 3	Hwy 89					★				★		★★
99	303	22.005	CSAH	22	Beltrami Co Rd 3	Hwy 89					★				★		★★
109	304	22.015	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★								★		★★
135	305	23.006	CSAH	23	Nebish Rd NE	Hwy 1							★		★		★★
136	306	23.015	CSAH	23	Shotley Rd NE	Bushy Lane Rd NE						★			★		★★
137	307	23.016	CSAH	23	Shotley Rd NE	Bushy Lane Rd NE						★			★		★★
139	308	24.002	CSAH	24	Beltrami County Line	Debs Rd NW						★			★		★★
140	309	24.003	CSAH	24	Beltrami County Line	Debs Rd NW						★			★		★★
141	310	24.004	CSAH	24	Beltrami County Line	Debs Rd NW						★			★		★★
142	311	24.005	CSAH	24	Beltrami County Line	Debs Rd NW						★			★		★★
144	312	24.007	CSAH	24	Centerline Rd NW	Hwy 89						★			★		★★

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155	313	25.004	CSAH	25	E Grace Lake Rd Se	Roosevelt Rd SE						★			★		★★
158	314	26.003	CSAH	26	Hwy 89	Irvine Ave NW						★			★		★★
161	315	27.002	CSAH	27	Roosevelt Rd SE	Power Dam Rd NE			★						★		★★
162	316	27.003	CSAH	27	Roosevelt Rd SE	Power Dam Rd NE			★						★		★★
163	317	27.004	CSAH	27	Roosevelt Rd SE	Power Dam Rd NE			★						★		★★
168	318	27.009	CSAH	27	Power Dam Rd NE	Birchmont Beach Rd NE					★				★		★★
170	319	27.011	CSAH	27	Birchmont Beach Rd NE	Turtle River Lake Rd NE					★				★		★★
201	320	32.005	CSAH	32	Beltrami County Line	Hwy 89						★			★		★★
209	321	32.013	CSAH	32	Beltrami County Line	Hwy 89						★			★		★★
211	322	32.015	CSAH	32	Beltrami County Line	Hwy 89						★			★		★★
217	323	32.021	CSAH	32	Hwy 89	Irvine Ave NE		★							★		★★
236	324	39.001	CSAH	39	0.09 miles N or the Beltrami County Line	Power Dam Rd NE					★				★		★★
244	325	39.009	CSAH	39	Power Dam Rd NE	Turtle River Lake Rd NE					★				★		★★
261	326	43.001	CSAH	43	Hwy 71	0.57 miles SW of Main St							★		★		★★
264	327	48.001	CSAH	48	0.51 miles W of Sportsmen Rd SW	Fern Lake Rd SW							★		★		★★
266	328	5.002	CSAH	5	Beltrami County Line	Russell Dr NW					★				★		★★
272	329	5.008	CSAH	5	Old Jefferson Dr NW	Aure Rd NW						★			★		★★
274	330	5.010	CSAH	5	Old Jefferson Dr NW	Aure Rd NW						★			★		★★
277	331	5.013	CSAH	5	Old Jefferson Dr NW	Aure Rd NW						★			★		★★
279	332	5.017	CSAH	5	Old Jefferson Dr NW	Aure Rd NW							★		★		★★
280	333	5.018	CSAH	5	Old Jefferson Dr NW	Aure Rd NW							★		★		★★
281	334	5.019	CSAH	5	Old Jefferson Dr NW	Aure Rd NW		★							★		★★
282	335	5.020	CSAH	5	Old Jefferson Dr NW	Aure Rd NW						★			★		★★
296	336	54.001	CSAH	54	0.18 miles SW of Forest Rt 2171 Rd	Beltrami County Line							★		★		★★
297	337	54.002	CSAH	54	0.18 miles SW of Forest Rt 2171 Rd	Beltrami County Line							★		★		★★
298	338	54.003	CSAH	54	0.18 miles SW of Forest Rt 2171 Rd	Beltrami County Line						★			★		★★
299	339	54.004	CSAH	54	0.18 miles SW of Forest Rt 2171 Rd	Beltrami County Line						★			★		★★
300	340	54.005	CSAH	54	0.18 miles SW of Forest Rt 2171 Rd	Beltrami County Line		★							★		★★
303	341	58.002	CSAH	58	Resv Hwy 18	Pioneer Rd NE						★			★		★★
304	342	59.001	CSAH	59	Bemidji Rd NE	Hwy 71						★			★		★★
305	343	59.002	CSAH	59	Bemidji Rd NE	Hwy 71						★			★		★★
306	344	59.003	CSAH	59	Bemidji Rd NE	Hwy 71						★			★		★★
320	345	8.003	CSAH	8	Lake Ave SE	Swenson Rd SE					★				★		★★
321	346	8.004	CSAH	8	Swenson Rd SE	Beltrami County Line					★				★		★★
323	347	8.006	CSAH	8	Swenson Rd SE	Beltrami County Line					★				★		★★
333	348	9.005	CSAH	9	Grange Rd NW	Great Divide Rd NW							★		★		★★
349	349	307.004	CR	307	Turtle River Lake Rd NE	0.51 miles S of Main St E		★							★		★★
353	350	509.001	CR	509	Beltrami Co Rd 3	Hwy 89							★		★		★★
1	351	1.001	CSAH	1	0.75 miles S of the Beltrami County Line	Beltrami County Line						★			★		★★
44	352	14.003	CSAH	14	Becida Rd SW	0.33 miles N of Juneberry Rd NW	★								★		★★
114	353	22.020	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★								★		★★

Rural Intersection Prioritization for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Context Zone	Entering ADT OR Cross Product	Leg Configuration	Alignment Skew [degrees]	Adjacent RR Crossing	Adjacent Curve	Adjacent Development	Previous STOP (>5 Miles)	Major Approach Speed Limit	Major Approach Turn Lane Configuration	Total Stars
142	1	5.007	CSAH	5	Hwy 2 E	★	★	★		★	★	★	★		★	★★★★★★★
34	2	2.007	CSAH	2	USTH 2	★	★	★		★	★		★	★	★	★★★★★★★
152	3	52.001	CSAH	52	USTH 71	★	★	★	★		★				★	★★★★★
3	4	11.030	CSAH	11	USTH 2	★	★	★			★			★	★	★★★★★
167	5	9.001	CSAH	9	USTH 2	★	★	★	★				★		★	★★★★★
45	6	21.037	CSAH	21	USTH 71	★	★	★	★		★		★			★★★★★
193	7	501.002	CR	501	USTH 2		★	★	★	★			★		★	★★★★★
137	8	47.009	CSAH	47	USTH 71	★	★	★	★		★	★				★★★★★
87	9	30.014	CSAH	30	USTH 71	★	★	★	★		★	★				★★★★★
44	10	21.035	CSAH	21	Island View Dr NE	★		★	★		★	★	★			★★★★★
154	11	59.003	CSAH	59	USTH 71		★	★	★		★				★	★★★★★
195	12	507.001	CR	507	USTH 2		★	★	★		★				★	★★★★★
49	13	22.044	CSAH	22	USTH 71		★	★			★		★	★		★★★★★
151	14	50.008	CSAH	50	23rd St SE	★	★	★	★	★						★★★★★
194	15	503.005	CR	503	USTH 2		★	★	★	★					★	★★★★★
18	16	14.019	CSAH	14	USTH 2	★			★			★	★	★		★★★★★
72	17	24.014	CSAH	24	MNTH 89		★	★	★		★		★			★★★★★
32	18	2.003	CSAH	2	Washington Ave SW		★	★					★	★	★	★★★★★
21	19	15.018	CSAH	15	4642	★	★		★		★	★				★★★★★
88	20	30.018	CSAH	30	Main St S	★	★	★	★			★				★★★★★
38	21	20.040	CSAH	20	Scenic Hwy NE	★		★	★		★		★			★★★★★
135	22	46.005	CSAH	46	Washington Ave SW		★	★			★				★	★★★★
1	23	11.001	CSAH	11	Washington Ave SW	★	★	★							★	★★★★
161	24	7.019	CSAH	7	Jefferson Ave SW	★	★	★				★				★★★★
79	25	29.003	CSAH	29	USTH 71		★	★			★		★			★★★★
76	26	26.003	CSAH	26	Puposky Rd NW			★	★		★		★			★★★★
7	27	12.009	CSAH	12	Lake Ave NE	★	★		★				★			★★★★
26	28	15.056	CSAH	15	Great Divide Rd NW	★			★		★		★			★★★★
4	29	12.001	CSAH	12	1st St E	★	★	★				★				★★★★
197	30	515.001	CR	515	USTH 2		★	★			★				★	★★★★
93	31	31.005	CSAH	31	USTH 71		★	★	★		★					★★★★
128	32	43.004	CSAH	43	USTH 71	★	★	★			★					★★★★
23	33	15.043	CSAH	15	Island View Dr NW	★	★					★	★			★★★★
41	34	21.017	CSAH	21	Glidden Rd NE	★	★		★		★					★★★★
54	35	23.005	CSAH	23	CR-203			★	★		★		★			★★★★
89	36	30.019	CSAH	30	1st St NE	★	★	★				★				★★★★
111	37	36.010	CSAH	36	Clark Ave	★	★	★				★				★★★★
126	38	43.001	CSAH	43	USTH 71		★	★	★		★					★★★★
143	39	5.008	CSAH	5	2nd St NW	★		★			★	★				★★★★
181	40	301.006	CR	301	Great Divide Rd NW			★	★		★		★			★★★★
97	41	32.015	CSAH	32	MNTH 89			★	★				★			★★★
19	42	14.021	CSAH	14	USTH 2		★				★			★		★★★
185	43	305.004	CR	305	USTH 71		★	★	★							★★★
157	44	7.011	CSAH	7	CSAH 14	★	★						★			★★★
20	45	15.017	CSAH	15	3316		★		★		★					★★★
156	46	6.003	CSAH	6	Norton Ave	★	★	★								★★★
155	47	6.001	CSAH	6	Adams Ave NW	★	★	★								★★★
29	48	15.063	CSAH	15	LumberJack Rd				★		★		★			★★★
6	49	12.005	CSAH	12	Mill St NE	★	★	★								★★★
102	50	32.030	CSAH	32	MNTH 72		★	★					★			★★★
5	51	12.004	CSAH	12	5th St NE	★	★	★								★★★
2	52	11.005	CSAH	11	Monroe Ave SW	★	★				★					★★★

Rural Intersection Prioritization for Beltrami County

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List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Context Zone	Entering ADT OR Cross Product	Leg Configuration	Alignment Skew [degrees]	Adjacent RR Crossing	Adjacent Curve	Adjacent Development	Previous STOP (>5 Miles)	Major Approach Speed Limit	Major Approach Turn Lane Configuration	Total Stars
47	53	22.014	CSAH	22	MNTH 89		★	★					★			★★★
50	54	22.045	CSAH	22	USTH 71		★						★	★		★★★
136	55	47.001	CSAH	47	USTH 71		★				★				★	★★★
14	56	13.001	CSAH	13	Great Divide Rd NW				★		★		★			★★★
15	57	13.002	CSAH	13	Polaris Rd NW				★		★		★			★★★
24	58	15.044	CSAH	15	Silver Lake Rd NW	★	★						★			★★★
25	59	15.055	CSAH	15	Lindgren Lake Rd NW	★	★									★★★
43	60	21.028	CSAH	21	Wildwood Rd NE	★		★	★							★★★
53	61	22.063	CSAH	22	Scenic Hwy NE				★				★			★★★
64	62	23.035	CSAH	23	Battle River Rd NE			★					★			★★★
74	63	26.001	CSAH	26	MNTH 89				★				★			★★★
77	64	27.004	CSAH	27	Lamon Rd NE			★	★				★			★★★
118	65	39.029	CSAH	39	Hines Rd NE				★				★			★★★
139	66	47.015	CSAH	47	MNTH 72			★	★							★★★
145	67	5.014	CSAH	5	Grange Rd NW			★					★			★★★
148	68	5.028	CSAH	5	Teddy Rd NW			★	★							★★★
150	69	50.006	CSAH	50	Grant Ave SE	★	★									★★★
160	70	7.017	CSAH	7	1058	★	★					★				★★★
168	71	9.018	CSAH	9	Grange Rd NW		★	★					★			★★★
178	72	111.001	CR	111	MNTH 72				★				★			★★★
179	73	112.001	CR	112	MNTH 72			★	★							★★★
199	74	600.002	CR	600	MNTH 89		★	★					★			★★★
35	75	20.001	CSAH	20	Bemidji Rd NE		★									★★
171	76	90.001	CSAH	90	1st St	★	★									★★
158	77	7.013	CSAH	7	Adams Ave NW		★	★								★★
166	78	8.039	CSAH	8	Mission Rd SE		★						★			★★
159	79	7.016	CSAH	7	1059	★	★									★★
67	80	23.049	CSAH	23	MNTH 72				★				★			★★
163	81	8.021	CSAH	8	Sunnyside Rd SE		★	★								★★
198	82	515.006	CR	515	MNTH 89		★									★★
22	83	15.041	CSAH	15	Grange Rd NW		★						★			★★
28	84	15.060	CSAH	15	Nebish Rd NE				★				★			★★
78	85	29.001	CSAH	29	3rd Ave N	★		★								★★
105	86	35.001	CSAH	35	USTH 71		★									★★
16	87	13.008	CSAH	13	Lumberjack Rd NW								★			★★
37	88	20.014	CSAH	20	Parkers Lake Rd NE	★		★								★★
48	89	22.030	CSAH	22	Wildwood Rd NE	★										★★
55	90	23.010	CSAH	23	Everts Rd NE			★								★★
56	91	23.018	CSAH	23	Nebish Rd NE			★					★			★★
101	92	32.028	CSAH	32	Corlan Rd NE			★					★			★★
110	93	36.009	CSAH	36	MNTH 72	★							★			★★
141	94	5.005	CSAH	5	Trengove Rd NW			★					★			★★
144	95	5.012	CSAH	5	Thoren Dr NW			★	★							★★
147	96	5.024	CSAH	5	Aure Rd								★			★★
189	97	404.003	CR	404	Industrial Park Dr SE	★							★			★★
12	98	12.036	CSAH	12	Mission Rd SE			★					★			★★
13	99	12.050	CSAH	12	Scenic Hwy NE			★					★			★★
39	100	21.014	CSAH	21	Selma Dr NE	★	★									★★
40	101	303.003	CSAH	21	Selma Dr NE	★			★							★★
57	102	23.023	CSAH	23	MNTH 1								★			★★
65	103	23.038	CSAH	23	Shotley Rd NE			★						★		★★
66	104	23.048	CSAH	23	Waldo Rd NE			★					★			★★

Rural Intersection Prioritization for Beltrami County

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List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Context Zone	Entering ADT OR Cross Product	Leg Configuration	Alignment Skew [degrees]	Adjacent RR Crossing	Adjacent Curve	Adjacent Development	Previous STOP (>5 Miles)	Major Approach Speed Limit	Major Approach Turn Lane Configuration	Total Stars
68	105	24.001	CSAH	24	Beltrami Co Rd 3						★		★			★★
73	106	25.006	CSAH	25	Wolf Lake Dr SE			★			★					★★
80	107	29.012	CSAH	29	Sharp Rock Rd NE			★			★					★★
92	108	31.004	CSAH	31	Hines Rd NE				★				★			★★
95	109	31.013	CSAH	31	Nebish Rd NE			★					★			★★
96	110	32.006	CSAH	32	Boreal Rd NW						★		★			★★
98	111	32.020	CSAH	32	Polaris Rd NW				★		★					★★
99	112	32.023	CSAH	32	CR-203			★					★			★★
107	113	36.003	CSAH	36	Battle River Rd NE						★		★			★★
112	114	36.011	CSAH	36	Gould Ave	★		★								★★
114	115	37.003	CSAH	37	Stenson Rd NE			★					★			★★
116	116	37.009	CSAH	37	MNTH 1			★					★			★★
120	117	39.041	CSAH	39	Main St S						★		★			★★
123	118	41.001	CSAH	41	USTH 71						★		★			★★
125	119	41.007	CSAH	41	MNTH 72			★					★			★★
127	120	43.003	CSAH	43	Main St W	★		★								★★
133	121	44.012	CSAH	44	MNTH 89			★					★			★★
149	122	5.031	CSAH	5	LumberJack Rd NW			★					★			★★
153	123	56.002	CSAH	56	USTH 71		★				★					★★
165	124	8.026	CSAH	8	Swenson Rd SE		★	★								★★
172	125	93.003	CSAH	93	Clark Ave	★		★								★★
173	126	94.004	CSAH	94	Clark Ave	★		★								★★
177	127	110.001	CR	110	MNTH 72			★					★			★★
182	128	302.001	CR	302	USTH 71				★		★					★★
190	129	404.010	CR	404	Sunnyside Rd SE			★								★
188	130	403.003	CR	403	30th St SE			★								★
134	131	46.002	CSAH	46	N Plantagenet Rd SW			★								★
30	132	19.018	CSAH	19	Birchmont Beach Rd NE								★			★
33	133	2.004	CSAH	2	Polk Ave SW							★				★
117	134	38.003	CSAH	38	Sunflower Rd NE								★			★
176	135	105.001	CR	105	MNTH 72			★								★
91	136	31.001	CSAH	31	USTH 71		★									★
106	137	36.001	CSAH	36	MNTH 1								★			★
27	138	15.058	CSAH	15	Artic Rd NW				★							★
36	139	20.007	CSAH	20	Hazelwood Rd NE	★										★
108	140	36.005	CSAH	36	Willow Creek Rd NE			★								★
119	141	39.037	CSAH	39	Lookout Tower Rd NE			★								★
121	142	4.001	CSAH	4	Sunnyside Rd SE			★								★
146	143	5.023	CSAH	5	Aure Rd NW								★			★
8	144	12.017	CSAH	12	Sunnyside Rd NE			★								★
11	145	12.028	CSAH	12	Big Lake Rd NE								★			★
17	146	14.011	CSAH	14	Trengove Rd NW								★			★
31	147	2.001	CSAH	2	N Plantagenet Rd SW			★								★
42	148	21.024	CSAH	21	CSAH 57				★							★
46	149	22.007	CSAH	22	Buzzle Rd NW						★					★
52	150	22.056	CSAH	22	Three Culverts Rd NE								★			★
58	151	23.024	CSAH	23	MNTH 1				★							★
59	152	23.025	CSAH	23	MNTH 1			★								★
62	153	23.030	CSAH	23	Cormant Rd NE								★			★
69	154	24.006	CSAH	24	Boreal Rd NW								★			★
71	155	24.008	CSAH	24	Red Maple Rd NW						★					★
100	156	32.025	CSAH	32	Obrien Creek Rd NE			★								★

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103	157	34.001	CSAH	34	Shiloh Dr NE			★								★
104	158	34.003	CSAH	34	Corral Rd NE								★			★
109	159	36.008	CSAH	36	Lakin Ave	★										★
113	160	36.014	CSAH	36	Flowing Well Rd NE			★								★
115	161	37.008	CSAH	37	Buckeye Rd NE			★								★
122	162	4.007	CSAH	4	Wolf Lake Dr SE			★								★
124	163	41.002	CSAH	41	Three Mile Rd NE			★								★
129	164	44.001	CSAH	44	Dylan Rd NW			★								★
130	165	44.002	CSAH	44	Flintlock Rd NW			★								★
132	166	44.010	CSAH	44	Dicks Parkway Rd								★			★
138	167	47.014	CSAH	47	One Mile Rd NE						★					★
140	168	5.003	CSAH	5	Fredenbug Rd SW						★					★
162	169	8.020	CSAH	8	Van Buren Ave SE		★									★
170	170	9.027	CSAH	9	Great Divide Rd NW								★			★
175	171	103.001	CR	103	MNTH 1			★								★
184	172	304.004	CR	304	USTH 71						★					★
191	173	406.005	CR	406	Sunnyside Rd NE			★								★
196	174	509.002	CR	509	Preservation Rd NW			★								★
200	175	602.004	CR	602	MNTH 89			★								★
204	176	702.002	CR	702	Flintlock Rd NW			★								★
205	177	702.006	CR	702	Carmel Rd NW			★								★
207	178	705.001	CR	705	MNTH 89			★								★
209	179	707.003	CR	707	MNTH 89			★								★
210	180	709.001	CR	709	Thorhult Rd NW			★								★
131	181	44.008	CSAH	44	Ose Rd NW											
164	182	8.025	CSAH	8	Wolf Lake Dr SE											
183	183	304.001	CR	304	MNTH 72											
81	184	3.001	CSAH	3	Pinewood Rd NW											
211	185	710.010	CR	710	MNTH 89											
9	186	12.025	CSAH	12	Parkers Lake Rd NE											
10	187	12.026	CSAH	12	Swenson Rd NE											
51	188	22.055	CSAH	22	Long Lake Dr NE											
60	189	23.026	CSAH	23	Quiring Rd NE											
61	190	23.029	CSAH	23	Pioneer Rd NE											
63	191	23.031	CSAH	23	Battle Rd NE											
70	192	24.007	CSAH	24	Buzzle Rd NW											
75	193	26.002	CSAH	26	Silver Maple Rd NW											
82	194	3.002	CSAH	3	CR 87											
83	195	3.003	CSAH	3	CR 86											
84	196	3.007	CSAH	3	CR 80											
85	197	30.001	CSAH	30	Hines Rd NE											
86	198	30.009	CSAH	30	Pass Rd NE											
90	199	30.025	CSAH	30	Summit Hall Rd NE											
94	200	31.011	CSAH	31	Birchwood Rd NE											
169	201	9.024	CSAH	9	Spencer Rd NW											
174	202	100.001	CR	100	MNTH 72											
180	203	201.001	CR	201	Artic Rd NW											
186	204	306.002	CR	306	MNTH 72											
187	205	311.001	CR	311	Lookout Tower Rd NE											
192	206	501.001	CR	501	350th St											
201	207	700.001	CR	700	MNTH 89											
202	208	700.008	CR	700	Carmel Rd NW											

Rural Intersection Prioritization for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Context Zone	Entering ADT OR Cross Product	Leg Configuration	Alignment Skew [degrees]	Adjacent RR Crossing	Adjacent Curve	Adjacent Development	Previous STOP (>5 Miles)	Major Approach Speed Limit	Major Approach Turn Lane Configuration	Total Stars	
203	209	700.010	CR	700	Jelle Rd NW												
206	210	703.001	CR	703	MNTH 89												
208	211	707.001	CR	707	Thorhult Rd NW												
Count of Stars -						51	65	106	49	5	69	15	75	8	14		
Percent of Stars -						24%	31%	50%	23%	2%	33%	7%	36%	4%	7%		
Stars		Count	Percent														
★★★★★★★★★★		0	0%														
★★★★★★★★★		0	0%														
★★★★★★★★		2	1%														
★★★★★★★		0	0%														
★★★★★★		8	4%														
★★★★★		11	5%														
★★★★		19	9%														
★★★		34	16%														
★★		54	26%														
★		52	25%														
		31	15%														
Total		211	100%														

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Urban Segment Prioritization for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Length [Miles]	ADT [vpd]	Context Zone	Speed Limit	Lane Width	Edgeline Striping	Parking	ADT-U	Access Density	Cross Section and Design	Edge Risk	Shoulder Width	Total Stars
12	1	21.001	CSAH	21	Paul Bunyan Dr NW	24th St NW	0.07	8,240						★	★				★★
5	2	12.001	CSAH	12	1st St E	Power Dam Rd NE	1.58	5060		★					★				★★
7	3	15.001	CSAH	15	30h St NW	Anne St NW	0.50	7200	★						★				★★
11	4	19.001	CSAH	19	Power Dam Rd NE	Elliot Rd NE	1.06	2050		★					★				★★
15	5	52.001	CSAH	52	Hwy 71	Bemidji Ave N	1.49	5375	★						★				★★
18	6	7.002	CSAH	7	Adams Ave NW	Jefferson Ave NW	0.96	4750	★						★				★★
19	7	8.001	CSAH	8	Paul Bunyan Dr SE	Lake Ave SE	0.83	4750		★					★				★★
22	8	402.001	CR	402	1 miles W of Jackson Ave S	Jackson Ave SW	0.31	260				★			★				★★
24	9	404.002	CR	404	3 miles E of Washington Ave S	Paul Bunyan Rd SE	0.63	1350	★						★				★★
25	10	406.001	CR	406	Lake Ave NE	0.30 miles E of Lake Ave NE	0.30	810		★					★				★★
2	11	11.002	CSAH	11	15th St SW	Division St W	1.01	3400							★				★
3	12	11.003	CSAH	11	Divisino St W	0.20 miles N of Florence Ct NW	2.01	3300							★				★
4	13	11.004	CSAH	11	20 miles N of Florence Ct N	U.S. Rte 2	0.54	3300	★										★
6	14	12.002	CSAH	12	Lake Ave NE	1.67 miles E of Lake Ave NE	1.67	1750							★				★
8	15	15.002	CSAH	15	Anne St NW	Grange Rd NW	5.51	4235							★				★
9	16	17.001	CSAH	17	0.09 miles N of 29th St NE	Bemidji Ave N	0.89	630							★				★
10	17	17.002	CSAH	17	Annebelle St NE	Bemidji Ave N	1.35	605							★				★
13	18	21.002	CSAH	21	29th St NE	Glidden Rd NE	3.13	5515							★				★
14	19	50.001	CSAH	50	Grant Ave S	Miles Ave SE	0.13	3615	★										★
17	20	6.002	CSAH	6	Middle School Ave NW	Norton Ave NW	0.87	3550							★				★
20	21	303.001	CR	303	Shorecrest Rd NE	Bemidji Ave N	0.36	740							★				★
21	22	305.001	CR	305	Bemidji Rd NE	Hwy 71	0.70	390							★				★
23	23	404.001	CR	404	Washington Ave S	0.38 miles E of Washington Ave S	0.38	1570							★				★
26	24	406.002	CR	406	0.30 miles E of Lake Ave NE	Tyler Ave NE	2.92	165		★									★
1	25	11.001	CSAH	11	Washington Ave S	15th St SW	3.05	2555											
16	26	6.001	CSAH	6	Adams Ave NW	Middle School Ave NW	0.73	3350											

Urban Segment Prioritization for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Length [Miles]	ADT [vpd]	Context Zone	Speed Limit	Lane Width	Edgeline Striping	Parking	ADT-U	Access Density	Cross Section and Design	Edge Risk	Shoulder Width	Total Stars	
							Total Length (Miles)	32.97												
			Stars	Count	Percent				Count of Stars --	6	5	0	1	0	1	21	0	0	0	
									Percent of Stars --	23%	19%	0%	4%	0%	4%	81%	0%	0%	0%	
			★★★★★★★★★																	
			★★★★★★★★★																	
			★★★★★★★★★																	
			★★★★★★★																	
			★★★★★★																	
			★★★★★																	
			★★★★																	
			★★★																	
			★★																10	38%
			★																14	54%
																			2	8%
			Total																26	100%

Urban Intersection Prioritization for Beltrami County - VEHICLE RELATED

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Context Zone	Traffic Control Device	Entering ADT OR Cross Product	Leg Configuration	Major Division Type	Alignment Skew [Degrees]	Adjacent Development	Major/Minor Approach Speed Limit	Major Approach Left Turn Lane Phasing	Major Approach Turn Lane Configuration	Total Stars
14	1	50.001	CSAH	50	678	★	★	★	★	★		★		★	★	★★★★★★★
11	2	21.001	CSAH	21	Paul Bunyan Dr NW	★	★	★	★	★		★	★		★	★★★★★★★
8	3	15.005	CSAH	15	Anne St NW		★		★				★	★		★★★★
1	4	8.001	CSAH	8	Paul Bunyan Dr SE				★		★		★			★★★
13	5	21.007	CSAH	21	Anne St NW	★		★	★							★★★
3	6	8.007	CSAH	8	Grant Ave SE				★							★
10	7	17.006	CSAH	17	Bemidji Ave N								★			★
7	8	15.004	CSAH	15	Irvine Ave NW								★			★
4	9	15.001	CSAH	15	Irvine Ave NW								★			★
9	10	17.005	CSAH	17	Shorecrest Rd NE						★					★
12	11	21.004	CSAH	21	29th St NW				★							★
6	12	15.003	CSAH	15	Irvine Ave NW								★			★
5	13	15.002	CSAH	15	Irvine Ave NW								★			★
2	14	8.003	CSAH	8	Scott Ave SE											

Count of Stars -	3	3	3	7	2	2	2	8	2	2	
Percent of Stars -	21%	21%	21%	50%	14%	14%	14%	57%	14%	14%	

Stars	Count	Percent
★★★★★★★	0	0%
★★★★★★★	0	0%
★★★★★★	2	14%
★★★★★★	0	0%
★★★★★	0	0%
★★★★★	0	0%
★★★★	1	7%
★★★	2	14%
★★	0	0%
★	8	57%
	1	7%
Total	14	100%

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Urban Intersection Prioritization for Beltrami County - PEDESTRIAN/BIKE RELATED

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Traffic Control Device	Entering ADT	Adjacent Development	Max Number of Lanes Crossed	Presence of Sidewalk	Pedestrian Crossing Type	Total Stars
14	1	50.001	CSAH	50	MN 197	★	★	★	★	★	★	★★★★★
11	2	21.001	CSAH	21	Paul Bunyan Dr NW	★	★	★	★		★	★★★★★
8	3	15.005	CSAH	15	Anne St NW	★			★	★	★	★★★★
1	4	8.001	CSAH	8	Paul Bunyan Dr SE				★	★		★★
3	5	8.007	CSAH	8	Grant Ave SE					★		★
10	6	17.006	CSAH	17	Bemidji Ave N					★		★
7	7	15.004	CSAH	15	35th St NW					★		★
4	8	15.001	CSAH	15	30th St NW					★		★
9	9	17.005	CSAH	17	Shorecrest Rd NE					★		★
12	10	21.004	CSAH	21	29th St NW					★		★
2	11	8.003	CSAH	8	Scott Ave SE					★		★
6	12	15.003	CSAH	15	Irvine Ave NW					★		★
13	13	21.007	CSAH	21	Anne St NW					★		★
5	14	15.002	CSAH	15	Irvine Ave NW					★		★
Count of Stars -						3	2	2	4	13	3	
Percent of Stars -						21%	14%	14%	29%	93%	21%	
Stars		Count	Percent									
★★★★★		1	7%									
★★★★★		1	7%									
★★★★		1	7%									
★★★		0	0%									
★★		1	7%									
★		10	71%									
		0	0%									
Total		14	100%									

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Appendix E – Regional TZD Coordinator Contact

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Contact MN TZD¹

For more information about TZD, or for program-related questions:

Linda Dolan
Program Coordinator
Center for Transportation Studies, U of MN
Phone: 612-625-4533
E-mail: ldolan@umn.edu

Kristine Hernandez
Statewide TZD Coordinator
Phone: 507-286-7601
E-mail: kristine.hernandez@state.mn.us

TZD Program Co-chairs

Brian Sorenson, P.E.
State Traffic Engineer, Office of Traffic Engineering
Minnesota Department of Transportation
Phone: 651-234-7004
E-mail: brian.sorenson@state.mn.us

Mike Hanson
Director, Office of Traffic Safety
Minnesota Department of Public Safety
Phone: 651-201-7061
E-mail: michael.hanson@state.mn.us

Mark Kinde
Manager, Injury & Violence Prevention Section
Minnesota Department of Health
Phone: 651-201-5447
E-mail: mark.kinde@state.mn.us

TZD Regional Coordinators East Central MN

Tom Nixon
Phone: 218-828-5830
E-mail: thomas.nixon@state.mn.us

Northeast MN
Holly Kostrzewski
Phone: 218-725-2828
E-mail: holly.kostrzewski@state.mn.us

Northwest MN
Sue Johnson
Phone: 218-766-5943
E-mail: susan.marie.johnson@state.mn.us

Metro MN
Scot Edgeworth
Phone: 651-775-9496
E-mail: scot.edgeworth@state.mn.us

Tara Helm
Phone: 651-201-7067
E-mail: tara.helm@state.mn.us

Southeast MN
Jessica Schleck
Phone: 507-286-7602
E-mail: Jessica.Schleck@state.mn.us

South Central MN
Annette Larson
Phone: 507-720-2101
E-mail: annette.l.larson@state.mn.us

Southwest MN
Melissa Hjelle
Phone: 320-905-2319
E-mail: Melissa.hjelle@state.mn.us

West Central MN
Katy Kressin
Phone: 218-849-0048
E-mail: katy.kressin@state.mn.us

¹ List taken from <http://www.minnesotatzd.org/whatistzd/mntzd/contact/>



For media inquiries

Dave Boxum

Minnesota Department of Public Safety

Phone: 651-201-7569

E-mail: dave.boxum@state.mn.us

J.P. Gillach

Minnesota Department of Transportation

Communications Office

Phone: 651-366-4268

E-mail: james.gillach@state.mn.us

For website inquiries

Linda Dolan

Program Coordinator

Center for Transportation Studies, U of MN

Phone: 612-625-4533

E-mail: ldolan@umn.edu



Appendix F – List of Recommended Projects

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Rural Segment Project List for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Length [Miles]	Total Stars	Buffer Between Opposing Lanes	Clear Zone Maintenance	6" Wet Reflective in Groove	Shoulder Paving, Safety Edge	Centerline Rumble Strip	Edgeline Rumble Strip	Shoulder Rumble Strip	Enhanced Edgeline	Cost
3	1	12.004	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	6.02	★★★★★	0	0	0	County Completed	0	0	0	0	No Project - Previously Completed Project
8	2	15.003	CSAH	15	Grange Rd NW	Great Divide Rd NW	7.12	★★★★★	1	0	0	0	0	0	0	0	\$1,067,833
80	3	8.003	CSAH	8	Swenson Rd SE	Beltrami County Line	4.97	★★★★★	0	0	1	0	County Completed	0	0	0	\$24,851
2	4	12.003	CSAH	12	1.67 miles E of Lake Ave NE	Parkers Lake Rd NE	4.09	★★★★	0	0	1	0	1	0	0	0	\$44,407
6	5	14.001	CSAH	14	Becida Rd SW	0.33 miles N of Juneberry Rd NW	5.38	★★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
14	6	20.001	CSAH	20	Bemidji Rd NE	Big Bass Rd NE	2.64	★★★★	0	1	0	0	0	0	0	0	\$132,079
15	7	20.002	CSAH	20	Big Bass Rd NE	Parkers Lake Rd NE	4.51	★★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
17	8	21.003	CSAH	21	Glidden Rd NE	Island View Dr NE	6.08	★★★★	0	0	1	0	1	0	0	0	\$66,003
21	9	22.003	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	7.05	★★★★	0	0	0	0	0	0	0	1	\$14,096
23	10	22.005	CSAH	22	Hwy 71	Long Lake Dr NE	4.45	★★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
31	11	24.002	CSAH	24	Centerline Rd NW	Hwy 89	5.52	★★★★	0	0	0	0	0	0	0	1	\$11,034
34	12	27.001	CSAH	27	Roosevelt Rd SE	Power Dam Rd NE	2.00	★★★★	0	0	0	County Completed	0	0	0	0	No Project - Previously Completed Project
43	13	30.004	CSAH	30	0.53 miles E of 4th St E	Berg Rd NE	5.24	★★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
50	14	33.001	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	5.80	★★★★	0	0	0	County Completed	1	0	County Completed	0	\$33,914
59	15	39.003	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE	8.24	★★★★	0	0	0	0	0	0	0	1	\$16,481
60	16	39.004	CSAH	39	Beighley Rd NE	Co Rd 47	0.77	★★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
67	17	47.003	CSAH	47	0.32 miles N of Hwy 71	Hwy 72	0.41	★★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
71	18	5.003	CSAH	5	Hwy 2	Old Jefferson Dr NW	0.64	★★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
77	19	59.001	CSAH	59	Bemidji Rd NE	Hwy 71	0.82	★★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
78	20	7.001	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	7.10	★★★★	0	0	0	0	1	County Completed	0	County Completed	\$41,522
79	21	8.002	CSAH	8	Lake Ave SE	Swenson Rd SE	6.62	★★★★	0	0	0	0	County Completed	County Completed	0	County Completed	No Project - Previously Completed Project
81	22	9.001	CSAH	9	U.S. Rte 2	Grange Rd NW	5.65	★★★★	1	0	0	0	0	0	0	0	\$847,931
4	23	12.005	CSAH	12	Mission Rd NE	Scenic Hwy NE	5.09	★★★★	0	0	0	County Completed	0	0	0	0	No Project - Previously Completed Project
32	24	25.001	CSAH	25	E Grace Lake Rd Se	Roosevelt Rd SE	3.31	★★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
39	25	29.003	CSAH	29	Swinburne Ct NW	Everts Rd NE	2.22	★★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
46	26	32.001	CSAH	32	Beltrami County Line	Hwy 89	10.57	★★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
55	27	36.003	CSAH	36	Clark Ave S	0.97 miles E of Clark Ave S	0.97	★★★★	0	0	0	County Completed	0	0	0	0	No Project - Previously Completed Project
70	28	5.002	CSAH	5	Russell Dr NW	Hwy 2	0.38	★★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
72	29	5.004	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	10.48	★★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
7	30	14.002	CSAH	14	0.33 miles N of Juneberry Rd NW	U.S. Rte 2	2.08	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
9	31	15.004	CSAH	15	Great Divide Rd NW	Markus Rd NE	6.61	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
10	32	15.005	CSAH	15	Red Clover St	S Boundary Rd	2.29	★★★	0	0	0	County Completed	0	0	0	0	No Project - Previously Completed Project
12	33	19.002	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE	4.18	★★★	0	0	1	0	1	0	0	0	\$45,387
13	34	2.001	CSAH	2	0.09 miles E of Monroe Ave SW	U.S. Rte 2	3.57	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
20	35	22.002	CSAH	22	Hwy 89	Irvine Ave NW	6.00	★★★	0	0	0	0	1	County Completed	0	County Completed	\$35,111
25	36	23.001	CSAH	23	Hwy 71	Newcomb Ln NE	4.89	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
35	37	27.002	CSAH	27	Power Dam Rd NE	Birchmont Beach Rd NE	4.07	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
40	38	30.001	CSAH	30	Hines Rd NE	Carl Ave	5.55	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
74	39	50.002	CSAH	50	Miles Ave SE	U.S. Rte 2	2.69	★★★	0	0	0	County Completed	1	0	1	0	\$25,442
88	40	401.001	CR	401	Beltrami Line Rd	Woodward Dr SW	1.81	★★★	0	0	0	0	0	0	0	1	\$3,622
90	41	404.003	CR	404	Paul Bunyan Rd SE	Van Burn Ave SE	2.49	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
5	42	13.001	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	7.74	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
30	43	24.001	CSAH	24	Beltrami County Line	Debs Rd NW	2.91	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
36	44	27.003	CSAH	27	Birchmont Beach Rd NE	Turtle River Lake Rd NE	3.93	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
38	45	29.002	CSAH	29	Hwy 71	Swinburne Ct NW	1.26	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
44	46	31.001	CSAH	31	Hwy 71	Hwy 71	2.01	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
45	47	31.002	CSAH	31	Hwy 71	Nebish Rd NE	5.62	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
53	48	36.001	CSAH	36	hwy 1	Shevlin Ave SW	8.56	★★★	0	0	0	County Completed	0	0	0	0	No Project - Previously Completed Project
56	49	36.004	CSAH	36	0.97 miles E of Clark Ave S	0	0.49	★★★	0	0	0	County Completed	0	0	0	0	No Project - Previously Completed Project
61	50	4.001	CSAH	4	0.25 miles E of Sunnyside Rd SE	Forest Rd	3.31	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
62	51	43.001	CSAH	43	Hwy 71	0.57 miles SW of Main St	0.90	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
73	52	5.005	CSAH	5	Aure Rd NW	Lumberjack Rd NW	6.09	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
76	53	57.002	CSAH	57	0.05 miles S of Main Ave W	Bemidji Rd NE	0.72	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
82	54	9.002	CSAH	9	Grange Rd NW	Great Divide Rd NW	6.93	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
87	55	305.002	CR	305	Hwy 71	Island View Dr NE	2.97	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
89	56	403.001	CR	403	0.24 miles N of Beltrami Line Rd	30th St SE	1.26	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
91	57	407.001	CR	407	0.21 miles N of Beltrami Line Rd	Roosevelt Rd SE	2.81	★★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
18	58	21.004	CSAH	21	Island View Dr NE	Hwy 71	0.74	★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
22	59	22.004	CSAH	22	0.10 miles N of US-71 Old	US-71 Old	0.10	★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
37	60	29.001	CSAH	29	3rd Ave N	Hwy 71	0.15	★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
41	61	30.002	CSAH	30	Carl Ave	Hwy 71	0.17	★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
54	62	36.002	CSAH	36	Shevlin Ave SW	Clark Ave S	0.44	★★	0	0	0	County Completed	0	0	0	0	No Project - Previously Completed Project
64	63	46.001	CSAH	46	Jackson Ave SW	Hwy 71	1.50	★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
65	64	47.001	CSAH	47	Hwy 71	Hwy 71	0.76	★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
66	65	47.002	CSAH	47	Hwy 71	0.32 miles N of Hwy 71	0.32	★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
83	66	90.001	CSAH	90	U.S. Rte 2	Stevens Ave	0.16	★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
93	67	515.001	CR	515	U.S. Rte 2	Hwy 89	1.44	★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
1	68	1.001	CSAH	1	0.75 miles S of the Beltrami County Line	Beltrami County Line	5.75	★★	0	0	0	County Completed	0	0	County Completed	0	No Project - Previously Completed Project
11	69	16.001	CSAH	16	Centerline Rd NW	Wilton Hill Rd NW	5.50	★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
16	70	20.003	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	11.43	★★	0	0	0	0	0	0	0	0	No Project - Criteria Not Met

Rural Segment Project List for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Length [Miles]	Total Stars	Buffer Between Opposing Lanes	Clear Zone Maintenance	6" Wet Reflective in Groove	Shoulder Paving, Safety Edge	Centerline Rumble Strip	Edgeline Rumble Strip	Shoulder Rumble Strip	Enhanced Edgeline	Cost	
24	71	22.006	CSAH	22	3.19 miles E of Long Lake Dr NE	2.40 miles W of Co Rd 39	6.84	★★	0	0	0	County Completed	0	0	0	0	0	No Project - Previously Completed Project
26	72	23.002	CSAH	23	Newcomb Ln NE	Nebish Rd NE	6.95	★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
27	73	23.003	CSAH	23	Nebish Rd NE	Hwy 1	7.75	★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
28	74	23.005	CSAH	23	Cormant Rd NE	Battle River Rd NE	3.48	★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
33	75	26.001	CSAH	26	Hwy 89	Irvine Ave NW	5.99	★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
47	76	32.002	CSAH	32	Hwy 89	Irvine Ave NE	8.76	★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
48	77	32.003	CSAH	32	Irvine Ave NE	Everts Rd NE	5.86	★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
49	78	32.004	CSAH	32	Everts Rd NE	Hwy 72	8.07	★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
51	79	34.001	CSAH	34	Pioneer Rd NE	Corral Rd NE	6.02	★★	0	0	0	County Completed	0	0	0	0	0	No Project - Previously Completed Project
52	80	35.001	CSAH	35	Hwy 71	Blackduck Lake Rd NE	1.93	★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
57	81	39.001	CSAH	39	0.09 miles N or the Beltrami County Line	Power Dam Rd NE	5.08	★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
58	82	39.002	CSAH	39	Power Dam Rd NE	Turtle River Lake Rd NE	9.28	★★	0	0	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
68	83	48.001	CSAH	48	0.51 miles W of Sportsmen Rd SW	Fern Lake Rd SW	1.51	★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
69	84	5.001	CSAH	5	Beltrami County Line	Russell Dr NW	6.90	★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
75	85	54.001	CSAH	54	0.18 miles SW of Forest Rt 2171 Rd	Beltrami County Line	1.85	★★	0	0	0	County Completed	0	0	0	0	0	No Project - Previously Completed Project
92	86	407.002	CR	407	Roosevelt Rd SE	Power Dam Rd NE	2.03	★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
42	87	30.003	CSAH	30	Hwy 71	0.53 miles E of 4th St E	1.10	★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
19	88	22.001	CSAH	22	Beltrami Co Rd 3	Hwy 89	8.41	★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
29	89	23.007	CSAH	23	Bushy Lane Rd NE	Hwy 72	8.41	★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
63	90	43.002	CSAH	43	0.57 miles SW of Main St	Hwy 71	1.00	★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
84	91	92.001	CSAH	92	Summit Ave	Brandl Dr NW	0.31		0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
85	92	93.001	CSAH	93	Main St W	Clark Ave N	0.22		0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
86	93	94.001	CSAH	94	Kelliher Rd SW	Clark Ave N	0.40		0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
							374.47	Total Projects --	2	1	4	0	7	0	1	4	\$2,409,714	

Rural Curve Project List for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Curve

List No.	Project Page	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Total Stars	CZ Maintenance	Surface Treatment	Single T	Lighting	Curve Warning Signs	Chevrons/ Arrow Board	Delineators	Project Cost
mn1	2	2	4	n5	Column7	Column8	Column9	Column10	Column11	Column12	Column13	Column14	Column15	Column16	Column17
65	1	15.021	CSAH	15	Great Divide Rd NW	Markus Rd NE	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
59	2	15.015	CSAH	15	Great Divide Rd NW	Markus Rd NE	★★★★★	1	0	0	0	0	0	0	\$100,000
151	3	24.014	CSAH	24	Centerline Rd NW	Hwy 89	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
14	4	12.007	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
64	5	15.020	CSAH	15	Great Divide Rd NW	Markus Rd NE	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
148	6	24.011	CSAH	24	Centerline Rd NW	Hwy 89	★★★★★	1	0	0	0	0	0	0	\$100,000
247	7	39.012	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE	★★★★★	County Completed	0	0	0	0	County Completed	0	No Project - Previously Completed Project
258	8	4.002	CSAH	4	0.25 miles E of Sunnyside Rd SE	Forest Rd	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
285	9	5.023	CSAH	5	Aure Rd NW	Lumberjack Rd NW	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
187	23	30.008	CSAH	30	Hines Rd NE	Carl Ave	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
70	12	19.004	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
190	13	30.011	CSAH	30	0.53 miles E of 4th St E	Berg Rd NE	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
311	14	7.005	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	★★★★★	0	0	0	1	0	County Nominated	County Not to Pursue	\$9,960
224	15	33.003	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	★★★★★	0	0	0	0	0	1	0	\$3,960
310	16	7.004	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
215	19	32.019	CSAH	32	Hwy 89	Irvine Ave NE	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
309	20	7.003	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
43	10	14.002	CSAH	14	Becida Rd SW	0.33 miles N of Juneberry Rd NW	★★★★★	County Completed	0	0	0	0	0	0	No Project - Previously Completed Project
268	11	5.004	CSAH	5	Russell Dr NW	Hwy 2	★★★★★	County Completed	0	0	0	0	0	0	No Project - Previously Completed Project
13	24	12.006	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
60	25	15.016	CSAH	15	Great Divide Rd NW	Markus Rd NE	★★★★★	Project Not Feasible	0	0	0	0	0	0	No Project Pursued
72	26	19.006	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE	★★★★★	Project Not Feasible	0	0	0	0	0	0	No Project Pursued
73	27	19.007	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
74	28	19.008	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE	★★★★★	1	0	0	0	0	0	0	\$100,000
94	29	21.003	CSAH	21	Island View Dr NE	Hwy 71	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
100	30	22.006	CSAH	22	Beltrami Co Rd 3	Hwy 89	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
130	31	23.001	CSAH	23	Hwy 71	Newcomb Ln NE	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
134	32	23.005	CSAH	23	Newcomb Ln NE	Nebish Rd NE	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
179	33	29.008	CSAH	29	Swinburne Ct NW	Everts Rd NE	★★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
191	34	30.012	CSAH	30	0.53 miles E of 4th St E	Berg Rd NE	★★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
192	35	30.013	CSAH	30	0.53 miles E of 4th St E	Berg Rd NE	★★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
193	36	30.014	CSAH	30	0.53 miles E of 4th St E	Berg Rd NE	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
232	37	35.002	CSAH	35	Hwy 71	Blackduck Lake Rd NE	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
249	38	39.014	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
269	39	5.005	CSAH	5	Hwy 2	Old Jefferson Dr NW	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
271	40	5.007	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
283	41	5.021	CSAH	5	Aure Rd NW	Lumberjack Rd NW	★★★★★	0	0	County Completed	0	0	0	0	No Project - Previously Completed Project
286	42	5.024	CSAH	5	Aure Rd NW	Lumberjack Rd NW	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
287	43	5.025	CSAH	5	Aure Rd NW	Lumberjack Rd NW	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
288	44	5.026	CSAH	5	Aure Rd NW	Lumberjack Rd NW	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
289	45	5.027	CSAH	5	Aure Rd NW	Lumberjack Rd NW	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
314	46	7.008	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
337	47	9.009	CSAH	9	Grange Rd NW	Great Divide Rd NW	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
108	80	22.014	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
120	81	22.026	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
183	82	30.004	CSAH	30	Hines Rd NE	Carl Ave	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
188	83	30.009	CSAH	30	Hines Rd NE	Carl Ave	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
189	84	30.010	CSAH	30	Hines Rd NE	Carl Ave	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
257	85	4.001	CSAH	4	0.25 miles E of Sunnyside Rd SE	Forest Rd	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
260	86	4.004	CSAH	4	E Grace Lake Rd Se	Roosevelt Rd SE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
315	56	7.009	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project

Rural Curve Project List for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Curve

List No.	Project Page	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Total Stars	CZ Maintenance	Surface Treatment	Single T	Lighting	Curve Warning Signs	Chevrons/ Arrow Board	Delineators	Project Cost
75	57	19.009	CSAH	19	Elliot Rd NE	0.09 miles N of Antler Dr NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
313	58	7.007	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
328	59	8.011	CSAH	8	Swenson Rd SE	Beltrami County Line	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
319	60	8.002	CSAH	8	Lake Ave SE	Swenson Rd SE	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
29	62	12.022	CSAH	12	Mission Rd NE	Scenic Hwy NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
61	63	15.017	CSAH	15	Great Divide Rd NW	Markus Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
132	64	23.003	CSAH	23	Newcomb Ln NE	Nebish Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
31	66	13.002	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
91	67	20.016	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
95	68	22.001	CSAH	22	Beltrami Co Rd 3	Hwy 89	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
230	69	33.009	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
312	70	7.006	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
104	72	22.010	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
326	73	8.009	CSAH	8	Swenson Rd SE	Beltrami County Line	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
110	21	22.016	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★★★★★	1	0	0	0	0	0	0	\$100,000
301	22	57.001	CSAH	57	Bemidji Rd NE	0.07 miles E of Raspberry Ct NE	★★★★★	0	0	0	0	County Completed	County Completed	0	No Project - Previously Completed Project
63	75	15.019	CSAH	15	Great Divide Rd NW	Markus Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
177	76	29.006	CSAH	29	Swinburne Ct NW	Everts Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
111	48	22.017	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
199	49	32.003	CSAH	32	Beltrami County Line	Hwy 89	★★★★★	1	0	0	0	0	1	0	\$103,960
225	50	33.004	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
267	51	5.003	CSAH	5	Russell Dr NW	Hwy 2	★★★★★	County Completed	0	0	0	0	0	0	No Project - Previously Completed Project
270	52	5.006	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	★★★★★	1	0	0	0	0	0	0	\$100,000
351	53	402.002	CR	402	0.31 miles W of Jackson Ave SW	Jackson Ave SW	★★★★★	County Completed	0	0	0	0	1	0	\$3,960
352	54	402.003	CR	402	0.31 miles W of Jackson Ave SW	Jackson Ave SW	★★★★★	County Completed	0	0	0	0	1	0	\$3,960
15	87	12.008	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
16	88	12.009	CSAH	12	Parkers Lake Rd NE	Mission Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
23	89	12.016	CSAH	12	Mission Rd NE	Scenic Hwy NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
24	90	12.017	CSAH	12	Mission Rd NE	Scenic Hwy NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
25	91	12.018	CSAH	12	Mission Rd NE	Scenic Hwy NE	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
26	92	12.019	CSAH	12	Mission Rd NE	Scenic Hwy NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
27	93	12.020	CSAH	12	Mission Rd NE	Scenic Hwy NE	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
28	94	12.021	CSAH	12	Mission Rd NE	Scenic Hwy NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
30	95	13.001	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
36	96	13.007	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
37	97	13.008	CSAH	13	Great Divide Rd NW	10 Mile Dr NW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
62	98	15.018	CSAH	15	Great Divide Rd NW	Markus Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
76	99	2.001	CSAH	2	0.09 miles E of Monroe Ave SW	U.S. Rte 2	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
87	100	20.012	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
88	101	20.013	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
92	102	20.017	CSAH	20	Parkers Lake Rd NE	Scenic Hwy NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
96	103	22.002	CSAH	22	Beltrami Co Rd 3	Hwy 89	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
101	104	22.007	CSAH	22	Beltrami Co Rd 3	Hwy 89	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
106	105	22.012	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
107	106	22.013	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
122	107	22.028	CSAH	22	Hwy 71	Long Lake Dr NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
131	108	23.002	CSAH	23	Newcomb Ln NE	Nebish Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
133	109	23.004	CSAH	23	Newcomb Ln NE	Nebish Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
145	110	24.008	CSAH	24	Centerline Rd NW	Hwy 89	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
150	111	24.013	CSAH	24	Centerline Rd NW	Hwy 89	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
152	112	25.001	CSAH	25	E Grace Lake Rd Se	Roosevelt Rd SE	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
164	113	27.005	CSAH	27	Roosevelt Rd SE	Power Dam Rd NE	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met

Rural Curve Project List for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Curve

List No.	Project Page	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Total Stars	CZ Maintenance	Surface Treatment	Single T	Lighting	Curve Warning Signs	Chevrons/ Arrow Board	Delineators	Project Cost
165	114	27.006	CSAH	27	Roosevelt Rd SE	Power Dam Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
167	115	27.008	CSAH	27	Power Dam Rd NE	Birchmont Beach Rd NE	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
169	116	27.010	CSAH	27	Birchmont Beach Rd NE	Turtle River Lake Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
172	117	27.013	CSAH	27	Birchmont Beach Rd NE	Turtle River Lake Rd NE	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
176	118	29.005	CSAH	29	Swinburne Ct NW	Everts Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
178	119	29.007	CSAH	29	Swinburne Ct NW	Everts Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
196	120	31.006	CSAH	31	Hwy 71	Nebish Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
200	121	32.004	CSAH	32	Beltrami County Line	Hwy 89	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
207	122	32.011	CSAH	32	Beltrami County Line	Hwy 89	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
210	123	32.014	CSAH	32	Beltrami County Line	Hwy 89	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
213	124	32.017	CSAH	32	Beltrami County Line	Hwy 89	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
218	125	32.022	CSAH	32	Hwy 89	Irvine Ave NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
221	126	32.025	CSAH	32	Everts Rd NE	Hwy 72	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
227	127	33.006	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
229	128	33.008	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
235	129	36.001	CSAH	36	hwy 1	Shevlin Ave SW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
250	130	39.015	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
252	131	39.017	CSAH	39	Turtle River Lake Rd NE	Beighley Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
256	132	39.021	CSAH	39	Beighley Rd NE	Co Rd 47	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
259	133	4.003	CSAH	4	0.25 miles E of Sunnyside Rd SE	Forest Rd	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
263	134	43.003	CSAH	43	Hwy 71	0.57 miles SW of Main St	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
278	135	5.014	CSAH	5	Old Jefferson Dr NW	Aure Rd NW	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
284	136	5.022	CSAH	5	Aure Rd NW	Lumberjack Rd NW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
302	137	58.001	CSAH	58	Resv Hwy 18	Pioneer Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
307	138	7.001	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
324	139	8.007	CSAH	8	Swenson Rd SE	Beltrami County Line	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
325	140	8.008	CSAH	8	Swenson Rd SE	Beltrami County Line	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
341	141	305.004	CR	305	Hwy 71	Island View Dr NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
343	142	305.006	CR	305	Hwy 71	Island View Dr NE	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
354	143	515.001	CR	515	U.S. Rte 2	Hwy 89	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
317	61	7.011	CSAH	7	Beltrami Line Rd SW	Adams Ave NW	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
7	65	11.006	CSAH	11	Washington Ave S	15th St SW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
77	17	20.001	CSAH	20	Bemidji Rd NE	Big Bass Rd NE	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
93	18	21.002	CSAH	21	29th St NE	Glidden Rd NE	★★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
54	74	15.010	CSAH	15	Grange Rd NW	Great Divide Rd NW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
3	77	11.002	CSAH	11	Washington Ave S	15th St SW	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
226	78	33.005	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
9	55	11.008	CSAH	11	0.20 miles N of Florence Ct NW	U.S. Rte 2	★★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
5	144	11.004	CSAH	11	Washington Ave S	15th St SW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
57	145	15.013	CSAH	15	Grange Rd NW	Great Divide Rd NW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
78	146	20.002	CSAH	20	Bemidji Rd NE	Big Bass Rd NE	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
115	147	22.021	CSAH	22	Irvine Ave NW	0.10 miles N of US-71 Old	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
127	148	22.044	CSAH	22	Long Lake Dr NE	3.19 miles E of Long Lake Dr NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
129	149	22.046	CSAH	22	Long Lake Dr NE	3.19 miles E of Long Lake Dr NE	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
223	150	33.002	CSAH	33	Roosevelt Rd SE	Power Dam Rd NE	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
329	151	9.001	CSAH	9	U.S. Rte 2	Grange Rd NW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
342	152	305.005	CR	305	Hwy 71	Island View Dr NE	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
344	153	305.007	CR	305	Hwy 71	Island View Dr NE	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
345	154	305.008	CR	305	Hwy 71	Island View Dr NE	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
346	155	305.009	CR	305	Hwy 71	Island View Dr NE	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
348	156	305.012	CR	305	Hwy 71	Island View Dr NE	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
10	71	11.009	CSAH	11	0.20 miles N of Florence Ct NW	U.S. Rte 2	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project

Rural Curve Project List for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Curve

List No.	Project Page	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Total Stars	CZ Maintenance	Surface Treatment	Single T	Lighting	Curve Warning Signs	Chevrons/ Arrow Board	Delineators	Project Cost
4	157	11.003	CSAH	11	Washington Ave S	15th St SW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
6	158	11.005	CSAH	11	Washington Ave S	15th St SW	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
49	159	15.002	CSAH	15	Grange Rd NW	Great Divide Rd NW	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
50	160	15.003	CSAH	15	Grange Rd NW	Great Divide Rd NW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
294	161	52.001	CSAH	52	Hwy 71	Bemidji Ave N	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
332	162	9.004	CSAH	9	U.S. Rte 2	Grange Rd NW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
53	79	15.006	CSAH	15	Grange Rd NW	Great Divide Rd NW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
52	163	15.005	CSAH	15	Grange Rd NW	Great Divide Rd NW	★★★★	0	0	0	0	County Completed	0	0	No Project - Previously Completed Project
							Total Projects --	6	0	0	1	0	5	0	\$625,800

Rural Intersection Project List for Beltrami County - VEHICLE RELATED

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Total Stars	Roundabout	RCI	Single "T" Reconstruction	All Approach RICWS	Left/Right Turn Lane	LED Stop	Street Lights	Upgrade Signs & Markings	All-Way Stop Conversion	Cost
142	1	5.007	CSAH	5	Hwy 2 E	★★★★★★	0	0	0	0	County Completed	0	0	0	0	No Project - Previous Completed Project
34	2	2.007	CSAH	2	USTH 2	★★★★★★	0	County Nominated	0	0	County Completed	0	0	0	0	\$750,000
152	3	52.001	CSAH	52	USTH 71	★★★★★	0	1	0	0	0	0	0	0	0	\$750,000
3	4	11.030	CSAH	11	USTH 2	★★★★★	0	0	0	0	County Completed	0	County Completed	0	0	No Project - Previous Completed Project
167	5	9.001	CSAH	9	USTH 2	★★★★★	0	0	0	0	0	0	0	1	0	\$1,500
45	6	21.037	CSAH	21	USTH 71	★★★★★	0	0	0	0	0	1	1	0	0	\$17,500
193	7	501.002	CR	501	USTH 2	★★★★★	0	0	0	0	County Completed	0	County Completed	0	0	No Project - Previous Completed Project
137	8	47.009	CSAH	47	USTH 71	★★★★★	0	0	0	Project Cost High for Condition	0	0	0	0	0	No Projects Pursued
87	9	30.014	CSAH	30	USTH 71	★★★★★	0	0	0	0	0	0	0	0	County Not to Pursue	No Projects Pursued
44	10	21.035	CSAH	21	Island View Dr NE	★★★★★	0	0	0	0	1	1	1	1	0	\$269,000
154	11	59.003	CSAH	59	USTH 71	★★★★★	0	County Nominated	0	0	County Completed	0	County Completed	0	0	\$750,000
195	12	507.001	CR	507	USTH 2	★★★★	0	0	0	0	0	0	1	County Completed	0	\$10,000
49	13	22.044	CSAH	22	USTH 71	★★★★	0	0	0	1	0	0	0	0	0	\$150,000
151	14	50.008	CSAH	50	23rd St SE	★★★★	0	0	0	0	1	0	0	County Completed	0	\$250,000
194	15	503.005	CR	503	USTH 2	★★★★	0	0	0	0	County Completed	0	County Completed	0	0	No Project - Previous Completed Project
18	16	14.019	CSAH	14	USTH 2	★★★★	0	0	0	0	0	0	County Completed	0	0	No Project - Previous Completed Project
72	17	24.014	CSAH	24	MNTH 89	★★★★	0	0	0	0	0	0	County Completed	County Completed	0	No Project - Previous Completed Project
32	18	2.003	CSAH	2	Washington Ave SW	★★★★	0	0	0	0	County Completed	0	County Completed	0	0	No Project - Previous Completed Project
21	19	15.018	CSAH	15	4642	★★★★	County Nominated	0	0	0	County Not to Pursue	0	0	0	County Not to Pursue	\$1,000,000
88	20	30.018	CSAH	30	Main St S	★★★★	0	0	0	0	County Not to Pursue	0	0	1	0	\$1,500
38	21	20.040	CSAH	20	Scenic Hwy NE	★★★★	0	0	0	0	0	0	County Completed	0	0	No Project - Previous Completed Project
135	22	46.005	CSAH	46	Washington Ave SW	★★★★	0	0	0	0	County Completed	0	County Completed	0	0	No Project - Previous Completed Project
1	23	11.001	CSAH	11	Washington Ave SW	★★★★	0	0	0	0	County Completed	0	County Completed	0	0	No Project - Previous Completed Project
161	24	7.019	CSAH	7	Jefferson Ave SW	★★★★	0	0	0	0	0	0	0	County Completed	County Completed	No Project - Previous Completed Project
79	25	29.003	CSAH	29	USTH 71	★★★★	0	0	0	1	0	0	0	0	0	\$150,000
76	26	26.003	CSAH	26	Puposky Rd NW	★★★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
7	27	12.009	CSAH	12	Lake Ave NE	★★★★	0	0	0	0	0	0	0	1	0	\$1,500
26	28	15.056	CSAH	15	Great Divide Rd NW	★★★★	0	0	0	0	1	1	County Completed	County Completed	0	\$257,500
4	29	12.001	CSAH	12	1st St E	★★★★	0	0	0	0	County Not to Pursue	0	0	0	0	No Projects Pursued
197	30	515.001	CR	515	USTH 2	★★★★	0	0	0	0	County Completed	0	0	0	0	No Project - Previous Completed Project
93	31	31.005	CSAH	31	USTH 71	★★★★	0	0	0	0	County Completed	0	0	0	0	No Project - Previous Completed Project
128	32	43.004	CSAH	43	USTH 71	★★★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
23	33	15.043	CSAH	15	Island View Dr NW	★★★★	0	0	0	0	1	1	County Completed	County Completed	0	\$257,500
41	34	21.017	CSAH	21	Glidden Rd NE	★★★★	0	0	0	0	1	1	0	County Completed	0	\$257,500
54	35	23.005	CSAH	23	CR-203	★★★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
89	36	30.019	CSAH	30	1st St NE	★★★★	0	0	0	0	County Not to Pursue	0	0	1	0	\$1,500
111	37	36.010	CSAH	36	Clark Ave	★★★★	0	0	0	0	County Not to Pursue	0	0	0	0	No Projects Pursued
126	38	43.001	CSAH	43	USTH 71	★★★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
143	39	5.008	CSAH	5	2nd St NW	★★★★	0	0	0	0	0	0	County Completed	0	0	No Project - Previous Completed Project
181	40	301.006	CR	301	Great Divide Rd NW	★★★★	0	0	0	0	0	0	1	1	0	\$11,500
97	41	32.015	CSAH	32	MNTH 89	★★★	0	0	0	1	0	0	County Completed	0	0	\$150,000
19	42	14.021	CSAH	14	USTH 2	★★★	0	0	County Completed	0	County Completed	0	0	0	0	No Project - Previous Completed Project
185	43	305.004	CR	305	USTH 71	★★★	0	0	0	0	County Completed	0	0	0	0	No Project - Previous Completed Project
157	44	7.011	CSAH	7	CSAH 14	★★★	0	0	0	0	0	0	County Completed	County Completed	0	No Project - Previous Completed Project
20	45	15.017	CSAH	15	3316	★★★	County Nominated	0	0	0	County Not to Pursue	0	0	0	0	\$1,000,000
156	46	6.003	CSAH	6	Norton Ave	★★★	0	0	0	0	County Not to Pursue	0	0	0	County Not to Pursue	No Projects Pursued
155	47	6.001	CSAH	6	Adams Ave NW	★★★	County Nominated	0	0	0	1	0	0	County Completed	1	\$1,253,000
29	48	15.063	CSAH	15	LumberJack Rd	★★★	0	0	0	0	1	1	County Completed	1	0	\$259,000
6	49	12.005	CSAH	12	Mill St NE	★★★	0	0	0	0	0	0	0	1	0	\$1,500
102	50	32.030	CSAH	32	MNTH 72	★★★	0	0	0	0	0	0	1	1	0	\$11,500
5	51	12.004	CSAH	12	5th St NE	★★★	0	0	0	0	1	0	0	0	County Not to Pursue	\$250,000
2	52	11.005	CSAH	11	Monroe Ave SW	★★★	0	0	0	0	1	1	1	1	0	\$269,000
47	53	22.014	CSAH	22	MNTH 89	★★★	0	0	0	0	1	0	1	0	0	\$260,000
50	54	22.045	CSAH	22	USTH 71	★★★	0	0	0	0	County Not to Pursue	0	0	0	0	No Projects Pursued
136	55	47.001	CSAH	47	USTH 71	★★★	0	0	County Completed	0	County Completed	0	County Completed	0	0	No Project - Previous Completed Project
14	56	13.001	CSAH	13	Great Divide Rd NW	★★★	0	0	0	0	1	0	0	County Completed	0	\$250,000
15	57	13.002	CSAH	13	Polaris Rd NW	★★★	0	0	County Completed	0	0	0	0	0	0	No Project - Previous Completed Project
24	58	15.044	CSAH	15	Silver Lake Rd NW	★★★	0	0	0	0	1	0	0	0	0	\$250,000
25	59	15.055	CSAH	15	Lindgren Lake Rd NW	★★★	0	0	0	0	County Not to Pursue	0	0	0	0	No Projects Pursued
43	60	21.028	CSAH	21	Wildwood Rd NE	★★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
53	61	22.063	CSAH	22	Scenic Hwy NE	★★★	0	0	County Completed	0	0	0	0	0	0	No Project - Previous Completed Project
64	62	23.035	CSAH	23	Battle River Rd NE	★★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
74	63	26.001	CSAH	26	MNTH 89	★★★	0	0	0	0	County Not to Pursue	0	0	0	0	No Projects Pursued
77	64	27.004	CSAH	27	Lamon Rd NE	★★★	0	0	0	0	0	0	1	1	0	\$11,500
118	65	39.029	CSAH	39	Hines Rd NE	★★★	0	0	County Completed	0	0	0	0	0	0	No Project - Previous Completed Project
139	66	47.015	CSAH	47	MNTH 72	★★★	0	0	0	0	0	0	County Completed	0	0	No Project - Previous Completed Project
145	67	5.014	CSAH	5	Grange Rd NW	★★★	0	0	0	0	1	0	1	1	0	\$261,500
148	68	5.028	CSAH	5	Teddy Rd NW	★★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
150	69	50.006	CSAH	50	Grant Ave SE	★★★	0	0	0	0	1	0	0	0	0	\$250,000

Rural Intersection Project List for Beltrami County - VEHICLE RELATED

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Total Stars	Roundabout	RCI	Single "T" Reconstruction	All Approach RICWS	Left/Right Turn Lane	LED Stop	Street Lights	Upgrade Signs & Markings	All-Way Stop Conversion	Cost	
160	70	7.017	CSAH	7	1058	★★★	0	0	County Completed	0	County Completed	0	County Completed	0	0	No Project - Previous Completed Project	
168	71	9.018	CSAH	9	Grange Rd NW	★★★	0	0	0	0	1	0	County Completed	County Completed	0	\$250,000	
178	72	111.001	CR	111	MNTH 72	★★★	0	0	County Completed	0	0	0	0	0	0	No Project - Previous Completed Project	
179	73	112.001	CR	112	MNTH 72	★★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met	
199	74	600.002	CR	600	MNTH 89	★★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met	
Total Projects --							3		3	0	3	15	7	9	12	1	\$9,613,500

Urban Segment Project List for Beltrami County

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Segment Start Description	Segment End Description	Length [miles]	Total Stars	Divided Roadway	Access Management	Road Diet Convert to 3-Lane	Road Diet Convert to 5-Lane	Dynamic Speed Sign	Sidewalk	Cost
12	1	21.001	CSAH	21	Paul Bunyan Dr NW	24th St NW	0.07	★★	0	0	1	0	0	0	\$3,373
5	2	12.001	CSAH	12	1st St E	Power Dam Rd NE	1.58	★★	0	0	Project Not Feasible	0	0	1	\$126,077
7	3	15.001	CSAH	15	30h St NW	Anne St NW	0.50	★★	0	0	1	0	0	1	\$64,559
11	4	19.001	CSAH	19	Power Dam Rd NE	Elliot Rd NE	1.06	★★	0	0	0	0	0	0	No Project - Criteria Not Met
15	5	52.001	CSAH	52	Hwy 71	Bemidji Ave N	1.49	★★	0	0	1	0	0	1	\$191,308
18	6	7.002	CSAH	7	Adams Ave NW	Jefferson Ave NW	0.96	★★	0	0	County Completed	0	0	1	\$76,458
19	7	8.001	CSAH	8	Paul Bunyan Dr SE	Lake Ave SE	0.83	★★	0	0	Project Not Feasible	0	0	0	No Project Pursued
22	8	402.001	CR	402	miles W of Jackson Ave	Jackson Ave SW	0.31	★★	0	0	0	0	0	0	No Project - Criteria Not Met
24	9	404.002	CR	404	miles E of Washington	Paul Bunyan Rd SE	0.63	★★	0	0	0	0	0	0	No Project - Criteria Not Met
25	10	406.001	CR	406	Lake Ave NE	0.30 miles E of Lake Ave NE	0.30	★★	0	0	0	0	0	0	No Project - Criteria Not Met
2	11	11.002	CSAH	11	15th St SW	Division St W	1.01	★	0	0	0	0	0	0	No Project - Criteria Not Met
3	12	11.003	CSAH	11	Divisino St W	20 miles N of Florence Ct N	2.01	★	0	0	0	0	0	0	No Project - Criteria Not Met
4	13	11.004	CSAH	11	0 miles N of Florence Ct	U.S. Rte 2	0.54	★	0	0	0	0	0	0	No Project - Criteria Not Met
6	14	12.002	CSAH	12	Lake Ave NE	1.67 miles E of Lake Ave NE	1.67	★	0	0	0	0	0	0	No Project - Criteria Not Met
8	15	15.002	CSAH	15	Anne St NW	Grange Rd NW	5.51	★	0	0	0	0	0	0	No Project - Criteria Not Met
9	16	17.001	CSAH	17	.09 miles N of 29th St N	Bemidji Ave N	0.89	★	0	0	0	0	0	0	No Project - Criteria Not Met
10	17	17.002	CSAH	17	Annebelle St NE	Bemidji Ave N	1.35	★	0	0	0	0	0	0	No Project - Criteria Not Met
13	18	21.002	CSAH	21	29th St NE	Glidden Rd NE	3.13	★	0	0	0	0	0	0	No Project - Criteria Not Met
14	19	50.001	CSAH	50	Grant Ave S	Miles Ave SE	0.13	★	0	0	0	0	0	0	No Project - Criteria Not Met
17	20	6.002	CSAH	6	Middle School Ave NW	Norton Ave NW	0.87	★	0	0	0	0	0	0	No Project - Criteria Not Met
20	21	303.001	CR	303	Shorecrest Rd NE	Bemidji Ave N	0.36	★	0	0	0	0	0	0	No Project - Criteria Not Met
21	22	305.001	CR	305	Bemidji Rd NE	Hwy 71	0.70	★	0	0	0	0	0	0	No Project - Criteria Not Met
23	23	404.001	CR	404	Washington Ave S	8 miles E of Washington Av	0.38	★	0	0	0	0	0	0	No Project - Criteria Not Met
26	24	406.002	CR	406	30 miles E of Lake Ave N	Tyler Ave NE	2.92	★	0	0	0	0	0	0	No Project - Criteria Not Met
1	25	11.001	CSAH	11	Washington Ave S	15th St SW	3.05		0	0	0	0	0	0	No Project - Criteria Not Met
16	26	6.001	CSAH	6	Adams Ave NW	Middle School Ave NW	0.73		0	0	0	0	0	0	No Project - Criteria Not Met
							<u>32.97</u>	Total Projects --	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>\$461,774</u>

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Urban Intersection Project List for Beltrami County - VEHICLE RELATED

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Star Ranking	Roundabout	Confirmation Lights	Signalized RCI	RCI	Upgrade Signal Hardware	Intersection Lighting	All-Way Stop Conversion	Upgrade Signs & Markings	Cost
14	1	50.001	CSAH	50	678	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
11	2	21.001	CSAH	21	Paul Bunyan Dr NW	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
						<u>Total Projects --</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>\$3,000</u>

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Urban Intersection Projects for Beltrami County - PEDESTRIAN/BIKE RELATED

CRSP2 ID Example: 1.001: 1= Route Number, 001 = First Segment

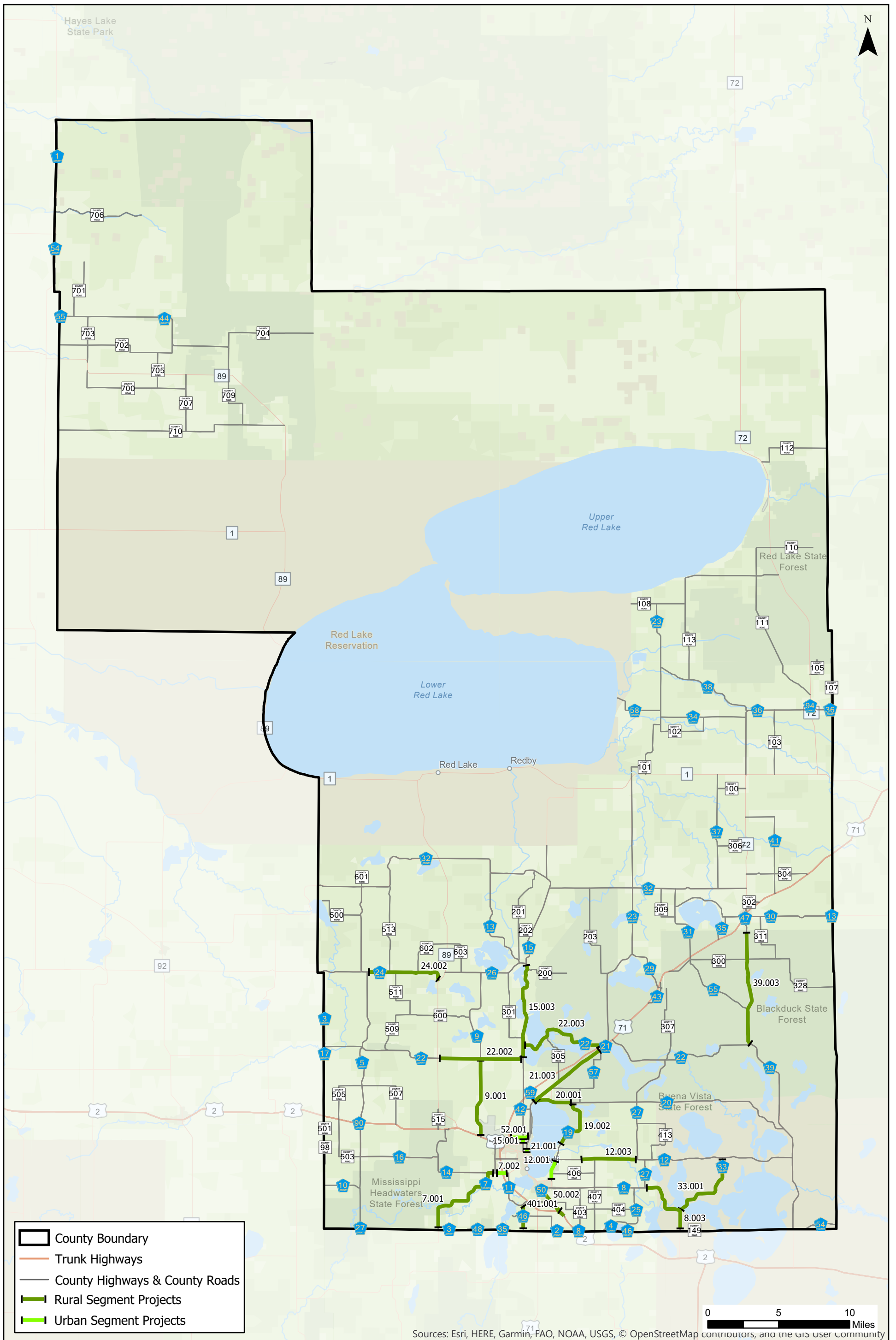
List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Total Stars	HAWK	Median Refuge Island	Curb Extension	Countdown Timers	Leading Pedestrian Interval	RRFB w/ Refuge Island	RRFB	Upgrade Signal Head Hardware	Update Signal to Meet MUTCD Recommendation	Mini Roundabout	Upgrade Signs & Markings	Cost
14	1	50.001	CSAH	50	678	★★★★★	0	0	0	1	0	0	0	0	1	0	0	\$107,000
11	2	21.001	CSAH	21	Paul Bunyan Dr NW	★★★★★	0	0	0	0	1	0	0	0	1	0	0	\$125,000
8	3	15.005	CSAH	15	Anne St NW	★★★★	0	0	4	1	0	0	0	1	0	0	0	\$52,000
Total Projects --							0	0	4	2	1	0	0	1	2	0	0	\$284,000

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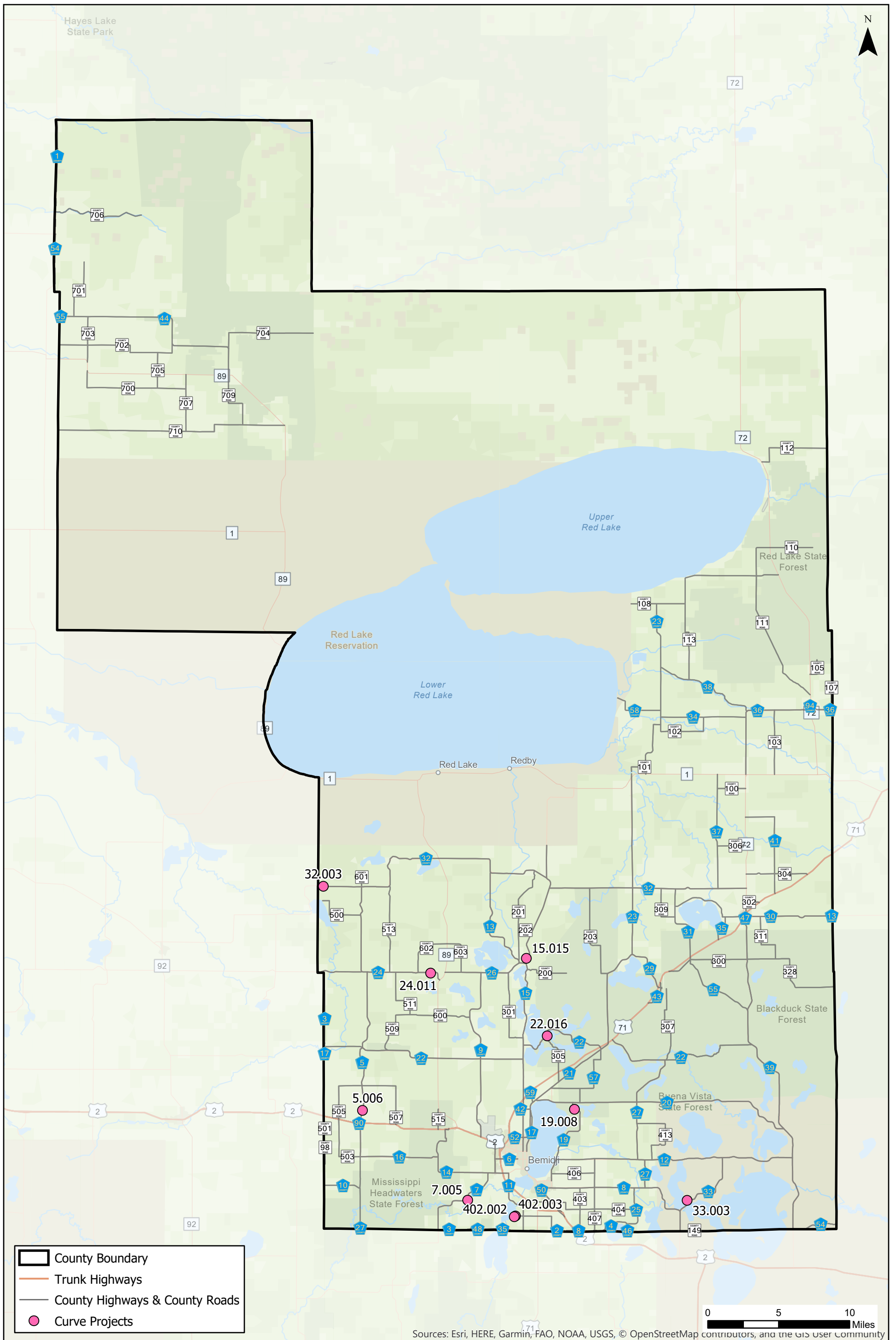
Appendix G – Recommended Project Maps

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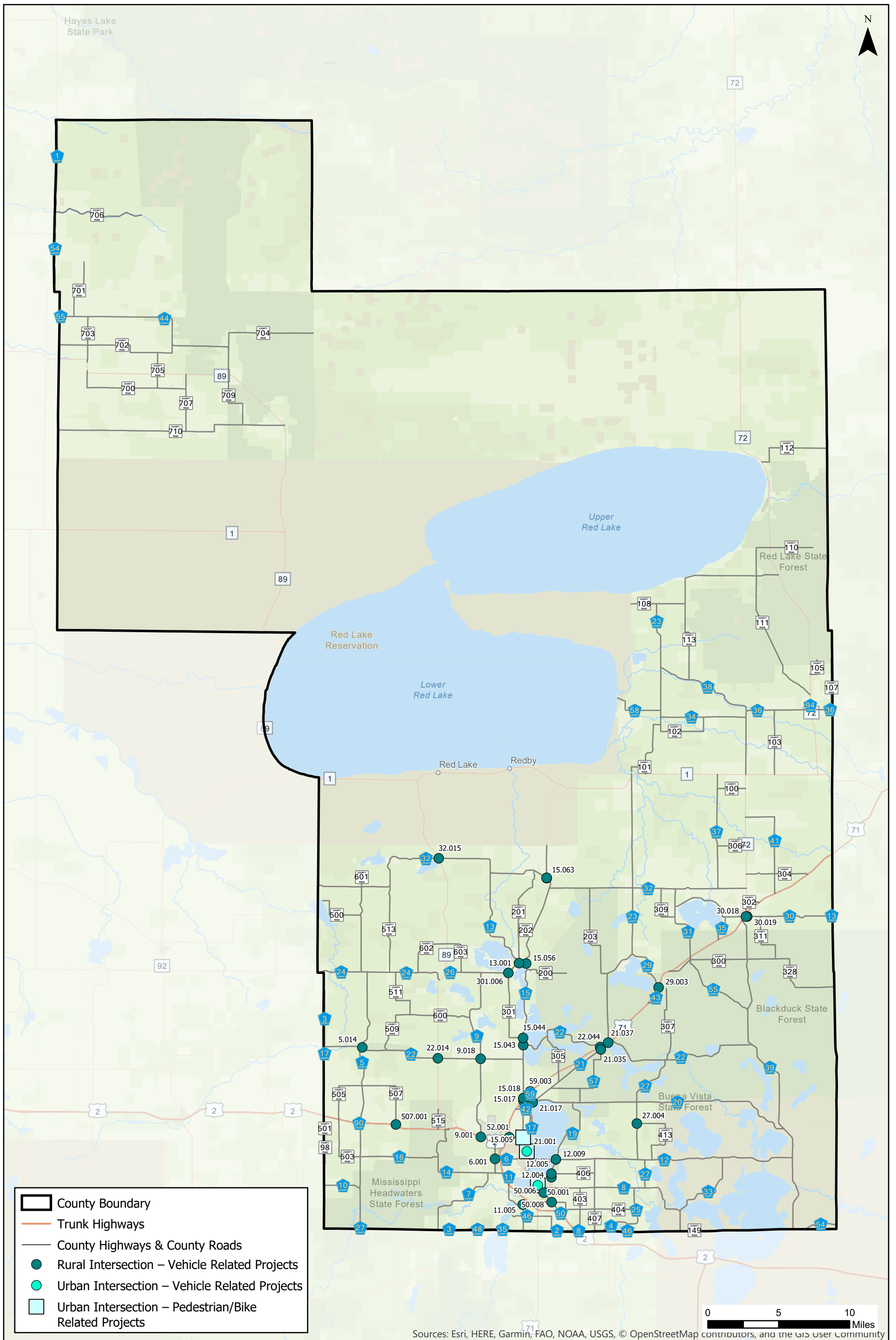
Beltrami County – Segment Projects

Created on 3/12/2020



Beltrami County – Curve Projects

Created on 3/12/2020



Beltrami County – Intersection Projects

Created on 3/12/2020

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Appendix H – HSIP Submission Forms

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Rural Segment Project on CSAH 7 from Beltrami Line Rd SW to Adams Ave NW

Roadway Information

Segment Start: Beltrami Line Rd SW
 Segment End: Adams Ave NW
 Area Type: Rural
 County: Beltrami
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 7
 Facility Type: 2-Lane
 Segment Length (mile): 7.10
 Traffic Volume (vpd): 1,350
 Lane Width (ft): 13
 Shoulder Type: Paved
 Shoulder Width (ft): 5.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	26	4	11	2
Density (per mile per yr):	0.7	0.1	0.3	0.1
Rate (per MVM):	1.5	0.2	0.6	11.4

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	1,350	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	1,350	xx ≥ 1,500	
Curve Density (cur per mile):	1.55	xx ≥ 1	★
Access Density (access per mile):	12.54	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S or 3	
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Buffer Between Opposing Lanes:	Proactive	\$150,000	per mile	0.00	\$0
Clear Zone Maintenance:	Proactive	\$50,000	per mile	0.00	\$0
6" Wet Reflective in Groove:	Proactive	\$5,000	per mile	0.00	\$0
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	7.10	\$41,522
Edgeline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	0.00	\$0
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$41,522

Systemic Project

Notes -

Project Page #: 20
 Segment ID: 7.001
 Date: 4/3/2020

Urban Segment Project on 7 from Adams Ave NW to Jefferson Ave NW

Roadway Information

Segment Start: Adams Ave NW
 Segment End: Jefferson Ave NW
 Area Type: Suburban
 County: Beltrami
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 7
 Facility Type: 2-Lane
 Segment Length (mile): 0.96
 Traffic Volume (vpd): 4,750
 Lane Width (ft): 12
 Shoulder Type: Curb & Gutter
 Shoulder Width (ft): 12.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	17	0	1	0
Density (per mile per yr):	3.6	0.0	0.2	0.0
Rate (per MVM):	2.1	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	45	35 ≤ xx < 45	
Traffic Volume (vpd):	4,750	xx ≥ 7,500	
Access Density (access per mile):	35.57	xx ≥ 20	★
Context Zone:	Commercial	Commercial, Mixed Use	★
Edgeline Striping:	Present	None	
Lane Width (ft):	12	-	
Parking:	Both Sides	-	
Cross Section and Design:	2-Lane Undivided	Multi-lane (both Divided and Undivided)	
Edge Risk:	1	-	
Shoulder Width (ft):	6.0	-	
Total Stars			★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Divided Roadway:	Proactive	\$5,000,000	per mile	0.00	\$0
Access Management:	Proactive	\$360,000	per mile	0.00	\$0
Road Diet Convert to 3-Lane:	Proactive	\$48,000	per mile	0.00	\$0
Road Diet Convert to 5-Lane:	Proactive	\$54,000	per mile	0.00	\$0
Dynamic Speed Sign:	Proactive	\$30,000	per segment	0.00	\$0
Sidewalk:	Proactive	\$80,000	per mile	0.96	\$76,458
Total Estimated Project Cost:					\$76,458

Systemic Project

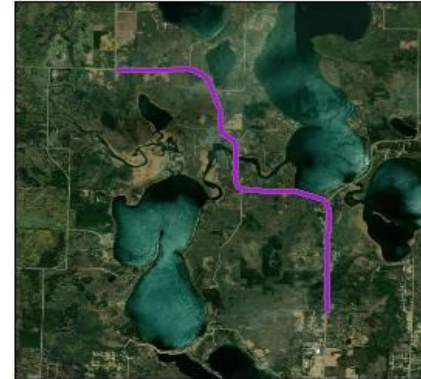
Notes -

Project Page #: 6
 Segment ID: 7.002
 Date: 4/3/2020

Rural Segment Project on CSAH 8 from Swenson Rd SE to Beltrami County Line

Roadway Information

Segment Start: Swenson Rd SE
 Segment End: Beltrami County Line
 Area Type: Rural
 County: Beltrami
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 8
 Facility Type: 2-Lane
 Segment Length (mile): 4.97
 Traffic Volume (vpd): 1,925
 Lane Width (ft): 13
 Shoulder Type: Paved
 Shoulder Width (ft): 8.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	16	1	7	0
Density (per mile per yr):	0.6	0.0	0.3	0.0
Rate (per MVM):	0.9	0.1	0.4	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	1,925	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	1,925	xx ≥ 1,500	★
Curve Density (cur per mile):	1.61	xx ≥ 1	★
Access Density (access per mile):	15.49	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S or 3	
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Buffer Between Opposing Lanes:	Proactive	\$150,000	per mile	0.00	\$0
Clear Zone Maintenance:	Proactive	\$50,000	per mile	0.00	\$0
6" Wet Reflective in Groove:	Proactive	\$5,000	per mile	4.97	\$24,851
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Edgeline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	0.00	\$0
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$24,851

Systemic Project

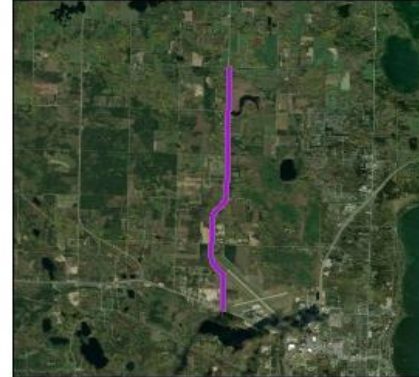
Notes -

Project Page #: 3
 Segment ID: 8.003
 Date: 4/3/2020

Rural Segment Project on CSAH 9 from U.S. Rte 2 to Grange Rd NW

Roadway Information

Segment Start: U.S. Rte 2
 Segment End: Grange Rd NW
 Area Type: Rural
 County: Beltrami
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 9
 Facility Type: 2-Lane
 Segment Length (mile): 5.65
 Traffic Volume (vpd): 2,150
 Lane Width (ft): 12
 Shoulder Type: Paved
 Shoulder Width (ft): 5.5



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	11	0	3	0
Density (per mile per yr):	0.4	0.0	0.1	0.0
Rate (per MVM):	0.5	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	2,150	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	2,150	xx ≥ 1,500	★
Curve Density (cur per mile):	0.71	xx ≥ 1	
Access Density (access per mile):	15.21	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S or 3	
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Buffer Between Opposing Lanes:	Proactive	\$150,000	per mile	5.65	\$847,931
Clear Zone Maintenance:	Proactive	\$50,000	per mile	0.00	\$0
6" Wet Reflective in Groove:	Proactive	\$5,000	per mile	0.00	\$0
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Edgeline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	0.00	\$0
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$847,931

Systemic Project

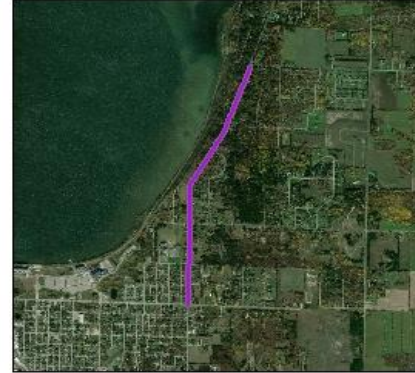
Notes -

Project Page #: 22
 Segment ID: 9.001
 Date: 4/3/2020

Urban Segment Project on 12 from 1st St E to Power Dam Rd NE

Roadway Information

Segment Start: 1st St E
 Segment End: Power Dam Rd NE
 Area Type: Suburban
 County: Beltrami
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 12
 Facility Type: 2-Lane
 Segment Length (mile): 1.58
 Traffic Volume (vpd): 5,060
 Lane Width (ft): 12
 Shoulder Type: Curb & Gutter
 Shoulder Width (ft): 12.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	19	1	5	0
Density (per mile per yr):	2.4	0.1	0.6	0.0
Rate (per MVM):	1.3	0.1	0.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	40	35 ≤ xx < 45	★
Traffic Volume (vpd):	5,060	xx ≥ 7,500	
Access Density (access per mile):	40.61	xx ≥ 20	★
Context Zone:	Residential	Commercial, Mixed Use	
Edgeline Striping:	Present	None	
Lane Width (ft):	12	-	
Parking:	Both Sides	-	
Cross Section and Design:	2-Lane Undivided	Multi-lane (both Divided and Undivided)	
Edge Risk:	1	-	
Shoulder Width (ft):	6.0	-	
Total Stars			★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Divided Roadway:	Proactive	\$5,000,000	per mile	0.00	\$0
Access Management:	Proactive	\$360,000	per mile	0.00	\$0
Road Diet Convert to 3-Lane:	Proactive	\$48,000	per mile	0.00	\$0
Road Diet Convert to 5-Lane:	Proactive	\$54,000	per mile	0.00	\$0
Dynamic Speed Sign:	Proactive	\$30,000	per segment	0.00	\$0
Sidewalk:	Proactive	\$80,000	per mile	1.58	\$126,077
Total Estimated Project Cost:					<u>\$126,077</u>

Systemic Project

Notes -

Project Page #: 2
 Segment ID: 12.001
 Date: 4/3/2020

Rural Segment Project on CSAH 12 from 1.67 miles E of Lake Ave NE to Parkers Lake Rd NE

Roadway Information

Segment Start: 1.67 miles E of Lake Ave NE
 Segment End: Parkers Lake Rd NE
 Area Type: Rural
 County: Beltrami
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 12
 Facility Type: 2-Lane
 Segment Length (mile): 4.09
 Traffic Volume (vpd): 1,750
 Lane Width (ft): 13
 Shoulder Type: Composite
 Shoulder Width (ft): 3.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	6	0	6	0
Density (per mile per yr):	0.3	0.0	0.3	0.0
Rate (per MVM):	0.5	0.0	0.5	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	1,750	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	1,750	xx ≥ 1,500	★
Curve Density (cur per mile):	0.49	xx ≥ 1	
Access Density (access per mile):	13.44	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S or 3	
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Buffer Between Opposing Lanes:	Proactive	\$150,000	per mile	0.00	\$0
Clear Zone Maintenance:	Proactive	\$50,000	per mile	0.00	\$0
6" Wet Reflective in Groove:	Proactive	\$5,000	per mile	4.09	\$20,464
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	4.09	\$23,943
Edgeline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	0.00	\$0
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$44,407

Systemic Project

Notes -

Project Page #: 4
 Segment ID: 12.003
 Date: 4/3/2020

Urban Segment Project on 15 from 30h St NW to Anne St NW

Roadway Information

Segment Start: 30h St NW
 Segment End: Anne St NW
 Area Type: Urban
 County: Beltrami
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 15
 Facility Type: 2-Lane
 Segment Length (mile): 0.50
 Traffic Volume (vpd): 7,200
 Lane Width (ft): 13
 Shoulder Type: Composite
 Shoulder Width (ft): 12.5



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	4	0	0	0
Density (per mile per yr):	1.6	0.0	0.0	0.0
Rate (per MVM):	0.6	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	45	35 ≤ xx < 45	
Traffic Volume (vpd):	7,200	xx ≥ 7,500	
Access Density (access per mile):	33.71	xx ≥ 20	★
Context Zone:	Commercial	Commercial, Mixed Use	★
Edgeline Striping:	Present	None	
Lane Width (ft):	12.5	-	
Parking:	None	-	
Cross Section and Design:	2-Lane Undivided	Multi-lane (both Divided and Undivided)	
Edge Risk:	1	-	
Shoulder Width (ft):	9.0	-	
Total Stars			★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Divided Roadway:	Proactive	\$5,000,000	per mile	0.00	\$0
Access Management:	Proactive	\$360,000	per mile	0.00	\$0
Road Diet Convert to 3-Lane:	Proactive	\$48,000	per mile	0.50	\$24,209
Road Diet Convert to 5-Lane:	Proactive	\$54,000	per mile	0.00	\$0
Dynamic Speed Sign:	Proactive	\$30,000	per segment	0.00	\$0
Sidewalk:	Proactive	\$80,000	per mile	0.50	\$40,349
Total Estimated Project Cost:					\$64,559

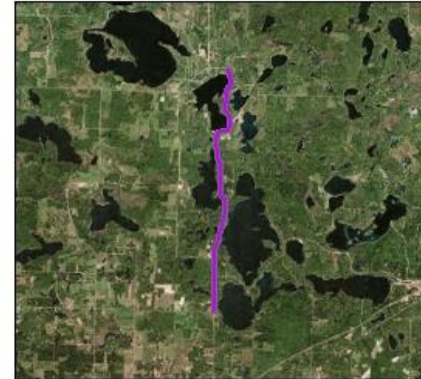
Systemic Project

Notes -

Rural Segment Project on CSAH 15 from Grange Rd NW to Great Divide Rd NW

Roadway Information

Segment Start: Grange Rd NW
 Segment End: Great Divide Rd NW
 Area Type: Rural
 County: Beltrami
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 15
 Facility Type: 2-Lane
 Segment Length (mile): 7.12
 Traffic Volume (vpd): 2,165
 Lane Width (ft): 13
 Shoulder Type: Composite
 Shoulder Width (ft): 10.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	17	0	6	0
Density (per mile per yr):	0.5	0.0	0.2	0.0
Rate (per MVM):	0.6	0.0	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	2,165	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	2,165	xx ≥ 1,500	★
Curve Density (cur per mile):	1.83	xx ≥ 1	★
Access Density (access per mile):	14.47	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S or 3	
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Buffer Between Opposing Lanes:	Proactive	\$150,000	per mile	7.12	\$1,067,833
Clear Zone Maintenance:	Proactive	\$50,000	per mile	0.00	\$0
6" Wet Reflective in Groove:	Proactive	\$5,000	per mile	0.00	\$0
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Edgeline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	0.00	\$0
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0

Total Estimated Project Cost: \$1,067,833

Systemic Project

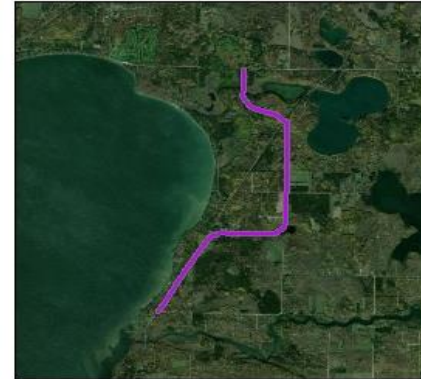
Notes -

Project Page #: 2
 Segment ID: 15.003
 Date: 4/3/2020

Rural Segment Project on CSAH 19 from Elliot Rd NE to 0.09 miles N of Antler Dr NE

Roadway Information

Segment Start: Elliot Rd NE
 Segment End: 0.09 miles N of Antler Dr NE
 Area Type: Rural
 County: Beltrami
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 19
 Facility Type: 2-Lane
 Segment Length (mile): 4.18
 Traffic Volume (vpd): 1,190
 Lane Width (ft): 13
 Shoulder Type: Paved
 Shoulder Width (ft): 5.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	10	2	8	2
Density (per mile per yr):	0.5	0.1	0.4	0.1
Rate (per MVM):	1.1	0.2	0.9	22.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	50	55 ≤ xx ≤ 99	
ADT-RS (Rural Single-veh) (vpd):	1,190	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	1,190	xx ≥ 1,500	
Curve Density (cur per mile):	1.67	xx ≥ 1	★
Access Density (access per mile):	10.52	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S or 3	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Buffer Between Opposing Lanes:	Proactive	\$150,000	per mile	0.00	\$0
Clear Zone Maintenance:	Proactive	\$50,000	per mile	0.00	\$0
6" Wet Reflective in Groove:	Proactive	\$5,000	per mile	4.18	\$20,916
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	4.18	\$24,471
Edgeline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	0.00	\$0
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$45,387

Systemic Project

Notes -

Project Page #: 33
 Segment ID: 19.002
 Date: 4/3/2020

Rural Segment Project on CSAH 20 from Bemidji Rd NE to Big Bass Rd NE

Roadway Information

Segment Start: Bemidji Rd NE
 Segment End: Big Bass Rd NE
 Area Type: Rural
 County: Beltrami
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 20
 Facility Type: 2-Lane
 Segment Length (mile): 2.64
 Traffic Volume (vpd): 2,745
 Lane Width (ft): 13
 Shoulder Type: Gravel
 Shoulder Width (ft): 2.5



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	5	1	4	1
Density (per mile per yr):	0.4	0.1	0.3	0.1
Rate (per MVM):	0.4	0.1	0.3	7.6

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	2,745	500 ≤ xx ≤ 2,500	
ADT-RM (Rural Multi-veh) (vpd):	2,745	xx ≥ 1,500	★
Curve Density (cur per mile):	1.14	xx ≥ 1	★
Access Density (access per mile):	24.61	7 ≤ xx ≤ 18	
Outside Edge Risk:	2S	2S or 3	★
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Buffer Between Opposing Lanes:	Proactive	\$150,000	per mile	0.00	\$0
Clear Zone Maintenance:	Proactive	\$50,000	per mile	2.64	\$132,079
6" Wet Reflective in Groove:	Proactive	\$5,000	per mile	0.00	\$0
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Edgeline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	0.00	\$0
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$132,079

Systemic Project

Notes -

Project Page #: 6
 Segment ID: 20.001
 Date: 4/3/2020

Urban Segment Project on 21 from Paul Bunyan Dr NW to 24th St NW

Roadway Information

Segment Start: Paul Bunyan Dr NW
 Segment End: 24th St NW
 Area Type: Urban
 County: Beltrami
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 21
 Facility Type: 2-Lane
 Segment Length (mile): 0.07
 Traffic Volume (vpd): 8,240
 Lane Width (ft): 12
 Shoulder Type: Curb & Gutter
 Shoulder Width (ft): 12.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	2	0	1	0
Density (per mile per yr):	5.7	0.0	2.8	0.0
Rate (per MVM):	1.9	0.0	0.9	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	30	35 ≤ xx < 45	
Traffic Volume (vpd):	8,240	xx ≥ 7,500	★
Access Density (access per mile):	128.09	xx ≥ 20	★
Context Zone:	Residential	Commercial, Mixed Use	
Edgeline Striping:	Present	None	
Lane Width (ft):	12	-	
Parking:	Both Sides	-	
Cross Section and Design:	2-Lane Undivided	Multi-lane (both Divided and Undivided)	
Edge Risk:	1	-	
Shoulder Width (ft):	12.0	-	
Total Stars			★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Divided Roadway:	Proactive	\$5,000,000	per mile	0.00	\$0
Access Management:	Proactive	\$360,000	per mile	0.00	\$0
Road Diet Convert to 3-Lane:	Proactive	\$48,000	per mile	0.07	\$3,373
Road Diet Convert to 5-Lane:	Proactive	\$54,000	per mile	0.00	\$0
Dynamic Speed Sign:	Proactive	\$30,000	per segment	0.00	\$0
Sidewalk:	Proactive	\$80,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$3,373

Systemic Project

Notes -

Project Page #: 1
 Segment ID: 21.001
 Date: 4/3/2020

Rural Segment Project on CSAH 21 from Glidden Rd NE to Island View Dr NE

Roadway Information

Segment Start: Glidden Rd NE
 Segment End: Island View Dr NE
 Area Type: Rural
 County: Beltrami
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 21
 Facility Type: 2-Lane
 Segment Length (mile): 6.08
 Traffic Volume (vpd): 1,540
 Lane Width (ft): 13
 Shoulder Type: Paved
 Shoulder Width (ft): 7.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	16	1	7	1
Density (per mile per yr):	0.5	0.0	0.2	0.0
Rate (per MVM):	0.9	0.1	0.4	5.8

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	1,540	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	1,540	xx ≥ 1,500	★
Curve Density (cur per mile):	0.00	xx ≥ 1	
Access Density (access per mile):	15.62	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S or 3	
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Buffer Between Opposing Lanes:	Proactive	\$150,000	per mile	0.00	\$0
Clear Zone Maintenance:	Proactive	\$50,000	per mile	0.00	\$0
6" Wet Reflective in Groove:	Proactive	\$5,000	per mile	6.08	\$30,416
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	6.08	\$35,587
Edgeline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	0.00	\$0
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$66,003

Systemic Project

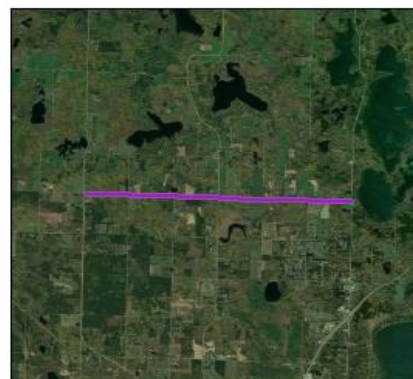
Notes -

Project Page #: 8
 Segment ID: 21.003
 Date: 4/3/2020

Rural Segment Project on CSAH 22 from Hwy 89 to Irvine Ave NW

Roadway Information

Segment Start: Hwy 89
 Segment End: Irvine Ave NW
 Area Type: Rural
 County: Beltrami
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 22
 Facility Type: 2-Lane
 Segment Length (mile): 6.00
 Traffic Volume (vpd): 1,150
 Lane Width (ft): 12
 Shoulder Type: Gravel
 Shoulder Width (ft): 5.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	7	1	4	0
Density (per mile per yr):	0.2	0.0	0.1	0.0
Rate (per MVM):	0.6	0.1	0.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	1,150	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	1,150	xx ≥ 1,500	
Curve Density (cur per mile):	0.00	xx ≥ 1	
Access Density (access per mile):	15.83	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S or 3	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Buffer Between Opposing Lanes:	Proactive	\$150,000	per mile	0.00	\$0
Clear Zone Maintenance:	Proactive	\$50,000	per mile	0.00	\$0
6" Wet Reflective in Groove:	Proactive	\$5,000	per mile	0.00	\$0
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	6.00	\$35,111
Edgeline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	0.00	\$0
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$35,111

Systemic Project

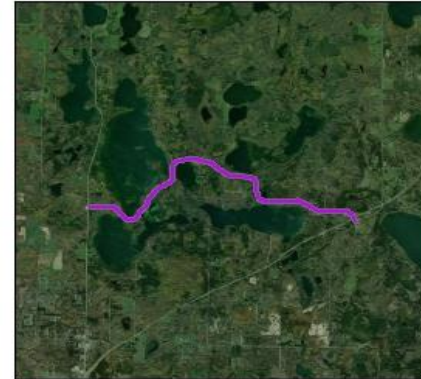
Notes -

Project Page #: 35
 Segment ID: 22.002
 Date: 4/3/2020

Rural Segment Project on CSAH 22 from Irvine Ave NW to 0.10 miles N of US-71 Old

Roadway Information

Segment Start: Irvine Ave NW
 Segment End: 0.10 miles N of US-71 Old
 Area Type: Rural
 County: Beltrami
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 22
 Facility Type: 2-Lane
 Segment Length (mile): 7.05
 Traffic Volume (vpd): 555
 Lane Width (ft): 12
 Shoulder Type: Gravel
 Shoulder Width (ft): 4.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	10	0	4	0
Density (per mile per yr):	0.3	0.0	0.1	0.0
Rate (per MVM):	1.4	0.0	0.6	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	555	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	555	xx ≥ 1,500	★
Curve Density (cur per mile):	2.70	xx ≥ 1	★
Access Density (access per mile):	17.73	7 ≤ xx ≤ 18	★
Outside Edge Risk:	2C	2S or 3	
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Buffer Between Opposing Lanes:	Proactive	\$150,000	per mile	0.00	\$0
Clear Zone Maintenance:	Proactive	\$50,000	per mile	0.00	\$0
6" Wet Reflective in Groove:	Proactive	\$5,000	per mile	0.00	\$0
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Edgeline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	0.00	\$0
Enhanced Edgeline:	Proactive	\$2,000	per mile	7.05	\$14,096
Total Estimated Project Cost:					\$14,096

Systemic Project

Notes -

Project Page #: 9
 Segment ID: 22.003
 Date: 4/3/2020

Rural Segment Project on CSAH 24 from Centerline Rd NW to Hwy 89

Roadway Information

Segment Start: Centerline Rd NW
 Segment End: Hwy 89
 Area Type: Rural
 County: Beltrami
 Context Zone: Natural
 Segment Route System: CSAH
 Segment Route No: 24
 Facility Type: 2-Lane
 Segment Length (mile): 5.52
 Traffic Volume (vpd): 500
 Lane Width (ft): 12
 Shoulder Type: Gravel
 Shoulder Width (ft): 3.5



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	4	0	2	0
Density (per mile per yr):	0.1	0.0	0.1	0.0
Rate (per MVM):	0.8	0.0	0.4	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	500	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	500	xx ≥ 1,500	
Curve Density (cur per mile):	1.45	xx ≥ 1	★
Access Density (access per mile):	8.16	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S or 3	
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Buffer Between Opposing Lanes:	Proactive	\$150,000	per mile	0.00	\$0
Clear Zone Maintenance:	Proactive	\$50,000	per mile	0.00	\$0
6" Wet Reflective in Groove:	Proactive	\$5,000	per mile	0.00	\$0
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Edgeline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	0.00	\$0
Enhanced Edgeline:	Proactive	\$2,000	per mile	5.52	\$11,034
Total Estimated Project Cost:					\$11,034

Systemic Project

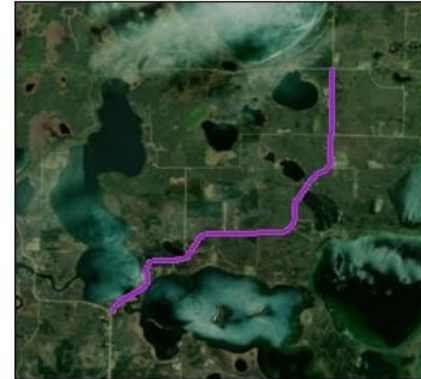
Notes -

Project Page #: 11
 Segment ID: 24.002
 Date: 4/3/2020

Rural Segment Project on CSAH 33 from Roosevelt Rd SE to Power Dam Rd NE

Roadway Information

Segment Start: Roosevelt Rd SE
 Segment End: Power Dam Rd NE
 Area Type: Rural
 County: Beltrami
 Context Zone: Natural
 Segment Route System: CSAH
 Segment Route No: 33
 Facility Type: 2-Lane
 Segment Length (mile): 5.80
 Traffic Volume (vpd): 1,055
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): 4.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	5	0	4	0
Density (per mile per yr):	0.2	0.0	0.1	0.0
Rate (per MVM):	0.4	0.0	0.4	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	1,055	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	1,055	xx ≥ 1,500	
Curve Density (cur per mile):	1.55	xx ≥ 1	★
Access Density (access per mile):	10.00	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S or 3	
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Buffer Between Opposing Lanes:	Proactive	\$150,000	per mile	0.00	\$0
Clear Zone Maintenance:	Proactive	\$50,000	per mile	0.00	\$0
6" Wet Reflective in Groove:	Proactive	\$5,000	per mile	0.00	\$0
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	5.80	\$33,914
Edgeline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	0.00	\$0
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$33,914

Systemic Project

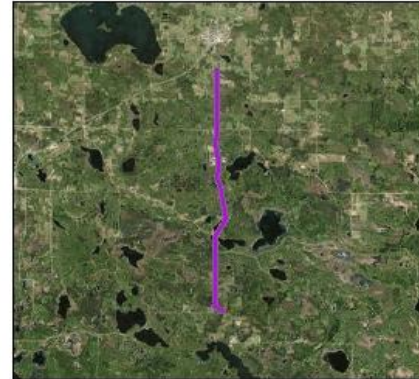
Notes -

Project Page #: 14
 Segment ID: 33.001
 Date: 4/3/2020

Rural Segment Project on CSAH 39 from Turtle River Lake Rd NE to Beighley Rd NE

Roadway Information

Segment Start: Turtle River Lake Rd NE
 Segment End: Beighley Rd NE
 Area Type: Rural
 County: Beltrami
 Context Zone: Natural
 Segment Route System: CSAH
 Segment Route No: 39
 Facility Type: 2-Lane
 Segment Length (mile): 8.24
 Traffic Volume (vpd): 515
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): 3.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	4	0	2	0
Density (per mile per yr):	0.1	0.0	0.0	0.0
Rate (per MVM):	0.5	0.0	0.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	515	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	515	xx ≥ 1,500	★
Curve Density (cur per mile):	1.09	xx ≥ 1	★
Access Density (access per mile):	9.22	7 ≤ xx ≤ 18	★
Outside Edge Risk:	2C	2S or 3	
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Buffer Between Opposing Lanes:	Proactive	\$150,000	per mile	0.00	\$0
Clear Zone Maintenance:	Proactive	\$50,000	per mile	0.00	\$0
6" Wet Reflective in Groove:	Proactive	\$5,000	per mile	0.00	\$0
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Edgeline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	0.00	\$0
Enhanced Edgeline:	Proactive	\$2,000	per mile	8.24	\$16,481
Total Estimated Project Cost:					\$16,481

Systemic Project

Notes -

Project Page #: 15
 Segment ID: 39.003
 Date: 4/3/2020

Rural Segment Project on CSAH 50 from Miles Ave SE to U.S. Rte 2

Roadway Information

Segment Start: Miles Ave SE
 Segment End: U.S. Rte 2
 Area Type: Rural
 County: Beltrami
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 50
 Facility Type: 2-Lane
 Segment Length (mile): 2.69
 Traffic Volume (vpd): 3,800
 Lane Width (ft): 13
 Shoulder Type: Paved
 Shoulder Width (ft): 7.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	4	0	2	0
Density (per mile per yr):	0.3	0.0	0.1	0.0
Rate (per MVM):	0.2	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	3,800	500 ≤ xx ≤ 2,500	
ADT-RM (Rural Multi-veh) (vpd):	3,800	xx ≥ 1,500	★
Curve Density (cur per mile):	1.49	xx ≥ 1	★
Access Density (access per mile):	3.34	7 ≤ xx ≤ 18	
Outside Edge Risk:	1	2S or 3	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Buffer Between Opposing Lanes:	Proactive	\$150,000	per mile	0.00	\$0
Clear Zone Maintenance:	Proactive	\$50,000	per mile	0.00	\$0
6" Wet Reflective in Groove:	Proactive	\$5,000	per mile	0.00	\$0
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	2.69	\$15,750
Edgeline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	2.69	\$9,692
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$25,442

Systemic Project

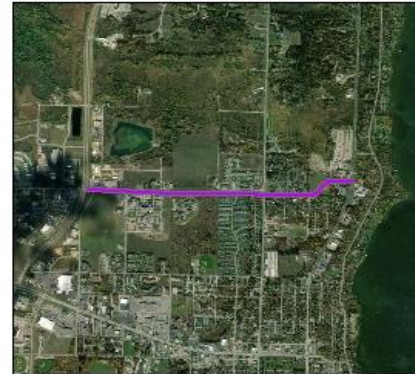
Notes -

Project Page #: 39
 Segment ID: 50.002
 Date: 4/3/2020

Urban Segment Project on 52 from Hwy 71 to Bemidji Ave N

Roadway Information

Segment Start: Hwy 71
 Segment End: Bemidji Ave N
 Area Type: Suburban
 County: Beltrami
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 52
 Facility Type: 2-Lane
 Segment Length (mile): 1.49
 Traffic Volume (vpd): 5,375
 Lane Width (ft): 12
 Shoulder Type: Paved
 Shoulder Width (ft): 12.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	19	0	0	0
Density (per mile per yr):	2.5	0.0	0.0	0.0
Rate (per MVM):	1.3	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	30	35 ≤ xx < 45	
Traffic Volume (vpd):	5,375	xx ≥ 7,500	
Access Density (access per mile):	30.11	xx ≥ 20	★
Context Zone:	Commercial	Commercial, Mixed Use	★
Edgeline Striping:	Present	None	
Lane Width (ft):	12	-	
Parking:	Both Sides	-	
Cross Section and Design:	2-Lane Undivided	Multi-lane (both Divided and Undivided)	
Edge Risk:	1	-	
Shoulder Width (ft):	10.0	-	
Total Stars			★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Divided Roadway:	Proactive	\$5,000,000	per mile	0.00	\$0
Access Management:	Proactive	\$360,000	per mile	0.00	\$0
Road Diet Convert to 3-Lane:	Proactive	\$48,000	per mile	1.49	\$71,740
Road Diet Convert to 5-Lane:	Proactive	\$54,000	per mile	0.00	\$0
Dynamic Speed Sign:	Proactive	\$30,000	per segment	0.00	\$0
Sidewalk:	Proactive	\$80,000	per mile	1.49	\$119,567
Total Estimated Project Cost:					\$191,308

Systemic Project

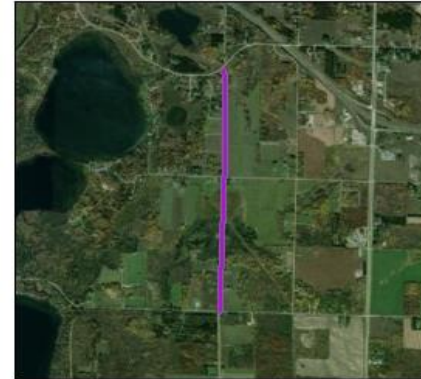
Notes -

Project Page #: 5
 Segment ID: 52.001
 Date: 4/3/2020

Rural Segment Project on CR 401 from Beltrami Line Rd to Woodward Dr SW

Roadway Information

Segment Start: Beltrami Line Rd
 Segment End: Woodward Dr SW
 Area Type: Rural
 County: Beltrami
 Context Zone: Agricultural
 Segment Route System: CR
 Segment Route No: 401
 Facility Type: 2-Lane
 Segment Length (mile): 1.81
 Traffic Volume (vpd): 535
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): 3.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	4	1	1	0
Density (per mile per yr):	0.4	0.1	0.1	0.0
Rate (per MVM):	2.3	0.6	0.6	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	535	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	535	xx ≥ 1,500	
Curve Density (cur per mile):	0.00	xx ≥ 1	
Access Density (access per mile):	13.80	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S or 3	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Buffer Between Opposing Lanes:	Proactive	\$150,000	per mile	0.00	\$0
Clear Zone Maintenance:	Proactive	\$50,000	per mile	0.00	\$0
6" Wet Reflective in Groove:	Proactive	\$5,000	per mile	0.00	\$0
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Edgeline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	0.00	\$0
Enhanced Edgeline:	Proactive	\$2,000	per mile	1.81	\$3,622
Total Estimated Project Cost:					\$3,622

Systemic Project

Notes -

Project Page #: 40
 Segment ID: 401.001
 Date: 4/3/2020

Curve along CSAH 5 between Old Jefferson Dr NW and Aure Rd NW

Roadway Information

Segment Start: Old Jefferson Dr NW
 Segment End: Aure Rd NW
 Area Type: Rural
 County: Beltrami
 Segment Route System: CSAH
 Segment Route No: 5
 Curve Length (ft): 506
 Curve Radius (ft): 8,815
 Traffic Volume (vpd): 690
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): 2.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	0	0	0	0
Density (per curve per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	55	45 ≤ xx ≤ 55	
Radius (ft):	8815	500 ≤ xx ≤ 1400	
ADT (vpd):	690	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	
Total Cross Section Width (ft):	26	28 ≤ xx ≤ 34	★
Adjacent Intersection:	None	Intersection, Railroad	
Visual Trap:	None	Present	
Lighting:	None	None	★
Outside Edge Risk:	2S	2S or 3	★
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Clear Zone Maintenance:	Proactive	\$100,000	Per curve	1	\$100,000
Surface Treatment:	Proactive	\$30	Per sq yd	0	\$0
Single "T" Reconstruction:	Proactive	\$225,000	Per curve	0	\$0
Curve Lighting:	Proactive	\$6,000	Per light/curve	0	\$0
Curve Warning:	Proactive	\$1000-\$5000	Per curve	0	\$0
Chevrons/Arrow Board:	Proactive	\$3,960	Per curve	0	\$0
Delineators:	Proactive	\$500	Per curve	0	\$0
Total Estimated Project Cost:					\$100,000

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 52
 Curve ID: 5.006
 Date: 4/3/2020

Curve along CSAH 7 between Beltrami Line Rd SW and Adams Ave NW

Roadway Information

Segment Start: Beltrami Line Rd SW
 Segment End: Adams Ave NW
 Area Type: Rural
 County: Beltrami
 Segment Route System: CSAH
 Segment Route No: 7
 Curve Length (ft): 1,376
 Curve Radius (ft): 834
 Traffic Volume (vpd): 970
 Lane Width (ft): 13
 Shoulder Type: Composite
 Shoulder Width (ft): 7.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	2	1	1	0
Density (per curve per yr):	0.4	0.2	0.2	0.0
Rate (per MVM):	1.1	56.5	0.6	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	55	45 ≤ xx ≤ 55	
Radius (ft):	834	500 ≤ xx ≤ 1400	★
ADT (vpd):	970	600 ≤ xx ≤ 1300	★
Lane Width (ft):	13	11	
Shoulder Type:	Composite	None, Curb, Composite	★
Total Cross Section Width (ft):	40	28 ≤ xx ≤ 34	
Adjacent Intersection:	Intersection	Intersection, Railroad	★
Visual Trap:	None	Present	
Lighting:	None	None	★
Outside Edge Risk:	1	2S or 3	
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Clear Zone Maintenance:	Proactive	\$100,000	Per curve	0	\$0
Surface Treatment:	Proactive	\$30	Per sq yd	0	\$0
Single "T" Reconstruction:	Proactive	\$225,000	Per curve	0	\$0
Curve Lighting:	Proactive	\$6,000	Per light/curve	1	\$6,000
Curve Warning:	Proactive	\$1000-\$5000	Per curve	0	\$0
Chevrons/Arrow Board:	Proactive	\$3,960	Per curve	1	\$3,960
Delineators:	Proactive	\$500	Per curve	0	\$0
Total Estimated Project Cost:					\$9,960

Systemic Project

Notes - County Nominated
--Chevrons/Arrow Board

* Applies to Urban Greater Minnesota Only.

Project Page #: 14
 Curve ID: 7.005
 Date: 4/3/2020

Curve along CSAH 15 between Great Divide Rd NW and long

Roadway Information

Segment Start: Great Divide Rd NW
 Segment End: long
 Area Type: Rural
 County: Beltrami
 Segment Route System: CSAH
 Segment Route No: 15
 Curve Length (ft): 800
 Curve Radius (ft): 755
 Traffic Volume (vpd): 860
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): 4.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	1	0	1	0
Density (per curve per yr):	0.2	0.0	0.2	0.0
Rate (per MVM):	0.6	0.0	0.6	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	55	45 ≤ xx ≤ 55	
Radius (ft):	755	500 ≤ xx ≤ 1400	★
ADT (vpd):	860	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	
Total Cross Section Width (ft):	30	28 ≤ xx ≤ 34	★
Adjacent Intersection:	Intersection	Intersection, Railroad	★
Visual Trap:	None	Present	
Lighting:	None	None	★
Outside Edge Risk:	2C	2S or 3	
Total Stars			★★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Clear Zone Maintenance:	Proactive	\$100,000	Per curve	1	\$100,000
Surface Treatment:	Proactive	\$30	Per sq yd	0	\$0
Single "T" Reconstruction:	Proactive	\$225,000	Per curve	0	\$0
Curve Lighting:	Proactive	\$6,000	Per light/curve	0	\$0
Curve Warning:	Proactive	\$1000-\$5000	Per curve	0	\$0
Chevrons/Arrow Board:	Proactive	\$3,960	Per curve	0	\$0
Delineators:	Proactive	\$500	Per curve	0	\$0
Total Estimated Project Cost:					\$100,000

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 2
 Curve ID: 15.015
 Date: 4/3/2020

Curve along CSAH 19 between Elliot Rd NE and 0.09 miles N of Antler Dr NE

Roadway Information

Segment Start: Elliot Rd NE
 Segment End: 0.09 miles N of Antler Dr NE
 Area Type: Rural
 County: Beltrami
 Segment Route System: CSAH
 Segment Route No: 19
 Curve Length (ft): 484
 Curve Radius (ft): 862
 Traffic Volume (vpd): 1,200
 Lane Width (ft): 13
 Shoulder Type: Curb & Gutter
 Shoulder Width (ft): 2.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	0	0	0	0
Density (per curve per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	55	$45 \leq xx \leq 55$	
Radius (ft):	862	$500 \leq xx \leq 1400$	★
ADT (vpd):	1200	$600 \leq xx \leq 1300$	★
Lane Width (ft):	12.5	11	
Shoulder Type:	Curb & Gutter	None, Curb, Composite	★
Total Cross Section Width (ft):	29	$28 \leq xx \leq 34$	★
Adjacent Intersection:	None	Intersection, Railroad	
Visual Trap:	None	Present	
Lighting:	None	None	★
Outside Edge Risk:	2C	2S or 3	
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Clear Zone Maintenance:	Proactive	\$100,000	Per curve	1	\$100,000
Surface Treatment:	Proactive	\$30	Per sq yd	0	\$0
Single "T" Reconstruction:	Proactive	\$225,000	Per curve	0	\$0
Curve Lighting:	Proactive	\$6,000	Per light/curve	0	\$0
Curve Warning:	Proactive	\$1000-\$5000	Per curve	0	\$0
Chevrons/Arrow Board:	Proactive	\$3,960	Per curve	0	\$0
Delineators:	Proactive	\$500	Per curve	0	\$0
Total Estimated Project Cost:					<u>\$100,000</u>

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 28
 Curve ID: 19.008
 Date: 4/3/2020

Curve along CSAH 22 between Irvine Ave NW and 0.10 miles N of US-71 Old

Roadway Information

Segment Start: Irvine Ave NW
 Segment End: 0.10 miles N of US-71 Old
 Area Type: Suburban
 County: Beltrami
 Segment Route System: CSAH
 Segment Route No: 22
 Curve Length (ft): 742
 Curve Radius (ft): 657
 Traffic Volume (vpd): 370
 Lane Width (ft): 11
 Shoulder Type: Composite
 Shoulder Width (ft): 8.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	1	0	1	0
Density (per curve per yr):	0.2	0.0	0.2	0.0
Rate (per MVM):	1.5	0.0	1.5	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	55	45 ≤ xx ≤ 55	★
Radius (ft):	657	500 ≤ xx ≤ 1400	★
ADT (vpd):	370	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Composite	None, Curb, Composite	
Total Cross Section Width (ft):	38	28 ≤ xx ≤ 34	
Adjacent Intersection:	Intersection	Intersection, Railroad	★
Visual Trap:	None	Present	
Lighting:	None	None	★
Outside Edge Risk:	2C	2S or 3	
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Clear Zone Maintenance:	Proactive	\$100,000	Per curve	1	\$100,000
Surface Treatment:	Proactive	\$30	Per sq yd	0	\$0
Single "T" Reconstruction:	Proactive	\$225,000	Per curve	0	\$0
Curve Lighting:	Proactive	\$6,000	Per light/curve	0	\$0
Curve Warning:	Proactive	\$1000-\$5000	Per curve	0	\$0
Chevrons/Arrow Board:	Proactive	\$3,960	Per curve	0	\$0
Delineators:	Proactive	\$500	Per curve	0	\$0
Total Estimated Project Cost:					\$100,000

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 21
 Curve ID: 22.016
 Date: 4/3/2020

Curve along CSAH 24 between Centerline Rd NW and Hwy 89

Roadway Information

Segment Start: Centerline Rd NW
 Segment End: Hwy 89
 Area Type: Rural
 County: Beltrami
 Segment Route System: CSAH
 Segment Route No: 24
 Curve Length (ft): 806
 Curve Radius (ft): 1,142
 Traffic Volume (vpd): 500
 Lane Width (ft): 11
 Shoulder Type: Composite
 Shoulder Width (ft): 4.5



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	0	0	0	0
Density (per curve per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	55	45 ≤ xx ≤ 55	
Radius (ft):	1142	500 ≤ xx ≤ 1400	★
ADT (vpd):	500	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Composite	None, Curb, Composite	★
Total Cross Section Width (ft):	31	28 ≤ xx ≤ 34	★
Adjacent Intersection:	None	Intersection, Railroad	
Visual Trap:	None	Present	
Lighting:	None	None	★
Outside Edge Risk:	3	2S or 3	★
Total Stars			★★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Clear Zone Maintenance:	Proactive	\$100,000	Per curve	1	\$100,000
Surface Treatment:	Proactive	\$30	Per sq yd	0	\$0
Single "T" Reconstruction:	Proactive	\$225,000	Per curve	0	\$0
Curve Lighting:	Proactive	\$6,000	Per light/curve	0	\$0
Curve Warning:	Proactive	\$1000-\$5000	Per curve	0	\$0
Chevrons/Arrow Board:	Proactive	\$3,960	Per curve	0	\$0
Delineators:	Proactive	\$500	Per curve	0	\$0
Total Estimated Project Cost:					\$100,000

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 6
 Curve ID: 24.011
 Date: 4/3/2020

Curve along CSAH 32 between Beltrami County Line and Hwy 89

Roadway Information

Segment Start: Beltrami County Line
 Segment End: Hwy 89
 Area Type: Rural
 County: Beltrami
 Segment Route System: CSAH
 Segment Route No: 32
 Curve Length (ft): 702
 Curve Radius (ft): 1,337
 Traffic Volume (vpd): 145
 Lane Width (ft): 12
 Shoulder Type: Gravel
 Shoulder Width (ft): 1.5



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	0	0	0	0
Density (per curve per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	55	45 ≤ xx ≤ 55	
Radius (ft):	1337	500 ≤ xx ≤ 1400	★
ADT (vpd):	145	600 ≤ xx ≤ 1300	
Lane Width (ft):	12	11	
Shoulder Type:	Gravel	None, Curb, Composite	
Total Cross Section Width (ft):	27	28 ≤ xx ≤ 34	★
Adjacent Intersection:	Intersection	Intersection, Railroad	★
Visual Trap:	None	Present	
Lighting:	None	None	★
Outside Edge Risk:	3	2S or 3	★
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Clear Zone Maintenance:	Proactive	\$100,000	Per curve	1	\$100,000
Surface Treatment:	Proactive	\$30	Per sq yd	0	\$0
Single "T" Reconstruction:	Proactive	\$225,000	Per curve	0	\$0
Curve Lighting:	Proactive	\$6,000	Per light/curve	0	\$0
Curve Warning:	Proactive	\$1000-\$5000	Per curve	0	\$0
Chevrons/Arrow Board:	Proactive	\$3,960	Per curve	1	\$3,960
Delineators:	Proactive	\$500	Per curve	0	\$0
Total Estimated Project Cost:					\$103,960

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 49
 Curve ID: 32.003
 Date: 4/3/2020

Curve along CSAH 33 between Roosevelt Rd SE and Power Dam Rd NE

Roadway Information

Segment Start: Roosevelt Rd SE
 Segment End: Power Dam Rd NE
 Area Type: Rural
 County: Beltrami
 Segment Route System: CSAH
 Segment Route No: 33
 Curve Length (ft): 970
 Curve Radius (ft): 575
 Traffic Volume (vpd): 1,600
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): 4.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	1	0	1	0
Density (per curve per yr):	0.2	0.0	0.2	0.0
Rate (per MVM):	0.3	0.0	0.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	55	45 ≤ xx ≤ 55	
Radius (ft):	575	500 ≤ xx ≤ 1400	★
ADT (vpd):	1600	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	
Total Cross Section Width (ft):	30	28 ≤ xx ≤ 34	★
Adjacent Intersection:	Intersection	Intersection, Railroad	★
Visual Trap:	None	Present	
Lighting:	None	None	★
Outside Edge Risk:	1	2S or 3	
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Clear Zone Maintenance:	Proactive	\$100,000	Per curve	0	\$0
Surface Treatment:	Proactive	\$30	Per sq yd	0	\$0
Single "T" Reconstruction:	Proactive	\$225,000	Per curve	0	\$0
Curve Lighting:	Proactive	\$6,000	Per light/curve	0	\$0
Curve Warning:	Proactive	\$1000-\$5000	Per curve	0	\$0
Chevrons/Arrow Board:	Proactive	\$3,960	Per curve	1	\$3,960
Delineators:	Proactive	\$500	Per curve	0	\$0
Total Estimated Project Cost:					\$3,960

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 15
 Curve ID: 33.003
 Date: 4/3/2020

Curve along CR 402 between 0.31 miles W of Jackson Ave SW and Jackson Ave SW

Roadway Information

Segment Start: 0.31 miles W of Jackson Ave SW
 Segment End: Jackson Ave SW
 Area Type: Suburban
 County: Beltrami
 Segment Route System: CR
 Segment Route No: 402
 Curve Length (ft): 577
 Curve Radius (ft): 375
 Traffic Volume (vpd): 260
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): 4.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	0	0	0	0
Density (per curve per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	30	45 ≤ xx ≤ 55	
Radius (ft):	375	500 ≤ xx ≤ 1400	★
ADT (vpd):	260	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	30	28 ≤ xx ≤ 34	
Adjacent Intersection:	Intersection	Intersection, Railroad	★
Visual Trap:	None	Present	
Lighting:	None	None	★
Outside Edge Risk:	2C	2S or 3	
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Clear Zone Maintenance:	Proactive	\$100,000	Per curve	0	\$0
Surface Treatment:	Proactive	\$30	Per sq yd	0	\$0
Single "T" Reconstruction:	Proactive	\$225,000	Per curve	0	\$0
Curve Lighting:	Proactive	\$6,000	Per light/curve	0	\$0
Curve Warning:	Proactive	\$1000-\$5000	Per curve	0	\$0
Chevrons/Arrow Board:	Proactive	\$3,960	Per curve	1	\$3,960
Delineators:	Proactive	\$500	Per curve	0	\$0
Total Estimated Project Cost:					\$3,960

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 53
 Curve ID: 402.002
 Date: 4/3/2020

Curve along CR 402 between 0.31 miles W of Jackson Ave SW and Jackson Ave SW

Roadway Information

Segment Start: 0.31 miles W of Jackson Ave SW
 Segment End: Jackson Ave SW
 Area Type: Suburban
 County: Beltrami
 Segment Route System: CR
 Segment Route No: 402
 Curve Length (ft): 423
 Curve Radius (ft): 478
 Traffic Volume (vpd): 260
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): 3.5



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	0	0	0	0
Density (per curve per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	30	45 ≤ xx ≤ 55	
Radius (ft):	478	500 ≤ xx ≤ 1400	★
ADT (vpd):	260	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	29	28 ≤ xx ≤ 34	
Adjacent Intersection:	Intersection	Intersection, Railroad	★
Visual Trap:	None	Present	
Lighting:	None	None	★
Outside Edge Risk:	2C	2S or 3	
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Clear Zone Maintenance:	Proactive	\$100,000	Per curve	0	\$0
Surface Treatment:	Proactive	\$30	Per sq yd	0	\$0
Single "T" Reconstruction:	Proactive	\$225,000	Per curve	0	\$0
Curve Lighting:	Proactive	\$6,000	Per light/curve	0	\$0
Curve Warning:	Proactive	\$1000-\$5000	Per curve	0	\$0
Chevrons/Arrow Board:	Proactive	\$3,960	Per curve	1	\$3,960
Delineators:	Proactive	\$500	Per curve	0	\$0
Total Estimated Project Cost:					\$3,960

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 54
 Curve ID: 402.003
 Date: 4/3/2020

Rural Intersection on CSAH 2 at USTH 2

Roadway Information

Description: USTH 2
 County: Beltrami
 Area Type: Rural
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 2
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 9,500
 Minor ADT: 450
 Total Entering ADT: 9,950



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	0	0	0	0
Density (per int. per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	65	≥60	★
Context Zone:	Residential	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	9,950	≥ 2,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	None	Present	
Adjacent RR Crossing:	Present	Present	★
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	LTR	LTR or TB	★
Total Stars			★★★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	1	\$750,000
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$750,000

Systemic Project

Notes - County Nominated
--RCI

Project Page #: 2
 Intersection ID: 2.007
 Date: 4/2/2020

Rural Intersection on CSAH 5 at Grange Rd NW

Roadway Information

Description: Grange Rd NW
 County: Beltrami
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 5
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 475
 Minor ADT: 320
 Total Entering ADT: 795



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	0	0	0	0
Density (per int. per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Agriculture	Commercial, Industrial Mixed Use, Residential	
Entering ADT(vpd):	795	≥ 2,000	
Leg Configuration:	X	X	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	T	LTRR or TB	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	1	\$1,500
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	1	\$10,000
Left & Right Turn Lanes:	Proactive	\$250,000	Each	1	\$250,000
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$261,500

Systemic Project

Notes -

Rural Intersection on CSAH 6 at Adams Ave NW

Roadway Information

Description: Adams Ave NW
 County: Beltrami
 Area Type: Rural
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 6
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 3,350
 Minor ADT: 1,650
 Total Entering ADT: 5,000



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	3	0	1	0
Density (per int. per yr):	0.6	0.0	0.2	0.0
Rate (per MVM):	0.3	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Residential	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	5,000	≥ 2,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Curve:	None	Horizontal, Vertical, Both	
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	<5	>5 Miles	
1 st Major Approach Turn Lane Configuration:	TR	LTR or TB	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	1	\$3,000
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	1	\$250,000
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	1	\$1,000,000
Total Estimated Project Cost:					\$1,253,000

Systemic Project

Notes - County Nominated
--Roundabout

Project Page #: 47
 Intersection ID: 6.001
 Date: 4/2/2020

Rural Intersection on CSAH 9 at USTH 2

Roadway Information

Description: USTH 2
 County: Beltrami
 Area Type: Rural
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 9
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: Present
 Flasher: None
 Major ADT: 14,950
 Minor ADT: 2,150
 Total Entering ADT: 17,100



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	11	0	5	0
Density (per int. per yr):	2.2	0.0	1.0	0.0
Rate (per MVM):	0.4	0.0	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Residential	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	17,100	≥ 2,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	20	≥ 10	★
Adjacent Curve:	None	Horizontal, Vertical, Both	
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	LTR	LTR or TB	★
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	1	\$1,500
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$1,500

Systemic Project

Notes -

Project Page #: 5
 Intersection ID: 9.001
 Date: 4/2/2020

Rural Intersection on CSAH 9 at Grange Rd NW

Roadway Information

Description: Grange Rd NW
 County: Beltrami
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 9
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 1,775
 Minor ADT: 635
 Total Entering ADT: 2,410



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	0	0	0	0
Density (per int. per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Agriculture	Commercial, Industrial Mixed Use, Residential	
Entering ADT(vpd):	2,410	≥ 2,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Curve:	None	Horizontal, Vertical, Both	
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	T	LTRR or TB	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	1	\$250,000
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$250,000

Systemic Project

Notes -

Rural Intersection on CSAH 11 at Monroe Ave SW

Roadway Information

Description: Monroe Ave SW
 County: Beltrami
 Area Type: Small Town
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 11
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 2,225
 Minor ADT: 240
 Total Entering ADT: 2,465



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	1	0	1	0
Density (per int. per yr):	0.2	0.0	0.2	0.0
Rate (per MVM):	0.2	0.0	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Residential	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	2,465	≥ 2,000	★
Leg Configuration:	T	X	
Alignment Skew (degrees):	0	≥ 10	
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	<5	>5 Miles	
1 st Major Approach Turn Lane Configuration:	TR	LTR or TB	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	1	\$1,500
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	1	\$10,000
Left & Right Turn Lanes:	Proactive	\$250,000	Each	1	\$250,000
LED Stop:	Proactive	\$7,500	Each	1	\$7,500
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$269,000

Systemic Project

Notes -

Rural Intersection on CSAH 12 at 5th St NE

Roadway Information

Description: 5th St NE
 County: Beltrami
 Area Type: Small Town
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 12
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: Present
 Flasher: None
 Major ADT: 5,100
 Minor ADT: 2,620
 Total Entering ADT: 7,720



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	2	0	0	0
Density (per int. per yr):	0.4	0.0	0.0	0.0
Rate (per MVM):	0.1	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	40	≥60	
Context Zone:	Residential	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	7,720	≥ 2,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Curve:	None	Horizontal, Vertical, Both	
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	<5	>5 Miles	
1 st Major Approach Turn Lane Configuration:	T	LTRR or TB	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	1	\$250,000
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$250,000

Systemic Project

Notes -

Rural Intersection on CSAH 12 at Mill St NE

Roadway Information

Description: Mill St NE
 County: Beltrami
 Area Type: Small Town
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 12
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: Present
 Flasher: None
 Major ADT: 5,100
 Minor ADT: 470
 Total Entering ADT: 5,570



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	3	0	0	0
Density (per int. per yr):	0.6	0.0	0.0	0.0
Rate (per MVM):	0.3	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	40	≥60	
Context Zone:	Residential	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	5,570	≥ 2,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Curve:	None	Horizontal, Vertical, Both	
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	<5	>5 Miles	
1 st Major Approach Turn Lane Configuration:	T	LTRR or TB	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	1	\$1,500
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$1,500

Systemic Project

Notes -

Rural Intersection on CSAH 12 at Lake Ave NE

Roadway Information

Description: Lake Ave NE
 County: Beltrami
 Area Type: Small Town
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 12
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 3,750
 Minor ADT: 875
 Total Entering ADT: 4,625



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	2	0	0	0
Density (per int. per yr):	0.4	0.0	0.0	0.0
Rate (per MVM):	0.2	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	45	≥60	
Context Zone:	Residential	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	4,625	≥ 2,000	★
Leg Configuration:	T	X	
Alignment Skew (degrees):	20	≥ 10	★
Adjacent Curve:	None	Horizontal, Vertical, Both	
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	LR	LTRR or TB	
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	1	\$1,500
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$1,500

Systemic Project

Notes -

Project Page #: 27
 Intersection ID: 12.009
 Date: 4/2/2020

Rural Intersection on CSAH 13 at Great Divide Rd NW

Roadway Information

Description: Great Divide Rd NW
 County: Beltrami
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 13
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 385
 Minor ADT: 83
 Total Entering ADT: 468



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	0	0	0	0
Density (per int. per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Agriculture	Commercial, Industrial Mixed Use, Residential	
Entering ADT(vpd):	468	≥ 2,000	
Leg Configuration:	T	X	
Alignment Skew (degrees):	20	≥ 10	★
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	T	LTRR or TB	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	1	\$250,000
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$250,000

Systemic Project

Notes -

Project Page #: 56
 Intersection ID: 13.001
 Date: 4/2/2020

Urban (Ped/Bike) Intersection on CSAH 15 at Anne St NW

Roadway Information

Description: Anne St NW
 County: Beltrami
 Area Type: Suburban
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 15
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: NV
 Major ADT: 6,600
 Minor ADT: 3,900
 Total Entering ADT: 10,500



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	13	0	8	0
Density (per int. per yr):	2.6	0.0	1.6	0.0
Rate (per MVM):	0.7	0.0	0.4	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	10,500	≥ 12,000	
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	4	≥ 4	★
Presence of Sidewalk:	None	Some, None	★
Presence of Refuge Island:	None	-	
Presence of Transit Stop:	None	-	
Pedestrian Crossing Type:	Markings	Markings	★
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
HAWK:	Proactive	\$150,000	Per Intersection	0	\$0
Median Refuge Island:	Proactive	\$12,000	Each	0	\$0
Curb Extension:	Proactive	\$10,000	Per Intersection	4	\$40,000
Countdown Timers:	Proactive	\$7,000	Each	1	\$7,000
Leading Ped Interval:	Proactive	\$25,000	Per Intersection	0	\$0
RRFB w/ Refuge Island:	Proactive	\$20,000	Each	0	\$0
RRFB:	Proactive	\$15,000	Per Intersection	0	\$0
Upgrade Signal Head Hardware:	Proactive	\$5,000	Each	1	\$5,000
Update Signal to Meet MUTCD Recommendation:	Proactive	\$100,000	Each	0	\$0
Mini Roundabout:	Proactive	\$3,000,000	Each	0	\$0
Upgrade Signs & Markings:	Proactive	\$2,500	Per Intersection	0	\$0
Total Estimated Project Cost:					\$52,000

Systemic Project

Notes -

Rural Intersection on CSAH 15 at 3316

Roadway Information

Description: 3316
 County: Beltrami
 Area Type: Rural
 Context Zone: Natural
 Segment Route System: CSAH
 Segment Route No: 15
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: Present
 Flasher: None
 Major ADT: 4,050
 Minor ADT: 0
 Total Entering ADT: 4,050



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	1	0	0	0
Density (per int. per yr):	0.2	0.0	0.0	0.0
Rate (per MVM):	0.1	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	45	≥60	
Context Zone:	Natural	Commercial, Industrial Mixed Use, Residential	
Entering ADT(vpd):	4,050	≥ 2,000	★
Leg Configuration:	T	X	
Alignment Skew (degrees):	25	≥ 10	★
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	<5	>5 Miles	
1 st Major Approach Turn Lane Configuration:	TR	LTRR or TB	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	1	\$1,000,000
Total Estimated Project Cost:					\$1,000,000

Systemic Project

Notes - County Nominated
--Roundabout

Project Page #: 45
 Intersection ID: 15.017
 Date: 4/2/2020

Rural Intersection on CSAH 15 at 4642

Roadway Information

Description: 4642
 County: Beltrami
 Area Type: Rural
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 15
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: Present
 Flasher: None
 Major ADT: 4,350
 Minor ADT: 2,025
 Total Entering ADT: 6,375



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	2	0	0	0
Density (per int. per yr):	0.4	0.0	0.0	0.0
Rate (per MVM):	0.2	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	45	≥60	
Context Zone:	Commercial	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	6,375	≥ 2,000	★
Leg Configuration:	T	X	
Alignment Skew (degrees):	20	≥ 10	★
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	Present	Present	★
Adjacent RR Crossing:	None	Present	
Previous Stop:	<5	>5 Miles	
1 st Major Approach Turn Lane Configuration:	TR	LTRR or TB	
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	1	\$1,000,000
Total Estimated Project Cost:					\$1,000,000

Systemic Project

Notes - County Nominated
--Roundabout

Project Page #: 19
 Intersection ID: 15.018
 Date: 4/2/2020

Rural Intersection on CSAH 15 at Island View Dr NW

Roadway Information

Description: Island View Dr NW
 County: Beltrami
 Area Type: Rural
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 15
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 2,600
 Minor ADT: 550
 Total Entering ADT: 3,150



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	0	0	0	0
Density (per int. per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Commercial	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	3,150	≥ 2,000	★
Leg Configuration:	T	X	
Alignment Skew (degrees):	0	≥ 10	
Adjacent Curve:	None	Horizontal, Vertical, Both	
Adjacent Development:	Present	Present	★
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	TR	LTR or TB	
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	1	\$250,000
LED Stop:	Proactive	\$7,500	Each	1	\$7,500
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$257,500

Systemic Project

Notes -

Project Page #: 33
 Intersection ID: 15.043
 Date: 4/2/2020

Rural Intersection on CSAH 15 at Silver Lake Rd NW

Roadway Information

Description: Silver Lake Rd NW
 County: Beltrami
 Area Type: Rural
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 15
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 2,000
 Minor ADT: 148
 Total Entering ADT: 2,148



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	0	0	0	0
Density (per int. per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Residential	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	2,148	≥ 2,000	★
Leg Configuration:	T	X	
Alignment Skew (degrees):	0	≥ 10	
Adjacent Curve:	None	Horizontal, Vertical, Both	
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	T	LTRR or TB	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	1	\$250,000
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$250,000

Systemic Project

Notes -

Project Page #: 58
 Intersection ID: 15.044
 Date: 4/2/2020

Rural Intersection on CSAH 15 at Great Divide Rd NW

Roadway Information

Description: Great Divide Rd NW
 County: Beltrami
 Area Type: Rural
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 15
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 1,430
 Minor ADT: 270
 Total Entering ADT: 1,700



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	1	0	1	0
Density (per int. per yr):	0.2	0.0	0.2	0.0
Rate (per MVM):	0.3	0.0	0.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Residential	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	1,700	≥ 2,000	
Leg Configuration:	T	X	
Alignment Skew (degrees):	15	≥ 10	★
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	T	LTRR or TB	
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	1	\$250,000
LED Stop:	Proactive	\$7,500	Each	1	\$7,500
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$257,500

Systemic Project

Notes -

Project Page #: 28
 Intersection ID: 15.056
 Date: 4/2/2020

Rural Intersection on CSAH 15 at LumberJack Rd

Roadway Information

Description: LumberJack Rd
 County: Beltrami
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 15
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 850
 Minor ADT: 208
 Total Entering ADT: 1,058



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	2	0	0	0
Density (per int. per yr):	0.4	0.0	0.0	0.0
Rate (per MVM):	1.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Agriculture	Commercial, Industrial Mixed Use, Residential	
Entering ADT(vpd):	1,058	≥ 2,000	
Leg Configuration:	T	X	
Alignment Skew (degrees):	45	≥ 10	★
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	T	LTRR or TB	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	1	\$1,500
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	1	\$250,000
LED Stop:	Proactive	\$7,500	Each	1	\$7,500
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$259,000

Systemic Project

Notes -

Project Page #: 48
 Intersection ID: 15.063
 Date: 4/2/2020

Urban (Vehicle) Intersection on CSAH 21 at Paul Bunyan Dr NW

Roadway Information

Description: Paul Bunyan Dr NW
 County: Beltrami
 Area Type: Urban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 21
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: NV
 Major ADT: 11,500
 Minor ADT: 5,325
 Total Entering ADT: 16,825



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	16	0	1	0
Density (per int. per yr):	3.2	0.0	0.2	0.0
Rate (per MVM):	0.5	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Commercial	Commercial	★
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	16,825	≥ 12,000	★
Leg Configuration:	X	X	★
Major Division Type:	Mixed	Curb, Depressed, Barrier, Mixed	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	Present	Present	★
Major Approach Speed Limit (mph):	35	≥40	★
Minor Approach Speed Limit (mph):	35	≥35	
Major Approach Left Turn Lane Phasing:	Protected	Permitted, Permitted/Protected	
1 st Major Approach Turn Lane Configuration:	LLT	≥ 2 Left Turn, ≥ 2 Thru Lane	★
Total Stars			★★★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Roundabout:	Proactive	\$3,000,000	Per Intersection	0	\$0
Confirmation Lights:	Proactive	\$1,500	Per Intersection	1	\$1,500
Signalized RCI:	Proactive	\$1,250,000	Per Intersection	0	\$0
RCI:	Proactive	\$1,000,000	Per Intersection	0	\$0
Upgrade Signal Hardware:	Proactive	\$50,000	Per Intersection	0	\$0
Intersection Lighting:	Proactive	\$15,000	Each	0	\$0
All-Way Stop Conversion:	Proactive	\$7,500	Per Intersection	0	\$0
Upgrade Signs & Markings:	Proactive	\$3,500	Per Intersection	0	\$0
Total Estimated Project Cost:					<u>\$1,500</u>

Systemic Project

Notes -

Project Page #: 2
 Intersection ID: 21.001
 Date: 4/9/2020

Urban (Ped/Bike) Intersection on CSAH 21 at Paul Bunyan Dr NW

Roadway Information

Description: Paul Bunyan Dr NW
 County: Beltrami
 Area Type: Urban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 21
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: NV
 Major ADT: 11,500
 Minor ADT: 5,325
 Total Entering ADT: 16,825



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	16	0	1	0
Density (per int. per yr):	3.2	0.0	0.2	0.0
Rate (per MVM):	0.5	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	16,825	≥ 12,000	★
Adjacent Development:	Present	Present	★
Max Number Of Lanes Crossed:	4	≥ 4	★
Presence of Sidewalk:	All	Some, None	
Presence of Refuge Island:	None	-	
Presence of Transit Stop:	None	-	
Pedestrian Crossing Type:	Markings	Markings	★
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
HAWK:	Proactive	\$150,000	Per Intersection	0	\$0
Median Refuge Island:	Proactive	\$12,000	Each	0	\$0
Curb Extension:	Proactive	\$10,000	Per Intersection	0	\$0
Countdown Timers:	Proactive	\$7,000	Each	0	\$0
Leading Ped Interval:	Proactive	\$25,000	Per Intersection	1	\$25,000
RRFB w/ Refuge Island:	Proactive	\$20,000	Each	0	\$0
RRFB:	Proactive	\$15,000	Per Intersection	0	\$0
Upgrade Signal Head Hardware:	Proactive	\$5,000	Each	0	\$0
Update Signal to Meet MUTCD Recommendation:	Proactive	\$100,000	Each	1	\$100,000
Mini Roundabout:	Proactive	\$3,000,000	Each	0	\$0
Upgrade Signs & Markings:	Proactive	\$2,500	Per Intersection	0	\$0
Total Estimated Project Cost:					\$125,000

Systemic Project

Notes -

Rural Intersection on CSAH 21 at Glidden Rd NE

Roadway Information

Description: Glidden Rd NE
 County: Beltrami
 Area Type: Rural
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 21
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: Present
 Flasher: None
 Major ADT: 2,800
 Minor ADT: 725
 Total Entering ADT: 3,525



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	0	0	0	0
Density (per int. per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Residential	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	3,525	≥ 2,000	★
Leg Configuration:	T	X	
Alignment Skew (degrees):	20	≥ 10	★
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	<5	>5 Miles	
1 st Major Approach Turn Lane Configuration:	TR	LTR or TB	
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	1	\$250,000
LED Stop:	Proactive	\$7,500	Each	1	\$7,500
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$257,500

Systemic Project

Notes -

Project Page #: 34
 Intersection ID: 21.017
 Date: 4/2/2020

Rural Intersection on CSAH 21 at Island View Dr NE

Roadway Information

Description: Island View Dr NE
 County: Beltrami
 Area Type: Rural
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 21
 Design Type: Unknown
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 1,050
 Minor ADT: 445
 Total Entering ADT: 1,495



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	0	0	0	0
Density (per int. per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Commercial	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	1,495	≥ 2,000	
Leg Configuration:	X	X	★
Alignment Skew (degrees):	50	≥ 10	★
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	Present	Present	★
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	TR	LTRR or TB	
Total Stars			★★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	1	\$1,500
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	1	\$10,000
Left & Right Turn Lanes:	Proactive	\$250,000	Each	1	\$250,000
LED Stop:	Proactive	\$7,500	Each	1	\$7,500
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$269,000

Systemic Project

Notes -

Project Page #: 10
 Intersection ID: 21.035
 Date: 4/2/2020

Rural Intersection on CSAH 21 at USTH 71

Roadway Information

Description: USTH 71
 County: Beltrami
 Area Type: Rural
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 21
 Design Type: Unknown
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 2,700
 Minor ADT: 1,025
 Total Entering ADT: 3,725



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	5	0	5	0
Density (per int. per yr):	1.0	0.0	1.0	0.0
Rate (per MVM):	0.7	0.0	0.7	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Residential	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	3,725	≥ 2,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	35	≥ 10	★
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	LTR	LTR or TB	
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	1	\$10,000
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	1	\$7,500
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$17,500

Systemic Project

Notes -

Project Page #: 6
 Intersection ID: 21.037
 Date: 4/2/2020

Rural Intersection on CSAH 22 at MNTH 89

Roadway Information

Description: MNTH 89
 County: Beltrami
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 1,950
 Minor ADT: 725
 Total Entering ADT: 2,675



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	1	0	0	0
Density (per int. per yr):	0.2	0.0	0.0	0.0
Rate (per MVM):	0.2	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Agriculture	Commercial, Industrial Mixed Use, Residential	
Entering ADT(vpd):	2,675	≥ 2,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Curve:	None	Horizontal, Vertical, Both	
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	TR	LTRR or TB	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	1	\$10,000
Left & Right Turn Lanes:	Proactive	\$250,000	Each	1	\$250,000
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$260,000

Systemic Project

Notes -

Rural Intersection on CSAH 22 at USTH 71

Roadway Information

Description: USTH 71
 County: Beltrami
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 2,950
 Minor ADT: 555
 Total Entering ADT: 3,505



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	4	0	1	0
Density (per int. per yr):	0.8	0.0	0.2	0.0
Rate (per MVM):	0.6	0.0	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	60	≥60	★
Context Zone:	Agriculture	Commercial, Industrial Mixed Use, Residential	
Entering ADT(vpd):	3,505	≥ 2,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	LTR	LTR or TB	
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	1	\$150,000
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$150,000

Systemic Project

Notes -

Project Page #: 13
 Intersection ID: 22.044
 Date: 4/2/2020

Rural Intersection on CSAH 27 at Lamon Rd NE

Roadway Information

Description: Lamon Rd NE
 County: Beltrami
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 27
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 630
 Minor ADT: 305
 Total Entering ADT: 935



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	0	0	0	0
Density (per int. per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Agriculture	Commercial, Industrial Mixed Use, Residential	
Entering ADT(vpd):	935	≥ 2,000	
Leg Configuration:	X	X	★
Alignment Skew (degrees):	10	≥ 10	★
Adjacent Curve:	None	Horizontal, Vertical, Both	
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	T	LTRR or TB	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	1	\$1,500
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	1	\$10,000
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$11,500

Systemic Project

Notes -

Project Page #: 64
 Intersection ID: 27.004
 Date: 4/2/2020

Rural Intersection on CSAH 29 at USTH 71

Roadway Information

Description: USTH 71
 County: Beltrami
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 29
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 2,700
 Minor ADT: 285
 Total Entering ADT: 2,985



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	2	0	0	0
Density (per int. per yr):	0.4	0.0	0.0	0.0
Rate (per MVM):	0.4	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Agriculture	Commercial, Industrial Mixed Use, Residential	
Entering ADT(vpd):	2,985	≥ 2,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	LTR	LTR or TB	
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	1	\$150,000
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$150,000

Systemic Project

Notes -

Rural Intersection on CSAH 30 at Main St S

Roadway Information

Description: Main St S
 County: Beltrami
 Area Type: Small Town
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 30
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: All-Way Stop
 Street Lights: Present
 Flasher: None
 Major ADT: 1,825
 Minor ADT: 995
 Total Entering ADT: 2,820



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	1	0	0	0
Density (per int. per yr):	0.2	0.0	0.0	0.0
Rate (per MVM):	0.2	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	30	≥60	
Context Zone:	Commercial	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	2,820	≥ 2,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	45	≥ 10	★
Adjacent Curve:	None	Horizontal, Vertical, Both	
Adjacent Development:	Present	Present	★
Adjacent RR Crossing:	None	Present	
Previous Stop:	<5	>5 Miles	
1 st Major Approach Turn Lane Configuration:	T	LTRR or TB	
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	1	\$1,500
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$1,500

Systemic Project

Notes -

Project Page #: 20
 Intersection ID: 30.018
 Date: 4/2/2020

Rural Intersection on CSAH 30 at 1st St NE

Roadway Information

Description: 1st St NE
 County: Beltrami
 Area Type: Small Town
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 30
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: Present
 Flasher: None
 Major ADT: 1,850
 Minor ADT: 808
 Total Entering ADT: 2,658



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	0	0	0	0
Density (per int. per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	30	≥60	
Context Zone:	Commercial	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	2,658	≥ 2,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Curve:	None	Horizontal, Vertical, Both	
Adjacent Development:	Present	Present	★
Adjacent RR Crossing:	None	Present	
Previous Stop:	<5	>5 Miles	
1 st Major Approach Turn Lane Configuration:	T	LTRR or TB	
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	1	\$1,500
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$1,500

Systemic Project

Notes -

Rural Intersection on CSAH 32 at MNTH 89

Roadway Information

Description: MNTH 89
 County: Beltrami
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 32
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 1,550
 Minor ADT: 343
 Total Entering ADT: 1,893



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	2	1	1	0
Density (per int. per yr):	0.4	0.2	0.2	0.0
Rate (per MVM):	0.6	29.0	0.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Agriculture	Commercial, Industrial Mixed Use, Residential	
Entering ADT(vpd):	1,893	≥ 2,000	
Leg Configuration:	X	X	★
Alignment Skew (degrees):	20	≥ 10	★
Adjacent Curve:	None	Horizontal, Vertical, Both	
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	TR	LTR or TB	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	1	\$150,000
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$150,000

Systemic Project

Notes -

Rural Intersection on CSAH 32 at MNTH 72

Roadway Information

Description: MNTH 72
 County: Beltrami
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 32
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 1,600
 Minor ADT: 893
 Total Entering ADT: 2,493



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	3	0	0	0
Density (per int. per yr):	0.6	0.0	0.0	0.0
Rate (per MVM):	0.7	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Agriculture	Commercial, Industrial Mixed Use, Residential	
Entering ADT(vpd):	2,493	≥ 2,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Curve:	None	Horizontal, Vertical, Both	
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	T	LTRR or TB	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	1	\$1,500
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	1	\$10,000
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$11,500

Systemic Project

Notes -

Project Page #: 50
 Intersection ID: 32.030
 Date: 4/2/2020

Urban (Vehicle) Intersection on CSAH 50 at 678

Roadway Information

Description: 678
 County: Beltrami
 Area Type: Urban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 50
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: NV
 Major ADT: 8,350
 Minor ADT: 4,242
 Total Entering ADT: 12,592



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	12	0	1	0
Density (per int. per yr):	2.4	0.0	0.2	0.0
Rate (per MVM):	0.5	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Commercial	Commercial	★
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	12,592	≥ 12,000	★
Leg Configuration:	X	X	★
Major Division Type:	Curb	Curb, Depressed, Barrier, Mixed	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	Present	Present	★
Major Approach Speed Limit (mph):	35	≥ 40	
Minor Approach Speed Limit (mph):	30	≥ 35	
Major Approach Left Turn Lane Phasing:	Permitted/Protected	Permitted, Permitted/Protected	★
1 st Major Approach Turn Lane Configuration:	LTT	≥ 2 Left Turn, ≥ 2 Thru Lane	★
Total Stars			★★★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Roundabout:	Proactive	\$3,000,000	Per Intersection	0	\$0
Confirmation Lights:	Proactive	\$1,500	Per Intersection	1	\$1,500
Signalized RCI:	Proactive	\$1,250,000	Per Intersection	0	\$0
RCI:	Proactive	\$1,000,000	Per Intersection	0	\$0
Upgrade Signal Hardware:	Proactive	\$50,000	Per Intersection	0	\$0
Intersection Lighting:	Proactive	\$15,000	Each	0	\$0
All-Way Stop Conversion:	Proactive	\$7,500	Per Intersection	0	\$0
Upgrade Signs & Markings:	Proactive	\$3,500	Per Intersection	0	\$0
Total Estimated Project Cost:					\$1,500

Systemic Project

Notes -

Project Page #: 1
 Intersection ID: 50.001
 Date: 4/9/2020

Urban (Ped/Bike) Intersection on CSAH 50 at 678

Roadway Information

Description: 678
 County: Beltrami
 Area Type: Urban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 50
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: NV
 Major ADT: 8,350
 Minor ADT: 4,242
 Total Entering ADT: 12,592



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	12	0	1	0
Density (per int. per yr):	2.4	0.0	0.2	0.0
Rate (per MVM):	0.5	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	12,592	≥ 12,000	★
Adjacent Development:	Present	Present	★
Max Number Of Lanes Crossed:	5	≥ 4	★
Presence of Sidewalk:	Some	Some, None	★
Presence of Refuge Island:	None	-	
Presence of Transit Stop:	None	-	
Pedestrian Crossing Type:	Markings	Markings	★
Total Stars			★★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
HAWK:	Proactive	\$150,000	Per Intersection	0	\$0
Median Refuge Island:	Proactive	\$12,000	Each	0	\$0
Curb Extension:	Proactive	\$10,000	Per Intersection	0	\$0
Countdown Timers:	Proactive	\$7,000	Each	1	\$7,000
Leading Ped Interval:	Proactive	\$25,000	Per Intersection	0	\$0
RRFB w/ Refuge Island:	Proactive	\$20,000	Each	0	\$0
RRFB:	Proactive	\$15,000	Per Intersection	0	\$0
Upgrade Signal Head Hardware:	Proactive	\$5,000	Each	0	\$0
Update Signal to Meet MUTCD Recommendation:	Proactive	\$100,000	Each	1	\$100,000
Mini Roundabout:	Proactive	\$3,000,000	Each	0	\$0
Upgrade Signs & Markings:	Proactive	\$2,500	Per Intersection	0	\$0
Total Estimated Project Cost:					\$107,000

Systemic Project

Notes -

Rural Intersection on CSAH 50 at Grant Ave SE

Roadway Information

Description: Grant Ave SE
 County: Beltrami
 Area Type: Small Town
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 50
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: Present
 Flasher: None
 Major ADT: 3,825
 Minor ADT: 320
 Total Entering ADT: 4,145



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	0	0	0	0
Density (per int. per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	35	≥60	
Context Zone:	Residential	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	4,145	≥ 2,000	★
Leg Configuration:	T	X	
Alignment Skew (degrees):	0	≥ 10	
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	<5	>5 Miles	
1 st Major Approach Turn Lane Configuration:	TR	LTR or TB	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	1	\$250,000
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$250,000

Systemic Project

Notes -

Rural Intersection on CSAH 50 at 23rd St SE

Roadway Information

Description: 23rd St SE
 County: Beltrami
 Area Type: Small Town
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 50
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 3,800
 Minor ADT: 1,200
 Total Entering ADT: 5,000



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	3	0	2	0
Density (per int. per yr):	0.6	0.0	0.4	0.0
Rate (per MVM):	0.3	0.0	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Residential	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	5,000	≥ 2,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	40	≥ 10	★
Adjacent Curve:	None	Horizontal, Vertical, Both	
Adjacent Development:	None	Present	
Adjacent RR Crossing:	Present	Present	★
Previous Stop:	<5	>5 Miles	
1 st Major Approach Turn Lane Configuration:	TR	LTR or TB	
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	1	\$250,000
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$250,000

Systemic Project

Notes -

Project Page #: 14
 Intersection ID: 50.008
 Date: 4/2/2020

Rural Intersection on CSAH 52 at USTH 71

Roadway Information

Description: USTH 71
 County: Beltrami
 Area Type: Small Town
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 52
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 8,900
 Minor ADT: 3,742
 Total Entering ADT: 12,642



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	20	1	7	1
Density (per int. per yr):	4.0	0.2	1.4	0.2
Rate (per MVM):	0.9	4.3	0.3	4.3

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Commercial	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	12,642	≥ 2,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	10	≥ 10	★
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	<5	>5 Miles	
1 st Major Approach Turn Lane Configuration:	LTR	LTR or TB	★
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	1	\$750,000
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$750,000

Systemic Project

Notes -

Rural Intersection on CSAH 59 at USTH 71

Roadway Information

Description: USTH 71
 County: Beltrami
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 59
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: Present
 Flasher: None
 Major ADT: 3,200
 Minor ADT: 1,317
 Total Entering ADT: 4,517



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	8	1	7	1
Density (per int. per yr):	1.6	0.2	1.4	0.2
Rate (per MVM):	1.0	12.1	0.8	12.1

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Agriculture	Commercial, Industrial Mixed Use, Residential	
Entering ADT(vpd):	4,517	≥ 2,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	20	≥ 10	★
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	<5	>5 Miles	
1 st Major Approach Turn Lane Configuration:	LTR	LTR or TB	★
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	0	\$0
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	1	\$750,000
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$750,000

Systemic Project

Notes - County Nominated

--RCI

Project Page #: 11
 Intersection ID: 59.003
 Date: 4/2/2020

Rural Intersection on CR 301 at Great Divide Rd NW

Roadway Information

Description: Great Divide Rd NW
 County: Beltrami
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CR
 Segment Route No: 301
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 35
 Minor ADT: 1,184
 Total Entering ADT: 1,219



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	0	0	0	0
Density (per int. per yr):	0.0	0.0	0.0	0.0
Rate (per MVM):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Agriculture	Commercial, Industrial Mixed Use, Residential	
Entering ADT(vpd):	1,219	≥ 2,000	
Leg Configuration:	X	X	★
Alignment Skew (degrees):	25	≥ 10	★
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	>5	>5 Miles	★
1 st Major Approach Turn Lane Configuration:	T	LTRR or TB	
Total Stars			★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	1	\$1,500
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	1	\$10,000
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$11,500

Systemic Project

Notes -

Project Page #: 40
 Intersection ID: 301.006
 Date: 4/2/2020

Rural Intersection on CR 507 at USTH 2

Roadway Information

Description: USTH 2
 County: Beltrami
 Area Type: Rural
 Context Zone: Natural
 Segment Route System: CR
 Segment Route No: 507
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 7,800
 Minor ADT: 670
 Total Entering ADT: 8,470



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	7	0	2	0
Density (per int. per yr):	1.4	0.0	0.4	0.0
Rate (per MVM):	0.5	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥60	
Context Zone:	Natural	Commercial, Industrial Mixed Use, Residential	
Entering ADT(vpd):	8,470	≥ 2,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	20	≥ 10	★
Adjacent Curve:	Horizontal	Horizontal, Vertical, Both	★
Adjacent Development:	None	Present	
Adjacent RR Crossing:	None	Present	
Previous Stop:	<5	>5 Miles	
1 st Major Approach Turn Lane Configuration:	LTR	LTR or TB	★
Total Stars			★★★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Upgrade Signs & Markings:	Proactive	\$1,500	Per Intersection	0	\$0
All-Way STOP Conversion:	Proactive	\$3,000	Per Intersection	0	\$0
Street Lights:	Proactive	\$10,000	Each	1	\$10,000
Left & Right Turn Lanes:	Proactive	\$250,000	Each	0	\$0
LED Stop:	Proactive	\$7,500	Each	0	\$0
RCI:	Proactive	\$750,000	Per Intersection	0	\$0
Single "T" Reconstruction:	Proactive	\$250,000	Per Intersection	0	\$0
All Approach RICWS:	Proactive	\$150,000	Per Intersection	0	\$0
Roundabout:	Proactive	\$1,000,000	Per Intersection	0	\$0
Total Estimated Project Cost:					\$10,000

Systemic Project

Notes -