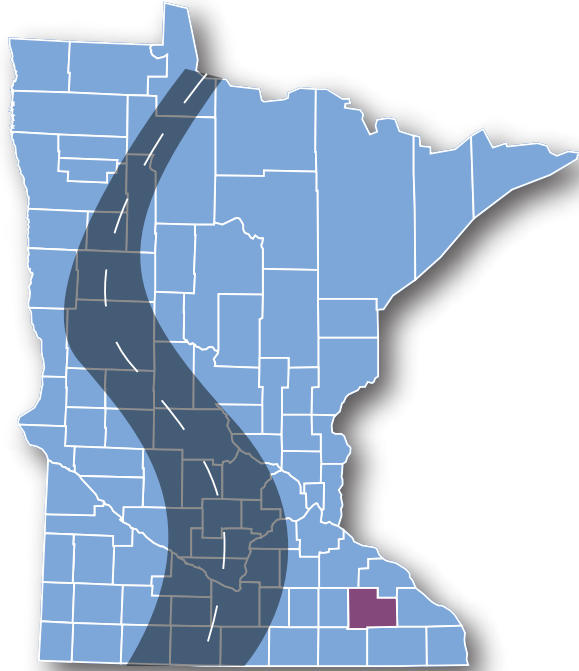


Olmsted County

COUNTY ROADWAY



Safety

PLAN

Moving Toward **ZERO** Deaths

March 2021



DEPARTMENT OF
TRANSPORTATION

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Executive Summary

This Safety Plan for Olmsted 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 Olmsted County's initial safety plan (2013 to 2018), the County secured approximately \$955 thousand in HSIP funding to support implementation of 8 safety projects such as guard rail, edgeline rumble strips, epoxy 6-inch edgeline, chevrons in curves, upgraded signing, pavement markings, and confirmation lights.

This Olmsted 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 locations for highway safety funds, which are considered at-risk location
- Development of \$16 million in recommended safety projects – these projects are actual application for HSIP funds (Appendix F)

This information is provided to Olmsted 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 Olmsted 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 Olmsted 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 \$16 million of potential safety projects, which could provide Olmsted County with a sufficient backlog of projects for approximately 5 years. As a result, Olmsted 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.

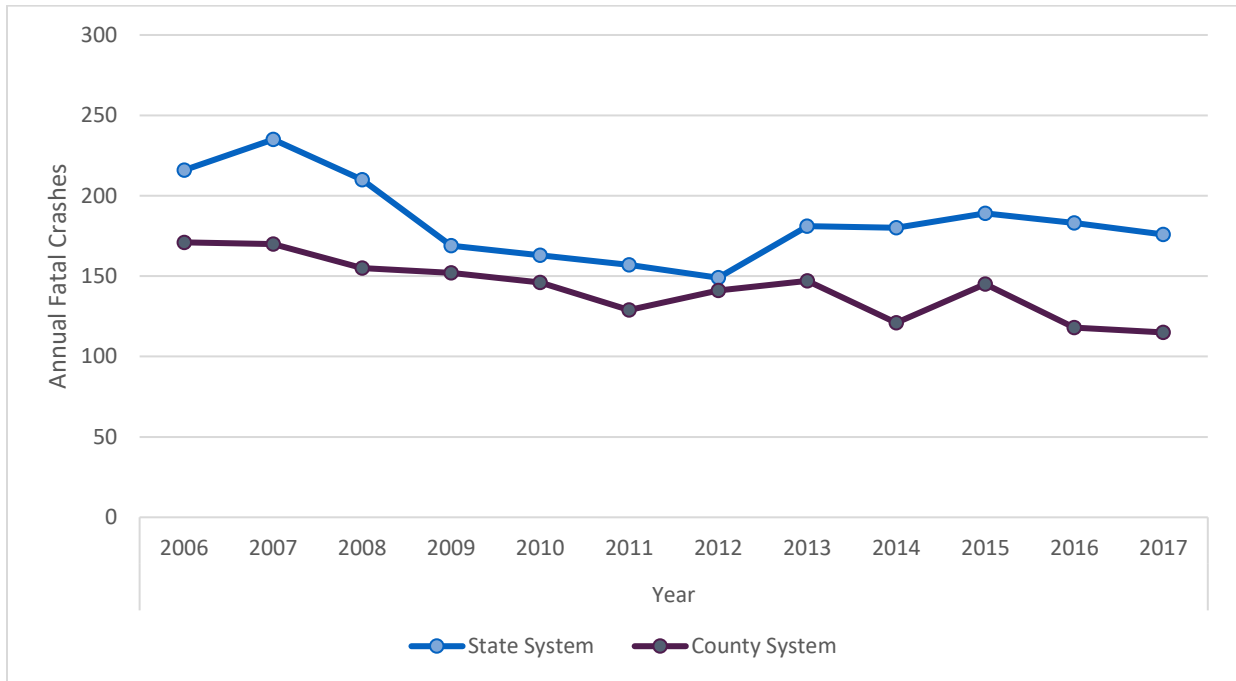


Figure 1-1. Fatal Crashes along Minnesota Roads

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).

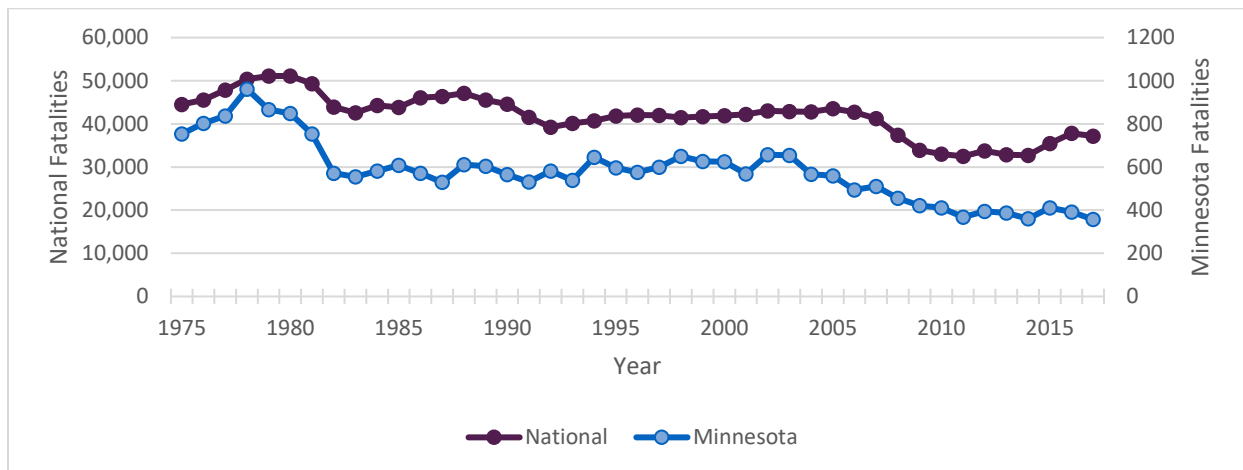


Figure 1-2. Trend in Traffic Fatalities in United States and Minnesota

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 Olmsted 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 Olmsted County roads and county boundary. The Olmsted County Highway Department in Minnesota is responsible for maintenance and management of a system that includes:

- 505 total miles of county roads, of which 367 miles have a paved surface and 138 miles have a gravel surface
- 331 bridges in the County and township system
- 870 intersections: county highways/roads intersecting with state highways, other county roads, city streets, and township roads

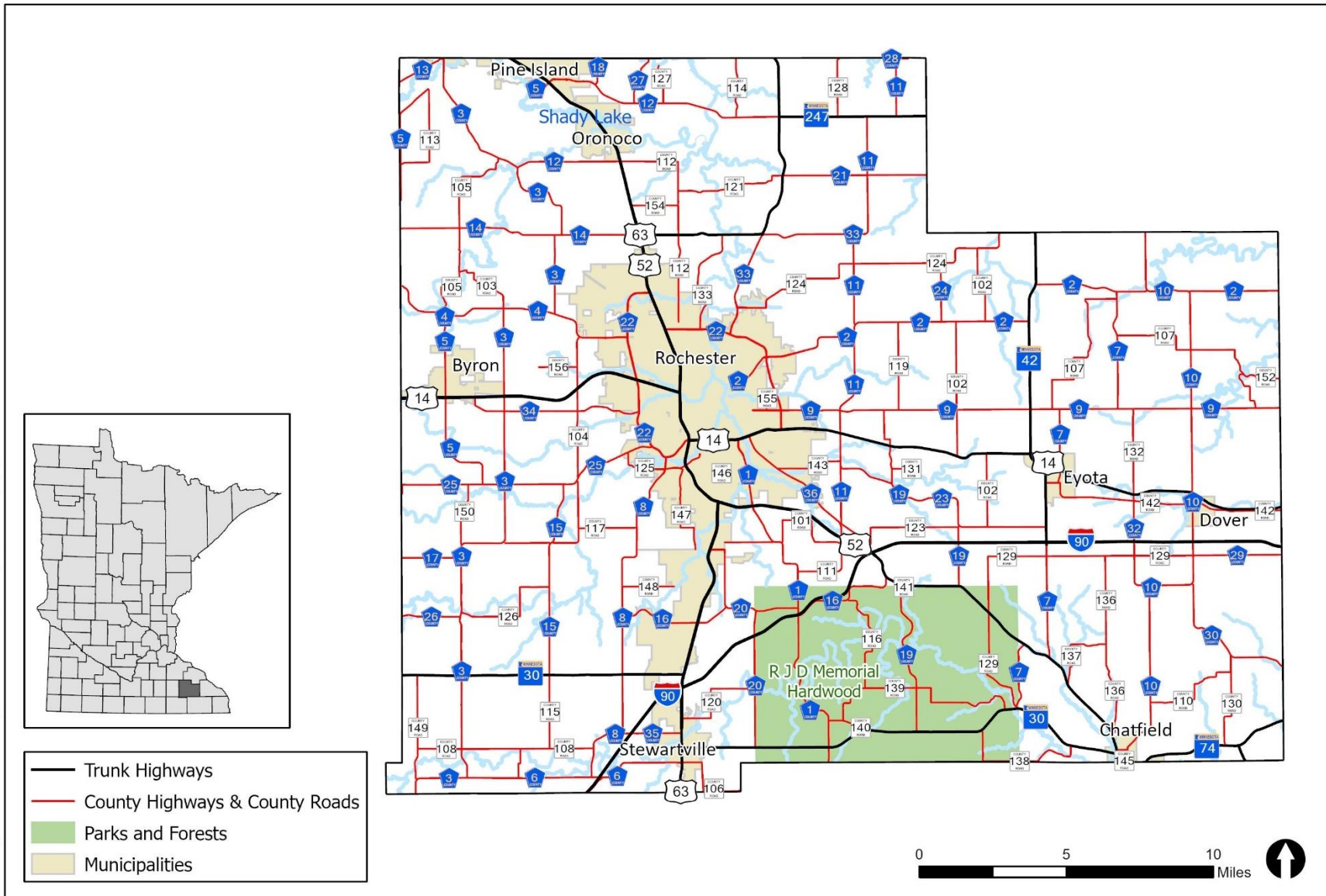


Figure 1-3. Olmsted County Map

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In the 5-year period following completion of Olmsted County's initial safety plan (2010 to 2014), the County secured approximately \$955,000 in HSIP funding to support implementation of 8 safety projects along roadway segments, curves, and intersections (Table 1-2). These safety projects included guard rail, edgeline rumble strips, epoxy 6-inch edgeline, chevrons in curves, upgraded signing, pavement markings, and confirmation lights.

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

Project Description	No. of Projects	Project Cost
<i>Segments</i>		
Guard Rail	1	\$29,000
Edgeline Rumble Strips	2	\$248,000
Epoxy 6 Inch Edgeline	2	\$481,000
<u>Total Segments</u>	<u>5</u>	<u>\$758,000</u>
<i>Curves</i>		
Chevron Installation	1	\$18,000
<u>Total Curves</u>	<u>1</u>	<u>\$18,000</u>
<i>Intersections</i>		
Upgraded Signs and Markings	1	\$104,000
Confirmation Lights	1	\$75,000
<u>Total Intersections</u>	<u>2</u>	<u>\$179,000</u>
<i>Total Projects</i>	<i>8</i>	<i>\$955,000</i>

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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, Olmsted 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 Olmsted 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 Olmsted 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. Olmsted County's workshop was held on October 4, 2017 at Olmsted County Public Works Service Center (refer to Appendix C for details). This workshop was attended by 16 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 Olmsted County, and providing feedback to help the County prioritize infrastructure safety strategies. Figure 2-1 shows the participants at the Olmsted 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
- Enhancing pedestrian safety strategies by adding sidewalks and trails in key locations

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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 6 and for Olmsted 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).

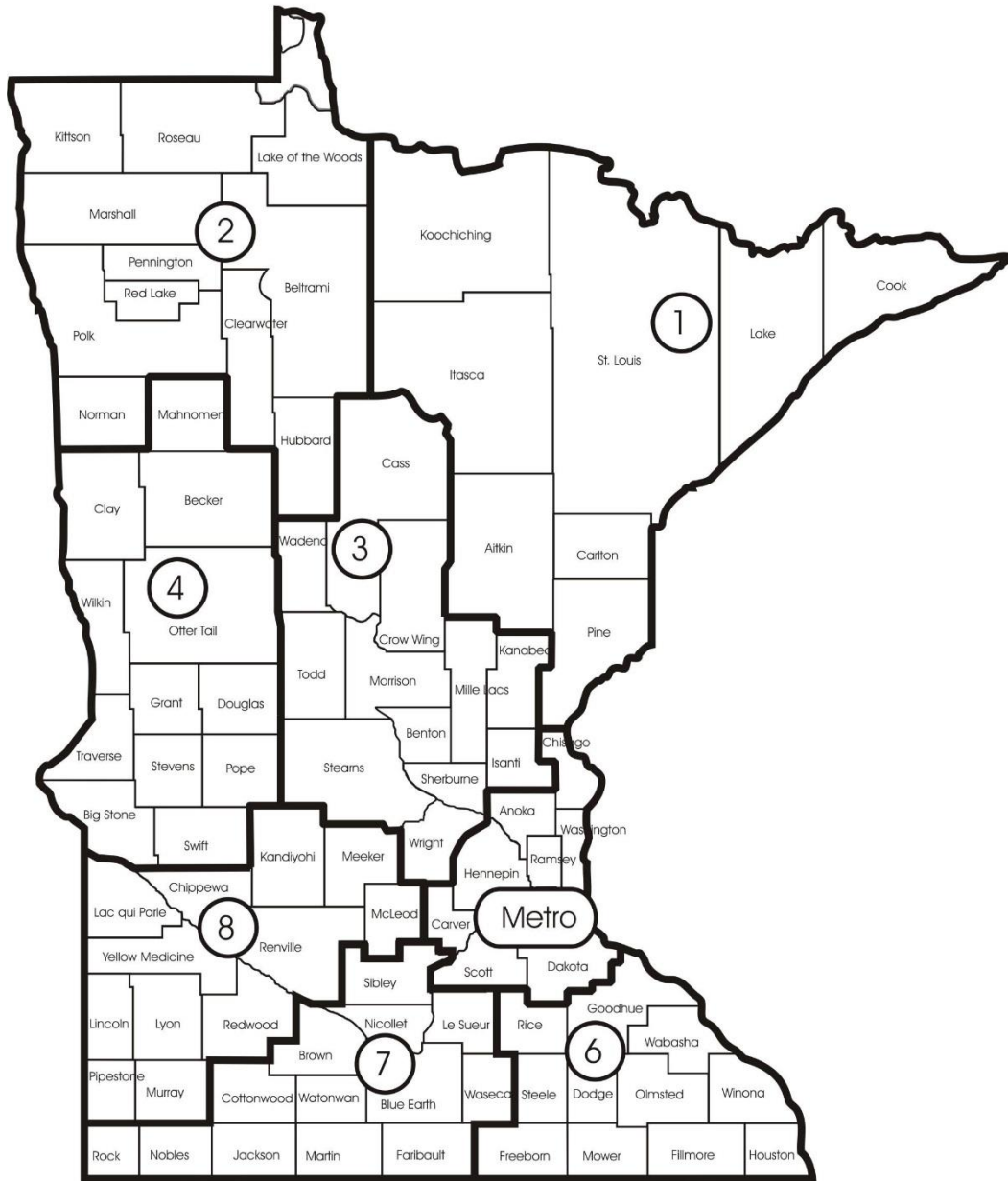


Figure 3-2. Minnesota’s Eight Area Transportation Partnerships

Results of the analysis were consistent among Greater Minnesota, ATP 6, and Olmsted 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.

Table 3-2. Olmsted County Crash Focus Areas

Focus Area ^a	District 6 All Systems	District 6 All Systems	District 6 County System ^b	District 6 County System ^b	Olmsted County All Systems	Olmsted County All Systems	Olmsted County County System	Olmsted County County System
Total Severe Crashes ^c	686	100%	265	100%	167	100%	56	100%
Lane Departure	349	51%	162	61%	66	40%	27	48%
Run-Off-Road	243	35%	130	49%	40	24%	18	32%
Head-On ^d	106	15%	32	12%	26	16%	9	16%
Intersection	227	33%	79	30%	68	41%	24	43%
Speed	129	19%	52	20%	30	18%	10	18%
Inattentive/Distracted Driver	119	17%	45	17%	21	13%	9	16%
Unbelted	249	36%	107	40%	58	35%	23	41%
Impaired	143	21%	59	22%	32	19%	10	18%
Motorcycle	139	20%	70	26%	31	19%	12	21%
Older	111	16%	29	11%	31	19%	7	13%
Younger	108	16%	38	14%	22	13%	7	13%
Pedestrian ^e	48	7%	10	4%	19	11%	2	4%
Bicyclist	16	2%	3	1%	3	2%	1	2%
Unlicensed	66	10%	20	8%	26	16%	8	14%
Work Zone	11	2%	1	<1%	5	3%	0	0%
Commercial Vehicles	79	12%	20	8%	10	6%	3	5%
Trains	6	1%	4	2%	0	0%	0	0%
Deer/Animal	21	3%	12	5%	1	1%	1	2%
Winter Weather	82	12%	24	9%	18	11%	8	14%

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.

3.2 Roadway Facilities

As part of the data-driven prioritization process, crash trees were developed using statewide (Figure 3-3) and Olmsted 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 11 severe crashes per year on Olmsted 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 Olmsted County:

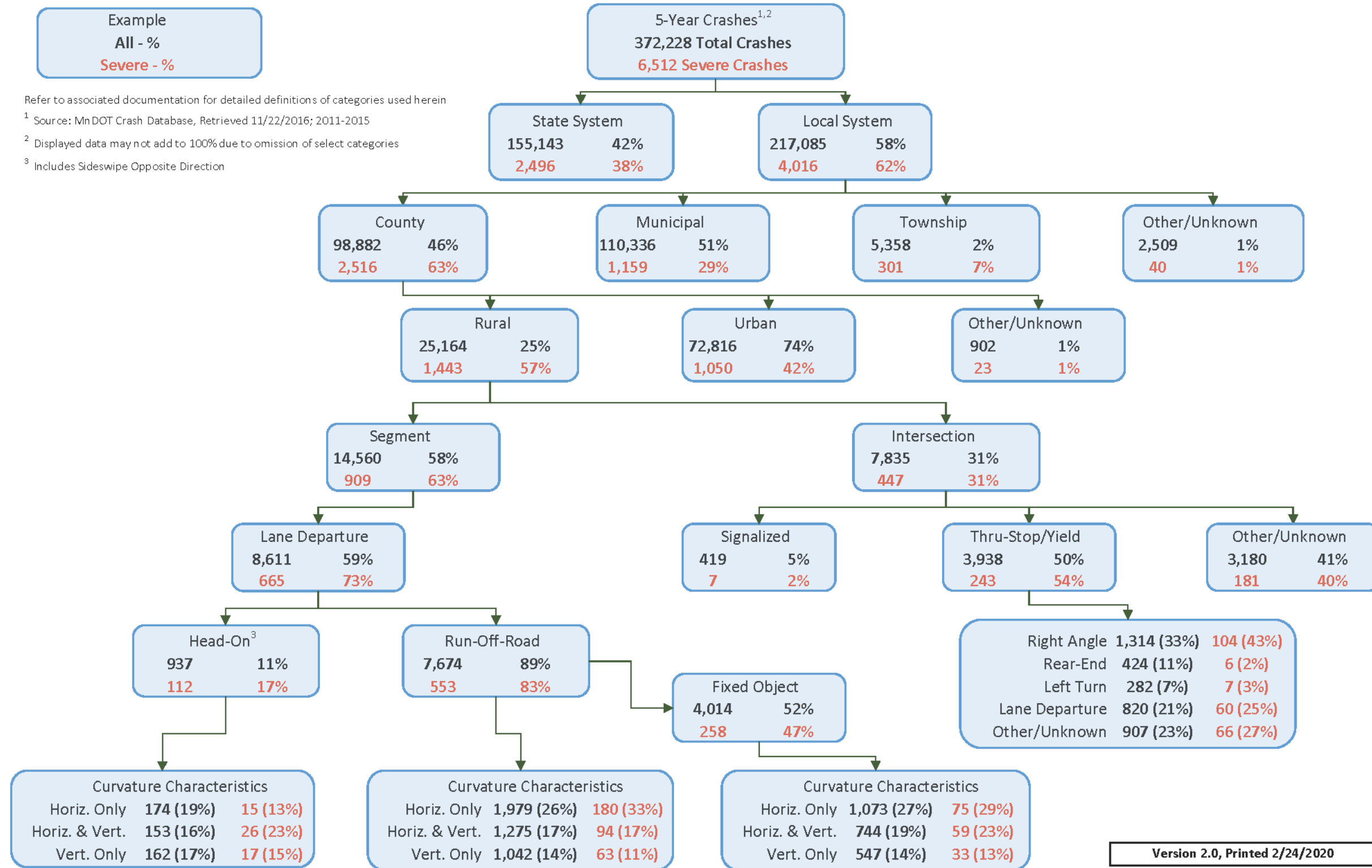
- Rural roadways (55 percent of severe crashes)
- Lane Departure crashes along segments (78 percent), including both single-vehicle run-off-road (64 percent) and multi-vehicle head-on (36 percent)
- Lane Departure crashes in curves (71 percent)
- Right-angle crashes at through/stop controlled rural Intersections

The four bullets above are shown visually in Olmsted County's rural crash tree. Fifty-five 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 58 percent of severe crashes and stepping down twice below the Lane Departure box shows that "Run-Off-Road severe crashes comprise 64 percent of Lane Departure and the other 36 percent were identified in the Head-On box. For Lane Departure crashes in curves, the 71 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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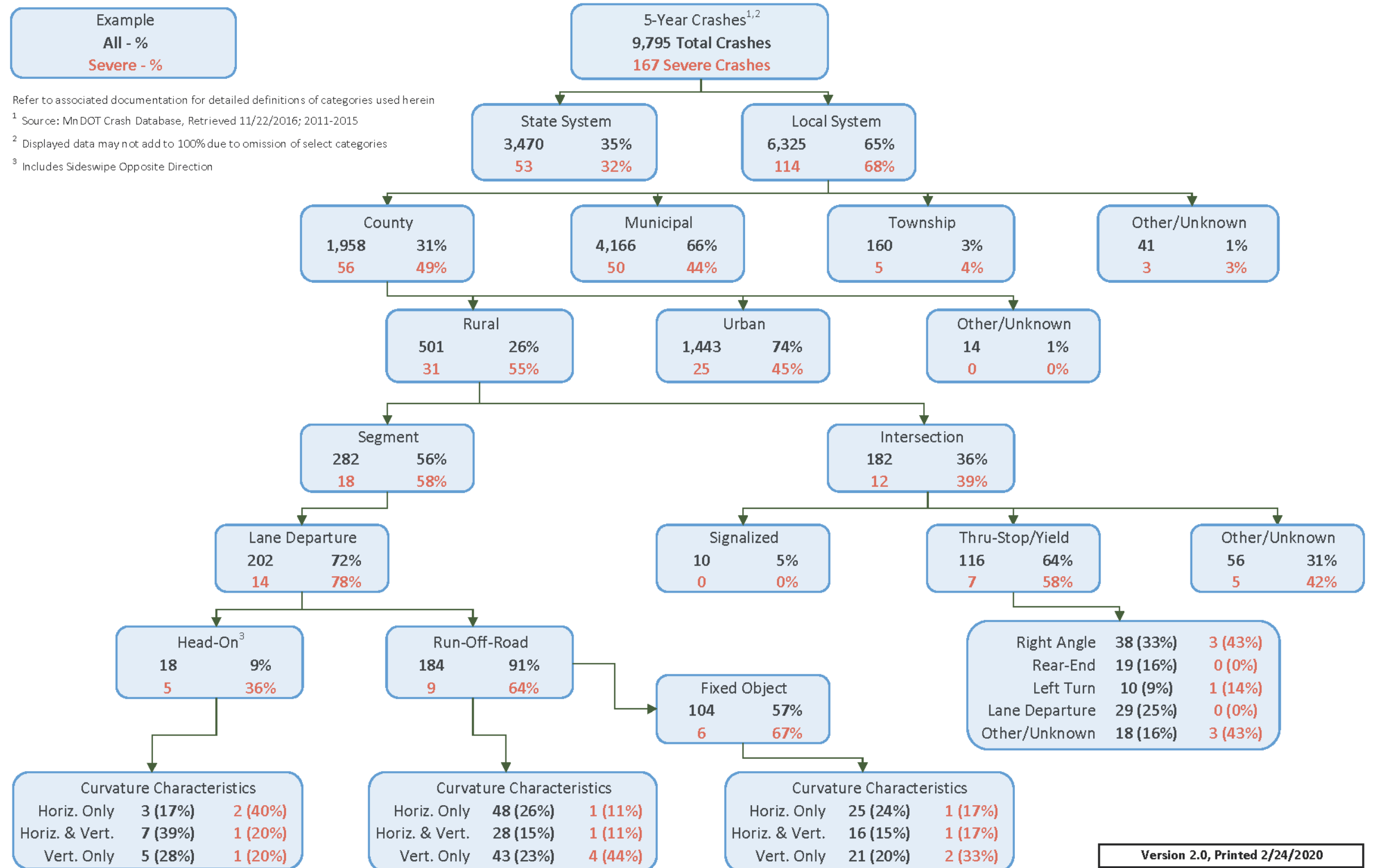


Figure 3-4. Olmsted County Crash Tree – County Rural System

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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, Olmsted 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 Olmsted County, and safety partner input. This process resulted in selection of the 35 priority safety strategies listed below for use in the subsequent safety project development exercise.

- Rural Segments
 - Centerline Rumble Strip (Figure 3-5)
 - Shoulder/Edgeline Rumble Strip
 - Safety Edge
 - Enhanced Edgeline (6" & 8")
 - Shoulder Paving (2', 4', 6' - Figure 3-6)
 - Clear Zone Maintenance/Enhancements
 - Ditch/Embankment Improvements
 - Buffers Between Opposing Lanes (Figure 3-15)
- Rural Curves
 - Chevrons (Figure 3-7)
 - Delineators
 - Dynamic Curve Signing
 - Clear Zone Maintenance/Enhancements

- 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 3-14)
 - Rural Intersection Conflict Warning System¹ (RICWS)
 - Roundabout
 - Turn Lanes (Offset, Channelized)
 - Remove Skew (Figure 3-11)
- Urban Segments
 - ¾-Intersection
 - Divided Roadway
 - Access Management (Figure 3-12)
 - Bike Lane/Boulevard
 - Urbanization (make it feel urban)
 - Dynamic Speed Feedback Sign
- Urban Intersections
 - Pedestrian Countdown Timers
 - Leading Pedestrian Intervals
 - Center Island Medians (Pedestrian Refuge Island - Figure 3-10)
 - Roundabouts (including Mini Roundabout)
 - Urbanization (make it feel urban)
 - Rectangular Rapid Flash Beacon (RRFB)
 - High-intensity Activated Crosswalk Beacon (HAWK - Figure 3-13)
 - 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.

¹ Upon finalizing this report, RICWS was no longer supported by MnDOT. If an HSIP is desired, County to reach out to MnDOT.



Figure 3-5. Centerline Rumble Strip



Figure 3-8. Street Lights



Figure 3-6. Shoulder Paving



Figure 3-9. Light-emitting Diode Stop Sign



Figure 3-7. Chevrons



Figure 3-10. Center Island Medians (Pedestrian Refuge Island)



Figure 3-11. Remove Skew



Figure 3-12. Access Management



Figure 3-13. High-Intensity Activated Crosswalk Beacon (HAWK) or Pedestrian Hybrid Beacon (PHB)

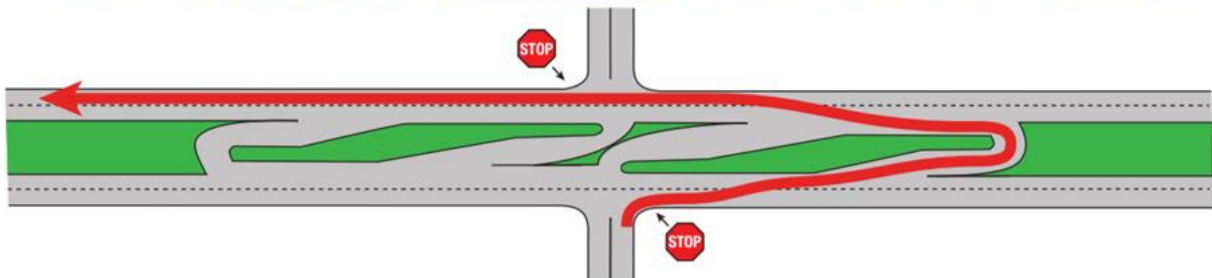


Figure 3-14. Reduced Conflict Intersection (RCI)



Figure 3-15. Buffers Between Opposing Lanes

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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.

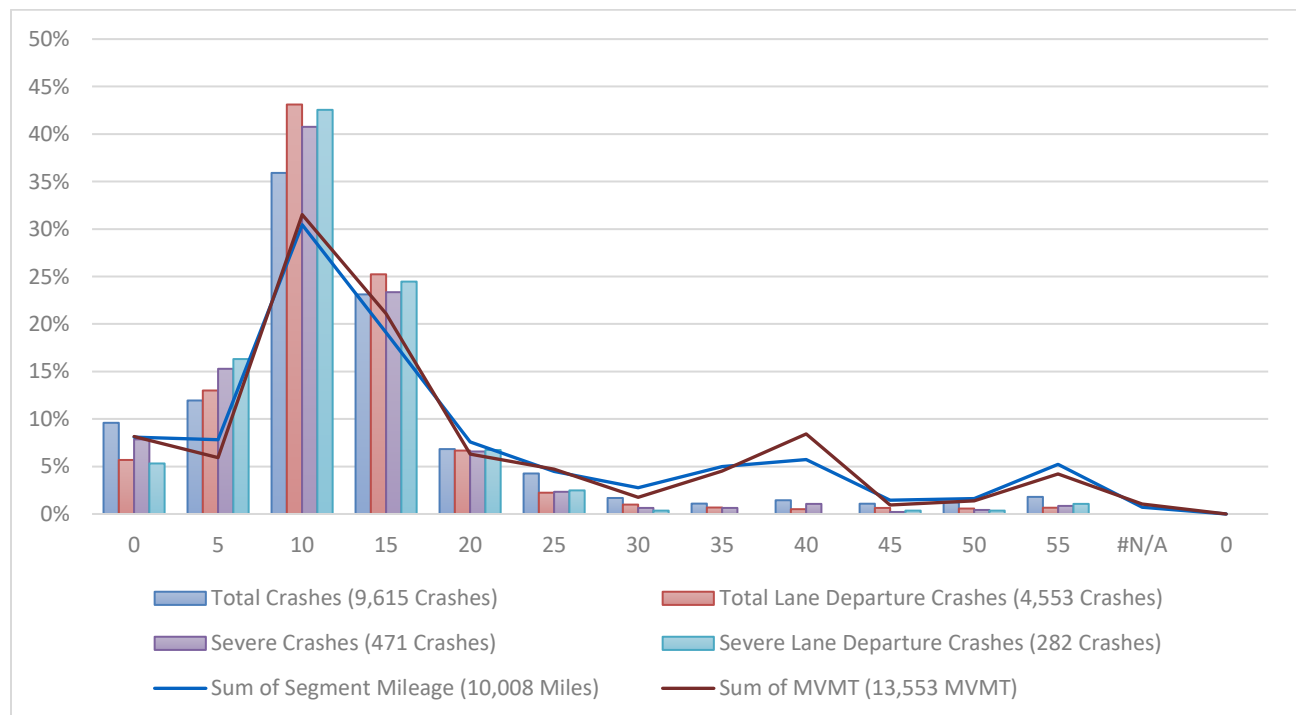
The solution to these problems was development of a new safety analysis approach – the proactive systemic method that resulted from collaboration between MnDOT and the counties. The underlying premise for this systemic process is that severe crashes along the county roadway system are infrequent and 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

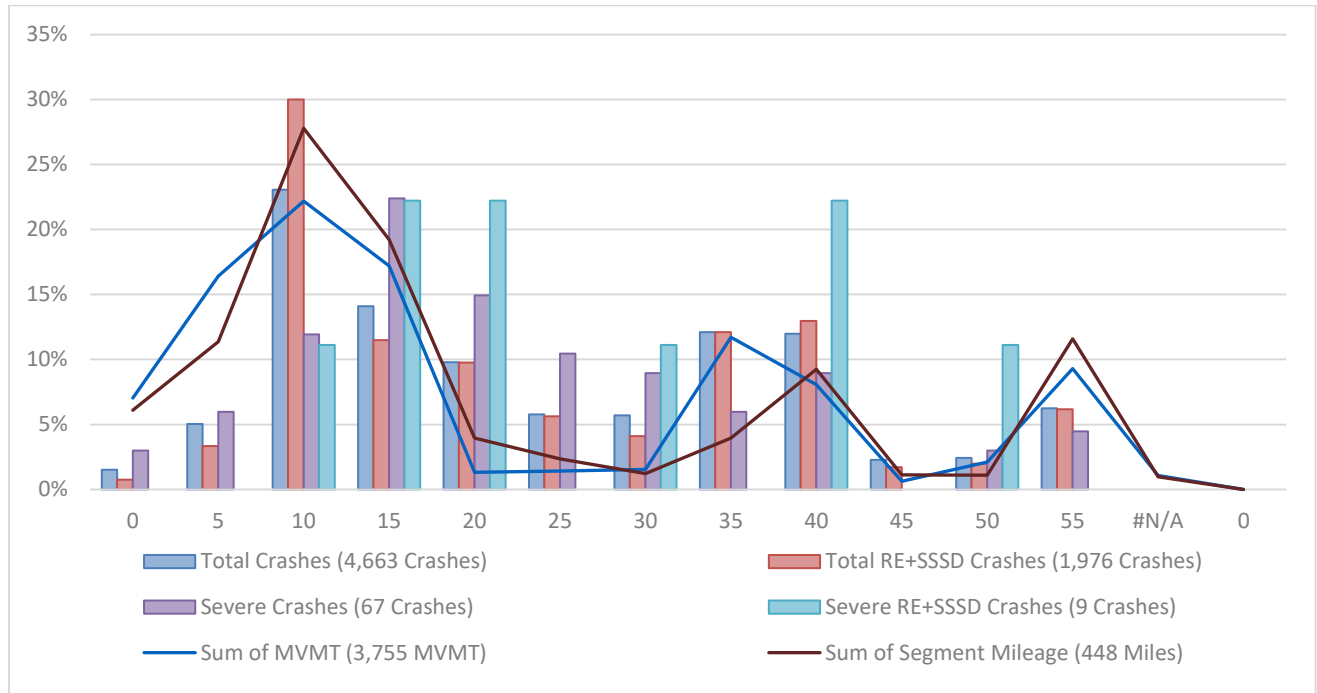
The process of identifying risk factors for CRPS 2 followed a similar process to that of CRSP 1; review the locations with severe crashes, note the roadway and traffic characteristics, and test for over-representation. Examples of the results of the testing for over-representation include:

- **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).



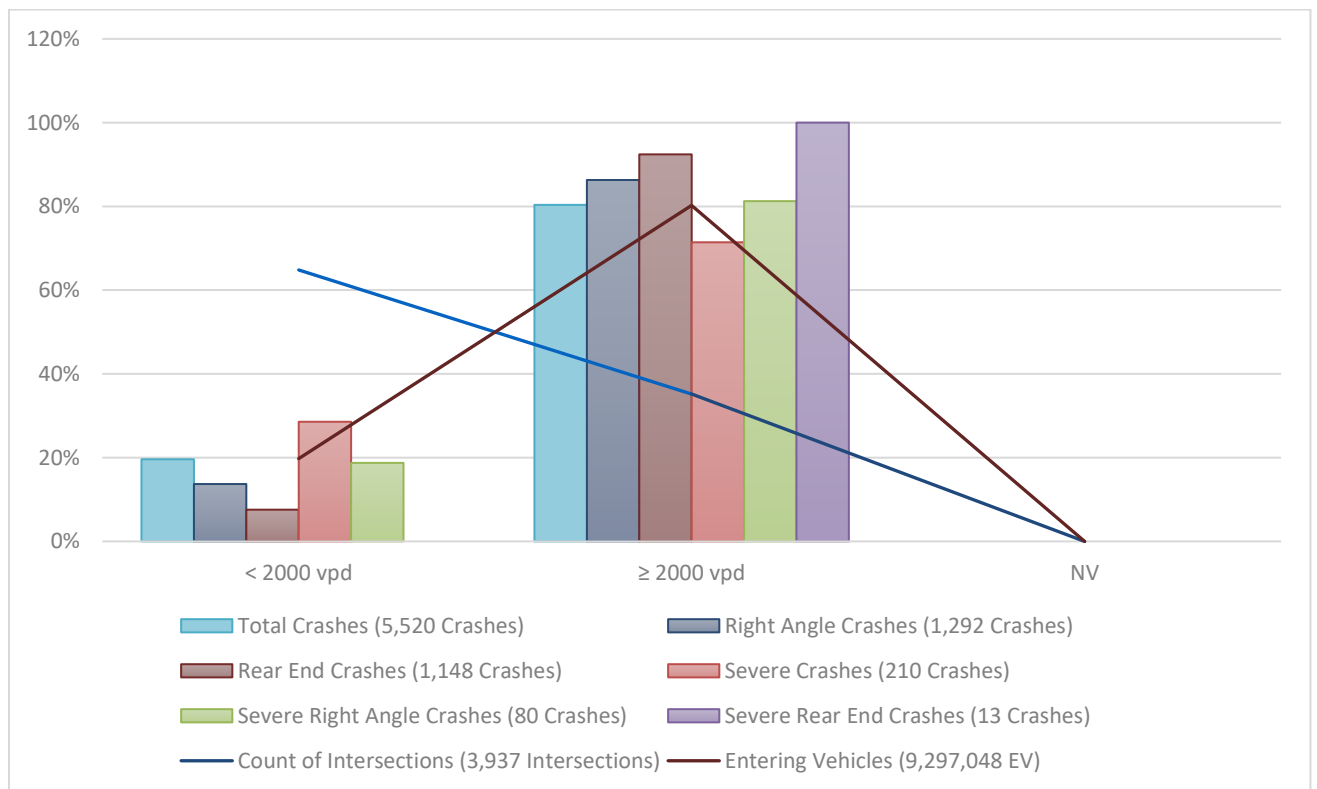
Note: MVMT = million vehicle miles traveled

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



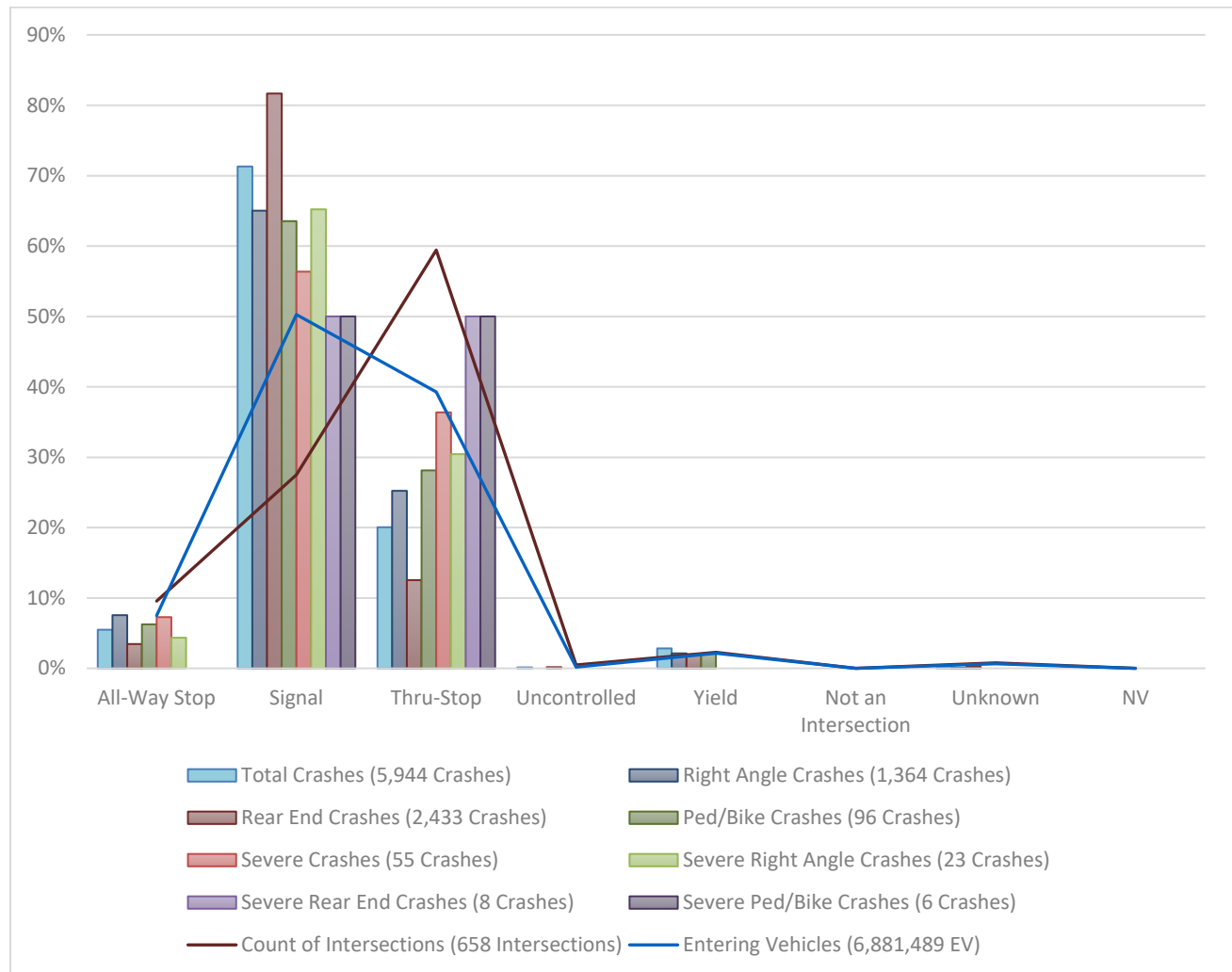
Notes: RE + SSSD = rear end and sideswipe same direction; MVMT = million vehicle miles traveled

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).

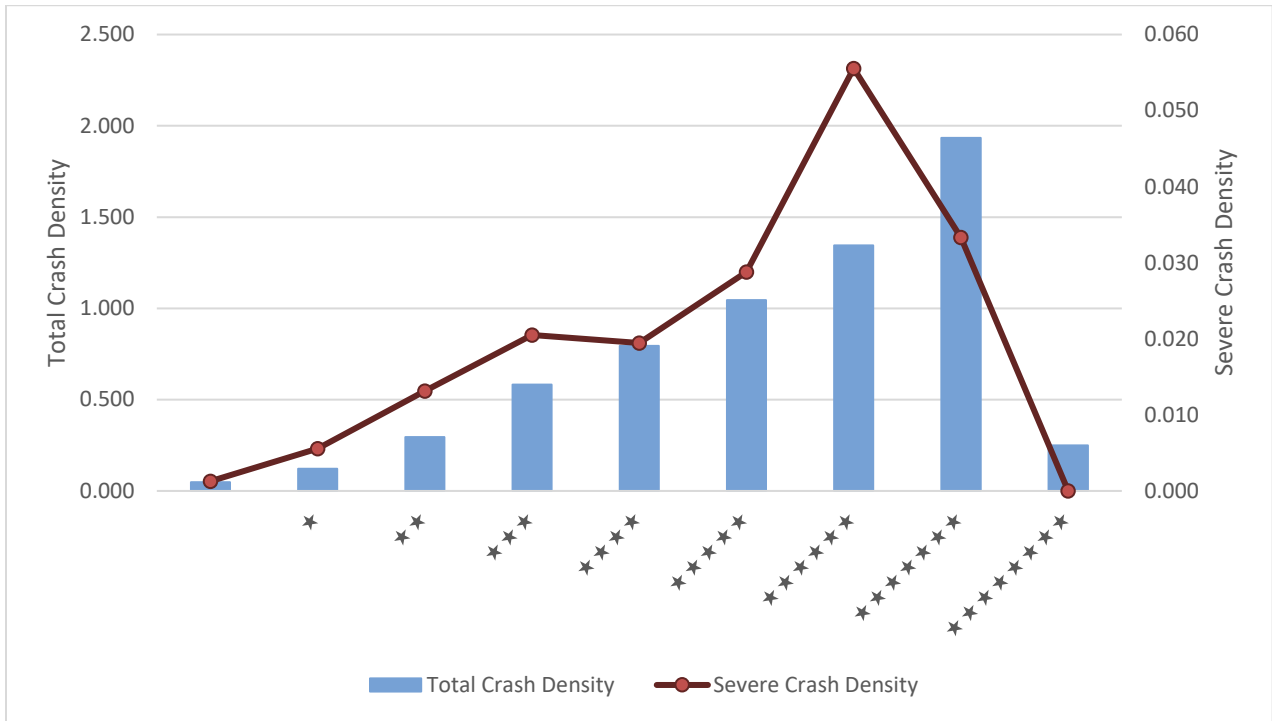


Figure 4-5. Rural Intersection Crash Density Distribution Versus Systemic Risk Rating

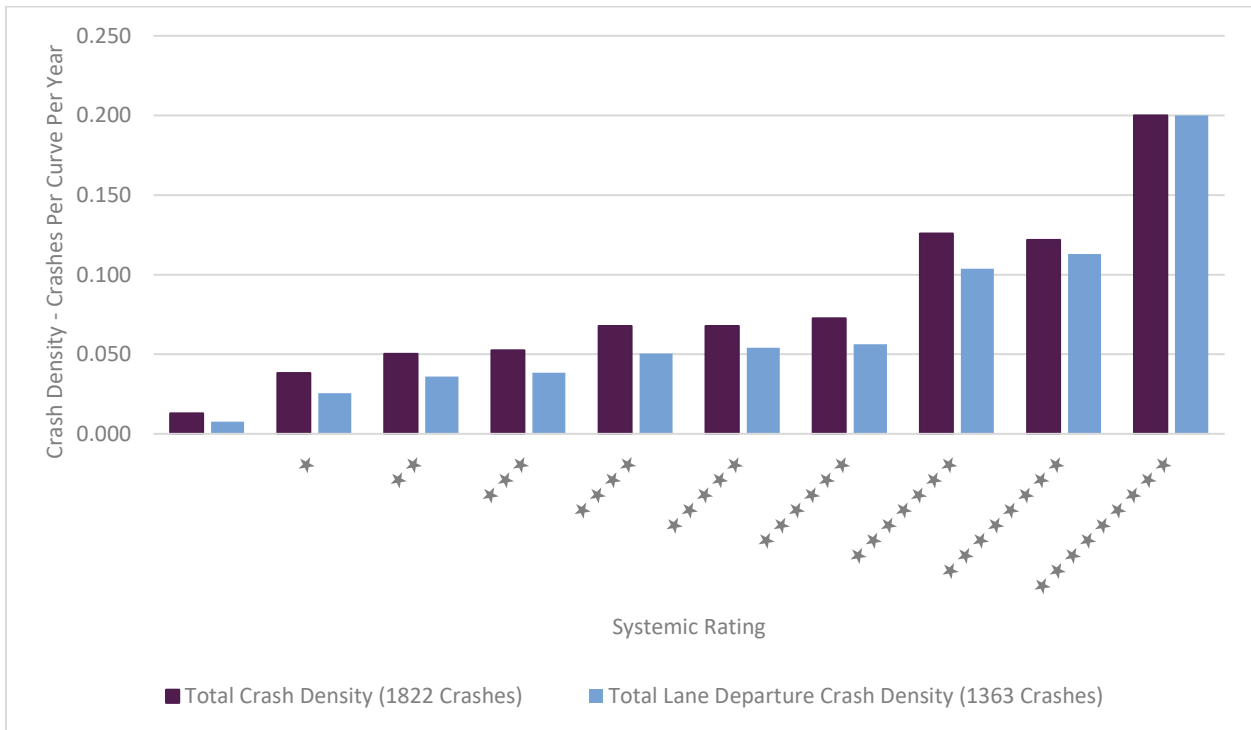


Figure 4-6. Rural Curve Crash Density Distribution Versus Systemic Risk Rating

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 Olmsted County. The adopted risk factors for rural segments, curves and intersections plus urban segments and intersections in Olmsted 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 Olmsted 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.

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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.

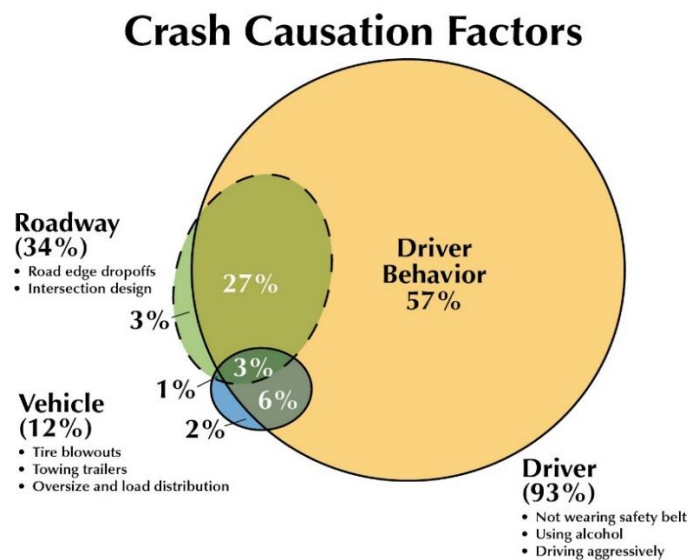


Figure 5-1. Crash Causation Factors²

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

² 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 driver behavior. 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 A 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 edge line 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 Olmsted 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 Olmsted 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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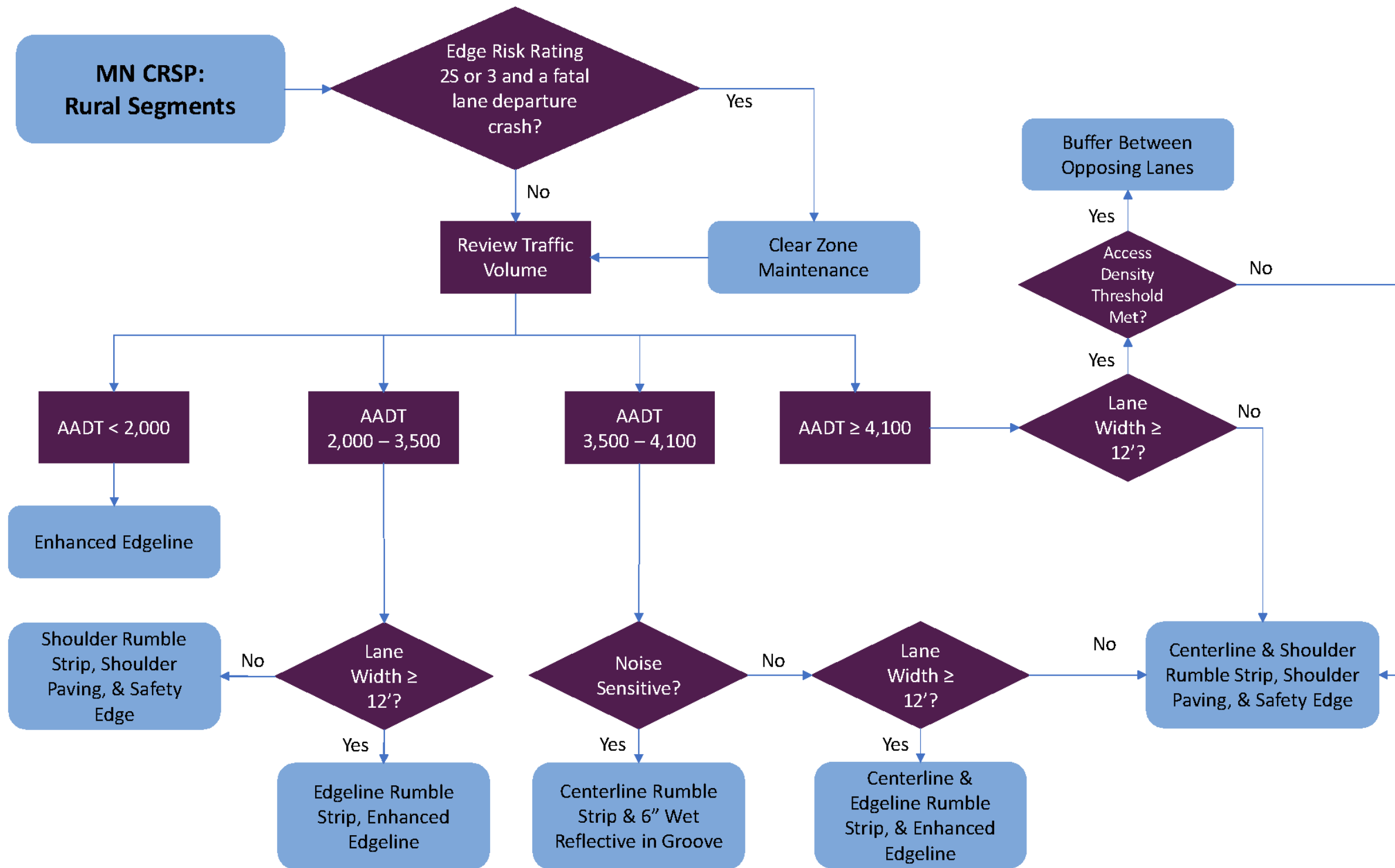


Figure 6-1. Rural Segment Safety Project Decision Tree

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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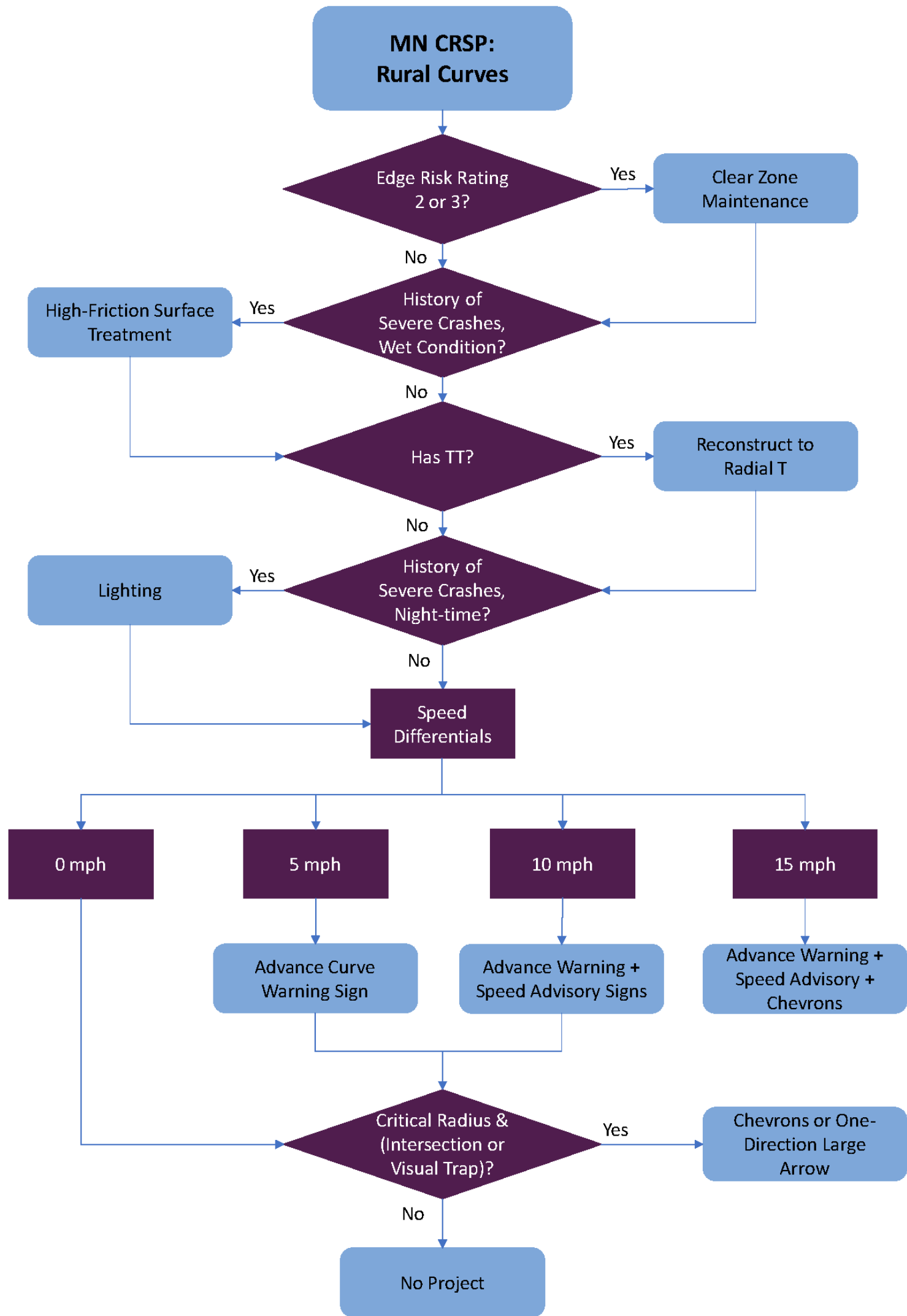


Figure 6-2. Rural Curve Safety Project Decision Tree

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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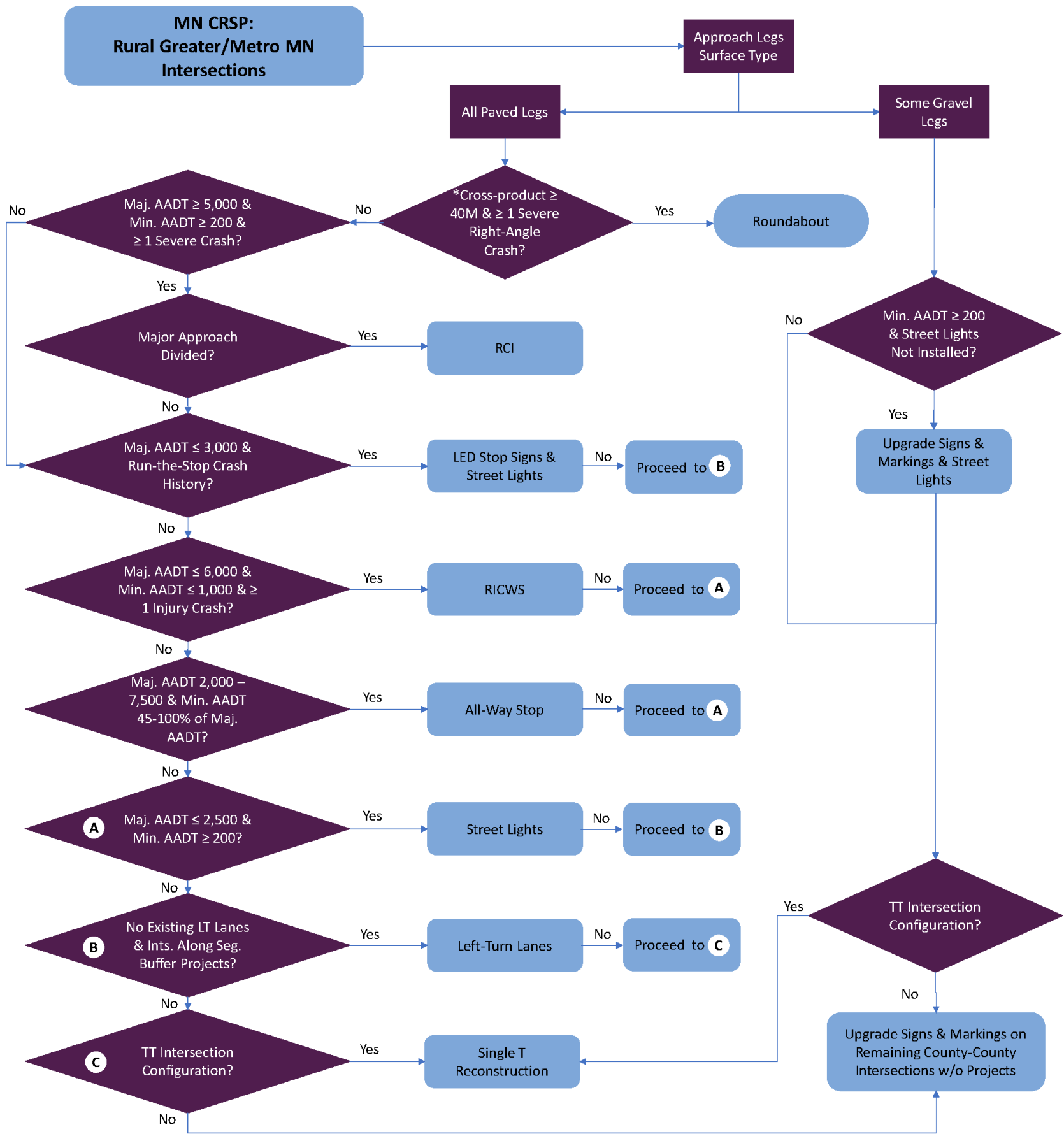


Figure 6-3. Rural Intersection Safety Project Decision Tree

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

Upon finalizing this report, RICWS was no longer supported by MnDOT. If an HSIP is desired, County to reach out to MnDOT.

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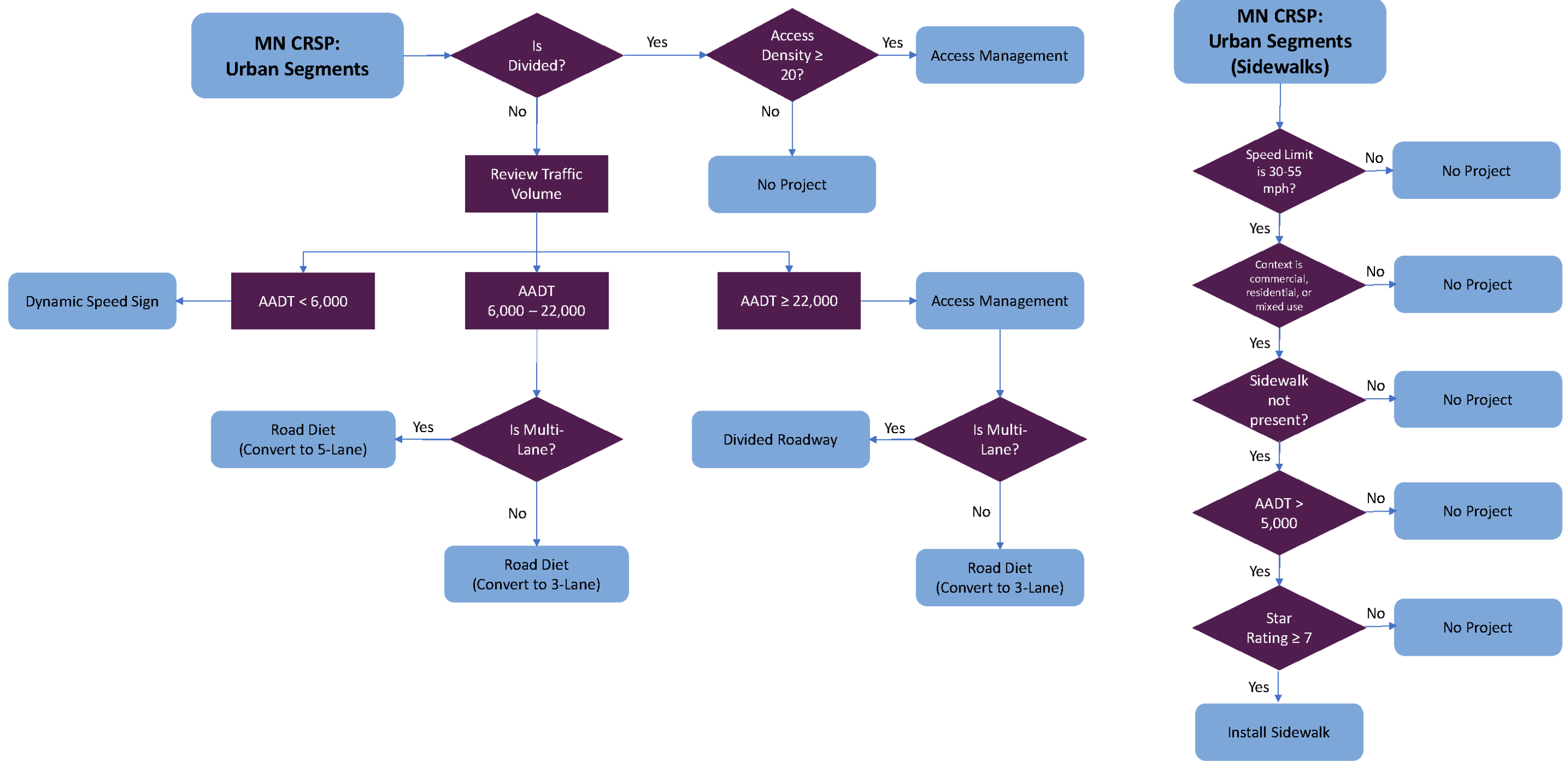


Figure 6-4. Urban Segment Safety Project Decision Tree

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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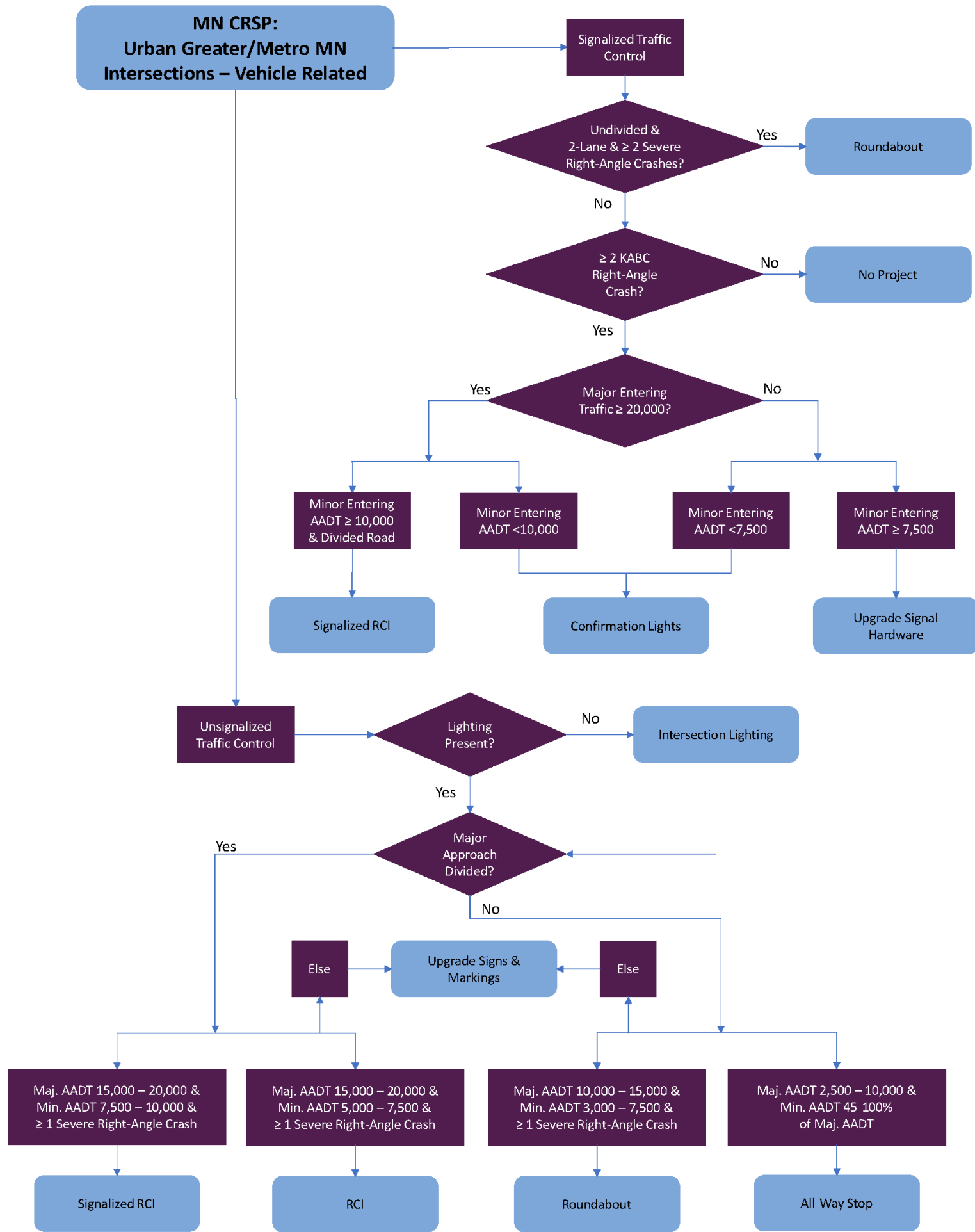


Figure 6-5. Urban Intersections – Vehicle Related Safety Project Decision Tree

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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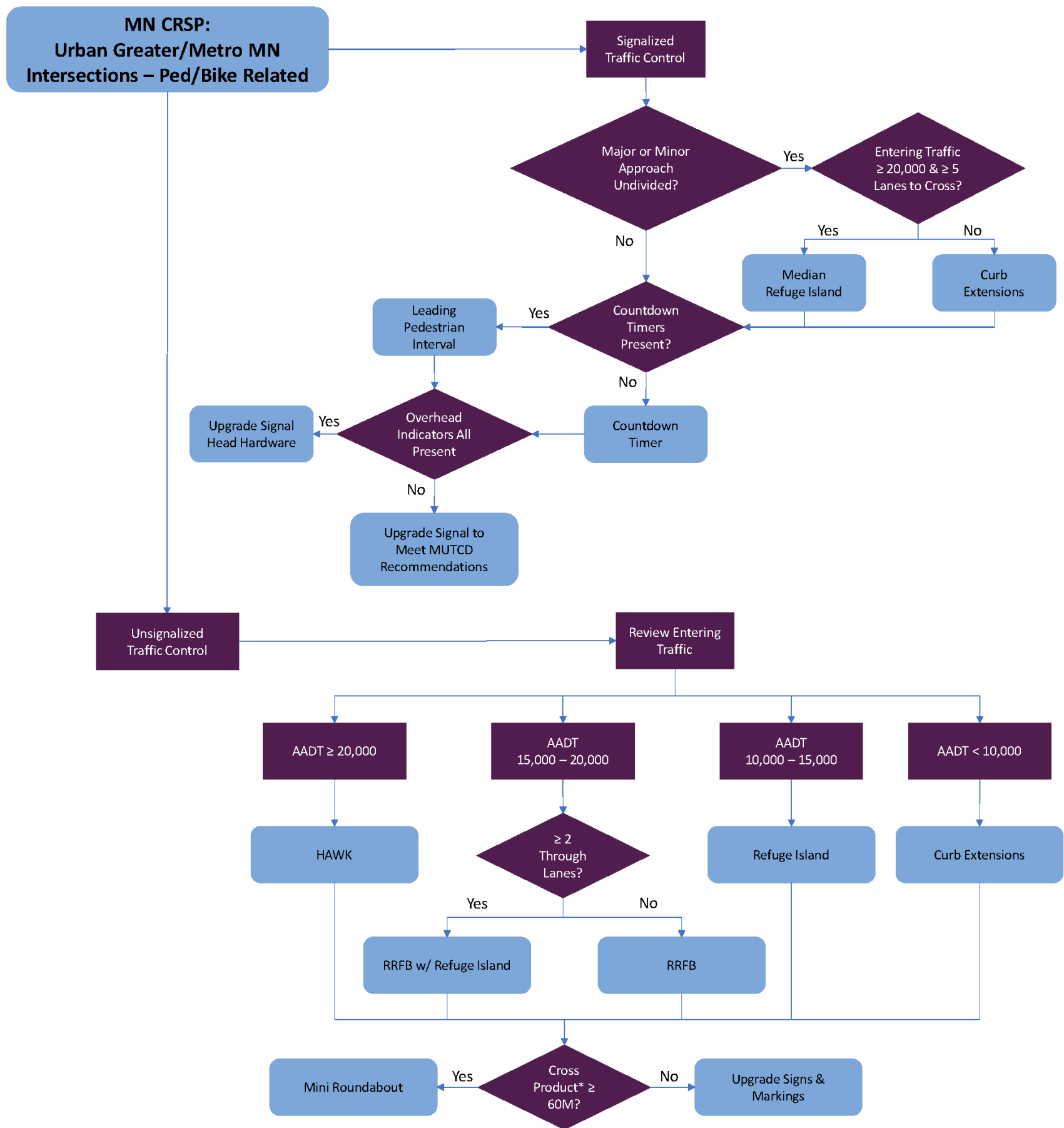


Figure 6-6. Urban Intersections – Pedestrian/Bike-Related Safety Project Decision Tree

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 D and the corresponding maps with project locations can be found in Appendix E.

- Rural Segments: 55 projects/\$3,835,526
 - Buffer Between Opposing Lanes (2 projects)
 - 6" Wet Reflective in Groove (10)
 - Shoulder Paving, Safety Edge (7)
 - Centerline Rumble Strip (18)
 - Edgeline Rumble Strip (6)
 - Shoulder Rumble Strip (11)
 - Enhanced Edgeline (1)
- Rural Curves: 51 projects/\$2,248,651
 - Clear Zone Maintenance (12)
 - Surface Treatment (14)
 - Single "T" Reconstruction (1)
 - Curve Lighting (2)
 - Curve Warning Signs (1)
 - Chevrons/Arrow Board (16)
 - Delineators (5)
- Rural Intersections: 45 projects/\$5,506,000
 - Upgraded Signs & Markings (14)
 - All-Way STOP Conversion (1)
 - Street Lights (8)
 - Left & Right Turn Lanes (21)
 - All Approach Rural Intersection Collision Warning System³ (RICWS) (1)
- Urban Segments: 3 projects/\$939,200
 - Sidewalk (3)

³ Upon finalizing this report, RICWS was no longer supported by MnDOT. If an HSIP is desired, County to reach out to MnDOT.

- Urban Intersections (Vehicle Related): 25 projects/\$1,495,500
 - Confirmation Lights (18)
 - Signalized RCI (1)
 - Upgrade Signal Hardware (4)
 - Intersection Lighting (1)
 - Upgrade Signs & Markings (1)
- Urban Intersections (pedestrian/bike related): 77 projects/\$1,928,500
 - Median Refuge Island (12)
 - Curb Extension (1)
 - Countdown Timers (1)
 - Leading Pedestrian Interval (28)
 - Rectangular Rapid Flash Beacon (RRFB) w/Refuge Island (3)
 - Upgrade Signal Head Hardware (20)
 - Update Signal to Meet MUTCD Recommendations (9)
 - Upgrade Signs & Markings (3)

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

Project Type Category	Number of Projects	Estimated Cost
Rural		
Segments	55	\$3,835,526
Curves	51	\$2,248,651
Intersections	45	\$5,506,000
<u>Total Rural</u>	<u>151</u>	<u>\$11,590,177</u>
Urban		
Segments	3	\$939,200
Intersections (Vehicle)	25	\$1,495,500
Intersections (Ped/Bike)	77	\$1,928,500
<u>Total Urban</u>	<u>105</u>	<u>\$4,363,200</u>
Total	256	\$16 million


One additional task that was completed as part of the overall safety project development process for Olmsted 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 F.

Rural Intersection on CSAH 4 at Frontage Rd NW

Roadway Information

Description: Frontage Rd NW
 County: Olmsted
 Area Type: Small Town
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 4
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: Present
 Flasher: None
 Major ADT: 5,500
 Minor ADT: 2,050
 Total Entering ADT: 7,550



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

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	5	0	3	0
Density (per curve per yr):	1.0	0.0	0.6	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):	30	≥60	
Context Zone:	Residential	Commercial, Industrial Mixed Use, Residential	★
Entering ADT(vpd):	7,550	≥ 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:	TR	LTTR 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:	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 #: 12
 Curve ID: 5.007
 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 – Regional TZD Coordinator Contact

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Contact MN TZD¹

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

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



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Appendix B – Meeting Minutes/Summaries

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Milestone Meeting #1

PREPARED BY: Cheri Marti/CH2M
COUNTY: Olmsted County
MEETING DATE: February 8, 2017
MEETING TIME: 9:00 am – 12:00 pm CST
LOCATION: Whitewater Conference Room
MnDOT District Office
2900 48th Street NW, Rochester
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: Olmsted County
MEETING DATE: February 8, 2017
MEETING TIME: 9:00am – Noon CST
LOCATION: MnDOT District Office
2900 48th Street NW
Rochester, MN 55901
Whitewater Conference Room

ATTENDEES: Mark Vizecky/MnDOT State Aid
Sulmaan Khan/MnDOT State Aid
Derek Leuer/MnDOT OTSO
Kaye Bieniek/Olmsted County
Ben Johnson/Olmsted County
Scott Holmes/Olmsted 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

Olmsted County:

- Scott Holmes will contact Ann Johnson (Ann.Johnson@peservicesmn.com) to schedule a conference call to talk through how to make decisions to setup the initial roadway network.
- Olmsted County will review their system and will do their best to identify locations where safety strategies have been installed.
- Olmsted County will provide a few locations that have steep inslopes where they have striped narrower lanes to provide a shoulder.
- Olmsted County will notify Veronica Richfield (Veronica.Richfield@ch2m.com) of what analysis options they are interested in pursuing by April.
- Olmsted 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 the end of April.
- Olmsted County will sit down with county staff to discuss the workshop goals/key messages and general format of the workshop they would like to host and decide by end of April.

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.

Discussion Items

- **Welcome, Introductions and Project Progress** [20 min.]
 - a. **Process schedule – review county milestone and working group meetings**
No comments
 - b. **County data collection update**
 - Olmsted 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:
 - Please include these criteria:
 - Include curve analysis
 - What other “low hanging fruit” can they take care of?
 - Inslopes in Clear Zones
 - Shoulder treatments?
 - Behavior issues at intersections
 - Enforcement issues
 - How to partner with police?
 - Pedestrian incidents
 - What is the preferred length of a segment? Is there a benefit to match pavement management if the segments are short? If a pavement project is planned in the future, the safety strategy can line up with the construction for the same segment.
 - Olmsted County staff are concerned that their roadway network was not originally segmented in the original study so it seems like a lot of work to get it all setup. They will spend some time reviewing the system and come up with their idea of the best segmentation and then will check in with Ann.
ACTION ITEM: Scott Holmes will contact Ann Johnson (Ann.Johnson@peservicesmn.com) to schedule a conference call to talk through how to make decisions to setup the initial roadway network.
- **Review: County Project Implementation** [30 min.]
 - a. **Review of safety projects implemented from previous CRSP (*what, where, when, funding*)**
 - Some segment projects are within another project, not always the same length/limits. Provide the end points of each project individually. Provide funding source if possible.
 - Safety work to date has been installed through construction system for the most part, very little HSIP funding. Olmsted County’s approach is that safety strategies are always included in construction projects. This makes it hard to track when strategies were installed as they are rarely a stand alone project. Safety edge, 6” edgelines and edgeline rumbles (when appropriate) are standard part of design approach. Starting to use wet reflective edgelines as a standard.
 - *ACTION ITEM: Olmsted County will review their system and will do their best to identify locations where safety strategies have been installed.*
 - b. **Crash analysis of completed projects**
No comments.
- **Discussion: County-Specific Desires of CRSP Update Process** [60 min.]
 - a. **Review draft outline of county’s Roadway Safety Plan**
 - Olmsted County is working with a TZD safety coalition on a regular basis. Make sure this is documented in the report.

- Olmsted County has some locations where they have struggled with steep inslopes and no shoulders. Tried to stripe narrower to provide shoulder as there are no funds available to regrade the slopes.
ACTION ITEM: Olmsted County will provide a few locations that have steep inslopes where they have striped narrower lanes to provide a shoulder.
- The recent growth of population in Rochester has increased pedestrian activity which has resulted in an increase in pedestrian involved crashes.
- There has been an increase of head-on crashes on the state system. Olmsted has seen a few more on “commuter” roads. This is the first year that Olmsted will be installing centerline rumbles.
- *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)

a. Preferred system components for detailed analysis and project recommendations

- *ACTION ITEM: Olmsted County will notify Veronica Richfield (Veronica.Richfield@ch2m.com) of what analysis options they are interested in pursuing by April.*

• **Review: County Crash History** [25 min.]

a. **Focus Areas**

No comments

b. **Crash Trees**

No comments

c. **Map of Severe Crashes**

No Comments

• **Preview of Upcoming Tasks** [25 min.]

a. **Safety Countermeasures/Strategies**

- HSIP funding used to be only for standalone projects, now can sometimes be used along with other construction projects.
- The City of Rochester has adopted many Complete Streets initiatives that introduced a lot of innovative ideas such as road diets, bike lanes with sharrows, reducing driving lanes to provide bike lanes, etc. that has raised a lot of questions from the public about safety. This has created some concerns between city and county staff on safety, as the county has not adopted complete streets on their roadways. Olmsted County is focused on making sure the road is safe first.
- *ACTION ITEM: Olmsted 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 the end of April.*

b. **Safety Workshop Format Options**

- The workshop Olmsted did last time had a great mix of attendees from various agencies, law enforcement, elected officials, safety stakeholders, etc.
- The workshop this time around is more focused on the engineering strategies rather than behavioral strategies.
- Olmsted County has a strong TZD team in the district. They communicate regularly and bring up concerns about locations that seem unsafe, even if a crash hasn’t occurred, which provides great perspective. These types of meetings that already occur are similar to the presentation/facilitation workshop format.
- Olmsted County is leaning more toward the workshop format that includes looking at specific locations and talking thru issues at each as a group, but possibly some aspects from the

- presentation/facilitation version that can be used more as an “update/reminder” of the importance of roadway safety. We need to be careful of attendee expectations. Stakeholders will expect some action to take place based on feedback they give. When planning the safety workshop, possibly consider how to bring the City of Rochester more in alignment with Olmsted County regarding safety strategies. Olmsted to think about “key messages” that may be important to reinforce at their safety workshop.
- Getting buy in from the Olmsted County Board is not a concern, they are on board with roadway safety.
 - *ACTION ITEM: Olmsted County will sit down with county staff to discuss workshop goals/key messages and general format of the workshop they would like to host and decide by end of April.*

 - **Wrap-Up** [5 min.]
 - a. 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.
 - b. Action Items – See full list on the first page of this summary



Project Review Meeting

PREPARED BY: Renae Kuehl, Nicole Buehne/SRF
COUNTY: Olmsted County
MEETING DATE: July 19th, 2018
MEETING TIME: 1-3pm pm CST
LOCATION: Olmsted County Public Works Service Center (PWSC), 1188 50th Street SE. , Rochester, MN 55904
ATTENDEES: Kaye Bieniek, Scott Holmes, Ben Johnson, Nick Sandford/Olmsted County
Howard Preston/Jacobs
Renae Kuehl/SRF (via Phone)

Meeting Goal: Review the project prioritization and strategy suggestions for Hennepin County.

Input from the County:

- Commissioners are regularly looking for a map that plots all of the crashes that exist. We could make on as part of this project, but would be limited to the analysis years 2011-2015.

Meeting Action Items:

- Rural Intersections:
 - Rank 4 – I.55.4.16.008 – This intersection is already a roundabout. Remove suggested projects (Robert/Jacobs)
 - Rank 7 – I.55.4.16.009 – This intersection is already a roundabout. Remove suggested projects (Robert/Jacobs)
- Urban Segment
 - Rank 1 – S.55.4.25.003 – CSAH 25 from CTH 22 to South Broadway was turned back to the City of Rochester. Remove from analysis (Robert/Jacobs)
 - Rank 3 – S.55.4.22.001 – CSAH 22 from USTH 52 to Olmsted CTH 33/Broadway was turned back to the City of Rochester. Remove from analysis (Robert/Jacobs)
 - Rank 8 – S.55.7.145.001 – CR 145 was turned back to the City of Rochester. Remove from analysis (Robert/Jacobs)
- Urban Intersections – Vehicles – PDF is only one page, looks like its missing a few pages. Send a new version with the full list. (Robert/Jacobs)
- Send Olmsted County .KMZ maps of all project locations for ease of review – Renae (SRF)
- Tentative deadline for reviewing all lists is 4 weeks from now (August 17st) – Olmsted County Staff

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Appendix C – Workshop Material

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WORKSHOP AGENDA



Olmsted County Roadway Safety Workshop

WORKSHOP DATE: Wednesday, October 4th, 2017
MEETING TIME: 8:15 Registration; 8:30 AM – 1:00 PM Safety Workshop
LOCATION: Olmsted County Public Works Service Center
 1188 50th Street SE
 Rochester, MN 55904

Workshop Agenda

8:15	Registration and Refreshments	
	Welcome, Introductions and Workshop Goals	
8:30	<ul style="list-style-type: none"> Create a shared understanding of CRSP and Olmsted County's infrastructure roadway safety approach Solicit and share safety stakeholder perspectives Collaboratively explore innovative infrastructure strategies for priority site locations. 	Cheri Marti, CH2M/ Kaye Bieniek County Engineer
8:40	County Roadway Safety Plan (CRSP) Updates	
	<ul style="list-style-type: none"> Overview of CRSP Discussion: <i>What is important to advance road safety in the county?</i> Overview of Proactive Systemic Safety Approach 	MnDOT All Howard Preston/CH2M
9:30	<ul style="list-style-type: none"> Implemented Safety Projects and Olmsted County Safety Approach 	Howard Preston/ Kaye Bieniek
9:50	<ul style="list-style-type: none"> Olmsted County Crash Data Overview and Focus Areas 	Howard Preston
10:10	Break (10 Minutes)	
10:20	"Big Book of Ideas" + Featured Infrastructure Safety Strategies	
	Priority Site Location Discussions	Kaye Bieniek & Safety Stakeholders
10:55	<ul style="list-style-type: none"> County Site Overview [10 min.] Site Crash Facts [5 min.] Alternative Safety Strategy Discussion [20 min.] Summary [5 min.] 	CH2M All CH2M
11:00	1. Segment: CSAH 36 (Marion Road), from 30 th Avenue SE to TH 52.	
11:40	2. Intersection: CSAH 1 and TH 30	
12:30	Wrap Up/Next Steps + Workshop Evaluation + Lunch	
1:00	Adjourn	

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Olmsted County


October 4, 2017

County Roadway Safety Plan Updates

1

Workshop Goals

- Create a shared understanding of CRSP and Olmsted's infrastructure roadway safety approach
- Solicit and share safety stakeholder perspectives.
- Collaboratively explore innovative infrastructure strategies for priority site locations.



2

Agenda Review

Workshop Agenda

8:15	Registration and Refreshments	
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12:30	Wrap Up/Next Steps + Workshop Evaluation + Lunch	
1:00	Adjourn	



3

3

Handouts Review

Left Pocket:

- Agenda
- PPT Slides
- Implemented projects table
- County Rural Crash Tree
- County Urban Crash Tree
- Big book of ideas
- Site location packets (2)
- Evaluation form

Right Pocket:

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

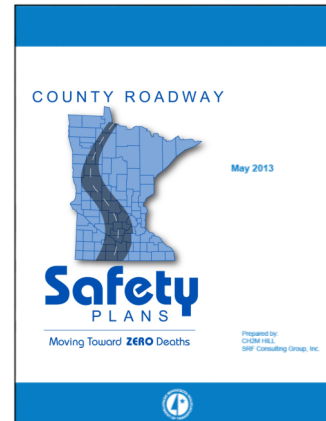


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What is a County Roadway Safety Plan or “CRSP”?

- CRSP Identifies priority safety concerns and suggested infrastructure improvements.
 - Location-specific safety concerns
 - Prioritized list of suggested safety improvements
- In 2014, initial plan for all 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.



5

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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.

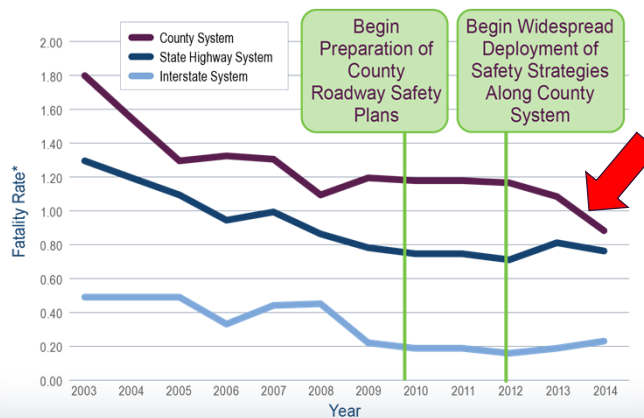


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What are the initial results of county road safety improvements?

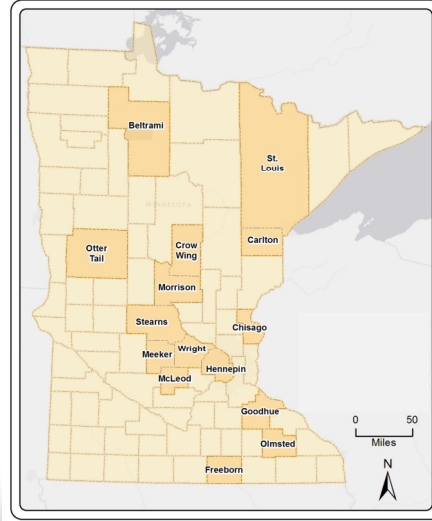
The implementation of nearly \$60 million of road safety improvements from 2012 to 2014. During this time, Minnesota's **county system** *fatality rate decreased 25%



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CRSP Update - Phase 1 (15 Counties)



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DDSA Minnesota Case Study Video



10

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Discussion

What is important to advance road safety in the county?



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County Roadway Safety Plan
Toward **ZERO** Deaths

Overview of Proactive Systemic Safety Approach

County Roadway Safety Plan Updates

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Why Proactive Systemic Safety Approach (or Systemic Risk Analysis)?

- Traditional method for conducting a safety analysis: **“high crash” locations**
- This method was a barrier to local system participation in statewide safety programs: no locations met the high crash designation

The solution for local system safety analyses =
Systemic Risk Analysis



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What is a Systemic Risk Analysis?

- **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.



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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 >\$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!



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



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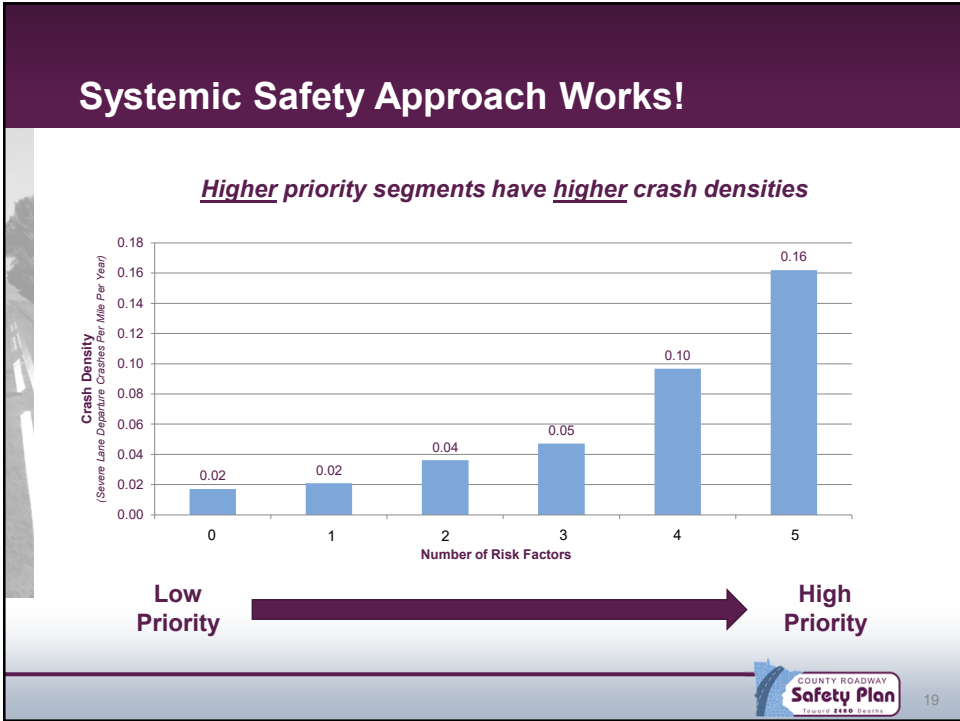
Risk Factor Identification

Intersections

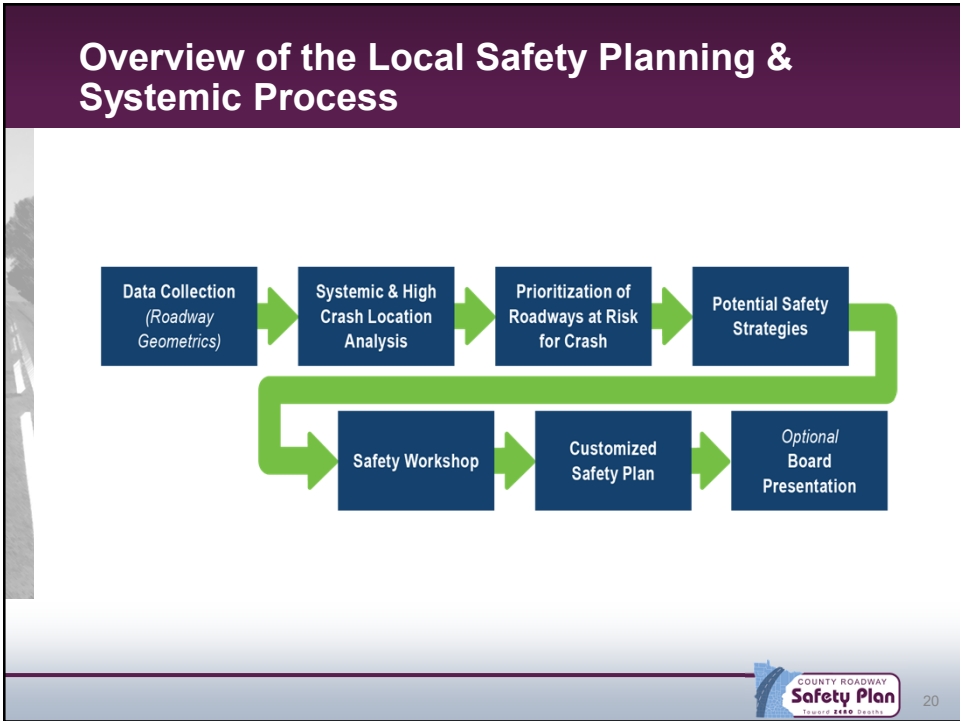
- Skewed Approach
- On/near curve
- Volume
- Proximity to railroad crossing
- Proximity to last STOP sign
- Intersection related crashes
- Commercial Development in Quadrant



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Implemented Projects

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 6 Crashes	Olmsted County Crashes
6" Edgeline	1,128.9	\$885,619	10% - 45%	918	166	29
Pave Shoulders	293.9	\$6,759,757	20% - 30%			
Ground-In Wet Reflective Markings	604.5	\$1,822,735	10% - 45%			
Rumble Strips	672.4	\$317,588	20% - 40%			
Reconstruction	167.4	\$7,627,031	Varies			
Other	140.0	\$59,650	Varies			
Subtotal		\$17,472,380				
Intersection Projects			CRF by Strategy ^c	Greater MN Crashes	District 6 Crashes	Olmsted County Crashes
Street Lighting	347	\$979,722	25% - 40%	475	79	24
Upgraded Signs	429	\$296,091	15% - 40%			
Upgraded Markings	525	\$143,884	15% - 40%			
Reconstruction	10	\$1,608,000	Varies			
Other	30	\$393,384	Varies			
Subtotal		\$3,421,081				
Curve Projects			CRF by Strategy ^c	Greater MN Crashes	District 6 Crashes	Olmsted County Crashes
Chevrons	2,029	\$10,639,439	20% - 30%	482	102	17
Advanced Warning Sign	262	\$111,227	20% - 40%			
Rumble Strips	268	\$468,104	20% - 40%			
Pave Shoulders	481	\$9,869,664	20% - 30%			
Other	458	\$47,987	Varies			
Subtotal		\$21,136,421				
Total Cost		\$42,029,882				

^a Range of Implementation 2007 - 2016; Counties: Beltrami, Carlton, Chisago, Crow Wing, Freeborn, Goodhue, McLeod, Meeke, Morrison, 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'

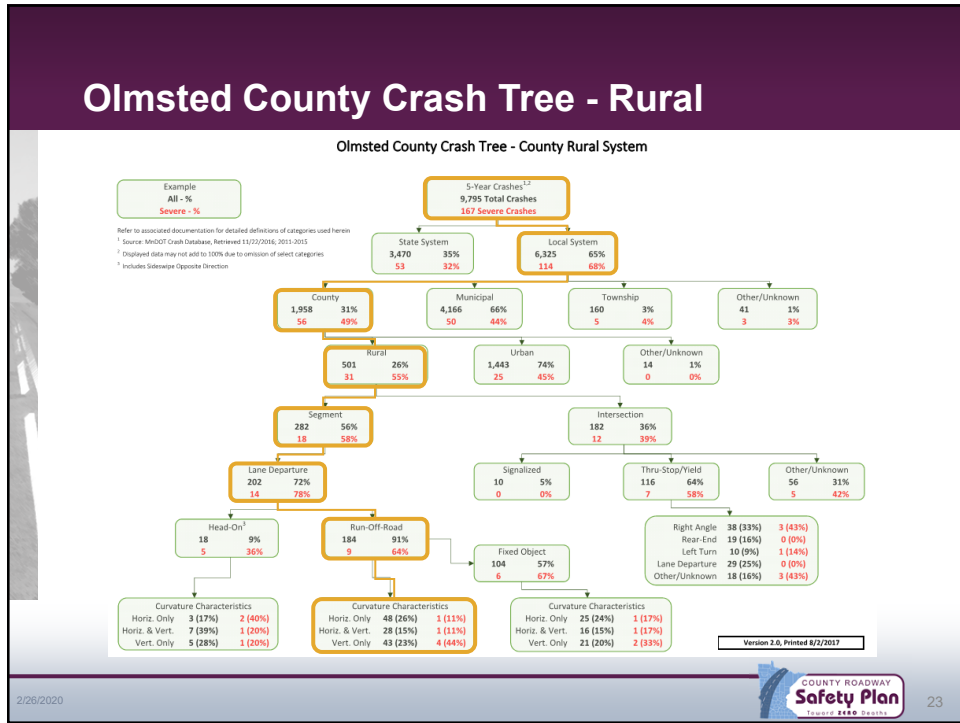
^c Crash Reduction Factors identified from www.cmfclearinghouse.org



Olmsted County Crash Data Overview and Safety Focus Areas

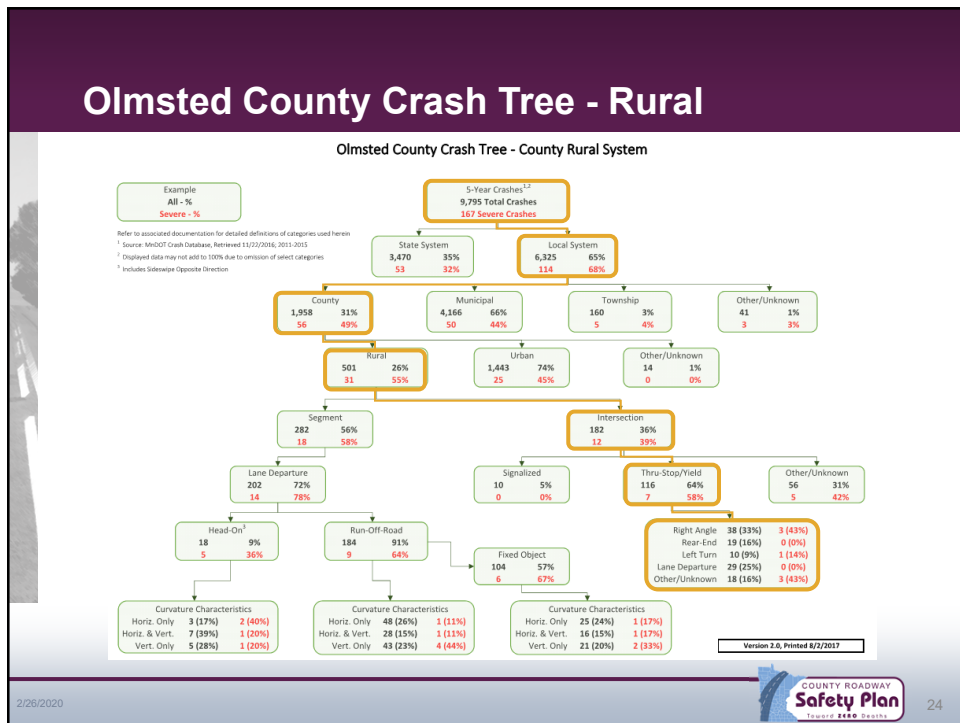
County Roadway Safety Plan Updates

Olmsted County Crash Tree - Rural



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Olmsted County Crash Tree - Rural



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County Versus State Crash Data - Rural

Olmsted County Crash Summary

Crash Statistics (Severe Crashes)	Statewide Greater Minnesota	Olmsted County
State vs. Local System	38% vs. 62%	39% vs. 61%
On County System	63%	83%
Rural vs. Urban	57% vs. 42%	55% vs. 45%
Segment Related	63%	58%
Lane Departure	71%	78%
Head-On	17%	36%
Run-off-Road	83%	64%
Curve Related	47%	36%
Intersection Related	31%	39%
Thru-STOP	54%	58%
Right Angle	43%	43%



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Olmsted County Crash Summary – Rural 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.

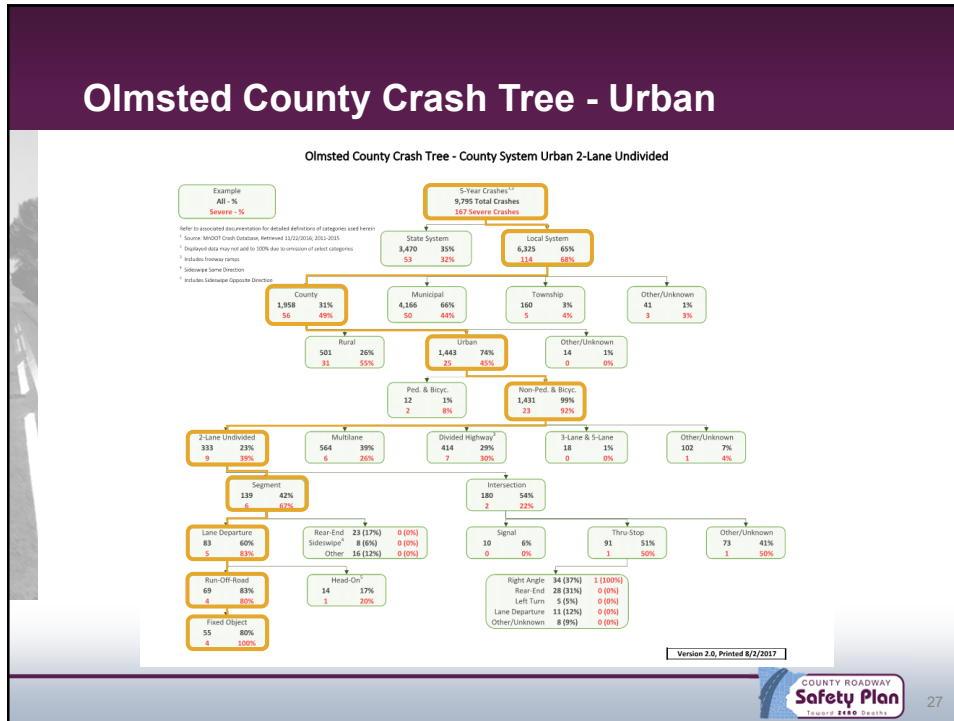
2/26/2020



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Olmsted County Crash Tree - Urban



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County Versus State Crash Data - Urban

Olmsted County Urban Crash Summary

Crash Statistics (Severe Crashes)	Statewide Greater Minnesota	Olmsted County
State vs. Local System	38% vs. 62%	32% vs. 68%
On County System	63%	49%
Rural vs. Urban	57% vs. 42%	55% vs. 45%
2-Lane Undivided	40%	39%
Segment Related	58%	67%
Single vs. Multi Vehicle	33% vs. 57%	67% vs. 17%
Head-On vs. Rear End	33% vs. 7%	17% vs. 0%
Multi-Lane & Divided	49%	56%
Intersection Related	75%	76%
Signal Control	66%	29%
Right Angle Collision	44%	67%
Pedestrian & Bicycle Crashes	25%	8%^a
2-Lane Undivided	25%	50%
Segment vs. Intersection	48% vs. 46%	50% vs. 50%
Signal Control	33%	0%
Speed Limit - 30mph	45%	50%
Multi-Lane & Divided	63%	50%
Segment vs. Intersection	27% vs. 67%	0% vs. 100%
Signal Control	73%	100%
Speed Limit - 30mph	58%	100%

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Olmsted County Crash Summary – Urban Key Takeaways

All Pedestrian related, Trends are based on Statewide data:

- Too few severe urban crashes to identify statistically reliable trends - need to also consider statewide values.
- On 2-Lane undivided facilities, the majority of crashes are segment related involving multiple vehicles and the most common type of crash is a Head-On
- Need to focus on BOTH 2-Lane Undivided and Multilane/Divide facilities
- On Multi-Lane Divided facilities, the majority of crashes are intersection related with traffic signal control and the most common type of crash is a Right Angle collision
- The majority of Pedestrian/Bicycle crashes occur on Multi-Lane/ Divided facilities at intersections with traffic signal control with a 30 MPH speed limit



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**County Roadway
Safety Plan**
Toward **ZERO** Deaths

Olmsted County Infrastructure Safety Strategies

County Roadway Safety Plan Updates

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Big Book of Ideas


m DEPARTMENT OF
TRANSPORTATION

County Roadway Safety Plan Updates

The Big Book of Ideas

Prepared by:
ch2m Team

July 2017
Version 1.1

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Restricted Crossing U-Turn (RCUT) Intersections

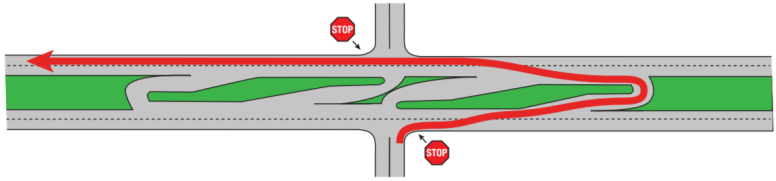
Crash Reduction Factor


- 17% all crashes
- 100% angle crashes

Typical Installation Costs

- \$750,000 per intersection





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Turn Lanes (Offset, Channelized)

Crash Reduction Factor

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



Typical Installation Costs

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

2/26/2020



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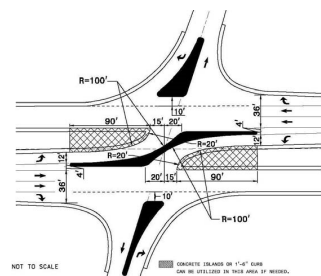
3/4 - Intersection

Crash Reduction Factor

- 25%

Typical Installation Costs

- \$150,000 per location



2/26/2020



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Rectangular Rapid Flash Beacon (RRFB)

Crash Reduction Factor

- 75% of drivers yield to pedestrians

Typical Installation Costs

- \$15,000



Michael Frederick, City of St. Petersburg, FL

2/26/2020

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High-Intensity Activated Crosswalk Beacon (HAWK)

Crash Reduction Factor

- 69% Vehicle/Pedestrian

Typical Installation Costs

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



2/26/2020

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Flashing Yellow Arrow (FYA)

Crash Reduction Factor

- 19.4% left turn crashes

Typical Installation Costs

- Not Available



2/26/2020

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Site Location Discussions

For each Site:

- County Overview (10 Mins)
- Crash Facts (5 Mins)
- Alternative Safety Strategies (30 Mins)
 - Short Term Strategies
 - Long Term Strategies
- Summary (5 Mins)

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Wrap-Up

Next Steps:

- Complete systemic roadway risk-factors and high-crash data analyses
- Develop safety recommendations for priority crash locations
- Develop County Road Safety Plan draft report

Workshop Evaluation – We value your feedback!

Thank you for your participation and input!



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Questions?

Contact:

- Kaye Bieniek- Olmsted County Engineer
bieniek.kaye@co.olmsted.mn.us 507-328-7070
- Mark Vizecky – MnDOT State Aid
Mark.vizecky@state.mn.us 651-366-3839



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County Roadway Safety Plan Updates

The Big Book of Ideas

Prepared for:
Olmsted County

Prepared by:
ch2mSM Team

October 2017

List of Strategies

Rural Segments

- Centerline Rumble Strip
 - Sinusoidal Rumble “Mumble” Strips included
- Shoulder/Edgeline Rumble Strips
 - Sinusoidal Rumble “Mumble” Strips included
- 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
- Clear Zone Maintenance/Enhancements

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)
- Roundabout
- Turn Lanes (Offset, Channelized)
- Removing a skew
- LED Stop Signs

Urban Segments

- $\frac{3}{4}$ -Intersection
- Divided Roadway
- Access Management
- Bike Lane/Boulevard
- Urbanization (make it feel urban)
- Dynamic Speed Feedback Sign

Urban Intersections

- Pedestrian Countdown Timers
- Leading Pedestrian Intervals
- 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)

Interchange Types

- Diverging Diamond Interchange (DDI)
- Single Point Urban Interchange (SPUI)
- Roundabout terminals
- Fully Directional

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
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)



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)



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
Clear Zone Maintenance/Enhancements	Fatal, Serious & Minor Injury Crashes: Increase of 28% to Decrease of 18%	\$10,000 - \$250,000 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



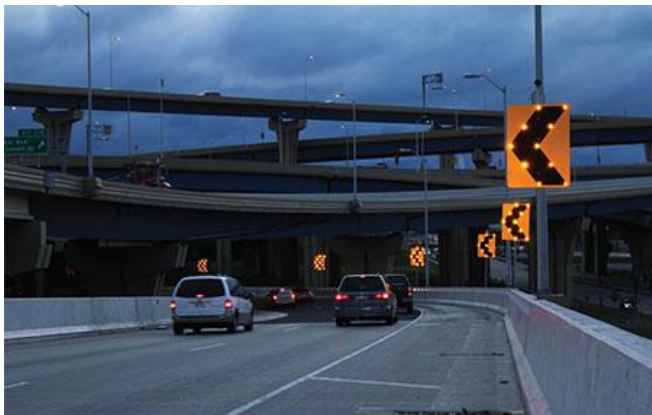
Chevrons

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)



Clear Zone Maintenance

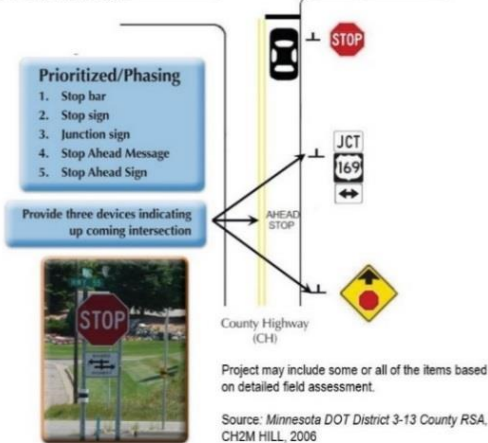
Source: <https://nativeengineering.files.wordpress.com/2016/12/3.jpg?w=300&h=204>

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	\$75,000 to \$125,000 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
LED Stop Signs ^δ	Angle Crashes: 0% to 71%	\$2,000 to \$6,000 per intersection
Remove Skew	0% to 33%	\$150,000 - \$300,000 per intersection

Notes:
 * - Crash reduction factors based on review of CMF Clearinghouse and other published research
 † - 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
 § - Source: <https://safety.fhwa.dot.gov/intersection/innovative/others/casestudies/fhwasa09016/fhwasa09016.pdf>
 @ - 2-star quality studies only
 ^ - <http://www.dot.state.mn.us/trafficeng/safety/medianaccelerationlanestudy.pdf>
 δ - Source: <http://www.its.umn.edu/Publications/ResearchReports/reportdetail.html?id=2330>

Upgraded Signs and Markings



Upgrade Signs and Pavement Markings

Source: Minnesota CRSP



Street Lights

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



All-Way Stop Controlled intersection

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



Restricted Crossing U-Turn Intersections

Source: Bolton and Menk



Rural Intersection Conflict Warning System

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



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)



LED Stop Sign

Source: MnDOT – MNTH 95 & Chisago County State Aide Highway 9



Remove Skew

Source: Google Earth

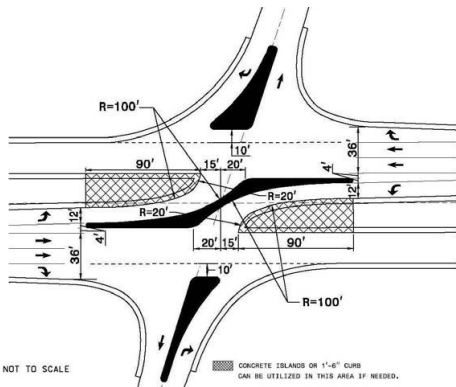
Urban Segments

Strategy	Crash Reduction Factor*	Typical Installation Costs
¾-Intersection	25%	\$150,000 per location
Divided Roadway	22% (HSM §13.4.2.6)	\$5M to \$10M per mile
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.



¾ Intersection

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



Divided Roadway

Source: Flexibility in Design (FHWA)



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 ^a	Typical Installation Costs
Pedestrian Countdown Times	25% vehicle/pedestrian crashes	\$12,000 per intersection
Leading Pedestrian Intervals	Up to 60% pedestrian/vehicle crashes	\$600 per intersection
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		



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>



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



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/rrb.png>



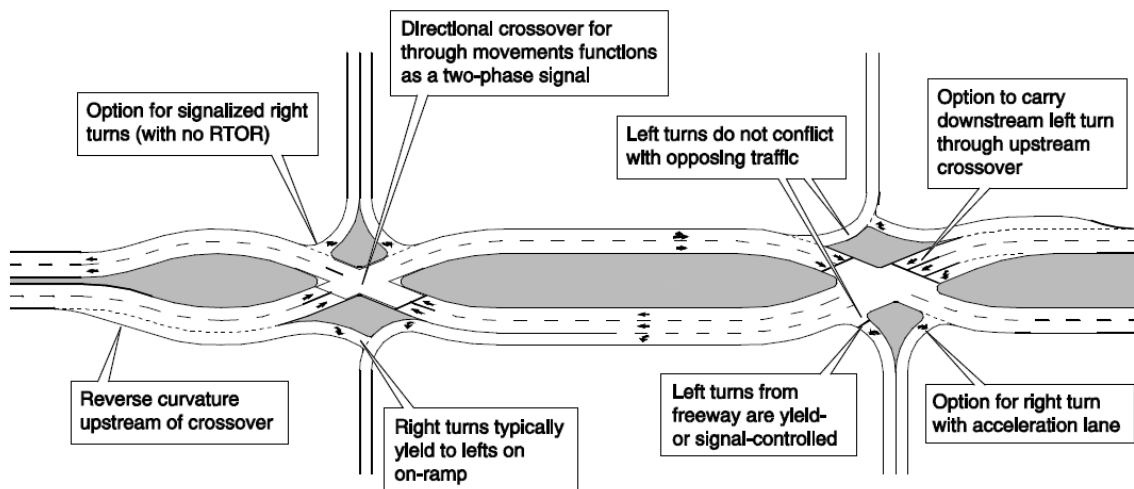
Channelized Right Turn Lane

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

Interchange Types

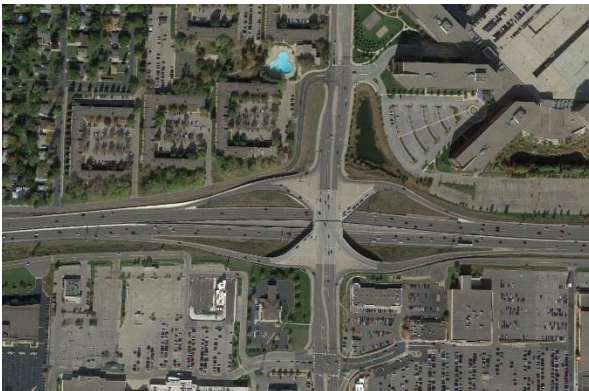
Strategy	Relative Safety Performance*	Typical Installation Costs+
Diverging Diamond Interchange (DDI)	★★★	\$\$
Single Point Urban Interchange (SPUI)	★★★★	\$\$\$\$
Roundabout Terminals	★★	\$\$\$
Fully Directional	★	\$\$\$\$\$

Notes:
 * - Expected relative safety performance: 1★ = Highest Performance; 5★ = Lowest Performance
 + - Expected relative construction cost: 1\$ = Lowest Costs; 5\$ = Highest Cost



Diverging Diamond Interchange

Source: Diverging Diamond Interchange Informational Guide (FHWA, FHWA-SA-14-067)



Single Point Urban Interchange

I-494 & Penn Ave; Bloomington, MN

Source: Google Earth Pro



Interchange with Roundabout Terminals

I-35 & CR 12; Medford, MN

Source: Google Earth Pro



Fully Directional Interchange

Source: Missouri DOT Engineering Policy Guide



Olmsted County Safety Workshop

WORKSHOP DATE: October 4, 2017

MEETING TIME: 8:15 Registration;
8:30 AM – 1:00 PM Safety Workshop

LOCATION: Olmsted County Public Works Service Center
1188 50th Street SE
Rochester, MN 55904

Attendees

- Mark Vizecky, MnDOT
- Howard Preston, CH2M
- Cheri Marti, CH2M
- Matt Knight, SRF
- Heath Dienger, Minnesota State Patrol
- Troy Christianson, Minnesota State Patrol
- Jonathan Jacobson, Olmsted County Sheriff's Office
- Ben Johnson, Olmsted County
- Scott Holmes, Olmsted County
- Brandon Theobald, WHKS
- Jenna Obernolte, SEH
- Sam Budzyna, City of Rochester
- Bill Schimmel, City of Stewarville
- Kaye Bieniek, Olmsted County
- Fausto Cabral, MnDOT D6 State Aid
- Jon Turk, Rochester Police

Workshop Goals

Welcome, Introductions, and Workshop Goals

Safety Stakeholder Discussions:

- Create a shared understanding of CRSP and Olmsted County's infrastructure roadway safety approach.
 - Solicit and share safety stakeholder perspectives.
 - Collaboratively explore innovative infrastructure strategies for priority sites.
-

County Roadway Safety Plan (CRSP) Updates

- **Overview of CRSP and Minnesota TZD Goals**
 - Mark gave an overview of the history of CRSP and plans going forward.
 - Olmsted was the Pilot for the CRSP.

- **Statewide Performance Measures and Data-Driven Safety Analysis**
 - Workshop attendees viewed the FHWA video.
- **Discussion: What is important to advance road safety in the county?**
 - Continue infrastructure safety treatments
 - Enforcement - address unsafe behaviors:
 - Distracted driving
 - Speed
 - Seat belt use
 - Impaired driving
 - Crash Reporting (MnCRASH)
 - GPS not working
 - Officers have been adding location in report narrative
 - Data collection for contributing factors has improved
 - Interdisciplinary communication
 - Law enforcement have different perspectives regarding severity
 - 93% of the time driver behavior is a contributing factor
 - Changing culture of driving risk through education and enforcement
 - High visibility enforcement
 - Needs to be a culture change, people continue to speed after enforcement wave
 - Deputies are told not to give warnings
 - Everyone responds differently “One size doesn’t fit all”
 - Hwy 14 (4-lane highway) has speeding issues
 - 90.3% Seatbelt use in SE Minnesota – 93-94% Statewide
 - Funding is important for locations with steep roadway inslopes due to ROW and cost of flattening slopes
 - Destination Medical Center (DMC)
 - Access from highway to Mayo is important
 - 35,000 new employees
 - Looking for P&R areas
 - Focused on Rochester
 - Journey to Growth is regional
 - How does outlying roadway system connect
 - Nonmotorized – Olmsted has a strong presence
 - Parallel routes work well
- **Overview of Proactive Systemic Safety Approach**
 - 70% of statewide crashes occur in 7 county metro
 - 70% of fatal and severe crashes occur outstate
 - Proximity to stop was developed through MnDOT study
- **Implemented Safety Projects and Olmsted County Safety Approach**
 - Olmsted was able to purchase chevrons and install on their own (this practice is not allowed anymore)
 - Olmsted just installed their first centerline rumble strips
- **Olmsted Crash Data Overview and Focus Areas**

- Howard gave an overview on crash data and focus areas.
- Data points to run off road and right angle crashes in Olmsted County (similar to statewide).
- Pedestrian fatalities were up 42% last year
- Ped/bikes are responsible for 50% of KA and vehicles are responsible for the other 50%
- All plans will discuss urban areas and include pedestrian strategies
- **Infrastructure Safety Strategies Presentation & Discussion**
 - Howard discussed the Big Book of Ideas and how project selection will work.
 - RCUT
 - Turn Lanes (Offset, Channelized)
 - 3/4 Intersection
 - RRFB
 - Multivehicle threat
 - Crosswalk and sign do not improve safety
 - HAWK
 - Mostly midblock
 - Need more volume to justify investment
 - Yield rates on RRFB is higher than HAWK
 - FYA
 - Pedestrian advocates have concerns with FYA because drivers focus on gap selection and not pedestrians
 - Newer signals can override flashing yellow when pedestrian button is pushed

Part B – Olmsted County: Priority Site Location Discussion & Priority Strategy Application

- **Segment – CSAH 36 (Marion Rd) 30th Ave to TH 52**
 - Background:
 - Section north was reconstructed as four-lane with center turn lanes
 - Located close to Rochester
 - CSAH 36 is a commuter route
 - County receives speed complaints
 - A lot of access – Individual driveways and developments
 - County has had conversations with residents
 - Lots of rear-end crashes
 - There have been a couple head-on crashes recently
 - It is an old piece of TH 52
 - Has been widened with bituminous surface
 - Was resurfaced last summer
 - Rumbles strips have not been installed
 - Access density > 30
 - Strategies already implemented:
 - Ground in 6" edge lines

- Short-term strategies discussed:
 - Change the speed limit
 - Changing the sign isn't effective. Drivers will travel at speeds that feel "comfortable"
 - Change the environment so that it doesn't look rural
 - County has considered installing turn lanes
 - Repurpose existing roadway – two-lane with buffer
 - Reduces speed
 - Creates visual friction
 - Allows safer access
 - Turn lanes reduce rear end crashes
- **CSAH 1 and MN TH 30 Intersection**
 - Background:
 - CR 1 acts as a commuter road
 - Volumes on CSAH 1 are fairly high
 - Current construction with Fillmore County – reconstruction
 - Was a detour for a construction project in 2013.
 - Volume on CSAH 1 are 50% higher than volume on TH 30
 - Crash rate is 3x what is expected
 - 90% of crashes are right angle
 - Curve to the east
 - Crashes may be related to sunrise/sunset
 - Strategies discussed:
 - Convert to all way stop
 - Install street lights
 - RICWS
- **Wrap Up: Next Steps and Staff Workshop Evaluation**
 - TZD Conference



Appendix D – List of Recommended Projects

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Rural Segment Project List for Olmsted 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
52	1	25.002	CSAH	25	Olmsted CTH 3	Olmsted CTH 22/Salem Rd SW	5.51	★★★★★	1	0	0	0	0	0	0	0	\$826,500
38	2	16.001	CSAH	16	Olmsted CTH 8	Olmsted CTH 20	3.92	★★★★★	0	0	0	0	0	0	0	0	No project - Jurisdictional Change
42	3	18.003	CSAH	18	CSAH 12 / Ash Rd NW	Wabasha County Line / 135th St NEW	0.91	★★★★★	0	0	County Nominated	0	1	1	0	0	\$15,197
48	4	21.001	CSAH	21	USTH 63/Olmsted CTH 33	Olm Wab Cnty Line Rd	4.87	★★★★	0	0	0	1	1	0	1	0	\$100,809
33	5	12.002	CSAH	12	USTH 52	USTH 63/MNTH 247	8.24	★★★★	0	0	County Nominated	0	1	1	0	0	\$137,608
69	6	133.001	CR	133	CSAH 22	CSAH 14 / USTH 63 / 75th St NW	2.52	★★★★	0	0	0	County Completed	1	0	1	0	\$23,814
1	7	1.001	CSAH	1	MNTH 30	USTH 52	10.43	★★★★	0	0	County Nominated	0	1	1	0	0	\$174,181
36	8	14.006	CSAH	14	CSAH 3	CR 154 / 31st Ave	3.21	★★★★	0	0	0	1	1	0	1	0	\$66,447
9	9	3.009	CSAH	3	CSAH 14 / 75th St NW	CSAH 12 / 100th St NW	3.35	★★★★	0	0	0	0	0	0	0	0	No project - criteria not met
10	10	3.010	CSAH	3	CSAH 12 / 100th St NW	CSAH 13 / SW 8th St (Pine Island)	4.84	★★★★	0	0	0	0	1	County Completed	0	1	\$37,994
65	11	114.001	CR	114	CSAH 12 / 115th St NE / White Bridge Rd NE	Wabasha County Line	2.10	★★★★	0	0	0	0	0	0	0	0	No project - criteria not met
34	12	13.001	CSAH	13	.4 mi E of 275 Ave	Olmsted CTH 27/8th St SW	1.73	★★★★	0	0	0	0	0	0	0	0	No project - criteria not met
54	13	27.001	CSAH	27	Olmsted CTH 12	.62 mi N of 130th St NW	1.70	★★★★	0	0	0	0	0	0	0	0	No project - criteria not met
59	14	33.002	CSAH	33	USTH 63/N Broadway Ave	CSAH 11 / 55th Ave NE	3.14	★★★★	0	0	0	0	0	0	0	0	No project - criteria not met
26	15	10.005	CSAH	10	USTH 52 / Main St NW	Valleyview Ln	0.90	★★★★	0	0	0	0	0	0	0	0	No project - criteria not met
20	16	8.001	CSAH	8	Mower County Line	CSAH 6	0.69	★★★★	0	0	0	1	1	0	1	0	\$14,283
21	17	8.002	CSAH	8	CSAH 6	CSAH 8 / 44th Ave SW	2.26	★★★★	0	0	0	0	0	0	0	0	No project - criteria not met
66	18	118.002	CR	118	CSAH 12	Dead End / Fisherman's Inn	1.03	★★★★	0	0	County Nominated	0	0	0	0	0	\$5,150
24	19	9.002	CSAH	9	CSAH 22	CSAH 10	14.10	★★★	0	0	0	County Completed	1	0	1	0	\$133,245
3	20	2.007	CSAH	2	MNTH 42	CSAH 10	3.87	★★★	0	0	0	0	0	0	0	0	No project - criteria not met
22	21	8.003	CSAH	8	CSAH 8 / 10 St NW	Meadow Crossing Rd SW	9.16	★★★	0	0	County Completed	0	County Completed	1	0	0	\$53,586
29	22	10.008	CSAH	10	USTH 14	Wabasha County Line / 75th St NE	10.21	★★★	0	0	County Nominated	0	1	1	0	0	\$170,507
11	23	4.001	CSAH	4	Olmsted CTH 5	Olmsted CTH 22	7.15	★★★	0	0	0	1	1	0	1	0	\$148,005
35	24	14.005	CSAH	14	CSAH 5 / Dodge County Line	CSAH 3	5.29	★★★	0	0	0	1	1	0	1	0	\$109,503
46	25	20.001	CSAH	20	MNTH 30/1st St E	Olmsted CTH 16	5.72	★★★	0	0	0	0	0	0	0	0	No project - criteria not met
68	26	124.002	CR	124	CSAH 11	CSAH 24	2.96	★★★	0	0	0	0	0	0	0	0	No project - criteria not met
53	27	26.001	CSAH	26	.52 mi W of 115th Ave SW	Olmsted CTH 3	1.98	★★★	0	0	0	0	0	0	0	0	No project - criteria not met
2	28	2.006	CSAH	2	36th Ave NE / Haverhill Rd NE	MNTH 42	8.56	★★★	1	0	0	0	0	0	0	0	\$1,284,000
58	29	33.001	CSAH	33	Olmsted CTH 22/E Circle Dr NE	USTH 63	4.12	★★★	0	0	0	County Completed	1	0	1	0	\$38,934
7	30	3.007	CSAH	3	85th Ave SW	CSAH 4 / Valleyhigh Rd NW	7.94	★★★	0	0	0	County Completed	1	0	1	0	\$75,033
23	31	9.001	CSAH	9	19th Ave SE / E Center St	CSAH 22	0.98	★★★	0	0	0	0	0	0	0	0	No project - criteria not met
30	32	11.004	CSAH	11	CSAH 2	MNTH 247	7.54	★★★	0	0	County Nominated	0	1	1	0	0	\$125,918
32	33	12.001	CSAH	12	Olmsted CTH 36/Olmsted 123	USTH 52	3.54	★★★	0	0	0	1	1	0	1	0	\$73,278
47	34	20.002	CSAH	20	Olmsted CTH 16	USTH 63	3.07	★★★	0	0	0	1	1	0	1	0	\$63,549
12	35	5.005	CSAH	5	CSAH 25	USTH 14	3.87	★★★	0	0	0	0	0	0	0	0	No project - criteria not met
13	36	5.007	CSAH	5	13th St NW	CSAH 3	11.57	★★★	0	0	0	County Completed	1	0	County Completed	0	\$67,685
27	37	10.006	CSAH	10	Valleyview Ln	WB I-90 Ramp Terminal Intersection	8.35	★★★	0	0	County Nominated	0	0	0	0	0	\$41,750
6	38	3.006	CSAH	3	MNTH 30	85th Ave SW	5.92	★★★	0	0	County Nominated	0	0	0	0	0	\$29,600
40	39	16.003	CSAH	16	Olmsted CTH 1/Simpson RD SE	USTH 52	3.86	★★★	0	0	0	0	0	0	0	0	No project - criteria not met
50	40	24.001	CSAH	24	Olmsted CTH 2/Viola Rd NE	.48 mi N of 105th Ave NE	4.85	★★★	0	0	0	0	0	0	0	0	No project - criteria not met
51	41	25.001	CSAH	25	.19 mi N of Grand View Ln SW	Olmsted CTH 3	3.79	★★★	0	0	County Nominated	0	0	0	0	0	\$18,950
75	42	154.002	CR	154	CSAH 14	CR 112	1.99	★★★	0	0	0	0	0	0	0	0	No project - criteria not met
43	43	19.001	CSAH	19	MNTH 30	USTH 52	5.45	★★★	0	0	0	0	0	0	0	0	No project - criteria not met
15	44	7.001	CSAH	7	MNTH 30	USTH 52	2.32	★★★	0	0	0	0	0	0	0	0	No project - criteria not met
45	45	19.003	CSAH	19	Olmsted CTH 23/30th St SE	USTH 14	1.87	★★★	0	0	0	0	0	0	0	0	No project - criteria not met
8	46	3.008	CSAH	3	CSAH 4 / Valleyhigh Rd NW	CSAH 14 / 75th St NW	2.69	★★★	0	0	0	0	0	0	0	0	No project - criteria not met
39	47	16.002	CSAH	16	Olmsted CTH 20	Olmsted CTH 1/Simpson RD SE	1.44	★★★	0	0	0	0	0	0	0	0	No project - criteria not met
56	48	30.001	CSAH	30	.31 mi E of 195th Ave SE	Olmsted CTH 10	4.62	★★★	0	0	0	0	0	0	0	0	No project - criteria not met
62	49	36.002	CSAH	36	USTH 52	Olmsted CTH 143	3.19	★★	0	0	0	County Completed	0	0	0	0	No project - previously completed project
71	50	142.001	CR	142	W 5th St / Center Ave S	Sheek St N	5.02	★★	0	0	0	County Completed	0	0	0	0	No project - previously completed project
74	51	143.002	CR	143	CSAH 11	CSAH 19	1.94	★★	0	0	0	County Completed	0	0	0	0	No project - previously completed project
5	52	3.005	CSAH	3	Mower County Line	MNTH 30	5.71	★★	0	0	0	0	0	0	0	0	No project - criteria not met
63	53	104.001	CR	104	CR 117	CSAH 43	6.45	★★	0	0	0	County Completed	0	0	0	0	No project - previously completed project
14	54	6.001	CSAH	6	Olmsted CTH 3	USTH 63	7.63	★★	0	0	0	0	0	County Completed	0	0	No project - previously completed project
37	55	15.001	CSAH	15	MNTH 30	Olmsted CTH 25/Salem Rd SW	6.59	★★	0	0	0	0	0	0	0	0	No project - criteria not met
49	56	23.001	CSAH	23	Olmsted CTH 19/Chester Rd SE	Olmsted CTH 7	5.87	★★	0	0	0	0	0	0	0	0	No project - criteria not met
64	57	111.001	CR	111	CSAH 1 / Simpson Rd	WB USTH 52 Ramp Terminal Intersection	2.66	★★	0	0	0	0	0	0	0	0	No project - criteria not met
17	58	7.003	CSAH	7	TH 42	USTH 14	0.89	★★	0	0	0	County Completed	0	0	0	0	No project - previously completed project
28	59	10.007	CSAH	10	WB I-90 Ramp Terminal Intersection	USTH 14	1.61	★★	0	0	0	0	0	0	0	0	No project - criteria not met
31	60	11.005	CSAH	11	MNTH 247	Wabasha County Line	1.98	★★	0	0	0	0	0	0	0	0	No project - criteria not met
44	61	19.002	CSAH	19	USTH 52	40th St SE	2.06	★★	0	0	0	0	0	0	0	0	No project - criteria not met
57	62	32.001	CSAH	32	Olmsted CTH 10	USTH 14	3.59	★★	0	0	0	0	0	0	0	0	No project - criteria not met
60	63	35.001	CSAH	35	Olmsted CTH 8/44th Ave SW	USTH 63/Main St	2.00	★★	0	0	0	0	0	0	0	0	No project - criteria not met
73	64	143.001	CR	143	CSAH 36	CSAH 11	2.37	★★	0	0	0	County Completed	0	0	0	0	No project - previously completed project
41	65	17.001	CSAH	17	Olmsted CTH 6/280th Ave	Olmsted CTH3/50th St SW	2.00	★★	0	0	0	0	0	0	0	0	No project - criteria not met
4	66	2.008	CSAH	2	CSAH 10	Winona County Line / 1 mile East of 190th A	3.03	★★	0	0	0	0	0	0	0	0	No project - criteria not met

Rural Segment Project List for Olmsted 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	
55	67	29.001	CSAH	29	Olmsted CTH 10	.1 mi E of 195th Ave SE	2.69	★★	0	0	0	0	0	0	0	0	0	No project - criteria not met
19	68	7.005	CSAH	7	CSAH 9	CSAH 2	4.04	★★	0	0	0	0	0	0	0	0	0	No project - criteria not met
25	69	9.003	CSAH	9	CSAH 10	Winona County Line	2.99	★★	0	0	0	County Completed	0	0	0	0	0	No project - previously completed project
70	70	140.001	CR	140	CSAH 1	TH 30	1.40	★★	0	0	0	County Completed	0	0	0	0	0	No project - previously completed project
18	71	7.004	CSAH	7	USTH 14	CSAH 9	2.05	★	0	0	0	0	0	0	0	0	0	No project - criteria not met
61	72	36.001	CSAH	36	Olmsted CTH 11	Olmsted CTH 143	1.56	★	0	0	0	County Completed	0	0	0	0	0	No project - previously completed project
76	73	156.001	CR	156	Pavement Change	CR 104	1.30	★	0	0	0	0	0	0	0	0	0	No project - criteria not met
16	74	7.002	CSAH	7	USTH 52	EB I-90 Ramp Terminal Intersection	3.90	★	0	0	0	County Completed	0	0	0	0	0	No project - previously completed project
67	75	119.001	CR	119	USTH 14	CSAH 2	1.41	★	0	0	0	0	0	0	0	0	0	No project - criteria not met
72	76	142.002	CR	142	Sheek St N	5th Ave SE	0.41		0	0	0	County Completed	0	0	0	0	0	No project - previously completed project
							<u>306.47</u>	<u>Total Projects</u>	<u>2</u>	<u>0</u>	<u>10</u>	<u>7</u>	<u>18</u>	<u>6</u>	<u>11</u>	<u>1</u>	<u>\$3,835,526.00</u>	

Curve Project List for Olmsted County

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

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Total Stars	CZ Maintenance	Surface Treatment	Single T	Lighting	Curve Warning Signs	Chevrons/ Arrow Board	Delineators	Project Cost
170	1	5.001	CSAH	5	★★★★★★	0	0	0	0	0	1	0	\$3,960
168	2	4.005	CSAH	4	★★★★★★	0	0	0	0	0	1	0	\$3,960
41	3	13.003	CSAH	13	★★★★★★	1	1	0	0	0	0	0	\$113,116
39	4	13.001	CSAH	13	★★★★★★	1	0	0	0	0	0	0	\$100,000
42	5	13.004	CSAH	13	★★★★★★	1	0	0	0	0	0	0	\$100,000
88	6	2.005	CSAH	2	★★★★★	0	0	0	1	0	0	1	\$6,500
172	7	5.003	CSAH	5	★★★★★	0	0	0	1	0	0	1	\$6,500
99	8	20.006	CSAH	20	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
117	9	24.003	CSAH	24	★★★★★	0	0	0	0	0	0	0	No project - previously completed project
135	10	3.007	CSAH	3	★★★★★	0	0	0	0	0	0	0	No project - previously completed project
20	11	10.006	CSAH	10	★★★★★	0	0	0	0	0	1	0	\$3,960
261	12	142.001	CR	142	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
270	13	147.002	CR	147	★★★★★	0	0	0	0	County Completed	County Completed	0	No Project - Previously Completed Project
258	14	133.006	CR	133	★★★★★	0	1	0	0	0	0	0	\$53,687
78	15	19.014	CSAH	19	★★★★★	0	0	0	0	0	1	0	\$3,960
264	16	143.001	CR	143	★★★★★	0	0	0	0	County Completed	County Completed	0	No Project - Previously Completed Project
45	17	14.002	CSAH	14	★★★★★	1	1	0	0	0	1	0	\$127,444
220	18	104.001	CR	104	★★★★★	0	0	0	0	0	1	0	\$3,960
275	19	147.007	CR	147	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
276	20	147.008	CR	147	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
257	21	133.005	CR	133	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
17	22	10.003	CSAH	10	★★★★★	0	0	0	0	0	1	0	\$3,960
25	23	10.011	CSAH	10	★★★★★	0	0	0	0	0	1	0	\$3,960
48	24	14.006	CSAH	14	★★★★★	1	0	0	0	0	0	0	\$100,000
83	25	19.019	CSAH	19	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
98	26	16.005	CSAH	16	★★★★★	0	0	0	0	0	1	0	\$3,960
116	27	24.002	CSAH	24	★★★★★	0	0	0	0	0	0	0	No project - previously completed project
153	28	31.003	CSAH	12	★★★★★	0	0	0	0	0	1	0	\$3,960
157	29	32.002	CSAH	32	★★★★★	0	0	1	0	Advance Curve & Speed Advisory	County Completed	0	\$227,000
206	30	8.005	CSAH	8	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
207	31	8.006	CSAH	8	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
226	32	111.001	CR	111	★★★★★	0	0	0	0	0	1	0	\$3,960
253	33	133.001	CR	133	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
205	34	8.004	CSAH	8	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
221	35	104.002	CR	104	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
225	36	104.006	CR	104	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
121	37	25.003	CSAH	25	★★★★★	0	0	0	0	0	0	1	\$500
169	38	4.006	CSAH	4	★★★★★	0	0	0	0	0	0	1	\$500
87	39	2.004	CSAH	2	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
184	40	5.015	CSAH	5	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project

Curve Project List for Olmsted County

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

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Total Stars	CZ Maintenance	Surface Treatment	Single T	Lighting	Curve Warning Signs	Chevrons/ Arrow Board	Delineators	Project Cost
31	41	11.006	CSAH	11	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
187	42	7.001	CSAH	7	★★★★★	0	1	0	0	0	1	0	\$20,132
136	43	3.008	CSAH	3	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
104	44	22.012	CSAH	22	★★★★★	0	1	0	0	0	0	0	\$52,888
182	45	5.013	CSAH	5	★★★★★	0	1	0	0	0	0	0	\$78,547
105	46	22.013	CSAH	22	★★★★★	0	1	0	0	0	0	0	\$53,391
183	47	5.014	CSAH	5	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
12	48	1.012	CSAH	1	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
208	49	8.007	CSAH	8	★★★★★	0	0	0	0	County Completed	County Completed	0	No Project - Previously Completed Project
215	50	9.002	CSAH	9	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
247	51	125.004	CR	125	★★★★★	1	0	0	0	0	0	0	\$100,000
13	52	1.013	CSAH	1	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
18	53	10.004	CSAH	10	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
159	54	33.009	CSAH	33	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
164	55	4.001	CSAH	4	★★★★★	0	0	0	0	County Completed	County Completed	0	No Project - Previously Completed Project
209	56	8.008	CSAH	8	★★★★★	0	0	0	0	County Completed	County Completed	0	No Project - Previously Completed Project
1	57	1.001	CSAH	1	★★★★★	0	0	0	0	County Completed	County Completed	0	No Project - Previously Completed Project
181	58	5.012	CSAH	5	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
251	59	125.009	CR	125	★★★★★	0	1	0	0	0	0	0	\$49,698
272	60	147.004	CR	147	★★★★★	0	1	0	0	0	0	0	\$24,898
273	61	147.005	CR	147	★★★★★	0	1	0	0	0	0	0	\$20,256
8	62	1.008	CSAH	1	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
47	63	14.005	CSAH	14	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
53	64	16.006	CSAH	16	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
113	65	23.004	CSAH	23	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
129	66	27.003	CSAH	27	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
165	67	4.002	CSAH	4	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
43	68	13.005	CSAH	13	★★★★★	1	0	0	0	0	1	0	\$103,960
243	69	124.002	CR	124	★★★★★	0	0	0	0	0	0	0	No Project - Jurisdictional Change
246	70	125.003	CR	125	★★★★★	1	0	0	0	0	0	0	\$100,000
40	71	13.002	CSAH	13	★★★★★	1	0	0	0	0	0	0	\$100,000
46	72	14.004	CSAH	14	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
76	73	19.012	CSAH	19	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
79	74	19.015	CSAH	19	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
82	75	19.018	CSAH	19	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
101	76	22.008	CSAH	22	★★★★★	1	0	0	0	0	0	0	\$100,000
115	77	24.001	CSAH	24	★★★★★	0	0	0	0	County Completed	County Completed	0	No Project - Previously Completed Project
190	78	7.004	CSAH	7	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
198	79	7.013	CSAH	7	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
200	80	7.015	CSAH	7	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project

Curve Project List for Olmsted County

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

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Total Stars	CZ Maintenance	Surface Treatment	Single T	Lighting	Curve Warning Signs	Chevrons/ Arrow Board	Delineators	Project Cost
242	81	124.001	CR	124	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
265	82	143.002	CR	143	★★★★★	0	0	0	0	County Completed	County Completed	0	No Project - Previously Completed Project
268	83	143.005	CR	143	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
269	84	147.001	CR	147	★★★★★	0	0	0	0	County Completed	County Completed	0	No Project - Previously Completed Project
19	85	10.005	CSAH	10	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
21	86	10.007	CSAH	10	★★★★★	0	0	0	0	County Completed	County Completed	0	No Project - Previously Completed Project
23	87	10.009	CSAH	10	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
27	88	11.002	CSAH	11	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
44	89	14.001	CSAH	14	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
49	90	15.001	CSAH	15	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
50	91	15.002	CSAH	15	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
54	92	16.007	CSAH	16	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
59	93	16.012	CSAH	16	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
64	94	18.002	CSAH	18	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
75	95	19.011	CSAH	19	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
80	96	19.016	CSAH	19	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
81	97	19.017	CSAH	19	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
114	98	23.005	CSAH	23	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
118	99	24.004	CSAH	24	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
127	100	27.001	CSAH	27	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
128	101	27.002	CSAH	27	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
131	102	3.001	CSAH	3	★★★★★	0	0	0	0	County Completed	County Completed	0	No Project - Previously Completed Project
145	103	30.002	CSAH	30	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
158	104	33.008	CSAH	33	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
167	105	4.004	CSAH	4	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
171	106	5.002	CSAH	5	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
214	107	9.001	CSAH	9	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
217	108	9.004	CSAH	9	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
238	109	117.002	CR	117	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
260	110	140.002	CR	140	★★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
255	118	133.003	CR	133	★★★★	0	0	0	0	0	0	1	\$500
103	119	22.011	CSAH	22	★★★★	0	1	0	0	0	0	0	\$205,202
100	123	22.001	CSAH	22	★★★★	0	1	0	0	0	1	0	\$59,664
176	124	5.007	CSAH	5	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
274	125	147.006	CR	147	★★★★	0	1	0	0	0	0	0	\$35,034
249	127	125.006	CR	125	★★★★	1	0	0	0	0	0	0	\$100,000
186	128	6.002	CSAH	6	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
254	129	133.002	CR	133	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
86	132	2.003	CSAH	2	★★★★	0	1	0	0	0	0	0	\$61,714
124	134	25.006	CSAH	25	★★★★	0	0	0	0	0	1	0	\$3,960

Curve Project List for Olmsted County

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

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Total Stars	CZ Maintenance	Surface Treatment	Single T	Lighting	Curve Warning Signs	Chevrons/ Arrow Board	Delineators	Project Cost
179	135	5.010	CSAH	5	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
180	136	5.011	CSAH	5	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
85	141	2.002	CSAH	2	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
185	142	6.001	CSAH	6	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
218	143	9.005	CSAH	9	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
219	145	9.006	CSAH	9	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
26	154	11.001	CSAH	11	★★★★	0	0	0	0	0	0	0	No Project - Criteria Not Met
173	155	5.004	CSAH	5	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
174	156	5.005	CSAH	5	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
175	157	5.006	CSAH	5	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
197	158	7.012	CSAH	7	★★★★	0	0	0	0	0	1	0	\$3,960
248	159	125.005	CR	125	★★★★	1	0	0	0	0	0	0	\$100,000
250	160	125.008	CR	125	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
266	161	143.003	CR	143	★★★★	0	0	0	0	County Completed	County Completed	0	No Project - Previously Completed Project
271	162	147.003	CR	147	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
277	163	147.009	CR	147	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
177	164	5.008	CSAH	5	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
188	165	7.002	CSAH	7	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
191	166	7.005	CSAH	7	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
192	167	7.006	CSAH	7	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
193	168	7.007	CSAH	7	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
196	169	7.011	CSAH	7	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
199	170	7.014	CSAH	7	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
201	171	7.016	CSAH	7	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
77	172	19.013	CSAH	19	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
189	173	7.003	CSAH	7	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
194	174	7.009	CSAH	7	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
195	175	7.010	CSAH	7	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
256	176	133.004	CR	133	★★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
245	227	125.002	CR	125	★★★	0	0	0	0	County Completed	County Completed	0	No Project - Previously Completed Project
109	230	22.017	CSAH	22	★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
102	231	22.010	CSAH	22	★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
123	233	25.005	CSAH	25	★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
37	235	12.005	CSAH	12	★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
84	236	2.001	CSAH	2	★★★	0	0	0	0	County Completed	County Completed	0	No Project - Previously Completed Project
178	237	5.009	CSAH	5	★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
244	238	125.001	CR	125	★★★	0	0	0	0	County Completed	County Completed	0	No Project - Previously Completed Project
252	239	125.010	CR	125	★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
267	240	143.004	CR	143	★★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
36	272	12.004	CSAH	12	★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project

Curve Project List for Olmsted County

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

List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Total Stars	CZ Maintenance	Surface Treatment	Single T	Lighting	Curve Warning Signs	Chevrons/ Arrow Board	Delineators	Project Cost
35	273	12.003	CSAH	12	★★	0	0	0	0	0	County Completed	0	No Project - Previously Completed Project
<u>Total Projects --</u>						12	14	1	2	1	16	5	\$2,248,651

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Rural Intersection Project List for Olmsted County - VEHICLE RELATED

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

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
32	1	3.018	CSAH	3	USTH 14	★★★★★	0	0	0	0	County Completed	0	0	0	0	No Project - Previous Completed Project
152	2	104.013	CR	104	USTH 14	★★★★★	0	0	0	0	County Completed	0	0	0	0	No Project - Previous Completed Project
118	3	16.020	CSAH	16	USTH 52	★★★★★	0	0	0	0	1	0	0	0	0	\$250,000
112	4	16.008	CSAH	16	3506	★★★★★	0	0	0	0	0	0	0	0	0	No Project - Jurisdictional Change
156	5	112.012	CR	112	Overland Dr NW / Trapper Lan NW	★★★★★	0	0	0	0	1	0	0	0	0	\$250,000
129	6	19.019	CSAH	19	USTH 14	★★★★	0	0	0	0	1	0	0	0	0	\$250,000
113	7	16.009	CSAH	16	4261	★★★★	0	0	0	0	County Not to Pursue	0	0	0	0	No Project - County Not to Pursue
73	8	9.011	CSAH	9	50th Ave SE / CSAH 11	★★★★	0	0	0	0	1	0	0	1	1	\$254,500
132	9	21.001	CSAH	21	USTH 63	★★★★	0	0	0	0	0	0	County Completed	1	0	\$1,500
150	10	35.004	CSAH	35	N Main St	★★★★	0	0	County Completed	0	County Completed	0	County Completed	0	0	No Project - Previous Completed Project
141	11	25.014	CSAH	25	Mayowood Rd SW / Autumn Ave SW	★★★★	0	0	0	0	1	0	0	1	0	\$253,500
122	12	19.008	CSAH	19	USTH 52	★★★★	0	0	0	0	1	0	0	0	0	\$250,000
106	13	14.015	CSAH	14	1552/USTH 52	★★★★	0	0	0	0	County Completed	0	County Completed	0	0	No Project - Previous Completed Project
88	14	10.028	CSAH	10	USTH 14	★★★	0	0	0	0	1	0	0	0	0	\$250,000
103	15	12.016	CSAH	12	USTH 63	★★★	0	0	0	0	1	0	0	0	0	\$250,000
157	16	112.017	CR	112	75th St NW	★★★	0	0	0	0	1	0	0	0	0	\$250,000
44	17	4.008	CSAH	4	60th Ave NW / CR 104	★★★	0	0	0	County Not to Pursue	0	0	0	County Not to Pursue	0	No Project - County Not to Pursue
158	18	112.019	CR	112	85th St NW	★★★	0	0	0	0	1	0	0	1	0	\$251,500
9	19	1.023	CSAH	1	5145	★★★	0	0	0	0	County Completed	0	County Completed	0	0	No Project - Previous Completed Project
1	20	1.001	CSAH	1	MNTH 30	★★★	0	0	0	0	1	0	1	0	0	\$260,000
68	21	8.013	CSAH	8	MNTH 30	★★★	0	0	0	0	1	0	1	0	0	\$260,000
55	22	6.010	CSAH	6	CSAH 8	★★★	0	0	0	0	1	0	1	1	0	\$261,500
147	23	32.005	CSAH	32	USTH 14	★★★	0	0	0	0	1	0	0	0	0	\$250,000
42	24	4.001	CSAH	4	CSAH 5	★★★	0	0	0	0	1	0	0	1	0	\$251,500
34	25	3.024	CSAH	3	Valleyhigh Rd NW	★★★	0	0	0	1	0	0	0	1	0	\$151,500
149	26	35.003	CSAH	35	2nd Ave NW	★★★	0	0	0	0	1	0	0	0	0	\$250,000
8	27	1.022	CSAH	1	3299	★★★	0	0	0	0	County Completed	0	County Completed	0	0	No Project - Previous Completed Project
45	28	4.009	CSAH	4	50th Ave NW	★★★	0	0	0	0	0	0	0	0	0	No Project - Criteria not Met
5	29	1.018	CSAH	1	55th St SE	★★★	0	0	0	0	1	0	1	1	0	\$261,500
20	30	2.046	CSAH	2	CSAH 10	★★★	0	0	0	0	1	0	1	1	0	\$261,500
111	31	15.008	CSAH	15	Salem Rd SW/ Co Rd 25	★★★	0	0	0	0	1	0	1	1	0	\$261,500
4	32	1.015	CSAH	1	CSAH 16	★★★	0	0	0	0	1	0	1	1	0	\$261,500
162	33	140.005	CR	140	MNTH 30	★★★	0	0	0	0	0	0	0	0	0	No Project - Previous Completed Project
96	34	12.005	CSAH	12	5023 / 52	★★★	0	0	0	0	County Completed	0	County Completed	0	0	No Project - Previous Completed Project
97	35	12.006	CSAH	12	5023 / 52	★★★	0	0	0	0	0	0	0	1	0	\$1,500
104	36	14.001	CSAH	14	Co Rd 5/280th Ave	★★★	0	0	0	0	0	0	1	1	0	\$11,500
127	37	19.016	CSAH	19	20th St SE	★★★	0	0	0	0	1	0	0	1	0	\$251,500
142	38	30.004	CSAH	30	CR-180	★★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
144	39	31.009	CSAH	31	59th Ave NW	★★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
143	40	31.007	CSAH	31	US 52 SB	★★★	0	0	0	0	0	0	0	0	0	No Project - Criteria Not Met
<u>Total Projects</u>							<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>21</u>	<u>0</u>	<u>8</u>	<u>14</u>	<u>1</u>	<u>\$5,506,000.00</u>

* Upon finalizing this report, RICWS was no longer supported by MnDOT. If an HSIP is desired, County to reach out to MnDOT.

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Urban Segment Project List for Olmsted 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
6	1	22.006	CSAH	22	USTH 14 & USTH 63 Interchange	USTH 63 Interchange / 55th St NW	15.31	★★★★	0	0	0	0	0	0	No project - criteria not met
1	2	1.002	CSAH	1	USTH 52	USTH 14	3.21	★★★	0	0	0	0	0	0	No project - criteria not met
2	3	2.005	CSAH	2	CSAH 22 / East Circle Dr NE	36th Ave NE / Haverhill Rd NE	2.06	★★★	0	0	0	0	0	1	\$164,800
8	4	22.008	CSAH	22	CSAH 33 / N Broadway Ave	USTH 14 / 30th Ave SE	8.30	★★	0	0	0	0	0	1	\$664,000
12	5	125.002	CR	125	CSAH 8	CSAH 25 / 16th St SW	1.38	★★	0	0	0	0	0	1	\$110,400
5	6	11.003	CSAH	11	CSAH 36 / 50th Ave SE	CSAH 2 / Viola Rd NE	6.64	★	0	0	0	0	0	0	No project - criteria not met
3	7	5.006	CSAH	5	USTH 14	13th St NW	1.03	★	0	0	0	0	0	0	No project - criteria not met
4	8	8.004	CSAH	8	Meadow Crossing Rd SW	CSAH 22 / Salem Rd SW	1.62	★	0	0	0	0	0	0	No project - criteria not met
11	9	125.001	CR	125	CSAH 25	CSAH 8	1.72	★	0	0	0	0	0	0	No project - criteria not met
9	10	34.004	CSAH	34	USTH 14 / 10th Ave NE	CSAH 22	6.00		0	0	0	0	0	0	No project - criteria not met
7	11	22.007	CSAH	22	USTH 63 Interchange / 55th St NW	CSAH 33	3.29		0	0	0	0	0	0	No project - criteria not met
10	12	112.003	CR	112	CSAH 22 / 55th St NW	USTH 52 Interchange	6.43		0	0	0	0	0	0	No project - criteria not met
13	13	147.001	CR	147	48th St SW	CR 125 / Mayowood Rd SW	3.31		0	0	0	0	0	0	No project - criteria not met
							60.30	Total Projects	0	0	0	0	0	3	\$939,200.00

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Urban Intersection Project List for Olmsted County - VEHICLE RELATED

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

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
35	1	22.019	CSAH	22	3996 / USTH 14	★★★★★★★	0	0	0	0	0	County Completed	0	0	No Project - Previous Completed Project
61	2	36.031	CSAH	36	12th St SE	★★★★★★★	0	0	0	0	1	0	0	0	\$50,000
46	3	22.046	CSAH	22	CSAH 33 / North Broadway Ave	★★★★★★★	0	0	1	0	0	0	0	0	\$1,250,000
29	4	22.001	CSAH	22	2122/ Fox Valley Dr SW	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
32	5	22.015	CSAH	22	Country Club Rd W	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
37	6	22.021	CSAH	22	N Frontage Rd/ Wilder Rd NW	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
44	7	22.032	CSAH	22	Clearwater Rd NW / W. Frontage Rd	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
42	8	22.030	CSAH	22	55th St NW	★★★★★★★	0	0	0	0	0	0	0	0	No Project - Criteria not met
43	9	22.031	CSAH	22	Chateau Rd NW	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
6	10	2.013	CSAH	2	East Circle Dr/ CR 22	★★★★★★★	0	0	0	0	1	0	0	0	\$50,000
39	11	22.026	CSAH	22	1192 / Badger Hills Dr/ 41st St NW	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
45	12	22.033	CSAH	22	55th St NW / USTH 63	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
34	13	22.017	CSAH	22	7th St NW	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
63	14	112.008	CR	112	55th St NW	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
30	15	22.003	CSAH	22	16th St SW	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
36	16	22.020	CSAH	22	5780 / USTH 14	★★★★★★★	0	0	0	0	0	County Completed	0	0	No Project - Previous Completed Project
40	17	22.027	CSAH	22	Alpha Pkwy NW	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
38	18	22.022	CSAH	22	19th St NW	★★★★★★★	0	0	0	0	1	0	0	0	\$50,000
10	19	4.012	CSAH	4	West Circle Dr NW / 22	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
51	20	25.021	CSAH	125	16th St SW	★★★★★★★	0	0	0	0	1	0	0	0	\$50,000
28	21	20.013	CSAH	20	M-1468/ Maine Ave SE	★★★★★★★	0	0	0	0	0	County Completed	0	0	No Project - Previous Completed Project
53	22	34.001	CSAH	34	USTH 14	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
5	23	1.039	CSAH	1	12th St SE, 14	★★★★★★★	0	County Completed	0	0	0	0	0	0	No Project - Previous Completed Project
3	24	1.034	CSAH	1	20th St SE	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
15	25	8.031	CSAH	8	Salem Rd SW / CSAH 25	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
4	26	1.036	CSAH	1	16th St SE	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
50	27	22.058	CSAH	22	USTH 14	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
17	28	9.005	CSAH	9	CSAH 22 / East Circle Dr / 30th Ave SE	★★★★★★★	0	1	0	0	0	0	0	0	\$1,500
62	29	101.001	CR	101	CR 101 (45th St SE)	★★★★★★★	0	0	0	0	0	1	0	1	\$18,500
Total Projects							0	18	1	0	4	1	0	1	\$1,495,500.00

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Urban Intersection Projects for Olmsted County - PED/BIKE RELATED

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

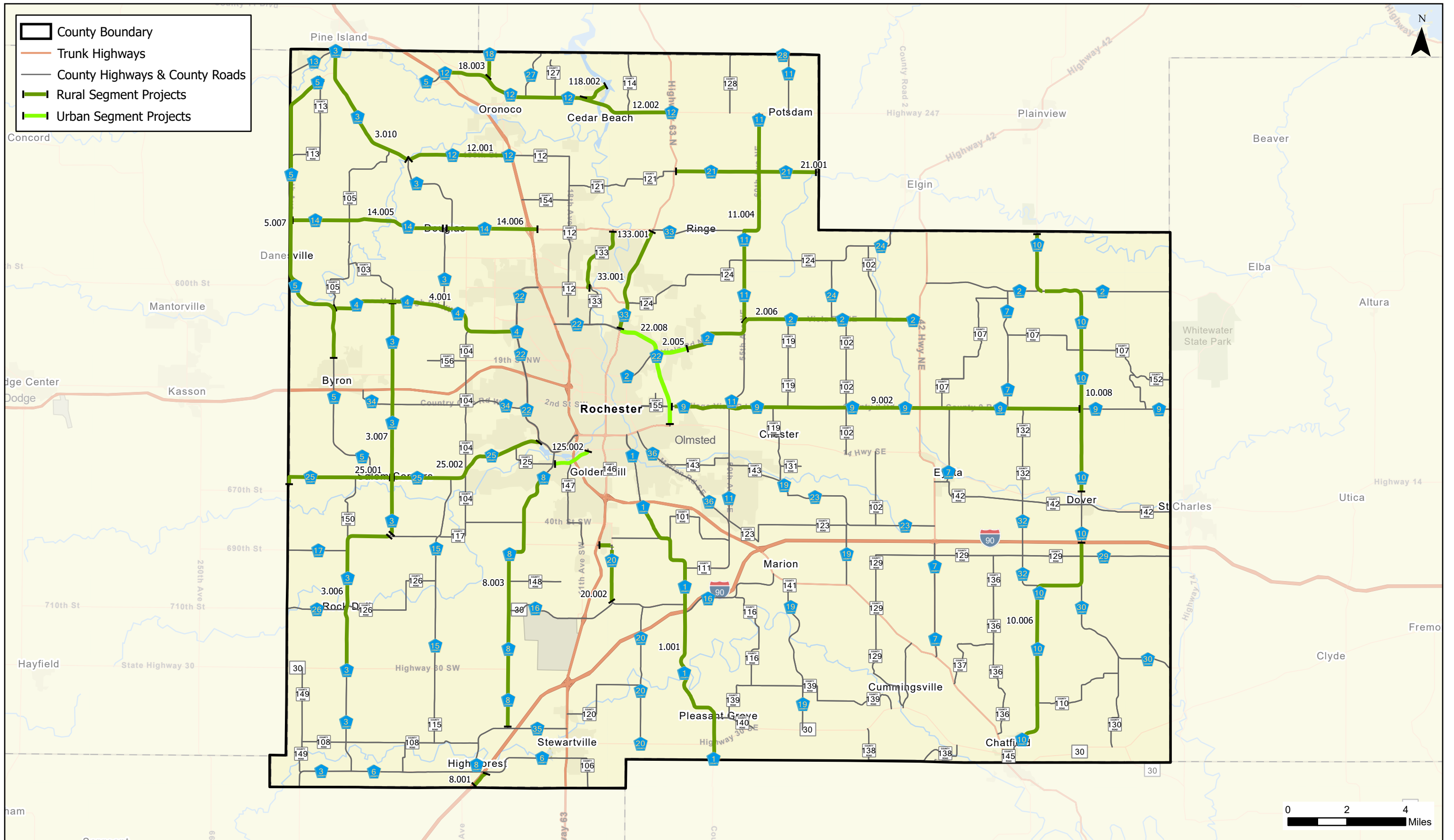
List No.	Project Page No.	CRSP 2 ID	Route System	Route No.	Intersection Description	Total Stars	HAWK	Median Refuge Island	Curb Extension	Countdown Timers	Leading Pedestrian Interval	RRFB w/ Refuge Island	RRFB	Upgrade Signal Head Hardware	Update Signal to Meet MUTCD Recommendation	Mini Roundabout	Upgrade Signs & Markings	Cost
61	1	36.031	CSAH	36	12th St SE	★★★★★	0	2	0	0	1	0	0	0	1	0	0	\$149,000
46	2	22.046	CSAH	22	CSAH 33 / North Broadway Ave	★★★★★	0	0	0	0	1	0	0	1	0	0	0	\$30,000
43	3	22.031	CSAH	22	Chateau Rd NW	★★★★★	0	0	0	0	1	0	0	0	1	0	0	\$125,000
29	4	22.001	CSAH	22	2122/ Fox Valley Dr SW	★★★★★	0	0	0	0	1	0	0	1	0	0	0	\$30,000
34	5	22.017	CSAH	22	7th St NW	★★★★★	0	2	0	0	1	0	0	1	0	0	0	\$54,000
32	6	22.015	CSAH	22	Country Club Rd W	★★★★★	0	0	0	0	1	0	0	1	0	0	0	\$30,000
40	7	22.027	CSAH	22	Alpha Pkwy NW	★★★★★	0	0	0	0	1	0	0	1	0	0	0	\$30,000
35	8	22.019	CSAH	22	3996 / USTH 14	★★★★★	0	0	0	0	1	0	0	1	0	0	0	\$30,000
37	9	22.021	CSAH	22	N Frontage Rd/ Wilder Rd NW	★★★★★	0	2	0	0	1	0	0	1	0	0	0	\$54,000
44	10	22.032	CSAH	22	Clearwater Rd NW / W. Frontage Rd	★★★★★	0	2	0	0	1	0	0	0	1	0	0	\$149,000
42	11	22.030	CSAH	22	55th St NW	★★★★★	0	2	0	0	1	0	0	1	0	0	0	\$54,000
38	12	22.022	CSAH	22	19th St NW	★★★★★	0	0	0	0	1	0	0	0	1	0	0	\$125,000
3	13	1.034	CSAH	1	20th St SE	★★★★★	0	0	0	0	1	0	0	1	0	0	0	\$30,000
6	14	2.013	CSAH	2	East Circle Dr/ CR 22	★★★★★	0	0	0	0	1	0	0	1	0	0	0	\$30,000
15	15	8.031	CSAH	8	Salem Rd SW / CSAH 25	★★★★★	0	0	0	0	1	0	0	1	0	0	0	\$30,000
39	16	22.026	CSAH	22	1192 / Badger Hills Dr/ 41st St NW	★★★★★	0	0	0	0	1	0	0	1	0	0	0	\$30,000
50	17	22.058	CSAH	22	USTH 14	★★★★★	0	0	0	0	1	0	0	0	1	0	0	\$125,000
17	18	9.005	CSAH	9	CSAH 22 / East Circle Dr / 30th Ave SE	★★★★★	0	0	0	0	1	0	0	1	0	0	0	\$30,000
63	19	112.008	CR	112	55th St NW	★★★★★	0	0	0	0	1	0	0	0	1	0	0	\$125,000
51	20	25.021	CSAH	125	16th St SW	★★★★★	0	2	0	0	1	0	0	1	0	0	0	\$54,000
30	21	22.003	CSAH	22	16th St SW	★★★★★	0	0	0	1	0	0	0	1	0	0	0	\$12,000
36	22	22.020	CSAH	22	5780 / USTH 14	★★★★★	0	0	0	0	1	0	0	1	0	0	0	\$30,000
53	23	34.001	CSAH	34	USTH 14	★★★★	0	0	1	0	1	0	0	0	1	0	0	\$135,000
5	24	1.039	CSAH	1	12th St SE, 14	★★★★	0	0	0	0	1	0	0	1	0	0	0	\$30,000
16	25	9.004	CSAH	9	Silver Creek Dr	★★★★	0	0	0	0	0	0	0	0	0	0	0	No Project - criteria not met
10	26	4.012	CSAH	4	West Circle Dr NW / 22	★★★★	0	0	0	0	1	0	0	1	0	0	0	\$30,000
48	27	22.052	CSAH	22	Rocky Creek Dr NE /Stonehedge Dr NW	★★★★	0	0	0	0	1	0	0	1	0	0	0	\$30,000
45	28	22.033	CSAH	22	55th St NW / USTH 63	★★★★	0	0	0	0	1	0	0	0	1	0	0	\$125,000
60	29	36.030	CSAH	36	Eastwood Rd SE	★★★★	0	0	0	0	0	1	0	0	0	0	1	\$22,500
62	30	101.001	CR	101	CR 101 (45th St SE)	★★★★	0	0	0	0	0	1	0	0	0	0	1	\$22,500
28	31	20.013	CSAH	20	M-1468/ Maine Ave SE	★★★★	0	0	0	0	1	0	0	0	1	0	0	\$125,000
27	32	20.012	CSAH	20	48th St SW	★★★★	0	0	0	0	0	1	0	0	0	0	1	\$22,500
57	33	36.019	CSAH	36	20th St SE	★★★★	0	0	0	0	1	0	0	1	0	0	0	\$30,000
Total Projects							0	12	1	1	28	3	0	20	9	0	3	\$1,928,500.00

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Appendix E – Recommended Project Maps

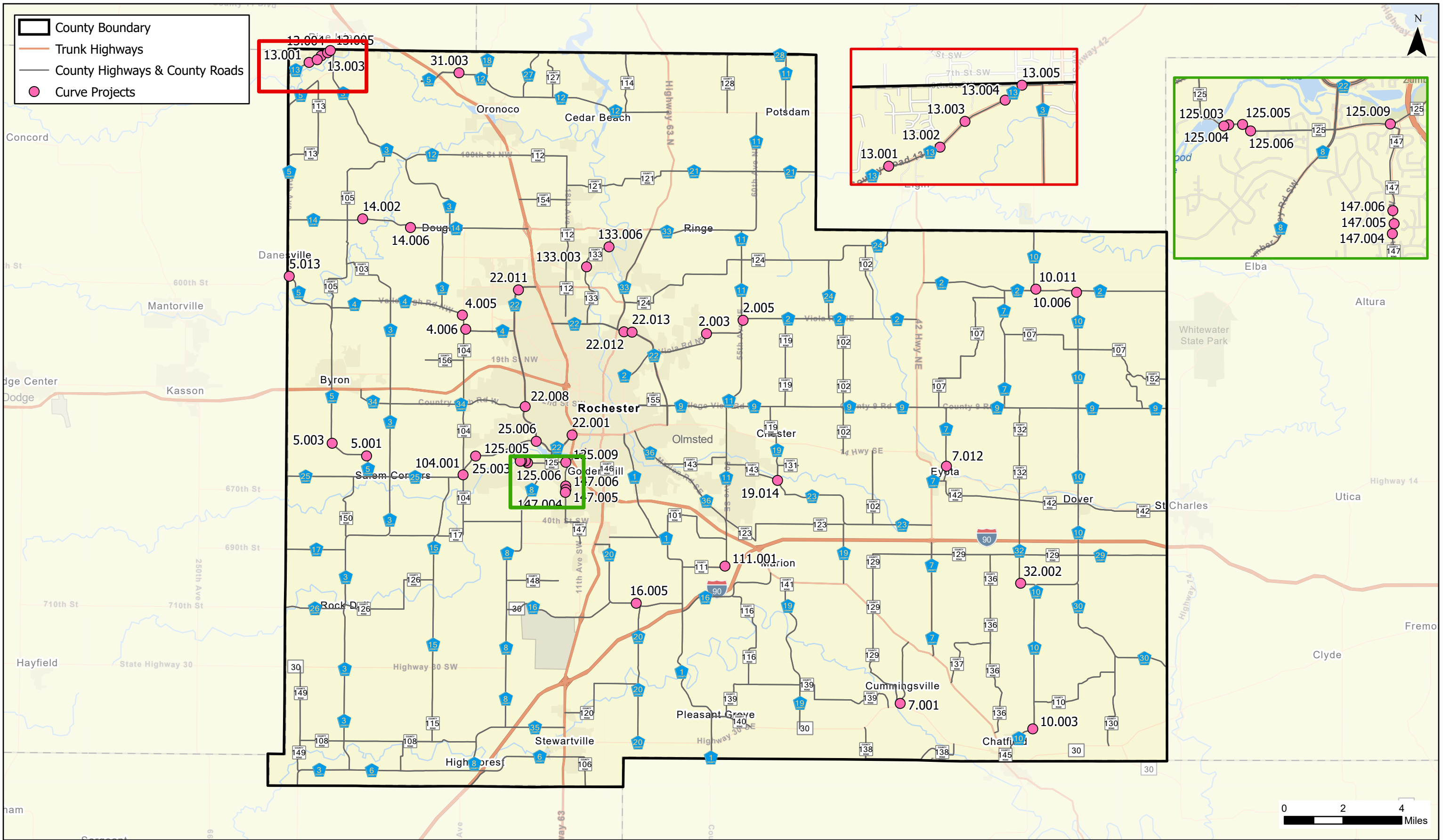
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Olmsted County - Segment Projects

Created on 3/10/2021

Figure 1-13



Olmsted County - Curve Projects

Created on 3/29/2021

Figure 1-13

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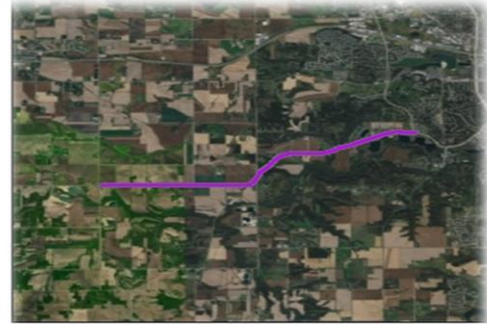
Appendix F – HSIP Submission Forms

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Rural Segment Project on CSAH 25 from Olmsted CTH 3 to Olmsted CTH 22/Salem Rd SW

Roadway Information

Segment Start: Olmsted CTH 3
 Segment End: Olmsted CTH 22/Salem Rd SW
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 25
 Facility Type: 2-Lane
 Segment Length (mile): 5.51
 Traffic Volume (vpd): 2,415
 Lane Width (ft): 12
 Shoulder Type: Paved
 Shoulder Width (ft): 6.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	48	2	10	2
Density (per mile per yr):	1.7	0.1	0.4	0.1
Rate (per MVM):	197.7	8.2	41.2	8.2

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	2,415	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	2,415	xx ≥ 1,500	★
Curve Density (cur per mile):	1.27	xx ≥ 1	★
Access Density (access per mile):	12.53	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S, 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	5.51	\$826,500
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
Edge Line 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:					\$826,500

Systemic Project

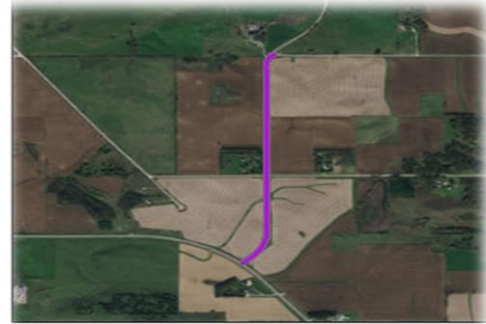
Notes -

Project Page #: 1
 CRSP 2 ID: 25.002
 Date: 3/19/2019

Rural Segment Project on CSAH 18 from CSAH 12 / Ash Rd NW to Wabasha County Line / 135th St NEW

Roadway Information

Segment Start: CSAH 12 / Ash Rd NW
 Segment End: Wabasha County Line / 135th St NEW
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 18
 Facility Type: 2-Lane
 Segment Length (mile): 0.91
 Traffic Volume (vpd): 1,750
 Lane Width (ft): 12
 Shoulder Type: Composite
 Shoulder Width (ft): 4.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	1	1	0	0
Density (per mile per yr):	0.2	0.2	0.0	0.0
Rate (per MVM):	34.4	34.4	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	$55 \leq xx \leq 99$	★
ADT-RS (Rural Single-veh) (vpd):	1,750	$500 \leq xx \leq 2,500$	★
ADT-RM (Rural Multi-veh) (vpd):	1,750	$xx \geq 1,500$	★
Curve Density (cur per mile):	1.10	$xx \geq 1$	★
Access Density (access per mile):	14.23	$7 \leq xx \leq 18$	★
Outside Edge Risk:	1	2S, 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	0.91	\$4,550
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	0.91	\$5,324
Edge Line Rumble Strip:	Proactive	\$5,850	per mile	0.91	\$5,324
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:					\$15,197

Systemic Project

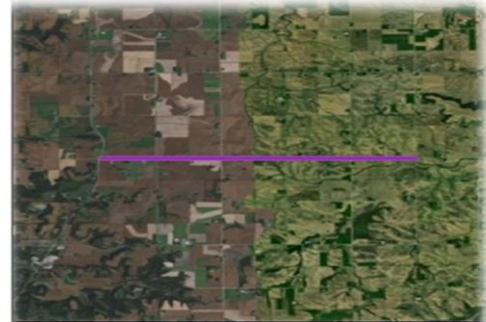
Notes - County Nominated
- 6" Wet Reflective in Groove

Project Page #: 3
 CRSP 2 ID: 18.003
 Date: 3/19/2019

Rural Segment Project on CSAH 21 from USTH 63/Olmsted CTH 33 to Olm Wab County Line Rd

Roadway Information

Segment Start: USTH 63/Olmsted CTH 33
 Segment End: Olm Wab County Line Rd
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 21
 Facility Type: 2-Lane
 Segment Length (mile): 4.87
 Traffic Volume (vpd): 2,400
 Lane Width (ft): 12
 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:	42	4	23	2
Density (per mile per yr):	1.7	0.2	0.9	0.1
Rate (per MVM):	196.9	18.8	107.8	9.4

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	$55 \leq xx \leq 99$	★
ADT-RS (Rural Single-veh) (vpd):	2,400	$500 \leq xx \leq 2,500$	★
ADT-RM (Rural Multi-veh) (vpd):	2,400	$xx \geq 1,500$	★
Curve Density (cur per mile):	0.00	$xx \geq 1$	
Access Density (access per mile):	12.31	$7 \leq xx \leq 18$	★
Outside Edge Risk:	1	2S, 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	4.87	\$54,788
Centerline Rumble Strip:	Proactive	\$5,850	per mile	4.87	\$28,490
Edge Line Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	4.87	\$17,532
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$100,809

Systemic Project

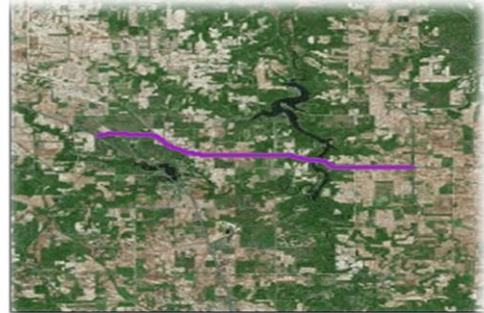
Notes -

Project Page #: 4
 CRSP 2 ID: 21.001
 Date: 3/19/2019

Rural Segment Project on CSAH 12 from USTH 52 to USTH 63/MNTH 247

Roadway Information

Segment Start: USTH 52
 Segment End: USTH 63/MNTH 247
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 12
 Facility Type: 2-Lane
 Segment Length (mile): 8.24
 Traffic Volume (vpd): 1,990
 Lane Width (ft): 12
 Shoulder Type: Paved
 Shoulder Width (ft): 6.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	34	1	10	0
Density (per mile per yr):	0.8	0.0	0.2	0.0
Rate (per MVM):	113.6	3.3	33.4	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	40	$55 \leq xx \leq 99$	
ADT-RS (Rural Single-veh) (vpd):	1,990	$500 \leq xx \leq 2,500$	★
ADT-RM (Rural Multi-veh) (vpd):	1,990	$xx \geq 1,500$	★
Curve Density (cur per mile):	1.09	$xx \geq 1$	★
Access Density (access per mile):	11.41	$7 \leq xx \leq 18$	★
Outside Edge Risk:	1	2S, 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	8.24	\$41,200
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	8.24	\$48,204
Edge Line Rumble Strip:	Proactive	\$5,850	per mile	8.24	\$48,204
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:					\$137,608

Systemic Project

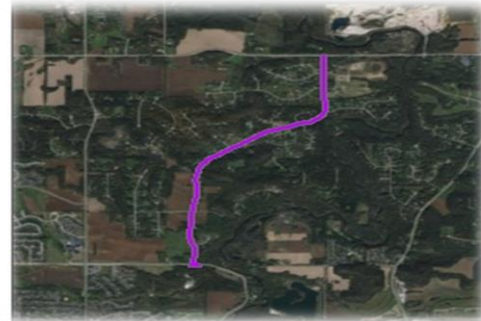
Notes - County Nominated
- 6" Wet Reflective in Groove

Project Page #: 5
 CRSP 2 ID: 12.002
 Date: 3/19/2019

Rural Segment Project on CR 133 from CSAH 22 to CSAH 14 / USTH 63 / 75th St NW

Roadway Information

Segment Start: CSAH 22
 Segment End: CSAH 14 / USTH 63 / 75th St NW
 Area Type: Rural
 County: Olmsted
 Context Zone: Natural
 Segment Route System: CR
 Segment Route No: 133
 Facility Type: 2-Lane
 Segment Length (mile): 2.52
 Traffic Volume (vpd): 4,125
 Lane Width (ft): 12
 Shoulder Type: Paved
 Shoulder Width (ft): 6.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	23	3	11	0
Density (per mile per yr):	1.8	0.2	0.9	0.0
Rate (per MVM):	121.2	15.8	58.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	4,125	500 ≤ xx ≤ 2,500	
ADT-RM (Rural Multi-veh) (vpd):	4,125	xx ≥ 1,500	★
Curve Density (cur per mile):	2.38	xx ≥ 1	★
Access Density (access per mile):	7.40	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S, 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	2.52	\$14,742
Edge Line Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	2.52	\$9,072
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$23,814

Systemic Project

Notes -

Project Page #: 6
 CRSP 2 ID: 133.001
 Date: 3/19/2019

Rural Segment Project on CSAH 1 from MNTH 30 to USTH 52

Roadway Information

Segment Start: MNTH 30
 Segment End: USTH 52
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 1
 Facility Type: 2-Lane
 Segment Length (mile): 10.43
 Traffic Volume (vpd): 2,135
 Lane Width (ft): 12
 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:	69	3	41	1
Density (per mile per yr):	1.3	0.1	0.8	0.0
Rate (per MVM):	169.8	7.4	100.9	2.5

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	2,135	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	2,135	xx ≥ 1,500	★
Curve Density (cur per mile):	1.53	xx ≥ 1	★
Access Density (access per mile):	0.00	7 ≤ xx ≤ 18	
Outside Edge Risk:	1	2S, 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	10.43	\$52,150
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	10.43	\$61,016
Edge Line Rumble Strip:	Proactive	\$5,850	per mile	10.43	\$61,016
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:					\$174,181

Systemic Project

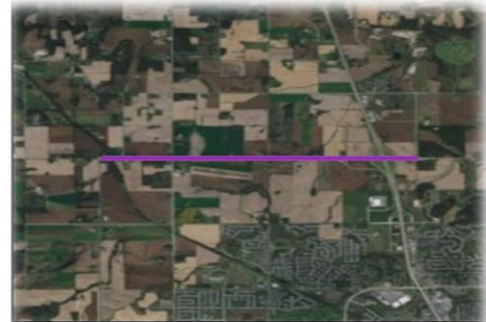
Notes - County Nominated
- 6" Wet Reflective in Groove

Project Page #: 7
 CRSP 2 ID: 1.001
 Date: 3/19/2019

Rural Segment Project on CSAH 14 from CSAH 3 to CR 154 / 31st Ave

Roadway Information

Segment Start: CSAH 3
 Segment End: CR 154 / 31st Ave
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 14
 Facility Type: 2-Lane
 Segment Length (mile): 3.21
 Traffic Volume (vpd): 2,200
 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:	70	1	38	1
Density (per mile per yr):	4.4	0.1	2.4	0.1
Rate (per MVM):	543.1	7.8	294.8	7.8

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	$55 \leq xx \leq 99$	★
ADT-RS (Rural Single-veh) (vpd):	2,200	$500 \leq xx \leq 2,500$	★
ADT-RM (Rural Multi-veh) (vpd):	2,200	$xx \geq 1,500$	★
Curve Density (cur per mile):	0.00	$xx \geq 1$	
Access Density (access per mile):	17.76	$7 \leq xx \leq 18$	★
Outside Edge Risk:	1	2S, 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	3.21	\$36,113
Centerline Rumble Strip:	Proactive	\$5,850	per mile	3.21	\$18,779
Edge Line Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	3.21	\$11,556
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$66,447

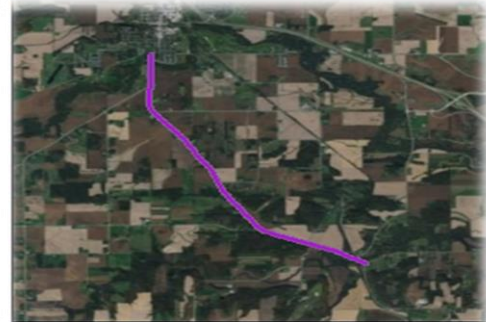
Systemic Project

Notes -

Rural Segment Project on CSAH 3 from CSAH 12 / 100th St NW to CSAH 13 / SW 8th St (Pine Island)

Roadway Information

Segment Start: CSAH 12 / 100th St NW
 Segment End: CSAH 13 / SW 8th St (Pine Island)
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 3
 Facility Type: 2-Lane
 Segment Length (mile): 4.84
 Traffic Volume (vpd): 1,300
 Lane Width (ft): 12
 Shoulder Type: Paved
 Shoulder Width (ft): 6.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	18	2	12	1
Density (per mile per yr):	0.7	0.1	0.5	0.0
Rate (per MVM):	156.8	17.4	104.5	8.7

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	$55 \leq xx \leq 99$	★
ADT-RS (Rural Single-veh) (vpd):	1,300	$500 \leq xx \leq 2,500$	★
ADT-RM (Rural Multi-veh) (vpd):	1,300	$xx \geq 1,500$	
Curve Density (cur per mile):	1.45	$xx \geq 1$	★
Access Density (access per mile):	13.84	$7 \leq xx \leq 18$	★
Outside Edge Risk:	1	2S, 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	4.84	\$28,314
Edge Line 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	4.84	\$9,680
Total Estimated Project Cost:					\$37,994

Systemic Project

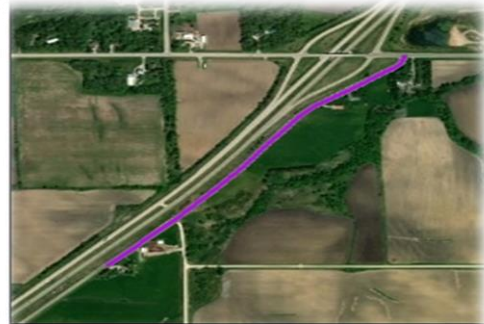
Notes -

Project Page #: 10
 CRSP 2 ID: 3.010
 Date: 3/19/2019

Rural Segment Project on CSAH 8 from Mower County Line to CSAH 6

Roadway Information

Segment Start: Mower County Line
 Segment End: CSAH 6
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 8
 Facility Type: 2-Lane
 Segment Length (mile): 0.69
 Traffic Volume (vpd): 1,600
 Lane Width (ft): 12
 Shoulder Type: Composite
 Shoulder Width (ft): 5.0



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):	0.6	0.0	0.3	0.0
Rate (per MVM):	99.3	0.0	49.6	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	1,600	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	1,600	xx ≥ 1,500	★
Curve Density (cur per mile):	2.90	xx ≥ 1	★
Access Density (access per mile):	5.79	7 ≤ xx ≤ 18	
Outside Edge Risk:	1	2S, 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	0.69	\$7,763
Centerline Rumble Strip:	Proactive	\$5,850	per mile	0.69	\$4,037
Edge Line Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	0.69	\$2,484
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$14,283

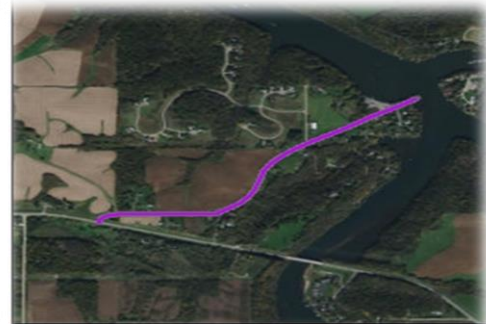
Systemic Project

Notes -

Rural Segment Project on CR 118 from CSAH 12 to Dead End / Fisherman's Inn

Roadway Information

Segment Start: CSAH 12
 Segment End: Dead End / Fisherman's Inn
 Area Type: Rural
 County: Olmsted
 Context Zone: Residential
 Segment Route System: CR
 Segment Route No: 118
 Facility Type: 2-Lane
 Segment Length (mile): 1.03
 Traffic Volume (vpd): 520
 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:	1	0	1	0
Density (per mile per yr):	0.2	0.0	0.2	0.0
Rate (per MVM):	102.3	0.0	102.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	520	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	520	xx ≥ 1,500	
Curve Density (cur per mile):	2.91	xx ≥ 1	★
Access Density (access per mile):	16.54	7 ≤ xx ≤ 18	★
Outside Edge Risk:	2C	2S, 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	1.03	\$5,150
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Edge Line 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:					\$5,150

Systemic Project

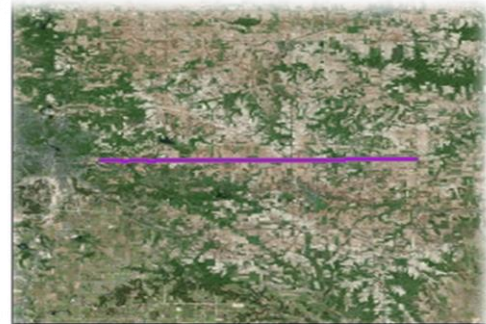
Notes - County Nominated
- 6" Wet Reflective in Groove

Project Page #: 18
 CRSP 2 ID: 118.002
 Date: 3/19/2019

Rural Segment Project on CSAH 9 from CSAH 22 to CSAH 10

Roadway Information

Segment Start: CSAH 22
 Segment End: CSAH 10
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 9
 Facility Type: 2-Lane
 Segment Length (mile): 14.1
 Traffic Volume (vpd): 2,010
 Lane Width (ft): 12
 Shoulder Type: Paved
 Shoulder Width (ft): 9.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	74	7	30	0
Density (per mile per yr):	1.0	0.1	0.4	0.0
Rate (per MVM):	143.1	13.5	58.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	$55 \leq xx \leq 99$	★
ADT-RS (Rural Single-veh) (vpd):	2,010	$500 \leq xx \leq 2,500$	★
ADT-RM (Rural Multi-veh) (vpd):	2,010	$xx \geq 1,500$	★
Curve Density (cur per mile):	0.43	$xx \geq 1$	
Access Density (access per mile):	2.06	$7 \leq xx \leq 18$	
Outside Edge Risk:	1	2S, 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	0.0	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	14.10	\$82,485
Edge Line Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	14.10	\$50,760
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$133,245

Systemic Project

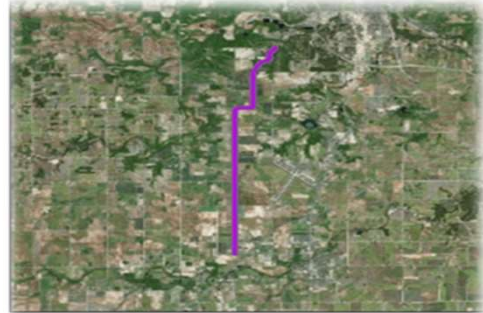
Notes -

Project Page #: 19
 CRSP 2 ID: 9.002
 Date: 3/19/2019

Rural Segment Project on CSAH 8 from CSAH 8 / 10 St NW to Meadow Crossing Rd SW

Roadway Information

Segment Start: CSAH 8 / 10 St NW
 Segment End: Meadow Crossing Rd SW
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 8
 Facility Type: 2-Lane
 Segment Length (mile): 9.16
 Traffic Volume (vpd): 1,540
 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:	48	3	26	3
Density (per mile per yr):	1.0	0.1	0.6	0.1
Rate (per MVM):	186.4	11.7	101.0	11.7

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):	0.66	xx ≥ 1	
Access Density (access per mile):	2.08	7 ≤ xx ≤ 18	
Outside Edge Risk:	1	2S, 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
Edge Line Rumble Strip:	Proactive	\$5,850	per mile	9.16	\$53,586
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:					\$53,586

Systemic Project

Notes -

Rural Segment Project on CSAH 10 from USTH 14 to Wabasha County Line / 75th St NE

Roadway Information

Segment Start: USTH 14
 Segment End: Wabasha County Line / 75th St NE
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 10
 Facility Type: 2-Lane
 Segment Length (mile): 10.21
 Traffic Volume (vpd): 1,150
 Lane Width (ft): 12
 Shoulder Type: Paved
 Shoulder Width (ft): 6.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	32	4	11	1
Density (per mile per yr):	0.6	0.1	0.2	0.0
Rate (per MVM):	149.3	18.7	51.3	4.7

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	$55 \leq xx \leq 99$	★
ADT-RS (Rural Single-veh) (vpd):	1,150	$500 \leq xx \leq 2,500$	★
ADT-RM (Rural Multi-veh) (vpd):	1,150	$xx \geq 1,500$	
Curve Density (cur per mile):	0.49	$xx \geq 1$	
Access Density (access per mile):	11.07	$7 \leq xx \leq 18$	★
Outside Edge Risk:	1	2S, 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	10.21	\$51,050
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	10.21	\$59,729
Edge Line Rumble Strip:	Proactive	\$5,850	per mile	10.21	\$59,729
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:					\$170,507

Systemic Project

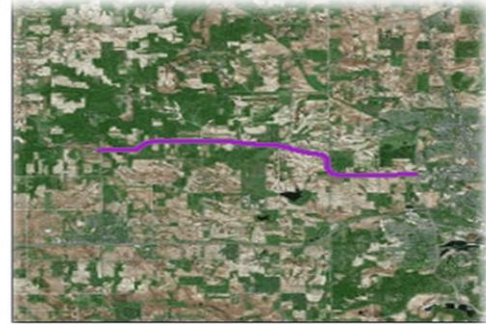
Notes - County Nominated
- 6" Wet Reflective in Groove

Project Page #: 22
 CRSP 2 ID: 10.008
 Date: 3/19/2019

Rural Segment Project on CSAH 4 from Olmsted CTH 5 to Olmsted CTH 22

Roadway Information

Segment Start: Olmsted CTH 5
 Segment End: Olmsted CTH 22
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 4
 Facility Type: 2-Lane
 Segment Length (mile): 7.15
 Traffic Volume (vpd): 2,970
 Lane Width (ft): 12
 Shoulder Type: Paved
 Shoulder Width (ft): 10.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	76	2	27	2
Density (per mile per yr):	2.1	0.1	0.8	0.1
Rate (per MVM):	196.1	5.2	69.7	5.2

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	2,970	500 ≤ xx ≤ 2,500	
ADT-RM (Rural Multi-veh) (vpd):	2,970	xx ≥ 1,500	★
Curve Density (cur per mile):	0.84	xx ≥ 1	
Access Density (access per mile):	9.66	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S, 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	7.15	\$80,438
Centerline Rumble Strip:	Proactive	\$5,850	per mile	7.15	\$41,828
Edge Line Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	7.15	\$25,740
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$148,005

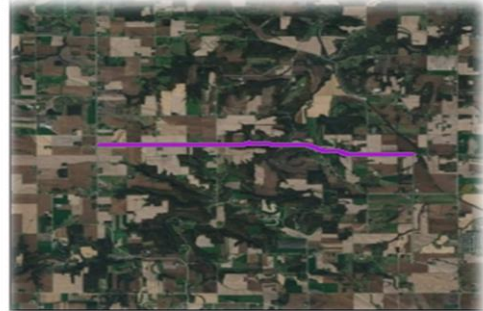
Systemic Project

Notes -

Rural Segment Project on CSAH 14 from CSAH 5 / Dodge County Line to CSAH 3

Roadway Information

Segment Start: CSAH 5 / Dodge County Line
 Segment End: CSAH 3
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 14
 Facility Type: 2-Lane
 Segment Length (mile): 5.29
 Traffic Volume (vpd): 1,150
 Lane Width (ft): 12
 Shoulder Type: Gravel
 Shoulder Width (ft): 6.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	17	1	12	1
Density (per mile per yr):	0.6	0.0	0.5	0.0
Rate (per MVM):	153.1	9.0	108.1	9.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	$55 \leq xx \leq 99$	★
ADT-RS (Rural Single-veh) (vpd):	1,150	$500 \leq xx \leq 2,500$	★
ADT-RM (Rural Multi-veh) (vpd):	1,150	$xx \geq 1,500$	
Curve Density (cur per mile):	0.95	$xx \geq 1$	
Access Density (access per mile):	13.98	$7 \leq xx \leq 18$	★
Outside Edge Risk:	1	2S, 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	5.29	\$59,513
Centerline Rumble Strip:	Proactive	\$5,850	per mile	5.29	\$30,947
Edge Line Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	5.29	\$19,044
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$109,503

Systemic Project

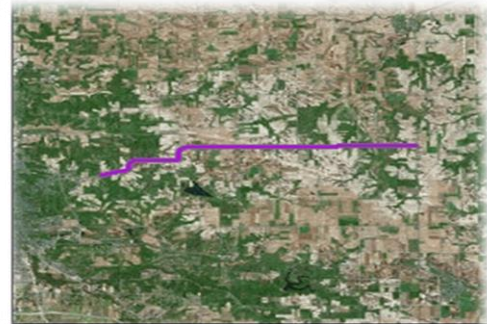
Notes -

Project Page #: 24
 CRSP 2 ID: 14.005
 Date: 3/19/2019

Rural Segment Project on CSAH 2 from 36th Ave NE / Haverhill Rd NE to MNTH 42

Roadway Information

Segment Start: 36th Ave NE / Haverhill Rd NE
 Segment End: MNTH 42
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 2
 Facility Type: 2-Lane
 Segment Length (mile): 8.56
 Traffic Volume (vpd): 4,300
 Lane Width (ft): 12
 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:	51	7	30	5
Density (per mile per yr):	1.2	0.2	0.7	0.1
Rate (per MVM):	75.9	10.4	44.7	7.4

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	4,300	500 ≤ xx ≤ 2,500	
ADT-RM (Rural Multi-veh) (vpd):	4,300	xx ≥ 1,500	★
Curve Density (cur per mile):	0.47	xx ≥ 1	
Access Density (access per mile):	14.25	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S, 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	8.56	\$1,284,000
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
Edge Line 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:					\$1,284,000

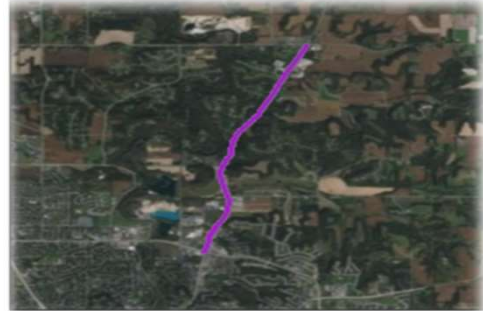
Systemic Project

Notes -

Rural Segment Project on CSAH 33 from Olmsted CTH 22/E Circle Dr NE to USTH 63

Roadway Information

Segment Start: Olmsted CTH 22/E Circle Dr NE
 Segment End: USTH 63
 Area Type: Rural
 County: Olmsted
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 33
 Facility Type: 2-Lane
 Segment Length (mile): 4.12
 Traffic Volume (vpd): 8,025
 Lane Width (ft): 12
 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:	86	1	8	0
Density (per mile per yr):	4.2	0.0	0.4	0.0
Rate (per MVM):	142.5	1.7	13.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	30	$55 \leq xx \leq 99$	
ADT-RS (Rural Single-veh) (vpd):	8,025	$500 \leq xx \leq 2,500$	
ADT-RM (Rural Multi-veh) (vpd):	8,025	$xx \geq 1,500$	★
Curve Density (cur per mile):	1.46	$xx \geq 1$	★
Access Density (access per mile):	11.95	$7 \leq xx \leq 18$	★
Outside Edge Risk:	1	2S, 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	4.12	\$24,102
Edge Line Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	4.12	\$14,832
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$38,934

Systemic Project

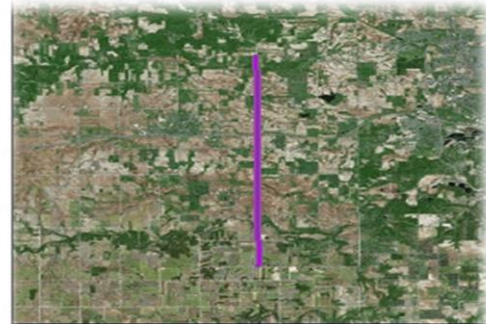
Notes -

Project Page #: 29
 CRSP 2 ID: 33.001
 Date: 4/1/2019

Rural Segment Project on CSAH 3 from 85th Ave SW to CSAH 4 / Valleyhigh Rd NW

Roadway Information

Segment Start: 85th Ave SW
 Segment End: CSAH 4 / Valleyhigh Rd NW
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 3
 Facility Type: 2-Lane
 Segment Length (mile): 7.94
 Traffic Volume (vpd): 1,250
 Lane Width (ft): 12
 Shoulder Type: Gravel
 Shoulder Width (ft): 6.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	53	3	19	2
Density (per mile per yr):	1.3	0.1	0.5	0.1
Rate (per MVM):	292.6	16.6	104.9	11.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	$55 \leq xx \leq 99$	★
ADT-RS (Rural Single-veh) (vpd):	1,250	$500 \leq xx \leq 2,500$	★
ADT-RM (Rural Multi-veh) (vpd):	1,250	$xx \geq 1,500$	
Curve Density (cur per mile):	0.13	$xx \geq 1$	
Access Density (access per mile):	13.35	$7 \leq xx \leq 18$	★
Outside Edge Risk:	1	2S, 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	7.94	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	7.94	\$46,449
Edge Line Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	7.94	\$28,584
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					<u>\$75,033</u>

Systemic Project

Notes -

Project Page #: 30
 CRSP 2 ID: 3.007
 Date: 3/19/2019

Rural Segment Project on CSAH 11 from CSAH 2 to MNTH 247

Roadway Information

Segment Start: CSAH 2
 Segment End: MNTH 247
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 11
 Facility Type: 2-Lane
 Segment Length (mile): 7.54
 Traffic Volume (vpd): 1,050
 Lane Width (ft): 12
 Shoulder Type: Composite
 Shoulder Width (ft): 4.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	26	1	14	0
Density (per mile per yr):	0.7	0.0	0.4	0.0
Rate (per MVM):	179.9	6.9	96.9	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	1,050	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	1,050	xx ≥ 1,500	
Curve Density (cur per mile):	0.27	xx ≥ 1	
Access Density (access per mile):	10.48	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S, 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	7.54	\$37,700
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	7.54	\$44,109
Edge Line Rumble Strip:	Proactive	\$5,850	per mile	7.54	\$44,109
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:					\$125,918

Systemic Project

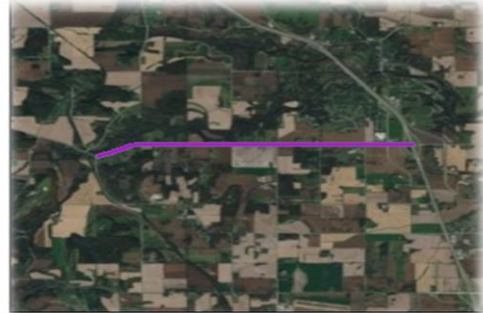
Notes - County Nominated
- 6" Wet Reflective in Groove

Project Page #: 32
 CRSP 2 ID: 11.004
 Date: 3/19/2019

Rural Segment Project on CSAH 12 from Olmsted CTH 36/Olmsted 123 to USTH 52

Roadway Information

Segment Start: Olmsted CTH 36/Olmsted 123
 Segment End: USTH 52
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 12
 Facility Type: 2-Lane
 Segment Length (mile): 3.54
 Traffic Volume (vpd): 3,950
 Lane Width (ft): 12
 Shoulder Type: Gravel
 Shoulder Width (ft): 6.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	47	1	23	0
Density (per mile per yr):	2.7	0.1	1.3	0.0
Rate (per MVM):	184.2	3.9	90.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	$55 \leq xx \leq 99$	★
ADT-RS (Rural Single-veh) (vpd):	3,950	$500 \leq xx \leq 2,500$	
ADT-RM (Rural Multi-veh) (vpd):	3,950	$xx \geq 1,500$	★
Curve Density (cur per mile):	0.56	$xx \geq 1$	
Access Density (access per mile):	16.67	$7 \leq xx \leq 18$	★
Outside Edge Risk:	1	2S, 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	3.54	\$39,825
Centerline Rumble Strip:	Proactive	\$5,850	per mile	3.54	\$20,709
Edge Line Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	3.54	\$12,744
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$73,278

Systemic Project

Notes -

Project Page #: 33
 CRSP 2 ID: 12.001
 Date: 3/19/2019

Rural Segment Project on CSAH 20 from Olmsted CTH 16 to USTH 63

Roadway Information

Segment Start: Olmsted CTH 16
 Segment End: USTH 63
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 20
 Facility Type: 2-Lane
 Segment Length (mile): 3.07
 Traffic Volume (vpd): 3,450
 Lane Width (ft): 12
 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:	79	0	14	0
Density (per mile per yr):	5.1	0.0	0.9	0.0
Rate (per MVM):	408.7	0.0	72.4	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	$55 \leq xx \leq 99$	★
ADT-RS (Rural Single-veh) (vpd):	3,450	$500 \leq xx \leq 2,500$	
ADT-RM (Rural Multi-veh) (vpd):	3,450	$xx \geq 1,500$	★
Curve Density (cur per mile):	0.65	$xx \geq 1$	
Access Density (access per mile):	9.12	$7 \leq xx \leq 18$	★
Outside Edge Risk:	1	2S, 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	3.07	\$34,538
Centerline Rumble Strip:	Proactive	\$5,850	per mile	3.07	\$17,960
Edge Line Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Shoulder Rumble Strip:	Proactive	\$3,600	per mile	3.07	\$11,052
Enhanced Edgeline:	Proactive	\$2,000	per mile	0.00	\$0
Total Estimated Project Cost:					\$63,549

Systemic Project

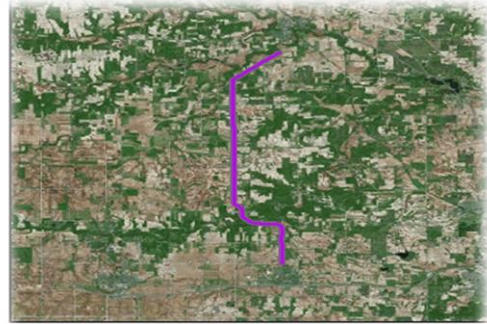
Notes -

Project Page #: 34
 CRSP 2 ID: 20.002
 Date: 3/19/2019

Rural Segment Project on CSAH 5 from 13th St NW to CSAH 3

Roadway Information

Segment Start: 13th St NW
 Segment End: CSAH 3
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 5
 Facility Type: 2-Lane
 Segment Length (mile): 11.57
 Traffic Volume (vpd): 2,550
 Lane Width (ft): 12
 Shoulder Type: Composite
 Shoulder Width (ft): 12.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	61	0	30	0
Density (per mile per yr):	1.1	0.0	0.5	0.0
Rate (per MVM):	113.3	0.0	55.7	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	2,550	500 ≤ xx ≤ 2,500	
ADT-RM (Rural Multi-veh) (vpd):	2,550	xx ≥ 1,500	★
Curve Density (cur per mile):	0.86	xx ≥ 1	
Access Density (access per mile):	12.71	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S, 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
Centerline Rumble Strip:	Proactive	\$5,850	per mile	11.57	\$67,685
Edge Line 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:					<u>\$67,685</u>

Systemic Project

Notes -

Project Page #: 36
 CRSP 2 ID: 5.007
 Date: 3/19/2019

Rural Segment Project on CSAH 10 from Valleyview Ln to WB I-90 Ramp Terminal Intersection

Roadway Information

Segment Start: Valleyview Ln
 Segment End: WB I-90 Ramp Terminal Intersection
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 10
 Facility Type: 2-Lane
 Segment Length (mile): 8.35
 Traffic Volume (vpd): 590
 Lane Width (ft): 12
 Shoulder Type: Gravel
 Shoulder Width (ft): 8.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	28	1	19	1
Density (per mile per yr):	0.7	0.0	0.5	0.0
Rate (per MVM):	311.4	11.1	211.3	11.1

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	$55 \leq xx \leq 99$	★
ADT-RS (Rural Single-veh) (vpd):	590	$500 \leq xx \leq 2,500$	★
ADT-RM (Rural Multi-veh) (vpd):	590	$xx \geq 1,500$	
Curve Density (cur per mile):	0.48	$xx \geq 1$	
Access Density (access per mile):	10.66	$7 \leq xx \leq 18$	★
Outside Edge Risk:	1	2S, 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	8.35	\$41,750
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Edge Line 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:					\$41,750

Systemic Project

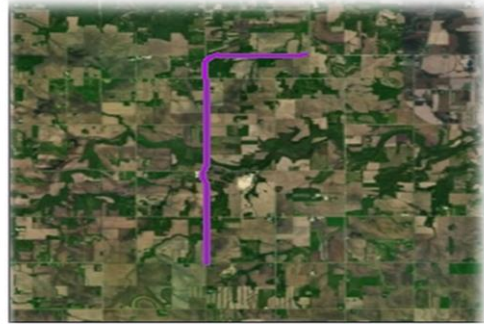
Notes - County Nominated
- 6" Wet Reflective in Groove

Project Page #: 37
 CRSP 2 ID: 10.006
 Date: 3/19/2019

Rural Segment Project on CSAH 3 from MNTH 30 to 85th Ave SW

Roadway Information

Segment Start: MNTH 30
 Segment End: 85th Ave SW
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 3
 Facility Type: 2-Lane
 Segment Length (mile): 5.92
 Traffic Volume (vpd): 560
 Lane Width (ft): 12
 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	13	0
Density (per mile per yr):	0.6	0.0	0.4	0.0
Rate (per MVM):	281.0	0.0	214.9	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	$55 \leq xx \leq 99$	★
ADT-RS (Rural Single-veh) (vpd):	560	$500 \leq xx \leq 2,500$	★
ADT-RM (Rural Multi-veh) (vpd):	560	$xx \geq 1,500$	
Curve Density (cur per mile):	0.68	$xx \geq 1$	
Access Density (access per mile):	13.00	$7 \leq xx \leq 18$	★
Outside Edge Risk:	1	2S, 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	5.92	\$29,600
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Edge Line 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:					\$29,600

Systemic Project

Notes - County Nominated
- 6" Wet Reflective in Groove

Project Page #: 38
 CRSP 2 ID: 3.006
 Date: 3/19/2019

Rural Segment Project on CSAH 25 from .19 mi N of Grand View Ln SW to Olmsted CTH 3

Roadway Information

Segment Start: .19 mi N of Grand View Ln SW
 Segment End: Olmsted CTH 3
 Area Type: Rural
 County: Olmsted
 Context Zone: Agricultural
 Segment Route System: CSAH
 Segment Route No: 25
 Facility Type: 2-Lane
 Segment Length (mile): 3.79
 Traffic Volume (vpd): 505
 Lane Width (ft): 12
 Shoulder Type: Gravel
 Shoulder Width (ft): 6.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	6	0	0	0
Density (per mile per yr):	0.3	0.0	0.0	0.0
Rate (per MVM):	171.8	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	55 ≤ xx ≤ 99	★
ADT-RS (Rural Single-veh) (vpd):	505	500 ≤ xx ≤ 2,500	★
ADT-RM (Rural Multi-veh) (vpd):	505	xx ≥ 1,500	
Curve Density (cur per mile):	0.00	xx ≥ 1	
Access Density (access per mile):	8.97	7 ≤ xx ≤ 18	★
Outside Edge Risk:	1	2S, 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	3.79	\$18,950
Shoulder Paving, Safety Edge:	Proactive	\$11,250	per mile	0.00	\$0
Centerline Rumble Strip:	Proactive	\$5,850	per mile	0.00	\$0
Edge Line 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: \$18,950

Systemic Project

Notes - County Nominated
- 6" Wet Reflective in Groove

Project Page #: 41
 CRSP 2 ID: 25.001
 Date: 3/19/2019

Curve along CSAH 5 between Olmsted CTH 25/Salem Rd SW and USTH 14

Roadway Information

Segment Start: Olmsted CTH 25/Salem Rd SW
 Segment End: USTH 14
 Area Type: Rural
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 5
 Curve Length (ft): 1,249
 Curve Radius (ft): 815
 Traffic Volume (vpd): 770
 Lane Width (ft): 11
 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:	2	0	2	0
Density (per curve per yr):	0.4	0.0	0.4	0.0
Rate (per MVM):	1.4	0.0	1.4	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	55	45 ≤ xx ≤ 55	★
Radius (ft):	815	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	770	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	
Total Cross Section Width (ft):	32	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 #: 1
 Curve ID: 5.001
 Date: 3/14/2019

Curve along CSAH 13 between Co Road 13 SW and .4 mi E of 275 Ave

Roadway Information

Segment Start: Co Road 13 SW
 Segment End: .4 mi E of 275 Ave
 Area Type: Rural
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 13
 Curve Length (ft): 179
 Curve Radius (ft): 609
 Traffic Volume (vpd): 1,200
 Lane Width (ft): 11
 Shoulder Type: None
 Shoulder Width (ft): 0.0



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):	0.5	0.0	0.5	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	45	45 ≤ xx ≤ 55	
Radius (ft):	609	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	1200	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	None	None, Curb, Composite	★
Total Cross Section Width (ft):	22	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	1	\$13,116
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:					\$113,116

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 3
 Curve ID: 13.003
 Date: 11/1/2018

Curve along CSAH 13 between Co Road 13 SW and .4 mi E of 275 Ave

Roadway Information

Segment Start: Co Road 13 SW
 Segment End: .4 mi E of 275 Ave
 Area Type: Rural
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 13
 Curve Length (ft): 199
 Curve Radius (ft): 790
 Traffic Volume (vpd): 1,200
 Lane Width (ft): 11
 Shoulder Type: None
 Shoulder Width (ft): 0.0



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):	790	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	1200	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	None	None, Curb, Composite	★
Total Cross Section Width (ft):	22	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 #: 4
 Curve ID: 13.001
 Date: 11/1/2018

Curve along CSAH 13 between Co Road 13 SW and .4 mi E of 275 Ave

Roadway Information

Segment Start: Co Road 13 SW
 Segment End: .4 mi E of 275 Ave
 Area Type: Rural
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 13
 Curve Length (ft): 231
 Curve Radius (ft): 585
 Traffic Volume (vpd): 1,200
 Lane Width (ft): 11
 Shoulder Type: None
 Shoulder Width (ft): 0.0



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)*:	45	45 ≤ xx ≤ 55	
Radius (ft):	585	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	1200	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	None	None, Curb, Composite	★
Total Cross Section Width (ft):	22	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 #: 5
 Curve ID: 13.004
 Date: 11/1/2018

Curve along CSAH 2 between 55th Avenue NE and Olmsted CTH 2

Roadway Information

Segment Start: 55th Avenue NE
 Segment End: Olmsted CTH 2
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 2
 Curve Length (ft): 1,365
 Curve Radius (ft): 1,033
 Traffic Volume (vpd): 1,050
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	3	1	2	1
Density (per curve per yr):	0.6	0.2	0.4	0.2
Rate (per MVM):	1.6	52.2	1.0	52.2

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	30	45 ≤ xx ≤ 55	
Radius (ft):	1033	500 ≤ xx ≤ 1400	
Traffic Volume (vpd):	1050	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	22	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	0	\$0
Delineators:	Proactive	\$500	Per curve	1	\$500
Total Estimated Project Cost:					\$6,500

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 6
 Curve ID: 2.005
 Date: 11/1/2018

Curve along CSAH 5 between Co Road 5 SW and Olmsted CTH 25/Salem Rd SW

Roadway Information

Segment Start: Co Road 5 SW
 Segment End: Olmsted CTH 25/Salem Rd SW
 Area Type: Rural
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 5
 Curve Length (ft): 579
 Curve Radius (ft): 1,056
 Traffic Volume (vpd): 770
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): 6.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	2	1	1	1
Density (per curve per yr):	0.4	0.2	0.2	0.2
Rate (per MVM):	1.4	71.2	0.7	71.2

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	55	45 ≤ xx ≤ 55	
Radius (ft):	1056	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	770	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	
Total Cross Section Width (ft):	34	28 ≤ xx ≤ 34	★
Adjacent Intersection:	None	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	0	\$0
Delineators:	Proactive	\$500	Per curve	1	\$500
Total Estimated Project Cost:					\$6,500

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 7
 Curve ID: 5.003
 Date: 11/1/2018

Curve along CSAH 10 between Olmsted CTH 10 and Olmsted CTH 10

Roadway Information

Segment Start: Olmsted CTH 10
 Segment End: Olmsted CTH 10
 Area Type: Rural
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 10
 Curve Length (ft): 1,228
 Curve Radius (ft): 1,103
 Traffic Volume (vpd): 1,150
 Lane Width (ft): 12
 Shoulder Type: Paved
 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	0	0
Density (per curve per yr):	0.2	0.0	0.0	0.0
Rate (per MVM):	0.5	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	55	45 ≤ xx ≤ 55	
Radius (ft):	1103	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	1150	600 ≤ xx ≤ 1300	★
Lane Width (ft):	12	11	
Shoulder Type:	Paved	None, Curb, Composite	
Total Cross Section Width (ft):	32	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 #: 11
 Curve ID: 10.006
 Date: 11/1/2018

Curve along CR 133 between W River Road NW and X intersection, Commercial

Roadway Information

Segment Start: W River Road NW
 Segment End: X intersection, Commercial
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CR
 Segment Route No: 133
 Curve Length (ft): 732
 Curve Radius (ft): 806
 Traffic Volume (vpd): 1,050
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	2	0	2	0
Density (per curve per yr):	0.4	0.0	0.4	0.0
Rate (per MVM):	1.0	0.0	1.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	30	45 ≤ xx ≤ 55	
Radius (ft):	806	500 ≤ xx ≤ 1400	
Traffic Volume (vpd):	1050	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	22	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	1	\$53,687
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:					\$53,687

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 14
 Curve ID: 133.006
 Date: 11/1/2018

Curve along CSAH 19 between Chester Road SE and Olmsted CTH 23/30th St SE

Roadway Information

Segment Start: Chester Road SE
 Segment End: Olmsted CTH 23/30th St SE
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 19
 Curve Length (ft): 291
 Curve Radius (ft): 795
 Traffic Volume (vpd): 860
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



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)*:	30	45 ≤ xx ≤ 55	
Radius (ft):	795	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	860	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	22	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:					<u>\$3,960</u>

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 15
 Curve ID: 19.014
 Date: 11/1/2018

Curve along CSAH 14 between 75th Street NW and Olmsted CTH 5

Roadway Information

Segment Start: 75th Street NW
 Segment End: Olmsted CTH 5
 Area Type: Rural
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 14
 Curve Length (ft): 320
 Curve Radius (ft): 1,102
 Traffic Volume (vpd): 1,150
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



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):	0.5	0.0	0.5	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	55	$45 \leq xx \leq 55$	
Radius (ft):	1102	$500 \leq xx \leq 1400$	★
Traffic Volume (vpd):	1150	$600 \leq xx \leq 1300$	★
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	
Total Cross Section Width (ft):	22	$28 \leq xx \leq 34$	
Adjacent Intersection:	None	Intersection, Railroad	
Visual Trap:	Present	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	1	\$23,484
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:					\$127,444

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 17
 Curve ID: 14.002
 Date: 11/1/2018

Curve along CR 104 between Salem Road SW and T intersection, agriculture

Roadway Information

Segment Start: Salem Road SW
 Segment End: T intersection, agriculture
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CR
 Segment Route No: 104
 Curve Length (ft): 283
 Curve Radius (ft): 262
 Traffic Volume (vpd): 1,050
 Lane Width (ft): 11
 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:	1	0	1	0
Density (per curve per yr):	0.2	0.0	0.2	0.0
Rate (per MVM):	0.5	0.0	0.5	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	30	45 ≤ xx ≤ 55	
Radius (ft):	262	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	1050	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	32	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 #: 18
 Curve ID: 104.001
 Date: 11/1/2018

Curve along CSAH 10 between Co Road 10 SE and Valley View La

Roadway Information

Segment Start: Co Road 10 SE
 Segment End: Valley View La
 Area Type: Rural
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 10
 Curve Length (ft): 1,222
 Curve Radius (ft): 942
 Traffic Volume (vpd): 790
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



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):	942	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	790	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	
Total Cross Section Width (ft):	22	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 #: 22
 Curve ID: 10.003
 Date: 11/1/2018

Curve along CSAH 10 between Co Road 10 NE and Olmsted CTH 10

Roadway Information

Segment Start: Co Road 10 NE
 Segment End: Olmsted CTH 10
 Area Type: Rural
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 10
 Curve Length (ft): 1,750
 Curve Radius (ft): 1,104
 Traffic Volume (vpd): 1,150
 Lane Width (ft): 12
 Shoulder Type: Paved
 Shoulder Width (ft): 6.0



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):	1104	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	1150	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11.5	11	
Shoulder Type:	Paved	None, Curb, Composite	
Total Cross Section Width (ft):	35	28 ≤ xx ≤ 34	
Adjacent Intersection:	Intersection	Intersection, Railroad	★
Visual Trap:	Present	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 #: 23
 Curve ID: 10.011
 Date: 11/1/2018

Curve along CSAH 14 between Olmsted CTH 5 and Olmsted CTH 3/Salley ST NW

Roadway Information

Segment Start: Olmsted CTH 5
 Segment End: Olmsted CTH 3/Salley ST NW
 Area Type: Rural
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 14
 Curve Length (ft): 366
 Curve Radius (ft): 586
 Traffic Volume (vpd): 1,150
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



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):	586	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	1150	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	
Total Cross Section Width (ft):	22	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 #: 24
 Curve ID: 14.006
 Date: 3/14/2019

Curve along CSAH 16 between MNTH 30/1st St E and Olmsted CTH 16

Roadway Information

Segment Start: MNTH 30/1st St E
 Segment End: Olmsted CTH 16
 Area Type: Rural
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 16
 Curve Length (ft): 499
 Curve Radius (ft): 850
 Traffic Volume (vpd): 1,250
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



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):	850	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	1250	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	
Total Cross Section Width (ft):	22	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 #: 26
 Curve ID: 16.005
 Date: 3/14/2019

Curve along CSAH 12 between USTH 52 and USTH 63/MNTH 247

Roadway Information

Segment Start: USTH 52
 Segment End: USTH 63/MNTH 247
 Area Type: Rural
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 12
 Curve Length (ft): 437
 Curve Radius (ft): 1,355
 Traffic Volume (vpd): 2,100
 Lane Width (ft): 11
 Shoulder Type: Paved
 Shoulder Width (ft): 6.0



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):	1355	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	2100	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	Paved	None, Curb, Composite	
Total Cross Section Width (ft):	34	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 #: 28
 Curve ID: 31.003
 Date: 3/14/2019

Curve along CSAH 32 between Co Road 32 SE and Olmsted CTH 10

Roadway Information

Segment Start: Co Road 32 SE
 Segment End: Olmsted CTH 10
 Area Type: Rural
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 32
 Curve Length (ft): 676
 Curve Radius (ft): 696
 Traffic Volume (vpd): 160
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



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):	696	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	160	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	
Total Cross Section Width (ft):	22	28 ≤ xx ≤ 34	
Adjacent Intersection:	Intersection	Intersection, Railroad	★
Visual Trap:	Present	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	1	\$225,000
Curve Lighting:	Proactive	\$6,000	Per light/curve	0	\$0
Curve Warning:	Proactive	\$1000-\$5000	Per curve	1	\$2,000
Chevrons/Arrow Board:	Proactive	\$3,960	Per curve	0	\$0
Delineators:	Proactive	\$500	Per curve	0	\$0
Total Estimated Project Cost:					\$227,000

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 29
 Curve ID: 32.002
 Date: 11/1/2018

Curve along CR 111 between T intersection, agriculture and X intersection, natural, on ramp

Roadway Information

Segment Start: T intersection, agriculture
 Segment End: X intersection, natural, on ramp
 Area Type: Rural
 County: Olmsted
 Segment Route System: CR
 Segment Route No: 111
 Curve Length (ft): 1,226
 Curve Radius (ft): 824
 Traffic Volume (vpd): 770
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



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):	824	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	770	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	
Total Cross Section Width (ft):	22	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 #: 32
 Curve ID: 111.001
 Date: 3/14/2019

Curve along CSAH 25 between Salem Road SW and Olmsted CTH 3

Roadway Information

Segment Start: Salem Road SW
 Segment End: Olmsted CTH 3
 Area Type: Rural
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 25
 Curve Length (ft): 869
 Curve Radius (ft): 1,166
 Traffic Volume (vpd): 3,100
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	2	1	1	1
Density (per curve per yr):	0.4	0.2	0.2	0.2
Rate (per MVM):	0.4	17.7	0.2	17.7

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	55	45 ≤ xx ≤ 55	
Radius (ft):	1166	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	3100	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	
Total Cross Section Width (ft):	22	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	0	\$0
Delineators:	Proactive	\$500	Per curve	1	\$500
Total Estimated Project Cost:					\$500

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 37
 Curve ID: 25.003
 Date: 11/1/2018

Curve along CSAH 4 between Valleyhigh Road NW and Olmsted CTH 5

Roadway Information

Segment Start: Valleyhigh Road NW
 Segment End: Olmsted CTH 5
 Area Type: Rural
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 4
 Curve Length (ft): 1,616
 Curve Radius (ft): 1,186
 Traffic Volume (vpd): 3,050
 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:	4	1	3	1
Density (per curve per yr):	0.8	0.2	0.6	0.2
Rate (per MVM):	0.7	18.0	0.5	18.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	55	45 ≤ xx ≤ 55	
Radius (ft):	1186	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	3050	600 ≤ xx ≤ 1300	
Lane Width (ft):	12	11	
Shoulder Type:	Gravel	None, Curb, Composite	
Total Cross Section Width (ft):	32	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	0	\$0
Delineators:	Proactive	\$500	Per curve	1	\$500
Total Estimated Project Cost:					\$500

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 38
 Curve ID: 4.006
 Date: 11/1/2018

Curve along CSAH 7 between Co Road 7 SE and MNTH 30

Roadway Information

Segment Start: Co Road 7 SE
 Segment End: MNTH 30
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 7
 Curve Length (ft): 221
 Curve Radius (ft): 660
 Traffic Volume (vpd): 235
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	1	0	0	0
Density (per curve per yr):	0.2	0.0	0.0	0.0
Rate (per MVM):	2.3	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	30	45 ≤ xx ≤ 55	
Radius (ft):	660	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	235	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	22	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	1	\$16,172
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:					\$20,132

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 42
 Curve ID: 7.001
 Date: 11/1/2018

Curve along CSAH 22 between E Circle Drive NE and Olmsted CTH 33/N Broadway Ave

Roadway Information

Segment Start: E Circle Drive NE
 Segment End: Olmsted CTH 33/N Broadway Ave
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 22
 Curve Length (ft): 721
 Curve Radius (ft): 2,076
 Traffic Volume (vpd): 17,600
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	5	0	1	0
Density (per curve per yr):	1.0	0.0	0.2	0.0
Rate (per MVM):	0.2	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	45	45 ≤ xx ≤ 55	★
Radius (ft):	2076	500 ≤ xx ≤ 1400	
Traffic Volume (vpd):	17600	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	22	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	1	\$52,888
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:					\$52,888

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 44
 Curve ID: 22.012
 Date: 11/1/2018

Curve along CSAH 5 between Co Road 5 NW and 13th St NW

Roadway Information

Segment Start: Co Road 5 NW
 Segment End: 13th St NW
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 5
 Curve Length (ft): 1,071
 Curve Radius (ft): 1,156
 Traffic Volume (vpd): 1,900
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	5	0	4	0
Density (per curve per yr):	1.0	0.0	0.8	0.0
Rate (per MVM):	1.4	0.0	1.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	30	45 ≤ xx ≤ 55	
Radius (ft):	1156	500 ≤ xx ≤ 1400	
Traffic Volume (vpd):	1900	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	22	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	1	\$78,547
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:					\$78,547

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 45
 Curve ID: 5.013
 Date: 11/1/2018

Curve along CSAH 4 between Valleyhigh Road NW and Olmsted CTH 5

Roadway Information

Segment Start: Valleyhigh Road NW
 Segment End: Olmsted CTH 5
 Area Type: Rural
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 4
 Curve Length (ft): 1,596
 Curve Radius (ft): 1,177
 Traffic Volume (vpd): 1,300
 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):	0.4	0.0	0.4	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	55	45 ≤ xx ≤ 55	
Radius (ft):	1177	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	1300	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 #: 2
 Curve ID: 4.005
 Date: 11/1/2018

Curve along CSAH 22 between E Circle Drive NE and Olmsted CTH 33/N Broadway Ave

Roadway Information

Segment Start: E Circle Drive NE
 Segment End: Olmsted CTH 33/N Broadway Ave
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 22
 Curve Length (ft): 728
 Curve Radius (ft): 1,656
 Traffic Volume (vpd): 15,400
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	2	0	0	0
Density (per curve 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
Speed Limit (mph)*:	45	45 ≤ xx ≤ 55	★
Radius (ft):	1656	500 ≤ xx ≤ 1400	
Traffic Volume (vpd):	15400	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	22	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	1	\$53,391
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:					\$53,391

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 46
 Curve ID: 22.013
 Date: 11/1/2018

Curve along CR 125 between Mayowood Road SW and X intersection, residential, school

Roadway Information

Segment Start: Mayowood Road SW
 Segment End: X intersection, residential, school
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CR
 Segment Route No: 125
 Curve Length (ft): 212
 Curve Radius (ft): 956
 Traffic Volume (vpd): 380
 Lane Width (ft): 11
 Shoulder Type: None
 Shoulder Width (ft): NV



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):	1.4	0.0	1.4	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	30	45 ≤ xx ≤ 55	
Radius (ft):	956	500 ≤ xx ≤ 1400	
Traffic Volume (vpd):	380	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	None	None, Curb, Composite	★
Total Cross Section Width (ft):	22	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 #: 51
 Curve ID: 125.004
 Date: 11/1/2018

Curve along CR 125 between Mayowood Road SW and X intersection, residential, school

Roadway Information

Segment Start: Mayowood Road SW
 Segment End: X intersection, residential, school
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CR
 Segment Route No: 125
 Curve Length (ft): 678
 Curve Radius (ft): 1,222
 Traffic Volume (vpd): 3,500
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	1	0	0	0
Density (per curve 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
Speed Limit (mph)*:	30	45 ≤ xx ≤ 55	
Radius (ft):	1222	500 ≤ xx ≤ 1400	
Traffic Volume (vpd):	3500	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	22	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	1	\$49,698
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:					\$49,698

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 59
 Curve ID: 125.009
 Date: 11/1/2018

Curve along CR 147 between 18th Avenue SW and T intersection, on a curve, Natural

Roadway Information

Segment Start: 18th Avenue SW
 Segment End: T intersection, on a curve, Natural
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CR
 Segment Route No: 147
 Curve Length (ft): 340
 Curve Radius (ft): 827
 Traffic Volume (vpd): 2,000
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



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)*:	45	45 ≤ xx ≤ 55	★
Radius (ft):	827	500 ≤ xx ≤ 1400	
Traffic Volume (vpd):	2000	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	22	28 ≤ xx ≤ 34	★
Adjacent Intersection:	None	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	1	\$24,898
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:					\$24,898

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 60
 Curve ID: 147.004
 Date: 11/1/2018

Curve along CR 147 between 18th Avenue SW and T intersection, on a curve, Natural

Roadway Information

Segment Start: 18th Avenue SW
 Segment End: T intersection, on a curve, Natural
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CR
 Segment Route No: 147
 Curve Length (ft): 276
 Curve Radius (ft): 804
 Traffic Volume (vpd): 2,000
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



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)*:	45	45 ≤ xx ≤ 55	★
Radius (ft):	804	500 ≤ xx ≤ 1400	
Traffic Volume (vpd):	2000	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	22	28 ≤ xx ≤ 34	★
Adjacent Intersection:	None	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	1	\$20,256
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:					\$20,256

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 61
 Curve ID: 147.005
 Date: 11/1/2018

Curve along CSAH 13 between 8th Street SW and .4 mi E of 275 Ave

Roadway Information

Segment Start: 8th Street SW
 Segment End: .4 mi E of 275 Ave
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 13
 Curve Length (ft): 172
 Curve Radius (ft): 222
 Traffic Volume (vpd): 1,200
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



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):	222	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	1200	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	22	28 ≤ xx ≤ 34	★
Adjacent Intersection:	Intersection	Intersection, Railroad	★
Visual Trap:	Present	Present	★
Lighting:	Present	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	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 #: 68
 Curve ID: 13.005
 Date: 11/1/2018

Curve along CR 125 between Mayowood Road SW and X intersection, residential, school

Roadway Information

Segment Start: Mayowood Road SW
 Segment End: X intersection, residential, school
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CR
 Segment Route No: 125
 Curve Length (ft): 158
 Curve Radius (ft): 159
 Traffic Volume (vpd): 380
 Lane Width (ft): 11
 Shoulder Type: None
 Shoulder Width (ft): NV



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):	159	500 ≤ xx ≤ 1400	
Traffic Volume (vpd):	380	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	None	None, Curb, Composite	★
Total Cross Section Width (ft):	22	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	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 #: 70
 Curve ID: 125.003
 Date: 11/1/2018

Curve along CSAH 13 between Co Road 13 SW and .4 mi E of 275 Ave

Roadway Information

Segment Start: Co Road 13 SW
 Segment End: .4 mi E of 275 Ave
 Area Type: Rural
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 13
 Curve Length (ft): 130
 Curve Radius (ft): 469
 Traffic Volume (vpd): 1,200
 Lane Width (ft): 12
 Shoulder Type: None
 Shoulder Width (ft): 0.0



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)*:	45	45 ≤ xx ≤ 55	
Radius (ft):	469	500 ≤ xx ≤ 1400	
Traffic Volume (vpd):	1200	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11.5	11	
Shoulder Type:	None	None, Curb, Composite	★
Total Cross Section Width (ft):	23	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 #: 71
 Curve ID: 13.002
 Date: 11/1/2018

Curve along CSAH 22 between Co Road 22 SW and Olmsted CTH 22/Salem Rd SW

Roadway Information

Segment Start: Co Road 22 SW
 Segment End: Olmsted CTH 22/Salem Rd SW
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 22
 Curve Length (ft): 416
 Curve Radius (ft): 1,204
 Traffic Volume (vpd): 4,800
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



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):	1204	500 ≤ xx ≤ 1400	
Traffic Volume (vpd):	4800	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	22	28 ≤ xx ≤ 34	★
Adjacent Intersection:	Intersection	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 #: 76
 Curve ID: 22.008
 Date: 11/1/2018

Curve along CR 133 between W River Road NW and X intersection, Commercial

Roadway Information

Segment Start: W River Road NW
 Segment End: X intersection, Commercial
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CR
 Segment Route No: 133
 Curve Length (ft): 794
 Curve Radius (ft): 2,551
 Traffic Volume (vpd): 1,050
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	1	1	0	0
Density (per curve per yr):	0.2	0.2	0.0	0.0
Rate (per MVM):	0.5	52.2	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	30	45 ≤ xx ≤ 55	
Radius (ft):	2551	500 ≤ xx ≤ 1400	
Traffic Volume (vpd):	1050	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	22	28 ≤ xx ≤ 34	★
Adjacent Intersection:	None	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	0	\$0
Delineators:	Proactive	\$500	Per curve	1	\$500
Total Estimated Project Cost:					\$500

Systemic Project

Notes -

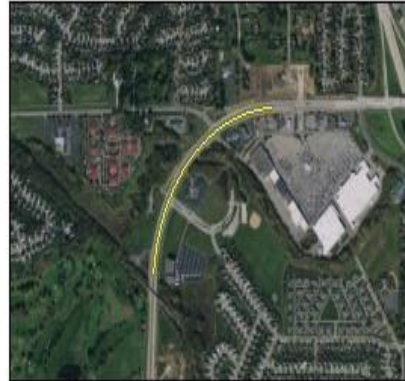
* Applies to Urban Greater Minnesota Only.

Project Page #: 118
 Curve ID: 133.003
 Date: 11/1/2018

Curve along CSAH 22 between W Circle Drive NW and Olmsted CTH 25/Salem Rd SW

Roadway Information

Segment Start: W Circle Drive NW
 Segment End: Olmsted CTH 25/Salem Rd SW
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 22
 Curve Length (ft): 2,798
 Curve Radius (ft): 1,925
 Traffic Volume (vpd): 13,100
 Lane Width (ft): 11
 Shoulder Type: Paved
 Shoulder Width (ft): NV



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	16	0	2	0
Density (per curve per yr):	3.2	0.0	0.4	0.0
Rate (per MVM):	0.7	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	45	45 ≤ xx ≤ 55	★
Radius (ft):	1925	500 ≤ xx ≤ 1400	
Traffic Volume (vpd):	13100	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Paved	None, Curb, Composite	
Total Cross Section Width (ft):	22	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	1	\$205,202
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:					\$205,202

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 119
 Curve ID: 22.011
 Date: 11/1/2018

Curve along CSAH 22 between Salem Road SW and Olmsted CTH 25/Salem Rd SW

Roadway Information

Segment Start: Salem Road SW
 Segment End: Olmsted CTH 25/Salem Rd SW
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 22
 Curve Length (ft): 727
 Curve Radius (ft): 655
 Traffic Volume (vpd): 16,200
 Lane Width (ft): 12
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	7	0	2	0
Density (per curve per yr):	1.4	0.0	0.4	0.0
Rate (per MVM):	0.2	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	40	45 ≤ xx ≤ 55	
Radius (ft):	655	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	16200	600 ≤ xx ≤ 1300	
Lane Width (ft):	11.5	11	
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	23	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	1	\$55,704
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:					\$59,664

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 123
 Curve ID: 22.001
 Date: 11/1/2018

Curve along CR 147 between 18th Avenue SW and T intersection, on a curve, Natural

Roadway Information

Segment Start: 18th Avenue SW
 Segment End: T intersection, on a curve, Natural
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CR
 Segment Route No: 147
 Curve Length (ft): 478
 Curve Radius (ft): 1,433
 Traffic Volume (vpd): 2,000
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	2	0	2	0
Density (per curve per yr):	0.4	0.0	0.4	0.0
Rate (per MVM):	0.5	0.0	0.5	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	45	45 ≤ xx ≤ 55	★
Radius (ft):	1433	500 ≤ xx ≤ 1400	
Traffic Volume (vpd):	2000	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	22	28 ≤ xx ≤ 34	★
Adjacent Intersection:	None	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	1	\$35,034
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:					\$35,034

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 125
 Curve ID: 147.006
 Date: 11/1/2018

Curve along CR 125 between Mayowood Road SW and X intersection, residential, school

Roadway Information

Segment Start: Mayowood Road SW
 Segment End: X intersection, residential, school
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CR
 Segment Route No: 125
 Curve Length (ft): 129
 Curve Radius (ft): 130
 Traffic Volume (vpd): 380
 Lane Width (ft): 11
 Shoulder Type: None
 Shoulder Width (ft): NV



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):	1.4	0.0	1.4	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	30	45 ≤ xx ≤ 55	
Radius (ft):	130	500 ≤ xx ≤ 1400	
Traffic Volume (vpd):	380	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	None	None, Curb, Composite	★
Total Cross Section Width (ft):	22	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 #: 127
 Curve ID: 125.006
 Date: 11/1/2018

Curve along CSAH 2 between Viola Road NE and Havermill Rd NQ

Roadway Information

Segment Start: Viola Road NE
 Segment End: Havermill Rd NQ
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 2
 Curve Length (ft): 842
 Curve Radius (ft): 736
 Traffic Volume (vpd): 1,900
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



Crash Data

5-year Crash History (2011 - 2015)

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

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph)*:	30	45 ≤ xx ≤ 55	
Radius (ft):	736	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	1900	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	22	28 ≤ xx ≤ 34	★
Adjacent Intersection:	None	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	1	\$61,714
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:					\$61,714

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 132
 Curve ID: 2.003
 Date: 11/1/2018

Curve along CSAH 25 between Salem Road SW and Olmsted CTH

Roadway Information

Segment Start: Salem Road SW
 Segment End: Olmsted CTH 3
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 25
 Curve Length (ft): 285
 Curve Radius (ft): 444
 Traffic Volume (vpd): 3,300
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	1	0	0	0
Density (per curve 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
Speed Limit (mph)*:	30	45 ≤ xx ≤ 55	
Radius (ft):	444	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	3300	600 ≤ xx ≤ 1300	★
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	22	28 ≤ xx ≤ 34	★
Adjacent Intersection:	Intersection	Intersection, Railroad	★
Visual Trap:	Present	Present	★
Lighting:	Present	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 #: 134
 Curve ID: 25.006
 Date: 11/1/2018

Curve along CSAH 7 between Co Road 7 SE and X intersection,near utility,commercial

Roadway Information

Segment Start: Co Road 7 SE
 Segment End: X intersection,near utility,commercial
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CSAH
 Segment Route No: 7
 Curve Length (ft): 311
 Curve Radius (ft): 492
 Traffic Volume (vpd): 420
 Lane Width (ft): 11
 Shoulder Type: Gravel
 Shoulder Width (ft): NV



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):	492	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	420	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	Gravel	None, Curb, Composite	★
Total Cross Section Width (ft):	22	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:					<u>\$3,960</u>

Systemic Project

Notes -

* Applies to Urban Greater Minnesota Only.

Project Page #: 158
 Curve ID: 7.012
 Date: 11/2/2018

Curve along CR 125 between Mayowood Road SW and X intersection, residential, school

Roadway Information

Segment Start: Mayowood Road SW
 Segment End: X intersection, residential, school
 Area Type: Suburban
 County: Olmsted
 Segment Route System: CR
 Segment Route No: 125
 Curve Length (ft): 196
 Curve Radius (ft): 276
 Traffic Volume (vpd): 380
 Lane Width (ft): 11
 Shoulder Type: None
 Shoulder Width (ft): NV



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):	276	500 ≤ xx ≤ 1400	★
Traffic Volume (vpd):	380	600 ≤ xx ≤ 1300	
Lane Width (ft):	11	11	★
Shoulder Type:	None	None, Curb, Composite	★
Total Cross Section Width (ft):	22	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 #: 159
 Curve ID: 125.005
 Date: 11/1/2018

Rural Intersection on CSAH 16 at USTH 52

Roadway Information

Description: USTH 52
 County: Olmsted
 Area Type: Small Town
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 16
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 6,600
 Minor ADT: 385
 Total Entering ADT: 6,985



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	9	1	3	0
Density (per int per yr):	1.8	0.2	0.6	0.0
Rate (per MVM):	0.7	0.1	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥ 60	
Context Zone:	Agriculture	Commercial, Mixed Use, Industrial, Residential	
Entering ADT (vpd) :	6,985	≥ 2,000 or ≥ 1,000,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	55	≥ 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	LTTR 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:	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 #: 3
 CRSP 2 ID: 16.020
 Date: 4/1/2019

Rural Intersection on CR 112 at Overland Dr NW / Trapper Lan NW

Roadway Information

Description: Overland Dr NW / Trapper Lan NW
 County: Olmsted
 Area Type: Small Town
 Context Zone: Residential
 Segment Route System: CR
 Segment Route No: 112
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: Present
 Flasher: None
 Major ADT: 5,500
 Minor ADT: 2,000
 Total Entering ADT: 7,500

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):	40	≥ 60	
Context Zone:	Residential	Commercial, Mixed Use, Industrial, Residential	★
Entering ADT (vpd) :	7,500	≥ 2,000 or ≥ 1,000,000	★
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:	TB	LTTR 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:	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 19 at USTH 14

Roadway Information

Description: USTH 14
 County: Olmsted
 Area Type: Small Town
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 19
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 6,150
 Minor ADT: 785
 Total Entering ADT: 6,935



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	17	1	5	1
Density (per int per yr):	3.4	0.2	1.0	0.2
Rate (per MVM):	1.3	0.1	0.4	0.1

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥ 60	
Context Zone:	Commercial	Commercial, Mixed Use, Industrial, Residential	★
Entering ADT (vpd) :	6,935	≥ 2,000 or ≥ 1,000,000	★
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:	TR	LTTR 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 6
 CRSP 2 ID: 19.019
 Date: 4/1/2019

Rural Intersection on CSAH 9 at 50th Ave SE / CSAH 11

Roadway Information

Description: 50th Ave SE / CSAH 11
 County: Olmsted
 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: 3,800
 Minor ADT: 2,000
 Total Entering ADT: 5,800



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	11	1	4	1
Density (per int per yr):	2.2	0.2	0.8	0.2
Rate (per MVM):	1.0	0.1	0.4	0.1

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	50	≥ 60	
Context Zone:	Agriculture	Commercial, Mixed Use, Industrial, Residential	
Entering ADT (vpd) :	5,800	≥ 2,000 or ≥ 1,000,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	10	≥ 10	★
Adjacent Curve:	Both	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	LTTR 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	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:	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: \$254,500

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Rural Intersection on CSAH 21 at USTH 63

Roadway Information

Description: USTH 63
 County: Olmsted
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 21
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 7,200
 Minor ADT: 1,263
 Total Entering ADT: 8,463



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	13	0	3	0
Density (per int per yr):	2.6	0.0	0.6	0.0
Rate (per MVM):	0.8	0.0	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥ 60	
Context Zone:	Agriculture	Commercial, Mixed Use, Industrial, Residential	
Entering ADT (vpd) :	8,463	≥ 2,000 or ≥ 1,000,000	★
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:	TR	LTTR 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:	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 25 at Mayowood Rd SW / Autumm Ave SW

Roadway Information

Description: Mayowood Rd SW / Autumm Ave SW
 County: Olmsted
 Area Type: Small Town
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 25
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 3,300
 Minor ADT: 1,740
 Total Entering ADT: 5,040



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	10	0	2	0
Density (per int per yr):	2.0	0.0	0.4	0.0
Rate (per MVM):	1.1	0.0	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥ 60	
		Commercial, Mixed	
Context Zone:	Residential	Use, Industrial, Residential	★
Entering ADT (vpd) :	5,040	≥ 2,000 or ≥ 1,000,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	25	≥ 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	LTTR 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	0	\$0
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: **\$251,500**

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Rural Intersection on CSAH 19 at USTH 52

Roadway Information

Description: USTH 52
 County: Olmsted
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 19
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: Present
 Flasher: None
 Major ADT: 6,600
 Minor ADT: 3,390
 Total Entering ADT: 9,990



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	8	0	0	0
Density (per int per yr):	1.6	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, Mixed Use, Industrial, Residential	
Entering ADT (vpd) :	9,990	≥ 2,000 or ≥ 1,000,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	15	≥ 10	★
Adjacent Curve:	Vertical	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	LTTR or TB	

Total Stars ★★★★★

Priority Location	<input checked="" type="checkbox"/>
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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:	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	<input checked="" type="checkbox"/>
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Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 12
 CRSP 2 ID: 19.008
 Date: 4/1/2019

Rural Intersection on CSAH 10 at USTH 14

Roadway Information

Description: USTH 14
 County: Olmsted
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 10
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: Present
 Flasher: None
 Major ADT: 4,100
 Minor ADT: 1,375
 Total Entering ADT: 5,475



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	14	2	7	2
Density (per int per yr):	2.8	0.4	1.4	0.4
Rate (per MVM):	1.4	0.2	0.7	0.2

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥ 60	
Context Zone:	Agriculture	Commercial, Mixed Use, Industrial, Residential	
Entering ADT (vpd) :	5,475	≥ 2,000 or ≥ 1,000,000	★
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	LTTR or TB	

Total Stars ★★ ★

Priority Location	<input checked="" type="checkbox"/>
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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:	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	<input checked="" type="checkbox"/>
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Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Rural Intersection on CSAH 12 at USTH 63

Roadway Information

Description: USTH 63
 County: Olmsted
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 12
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 5,075
 Minor ADT: 2,500
 Total Entering ADT: 7,575



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	20	0	9	0
Density (per int per yr):	4.0	0.0	1.8	0.0
Rate (per MVM):	1.4	0.0	0.7	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥ 60	
Context Zone:	Agriculture	Commercial, Mixed Use, Industrial, Residential	
Entering ADT (vpd) :	7,575	≥ 2,000 or ≥ 1,000,000	★
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	LTTR 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Rural Intersection on CR 112 at 75th St NW

Roadway Information

Description: 75th St NW
 County: Olmsted
 Area Type: Small Town
 Context Zone: Residential
 Segment Route System: CR
 Segment Route No: 112
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 7,850
 Minor ADT: 4,125
 Total Entering ADT: 11,975

Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	15	0	5	0
Density (per int per yr):	3.0	0.0	1.0	0.0
Rate (per MVM):	0.7	0.0	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥ 60	
		Commercial, Mixed	
Context Zone:	Residential	Use, Industrial, Residential	★
Entering ADT (vpd) :	11,975	≥ 2,000 or ≥ 1,000,000	★
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	LTTR or TB	

Total Stars ★★ ★

Priority Location	<input checked="" type="checkbox"/>
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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:	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	<input checked="" type="checkbox"/>
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Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 16
 CRSP 2 ID: 112.017
 Date: 4/1/2019

Rural Intersection on CR 112 at 85th St NW

Roadway Information

Description: 85th St NW
 County: Olmsted
 Area Type: Small Town
 Context Zone: Residential
 Segment Route System: CR
 Segment Route No: 112
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 2,750
 Minor ADT: 838
 Total Entering ADT: 3,588

Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	3	1	1	0
Density (per int per yr):	0.6	0.2	0.2	0.0
Rate (per MVM):	0.5	0.2	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥ 60	
		Commercial, Mixed	
Context Zone:	Residential	Use, Industrial, Residential	★
Entering ADT (vpd) :	3,588	≥ 2,000 or ≥ 1,000,000	★
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	LTTR or TB	

Total Stars ★★ ★

Priority Location	✓
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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	0	\$0
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: \$251,500

Systemic Project	✓
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Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 18
 CRSP 2 ID: 112.019
 Date: 4/1/2019

Rural Intersection on CSAH 1 at MNTH 30

Roadway Information

Description: MNTH 30
 County: Olmsted
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 1
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 2,050
 Minor ADT: 1,375
 Total Entering ADT: 3,425



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	8	0	7	0
Density (per int per yr):	1.6	0.0	1.4	0.0
Rate (per MVM):	1.3	0.0	1.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥ 60	
Context Zone:	Agriculture	Commercial, Mixed Use, Industrial, Residential	
Entering ADT (vpd) :	3,425	≥ 2,000 or ≥ 1,000,000	★
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	LTTR 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 20
 CRSP 2 ID: 1.001
 Date: 4/1/2019

Rural Intersection on CSAH 8 at MNTH 30

Roadway Information

Description: MNTH 30
 County: Olmsted
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 8
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 1,550
 Minor ADT: 1,150
 Total Entering ADT: 2,700



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	6	0	2	0
Density (per int per yr):	1.2	0.0	0.4	0.0
Rate (per MVM):	1.2	0.0	0.4	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥ 60	
Context Zone:	Agriculture	Commercial, Mixed Use, Industrial, Residential	
Entering ADT (vpd) :	2,700	≥ 2,000 or ≥ 1,000,000	★
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	LTTR or TB	

Total Stars ★★

Priority Location	<input checked="" type="checkbox"/>
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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:	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	<input checked="" type="checkbox"/>
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Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 21
 CRSP 2 ID: 8.013
 Date: 4/1/2019

Rural Intersection on CSAH 6 at CSAH 8

Roadway Information

Description: CSAH 8
 County: Olmsted
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 6
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 1,525
 Minor ADT: 1,350
 Total Entering ADT: 2,875



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	5	0	0	0
Density (per int per yr):	1.0	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, Mixed Use, Industrial, Residential	
Entering ADT (vpd) :	2,875	≥ 2,000 or ≥ 1,000,000	★
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	LTTR 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:	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	✓
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Notes -

Rural Intersection on CSAH 32 at USTH 14

Roadway Information

Description: USTH 14
 County: Olmsted
 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: 4,100
 Minor ADT: 178
 Total Entering ADT: 4,278



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	8	0	1	0
Density (per int per yr):	1.6	0.0	0.2	0.0
Rate (per MVM):	1.0	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥ 60	
Context Zone:	Agriculture	Commercial, Mixed Use, Industrial, Residential	
Entering ADT (vpd) :	4,278	≥ 2,000 or ≥ 1,000,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	0	≥ 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	LTTR 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:	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

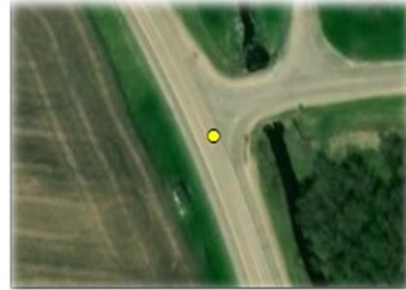
Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Rural Intersection on CSAH 4 at CSAH 5

Roadway Information

Description: CSAH 5
 County: Olmsted
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 4
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 3,000
 Minor ADT: 2,100
 Total Entering ADT: 5,100



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	7	0	0	0
Density (per int per yr):	1.4	0.0	0.0	0.0
Rate (per MVM):	0.8	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, Mixed Use, Industrial, Residential	
Entering ADT (vpd) :	5,100	≥ 2,000 or ≥ 1,000,000	★
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	LTTR 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	0	\$0
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: \$251,500

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 24
 CRSP 2 ID: 4.001
 Date: 4/1/2019

Rural Intersection on CSAH 3 at Valleyhigh Rd NW

Roadway Information

Description: Valleyhigh Rd NW
 County: Olmsted
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 3
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 2,575
 Minor ADT: 758
 Total Entering ADT: 3,333



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	7	0	1	0
Density (per int per yr):	1.4	0.0	0.2	0.0
Rate (per MVM):	1.2	0.0	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	55	≥ 60	
Context Zone:	Agriculture	Commercial, Mixed Use, Industrial, Residential	
Entering ADT (vpd) :	3,333	≥ 2,000 or ≥ 1,000,000	★
Leg Configuration:	X	X	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Curve:	Vertical	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	LTTR or TB	

Total Stars ★★ ★

Priority Location	✓
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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:	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: \$151,500

Systemic Project	✓
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Notes -

Rural Intersection on CSAH 35 at 2nd Ave NW

Roadway Information

Description: 2nd Ave NW
 County: Olmsted
 Area Type: Small Town
 Context Zone: Industrial
 Segment Route System: CSAH
 Segment Route No: 35
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: Present
 Flasher: None
 Major ADT: 2,800
 Minor ADT: 1,750
 Total Entering ADT: 4,550



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	2	0	1	0
Density (per int per yr):	0.4	0.0	0.2	0.0
Rate (per MVM):	0.2	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Major Approach Speed Limit (mph):	45	≥ 60	
Context Zone:	Industrial	Commercial, Mixed Use, Industrial, Residential	★
Entering ADT (vpd) :	4,550	≥ 2,000 or ≥ 1,000,000	★
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:	T	LTTR or TB	

Total Stars ★★ ★

Priority Location	<input checked="" type="checkbox"/>
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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:	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	<input checked="" type="checkbox"/>
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Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Rural Intersection on CSAH 1 at 55th St SE

Roadway Information

Description: 55th St SE
 County: Olmsted
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 1
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 2,300
 Minor ADT: 770
 Total Entering ADT: 3,070



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, Mixed Use, Industrial, Residential	
Entering ADT (vpd) :	3,070	≥ 2,000 or ≥ 1,000,000	★
Leg Configuration:	T	X	
Alignment Skew (degrees):	0	≥ 10	
Adjacent Curve:	Vertical	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	LTTR or TB	

Total Stars ★ ★ ★

Priority Location	✓
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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:	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	✓
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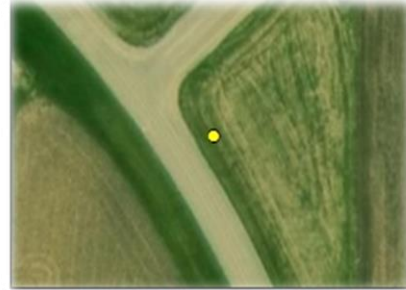
Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Rural Intersection on CSAH 2 at CSAH 10

Roadway Information

Description: CSAH 10
 County: Olmsted
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 2
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 1,184
 Minor ADT: 1,184
 Total Entering ADT: 2,368



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):	0.5	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, Mixed Use, Industrial, Residential	
Entering ADT (vpd) :	2,368	≥ 2,000 or ≥ 1,000,000	★
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	LTTR 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 30
 CRSP 2 ID: 2.046
 Date: 4/1/2019

Rural Intersection on CSAH 15 at Salem Rd SW/ Co Rd 25

Roadway Information

Description: Salem Rd SW/ Co Rd 25
 County: Olmsted
 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: 1,750
 Minor ADT: 570
 Total Entering ADT: 2,320



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:	Agriculture	Commercial, Mixed Use, Industrial, Residential	
Entering ADT (vpd) :	2,320	≥ 2,000 or ≥ 1,000,000	★
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:	TB	LTTR or TB	★

Total Stars ★★ ★

Priority Location	✓
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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:	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	✓
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Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Rural Intersection on CSAH 1 at CSAH 16

Roadway Information

Description: CSAH 16
 County: Olmsted
 Area Type: Small Town
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 1
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 2,300
 Minor ADT: 990
 Total Entering ADT: 3,290



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):	0.3	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, Mixed Use, Industrial, Residential	★
Entering ADT (vpd) :	3,290	≥ 2,000 or ≥ 1,000,000	★
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	LTTR or TB	

Total Stars ★★ ★

Priority Location	<input checked="" type="checkbox"/>
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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:	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	<input checked="" type="checkbox"/>
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Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 32
 CRSP 2 ID: 1.015
 Date: 4/1/2019

Rural Intersection on CSAH 12 at 5023 / 52

Roadway Information

Description: 5023 / 52
 County: Olmsted
 Area Type: Rural
 Context Zone: Agriculture
 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: 3,600
 Minor ADT: 1,184
 Total Entering ADT: 4,784



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, Mixed Use, Industrial, Residential	
Entering ADT (vpd) :	4,784	≥ 2,000 or ≥ 1,000,000	★
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:	LT	LTTR or TB	

Total Stars ★★ ★

Priority Location	✓
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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:	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	✓
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Notes -

Rural Intersection on CSAH 14 at Co Rd 5/280th Ave

Roadway Information

Description: Co Rd 5/280th Ave
 County: Olmsted
 Area Type: Rural
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 14
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 1,900
 Minor ADT: 1,150
 Total Entering ADT: 3,050



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, Mixed Use, Industrial, Residential	
Entering ADT (vpd) :	3,050	≥ 2,000 or ≥ 1,000,000	★
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	LTTR or TB	

Total Stars ★ ★ ★

Priority Location	✓
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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:	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	✓
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Notes -

Rural Intersection on CSAH 19 at 20th St SE

Roadway Information

Description: 20th St SE
 County: Olmsted
 Area Type: Small Town
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 19
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 860
 Minor ADT: 265
 Total Entering ADT: 1,125



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, Mixed Use, Industrial, Residential	★
Entering ADT (vpd) :	1,125	≥ 2,000 or ≥ 1,000,000	
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:	T	LTTR or TB	

Total Stars ★★ ★

Priority Location	<input checked="" type="checkbox"/>
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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	0	\$0
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: \$251,500

Systemic Project	<input checked="" type="checkbox"/>
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Notes - County Notes

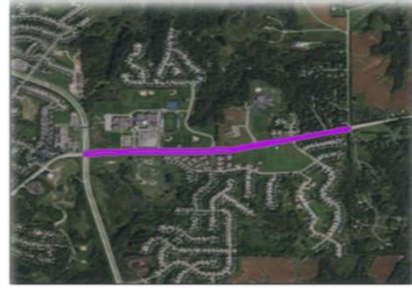
(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 37
 CRSP 2 ID: 19.016
 Date: 4/1/2019

Urban Segment Project on 2 from CSAH 22 / East Circle Dr NE to 36th Ave NE / Haverhill Rd NE

Roadway Information

Segment Start: CSAH 22 / East Circle Dr NE
 Segment End: 36th Ave NE / Haverhill Rd NE
 Area Type: Urban
 County: Olmsted
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 2
 Facility Type: 4-lane
 Segment Length (mile): 2.06
 Traffic Volume (vpd): 10,900
 Lane Width (ft): 12
 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:	47	0	8	0
Density (per mile per yr):	4.6	0.0	0.8	0.0
Rate (per MVM):	114.7	0.0	19.5	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	45	$35 \leq xx \leq 45$	★
Traffic Volume (vpd):	10,900	$xx \geq 7,500$	★
Access Density (access per mile):	13.60	$xx \geq 20$	
Context Zone:	Residential	Commercial, Mixed Use	
Edgeline Striping:	Present	None	
Lane Width (ft):	12	-	
Parking:	None	-	
Cross Section and Design:	Multi-Lane Divided	Multi-lane Divided Multi-lane Undivided	★
Edge Risk:	2S	-	
Shoulder Width (ft):	8.0	-	
Total Stars			★★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Divided Roadway:	Proactive	\$5,000,000	per mile	0.0	\$0
Access Management:	Proactive	\$360,000	per mile	0.0	\$0
Road Diet Convert to 3-Lane:	Proactive	\$48,000	per mile	0.0	\$0
Road Diet Convert to 5-Lane:	Proactive	\$54,000	per mile	0.0	\$0
Dynamic Speed Sign:	Proactive	\$30,000	per segment	0.0	\$0
Sidewalk:	Proactive	\$80,000	per mile	2.1	\$164,800
Total Estimated Project Cost:					<u>\$164,800</u>

Systemic Project

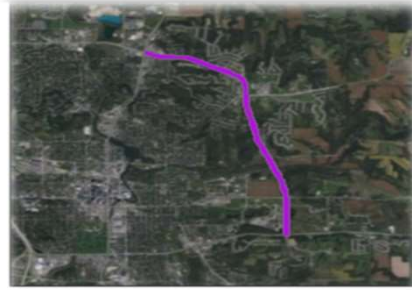
Notes -

Project Page #: 3
 CRSP 2 ID: 2.005
 Date: 3/20/2019

Urban Segment Project on 22 from CSAH 33 / N Broadway Ave to USTH 14 / 30th Ave SE

Roadway Information

Segment Start: CSAH 33 / N Broadway Ave
 Segment End: USTH 14 / 30th Ave SE
 Area Type: Urban
 County: Olmsted
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 22
 Facility Type: 4-lane
 Segment Length (mile): 8.3
 Traffic Volume (vpd): 15,400
 Lane Width (ft): 12
 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:	328	8	40	2
Density (per mile per yr):	7.9	0.2	1.0	0.0
Rate (per MVM):	140.6	3.4	17.1	0.9

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	55	$35 \leq xx \leq 45$	
Traffic Volume (vpd):	15,400	$xx \geq 7,500$	★
Access Density (access per mile):	7.47	$xx \geq 20$	
Context Zone:	Residential	Commercial, Mixed Use	
Edgeline Striping:	Present	None	
Lane Width (ft):	12	-	
Parking:	None	-	
Cross Section and Design:	Multi-Lane Divided	Multi-lane Divided Multi-lane Undivided	★
Edge Risk:	1	-	
Shoulder Width (ft):	8.0	-	
Total Stars			★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Divided Roadway:	Proactive	\$5,000,000	per mile	0.0	\$0
Access Management:	Proactive	\$360,000	per mile	0.0	\$0
Road Diet Convert to 3-Lane:	Proactive	\$48,000	per mile	0.0	\$0
Road Diet Convert to 5-Lane:	Proactive	\$54,000	per mile	0.0	\$0
Dynamic Speed Sign:	Proactive	\$30,000	per segment	0.0	\$0
Sidewalk:	Proactive	\$80,000	per mile	8.3	\$664,000
Total Estimated Project Cost:					<u>\$664,000</u>

Systemic Project

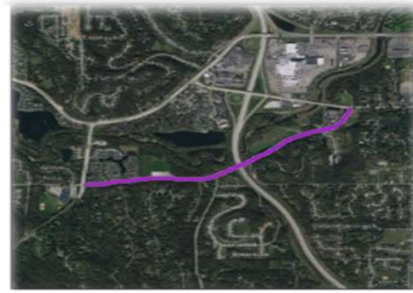
Notes -

Project Page #: 4
 CRSP 2 ID: 22.008
 Date: 3/20/2019

Urban Segment Project on 125 from CSAH 8 to CSAH 25 / 16th St SW

Roadway Information

Segment Start: CSAH 8
 Segment End: CSAH 25 / 16th St SW
 Area Type: Urban
 County: Olmsted
 Context Zone: Mixed Use
 Segment Route System: CR
 Segment Route No: 125
 Facility Type: 2-Lane
 Segment Length (mile): 1.38
 Traffic Volume (vpd): 4,770
 Lane Width (ft): 12
 Shoulder Type: Composite
 Shoulder Width (ft): 5.0



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Lane Departure	Severe Lane Departure
Crash Frequency:	46	1	10	1
Density (per mile per yr):	6.7	0.1	1.4	0.1
Rate (per MVM):	382.9	8.3	83.2	8.3

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Speed Limit (mph):	40	$35 \leq xx \leq 45$	★
Traffic Volume (vpd):	4,770	$xx \geq 7,500$	
Access Density (access per mile):	8.71	$xx \geq 20$	
Context Zone:	Mixed Use	Commercial, Mixed Use	★
Edgeline Striping:	Present	None	
Lane Width (ft):	12	-	
Parking:	None	-	
Cross Section and Design:	2-Lane Undivided	Multi-lane Divided Multi-lane Undivided	
Edge Risk:	1	-	
Shoulder Width (ft):	5.0	-	
Total Stars			★★

Priority Location

List of Strategies Considered

	Type	Unit Cost	Unit	Quantity	Total Cost
Divided Roadway:	Proactive	\$5,000,000	per mile	0.0	\$0
Access Management:	Proactive	\$360,000	per mile	0.0	\$0
Road Diet Convert to 3-Lane:	Proactive	\$48,000	per mile	0.0	\$0
Road Diet Convert to 5-Lane:	Proactive	\$54,000	per mile	0.0	\$0
Dynamic Speed Sign:	Proactive	\$30,000	per segment	0.0	\$0
Sidewalk:	Proactive	\$80,000	per mile	1.4	\$110,400
Total Estimated Project Cost:					<u>\$110,400</u>

Systemic Project

Notes -

Project Page #: 5
 CRSP 2 ID: 125.002
 Date: 3/20/2019

Urban (Vehicle) Intersection on CSAH 36 at 12th St SE

Roadway Information

Description: 12th St SE
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 36
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 18,700
 Minor ADT: 11,750
 Total Entering ADT: 30,450



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	167	3	50	2
Density (per int per yr):	33.4	0.6	10.0	0.4
Rate (per MVM):	3.0	0.1	0.9	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Commercial	Commercial	★
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	30,450	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	Present	Present	★
Major Approach Speed Limit (mph):	40	≥ 40	★
Minor Approach Speed Limit (mph):	40	≥ 35	
Major Approach Left Turn Lane Phasing:	Permitted/Protected	Permitted or Permitted/Protected	★
1st Major Approach Turn Lane Configuration:	LTTR	≥ 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	0	\$0
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	1	\$50,000
Intersection Lighting:	Proactive	\$15,000	Each	0	\$0
All-Way Stop:	Proactive	\$7,500	Per Intersection	0	\$0
Upgrade Signs & Markings:	Proactive	\$3,500	Per Intersection	0	\$0

Total Estimated Project Cost: \$50,000

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 2
 CRSP 2 ID: 36.031
 Date: 3/13/2019

Urban (Vehicle) Intersection on CSAH 22 at CSAH 33 / North Broadway Ave

Roadway Information

Description: CSAH 33 / North Broadway Ave
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 20,450
 Minor ADT: 13,900
 Total Entering ADT: 34,350



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	98	1	26	0
Density (per int per yr):	19.6	0.2	5.2	0.0
Rate (per MVM):	1.6	0.0	0.4	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Commercial	Commercial	★
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	34,350	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	5	≥ 10	
Adjacent Development:	Present	Present	★
Major Approach Speed Limit (mph):	45	≥ 40	★
Minor Approach Speed Limit (mph):	40	≥ 35	
Major Approach Left Turn Lane Phasing:	Permitted/Protected	Permitted or Permitted/Protected	★
1 st Major Approach Turn Lane Configuration:	LTR	≥ 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	0	\$0
Signalized RCI:	Proactive	\$1,250,000	Per Intersection	1	\$1,250,000
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:	Proactive	\$7,500	Per Intersection	0	\$0
Upgrade Signs & Markings:	Proactive	\$3,500	Per Intersection	0	\$0

Total Estimated Project Cost: **\$1,250,000**

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 3
 CRSP 2 ID: 22.046
 Date: 3/13/2019

Urban (Vehicle) Intersection on CSAH 22 at 2122/ Fox Valley Dr SW

Roadway Information

Description: 2122/ Fox Valley Dr SW
 County: Olmsted
 Area Type: Urban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 16,200
 Minor ADT: 1,192
 Total Entering ADT: 17,392



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	37	0	10	0
Density (per int per yr):	7.4	0.0	2.0	0.0
Rate (per MVM):	1.2	0.0	0.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Commercial	Commercial	★
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	17,392	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	Present	Present	★
Major Approach Speed Limit (mph):	45	≥ 40	★
Minor Approach Speed Limit (mph):	30	≥ 35	
Major Approach Left Turn Lane Phasing:	Permitted/Protected	Permitted or Permitted/Protected	★
1 st Major Approach Turn Lane Configuration:	LTR	≥ 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 4
 CRSP 2 ID: 22.001
 Date: 3/13/2019

Urban (Vehicle) Intersection on CSAH 22 at Country Club Rd W

Roadway Information

Description: Country Club Rd W
 County: Olmsted
 Area Type: Suburban
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 7,900
 Minor ADT: 7,900
 Total Entering ADT: 15,800



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	31	0	11	0
Density (per int per yr):	6.2	0.0	2.2	0.0
Rate (per MVM):	1.1	0.0	0.4	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Residential	Commercial	
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	15,800	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	15	≥ 10	★
Adjacent Development:	Present	Present	★
Major Approach Speed Limit (mph):	45	≥ 40	★
Minor Approach Speed Limit (mph):	45	≥ 35	★
Major Approach Left Turn Lane Phasing:	Permitted/Protected	Permitted or Permitted/Protected	★
1 st Major Approach Turn Lane Configuration:	LTR	≥ 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 5
 CRSP 2 ID: 22.015
 Date: 3/13/2019

Urban (Vehicle) Intersection on CSAH 22 at N Frontage Rd/ Wilder Rd NW

Roadway Information

Description: N Frontage Rd/ Wilder Rd NW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 24,300
 Minor ADT: 3,292
 Total Entering ADT: 27,592



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	58	2	24	1
Density (per int per yr):	11.6	0.4	4.8	0.2
Rate (per MVM):	1.2	0.0	0.5	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Commercial	Commercial	★
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	27,592	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	None	Present	
Major Approach Speed Limit (mph):	55	≥ 40	★
Minor Approach Speed Limit (mph):	40	≥ 35	
Major Approach Left Turn Lane Phasing:	Permitted/Protected	Permitted or Permitted/Protected	★
1st Major Approach Turn Lane Configuration:	LTR	≥ 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 6
 CRSP 2 ID: 22.021
 Date: 3/13/2019

Urban (Vehicle) Intersection on CSAH 22 at Clearwater Rd NW / W. Frontage Rd

Roadway Information

Description: Clearwater Rd NW / W. Frontage Rd
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 20,100
 Minor ADT: 6,800
 Total Entering ADT: 26,900



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	83	1	23	0
Density (per int per yr):	16.6	0.2	4.6	0.0
Rate (per MVM):	1.7	0.0	0.5	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Commercial	Commercial	★
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	26,900	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	None	Present	
Major Approach Speed Limit (mph):	45	≥ 40	★
Minor Approach Speed Limit (mph):	40	≥ 35	
Major Approach Left Turn Lane Phasing:	Permitted/Protected	Permitted or Permitted/Protected	★
1 st Major Approach Turn Lane Configuration:	LTR	≥ 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 7
 CRSP 2 ID: 22.032
 Date: 3/13/2019

Urban (Vehicle) Intersection on CSAH 22 at Chateau Rd NW

Roadway Information

Description: Chateau Rd NW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 14,700
 Minor ADT: 1,184
 Total Entering ADT: 15,884



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	72	0	7	0
Density (per int per yr):	14.4	0.0	1.4	0.0
Rate (per MVM):	2.5	0.0	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Commercial	Commercial	★
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	15,884	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	★
Adjacent Development:	Present	Present	★
Major Approach Speed Limit (mph):	45	≥ 40	★
Minor Approach Speed Limit (mph):	30	≥ 35	★
Major Approach Left Turn Lane Phasing:	Protected	Permitted or Permitted/Protected	★
1 st Major Approach Turn Lane Configuration:	LTR	≥ 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 9
 CRSP 2 ID: 22.031
 Date: 3/13/2019

Urban (Vehicle) Intersection on CSAH 2 at East Circle Dr/ CR 22

Roadway Information

Description: East Circle Dr/ CR 22
 County: Olmsted
 Area Type: Urban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 2
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 14,400
 Minor ADT: 9,150
 Total Entering ADT: 23,550



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	69	1	16	1
Density (per int per yr):	13.8	0.2	3.2	0.2
Rate (per MVM):	1.6	0.0	0.4	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Commercial	Commercial	★
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	23,550	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	5	≥ 10	
Adjacent Development:	None	Present	
Major Approach Speed Limit (mph):	55	≥ 40	★
Minor Approach Speed Limit (mph):	40	≥ 35	
Major Approach Left Turn Lane Phasing:	Permitted/Protected	Permitted or Permitted/Protected	★
1 st Major Approach Turn Lane Configuration:	LTRR	≥ 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	0	\$0
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	1	\$50,000
Intersection Lighting:	Proactive	\$15,000	Each	0	\$0
All-Way Stop:	Proactive	\$7,500	Per Intersection	0	\$0
Upgrade Signs & Markings:	Proactive	\$3,500	Per Intersection	0	\$0

Total Estimated Project Cost: \$50,000

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 10
 CRSP 2 ID: 2.013
 Date: 3/13/2019

Urban (Vehicle) Intersection on CSAH 22 at 1192 / Badger Hills Dr/ 41st St NW

Roadway Information

Description: 1192 / Badger Hills Dr/ 41st St NW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 18,600
 Minor ADT: 6,242
 Total Entering ADT: 24,842



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	46	0	11	0
Density (per int per yr):	9.2	0.0	2.2	0.0
Rate (per MVM):	1.0	0.0	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Commercial	Commercial	★
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	24,842	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	None	Present	
Major Approach Speed Limit (mph):	55	≥ 40	★
Minor Approach Speed Limit (mph):	35	≥ 35	
Major Approach Left Turn Lane Phasing:	Permitted/Protected	Permitted or Permitted/Protected	★
1st Major Approach Turn Lane Configuration:	LTR	≥ 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 11
 CRSP 2 ID: 22.026
 Date: 3/13/2019

Urban (Vehicle) Intersection on CSAH 22 at 55th St NW / USTH 63

Roadway Information

Description: 55th St NW / USTH 63
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 25,500
 Minor ADT: 9,692
 Total Entering ADT: 35,192



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	30	1	6	0
Density (per int per yr):	6.0	0.2	1.2	0.0
Rate (per MVM):	0.5	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Commercial	Commercial	★
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	35,192	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	None	Present	
Major Approach Speed Limit (mph):	45	≥ 40	★
Minor Approach Speed Limit (mph):	65	≥ 35	
Major Approach Left Turn Lane Phasing:	Permitted/Protected	Permitted or Permitted/Protected	★
1st Major Approach Turn Lane Configuration:	TTR	≥ 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 12
 CRSP 2 ID: 22.033
 Date: 3/13/2019

Urban (Vehicle) Intersection on CSAH 22 at 7th St NW

Roadway Information

Description: 7th St NW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 18,600
 Minor ADT: 6,700
 Total Entering ADT: 25,300



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	29	0	8	0
Density (per int per yr):	5.8	0.0	1.6	0.0
Rate (per MVM):	0.6	0.0	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Residential	Commercial	
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	25,300	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	Present	Present	★
Major Approach Speed Limit (mph):	45	≥ 40	★
Minor Approach Speed Limit (mph):	30	≥ 35	
Major Approach Left Turn Lane Phasing:	Permitted/Protected	Permitted or Permitted/Protected	★
1st Major Approach Turn Lane Configuration:	LTR	≥ 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 13
 CRSP 2 ID: 22.017
 Date: 3/13/2019

Urban (Vehicle) Intersection on CR 112 at 55th St NW

Roadway Information

Description: 55th St NW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CR
 Segment Route No: 112
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 9,000
 Minor ADT: 6,800
 Total Entering ADT: 15,800



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	10	1	2	0
Density (per int per yr):	2.0	0.2	0.4	0.0
Rate (per MVM):	0.3	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Commercial	Commercial	★
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	15,800	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	None	Present	
Major Approach Speed Limit (mph):	45	≥ 40	★
Minor Approach Speed Limit (mph):	50	≥ 35	
Major Approach Left Turn Lane Phasing:	Permitted/Protected	Permitted or Permitted/Protected	★
1 st Major Approach Turn Lane Configuration:	LTR	≥ 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:	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 - County Notes

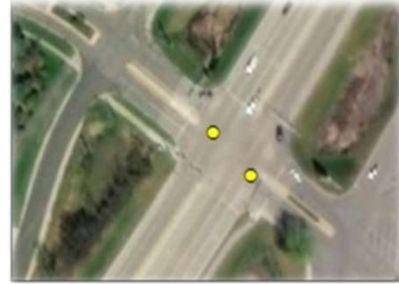
(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 14
 CRSP 2 ID: 112.008
 Date: 3/13/2019

Urban (Vehicle) Intersection on CSAH 22 at 16th St SW

Roadway Information

Description: 16th St SW
 County: Olmsted
 Area Type: Urban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 16,550
 Minor ADT: 6,300
 Total Entering ADT: 22,850



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	14	0	4	0
Density (per int per yr):	2.8	0.0	0.8	0.0
Rate (per MVM):	0.3	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Commercial	Commercial	★
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	22,850	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	T	X	
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	Present	Present	★
Major Approach Speed Limit (mph):	45	≥ 40	★
Minor Approach Speed Limit (mph):	35	≥ 35	
Major Approach Left Turn Lane Phasing:	Permitted/Protected	Permitted or Permitted/Protected	★
1st 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 15
 CRSP 2 ID: 22.003
 Date: 4/1/2019

Urban (Vehicle) Intersection on CSAH 22 at Alpha Pkwy NW

Roadway Information

Description: Alpha Pkwy NW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 18,600
 Minor ADT: 1,184
 Total Entering ADT: 19,784



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):	0.0	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) or Cross Product(vpd ²):	19,784	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	Present	Present	★
Major Approach Speed Limit (mph):	55	≥ 40	★
Minor Approach Speed Limit (mph):	30	≥ 35	
Major Approach Left Turn Lane Phasing:	Protected	Permitted or Permitted/Protected	★
1 st Major Approach Turn Lane Configuration:	LLTTR	≥ 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:	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 - County Notes

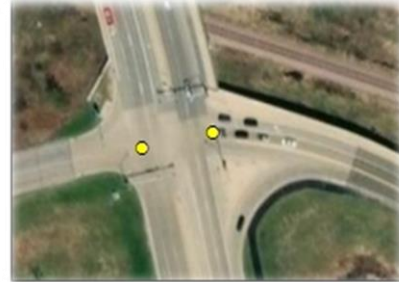
(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 17
 CRSP 2 ID: 22.027
 Date: 3/13/2019

Urban (Vehicle) Intersection on CSAH 22 at 19th St NW

Roadway Information

Description: 19th St NW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 17,650
 Minor ADT: 8,700
 Total Entering ADT: 26,350



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	55	0	14	0
Density (per int per yr):	11.0	0.0	2.8	0.0
Rate (per MVM):	1.1	0.0	0.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Commercial	Commercial	★
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	26,350	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	None	Present	
Major Approach Speed Limit (mph):	55	≥ 40	★
Minor Approach Speed Limit (mph):	40	≥ 35	
Major Approach Left Turn Lane Phasing:	Protected	Permitted or Permitted/Protected	★
1 st Major Approach Turn Lane Configuration:	LLTR	≥ 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	0	\$0
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	1	\$50,000
Intersection Lighting:	Proactive	\$15,000	Each	0	\$0
All-Way Stop:	Proactive	\$7,500	Per Intersection	0	\$0
Upgrade Signs & Markings:	Proactive	\$3,500	Per Intersection	0	\$0

Total Estimated Project Cost: \$50,000

Systemic Project

Notes - County Notes

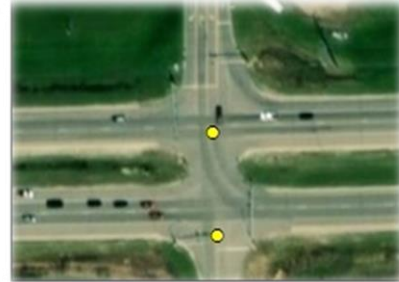
(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 18
 CRSP 2 ID: 22.022
 Date: 3/13/2019

Urban (Vehicle) Intersection on CSAH 4 at West Circle Dr NW / 22

Roadway Information

Description: West Circle Dr NW / 22
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 4
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 21,450
 Minor ADT: 5,275
 Total Entering ADT: 26,725



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	52	0	7	0
Density (per int per yr):	10.4	0.0	1.4	0.0
Rate (per MVM):	1.1	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Commercial	Commercial	★
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	26,725	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	None	Present	
Major Approach Speed Limit (mph):	55	≥ 40	★
Minor Approach Speed Limit (mph):	55	≥ 35	
Major Approach Left Turn Lane Phasing:	Protected	Permitted or Permitted/Protected	★
1 st Major Approach Turn Lane Configuration:	LLTTR	≥ 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 19
 CRSP 2 ID: 4.012
 Date: 3/13/2019

Urban (Vehicle) Intersection on CSAH 125 at 16th St SW

Roadway Information

Description: 16th St SW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 125
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 16,300
 Minor ADT: 9,300
 Total Entering ADT: 25,600



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	27	0	4	0
Density (per int per yr):	5.4	0.0	0.8	0.0
Rate (per MVM):	0.6	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Residential	Commercial	
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	25,600	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	Present	Present	★
Major Approach Speed Limit (mph):	35	≥ 40	
Minor Approach Speed Limit (mph):	15	≥ 35	
Major Approach Left Turn Lane Phasing:	Permitted/Protected	Permitted or Permitted/Protected	★
1st Major Approach Turn Lane Configuration:	LTR	≥ 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	0	\$0
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	1	\$50,000
Intersection Lighting:	Proactive	\$15,000	Each	0	\$0
All-Way Stop:	Proactive	\$7,500	Per Intersection	0	\$0
Upgrade Signs & Markings:	Proactive	\$3,500	Per Intersection	0	\$0
Total Estimated Project Cost:					<u>\$50,000</u>

Systemic Project

Notes - County Notes

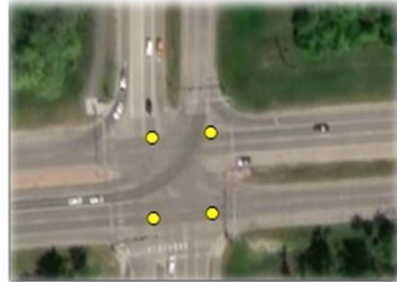
(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 20
 CRSP 2 ID: 25.021
 Date: 4/1/2019

Urban (Vehicle) Intersection on CSAH 34 at USTH 14

Roadway Information

Description: USTH 14
 County: Olmsted
 Area Type: Suburban
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 34
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 12,550
 Minor ADT: 3,650
 Total Entering ADT: 16,200



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	75	1	8	1
Density (per int per yr):	15.0	0.2	1.6	0.2
Rate (per MVM):	2.5	0.0	0.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Agriculture	Commercial	
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	16,200	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	None	Present	
Major Approach Speed Limit (mph):	65	≥ 40	★
Minor Approach Speed Limit (mph):	55	≥ 35	
Major Approach Left Turn Lane Phasing:	Protected	Permitted or Permitted/Protected	★
1 st Major Approach Turn Lane Configuration:	LTRR	≥ 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 22
 CRSP 2 ID: 34.001
 Date: 3/13/2019

Urban (Vehicle) Intersection on CSAH 1 at 20th St SE

Roadway Information

Description: 20th St SE
 County: Olmsted
 Area Type: Suburban
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 1
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 9,700
 Minor ADT: 7,200
 Total Entering ADT: 16,900



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	39	1	17	1
Density (per int per yr):	7.8	0.2	3.4	0.2
Rate (per MVM):	1.3	0.0	0.6	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Residential	Commercial	
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	16,900	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Undivided	Curb, Depressed, Mixed, Barrier	
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	None	Present	
Major Approach Speed Limit (mph):	45	≥ 40	★
Minor Approach Speed Limit (mph):	40	≥ 35	
Major Approach Left Turn Lane Phasing:	Permitted/Protected	Permitted or Permitted/Protected	★
1st Major Approach Turn Lane Configuration:	LTTR	≥ 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 24
 CRSP 2 ID: 1.034
 Date: 4/1/2019

Urban (Vehicle) Intersection on CSAH 8 at Salem Rd SW / CSAH 25

Roadway Information

Description: Salem Rd SW / CSAH 25
 County: Olmsted
 Area Type: Suburban
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 8
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 7,700
 Minor ADT: 1,184
 Total Entering ADT: 8,884



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	43	1	15	0
Density (per int per yr):	8.6	0.2	3.0	0.0
Rate (per MVM):	2.7	0.1	0.9	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Residential	Commercial	
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	8,884	≥ 12,000 or ≥ 30,000,000	
Leg Configuration:	T	X	
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	Present	Present	★
Major Approach Speed Limit (mph):	30	≥ 40	★
Minor Approach Speed Limit (mph):	45	≥ 35	★
Major Approach Left Turn Lane Phasing:	Permitted/Protected	Permitted or Permitted/Protected	★
1 st Major Approach Turn Lane Configuration:	TTR	≥ 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:	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 -

Urban (Vehicle) Intersection on CSAH 1 at 16th St SE

Roadway Information

Description: 16th St SE
 County: Olmsted
 Area Type: Suburban
 Context Zone: Campus
 Segment Route System: CSAH
 Segment Route No: 1
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 5,300
 Minor ADT: 0
 Total Entering ADT: 5,300



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	41	0	7	0
Density (per int per yr):	8.2	0.0	1.4	0.0
Rate (per MVM):	4.2	0.0	0.7	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Campus	Commercial	
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	5,300	≥ 12,000 or ≥ 30,000,000	
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	None	Present	
Major Approach Speed Limit (mph):	35	≥ 40	★
Minor Approach Speed Limit (mph):	35	≥ 35	
Major Approach Left Turn Lane Phasing:	Permitted/Protected	Permitted or Permitted/Protected	★
1st 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 26
 CRSP 2 ID: 1.036
 Date: 3/13/2019

Urban (Vehicle) Intersection on CSAH 22 at USTH 14

Roadway Information

Description: USTH 14
 County: Olmsted
 Area Type: Suburban
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 13,750
 Minor ADT: 6,280
 Total Entering ADT: 20,030



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	35	0	7	0
Density (per int per yr):	7.0	0.0	1.4	0.0
Rate (per MVM):	1.0	0.0	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Residential	Commercial	
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	20,030	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	None	Present	
Major Approach Speed Limit (mph):	55	≥ 40	★
Minor Approach Speed Limit (mph):	50	≥ 35	
Major Approach Left Turn Lane Phasing:	Protected	Permitted or Permitted/Protected	★
1 st Major Approach Turn Lane Configuration:	LLTTR	≥ 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:	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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 27
 CRSP 2 ID: 22.058
 Date: 3/13/2019

Urban (Vehicle) Intersection on CSAH 9 at CSAH 22 / East Circle Dr / 30th Ave SE

Roadway Information

Description: CSAH 22 / East Circle Dr / 30th Ave SE
 County: Olmsted
 Area Type: Suburban
 Context Zone: Recreational
 Segment Route System: CSAH
 Segment Route No: 9
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 12,150
 Minor ADT: 7,025
 Total Entering ADT: 19,175



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	35	0	9	0
Density (per int per yr):	7.0	0.0	1.8	0.0
Rate (per MVM):	1.0	0.0	0.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Recreational	Commercial	
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd) or Cross Product(vpd ²):	19,175	≥ 12,000 or ≥ 30,000,000	★
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	None	Present	
Major Approach Speed Limit (mph):	45	≥ 40	★
Minor Approach Speed Limit (mph):	40	≥ 35	
Major Approach Left Turn Lane Phasing:	Protected	Permitted or Permitted/Protected	★
1 st Major Approach Turn Lane Configuration:	LTRR	≥ 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:	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 -

Urban (Vehicle) Intersection on CR 101 at CR 101 (45th St SE)

Roadway Information

Description: CR 101 (45th St SE)
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CR
 Segment Route No: 101
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 2,300
 Minor ADT: 850
 Total Entering ADT: 3,150



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):	0.5	0.0	0.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Context Zone:	Commercial	Commercial	★
Traffic Control Device:	Thru-Stop	Signal	
Entering ADT(vpd) or Cross Product(vpd ²):	3,150	≥ 12,000 or ≥ 30,000,000	
Leg Configuration:	X	X	★
Major Division Type:	Divided	Curb, Depressed, Mixed, Barrier	★
Alignment Skew (degrees):	0	≥ 10	
Adjacent Development:	Present	Present	★
Major Approach Speed Limit (mph):	55	≥ 40	★
Minor Approach Speed Limit (mph):	30	≥ 35	
Major Approach Left Turn Lane Phasing:	N/A	Permitted or 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	0	\$0
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	1	\$15,000
All-Way Stop:	Proactive	\$7,500	Per Intersection	0	\$0
Upgrade Signs & Markings:	Proactive	\$3,500	Per Intersection	1	\$3,500

Total Estimated Project Cost: \$18,500

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 29
 CRSP 2 ID: 101.001
 Date: 3/13/2019

Urban (Ped/Bike) Intersection on CSAH 36 at 12th St SE

Roadway Information

Description: 12th St SE
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 36
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 18,700
 Minor ADT: 11,750
 Total Entering ADT: 30,450



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	167	3	50	2
Density (per int per yr):	33.4	0.6	10.0	0.4
Rate (per MVM):	3.0	0.1	0.9	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	30,450	≥ 12,000	★
Adjacent Development:	Present	Present	★
Max Number Of Lanes Crossed:	6	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	2	\$24,000
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: \$149,000

Systemic Project

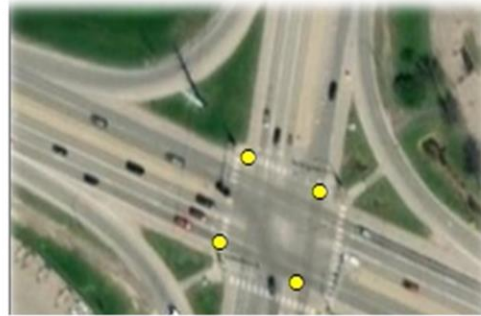
Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Urban (Ped/Bike) Intersection on CSAH 22 at CSAH 33 / North Broadway Ave

Roadway Information

Description: CSAH 33 / North Broadway Ave
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 20,450
 Minor ADT: 13,900
 Total Entering ADT: 34,350



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	98	1	26	0
Density (per int per yr):	19.6	0.2	5.2	0.0
Rate (per MVM):	1.6	0.0	0.4	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	34,350	≥ 12,000	★
Adjacent Development:	Present	Present	★
Max Number Of Lanes Crossed:	5	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	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: \$30,000

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Urban (Ped/Bike) Intersection on CSAH 22 at Chateau Rd NW

Roadway Information

Description: Chateau Rd NW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 14,700
 Minor ADT: 1,184
 Total Entering ADT: 15,884



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	72	0	7	0
Density (per int per yr):	14.4	0.0	1.4	0.0
Rate (per MVM):	2.5	0.0	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	15,884	≥ 12,000	★
Adjacent Development:	Present	Present	★
Max Number Of Lanes Crossed:	8	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Urban (Ped/Bike) Intersection on CSAH 22 at 2122/ Fox Valley Dr SW

Roadway Information

Description: 2122/ Fox Valley Dr SW
 County: Olmsted
 Area Type: Urban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 16,200
 Minor ADT: 1,192
 Total Entering ADT: 17,392



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	37	0	10	0
Density (per int per yr):	7.4	0.0	2.0	0.0
Rate (per MVM):	1.2	0.0	0.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	17,392	≥ 12,000	★
Adjacent Development:	Present	Present	★
Max Number Of Lanes Crossed:	6	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	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: \$30,000

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Urban (Ped/Bike) Intersection on CSAH 22 at 7th St NW

Roadway Information

Description: 7th St NW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 18,600
 Minor ADT: 6,700
 Total Entering ADT: 25,300



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	29	0	8	0
Density (per int per yr):	5.8	0.0	1.6	0.0
Rate (per MVM):	0.6	0.0	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	25,300	≥ 12,000	★
Adjacent Development:	Present	Present	★
Max Number Of Lanes Crossed:	6	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	2	\$24,000
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	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: \$54,000

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Urban (Ped/Bike) Intersection on CSAH 22 at Country Club Rd W

Roadway Information

Description: Country Club Rd W
 County: Olmsted
 Area Type: Suburban
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 7,900
 Minor ADT: 7,900
 Total Entering ADT: 15,800



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	31	0	11	0
Density (per int per yr):	6.2	0.0	2.2	0.0
Rate (per MVM):	1.1	0.0	0.4	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	15,800	≥ 12,000	★
Adjacent Development:	Present	Present	★
Max Number Of Lanes Crossed:	5	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	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: \$30,000

Systemic Project

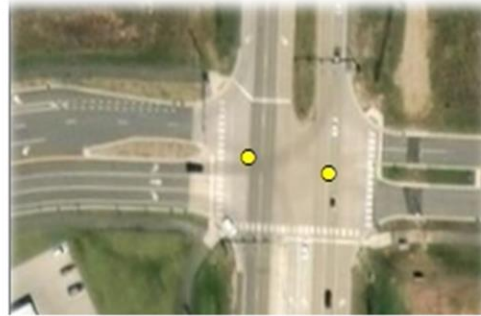
Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Urban (Ped/Bike) Intersection on CSAH 22 at Alpha Pkwy NW

Roadway Information

Description: Alpha Pkwy NW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 18,600
 Minor ADT: 1,184
 Total Entering ADT: 19,784



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):	0.0	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	19,784	≥ 12,000	★
Adjacent Development:	Present	Present	★
Max Number Of Lanes Crossed:	7	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	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: \$30,000

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 7
 CRSP 2 ID: 22.027
 Date: 3/13/2019

Urban (Ped/Bike) Intersection on CSAH 22 at 3996 / USTH 14

Roadway Information

Description: 3996 / USTH 14
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 22,800
 Minor ADT: 1,184
 Total Entering ADT: 23,984



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	9	1	3	1
Density (per int per yr):	1.8	0.2	0.6	0.2
Rate (per MVM):	0.2	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	23,984	≥ 12,000	★
Adjacent Development:	Present	Present	★
Max Number Of Lanes Crossed:	3	≥ 4	
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	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: \$30,000

Systemic Project

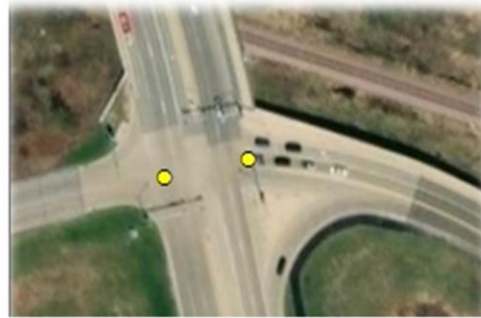
Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Urban (Ped/Bike) Intersection on CSAH 22 at N Frontage Rd/ Wilder Rd NW

Roadway Information

Description: N Frontage Rd/ Wilder Rd NW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 24,300
 Minor ADT: 3,292
 Total Entering ADT: 27,592



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	58	2	24	1
Density (per int per yr):	11.6	0.4	4.8	0.2
Rate (per MVM):	1.2	0.0	0.5	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	27,592	≥ 12,000	★
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	7	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	2	\$24,000
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	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: \$54,000

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Urban (Ped/Bike) Intersection on CSAH 22 at Clearwater Rd NW / W. Frontage Rd

Roadway Information

Description: Clearwater Rd NW / W. Frontage Rd
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 20,100
 Minor ADT: 6,800
 Total Entering ADT: 26,900



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	83	1	23	0
Density (per int per yr):	16.6	0.2	4.6	0.0
Rate (per MVM):	1.7	0.0	0.5	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	26,900	≥ 12,000	★
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	6	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	2	\$24,000
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: \$149,000

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 10
 CRSP 2 ID: 22.032
 Date: 3/13/2019

Urban (Ped/Bike) Intersection on CSAH 22 at 55th St NW

Roadway Information

Description: 55th St NW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 16,650
 Minor ADT: 13,100
 Total Entering ADT: 29,750



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	64	0	34	0
Density (per int per yr):	12.8	0.0	6.8	0.0
Rate (per MVM):	1.2	0.0	0.6	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	29,750	≥ 12,000	★
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	6	≥ 4	★
Presence of Sidewalk:	None	Some or None	★
Pedstrain 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	2	\$24,000
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	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: \$54,000

Systemic Project

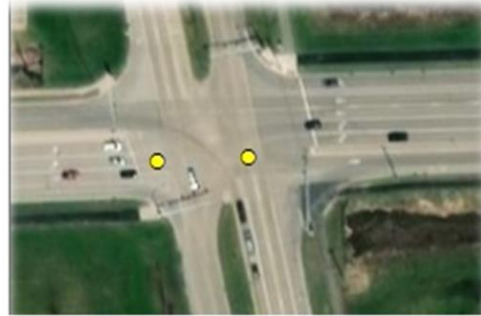
Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Urban (Ped/Bike) Intersection on CSAH 22 at 19th St NW

Roadway Information

Description: 19th St NW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 17,650
 Minor ADT: 8,700
 Total Entering ADT: 26,350



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	55	0	14	0
Density (per int per yr):	11.0	0.0	2.8	0.0
Rate (per MVM):	1.1	0.0	0.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	26,350	≥ 12,000	★
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	6	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 12
 CRSP 2 ID: 22.022
 Date: 3/13/2019

Urban (Ped/Bike) Intersection on CSAH 1 at 20th St SE

Roadway Information

Description: 20th St SE
 County: Olmsted
 Area Type: Suburban
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 1
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 9,700
 Minor ADT: 7,200
 Total Entering ADT: 16,900



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	39	1	17	1
Density (per int per yr):	7.8	0.2	3.4	0.2
Rate (per MVM):	1.3	0.0	0.6	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	16,900	≥ 12,000	★
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	6	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	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: \$30,000

Systemic Project

Notes - County Notes

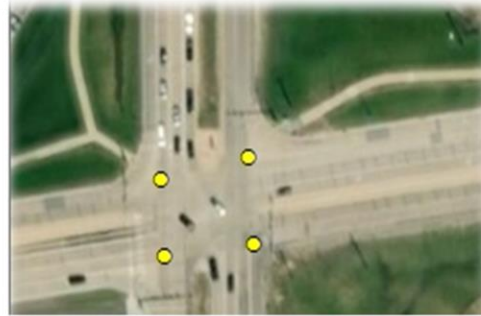
(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 13
 CRSP 2 ID: 1.034
 Date: 4/1/2019

Urban (Ped/Bike) Intersection on CSAH 2 at East Circle Dr/ CR 22

Roadway Information

Description: East Circle Dr/ CR 22
 County: Olmsted
 Area Type: Urban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 2
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 14,400
 Minor ADT: 9,150
 Total Entering ADT: 23,550



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	69	1	16	1
Density (per int per yr):	13.8	0.2	3.2	0.2
Rate (per MVM):	1.6	0.0	0.4	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	23,550	≥ 12,000	★
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	4	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	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: \$30,000

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 14
 CRSP 2 ID: 2.013
 Date: 3/13/2019

Urban (Ped/Bike) Intersection on CSAH 8 at Salem Rd SW / CSAH 25

Roadway Information

Description: Salem Rd SW / CSAH 25
 County: Olmsted
 Area Type: Suburban
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 8
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 7,700
 Minor ADT: 1,184
 Total Entering ADT: 8,884



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	43	1	15	0
Density (per int per yr):	8.6	0.2	3.0	0.0
Rate (per MVM):	2.7	0.1	0.9	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	8,884	≥ 12,000	
Adjacent Development:	Present	Present	★
Max Number Of Lanes Crossed:	5	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	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: \$30,000

Systemic Project

Notes -

Urban (Ped/Bike) Intersection on CSAH 22 at 1192 / Badger Hills Dr/ 41st St NW

Roadway Information

Description: 1192 / Badger Hills Dr/ 41st St NW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 18,600
 Minor ADT: 6,242
 Total Entering ADT: 24,842



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	46	0	11	0
Density (per int per yr):	9.2	0.0	2.2	0.0
Rate (per MVM):	1.0	0.0	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	24,842	≥ 12,000	★
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	5	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	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: \$30,000

Systemic Project

Notes - County Notes

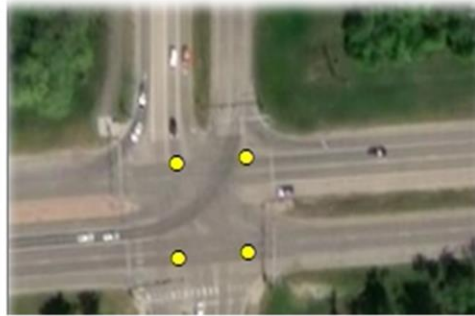
(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 16
 CRSP 2 ID: 22.026
 Date: 3/13/2019

Urban (Ped/Bike) Intersection on CSAH 22 at USTH 14

Roadway Information

Description: USTH 14
 County: Olmsted
 Area Type: Suburban
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 13,750
 Minor ADT: 6,280
 Total Entering ADT: 20,030



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	35	0	7	0
Density (per int per yr):	7.0	0.0	1.4	0.0
Rate (per MVM):	1.0	0.0	0.2	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	20,030	≥ 12,000	★
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	7	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Urban (Ped/Bike) Intersection on CSAH 9 at CSAH 22 / East Circle Dr / 30th Ave SE

Roadway Information

Description: CSAH 22 / East Circle Dr / 30th Ave SE
 County: Olmsted
 Area Type: Suburban
 Context Zone: Recreational
 Segment Route System: CSAH
 Segment Route No: 9
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 12,150
 Minor ADT: 7,025
 Total Entering ADT: 19,175



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	35	0	9	0
Density (per int per yr):	7.0	0.0	1.8	0.0
Rate (per MVM):	1.0	0.0	0.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	19,175	≥ 12,000	★
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	5	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	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: \$30,000

Systemic Project

Notes -

Urban (Ped/Bike) Intersection on CR 112 at 55th St NW

Roadway Information

Description: 55th St NW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CR
 Segment Route No: 112
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 9,000
 Minor ADT: 6,800
 Total Entering ADT: 15,800



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	10	1	2	0
Density (per int per yr):	2.0	0.2	0.4	0.0
Rate (per MVM):	0.3	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	15,800	≥ 12,000	★
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	6	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Urban (Ped/Bike) Intersection on CSAH 125 at 16th St SW

Roadway Information

Description: 16th St SW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 125
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 16,300
 Minor ADT: 9,300
 Total Entering ADT: 25,600



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	27	0	4	0
Density (per int per yr):	5.4	0.0	0.8	0.0
Rate (per MVM):	0.6	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	25,600	≥ 12,000	★
Adjacent Development:	Present	Present	★
Max Number Of Lanes Crossed:	6	≥ 4	★
Presence of Sidewalk:	All	Some or None	
Pedstrain 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	2	\$24,000
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	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: \$54,000

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 20
 CRSP 2 ID: 25.021
 Date: 4/1/2019

Urban (Ped/Bike) Intersection on CSAH 22 at 16th St SW

Roadway Information

Description: 16th St SW
 County: Olmsted
 Area Type: Urban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 16,550
 Minor ADT: 6,300
 Total Entering ADT: 22,850



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	14	0	4	0
Density (per int per yr):	2.8	0.0	0.8	0.0
Rate (per MVM):	0.3	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	22,850	≥ 12,000	★
Adjacent Development:	Present	Present	★
Max Number Of Lanes Crossed:	5	≥ 4	★
Presence of Sidewalk:	None	Some or None	★
Pedstrain Crossing Type:	None	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	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: \$12,000

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Urban (Ped/Bike) Intersection on CSAH 22 at 5780 / USTH 14

Roadway Information

Description: 5780 / USTH 14
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 24,300
 Minor ADT: 11,992
 Total Entering ADT: 36,292



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	11	0	1	0
Density (per int per yr):	2.2	0.0	0.2	0.0
Rate (per MVM):	0.2	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	36,292	≥ 12,000	★
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	4	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	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: \$30,000

Systemic Project

Notes - County Notes

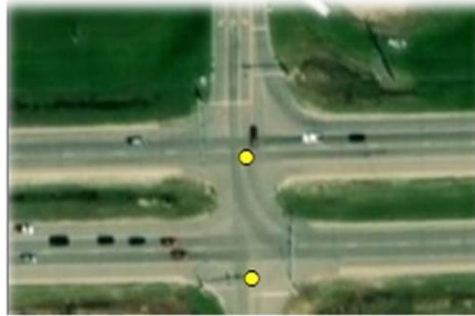
(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 22
 CRSP 2 ID: 22.020
 Date: 3/13/2019

Urban (Ped/Bike) Intersection on CSAH 34 at USTH 14

Roadway Information

Description: USTH 14
 County: Olmsted
 Area Type: Suburban
 Context Zone: Agriculture
 Segment Route System: CSAH
 Segment Route No: 34
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 12,550
 Minor ADT: 3,650
 Total Entering ADT: 16,200



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	75	1	8	1
Density (per int per yr):	15.0	0.2	1.6	0.2
Rate (per MVM):	2.5	0.0	0.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	16,200	≥ 12,000	★
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	4	≥ 4	★
Presence of Sidewalk:	None	Some or None	★
Pedstrain Crossing Type:	None	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	1	\$10,000
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: \$135,000

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Urban (Ped/Bike) Intersection on CSAH 1 at 12th St SE, 14

Roadway Information

Description: 12th St SE, 14
 County: Olmsted
 Area Type: Suburban
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 1
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 11,400
 Minor ADT: 0
 Total Entering ADT: 11,400



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	80	1	20	0
Density (per int per yr):	16.0	0.2	4.0	0.0
Rate (per MVM):	3.8	0.0	1.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	11,400	≥ 12,000	
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	6	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	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: \$30,000

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 24
 CRSP 2 ID: 1.039
 Date: 3/13/2019

Urban (Ped/Bike) Intersection on CSAH 4 at West Circle Dr NW / 22

Roadway Information

Description: West Circle Dr NW / 22
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 4
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 21,450
 Minor ADT: 5,275
 Total Entering ADT: 26,725



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	52	0	7	0
Density (per int per yr):	10.4	0.0	1.4	0.0
Rate (per MVM):	1.1	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	26,725	≥ 12,000	★
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	5	≥ 4	★
Presence of Sidewalk:	All	Some or None	
Pedstrain 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	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: \$30,000

Systemic Project

Notes - County Notes

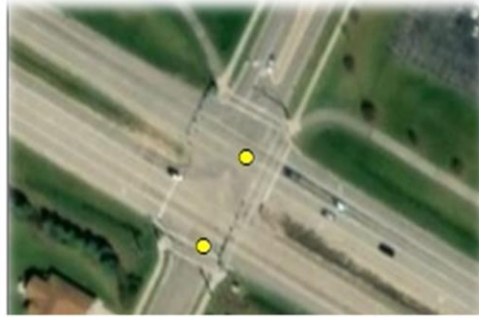
(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 26
 CRSP 2 ID: 4.012
 Date: 3/13/2019

Urban (Ped/Bike) Intersection on CSAH 22 at Rocky Creek Dr NE /Stonehedge Dr NW

Roadway Information

Description: Rocky Creek Dr NE /Stonehedge Dr NW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 9,900
 Minor ADT: 2,705
 Total Entering ADT: 12,605



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	38	1	13	1
Density (per int per yr):	7.6	0.2	2.6	0.2
Rate (per MVM):	1.7	0.0	0.6	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	12,605	≥ 12,000	
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	6	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	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: \$30,000

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 27
 CRSP 2 ID: 22.052
 Date: 3/13/2019

Urban (Ped/Bike) Intersection on CSAH 22 at 55th St NW / USTH 63

Roadway Information

Description: 55th St NW / USTH 63
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 22
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 25,500
 Minor ADT: 9,692
 Total Entering ADT: 35,192



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	30	1	6	0
Density (per int per yr):	6.0	0.2	1.2	0.0
Rate (per MVM):	0.5	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	35,192	≥ 12,000	★
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	3	≥ 4	
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Urban (Ped/Bike) Intersection on CSAH 36 at Eastwood Rd SE

Roadway Information

Description: Eastwood Rd SE
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 36
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: Present
 Flasher: None
 Major ADT: 12,400
 Minor ADT: 2,900
 Total Entering ADT: 15,300



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	34	0	18	0
Density (per int per yr):	6.8	0.0	3.6	0.0
Rate (per MVM):	1.2	0.0	0.6	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Thru-Stop	Signal	
Entering ADT(vpd):	15,300	≥ 12,000	★
Adjacent Development:	Present	Present	★
Max Number Of Lanes Crossed:	6	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain Crossing Type:	None	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	0	\$0
RRFB w/ Refuge Island:	Proactive	\$20,000	Each	1	\$20,000
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	0	\$0
Mini Roundabout:	Proactive	\$3,000,000	Each	0	\$0
Upgrade Signs & Markings:	Proactive	\$2,500	Per Intersection	1	\$2,500

Total Estimated Project Cost: \$22,500

Systemic Project

Notes -

Urban (Ped/Bike) Intersection on CR 101 at CR 101 (45th St SE)

Roadway Information

Description: CR 101 (45th St SE)
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CR
 Segment Route No: 101
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 2,300
 Minor ADT: 850
 Total Entering ADT: 3,150



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):	0.5	0.0	0.3	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Thru-Stop	Signal	
Entering ADT(vpd):	3,150	≥ 12,000	
Adjacent Development:	Present	Present	★
Max Number Of Lanes Crossed:	5	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	0	\$0
RRFB w/ Refuge Island:	Proactive	\$20,000	Each	1	\$20,000
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	0	\$0
Mini Roundabout:	Proactive	\$3,000,000	Each	0	\$0
Upgrade Signs & Markings:	Proactive	\$2,500	Per Intersection	1	\$2,500

Total Estimated Project Cost: \$22,500

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 30
 CRSP 2 ID: 101.001
 Date: 3/13/2019

Urban (Ped/Bike) Intersection on CSAH 20 at M-1468/ Maine Ave SE

Roadway Information

Description: M-1468/ Maine Ave SE
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 20
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 11,700
 Minor ADT: 1,184
 Total Entering ADT: 12,884



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	8	0	1	0
Density (per int per yr):	1.6	0.0	0.2	0.0
Rate (per MVM):	0.3	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	12,884	≥ 12,000	
Adjacent Development:	Present	Present	★
Max Number Of Lanes Crossed:	7	≥ 4	★
Presence of Sidewalk:	All	Some or None	
Pedstrain 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 - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 31
 CRSP 2 ID: 20.013
 Date: 3/13/2019

Urban (Ped/Bike) Intersection on CSAH 20 at 48th St SW

Roadway Information

Description: 48th St SW
 County: Olmsted
 Area Type: Suburban
 Context Zone: Commercial
 Segment Route System: CSAH
 Segment Route No: 20
 Design Type: Traditional
 Configuration: T
 Traffic Control Device: Thru-Stop
 Street Lights: None
 Flasher: None
 Major ADT: 6,850
 Minor ADT: 1,250
 Total Entering ADT: 8,100



Crash Data

5-year Crash History (2011 - 2015)

	Total	Severe	Total Right Angle	Severe Right Angle
Crash Frequency:	8	0	0	0
Density (per int per yr):	1.6	0.0	0.0	0.0
Rate (per MVM):	0.5	0.0	0.0	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Thru-Stop	Signal	
Entering ADT(vpd):	8,100	≥ 12,000	
Adjacent Development:	Present	Present	★
Max Number Of Lanes Crossed:	6	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	0	\$0
RRFB w/ Refuge Island:	Proactive	\$20,000	Each	1	\$20,000
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	0	\$0
Mini Roundabout:	Proactive	\$3,000,000	Each	0	\$0
Upgrade Signs & Markings:	Proactive	\$2,500	Per Intersection	1	\$2,500
Total Estimated Project Cost:					<u>\$22,500</u>

Systemic Project

Notes -

Urban (Ped/Bike) Intersection on CSAH 36 at 20th St SE

Roadway Information

Description: 20th St SE
 County: Olmsted
 Area Type: Suburban
 Context Zone: Residential
 Segment Route System: CSAH
 Segment Route No: 36
 Design Type: Traditional
 Configuration: X
 Traffic Control Device: Signal
 Street Lights: Present
 Flasher: None
 Major ADT: 6,600
 Minor ADT: 3,400
 Total Entering ADT: 10,000



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):	0.2	0.0	0.1	0.0

Systemic Safety Risk Factors

	Value	Threshold	Star Assignment
Traffic Control Device:	Signal	Signal	★
Entering ADT(vpd):	10,000	≥ 12,000	
Adjacent Development:	None	Present	
Max Number Of Lanes Crossed:	5	≥ 4	★
Presence of Sidewalk:	Some	Some or None	★
Pedstrain 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	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: \$30,000

Systemic Project

Notes - County Notes

(-- Shared with Another Jurisdiction, Need Coordination to Complete a Project)

Project Page #: 33
 CRSP 2 ID: 36.019
 Date: 3/13/2019