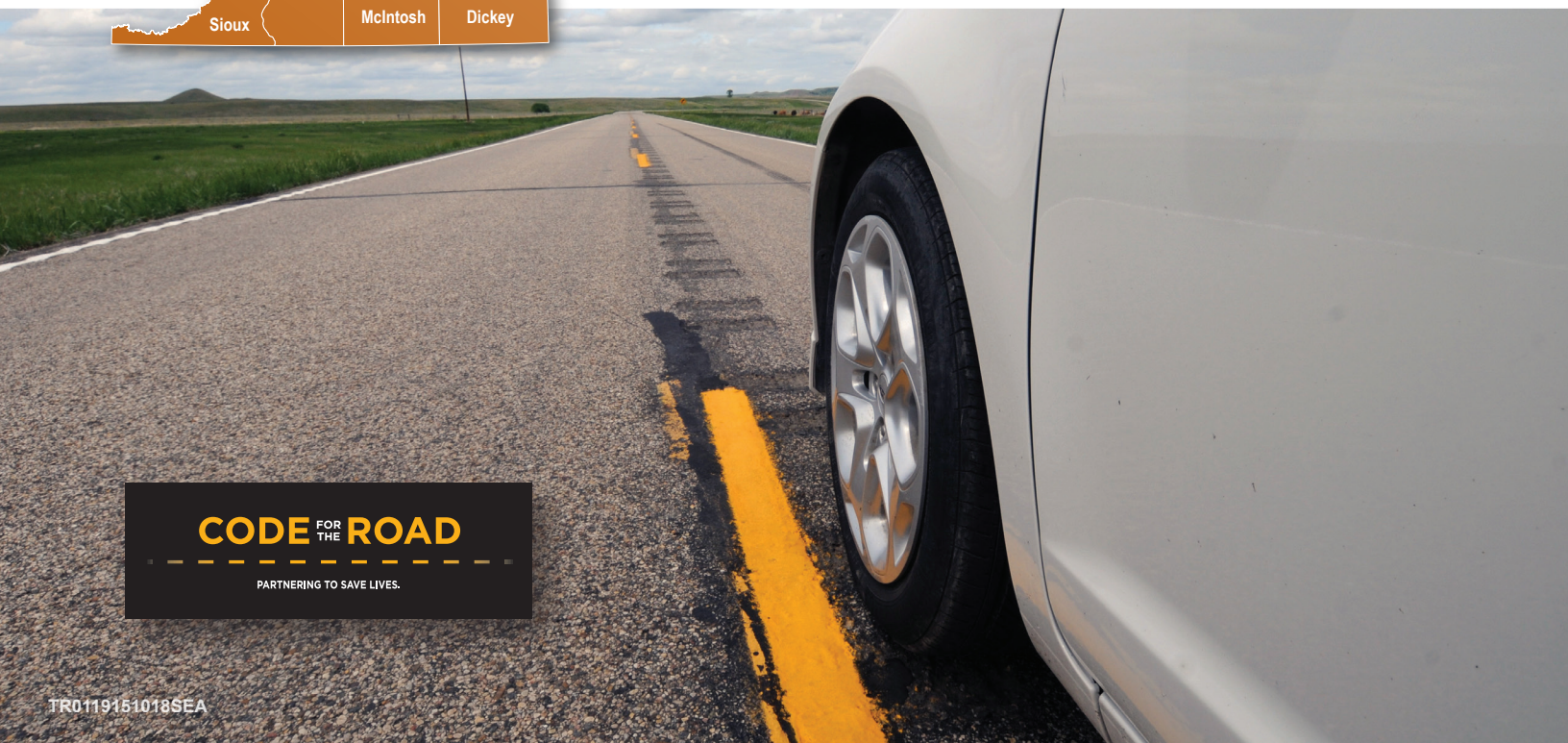
NDDOT
North Dakota
Department of Transportation

INFRASTRUCTURE & DRIVER BEHAVIOR

March 2015

North Dakota
Local Road Safety Program



CODE FOR THE ROAD
PARTNERING TO SAVE LIVES.

TR0119151018SEA

North Dakota
Local Road Safety Program

Prepared by

CH2M HILL

SRF Consulting Group, Inc.

On behalf of

North Dakota Department of Transportation

Grant Levi, P.E., Director

March 2015

TBG040414214530MSP

Contents

Acronyms and Abbreviations

4Es	education, enforcement, engineering, and emergency medical services
100MVMT	100 million vehicle miles traveled
AASHTO	American Association of State Highway and Transportation Officials
ADT	average daily traffic
CMC	county major collector
CMF	crash modification factor
CRS	Crash Reporting System (North Dakota Department of Transportation)
DUI	driving under the influence
EMS	emergency medical services
ERA	edge risk assessment
FHWA	Federal Highway Administration
GDL	graduated driver's license
GHSA	Governors Highway Safety Association
HSIP	Highway Safety Improvement Program
LEAD	Listen, Educate, Ask, Discuss
LRSP	Local Road Safety Program
MUTCD	*Manual on Uniform Traffic Control Devices*
NCHRP	National Cooperative Highway Research Program
NDDOT	North Dakota Department of Transportation
NHTSA	National Highway Traffic Safety Administration
Plan	LRSP Safety Plan
PSA	public service announcement
SHSP	Strategic Highway Safety Plan
TSO	Traffic Safety Office

Executive Summary

This Local Road Safety Program (LRSP) Plan (Plan) was prepared for the 18 counties (Benson, Bottineau, Dickey, Emmons, Kidder, LaMoure, Logan, McHenry, McIntosh, Morton, Oliver, Pierce, Rolette, Sheridan, Sioux, Stutsman, Towner, and Wells) and two cities (Jamestown and Mandan) in the central region. The LRSP was prepared as part of North Dakota's statewide highway safety planning process. The contents are the result of a data-driven process, with a goal to reduce severe crashes (defined as those crashes resulting in at least one fatality or incapacitating injury) by documenting at-risk locations, identifying effective low-cost safety improvement strategies, and better positioning the central region to compete for available safety funds. The LRSP includes a description of the connection to safety planning efforts at the national, state (through North Dakota's *Strategic Highway Safety Plan* and the Highway Safety Improvement Program), and regional levels.

This LRSP was commissioned by the North Dakota Department of Transportation (NDDOT) to provide a tool to assist counties and cities in submitting proactive low-cost systemic safety projects for the NDDOT to fund as part of the Highway Safety Improvement Program (HSIP). The LRSP is not intended to be a complete safety plan for the central region, because there may be other safety improvement strategies that are considered high-cost or low-cost that are also effective, but cannot be systemically applied across a county or local road system. While this LRSP addresses many of the safety concerns at high-risk locations within the region, other equally important projects may be identified after this safety planning effort is complete.

Specifically, this LRSP includes the following:

- Description of the safety emphasis areas.
- Identification of a short list of high-priority, low-cost safety strategies.
- Documentation of at-risk locations along the county/local road systems that are considered candidates for safety investment. At-risk locations include roadway segments, horizontal curves, and intersections with multiple severe crashes or with roadway geometry and traffic characteristics similar to other locations in North Dakota where severe crashes have occurred.
- Development of approximately $14.8 million of suggested safety projects across the central region (Table ES-1), including the filled out forms suitable for submittal to the NDDOT for their consideration for HSIP funding. These projects represent the application of high-priority safety strategies at the at-risk locations.
- Discussion of behavioral crash statistics, potential safety strategies, and current statewide resources available for implementation of behavioral safety strategies.

TABLE ES-1
Central Region Total Safety Project Costs

Rural Projects	Roadway Segments	Intersections	Curves	Total
Benson County	$195,384	$4,660,200	$80,405	$4,935,989
Bottineau County	$306,533	$316,320	$310,137	$932,990
Dickey County	$57,777	$52,440	$176,561	$286,778
Emmons County	$38,025	$80,400	$20,160	$138,585
Kidder County	$109,824	$24,240	$52,048	$186,112
LaMoure County	$299,597	$168,360	$156,039	$623,996
Logan County	$1,320	$18,120	$6,042	$25,482
McHenry County	$345,116	$1,421,760	$24,151	$1,791,027
McIntosh County	$150,584	$28,320	$189,540	$368,444
Morton County	$245,788	$140,040	$722,194	$1,108,022
Oliver County	$49,140	$102,960	$96,738	$248,838
Pierce County	$39,249	$95,640	$0	$134,889
Rolette County	$175,968	$431,640	$50,883	$658,491
Sheridan County	$7,920	$21,600	$53,680	$83,200
Sioux County	$0	$12,240	$164,040	$176,280
Stutsman County	$499,230	$479,400	$251,155	$1,229,785
Towner County	$0	$40,800	$0	$40,800
Wells County	$58,740	$202,320	$26,514	$287,574
Urban Projects	**Roadway Segments**	**Intersections – Right-Angle**	**Intersections – Pedestrians and Bicyclists**	**Total**
Jamestown	$371,211	$2,400	$257,400	$631,011
Mandan	$714,912	$6,000	$161,400	$882,312

The information in this Plan is consistent with best practices in safety planning as presented in guidance prepared by the Federal Highway Administration (FHWA), the American Association of State Highway and Transportation Officials (AASHTO), and the National Cooperative Highway Research Program (NCHRP). This information is provided to the highway agencies in the central region in an effort to reduce the number of severe crashes on the county/local road systems. It is understood that the final decision to implement any of the suggested projects resides with the respective county or city officials.

It should also be noted that the rankings of county/local roadway facilities are based on a comparison with documented risk factors. There is no expectation or requirement that the central region highway agencies pursue safety projects in the exact ranking order. The ranking

suggests a general priority, and it is understood that actual project development decisions will be made by county or city staff based on consideration of economic, social, and political issues, as well as in coordination with other projects already in each agency's Capital Improvement Program.

It should also be noted that some of the at-risk locations and suggested safety projects involve the intersection of a county roadway and a state route. It is acknowledged that the county does not have the authority to implement projects on the state's right-of-way. The county is encouraged to coordinate with the NDDOT to pursue a partnership that identifies a path toward implementation. This LRSP (1) does **not** set requirements or mandates; (2) is **not** a standard; and (3) is neither intended to be nor does it establish a legal standard of care.

To help reduce the potential exposure to claims of negligence associated with motor vehicle crashes on the county/local road system, the following key point should be considered:

- Federal law (23 USC 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, and 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 (see Appendix). North Dakota interprets Section 409 to mean that basic crash data are available to the public on request, but that the data cannot be used in legal proceedings associated with claims of negligence.

Regarding the expected life of this LRSP, the shelf life of this document is limited (as with any transportation plan). This is because the distribution of crashes can change over time, just as roadway and traffic conditions change, contributing to the occurrence of crashes. This LRSP contains $14.8 million of potential safety projects, which could provide the central region with a sufficient backlog of projects for up to five years. As a result, the counties and cities are encouraged to periodically update this LRSP.

The counties and cities are encouraged to apply for these projects through the NDDOT's HSIP process. The anticipated annual HSIP process is shown in Table ES-2.

TABLE ES-2
HSIP Solicitation Schedule

Month	Task Description
October/November	Solicitation for HSIP is sent out to all counties, districts, MPOs, cities, and tribes. The counties, districts, MPOs, cities, and tribes will have about **6 weeks to respond**.
January through March	NDDOT reviews the requests and conducts additional studies if required.
Following Fall	HSIP approval notices are sent after program concurrence from the FHWA. Funding for an approved project will be provided as funding is available.

1.0 Introduction

1.1 Background

To fulfill a commitment in the 2013 North Dakota Strategic Highway Safety Plan (SHSP), the North Dakota Department of Transportation (NDDOT) began the Local Road Safety Program (LRSP). The purpose of the LRSP is to better engage local roadway agencies in the statewide safety planning process. The NDDOT's commitment is based on two pieces of information:

- Based on 2007-to-2011 crash records, the SHSP identified that 56 percent of severe crashes (those crashes resulting in at least one fatality or incapacitating injury) in North Dakota occurred on roads operated by local agencies. (Note: More recent crash data from 2009 to 2013 indicates that 44 percent of severe crashes were on local agency roads.)
- The NDDOT had historically focused federal safety funds on interstates, U.S. highways, and state highways, even though slightly more than half of severe crashes occurred on those facilities.

The NDDOT set out to increase the level of participation of local agencies in safety planning and the amount of safety funds directed toward projects on local systems. To do this, the NDDOT first partnered with local agencies (including all 53 counties and 12 major cities in the state) to prepare safety plans for every region of North Dakota.

> *The Strategic Highway Safety Plan (SHSP) development process was key in helping us identify the importance of local roads to achieve our long-term safety goals. This data-driven process helped us to transition to a systemic identification of crash types on all roads in addition to our traditional crash location (or hot spot) approach on the state system. As a result, the NDDOT has partnered with local stakeholders to prepare road safety plans that will identify potential safety projects consistent with the SHSP.*
>
> — Grant Levi, P.E., Director
> North Dakota Department of Transportation

Representatives from the NDDOT, Benson, Bottineau, Dickey, Emmons, Kidder, LaMoure, Logan, McHenry, McIntosh, Morton, Oliver, Pierce, Rolette, Sheridan, Sioux, Stutsman, Towner, and Wells counties; and the cities of Jamestown and Mandan participated in developing this LRSP Safety Plan (Plan) as Phase 4 of a comprehensive effort to reduce the number of fatal and incapacitating injury crashes (referred collectively as severe crashes) that occur on North Dakota's local road system in the central region. The area covered by the Plan includes portions of NDDOT District 1 – Bismarck, District 2 – Valley City, District 3 – Devils Lake, District 4 – Minot, District 5 – Dickinson, District 6 – Grand Forks, and District 8 – Fargo (Figure 1-1).

The purpose of this Plan is to identify and implement specific safety strategies at specific locations and to link these projects directly with the contributing factors associated with the majority of severe crashes on the local roads. These safety projects are intended to be comprehensive by addressing both infrastructure- and driver-behavior-related crashes by including proactive projects developed through a system-wide risk assessment process. These projects are intended to compliment reactive projects developed through a site analysis approach focused on high-crash locations.

The traffic safety priorities identified in this Plan are the result of a data-driven analysis of nearly 90,980 crashes (including 2,472 severe crashes) on all roads in North Dakota. Of these crashes, 14,233 total crashes and 455 severe crashes occurred in the central region over the 5-year period from 2009 to 2013.

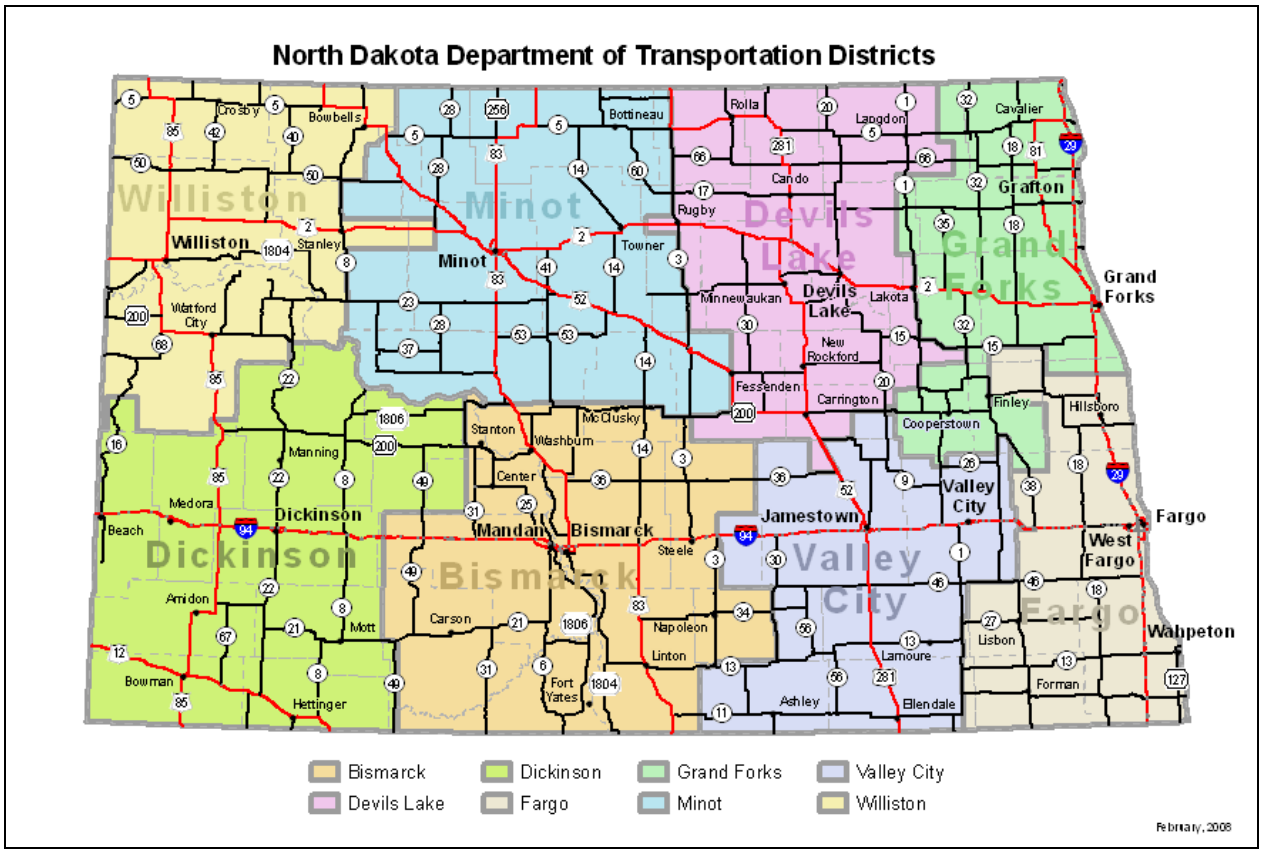


FIGURE 1-1
North Dakota Department of Transportation's Eight Districts

1.2 Traffic Safety – A National Perspective

According to the National Highway Traffic Safety Administration (NHTSA), 33,561 people were killed in traffic crashes in 2012—an average of 92 people killed every day—and an additional 2.4 million people were injured. The number of fatalities nationally decreased significantly and steadily in the 1970s and 1980s. Beginning in the early 1990s and continuing through the early 2000s, traffic fatalities began to increase. However, since 2005, traffic fatalities have decreased dramatically to the lowest number of fatalities in recent history—32,479 fatalities in 2011 and 33,561 in 2012

Like the national trend, the North Dakota traffic fatality rate also decreased in the 1970s and 1980s. Likewise, North Dakota's traffic fatalities slowly increased through the 1990s and early 2000s, and began to decrease again in 2005. However, unlike the national trend, North Dakota's traffic fatality rate has increased since 2008. The 2013 North Dakota Strategic Highway Safety Plan recognizes the following issues likely account for much of the increase:

- Shifts in the age of the driving population.

- Steady increase in the number of vehicle miles traveled in North Dakota, which is counter to the flat or decreasing national trend in travel.
- Other states have a longer history using a systemic investment approach to focus on locations with risk factors for severe crashes.
- The growing challenges of providing emergency medical response and quick access to advanced health care in rural areas.

1.2.1 AASHTO's *Strategic Highway Safety Plan* and Safety Emphasis Areas

In the late 1990s, the American Association of State Highway and Transportation Officials (AASHTO) and the Federal Highway Administration (FHWA) supported a comprehensive and data-driven approach to reduce the number of traffic-related fatalities. Both AASHTO and the FHWA concluded that up to that point, states' efforts had not been effective in lowering the number of severe crashes because: (1) efforts were not focused on severe crashes nor the primary factors resulting in severe crashes; and (2) safety project selection was not part of a data-driven process that implemented effective strategies at locations most at risk for a severe crash.

AASHTO and the FHWA recommended a safety program development process that included 22 categories (or safety emphasis areas) in the areas of drivers, special users, vehicles, highways, emergency services, and management. The objective of this first step is to help agencies consider the 4Es of safety—education, enforcement, engineering, and emergency medical services (EMS)—when identifying safety priorities for their roads. In addition, selecting safety emphasis areas focuses agency efforts on safety strategies linked to the issue.

In 2007, AASHTO set a goal to reduce the number of traffic fatalities nationally by 1,000 each year for the next 20 years, which is an integral first step in a national *Toward Zero Deaths* safety vision. FHWA has determined that this goal will be reached only by partnering with individual states. This partnering will lead to more successful project implementation and will result in programs that target the factors contributing to the greatest number of fatal and severe injury crashes.

1.3 North Dakota's Statewide Safety Planning Efforts

Through 2004, North Dakota had a fatality rate (1.34 fatalities per 100 million vehicle miles traveled [100MVMT] in 2004) that was less than the national average (1.44 fatalities per 100MVMT). However, in recent years, the North Dakota fatality rate (1.47 fatalities per 100MVMT in 2013) has risen above the national average (1.11 fatalities per 100MVMT) and the overall number of traffic fatalities has generally crept upward (see Figure 1-2). Although the highest fatality rate occurred in 2009, the most traffic fatalities reported in the state since 1982 occurred in 2012 when there were 170 fatalities on North Dakota roads. In 2013, the number of North Dakota traffic fatalities decreased to 148, matching 2011; differences in the vehicle miles of travel result in different fatality rates for these two years.

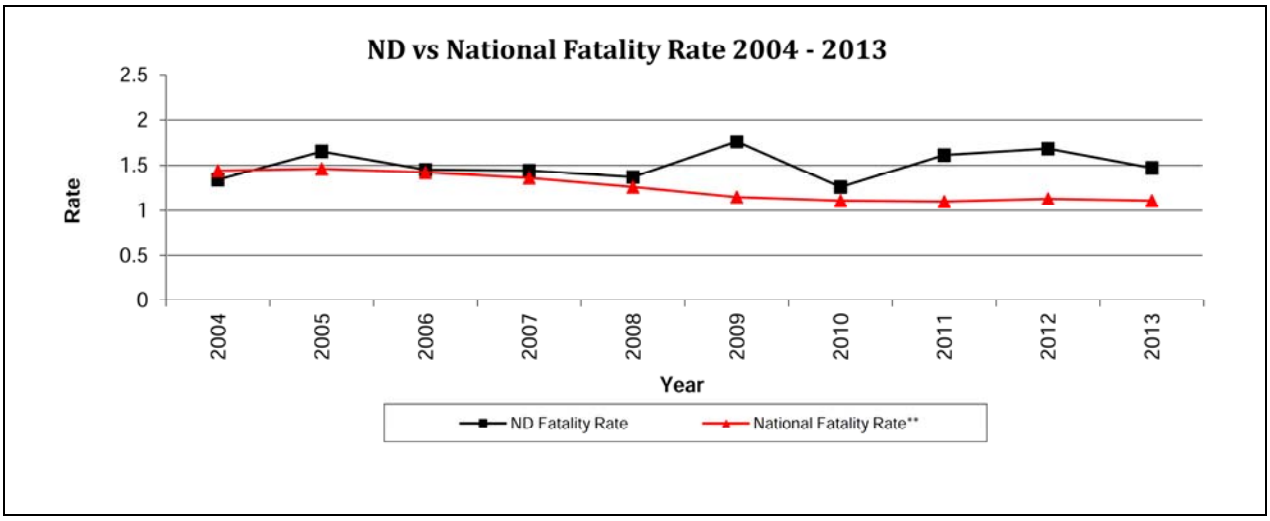


FIGURE 1-2
Fatality Rate – National and North Dakota (2004 to 2013)

In 2013, the NDDOT updated the state's SHSP. Based on severe crashes (Table 1-1), the 2013 SHSP identified the following safety emphasis areas, as well as priority safety strategies in each area:

- Young drivers (under age 21)
- Speeding or aggressive driving
- Alcohol-related
- Unbelted vehicle occupants
- Lane departure
- Intersections

North Dakota also adopted a long-term vision of zero fatalities on its roadways. Achieving this vision will require many years and dramatic shifts in the safety culture for North Dakota residents. An aggressive intermediate goal was set to reduce the 3-year traffic fatality average to 100 or fewer by 2020.

TABLE 1-1
North Dakota Fatal and Severe Injury Crashes by AASHTO Safety Emphasis Area

Safety Emphasis Area		Statewide Crashes (All Roads)	
		Percent	Number
Drivers	**Involving Driver under Age 21**	**24%**	**602**
	Involving drivers over the age of 64	14%	334
	Speeding or Aggressive Driving	**29%**	**729**
	Alcohol-Related	**34%**	**837**
	Distracted, asleep, or fatigued drivers	9%	234
	Unbelted Vehicle Occupants	**55%**	**1,355**
Special Users	Pedestrians crashes	6%	136
	Bicycle crashes	2%	58
Vehicles	Motorcycles crashes	13%	324
	Heavy vehicle crashes	19%	461
Highways	Train-vehicle collisions	1%	19
	Lane-Departure **Including both lane-departure (1,094 severe crashes) and head-on/ sideswipe-opposing crashes (204 severe crashes)**	**53%**	**1,298**
	Intersections	**32%**	**783**
	Work zone crashes	2%	46
Total Severe (Fatal and Incapacitating Injury) Crashes		**2,472**	

Notes:
Information is from the 2009-to-2013 North Dakota crash data records, which is an update to the information in the 2013 North Dakota SHSP that used 2007-to-2011 crash records.
Numbers in this table do not add up to the statewide crash numbers because one crash may be categorized into multiple emphasis areas. For example, one crash may involve a young driver at an intersection and, therefore, be included in both of these emphasis areas.

1.4 Local Road Safety Program Overview

North Dakota's local road system encompasses more than 97,500 miles of roadway out of approximately 106,000 miles statewide. Although, historically, more than 50 percent of severe crashes in North Dakota occurred on local roads, the density of these crashes was very low (approximately 0.002 severe crash per mile per year). As a result, local agencies were unable to identify high-crash locations to nominate for funding through the Highway Safety Improvement Program (HSIP). Therefore, using stand-in data for the severe crashes, safety projects were identified using a systemic process to evaluate at-risk locations. The use of the systemic process was necessary due to the low crash density. Based on revised FHWA policy, the NDDOT expanded the HSIP to include projects identified through the systemic analysis of local roads.

The focus areas of the systemic risk assessment are rural, paved county[1] highways, and urban arterials and collectors in North Dakota's larger cities (cities with a population greater than 5,000). Paved, rural county highways were selected based on an analysis of statewide crash data that indicated that approximately 59 percent of severe local road crashes occurred on rural county roads. Of these crashes, approximately 40 percent occurred on paved roads, which account for less than 10 percent of county roads (approximately 6,200 miles). Further analysis indicated that on these rural highways, the most at-risk elements were roadway segments (76 percent of severe crashes), horizontal curves (31 percent of severe crashes), and intersections (20 percent of severe crashes).

Major cities were selected as a focus because approximately 90 percent of the severe local roadway crashes occurred within the city boundaries of the 12 cities in this category. Furthermore, 56 percent of the severe crashes occurred on urban arterials and collectors. In addition, because these 12 cities are responsible for operation and maintenance of U.S. highway and state highway routes within the municipal limits (not including fully access-managed facilities, such as freeways), the U.S. and state highways were included in the review.

Figure 1-3 shows the approach used to develop this Plan for the central region counties. The process began with the crash analysis and concluded with this Plan, the culmination of the NDDOT and concerned local agencies working together for nearly half a year.

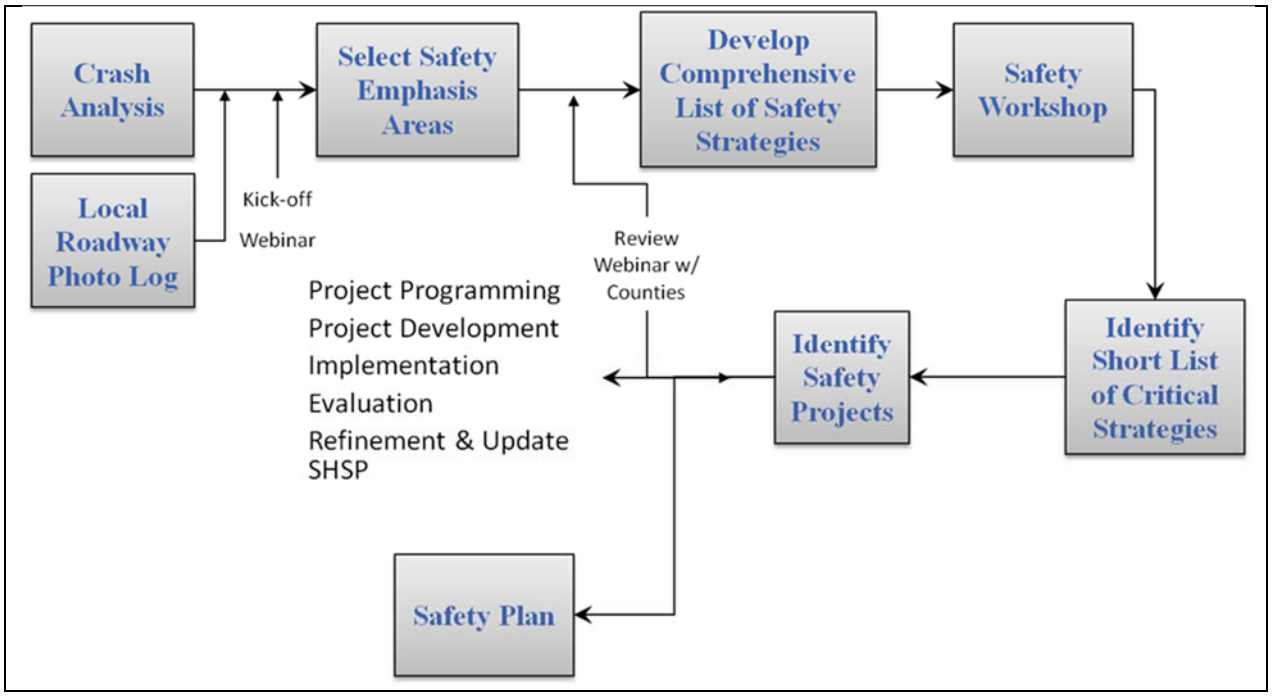


FIGURE 1-3
Local Road Safety Program Safety Plan Approach

[1] Does not include all paved roads outside municipal limits, but focuses on routes that serve regional travel. For example, a loop road that is paved and yet only provides access to a residential neighborhood was considered to be a local road given the type of traffic served by the facility.

2.0 Central Region Safety Emphasis Areas and Crash Overview

The first step in the process to prepare the Plan for the central region was to conduct a crash analysis overview statewide for North Dakota and then for the central region as a whole.

2.1 Central Region Crash Overview

2.1.1 North Dakota Crash Mapping

Crash data was taken from NDDOT Crash Reporting System (CRS) and placed into ArcGIS for data exportation based on specific locations relative to local roads. The most recent five-year period of crash data (from 2009 to 2013) was analyzed and used to determine risk factors specific to the local roads in the central region, which includes Benson, Bottineau, Dickey, Emmons, Kidder, LaMoure, Logan, McHenry, McIntosh, Morton, Oliver, Pierce, Rolette, Sheridan, Sioux, Stutsman, Towner, and Wells counties; and the cities of Jamestown and Mandan. Consistent with the NDDOT's SHSP, the analysis focused on severe (fatal and incapacitating injury) crashes.

2.1.2 Facilities Analyzed

The crash analysis was broken into three main facility types: roadway segments, curves, and intersections:

- Rural local paved and gravel (CMC) roadway segments were analyzed. Other local gravel roads were removed from the analysis because of the relatively low percentage of severe crashes and the lack of infrastructure-based strategies that can be applied to this roadway type.
- Local rural road intersections with state highways or other local roads were included in the analysis. Local non-CMC gravel roads intersecting with other local roads were removed from the analysis due to the very low number of crashes at these intersections.
- Horizontal curves on paved rural local roads were included in the analysis.
- Urban roadway segments and intersections were analyzed in the cities of Jamestown and Mandan. Urban roadway types analyzed within the city limits included:
  - State routes
  - Urban principal arterials
  - Urban minor arterials
  - Urban collector roads
- All other local roadway segments and intersections, including gravel roads, were reviewed for locations with multiple severe crashes or "hot spots."

2.1.3 Crash Data Sets

Crash data for the five years from 2009 to 2013 was used for the central region crash analysis. In safety analysis, it is recommended that more than one year of data be studied to reduce the possibility of examining an unusual year. It is also important to include as many years as necessary to produce a data set that will provide statistically reliable results but not include too many years so that changed conditions are a concern (for example, reconstructed roads, addition of STOP signs, and changed speed limits). For the central region, there were not enough crashes to be statistically reliable; therefore, the analysis also considered crashes for all Phase 1, 2, 3, and 4 cities and counties combined, statewide data, or national research.

The central region data set includes 5,544 crashes on local roads; of these, 153 were fatal or incapacitating injury crashes. Disaggregating the severe crashes by road type (paved, gravel, or local), area (urban versus rural), and crash type category (intersection versus roadway segment crashes) resulted in the distributions shown in Table 2-1, Figure 2-1, and Figure 2-2.

TABLE 2-1
Severe Crash Distribution (2009 to 2013) for the Rural County/Local Road System

Location	Central Region (Percent/Number) Figure 2-1	Statewide (Percent/Number) Figure 2-2
Rural Roads	80% (122 crashes)	59% (589 crashes)
Paved Rural Roads	*40% (49 crashes)*	*40% (236 crashes)*
CMC Gravel Roads	*14% (17 crashes)*	*12% (70 crashes)*
Paved Rural Road Segments	87% (40 crashes)	76% (173 crashes)
Single Vehicle, Lane departure Crashes on Paved Rural Road Segments	*90% (36 crashes)*	*83% (143 crashes)*
Paved Rural Road Intersections	13% (6 crashes)	20% (46 crashes)
Paved Rural Road Thru-STOP Intersections	*50% (3 crashes)*	*50% (23 crashes)*

This review shows that, on the local system, severe lane departure crashes on paved roads and angle crashes at Thru-STOP intersections were overrepresented. Based on statewide traffic safety data, severe lane departure crashes along curves are also overrepresented.

Note: Crash tree data may vary from data analysis due to overlap of crashes on road systems and data refinement throughout the process.

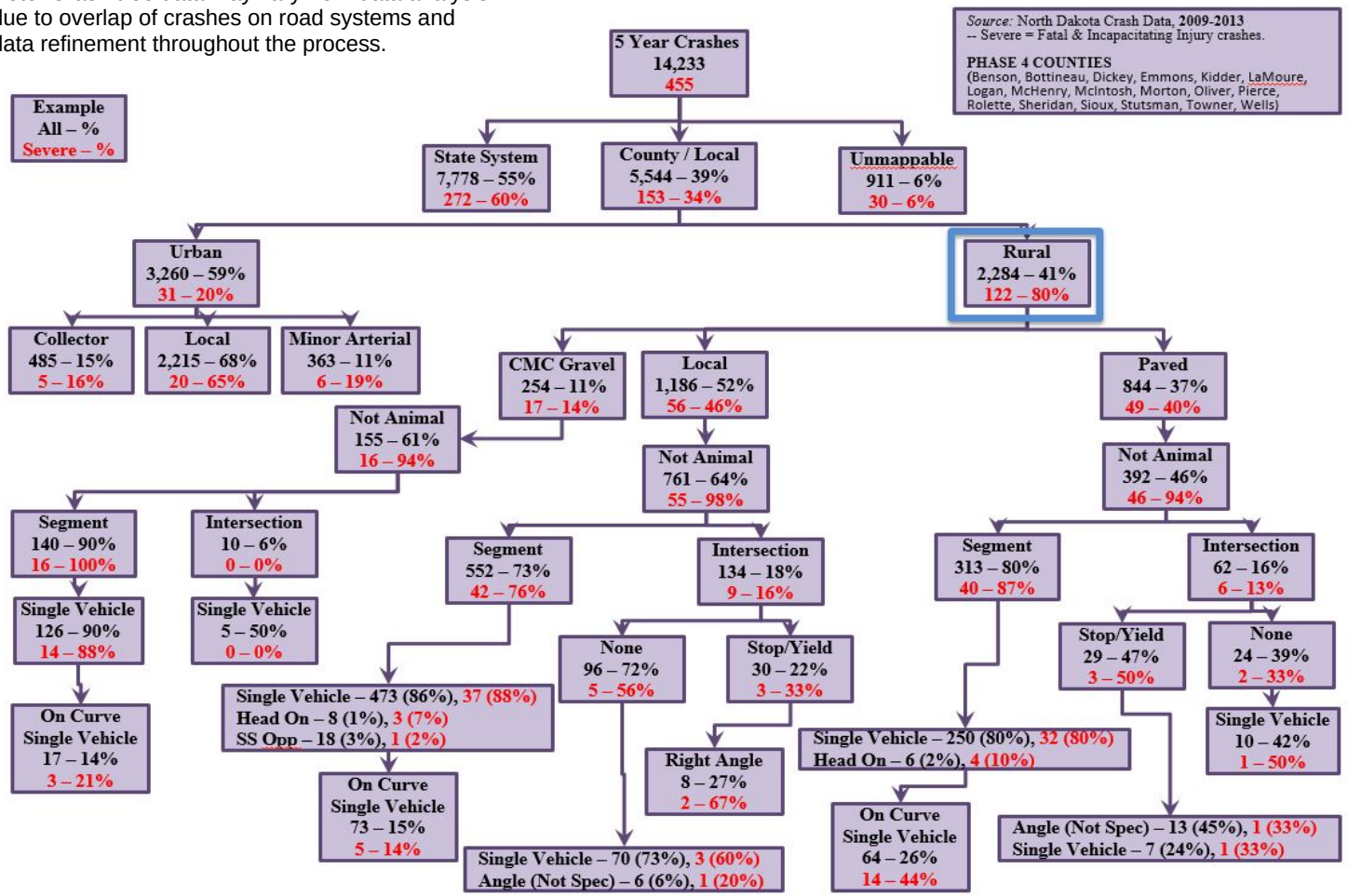


FIGURE 2-1
Phase 4 Central Region Crash Data Overview – Rural and Urban Local Road Systems (2009 to 2013)

Note: Crash tree data may vary from data analysis due to overlap of crashes on road systems and data refinement throughout the process.

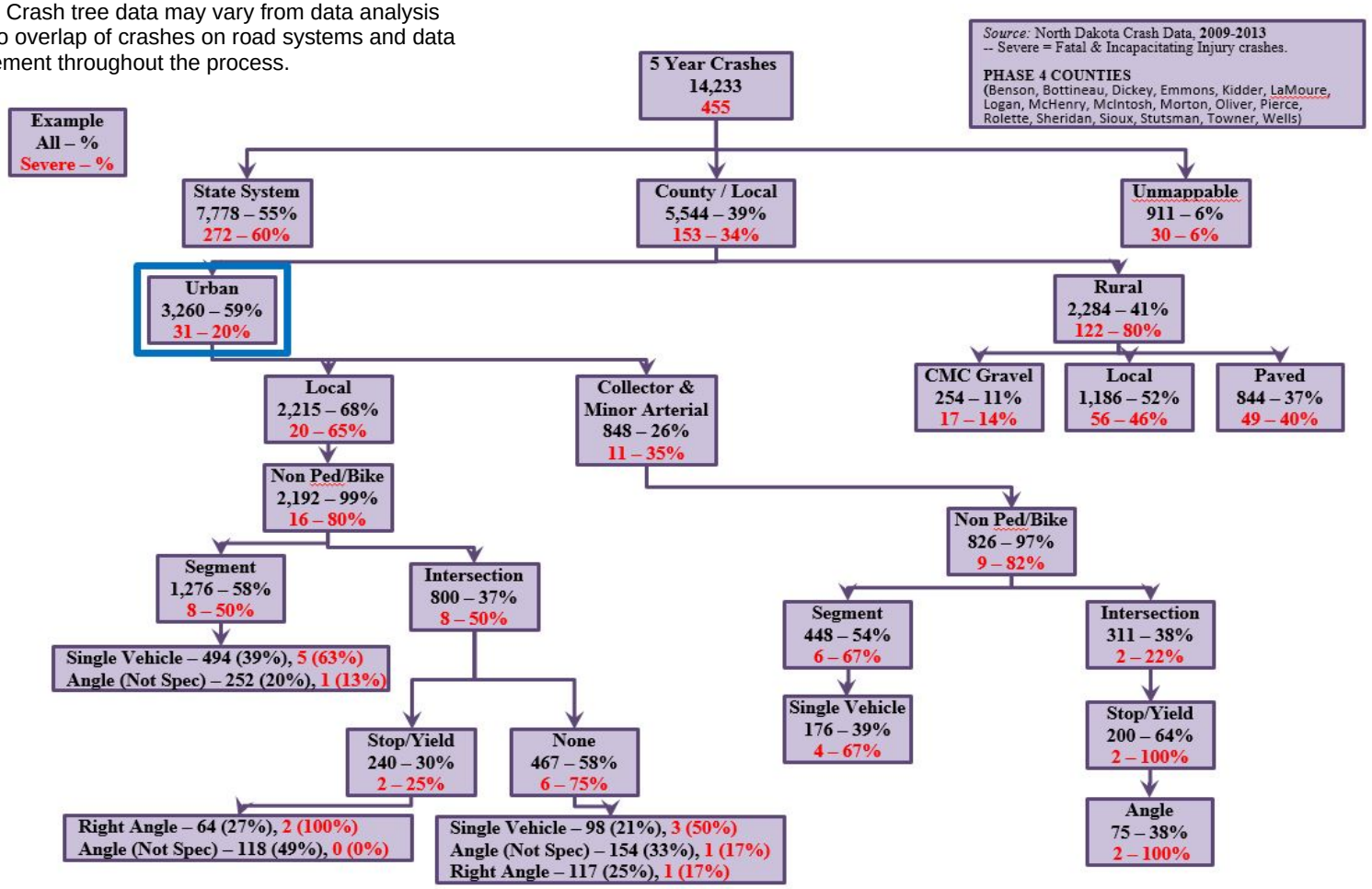


FIGURE 2-1 (Continued)
Phase 4 Jamestown and Mandan Crash Data Overview – Rural and Urban Local Road Systems (2009 to 2013)

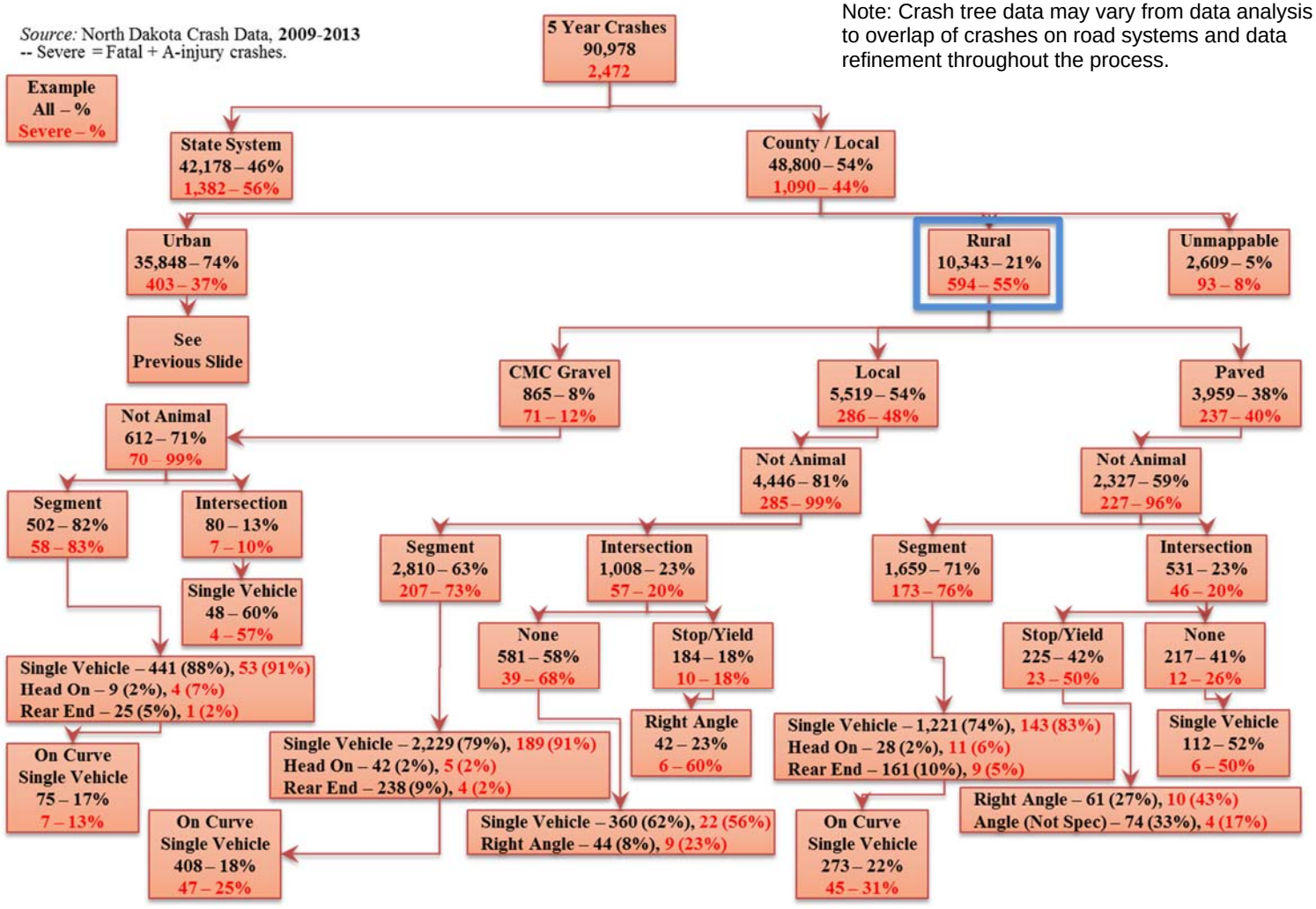


FIGURE 2-2
North Dakota Crash Data Overview – Rural and Urban Local Road Systems (2009 to 2013)

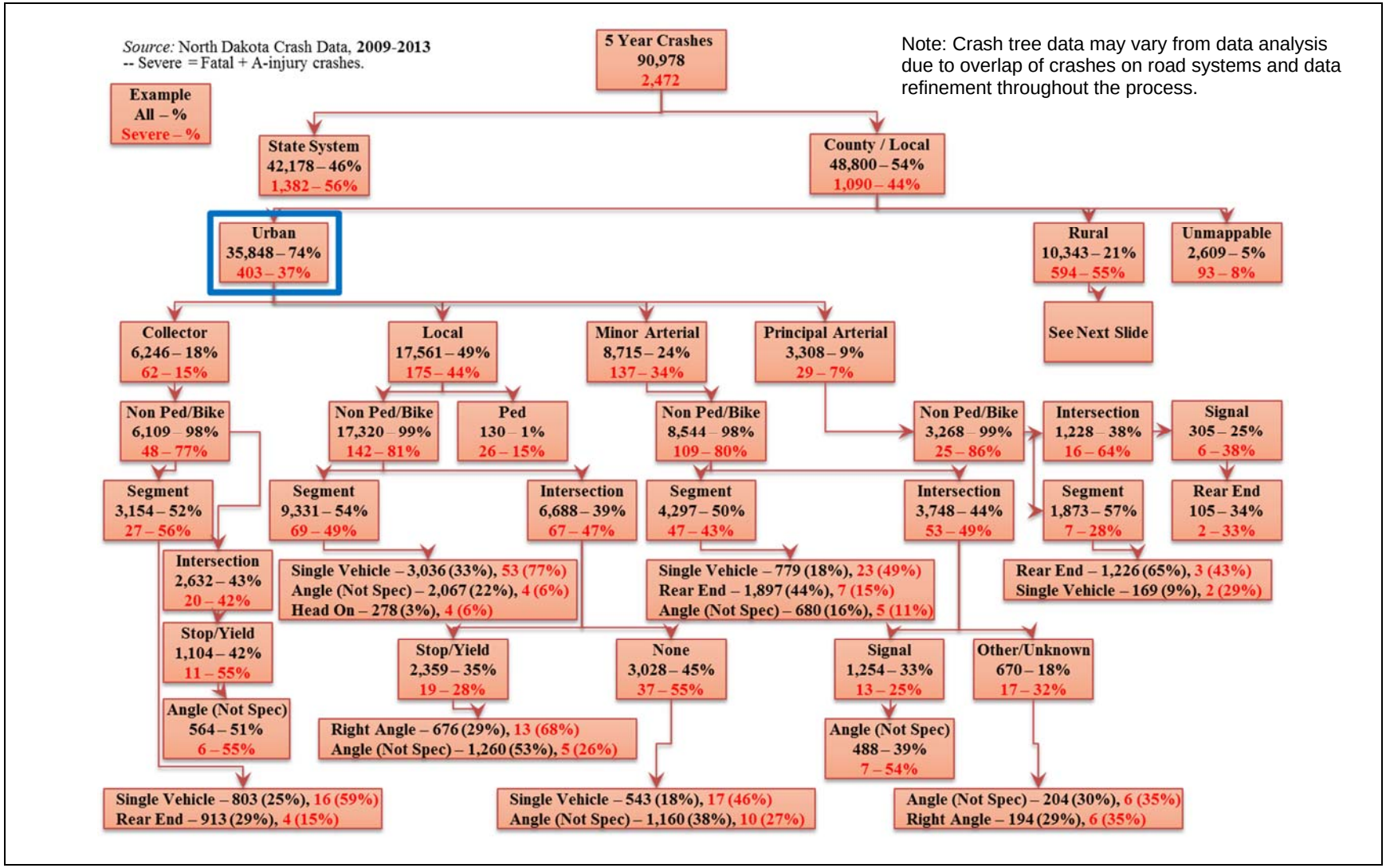


FIGURE 2-2 (Continued)
North Dakota Crash Data Overview – Rural and Urban Local Road Systems (2009 to 2013)

2.2 Central Region Safety Emphasis Areas

The total number of severe crashes (those crashes resulting in a fatality or incapacitating injury) in each county over the 5-year period from 2009 to 2013 was so few that the crash data was analyzed at regional, statewide, and national levels for various risk factors.

Section 1.2 described the development of AASHTO's emphasis areas, and how this process was applied to the State of North Dakota to identify statewide safety emphasis areas (Table 1-1). An identical process was followed for the central region, resulting in the distribution of severe crashes among AASHTO's 22 emphasis areas (Table 2-2). The safety emphasis areas for the central region are consistent with the state's emphasis areas. This process revealed where crashes were overrepresented based on a comparison to statewide averages or where a large enough number of crashes represented an opportunity to substantially reduce crashes. As a result, the following safety emphasis areas were identified as priorities for safety investments:

- Driver Behavior – Young drivers, aggressive drivers, alcohol-related, and unbelted vehicle occupants
- Highways – Lane departure and intersection crashes

TABLE 2-2
Central Region Severe Crashes by Safety Emphasis Areas (2009 to 2013)

Safety Emphasis Areas	Statewide (% of Total)	2009 to 2013 Severe Crashes					
		Central Region		State Roads		Local System	
		%	#	%	#	%	#
Total Severe Crashes	**2,472**	**455**		**281**		**174**	
Involving Drivers Under Age 21	24%	24%	111	19%	54	33%	57
Involving Drivers Over Age 64	14%	18%	81	24%	67	8%	14
Excessive Speed or Aggressive Driving	29%	30%	137	19%	54	48%	83
Alcohol-Related	34%	42%	189	35%	97	53%	92
Distracted, Asleep, or Fatigued Drivers	9%	11%	50	14%	39	6%	11
Unbelted Vehicle Occupants	55%	62%	280	53%	150	75%	130
Pedestrian Crashes	6%	5%	23	3%	9	8%	14
Bicycle Crashes	2%	2%	8	2%	5	2%	3
Motorcycle Crashes	13%	15%	67	14%	38	17%	29
Heavy Vehicle Crashes	19%	11%	49	16%	46	2%	3
Train-Vehicle Collisions	1%	1%	3	<1%	1	1%	2
Lane Departure (Run-Off-the-Road and Head-On) Crashes	53%	67%	305	59%	167	79%	138
Head-On	***8%***	***9%***	***43***	***11%***	***31***	***7%***	***12***
Run-off-the-Road Crashes	***44%***	***58%***	***262***	***48%***	***136***	***72%***	***126***
Intersection Crashes	32%	22%	100	22%	62	22%	38

TABLE 2-2
Central Region Severe Crashes by Safety Emphasis Areas (2009 to 2013)

Safety Emphasis Areas	Statewide (% of Total)	2009 to 2013 Severe Crashes					
		Central Region		State Roads		Local System	
		%	#	%	#	%	#
Work Zone Crashes	2%	2%	8	2%	6	1%	2
Deer Collisions	1%	<1%	13	2%	6	4%	7
Adverse (Winter) Weather Related	19%	16%	74	19%	53	12%	21

Note:
Severe crashes are those crashes that result in at least one fatality or incapacitating injury.

Strategies to reduce crashes depend on whether a safety emphasis area is infrastructure-based or driver behavior-based. Infrastructure-based emphasis areas refer to characteristics of the location (for example, a roadway segment, curve, or intersection) where crashes occurred. Driver behavior-based emphasis areas refer to motorist characteristics or actions that contribute to crashes. Because driver behavior is tied to laws made at the national and state levels, roadway agencies generally have less ability to address driver-behavior-based emphasis areas. The most effective approach for road authorities to address driver behavior-based emphasis areas is to focus on public education and law enforcement through cooperation and collaboration with other county departments, agencies, and schools. Generally, more opportunities exist for county and city road authorities to address infrastructure-based emphasis areas, because many of the associated strategies can be implemented as separate roadway improvement projects, or along with other planned improvements. Specific infrastructure- and driver behavior-based strategies presented to the participants of the safety workshop held for the central region are provided in Section 3.2.

2.3 Crash Risk Factors

The objective of the analytical process is to identify candidates for safety investment based on two criteria: high-crash locations and at-risk locations. A more detailed crash analysis was performed for each priority crash type to identify (1) locations where these priority crash types occur at a rate of one or more severe crashes per year, and (2) basic roadway and traffic characteristics of locations with severe crashes. These characteristics are not considered to be the cause of crashes, but instead are used to determine the risk that a future severe crash may occur at a particular location. Information from historic crashes was used to evaluate the remainder of the region's local road system and prioritize locations for safety investment based on similar characteristics.

Urban counties are designated as those containing a city with a population greater than 5,000, while rural counties are those without cities exceeding this population. Jamestown and Mandan are the subjects of the urban portion of this Plan for Phase 4 urban areas.

2.3.1 Rural Roadway Segments – Crashes on Paved Roads

Of the more than 97,500 miles of local road system in North Dakota, only 7 percent of the roads are paved. However, 40 percent of crashes occured on paved roads. Therefore, the focus of the LRSP is on rural paved roadway segments.

There are 1,228 miles of rural paved county roads in the central region. From 2009 to 2013, 43 severe crashes were reported on these roads. The predominant crash type on these roads was single-vehicle (Figure 2-3). The following five risk factors were identified for rural lane departure crashes on paved roads in the central region counties:

1. **Average Daily Traffic (ADT) –** Of the rural paved roads, 25 percent of the segment miles have an ADT greater than 450 vehicles per day. However, 57 percent of the severe lane departure crashes occurred above this ADT (Figure 2-4). Therefore, any segment with an ADT greater than 450 vehicles per day received a star.
2. **Access Density –** Nationally, research has shown that an access density of eight or more access points per mile (including field entrances, commercial entrances, roadway access, etc.) increase the likelihood of a severe crash occurring. North Dakota's review of severe crashes on their rural county roads (shown in Figure 2-5) demonstrates a similar relationship. Therefore, any roadway segment with an access density greater than or equal to eight access points per mile received a star.
3. **Lane Departure Crash Density –** The average lane departure crash density for the central region was 0.054 crash per mile. Due to limited number of crashes in each county, any roadway segment where the lane departure crash density was greater than the average for the central region received a star.
4. **Critical Radius Curve Density –** Nationally, lane departure crashes frequently occur within curves. Curves with radii between 500 and 1,200 feet (that is, critical radius curves) have a higher severe crash rate than other curves and roadway segments with more curves in this range are considered to have greater risk. The risk factor is determined by the number of critical radius curves divided by the length of the segment. The average critical curve radius density for these types of curves along roadway segments was 0.13 curve per mile for the central region. Any segment with a critical radius curve density greater than or equal to the region average received a star.
5. **Edge Risk Assessment (ERA) –** A rating system was developed to categorize the risk level of vehicles leaving the travel lane. Roads with a usable shoulder and reasonable clear zone received a rating of 1. Roads with little or no usable shoulder but with a reasonable clear zone received a rating of 2, as did roads with a usable shoulder but with fixed objects in the clear zone. Roads with no usable shoulder and fixed objects in the clear zone received a rating of 3. Examples of these edge risks are shown in Figure 2-6. Roads with a rating of 2 or 3 received a star.

Detailed segment analyses and results for the counties are provided in Chapter 4. A prioritization process for each roadway segment was put into place using the five risk factors by giving stars to each risk factor present. The highest priority roadway segments received the most stars. In cases where roadway segments received the same number of stars, the ERA, and ADT were used to break the tie.

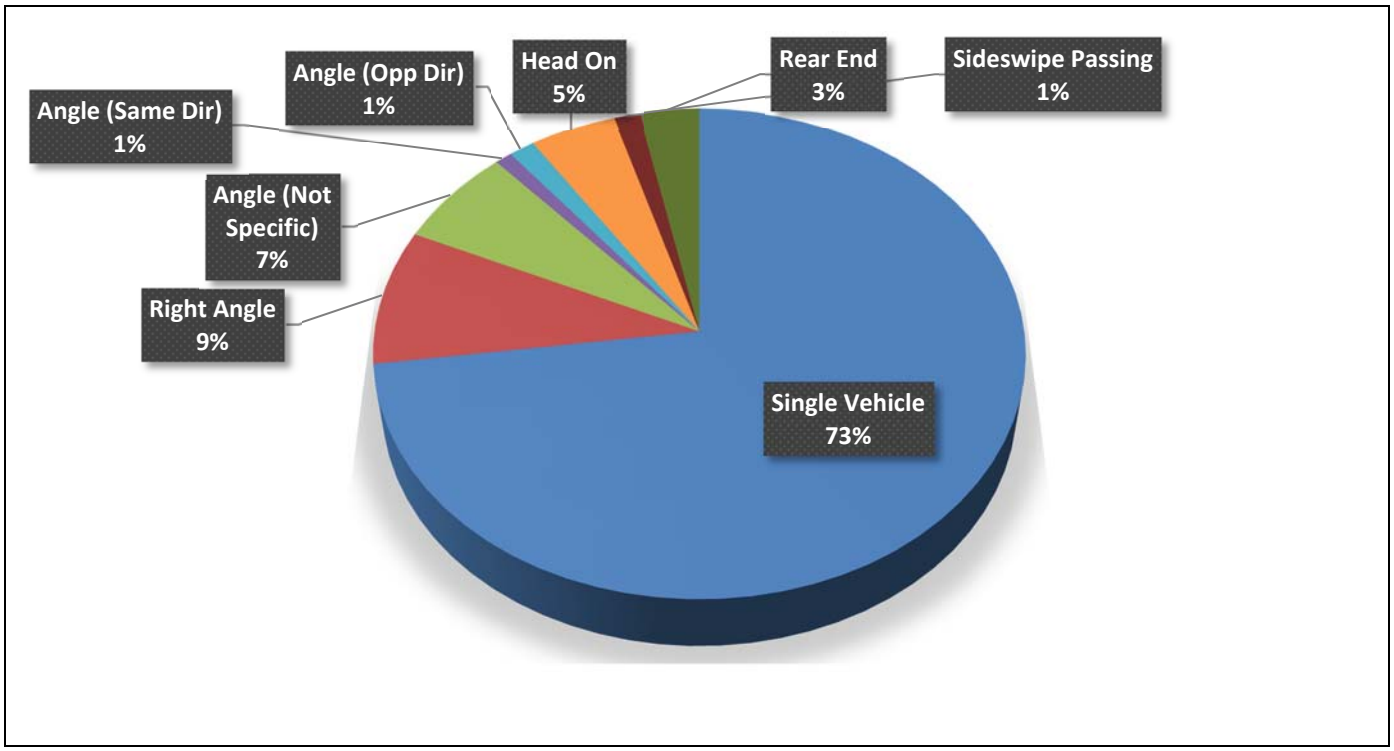


FIGURE 2-3
Severe Crash Types on Rural Paved Road Segments in the Central Region (2009 to 2013)

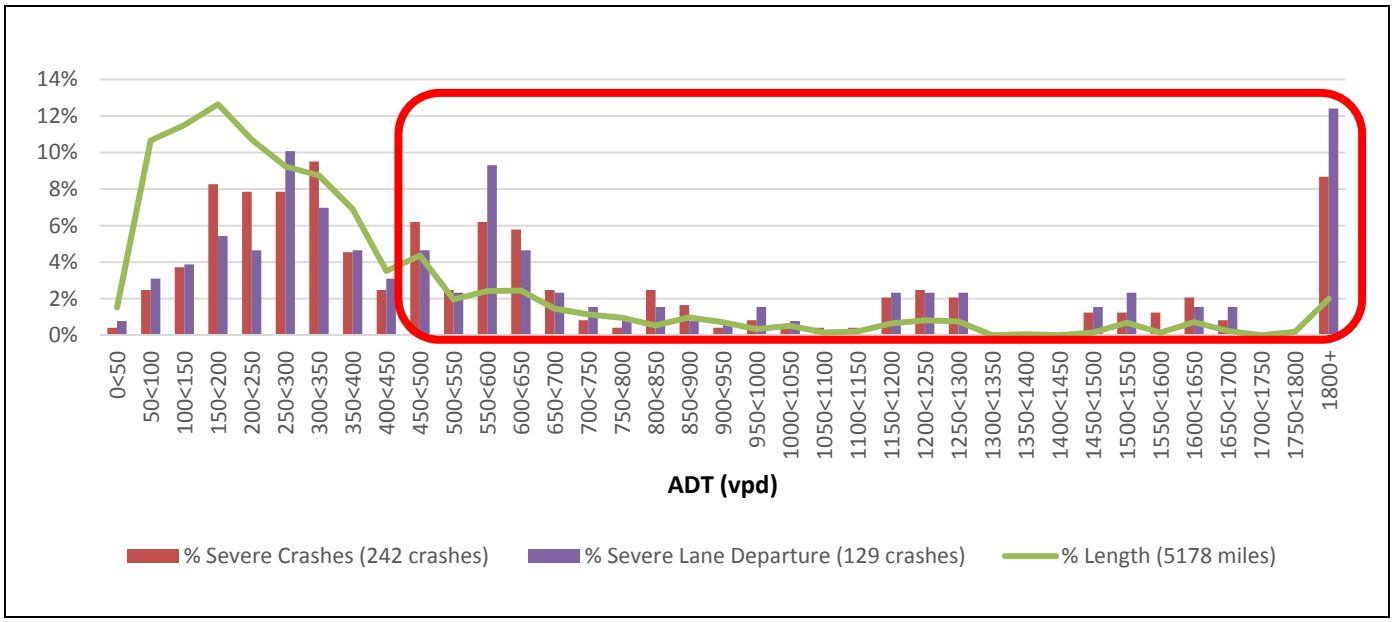


FIGURE 2-4
Rural Roadway Segment Average Daily Traffic (ADT) Crash Data for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

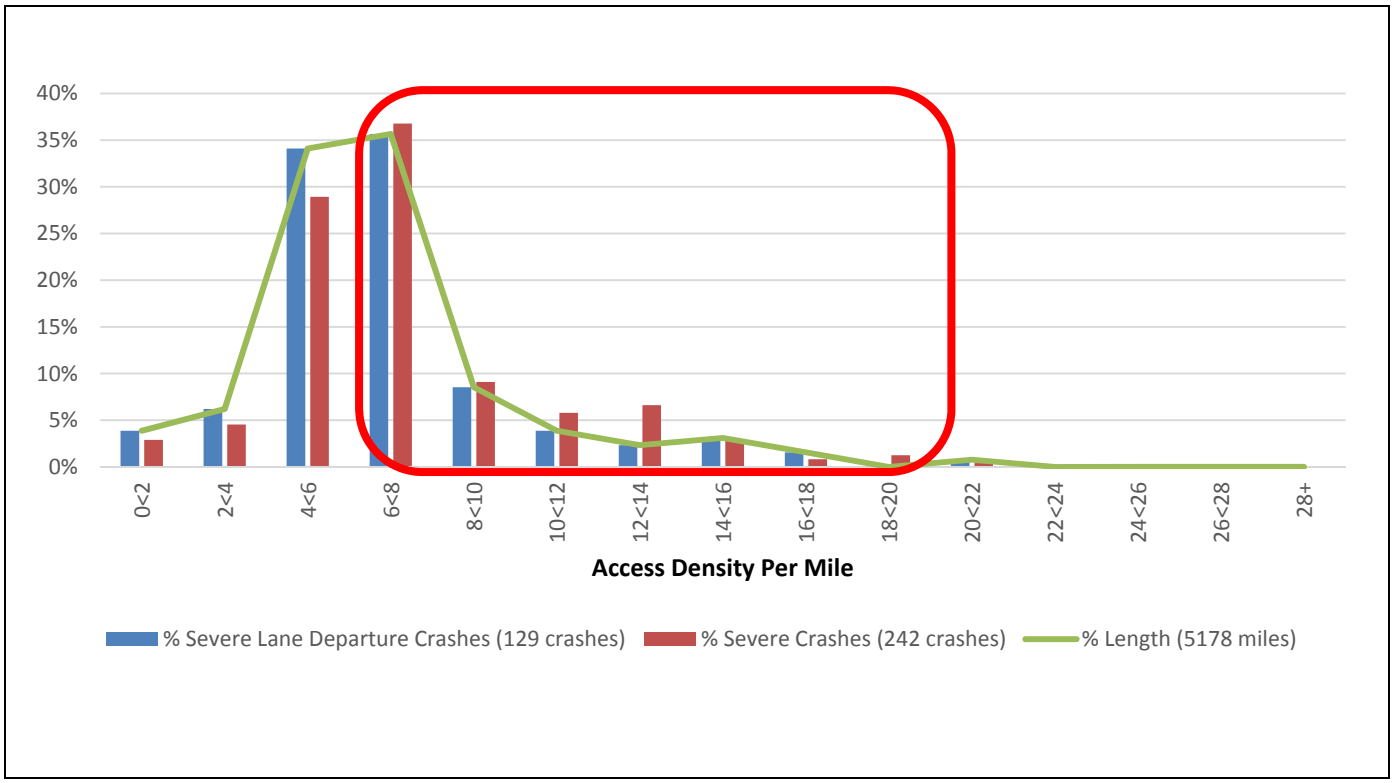
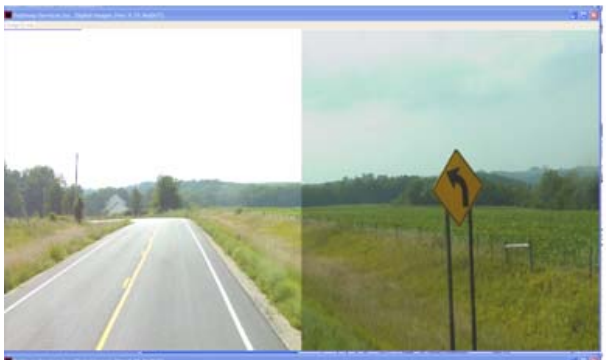
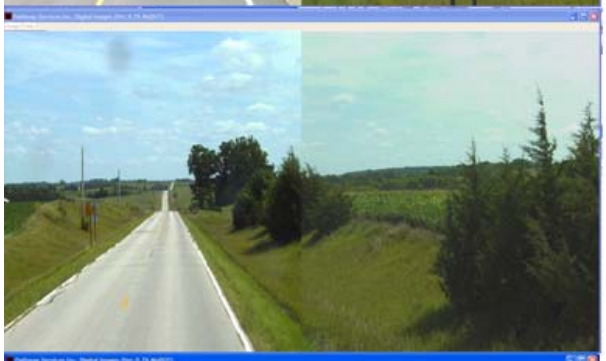


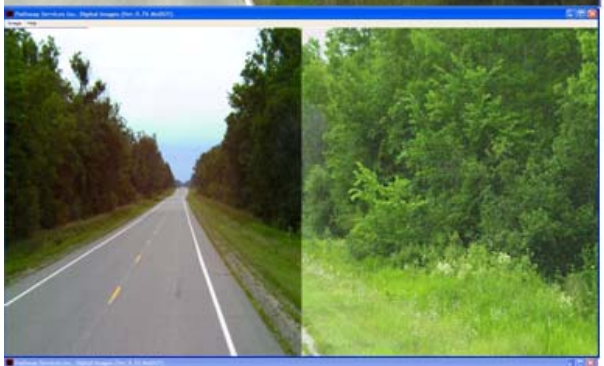
FIGURE 2-5
Severe Crashes by Access Density on Rural County Roads for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)



1 – Usable Shoulder, Reasonable Clear Zone



2 – No Usable Shoulder, Reasonable Clear Zone



2 – Usable Shoulder, Roadside with Fixed Obstacles

3 – No Usable Shoulder, Roadside with Fixed Obstacles

FIGURE 2-6
Sample Edge Risk Assessment Ratings and Descriptions

2.3.2 Rural Curves – Crashes on Paved Roads in Curves

Detailed crash analysis included horizontal curves on rural paved local roads. Research indicates horizontal curves with certain characteristics contribute to the overall frequency of lane departure crashes. The 1,228 miles of rural paved roads in the central region contain 428 curves totaling approximately 70 miles in length (6 percent of the road system mileage).

With only 18 severe crashes along curves reported from 2009 to 2013, too few crashes occurred on these curves to serve as a reliable indicator of the relative degree of risk. However, data for all counties show the importance of safety improvements on curves to reduce severe crashes since many severe lane departure crashes occur in curves. As a result, the LRSP team used characteristics of curves in the county where crashes had occurred, as well as available information from similar analysis of national and statewide data. Results from *Cost-Benefit Analysis of In-Vehicle Technologies and Infrastructure Changes to Avoid Crashes Along Curves and Shoulders* (compiled by the University of Minnesota and CH2M HILL in June 2009) were also used in curve analysis and prioritization.

Based on a review of these sources, the following five risk factors were identified for crashes along curves:

1. **Curve Radius –** The central region and all counties in Phases 1 through 4 did not have enough severe curve crashes to provide insight into North Dakota's characteristics (Figure 2-7). National data shows that curves with mid-range radii had higher crash densities. An upper limit of 1,200 feet was used for at-risk curves, because 1,200 feet is a 60-mile-per-hour design speed based on AASHTO's *A Policy on Geometric Design of Highways and Streets* (commonly referred to as the "Green Book;" 6th edition, 2011). A lower limit of 500 feet was used to represent the severe lane departure crashes that were reported in the region from 2009 to 2013. Any curve with a radius between 500 and 1,200 feet received a star.
2. **Average Daily Traffic (ADT) –** Traffic volumes over 450 vehicles per day represent a higher risk for crashes (Figure 2-8). Sixty-seven percent of severe lane departure crashes occurred along curves with this ADT and above, while only thirty-two percent of curves are represented in this range. Therefore, curves with an ADT over 450 vehicles per day received a star.
3. **Intersection within the Curve –** In the central region, the presence of an intersection within a curve increased the risk for a severe crash. Curves with at least one intersection within the curve received a star.
4. **Visual Trap –** A visual trap exists when the crest of a vertical curve is located before a horizontal curve or where a minor road, tree line, or line of utility poles continues on a tangent to the curve, thereby creating the illusion that the road continues straight ahead (Figure 2-9). The presence of a visual trap increased the risk of crashes in the central region and, therefore, received a star.
5. **Severe Crashes –** If a severe crash occurred on a curve between 2009 and 2013, the curve received a star.

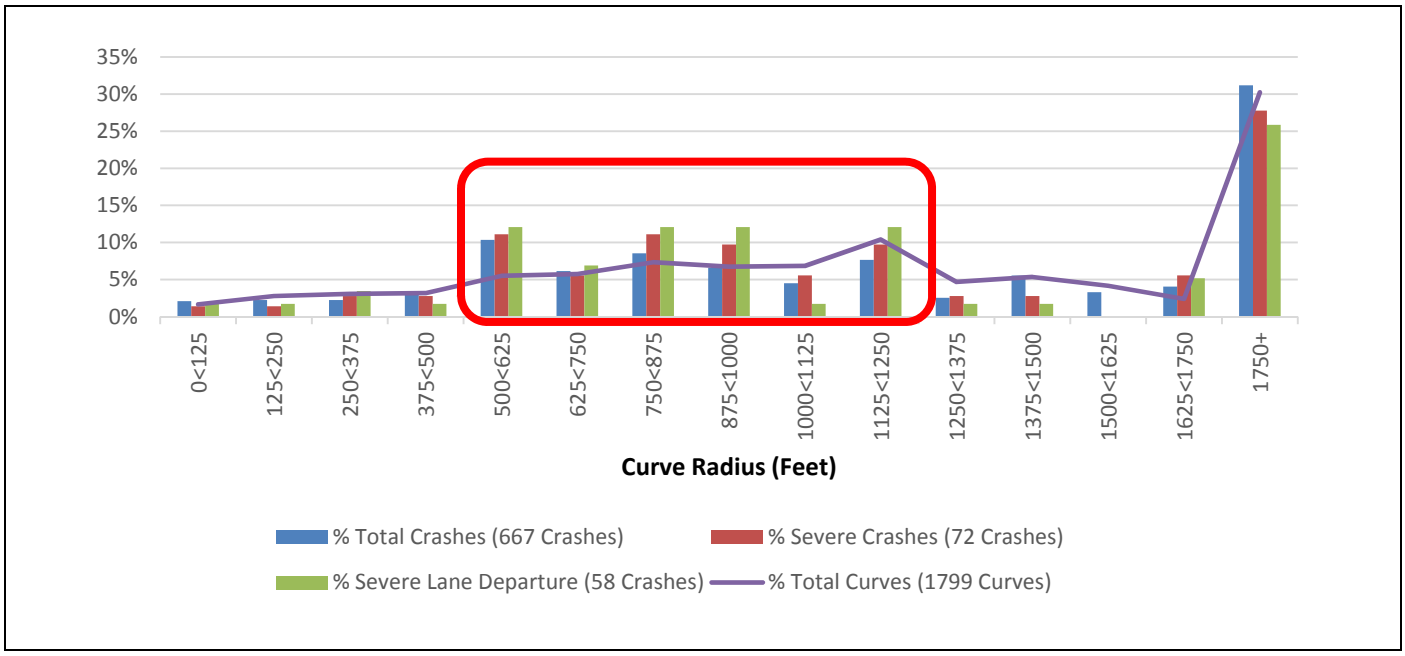


FIGURE 2-7
Rural Curve Crashes by Radii – 500 to 1,200 feet for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

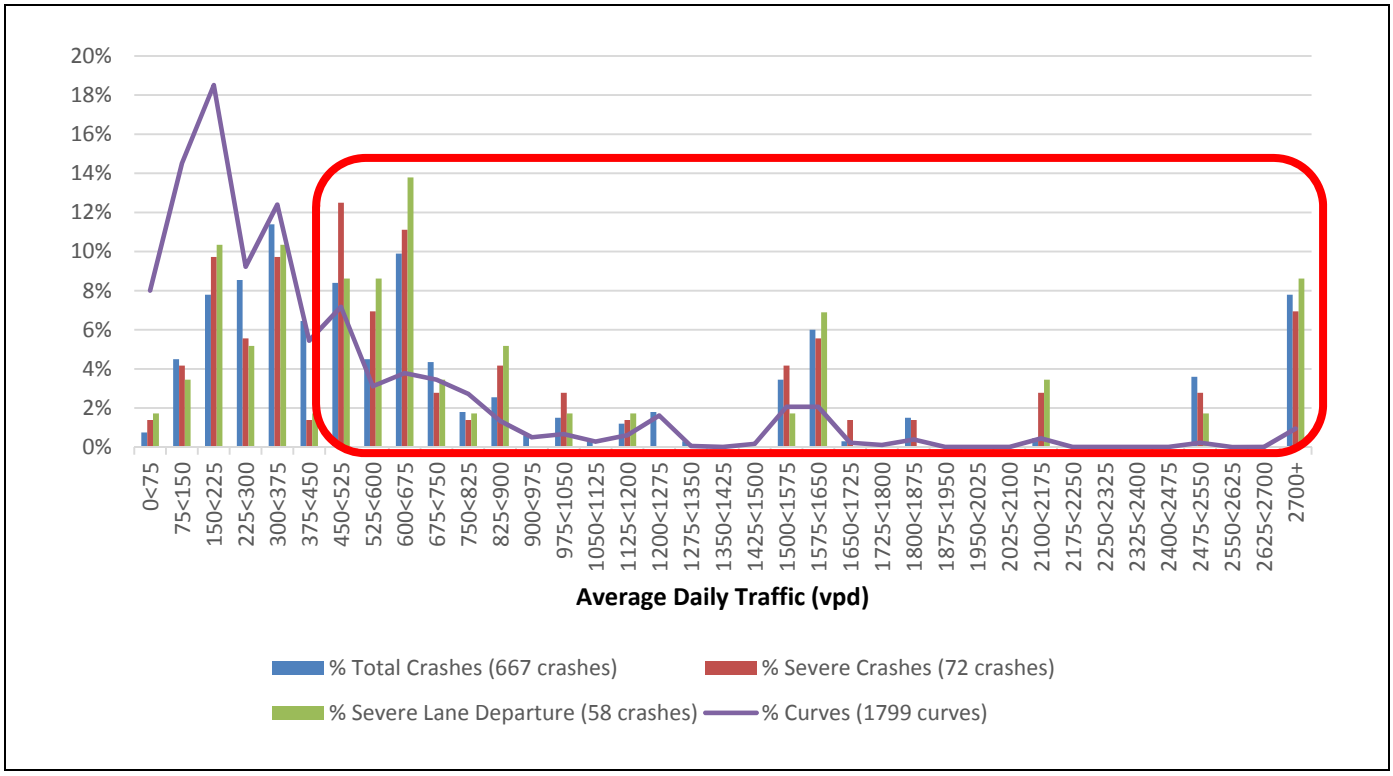


FIGURE 2-8
Rural Curve Crashes by Average Daily Traffic (ADT) – Greater than 450 Vehicles per Day for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

FIGURE 2-9
Example of a Visual Trap – Minor Road Intersects Roadway on a Curve

Based on 163 total crashes and 16 severe lane departure crashes along the curves on central region rural roads, those with intersections and visual traps have a higher crash density (are more at risk) than those without such features. These risk factors have also been observed nationally.

Detailed curve analyses and results for the counties are provided in Chapter 4. The five risk factors were used to prioritize curves in the county, with the highest-priority curves receiving the most stars. Curves were reviewed for proximity to high-priority curves and existing conditions as well.

Curves in the central region were screened for compliance with the *Manual on Uniform Traffic Control Devices* (MUTCD; 2009) requirement regarding traffic signs at horizontal curves. Under this requirement, a curve must have an advance horizontal alignment warning sign if the daily traffic is greater than 1,000 vehicles per day and if speed differential (the difference between the speed limit and the advisory speed) meets certain thresholds. A horizontal alignment sign and advisory speed plaque are recommended when the speed differential is 5 mph, and they are required if the speed differential is 10 mph or greater. Curve radius was used to estimate whether individual curves meet the speed differential requirements for advance warning signs and advisory speed plaques. The estimated advisory speeds (assuming a 55-mph speed limit, 6-percent superelevation, and friction factor that are consistent with the AASHTO Green Book) based on the curve radius are as follows:

- 900 to 1,100 feet – 50 mph
- 700 to 900 feet – 45 mph
- 500 to 700 feet – 40 mph
- 300 to 500 feet – 35 mph
- Under 300 feet – 30 mph or slower

For this analysis, no suggested advisory speed is provided for curves with a radius under 300 feet; these curves should be investigated further by the county to determine the appropriate advisory speed. Additionally, it is recommended that the county complete its own ball-bank indicator assessment of all curves to determine whether the curves on their road system meet the MUTCD requirement and to verify suggested advisory speeds.

If a curve was not selected as a project candidate through the LRSP risk assessment process (although the curve has an ADT greater than 1,000 vehicles per day and a radius under 1,100 feet), the curve was flagged for the county to determine the need for additional signs based on MUTCD guidance.

2.3.3 Rural Intersections – Crashes at Thru-STOP Intersections

At the central region's rural intersections, a severe crash is most common at Thru-STOP intersections,[1] whereall of the of severe intersection crashes occurred from 2009 to 2013 (Figure 2-10). Severe right-angle and single vehicle crashes are the most common types of crashes at these intersections (Figure 2-11).

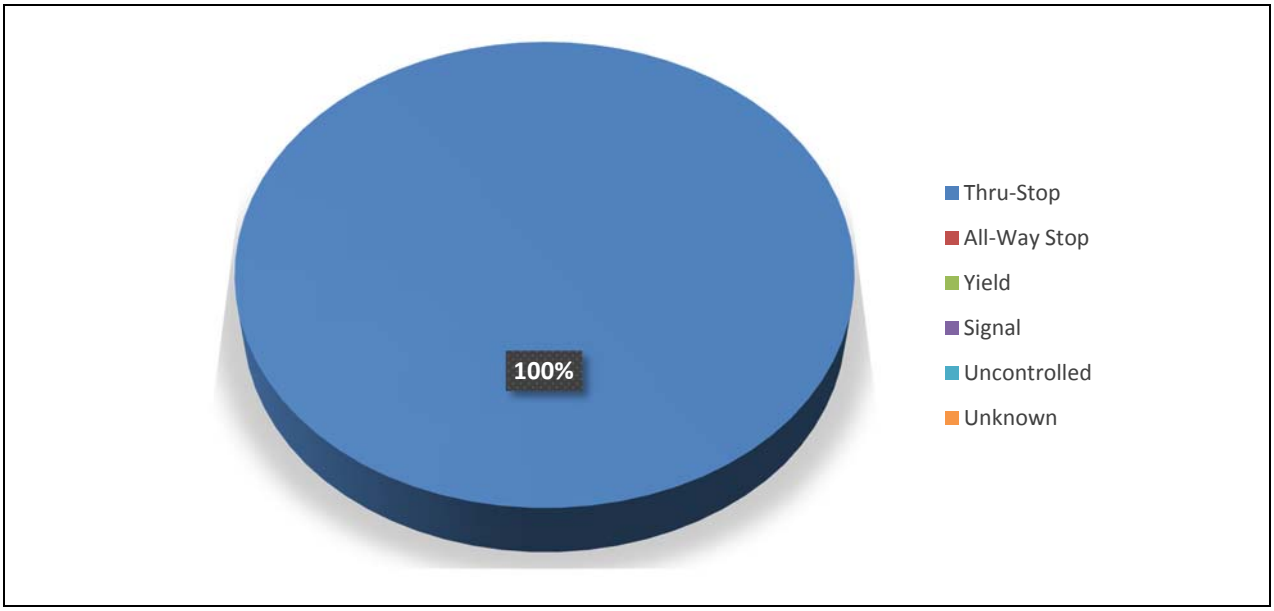


FIGURE 2-10
Phase 4 Central Region Rural Severe Crashes by Traffic Control Device (2009 to 2013)

[1] Those intersections where traffic on the more heavily used road may proceed through the intersection without stopping, while traffic on the less-used crossroad must stop at the STOP sign before proceding through the intersection.

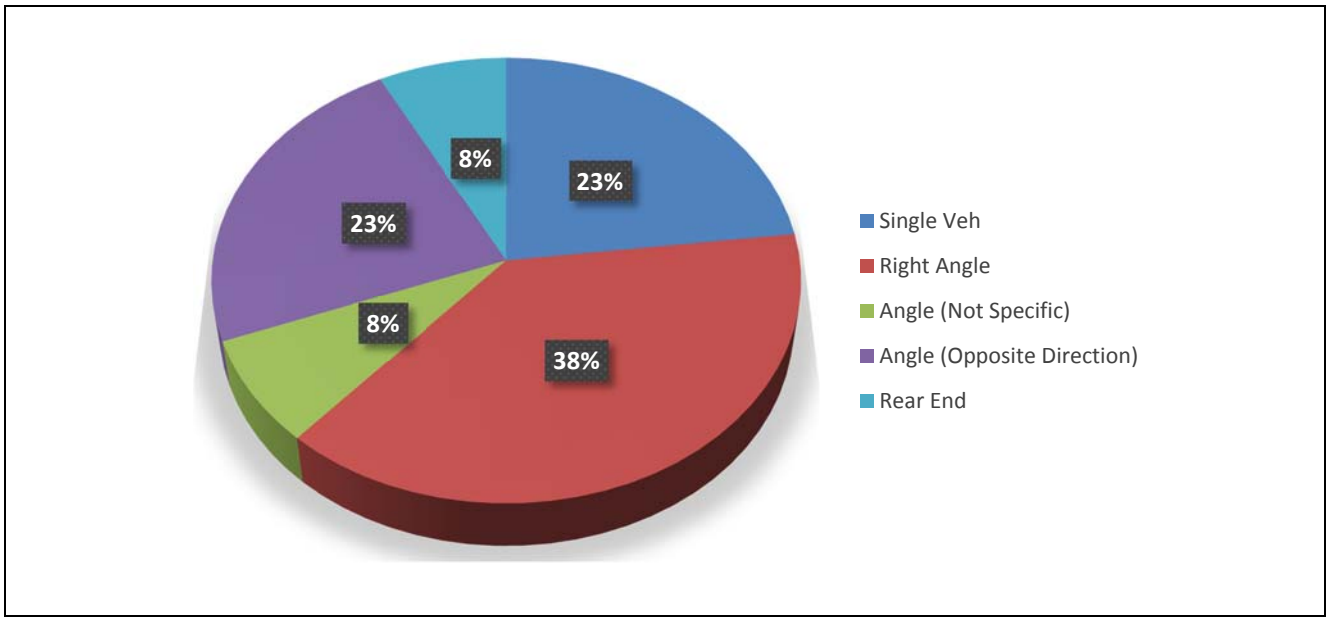


FIGURE 2-11
Phase 4 Central Region Rural Intersection Severe Crashes by Crash Type (2009 to 2013)

In the central region, 584 rural intersections with 463 Thru-STOP locations were reviewed. The average severe crash density at rural Thru-STOP locations is 0.01 severe crash per intersection per year. This low density supports assessing an intersection risk based on the characteristics of the locations where severe crashes occurred. The following seven rural Thru-STOP risk factors were identified for severe right-angle crashes:

1. **ADT Cross Product –** 63 percent of the severe right angle crashes at rural Thru-STOP intersections occurred at intersections with an ADT Cross Product[2] of major and minor entering vehicles greater than 80,000 (Figure 2-12). An intersection was considered to have a higher risk of severe right angle crashes if the ADT Cross Product was greater than 80,000. These intersections received a star.
2. **Skew –** As the intersection skew (the angle at which one road intersects another) increases, the crash risk also increases (Figure 2-13). At a 20-degree skew, the crash risk compared to that of a 90-degree intersection is increased by approximately 10 percent. While the region's severe right-angle crash data set was too small to determine if skew plays a role in crashes, it has been proven nationally that the greater the skew, the greater the likelihood for a crash (Figure 2-13). Intersections with a skew greater received a star.
3. **Within or Near a Curve –** Research has shown that intersections located within or near a horizontal curve are subject to a higher level of risk. This risk factor was supported by the analysis (Figure 2-14). In this analysis, intersections located within or near a horizontal curve received a star.
4. **Development Present –** Research has shown that intersections with commercial development in one or more quadrants have a higher level of risk, possibly due to vehicles entering or exiting the development. Private residences or farms were not included as

[2] The ADT Cross Product is the major-street entering volume multiplied by the minor-street entering volume.

development. Intersections with development present had more severe crash rates (Figure 2-14) and therefore received a star.

5. **Railroad Crossing –** Intersections on or near a railroad crossing are subject to increased risk because drivers must navigate the railroad tracks while approaching the intersection. The rural analysis supported this risk factor (Figure 2-14). An intersection with a railroad crossing on one of the approaches received a star.
6. **Previous STOP More than 1 Mile Before the Intersection –** When traveling longer distances without encountering a STOP sign, drivers lose attention, and research has shown those intersections to be at higher risk (Figure 2-14). National data were used to confirm this risk factor. Intersections at which either of the stopped approaches do not enocounter a STOP sign within 1 mile received a star.
7. **Total Crashes –** If an intersection had any type of crash from 2009 to 2013, the intersection received a star.

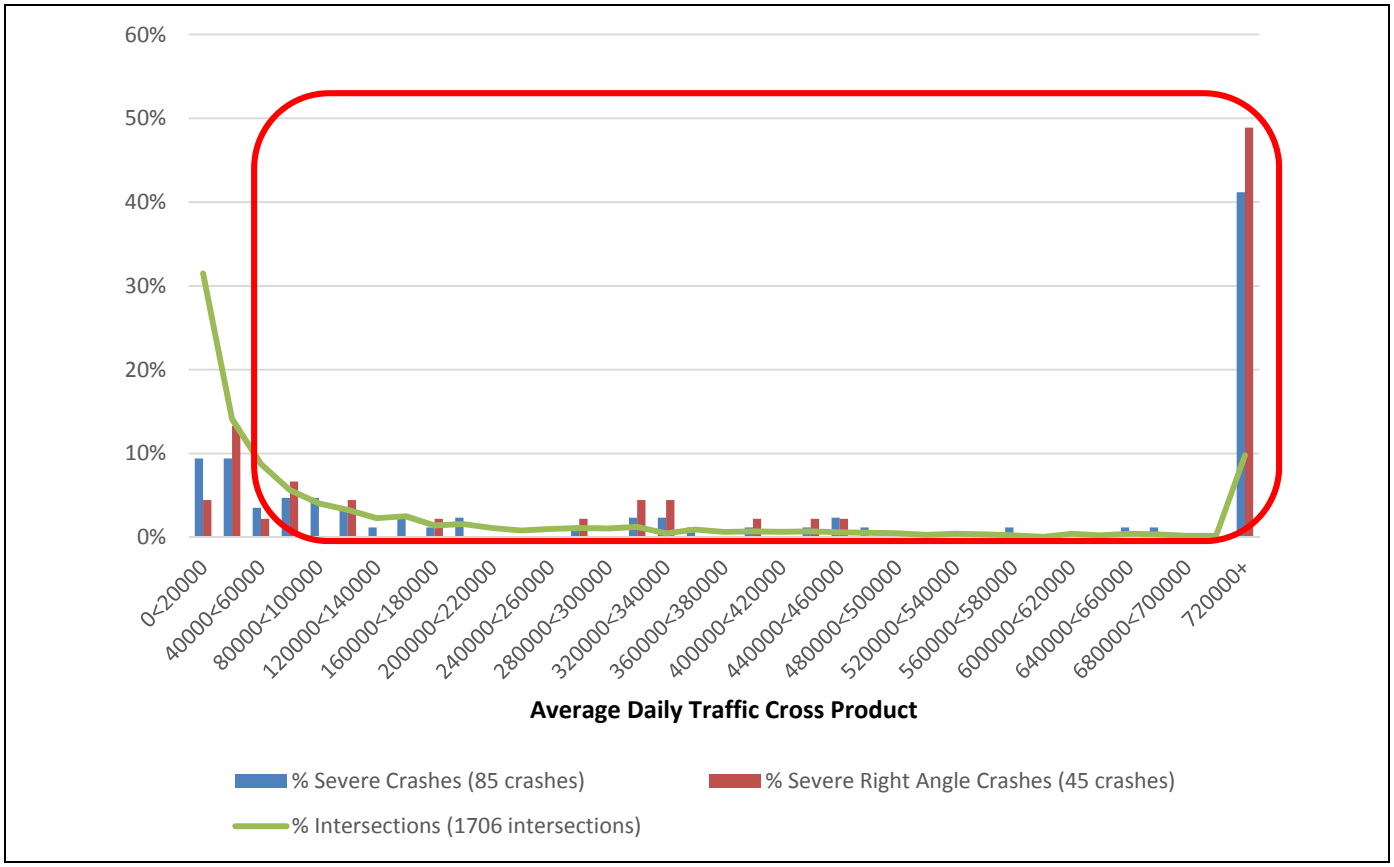
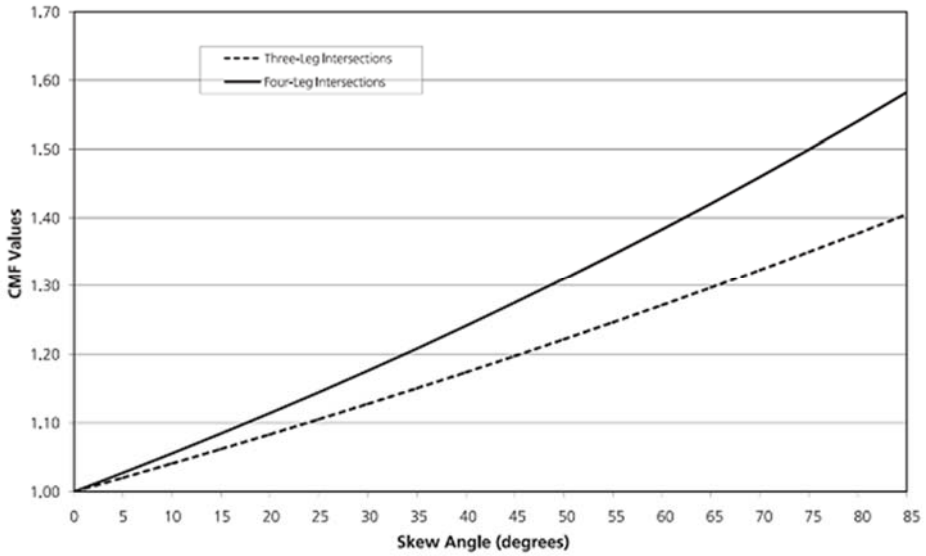


FIGURE 2-12
Rural ADT Cross Product for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)



Source: *Highway Safety Manual*, Volume III (Figure 14-6)
CMF = Crash Modification Factor

FIGURE 2-13
Intersection Skew Risk

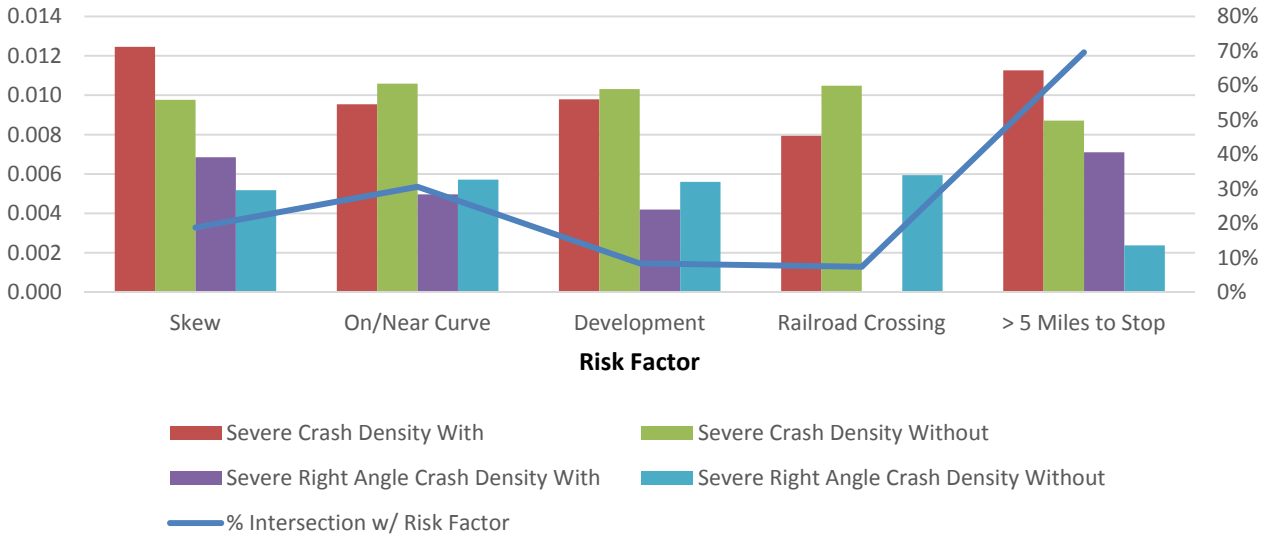


FIGURE 2-14
Rural Intersection Risk Factors for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

The central region had 207 total rural intersection crashes from 2009 to 2013, and only 13 of those crashes were severe. Due to the small number of severe crashes, some of the data and risk factors may be misleading based on the county data alone. National data were used to confirm intersection risk factors.

Detailed intersection analyses and results for the counties and cities are provided in Chapter 4. Due to the large number of intersections, each intersection was prioritized using the seven risk factors by giving stars to each risk factor present. The highest-priority intersections received the most stars. In cases where two or more intersections received the same number of stars, crash costs were used to break the tie and determine priority.

2.3.4 Urban Roadway Segments – Cities with Populations Greater than 5,000 (Cities of Jamestown and Mandan)

Approximately 78 miles of urban local roads were reviewed, where 1,859 total and 15 severe crashes occurred from 2009 to 2013. Nationally, research has shown that rear-end and head-on crashes are most common on urban local roads.

Although a variety of data was collected for each local roadway segment, only the following four risk factors were identified for segments within the cities of Jamestown and Mandan:

1. **Average Daily Traffic (ADT) –** Both rear-end and head-on crashes were overrepresented in road corridors with ADT volumes greater than 5,000 vehicles per day (Figure 2-15). Corridors with an ADT greater than 5,000 vehicles per day received a star.
2. **Access Density –** Rear-end and head-on crashes are overrepresented along corridors with access densities greater than or equal to 30 access points per mile (Figure 2-16), and therefore received a star.
3. **Road Geometry –** Crashes are overrepresented per corridor mile on roadways with four or more lanes (Figure 2-17), and therefore multilane roadways were given a star.
4. **Speed Limit –** Severe rear-end and head-on crashes were overrepresented in low-speed corridors (between 30 and 40 mph) (Figure 2-18), and therefore received a star.

Detailed urban segment analyses and results for Jamestown and Mandan are provided in Chapter 4. The four risk factors were used to prioritize roadway segments, with the highest priority segments receiving the most stars. High-priority roadway segments were also reviewed from a corridor perspective so that suggested safety improvement projects create a consistent corridor throughout the urban area.

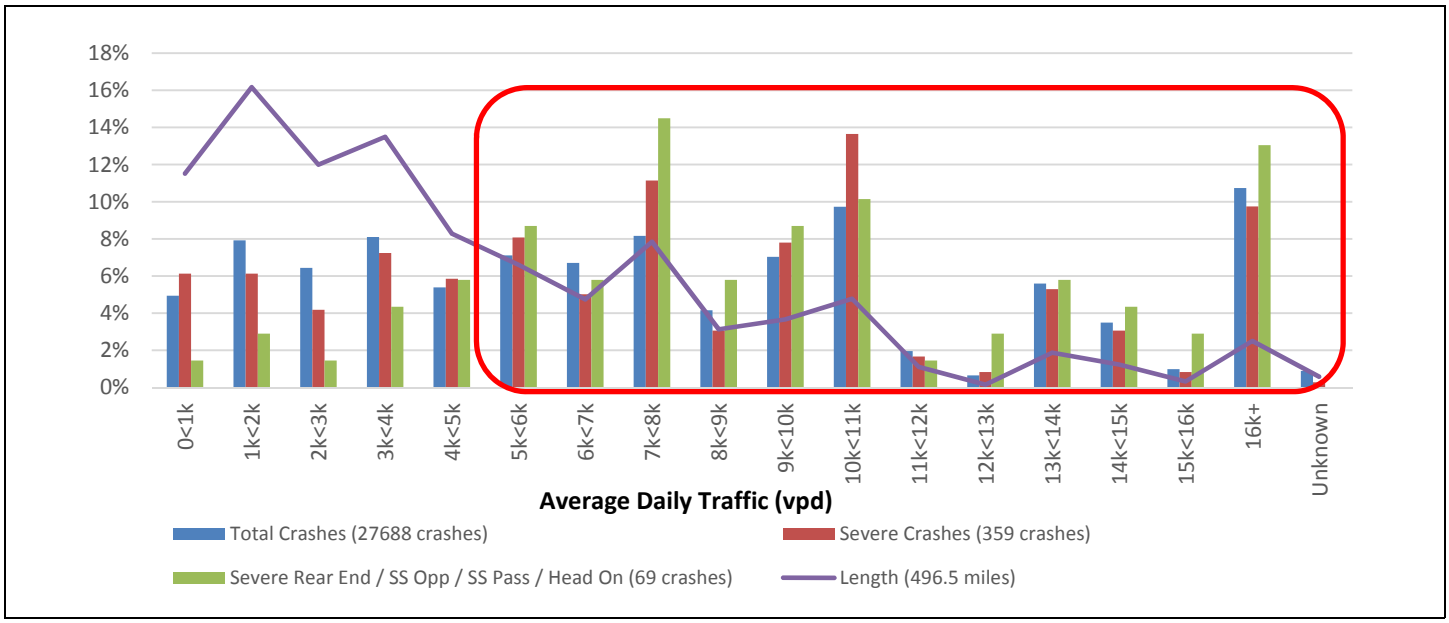


FIGURE 2-15
Urban Roadway Segment Average Daily Traffic (ADT) for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

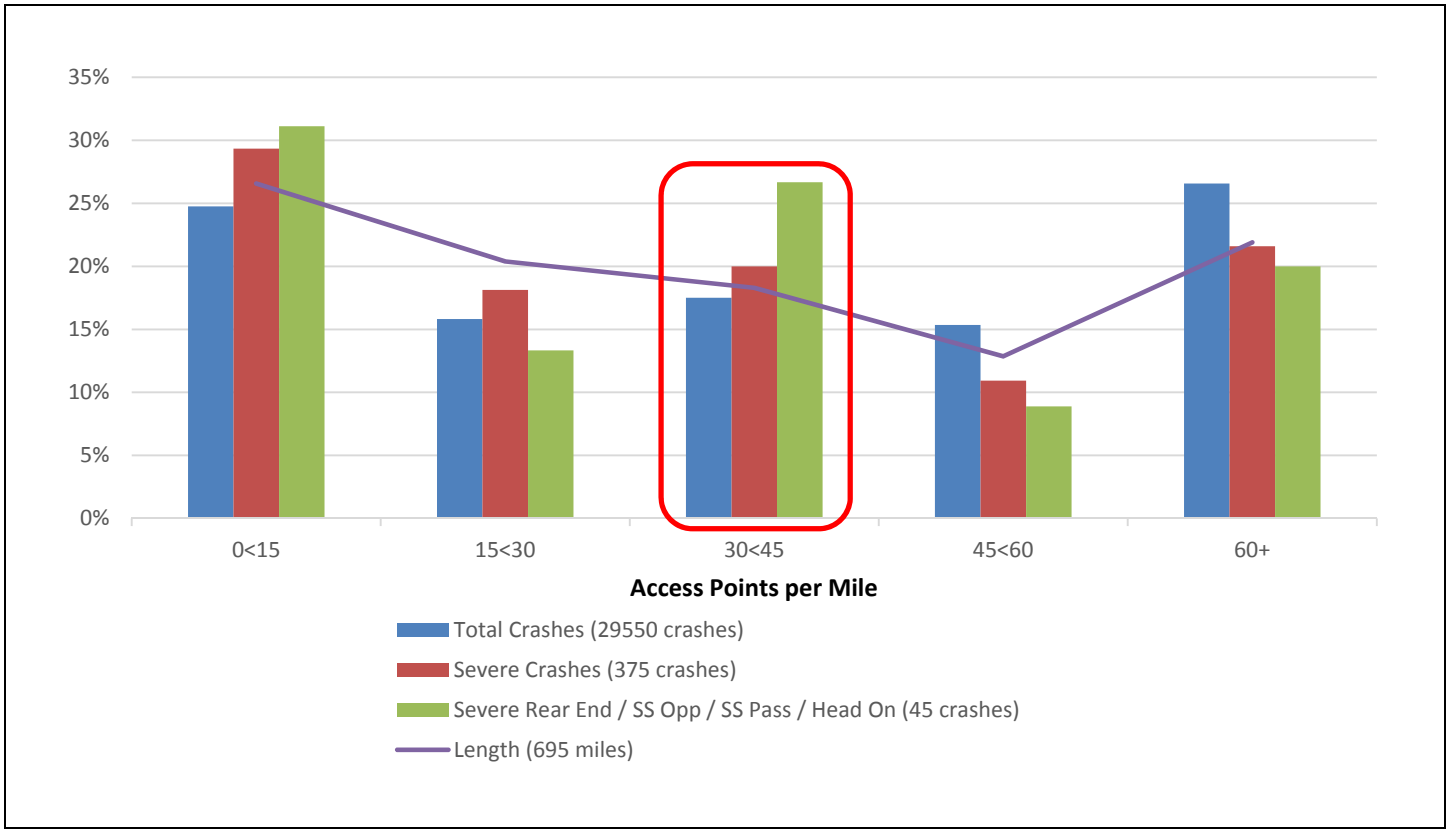


FIGURE 2-16
Urban Roadway Segment Access Density for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

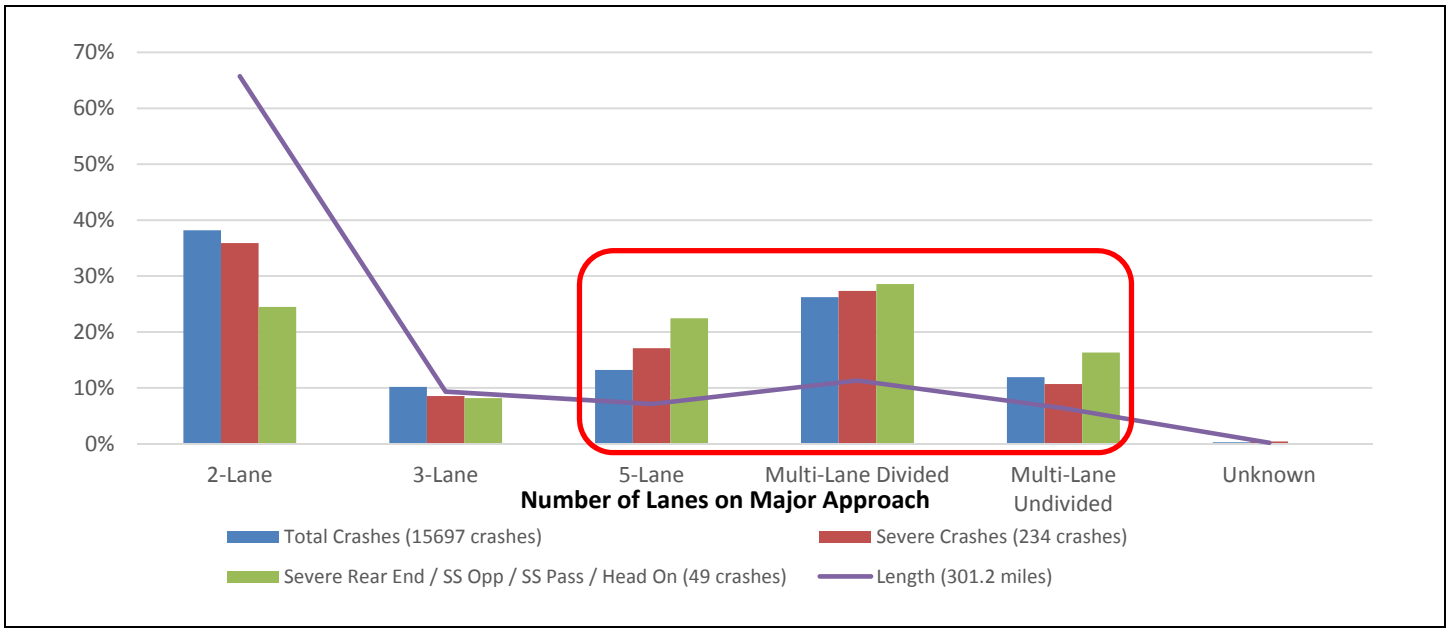


FIGURE 2-17
3 Urban Road Geometry for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

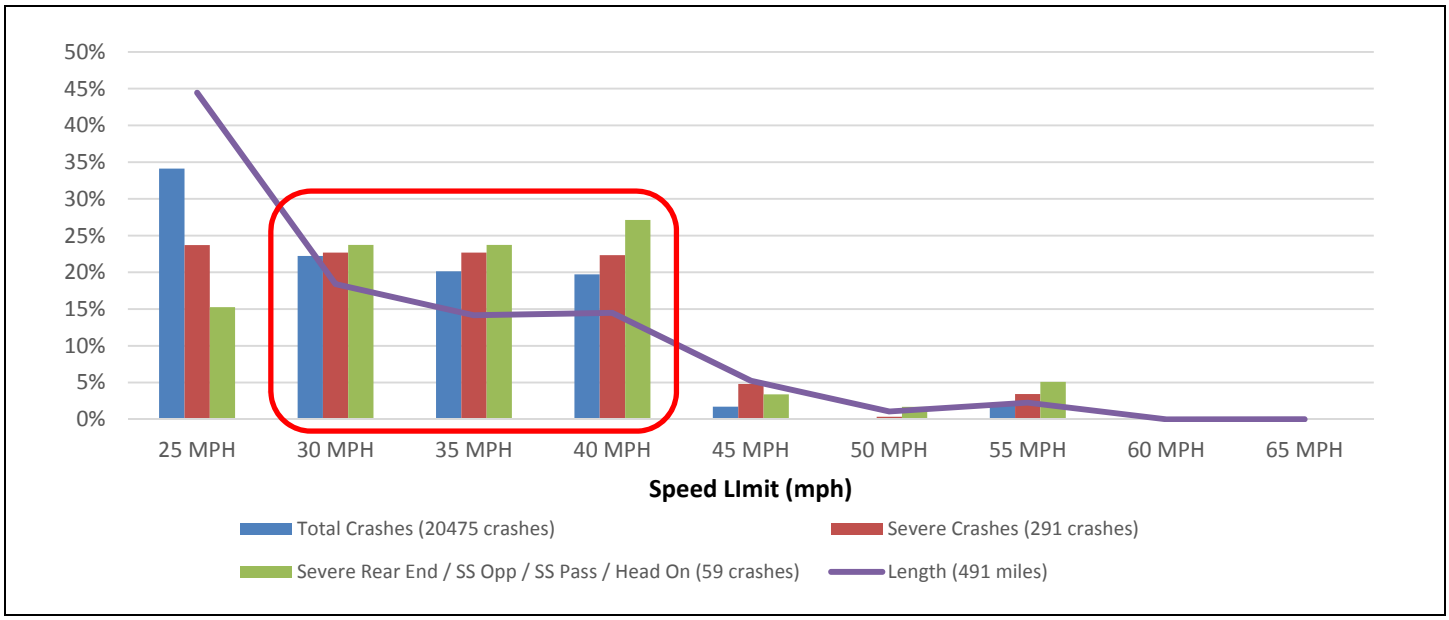


FIGURE 2-18
Urban Roadway Segment Crashes by Speed for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

2.3.5 Urban Intersections – Right-Angle Crashes, Cities with Populations Greater than 5,000 (Cities of Jamestown and Mandan)

In the cities of Jamestown and Mandan, 135 intersections including 20 signalized intersections were analyzed. Of the over 1,054 total crashes, only 11 severe crashes occurred at the Jamestown and Mandan urban intersections analyzed. This data supports assessing an intersection's risk based on the characteristics of locations with severe crashes. From the variety of information collected for each intersection, the following six risk factors for right angle crashes were chosen:

1. **Traffic Control Device –** Severe crashes are overrepresented at signalized intersections versus other intersection control types in urban areas (Figure 2-19). Therefore, signalized intersections received a star.
2. **Entering ADT –** Higher volumes of vehicles entering intersections were considered a risk factor. Approximately 46 percent of right angle crashes at signalized intersections in the urban areas for all phases occurred at intersections with an entering ADT greater than 17,500 vehicles per day (Figure 2-20). Therefore, any intersection with an entering ADT greater than 17,500 vehicles per day received a star.
3. **Road Geometry –** Severe and right-angle crashes were overrepresented on divided roadways with signalized intersections (Figure 2-21). Therefore, intersections on divided roadways received a star.
4. **Major Corridor Speed Limit—**Low-speed limit corridors were found to act as a surrogate for severe angle crashes (Figure 2-21). Therefore, intersections with speed limits between 30 and 50 mph received a star.
5. **Total Lanes on Major Approach** -- Severe and severe angle crashes were overrepresented at intersections containing five or more approach lanes on at least one leg on the major street (Figure 2-22). Therefore, intersections with five or more lanes total in both directions received a star.
6. **Severe Crashes –** Any intersection where one or more severe crashes had occurred received a star.

Detailed urban intersection right angle analyses and results for the Jamestown and Mandan are in Chapter 4. The risk factors previously listed were used to help prioritize intersections with the highest priority intersections receiving the most stars. Right angle crash intersections were reviewed as urban corridors to create a consistent corridor throughout the urban area and to discourage implementing strategies at just one or two high priority intersections along a corridor if the remaining intersections have the same characteristics.

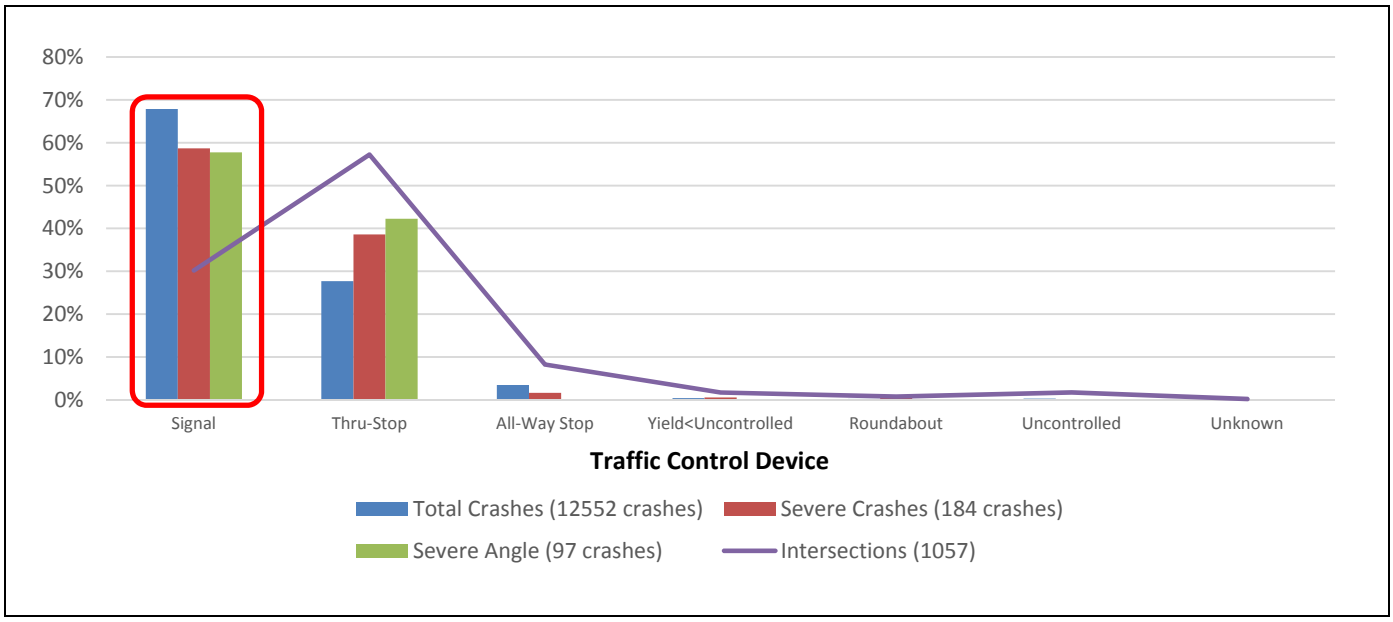


FIGURE 2-19
Urban Crashes by Intersection Traffic Control Device for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

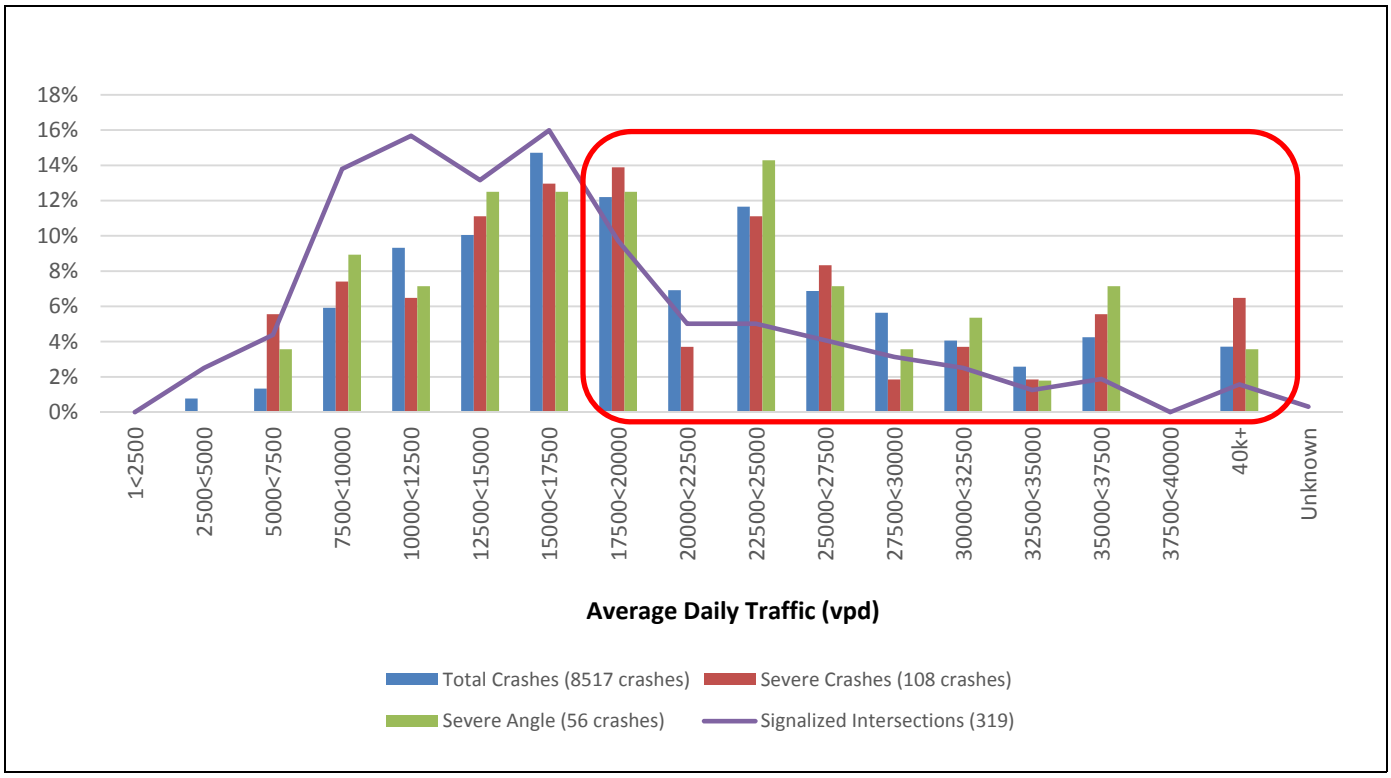


FIGURE 2-20
Urban Crashes by Intersection Entering Vehicles Average Daily Traffic (ADT) for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

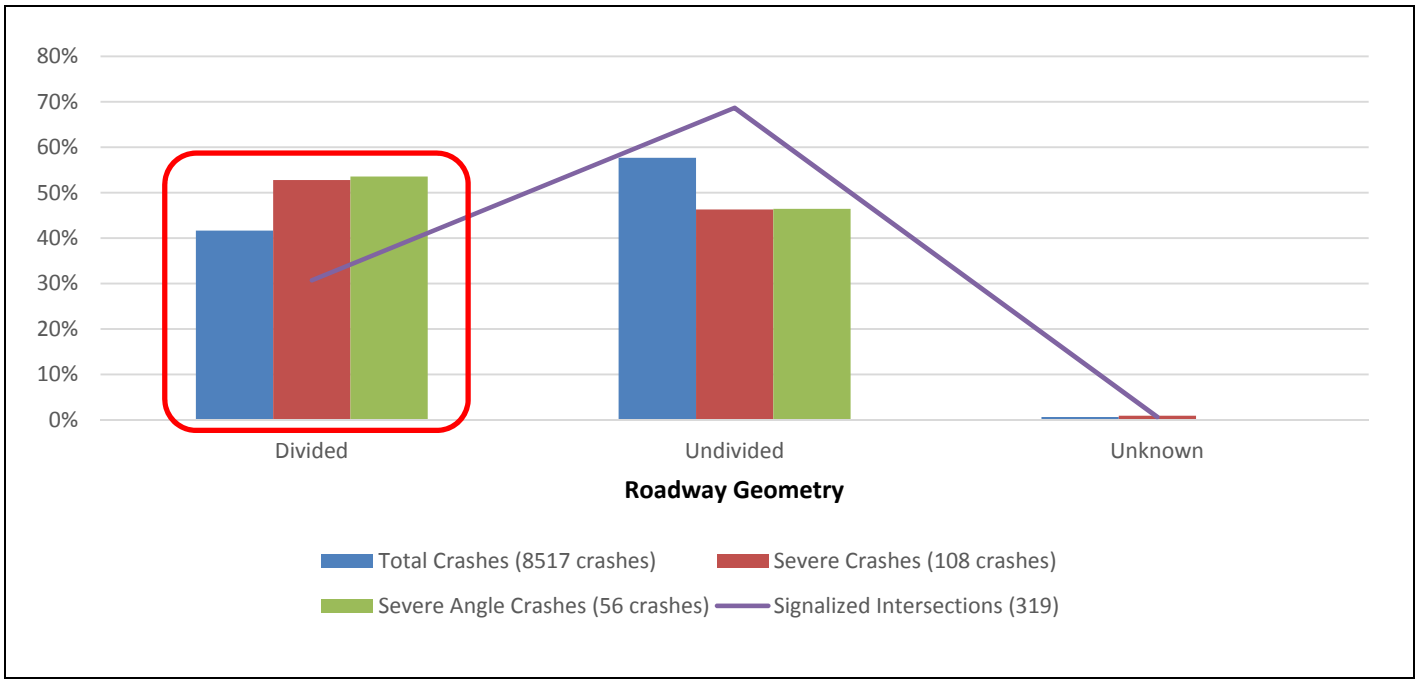


FIGURE 2-21
Urban Crashes by Road Geometry at Intersection for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

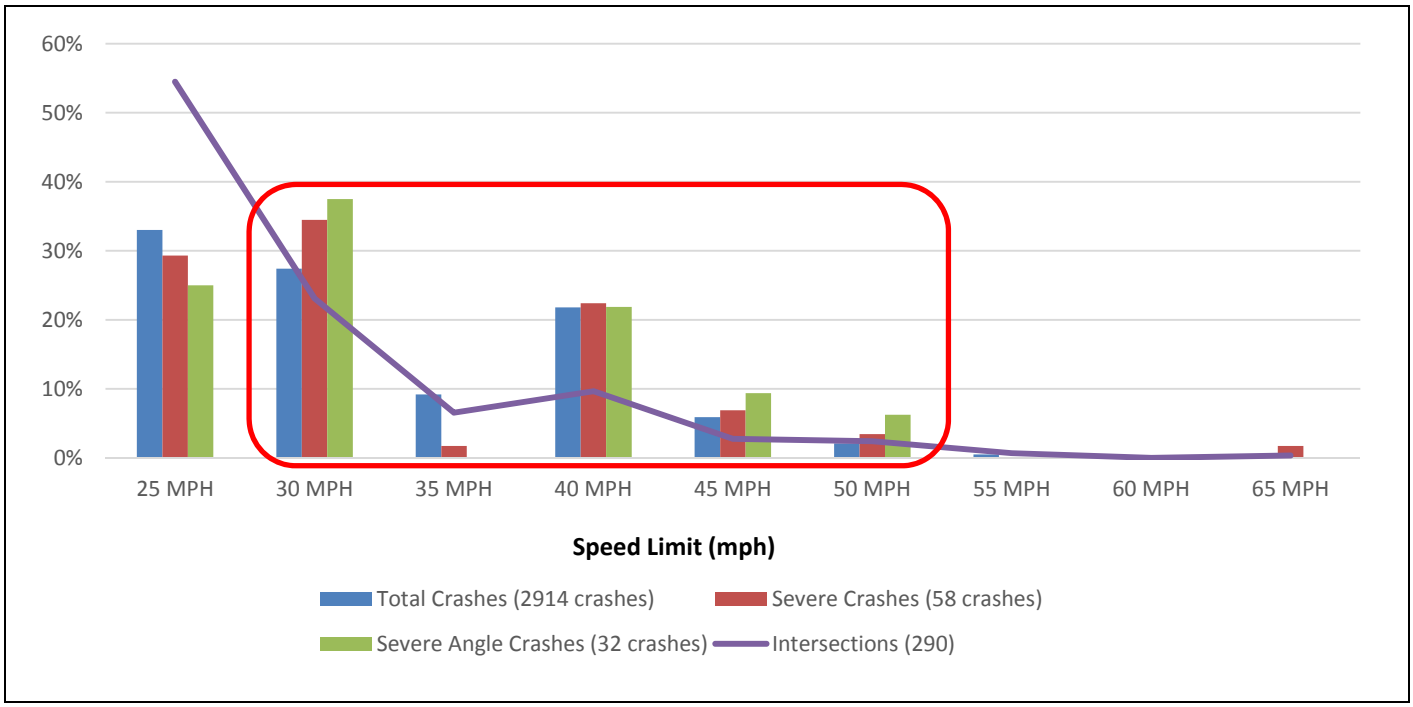


FIGURE 2-22
Urban Crashes by Intersection Approach Speed Limit for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

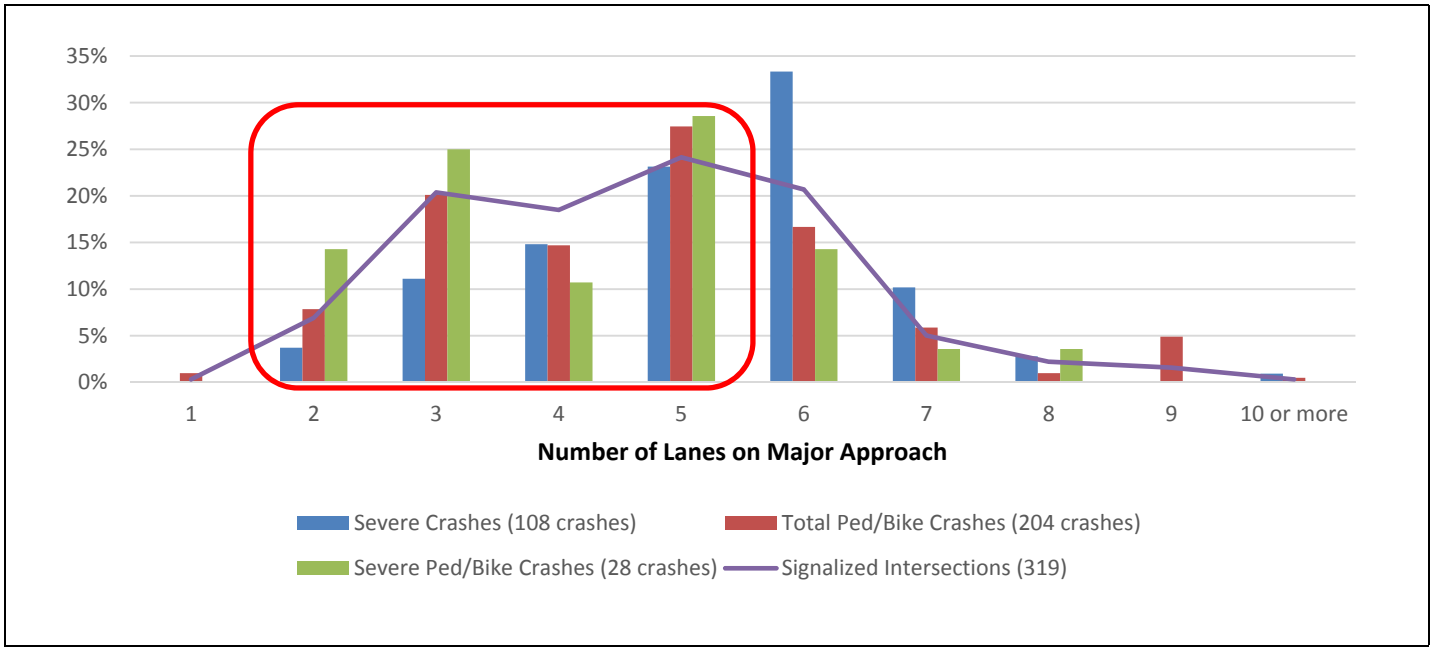


FIGURE 2-23
Urban Signalized Intersection Crashes by Major Approach Lanes for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

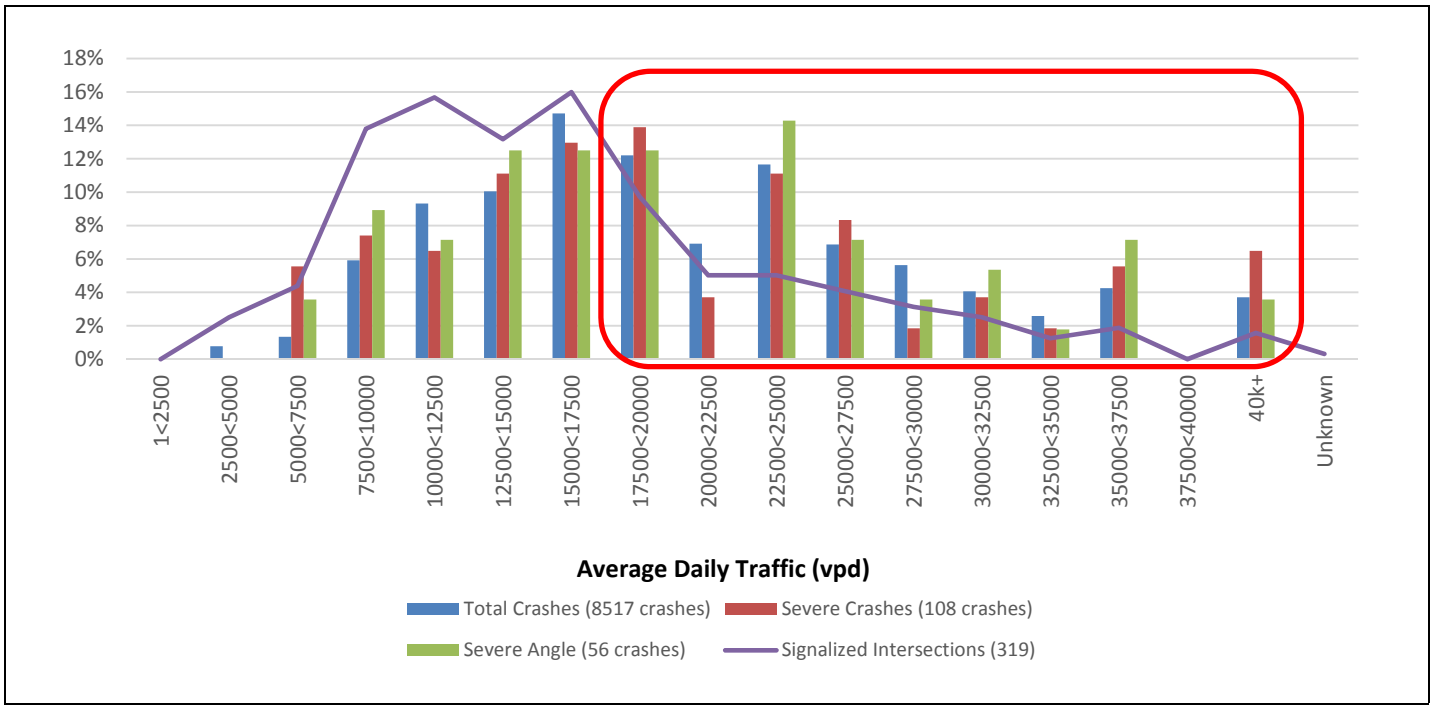


FIGURE 2-24
Urban Crashes by Intersection Entering Vehicles Average Daily Traffic (ADT) for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

2.3.6 Urban Intersections – Pedestrian/Bicycle Crashes, Cities with Populations Greater than 5,000 (Cities of Jamestown and Mandan)

Similar analysis was completed for pedestrian and bicycle crashes at intersections. A total of 36 severe pedestrian and bicycle crashes occurred at urban North Dakota intersections studied during all four phases. The following six risk factors were identified based on the analysis:

1. **Traffic Control Device -** Severe pedestrian and bicycle crashes are overrepresented at signalized intersections versus other intersection control types in urban areas (Figure 2-23). Therefore, signalized intersections received a star.
2. **Entering Vehicles ADT –** A high volume of vehicles entering an intersection was considered a risk factor. A majority of the severe pedestrian and bicycle crashes occurred at intersections with an entering vehicles ADT greater than 15,000 vehicles per day (Figure 2-24). Therefore, any intersection with an entering vehicles ADT greater than 15,000 vehicles per day or greater received a star.
3. **Pedestrian Generator –** Intersections with adjacent land uses likely to generate pedestrian traffic (such as a school, playground, bar or gas station) had a higher pedestrian and bicycle crash risk than other intersections (Figure 2-25). Therefore, an intersection with a pedestrian generator present received a star.
4. **Major Corridor Speed Limit** – Low-speed limit corridors were found to act as a surrogate for severe pedestrian and bicyclist crashes (Figure 2-26). Therefore, intersections with low speed limits (between 30 and 40 mph) received a star.
5. **Total Lanes on Major Approach** – Pedestrian and bicycle crashes were overrepresented at intersections containing between two and five approach lanes on at least one leg of the major street (Figure 2-27). Therefore, intersections with between two and five lanes total in both directions received a star.
6. **Pedestrian and Bicycle Crashes –** Any intersections that had any bicycle or pedestrian crashes from 2009 to 2013 received a star.

Detailed urban intersection pedestrian and bicycle analysis and results for the cities of Jamestown and Mandan are provided in Chapter 4. The six risk factors were used to prioritize intersections with the highest-priority intersections receiving the most stars. Pedestrian and bicycle crash intersections were reviewed as urban corridors to create a consistent corridor throughout the urban area.

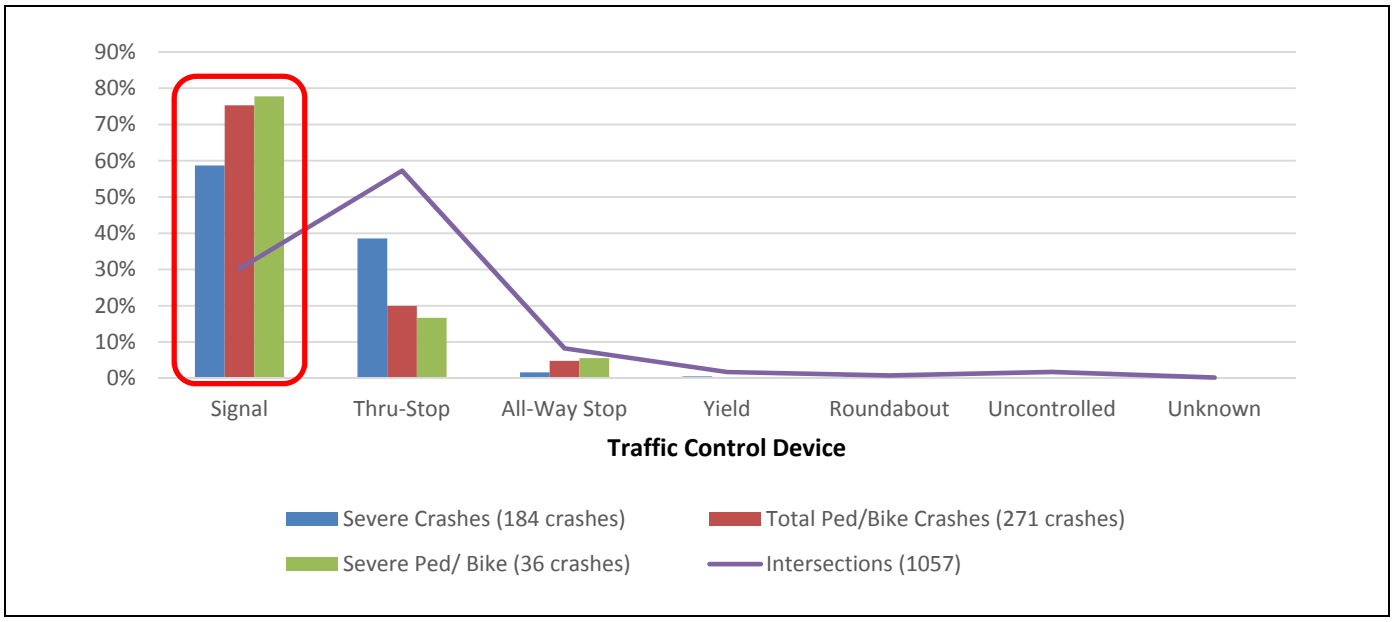


FIGURE 2-25
Urban Pedestrian/Bicycle Crashes by Intersection Traffic Control Devices for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

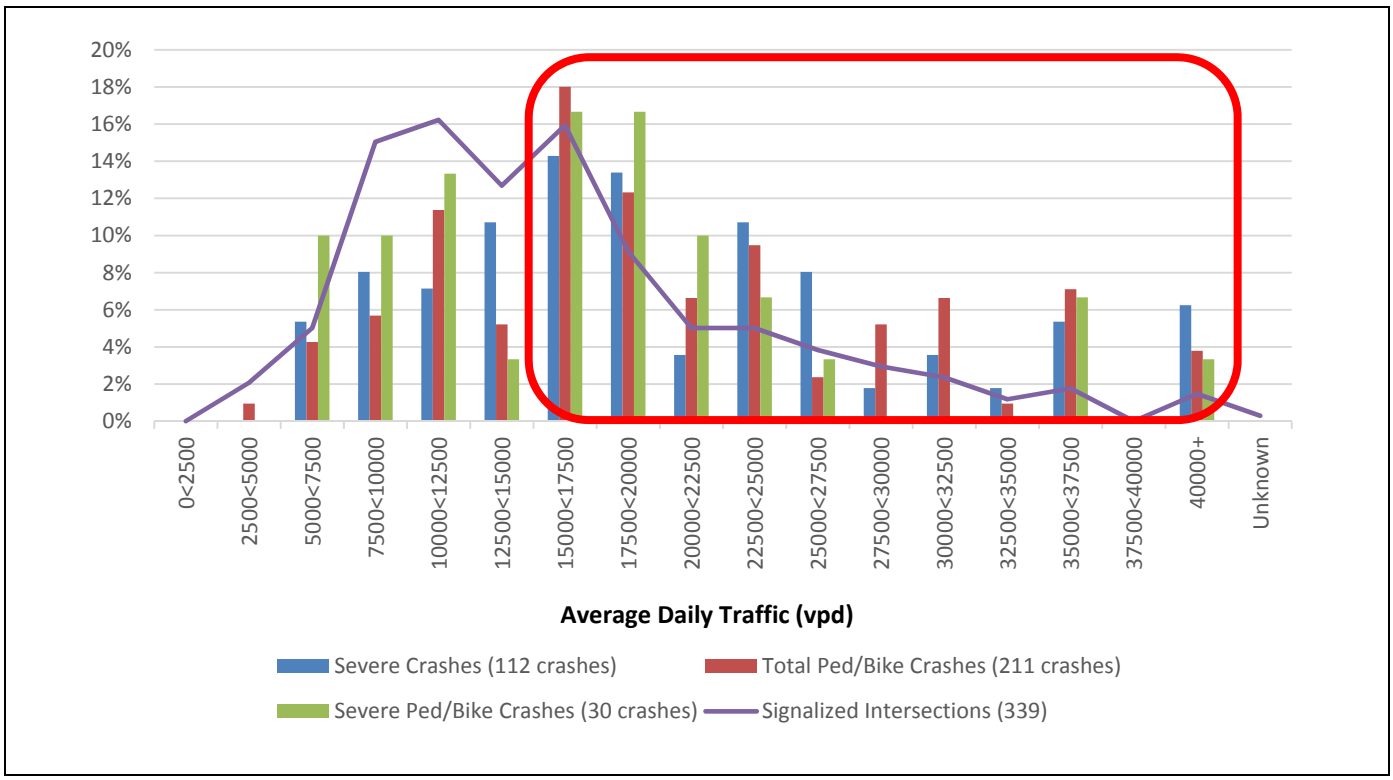


FIGURE 2-26
Urban Pedestrian/Bicycle Crashes by ADT for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

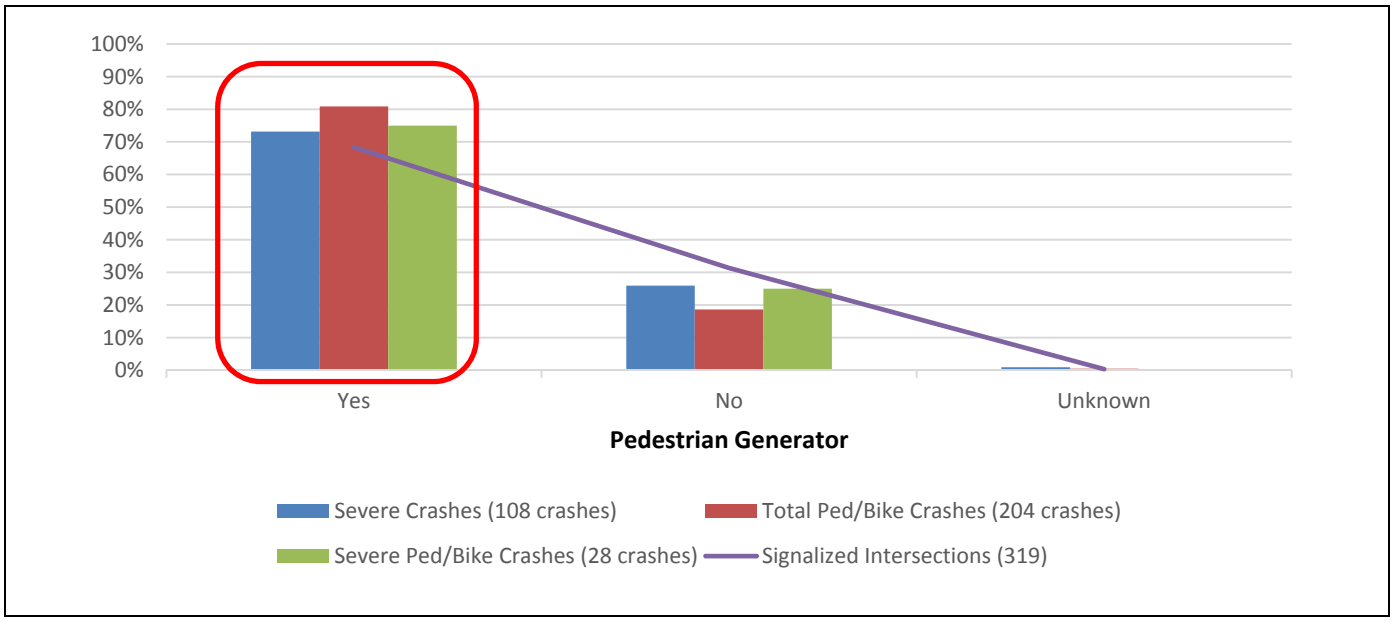


FIGURE 2-27
Urban Pedestrian/Bicycle Crashes at Intersection with a Pedestrian Generator for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

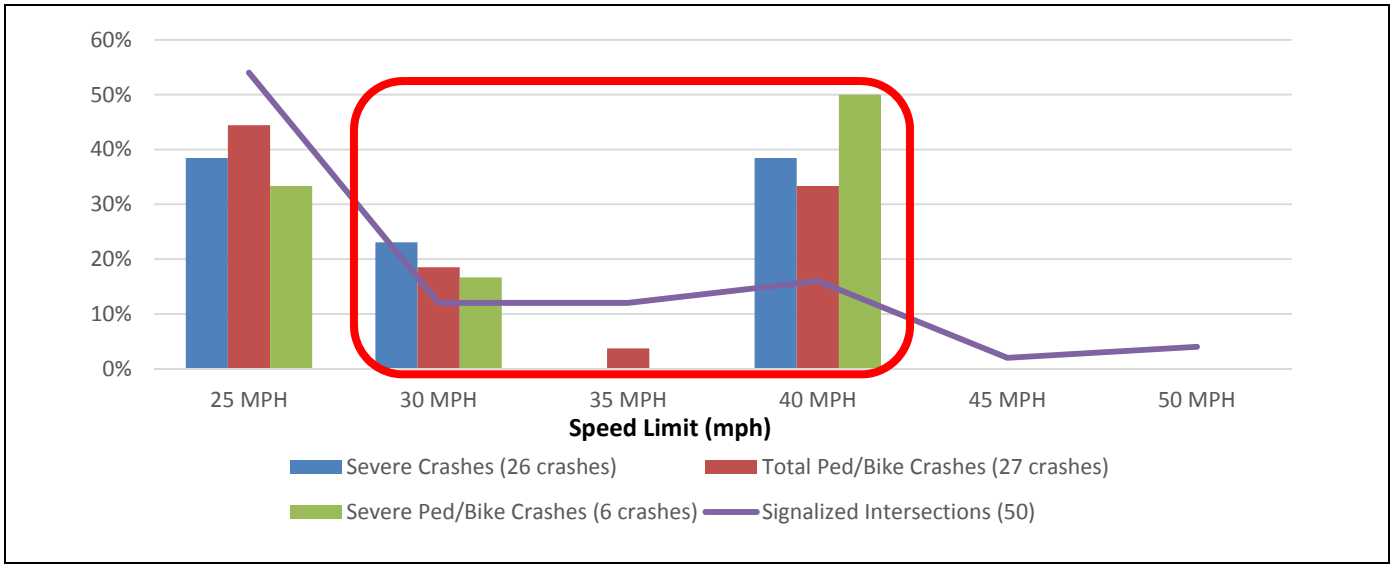


FIGURE 2-28
Urban Pedestrian/Bicycle Crashes by Speed Limit for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

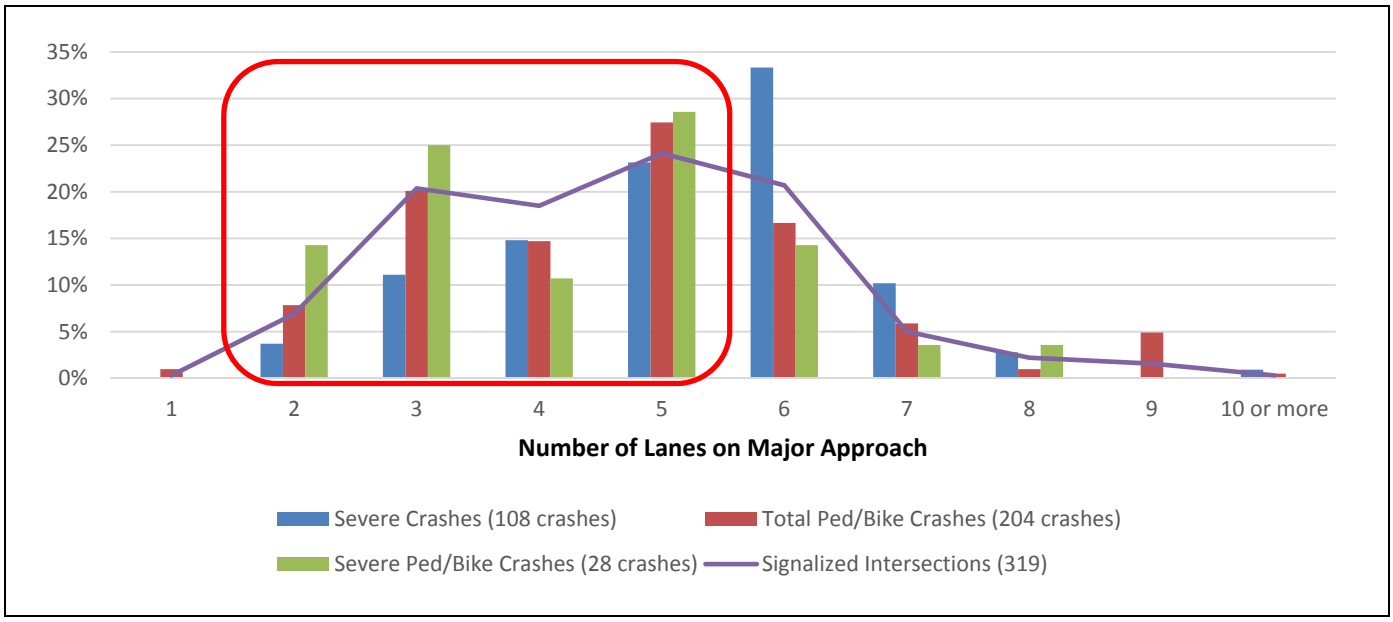


FIGURE 2-29
Urban Pedestrian/Bicycle Crashes by Number of Lanes on the Major Approach Lanes for All Phases
Source: 2008-2012 (Phase 1 and Phase 2), 2009-2013 (Phase 3 and Phase 4)

2.4 Central Region Risk Summary

Table 2-3 summarizes the risk factors, ranges, and sources used in the central region's systemic analysis.

TABLE 2-3
Central Region Risk Summary

Risk Factors	Central Region		
	Minimum	Maximum	Source
Rural Roadway Segments			
ADT Range	450	Unlimited	All Rural Phases 1 through 4
Access Density	8	Unlimited	Rural Phase 4
Lane Departure Density	0.054	Unlimited	All Rural Phases 1 through 4
Curve Critical Radius Density	0.130	Unlimited	Rural Phase 4
ERA	2	3	All Rural Phases 1 through 4
Rural Curves			
Radius	500	1,200	All Rural Phases 1 through 4
ADT Range	450	Unlimited	All Rural Phases 1 through 4
Intersection on Curve	Present		All Rural Phases 1 through 4
Visual Trap	Present		All Rural Phases 1 through 4
Severe Crashes	1	Unlimited	All Rural Phases 1 through 4
Rural Intersections			
ADT Cross Product	80,000	Unlimited	All Rural Phases 1 through 4
Skew	Present		All Rural Phases 1 through 4

TABLE 2-3
Central Region Risk Summary

Risk Factors	Central Region		
	Minimum	Maximum	Source
On/Near Curve	Present		All Rural Phases 1 through 4
Development	Present		All Rural Phases 1 through 4
Railroad Crossing	Present		All Rural Phases 1 through 4
Previous STOP >1 Mile	Present		All Rural Phases 1 through 4
Total Crashes	1	Unlimited	All Rural Phases 1 through 4
Urban Roadway Segments			
ADT	5,000	Unlimited	All Urban Phases 1 through 4
Access Density	30	Unlimited	All Urban Phases 1 through 4
Road Geometry	Multilane (4+)		All Urban Phases 1 through 4
Corridor Speeds	30	40	All Urban Phases 1 through 4
Urban Right-Angle Crash Corridors			
Traffic Control	Signal		All Urban Phases 1 through 4
Entering ADT	17,500	Unlimited	All Urban Phases 1 through 4
Road Geometry	Divided		All Urban Phases 1 through 4
Major Corridor Speeds	30	50	All Urban Phases 1 through 4
Total Lanes on Major Approach	5+ Approach Lanes		All Urban Phases 1 through 4
Severe Crashes	1	Unlimited	All Urban Phases 1 through 4
Urban Pedestrian and Bicycle Crash Corridors			
Traffic Control	Signal		All Urban Phases 1 through 4
Entering ADT	15,000	Unlimited	All Urban Phases 1 through 4
Pedestrian Generator	Yes		All Urban Phases 1 through 4
Major Corridor Speeds	30	40	All Urban Phases 1 through 4
Total Lanes on Major Approach	2	5	All Urban Phases 1 through 4
Pedestrian/Bicycle Crashes	1	Unlimited	All Urban Phases 1 through 4

3.0 Central Region Priority Safety Strategies

3.1 Background

A variety of strategies are available to address each safety emphasis area. The implementation of high-priority strategies will assist state and local agencies in reducing traffic-related fatalities and incapacitating injuries. The primary sources for these strategies are the *National Cooperative Highway Research Program* (NCHRP) *Report 500* series and the National Highway Traffic Safety Administration (NHTSA) *Countermeasures That Work: A Highway Safety Countermeasure Guide for State Highway Safety Offices*, (Seventh Edition, 2013). Each guide includes a description of the problem, strategies, and model implementation processes. In addition, to assist practitioners in assessing the safety strategies, the guides document the expected effectiveness of each strategy. *NCHRP Report 500* series assigns strategies to one of the following categories:

- **Proven:** These strategies have been used in multiple locations with multiple studies, and have been demonstrated to be effective.
- **Tried:** These strategies have been implemented in many locations; however, no rigorous evaluations have been completed to determine their effectiveness.
- **Experimental:** These strategies represent ideas that are considered to be effective; however, the ideas have not been widely implemented or evaluated.

3.2 Initial/Comprehensive List of Potential Strategies

NCHRP safety strategies were the basis for identifying safety strategies for the LRSP. For the LRSP process, NDDOT team members sought to identify viable safety strategies for the top safety emphasis areas (see Tables 3-1 through 3-11). The LRSP team reviewed the full range of safety strategies, and did an initial screening based on cost and effectiveness. For example, the NCHRP report lists over 70 potential strategies to address intersection safety. The screening conducted by the LRSP team narrowed the list of strategies for all safety emphasis areas down to strategies considered to be the most applicable in North Dakota.

Behavioral strategies include information on the expected effectiveness of the strategy to influence driver behavior based on current best practice and evaluation research results when available.

Each infrastructure strategy includes information on the relative cost to implement or operate, along with the typical timeframe for implementation. Relative costs were separated into low, medium and high categories.

The relative costs for the lane departure and intersection strategies are:

- Low = less than $10,000 per mile or location
- Medium = between $10,000 and $100,000 per mile or location
- High = more than $100,000 per mile or location

The typical timeframe to implement the strategy was also separated into three categories:

- Short = less than 1 year to implement
- Medium = between 1 and 2 years to implement
- Long = more than 2 years to implement

TABLE 3-1
Impaired Driving Strategies (Behavioral Strategies)

Objectives	Strategies	Effectiveness	Programs and Tactics
A – Eliminate Drinking and Driving	**A1 –** Conduct alcohol screening and brief interventions	Proven	Implement health care provider interventions with crash victim after an alcohol-related crash (traumatic event) to screen for alcohol use problems, educate on risks of impaired driving, & treatment referral. Develop fact sheets and materials to be used.
	A2 – Support community programs for alternative transportation	Proven	Employ "Safe Cab" initiatives via partnership among beer distributors, bar owners and/or county/city community programs. Conduct public outreach on accessible safe-ride alternatives.
	A3 – Promote ND "No Refusal" Law	Moderate	Educate high-risk populations/communities on ND's new "No Refusal" law where consequences of DUI test refusal are greater than test failure.
	A4 – Promote ND sobriety initiatives for DUI offenders	Proven	Promote 24/7, DUI courts, and ignition interlock programs through educating local judicial and legal counsel members, probation officers, counseling and treatment providers as well as the general public.
B – Enforce DWI Laws and Strengthen Adjudication of DUI Offenses	**B1 –** Expand use of high-visibility DUI enforcement saturations including sobriety checkpoints	Proven	Conduct multi-agency, multi-squad car enforcement efforts. Agencies work in collaboration to provide data-driven, high-visibility education/media outreach and enforcement for high-risk roadways.
	B2 – Educate and Enforce Zero Tolerance Laws for Drivers Under Age 21	Tried	Conduct education and high-visibility enforcement through community events including local media and public outreach about underage drinking and driving.
	B3 – Strengthen DUI convictions and sentencing through justice system evaluation and outreach	Tried	Assess local DUI prosecution and sentencing data to determine DUI plea bargain and conviction rates as well as a comparative analysis with other ND District courts. Conduct outreach with judicial personnel (prosecutors and judges) where data indicates higher DUI dismissal or plea bargain rates.
	B4 – Strengthen alcohol compliance of liquor-providing establishments	Tried	Advocate for responsible alcohol server and retailer training and compliance checks. Promote judicial monitoring of "last place of drink" for bar-related DUI offenders and notify establishments of their over-serving.

TABLE 3-2
Seat Belt Use Strategies (Behavioral Strategies)

Objectives	Strategies	Effectiveness	Programs and Tactics
A – Publicize and Enforce Seat Belt Use Laws	**A1 –** Conduct high-visibility enforcement to maximize restraint use	Proven	Conduct a multi-agency, multi-squad car enforcement effort. Agencies work in collaboration to provide data-driven, saturated, high-visibility enforcement coupled with media outreach targeted toward high-risk populations. Conduct enhanced enforcement on North Dakota's secondary roads. Incorporate enhanced nighttime enforcement including multi-agency (when possible) and multiple squad cars in well-lit areas where slow moving vehicles are passing and conducting seat belt observations for a limited time.
	A2 – Enforce ND's secondary belt use law	Proven	Reinforce officers issuing second belt use ticket during traffic stops.
	A3 – Pursue tribal ordinances for primary enforcement of seat belt law	Proven	Under tribal ordinance, pursue primary seat belt enforcement for occupants in all seating positions.
B – Maximize Use of Occupant Restraints by All Vehicle Occupants	**B1** -- Encourage employer traffic safety programs and policies	Tried	Encourage employers to offer traffic safety education programs to employees and to enact traffic safety policies with clear consequences for failure to comply.
	B2 – Conduct brief intervention regarding unbelted risks	Experimental	Health care provider conducts brief intervention with crash victim after an unbelted crash (traumatic event) on unbelted risks and consequences.
	B3 -- Provide insurance incentives	Experimental	Promote local insurance provider incentives (e.g., reduced premium rates) for safe driving practices including belt use at the time of traffic crash.

TABLE 3-3
Speed and Aggressive Driving Strategies (Behavioral Strategies)

Objectives	Strategies	Effectiveness	Programs and Tactics
A – Deter Aggressive Driving for High-risk Populations and Locations	**A1 –** Identify high-risk speed locations/corridors for enforcement	Proven	Strengthen crash data analysis to define high-risk speed/aggressive driving locations (including intersections) for enhanced enforcement and public outreach efforts.
	A2 – Conduct high-visibility enforcement of speeding and aggressive driving	Proven	Conduct a multi-agency, multi-squad car enforcement effort. Agencies work in collaboration to provide data-driven, saturated, high-visibility enforcement at high-risk speed/aggressive driving roadways and intersections coupled with media outreach to high-risk populations.
	A3 – Pursue local/tribal use of automated enforcement in high-risk areas	Proven	Pursue the use of automated enforcement in high-risk highway work zones and school crossing zones through the use of local/tribal safety ordinances.
B – Maximize Driver Compliance and Awareness	**B1 –** Conduct brief interventions for speed-related injuries	Tried	Implement health care provider brief interventions with crash victims after crash (traumatic event) due to excessive speed on speed risks and consequences.
	B2 – Increase driver awareness of speed using speed reader boards	Proven	Expand use of speed reader boards providing feedback to drivers on their actual speed (e.g., flash warnings when speeds exceeds limit). Most effective in slowing traffic on residential streets, near school zones and around playgrounds.

TABLE 3-4
Young Driver Strategies (Behavioral Strategies)

Objectives	Strategies	Effectiveness	Programs and Tactics
A – Publicize, and Enforce Laws Pertaining to Young Drivers	**A1 –** Conduct high visibility enforcement of GDL, no cell and texting laws, underage drinking and driving, and seatbelt use laws	Proven	Conduct enhanced enforcement and public outreach for young driver safety. Publicizing is best done through community events to attract local media and a community public education campaign about young driver laws, enhanced enforcement, and the necessary parental involvement.
B – Actively Engage Parents in Managing Teen Driving Skill Development	**B1 –** Encourage driver education providers (local schools and private providers) to require parent education component	Tried	Promote required parent education component of local driver education programs (private and public school providers) to educate parents about teen driving risks, Graduated Driving License (GDL) provisions and their protections, parental role in supervising teen driving skill development, encourage selection of safer vehicles for teen driver, and to facilitate parent/teen driving agreements.
	B2 – Promote use of in-vehicle teen safety technology	Experimental	To help reduce and eliminate teen driving distractions and high-risk driving maneuvers (excessive speed, hard acceleration, deceleration, and swerves) promote the use of in-vehicle monitoring devices for parental monitoring and coaching.
	B3 – Promote safe teen driving outreach	Tried	Encourage driver education, local insurance, and public health organizations to provide teens and their parents with brochures, guides, and web resources to help parents understand risks, GDL provisions, their role, and how to develop a Parent/Teen Driving Agreement, and on-line driving logs.
	B4 – Provide information on insurance provider parent-teen safe driving programs	Tried	Inform parents of local insurance programs providing policy discounts for parents and their teen enrolling in parent-teen safe driving programs.
C – Promote Young Driver Awareness of Risks	**C1 –** Brief interventions regarding driving risks and consequences	Experimental	When teen driver receives a moving violation or is involved in a crash, health care provider conducts brief intervention with crash victim after crash (traumatic event) on driving risks and consequences.
	C2 – Conduct Peer-to-Peer safety outreach	Moderate	Promote peer education of traffic safety through peer-to-peer outreach campaigns and contests to engage teens on teen driving risks and socially reinforced safe driving behaviors.

TABLE 3-5
Cross-Cutting Safety Strategy (Behavioral Strategy)

Objectives	Strategies	Effectiveness	Programs and Tactics
A – Improved Quality and Timeliness of Crash Data	**A1 –** Local and tribal enforcement use of Traffic and Criminal Software (TraCS)	Proven	Promote local and tribal enforcement full deployment of TraCS for in-the-field incident reporting and electronic submission of crash reports to the NDDOT.

TABLE 3-6
Speeding Strategies (Infrastructure Strategies)

Objectives	Strategies	Effectiveness	Cost to Implement and Operate[1]	Timeframe for Implementation[2]
A – Set Appropriate Speed Limits	**A1 –** Install speed signage using variable message signs in school zones	Tried	Low	Medium
B – Communicate Appropriate Speeds through Use of Traffic Control Devices	**B1 –** Implement dynamic speed feedback signs, including dynamic message boards at rural to urban transitions	Tried	Low	Medium
	B2 – Use in-pavement measures to communicate the need to reduce speeds	Tried	Moderate	Short
C – Ensure that Roadway Supports Appropriate and Safe Speeds	**C1 –** Effect safe speed transitions through design elements and on approaches to lower-speed areas	Tried	High	Long

Notes:
[1] Cost: Low = <$100,000 per intersection; Moderate = $100,000 to $500,000 per intersection; High = >$500,000 per intersection
[2] Implementation: Short = <1 year; Medium = 1 to 2 years; Long = >2 years
Source: NCHRP *Report 500* Series, 2004

TABLE 3-7
Lane Departure Strategies (Infrastructure Strategies)

Objectives	Strategies	Effectiveness	Cost to Implement and Operate[1]	Timeframe for Implementation[2]
A – Keep Vehicles from Encroaching on the Roadside	**A1 –** Install edge rumble strips (shoulder or edge line)	Proven	Low	Short
	A2 – Install enhanced pavement markings, 6-inch edge line, or embedded wet-reflective pavement markings on section with narrow or no paved shoulders	Experimental/ Tried	Low	Short
	A3 – Provide enhanced shoulders, lighting, delineation (for example, Chevrons), or pavement markings for sharp horizontal curves	Tried / Proven	Low	Short
	A4 – Provide skid-resistance pavement surfaces	Proven	Moderate	Medium
	A5 – Apply shoulder treatments *Eliminate shoulder drop-offs *Safety edge *Widen and/or pave shoulders	Experimental/ Proven	Moderate	Medium
B – Minimize the Likelihood of Crashing into an Object or Overturning if the Vehicle Travels Off the Shoulder	**B1 –** Design safer slopes and ditches to prevent rollovers	Proven	Moderate to High	Medium
	B2 – Remove/relocate objects in hazardous locations	Proven	Moderate to High	Medium
C – Reduce the Severity of the Crash	**C1 –** Improve design and application of barrier and attenuation systems	Tried	Moderate to High	Medium
D – Keep Vehicles from Encroaching into Opposite Lane	**D1 –** Install centerline rumble strips for two-lane roads	Tried	Low	Short
	D2 – Reallocate total two-lane roadway width (lane and shoulder) to include a “buffer median”	Tried	Low	Medium
E – Minimize the Likelihood of Crashing into an Oncoming Vehicle	**E1 –** Use alternating passing lanes or four-lane sections at key locations (Swedish "2+1")	Tried	Moderate to High	Medium

Notes:
[1] Cost: Low = <$10,000 per mile; Moderate = $10,000 to $100,000 per mile; High = >$100,000 per mile
[2] Implementation: Short = <1 year; Medium = 1 to 2 years; Long = >2 years
Source: NCHRP *Report 500* Series, 2003

TABLE 3-8
Signalized Intersection Strategies (Infrastructure Strategies)

Objectives	Strategies	Effectiveness	Cost to Implement and Operate[1]	Timeframe for Implementation[2]
A – Reduce Frequency and Severity of Intersection Conflicts through Traffic Control and Operational Improvements	**A1 –** Optimize signal operation (phasing/timing, etc.)	Tried / Proven	Low	Short
	A2 – Optimize clearance intervals	Proven	Low	Short
	A3 – Employ signal coordination along a corridor or route	Proven	Low	Medium
	A4 – Employ emergency vehicle preemption	Proven	Moderate	Medium
B – Reduce Intersection Conflicts through Geometrics	**B1 –** Provide/improve left-turn channelization	Proven	Moderate	Long
C – Improve Pedestrian Safety with Signal Improvements	**C1 –** Install countdown timers	Tried	Low	Short
	C2 – Re-time signals to provide a leading pedestrian interval (advanced walk)	Tried	Low	Short
D – Improve Driver Awareness of Intersections and Signal Control	**D2 –** Improve visibility of signals (overhead indications, 12-inch lenses, background shields, LED's) and signs (mast arm mounted street names) at intersections	Tried	Low	Short
E – Improve Driver Compliance with Traffic Control Devices	**E1 –** Supplement conventional enforcement of red-light running with confirmation lights; include a public information campaign to increase awareness and compliance	Tried	Low	Short
F – Improve Safety through other Infrastructure Treatments	**F1 –** Restrict or eliminate parking on intersection approaches	Proven	Low	Short

Notes:
[1] Cost: Low = <$100,000 per intersection; Moderate = $100,000 to $500,000 per intersection; High = >$500,000 per intersection
[2] Implementation: Short = <1 year; Medium = 1 to 2 years; Long = >2 years
Source: NCHRP *Report 500* Series, 2004

TABLE 3-9
Unsignalized Intersection Strategies (Infrastructure Strategies)

Objectives	Strategies	Effectiveness	Cost to Implement and Operate[1]	Timeframe for Implementation[2]
A – Reduce the Frequency and Severity of Intersection Conflicts through Geometric Design Improvements	**A1 –** Provide left-turn lanes at intersections	Proven	Moderate	Medium
	A2 – Provide offset turn lanes at intersections	Tried	Moderate to High	Medium
	A3 – Realign intersection approaches to reduce or eliminate intersection skew	Proven	High	Medium
	A4 – Improve pedestrian and bicycle facilities to reduce conflicts between motorists and nonmotorists	Varies	Moderate	Medium
	A5 – Use indirect left-turn treatments to minimize conflicts at divided highway intersections	Tried	Moderate	Medium
B – Improve Sight Distance at Unsignalized Intersections	**B1 –** Clear sight triangle on approaches and in medians by clearing grub, eliminating parking, etc	Tried	Low	Short
C – Improve Driver Awareness of Intersections as Viewed from the Intersection Approach	**C1 –** Improve visibility of intersections by providing enhanced signing, delineation or pavement markings/messages (stop bar, larger regulatory signs, LED stop signs, etc)	Tried	Low	Short
	C2 – Improve visibility of intersections by providing appropriate street lighting	Proven	Low to Moderate	Medium
	C3 – Install larger regulatory and warning signs at intersections, including the use of dynamic warning signs at appropriate intersections	Tried	Low	Short
	C4 – Call attention to the intersection by installing rumble strips or splitter islands on intersection approaches	Tried	Low to Moderate	Medium
D – Appropriate Intersection Traffic Control to Minimize Crash Frequency and Severity	**D1 –** Construct roundabouts at appropriate locations	Proven	High	Long

Notes:
[1] Cost: Low = <$50,000 per intersection; Moderate = $50,000 to $500,000 per intersection; High = >$500,000 per intersection
[2] Implementation: Short = <1 year; Medium = 1 to 2 years; Long = >2 years
Source: NCHRP *Report 500* Series, 2003

TABLE 3-10
Urban Segment Strategies (Infrastructure Strategies)

Objectives	Strategies	Effectiveness	Cost to Implement and Operate[1]	Timeframe for Implementation[2]
A – Include Pedestrian and Bicycle Accommodations	**A1 –** Install sidewalks in appropriate locations	Proven	Moderate to High	Medium
	A2 – Minimize pedestrian crossing distances using curb extensions or median islands	Proven	Low	Medium
B – Improve Roadway Configuration to Accommodate Left Turns	**B1 –** Restripe roadway to a three-lane (road diet) or five-lane cross-section	Proven	Low	Medium
C – Improve Access Management Near Intersections	**C1 –** Restrict or eliminate turning maneuvers by providing channelization or closing median openings	Tried	Low	Short
	C2 – Restrict access to properties using driveway closures or turn restrictions	Tried	Low	Medium
	C3 – Restrict cross-median access near intersections	Tried	Low	Medium

Notes:
[1] Cost: Low = <$50,000 per intersection; Moderate = $50,000 to $500,000 per intersection; High = >$500,000 per intersection
[2] Implementation: Short = <1 year; Medium = 1 to 2 years; Long = >2 years
Source: NCHRP *Report 500* Series, 2003

3.3 Safety Strategies Workshop

Three Safety Planning Workshops were held as part of the LRSP Phase 4 process. The December 9, 2014 meeting in Mandan included representatives from five counties and two cities in the Mandan region. The December 10, 2014 meeting in Rugby included representatives from six counties in the north central region. The December 11, 2014 meeting in Jamestown included representatives from six counties and the City of Jamestown in the south central region. The primary focus of the safety workshops was to discuss and prioritize the safety strategies.

The basic workshop structure included introductions and an overview of the current NDDOT safety program. This was followed by local speakers. Lt. Tom Iverson (North Dakota Highway Patrol), and Mike Aubol (Morton County) shared information on local safety initiatives and programs in the southwestern portion of the central region. Troopers Nevon Hiesler and Chris Schaefer (North Dakota Highway Patrol), and Ritch Gimbel (Bottineau County) shared information on local safety initiatives and programs in the northern portion of the central region. Trooper Craig Beedy (North Dakota Highway Patrol), Sheriff Chad Kaiser (Stutsman County), Sgt. Justin Blinsky (Jamestown Police Department), and Reed Schwratzkoff (City of Jamestown) shared information on local safety initiatives and programs in the southeastern portion of the central region. The morning concluded with a review of the latest crash data on the local roadway system. In the afternoon, the workshop participants discussed potential safety strategies and began the process of prioritizing the strategies. The groups reviewed and discussed driver behavior and roadway infrastructure strategies. The final agenda item was a voting exercise in which each participant voted for their preferred strategies as a way to focus future efforts for the local roadway programs in their region.

Workshop participants included county and city road safety engineering, enforcement, education, and emergency services representatives; elected county officials, and NDDOT staff in order to include a variety of backgrounds and experiences to enable valuable interaction and discussions during the workshops.

3.4 Prioritizing Safety Strategies

Through the group (infrastructure and driver behavior) discussions and voting exercises, the top safety strategies for the central region are:

- **Behavioral strategies**
  - Speed: Implement dynamic speed feedback signs, including dynamic message boards at rural to urban transitions
  - Young Drivers: Conduct high visibility enforcement of GDL, no cell and texting laws, underage drinking and driving, and seatbelt use laws
  - Belt Use: Pursue local support for primary seat belt law
  - Impaired Driving: Strengthen DUI convictions and sentencing through justice system evaluation and outreach
  - Impaired Driving: Expand high-visibility DUI enforcement saturations including sobriety checkpoints

- **Infrastructure strategies**
  - Lane Departure: Provide enhanced shoulders, lighting, delineation (for example, Chevrons), or pavement markings for sharp horizontal curves
  - Lane Departure: Install edge rumble strips (shoulder or edge line)
  - Lane Departure: Install enhanced pavement markings, 6-inch edge line, or embedded wet-reflective pavement markings on section with narrow or no paved shoulders
  - Unsignalized Intersection: Install larger regulatory and warning signs at intersections, including the use of dynamic warning signs at appropriate intersections
  - Unsignalized Intersection: Improve visibility of intersections by providing appropriate street lighting
  - Signalized Intersections: Install countdown timers

Infrastructure safety projects that are developed as part of this LRSP are considered eligible for funding through the state's Highway Safety Improvement Program (HSIP). The managers of this program have identified implementation cost and effectiveness as priorities in their evaluation process of selecting projects for funding. Low-cost projects allow the limited funding to support a wider deployment and the use of proven-effective strategies provides the highest level of confidence that a given project will result in an overall crash reduction.

The ability of the selected strategies to reduce crashes is based on information in the FHWA's CMF [Crash Modification Factors] Clearinghouse and other published research. Table 3-11 provides a summary of the crash reduction factors that were found in the CMF Clearinghouse for infrastructure safety strategies considered and/or suggested for the central region, along with an estimated unit cost for each strategy. Most factors reported are based on research that was assigned higher-quality ratings.

TABLE 3-11
Proposed Strategies, Crash Reduction Factors, and Typical Installation Costs

Strategy	Crash Reduction Factor [a]	Typical Installation Costs
Rural Segments		
4-inch latex edge line		$1,320 per mile
4-inch latex centerline		$660 per mile
6-inch latex edge line	10% to 45% all rural serious crashes	$1,980 per mile
Shoulder or edge line rumble strips	20% run off road crashes	$5,850 per mile
Ground in wet-reflective markings		$36,000 per mile
Centerline rumble strips	40% head-on/sideswipe-crashes	$3,600 per mile
6-inch centerline		$1,020 per mile
Rural Curves		
Chevrons	20% to 30%	$3,960 per curve
Arrow board only		$1,200 per curve
Advance warning sign and advisory speed plaque		$1,440 per curve
2-foot paved shoulder and shoulder rumble strips	20% to 30% run-off-the-road crashes	$54,000 per mile +$5,850 per mile

TABLE 3-11
Proposed Strategies, Crash Reduction Factors, and Typical Installation Costs

Strategy	Crash Reduction Factor [a]	Typical Installation Costs
Rural Intersections		
Roundabout	20% to 50% all crashes/ 60% to 90% right-angle crashes	$4,200,000 per intersection
Directional median (RCI or J-Turn)	17% all crashes/ 100% angle crashes	$1,080,000 per intersection
Mainline dynamic warning sign	50% all crashes/ 75% serious right-angle crashes	$60,000 per intersection
Close median		$30,000 per intersection
Intersection lighting	25% to 40% nighttime crashes	$10,200 per streetlight
Upgrade signs and pavement markings	40% upgrade of all signs and pavement markings/ 15% for STOP AHEAD pavement marking	$2,640 per approach [b]
Clear sight triangle	37% serious injury crashes [c]	$2,940 per intersection [d]
Urban		
Conversions (three-lane/five-lane)	30% to 50%	$48,000 per mile [three-lane] $54,000 per mile [five-lane] +$36,000 per signalized intersection for updates (for example, loop and signal head placement)
Access management	5% to 31%	$360,000 per mile [e]
Signal – confirmation lights	25% to 84% reduction in violations	$1,200 per two approaches
Pedestrian/bicycle – advanced walk	Up to 60% pedestrian/ vehicle crashes	$600 per intersection
Pedestrian/bicycle – countdown timers	25% vehicle/pedestrian crashes	$12,000 per intersection
Pedestrian/bicycle – curb extensions	Increase in vehicles yielding to pedestrians	$36,000 per corner
Pedestrian/bicycle – median refuge island	46% in vehicle/pedestrian crashes	$24,000 per approach

Notes:
[a] Crash reduction factors based on review of CMF Clearinghouse and other published research
[b] 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
[c] Reduction based on increasing sight distance triangle
[d] Inclusive of sign upgrades identified and materials and labor for clearing of sight triangle.
[e] 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.
N/A = not applicable

4.0 Central Region Infrastructure Safety Projects

4.1 Central Region Proactive Project Decision Process

The primary objectives of the LRSP effort are to identify low-cost, safety-related infrastructure projects focused on each county's documented safety emphasis areas and target crash types. These emphasis areas account for the greatest number of severe crashes occurring on the local road system. Mitigating the factors that contribute to these crashes will assist each county in reducing serious crashes on the local road system.

Projects were developed that include identifying a specific improvement at a specific location based on risk factors described in Chapter 2 and the high-priority safety strategies described in Chapter 3. Improvement strategies are consistent with the NDDOT's SHSP with a focus on proven effectiveness at reducing the target crash type and low cost of implementation. Proven-effective strategies give safety program managers the highest level of confidence that the deployment will result in a reduction of crashes. Low-cost strategies allow improvements to be widely deployed across a system to address the low density of crashes and are less expensive than complete reconstruction of high-risk locations. Project development and mitigation focused on the following improvements:

- **Rural**
  - Lane-departure crashes along roadway segments and in curves
  - Intersection-related crashes
- **Urban**
  - Rear-end and head-on crashes on roadway segments
  - Angle crashes and pedestrian and bicycle crashes at intersections

For consistency across the central region, project decision trees were created so that locations with similar characteristics across the region received the same suggested mitigation treatment. Projects were chosen based on the identification of at-risk locations and the availability of proven strategies for crash reduction. This resulted in a systemic focus on rural paved roadway segments, horizontal paved curves, and rural intersections. In cities with populations over 5,000, the focus was on arterial and collector roadway segments and intersections along these segments. Projects were originally suggested based on the technical analysis and then revised in accordance with input from the local agencies and NDDOT.

High-priority rural roadway segment projects focused on addressing the most common type of serious segment-related crash—a single-vehicle, lane-departure crash—by implementing road edge improvements to alert drivers when they are drifting too far along the road edge (Figure 4-1).

High-priority rural curve projects focused on enhancing the curve delineation to improve the driver's ability to successfully navigate the curves (Figure 4-2). As shown in the figure, a curve is eligible for a safety improvement project in three ways.

High-priority rural intersection projects (Figure 4-3) focused on addressing the most common type of serious intersection crash—a right-angle collision—by making the intersection more visible to drivers and by reducing the number of intersection conflicts. Examples of suggested projects are shown in Figure 4-4.

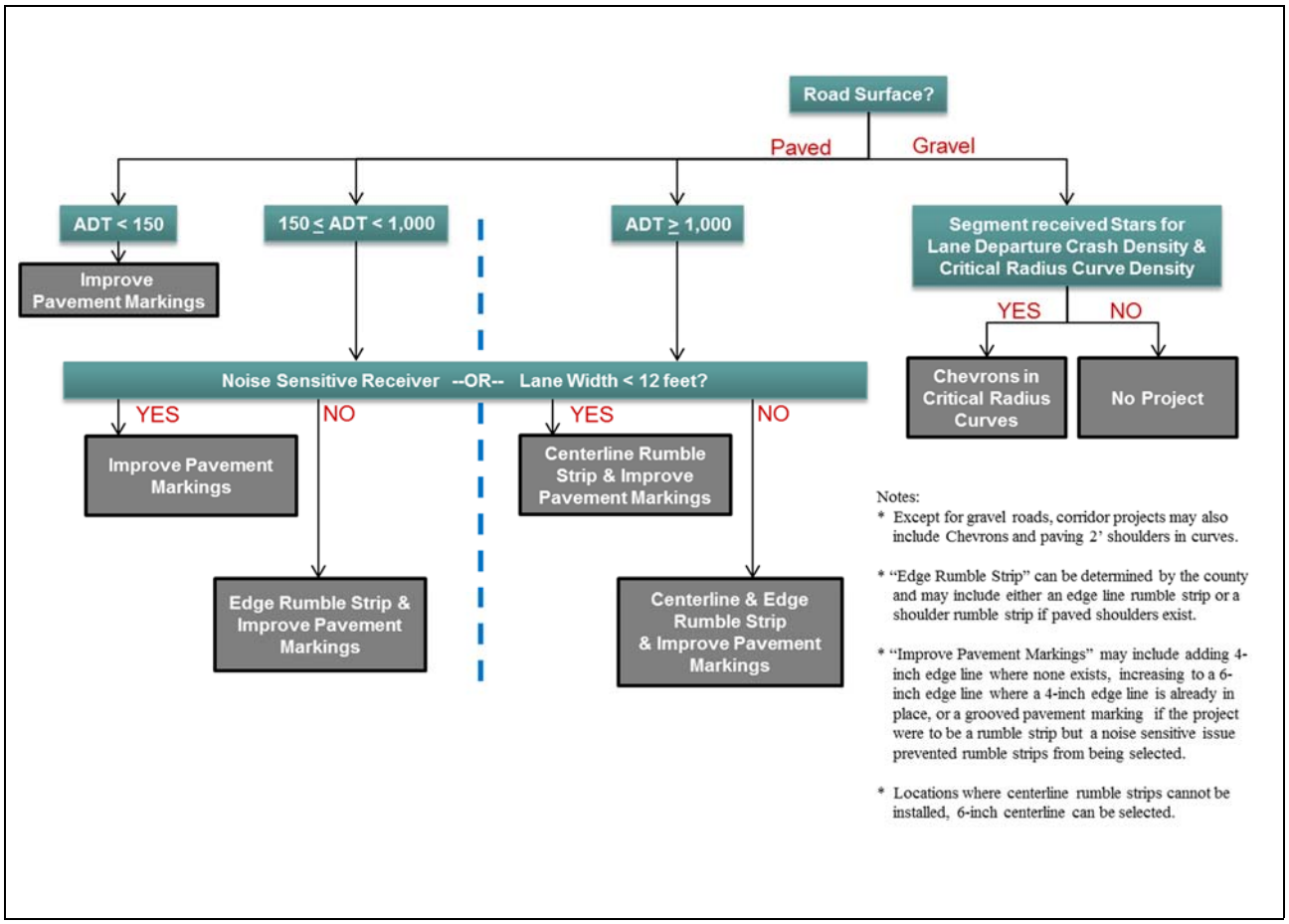


FIGURE 4-1
High-Priority Rural Roadway Segment Project Decision Tree

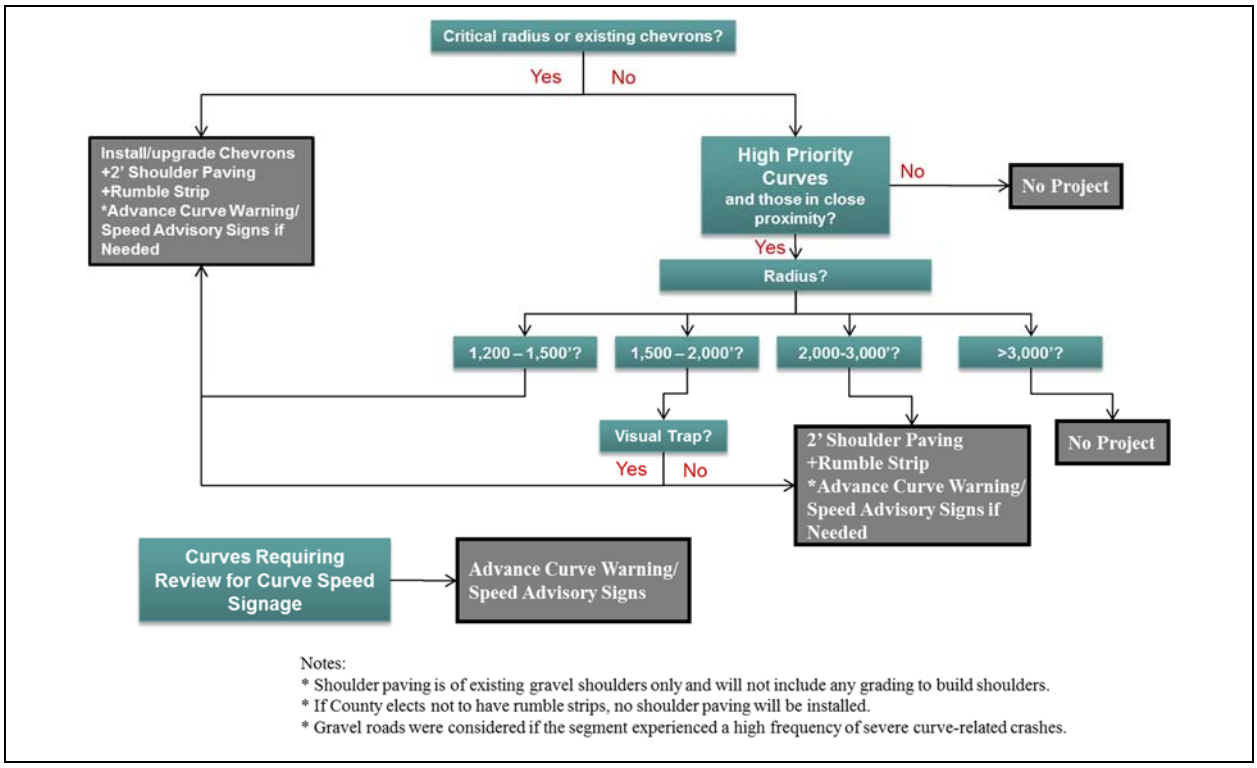


FIGURE 4-2
High-Priority Rural Curve Project Decision Tree

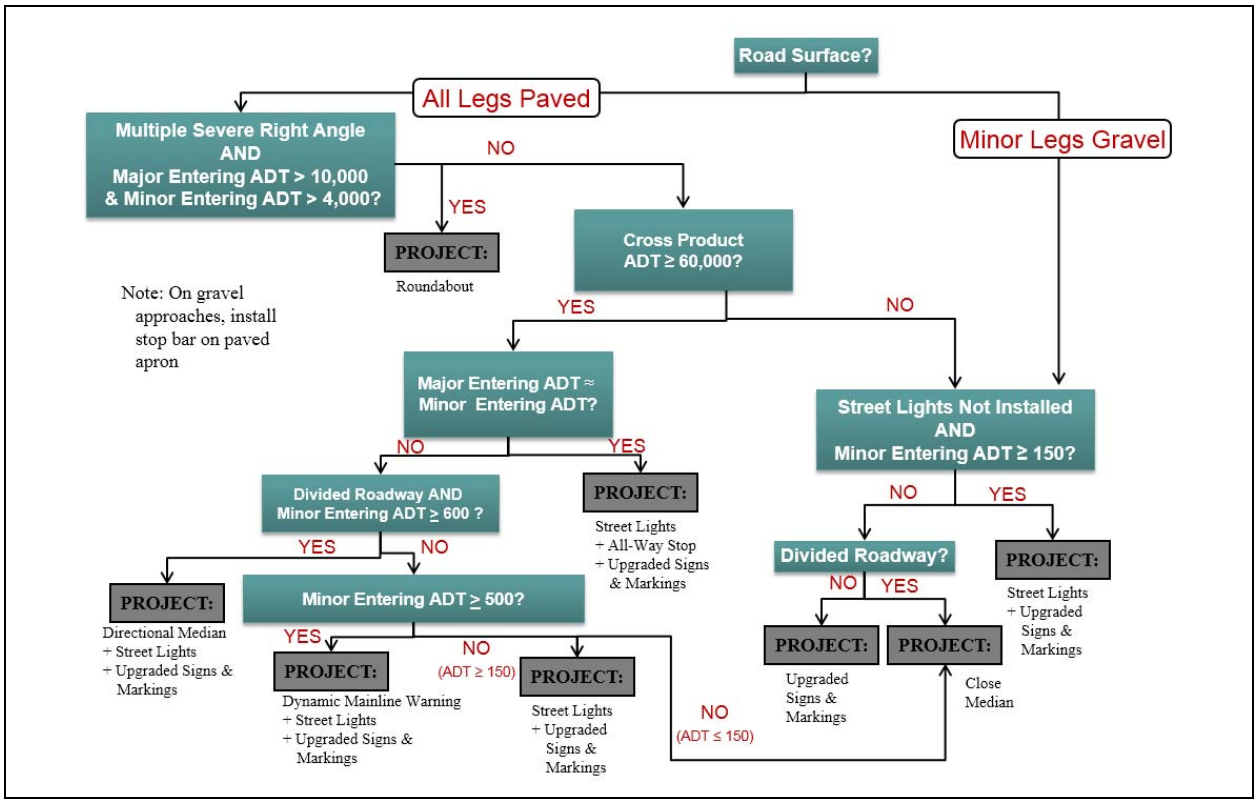
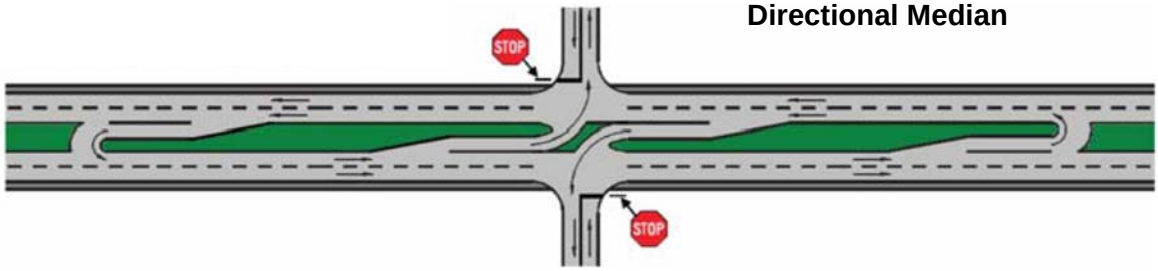
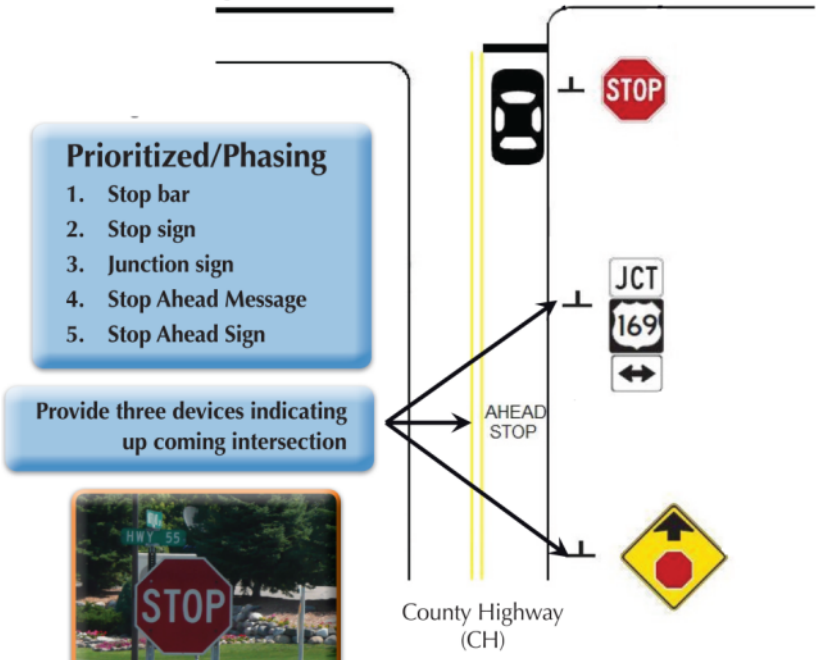


FIGURE 4-3
High-Priority Rural Intersection Project Decision Tree

Directional Median



Upgraded Signs and Markings



Project may include some or all of the items based on detailed field assessment.

Source: *Minnesota DOT District 3-13 County RSA,* CH2M HILL, 2006

FIGURE 4-4
Intersection Safety Strategies Considered for Deployment

High-priority urban roadway segment projects focused on reducing rear-end and head-on crashes by creating buffer space in the middle of the roadway. This buffer space would be created by converting to a three-lane or five-lane roadway and by better managing access along divided arterials (Figure 4-5).

High-priority urban right-angle intersection projects focused on reducing right-angle crashes by reducing red-light running and managing access to reduce the number of conflict points along a corridor, particularly at signalized intersections (Figure 4-6).

High-priority urban pedestrian and bicycle intersection projects focused on reducing pedestrian and bicycle crashes by providing shorter crossing distances, curb extensions or median refuge islands, as well as advanced walk intervals and countdown timers at signalized intersections (Figure 4-7).

Project forms were completed for each high-priority intersection, curve, and roadway segment, including a description of the location, brief crash history, ranking factors, and the identified safety strategy. These forms were formatted so they could be submitted directly through the HSIP process, but may require supplemental information for the evaluation and scoring process.

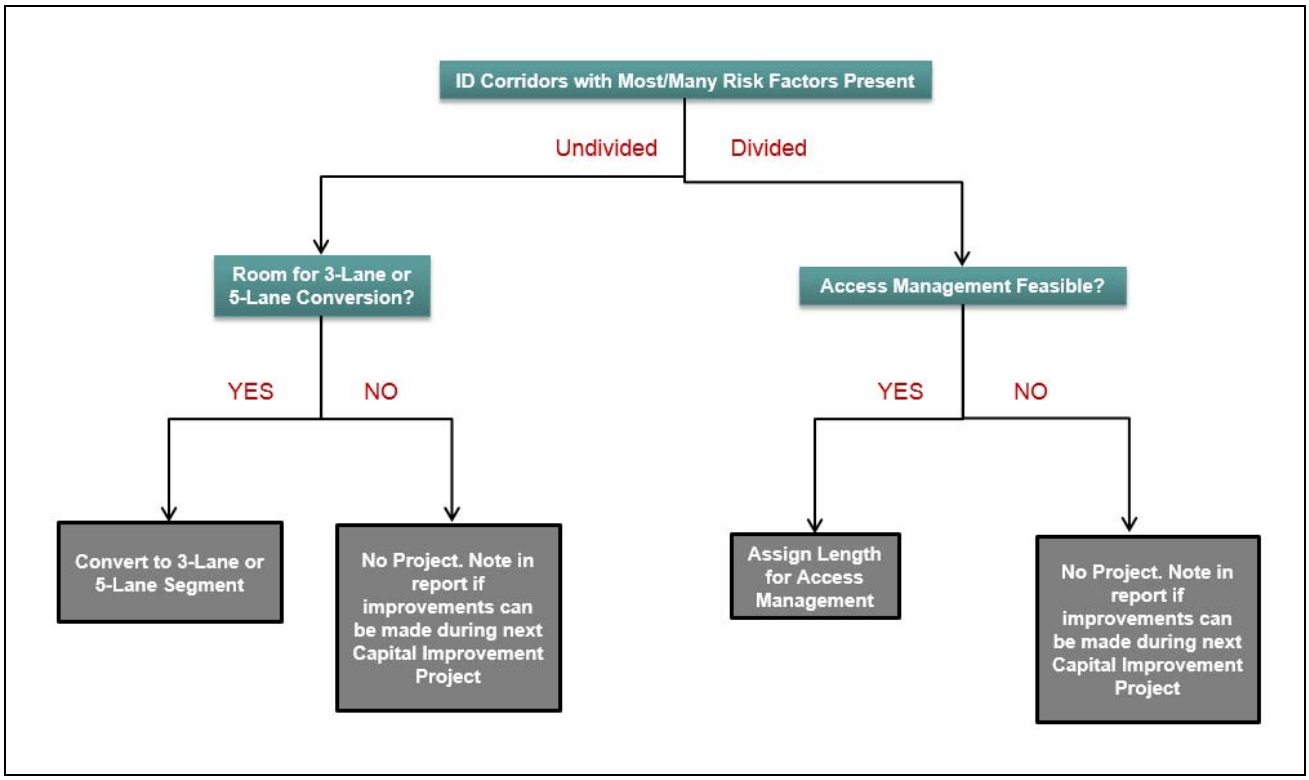


FIGURE 4-5
High-Priority Urban Roadway Segment (Turning) Project Decision Tree

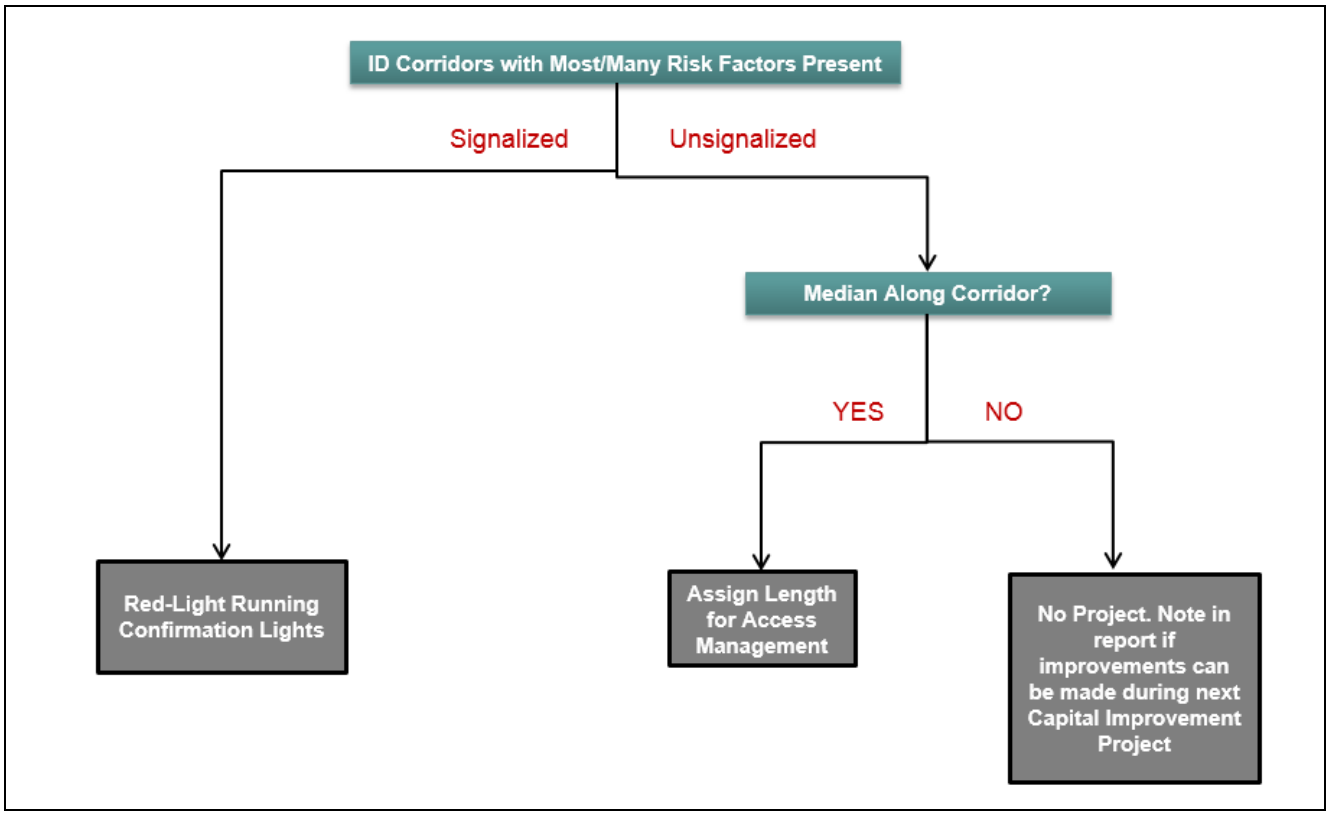


FIGURE 4-6
High-Priority Urban Right-Angle Intersection (Signalized) Project Decision Tree

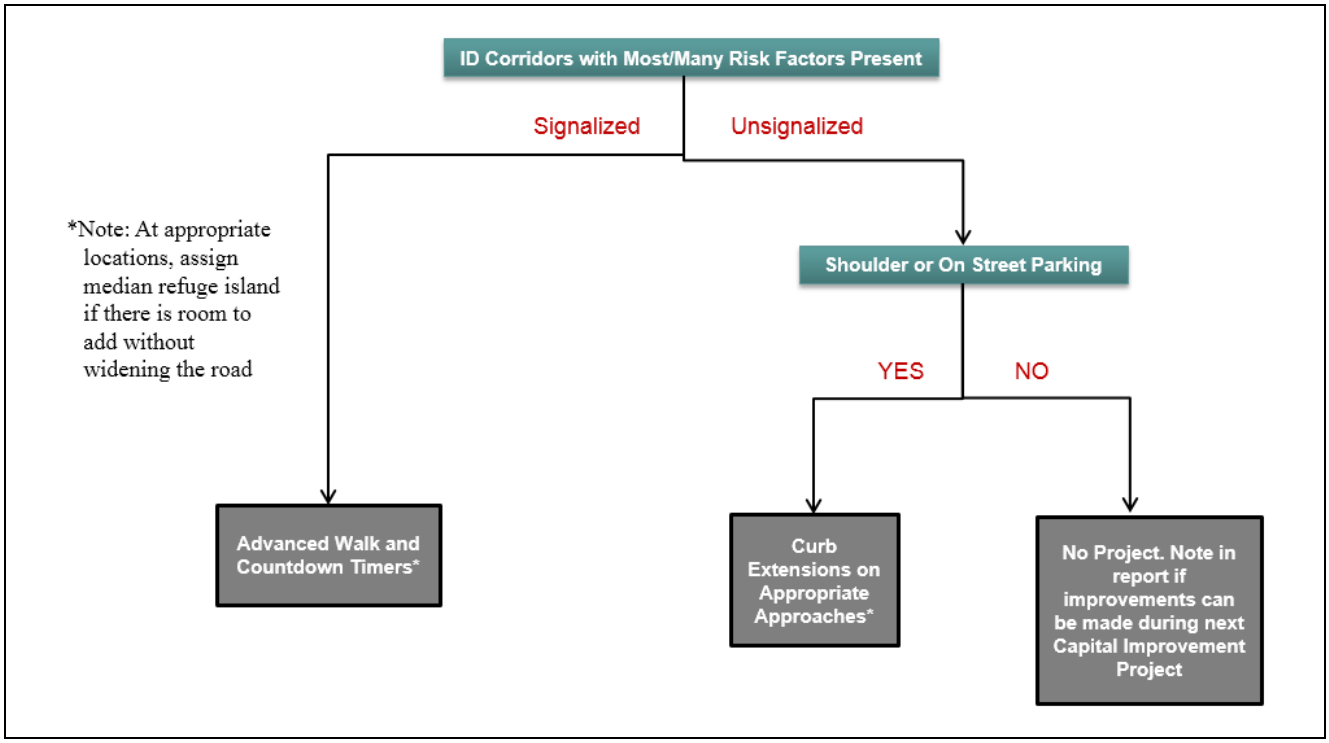


FIGURE 4-7
High-Priority Urban Pedestrian and Bicyclist Intersection Project Decision Tree

The suggested low-cost safety projects for the central region are described in the following sections. The costs assigned to each project are planning-level estimates and do not include right-of-way or some other supplemental costs. Because of funding limitations, all potential projects would not be completed in one year. The actual schedule for implementing individual projects will necessitate securing funding from the state's HSIP. The safety planning process followed for the central region is consistent with the North Dakota SHSP. In addition, several of the high-priority safety strategies are among those recommended for the state road system in the state's SHSP.

It is not expected or required that each county or city pursue safety projects in the suggested ranking order. The ranking suggests general priorities, given that actual project development decisions will be made by each county or city staff based on economic, social, and political issues and in coordination with other pavement and reconstruction projects that are part of the county's Capital Improvement Program.

Many project details are still undetermined, including general project termini. Each county or city will determine specific project details (such as termini and exceptions) as decisions regarding implementation of specific projects are made. These decisions may require that the county coordinate with various municipal departments, the public, and other county transportation departments.

The total cost of projects suggested for the central region is $14,770,605. A cost breakout by project type and county/city is provided in Table 4-1.

TABLE 4-1
Central Region Total Safety Project Costs

Rural Projects	Roadway Segments	Intersections	Curves	Total
Benson County	$195,384	$4,660,200	$80,405	$4,935,989
Bottineau County	$306,533	$316,320	$310,137	$932,990
Dickey County	$57,777	$52,440	$176,561	$286,778
Emmons County	$38,025	$80,400	$20,160	$138,585
Kidder County	$109,824	$24,240	$52,048	$186,112
LaMoure County	$299,597	$168,360	$156,039	$623,996
Logan County	$1,320	$18,120	$6,042	$25,482
McHenry County	$345,116	$1,421,760	$24,151	$1,791,027
McIntosh County	$150,584	$28,320	$189,540	$368,444
Morton County	$245,788	$140,040	$722,194	$1,108,022
Oliver County	$49,140	$102,960	$96,738	$248,838
Pierce County	$39,249	$95,640	$0	$134,889
Rolette County	$175,968	$431,640	$50,883	$658,491
Sheridan County	$7,920	$21,600	$53,680	$83,200
Sioux County	$0	$12,240	$164,040	$176,280
Stutsman County	$499,230	$479,400	$251,155	$1,229,785
Towner County	$0	$40,800	$0	$40,800
Wells County	$58,740	$202,320	$26,514	$287,574
Urban Projects	**Roadway Segments**	**Intersections – Right-Angle**	**Intersections – Pedestrians and Bicyclists**	**Total**
City of Jamestown	$371,211	$2,400	$257,400	$631,011
City of Mandan	$714,912	$6,000	$161,400	$882,312

Benson County

The total project cost suggested for Benson County is $4,935,989. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-2. High-priority locations that received a project are shown in Figure 4-8. These locations are described in further detail in Appendix: Benson County, along with priority rankings and suggested project sheets.

TABLE 4-2
Benson County Project Costs

Project Type	Cost
Intersections	$4,660,200
Roadway Segments	$195,384
Curves	$80,405
Total	$4,935,989

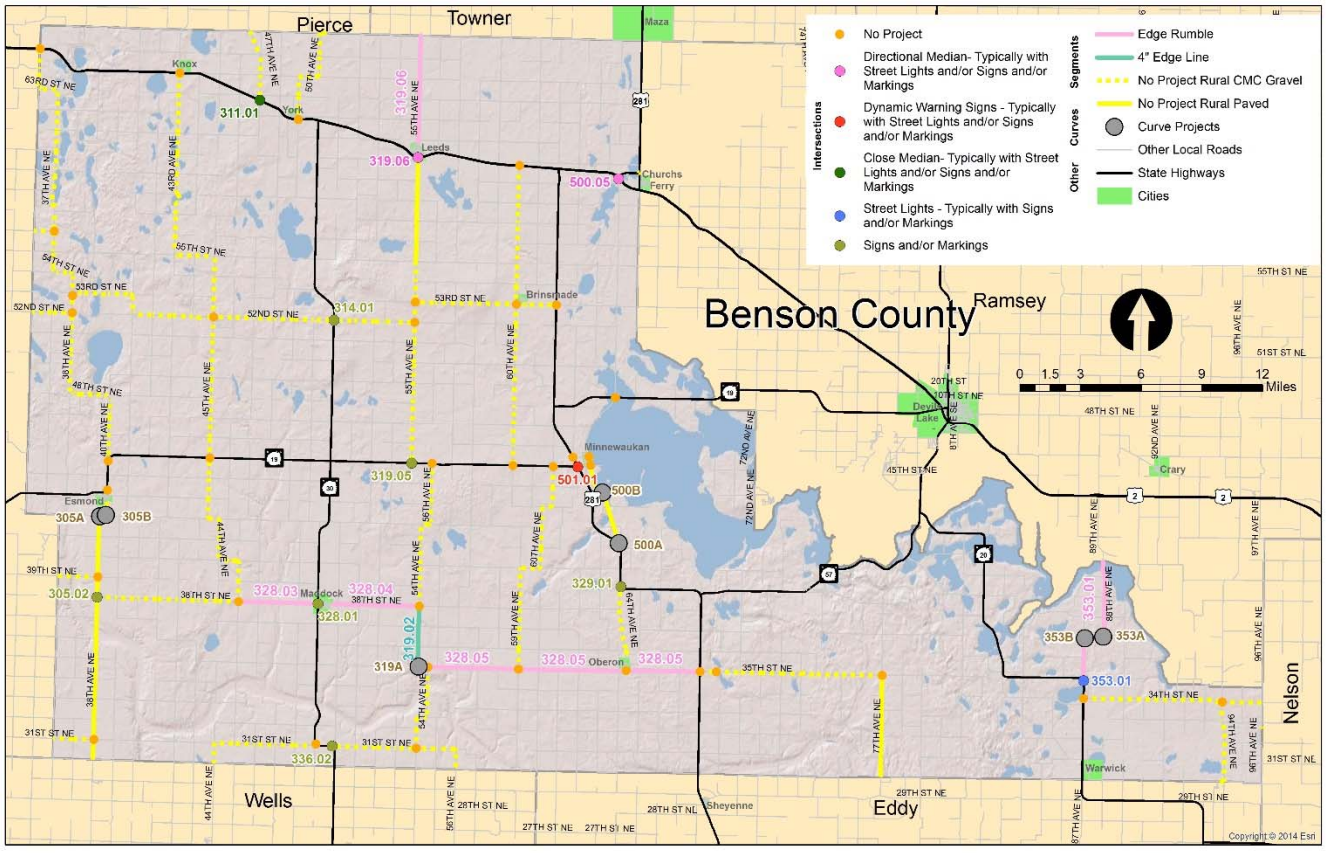


FIGURE 4-8
Benson County Project Locations Map

Bottineau County

The total project cost suggested for Bottineau County is $932,990. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-3. High-priority locations that received a project are shown in Figure 4-9. These locations are described in further detail in Appendix: Bottineau County, along with priority rankings and suggested project sheets.

TABLE 4-3
Bottineau County Project Costs

Project Type	Cost
Intersections	$316,320
Roadway Segments	$306,533
Curves	$310,137
Total	$932,990

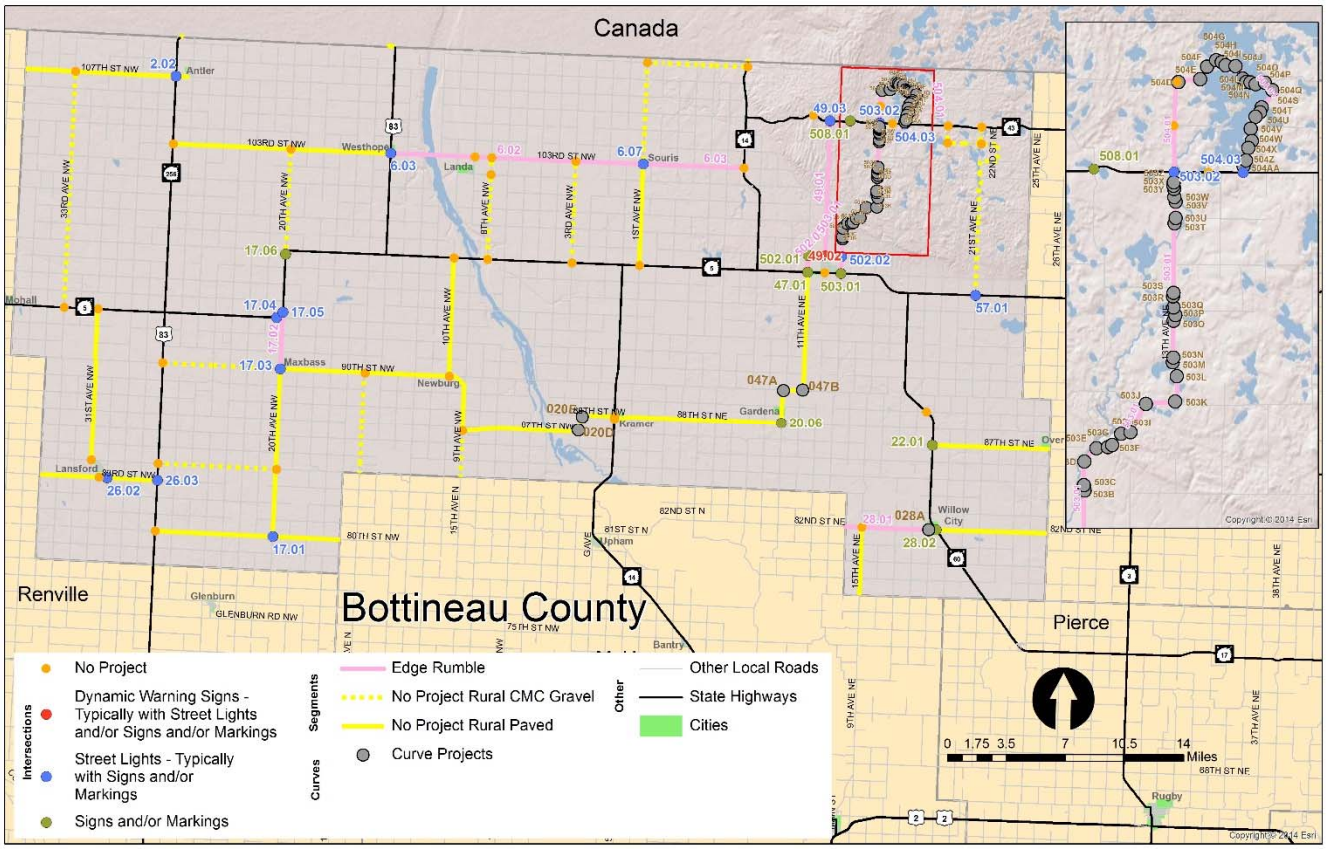


FIGURE 4-9
Bottineau County Projects Location Map

Dickey County

The total project cost suggested for Dickey County is $286,778. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-4. High-priority locations that received a project are shown in Figure 4-10. These locations are described in further detail in Appendix: Dickey County, along with priority rankings and suggested project sheets.

TABLE 4-4
Dickey County Project Costs

Project Type	Cost
Intersections	$52,440
Roadway Segments	$57,777
Curves	$176,561
Total	$286,778

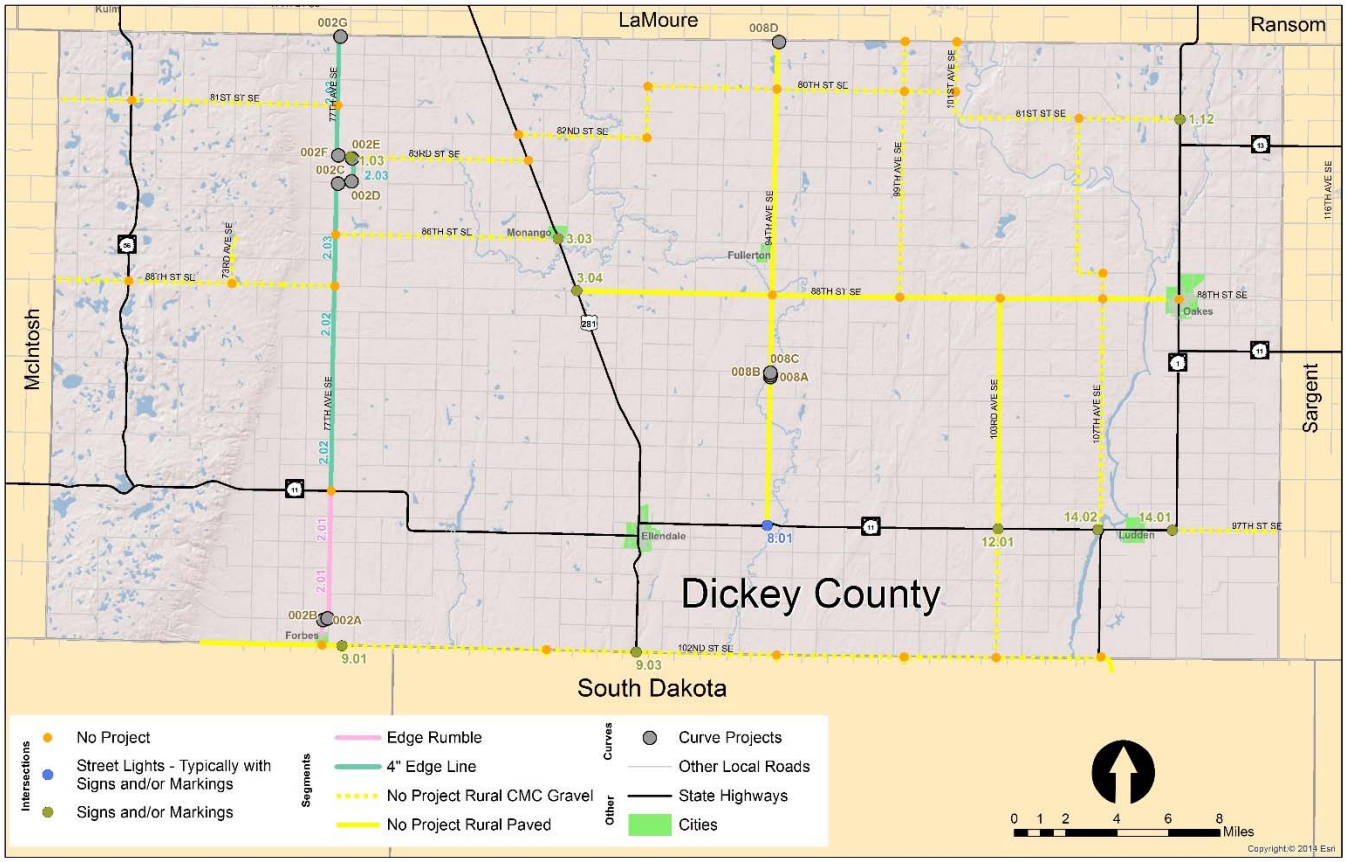


FIGURE 4-10
Dickey County Project Locations Map

Emmons County

The total project cost suggested for Emmons County is $138,585. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-5. High-priority locations that received a project are shown in Figure 4-11. These locations are described in further detail in Appendix: Emmons County, along with priority rankings and suggested project sheets.

TABLE 4-5
Emmons County Project Costs

Project Type	Cost
Intersections	$80,400
Roadway Segments	$38,025
Curves	$20,160
Total	$138,585

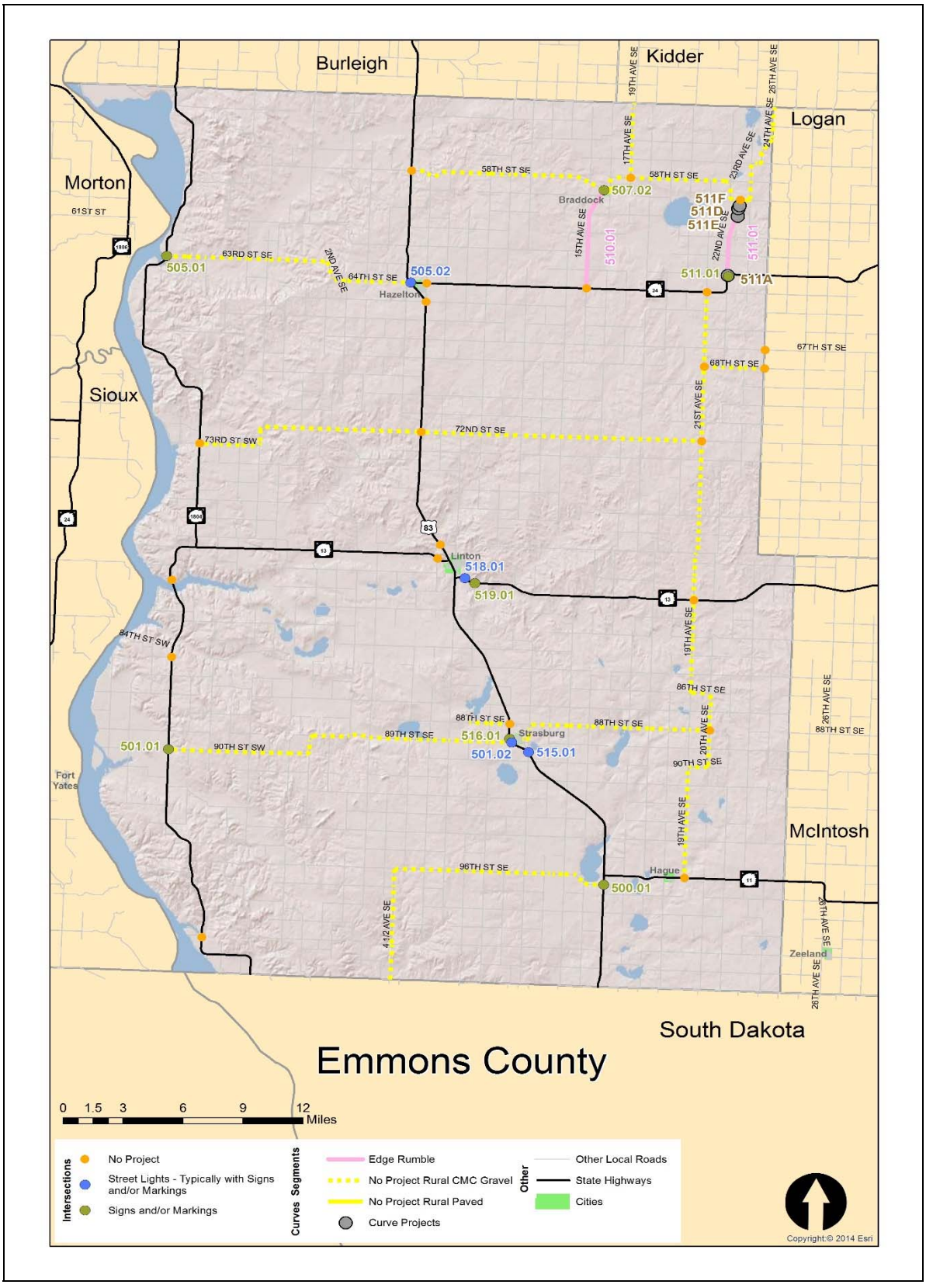


FIGURE 4-11
Emmons County Project Locations Map

Kidder County

The total project cost suggested for Kidder County is $186,112. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-6. High-priority locations that received a project are shown in Figure 4-12. These locations are described in further detail in Appendix: Kidder County, along with priority rankings and suggested project sheets.

TABLE 4-6
Kidder County Project Costs

Project Type	Cost
Intersections	$24,240
Roadway Segments	$109,824
Curves	$52,048
Total	$186,112

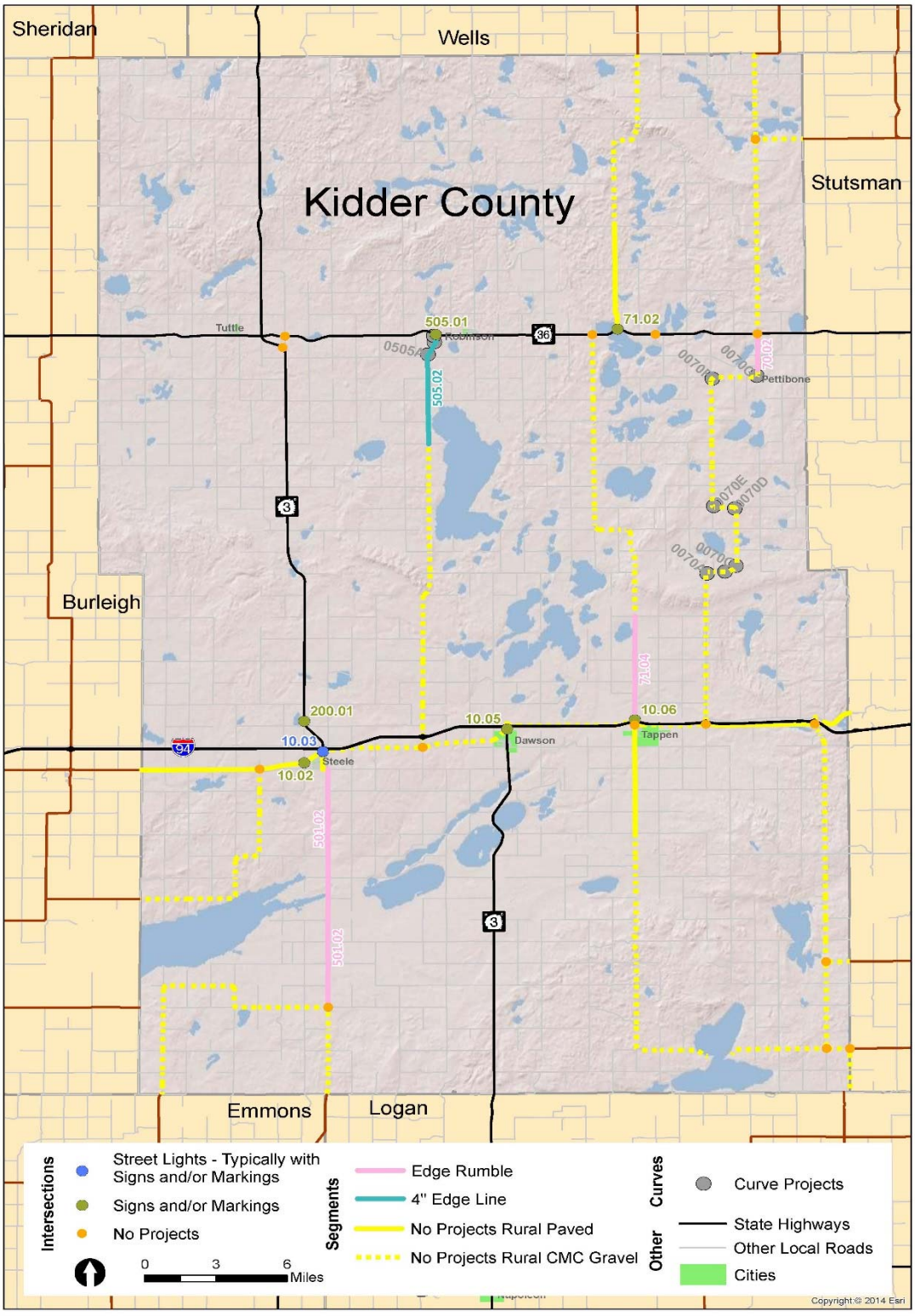


FIGURE 4-12
Kidder County Project Locations Map

LaMoure County

The total project cost suggested for LaMoure County is $623,996. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-7. High-priority locations that received a project are shown in Figure 4-13. These locations are described in further detail in Appendix: LaMoure County, along with priority rankings and suggested project sheets.

TABLE 4-7
LaMoure County Project Costs

Project Type	Cost
Intersections	$168,360
Roadway Segments	$299,597
Curves	$156,039
Total	$623,996

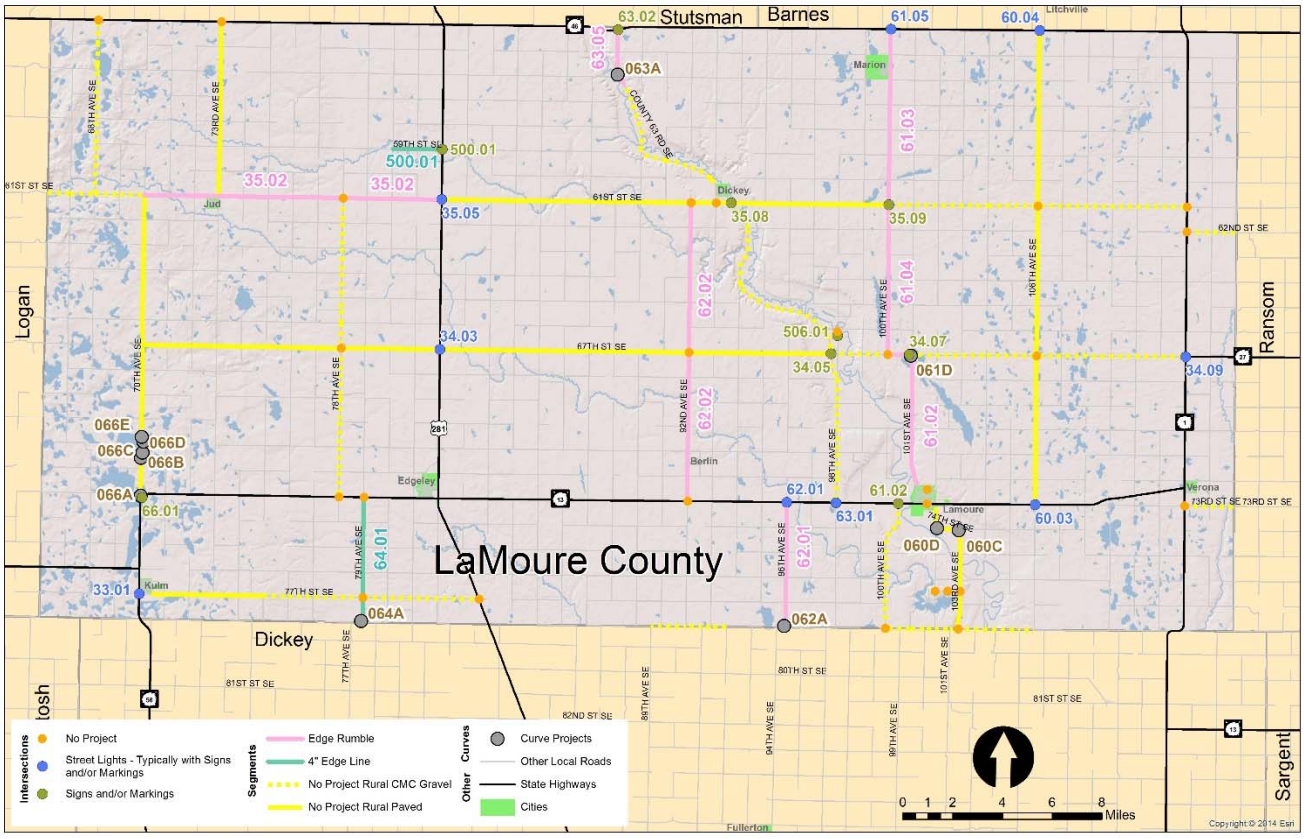


FIGURE 4-13
LaMoure County Project Locations Map

Logan County

The total project cost suggested for Logan County is $25,482. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-8. High-priority locations that received a project are shown in Figure 4-14. These locations are described in further detail in Appendix: Logan County, along with priority rankings and suggested project sheets.

TABLE 4-8
Logan County Project Costs

Project Type	Cost
Intersections	$18,120
Roadway Segments	$1,320
Curves	$6,042
Total	$25,482

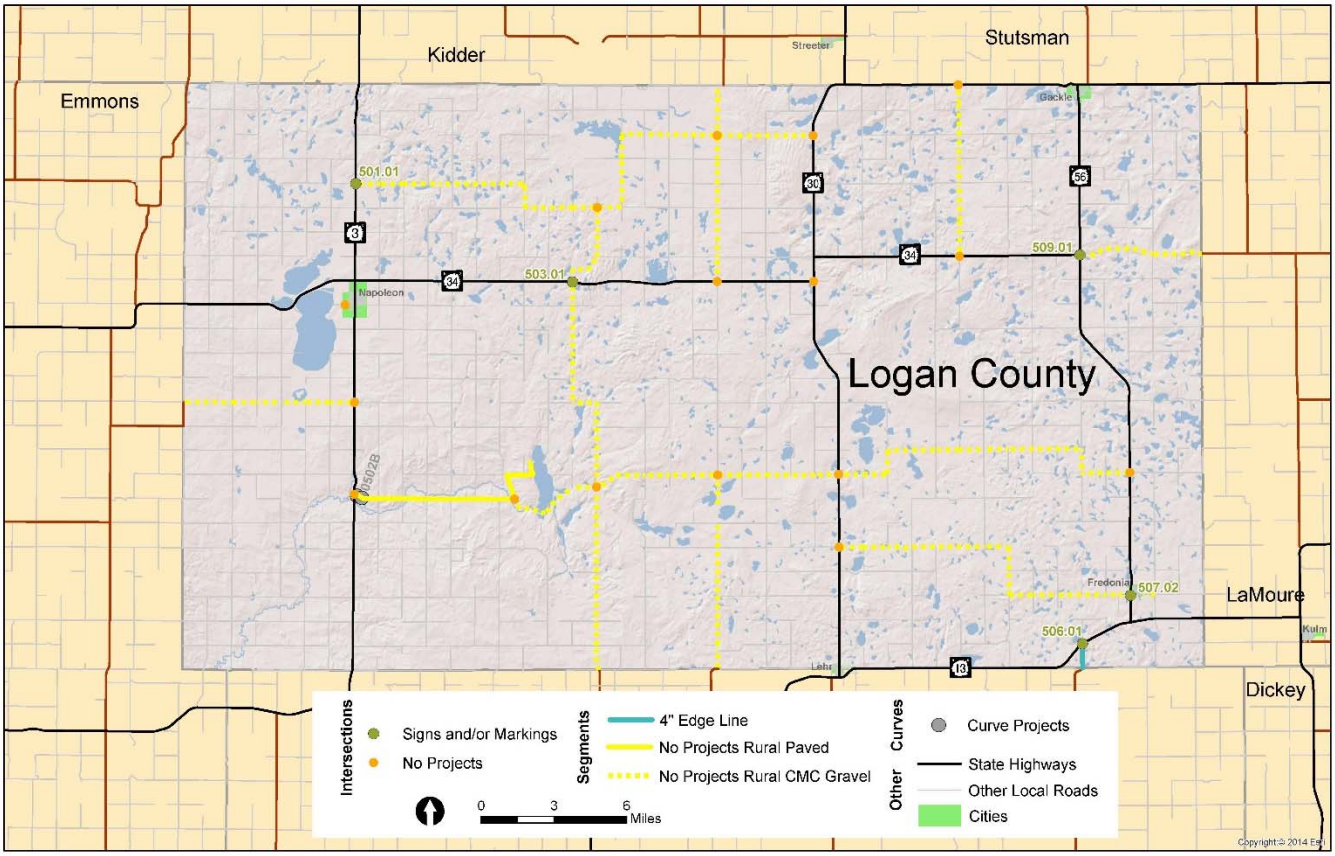


FIGURE 4-14
Logan County Project Locations Map

McHenry County

The total project cost suggested for McHenry County is $1,791,027. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-9. High-priority locations that received a project are shown in Figure 4-15. These locations are described in further detail in Appendix: McHenry County, along with priority rankings and suggested project sheets.

TABLE 4-9
McHenry County Project Costs

Project Type	Cost
Intersections	$1,421,760
Roadway Segments	$345,116
Curves	$24,151
Total	$1,791,027

Two roadway segments identified as high-priority locations did not receive projects. These segments were either too short to be considered for a corridor project, or were predominantly located within city limits with an urban design such that rural segment projects would not apply (Table 4-10).

TABLE 4-10
McHenry County Priority Segment Locations without Suggested Treatments

Segment ID	Local Name	Segment Start	Segment End	Location Notes
515.01	14th Ave N	42nd St N (ND 97)	US 52	Short Segment – Removed From Consideration
500.01	Main St / 21st Ave N	153rd St NE (West Border of McHenry Co)	68th St N	Short Segment – Removed From Consideration

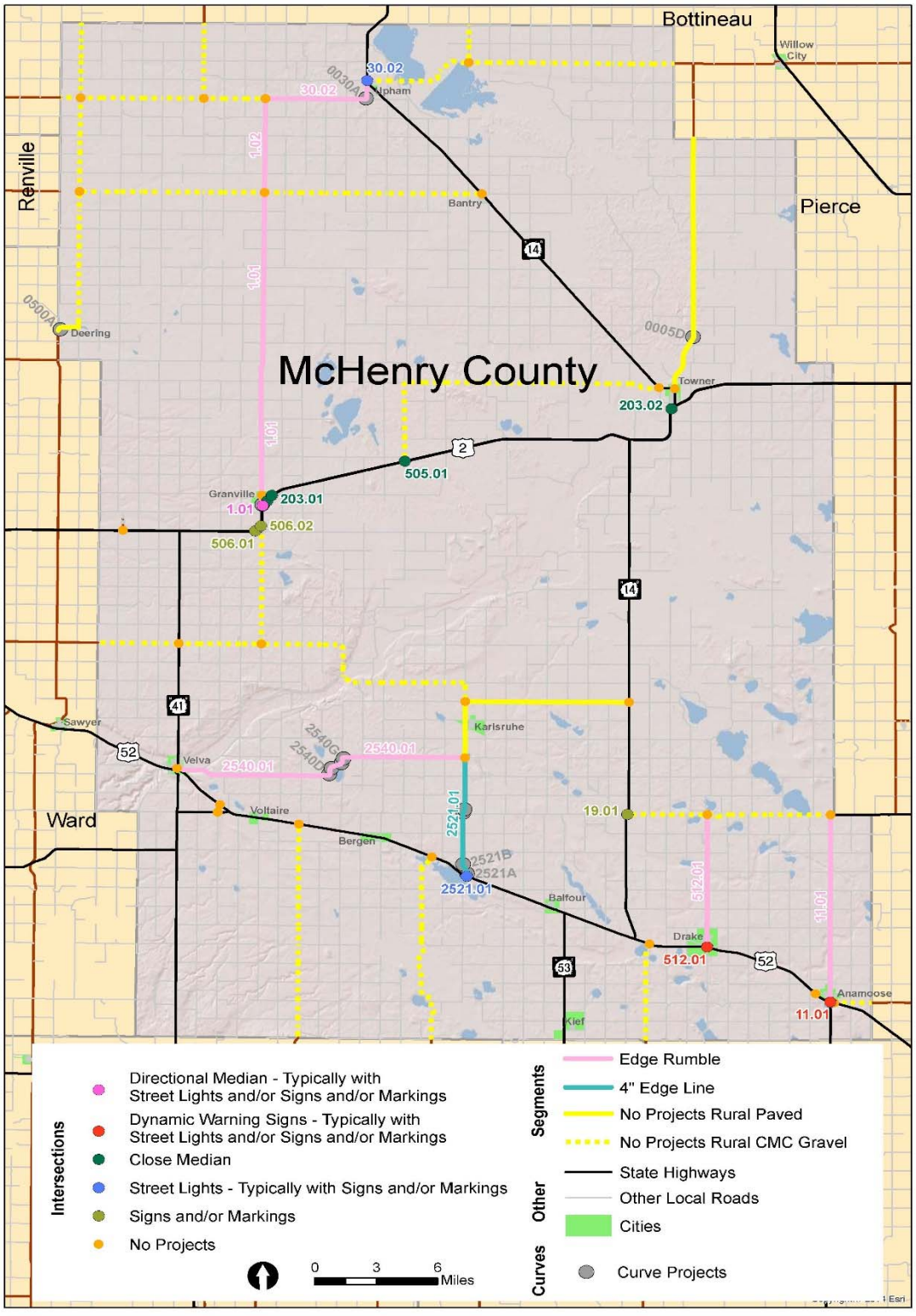


FIGURE 4-15
McHenry County Project Locations Map

McIntosh County

The total project cost suggested for McIntosh County is $368,444. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-6. High-priority locations that received a project are shown in Figure 4-11. These locations are described in further detail in Appendix: McIntosh County, along with priority rankings and suggested project sheets.

TABLE 4-11
McIntosh County Project Costs

Project Type	Cost
Intersections	$28,320
Roadway Segments	$150,584
Curves	$189,540
Total	$368,444

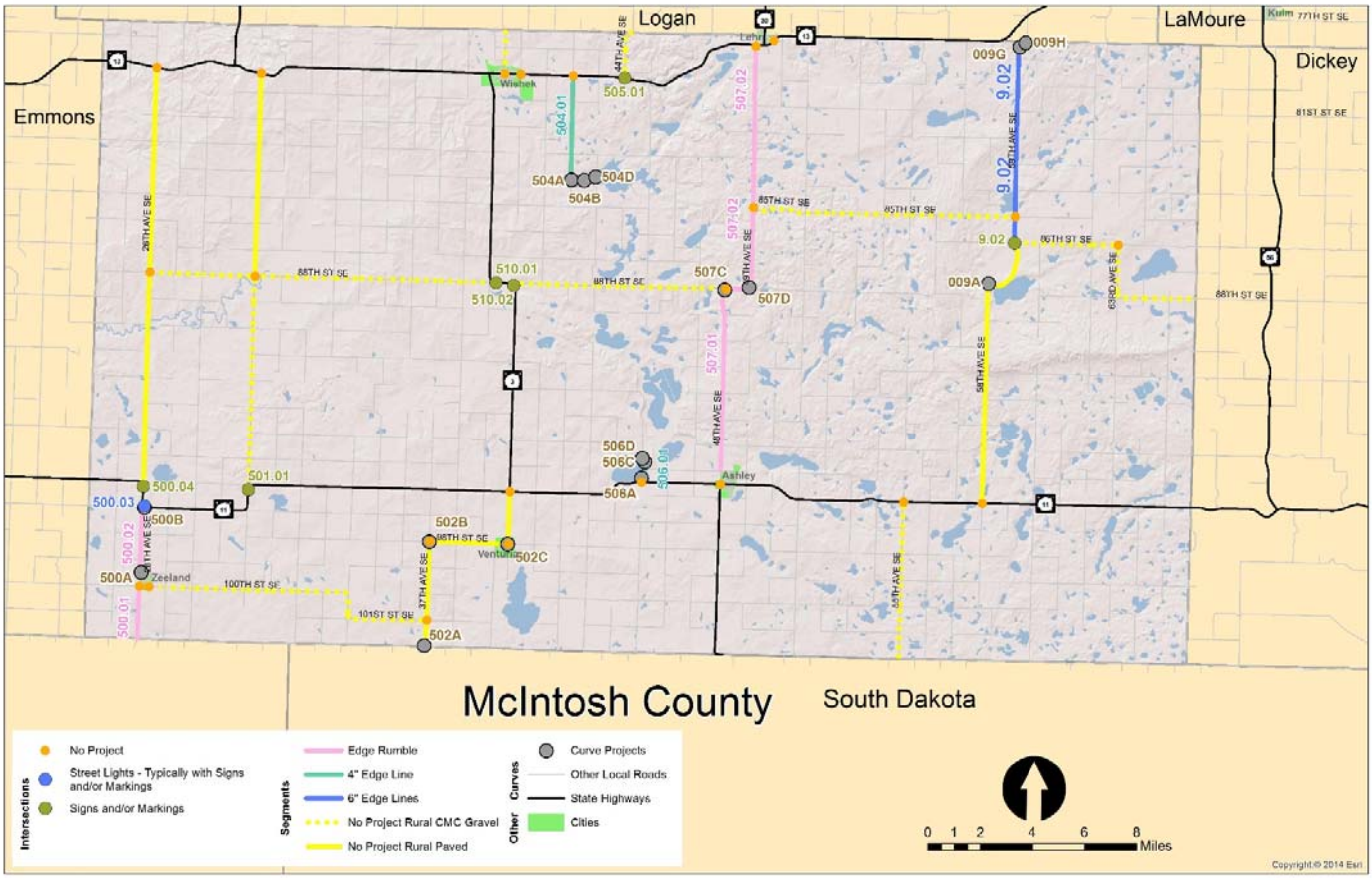


FIGURE 4-16
McIntosh County Project Locations Map

Morton County

The total project cost suggested for Morton County is $1,108,022. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-12. High-priority locations that received a project are shown in Figure 4-17. These locations are described in further detail in Appendix: Morton County, along with priority rankings and suggested project sheets.

TABLE 4-12
Morton County Project Costs

Project Type	Cost
Intersections	$140,040
Roadway Segments	$245,788
Curves	$722,194
Total	$1,108,022

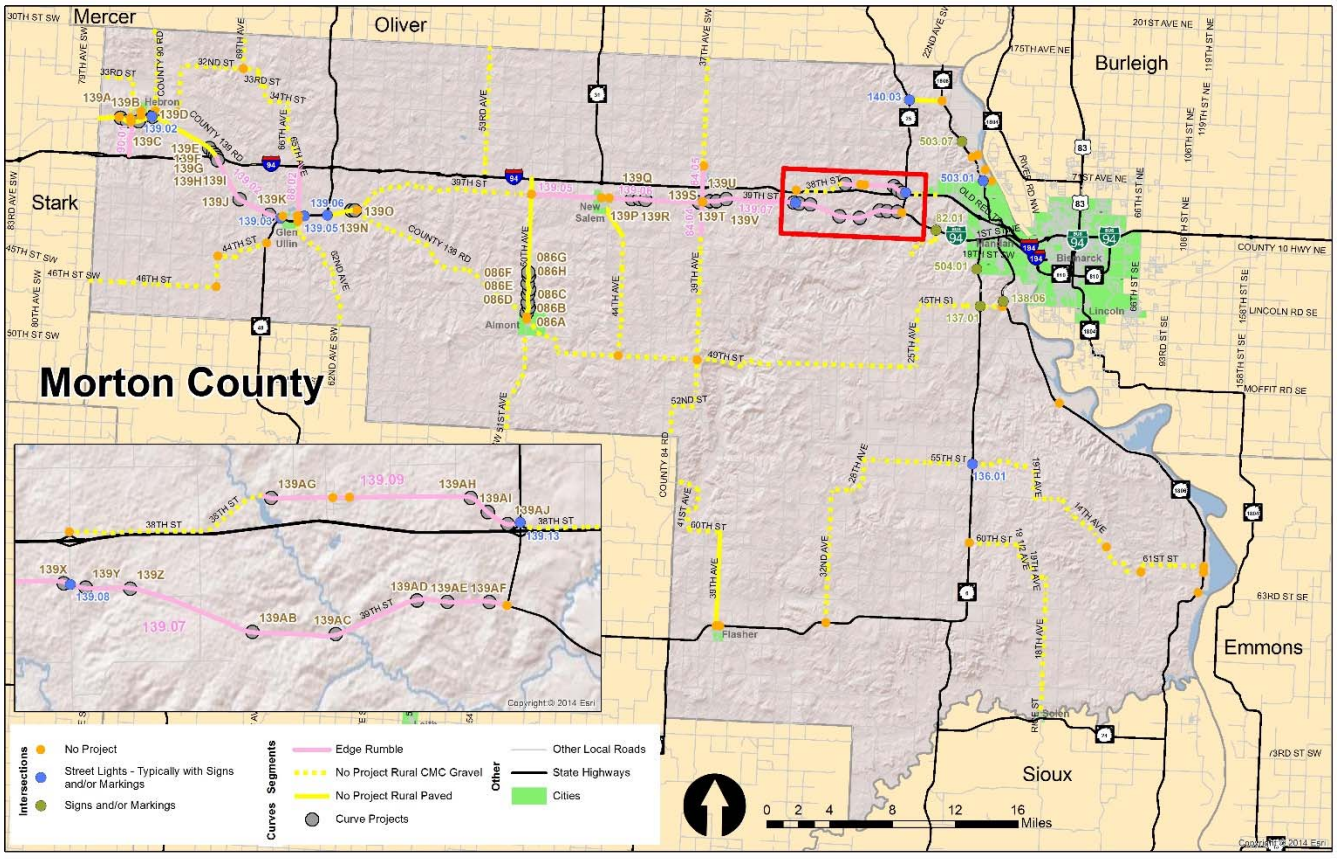


FIGURE 4-17
Morton County Project Locations Map

City of Mandan

The total project cost suggested for City of Mandan is $882,312. The project cost breakout for roadway segment, right-angle intersection, and pedestrian/bicyclist intersection projects are listed in Table 4-13. High-priority locations that received a project are shown in Figures 4-18 & 4-19. These locations are described in further detail in Appendix: City of Mandan, along with priority rankings and suggested project sheets.

TABLE 4-13
City of City Of Mandan Project Costs

Project Type	Cost
Roadway Segments	$714,912
Right-Angle Intersections	$6,000
Pedestrian and Bicyclist Intersections	$161,400
Total	$882,312

Three roadway segments identified as high-priority locations did not receive projects. These segments were either already improved with existing treatments, or were predominantly located in rural surroundings such that urban segment projects would not apply (Table 4-14).

TABLE 4-14
City of Mandan Priority Segment Locations without Suggested Treatments

Segment ID	Local Name	Segment Start	Segment End	Location Notes
831.01	Memorial Hwy (Bus 94)	Intersection with 46th Ave SE	Intersection with E Main St (BUS 94)	Treatment already in place. No project.
827.02	46th Ave SE	Intersection with Mckenzie Dr SE	Intersection with Memorial Hwy (Bus 94)	Treatment already in place. No project.
802.01	56th Ave	Intersection with Old Red Trail	Intersection with Lariat Ct	Rural – No project. Consider center and edge lines.

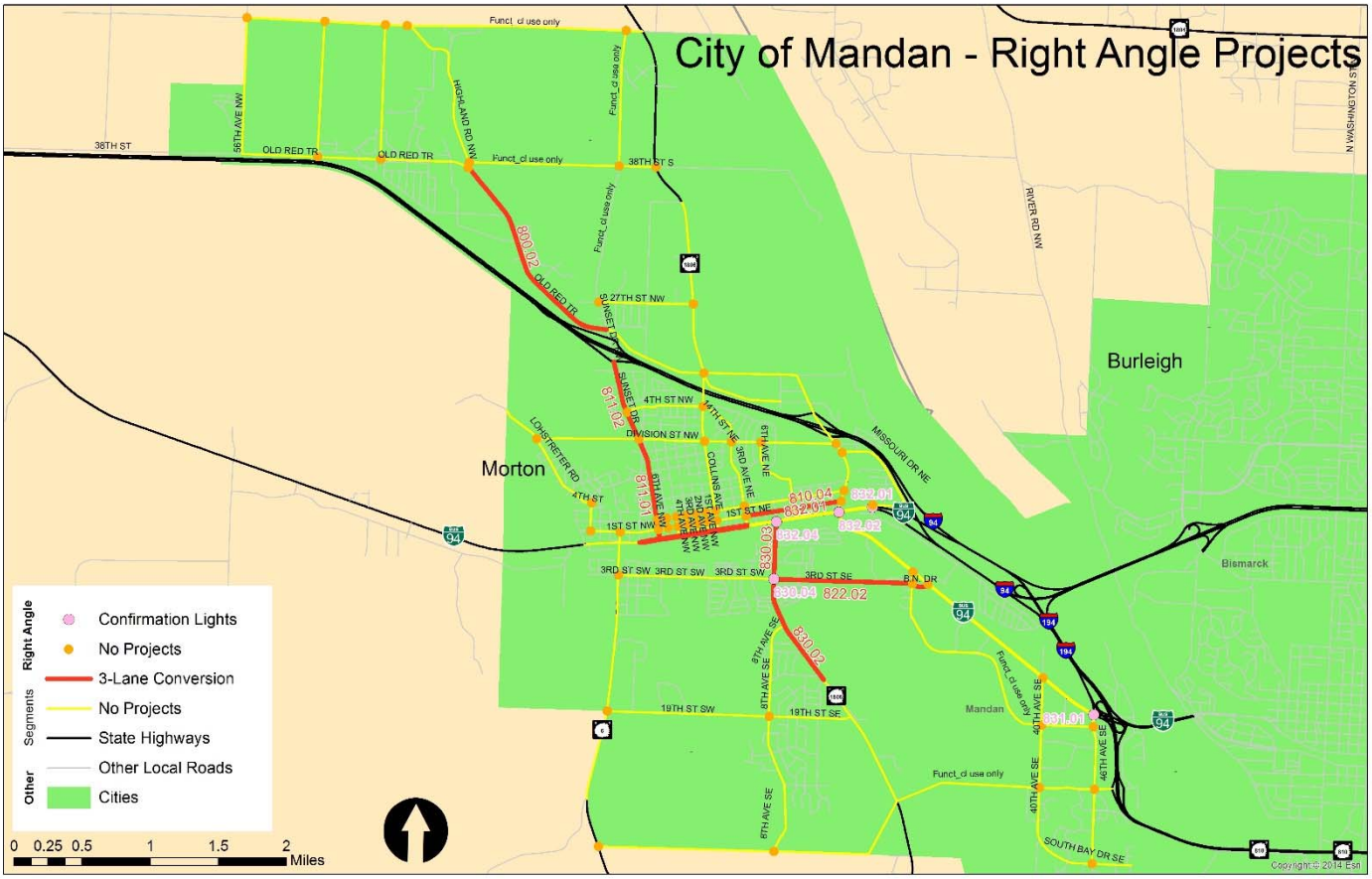


FIGURE 4-18
City of Mandan Urban Right-Angle Project Locations Map

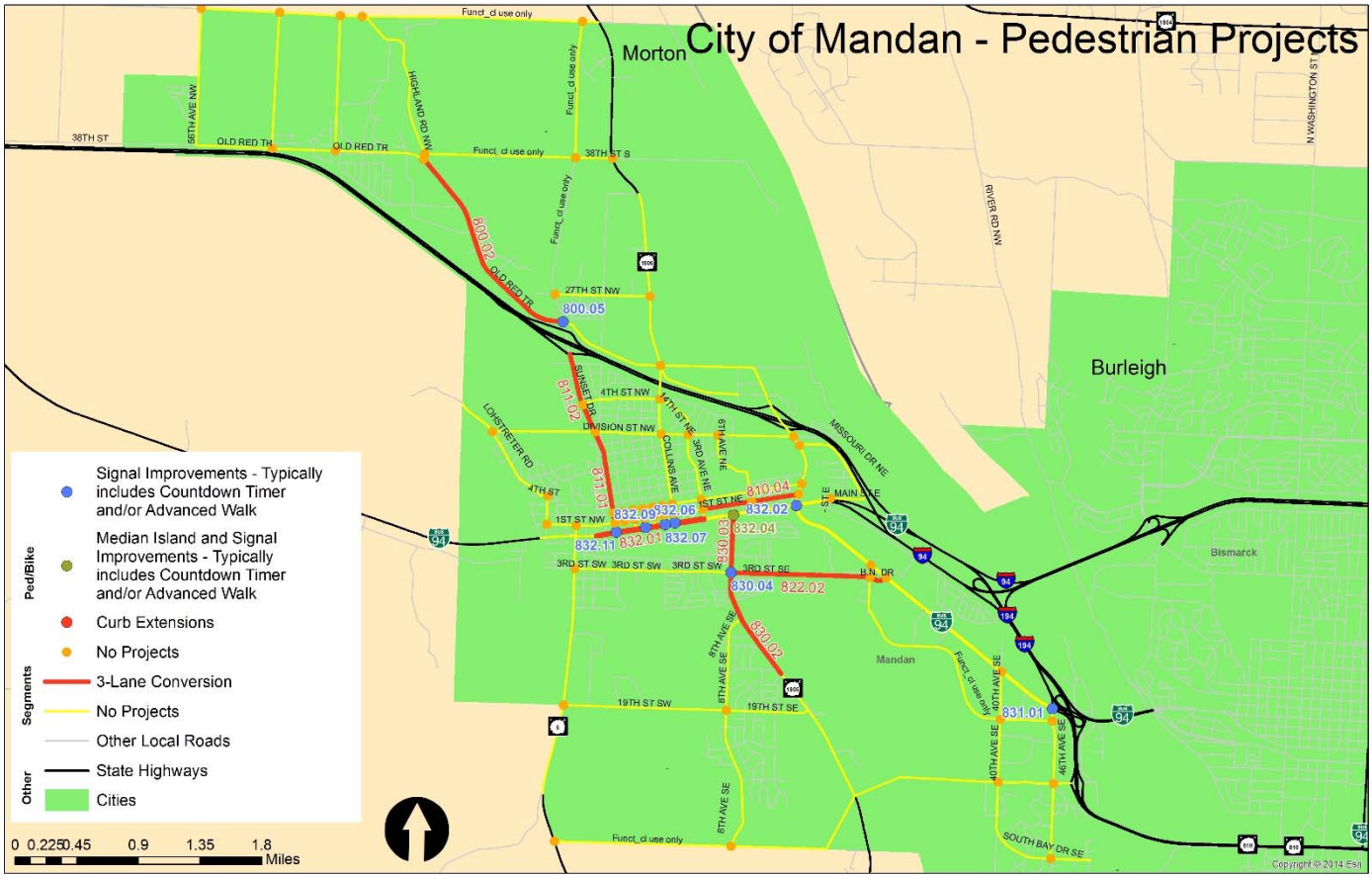


FIGURE 4-19
City of Mandan Urban Segment and Pedestrian/Bicyclist Project Locations Map

Oliver County

The total project cost suggested for Oliver County is $248,838. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-15. High-priority locations that received a project are shown in Figure 4-20. These locations are described in further detail in Appendix: Oliver County, along with priority rankings and suggested project sheets.

TABLE 4-15
Oliver County Project Costs

Project Type	Cost
Intersections	$102,960
Roadway Segments	$49,140
Curves	$96,738
Total	$248,838

Two roadway segments identified as high-priority locations did not receive projects. These segments were either too short to be considered for a corridor project, or were predominantly located within city limits with an urban design such that rural segment projects would not apply (Table 4-16).

TABLE 4-16
Oliver County Priority Segment Locations without Suggested Treatments

Segment ID	Local Name	Segment Start	Segment End	Location Notes
505.04	28th Ave SW	11th St SW	ND 200	Short Segment – Removed From Consideration
505.03	Hensler RD / 28th Ave SW	28th Ave SW	ND 1806	Short Segment – Removed From Consideration

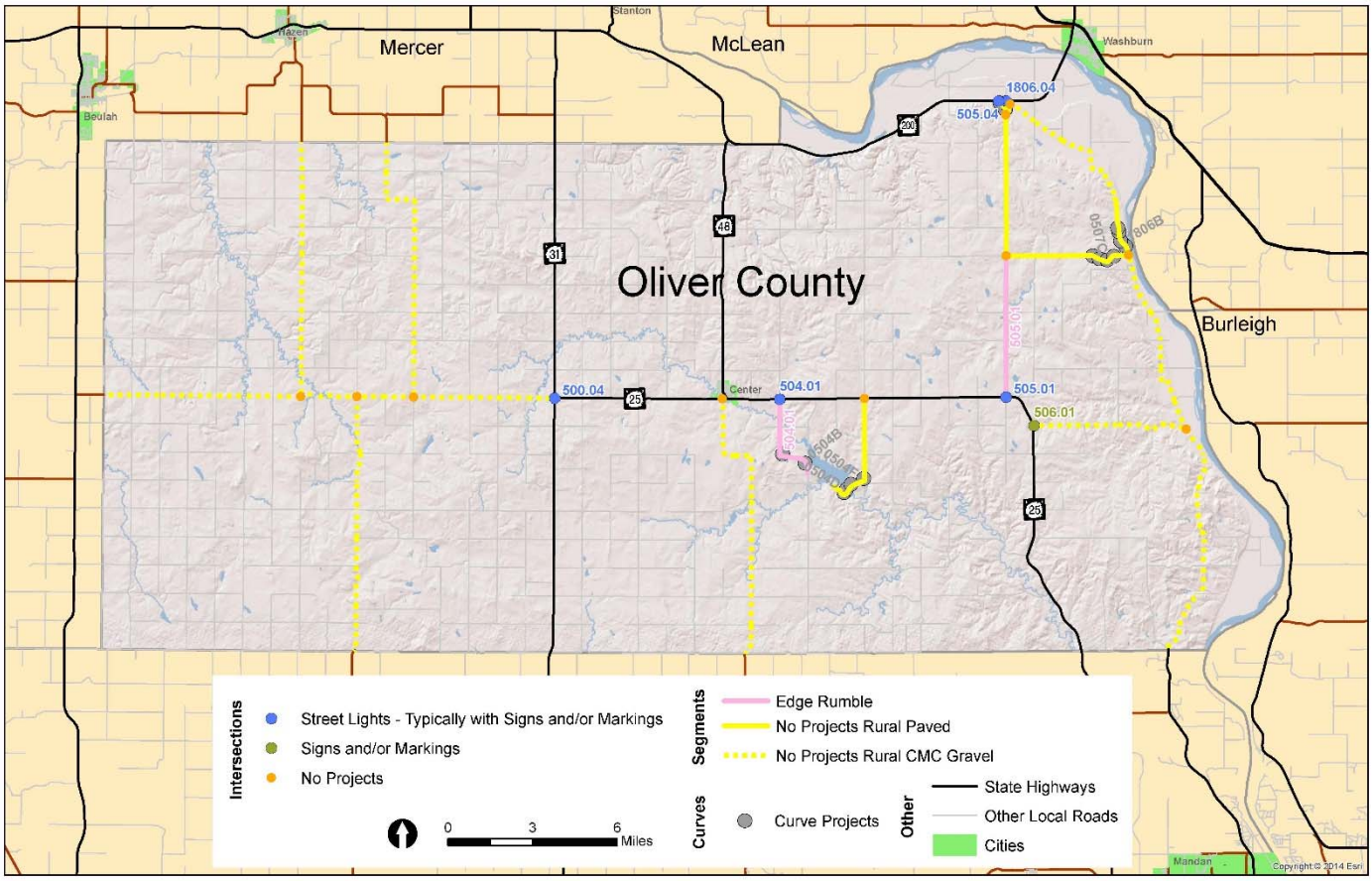


FIGURE 4-20
Oliver County Project Locations Map

Pierce County

The total project cost suggested for Pierce County is $134,889. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-17. High-priority locations that received a project are shown in Figure 4-21. These locations are described in further detail in Appendix: Pierce County, along with priority rankings and suggested project sheets.

TABLE 4-17
Pierce County Project Costs

Project Type	Cost
Intersections	$95,640
Roadway Segments	$39,249
Curves	$0
Total	$134,889

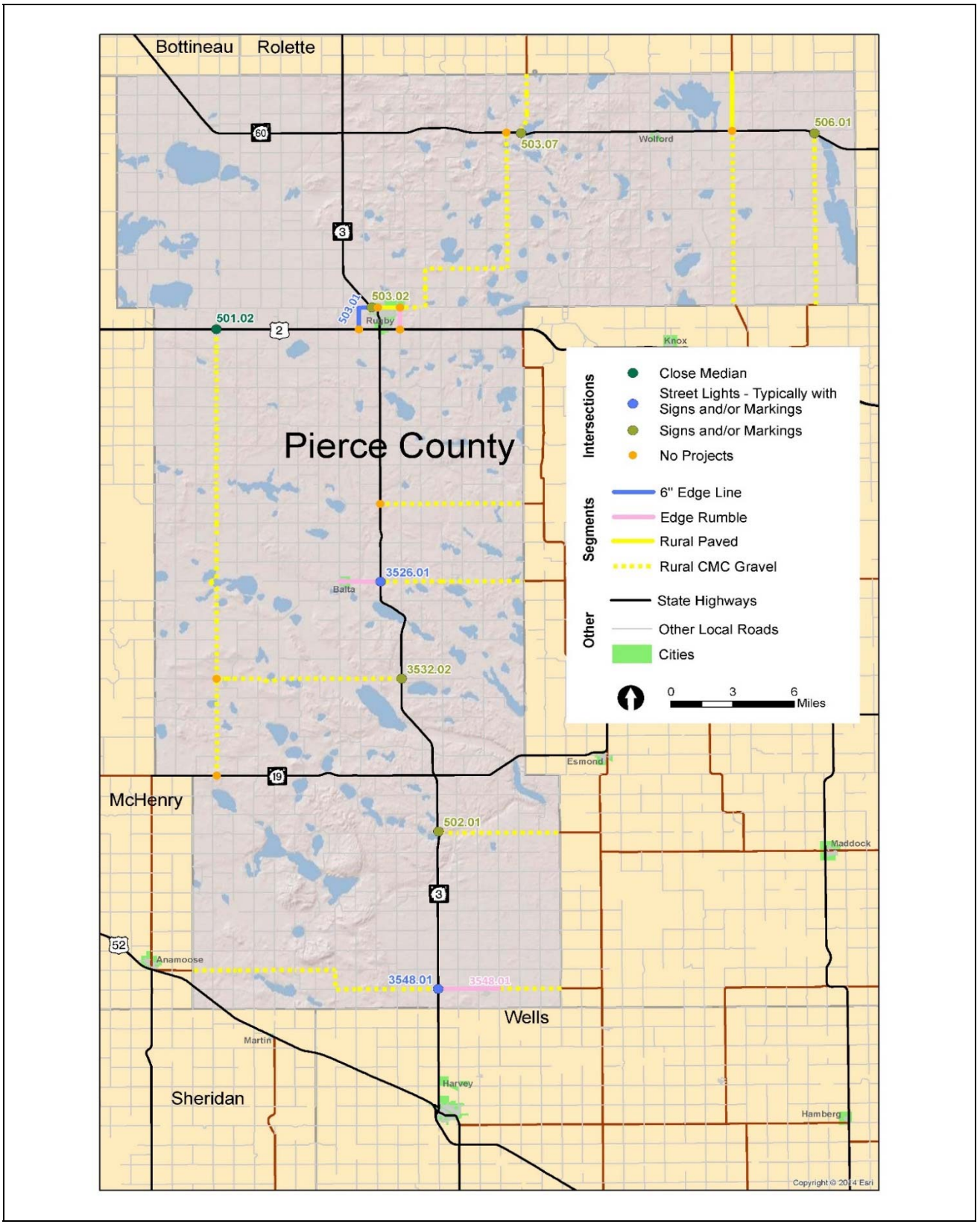


FIGURE 4-21
Pierce County Project Locations Map

Rolette County

The total project cost suggested for Rolette County is $658,491. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-18. High-priority locations that received a project are shown in Figure 4-22. These locations are described in further detail in Appendix: Rolette County, along with priority rankings and suggested project sheets.

TABLE 4-18
Rolette County Project Costs

Project Type	Cost
Intersections	$431,640
Roadway Segments	$175,968
Curves	$50,883
Total	$658,491

Two roadway segments identified as high-priority locations did not receive projects. One segment was too short to be considered for a corridor project. The other segment is no longer maintained and was removed from consideration. (Table 4-19).

TABLE 4-19
Rolette County Priority Segment Locations without Suggested Treatments

Segment ID	Local Name	Segment Start	Segment End	Location Notes
503.01	ND 89 & Augusta Dr	US 281 / ND 5	98th St NE East Intersection	Short Segment – Removed From Consideration
505.01	99th St NE	29th Ave NE	US 281	Roadway Is No Longer Maintained

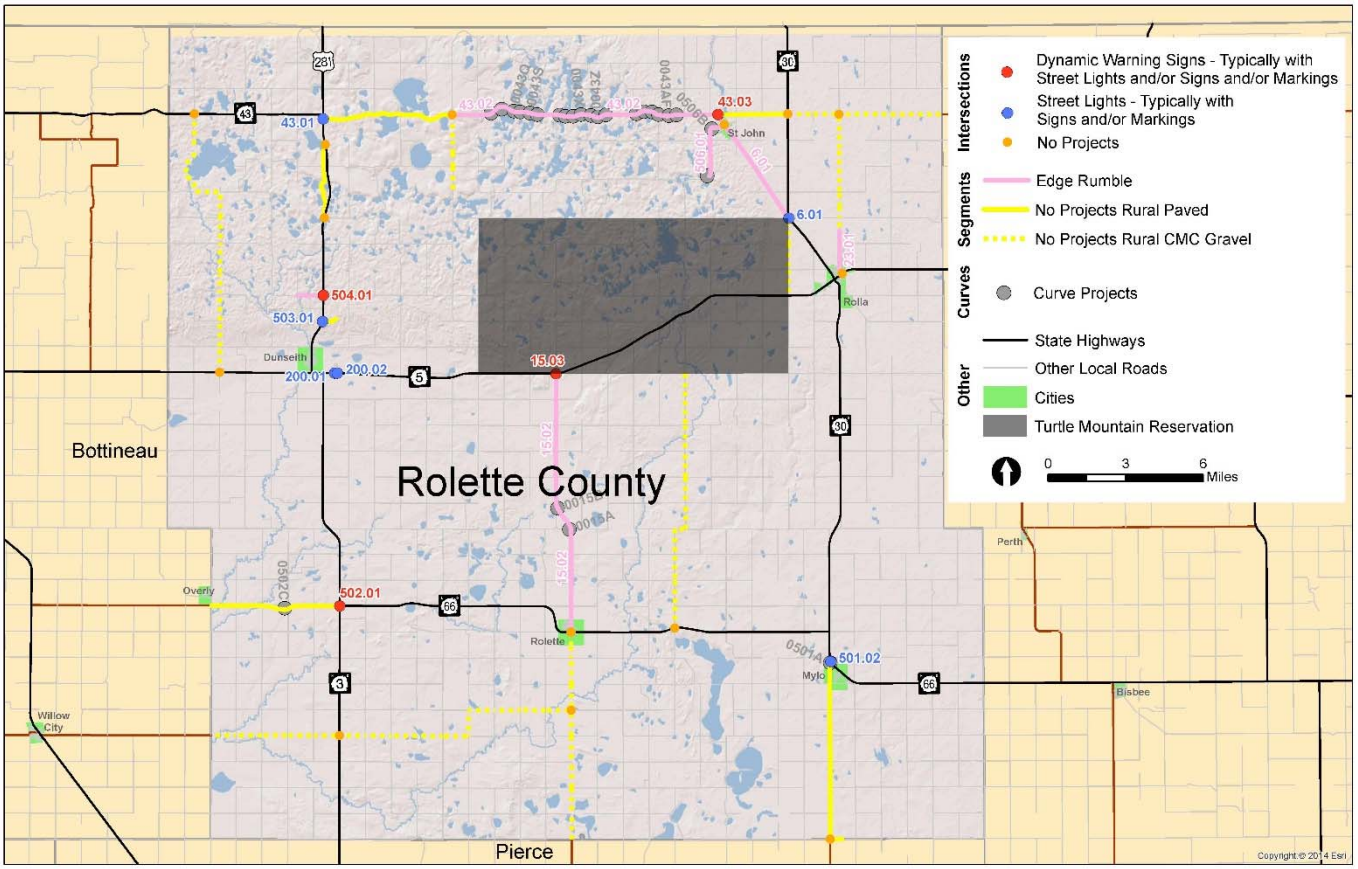


FIGURE 4-22
Rolette County Project Locations Map

Sheridan County

The total project cost suggested for Sheridan County is $83,200. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-20. High-priority locations that received a project are shown in Figure 4-23. These locations are described in further detail in Appendix: Sheridan County, along with priority rankings and suggested project sheets.

TABLE 4-20
Sheridan County Project Costs

Project Type	Cost
Intersections	$21,600
Roadway Segments	$7,920
Curves	$53,680
Total	$83,200

One intersection identified as a high-priority location did not receive projects. This intersection is within city limits of McClusky and is of urban design. Since rural strategies wouldn't apply, the location was removed from consideration (Table 4-21).

TABLE 4-21
Sheridan County Priority Intersection Locations without Suggested Treatments

Segment ID	Local Name	Location Notes
4211.01	5th St NE/Avenue A (ND 200) & Sheridan 4211	Within City Limits of McClusky

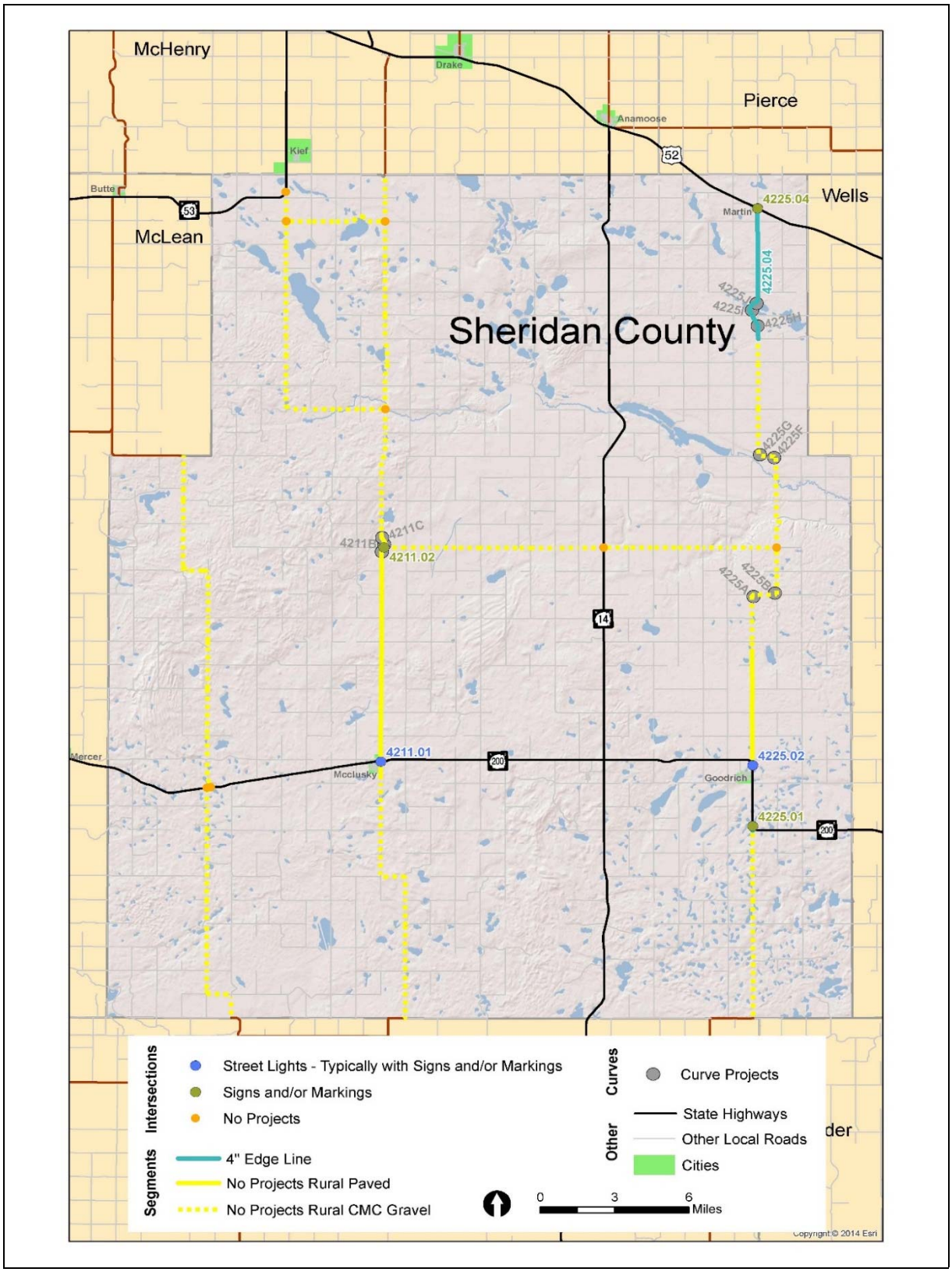


FIGURE 4-23
Sheridan County Project Locations Map

Sioux County

The total project cost suggested for Sioux County is $176,280. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-22. High-priority locations that received a project are shown in Figure 4-24. These locations are described in further detail in Appendix: Sioux County, along with priority rankings and suggested project sheets.

TABLE 4-22
Sioux County Project Costs

Project Type	Cost
Intersections	$12,240
Roadway Segments	$0
Curves	$164,040
Total	$176,280

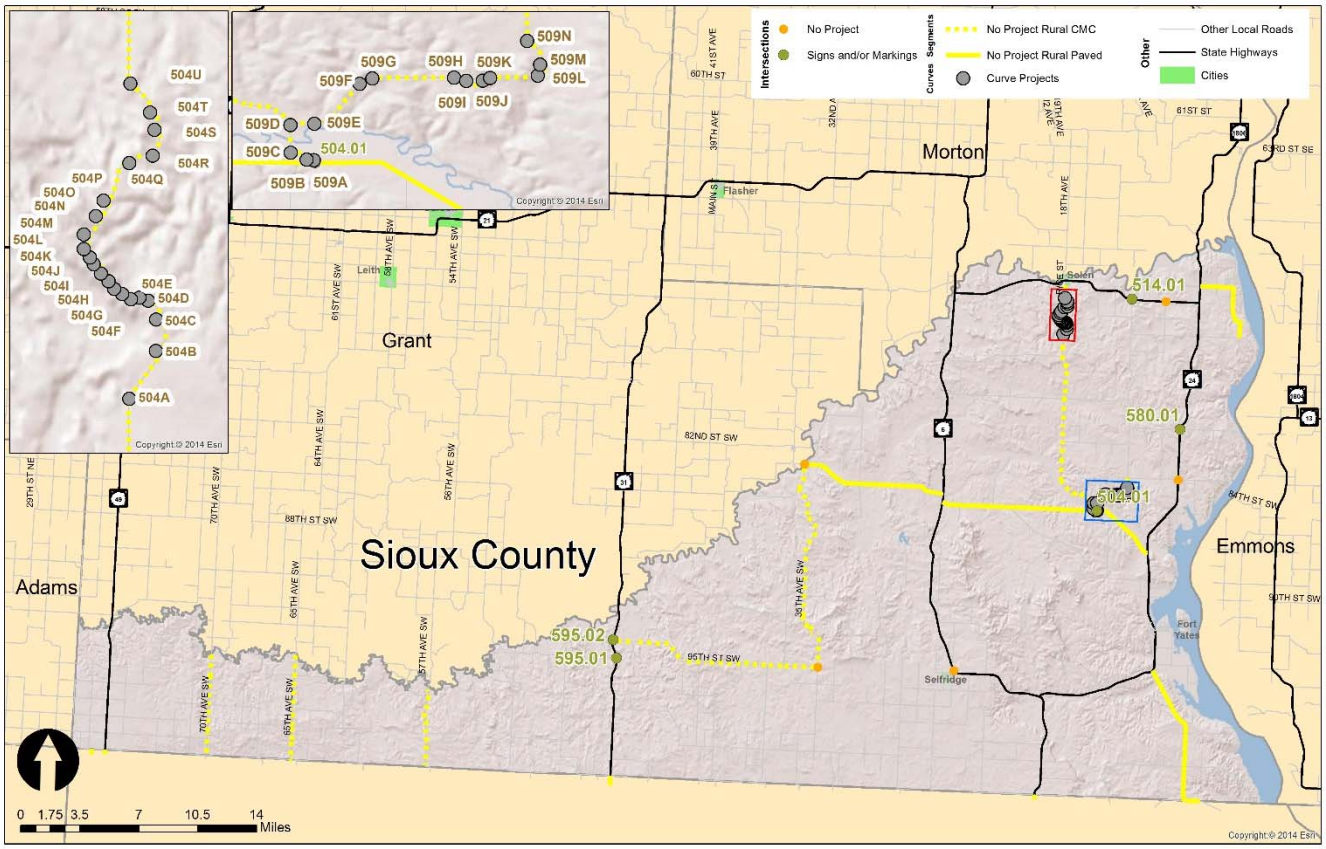


FIGURE 4-24
Sioux County Project Locations Map

Stutsman County

The total project cost suggested for Stutsman County is $1,229,785. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-23. High-priority locations that received a project are shown in Figure 4-25. These locations are described in further detail in Appendix: Stutsman County, along with priority rankings and suggested project sheets.

TABLE 4-23
Stutsman County Project Costs

Project Type	Cost
Intersections	$479,400
Roadway Segments	$499,230
Curves	$251,155
Total	$1,229,785

One roadway segment identified as a high-priority location did not receive projects. This segment was too short to receive a project and was removed from consideration (Table 4-24).

TABLE 4-24
Stutsman County Priority Segment Locations without Suggested Treatments

Segment ID	Local Name	Segment Start	Segment End	Location Notes
507.01	6th Ave NW	33rd St SE	41st St NW	Short Segment – Removed from Consideration

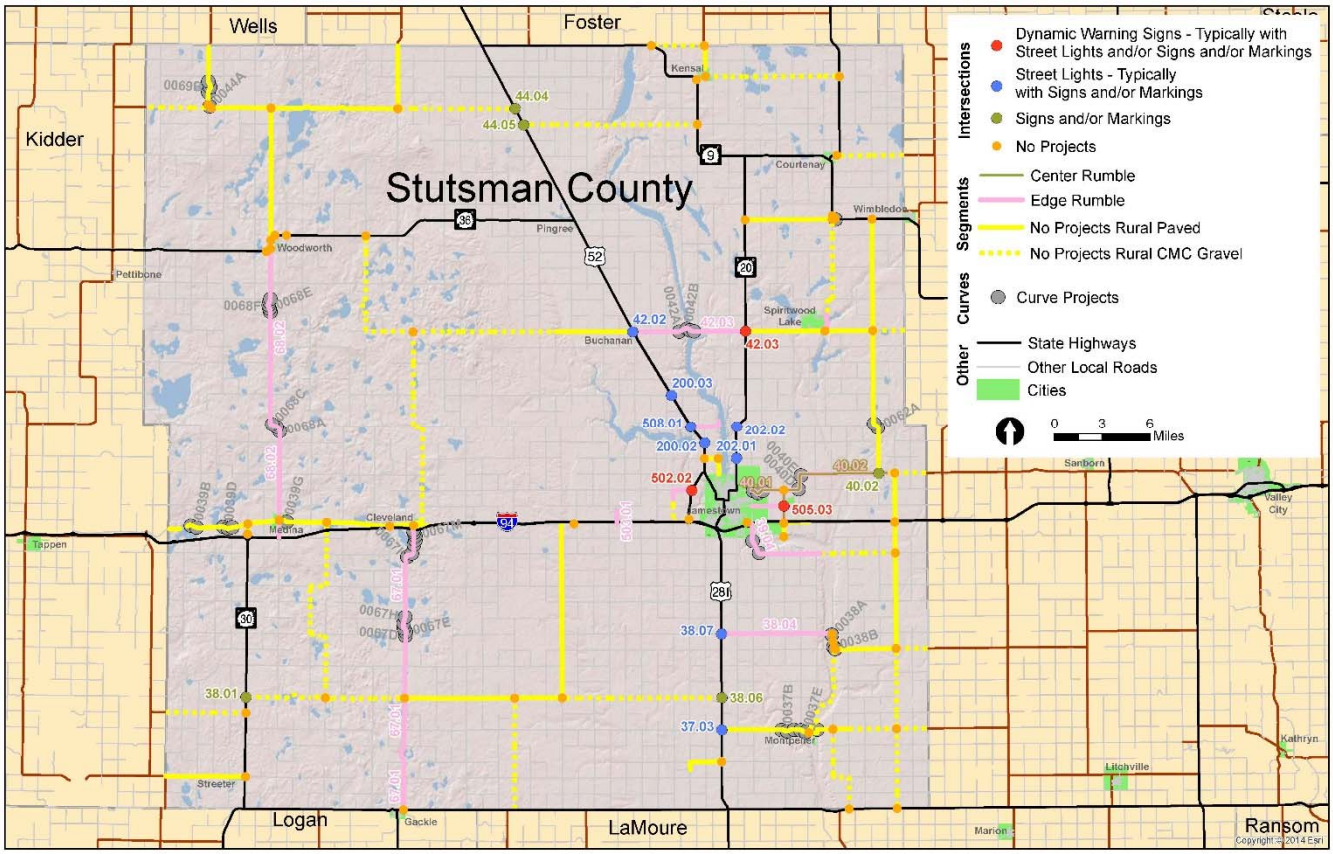


FIGURE 4-25
Stutsman County Project Locations Map

City of Jamestown

The total project cost suggested for City of Jamestown is $631,011. The project cost breakout for roadway segment, right-angle intersection, and pedestrian/bicyclist intersection projects are listed in Table 4-25. High-priority locations that received a project are shown in Figure 4-26. These locations are described in further detail in Appendix: City of Jamestown, along with priority rankings and suggested project sheets.

TABLE 4-25
City of Jamestown Project Costs

Project Type	Cost
Roadway Segments	$371,211
Right-Angle Intersections	$2,400
Pedestrian and Bicyclist Intersections	$257,400
Total	$631,011

Five roadway segments identified as high-priority locations did not receive projects. Each of these corridors had inadequate roadway width in order to implement the recommended treatment where it seemed reasonable and was removed from consideration (Table 4-26).

TABLE 4-26
City of Jamestown Priority Segment Locations without Suggested Treatments

Segment ID	Local Name	Segment Start	Segment End	Location Notes
20.02	5th Ave NE (ND 20) & 13th St NE	4th St NE	12th Ave NE	Existing Roadway Too Narrow
802.01	12th Ave NE	13th St NE (ND 20)	84th Ave SE	Existing Roadway Too Narrow
281.04	US 52 / US 281	4th St NW & 8th Ave NW	4th St NE (ND 20)	Existing Roadway Too Narrow
821.03	US 52 / US 281	19th St NW	4th St NW & 8th Ave NW	Existing Roadway Too Narrow
818.02	13th St NE	12th Ave NE	85th Ave SE	Existing Roadway Too Narrow

Four intersections identified as high-priority locations did not receive projects. Each intersection had inadequate right-of-way available to implement the recommended treatment and was removed from consideration (Table 4-27).

TABLE 4-27
City of Jamestown Priority Intersection Locations without Suggested Treatments

Segment ID	Local Name	Location Notes
20.03	4th St NE & 4th Ave SE	Insufficient Roadway Width on Approach Legs
20.04	4th St NE & 5th Ave NE	Insufficient Roadway Width on Approach Legs
281.03	5th Ave NE & 5th St NE	Insufficient Roadway Width on Approach Legs
804.01	5th Ave NE & 12th St NE	Insufficient Roadway Width on Approach Legs

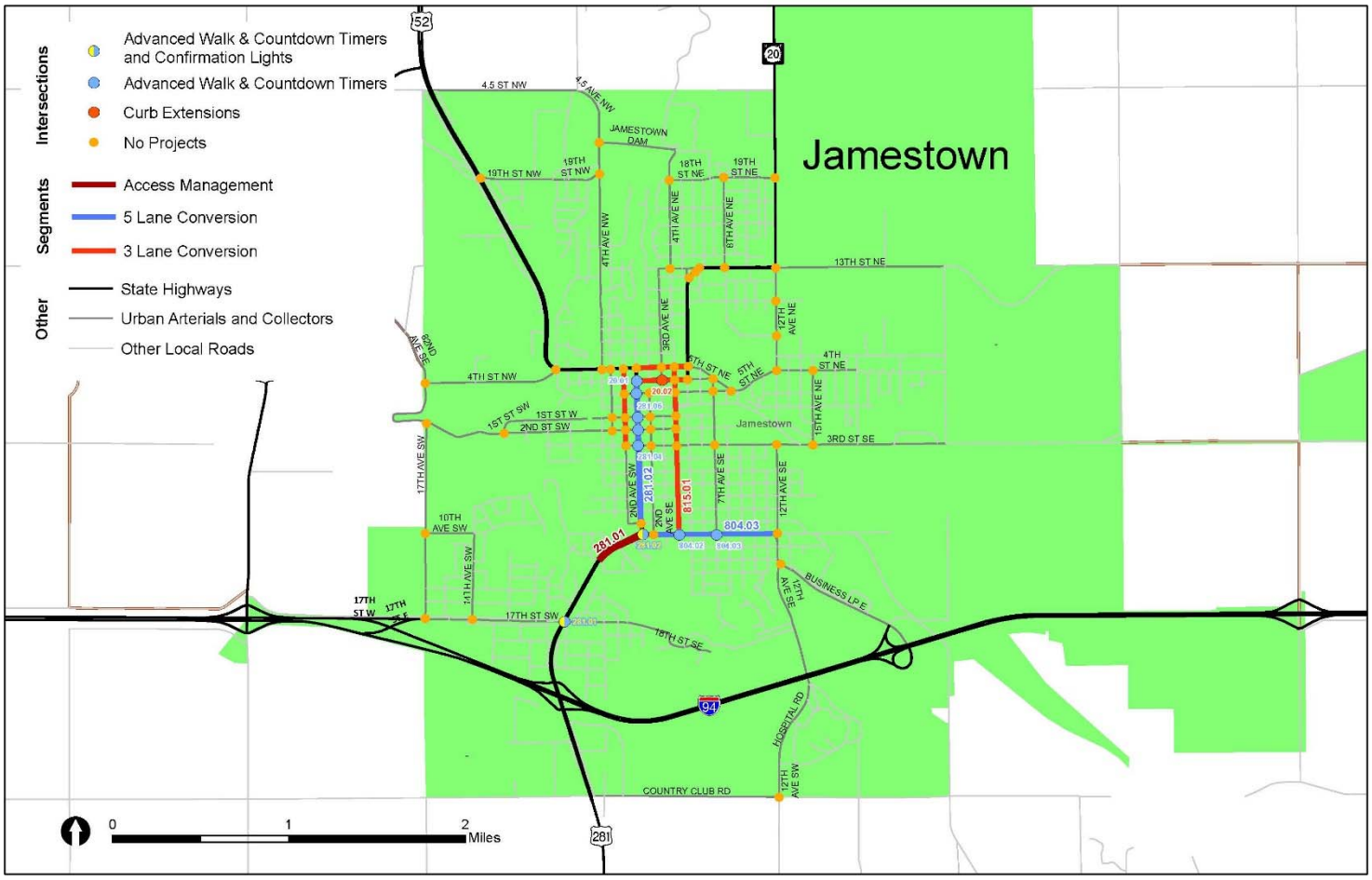


FIGURE 4-26
City of Jamestown Urban Segment, Right-Angle, and Bicycle/Pedestrian Project Locations Map

Towner County

The total project cost suggested for Towner County is $40,800. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-28. High-priority locations that received a project are shown in Figure 4-27. These locations are described in further detail in Appendix: Towner County, along with priority rankings and suggested project sheets.

TABLE 4-28
Towner County Project Costs

Project Type	Cost
Intersections	$40,800
Roadway Segments	$0
Curves	$0
Total	$40,800

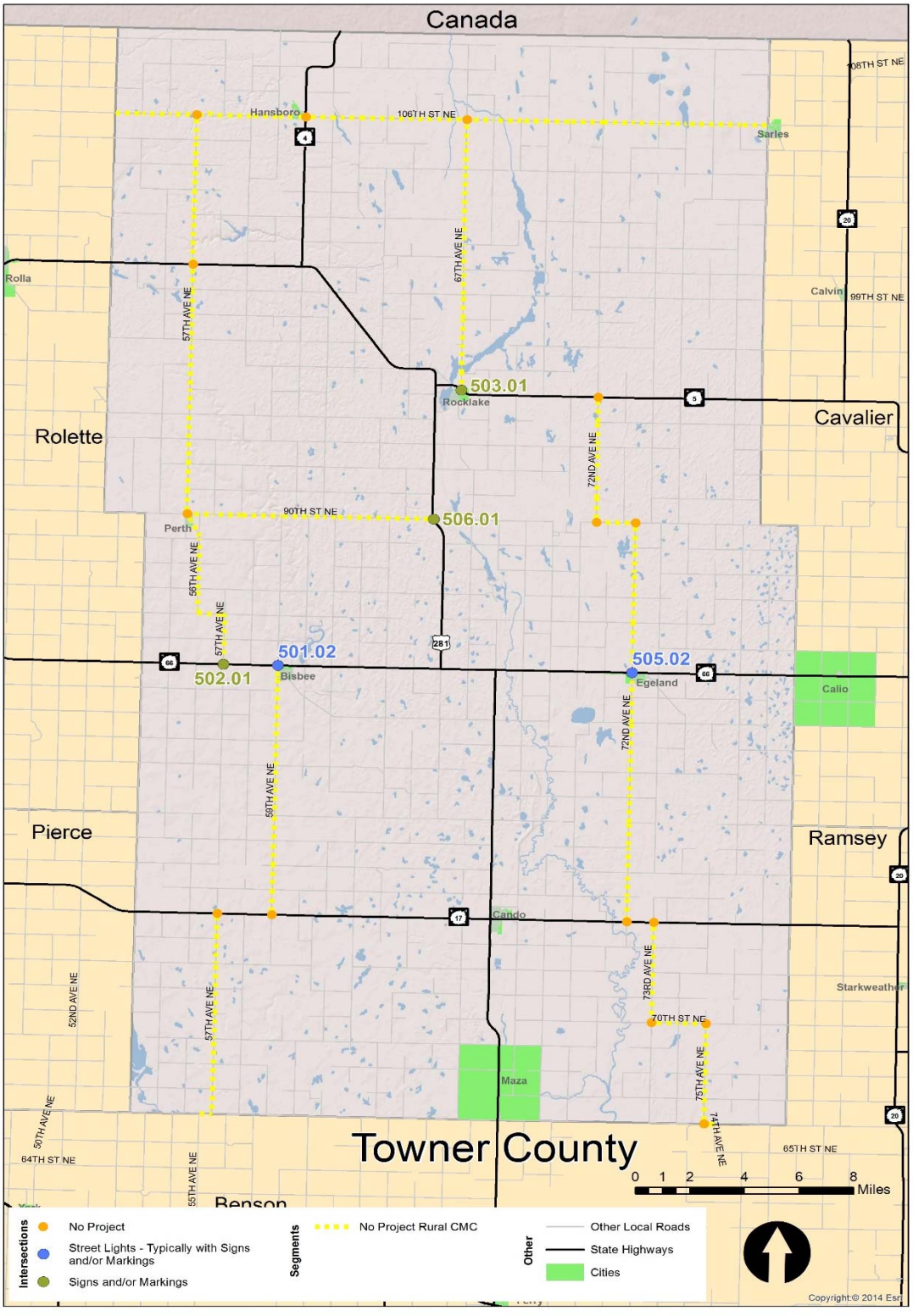


FIGURE 4-27
Towner County Project Locations Map

Wells County

The total project cost suggested for Wells County is $287,547. The project cost breakout for intersection, roadway segment, and curve projects are listed in Table 4-29. High-priority locations that received a project are shown in Figure 4-28. These locations are described in further detail in Appendix: Wells County, along with priority rankings and suggested project sheets.

TABLE 4-29
Wells County Project Costs

Project Type	Cost
Intersections	$202,320
Roadway Segments	$58,740
Curves	$26,514
Total	$287,574

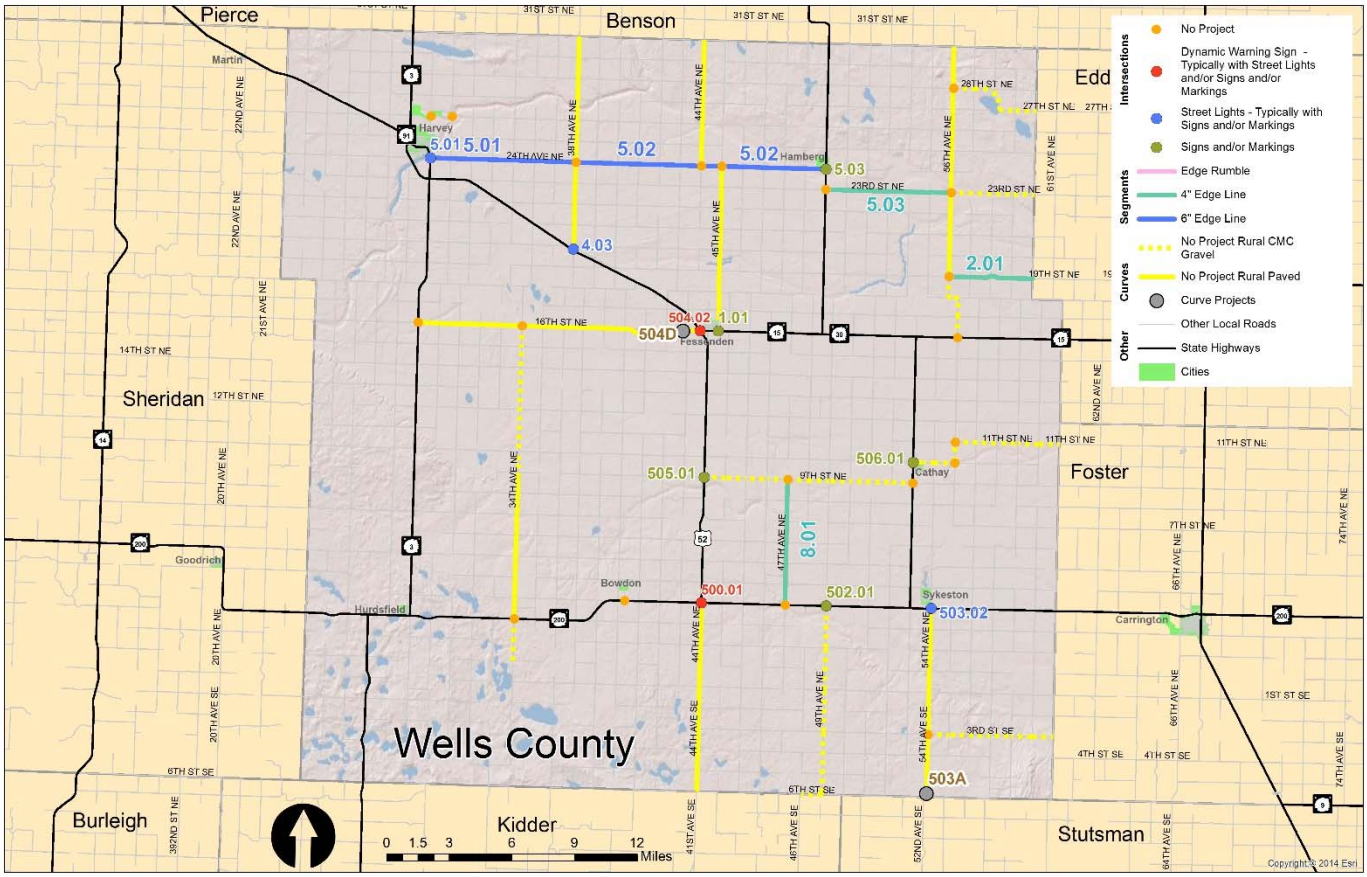


FIGURE 4-28
Wells County Project Locations Map

APPENDIX

Benson County

[Appendix Intentionally Left Blank]

APPENDIX

Bottineau County

[Appendix Intentionally Left Blank]

APPENDIX

Dickey County

[Appendix Intentionally Left Blank]

APPENDIX

Emmons County

[Appendix Intentionally Left Blank]

APPENDIX

Kidder County

[Appendix Intentionally Left Blank]

APPENDIX

LaMoure County

[Appendix Intentionally Left Blank]

APPENDIX

Logan County

[Appendix Intentionally Left Blank]

APPENDIX

McHenry County

[Appendix Intentionally Left Blank]

APPENDIX

McIntosh County

[Appendix Intentionally Left Blank]

APPENDIX

Morton County

Morton County

Mercer
Oliver
Burleigh
Stark
Emmons
Sioux

Hebron
Glen Ullin
New Salem
Almont
Flasher
Solen
Mandan
Bismarck
Lincoln

30TH ST SW
33RD ST
32ND ST
34TH ST
44TH ST
46TH ST
45TH ST SW
46TH ST SW
50TH ST SW
39TH ST
49TH ST
52ND ST
60TH ST
55TH ST
38TH ST
71ST AVE NE
201ST AVE NE
175TH AVE NE
63RD ST SE
73RD ST SW
COUNTY 10 HWY NE
LINCOLN RD SE
MOFFIT RD SE
COUNTY 90 RD
COUNTY 139 RD
COUNTY 138 RD
COUNTY 84 RD
79TH AVE SW
69TH AVE
66TH AVE
65TH AVE
53RD AVE
37TH AVE SW
22ND AVE SW
83RD AVE SW
80TH AVE SW
62ND AVE SW
50TH AVE
44TH AVE
39TH AVE
25TH AVE
41ST AVE
32ND AVE
28TH AVE
19TH AVE
18TH AVE
14TH AVE
RIVER RD NW
OLD RED TRL
1ST ST NE
19TH ST SW
106TH ST NE
119TH ST NE
66TH ST NE
93RD ST SE
158TH ST SE
RICE ST

139A 139B 139C 139D 139E 139F 139G 139H 139I 139J 139K 139N 139O 139P 139Q 139R 139S 139T 139U 139V
139.01 139.02 139.03 139.05 139.06 139.07
88.02 84.04 84.05
086A 086B 086C 086D 086E 086F 086G 086H
140.03 503.07 503.01 82.01 504.01 138.06 137.01 136.01

139AG 139.09 139AH 139AI 139AJ 139.13
139X 139Y 139Z 139.08 139.07 139AB 139AC 139AD 139AE 139AF

Intersections
- No Project
- Street Lights - Typically with Signs and/or Markings
- Signs and/or Markings

Segments
- Edge Rumble
- No Project Rural CMC Gravel
- No Project Rural Paved

Curves
- Curve Projects

Other
- Other Local Roads
- State Highways
- Cities

0 2 4 8 12 16 Miles

Morton County
Rural Segment Projects

Page	Corridor ID	Route #	Start	End	Length	Risk Ranking	4" Edge Line	6" Edge Lines	Edge Rumble Strip	Center Line Rumble	6" Center Line	Project Cost ($)
1	139.02	Morton	Intersection with I-94	Intersection with ND 49	6.0	★★★★	0.0	0.0	6.0	0.0	0.0	$35,100
2	90.01	Morton	Intersection with I-94	Intersection with South Ave (Morton 139)	2.2	★★★★	0.0	0.0	2.2	0.0	0.0	$12,870
3	139.09	Morton	Beginning of Pavement, 0.5 mile west of 30th Ave SW	Intersection with ND 25	4.1	★★★★	0.0	0.4	3.7	0.0	0.0	$22,398
4	88.02	Morton	Intersection with Curlew Ave	End of pavement, north of I-94	3.2	★★★	0.2	0.0	3.0	0.0	0.0	$17,995
5	84.04	Morton	Intersection with 41st St SW	Intersection with I-94	3.0	★★★	0.0	0.3	2.7	0.0	0.0	$16,389
6	139.05	Morton	Intersection with 50th Ave (Morton 86)	Intersection with 10th St N	4.3	★★	0.6	0.0	3.7	0.0	0.0	$22,233
7	139.06	Morton	Approximately 0.2 mile east of 1st St N	Intersection with 39th Ave (Morton 84)	5.8	★★	0.0	0.3	5.5	0.0	0.0	$32,808
8	139.07	Morton	Intersection with 39th Ave (Morton 84)	Intersection with ND 25	13.1	★★	0.0	0.0	13.1	0.0	0.0	$76,635
9	84.05	Morton 84	Intersection with I-94	End of Pavement, north of 36.5 St SW	1.6	★★	0.0	0.0	1.6	0.0	0.0	$9,360
23 USC 409 NDDOT Reserves All Objections							**0.8**	**1.0**	**41.5**	**0.0**	**0.0**	**$245,788**

Morton County
Rural Segment Listing

23 USC 409
NDDOT Reserves All Objections

*High Priority Segments Project Sheet Page Number

Project Sheet Page*	Corridor	Route	Start	End	Length (miles)	Lane Departure Crashes	ADT	Lane Departure Density	Access Density	Curves w/ Critical Radius / Mile	Edge Risk Assesment
	84.01	Morton	Intersection with ND 21	Intersection with 60th St	6.0	1	110	0.03	5.6	0.00	1
5	84.04	Morton	Intersection with 41st St SW	Intersection with I-94	3.0	1	235	0.07	9.1	0.00	2
9	84.05	Morton	Intersection with I-94	End of Pavement, north of 36.5 St SW	1.6	1	145	0.13	9.0	0.00	1
	85.02	Morton	Beginning of pavement, north of 42nd St SW	Intersection with Pine Ave	2.1	0	225	0.00	6.5	0.00	2
	86.02	Morton	Intersection with 42.5 St	End of pavement, north of I-94	9.0	0	281	0.00	6.7	0.11	2
4	88.02	Morton	Intersection with Curlew Ave	End of pavement, north of I-94	3.2	1	270	0.06	8.1	0.00	2
	90.01	Morton	Intersection with I-94	Intersection with South Ave (Morton 139)	2.2	1	500	0.09	9.2	0.00	2
	139.01	Morton	Stark County Line	Intersection with I-94	8.4	1	281	0.02	6.3	0.00	2
	139.02	Morton	Intersection with I-94	Intersection with ND 49	6.0	4	575	0.13	4.7	0.17	2
	139.03	Morton	Intersection with ND 49	Intersection with Morton 138	1.9	0	105	0.00	5.7	0.00	2
6	139.05	Morton	Intersection with 50th Ave (Morton 86)	Intersection with 10th St N	4.3	0	228	0.00	10.0	0.00	2
7	139.06	Morton	Approximately 0.2 mile east of 1st St N	Intersection with 39th Ave (Morton 84)	5.8	4	475	0.14	4.3	0.00	1
8	139.07	Morton	Intersection with 39th Ave (Morton 84)	Intersection with ND 25	13.1	6	471	0.09	5.5	0.00	1
3	139.09	Morton	eginning of Pavement, 0.5 mile west of 30th Ave S\	Intersection with ND 25	4.1	7	623	0.34	9.9	0.24	1
	140.01	Morton	Stark County Line	Intersection with 35th St	6.1	1	148	0.03	0.0	0.00	0
					76.8	28					

Edge Risk Legend

3 -- Risky' - NEITHER shoulder or good clear zone
2 -- Either a shoulder OR good clear zone
1 -- BOTH shoulder and a good clear zone

Critical ADT Range - Lane Departure

Min	450
Max	1,000,000

	Access	Lane Departure	Critical Radius Curves
Total	489	28	3
Total Mileage	76.8	76.8	76.8
Years		5	
Average Density (Total/Mile)	**6.4**	**0.07**	**0.04**

Morton County
Rural Segment Prioritization - Lane Departure Priority

23 USC 409
NDDOT Reserves All Objections

#	Corridor	Route	Start	End	Length	ADT	ADT Range	Lane Departure Density	Access Density	Curve Critical Radius Density	Edge Risk	Totals	Tiebreakers: Edge Risk	Tiebreakers: ADT
1	139.02	Morton	Intersection with I-94	Intersection with ND 49	6.0	575	★	★		★	★	★★★★	2	575
2	90.01	Morton	Intersection with I-94	Intersection with South Ave (Morton 139)	2.2	500	★	★	★		★	★★★★	2	500
3	139.09	Morton	Beginning of Pavement, 0.5 mile west of 30th Ave SW	Intersection with ND 25	4.1	623	★	★	★	★		★★★★	1	623
4	88.02	Morton	Intersection with Curlew Ave	End of pavement, north of I-94	3.2	270		★	★		★	★★★	2	270
5	84.04	Morton	Intersection with 41st St SW	Intersection with I-94	3.0	235		★	★		★	★★★	2	235
6	139.05	Morton	Intersection with 50th Ave (Morton 86)	Intersection with 10th St N	4.3	228			★		★	★★	2	228
7	139.06	Morton	Approximately 0.2 mile east of 1st St N	Intersection with 39th Ave (Morton 84)	5.8	475	★	★				★★	1	475
8	139.07	Morton	Intersection with 39th Ave (Morton 84)	Intersection with ND 25	13.1	471	★	★				★★	1	471
9	84.05	Morton	Intersection with I-94	End of Pavement, north of 36.5 St SW	1.6	145		★	★			★★	1	145
10	139.01	Morton	Stark County Line	Intersection with I-94	8.4	281					★	★	2	281
11	86.02	Morton	Intersection with 42.5 St	End of pavement, north of I-94	9.0	281					★	★	2	281
12	85.02	Morton	Beginning of pavement, north of 42nd St SW	Intersection with Pine Ave	2.1	225					★	★	2	225
13	139.03	Morton	Intersection with ND 49	Intersection with Morton 138	1.9	105					★	★	2	105
14	84.01	Morton	Intersection with ND 21	Intersection with 60th St	6.0	110							1	110
15	140.01	Morton	Stark County Line	Intersection with 35th St	6.1	148							0	148
						Total Stars --	5	8	6	2	9			
						% That Gets Star --	33%	53%	40%	13%	60%			

	#	%	Mileage %
★★★★★	0	0%	0%
★★★★	3	20%	16%
★★★	2	13%	8%
★★	4	27%	32%
★	4	27%	28%
	2	13%	16%
	15	100%	100%

Stars	
ADT Range -	If segment has an ADT in the range of most at risk ADT based on statewide totals. (450<ADT<1000000)
Lane Departure Density -	If segment has higher lane departure density than the statewide average (0.054).
Access Density	If segment has access density than the statewide overrepresented threshold (8).
Curve Critical Radius Density -	If segment has higher density of curves with critical radius than the Western average (0.13).
Edge Risk Assessment -	Edge risk of 2 or 3, based on assessment of roadway edge and clear zone.

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

County Road 139 from Intersection with I-94 to Intersection with ND 49

Agency Name: Morton County
Contact Name: Mike Aubol
Email Address: mike.aubol@mortonnd.org
ND DOT District: 1
Telephone Number: 701-667-3346

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Start: Intersection with I-94
End: Intersection with ND 49
Facility Type: 2-Lane
ADT: 575
Road Type: Rural Paved
Length (miles): 6.0
County Road: Morton
Local Name: County Road 139

Lane Width: 12'
Speed Limit: High
Shoulder Width: 1'
Shoulder Type: Paved
Rumble Installed: No
Oil Project: No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☑ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☐ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Road Dept	K+A
Crashes	5	4	0
Density (per mile per year)	0.17	0.13	0.00
Rate (per MVM)	0.79	0.64	0.00

	Value	Critical	Road
ADT Range	575	450≤ADT≤1000000	★
RD Density	0.134	0.054	★
Access Density	4.7	8.0	
Curve Critical Radius Density	0.168	0.130	★
Edge Risk	2	2 or 3	★
			★★★★

Describe Proposed Safety Improvements

Description	Type	Cost per mi	Mileage	Cost	Notes -
4" Edge Lines	Proactive	$1,320	0.0	$0	
6" Edge Lines	Proactive	$1,980	0.0	$0	
Edge Rumble Strip	Proactive	$5,850	6.0	$35,100	
Ground In Wet-Reflective Markings	Proactive	$36,000	0.0	$0	
Center Line Rumble Strip	Proactive	$3,600	0.0	$0	
6" Center Line	Proactive	$1,020	0.0	$0	

Project Cost Estimate (attach detailed copy)

Federal Funds	$31,590
Local Match (10% of Total project cost)	$3,510
Total Project Cost	**$35,100**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

23 USC 409
NDDOT Reserves All Objections

Page: 1
Segment ID: 139.02
Date: 3/13/2015

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

76th Ave SW from Intersection with I-94 to Intersection with South Ave (Morton 139)

Agency Name: Morton County
ND DOT District: 1
Contact Name: Mike Aubol
Telephone Number: 701-667-3346
Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Start: Intersection with I-94
End: Intersection with South Ave (Morton 139)
Facility Type: 2-Lane
ADT: 500
Road Type: Rural Paved
Length (miles): 2.2
County Road: Morton
Local Name: 76th Ave SW

Lane Width: 12'
Speed Limit: High
Shoulder Width: 1'
Shoulder Type: Paved
Rumble Installed: No
Oil Project: No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☑ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☐ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Road Dept	K+A
Crashes	3	1	0
Density (per mile per year)	0.27	0.09	0.00
Rate (per MVM)	1.49	0.50	0.00

	Value	Critical	Road
ADT Range	500	450≤ADT≤1000000	★
RD Density	0.092	0.054	★
Access Density	9.2	8.0	★
Curve Critical Radius Density	0.000	0.130	
Edge Risk	2	2 or 3	★
			★★★★

Describe Proposed Safety Improvements

Description	Type	Cost per mi	Mileage	Cost	Notes -
4" Edge Lines	Proactive	$1,320	0.0	$0	
6" Edge Lines	Proactive	$1,980	0.0	$0	
Edge Rumble Strip	Proactive	$5,850	2.2	$12,870	
Ground In Wet-Reflective Markings	Proactive	$36,000	0.0	$0	
Center Line Rumble Strip	Proactive	$3,600	0.0	$0	
6" Center Line	Proactive	$1,020	0.0	$0	

Project Cost Estimate (attach detailed copy)

Federal Funds	$11,583
Local Match (10% of Total project cost)	$1,287
Total Project Cost	**$12,870**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

23 USC 409
NDDOT Reserves All Objections

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

38th St from Beginning of Pavement, 0.5 mile west of 30th Ave SW to Intersection with ND 25

Agency Name: Morton County
Contact Name: Mike Aubol
Email Address: mike.aubol@mortonnd.org
ND DOT District: 1
Telephone Number: 701-667-3346

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Start: Beginning of Pavement, 0.5 mile west of 30th Ave SW
End: Intersection with ND 25
Facility Type: 2-Lane
ADT: 623
Road Type: Rural Paved
Length (miles): 4.1
County Road: Morton
Local Name: 38th St

Lane Width: 12'
Speed Limit: High
Shoulder Width: 2'
Shoulder Type: Paved
Rumble Installed: No
Oil Project: No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☑ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☐ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Road Dept	K+A
Crashes	11	7	0
Density (per mile per year)	0.54	0.34	0.00
Rate (per MVM)	2.36	1.50	0.00

	Value	Critical	Road
ADT Range	623	450≤ADT≤1000000	★
RD Density	0.339	0.054	★
Access Density	9.9	8.0	★
Curve Critical Radius Density	0.242	0.130	★
Edge Risk	1	2 or 3	
			★★★★

Describe Proposed Safety Improvements

Description	Type	Cost per mi	Mileage	Cost
4" Edge Lines	Proactive	$1,320	0.0	$0
6" Edge Lines	Proactive	$1,980	0.4	$812
Edge Rumble Strip	Proactive	$5,850	3.7	$21,587
Ground In Wet-Reflective Markings	Proactive	$36,000	0.0	$0
Center Line Rumble Strip	Proactive	$3,600	0.0	$0
6" Center Line	Proactive	$1,020	0.0	$0

Notes - 6 inch edge line with rumbles

Project Cost Estimate (attach detailed copy)

Federal Funds	$20,158
Local Match (10% of Total project cost)	$2,240
Total Project Cost	**$22,398**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

23 USC 409
NDDOT Reserves All Objections

Page: 3
Segment ID: 139.09
Date: 3/13/2015

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

65th Ave from Intersection with Curlew Ave to End of pavement, north of I-94

Agency Name: Morton County
Contact Name: Mike Aubol
Email Address: mike.aubol@mortonnd.org
ND DOT District: 1
Telephone Number: 701-667-3346

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Start:	Intersection with Curlew Ave	*Lane Width:*	12'
End:	End of pavement, north of I-94	*Speed Limit:*	High
Facility Type:	2-Lane	*Shoulder Width:*	0'
ADT:	270	*Shoulder Type:*	None
Road Type:	Rural Paved	*Rumble Installed:*	No
Length (miles):	3.2	*Oil Project:*	No
County Road:	Morton		
Local Name:	65th Ave		

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☑ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☐ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Road Dept	K+A
Crashes	3	1	1
Density (per mile per year)	0.19	0.06	0.06
Rate (per MVM)	1.91	0.64	0.64

	Value	Critical	Road
ADT Range	270	450≤ADT≤1000000	
RD Density	0.062	0.054	★
Access Density	8.1	8.0	★
Curve Critical Radius Density	0.000	0.130	
Edge Risk	2	2 or 3	★
			★★★

Describe Proposed Safety Improvements

Description	Type	Cost per mi	Mileage	Cost	Notes -
4" Edge Lines	Proactive	$1,320	0.2	$211	
6" Edge Lines	Proactive	$1,980	0.0	$0	
Edge Rumble Strip	Proactive	$5,850	3.0	$17,784	
Ground In Wet-Reflective Markings	Proactive	$36,000	0.0	$0	
Center Line Rumble Strip	Proactive	$3,600	0.0	$0	
6" Center Line	Proactive	$1,020	0.0	$0	

Project Cost Estimate (attach detailed copy)

Federal Funds	$16,196
Local Match (10% of Total project cost)	$1,800
Total Project Cost	**$17,995**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

23 USC 409
NDDOT Reserves All Objections

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

39th Ave from Intersection with 41st St SW to Intersection with I-94

Agency Name: Morton County
Contact Name: Mike Aubol
Email Address: mike.aubol@mortonnd.org
ND DOT District: 1
Telephone Number: 701-667-3346

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Start:	Intersection with 41st St SW	*Lane Width:*	12'
End:	Intersection with I-94	*Speed Limit:*	High
Facility Type:	2-Lane	*Shoulder Width:*	1'
ADT:	235	*Shoulder Type:*	Paved
Road Type:	Rural Paved	*Rumble Installed:*	No
Length (miles):	3.0	*Oil Project:*	No
County Road:	Morton		
Local Name:	39th Ave		

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☑ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☐ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Road Dept	K+A
Crashes	2	1	0
Density (per mile per year)	0.13	0.07	0.00
Rate (per MVM)	1.55	0.78	0.00

	Value	Critical	Road
ADT Range	235	450≤ADT≤1000000	
RD Density	0.067	0.054	★
Access Density	9.1	8.0	★
Curve Critical Radius Density	0.000	0.130	
Edge Risk	2	2 or 3	★
			★★★

Describe Proposed Safety Improvements

Description	Type	Cost per mi	Mileage	Cost
4" Edge Lines	Proactive	$1,320	0.0	$0
6" Edge Lines	Proactive	$1,980	0.3	$594
Edge Rumble Strip	Proactive	$5,850	2.7	$15,795
Ground In Wet-Reflective Markings	Proactive	$36,000	0.0	$0
Center Line Rumble Strip	Proactive	$3,600	0.0	$0
6" Center Line	Proactive	$1,020	0.0	$0

Notes - 6 inch edge line with rumbles

Project Cost Estimate (attach detailed copy)

Federal Funds	$14,750
Local Match (10% of Total project cost)	$1,639
Total Project Cost	**$16,389**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

23 USC 409
NDDOT Reserves All Objections

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

Ash Ave - 39th St from Intersection with 50th Ave (Morton 86) to Intersection with 10th St N

Agency Name: Morton County
Contact Name: Mike Aubol
Email Address: mike.aubol@mortonnd.org
ND DOT District: 1
Telephone Number: 701-667-3346

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Start: Intersection with 50th Ave (Morton 86)
End: Intersection with 10th St N
Facility Type: 2-Lane
ADT: 228
Road Type: Rural Paved
Length (miles): 4.3
County Road: Morton
Local Name: Ash Ave - 39th St

Lane Width: 12'
Speed Limit: High
Shoulder Width: 0'
Shoulder Type: None
Rumble Installed: No
Oil Project: No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☑ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☐ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Road Dept	K+A
Crashes	0	0	0
Density (per mile per year)	0.00	0.00	0.00
Rate (per MVM)	0.00	0.00	0.00

	Value	Critical	Road
ADT Range	228	450≤ADT≤1000000	
RD Density	0.000	0.054	
Access Density	10.0	8.0	★
Curve Critical Radius Density	0.000	0.130	
Edge Risk	2	2 or 3	★
			★★

Describe Proposed Safety Improvements

Description	Type	Cost per mi	Mileage	Cost	Notes -
4" Edge Lines	Proactive	$1,320	0.6	$851	
6" Edge Lines	Proactive	$1,980	0.0	$0	
Edge Rumble Strip	Proactive	$5,850	3.7	$21,382	
Ground In Wet-Reflective Markings	Proactive	$36,000	0.0	$0	
Center Line Rumble Strip	Proactive	$3,600	0.0	$0	
6" Center Line	Proactive	$1,020	0.0	$0	

Project Cost Estimate (attach detailed copy)

Federal Funds	$20,010
Local Match (10% of Total project cost)	$2,223
Total Project Cost	**$22,233**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

23 USC 409
NDDOT Reserves All Objections

Page: 6
Segment ID: 139.05
Date: 3/13/2015

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

39th St from Approximately 0.2 mile east of 1st St N to Intersection with 39th Ave (Morton 84)

Agency Name: Morton County
Contact Name: Mike Aubol
Email Address: mike.aubol@mortonnd.org
ND DOT District: 1
Telephone Number: 701-667-3346

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Start: Approximately 0.2 mile east of 1st St N
End: Intersection with 39th Ave (Morton 84)
Facility Type: 2-Lane
ADT: 475
Road Type: Rural Paved
Length (miles): 5.8
County Road: Morton
Local Name: 39th St

Lane Width: 12'
Speed Limit: High
Shoulder Width: 2'
Shoulder Type: Paved
Rumble Installed: No
Oil Project: No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☑ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☐ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Road Dept	K+A
Crashes	5	4	0
Density (per mile per year)	0.17	0.14	0.00
Rate (per MVM)	0.99	0.80	0.00

	Value	Critical	Road
ADT Range	475	450≤ADT≤1000000	★
RD Density	0.139	0.054	★
Access Density	4.3	8.0	
Curve Critical Radius Density	0.000	0.130	
Edge Risk	1	2 or 3	
			★★

Describe Proposed Safety Improvements

Description	Type	Cost per mi	Mileage	Cost
4" Edge Lines	Proactive	$1,320	0.0	$0
6" Edge Lines	Proactive	$1,980	0.3	$574
Edge Rumble Strip	Proactive	$5,850	5.5	$32,234
Ground In Wet-Reflective Markings	Proactive	$36,000	0.0	$0
Center Line Rumble Strip	Proactive	$3,600	0.0	$0
6" Center Line	Proactive	$1,020	0.0	$0

Notes - 6 inch edge line with rumbles

Project Cost Estimate (attach detailed copy)

Federal Funds	$29,527
Local Match (10% of Total project cost)	$3,281
Total Project Cost	**$32,808**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

23 USC 409
NDDOT Reserves All Objections

Page: 7
Segment ID: 139.06
Date: 3/13/2015

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

39th St from Intersection with 39th Ave (Morton 84) to Intersection with ND 25

Agency Name: Morton County
Contact Name: Mike Aubol
Email Address: mike.aubol@mortonnd.org
ND DOT District: 1
Telephone Number: 701-667-3346

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Start: Intersection with 39th Ave (Morton 84)
End: Intersection with ND 25
Facility Type: 2-Lane
ADT: 471
Road Type: Rural Paved
Length (miles): 13.1
County Road: Morton
Local Name: 39th St

Lane Width: 12'
Speed Limit: High
Shoulder Width: 2'
Shoulder Type: Paved
Rumble Installed: No
Oil Project: No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☑ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☐ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Road Dept	K+A
Crashes	11	6	2
Density (per mile per year)	0.17	0.09	0.03
Rate (per MVM)	0.98	0.53	0.18

	Value	Critical	Road
ADT Range	471	450≤ADT≤1000000	★
RD Density	0.092	0.054	★
Access Density	5.5	8.0	
Curve Critical Radius Density	0.000	0.130	
Edge Risk	1	2 or 3	
			★★

Describe Proposed Safety Improvements

Description	Type	Cost per mi	Mileage	Cost	Notes -
4" Edge Lines	Proactive	$1,320	0.0	$0	
6" Edge Lines	Proactive	$1,980	0.0	$0	
Edge Rumble Strip	Proactive	$5,850	13.1	$76,635	
Ground In Wet-Reflective Markings	Proactive	$36,000	0.0	$0	
Center Line Rumble Strip	Proactive	$3,600	0.0	$0	
6" Center Line	Proactive	$1,020	0.0	$0	

Project Cost Estimate (attach detailed copy)

Federal Funds	$68,972
Local Match (10% of Total project cost)	$7,664
Total Project Cost	**$76,635**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

23 USC 409
NDDOT Reserves All Objections

Page: 8
Segment ID: 139.07
Date: 3/13/2015

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

39th Ave from Intersection with I-94 to End of Pavement, north of 36.5 St SW

Agency Name: Morton County
Contact Name: Mike Aubol
Email Address: mike.aubol@mortonnd.org
ND DOT District: 1
Telephone Number: 701-667-3346

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Start: Intersection with I-94
End: End of Pavement, north of 36.5 St SW
Facility Type: 2-Lane
ADT: 145
Road Type: Rural Paved
Length (miles): 1.6
County Road: Morton
Local Name: 39th Ave

Lane Width: 12'
Speed Limit: High
Shoulder Width: 2'
Shoulder Type: Paved
Rumble Installed: No
Oil Project: No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☑ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☐ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Road Dept	K+A
Crashes	1	1	0
Density (per mile per year)	0.13	0.13	0.00
Rate (per MVM)	2.36	2.36	0.00

	Value	Critical	Road
ADT Range	145	450≤ADT≤1000000	
RD Density	0.129	0.054	★
Access Density	9.0	8.0	★
Curve Critical Radius Density	0.000	0.130	
Edge Risk	1	2 or 3	
			★★

Describe Proposed Safety Improvements

Description	Type	Cost per mi	Mileage	Cost	Notes -
4" Edge Lines	Proactive	$1,320	0.0	$0	
6" Edge Lines	Proactive	$1,980	0.0	$0	
Edge Rumble Strip	Proactive	$5,850	1.6	$9,360	
Ground In Wet-Reflective Markings	Proactive	$36,000	0.0	$0	
Center Line Rumble Strip	Proactive	$3,600	0.0	$0	
6" Center Line	Proactive	$1,020	0.0	$0	

Project Cost Estimate (attach detailed copy)

Federal Funds	$8,424
Local Match (10% of Total project cost)	$936
Total Project Cost	**$9,360**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

23 USC 409
NDDOT Reserves All Objections

Page: 9
Segment ID: 84.05
Date: 3/13/2015

Morton County
Curve Projects

Page	Corridor ID	# of Curves	Route #	Start	End	Chevron	Arrow Board	Shoulder Paving	Edge Rumble Strips	Advanced Sign/Speed Plaque	Project Cost ($)
1	86.02	8	Morton	Intersection with 42.5 St	End of pavement, north of I-94	$ 7,920	$ -	$ 77,266	$ 8,370	$ 1,440	$ 94,996
2	139.01	7	Morton	Stark County Line	Intersection with I-94	$ -	$ -	$ 106,366	$ 11,523	$ -	$ 117,889
3	139.02	4	Morton	Intersection with I-94	Intersection with ND 49	$ 3,960	$ -	$ 68,004	$ 7,367	$ 1,440	$ 80,771
4	139.03	2	Morton	Intersection with ND 49	Intersection with Morton 138	$ -	$ -	$ 24,043	$ 2,605	$ -	$ 26,647
5	139.06	4	Morton	Approximately 0.2 mile east of 1st St N	Intersection with 39th Ave (Morton 84)	$ -	$ -	$ 78,528	$ 8,507	$ -	$ 87,035
6	139.07	11	Morton	Intersection with 39th Ave (Morton 84)	Intersection with ND 25	$ -	$ -	$ 241,572	$ 26,170	$ -	$ 267,742
7	139.09	4	Morton	Beginning of Pavement, 0.5 mile west of 30th Ave SW	Intersection with ND 25	$ 11,880	$ -	$ 31,789	$ 3,444	$ -	$ 47,113
23 USC 409 NDDOT Reserves All Objections						**$ 23,760**	**$ -**	**$ 627,567**	**$ 67,986**	**$ 2,880**	**$ 722,194**

Morton County Curves

Curve Count	ID	Corridor	Segment	Start	End	Inside Shoulder Type	Outside Shoulder Type	Isolated Curve	Curve Warning Sign	Warning Sign Type	Speed Advisory Sign	Advisory Speed	Arrow Board	Chevrons	Crashes Total	Crashes Total Severe	Radius (ft)	ADT	Intersection on Curve	Visual Trap	Speed Limit	Risk Ranking	Chevrons (W1-8)	One Direction Large Arrow (W1-6)	Curve Shoulder Paving	Curve RS	Advance Horizontal Alignment Warning Sign
1	084A	84.04	Morton	Intersection with 41st St SW	Intersection with I-94	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	1690	235	Yes	No	High	★			-	-	-
2	084B	84.04	Morton	Intersection with 41st St SW	Intersection with I-94	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	1523	235	Yes	No	High	★			-	-	-
3	084C	84.04	Morton	Intersection with 41st St SW	Intersection with I-94	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	1539	235	No	No	High				-	-	-
4	084D	84.05	Morton	Intersection with I-94	End of Pavement, north of 36.5 St SW	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	5252	145	Yes	No	High	★			-	-	-
5	084E	84.05	Morton	Intersection with I-94	End of Pavement, north of 36.5 St SW	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	2751	145	Yes	No	High	★			-	-	-
6	084F	84.05	Morton	Intersection with I-94	End of Pavement, north of 36.5 St SW	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	2815	145	No	No	High				-	-	-
7	085A	85.02	Morton	Beginning of pavement, north of 42nd St SW	Intersection with Pine Ave	Paved	Paved	Yes	Yes	Curve Warning	No		No	No	-	-	1860	225	No	No	Low				-	-	-
8	085B	85.02	Morton	Beginning of pavement, north of 42nd St SW	Intersection with Pine Ave	Paved	Paved	Yes	Yes	Curve Warning	No		No	No	-	-	1951	225	Yes	Yes	Low	★★			-	-	-
9	086A	86.02	Morton	Intersection with 42.5 St	End of pavement, north of I-94	Paved	Paved	No	Yes	Curve Warning	No		No	No	1	-	2134	281	Yes	No	High	★			Inside/Outside	Inside/Outside	-
10	086B	86.02	Morton	Intersection with 42.5 St	End of pavement, north of I-94	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	1000	281	No	No	High	★	x		Inside/Outside	Inside/Outside	x
11	086C	86.02	Morton	Intersection with 42.5 St	End of pavement, north of I-94	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	2787	281	No	No	High				Inside/Outside	Inside/Outside	-
12	086D	86.02	Morton	Intersection with 42.5 St	End of pavement, north of I-94	Paved	Paved	No	Yes	Curve Warning	No		No	No	-	-	2106	281	No	No	High				Inside/Outside	Inside/Outside	-
13	086E	86.02	Morton	Intersection with 42.5 St	End of pavement, north of I-94	Paved	Paved	No	Yes	S-Curve	Yes	45	No	No	-	-	1468	281	No	No	High		x		Inside/Outside	Inside/Outside	-
14	086F	86.02	Morton	Intersection with 42.5 St	End of pavement, north of I-94	Paved	Paved	No	Yes	S-Curve	Yes	45	No	No	-	-	1913	281	No	No	High				Inside/Outside	Inside/Outside	-
15	086G	86.02	Morton	Intersection with 42.5 St	End of pavement, north of I-94	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	2028	281	Yes	No	High	★			Inside/Outside	Inside/Outside	-
16	086H	86.02	Morton	Intersection with 42.5 St	End of pavement, north of I-94	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	2973	281	No	No	High				Inside/Outside	Inside/Outside	-
17	090A	90.01	Morton	Intersection with I-94	Intersection with South Ave (Morton 139)	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	3118	500	No	No	High	★			-	-	-
18	090B	90.01	Morton	Intersection with I-94	Intersection with South Ave (Morton 139)	Paved	Paved	No	Yes	S-Curve	No		No	No	1	-	2392	500	Yes	No	High	★★			-	-	-
19	090C	90.01	Morton	Intersection with I-94	Intersection with South Ave (Morton 139)	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	2397	500	No	No	High	★			-	-	-
20	139A	139.01	Morton	Stark County Line	Intersection with I-94	Paved	Paved	No	Yes	Curve Warning	No		No	No	-	-	2864	281	Yes	Yes	High	★★			Inside/Outside	Inside/Outside	-
21	139B	139.01	Morton	Stark County Line	Intersection with I-94	Paved	Paved	No	Yes	Curve Warning	No		No	No	-	-	2817	281	Yes	No	High	★			Inside/Outside	Inside/Outside	-
22	139C	139.01	Morton	Stark County Line	Intersection with I-94	Paved	Paved	No	Yes	Curve Warning	No		No	No	1	-	2072	281	Yes	No	High	★			Inside/Outside	Inside/Outside	-
23	139D	139.01	Morton	Stark County Line	Intersection with I-94	Paved	Paved	No	Yes	Curve Warning	No		No	No	3	-	3043	281	Yes	No	High	★			Inside/Outside	Inside/Outside	-
24	139E	139.01	Morton	Stark County Line	Intersection with I-94	Paved	Paved	No	Yes	Curve Warning	No		No	No	1	-	6330	281	No	No	High				Inside/Outside	Inside/Outside	-
25	139F	139.01	Morton	Stark County Line	Intersection with I-94	Paved	Paved	No	No		No		No	No	-	-	1735	281	No	No	High				Inside/Outside	Inside/Outside	-
26	139G	139.01	Morton	Stark County Line	Intersection with I-94	Paved	Paved	No	No		No		No	No	1	-	1430	281	Yes	No	High	★			Inside/Outside	Inside/Outside	-
27	139H	139.02	Morton	Intersection with I-94	Intersection with ND 49	Paved	Paved	No	No		No		No	No	5	-	1757	575	Yes	No	High	★★			Inside/Outside	Inside/Outside	-
28	139I	139.02	Morton	Intersection with I-94	Intersection with ND 49	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	647	575	Yes	No	High	★★★	x		Inside/Outside	Inside/Outside	x
29	139J	139.02	Morton	Intersection with I-94	Intersection with ND 49	Paved	Paved	Yes	Yes	S-Curve	No		No	No	2	-	4911	575	Yes	No	High	★★			Inside/Outside	Inside/Outside	-
30	139K	139.02	Morton	Intersection with I-94	Intersection with ND 49	Paved	Paved	No	Yes	S-Curve	No		No	No	2	-	8944	575	No	No	High	★			Inside/Outside	Inside/Outside	-
31	139N	139.03	Morton	Intersection with ND 49	Intersection with Morton 138	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	3588	105	No	No	High				Inside/Outside	Inside/Outside	-
32	139O	139.03	Morton	Intersection with ND 49	Intersection with Morton 138	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	2070	105	Yes	No	High	★			Inside/Outside	Inside/Outside	-
33	139P	139.06	Morton	Approximately 0.2 mile east of 1st St N	Intersection with 39th Ave (Morton 84)	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	11819	475	No	No	High	★			Inside/Outside	Inside/Outside	-
34	139Q	139.06	Morton	Approximately 0.2 mile east of 1st St N	Intersection with 39th Ave (Morton 84)	Paved	Paved	No	Yes	S-Curve	No		No	No	1	-	5868	475	No	No	High	★			Inside/Outside	Inside/Outside	-
35	139R	139.06	Morton	Approximately 0.2 mile east of 1st St N	Intersection with 39th Ave (Morton 84)	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	6131	475	No	No	High	★			Inside/Outside	Inside/Outside	-
36	139S	139.06	Morton	Approximately 0.2 mile east of 1st St N	Intersection with 39th Ave (Morton 84)	Paved	Paved	No	No		No		No	No	1	-	7007	475	No	No	High	★			Inside/Outside	Inside/Outside	-
37	139T	139.07	Morton	Intersection with 39th Ave (Morton 84)	Intersection with ND 25	Paved	Paved	No	Yes	Winding Road	No		No	No	-	-	8458	471	No	No	High	★			Inside/Outside	Inside/Outside	-
38	139U	139.07	Morton	Intersection with 39th Ave (Morton 84)	Intersection with ND 25	Paved	Paved	No	Yes	Winding Road	No		No	No	-	-	5764	471	No	No	High	★			Inside/Outside	Inside/Outside	-
39	139V	139.07	Morton	Intersection with 39th Ave (Morton 84)	Intersection with ND 25	Paved	Paved	No	Yes	Curve Warning	No		No	No	-	-	7006	471	No	No	High	★			Inside/Outside	Inside/Outside	-
40	139X	139.07	Morton	Intersection with 39th Ave (Morton 84)	Intersection with ND 25	Paved	Paved	No	Yes	S-Curve	No		No	No	3	2	3874	471	Yes	No	High	★★★			Inside/Outside	Inside/Outside	-
41	139Y	139.07	Morton	Intersection with 39th Ave (Morton 84)	Intersection with ND 25	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	6139	471	No	No	High	★			Inside/Outside	Inside/Outside	-
42	139Z	139.07	Morton	Intersection with 39th Ave (Morton 84)	Intersection with ND 25	Paved	Paved	No	Yes	Curve Warning	No		No	No	3	1	5084	471	No	No	High	★★			Inside/Outside	Inside/Outside	-
43	139AB	139.07	Morton	Intersection with 39th Ave (Morton 84)	Intersection with ND 25	Paved	Paved	No	Yes	Curve Warning	No		No	No	1	-	5876	471	Yes	No	High	★★			Inside/Outside	Inside/Outside	-
44	139AC	139.07	Morton	Intersection with 39th Ave (Morton 84)	Intersection with ND 25	Paved	Paved	Yes	Yes	Curve Warning	No		No	No	2	-	3880	471	Yes	No	High	★★			Inside/Outside	Inside/Outside	-
45	139AD	139.07	Morton	Intersection with 39th Ave (Morton 84)	Intersection with ND 25	Paved	Paved	No	Yes	Curve Warning	No		No	No	1	-	3858	471	No	No	High	★			Inside/Outside	Inside/Outside	-
46	139AE	139.07	Morton	Intersection with 39th Ave (Morton 84)	Intersection with ND 25	Paved	Paved	No	Yes	Curve Warning	No		No	No	-	-	8226	471	No	No	High	★			Inside/Outside	Inside/Outside	-
47	139AF	139.07	Morton	Intersection with 39th Ave (Morton 84)	Intersection with ND 25	Paved	Paved	No	Yes	Curve Warning	No		No	No	-	-	5825	471	No	No	High	★			Inside/Outside	Inside/Outside	-
48	139AG	139.09	Morton	Beginning of Pavement, 0.5 mile west of 30th Ave SW	Intersection with ND 25	Paved	Paved	No	Yes	S-Curve	No		No	No	-	-	1323	623	Yes	No	High	★★	x		Inside/Outside	Inside/Outside	-
49	139AH	139.09	Morton	Beginning of Pavement, 0.5 mile west of 30th Ave SW	Intersection with ND 25	Paved	Paved	No	Yes	Curve Warning	No		No	No	4	-	1425	623	No	No	High	★	x		Inside/Outside	Inside/Outside	-
50	139AI	139.09	Morton	Beginning of Pavement, 0.5 mile west of 30th Ave SW	Intersection with ND 25	Paved	Paved	No	Yes	Curve Warning	No		No	No	1	-	1819	623	No	No	High	★			Inside/Outside	Inside/Outside	-
51	139AJ	139.09	Morton	Beginning of Pavement, 0.5 mile west of 30th Ave SW	Intersection with ND 25	Paved	Paved	No	Yes	Curve Warning	No		No	No	-	-	1150	623	No	No	High	★★	x		Inside/Outside	Inside/Outside	-
															34	3							6	0			2

Critical Ranges	Min	Max
Radius	500	1,200
ADT	450	1,000,000

Stars	Total #	Total %	Chevroned % of Stars
★★★★★	0	0%	0%
★★★★	0	0%	0%
★★★	2	4%	0%
★★	10	20%	0%
★	28	55%	0%
23 USC 409	11	22%	0%
NDDOT Reserves All Objections	51	100%	0%

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming

SFN 59959 (06-2011)

Curves on 50th Ave - Broadway Ave from Intersection with 42.5 St to End of pavement, north of I-94

Agency Name: Morton County — **ND DOT District: 1**

Contact Name: Mike Aubol — **Telephone Number: 701-667-3346**

Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description (Corridor Containing Curves)

Start: Intersection with 42.5 St
End: End of pavement, north of I-94
Facility Type: 2-Lane
ADT: 281
Road Type Rural Paved
Length (miles): 9.0
County Road: Morton
Local Name: 50th Ave - Broadway Ave

Lane Width: 12'
Speed Limit: High
Shoulder Width: 1'
Shoulder Type: Paved
Rumble Installed: No
Edge Line Installed: Yes

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☑ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☐ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

Curve ID	Oil Proj	K	A	Radius (ft)	ADT	Intersection on Curve	Visual Trap	Risk Ranking	Proximity	Existing Arrow Board	Existing Chevrons	Critical Radius	Sign Improvement Project	Shoulder Paving Project	Shoulder Rumble Strip Project	Advance Horizontal Alignment Warning Sign	Advisory Speed Plaque
086A	No	0	0	2134	281	Yes	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
086B	No	0	0	1000	281	No	No	★	-	-	-	x	Chevron	Inside/Outside	Inside/Outside	x	50
086C	No	0	0	2787	281	No	No		x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
086D	No	0	0	2106	281	No	No		x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
086E	No	0	0	1468	281	No	No		x	-	-	-	Chevron	Inside/Outside	Inside/Outside	-	-
086F	No	0	0	1913	281	No	No		x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
086G	No	0	0	2028	281	Yes	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
086H	No	0	0	2973	281	No	No		x	-	-	-	-	Inside/Outside	Inside/Outside	-	-

*Curve numbering not consecutive, as some curves may have been removed from further analysis because a large radius, located on a gravel road, etc

Ranking Criteria

	Criteria
Severe Crashes	> 0
Radius	500 to 1200
ADT	450 to 1000000
Intersection on Curve	Yes
Visual Trap	Yes

Curves are selected for project if:
- 3 or more ★s
- x in Proximity or Existing Chevron column
- within Critical Radius

Describe Proposed Safety Improvements

Description	Type	Unit Cost	Quantity	Total cost
Chevrons	Proactive	$3,960 per curve	2	$7,920
Arrow Board Only	Proactive	$1,200 per curve	0	$0
Advance Warning Sign/Speed Advisory Plaque	Proactive	$1,440 per curve	1	$1,440
Shoulder Rumble Strip	Proactive	$5,850 per mile	1.4 miles	$8,370
Shoulder Paving	Proactive	$54,000 per mile	1.4 miles	$77,266
				$94,996

Notes -

Project Cost Estimate (attach detailed copy)

Federal Funds	$85,497
Local Match (10% of Total project cost)	$9,500
Total Project Cost	**$94,996**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

23 USC 409
NDDOT Reserves All Objections

Page: 1
Segment ID: 86.02
Date: 3/13/2015

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming

SFN 59959 (06-2011)

Curves on South Ave from Stark County Line to Intersection with I-94

Agency Name: Morton County — **ND DOT District: 1**

Contact Name: Mike Aubol — **Telephone Number: 701-667-3346**

Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description (Corridor Containing Curves)

Start: Stark County Line
End: Intersection with I-94
Facility Type: 2-Lane
ADT: 281
Road Type Rural Paved
Length (miles): 8.4
County Road: Morton
Local Name: South Ave

Lane Width: 12'
Speed Limit: High
Shoulder Width: 1'
Shoulder Type: Paved
Rumble Installed: No
Edge Line Installed: Yes

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☑ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☐ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

Curve ID	Oil Proj	K	A	Radius (ft)	ADT	Intersection on Curve	Visual Trap	Risk Ranking	Proximity	Existing Arrow Board	Existing Chevrons	Critical Radius	Sign Improvement Project	Shoulder Paving Project	Shoulder Rumble Strip Project	Advance Horizontal Alignment Warning Sign	Advisory Speed Plaque
139A	No	0	0	2864	281	Yes	Yes	★★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139B	No	0	0	2817	281	Yes	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139C	No	0	0	2072	281	Yes	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139D	No	0	0	3043	281	Yes	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139E	No	0	0	6330	281	No	No		x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139F	No	0	0	1735	281	No	No		x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139G	No	0	0	1430	281	Yes	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-

*Curve numbering not consecutive, as some curves may have been removed from further analysis because a large radius, located on a gravel road, etc

Ranking Criteria

	Criteria
Severe Crashes	> 0
Radius	500 to 1200
ADT	450 to 1000000
Intersection on Curve	Yes
Visual Trap	Yes

Curves are selected for project if:
- 3 or more ★s
- x in Proximity or Existing Chevron column
- within Critical Radius

Describe Proposed Safety Improvements

Description	Type	Unit Cost	Quantity	Total cost
Chevrons	Proactive	$3,960 per curve	0	$0
Arrow Board Only	Proactive	$1,200 per curve	0	$0
Advance Warning Sign/Speed Advisory Plaque	Proactive	$1,440 per curve	0	$0
Shoulder Rumble Strip	Proactive	$5,850 per mile	2.0 miles	$11,523
Shoulder Paving	Proactive	$54,000 per mile	2.0 miles	$106,366
				$117,889

Notes -

Project Cost Estimate (attach detailed copy)

Federal Funds	$106,100
Local Match (10% of Total project cost)	$11,789
Total Project Cost	**$117,889**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming

SFN 59959 (06-2011)

Curves on County Road 139 from Intersection with I-94 to Intersection with ND 49

Agency Name: Morton County — **ND DOT District: 1**

Contact Name: Mike Aubol — **Telephone Number: 701-667-3346**

Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description (Corridor Containing Curves)

Start: Intersection with I-94
End: Intersection with ND 49
Facility Type: 2-Lane
ADT: 575
Road Type Rural Paved
Length (miles): 6.0
County Road: Morton
Local Name: County Road 139

Lane Width: 12'
Speed Limit: High
Shoulder Width: 1'
Shoulder Type: Paved
Rumble Installed: No
Edge Line Installed: Yes

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☑ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☐ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

Curve ID	Oil Proj	K	A	Radius (ft)	ADT	Intersection on Curve	Visual Trap	Risk Ranking	Proximity	Existing Arrow Board	Existing Chevrons	Critical Radius	Sign Improvement Project	Shoulder Paving Project	Shoulder Rumble Strip Project	Advance Horizontal Alignment Warning Sign	Advisory Speed Plaque
139H	No	0	0	1757	575	Yes	No	★★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139I	No	0	0	647	575	Yes	No	★★★	-	-	-	x	Chevron	Inside/Outside	Inside/Outside	x	40
139J	No	0	0	4911	575	Yes	No	★★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139K	No	0	0	8944	575	No	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-

*Curve numbering not consecutive, as some curves may have been removed from further analysis because a large radius, located on a gravel road, etc

Ranking Criteria

	Criteria
Severe Crashes	> 0
Radius	500 to 1200
ADT	450 to 1000000
Intersection on Curve	Yes
Visual Trap	Yes

Curves are selected for project if:
- 3 or more ★s
- x in Proximity or Existing Chevron column
- within Critical Radius

Describe Proposed Safety Improvements

Description	Type	Unit Cost	Quantity	Total cost	Notes -
Chevrons	Proactive	$3,960 per curve	1	$3,960	
Arrow Board Only	Proactive	$1,200 per curve	0	$0	
Advance Warning Sign/Speed Advisory Plaque	Proactive	$1,440 per curve	1	$1,440	
Shoulder Rumble Strip	Proactive	$5,850 per mile	1.3 miles	$7,367	
Shoulder Paving	Proactive	$54,000 per mile	1.3 miles	$68,004	
				$80,771	

Project Cost Estimate (attach detailed copy)

Federal Funds	$72,694
Local Match (10% of Total project cost)	$8,077
Total Project Cost	**$80,771**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

23 USC 409
NDDOT Reserves All Objections

Page: 3
Segment ID: 139.02
Date: 3/13/2015

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming

SFN 59959 (06-2011)

Curves on 42.5 St from Intersection with ND 49 to Intersection with Morton 138

Agency Name: Morton County — **ND DOT District: 1**

Contact Name: Mike Aubol — **Telephone Number: 701-667-3346**

Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description (Corridor Containing Curves)

Start: Intersection with ND 49
End: Intersection with Morton 138
Facility Type: 2-Lane
ADT: 105
Road Type Rural Paved
Length (miles): 1.9
County Road: Morton
Local Name: 42.5 St

Lane Width: 12'
Speed Limit: High
Shoulder Width: 1'
Shoulder Type: Paved
Rumble Installed: No
Edge Line Installed: Yes

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☑ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☐ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

Curve ID	Oil Proj	K	A	Radius (ft)	ADT	Intersection on Curve	Visual Trap	Risk Ranking	Proximity	Existing Arrow Board	Existing Chevrons	Critical Radius	Sign Improvement Project	Shoulder Paving Project	Shoulder Rumble Strip Project	Advance Horizontal Alignment Warning Sign	Advisory Speed Plaque
139N	No	0	0	3588	105	No	No		x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139O	No	0	0	2070	105	Yes	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-

*Curve numbering not consecutive, as some curves may have been removed from further analysis because a large radius, located on a gravel road, etc

Ranking Criteria

	Criteria
Severe Crashes	> 0
Radius	500 to 1200
ADT	450 to 1000000
Intersection on Curve	Yes
Visual Trap	Yes

Curves are selected for project if:
- 3 or more ★s
- x in Proximity or Existing Chevron column
- within Critical Radius

Describe Proposed Safety Improvements

Description	Type	Unit Cost	Quantity	Total cost
Chevrons	Proactive	$3,960 per curve	0	$0
Arrow Board Only	Proactive	$1,200 per curve	0	$0
Advance Warning Sign/Speed Advisory Plaque	Proactive	$1,440 per curve	0	$0
Shoulder Rumble Strip	Proactive	$5,850 per mile	.4 miles	$2,605
Shoulder Paving	Proactive	$54,000 per mile	.4 miles	$24,043
				$26,647

Notes -

Project Cost Estimate (attach detailed copy)

Federal Funds	$23,983
Local Match (10% of Total project cost)	$2,665
Total Project Cost	**$26,647**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

23 USC 409
NDDOT Reserves All Objections

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming

SFN 59959 (06-2011)

Curves on 39th St from Approximately 0.2 mile east of 1st St N to Intersection with 39th Ave (Morton 84)

Agency Name: Morton County | **ND DOT District: 1**

Contact Name: Mike Aubol | **Telephone Number: 701-667-3346**

Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description (Corridor Containing Curves)

Start: Approximately 0.2 mile east of 1st St N
End: Intersection with 39th Ave (Morton 84)
Facility Type: 2-Lane
ADT: 475
Road Type Rural Paved
Length (miles): 5.8
County Road: Morton
Local Name: 39th St

Lane Width: 12'
Speed Limit: High
Shoulder Width: 2'
Shoulder Type: Paved
Rumble Installed: No
Edge Line Installed: Yes

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☑ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☐ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

Curve ID	Oil Proj	K	A	Radius (ft)	ADT	Intersection on Curve	Visual Trap	Risk Ranking	Proximity	Existing Arrow Board	Existing Chevrons	Critical Radius	Sign Improvement Project	Shoulder Paving Project	Shoulder Rumble Strip Project	Advance Horizontal Alignment Warning Sign	Advisory Speed Plaque
139P	No	0	0	11819	475	No	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139Q	No	0	0	5868	475	No	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139R	No	0	0	6131	475	No	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139S	No	0	0	7007	475	No	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-

*Curve numbering not consecutive, as some curves may have been removed from further analysis because a large radius, located on a gravel road, etc

Ranking Criteria

	Criteria
Severe Crashes	> 0
Radius	500 to 1200
ADT	450 to 1000000
Intersection on Curve	Yes
Visual Trap	Yes

Curves are selected for project if:
- 3 or more ★s
- x in Proximity or Existing Chevron column
- within Critical Radius

Describe Proposed Safety Improvements

Description	Type	Unit Cost	Quantity	Total cost
Chevrons	Proactive	$3,960 per curve	0	$0
Arrow Board Only	Proactive	$1,200 per curve	0	$0
Advance Warning Sign/Speed Advisory Plaque	Proactive	$1,440 per curve	0	$0
Shoulder Rumble Strip	Proactive	$5,850 per mile	1.5 miles	$8,507
Shoulder Paving	Proactive	$54,000 per mile	1.5 miles	$78,528
				$87,035

Notes -

Project Cost Estimate (attach detailed copy)

Federal Funds	$78,332
Local Match (10% of Total project cost)	$8,704
Total Project Cost	**$87,035**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

23 USC 409
NDDOT Reserves All Objections

Page: 5
Segment ID: 139.06
Date: 3/13/2015

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming

SFN 59959 (06-2011)

Curves on 39th St from Intersection with 39th Ave (Morton 84) to Intersection with ND 25

Agency Name: Morton County — **ND DOT District: 1**

Contact Name: Mike Aubol — **Telephone Number: 701-667-3346**

Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description (Corridor Containing Curves)

Start: Intersection with 39th Ave (Morton 84)
End: Intersection with ND 25
Facility Type: 2-Lane
ADT: 471
Road Type Rural Paved
Length (miles): 13.1
County Road: Morton
Local Name: 39th St

Lane Width: 12'
Speed Limit: High
Shoulder Width: 2'
Shoulder Type: Paved
Rumble Installed: No
Edge Line Installed: Yes

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☑ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☐ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

Curve ID	Oil Proj	K	A	Radius (ft)	ADT	Intersection on Curve	Visual Trap	Risk Ranking	Proximity	Existing Arrow Board	Existing Chevrons	Critical Radius	Sign Improvement Project	Shoulder Paving Project	Shoulder Rumble Strip Project	Advance Horizontal Alignment Warning Sign	Advisory Speed Plaque
139T	No	0	0	8458	471	No	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139U	No	0	0	5764	471	No	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139V	No	0	0	7006	471	No	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139X	No	0	2	3874	471	Yes	No	★★★	-	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139Y	No	0	0	6139	471	No	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139Z	No	1	0	5084	471	No	No	★★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139AB	No	0	0	5876	471	Yes	No	★★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139AC	No	0	0	3880	471	Yes	No	★★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139AD	No	0	0	3858	471	No	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139AE	No	0	0	8226	471	No	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139AF	No	0	0	5825	471	No	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-

*Curve numbering not consecutive, as some curves may have been removed from further analysis because a large radius, located on a gravel road, etc

Ranking Criteria

	Criteria
Severe Crashes	> 0
Radius	500 to 1200
ADT	450 to 1000000
Intersection on Curve	Yes
Visual Trap	Yes

Curves are selected for project if:
- 3 or more ★s
- x in Proximity or Existing Chevron column
- within Critical Radius

Describe Proposed Safety Improvements

Description	Type	Unit Cost	Quantity	Total cost
Chevrons	Proactive	$3,960 per curve	0	$0
Arrow Board Only	Proactive	$1,200 per curve	0	$0
Advance Warning Sign/Speed Advisory Plaque	Proactive	$1,440 per curve	0	$0
Shoulder Rumble Strip	Proactive	$5,850 per mile	4.5 miles	$26,170
Shoulder Paving	Proactive	$54,000 per mile	4.5 miles	$241,572
				$267,742

Notes -

Project Cost Estimate (attach detailed copy)

Federal Funds	$240,968
Local Match (10% of Total project cost)	$26,774
Total Project Cost	**$267,742**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming

SFN 59959 (06-2011)

Curves on 38th St from Beginning of Pavement, 0.5 mile west of 30th Ave SW to Intersection with ND 25

Agency Name: Morton County — **ND DOT District: 1**

Contact Name: Mike Aubol — **Telephone Number: 701-667-3346**

Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description (Corridor Containing Curves)

Start: Beginning of Pavement, 0.5 mile west of 30th Ave SW
End: Intersection with ND 25
Facility Type: 2-Lane
ADT: 623
Road Type Rural Paved
Length (miles): 4.1
County Road: Morton
Local Name: 38th St

Lane Width: 12'
Speed Limit: High
Shoulder Width: 2'
Shoulder Type: Paved
Rumble Installed: No
Edge Line Installed: Yes

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☑ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☐ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

Curve ID	Oil Proj	K	A	Radius (ft)	ADT	Intersection on Curve	Visual Trap	Risk Ranking	Proximity	Existing Arrow Board	Existing Chevrons	Critical Radius	Sign Improvement Project	Shoulder Paving Project	Shoulder Rumble Strip Project	Advance Horizontal Alignment Warning Sign	Advisory Speed Plaque
139AG	No	0	0	1323	623	Yes	No	★★	x	-	-	-	Chevron	Inside/Outside	Inside/Outside	-	-
139AH	No	0	0	1425	623	No	No	★	x	-	-	-	Chevron	Inside/Outside	Inside/Outside	-	-
139AI	No	0	0	1819	623	No	No	★	x	-	-	-	-	Inside/Outside	Inside/Outside	-	-
139AJ	No	0	0	1150	623	No	No	★★	-	-	-	x	Chevron	Inside/Outside	Inside/Outside	-	-

*Curve numbering not consecutive, as some curves may have been removed from further analysis because a large radius, located on a gravel road, etc

Ranking Criteria

	Criteria
Severe Crashes	> 0
Radius	500 to 1200
ADT	450 to 1000000
Intersection on Curve	Yes
Visual Trap	Yes

Curves are selected for project if:
- 3 or more ★s
- x in Proximity or Existing Chevron column
- within Critical Radius

Describe Proposed Safety Improvements

Description	Type	Unit Cost	Quantity	Total cost
Chevrons	Proactive	$3,960 per curve	3	$11,880
Arrow Board Only	Proactive	$1,200 per curve	0	$0
Advance Warning Sign/Speed Advisory Plaque	Proactive	$1,440 per curve	0	$0
Shoulder Rumble Strip	Proactive	$5,850 per mile	.6 miles	$3,444
Shoulder Paving	Proactive	$54,000 per mile	.6 miles	$31,789
				$47,113

Notes -

Project Cost Estimate (attach detailed copy)

Federal Funds	$42,401
Local Match (10% of Total project cost)	$4,711
Total Project Cost	**$47,113**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

Morton County
Summary of Rural Intersection Projects

Page	Intersection ID	Route #	Description	Risk Ranking	Directional Median	Mainline Dynamic Warning Sign	Close Median	Install Street Lights	Signs & Markings	Project Cost ($)
1	139.06	Morton 139	Morton 139 & ND 49/63rd Ave	★★★★★★	-	-	-	x	x	$12,840
2	503.01	No Designation	37th St & ND 1806	★★★★★	-	-	-	x	x	$14,880
3	139.13	Morton 139	36th St (Morton 139) & ND 25/26th Ave	★★★★★	-	-	-	x	x	$14,880
4	504.01	No Designation	44th St & ND 6/21st Ave	★★★★	-	-	-	-	x	$2,040
5	139.08	Morton 139	Old Hwy 10 (Morton 139) & 33rd Ave (Morton 83)	★★★★	-	-	-	x	x	$14,280
6	139.02	Morton 139	South Ave (Morton 139) & Main Ave	★★★★	-	-	-	x	x	$12,840
7	139.05	Morton 139	E South Ave (Morton 139) & ND 49/E Pine Ave	★★★★	-	-	-	x	x	$12,840
8	138.06	Morton 138	45th St (Morton 138) & ND 1806/20th St	★★★★	-	-	-	-	x	$2,040
9	139.03	Morton 139	W Pine Ave (Morton 139) & ND 49	★★★★	-	-	-	x	x	$15,480
10	140.03	Morton 140	32nd St (Morton 140) & ND 25/26th Ave	★★★★	-	-	-	x	x	$14,880
11	82.01	Morton 82	24th Ave (Morton 82) I-94 BUS	★★★	-	-	-	-	x	$2,040
12	137.01	Morton 137	45th St (Morton 137) & ND 6/21st Ave	★★★	-	-	-	-	x	$4,080
13	136.01	Morton 136	55th St (Morton 136) & ND 6/23rd Ave	★★★	-	-	-	x	x	$14,880
14	503.07	No Designation	34th St & ND 1806	★★★	-	-	-	-	x	$2,040
23 USC 409 NDDOT Reserves All Objections					**0**	**0**	**0**	**9**	**14**	**$140,040**

Morton County
Rural Intersection Listing

23 USC 409
NDDOT Reserves All Objections

Int #	Sys	Intersection Description	Skew	On/Near Curve	Development	RR Xing	ADT	Previous STOP (>5mi)	Total Crashes	ADT Cross Product > 80000	Crash Cost
81.01	Morton	60th St (Morton 81) & ND 6/23rd Ave	No	No	No	No	1235	Yes	1	No	$ 12,000
82.01	Morton	24th Ave (Morton 82) I-94 BUS	Yes	No	No	Yes	2125	No	3	No	$ 160,000
83.01	Morton	30th Ave (Morton 83) & ND 21	No	No	No	No	823	Yes	0	No	$ -
84.01	Morton	39th Ave/Poplar St (Morton 84) & ND 21/66th St/6th Ave W	No	No	Yes	No	953	Yes	0	No	$ -
84.03	Morton	39th Ave (Morton 84) & Old Hwy 10 (Morton 139)	Yes	Yes	No	No	538	Yes	0	No	$ -
84.04	Morton	39th Ave (Morton 84) & 37th St	Yes	Yes	No	No	159	Yes	0	No	$ -
86.01	Morton	50th Ave/Broadway Ave (Morton 86) & 48th St (Morton 137)	No	Yes	No	No	300	Yes	0	No	$ -
86.02	Morton	50th Ave/Broadway Ave (Morton 86) & Morton 138	No	Yes	No	No	343	Yes	0	No	$ -
86.03	Morton	50th Ave (Morton 86) & Old Hwy 10/Ash Ave (morotn 139)	No	No	No	No	353	Yes	0	No	$ -
88.04	Morton	65th Ave (Morton 88) & E South Ave	No	No	Yes	Yes	430	Yes	0	No	$ -
90.01	Morton	76th Ave (Morton 90) & South Ave (Morton 139)	Yes	Yes	No	No	485	Yes	0	No	$ -
136.01	Morton	55th St (Morton 136) & ND 6/23rd Ave	No	No	No	No	1545	Yes	1	Yes	$ 12,000
136.04	Morton	61st St (Morton 136) & ND 1806	No	No	No	No	1470	Yes	0	No	$ -
137.01	Morton	45th St (Morton 137) & ND 6/21st Ave	No	No	No	No	2208	Yes	4	Yes	$ 48,000
138.03	Morton	43rd St (Morton 138) & ND 49	Yes	Yes	No	No	635	Yes	0	No	$ -
138.04	Morton	61st Ave (Morton 138) & 41st St (Morton 139)	Yes	Yes	No	No	130	Yes	0	No	$ -
138.06	Morton	45th St (Morton 138) & ND 1806/20th St	Yes	Yes	No	No	2253	Yes	0	Yes	$ -
139.01	Morton	South Ave/36th St (Morton 139) & Brickmaker Expy	Yes	Yes	No	No	225	No	0	No	$ -
139.02	Morton	South Ave (Morton 139) & Main Ave	Yes	Yes	No	No	820	No	1	Yes	$ 136,000
139.03	Morton	W Pine Ave (Morton 139) & ND 49	Yes	No	Yes	No	1363	Yes	0	Yes	$ -
139.05	Morton	E South Ave (Morton 139) & ND 49/E Pine Ave	Yes	Yes	No	No	1028	No	1	Yes	$ 12,000
139.06	Morton	Morton 139 & ND 49/63rd Ave	Yes	Yes	No	Yes	878	Yes	3	Yes	$ 160,000
139.08	Morton	Old Hwy 10 (Morton 139) & 33rd Ave (Morton 83)	Yes	Yes	No	No	543	Yes	2	No	$ 424,000
139.09	Morton	Morton 139 & I-94 BUS/Lyons Rd N	No	Yes	No	No	1652	Yes	0	Yes	$ -
139.11	Morton	Morton 139 & Country Ln	No	No	No	No	652	No	1	No	$ 12,000
139.12	Morton	Morton 139 & Coyote Rd	No	No	No	No	652	No	0	No	$ -
139.13	Morton	36th St (Morton 139) & ND 25/26th Ave	Yes	Yes	No	No	2638	Yes	1	Yes	$ 12,000
140.01	Morton	35th St/Summit Ave (Morton 140) & N Elm St	Yes	No	No	No	277	No	0	No	$ -
140.03	Morton	32nd St (Morton 140) & ND 25/26th Ave	Yes	Yes	No	No	1769	Yes	0	Yes	$ -
140.04	Morton	32nd St (Morton 140) & ND 1806	No	Yes	No	No	750	No	0	Yes	$ -
500.01	No Designation	Brickmaker Expy/Lincoln Ave & 76th Ave	No	Yes	No	No	1038	No	0	No	$ -
500.02	No Designation	Elm St & Main Ave	No	No	Yes	Yes	967	No	0	No	$ -
501.01	No Designation	ND 21/66th St/6th Ave & Main St	No	No	Yes	No	1233	Yes	0	Yes	$ -
502.01	No Designation	63rd St & ND 1806	No	Yes	No	No	1382	No	1	No	$ 12,000
502.02	No Designation	Fort Rice Rd & ND 1806	No	No	No	No	1382	No	0	No	$ -
502.03	No Designation	Schmidt Bottoms Rd & ND 1806	No	Yes	No	No	1757	No	0	No	$ -
503.01	No Designation	37th St & ND 1806	Yes	Yes	Yes	No	2890	No	3	Yes	$ 115,000
503.02	No Designation	37th St & Entzel Dr	No	No	Yes	No	540	No	0	No	$ -

Morton County
Rural Intersection Listing

23 USC 409
NDDOT Reserves All Objections

Int #	Sys	Intersection Description	Skew	On/Near Curve	Development	RR Xing	ADT	Previous STOP (>5mi)	Total Crashes	ADT Cross Product > 80000	Crash Cost
503.03	No Designation	37th St & Willow Rd NE	Yes	No	No	Yes	292	No	0	No	$ -
503.04	No Designation	Entzel Dr & Willow Rd NE & 21st Ave	Yes	Yes	No	Yes	58	No	0	No	$ -
503.05	No Designation	Schlosser Dr N & Willow Rd NE	No	Yes	No	No	44	No	0	No	$ -
503.06	No Designation	Schlosser Dr N & ND 1806	Yes	Yes	No	No	1025	No	0	No	$ -
503.07	No Designation	34th St & ND 1806	Yes	Yes	No	No	1080	No	1	No	$ 12,000
504.01	No Designation	44th St & ND 6/21st Ave	Yes	No	No	No	2863	Yes	1	Yes	$ 824,000

Morton County
Rural Intersection Prioritization

23 USC 409
NDDOT Reserves All Objections

Rank	Int #	Intersection Description	Skew	On/Near Curve	Development	RR Xing	Previous STOP (>5mi)	Total Crashes	ADT Cross Product > 80000	Priority	Crash Cost
1	139.06	Morton 139 & ND 49/63rd Ave	★	★		★	★	★	★	★★★★★★	$ 160,000
2	503.01	37th St & ND 1806	★	★	★			★	★	★★★★★	$ 115,000
3	139.13	36th St (Morton 139) & ND 25/26th Ave	★	★			★	★	★	★★★★★	$ 12,000
4	504.01	44th St & ND 6/21st Ave	★				★	★	★	★★★★	$ 824,000
5	139.08	Old Hwy 10 (Morton 139) & 33rd Ave (Morton 83)	★	★			★	★		★★★★	$ 424,000
6	139.02	South Ave (Morton 139) & Main Ave	★	★				★	★	★★★★	$ 136,000
7	139.05	E South Ave (Morton 139) & ND 49/E Pine Ave	★	★				★	★	★★★★	$ 12,000
8	138.06	45th St (Morton 138) & ND 1806/20th St	★	★			★		★	★★★★	$ -
9	139.03	W Pine Ave (Morton 139) & ND 49	★		★		★		★	★★★★	$ -
10	140.03	32nd St (Morton 140) & ND 25/26th Ave	★	★			★		★	★★★★	$ -
11	82.01	24th Ave (Morton 82) I-94 BUS	★			★		★		★★★	$ 160,000
12	137.01	45th St (Morton 137) & ND 6/21st Ave					★	★	★	★★★	$ 48,000
13	136.01	55th St (Morton 136) & ND 6/23rd Ave					★	★	★	★★★	$ 12,000
14	503.07	34th St & ND 1806	★	★				★		★★★	$ 12,000
15	84.03	39th Ave (Morton 84) & Old Hwy 10 (Morton 139)	★	★			★			★★★	$ -
16	84.04	39th Ave (Morton 84) & 37th St	★	★			★			★★★	$ -
17	88.04	65th Ave (Morton 88) & E South Ave			★	★	★			★★★	$ -
18	90.01	76th Ave (Morton 90) & South Ave (Morton 139)	★	★			★			★★★	$ -
19	138.03	43rd St (Morton 138) & ND 49	★	★			★			★★★	$ -
20	138.04	61st Ave (Morton 138) & 41st St (Morton 139)	★	★			★			★★★	$ -
21	139.09	Morton 139 & I-94 BUS/Lyons Rd N		★			★		★	★★★	$ -
22	501.01	ND 21/66th St/6th Ave & Main St			★		★		★	★★★	$ -
23	503.04	Entzel Dr & Willow Rd NE & 21st Ave	★	★		★				★★★	$ -
24	81.01	60th St (Morton 81) & ND 6/23rd Ave					★	★		★★	$ 12,000
25	502.01	63rd St & ND 1806		★				★		★★	$ 12,000
26	84.01	39th Ave/Poplar St (Morton 84) & ND 21/66th St/6th Ave W			★		★			★★	$ -
27	86.01	50th Ave/Broadway Ave (Morton 86) & 48th St (Morton 137)		★			★			★★	$ -
28	86.02	50th Ave/Broadway Ave (Morton 86) & Morton 138		★			★			★★	$ -
29	139.01	South Ave/36th St (Morton 139) & Brickmaker Expy	★	★						★★	$ -
30	140.04	32nd St (Morton 140) & ND 1806		★					★	★★	$ -
31	500.02	Elm St & Main Ave			★	★				★★	$ -
32	503.03	37th St & Willow Rd NE	★			★				★★	$ -
33	503.06	Schlosser Dr N & ND 1806	★	★						★★	$ -
34	139.11	Morton 139 & Country Ln						★		★	$ 12,000
35	83.01	30th Ave (Morton 83) & ND 21					★			★	$ -
36	86.03	50th Ave (Morton 86) & Old Hwy 10/Ash Ave (morotn 139)					★			★	$ -
37	136.04	61st St (Morton 136) & ND 1806					★			★	$ -
38	140.01	35th St/Summit Ave (Morton 140) & N Elm St	★							★	$ -
39	500.01	Brickmaker Expy/Lincoln Ave & 76th Ave		★						★	$ -

Morton County
Rural Intersection Prioritization

23 USC 409
NDDOT Reserves All Objections

Rank	Int #	Intersection Description	Skew	On/Near Curve	Development	RR Xing	Previous STOP (>5mi)	Total Crashes	ADT Cross Product > 80000	Priority	Crash Cost
40	502.03	Schmidt Bottoms Rd & ND 1806		★						★	$ -
41	503.02	37th St & Entzel Dr			★					★	$ -
42	503.05	Schlosser Dr N & Willow Rd NE		★						★	$ -
43	139.12	Morton 139 & Coyote Rd									$ -
44	502.02	Fort Rice Rd & ND 1806									$ -
		Total Stars --	22	25	7	6	24	14	14		
		% That Gets Star --	50%	57%	16%	14%	55%	32%	32%		

Totals

	#	%
★★★★★★★	0	0%
★★★★★★	1	2%
★★★★★	2	5%
★★★★	7	16%
★★★	13	30%
★★	10	23%
★	9	20%
-	2	5%
	44	100%

Stars

Skew -	If intersection is skewed at an angle of 20 degrees or greater.
On/Near Curve -	If intersection is on or within 1,000 feet of curve.
Development -	If intersection aerial shows a commercial development with access near intersection.
RR Xing -	If intersection has a railroad crossing on any approach within 500 feet.
Previous STOP (>5 mi) -	If vehicles approaching the stop control have not had a previous stop along the roadway within 5 miles
Total Crashes -	If intersection has at least 1 crash.
ADT Cross Product -	If intersection has an ADT cross product > 80000

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

Morton 139 & ND 49/63rd Ave

Agency Name: Morton County **ND DOT District: 1**
Contact Name: Mike Aubol **Telephone Number: 701-667-3346**
Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Configuration:	T	*Traffic Control Device:*	Thru-STOP
Configuration (2):	Undivided	*Street Lights:*	No
Urban/Rural:	Rural	*Flashers:*	No
County:	Morton	*Major Entering ADT:*	513
Entering ADT:	878	*Minor Entering ADT:*	365
Jurisdiction:	State	*Oil Project:*	No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☐ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☑ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Angle	K+A
Crashes	3	0	0.00
Rate (per MVM)	1.9	0.0	0.0

	Value	Critical	Risk Ranking
Skew	Yes	Yes	★
On/Near Curve	Yes	Yes	★
Development	No	Yes	
Near RR Crossing	Yes	Yes	★
Distance from previous STOP	Yes	Yes	★
Volume Cross Product	Yes	≥ 80000	★
Total Crashes	3	>0	★
			★★★★★★

Describe Proposed Safety Improvements

Description	Unit Cost		Units	Cost	Notes - .
Roundabout	$4,200,000	per intersection	0	$0.00	
Directional Median	$1,080,000	per intersection	0	$0.00	
Mainline Dynamic Warning Sign	$60,000	per intersection	0	$0.00	
Close Median	$30,000	per intersection	0	$0.00	
Installing Street Lights	$10,200	per street light	1	$10,200.00	
Upgrade Stop Sign	$540	per sign	1	$540.00	
Upgrade Junction Sign	$540	per sign	1	$540.00	
Upgrade Stop Ahead Sign	$600	per sign	1	$600.00	
Upgrade Stop Ahead Marking	$600	per marking	1	$600.00	
Upgrade Stop Bar	$360	per marking	1	$360.00	
Review Signs and CST	$2,940	per intersection	0	$0.00	
				$12,840.00	

Signs and Markings and Street Light project costs vary by the number of minor legs associated with the intersection.

Project Cost Estimate (attach detailed copy)

Federal Funds	$11,556
Local Match (10% of Total project cost)	$1,284
Total Project Cost	**$12,840**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

Page: 1
Intersection ID: 139.06
Date: 3/13/2015

23 USC 409
NDDOT Reserves All Objections

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

37th St & ND 1806

Agency Name: Morton County | **ND DOT District: 1**
Contact Name: Mike Aubol | **Telephone Number: 701-667-3346**
Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Configuration:	X	*Traffic Control Device:*	Thru-STOP
Configuration (2):	Undivided	*Street Lights:*	No
Urban/Rural:	Rural	*Flashers:*	No
County:	Morton	*Major Entering ADT:*	2508
Entering ADT:	2890	*Minor Entering ADT:*	383
Jurisdiction:	State	*Oil Project:*	No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☐ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☑ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Angle	K+A
Crashes	3	1	0.00
Rate (per MVM)	0.6	0.2	0.0

	Value	Critical	Risk Ranking
Skew	Yes	Yes	★
On/Near Curve	Yes	Yes	★
Development	Yes	Yes	★
Near RR Crossing	No	Yes	
Distance from previous STOP	No	Yes	
Volume Cross Product	Yes	≥ 80000	★
Total Crashes	3	>0	★
			★★★★★

Describe Proposed Safety Improvements

Description	Unit Cost		Units	Cost	Notes -
Roundabout	$4,200,000	per intersection	0	$0.00	
Directional Median	$1,080,000	per intersection	0	$0.00	
Mainline Dynamic Warning Sign	$60,000	per intersection	0	$0.00	
Close Median	$30,000	per intersection	0	$0.00	
Installing Street Lights	$10,200	per street light	1	$10,200.00	
Upgrade Stop Sign	$540	per sign	2	$1,080.00	
Upgrade Junction Sign	$540	per sign	2	$1,080.00	
Upgrade Stop Ahead Sign	$600	per sign	2	$1,200.00	
Upgrade Stop Ahead Marking	$600	per marking	1	$600.00	
Upgrade Stop Bar	$360	per marking	2	$720.00	
Review Signs and CST	$2,940	per intersection	0	$0.00	
				$14,880.00	

Signs and Markings and Street Light project costs vary by the number of minor legs associated with the intersection.

Project Cost Estimate (attach detailed copy)

Federal Funds	$13,392
Local Match (10% of Total project cost)	$1,488
Total Project Cost	**$14,880**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

23 USC 409
NDDOT Reserves All Objections

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

36th St (Morton 139) & ND 25/26th Ave

Agency Name: Morton County **ND DOT District: 1**
Contact Name: Mike Aubol **Telephone Number: 701-667-3346**
Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Configuration:	X	*Traffic Control Device:*	Thru-STOP
Configuration (2):	Undivided	*Street Lights:*	No
Urban/Rural:	Rural	*Flashers:*	No
County:	Morton	*Major Entering ADT:*	2180
Entering ADT:	2638	*Minor Entering ADT:*	458
Jurisdiction:	State	*Oil Project:*	No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☐ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☑ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Angle	K+A
Crashes	1	0	0.00
Rate (per MVM)	0.2	0.0	0.0

	Value	Critical	Risk Ranking
Skew	Yes	Yes	★
On/Near Curve	Yes	Yes	★
Development	No	Yes	
Near RR Crossing	No	Yes	
Distance from previous STOP	Yes	Yes	★
Volume Cross Product	Yes	≥ 80000	★
Total Crashes	1	>0	★
			★★★★★

Describe Proposed Safety Improvements

Description	Unit Cost		Units	Cost	Notes -
Roundabout	$4,200,000	per intersection	0	$0.00	
Directional Median	$1,080,000	per intersection	0	$0.00	
Mainline Dynamic Warning Sign	$60,000	per intersection	0	$0.00	
Close Median	$30,000	per intersection	0	$0.00	
Installing Street Lights	$10,200	per street light	1	$10,200.00	
Upgrade Stop Sign	$540	per sign	2	$1,080.00	
Upgrade Junction Sign	$540	per sign	2	$1,080.00	
Upgrade Stop Ahead Sign	$600	per sign	2	$1,200.00	
Upgrade Stop Ahead Marking	$600	per marking	1	$600.00	
Upgrade Stop Bar	$360	per marking	2	$720.00	
Review Signs and CST	$2,940	per intersection	0	$0.00	
				$14,880.00	

Signs and Markings and Street Light project costs vary by the number of minor legs associated with the intersection.

Project Cost Estimate (attach detailed copy)

Federal Funds	$13,392
Local Match (10% of Total project cost)	$1,488
Total Project Cost	**$14,880**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

44th St & ND 6/21st Ave

Agency Name: Morton County **ND DOT District: 1**
Contact Name: Mike Aubol **Telephone Number: 701-667-3346**
Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Configuration:	T	*Traffic Control Device:*	Thru-STOP
Configuration (2):	Undivided	*Street Lights:*	No
Urban/Rural:	Rural	*Flashers:*	No
County:	Morton	*Major Entering ADT:*	2795
Entering ADT:	2863	*Minor Entering ADT:*	68
Jurisdiction:	State	*Oil Project:*	No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☐ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☑ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Angle	K+A
Crashes	1	0	1.00
Rate (per MVM)	0.2	0.0	0.2

	Value	Critical	Risk Ranking
Skew	Yes	Yes	★
On/Near Curve	No	Yes	
Development	No	Yes	
Near RR Crossing	No	Yes	
Distance from previous STOP	Yes	Yes	★
Volume Cross Product	Yes	≥ 80000	★
Total Crashes	1	>0	★
			★★★★

Describe Proposed Safety Improvements

Description	Unit Cost		Units	Cost	Notes -
Roundabout	$4,200,000	per intersection	0	$0.00	
Directional Median	$1,080,000	per intersection	0	$0.00	
Mainline Dynamic Warning Sign	$60,000	per intersection	0	$0.00	
Close Median	$30,000	per intersection	0	$0.00	
Installing Street Lights	$10,200	per street light	0	$0.00	
Upgrade Stop Sign	$540	per sign	1	$540.00	
Upgrade Junction Sign	$540	per sign	1	$540.00	
Upgrade Stop Ahead Sign	$600	per sign	1	$600.00	
Upgrade Stop Ahead Marking	$600	per marking	0	$0.00	
Upgrade Stop Bar	$360	per marking	1	$360.00	
Review Signs and CST	$2,940	per intersection	0	$0.00	
				$2,040.00	

Signs and Markings and Street Light project costs vary by the number of minor legs associated with the intersection.

Project Cost Estimate (attach detailed copy)

Federal Funds	$1,836
Local Match (10% of Total project cost)	$204
Total Project Cost	**$2,040**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

Page: 4
Intersection ID: 504.01
Date: 3/13/2015

23 USC 409
NDDOT Reserves All Objections

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

Old Hwy 10 (Morton 139) & 33rd Ave (Morton 83)

Agency Name: Morton County **ND DOT District: 1**
Contact Name: Mike Aubol **Telephone Number: 701-667-3346**
Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Configuration:	X	*Traffic Control Device:*	Thru-STOP
Configuration (2):	Undivided	*Street Lights:*	No
Urban/Rural:	Rural	*Flashers:*	No
County:	Morton	*Major Entering ADT:*	375
Entering ADT:	543	*Minor Entering ADT:*	168
Jurisdiction:	Local	*Oil Project:*	No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☐ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☑ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Angle	K+A
Crashes	2	2	1.00
Rate (per MVM)	2.0	2.0	1.0

	Value	Critical	Risk Ranking
Skew	Yes	Yes	★
On/Near Curve	Yes	Yes	★
Development	No	Yes	
Near RR Crossing	No	Yes	
Distance from previous STOP	Yes	Yes	★
Volume Cross Product	No	≥ 80000	
Total Crashes	2	>0	★
			★★★★

Describe Proposed Safety Improvements

Description	Unit Cost		Units	Cost	Notes -
Roundabout	$4,200,000	per intersection	0	$0.00	
Directional Median	$1,080,000	per intersection	0	$0.00	
Mainline Dynamic Warning Sign	$60,000	per intersection	0	$0.00	
Close Median	$30,000	per intersection	0	$0.00	
Installing Street Lights	$10,200	per street light	1	$10,200.00	
Upgrade Stop Sign	$540	per sign	2	$1,080.00	
Upgrade Junction Sign	$540	per sign	2	$1,080.00	
Upgrade Stop Ahead Sign	$600	per sign	2	$1,200.00	
Upgrade Stop Ahead Marking	$600	per marking	0	$0.00	
Upgrade Stop Bar	$360	per marking	2	$720.00	
Review Signs and CST	$2,940	per intersection	0	$0.00	
				$14,280.00	

Signs and Markings and Street Light project costs vary by the number of minor legs associated with the intersection.

Project Cost Estimate (attach detailed copy)

Federal Funds	$12,852
Local Match (10% of Total project cost)	$1,428
Total Project Cost	**$14,280**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

Page: 5
Intersection ID: 139.08
Date: 3/13/2015

23 USC 409
NDDOT Reserves All Objections

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

South Ave (Morton 139) & Main Ave

Agency Name: Morton County **ND DOT District: 1**
Contact Name: Mike Aubol **Telephone Number: 701-667-3346**
Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Configuration:	T	*Traffic Control Device:*	Thru-STOP
Configuration (2):	Undivided	*Street Lights:*	No
Urban/Rural:	Urban	*Flashers:*	No
County:	Morton	*Major Entering ADT:*	600
Entering ADT:	820	*Minor Entering ADT:*	220
Jurisdiction:	Local	*Oil Project:*	No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☐ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☑ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Angle	K+A
Crashes	1	0	0.00
Rate (per MVM)	0.7	0.0	0.0

	Value	Critical	Risk Ranking
Skew	Yes	Yes	★
On/Near Curve	Yes	Yes	★
Development	No	Yes	
Near RR Crossing	No	Yes	
Distance from previous STOP	No	Yes	
Volume Cross Product	Yes	≥ 80000	★
Total Crashes	1	>0	★
			★★★★

Describe Proposed Safety Improvements

Description	Unit Cost		Units	Cost	Notes -
Roundabout	$4,200,000	per intersection	0	$0.00	
Directional Median	$1,080,000	per intersection	0	$0.00	
Mainline Dynamic Warning Sign	$60,000	per intersection	0	$0.00	
Close Median	$30,000	per intersection	0	$0.00	
Installing Street Lights	$10,200	per street light	1	$10,200.00	
Upgrade Stop Sign	$540	per sign	1	$540.00	
Upgrade Junction Sign	$540	per sign	1	$540.00	
Upgrade Stop Ahead Sign	$600	per sign	1	$600.00	
Upgrade Stop Ahead Marking	$600	per marking	1	$600.00	
Upgrade Stop Bar	$360	per marking	1	$360.00	
Review Signs and CST	$2,940	per intersection	0	$0.00	
				$12,840.00	

Signs and Markings and Street Light project costs vary by the number of minor legs associated with the intersection.

Project Cost Estimate (attach detailed copy)

Federal Funds	$11,556
Local Match (10% of Total project cost)	$1,284
Total Project Cost	**$12,840**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

Page: 6
Intersection ID: 139.02
Date: 3/13/2015

23 USC 409
NDDOT Reserves All Objections

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

E South Ave (Morton 139) & ND 49/E Pine Ave

Agency Name: Morton County **ND DOT District: 1**
Contact Name: Mike Aubol **Telephone Number: 701-667-3346**
Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Configuration:	T	*Traffic Control Device:*	Thru-STOP
Configuration (2):	Undivided	*Street Lights:*	No
Urban/Rural:	Urban	*Flashers:*	No
County:	Morton	*Major Entering ADT:*	908
Entering ADT:	1028	*Minor Entering ADT:*	120
Jurisdiction:	State	*Oil Project:*	No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☐ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☑ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Angle	K+A
Crashes	1	0	0.00
Rate (per MVM)	0.5	0.0	0.0

	Value	Critical	Risk Ranking
Skew	Yes	Yes	★
On/Near Curve	Yes	Yes	★
Development	No	Yes	
Near RR Crossing	No	Yes	
Distance from previous STOP	No	Yes	
Volume Cross Product	Yes	≥ 80000	★
Total Crashes	1	>0	★
			★★★★

Describe Proposed Safety Improvements

Description	Unit Cost		Units	Cost	Notes -
Roundabout	$4,200,000	per intersection	0	$0.00	
Directional Median	$1,080,000	per intersection	0	$0.00	
Mainline Dynamic Warning Sign	$60,000	per intersection	0	$0.00	
Close Median	$30,000	per intersection	0	$0.00	
Installing Street Lights	$10,200	per street light	1	$10,200.00	
Upgrade Stop Sign	$540	per sign	1	$540.00	
Upgrade Junction Sign	$540	per sign	1	$540.00	
Upgrade Stop Ahead Sign	$600	per sign	1	$600.00	
Upgrade Stop Ahead Marking	$600	per marking	1	$600.00	
Upgrade Stop Bar	$360	per marking	1	$360.00	
Review Signs and CST	$2,940	per intersection	0	$0.00	
				$12,840.00	

Signs and Markings and Street Light project costs vary by the number of minor legs associated with the intersection.

Project Cost Estimate (attach detailed copy)

Federal Funds	$11,556
Local Match (10% of Total project cost)	$1,284
Total Project Cost	**$12,840**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

Page: 7
Intersection ID: 139.05
Date: 3/13/2015

23 USC 409
NDDOT Reserves All Objections

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

45th St (Morton 138) & ND 1806/20th St

Agency Name: Morton County **ND DOT District: 1**
Contact Name: Mike Aubol **Telephone Number: 701-667-3346**
Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Configuration:	T	*Traffic Control Device:*	Thru-STOP
Configuration (2):	Undivided	*Street Lights:*	No
Urban/Rural:	Rural	*Flashers:*	No
County:	Morton	*Major Entering ADT:*	2203
Entering ADT:	2253	*Minor Entering ADT:*	50
Jurisdiction:	State	*Oil Project:*	No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☐ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☑ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Angle	K+A
Crashes	0	0	0.00
Rate (per MVM)	0.0	0.0	0.0

	Value	Critical	Risk Ranking
Skew	Yes	Yes	★
On/Near Curve	Yes	Yes	★
Development	No	Yes	
Near RR Crossing	No	Yes	
Distance from previous STOP	Yes	Yes	★
Volume Cross Product	Yes	≥ 80000	★
Total Crashes	0	>0	
			★★★★

Describe Proposed Safety Improvements

Description	Unit Cost		Units	Cost	Notes -
Roundabout	$4,200,000	per intersection	0	$0.00	
Directional Median	$1,080,000	per intersection	0	$0.00	
Mainline Dynamic Warning Sign	$60,000	per intersection	0	$0.00	
Close Median	$30,000	per intersection	0	$0.00	
Installing Street Lights	$10,200	per street light	0	$0.00	
Upgrade Stop Sign	$540	per sign	1	$540.00	
Upgrade Junction Sign	$540	per sign	1	$540.00	
Upgrade Stop Ahead Sign	$600	per sign	1	$600.00	
Upgrade Stop Ahead Marking	$600	per marking	0	$0.00	
Upgrade Stop Bar	$360	per marking	1	$360.00	
Review Signs and CST	$2,940	per intersection	0	$0.00	
				$2,040.00	

Signs and Markings and Street Light project costs vary by the number of minor legs associated with the intersection.

Project Cost Estimate (attach detailed copy)

Federal Funds	$1,836
Local Match (10% of Total project cost)	$204
Total Project Cost	**$2,040**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

Page: 8
Intersection ID: 138.06
Date: 3/13/2015

23 USC 409
NDDOT Reserves All Objections

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

W Pine Ave (Morton 139) & ND 49

Agency Name: Morton County | **ND DOT District: 1**
Contact Name: Mike Aubol | **Telephone Number: 701-667-3346**
Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Configuration:	X	*Traffic Control Device:*	Thru-STOP
Configuration (2):	Undivided	*Street Lights:*	No
Urban/Rural:	Urban	*Flashers:*	No
County:	Morton	*Major Entering ADT:*	880
Entering ADT:	1363	*Minor Entering ADT:*	483
Jurisdiction:	State	*Oil Project:*	No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☐ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☑ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Angle	K+A
Crashes	0	0	0.00
Rate (per MVM)	0.0	0.0	0.0

	Value	Critical	Risk Ranking
Skew	Yes	Yes	★
On/Near Curve	No	Yes	
Development	Yes	Yes	★
Near RR Crossing	No	Yes	
Distance from previous STOP	Yes	Yes	★
Volume Cross Product	Yes	≥ 80000	★
Total Crashes	0	>0	
			★★★★

Describe Proposed Safety Improvements

Description	Unit Cost		Units	Cost	Notes -
Roundabout	$4,200,000	per intersection	0	$0.00	
Directional Median	$1,080,000	per intersection	0	$0.00	
Mainline Dynamic Warning Sign	$60,000	per intersection	0	$0.00	
Close Median	$30,000	per intersection	0	$0.00	
Installing Street Lights	$10,200	per street light	1	$10,200.00	
Upgrade Stop Sign	$540	per sign	2	$1,080.00	
Upgrade Junction Sign	$540	per sign	2	$1,080.00	
Upgrade Stop Ahead Sign	$600	per sign	2	$1,200.00	
Upgrade Stop Ahead Marking	$600	per marking	2	$1,200.00	
Upgrade Stop Bar	$360	per marking	2	$720.00	
Review Signs and CST	$2,940	per intersection	0	$0.00	
				$15,480.00	

Signs and Markings and Street Light project costs vary by the number of minor legs associated with the intersection.

Project Cost Estimate (attach detailed copy)

Federal Funds	$13,932
Local Match (10% of Total project cost)	$1,548
Total Project Cost	**$15,480**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

Page: 9
Intersection ID: 139.03
Date: 3/13/2015

23 USC 409
NDDOT Reserves All Objections

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

32nd St (Morton 140) & ND 25/26th Ave

Agency Name: Morton County **ND DOT District: 1**
Contact Name: Mike Aubol **Telephone Number: 701-667-3346**
Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Configuration:	X	*Traffic Control Device:*	Thru-STOP
Configuration (2):	Undivided	*Street Lights:*	No
Urban/Rural:	Rural	*Flashers:*	No
County:	Morton	*Major Entering ADT:*	1598
Entering ADT:	1769	*Minor Entering ADT:*	172
Jurisdiction:	State	*Oil Project:*	No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☐ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☑ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Angle	K+A
Crashes	0	0	0.00
Rate (per MVM)	0.0	0.0	0.0

	Value	Critical	Risk Ranking
Skew	Yes	Yes	★
On/Near Curve	Yes	Yes	★
Development	No	Yes	
Near RR Crossing	No	Yes	
Distance from previous STOP	Yes	Yes	★
Volume Cross Product	Yes	≥ 80000	★
Total Crashes	0	>0	
			★★★★

Describe Proposed Safety Improvements

Description	Unit Cost		Units	Cost	Notes -
Roundabout	$4,200,000	per intersection	0	$0.00	
Directional Median	$1,080,000	per intersection	0	$0.00	
Mainline Dynamic Warning Sign	$60,000	per intersection	0	$0.00	
Close Median	$30,000	per intersection	0	$0.00	
Installing Street Lights	$10,200	per street light	1	$10,200.00	
Upgrade Stop Sign	$540	per sign	2	$1,080.00	
Upgrade Junction Sign	$540	per sign	2	$1,080.00	
Upgrade Stop Ahead Sign	$600	per sign	2	$1,200.00	
Upgrade Stop Ahead Marking	$600	per marking	1	$600.00	
Upgrade Stop Bar	$360	per marking	2	$720.00	
Review Signs and CST	$2,940	per intersection	0	$0.00	
				$14,880.00	

Signs and Markings and Street Light project costs vary by the number of minor legs associated with the intersection.

Project Cost Estimate (attach detailed copy)

Federal Funds	$13,392
Local Match (10% of Total project cost)	$1,488
Total Project Cost	**$14,880**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

Page: 10
Intersection ID: 140.03
Date: 3/13/2015

23 USC 409
NDDOT Reserves All Objections

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

24th Ave (Morton 82) I-94 BUS

Agency Name: Morton County **ND DOT District: 1**
Contact Name: Mike Aubol **Telephone Number: 701-667-3346**
Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Configuration:	T	*Traffic Control Device:*	Thru-STOP
Configuration (2):	Undivided	*Street Lights:*	No
Urban/Rural:	Rural	*Flashers:*	No
County:	Morton	*Major Entering ADT:*	2110
Entering ADT:	2125	*Minor Entering ADT:*	15
Jurisdiction:	State	*Oil Project:*	No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☐ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☑ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Angle	K+A
Crashes	3	1	0.00
Rate (per MVM)	0.8	0.3	0.0

	Value	Critical	Risk Ranking
Skew	Yes	Yes	★
On/Near Curve	No	Yes	
Development	No	Yes	
Near RR Crossing	Yes	Yes	★
Distance from previous STOP	No	Yes	
Volume Cross Product	No	≥ 80000	
Total Crashes	3	>0	★
			★★★

Describe Proposed Safety Improvements

Description	Unit Cost		Units	Cost	Notes - .
Roundabout	$4,200,000	per intersection	0	$0.00	
Directional Median	$1,080,000	per intersection	0	$0.00	
Mainline Dynamic Warning Sign	$60,000	per intersection	0	$0.00	
Close Median	$30,000	per intersection	0	$0.00	
Installing Street Lights	$10,200	per street light	0	$0.00	
Upgrade Stop Sign	$540	per sign	1	$540.00	
Upgrade Junction Sign	$540	per sign	1	$540.00	
Upgrade Stop Ahead Sign	$600	per sign	1	$600.00	
Upgrade Stop Ahead Marking	$600	per marking	0	$0.00	
Upgrade Stop Bar	$360	per marking	1	$360.00	
Review Signs and CST	$2,940	per intersection	0	$0.00	
				$2,040.00	

Signs and Markings and Street Light project costs vary by the number of minor legs associated with the intersection.

Project Cost Estimate (attach detailed copy)

Federal Funds	$1,836
Local Match (10% of Total project cost)	$204
Total Project Cost	**$2,040**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

Page: 11
Intersection ID: 82.01
Date: 3/13/2015

23 USC 409
NDDOT Reserves All Objections

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

45th St (Morton 137) & ND 6/21st Ave

Agency Name: Morton County **ND DOT District: 1**
Contact Name: Mike Aubol **Telephone Number: 701-667-3346**
Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Configuration:	X	*Traffic Control Device:*	Thru-STOP
Configuration (2):	Undivided	*Street Lights:*	No
Urban/Rural:	Rural	*Flashers:*	No
County:	Morton	*Major Entering ADT:*	2083
Entering ADT:	2208	*Minor Entering ADT:*	125
Jurisdiction:	State	*Oil Project:*	No

SHSP Emphasis Area (check all that apply)

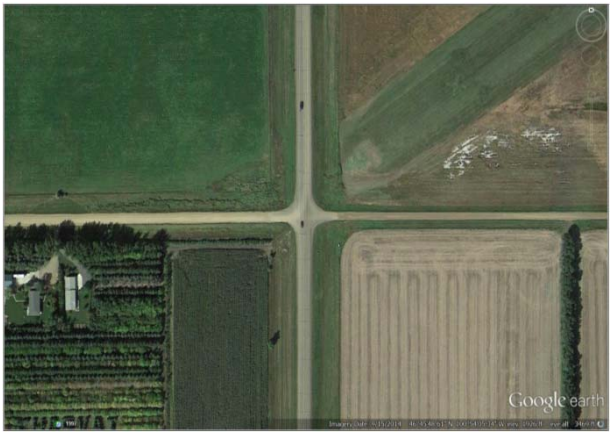
- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☐ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☑ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Angle	K+A
Crashes	4	0	0.00
Rate (per MVM)	1.0	0.0	0.0

	Value	Critical	Risk Ranking
Skew	No	Yes	
On/Near Curve	No	Yes	
Development	No	Yes	
Near RR Crossing	No	Yes	
Distance from previous STOP	Yes	Yes	★
Volume Cross Product	Yes	≥ 80000	★
Total Crashes	4	>0	★
			★★★



Describe Proposed Safety Improvements

Description	Unit Cost		Units	Cost	Notes -
Roundabout	$4,200,000	per intersection	0	$0.00	
Directional Median	$1,080,000	per intersection	0	$0.00	
Mainline Dynamic Warning Sign	$60,000	per intersection	0	$0.00	
Close Median	$30,000	per intersection	0	$0.00	
Installing Street Lights	$10,200	per street light	0	$0.00	
Upgrade Stop Sign	$540	per sign	2	$1,080.00	
Upgrade Junction Sign	$540	per sign	2	$1,080.00	
Upgrade Stop Ahead Sign	$600	per sign	2	$1,200.00	
Upgrade Stop Ahead Marking	$600	per marking	0	$0.00	
Upgrade Stop Bar	$360	per marking	2	$720.00	
Review Signs and CST	$2,940	per intersection	0	$0.00	
				$4,080.00	

Signs and Markings and Street Light project costs vary by the number of minor legs associated with the intersection.

Project Cost Estimate (attach detailed copy)

Federal Funds	$3,672
Local Match (10% of Total project cost)	$408
Total Project Cost	**$4,080**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

Page: 12
Intersection ID: 137.01
Date: 3/13/2015

23 USC 409
NDDOT Reserves All Objections

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

55th St (Morton 136) & ND 6/23rd Ave

Agency Name: Morton County **ND DOT District: 1**
Contact Name: Mike Aubol **Telephone Number: 701-667-3346**
Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Configuration:	X	*Traffic Control Device:*	Thru-STOP
Configuration (2):	Undivided	*Street Lights:*	No
Urban/Rural:	Rural	*Flashers:*	No
County:	Morton	*Major Entering ADT:*	1405
Entering ADT:	1545	*Minor Entering ADT:*	140
Jurisdiction:	State	*Oil Project:*	No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☐ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☑ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Angle	K+A
Crashes	1	1	0.00
Rate (per MVM)	0.4	0.4	0.0

	Value	Critical	Risk Ranking
Skew	No	Yes	
On/Near Curve	No	Yes	
Development	No	Yes	
Near RR Crossing	No	Yes	
Distance from previous STOP	Yes	Yes	★
Volume Cross Product	Yes	≥ 80000	★
Total Crashes	1	>0	★
			★★★

Describe Proposed Safety Improvements

Description	Unit Cost		Units	Cost	Notes -
Roundabout	$4,200,000	per intersection	0	$0.00	
Directional Median	$1,080,000	per intersection	0	$0.00	
Mainline Dynamic Warning Sign	$60,000	per intersection	0	$0.00	
Close Median	$30,000	per intersection	0	$0.00	
Installing Street Lights	$10,200	per street light	1	$10,200.00	
Upgrade Stop Sign	$540	per sign	2	$1,080.00	
Upgrade Junction Sign	$540	per sign	2	$1,080.00	
Upgrade Stop Ahead Sign	$600	per sign	2	$1,200.00	
Upgrade Stop Ahead Marking	$600	per marking	1	$600.00	
Upgrade Stop Bar	$360	per marking	2	$720.00	
Review Signs and CST	$2,940	per intersection	0	$0.00	
				$14,880.00	

Signs and Markings and Street Light project costs vary by the number of minor legs associated with the intersection.

Project Cost Estimate (attach detailed copy)

Federal Funds	$13,392
Local Match (10% of Total project cost)	$1,488
Total Project Cost	**$14,880**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

Page: 13
Intersection ID: 136.01
Date: 3/13/2015

23 USC 409
NDDOT Reserves All Objections

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) PROJECT APPLICATION

North Dakota Department of Transportation Programming
SFN 59959 (06-2011)

34th St & ND 1806

Agency Name: Morton County **ND DOT District: 1**
Contact Name: Mike Aubol **Telephone Number: 701-667-3346**
Email Address: mike.aubol@mortonnd.org

Please attach a location map(s). You may use additional sheets to further describe your project.

Location Description

Configuration:	T	*Traffic Control Device:*	Thru-STOP
Configuration (2):	Undivided	*Street Lights:*	No
Urban/Rural:	Rural	*Flashers:*	No
County:	Morton	*Major Entering ADT:*	1010
Entering ADT:	1080	*Minor Entering ADT:*	70
Jurisdiction:	State	*Oil Project:*	No

SHSP Emphasis Area (check all that apply)

- ☐ Reduce Alcohol Impaired Driving
- ☐ Increase the Use of Safety Restraints for all Occupants
- ☐ Younger Driver/Older Driver Safety
- ☐ Curb Aggressive Driving
- ☐ Improvements to Address Lane Departure Crashes
- ☐ Enhancing EMS Capabilities to Increase Survivability
- ☑ Improve Intersection Safety

Describe Current Safety Issues & Systemic Ranking Review

North Dakota Crashes, 2009 - 2013 — 5 years

	Total	Angle	K+A
Crashes	1	0	0.00
Rate (per MVM)	0.5	0.0	0.0

	Value	Critical	Risk Ranking
Skew	Yes	Yes	★
On/Near Curve	Yes	Yes	★
Development	No	Yes	
Near RR Crossing	No	Yes	
Distance from previous STOP	No	Yes	
Volume Cross Product	No	≥ 80000	
Total Crashes	1	>0	★
			★★★

Describe Proposed Safety Improvements

Description	Unit Cost		Units	Cost	Notes -
Roundabout	$4,200,000	per intersection	0	$0.00	
Directional Median	$1,080,000	per intersection	0	$0.00	
Mainline Dynamic Warning Sign	$60,000	per intersection	0	$0.00	
Close Median	$30,000	per intersection	0	$0.00	
Installing Street Lights	$10,200	per street light	0	$0.00	
Upgrade Stop Sign	$540	per sign	1	$540.00	
Upgrade Junction Sign	$540	per sign	1	$540.00	
Upgrade Stop Ahead Sign	$600	per sign	1	$600.00	
Upgrade Stop Ahead Marking	$600	per marking	0	$0.00	
Upgrade Stop Bar	$360	per marking	1	$360.00	
Review Signs and CST	$2,940	per intersection	0	$0.00	
				$2,040.00	

Signs and Markings and Street Light project costs vary by the number of minor legs associated with the intersection.

Project Cost Estimate (attach detailed copy)

Federal Funds	$1,836
Local Match (10% of Total project cost)	$204
Total Project Cost	**$2,040**

Proposed Year of Construction

NDDOT Central Office Only

Project Accepted?	☐ Yes ☐ No	Reference Number		ID Number	

Notes

Page: 14
Intersection ID: 503.07
Date: 3/13/2015

23 USC 409
NDDOT Reserves All Objections

APPENDIX

City of Mandan

[Appendix Intentionally Left Blank]

APPENDIX

Oliver County

[Appendix Intentionally Left Blank]

APPENDIX

Pierce County

[Appendix Intentionally Left Blank]

APPENDIX

Rolette County

[Appendix Intentionally Left Blank]

APPENDIX

Sheridan County

[Appendix Intentionally Left Blank]

APPENDIX

Sioux County

[Appendix Intentionally Left Blank]

APPENDIX

Stutsman County

[Appendix Intentionally Left Blank]

APPENDIX

City of Jamestown

[Appendix Intentionally Left Blank]

APPENDIX

Towner County

[Appendix Intentionally Left Blank]

APPENDIX

Wells County

[Appendix Intentionally Left Blank]

5.0 Behavioral Safety Strategies

5.1 Purpose of Driver Behavior Safety Strategies

North Dakota's Local Road Safety Program (LRSP) recognizes that driver behavior is a significant factor contributing to a majority of the severe crashes on North Dakota's local roads. Traffic crashes may result from any combination of overlapping crash factors, such as the roadway, the vehicle, and driver behavior. Research supports and experts agree that in most cases driver behavior—risky decisions, driver error, lapses of attention, and driver limitations—is a chief factor contributing to traffic crashes (Lerner et al., 2010). Severe traffic crashes in North Dakota's Central Region can be largely prevented and reduced if motorists, with an emphasis on younger drivers, were persuaded to engage in key safe driving practices to buckle up, drive at safe speeds, pay attention, and plan ahead to avoid impaired driving. For maximum safety benefit, these measures should be undertaken in addition to adopting infrastructure safety strategies to help ensure the safest and most forgiving roadway possible.

5.2 Overview of Behavioral Crash Data for North Dakota's Central Region

Unbelted Vehicle Occupants: Traffic safety research demonstrates that a motorist's seat belt is the most effective defense in the event of a crash. When lap and shoulder seat belts are used, the risk of fatal injury to front-seat passenger car occupants is reduced by 45 percent and the risk of moderate-to-critical injury is reduced by 50 percent (NHTSA, 2001). Safety benefits are even greater for light-truck occupants, with seat belts reducing fatalities by 60 percent and moderate-to-critical injury by 65 percent (NHTSA, 2009). North Dakota's 2013 statewide seat belt use of drivers and right-front seat passengers is 77.7 percent; lower than the nationwide use of 86 percent in 2012. Reducing unbelted severe crashes are the Central Region's greatest opportunity to strengthen road safety through improving driver behavior. The trend of severe unbelted crashes is increasing statewide. The Central Region is above the 55 percent statewide-unbelted severe crashes with 62 percent of the region's severe crashes involving unbelted motorists. However, of the severe crashes on the local road system, 75 percent of severe crashes involved an unbelted vehicle occupant.

Alcohol-Related Crashes: Nationally, although impaired driving fatalities have decreased since 2007, the percentage of alcohol-impaired fatalities in the U.S. has remained essentially unchanged (NHTSA, 2012). Similarly, over the last decade, each year nearly half of motor vehicle fatalities statewide in North Dakota continue to be alcohol-related. In the Central Region, alcohol-related severe crashes are higher at 42 percent than the statewide alcohol-related crashes at 34 percent. From statewide crash data, half of these preventable severe crashes are on the local road system.

Young Driver-Involved: Young drivers have the highest involvement in fatal crashes of any age group. Nationally, the fatal crash involvement of drivers age 16 to 20 is nearly twice that of drivers' age 21 and older (NHTSA, 2012a). Key underlying factors to their high crash risk are the developmental and behavioral issues of adolescence coupled with driving inexperience.

Young drivers too often immaturely take risks while driving without thinking through the potential consequences of their life-threatening decisions (Keating, 2007). Such high-risk behaviors typically include lack of seat belt use, aggressive driving/speeding, and distractions while driving. Although severe injury crashes involving young drivers have gradually declined statewide, young drivers under the age of 21 continue to be overrepresented in crashes with 67 percent statewide occurring on local roads. In the Central Region, severe crashes involving young drivers are similar to statewide young driver crashes at 24 percent.

Excessive Speed: Speeding is common and the percentage of speeding-related fatal crashes has changed little over the years nationally and in North Dakota. Although drivers generally acknowledge that speeding is an unsafe behavior, speeding remains common because the perceived risk of injury is low relative to the perceived benefits of driving fast such as saving time and driving pleasure (Lerner et al., 2010). Excessive or inappropriate speeds result from two basic problems: drivers choosing to drive above the posted speed limit and drivers driving too fast and failing to adjust speed for accommodate existing road conditions. Consequently, the percentage of speeding-related fatal crashes has remained essentially unchanged over the years and remains a contributing factor in 31 percent of traffic fatalities in the U.S. (NHTSA, 2012b). Speeding and aggressive driving continue to account for 29 percent of all severe crashes in North Dakota with 48% percent statewide of these crashes occurring on the local road system. In the Central Region, speed or aggressive driving mirrors the statewide percentage of 30 percent.

5.3 Importance of Traffic Safety Culture Change

5.3.1 The Influence of Traffic Safety Culture

In adopting North Dakota's long-term vision of zero fatalities, the 2013 North Dakota SHSP establishes a collective goal to reduce the 3-year average of traffic fatalities to 100 or fewer by 2020. To accomplish this interim goal, the Central Region, together with its traffic safety partners, seeks to develop and implement its LRSP safety strategies within the broader societal context of motorists' behavior and North Dakota's traffic safety culture. Traffic safety culture can be defined as the implicit shared values, beliefs, and perceptions that shape motorists' behavior.

5.3.2 Social Norms Inhibiting a Strong Traffic Safety Culture

At the core of the nation's and North Dakota's traffic safety challenge is a complacency toward risk-taking by drivers and a tolerance for traffic crashes and the resulting deaths and serious injuries. Contributing factors include a sense of individual driver invulnerability, perceived driving skills and vehicle control, and a sense of anonymity and entitlement on the road. The latest data from the *2012 Traffic Safety Culture Index Survey* reports that, as in previous years, the safety culture in the United States surrounding distracted driving can best be described as "do as I say, not as I do" — due to the high numbers of people who object to certain behaviors, yet will admit that they, themselves, engage in them (AAA, 2012). Real progress in traffic safety depends largely on addressing and changing this culture of indifference to effectively implement and see results of both SHSP and LRSP safety strategies.

5.3.3 Social Levels Influencing Safety Culture

Efforts to change individual driver and motorist behaviors should be planned and executed from an ecological viewpoint—one that examines the driving public and their interaction with their social environments. Traffic safety culture and its influence operate at different levels within society. Therefore, a broader definition of traffic safety culture includes the values, beliefs, and perceptions of not only the individual driver, but of those shared by the various communities of which the driver is a part (Figure 5-1). The individual driver exists within a system that includes the following levels, each embodying factors that influence driving culture and crash risk (Ward et al., 2010; Dahlberg and Krug, 2002):

- Individual level – Factors such as driver age, driving experience, self-esteem, income, and substance abuse
- Relationship level – Factors such as relationships with peers, co-workers, supervisors, and family members
- Community level – Factors include the settings or environments in which relationships occur such as school, church, workplaces, and neighborhoods
- Societal level – Large-scale factors such as safety, health, economic, and educational policies, as well as government commitments and priorities

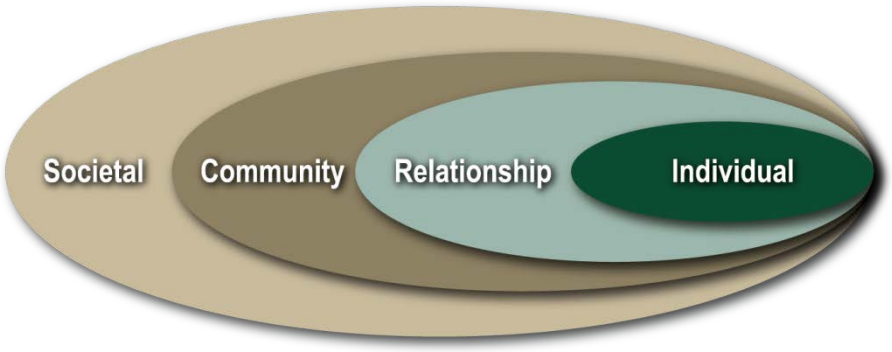


FIGURE 5-1
Social Ecological Perspective of Culture
Source: "Violence – A Global Public Health Problem" by L.L. Dahlberg and E.G. Krug, in *World Report on Violence and Health* (World Health Organization)

Social norms at each level and within each group point to what behaviors are perceived as important. Norms create conformity to expectations that allows people (that is, drivers) to successfully socialize to the subcultures in which they belong. These norms create a climate in which unsafe driving behavior is either encouraged or discouraged. Perceived social norms condoning high-risk driving behaviors provide the case for drivers to rationalize their own high-risk behaviors. To accomplish the culture change, traffic safety behavioral strategies seek to make safe-driving behaviors the accepted norm across all social ecological levels.

The implication of the social ecological model for LRSP efforts is that the implementation plans of LRSP strategies plans should attempt to:

- Increase perceived social pressure to comply with traffic safety laws and practices, thereby, producing safety behavioral norms (Ward et al., 2010)
- Shift the social acceptance of high-risk behaviors to one of perceived unacceptance by significant others and one's peers.

5.4 Behavioral Safety Strategies

5.4.1 Role of Policy, Education, and Enforcement

Techniques or strategies to change driver behavior essentially fall into one of three categories: 1) *policy change* or laws, local ordinances, regulations, sanctions and penalties; 2) *enforcement* of the laws; and 3) *education* or public information, media, and training. These three categories of behavioral safety strategies work together to have the greatest impact on changing risky driver behavior. The degree of effectiveness of any one strategy on behavioral change depends not only on how effectively the strategy is implemented, but also on how these three categories of policy, enforcement, and education are working together.

For example, a state or local agency that is seeking to increase motorists' seat belt use and decides to use a "buckle up" public information campaign (behavioral change strategy). The effectiveness of the campaign not only depends on the quality of the education or public information campaign (relevance to target group, duration, saturation of the messaging), but also the strength of the law in place (primary vs. secondary seat belt law, all passengers vs. front seat only, higher penalty/fee vs. low penalty/fee) and, most important, the degree of seat belt use enforcement (coverage, intensity, visible by the public).

Consequently, the strength of driver safety policy, enforcement, and education surrounding a behavioral strategy selected greatly impact its effectiveness. Therefore, when selecting and implementing a behavioral strategy, an agency must examine the policy, enforcement, and educational context of the strategy and explore ways to strengthen each, as appropriate, to gain the most from a selected strategy.

Finally, it is critically important that traffic safety enforcement is viewed as a priority within local law enforcement agencies and that agency leaders and administrators advocate for strong local enforcement of traffic laws. It is imperative that agency leaders actively address political and public resistance and provide a pathway to deploy the leading strategy to save lives on North Dakota roadways—effective traffic enforcement coupled with public outreach. By advocating for enforcement, educating local elected officials, and equipping officers to effectively enforce traffic safety laws, North Dakota will reap far greater life-saving outcomes from its local safety initiatives.

5.4.2 Effective Use of Public Information Strategies

Public information (education) strategies are often popular among communities seeking to change risky driving behaviors. Education or public information campaigns can range from brochures and mailings to peer-to-peer safety messaging. Brochures and mailings are a passive approach, while peer-to-peer messaging provides a more effective behavioral change approach. In general, a key challenge in influencing driver behavior is that most drivers know what they

are supposed to do to drive safely, yet due to successfully driving with risky patterns with no incidence of crash, drivers underestimate the risk of their choices. For this reason, research supports that education, coupled with enforcement, will have the strongest impact in changing driver behavior (NHTSA, 2013).

Following are key characteristics of impactful public information/education campaigns (Williams, 2007):

- Implemented in support of a high-visibility enforcement program
- Focused messaging for a target group
- Longer-term programs delivering messages of sufficient intensity over time
- Messages communicating new information not previously well known
- Messages that are part of a broader-based, longer-term community program with similar messaging coming from multiple sources
- Using behavior change models including interactive methods teaching skills to resist social pressure (such as role playing, group discussion)

5.4.3 LRSP Phase 4 Priority Strategies

During the LRSP workshop, participants reviewed Central Region 's behavioral crash data and discussed behavioral safety strategy alternatives that could be implemented at the local level. Based on the strategy review discussions, participants engaged in a prioritization process to identify the preferred local behavioral safety strategies for the four behavioral critical emphasis areas. Table 5-1 reflects the LRSP Phase 4 results of the strategy prioritization, as well as each strategy's alignment with the North Dakota SHSP (indicated by an "X" if included in the SHSP).

TABLE 5-1
North Dakota Phase 4 LRSP Workshop Priority Behavioral Strategies and Relationship with the North Dakota SHSP

Phase 4 LRSP Central Region Workshop Priority Driver Behavior Strategies and Their Relationship with the North Dakota SHSP	2013 ND SHSP
Impaired Driving	
• Expand high-visibility DUI enforcement saturations including sobriety checkpoints	X
• Promote sobriety initiatives for DUI offenders (24/7, ignition interlock, DUI courts)	X
• Strengthen DUI convictions and sentencing through justice system evaluation and outreach	
Speeding and Aggressive Driving	
• Identify high-risk speed locations/corridors for enhanced enforcement *Note: Added following speed and aggressive driving enforcement strategy to support priority infrastructure safety strategy:* *Provide enhanced enforcement to support local agency implementation of red-light-running confirmation lights for at-risk intersection locations*	X
• Strengthen local support for increased speed fines	X

Young Drivers	
• Conduct high visibility enforcement of Graduated Drivers Licensing (GDL) safety restrictions, no cell and texting while driving, seat belt, and underage drinking laws for young drivers	X
Unbelted Occupants	
• Pursue local community support for primary seat belt law	X

The following subsections provide a more complete description of each priority strategy, suggested steps to launch local agency efforts, recommended implementation resources, and potential future considerations for expanded local agency and community-based support for the SHSP safety strategies. It is important to note that multidisciplinary SHSP implementation teams will be formed to support the implementation of priority strategies for each of the six SHSP priority emphasis areas including: lane departure, unbelted vehicle occupants, alcohol-related, speed or aggressive drivers, young drivers, and intersections. Therefore, local agencies seeking to leverage local-level safety initiatives described in the following subsections are encouraged to coordinate with and/or engage in the statewide SHSP implementation teams.

5.4.4 Impaired Driving

Central Region Priority Strategy – Expand the use of high-visibility DUI enforcement saturation patrols including sobriety checkpoints.

Description: High-visibility DUI enforcement is a high-priority, proven safety strategy to reduce alcohol-impaired severe crashes in North Dakota and across the nation. The most effective way to deter impaired driving is through a highly visible enforcement effort to reinforce the driving public's belief that impaired drivers are at high risk of being arrested, prosecuted, and adjudicated. High-visibility enforcement consists of multiple jurisdictions and/or multiple squads patrolling a segment of roadway at the same time, often using brightly colored vests and signs. Planned enforcement is publicized extensively through community kickoff events involving the local media and public education campaigns about the enforcement. High visibility also includes enforcement agencies reporting to news media the outcome or arrests made during the saturation or checkpoint campaign. In addition to deterring driving after drinking by increasing the perceived risk of arrest, high-visibility enforcement extends the safety impact of the enforcement campaign for a longer period following the campaign.

What are saturation patrols?
Saturation patrols, also known as "dedicated DUI patrols," are stepped-up enforcement involving a greater number of law enforcement officers patrolling a specific area for a set time to identify and arrest impaired drivers. Multiple agencies often combine and concentrate their resources to conduct saturation patrols.

What are sobriety checkpoints?
At sobriety checkpoints, law enforcement officials evaluate drivers for signs of alcohol or drug impairment at certain points on the roadway. Vehicles are stopped in a specific sequence, such as every other vehicle or every fourth, fifth, etc. The frequency of which vehicles are stopped depends on the traffic conditions and the number of enforcement personnel available to staff the checkpoint.

Getting Started:

- Contact the Traffic Safety Office (TSO) to participate in the SHSP process as a stakeholder in the implementation of strategies identified for priority safety emphasis areas, such as impaired driving, in the SHSP.
- Assist local law enforcement agencies and Regional DUI Task Forces with identifying locations with high crash involvement for high-visibility enforcement.
- With local law enforcement, attend county board/city council meetings to speak on the importance of reducing impaired driving and the important role of both enforcement and engineering safety strategies.
- Collaborate with highway patrol, local law enforcement, community health officials, and local traffic safety stakeholders to use TSO DUI campaign materials to conduct community outreach on the enforcement campaigns.

Implementation Resources:

- For crash data to focus DUI enforcement efforts, contact the NDDOT Traffic Safety Office (TSO) at (701) 328-4692.
- To learn about local traffic safety enforcement activities and enforcement grant opportunities, contact the TSO and the TSO Law Enforcement Liaison.
- See Section 5.5, Traffic Safety Office Supporting Resources.
- For statewide impaired-driving enforcement mobilizations, the TSO distributes media outreach materials to local enforcement agencies, which may include press releases, talking points, camera-ready artwork and posters, impaired driving fact sheets, handouts for the public at checkpoints, a print public service announcement (PSA), and live-read radio PSAs. *(Note: TSO to assemble available information resources.)*
- For guidance on planning and publicizing saturation patrols and sobriety checkpoints:
  - *Saturation Patrols & Sobriety Checkpoints: A How-to Guide for Planning and Publicizing Impaired Driving Enforcement Efforts*, NHTSA, Report No. DOT HS 809 063, revised October 2002. http://www.nhtsa.gov/people/injury/alcohol/saturation_patrols/
  - *Low-Staffing Sobriety Checkpoints.* NHTSA, Report No. DOT HS 810 590, 2006. http://www.nhtsa.gov/people/injury/enforce/LowStaffing_Checkpoints/
- For information on the effective adjudication of DUI arrests and to inquire about DUI data sources, contact ND Traffic Safety Resource Prosecutors:
  - Aaron Birst at aaron.birst@ndaco.org, 701-328-7342
  - Kristi Pettit Venhuizen at 701/780-9276
- For North Dakota road safety information including impaired driver facts sheets, issue briefs, and other education and outreach resources, visit the NDSU Rural Transportation Safety and Security Center (RTSSC) at: http://www.ugpti.org/rtssc/resources/

The NDSU Upper Great Plains Transportation Institute at:
http://www.ugpti.org/resources/

- Other impaired-driving safety resources:
  - National Highway Traffic Safety Administration: http://www.nhtsa.gov/Impaired
  - Governor's Highway Safety Administration: http://www.ghsa.org/html/issues/impaireddriving/index.html
  - Insurance Institute for Highway Safety: http://www.iihs.org/research/topics/alcohol_drugs.html

Central Region Priority Strategy – Promote Sobriety Initiatives for DUI Offenders: 24/7, Ignition Interlock, DUI Courts.

Description: To reduce impaired driving on state and local roadways, in addition to regular high-visibility DUI enforcement saturation patrols and DUI sobriety checkpoints, North Dakota uses 24/7, alcohol ignition interlocks, and DUI court programs to effectively monitor hardcore DUI offenders. Most hardcore repeat DUI offenders are alcohol dependent and often unable to control their drinking and driving behavior. For this reason, the following programs are important and proven tools in North Dakota's strategy to combat impaired driving.

24/7 – North Dakota's 24/7 Sobriety Program provides an alternative to jail time for DUI offenders charged with or convicted of two or more or drunk driving offenses; first-time drunk driving offenders under the age of 18 are also required to participate in the 24/7 program. The program requires offenders to abstain from alcohol use and submit to sobriety testing twice per day through preliminary breath test (PBTs) or through continuous monitoring via a SCRAM; requiring sobriety 24 hours per day, 7 days per week. If the arrestee's test registers any alcohol use then he or she is immediately taken into custody. If the arrestee fails to show for testing, his or her jail bond is revoked. An offender may participate in the 24/7 Sobriety Program as a condition of bond or pre-trial release and to participate in the program as a condition of sentence or probation.

Ignition Interlock – Ignition interlock is an aftermarket technology device installed in a motor vehicle to prevent a DUI offender from operating a vehicle if the offender has been drinking. Before starting the vehicle, the driver must breathe into the device and if the driver's breath alcohol reading is above a preset blood alcohol concentration (BAC) limit, the interlock device will not allow the vehicle to start. In North Dakota, the use of alcohol ignition interlocks is discretionary for all DUI offenders.

DUI Courts – North Dakota's four Drug/DUI Courts are hybrid courts; namely, they are drug courts that also work with DUI offenders. North Dakota Drug/DUI Courts are an effective tool to combat the hardcore impaired driver by using intensive supervision and treatment to change the offender's behavior. DUI Courts use all the criminal justice stakeholders (judge, prosecutor, defense attorney, law enforcement, probation, and treatment) using a cooperative approach to change the offender's behavior by meeting regularly as a team to discuss the status of each offender's case and to assure that alcohol treatment and all sentencing requirements are satisfied. With the input of all parties, Judges are more informed and can immediately revise restrictions when necessary.

Getting Started:

- Contact the Traffic Safety Office (TSO) to participate in the SHSP process as a stakeholder in the implementation of strategies identified for priority safety emphasis areas, such as impaired driving, in the SHSP.
- Enlist the support of local traffic safety stakeholders to conduct a proactive publicity and education campaign on the above discussed tools to:
  - Inform local policy makers—county board and city council members, judges, prosecutors, defense attorneys, treatment officials and other concerned local stakeholders of the important role of 24/7, ignition interlock, and DUI courts in combating hard core drunk drivers.
  - Educate the public on the nature of the impaired driving problem in the local community and how these tools will provide necessary sanctions on the offenders as well as enhance the safety of all roadway users; and
  - Act as a general deterrent by putting potential offenders on notice that if they are arrested for impaired driving they may become subject to a highly supervised sanction with the costs and stigma associated with its use.

Implementation Resources:

- See Section 5.5, Traffic Safety Office Supporting Resources.
- For information on ND sobriety initiatives (24/7, Ignition Interlock, DUI/Drug Courts) and for DUI data sources, contact ND Traffic Safety Resource Prosecutors:
  - Aaron Birst at aaron.birst@ndaco.org, 701-328-7342
  - Kristi Pettit Venhuizen at 701-780-9276
- For information on ND DUI/Drug Courts in North Dakota's Central Region:
  - Stutsman-Barnes Juvenile Drug Court (Jamestown)
    Judge Thomas Merrick
    Coordinator Kristi Wieland, kwieland@ndcourts.gov
  - DUI Court (Wahpeton)
    Judge Bradley Cruff
    Coordinator Bethany M. Johnson, bmjohnson@co.richland.nd.us
  - For the location of all other ND DUI courts, see: http://ndadcp.org/courts.html
- To contact local public health unit addressing alcohol use/impaired driving issues, see state listing located at:
  http://www.ndhealth.gov/localhd/lphu-directory.pdf
- For information on county DUI conviction and recidivism rates, see the North Dakota 2013 DUI Recidivism Fact Sheet at:
  http://www.ugpti.org/rtssc/briefs/downloads/2013_Recidivism.pdf
- For information on the North Dakota's 24/7 Program:
  http://www.ag.nd.gov/TwentyFourSeven/

- For a helpful overview of alcohol interlocks and their use as well as public outreach talking points, see *Ignition Interlocks - What You Need to Know: A Toolkit for Policymakers, Highway Safety Professionals, and Advocates* at:
  http://www.nhtsa.gov/staticfiles/nti/pdf/IgnitionInterlocks_811883.pdf
- The National Center for DWI Courts provides quick reference information for traffic safety stakeholders and policy makers on what they need to know about DUI courts:
  http://www.dwicourts.org/sites/default/files/ncdc/The%20Bottom%20Line.pdf
  http://www.dwicourts.org/node/98
- For North Dakota road safety information including impaired driver facts sheets, issue briefs, and other education and outreach resources, visit the NDSU Rural Transportation Safety and Security Center (RTSSC) at:
  http://www.ugpti.org/rtssc/resources/

  The NDSU Upper Great Plains Transportation Institute at:
  http://www.ugpti.org/resources/
- Other impaired-driving safety resources:
  - National Highway Traffic Safety Administration: http://www.nhtsa.gov/Impaired
  - Governor's Highway Safety Administration:
    http://www.ghsa.org/html/issues/impaireddriving/index.html
  - Insurance Institute for Highway Safety:
    http://www.iihs.org/research/topics/alcohol_drugs.html

Central Region Priority Strategy – Strengthen DUI convictions and sentencing through justice system evaluation and outreach.

Description: Justice system evaluation programs observe DUI cases within the criminal justice system and help to strengthen court accountability and to produce more DUI court convictions, stronger sentencing, and a decrease in plea agreements.

During justice system evaluation, citizen volunteers gather and analyze data to assess patterns regarding DUI case dismissals or cases plead to a lesser offense, conviction rates, sanctions imposed, and how the analysis results compare across different judges and different courts. With consistent review of court records and available DUI case data, volunteer evaluators can identify inconsistencies, assess patterns of court proceedings and potential issues in court handling in an effort to produce more DUI convictions, stronger sentencing, and a decrease in plea agreements.

Getting Started:

- Contact the Traffic Safety Office (TSO) to participate in the SHSP process as a stakeholder in the implementation of strategies identified for priority safety emphasis areas, such as impaired driving, in the SHSP.
- Contact the North Dakota's Traffic Safety Resource Prosecutors to understand the necessary DUI data sources for review and analysis including data available through the NDDOT, Mothers Against Drunk Driving (MADD) North Dakota, the county court and the local law

enforcement and prosecution agencies to gather and consolidate available DUI arrest and court system data.

- Meet with local traffic safety stakeholders including Mothers Against Drunk Driving (MADD) North Dakota to review and analyze the data.
- Meet with those involved in the justice system (judges, prosecutors) where data indicates significant dismissal or plea bargain rates and the consideration of public release of court analysis results.
- Explore the development of a web-based resource to post the data and media/social media outreach opportunities to educate local communities of county court system processing of DUI cases.

Implementation Resources:

- Contact MADD National for information on court monitoring training program information at 1-877-275-6233.
- To explore example state and local implementation of a court monitoring training programs, contact:
  - MADD North Carolina Community Action Site Court Monitoring Program at 919-787-6599
  - Connecticut MADD: Johanna Krebs, Program Manager at 203-764-2566, ext. 6952.
- For information on DUI data sources, contact ND Traffic Safety Resource Prosecutors:
  - Aaron Birst at aaron.birst@ndaco.org, 701-328-7342
  - Kristi Pettit Venhuizen at 701/780-9276
- Information on North Dakota drunk driving penalties: https://www.dot.nd.gov/divisions/safety/penaltiesdrinkingdriving.htm
- For information on Judicial DUI Orientation Training, contact Sharon Gehrman-Driscoll with Minnesotans for Safe Driving at sgehrman@centurylink.net or 952-221-7393
- For North Dakota road safety information including facts sheets, issue briefs, and other education and outreach resources, visit the NDSU Rural Transportation Safety and Security Center (RTSSC) at: http://www.ugpti.org/rtssc/resources/

  And the NDSU Upper Great Plains Transportation Institute at: http://www.ugpti.org/resources/
- Other impaired-driving safety resources:
  - National Highway Traffic Safety Administration: http://www.nhtsa.gov/Impaired
  - Governor's Highway Safety Administration: http://www.ghsa.org/html/issues/impaireddriving/index.html
  - Insurance Institute for Highway Safety: http://www.iihs.org/research/topics/alcohol_drugs.html

For additional impaired driving safety strategies, see the following additional high priority ND Local Road Safety Program strategies:

- Employ alcohol screening and brief Interventions by health care providers following an impaired driving crash. (Further explanation can be found in the North Dakota Local Road Safety Program, Phase 2, Cass County Report located at: http://www.dot.nd.gov/divisions/safety/trafficsafety.htm)
- Support community programs for alternative transportation. (Further explanation can be found in the North Dakota Local Road Safety Program, Phase 2, Eastern Region Report and Phase 3, Western Region Report located at: http://www.dot.nd.gov/divisions/safety/trafficsafety.htm)
- Educate and enforce zero tolerance laws for drivers under age 21. (Further explanation can be found in the North Dakota Local Road Safety Program, Phase 2, Eastern Region Report located at: http://www.dot.nd.gov/divisions/safety/trafficsafety.htm)

Potential future considerations for expanded local agency and community-based support of SHSP impaired-driving safety strategies:

- Engage local safety stakeholders (law enforcement, Mothers Against Drunk Driving [MADD], Students Against Drunk Driving [SADD], North Dakota Safety Council, community health provider, emergency medical service providers) and facilitate coalition development to educate local elected officials on the importance of state agency impaired-driving legislative initiatives resulting from the state's comprehensive assessment of North Dakota impaired-driving laws.

5.4.5 Speed and Aggressive Driving

Central Region Priority Strategy – Identify high-risk speed locations/corridors for enhanced speed enforcement.

Description: Identifying problem locations that have a high rate of speeding-related crashes are at the heart of an effective speed enforcement program. Enforcement and the associated public outreach efforts are most successful when deployed at specific locations or corridors and times when speeding is most likely to occur. Strengthened analysis of the following sources of data and information provides the focus needed for more effective, targeted enforcement and public outreach to reduce speed-related severe crashes:

1. Current and historical crash records and citation data
2. Engineering traffic and speed data
3. Law enforcement experience
3. Public input

Getting Started:

- Contact the Traffic Safety Office (TSO) to participate in the SHSP process as a stakeholder in the implementation of strategies identified for priority safety emphasis areas, such as speed and aggressive driving, in the SHSP.
- Assist local law enforcement agencies with analyzing crash and traffic data to identify locations with high speed and aggressive driving-related crash involvement for high-visibility enforcement.

Experience in other states suggests that rural road segments or corridors that have a higher density of road departure crashes and urban street segments having a higher density of red-light-running crashes have also been found to have a higher density for speed/aggressive driving and other behavioral-related crashes. Therefore, for suggested locations for enhanced enforcement, see agency-specific priority locations for rural road segments at risk for lane departure and urban road segments at risk for red-light-running in this report's Chapter 4 Appendix. (Note: HSIP flex funds may be used for overtime enforcement at at-risk locations for lane departure and red-light-running.)

Note on at-risk lane departure infrastructure safety strategies: To reduce lane departure severe crashes on rural paved roads, the Central Region will be deploying infrastructure safety improvements (e.g., centerline rumble strips, edge line rumble strips, adding or widening edge lines, high visibility pavement markings) at select at-risk corridors. To maximize the expected safety benefit of the road improvements, integrating increased enforcement presence at targeted at-risk locations and timeframes will reduce risky driver behaviors through strengthening the public's perceived risk of being stopped.

Implementation Resources:

- For crash data and analysis to focus speed enforcement efforts, which may include the development of electronic pin maps of speed-related crash locations, contact the NDDOT Traffic Safety Office (TSO) at (701) 328-4692.
- Work with NDDOT staff regarding specific design features of the system. Contact NDDOT Traffic Operations Section, Shawn Kuntz, (701) 328-2673.
- For speed-related crash data by County, see: *2013 North Dakota Crash Summary* see: http://www.dot.nd.gov/divisions/safety/docs/crash-summary.pdf
- See Section 5.5, Traffic Safety Office Supporting Resources.
- For a successful model of data-driven traffic enforcement, see Washington State's *Target Zero Team* project where planners use GIS mapping software to guide Target Zero patrols to where crashes were occurring and which roads led to high-collision areas at: http://www.wsp.wa.gov/targetzero/targetzero.htm#tzt
- For guidance on data-driven speed enforcement, see:

  NHTSA's Speed Enforcement Program Guidelines at: http://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa09028/resources/Speed%20Enforcement%20Program%20Guidelines.pdf#page=1

  National Cooperative Highway Research Program (NCHRP) Report 500, Vol. 23: Guidance for Implementation of the AASHTO Strategic Highway Safety Plan: A Guide for Reducing Speeding-Related Crashes at: http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_500v23.pdf
- Other speed-related safety resources:

  Governor's Highway Safety Administration: http://www.ghsa.org/html/issues/speeding.html

  Insurance Institute for Highway Safety:

http://www.iihs.org/iihs/topics/t/speed/topicoverview

- For North Dakota road safety information including speed facts sheets, issue briefs, and other education and outreach resources, visit the NDSU Rural Transportation Safety and Security Center (RTSSC) at:
  http://www.ugpti.org/rtssc/resources/

  The NDSU Upper Great Plains Transportation Institute at:
  http://www.ugpti.org/resources/

Central Region Priority Strategy – Provide enhanced enforcement to support local agency implementation of red-light-running confirmation lights for at-risk intersection locations. (*Note: Use HSIP flex funds for overtime enforcement.*)

Description: To reduce the most common type of severe crashes at signalized intersections—right-angle crashes--the Central Region is deploying an innovative safety strategy using a downstream confirmation light system to reduce red-light running. A blue LED light mounted on the back of a traffic light is activated when an offender runs the red light. A single officer stationed across the intersection downstream from the traffic light safely observes and pursues the red light violator (instead of one officer to observe and an additional officer to pursue). To implement, red-light-running confirmation lights require interdependent collaboration of both engineering and enforcement; even more effective would be added public outreach about the red-light-running confirmation lights.

Getting Started:

- Contact the Traffic Safety Office (TSO) to participate in the SHSP process as a stakeholder in the implementation of strategies identified for priority safety emphasis areas, such as speeding and aggressive driving, in the SHSP.
- Work with NDDOT staff regarding specific design features of the system. Contact NDDOT Traffic Operations Section, Shawn Kuntz, (701) 328-2673.
- Coordinate with local law enforcement:
  - Ask for their assistance in locating the enforcement lights on traffic signal poles/mast arms (optimum viewing locations)
  - Ask for an agreement regarding minimum levels of enforcement (that is, 1 hour per day at any of the equipped locations)
  - Provide training to officers after installation – demonstrate that the "blue/confirmation" light does come on at the same instant as the red light of the signal
- Encourage law enforcement to coordinate with the city/county attorney – make sure the attorney understands the technology and is willing to prosecute the violators.
- Encourage the city/county attorney to coordinate with the district court judge – make sure the judge understands the technology and will uphold charges and support the conviction of violators.
- Prior to issuing any tickets for violations using the confirmation lights, have the traffic signal operations engineer check all of the signals clearance intervals (yellow + all red) to

make sure they are 100-percent consistent with the agencies adopted guidelines. Have a note confirming compliance signed by the engineer put in the signal controller cabinet. (This will help address the inevitable complaint by those issued tickets that the agency changed the clearance intervals to generate more violators and increase revenue streams.)

- With local law enforcement, attend county board/city council meetings to speak on the community safety benefits of red-light-running confirmation lights.

Implementation Resources:

- For crash data and analysis to focus red-light-running enforcement efforts, contact the NDDOT Traffic Safety Office (TSO) at (701) 328-4692.
- See Section 5.5, Traffic Safety Office Supporting Resources.
- Safety project developed as part of the LRSP are eligible for funding through the state's Highway Safety Improvement Program (HSIP) including enhanced enforcement.
- Contact local agencies that have deployed red-light-running confirmation lights:
  - City of Burnsville Public Works, Minnesota
    Engineering Department
    100 Civic Center Parkway
    Burnsville, MN 55337
    Phone: (952) 895-4534
  - Richardson Police Department, Texas
    140 North Greenville Ave.
    Richardson, TX 75081
    Phone: (972) 744-4800

Central Region Priority Strategy – Strengthen local support for increased speed fines.

Description: North Dakota law enforcement representatives participating in all phases of the North Dakota Local Road Safety Plan workshops expressed a shared concern that North Dakota's speed fines are too low resulting in drivers choosing to speed and, if stopped, preferring to pay the minimal speed fine rather than driving the posted speed limit. One Central Region law enforcement officer explained that he frequently from drivers, "I can't afford not to speed in your state. First, the chances of getting caught are minimal. And then if you do get caught, the fine is nothing.[1]

To more effectively reduce speed-related severe crashes, fines should be significant enough to serve as a deterrent to speeding drivers. Increasing fines is most effective if accompanied by an increase in the certainty of the penalty; no level of fine will deter a driver who does not expect to be ticketed. Improving the application of increased fines through high visibility speed enforcement will enhance the driving public's perceived risk of being stopped and cited for speeding and, therefore, more effectively influence driving behavior.

The foundation for increasing speed fines begins with developing grassroots, local-level support. Local community support, when thoughtfully and strategically applied, gets the attention of local and state elected officials. A community shift toward supporting increased speed fines occurs incrementally, one step at a time. Following are some initial steps and resources to launch the Central Region's efforts.

Getting Started:

- Contact the Traffic Safety Office (TSO) to participate in the SHSP process as a stakeholder in the implementation of strategies identified for priority safety emphasis areas, such as speeding, in the SHSP.
- Explore partnering with the North Dakota Association of Counties to enhance North Dakota's traffic violation fine structure including speed. Fine-related resolutions previously adopted by the Association include:
  - 2012-08. Traffic Fines. North Dakota's traffic injuries and fatalities have increased alarmingly in recent years. Coincidentally, North Dakota's fine structure for the violation of our traffic laws is one of the lowest in the nation. This Association supports uniform, statewide traffic fines that are reasonable, but provide greater deterrence to speeding, reckless and unsafe driving practices. http://www.ndaco.org/?id=568&page=Resolutions+From+Previous+Years
- Explore the expansion of higher or double speed fines for locations of higher risk and public acceptance for higher fines such as school zones, work zones, and high-crash corridors and incorporate double-fine roadway signing.
- Establish a local advocacy group to strengthen grassroots support for strengthening speed fines through engaging multiple disciplines and stakeholders seeking to enhance traffic safety, including:
  - Enforcement: State Patrol, county sheriff, and city police enforcement personnel
  - Emergency Medical Response/medical community: EMS, fire, and rescue departments; local county health and injury prevention organizations; injury prevention advocacy groups; ER doctors and nurses, and other health care professionals
  - Education Outreach: DOT District, county, and city public affairs/media outreach professionals; local school boards, PTAs, school administrators, Mothers Against Drunk Driving [MADD], Students Against Destructive Decision (SADD), North Dakota Safety Council, AAA North Dakota
  - Engineering: NDDOT District, county, and city traffic safety personnel
  - Employers promoting safe driving and insurance companies.
- Engage advocacy group members to develop unified key messages for a consistent and clear message of support for higher speed fines (key speed crash facts and key community supporters of higher fines). See *Information Resources* listed below to obtain speed-related safety and crash information.
- Identify key local champions to help carry the message to local elected officials (city council, county board, mayoral offices) and key community influencers (for example, business leaders).
- Conduct elected official (local and state) outreach in support of higher speed fines using interdisciplinary team from primary advocacy group (enforcement, engineering, health/injury prevention).

Implementation Resources:

- For crash data and analysis to focus speed education and outreach efforts, contact the NDDOT Traffic Safety Office (TSO) at (701) 328-4692.
- See Section 5.5, Traffic Safety Office Supporting Resources.
- For information on North Dakota Association of Counties outreach efforts on speed fines, contact ND Traffic Safety Resource Prosecutors:
  - Aaron Birst at aaron.birst@ndaco.org, 701-328-7342
  - Kristi Pettit Venhuizen at 701/780-9276
- For information on the effectiveness of double-fines in reducing speed in work zones, school zones and safety corridors in Oregon, see:
  http://www.oregon.gov/ODOT/TD/TP_RES/docs/Reports/EffectDoubleFines.pdf
- For a comprehensive list of speed-reducing safety strategies including increasing fines:

  National Cooperative Highway Research Program (NCHRP) Report 500, Vol. 23: Guidance for Implementation of the AASHTO Strategic Highway Safety Plan: A Guide for Reducing Speeding-Related Crashes at:
  http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_500v23.pdf
- Other speed-related safety resources:

  Governor's Highway Safety Administration:
  http://www.ghsa.org/html/issues/speeding.html

  Insurance Institute for Highway Safety:
  http://www.iihs.org/iihs/topics/t/speed/topicoverview
- For North Dakota road safety information including speed facts sheets, issue briefs, and other education and outreach resources, visit the NDSU Rural Transportation Safety and Security Center (RTSSC) at:
  http://www.ugpti.org/rtssc/resources/

  The NDSU Upper Great Plains Transportation Institute at:
  http://www.ugpti.org/resources/

5.4.6 Young Drivers

Central Region Priority Strategy – **Publicize and conduct high-visibility enforcement of teen driver Graduated Driver's Licensing (GDL) safety restrictions, no teen cell phone use and texting-while-driving laws, no underage drinking, and seatbelt use laws.**

Description: *See Section 5.4.4 for a description of high-visibility/highly publicized enforcement campaigns.*

To the extent that teen drivers do not comply with the protective restrictions under North Dakota's GDL system and its Zero Tolerance for drinking laws, traffic safety benefits of these laws will be greatly reduced. Compliance with restrictions can be encouraged through stepped-up enforcement efforts such as checkpoints and saturation patrols coupled with publicity to raise awareness of the enforcement.

North Dakota law enforcement agencies (state, county, city and tribal) participate in high-visibility enforcement programs coordinated at the regional level using a data-driven, multi-agency approach. Such inter-agency cooperation deploys a strategic approach to supporting smaller agencies with low officer staffing by increasing enforcement presence for seat belt, impaired driving, and speed enforcement campaigns which include drivers under the age of 20. In addition, underage-drinking enforcement is conducted during peak youth high-risk time periods such as prom and graduation. Underage drinking enforcement also includes retail compliance check programs to monitor the selling of alcohol to minors. Finally, law enforcement agencies conduct overtime high-visibility enforcement of North Dakota's no-texting law in areas more prominently impacted by distracted driving-related severe injury crashes.

Getting Started:

- Contact the Traffic Safety Office (TSO) to participate in the SHSP process as a stakeholder in the implementation of strategies identified for priority safety emphasis areas, such as young drivers, in the SHSP.
- Assist local law enforcement agencies and regional enforcement teams with identifying locations with high young driver crash involvement for high-visibility enforcement.
- Explore with local law enforcement the use of enforcement checkpoints held near high schools during lunchtime, after school, or after school sporting events and activities to enforce safety belt laws and passenger restrictions.
- With local law enforcement, attend county board/city council meetings to speak about the importance of reducing young driver severe crashes through high visibility enforcement.
- Collaborate with highway patrol, local law enforcement, community health officials, and local traffic safety stakeholders to use TSO traffic safety materials to conduct community outreach on young driver risks together with messaging about upcoming traffic safety enforcement campaigns.
- Work with local businesses to provide rewards and incentives to law enforcement, like discount coupons, to distribute to young drivers who are paying attention to the road (not their phones) and demonstrating safe driving behaviors.

Implementation Resources:

- For information on high-visibility enforcement implementation resources, see *Section 5.4.5.*
- See Section 5.5, Traffic Safety Office Supporting Resources.
- For age-specific information and resources for parents on how to start and continue the conversation about alcohol use with their children, see the North Dakota's *Parents LEAD* program (Listen, Educate, Ask, Discuss).
  http://www.parentslead.org/
- To launch a comprehensive local distracted driving outreach campaign to support law enforcement's high-visibility efforts, see NHTSA's *Districted Driving Campaign Starter Kit: One Text or Call Could Wreck It All.*
  http://www.distraction.gov/download/campaign-materials/dd_campaign_starter_kit.pdf

- For North Dakota road safety information including facts sheets, issue briefs, and other education and outreach resources, visit the NDSU Rural Transportation Safety and Security Center (RTSSC) at:
  http://www.ugpti.org/rtssc/resources/

  The NDSU Upper Great Plains Transportation Institute at:
  http://www.ugpti.org/resources/

For additional unbelted safety strategies, see the following priority ND Local Road Safety Program strategies:

- Encourage driver education providers (local schools and private providers) to require parent education component. (Further explanation can be found in the North Dakota Local Road Safety Program, Phase 2, Eastern Region and Grand Forks County Region Reports located at: http://www.dot.nd.gov/divisions/safety/trafficsafety.htm)

Other high-impact strategies for local agency consideration:

- Conduct locally facilitated peer-to-peer driver safety outreach campaigns designed for high school students to raise peer awareness of the common risk factors threatening novice drivers.
- Implement cell phone use and safe driving policies for local agency employees and encourage local businesses to do the same.

5.4.7 Unbelted Occupants

Central Region Priority Strategy – Pursue Local Support for Primary Seat Belt

Description: Seat belts saves lives. Research supports that lap/shoulder seat belts reduce the risk of fatal injury to front-seat passenger car occupants by 45 percent and the risk of moderate-to-critical injury by 50 percent. For light-truck occupants, seat belts reduce the risk of fatal injury by 60 percent and moderate-to-critical injury by 65 percent. Seat belts are extremely effective in preventing occupant ejection from the vehicle, the most injurious of crash outcomes (NHTSA, 2014).

Primary enforcement of seat belt laws has a proven track record of getting more people to buckle up. A primary enforcement seat belt law enables a law officer to stop motorists if the driver or any occupant is unbelted. North Dakota's secondary enforcement law permits law enforcement to ticket unbelted motorists only if they are stopped for some other offense such as speeding.

Studies show that seat belt use in states with primary laws is 9 percentage points higher compared to states with secondary laws (Shults and Beck, 2012). Primary enforcement sends a clear message to the motoring public that the State views safety belt use (and the safety belt law) as essential for the safe operation of a motor vehicle. When States upgrade their laws from secondary to primary, the perceived public importance of safety belt use is strengthened leading to greater seat belt compliance. Increasing adult belt use also has a significant impact on child passenger safety, because drivers who wear safety belts are more likely to restrain their child passengers.

The foundation of enacting a primary seat belt law begins with developing grassroots, local-level support. Local community support, when thoughtfully and strategically applied, gets the

attention of state elected officials. A community shift toward supporting primary seat belt occurs incrementally, one step at a time. Following are some initial steps and resources to launch North Dakota's Grand Forks Region's efforts.

Getting Started:

- Contact the Traffic Safety Office (TSO) to participate in the SHSP process as a stakeholder in the implementation of strategies identified for priority safety emphasis areas, such as unbelted crashes, in the SHSP.
- Establish a local seat belt coalition or advocacy group to strengthen grassroots support for upgrading North Dakota's secondary belt law to primary seat belt enforcement. Following the national model of engaging multiple disciplines for traffic safety, support for primary enforcement can be found and strengthened throughout the community, including:
    - Enforcement: District State Patrol, county sheriff and city police enforcement personnel
    - Emergency Medical Response/Medical Community: EMS, fire and rescue departments; local county health and injury prevention organizations; injury prevention advocacy groups; ER doctors and nurses, health care professionals
    - Education Outreach: DOT District, county, and city public affairs/media outreach professionals; local school boards, PTAs, school administrators, Mothers Against Drunk Driving [MADD], Students Against Destructive Decision (SADD), North Dakota Safety Council, AAA North Dakota
    - Engineering: DOT District, county, and city traffic safety and road maintenance personnel.
    - Employers/Business Leaders: Chambers of commerce, leading local companies/major employers, insurance companies, auto dealers and manufacturers
- Engage advocacy group members to craft unified key messages for a consistent and clear message of support for primary seat belt (key unbelted crash facts, primary belt benefits, employer and societal costs of unbelted crashes, key community supporters of primary). Seek example outreach resources from neighboring "Primary" states and states who've passed primary seat belt law.
- Create advocacy web portal of information in support of primary seat belt (key unbelted crash facts, primary seat belt benefits, employer and societal costs of unbelted crashes).
- Identify key local champions to help carry the message to local elected officials (city council, county board, mayoral offices) and key community influencers (e.g., business leaders).
- Conduct legislative outreach in support of primary seat belt using interdisciplinary team from primary advocacy group (enforcement, engineering, health/injury prevention).

Implementation Resources:

- For crash data and analysis to educate on unbelted serious crashes, contact the NDDOT Traffic Safety Office (TSO) at (701) 328-4692.

- To arrange for the Rollover Simulator to demonstrate the force of a rollover crash and the importance of proper restraint/primary seat belt law, contact the ND DOT Traffic Safety Office.
- For seat belt facts and outreach initiatives, contact AAA North Dakota, Gene LaDoucer at: eladoucer@aaand.com.
- Upgrading Minnesota's secondary seat belt law to a primary law resulted in an estimated 68 to 92 fewer deaths, between 320 and 550 fewer severe injuries, and $45 million in avoided hospital charges in the two years the primary law was enacted and enforced. See *Impacts of Minnesota's Primary Seat Belt Law* at: https://dps.mn.gov/divisions/ots/seat-belts-air-bags/Documents/dps-eval-primary-seat-belt-law.pdf
- For Minnesota Seat Belt Coalition's Primary Seat Belt legislative talking point booklet addressing key questions about Primary Seat Belt, facts sheets, and unbelted fatalities and serious injuries by legislative district, contact the Minnesota Safety Council at 651-291-9150 or msc@minnesotasafetycouncil.org
- Florida's statewide belt usage leaped from 80.9% in May 2009 to 87.4% after the 2010 May seat belt enforcement campaign and the passage of the state's primary seat belt law. See *Impact of Implementing a Primary Enforcement Seat Belt Law in Florida: A Case Study* at: http://ntl.bts.gov/lib/45000/45800/45875/811656.pdf
- For seat belt key messages see NHTSA *Click It or Ticket (CIOTI)* web site: http://www.nhtsa.gov/nhtsa/2013ciot/stats.html
- Center for Disease Control and Prevention seat belt briefing: http://www.cdc.gov/motorvehiclesafety/seatbeltbrief/
- For example tribal council primary seat belt law: http://staging.dl-online.com/content/white-earth-council-passes-seat-belt-law
- For North Dakota road safety information including facts sheets, issue briefs, and other education and outreach resources, visit the NDSU Rural Transportation Safety and Security Center (RTSSC) at: http://www.ugpti.org/rtssc/resources/

  The NDSU Upper Great Plains Transportation Institute at: http://www.ugpti.org/resources/

For additional unbelted safety strategies, see the following priority ND Local Road Safety Program strategies:

- Conduct high-visibility enforcement to maximize restraint use. (Further explanation can be found in the North Dakota Local Road Safety Program, Phase 2, Grand Forks County Region Report located at: http://www.dot.nd.gov/divisions/safety/trafficsafety.htm)
- Enforce secondary belt use law. (Further explanation can be found in the North Dakota Local Road Safety Program, Phase 2, Eastern Region Report located at: http://www.dot.nd.gov/divisions/safety/trafficsafety.htm)

Potential future considerations for expanded local agency, tribal, and community-based support of SHSP safety strategies:

- Pursue tribal ordinances for primary enforcement of seat belt laws.
- Conduct community-wide and sustained public information outreach to educate and create cultural awareness of the risks associated with unbelted motorists.

5.5 Traffic Safety Office Supporting Resources

Unless otherwise indicated, for technical assistance and supporting resources contact the NDDOT Traffic Safety Office (TSO) at (701) 328-4692.

5.5.1 TSO Grant Program Application Process

The TSO solicits grant applications from eligible state and local agencies and for-profit and non-profit organizations that address North Dakota's problem solution plans or PSPs. PSPs reflect the state's greatest opportunities for behavioral safety improvement. Grant applications are due June 30th of each year and are evaluated based on: (1) response to identified problems, (2) proposed evidenced-based strategy, (3) clear objectives, (4) comprehensive evaluation plans, and (5) cost-effective budgets. Selected projects are included in TSO's Highway Safety Plan and once approved by NHTSA, grant contracts are generally effective October 1 through September 30th.

5.5.2 Technical Assistance

County Outreach Program

The TSO, in cooperation with the North Dakota Association of Counties, offers a county-based Traffic Safety Outreach program to provide advocacy and community mobilization, media support, public outreach, and training to address seat belt use, impaired driving, speeding, and distracted driving at the county level. County participants include county employees, county officials, law enforcement, transportation engineering, public health, schools, businesses, nonprofit agencies, media, and other entities.

5.5.3 Traffic Records/Crash Data

Traffic and Criminal Software or TraCS

The quality of traffic safety problem identification and decision-making regarding effective safety strategies and their implementation is based on the quality and timeliness of crash data. Data is collected from officer crash reports at the time of the incident when a crash involves fatalities, injuries, or at least $1,000 in property damage. NDDOT reviews the crash report and enters the data into a centralized database called the Crash Reporting System or CRS.

To assist law enforcement in providing timely, complete, and accurate crash reports, the NDDOT Traffic Safety Office (TSO) supports the installation of Traffic and Criminal Software or TraCS and provides technical assistance and training to local agency and tribal law enforcement to effectively deploy TraCS for in-the-field incident reporting. Local and tribal enforcement agencies are strongly encouraged to utilize the convenience of TraCS for the electronic submission of crash reports to the NDDOT. Key benefits to participating agencies and tribes are the reduced officer time and effort required for duplicate entry into local and state crash

databases, reduced need for data entry resources and administrative support, as well as improving the overall quality and timeliness of the crash report.

Local Agency Crash Data Support

The Upper Great Plains Transportation Institute develops crash data summaries for each law enforcement agency under contract with the TSO for overtime enforcement supporting impaired driving and seat belt enforcement campaigns. The crash data summaries demonstrate the priority crash factors and trends within each local agency's jurisdiction.

Annual Crash Summary

The NDDOT annually publishes the Crash Summary to identify and describe the annual crash data and historical crash trends in North Dakota including the description of factors contributing to the occurrence of traffic crashes and the resulting injuries and fatalities. The Crash Summary is a valuable reference resource for local agencies and their safety partners for problem identification, safety strategy planning, targeted strategy implementation, program evaluation, and media inquiries, and is located at:
http://www.dot.nd.gov/divisions/safety/docs/crash-summary.pdf

References

AAA Foundation for Traffic Safety (AAA), 2012. 2012 *Traffic Safety Culture Index*. Washington DC. January.

Dahlberg, Linda L., and Etienne G. Krug, 2002. "Chapter 1. Violence-a Global Public Health Problem." *World Report on Violence and Health*. Edited by Etienne G. Krug, Linda L. Dahlberg, James A. Mercy, Anthony B. Zwi, and Rafael Lozano. World Health Organization: Geneva, Switzerland.

Keating, Daniel P., 2007. "Understanding Adolescent Development: Implications for Driving Safety." *Journal of Safety Research*. Vol. 38, Issue 2. Pages 147-157.

Lerner, Neil, Jeremiah Singer, and James Jenness, 2010. "Safer Drivers." White Papers for: *Toward Zero Deaths: A National Strategy on Highway Safety*. White Paper No. 3. July 12.

National Highway Traffic Safety Administration (NHTSA), 2014. *Traffic Safety Facts, 2012: Occupant Protection.* Report No. DOT HS 811 892. Washington DC.

National Highway Traffic Safety Administration (NHTSA), 2013. *Countermeasures that Work: A Highway Safety Countermeasure Guide for Sate Highway Safety Offices*. 7th Edition. Report No. DOT HS 811 727. Washington DC. April.

National Highway Traffic Safety Administration (NHTSA), 2012. *Traffic Safety Facts 2010: A Compilation of Motor Vehicle Crash Data from the Fatality Analysis Reporting System and the General Estimates System*. Report No. DOT HS 811 659. Washington DC.

National Highway Traffic Safety Administration (NHTSA), 2012a. *Traffic Safety Facts, 2010 Data: Young Drivers*. Report No. DOT HS 811 622. National Center for Statistics and Analysis. Washington DC. May.

National Highway Traffic Safety Administration (NHTSA), 2012b. *Traffic Safety Facts, 2010 Data: Speeding*. Report No. DOT HS 811 636. National Center for Statistics and Analysis. Washington DC. August.

National Highway Traffic Safety Administration (NHTSA), 2009. *Traffic Safety Facts, 2008 Data: Occupant Protection*. Report No. DOT HS 811 160. National Center for Statistics and Analysis. Washington DC.

National Highway Traffic Safety Administration (NHTSA), 2007. *Screening and Brief Intervention Tool Kit for College and University Campuses*, Report No. DOT HS 810 751. Washington DC. February.

National Highway Traffic Safety Administration (NHTSA), 2001. *Effectiveness of Occupant Protection Systems and Their Use*. Fifth/Sixth Report to Congress. Report No. DOT HS 809 442. Washington DC. November.

Shults, RA, Beck, LF, 2012. *Self-reported seatbelt use, United States, 2002-2010: Does prevalence vary by state and type of seatbelt law?* Journal of Safety Research; 43 (5-6): 417–42

Ward, Nicholas J., Jeff Linkenback, Sarah N. Keller, and Jay Otto, 2010. "White Paper on Traffic Safety Culture." White Paper No. 2. *White Papers for: Toward Zero Deaths: A National*

Strategy on Highway Safety. Western Transportation Institute, College of Engineering, Montana State University. July 7.

Williams, Allan F., 2007. *Public Information and Education in the Promotion of Highway Safety*. Research Results Digest 322. National Cooperative Highway Research Program (NCHRP). Washington DC. August.

23 USC 409

NDDOT Reserves All Objections

APPENDIX

US Supreme Court Validation of 23 U.S.C. § 409

23 U.S.C. § 409 : US Code - Section 409: Discovery and admission as evidence of certain reports and surveys

Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data

Pierce County, Washington v. Guillen

Supreme Court of the United States, 2003
123 U.S. 720

Brief Fact Summary

The Court addressed whether 23 U.S.C. section 409, which protects information "compiled or collected" in connection with certain federal highway safety programs from being discovered or admitted in certain federal or state trials, is a valid exercise of Congress's authority under the Constitution.

Rule of Law and Holding

This Court lacks jurisdiction to hear the tort portion of the case but has jurisdiction to hear the Public Disclosure Act portion. Certain state-court judgments can be treated as final for jurisdictional purposes even though further proceedings are to take place in the state courts.

Edited Opinion

Note: The following opinion was edited by CVN Law School staff. © 2008 Courtroom Connect, Inc.

JUSTICE THOMAS delivered the opinion of the Court.

We address in this case whether 23 U. S. C. § 409, which protects information "compiled or collected" in connection with certain federal highway safety programs from being discovered or admitted in certain federal or state trials, is a valid exercise of Congress' authority under the Constitution.

Beginning with the Highway Safety Act of 1966, Congress has endeavored to improve the safety of our Nation's highways by encouraging closer federal and state cooperation with respect to road improvement projects. To that end, Congress has adopted several programs to assist the States in identifying highways in need of improvements and in funding those improvements. Of relevance to this case is the Hazard Elimination Program (Program) which provides state and local governments with funding to improve the most dangerous sections of their roads. To be eligible for funds under the Program, a state or local government must undertake a thorough evaluation of its public roads. Specifically, § 152(a)(1) requires them to "conduct and systematically maintain an engineering survey of all public roads to identify hazardous locations, sections, and elements, including roadside obstacles and unmarked or poorly marked roads, which may constitute a danger to motorists, bicyclists, and pedestrians, assign priorities for the correction of such

locations, sections, and elements, and establish and implement a schedule of projects for their improvement."

Not long after the adoption of the Program, the Secretary of Transportation reported to Congress that the States objected to the absence of any confidentiality with respect to their compliance measures. According to the Secretary's report, the States feared that diligent efforts to identify roads eligible for aid under the Program would increase the risk of liability for accidents that took place at hazardous locations before improvements could be made. In 1983, concerned that the States' reluctance to be forthcoming and thorough in their data collection efforts undermined the Program's effectiveness, the United States Department of Transportation (DOT) recommended the adoption of legislation prohibiting the disclosure of information compiled in connection with the Program.

To address the concerns expressed by the States and the DOT, in 1987, Congress adopted 23 U. S. C. § 409, which provided:"Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled for the purpose of identifying[,] evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be admitted into evidence in Federal or State court or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data."

The proper scope of § 409 became the subject of some dispute among the lower courts. Some state courts, for example, concluded that § 409 addressed only the admissibility of relevant documents at trial and did not apply to pretrial discovery. According to these courts, although information compiled for § 152 purposes would be inadmissible at trial, it nevertheless remained subject to discovery. Other state courts reasoned that § 409 protected only materials actually generated by a governmental agency for § 152 purposes, and documents collected by that agency to prepare its § 152 funding application remained both admissible and discoverable.

As amended, § 409 now reads:

"Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data."

Ignacio Guillen's wife, Clementina Guillen-Alejandre, died on July 5, 1996, in an automobile accident at the intersection of 168th Street East and B Street East (168/B intersection), in Pierce County, Washington. Several months before the accident, petitioner had requested § 152 funding for this intersection, but the request had been denied. Petitioner renewed its application for funding on April 3, 1996, and the second request was approved on July 26, 1996, only three weeks after the accident occurred.

Beginning on August 16, 1996, counsel for respondents sought to obtain from petitioner information about accidents that had occurred at the 168/B intersection.1 Petitioner declined to provide any responsive information, asserting that any relevant documents were protected by § 409. After informal efforts failed to resolve this discovery dispute, respondents turned to the Washington courts.

While the appeal in the PDA action was pending, respondents filed a separate action, asserting that petitioner had been negligent in failing to install proper traffic controls at the 168/B intersection. In connection with the tort action, respondents served petitioner with interrogatories seeking information regarding accidents that had occurred at the 168/B intersection. Petitioner refused to comply with the discovery request, once again relying on § 409. Respondents successfully sought an order to compel, and petitioner moved for discretionary appellate review of the trial judge's interlocutory order.

Having determined that § 409 protects only information compiled or collected for § 152 purposes, and does not protect information compiled or collected for purposes unrelated to § 152, as held by the agencies that compiled or collected that information, we now consider whether § 409 is a proper exercise of Congress' authority under the Constitution. We conclude that it is.

It is well established that the Commerce Clause gives Congress authority to "regulate the use of the channels of interstate commerce." In addition, under the Commerce Clause, Congress "is empowered to regulate and protect the instrumentalities of interstate commerce, or persons or things in interstate commerce, even though the threat may come only from intrastate activities." As already discussed, Congress adopted § 152 to assist state and local governments in reducing hazardous conditions in the Nation's channels of commerce. That effort was impeded, however, by the States' reluctance to comply fully with the requirements of § 152, as such compliance would make state and local governments easier targets for negligence actions by providing would-be plaintiffs a centralized location from which they could obtain much of the evidence necessary for such actions. In view of these circumstances, Congress could reasonably believe that adopting a measure eliminating an unforeseen side effect of the information-gathering requirement of § 152 would result in more diligent efforts to collect the relevant information, more candid discussions of hazardous locations, better informed decisionmaking, and, ultimately, greater safety on our Nation's roads.

Consequently, both the original § 409 and the 1995 amendment can be viewed as legislation aimed at improving safety in the channels of commerce and increasing protection for the instrumentalities of interstate commerce. As such, they fall within Congress' Commerce Clause power. Accordingly, the judgment of the Washington Supreme Court is reversed, and the case is remanded for further proceedings not inconsistent with this opinion.

It is so ordered.

LOCAL ROAD SAFETY PROGRAM

NDDOT
North Dakota
Department of Transportation