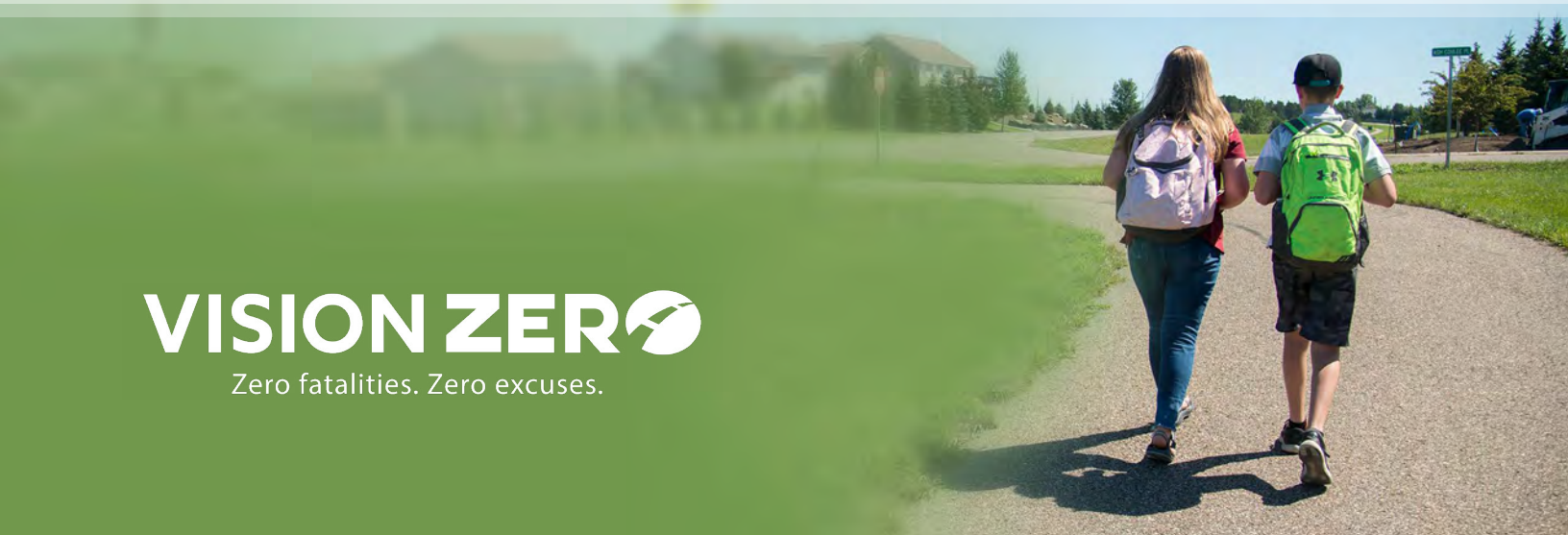
NORTH DAKOTA

Vision Zero Plan | 2024

NORTH
Dakota
Be Legendary.



VISION ZERO
Zero fatalities. Zero excuses.

NORTH Dakota | Transportation

Be Legendary.

A Message from the Director

Roadway safety remains the top priority of the North Dakota Department of Transportation (NDDOT) and our partners. In January 2018, Governor Doug Burgum, the NDDOT, and others launched the Vision Zero initiative to eliminate motor vehicle crash fatalities and serious injuries on all North Dakota roads.

Every year, lives are lost on our roads from motor vehicle crashes. The NDDOT and our partners believe that no one should lose their life while driving, walking, biking, or using other modes of transportation. The NDDOT and our partners are working to assure that proper measures are taken to protect against any risks that can lead to serious injury or death with a sense of urgency.

To guide the direction of safety for the state, I am pleased to present the North Dakota Vision Zero Plan, also known as the state's Strategic Highway Safety Plan (SHSP) 2024-2028. This five-year plan is a result of a collaborative effort of state, regional, and local partners in law enforcement, tribal communities, county transportation, and planning agencies, public health and prevention specialists, traffic safety educators, and citizens devoted to traffic safety. The plan aims to objectively create a safer transportation system through the Safe System Approach of creating safer roads, safer speeds, safer vehicles, and safer people. The Vision Zero Plan is a data-driven, comprehensive plan which outlines goals, strategies, and actions to further advance North Dakota's Vision Zero goal. The plan includes proven and evidence-based countermeasures, as well as new and innovative ways to improve safety for all North Dakota road users.

Since the launch of Vision Zero, North Dakota has achieved a 6.7 percent reduction in fatalities. We will continue to take aggressive action to address critical traffic safety issues, such as distracted driving, impaired driving, unrestrained occupants, and speeding through implementation of this updated plan. We ask the motoring public to share this responsibility by wearing a seat belt, using appropriate child passenger safety seats, driving sober and distraction-free and following all posted speed limits.

I want to thank all the individuals who helped make this plan a reality by offering their time and expertise to improve roadway safety across the State of North Dakota.

Sincerely,

Ronald J. Henke, PE
Director

12/km

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VISION ZERO
Zero fatalities. Zero excuses.


TO
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1 OVERVIEW

PURPOSE

Every year, traffic crashes cause serious injuries and even fatalities on North Dakota's roadways – no one should be seriously injured or lose their life while driving, riding, walking, biking, or rolling as part of their everyday activities. **Safety remains the number one priority amongst North Dakota's transportation officials and stakeholders to ensure all road users have access to a safe transportation experience.** As such, North Dakota has adopted the long-term Vision Zero strategy to eliminate all traffic fatalities and serious injuries.

Vision Zero is implemented through a variety of safety initiatives such as:

- **Redesigning streets** to reduce conflict points and encourage mobility while enhancing safety.
- Conducting high-visibility **enforcement of existing laws.**
- Integrating **technology innovations** that make vehicles, roads, and drivers safer.
- **Collaborating with the legislature** to ensure state laws represent best practices in traffic safety.
- Promoting campaigns to **educate communities** on safe driving behaviors and the Vision Zero safety strategy.

As mandated by 23 U.S.C. § 148 (c)(1), the Strategic Highway Safety Plan (SHSP) is a federally required statewide, comprehensive safety plan that provides a coordinated framework around which safety stakeholders unite to reduce highway fatalities and serious injuries on all public roads. North Dakota's SHSP, also known as the *Vision Zero Plan*, is a data-driven, comprehensive plan which outlines goals, objectives, and strategies to advance North Dakota toward zero fatalities.

The *2024 Vision Zero Plan* complies with Federal regulations and special rules, integrates the national Safe System Approach, and aligns with statewide and local transportation safety plans and programs. This includes the safety elements of North Dakota's Long-Range Transportation Plan (Transportation Connection), Statewide Transportation Improvement Program (STIP), Statewide Active and Public Transportation Plan (ND Moves), Commercial Motor Vehicle Safety Plan (CVSP), and Metropolitan Planning Organization (MPO) transportation plans. The *Vision Zero Plan* also outlines steps to develop, implement, and enhance North Dakota's Local Road Safety Program.

Two major Federal laws influenced the content and implementation of the North Dakota *Vision Zero Plan*: the Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation (FAST) Act. Under these laws, the Federal Highway Administration (FHWA) sets policy that guides the implementation and evaluation of the SHSP. FHWA published its Highway Safety Improvement Program (HSIP) Final Rules in the Federal Register (FR) (81 FR 13722) with an effective date of April 14, 2016. These regulations implemented the HSIP requirements established in MAP-21 and the FAST Act, and established clear requirements for updating the State's SHSP. A third piece of legislation, the Infrastructure Investment and Jobs Act (IIJA), also known as the "Bipartisan Infrastructure Law" (BIL) passed in 2021. One component of the BIL is the new requirement of States to complete a Vulnerable Road User Safety Assessment and incorporate it into the *Vision Zero Plan*.

Vulnerable Road User Safety Assessment

Vulnerable Road Users (VRUs) are classified by the Fatality Analysis Reporting System (FARS) as non-motorists, including **pedestrians, bicyclists, other cyclists, or person on personal conveyance.** VRUs account for a growing share of all roadway fatalities in the United States in recent years. Identifying and providing strategies, actions, and stakeholder engagement to protect VRUs is now a requirement under BIL to be completed by November 15, 2023 and incorporated into the *Vision Zero Plan*. Guidance related to conducting a VRU Safety Assessment was provided after a majority of the 2024 *Vision Zero Plan* engagement efforts and development occurred. Therefore, the VRU Safety Assessment will be amended to the 2024 *Vision Zero Plan* in Fall 2023.

Accomplishments

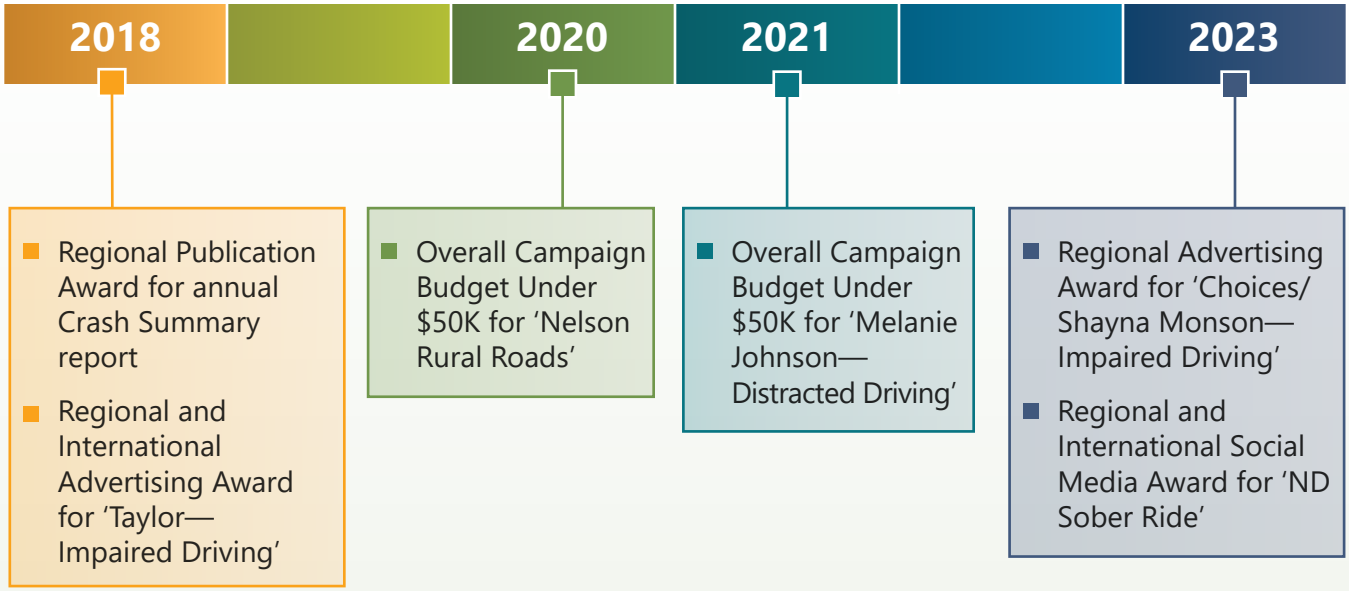
The *2024 Vision Zero Plan* is an update to the *2018 Vision Zero Plan*. Since the 2018 update, North Dakota has made significant progress in advancing behavioral and infrastructure traffic safety improvements to reduce traffic fatalities and serious injuries. Widespread public education and outreach, high-visibility enforcement, and roadway infrastructure safety improvements were the cornerstone of success to implementing the *2018 Vision Zero Plan,* and these themes have been carried over into the *2024 Vision Zero Plan.*

North Dakota experienced a total of 98 MOTOR VEHICLE CRASH FATALITIES *in 2022*

This is the **LOWEST NUMBER** *of* **CRASH FATALITIES** *in* **North Dakota** *in* **20 years**

BEHAVIORAL SAFETY PROGRAM SUCCESSES:

- The North Dakota Legislature passed a primary seat belt law that applies to all front and back seat occupants. The law went into effect on August 1, 2023.
- Four Vision Zero Regional Outreach Coordinators were added to implement Vision Zero strategies at the community level.
- Vision Zero Priority Emphasis Area teams comprised of expert stakeholders continued to convene to advance the strategies within the *Vision Zero Plan*. The Occupant Protection Priority Emphasis Area provided leadership and advocacy to pass the primary seat belt law.
- Fatalities from alcohol-involved motor vehicle crashes have decreased over the last five years.
- The ND Sober Ride program was introduced in 2021. More than 1,500 sober rides have been taken since the program launched.
- Impaired driving enforcement and adjudication were advanced through the work of the Driving Under the Influence (DUI) Task Force and the Traffic Safety Resource Prosecutor and Judicial Outreach Liaison positions.
- Responsible beverage server training was expanded statewide.
- Vision Zero Schools, a peer-to-peer program that allows students the opportunity to become traffic safety advocates, are being implemented across the State.
- Widespread information and education occurred through award-winning media campaigns with a human-interest focus. The NDDOT received the following awards through the American Association of Motor Vehicle Administrators:



INFRASTRUCTURE SAFETY PROGRAM SUCCESSES:

- **Received Operations Excellence award from the Western Association of State Highway and Transportation Officials for implementing first round of Safety Corridors and developing second round.**

- Constructed roundabout intersections and many more under development.
- Constructing high-tension median cable guardrail on the Interstate system.
- Constructed pedestrian improvements throughout the State, including rapid rectangular flashing beacons, enhanced signing and crosswalks, and leading pedestrian intervals.
- Implemented road diets.
- Continued installation of roadway lighting.
- Installed passing lanes on major corridors.
- Developing projects for the construction of reduced conflict intersections.
- Completed low-cost systemic projects on the state highway system, including enhanced intersection signing and pavement marking, curve signing, and intersection destination lighting.
- Continued policy of statewide edge and center line rumble strips on the state highway system.
- Ongoing implementation of the Local Road Safety Plans low-cost systemic safety measures throughout counties, cities, and reservations.

Features of the Plan

The ***2024 Vision Zero Plan*** includes the following features:

- Description of the Safe System Approach and its supporting principles and elements.
- *2024 Vision Zero Plan* Vision, Mission, and Goals.
- Analysis of North Dakota's traffic fatalities, serious injuries, and crash contributing factors.
- *2024 Vision Zero Plan* update timeline, leadership structure, and engagement approach.
- Priority Emphasis area profiles and supporting action plans.
- Description of the *2024 Vision Zero Plan* implementation and evaluation process.
- Vulnerable Road User Safety Assessment.

SAFE SYSTEM APPROACH

New to the *2024 Vision Zero Plan* update is the integration of the Safe System Approach. As outlined in the U.S. Department of Transportation's (DOT) National Roadway Safety Strategy, the Department adopted the Safe System Approach to address contributing traffic crash factors and build foundational layers of prevention, protection, and mitigation within the national roadway landscape. The Safe System Approach aims to protect all roadway users and has been proven to substantially reduce fatalities and serious injuries.

> "The Safe System Approach differs from traditional safety approaches in that it **acknowledges both human mistakes and human vulnerability,** and **designs a redundant system to protect everyone.**"
>
> – U.S. DOT National Road Safety Strategy

The foundation of a Safe System is built upon equity and a strong safety culture. Equity is defined as the fair distribution of transportation resources, benefits, costs, programs, and services that considers differences in income, geography, ability, and other factors. Equity also means providing all road users with access to affordable and reliable transportation regardless of the mode of transportation utilized.

A strong safety culture is achieved by collaboration internally within NDDOT, across agencies, and with the public to set clear roadway expectations. These expectations are that all roadway users shall be equally protected, and that everyone shares the responsibility to ensure Vision Zero is achieved.

North Dakota has chosen to integrate the Safe System Approach and its guiding principles and elements into the *2024 Vision Zero Plan* to make progress toward achieving zero fatalities.

The Safe System Approach is **GUIDED BY SIX PRINCIPLES:**

1 **FATALITIES AND SERIOUS INJURIES ARE UNACCEPTABLE—**The Safe System Approach recognizes that no person should be severely injured or die while traveling North Dakota's roadway system. This requires a transportation culture that places safety at the forefront of decision-making to reduce the number of severe crashes and achieve zero fatalities and serious injuries.

2 **HUMANS MAKE MISTAKES—**The Safe System Approach understands that nobody is infallible—all people make mistakes or decisions that contribute to roadway crashes. As a result, the roadway system should be planned, designed, and operated to accommodate expected human errors.

3 **HUMANS ARE VULNERABLE—**People can only tolerate limited crash impacts before getting seriously injured or worse. The Safe System Approach aims to manage the kinetic energy during a crash, resulting in fewer crash injury outcomes.

4 **RESPONSIBILITY IS SHARED—**Roadway safety is a shared responsibility among all users. These users include those operating a motor vehicle or utilizing the roadway, vehicle manufacturers, legislators, roadway designers, law enforcement, and first responders.

5 **SAFETY IS PROACTIVE—**The Safe System Approach identifies and implements strategies to proactively and systemically prevent crashes, as opposed to traditional safety approaches which focus on reacting after crashes occur.

6 **REDUNDANCY IS CRUCIAL—**Redundancy across the roadway system promotes synergy and helps ensure that if there is a weakness in one part of the system, other elements protect road users from serious injuries or fatality.

In addition to the six guiding principles, the Safe System approach incorporates **FIVE CORE ELEMENTS** to develop a holistic safety foundation.

1 **SAFE ROAD USERS—**All road users, including those walking, biking, riding, and driving, should always operate in a safe and responsible manner when on the roadway.

2 **SAFE SPEEDS—**Safer speed setting, education, and enforcement are promoted across all road environments to reduce kinetic forces associated with crashes to a tolerable level on the human body.

3 **SAFE VEHICLES—**Vehicles are designed incorporating the latest technology and used in appropriate ways (such as always wearing a seat belt) to minimize crash severity and frequency.

4 **SAFE ROADS—**Roads are designed to accommodate human mistakes, encourage safe behavior, and reduce crash severity and frequency. Safe roadway features separate users in space and time to prevent crashes from occurring and protect road users when a crash does occur.

5 **POST-CRASH CARE—**Receiving quick emergency medical care following a crash is essential to assist those who have been injured and to reduce fatalities. Post-crash care is a multilevel approach that includes strategies focused on traffic incident management, emergency response, and record keeping.

PLAN ORGANIZATION

The *2024 Vision Zero Plan* is organized into the following sections:

- **North Dakota's Traffic Safety Story** summarizes traffic safety trends and contributing factors that influence roadway crashes, fatalities, and serious injuries.
- The **Update Process** describes how safety partners and stakeholders were engaged to share their traffic safety perspectives, identify traffic safety priorities, and develop the *2024 Vision Zero Plan*.
- Each of the **11 Priority Emphasis Areas** of the *2024 Vision Zero Plan* are defined, provide additional data analysis, and identify a set of implementation strategies to support North Dakota's vision, mission, and goals. Each Priority Emphasis Area is also supported by a Priority Emphasis Area Action Plan provided in Appendix B.
- **Implementation and Evaluation** describes how the Emphasis Area strategies will be implemented and identifies mechanisms for tracking, evaluating, and monitoring plan implementation.

2 NORTH DAKOTA'S TRAFFIC SAFETY STORY

VISION, MISSION, AND GOAL

Motor vehicle crashes are a leading cause of injury-related fatalities in North Dakota. To truly value each life, everyone must believe that all traffic related fatalities are unacceptable and 100 percent preventable. This plan serves as a call to action to every road user in North Dakota.

VISION
Zero Fatalities

MISSION
Prevention of all traffic fatalities and serious injuries

GOAL
A culture of personal ***responsibility***

We believe that a strong safety culture will prevent traffic fatalities and serious injuries and help us reach **OUR VISION OF ZERO TRAFFIC FATALITIES**, including **75 fatalities or less by 2030.** We believe that the long-term vision of zero fatalities and serious injuries is attainable and vital, and can be achieved through the collaboration of safe road users, safe roads, safe speeds and vehicles, and post-crash care.

VISION
Zero Fatalities

How can we accomplish Vision Zero? First, we must assert that traffic fatalities and serious injuries are preventable and not tolerated. **OUR MISSION is to prevent all traffic fatalities and serious injuries on North Dakota's roadways.**

MISSION

Prevention of all traffic fatalities and serious injuries

GOAL

A culture of personal ***responsibility***

What does a strong safety culture look like? **OUR GOAL is to foster a culture of personal responsibility,** which recognizes that each person has a shared responsibility to prevent traffic fatalities and serious injuries in our communities.

A CULTURE OF PERSONAL RESPONSIBILITY

All Occupants Wear Seat Belts

Sober Driving

Distraction-Free Driving

Speed Limits Are Obeyed

Appropriate Child Passenger Safety Seats

STATE OF TRAFFIC SAFETY

Traffic crashes resulting in fatalities and serious injuries are focal to the Safe System Approach and the goals of the *2024 Vision Zero Plan*. They also are key data points for determining Priority Emphasis Areas and supporting the strategies most likely to address severe safety risks and contributing factors across the transportation system. NDDOT data including crash data, supplemented by roadway inventory and traffic volume data, was analyzed to determine the state of traffic safety.

Traffic crash data were reviewed for recent trends and contributing factors in fatal and serious injury crashes, as well as projected future totals based on those trends. Using five-year rolling averages, North Dakota was able to provide a better understanding to *2024 Vision Zero Plan* stakeholders of how crash trends are likely to continue. This allowed inclusion of potential outlier fatal and serious injury totals and years in which the COVID-19 pandemic may have impacted driver behaviors, vehicle-miles traveled (VMT), and crash totals.

Between 2017 to 2021, a total of 522 traffic-related fatalities and 2,018 serious injuries occurred in North Dakota. These 2017–2021 totals represent a decrease of over 25 percent and 22 percent respectively compared to the previous five years (2012–2016). Out of the total fatalities and serious injuries between 2017 and 2021, 77 percent occurred in rural areas on state system roadways and 68 percent involved male drivers. This section provides analysis of relative changes and contributions to fatal and serious injury totals across various Priority Emphasis Areas and factors.

Total Statewide Fatalities

North Dakota's traffic fatalities DECREASED *by* **19%** *from 2017 to 2021*

Between 2017 and 2021, **40%** *of* **fatalities** *occurred on* **locally owned roadways**

and **85%** *of* **fatalities** *occurred in* **RURAL AREAS**

As shown in Figure 1, traffic fatalities are projected to follow a downward trend, closely aligning with a 10 percent annual reduction by 2030. Based on these projections, **North Dakota is well positioned to achieve the vision of 75 or fewer fatalities by 2030.** However, continuing this downward trend will require an even stronger commitment to Vision Zero, in particular to eliminate the last few fatalities before reaching zero.

Figure 2 illustrates statewide fatalities between 2017 and 2021 broken down by counties. Williams, McKenzie, Grand Forks, and Cass Counties experienced the highest number of fatalities. Figure 3 breaks down occupant fatalities between 2017 and 2021 by age group. The age group between 25 and 34 accounted for over 21 percent of fatalities.

Figure 1. Fatality Totals by Year

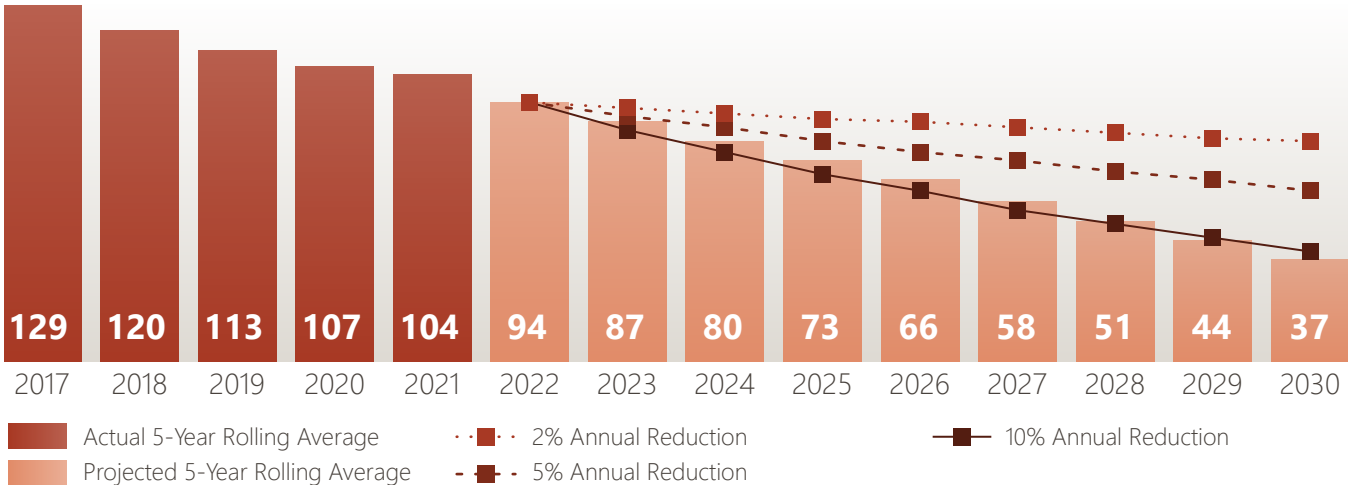


Figure 2. Statewide Fatalities by County, 2017–2021

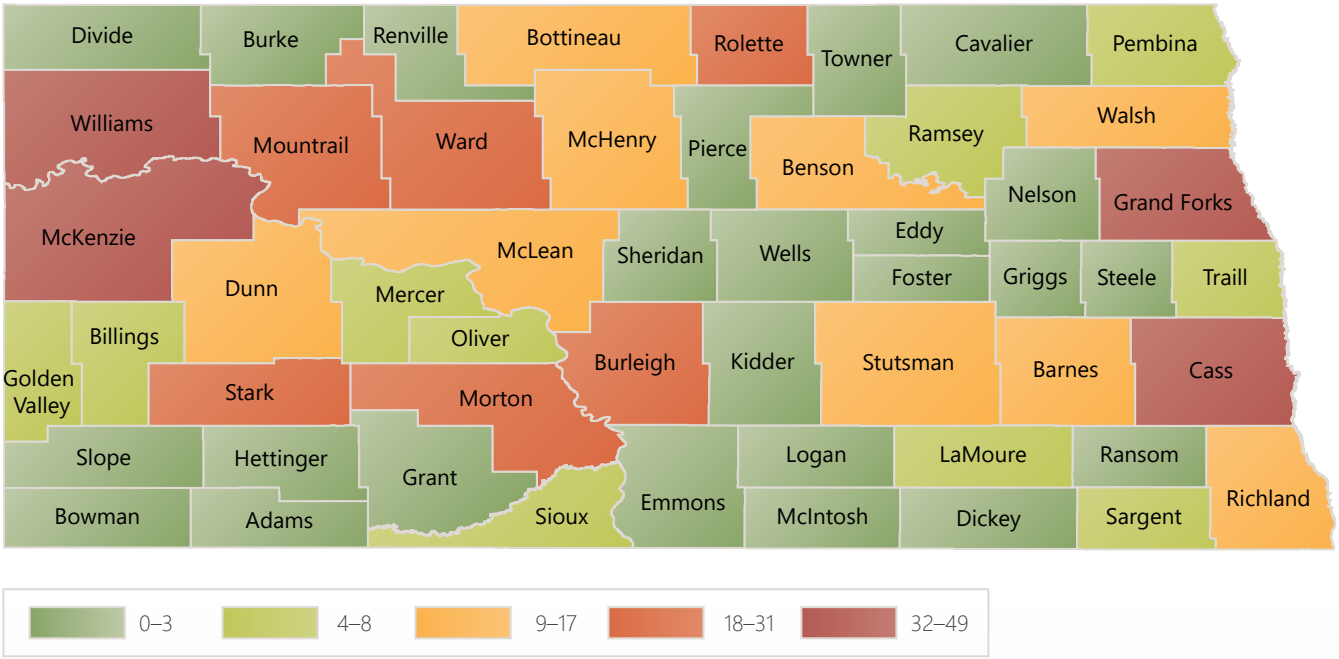
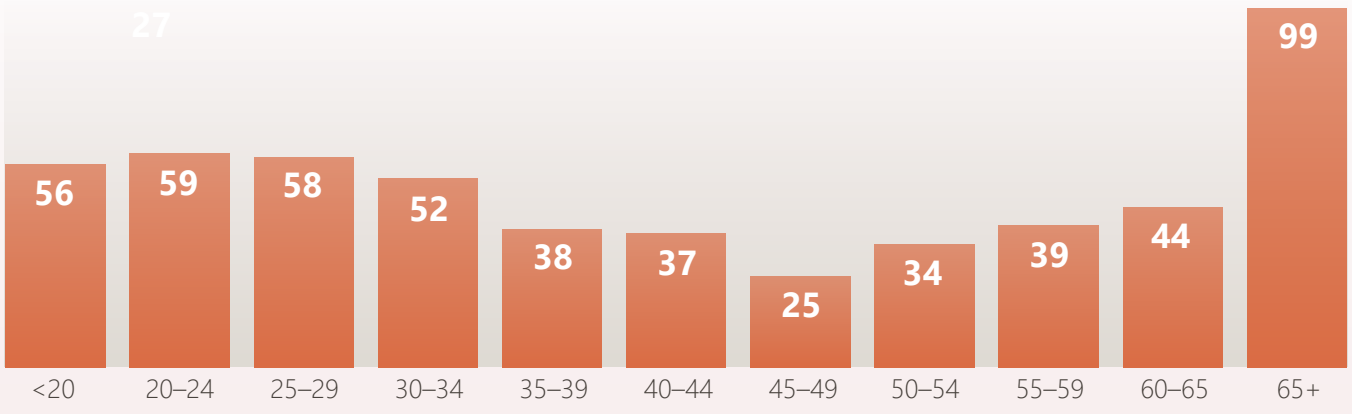


Figure 3. Occupant Fatalities by Age Group, 2017–2021

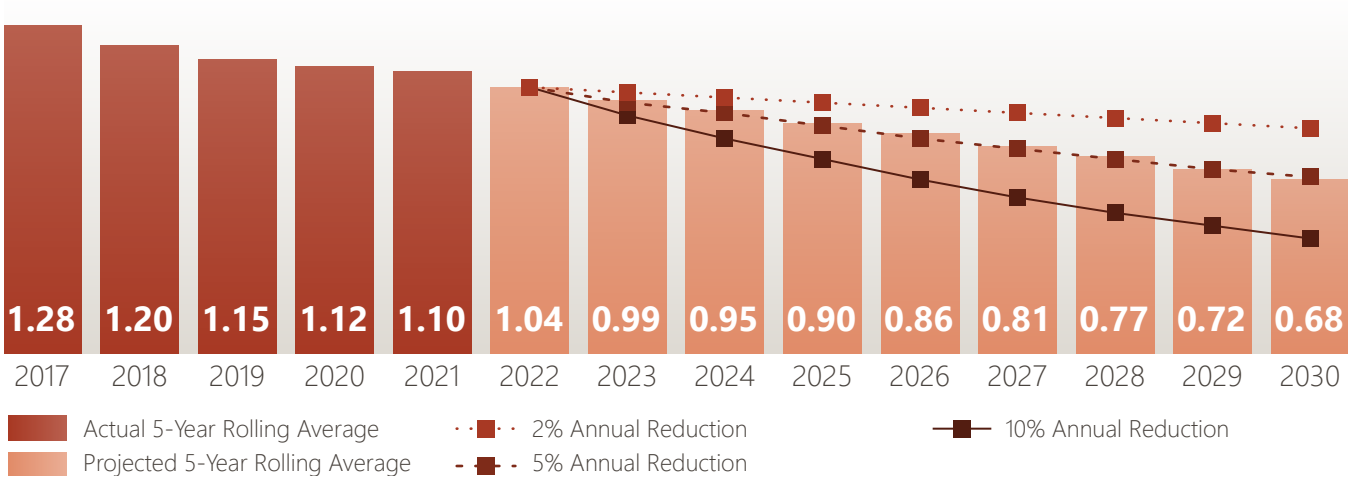


Note: Data show is for occupant and operator fatalities only.

Statewide Fatality Rates

Fatality rates are calculated by measuring the ratio of total annual fatalities to the annual number of VMT. As shown in Figure 4, North Dakota's fatality rate has declined since 2017. In 2021, **North Dakota's fatality rate was 1.10 per 100 million VMT, which fell below the national average** of 1.37 per 100 million VMT.

Figure 4. Fatality Rates by Year



Total Statewide Serious Injuries

North Dakota's traffic serious injuries

DECREASED *by* **18%**

between 2017 and 2021

As shown in Figure 5, serious injuries followed a downwards trend from 2017 to 2020 before slightly increasing in 2021. Serious injuries likely decreased in 2020 due to fewer drivers operating on North Dakota's roadways during the COVID-19 pandemic. However, **serious injuries are projected to follow a declining trend closely aligning with a 10 percent annual reduction by 2030.**

Figure 6 illustrates statewide serious injuries between 2017 and 2021 broken down by counties. Williams, Ward, Burleigh, and Cass Counties experienced the highest number of serious injuries. Figure 7 shows occupant serious injuries between 2017 and 2021 by age group. The age group below age 30 accounted for over 41 percent of the serious injuries.

Figure 5. Serious Injury Totals by Year

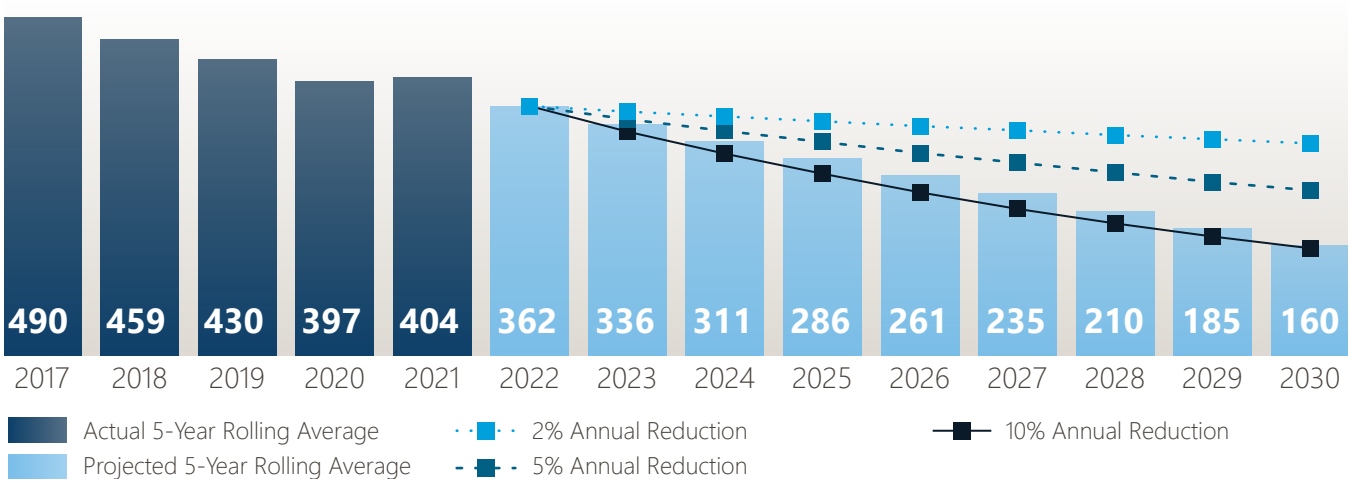


Figure 6. Statewide Serious Injuries by County, 2017–2021

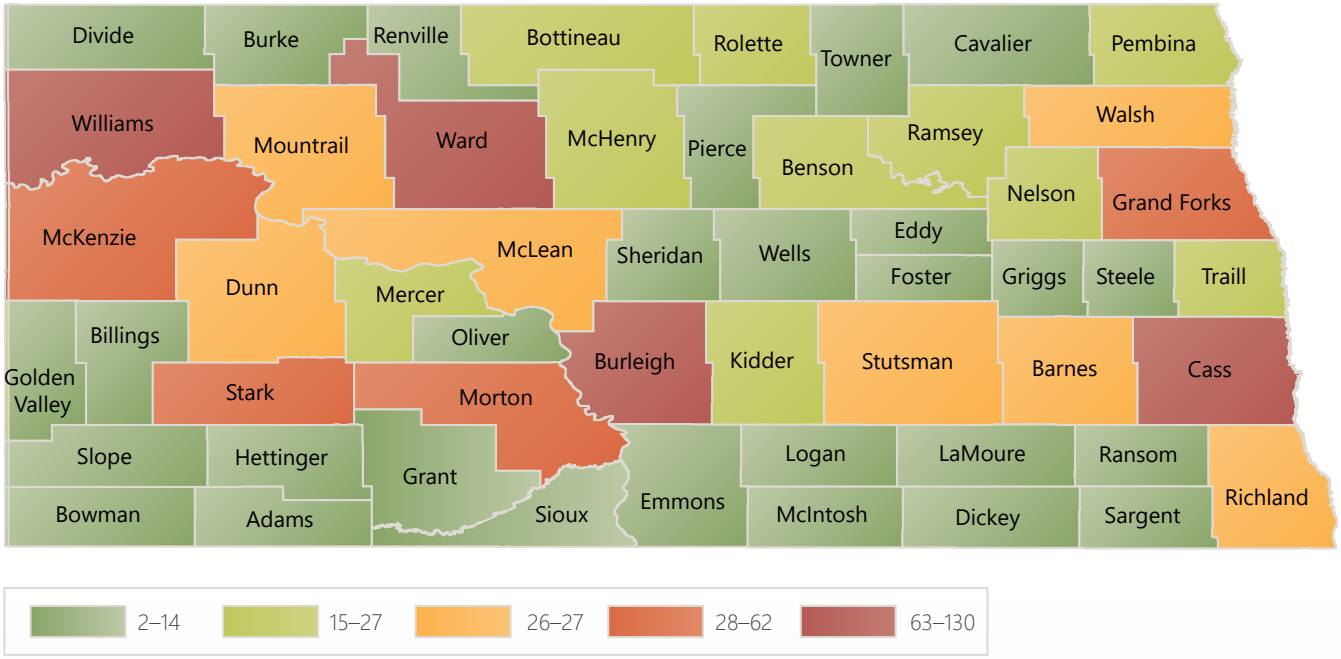
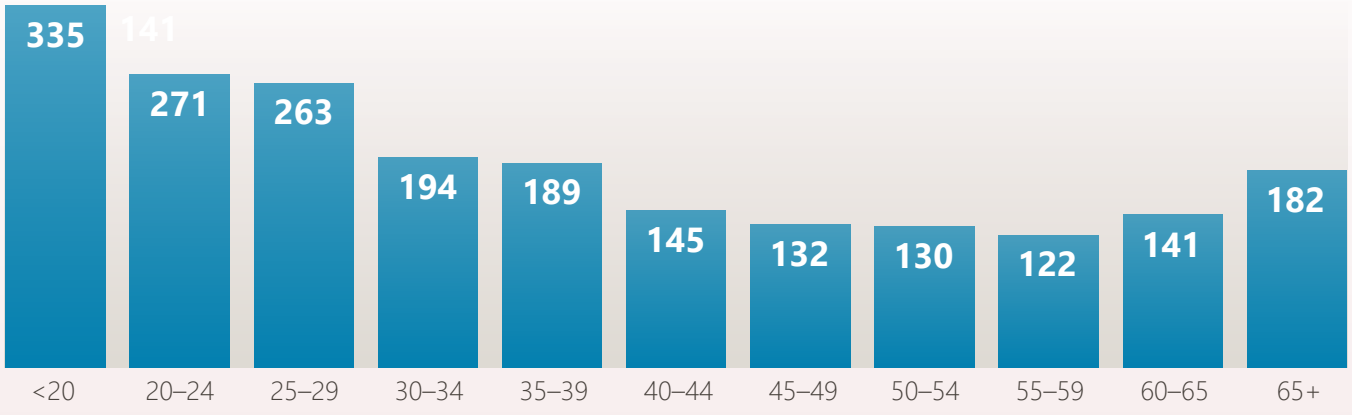


Figure 7. Occupant Serious Injuries by Age Group, 2017–2021

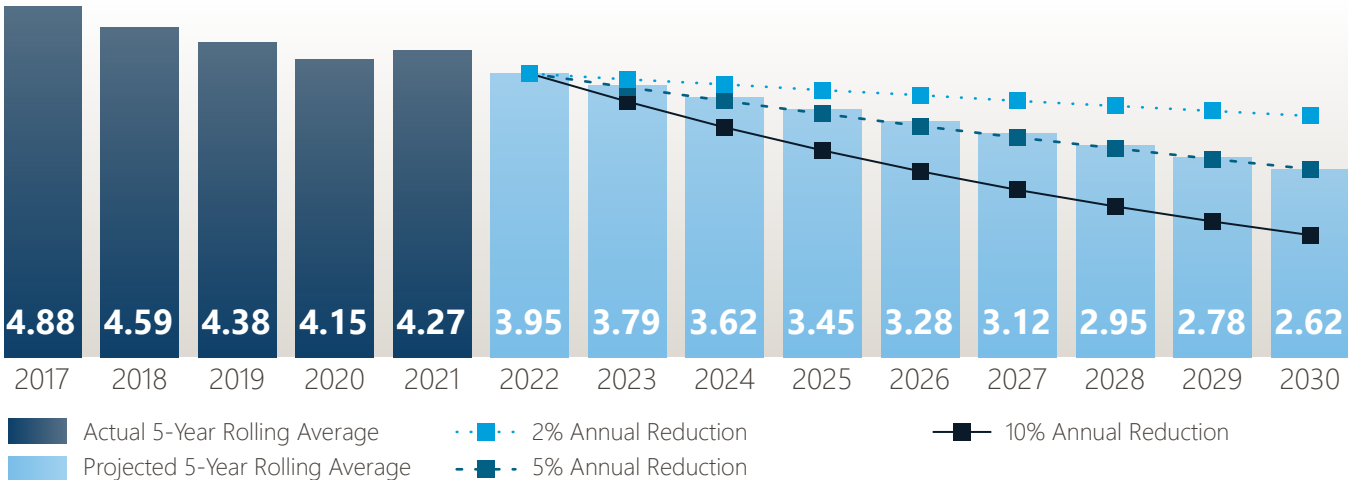


Note: Data show is for occupant and operator fatalities only.

Serious Injury Rates

Serious injury rates are calculated by measuring the ratio of total annual serious injuries to the annual number of VMT. As shown in Figure 8, serious injury rates declined since 2017, reaching 4.27 in 2021. Serious injury rates are **projected to follow a downwards trend and decrease by almost 50 percent by 2030**.

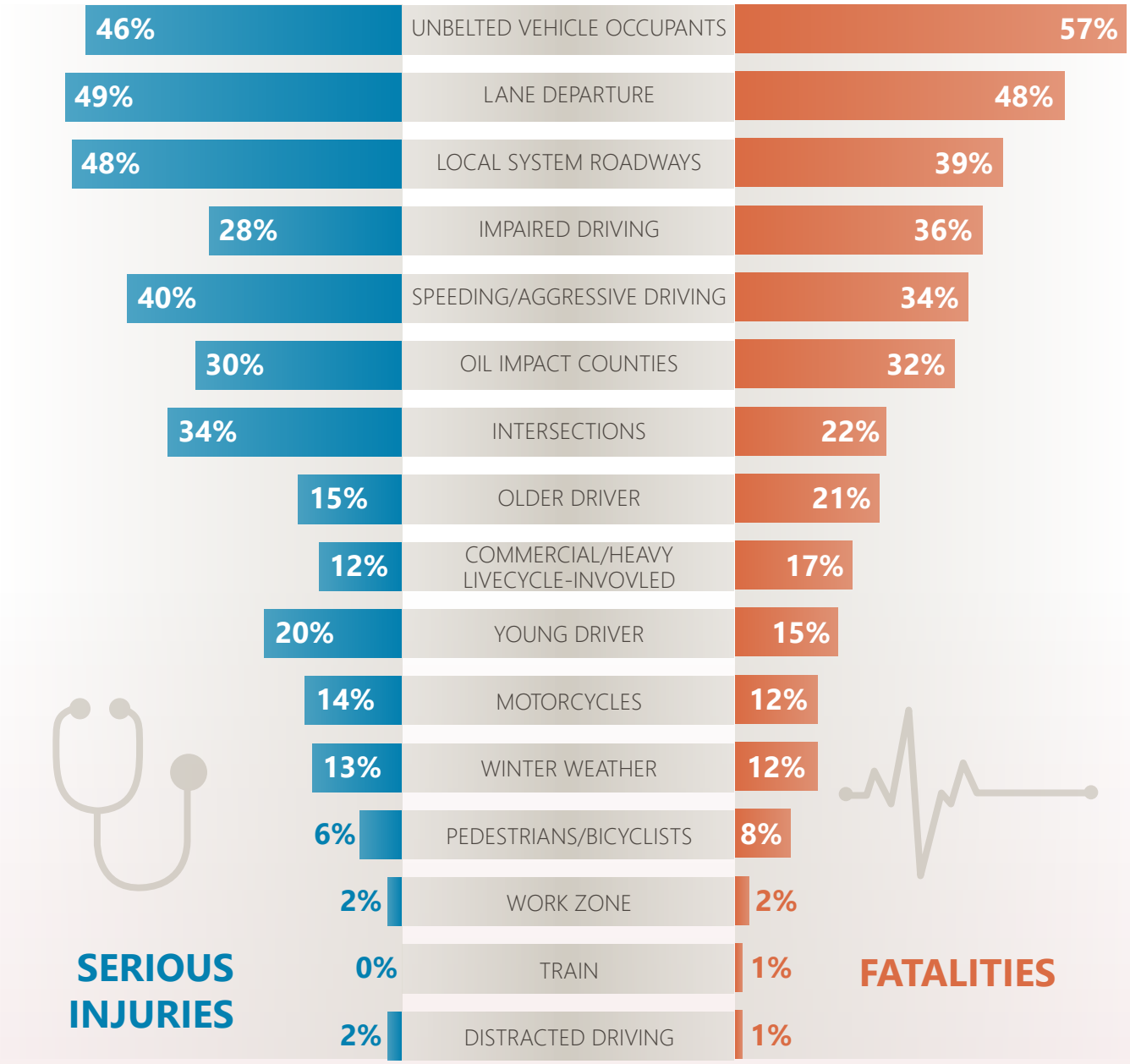
Figure 8. Serious Injury Rates by Year



Traffic Crash Contributing Factors

An analysis of North Dakota's traffic crashes between 2017 to 2021 was conducted to better understand the contributing factors. As shown in Figure 9, the top four factors contributing to North Dakota's traffic fatalities and serious injuries are unbelted vehicle occupants, lane departures, alcohol and/or drug related, and speeding/aggressive driving. The analysis also identified which types of traffic crashes often result in fatalities or serious injuries. For example, unbelted vehicle occupant crashes are more likely to result in a fatality, whereas crashes that occur at an intersection are more likely to result in serious injury.

Figure 9. Traffic Crash Contributing Factors



Traffic Crash Contributing Factors for **FATALITIES** in North Dakota between 2017 and 2021

REDUCTIONS in **FATALITIES**

- SPEEDING/ AGGRESSIVE DRIVING
- COMMERCIAL/ HEAVY VEHICLE-INVOLVED
- LANE DEPARTURE
- INTERSECTIONS
- MOTORCYCLES
- UNBELTED VEHICLE OCCUPANTS
- IMPAIRED DRIVING

INCREASES in **FATALITIES**

- LOCAL ROADS
- PEDESTRIANS AND BICYCLISTS
- YOUNG DRIVERS (≤20)
- OLDER DRIVERS (65+)

Traffic Crash Contributing Factors for **SERIOUS INJURIES** in North Dakota between 2017 and 2021

REDUCTIONS in **SERIOUS INJURIES**

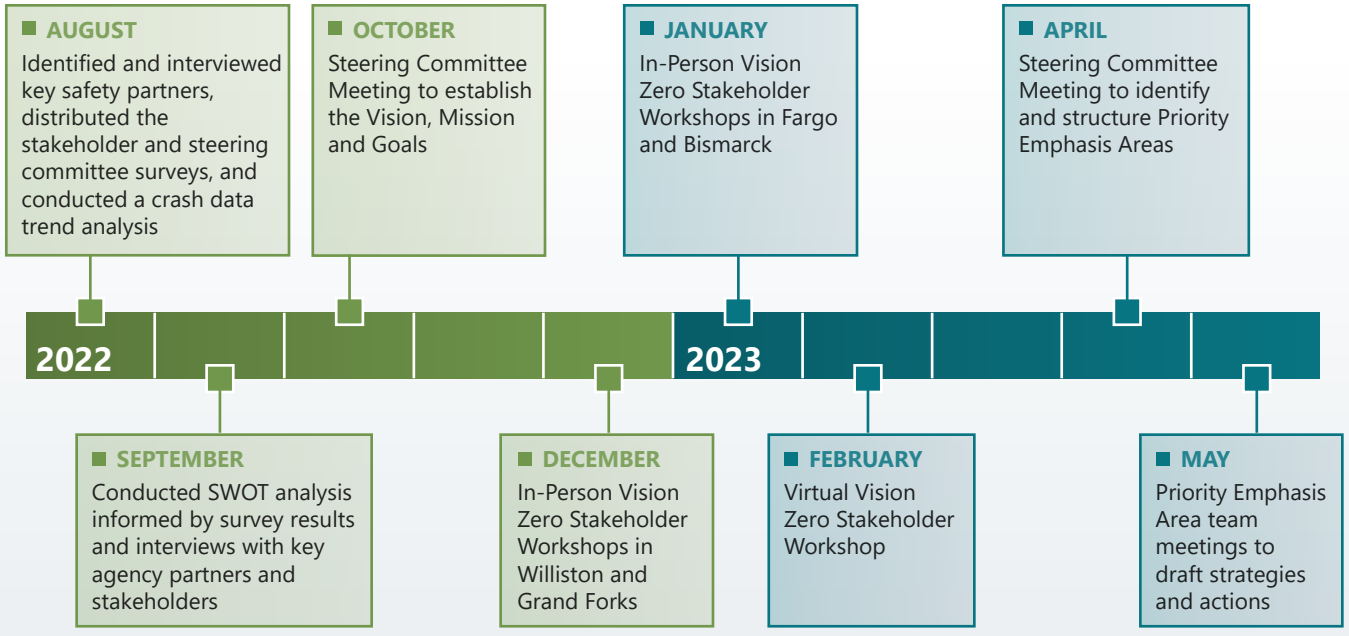
- COMMERCIAL/ HEAVY VEHICLE-INVOLVED
- LOCAL ROADS

INCREASES in **SERIOUS INJURIES**

- SPEEDING/ AGGRESSIVE DRIVING
- UNBELTED VEHICLE OCCUPANTS
- IMPAIRED DRIVING
- PEDESTRIANS AND BICYCLISTS
- MOTORCYCLES
- OLDER DRIVERS (65+)
- YOUNG DRIVERS (≤20)
- LANE DEPARTURE
- INTERSECTIONS

3 UPDATE PROCESS

North Dakota's *Vision Zero Plan* is federally required to be updated every five years. The *2024 Vision Zero Plan* update process began in 2022 by convening the Steering Committee and identifying key safety partners and stakeholders. Updating the plan provided an opportunity to reflect on the progress the State has made to date. The update identified opportunities to improve data analysis, reorganize the plan structure, and expand partner engagement through implementation and evaluation. The update process also ensured that the *Vision Zero Plan* aligns with existing and new transportation planning and program initiatives in the State.

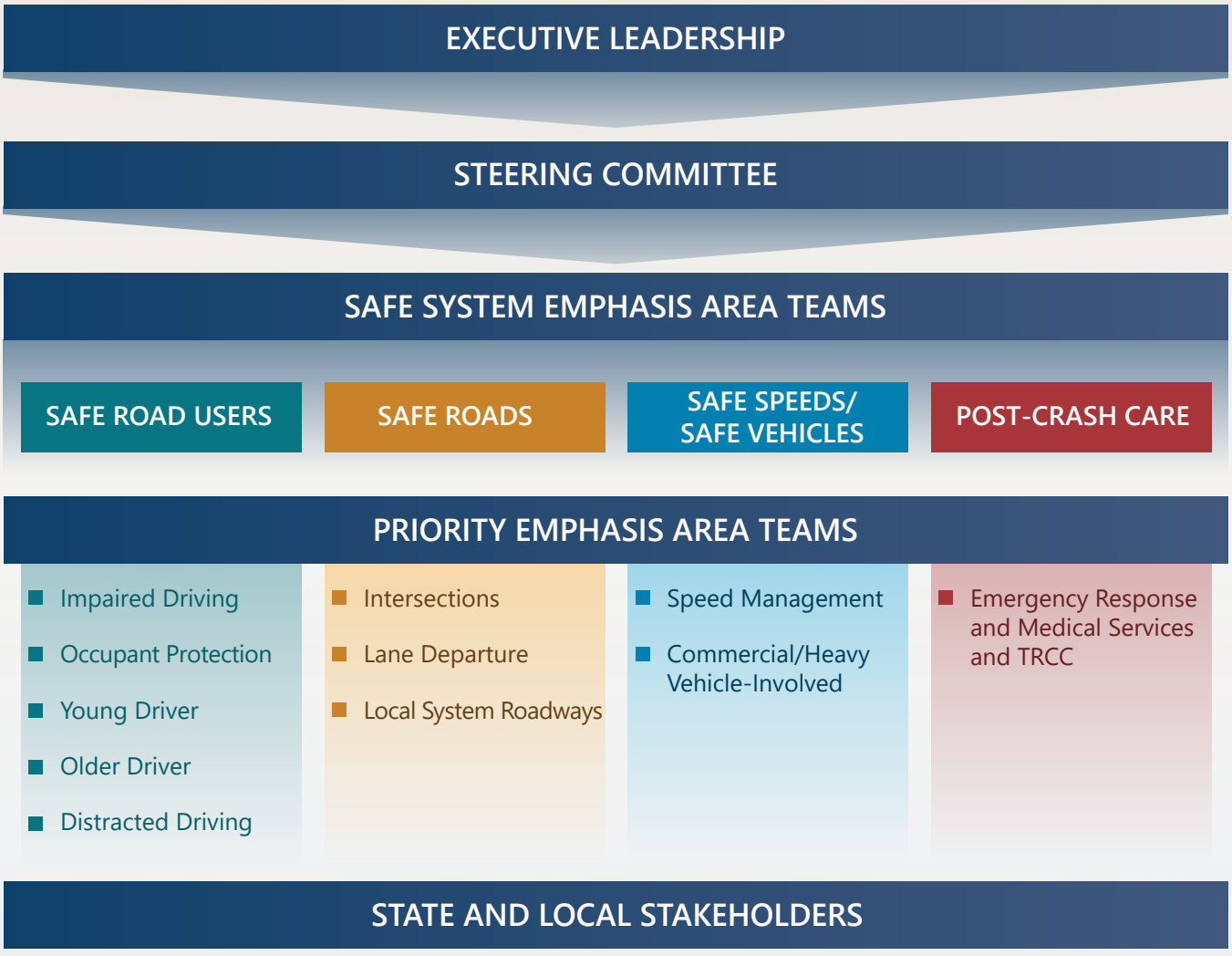


VISION ZERO LEADERSHIP STRUCTURE

The update process focused on continued engagement at all levels of the Vision Zero Leadership Structure. At the core of the Vision Zero Leadership Structure includes all state and local stakeholders such as MPOs, law enforcement, Tribal community members, county transportation officials, public health and prevention specialists, and others who represent the 4 Es of Traffic Safety: Education, Enforcement, Engineering, and Emergency Response.

These stakeholders serve as Safe System Emphasis Area and Priority Emphasis Area team members, led by members of the Steering Committee. The Steering Committee includes safety champions who make impact-focused decisions to develop, track, and evaluate plan implementation. The *Vision Zero Plan* also is supported statewide by North Dakota's Executive Leadership.

VISION ZERO LEADERSHIP STRUCTURE



PLAN COORDINATION

The 2024 *Vision Zero Plan* identifies the State's key safety needs and guides investment decisions towards strategies and countermeasures with the most potential to save lives and prevent injuries. The plan informs the North Dakota Highway Safety Plan (HSP), Highway Safety Improvement Program (HSIP), and Statewide Transportation Improvement Program (STIP).

The NDDOT Highway Safety Division is responsible for coordinating the *Vision Zero Plan* to ensure Federal compliance, report on Priority Emphasis Areas, and integrate the Priority Emphasis Area strategies and actions within North Dakota's safety plans, programs, and activities. Priority Emphasis Areas were determined through data-driven analysis to reach North Dakota's long-term safety goals. The *2024 Vision Zero Plan* goals and strategies align with various state and local plans, including *ND Moves: Statewide Active and Public Transportation Plan*, *Long-Range Transportation Plan (Transportation Connection)*, *State Freight and Rail Plan*, and *Commercial Vehicle Safety Plan*.

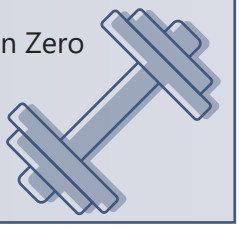
The *2024 Vision Zero Plan* also was developed in coordination with the *North Dakota Seat Belt Report* and the *Local Road Safety Program*. In 2022, the North Dakota's Highway Safety Division and U.S. DOT National Highway Traffic Safety Administration (NHTSA) coordinated to develop the *Seat Belt Use in North Dakota* report, based on a field survey of driver and right front seat passenger seat belt use. The Local Road Safety Program was prepared using a data-driven process as part of North Dakota's statewide highway safety planning process. The Local Road Safety Program has the goal to reduce severe crashes by documenting at-risk locations, identifying effective low-cost safety improvement strategies, and better positioning each region in North Dakota to compete for available safety funds.

STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS (SWOT) ANALYSIS

North Dakota began the *2024 Vision Zero Plan* update process by distributing surveys to both the Steering Committee and traffic safety stakeholders, as well as conducting in-depth interviews with key agency partners to gain perspective and insights on the previous *2018 Vision Zero Plan*. These perspectives were used to inform a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis. The SWOT analysis played an important role in the *2024 Vision Zero Plan* update, as it identified **what went well (STRENGTHS)** when implementing the *2018 Vision Zero Plan*, **what did not go well (WEAKNESSES), what opportunities exist to improve the process going forward (OPPORTUNITIES),** and **potential challenges to a successful update process (THREATS).**

STRENGTHS

- Collaboration among safety partners
- Leadership support of Vision Zero
- Plan structure



WEAKNESSES

- Lack of access to data
- Lack of support for implementation of select safety strategies
- Lack of more specific or tailored marketing strategy

OPPORTUNITIES

- Expand education and outreach efforts
- Expand safety partnerships and stakeholder involvement

THREATS

- Lack of unified safety beliefs/ attitudes among communities and elected officials
- Lack of safety policy implementation

Safety stakeholders also believed that indifferent attitudes and beliefs towards traffic safety result in risky driving behaviors, such as driving under the influence of alcohol or drugs.

VISION ZERO STAKEHOLDER ENGAGEMENT APPROACH

Vision Zero Plan Stakeholder Engagement

Expanding awareness of the *2023 Vision Zero* update process and invitation to participate

In-Person Regional and Virtual Stakeholder Workshops

Leveraging stakeholder input to determine Priority Emphasis Areas

Priority Emphasis Area Team Engagement

Leveraging experience from Priority Emphasis Area teams to develop safety strategies and actions

2023 Vision Zero Plan Update

Communication outreach to Vision Zero participating and non-participating stakeholders

STAKEHOLDER ENGAGEMENT

Following the SWOT analysis, North Dakota conducted a performance review of the State's progress toward meeting the *2018 Vision Zero Plan* mission and goals. This process evaluated traffic safety data by key crash contributing factors to identify existing trends and provide an understanding of North Dakota's fatalities and serious injuries. The Steering Committee leveraged these information sources to define and support the Plan's vision, mission, and goals for the next five years.

Once the *2024 Vision Zero Plan* vision, mission, and goals were defined, North Dakota invited stakeholders to attend and participate in a series of stakeholder workshops. Four in-person workshops took place in Williston, Bismarck, Fargo, and Grand Forks, as well as one virtual meeting. Almost 200 stakeholders participated in person or virtually to share their traffic safety experiences, review traffic safety data, identify Priority Emphasis Areas, and discuss potential implementation strategies.

Stakeholders were also given the opportunity to sign up to participate in Priority Emphasis Area or Safe System Emphasis Area teams. Each Priority Emphasis Area team is championed by a Priority Emphasis Area leader, who led the development of drafting recommended strategies and actions for implementation.

PARTNERS

North Dakota partnered with Federal, State, and local stakeholders to update the *2024 Vision Zero Plan*. These stakeholders represent the 4 Es of Traffic Safety: Education, Engineering, Enforcement, and Emergency Response.

FEDERAL PARTNERS:

Federal Motor Carrier Safety Administration (FMCSA) North Dakota Division, FHWA North Dakota Division, and NHTSA Region 8.

STATE AND LOCAL PARTNERS:

- Those who serve on the Vision Zero Executive Leadership Team including NDDOT, the ND Attorney General's Office, ND Department of Public Instruction, ND Health and Human Services (NDHHS), ND Highway Patrol, ND Indian Affairs Commission, ND Workforce Safety and Insurance, and others
- Community Outreach – North Dakota Vision Zero Coordinators, NDHHS Tribal Health Liaisons
- Driver education schools – both private and public
- Education institutions – state, local
- Elected officials – state, county, city
- Enforcement – state, county, city, tribal
- Engineering – state, county, city, consultants
- Emergency Medical Services – public, private
- Insurance agencies
- Judicial Outreach Liaison, District Judges, state and private attorneys/county prosecutors
- Local community representatives/private citizens

STATE AND LOCAL PARTNERS (CONTINUED):

- Local government including risk managers, city and county commissioners, city and county auditors, city and county transportation engineers and/or consultants, local public health units, city and county law enforcement, and Metropolitan Planning Organizations
- Motor carrier representatives – federal, state
- New Americans, Foreign-born, and Immigrants (NFI) Health Liaison, Health Equity Office, NDHHS
- Non-motorist representation – pedestrian, bicycle, and transit
- Non-profit organizations serving socioeconomically disadvantaged populations
- Professional associations and their members including the ND Emergency Medical Services Association, ND Association of Counties, ND Motor Carriers Association, ND League of Cities, agricultural associations (sunflower, grain, corn growers, etc.), the American Society of Highway Engineers (ASHE) Central Dakota Chapter, the ND Petroleum Council, the ND Sheriff's Association
- Public health and human services staff – state, county, city
- Private sector organizations registered with the ND Vision Zero Network (about 120 companies and organizations including schools, businesses, health care facilities, and others)
- Rail representation – Operation Lifesaver
- Road maintenance – state, county, city
- Tribal representatives – tribal transportation engineers and consultants, tribal health liaisons employed by the NDHHS
- Traffic safety advocacy groups
- Transportation planning – state, regional, county, city, consultants

4 PRIORITY EMPHASIS AREAS

Priority Emphasis Areas represent the key crash contributing factors with the greatest potential to reduce North Dakota's traffic fatalities and serious injuries. The Steering Committee reviewed traffic data from 2017 to 2021 to identify overrepresented crash types and driving behaviors to determine the 11 Priority Emphasis Areas. The Priority Emphasis Areas are organized and presented under Safe System Emphasis Areas.

SAFE ROAD USERS

Priority Emphasis Areas:

- IMPAIRED DRIVING
- OCCUPANT PROTECTION
- YOUNG DRIVER
- OLDER DRIVER
- DISTRACTED DRIVING

Additional Safe Road User Focus Areas:

- PEDESTRIANS/BICYCLISTS
- MOTORCYCLES

SAFE SPEEDS/SAFE VEHICLES

Priority Emphasis Areas:

- SPEED MANAGEMENT
- COMMERCIAL/HEAVY VEHICLE-INVOLVED

Additional Safe Speeds/Safe Vehicles Focus Areas:

- SAFE VEHICLE TECHNOLOGIES

SAFE ROADS

Priority Emphasis Areas:

- INTERSECTIONS
- LANE DEPARTURE
- LOCAL SYSTEM ROADWAYS

POST-CRASH CARE

Priority Emphasis Areas:

- EMERGENCY RESPONSE/ MEDICAL SERVICES AND TRCC

This organization aligns with the national Safe System Approach and allows stakeholders to participate in overlapping Priority Emphasis Area implementation efforts that fall within the overarching Safe System Emphasis Areas. The following sections define each Priority Emphasis Area, provide traffic crash statistics and related contributing factors, and present strategies to implement safety improvements.

SAFE ROAD USERS

The Safe System Approach recognizes that all road users have a personal responsibility to act in a responsible manner and comply with North Dakota's traffic safety laws. The Safe Road Users element of the Safe System Approach is implemented through education, enforcement, and engineering strategies. These strategies aim to educate road users about the consequences of dangerous driving behaviors (such as driving while impaired), enforce traffic safety rules (such as driving with a seat belt), and develop a transportation system which protects all road users, especially those that are vulnerable.

The Safe Road Users Emphasis Area includes five Priority Emphasis Areas: **Impaired Driving, Occupant Protection, Young Driver, Older Driver,** and **Distracted Driving.** In addition, the Safe Road Users Emphasis Area also considers two groups of vulnerable road users as additional Focus Areas: *Pedestrians/ Bicyclists and Motorcyclists.* Developing and operating a Safe System means that all road users remain safe, regardless of their transportation mode choice, abilities, or age.

Vulnerable road users have the same roadway privileges and responsibilities as motor vehicle drivers, yet they are more at risk when involved in a traffic crash due to their lack of protection. **Between 2017 and 2021, a total of 42 pedestrians/bicyclists fatalities and 131 serious injuries occurred in North Dakota.** As a pedestrian or bicyclist, it is important to stay alert and visible to traveling motorists, avoid traveling in close proximity to motor vehicle traffic, and never assume that a driver sees you in the roadway.

Between 2017 and 2021, a total of 65 motorcycle fatalities and 279 serious injuries occurred in North Dakota. It is important for motorcyclists to wear protective gear (including a helmet, face protection, riding suit or jacket/pants, boots, gloves, rain gear, and hearing protection) and engage in safe riding behaviors. All new and experienced riders are encouraged to take safety education courses provided through the North Dakota Motorcycle Safety Program (NDMSP).

Priority Emphasis Area

IMPAIRED DRIVING

Impaired driving refers to drivers who operate a motor vehicle while under the influence of alcohol or drugs. **Nearly every 13 hours, one alcohol-related traffic crash occurs in North Dakota.**[1] Driving in any state of impairment puts all road users at risk.

In North Dakota, it is unlawful to operate a vehicle with a blood alcohol concentration (BAC) of .08 grams per decaliter (g/dL) or more. Impaired driving hinders the driver's abilities, judgment, and reaction time. Impairment often results in dangerous driving behaviors such as weaving outside of the travel lane, driving without headlights, speeding, or failing to stop. North Dakota believes that fatalities and arrests from driving while impaired are 100 percent preventable.

To reduce the number of impaired drivers on the roadways, North Dakota conducts the Sober Ride Program and the 24/7 Sobriety Program. The North Dakota Sober Rider Program provides vouchers for discounted Lyft rides during holidays and events to provide a safe transportation alternative and deter impaired driving. In addition, the 24/7 Sobriety Program aims to reduce the number of drivers who have repeatedly been convicted of DUI offenses by mandating sobriety for these offenders 24 hours per day and 7 days a week through daily testing.

Between 2017 and 2021,
impaired driving fatalities
DECREASED *by* **24%**
while
serious injuries
INCREASED *by* **19%**

Within this time period,
82% *of all* **impaired driving fatalities** *occurred in* **RURAL AREAS**

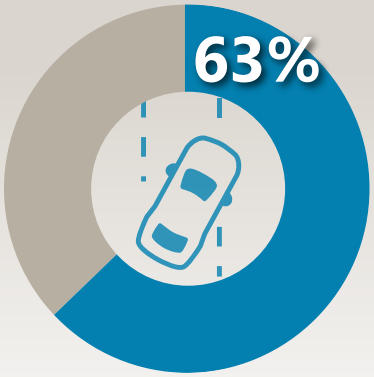
MALE DRIVERS *represented* **78%** *of* **impaired driving fatalities**

[1] North Dakota Vision Zero, Impaired Driving: https://visionzero.nd.gov/strategies/ImpairedDriving/

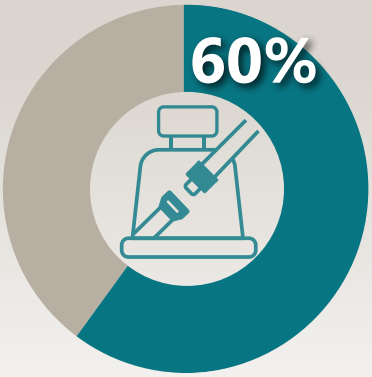
Impaired Driving Fatalities and Serious Injuries, 2017–2021

Note: Combined alcohol and drug data is shown.

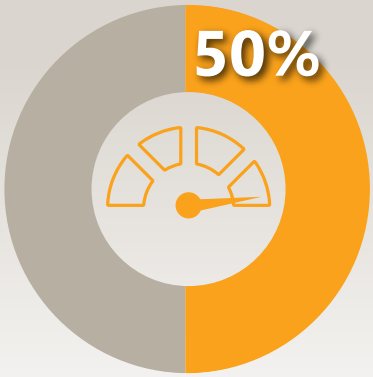
Top Three Fatality and Serious Injury Contributing Factors for Impaired Driving



LANE DEPARTURE



UNBELTED VEHICLE OCCUPANTS



SPEEDING/AGGRESSIVE DRIVING

Impaired Driving Strategies

- **STRATEGY 1:** Implement policies and support research efforts to address impaired driving.
- **STRATEGY 2:** Support equitable enforcement, training, and adjudication of impaired driving laws.

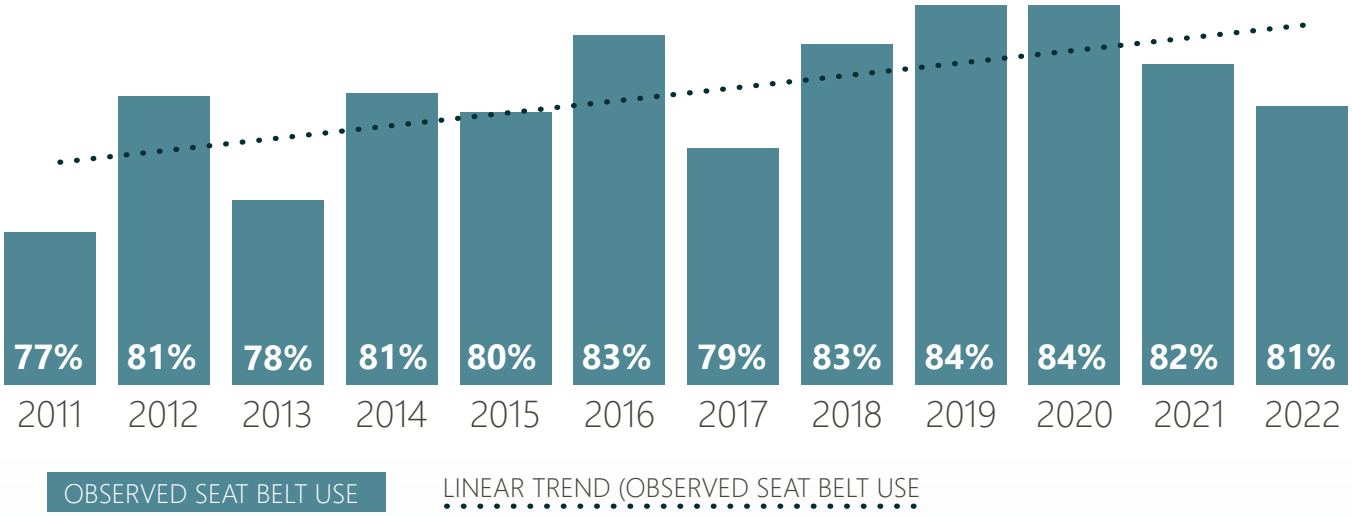
Priority Emphasis Area

OCCUPANT PROTECTION

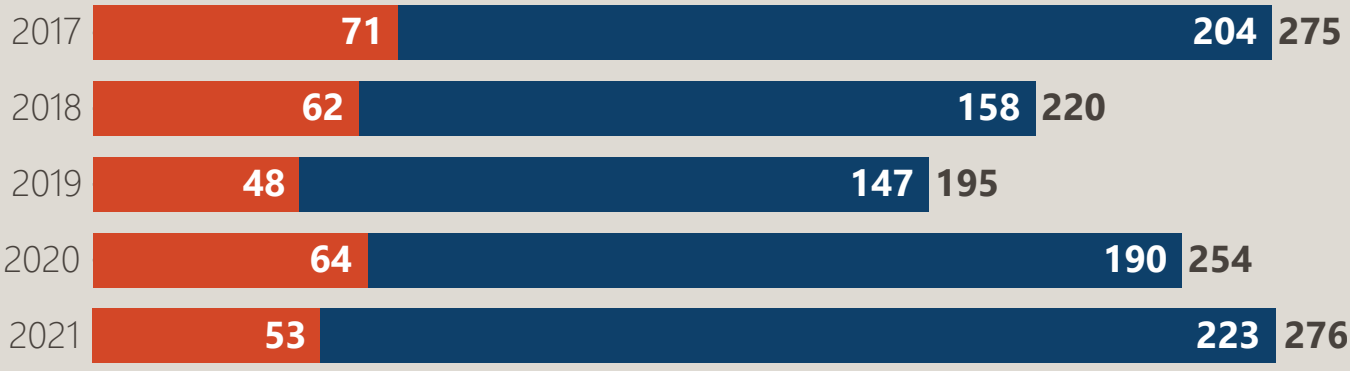
Occupant protection includes traffic safety protection methods such as seat belts, child car seat use, and helmets. In North Dakota, **unbelted vehicle occupants are the top contributing factor in fatality and serious injury traffic crashes.** Buckling your seat belt is a safe and easy choice that limits potentially fatal consequences of traffic crashes by protecting the human body from potential impact forces.

As shown in the chart below, North Dakota's observed seat belt use rate between 2011 to 2022 increased marginally over time through 2019, then dropping slightly to an 80.6 percent compliance rate in 2022. This observed seat belt usage rate is over 11 points lower than the national average of 91.6 percent.

PERCENT OF OBSERVED SEAT BELT USE, 2011–2022



Occupant Protection Fatalities and Serious Injuries, 2017–2021



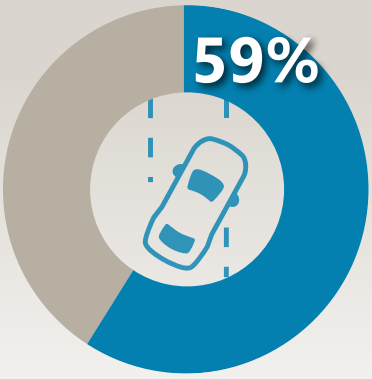
North Dakota's previous traffic laws did not allow primary seat belt enforcement, which hindered noncompliance enforcement of seat belt use by drivers and occupants. However, on August 1, 2023, North Dakota's Primary Seat Belt Law was enacted and enforced statewide. Passing the Primary Seat Belt Law reinforces North Dakota's commitment to developing a Safe System by requiring all front and back seat vehicle occupants to buckle their seat belts regardless of age.

Between 2017 and 2021,
unbelted occupant fatalities
DECREASED *by* **25%**
while
serious injuries
INCREASED *by* **9%**

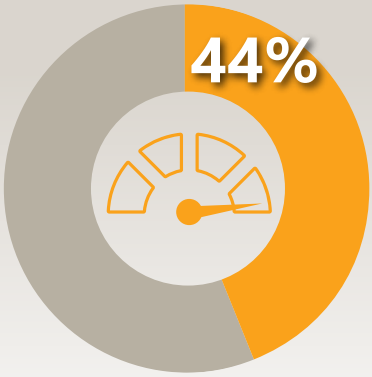
Within this time period,
50% *of all* **unbelted fatalities and serious injuries** *occurred on* **STATE SYSTEM ROADWAYS** *and*
77% *occurred in* **RURAL AREAS**

In addition,
70% *of all* **unbelted vehicle occupant fatalities and serious injuries** *involved a* **MALE** *who was* **UNRESTRAINED**

Top Three Fatality and Serious Injury Contributing Factors for Occupant Protection



LANE DEPARTURE



SPEEDING/AGGRESSIVE DRIVING

IMPAIRED DRIVING

Occupant Protection Strategies

- **STRATEGY 1:** Promote and educate the public and law enforcement on the primary seat belt and child restraint laws.
- **STRATEGY 2:** Implement policies and support research efforts to enhance occupant protection.
- **STRATEGY 3:** Promote statewide education and training of child restraint best practices.

Priority Emphasis Area

YOUNG DRIVERS

Young driver crashes involve operators ages 14 to 20. Young drivers lack experience and are inherently prone to making mistakes. **Young drivers are more susceptible to all forms of distraction, such as talking to other passengers and texting while driving**, which significantly reduces their ability to react to roadway hazards or inclement weather.[2] Young drivers, like all drivers, have the responsibility to make safe driving choices.

North Dakota supports Vision Zero Schools to teach young drivers about responsible decision-making when behind the wheel. Vision Zero Schools believe in a culture of personal responsibility and recognize that all traffic fatalities and serious injuries are preventable.[3] These schools promote dedication to traffic safety by giving students the opportunity to become traffic safety advocates within their communities. North Dakota also supports Alive at 25, a program that provides a defensive driving education course to drivers aged 25 and younger focused on safe driving behaviors, judgment, and decision-making.[4]

[2] NHTSA, Teen Driving: https://www.nhtsa.gov/road-safety/teen-driving

[3] North Dakota Vision Zero, Vision Zero Schools: https://visionzero.nd.gov/partners/visionzeroschools/

[4] North Dakota Safety Council, Alive at 25: https://www.ndsc.org/alive-at-25-defensive-driving-course/

Between 2017 and 2021,

young driver fatalities

INCREASED *by* **60%**

and

serious injuries

INCREASED *by* **3%**

Compared to 2017,

young driver fatalities

and

serious injuries

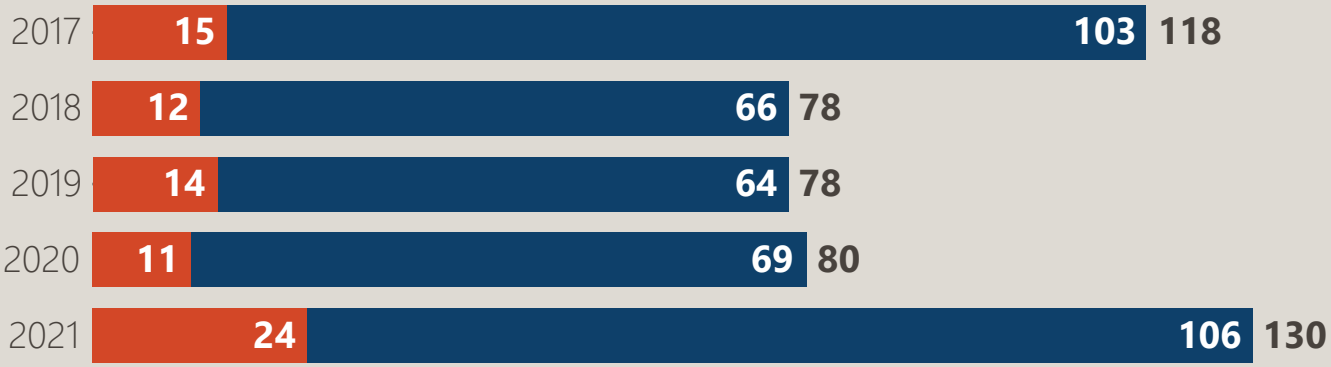
experienced a

DECLINE

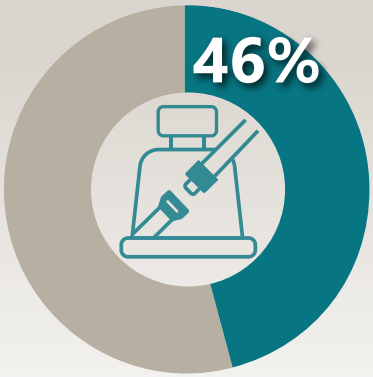
from 2018 to 2020 before

INCREASING *in 2021.*

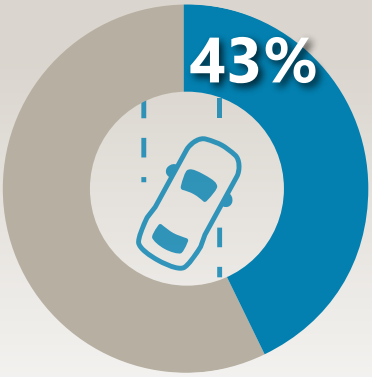
Young Drivers Fatalities and Serious Injuries, 2017–2021



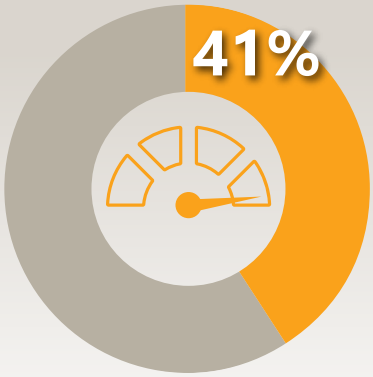
Top Three Fatality and Serious Injury Contributing Factors for Young Drivers



UNBELTED VEHICLE OCCUPANTS



LANE DEPARTURE



SPEEDING/AGGRESSIVE DRIVING

Young Driver Strategies

STRATEGY 1: Implement best practices and incorporate into State and local policies actions to enhance young driver safety.

Within the 2017 to 2021 time period,

48% *of all* **young driver fatalities and serious injuries** *occurred on* **STATE SYSTEM ROADWAYS**

and

71% *occurred in* **RURAL AREAS**

In addition,

73% *of all* **young driver fatalities** *involved a* **MALE DRIVER**

Priority Emphasis Area

OLDER DRIVERS

Older driver crashes involve drivers ages 65 and older. As the nation's population ages, there will be an increasing proportion of older drivers on our nation's roadways.[5] **Older drivers may experience a decline in cognitive and physical abilities over time, which can hinder their ability to quickly react to roadway hazards.**

Older drivers may be reluctant to give up their personal vehicles and switch to alternative transportation modes. Family members have a personal responsibility to initiate conversations with older drivers (which may sometimes be difficult) to discourage dangerous driving behaviors and keep North Dakota's roadways safe.

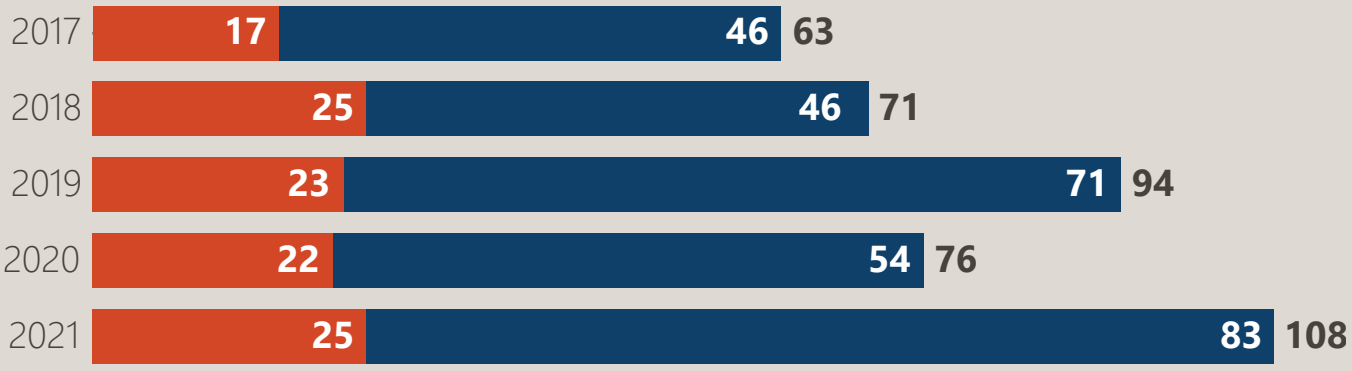
Between 2017 and 2021,
older driver fatalities
INCREASED
by **47%**

while
serious injuries
INCREASED
by **80%**

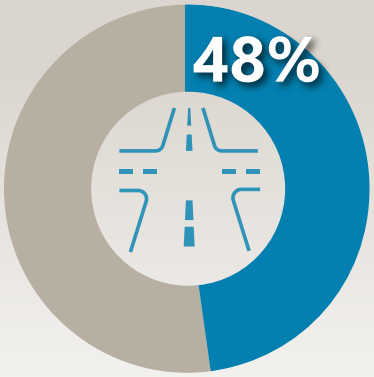
Within this time period,
60% *of all*
older driver fatalities and serious injuries
occurred on
STATE SYSTEM ROADWAYS
and
66%
occurred in
RURAL AREAS

[5] NHTSA, Older Drivers: https://www.nhtsa.gov/road-safety/older-drivers

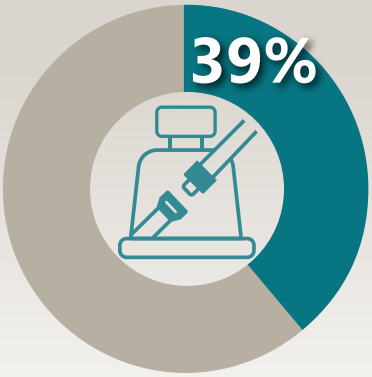
Older Drivers Fatalities and Serious Injuries, 2017–2021



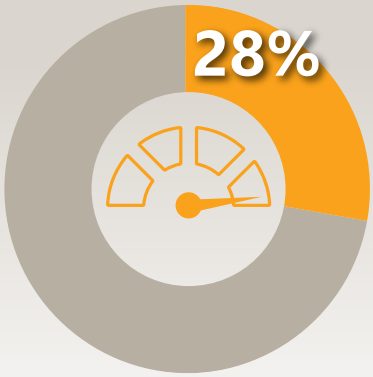
Top Three Fatality and Serious Injury Contributing Factors for Older Drivers



INTERSECTIONS



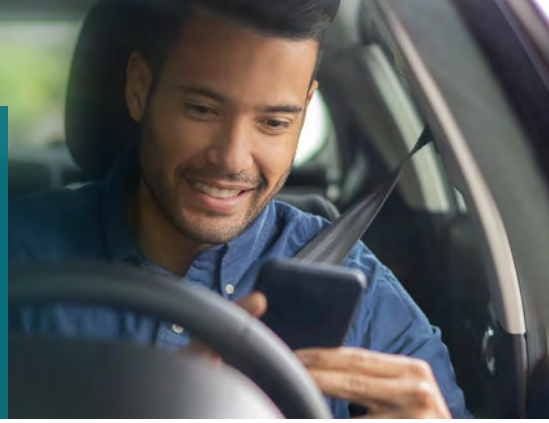
UNBELTED VEHICLE OCCUPANTS



SPEEDING/AGGRESSIVE DRIVING

Older Driver Strategies

- **STRATEGY 1:** Establish a broad-based coalition to address older road user transportation needs.
- **STRATEGY 2:** Implement policies and support research efforts to enhance access to older driver resources.



Priority Emphasis Area

DISTRACTED DRIVING

Distracted driving is any activity that could divert a person's attention away from the primary task of driving and impair their ability to safely operate the vehicle. These activities include texting or talking on the phone, selecting music, entering an address into GPS, eating, talking to passengers, grooming, or driving while fatigued. **Distracted driving puts all people traveling on the roadway at risk, including the driver, passengers, other vehicles, pedestrians, and bicyclists.**

Texting while driving is one of the most dangerous distracted behaviors as it includes all three types of distraction (visual, manual, and cognitive) – sending one text message while traveling at 55mph is like driving blindfolded across the length of a football field. North Dakota prohibits texting while driving for all drivers, as it makes the driver 23 times more likely to cause a traffic crash or near-crash event.[6]

Distracted driving is vastly underreported as a factor in a crash due to driver hesitancy to report, lack of witness verification and other factors. As a result, North Dakota crash data related to distraction is limited.

There are **3** **main types of distraction:**

VISUAL

taking your

eyes off the road

MANUAL

taking your

hands off the wheel

COGNITIVE

taking your

mind off what you're doing

[6] Distracted Driving, Vision Zero: https://visionzero.nd.gov/strategies/DistractedDriving/

Distracted Driving Strategies

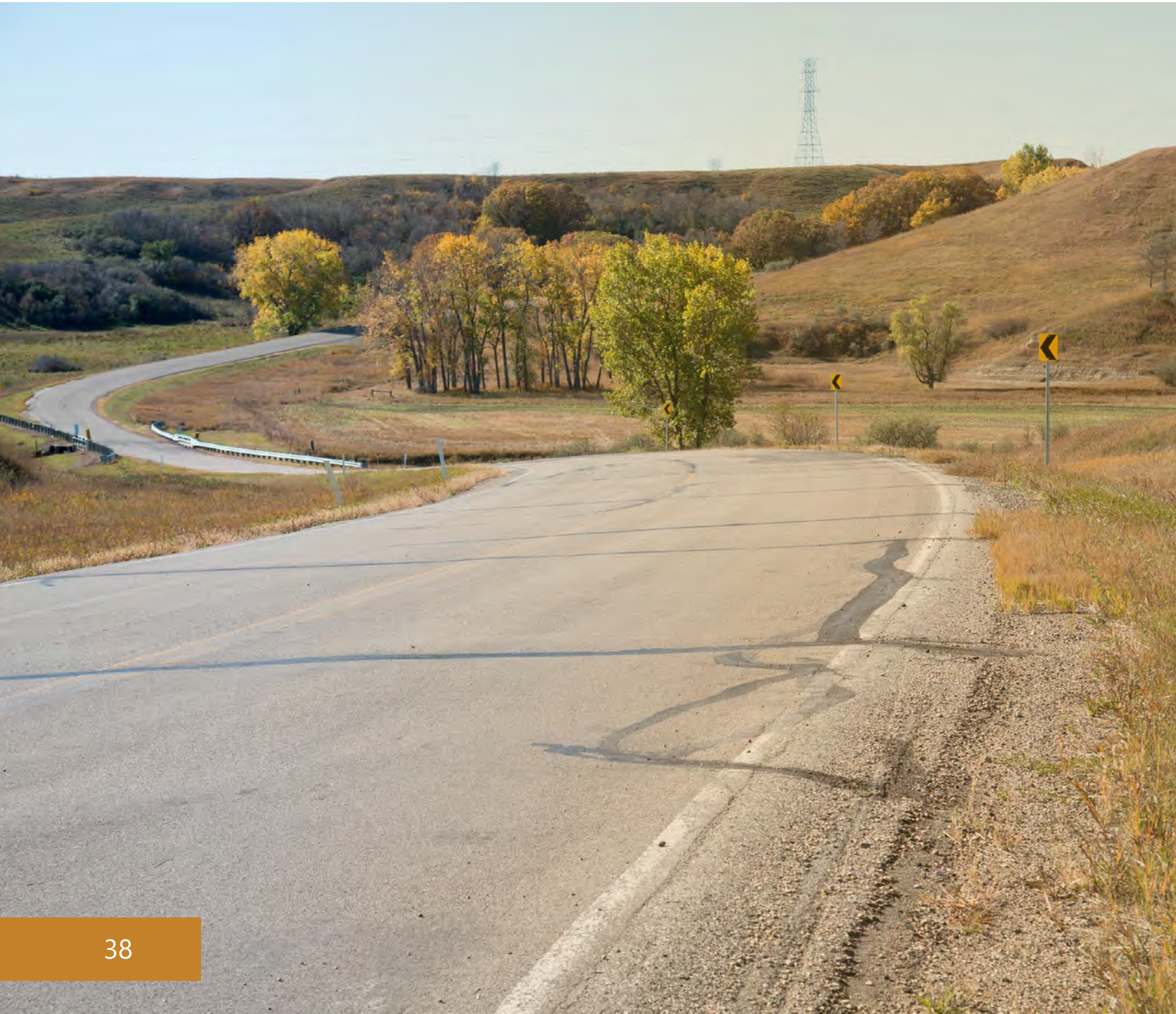
- **STRATEGY 1:** Support equitable enforcement, data collection, and technological solutions to address distracted driving.
- **STRATEGY 2:** Utilize proven engineering safety countermeasures to reduce the impact of distracted driving on roadways.

SAFE ROADS

The Safe Roads element of the Safe System Approach is focused on engineering roadway improvements that enhance roadway design to encourage safe driving behaviors and reduce potential crash conflict points. These improvements are prioritized and implemented through collaboration with NDDOT, MPOs, and local governments to develop a Safe System statewide. The Safe Roads Emphasis Area includes three Priority Emphasis Areas: **Intersections, Lane Departures,** and **Local System Roadways**.

SAFE ROADS
Priority Emphasis Areas:

- INTERSECTIONS
- LANE DEPARTURE
- LOCAL SYSTEM ROADWAYS



Priority Emphasis Area

INTERSECTIONS

Intersection crashes occur at an intersection or are related to an intersection. **Intersection crashes often occur due to the number of potential conflict points associated with crossing vehicles, pedestrians, and bicyclists.** Developing safe intersections to support Safe Roads includes eliminating potential conflict points through safe roadway design and increasing road user awareness and attentiveness of potential conflict points.

Intersection safety countermeasures and strategies include **engineering projects such as installing roadway striping, roadway striping, and implementing alternative intersection and interchange design.** These improvements are paired with education efforts to teach road users about how to safety navigate new or improved intersection designs. Roadway enhancement projects are also supported by ongoing research efforts to identify new ways to integrate emerging technology.

Between 2017 and 2021,
intersection fatalities
DECREASED
by **7%**

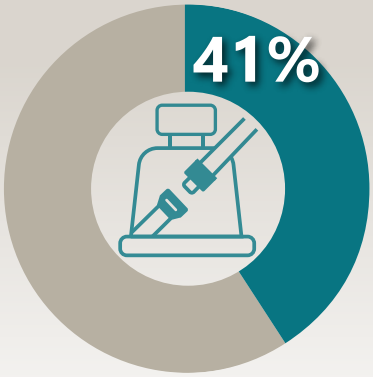
while
serious injuries
DECREASED
by **21%**

Within this time period,
68% *of all*
intersection fatalities
occurred in
RURAL AREAS

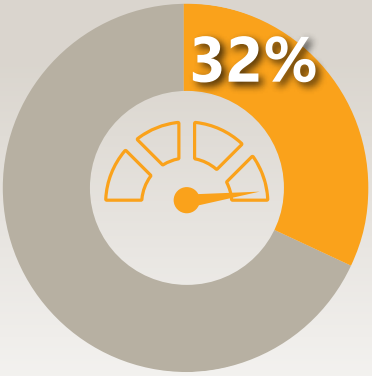
and
64%
occurred on
STATE SYSTEM ROADWAYS

Intersection Fatalities and Serious Injuries, 2017–2021

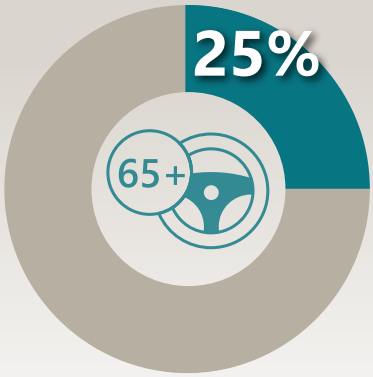
Top Three Fatality and Serious Injury Contributing Factors for Intersections



UNBELTED VEHICLE OCCUPANTS



SPEEDING/AGGRESSIVE DRIVING



OLDER DRIVER

Intersection Strategies

- **STRATEGY 1:** Implement proven safety countermeasures and conduct research on emerging/innovative safety countermeasures to reduce conflict points at intersections.
- **STRATEGY 2:** Utilize proven safety countermeasures to improve driver awareness and vulnerable road user visibility at intersections.
- **STRATEGY 3:** Continue to implement access management to reduce conflict points near intersections.

Priority Emphasis Area

LANE DEPARTURE

A lane departure crash is when a vehicle leaves the travel lane and strikes a fixed object or overturns. Lane departure crashes tend to be severe, and are impacted by several key factors, including density and location of fixed objects, driver awareness and attentiveness, weather conditions, roadway elevation, and travel speeds. Lane departure safety countermeasures include engineering-based solutions that aim to keep drivers in the travel lane, reduce potential conflict points, and improve driver awareness and attentiveness.

North Dakota continues to implement a variety of engineering countermeasures such as curve warning signs, median barriers, and edge and center-line rumble strips along both state and local roadway systems to reduce the occurrence and severity of lane departure crashes.

Between 2017 and 2021,
lane departure fatalities
DECREASED
by **32%**

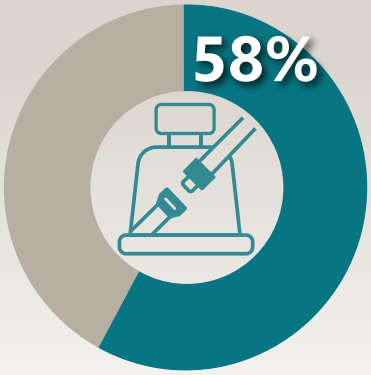
while
serious injuries
INCREASED
by **4%**

An estimated **50%**
of **lane departure crashes**
occurred on the
LOCAL ROADWAY SYSTEMS

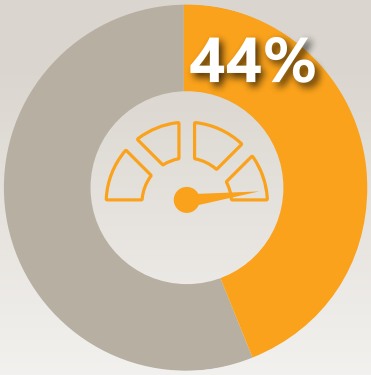
and **90%**
of
lane departure fatalities
occurred on
RURAL ROADWAYS

Lane Departure Fatalities and Serious Injuries, 2017–2021

Top Three Fatality and Serious Injury Contributing Factors for Lane Departures



UNBELTED VEHICLE OCCUPANTS



SPEEDING/AGGRESSIVE DRIVING

IMPAIRED DRIVING

Lane Departure Strategies

- **STRATEGY 1:** Implement proven safety countermeasures and conduct research on emerging/innovative safety countermeasures to eliminate fatalities and serious injuries as a result of motor vehicles leaving travel lanes.
- **STRATEGY 2:** Utilize proven safety countermeasures to improve driver awareness and delineation.

Priority Emphasis Area

LOCAL SYSTEM ROADWAYS

Fatalities and serious injuries occur disproportionately on local roadway networks. **In North Dakota, over 40 percent of fatalities and 48 percent of serious injuries occur on local system roadways, despite local roadways only accounting for 18 percent of the traffic volumes in the State.**

North Dakota supports prioritizing local system roadways through the development of Local Road Safety Plans, as well as educating local partners and stakeholders on local road safety countermeasures and funding. They also utilize infrastructure-focused strategies such as lane departure countermeasures on local rural roads and pedestrian and bicycle countermeasures on local urban roads.

Between 2017 and 2021, the total number of

fatalities and serious injuries on local roads

DECREASED SLIGHTLY

Within the five year period, the total number of

fatalities and serious injuries

reached its

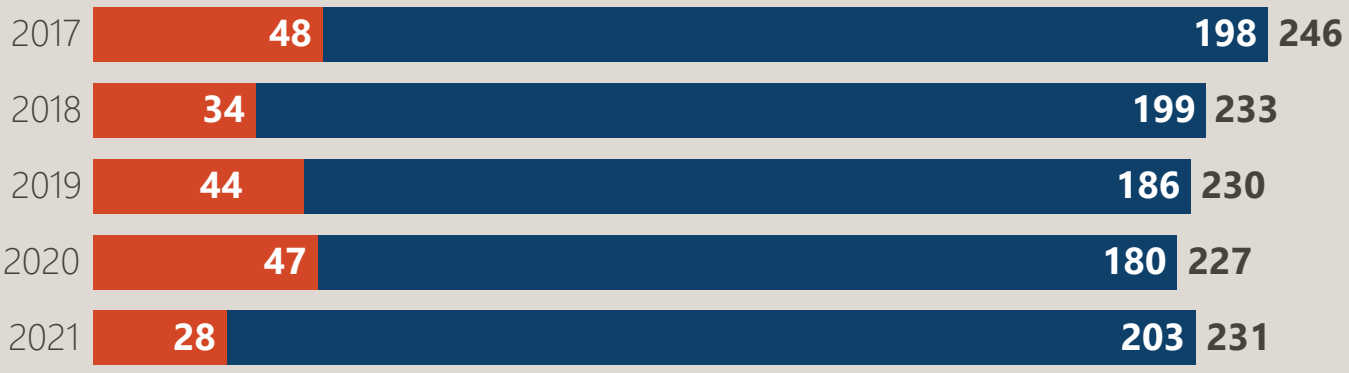
HIGHEST *at* **246** *in* **2017**

However, the total number of

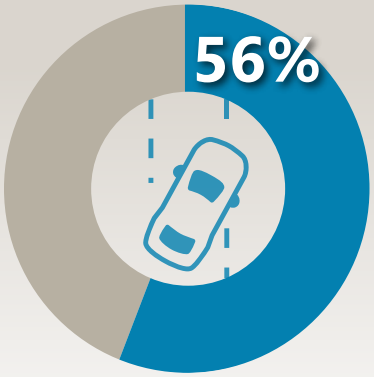
serious injuries alone

PEAKED *at* **203** *in* **2021**

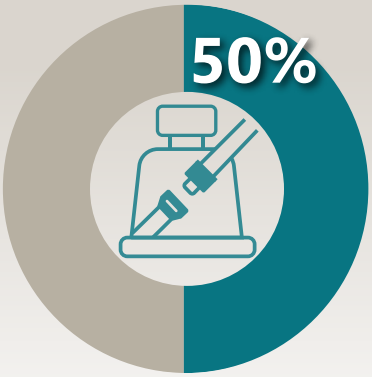
Local System Roadways Fatalities and Serious Injuries, 2017–2021



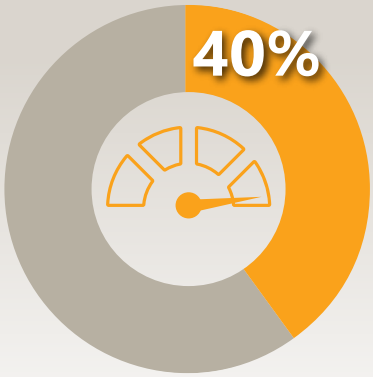
Top Three Fatality and Serious Injury Contributing Factors for Local System Roadways



LANE DEPARTURE



UNBELTED VEHICLE OCCUPANTS



SPEEDING/AGGRESSIVE DRIVING

Local System Roadway Strategies

- **STRATEGY 1:** Implement proven safety countermeasures to eliminate fatalities and serious injuries on local rural roadways.
- **STRATEGY 2:** Implement proven safety countermeasures to eliminate fatalities and serious injuries on local urban roadways.
- **STRATEGY 3:** Support Local Road Safety Plan development and implementation of strategies and priorities.

SAFE SPEEDS AND SAFE VEHICLES

The Safe Speeds and Safe Vehicles elements of the Safe System Approach are implemented by engineering, education, and enforcement strategies, which aim to reduce crash kinetic energy associated with traffic crashes and keep impact forces on the human body to a tolerable level. The Safe Speeds and Safe Vehicles Emphasis Area includes two Priority Emphasis Areas: **Speed Management** and **Commercial/Heavy Vehicle-Involved**. Speed management is a critical element of the Safe System Approach which focuses on setting appropriate speed limits based on the surrounding roadway context and reducing speeds to mitigate the impacts of speed related traffic crashes.

SAFE SPEEDS/SAFE VEHICLES
Priority Emphasis Areas:

- SPEED MANAGEMENT
- COMMERCIAL/HEAVY VEHICLE-INVOLVED

Additional Safe Speeds/Safe Vehicles Focus Areas:

- SAFE VEHICLE TECHNOLOGIES

The Safe Speeds and Safe Vehicles Emphasis Area also considers how vehicle technology can be leveraged to support a Safe System and encourage safe decision making. This includes educating drivers on how to use in-vehicle safety technology features, utilizing technology to provide statewide roadway notifications and aid in the prioritization of clearing roadways during the winter months, and conducting research on additional innovative technology to enhance roadway safety. North Dakota expects all drivers to comply with posted speed limits and utilize the latest technology to reduce traffic crash severity and occurrence.

Priority Emphasis Area

SPEED MANAGEMENT

Speed Management addresses dangerous driving **behaviors including speeding, driving too fast for conditions, following too close, or operating a vehicle in an erratic, reckless, careless, negligent, or aggressive manner.** In North Dakota, speeding remains a major contributing factor to motor vehicle crashes, fatalities, and serious injuries. When drivers speed or drive aggressively, they put themselves, passengers, and other motorists at an increased risk of fatality or serious injury.

North Dakota seeks to enhance education related to speeding, prioritize well-publicized speed enforcement, and utilize safety data to push the message that speeding is a high-risk behavior. One solution is to increase fines for right-of-way and speed violations and enhance penalties for habitual offenders. Between 2017 and 2021, fatal crashes where speeding occurred had unbelted occupants 62 percent of the time. Young drivers had serious injuries in 42 percent of speeding or aggressive driving related crashes. Additional research into emerging technologies is needed to explore law enforcement employment of aircraft and drone technology to monitor speeding.

Since 2017, the **total number** *of* **serious injuries** *that involved speeding* **INCREASED** *over time*

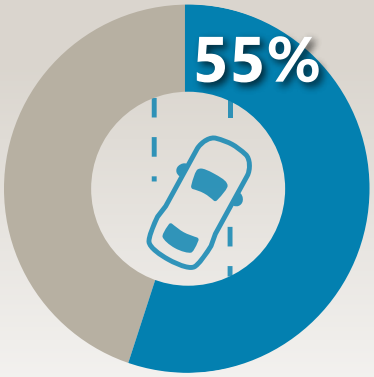
Between 2017 and 2021, **serious injuries** *due to* **speeding** **INCREASED** *by* **17%**

and the **total number** *of* **fatalities** **VARIED** *over the five years*

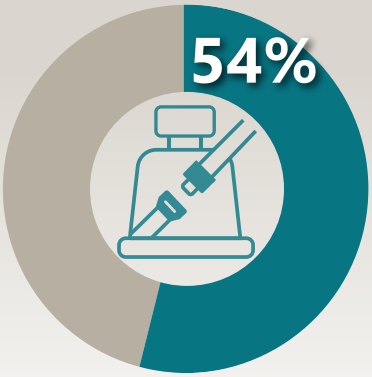
MALES *accounted for a* **MAJORITY** *of* **speeding fatalities,** *representing* **77%**

Speed Management Fatalities and Serious Injuries, 2017–2021

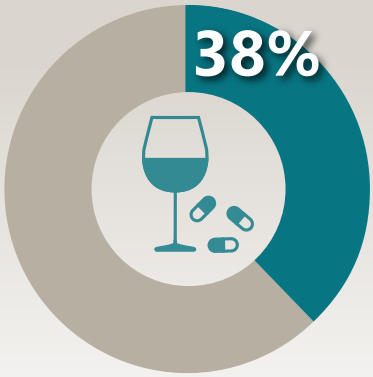
Top Three Fatality and Serious Injury Contributing Factors for Speed Management



LANE DEPARTURE



UNBELTED VEHICLE OCCUPANTS



IMPAIRED DRIVING

Speed Management Strategies

- **STRATEGY 1**: Use engineering design, speed management, and technology to reduce speeds.
- **STRATEGY 2:** Increase high visibility enforcement to reduce crashes associated with speeding.
- **STRATEGY 3:** Implement education and public awareness programs on the dangers of speeding, the increase in severity of crashes, and the severity of injuries for non-motorized users.

Priority Emphasis Area

COMMERCIAL/HEAVY VEHICLE-INVOLVED

A heavy vehicle is **defined as three or more axles single-unit truck, truck tractor, or semitruck. Commercial Motor Vehicles (CMV) and Heavy Vehicles are a vital part of North Dakota's economy and transporting goods across the State.** To protect all roadway drivers, education and safety awareness for the motoring public, motor carriers, and heavy vehicle drivers is needed to improve safety outcomes. Due to the size and height of commercial and heavy motor vehicles, visibility of passing motorists can be limited and motor vehicles can essentially "disappear" in their blind spots – also known as "No-Zones". It is the responsibility of all road users to operate in a safe manner when traveling near a commercial or heavy vehicle, such as avoiding traveling within the commercial or heavy vehicle "No-Zones", limiting passing movements, and operating at a safe following distance. North Dakota has already implemented public outreach and education through advertising of CMV safety messages including No-Zone awareness and farm equipment awareness during harvest.

From 2017 to 2021,

53%

of **crashes**

resulting in **FATALITIES**

that involved a

commercial or heavy vehicle

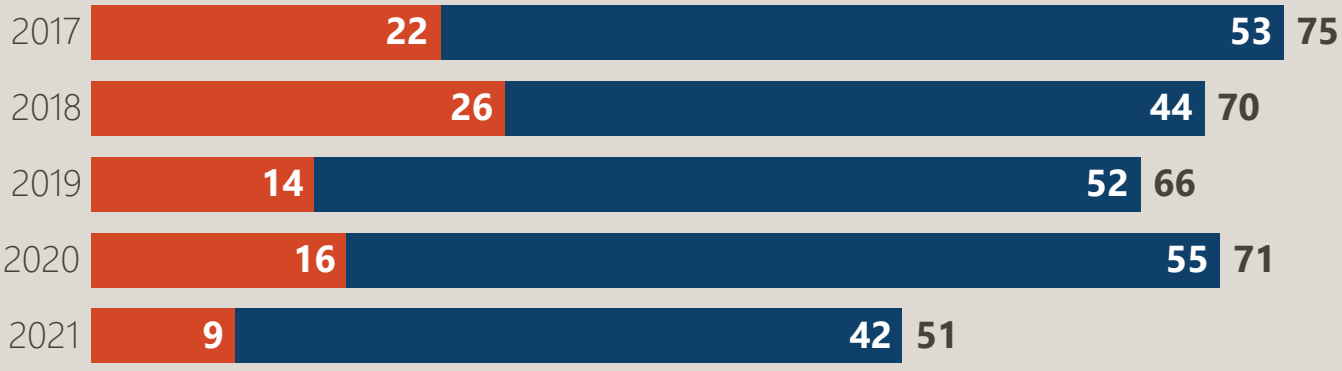
occurred in

Oil Impact Counties

North Dakota will continue to conduct traffic enforcement, coupled with public outreach, with a special focus on higher-risk traffic areas/times. Safety enforcement targeted safety belt use on the rural roads in and around the State's oil fields.

Speeding was a factor in 43 percent of fatal crashes that involved a commercial or heavy vehicle between 2017 and 2021. State enforcement for CMVs will implement traffic stops that complete seat belt saturations, check for proper seat belt use, and take enforcement action when necessary.

Commercial/Heavy Vehicle-Involved Fatalities and Serious Injuries, 2017–2021

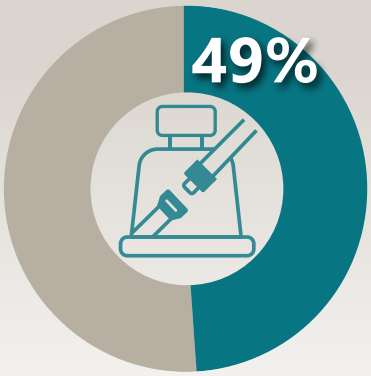


Between 2017 and 2021,

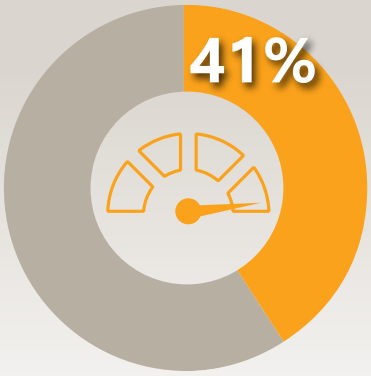
the **total number** *of* **crashes** *involving* **HEAVY VEHICLES** *that resulted in* **fatalities and serious injuries** **DECREASED** *by* **32%**

Commercial motor vehicles *continue to be* **REGULATED** *by the* **Federal Government** *including* **INSPECTION** *and* **MAINTENANCE REGULATIONS**

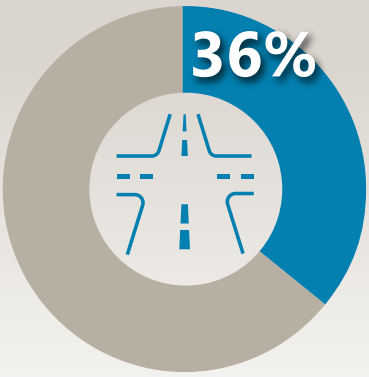
Top Three Fatality and Serious Injury Contributing Factors for Commercial/ Heavy Vehicle-Involved



UNBELTED VEHICLE OCCUPANTS



SPEEDING/AGGRESSIVE DRIVING



INTERSECTIONS

Commercial/Heavy Vehicle-Involved Strategies

- **STRATEGY 1:** Enforce commercial vehicle laws to ensure carriers operate safely.
- **STRATEGY 2:** Educate commercial vehicle drivers and motorists about how to safely share the road.
- **STRATEGY 3:** Improve roadway infrastructure and operations for CMV/heavy vehicle operation.

POST-CRASH CARE

The Post-Crash Care element of the Safe System Approach recognizes that receiving quick emergency medical care on the roadway system is a priority. **Post-crash care is a multilevel approach that includes strategies focused on traffic incident management, emergency response, and record keeping.**

POST-CRASH CARE
Priority Emphasis Areas:

EMERGENCY RESPONSE/ MEDICAL SERVICES AND TRCC

Deploying post-crash care can help prevent crash injuries from becoming fatal, while also preventing secondary crashes from occurring. Collecting, maintaining, and using high-quality data about crashes, injuries, and traffic-related information can help NDDOT and safety partners identify countermeasures to reduce the occurrence and severity of future crashes.

Post-Crash Care Strategies

- **STRATEGY 1:** Reduce traffic-related fatalities, injuries, and hospitalizations through improved EMS response and access to trauma care.
- **STRATEGY 2:** Protect first responders at crash scenes through training, tools, and technology.
- **STRATEGY 3:** Improve data collection, sharing, integration, and tracking post-crash outcomes.

Priority Emphasis Area

EMERGENCY RESPONSE/ MEDICAL SERVICES AND TRAFFIC RECORDS COORDINATING COMMITTEE

Prompt medical attention and traffic incident management are two effective methods to save lives after a crash already has happened. Emergency medical services (EMS) can provide life-sustaining aid to people injured by crashes and prevent injuries from becoming fatal. However, it may take longer for EMS to respond in rural areas of North Dakota, where EMS resources may be limited and travel distances greater. **Effective and standardized emergency response dispatch and resource deployment can save lives on North Dakota's roadways.**

Traffic Incident Management (TIM) is the collaborative process to detect, respond to, and clear traffic crashes as quickly and efficiently as possible. Effective TIM may prevent secondary crashes from occurring while also protecting people at the crash location. It is essential to protect the lives of first responders on scene, which includes EMS, fire departments, law enforcement, and tow operators.

On April 6, 2023, Governor Burgum signed into law North Dakota Century Code Section 39-10-26.3, which expands the State's "move over" law to include any stopped motor vehicle with flashing hazard warning signals. The revised "move over" law requires drivers to move over a lane and slow down to a safe speed before passing an emergency vehicle, transportation department vehicle, or other motor vehicle with flashing hazards stopped on the side of the road. The expanded law helps to protect the lives of all vehicle occupants stopped on the roadside.

Understanding the conditions and contributing circumstances to crashes is an important step in addressing both site-specific and systemic crash risks. The North Dakota Traffic Records Coordinating Committee (TRCC) is a multidisciplinary group of stakeholders with the goal to collect and manage timely, accurate, complete, uniform, integrated, and accessible traffic records systems. The integration of separate data systems can link crash causes, contributing factors, and outcomes to improve the analysis of crash causations so they can be addressed.

5 IMPLEMENTATION AND EVALUATION

IMPLEMENTATION PROCESS

The *2024 Vision Zero Plan* focuses on the steps North Dakota will take to eliminate traffic fatalities and serious injuries. Developed during the plan update process, the action plans provide a roadmap for effective implementation of the Vision Zero vision and goal. This section summarizes the framework to implement the *Vision Zero Plan*.

Steering Committee

The Vision Zero Steering Committee will play a central role in implementing strategies and action steps in the *Vision Zero Plan*. As the central organizing body for the plan, the Steering Committee will:

- **Track Implementation Progress—**The Steering Committee will meet at least biannually to review activities related to the *Vision Zero Plan*. The Steering Committee will conduct a data-driven assessment of the plan's progress by reviewing updated fatality and serious injury data, discussing challenges or concerns around action steps and implementation, and the latest best practices.
- **Coordinate with Other Plans—**The Steering Committee will encourage its stakeholders to update State, MPO, and local Government plans to align with the *Vision Zero Plan*'s vision of zero fatalities and serious injuries on North Dakota's roadways. This will include internal coordination with NDDOT

as other transportation plans are updated. This strategic alignment will promote initiatives that enhance safety culture and demonstrate support for the Safe System Approach.

» **Make Impact-Focused Decisions—**The Steering Committee will strive to understand how safety performance is impacted by various programs and projects. This information will be used to propose adjustments and revisions to the action plans, annual safety performance target setting practices, and planning processes for the HSIP and HSP.

Safe System Emphasis Area Teams

The Safe System Emphasis Area teams are organized to enhance collaboration among the various Priority Emphasis Areas and ensure coordination between overlapping activities. Priority Emphasis Area Team Leaders also are members of the Steering Committee. Each Priority Emphasis Team Lead will report on implementation progress to the Steering Committee at their biannual meetings. These reports will update the Steering Committee on the activities and developments for each of the primary Emphasis Areas under the Safe System Emphasis Area team. The Emphasis Area Teams will also hold regular meetings to coordinate activities.

Priority Emphasis Area Teams

The Priority Emphasis Area Teams are well-established groups of stakeholders with multidisciplinary backgrounds. In addition to developing the action steps included in each Priority Emphasis Area Action Plan, these teams provide input on implementation progress to the Safe System Emphasis Area Team Leaders. Each team's meeting schedule will vary based on that group's activities. The Priority Emphasis Area team stakeholders have the following responsibilities to support implementation:

» Update their respective organizations' plans to align with the *Vision Zero Plan*.

» Educate their respective organizations' employees on the Safe System approach.

» Promote initiatives that enhance the safety culture.

Local Road Safety Program

The 2013 SHSP documented that more than one-half of serious crashes in North Dakota occur on the local road system. Historically, there has been little safety project development engagement with local agencies and even less safety investment along the local system.

To address these issues, the 2013 SHSP committed NDDOT to increasing the level of engagement with local agencies in statewide safety planning. The SHSP also committed to dedicating one-half of the Highway Safety Improvement Program funds to local system projects. To that end, NDDOT partnered with the 53 counties (including the 12 largest cities, four Native American reservations, and one National Park) to prepare safety studies of their road systems. Local Road Safety Plans (LRSPs) were completed for these local agencies in 2016 and included a systemic risk evaluation, system prioritization, and project development. Following completion of the individual LRSPs, agencies began submitting projects for HSIP funding using application forms prepared and included in each safety plan. The most recent phase of LRSPs was completed in 2015 (Phase 4). These projects are now being implemented.

As follow-up to the *2024 Vision Zero Plan* update, all existing LRSPs will be reviewed to identify Priority Emphasis Areas for each region or plan, identified strategies, prioritized strategies, and prioritized projects. Top priority infrastructure and behavioral strategies from the LRSPs will be compared to the *Vision Zero Plan* and national safety standards. The list of specific, measurable, achievable, realistic, and time-bound action items from the LRSPs will be used to track progress for implementing the LRSPs.

EVALUATION PROCESS

Evaluation is the "systematic collection of information about the activities, characteristics, and outcomes of a program to make judgments about it, improve its effectiveness, and/or inform decisions about future programming."[7] The *Vision Zero Plan* depends on a program of data-driven priorities and proven effective strategies, which shall be evaluated on a regularly occurring basis. To obligate funds under the HSIP, the *Vision Zero Plan* must be evaluated regularly to ensure the accuracy of data and priority of proposed strategies. Evaluation will invite the opportunity to assess the *Vision Zero Plan* process and performance by determining whether current activities should be enhanced, revised, or replaced. The evaluation process will do the following:

- **Annually evaluate North Dakota's progress toward the goals of this plan.** This assessment will evaluate both fatality and serious injuries on all public roads and the outcome measures identified in the Emphasis Area action plans.
- **Provide results-oriented feedback to stakeholders.** The Steering Committee will provide feedback and oversight during the evaluation process. Communication will include understanding how safety performance is impacted by various programs and perspectives from stakeholders on what is working and what is not working.
- **Make impact-focused decisions.** Adjustments and revisions to the *Vision Zero Plan* action steps will be proposed based on annual evaluation results. These changes will focus on needed changes to the *Vision Zero Plan* update process, resource allocation, and countermeasure strategy implementation.

[7] FHWA Strategic Highway Safety Plan Evaluation Process Model https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-06/shsp_epm_report.pdf

A GLOSSARY AND ACRONYMS

GLOSSARY

Aggressive Driving	Operating a motor vehicle in a selfish, pushy, or impatient manner, often unsafely in a manner that directly affects other drivers and road users.
Annual Average Daily Traffic (AADT)	Total volume of vehicle traffic of a highway or road for a year divided by 365 days, used as a measure of how busy a roadway is.
Distracted Driving	A crash in which at least one driver was distracted, inattentive, or using a cell phone.
Driving Under the Influence of Alcohol or Drugs (DUI)	A crash involving at least one driver under the influence of alcohol or other drugs.
Collision	A motor vehicle crash (other than an overturning crash) in which the first harmful event is a collision of a vehicle with another vehicle, other property (including the highway), trees or shrubbery, animal, or pedestrian.
Commercial Motor Vehicle (CMV)	A motor vehicle, typically large and/or heavy, used to transport people and goods for business.

Complete Streets	A transportation policy and design approach that encourages streets to be planned, designed, operated, and maintained to enable safe, convenient, and comfortable travel and access for users of all ages and abilities regardless of their mode of transportation, which could include walking, bicycling, driving vehicles, riding public transportation, or delivering goods.
Fatal Injury	A fatal injury is any injury that results in death within 30 days after the motor vehicle crash in which the injury occurred.
Federal Highway Administration (FHWA)	The U.S. DOT administration that supports State and local governments in the design, construction, and maintenance of the Nation's highway system (Federal-aid Highway Program) and various federally and Tribal-owned lands (Federal Lands Highway Program).
Highway Safety Improvement Program (HSIP)	A core Federal-aid program with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned roads and roads on Tribal land.
Commercial Motor Vehicles	Commercial motor vehicles (single-unit trucks and truck tractors) over 10,000 pounds gross vehicle weight rating.
Reckless Driving	Operating a motor vehicle with a willful and wanton disregard for the safety of persons or property.
Road Users	A motorist, passenger, public transportation operator or user, truck driver, bicyclist, motorcyclist, or pedestrian, including a person with disabilities.
Older Drivers	Drivers, licensed or unlicensed, who are of age 65 and older (synonymous with Older Drivers).
Strategic Highway Safety Plan (SHSP)	A statewide, coordinated safety plan that provides a comprehensive framework for reducing highway fatalities and serious injuries on all public roads.
Target Speed	A selected speed used to determine the various geometric features of the roadway that will encourage drivers to drive at the selected speed.
Vision Zero	A multinational road traffic safety project that aims to achieve a highway system with no traffic fatalities or serious injuries.
Vehicle-Miles Traveled (VMT)	Annual number of vehicle-miles traveled by motor vehicles on all public roadways within North Dakota.
Young Driver	Drivers, licensed or unlicensed, that are of age 15 through 24.

COMMON ACRONYMS

AADT	Annual Average Daily Traffic
ATV	All Terrain Vehicle
BAC	Blood Alcohol Concentration
BIL	Bipartisan Infrastructure Law
CMV	Commercial Motor Vehicle
CVSP	Commercial Vehicle Safety Plan
CY	Calendar Year
DOT	Department of Transportation
DUI	Driving Under the Influence
FARS	Fatality Analysis Reporting System
FAST Act	Fixing America's Surface Transportation Act
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FR	Federal Register
GIS	Geographic Information System
HRRR	High-Risk Rural Roads
HSIP	Highway Safety Improvement Program
HSP	Highway Safety Plan
IIJA	Infrastructure Investment and Jobs Act
LRSP	Local Road Safety Plan
MAP-21	Moving Ahead for Progress in the 21st Century Act

MPH	Miles Per Hour
MPO	Metropolitan Planning Organization
NHTSA	National Highway Traffic Safety Administration
NDDOT	North Dakota Department of Transportation
SHSP	Strategic Highway Safety Plan
STIP	Statewide Transportation Improvement Program
TRCC	Traffic Records Coordinating Committee
SWOT	Strengths, Weaknesses, Opportunities, Threats
U.S.C.	United States Code
VMT	Vehicle Miles Traveled
VRU	*Vulnerable Road User*

B EMPHASIS AREA ACTION PLANS

The *2024 Vision Zero Plan* is organized by four Safe System Emphasis Areas: Safe Road Users, Safe Roads, Safe Speeds and Safe Vehicles, and Post-Crash Care. Each Safe System Emphasis Area includes a set of Priority Emphasis Areas with dedicated strategies and action steps to eliminate traffic fatalities and serious injuries on North Dakota's roadways. The Priority Emphasis Areas include:

SAFE ROAD USERS: Impaired Driving, Occupant Protection, Young Driver, Older Driver, and Distracted Driving

SAFE ROADS: Intersections, Lane Departure, and Local System Roadways

SAFE SPEEDS AND SAFE VEHICLES: Speed Management and Commercial/ Heavy Vehicle-Involved

POST-CRASH CARE: Emergency Response and Medical Services and TRCC

Each Priority Emphasis Area includes a set of strategies and actions to address traffic safety through countermeasures spanning engineering, education, enforcement, and emergency medical services. The Priority Emphasis Area Team drafted action plans based on strategies and actions from the previous *2018 Vision Zero Plan*, stakeholder input, and proven countermeasures and national best practices.

SAFE ROAD USERS
Priority Emphasis Areas:

- IMPAIRED DRIVING
- OCCUPANT PROTECTION
- YOUNG DRIVER
- OLDER DRIVER
- DISTRACTED DRIVING

Additional Safe Road User Focus Areas:

- PEDESTRIANS/BICYCLISTS
- MOTORCYCLES

SAFE SPEEDS/SAFE VEHICLES
Priority Emphasis Areas:

- SPEED MANAGEMENT
- COMMERCIAL/HEAVY VEHICLE-INVOLVED

Additional Safe Speeds/Safe Vehicles Focus Areas:

- SAFE VEHICLE TECHNOLOGIES

SAFE ROADS
Priority Emphasis Areas:

- INTERSECTIONS
- LANE DEPARTURE
- LOCAL SYSTEM ROADWAYS

POST-CRASH CARE
Priority Emphasis Areas:

- EMERGENCY RESPONSE/ MEDICAL SERVICES AND TRCC

SAFE ROAD USERS

IMPAIRED DRIVING STRATEGIES AND ACTIONS

STRATEGY 1: Implement policies and support research efforts to address impaired driving.

ACTIONS:

- ✔ Research the benefits of an ignition interlock program.
- ✔ Strengthen enhanced penalties for high BAC offenders and/or repeat offenders.
- ✔ Conduct a comprehensive assessment of administrative licensing sanctions, including statistics for drug-impaired driving.
- ✔ Develop ABC Board to conduct research and guide alcohol licensure.

STRATEGY 2: Support equitable enforcement, training, and adjudication of impaired driving laws.

ACTIONS:

- ✔ Increase high-visibility sobriety checkpoints.
- ✔ Identify/implement approaches to effectively educate judges on DUI and drug enforcement protocols and the importance of prosecuting alcohol and/or drug-impaired cases.
- ✔ Expand officer Advanced Roadside Impaired Driving Enforcement (ARIDE) training.
- ✔ Expand officer training for Drug Recognition Experts (DRE).
- ✔ Strengthen prosecutor and law enforcement training on investigating and prosecuting alcohol and/or drug-impaired cases.
- ✔ Research the potential to train law enforcement officers to become certified phlebotomists to collect blood samples of suspected impaired drivers.
- ✔ Implement a statewide roadside oral fluid testing and evidentiary oral fluid testing.

OCCUPANT PROTECTION STRATEGIES AND ACTIONS

STRATEGY 1: Promote and educate the public and law enforcement on the primary seat belt and child restraint laws.

ACTIONS:

- ✔ Conduct outreach to tribal governments to enforce seat belt law.
- ✔ Promote employer and insurance safety programs for noncompliance of belt use.
- ✔ Utilize data to determine which population groups choose not to wear seat belts and target them with education and media.

STRATEGY 2: Implement policies and support research efforts to enhance occupant protection.

ACTIONS:

- ✔ Enact stronger penalties for lack of seat belt use.
- ✔ Promote employers to implement strong seat belt policies to assure seat belt use among all employees.

STRATEGY 3: Promote statewide education and training of child restraint best practices.

ACTIONS:

- ✔ Conduct Child Passenger Safety and Education Program to include outreach activities to low-income populations and areas of need including diverse and underserved communities.
- ✔ Conduct child passenger safety training of new and current technicians.
- ✔ Increase the number of fitting stations to reach rural areas of the State.

YOUNG DRIVER STRATEGIES AND ACTIONS

STRATEGY 1: Implement best practices and incorporate into state and local policies actions to enhance young driver safety.

ACTIONS:

- ✔ Implement hands-free cell phone law for all drivers to aid in the detection and enforcement of distracted driving.
- ✔ Restrict passengers for 6 months for all novice drivers under the age of 18.
- ✔ Require classroom education for licensure and incorporate educating novice drivers about driving risks.
- ✔ Review Graduated Driver License (GDL) laws to determine how it aligns with national standards and best practices, and document and seek support for strengthening deficiencies.

OLDER DRIVER STRATEGIES AND ACTIONS

STRATEGY 1: Establish a broad-based coalition to address older adults transportation needs.

ACTIONS:

- ✔ Identify who would be a part of this coalition, establish the objective of the coalition.

STRATEGY 2: Implement policies and support research efforts to enhance access to older driver resources.

ACTIONS:

- ✔ Develop informational resource(s) and conduct public outreach for older driver safety; addressing driving skill assessment and screening, educational opportunities, licensing options, and safe mobility alternatives including shared-ride technology applications.
- ✔ Establish statewide one-stop, online resource to inform and guide the public on safety screening for law enforcement, family, and physicians to report at-risk drivers; driving skill assessments, educational courses, licensing options, and safe mobility alternatives.
- ✔ Develop and distribute materials to seniors on new and innovative roadway improvements such as roundabouts, hybrid beacons, etc.

DISTRACTED DRIVING STRATEGIES AND ACTIONS

STRATEGY 1: Support equitable enforcement, data collection, and technological solutions to address distracted driving.

ACTIONS:

- ✔ Conduct high visibility enforcement efforts to address distracted driving.
- ✔ Collect state-level distracted driving data and tailor countermeasures to address specific state needs. Work with the Traffic Records Coordinating Committee (TRCC) to assure data collection is consistent with the most current MMUCC guidelines.
- ✔ Conduct an observational survey, paired with a telephone attitudinal survey, to better understand who is more likely to drive distracted and driver attitudes about the behavior.
- ✔ Consider emerging technological solutions such as detectors that use infrared sensor technology to identify and address distracted driving and other behaviors.

STRATEGY 2: Utilize proven engineering safety countermeasures to reduce the impact of distracted driving on roadways.

ACTIONS:

- ✔ Implement wider shoulders as appropriate.
- ✔ Install 6-inch wide edge and center lines.
- ✔ Install chevrons (curve warning signs).
- ✔ Install median barriers.
- ✔ Install edge and center line rumble strips.
- ✔ Install street lighting.
- ✔ Install delineators as appropriate.

INTERSECTIONS STRATEGIES AND ACTIONS

STRATEGY 1: Implement proven safety countermeasures and conduct research on emerging/innovative safety countermeasures to reduce conflict points at intersections.

ACTIONS:

- ✔ Install roundabouts.
- ✔ Install reduced conflict intersections.
- ✔ Continue to research and implement alternative interchange/intersection designs.
- ✔ Conduct outreach and education focused on benefits of and how to navigate enhanced/new intersection designs.

STRATEGY 2: Utilize proven safety countermeasures to improve driver awareness and vulnerable road user visibility at intersections.

ACTIONS:

- ✔ Install street lighting.
- ✔ Enhance intersection signage and striping.
- ✔ Install pedestrian and bike enhancements (curb extensions, median refuge islands, lighting, countdown timers, and leading pedestrian interval at traffic signals).
- ✔ Install confirmation lights at traffic signals (to supplement enhanced enforcement of red-light running).
- ✔ Research and install advanced signal systems including adaptive signal control.

STRATEGY 3: Continue to implement access management to reduce conflict points near intersections.

ACTIONS:

- ✔ Initiate early outreach in the planning and zoning stage and educate on the importance of access management to reduce potential traffic crashes.

LANE DEPARTURE STRATEGIES AND ACTIONS

STRATEGY 1: Implement proven safety countermeasures and conduct research on emerging/innovative safety countermeasures to eliminate fatalities and serious injuries as a result of motor vehicles leaving travel lanes.

ACTIONS:

- ✔ Implement wider shoulders as appropriate.
- ✔ Install median barriers.
- ✔ Investigate best practice use of snow fences and other snow resiliency options and implement.
- ✔ Install passing lanes.

STRATEGY 2: Utilize proven safety countermeasures to improve driver awareness and delineation.

ACTIONS:

- ✔ Install safety corridors.
- ✔ Investigate the use of innovative pavement markings.
- ✔ Install delineators as appropriate.
- ✔ Install 6-inch-wide edge and center lines.
- ✔ Install edge and center line rumble strips.
- ✔ Install chevrons (curve warning signs).

LOCAL SYSTEM ROADWAYS STRATEGIES AND ACTIONS

STRATEGY 1: Implement proven safety countermeasures to eliminate fatalities and serious injuries on local rural roadways.

ACTIONS:

- ✔ Install 6" center and edge lines.
- ✔ Install street lighting.
- ✔ Install chevrons (enhanced curve warning).
- ✔ Install edge and center line rumble strips.
- ✔ Support implementation of innovative safety measures for unpaved roads.
- ✔ Install roundabouts.
- ✔ Implement wider shoulders as appropriate.
- ✔ Install delineators as appropriate.

STRATEGY 2: Implement proven safety countermeasures to eliminate fatalities and serious injuries on local urban roadways.

ACTIONS:

- ✔ Install pedestrian and bike enhancements (curb extensions, median refuge islands, lighting, countdown timers, and leading pedestrian interval at traffic signals).
- ✔ Install confirmation lights at traffic signals (to supplement enhanced enforcement of red-light running).
- ✔ Conduct sight distance reviews at intersections.

STRATEGY 3: Support Local Road Safety Plan development and implementation of strategies and priorities.

ACTIONS:

- ✔ Update and promote North Dakota Local Road Safety Plan (LRSP) benefits to local agencies.
- ✔ Educate local agencies of on the process to access HSIP funds to advance the LRSP, including eligible project or improvement types.
- ✔ Continue to coordinate with local stakeholders and provide education on the engineering process and safety countermeasures.

SAFE SPEEDS AND SAFE VEHICLES

SPEED MANAGEMENT STRATEGIES AND ACTIONS

STRATEGY 1: Use engineering design, speed management, and technology to reduce speeds.

ACTIONS:

- ✔ Determine the feasibility of implementing variable speed limits, set based on weather conditions.
- ✔ Conduct a Speed Management policy review to determine potential changes to the policy to reduce speed related crashes.
- ✔ Update speed setting process to reflect most recent best practices and guidance.

STRATEGY 2: Increase high visibility enforcement to reduce crashes associated with speeding.

ACTIONS:

- ✔ Implement pilot automated traffic monitoring projects (i.e., work or school zones), coupled with public outreach, and assess impact on aggressive driving and public acceptance (Policy).
- ✔ Use speed data and crash data to determine locations to deploy sustained, well-publicized speed enforcement resulting in greater speed detection and public perceived risk of being stopped and ticketed. Deploy traffic monitoring trailer during enforcement campaigns with in identified safety corridors.

- ✔ Increase fines for right-of-way and speed violations and enhance penalties for habitual offenders (item requiring legislation to enact law [Policy]).

STRATEGY 3: Implement education and public awareness programs on the dangers of speeding, the increase in severity of crashes, and the severity of injuries for non-motorized users.

ACTIONS:

- ✔ Provide talking points to Vision Zero Coordinators on speed enforcement periods.
- ✔ Use impactful survivor stories for speed-related crashes to educate drivers on the dangers of speeding.
- ✔ Use citation data to determine groups to target for speed-related education.
- ✔ Publicize law enforcement's use of aircraft to monitor speeding and aggressive driving as an opportunity to educate the public on available technologies.

COMMERCIAL/HEAVY VEHICLE-INVOLVED STRATEGIES AND ACTIONS

STRATEGY 1: Enforce commercial vehicle laws to ensure carriers operate safely.

ACTIONS:

- ✔ Use crash and citation data to identify locations to provide law enforcement where there have been speed, equipment, and weight enforcement violations.
- ✔ Conduct traffic enforcement, coupled with public outreach, with a focus on high-risk traffic areas/time and winter driving.
- ✔ Continue safety compliance reviews of high-risk carriers.
- ✔ Research feasibility of establishing an intrastate carrier inspection program to expand vehicle inspections and post-crash analysis.
- ✔ Identify opportunities to conduct more traffic-related enforcement alongside inspection MCSAP/FMCSA activities.
- ✔ Use enhanced screening technologies to improve commercial vehicle safety and size and weight compliance.

STRATEGY 2: Educate commercial vehicle drivers and motorists about how to safely share the road.

ACTIONS:

- ✔ Educate new carriers on compliance requirements.
- ✔ Increase safety awareness of the motoring public, motor carriers, and heavy vehicle drivers by continuing the through the Road Safely/No-Zone education and expanding outreach activities.
- ✔ Increase safety awareness of the motoring public of agricultural activities by hosting educational campaigns and farm equipment awareness events during harvest times.

STRATEGY 3: Improve roadway infrastructure and operations for CMV/heavy vehicle operation.

ACTIONS:

- ✔ Identify CMV/heavy vehicle corridors and determine operational improvements (adding turn lanes at key intersections, installing dynamic intersection warning systems, etc.) to improve safety for heavy vehicles.

POST-CRASH CARE

EMERGENCY RESPONSE/MEDICAL SERVICES AND TRAFFIC RECORDS COORDINATING COMMITTEE STRATEGIES AND ACTIONS

STRATEGY 1: Reduce traffic-related fatalities, injuries, and hospitalizations through improved Emergency Medical Services (EMS) response and access to trauma care.

ACTIONS:

- ✔ Recruit, train, and retain EMS responders statewide and particularly in rural areas.
- ✔ Promote injury prevention programs that reduce traffic-related injuries and fatalities.
- ✔ Evaluate opportunities to standardize EMS operators' responses to 9-1-1 calls about traffic crashes.
- ✔ Identify EMS operator equipment needs and potential funding sources.

- ✔ Conduct outreach to EMS operators (such as a survey, interviews, or focus groups) to define prevalent post-crash care issues, collect information about near-misses, and identify potential solutions.

STRATEGY 2: Protect first responders at crash scenes through training, tools, and technology.

ACTIONS:

- ✔ Promote Traffic Incident Management (TIM) Responder Training and policies for EMS operators.
- ✔ Identify emerging technologies and tools to protect EMS operators at the scene of a crash.
- ✔ Conduct a media outreach campaign to inform the public about North Dakota's updated "move over" law for emergency vehicles and disabled vehicles with hazard lights on.

STRATEGY 3: Improve data collection, sharing, integration, and tracking post-crash outcomes.

ACTIONS:

- ✔ Identify the requirements necessary to link the trauma registry and NEMSIS registry databases.
- ✔ Develop a process or framework to track the outcomes of serious and fatal injury traffic crashes across multiple registry databases.
- ✔ Explore opportunities and funding sources for improved coordination between the NEMSIS registry and trauma registry and tracking outcomes of serious and fatal injury traffic crashes.

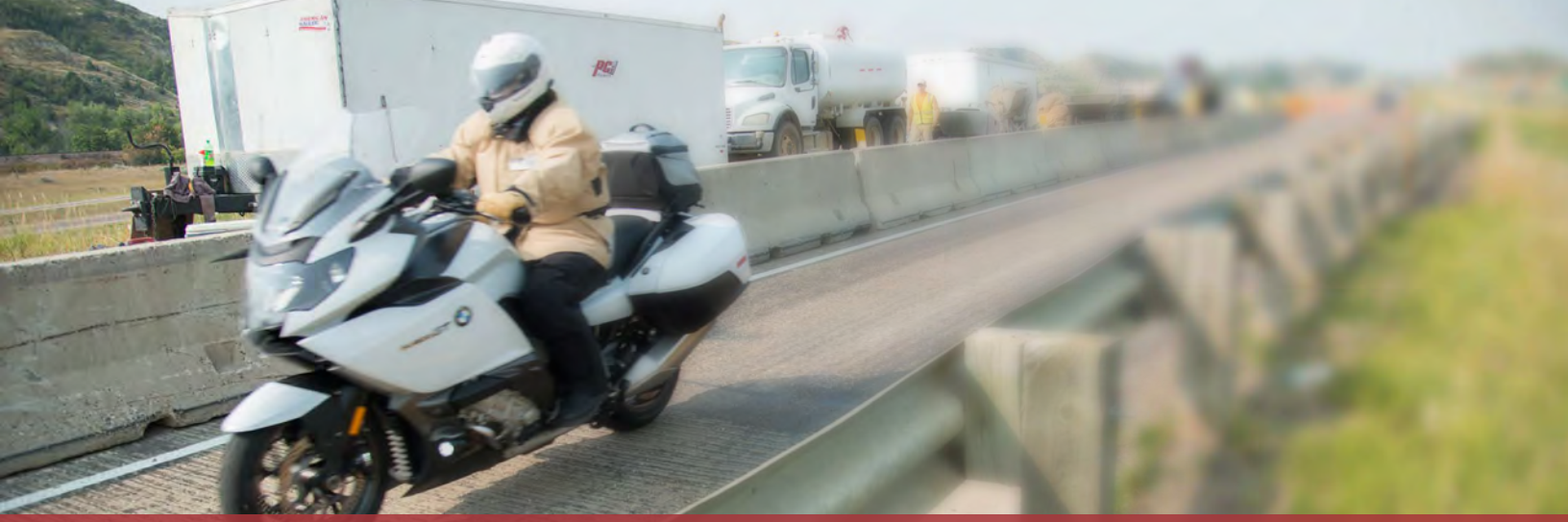
C FEDERAL REQUIREMENTS

Federal law requires States to develop a Strategic Highway Safety Plan and update that plan every five years. From the law FHWA sets HSIP policy requirements for State SHSPs to include the following:

» The SHSP update shall be conducted by the State DOT in consultation with safety stakeholders, including but not limited to:

- A highway safety representative.
- Regional transportation planning organizations and metropolitan planning organizations.
- Representatives of major modes of transportation.
- Authorized traffic enforcement officials.
- A highway-rail grade crossing safety representative.
- Representatives conducting a motor carrier safety program.
- Motor vehicle administration agencies.
- County transportation officials.
- State representatives of nonmotorized users.
- Other Federal, State, Tribal, and local safety stakeholders.

- Analyze safety data to address safety problems and opportunities on all public roads and for all road users.
- Identify Emphasis Areas and strategies that have the greatest potential to reduce highway fatalities and serious injuries.
- Consider the findings of road safety audits, locations of fatalities and serious injuries and locations that possess risk factors for potential crashes, the cost-effectiveness of improvements, and improvements to rail-highway grade crossings.
- Adopt performance-based goals that are coordinated with other State highway safety programs.
- Address engineering, management, operations, education, enforcement, and emergency services elements when determining SHSP strategies.
- Consider the results of State, regional, local, and Tribal transportation and highway safety planning processes and be consistent with other transportation plans, i.e., STIP, HSIP, HSP, CVSP.
- Conduct an evaluation to confirm Emphasis Areas and strategies and identify issues related to the SHSP's process and implementation.
- Define "high-risk rural road" and include in a subsequent SHSP an Emphasis Area for older drivers and pedestrians if fatalities and serious injuries per capita increase during the most recent two-year period for which data are available.
- Provide a detailed description of the update process.
- Be approved by the Governor of the State or a responsible State agency official that is delegated by the Governor.
- Approval of the update process by the FHWA North Dakota Division Administrator.



D SPECIAL RULES

Federal requirements from FHWA may require North Dakota to address three special rules in SHSP updates under the HSIP (23 U.S.C. 148): High-Risk Rural Roads (HRRR), Older Drivers and Pedestrians, and VRU Safety.

HIGH-RISK RURAL ROADS SPECIAL RULE

North Dakota defines HRRRs as any roadway functionally classified as a rural collector or rural local road with a crash rate for fatalities and serious injuries that exceeds the statewide average for those facilities or that will likely have increases in traffic volumes that would result in crash rates that exceed the statewide average rates.

If the fatality rate (using a five-year average) on North Dakota's HRRRs increased over the most recent two-year period, then the HRRR special rule applies and NDDOT is required to obligate a minimum amount[8] for HRRR projects in the next fiscal year as determined by FHWA (23 U.S.C. 148(g)(1)).

For the FY2024 HSIP, the HRRR special rule does not apply in North Dakota because the fatality rate on rural roads decreased from the Calendar Year (CY) 2015–2019 average to the CY 2017–2021 average.

[8] From page 11 of USDOT HSIP Memorandum: https://safety.fhwa.dot.gov/hsip/rulemaking/docs/Section148_SpecialRule_Guidance.pdf

OLDER DRIVERS AND PEDESTRIANS SPECIAL RULE

The Older Drivers and Pedestrians special rule evaluates traffic fatalities and serious injuries per capita for drivers and pedestrians over the age of 65. If the five-year average in North Dakota increases over the most recent two-year period, the special rule applies and the *Vision Zero Plan* must include strategies to address the increase in older driver and pedestrian fatalities and serious injuries (23 U.S.C. 148(g)(2)).

For the FY2024 HSIP, the Older Drivers and Pedestrians special rule does not apply in North Dakota because the traffic fatalities and serious injuries per capita for drivers and pedestrians over the age of 65 decreased from the CY 2015–2019 average to the CY 2017–2021 average. Regardless, this *Vision Zero Plan* includes strategies and actions to decrease older driver and pedestrian fatalities and serious injuries as a part of the Older Drivers Priority Emphasis Area and the Pedestrian/Bicyclist focus area.

VULNERABLE ROAD USERS SAFETY SPECIAL RULE

The Vulnerable Road Users Safety special rule evaluates the number of VRU traffic fatalities as a percentage of total statewide traffic fatalities in a single-year period. If VRU fatalities represent 15 percent or more of the total, then NDDOT is required to obligate 15 percent or more of the next fiscal year HSIP funds allocated under 23 U.S.C. 104(b)(3) to projects specifically addressing the safety of VRUs (23 U.S.C. 148(g)(3)).

A "vulnerable road user" is defined in 23 U.S.C. 148(a)(15) as a nonmotorist with a FARS person attribute code for pedestrian, bicyclist, other cyclist, person on personal conveyance, or an injured person equivalent to a pedestrian or pedalcyclist. The definition includes highway workers on foot in work zones, but does not include motorcyclists.

For the FY2024 HSIP, the VRU Safety special rule does not apply in North Dakota because the total annual fatalities for VRUs is less than 15 percent of total annual crash fatalities in North Dakota in CY 2021.

E VULNERABLE ROAD USER SAFETY ASSESSMENT

1. INTRODUCTION

As required by the Infrastructure Investment and Jobs Act (IIJA), the North Dakota Department of Transportation (NDDOT) conducted a Vulnerable Road User (VRU) Safety Assessment. In alignment with federal priorities, the VRU Safety Assessment supports North Dakota's ongoing commitment to ensure all road users, especially those which are vulnerable, have access to a safe transportation experience. In addition, the VRU Safety Assessment supports the United States Department of Transportation's (U.S. DOT) National Road Safety Strategy (NRSS), as adopted on January 27, 2022, and implementation of the Safe System Approach (SSA) to reduce roadway fatalities and serious injuries involving all users. As mandated by the IIJA, all states are required to complete a VRU Safety Assessment as an amendment to their Strategic Highway Safety Plan (SHSP) by November 15, 2023.

Defining VRU

A **vulnerable road user** includes those who choose to walk, bike, or roll as part of their everyday activities on North Dakota's state and local roadways. As defined by U.S. DOT's Federal Highway Administration (FHWA), a VRU is a non-motorist with a fatality analysis reporting system (FARS) person attribute code for:

- *A pedestrian* (including a roadway worker on foot in a work zone);
- *A bicyclist* or other *cyclist*; or
- *A person on a personal conveyance or an injured person* that is, or is equivalent to, a pedestrian or pedalcyclist as defined in the ANSI D16.1-2007 (see 23 U.S.C. 148(a)(15) and 23 CFR 490.205).

By definition, motorcyclists are not considered a vulnerable road user within the VRU Safety Assessment.

VRU Safety Assessment Purpose and Organization

The purpose of the VRU Safety Assessment is to assess and improve the safety of vulnerable road users on state and local roadways in North Dakota. The VRU Safety Assessment is intended to build upon existing state and local roadway safety efforts and serve as a planning document to guide transportation safety improvement project decision-making and investments. In alignment with federal guidance, the VRU Safety Assessment was conducted through a data-driven, collaborative process consisting of the following components:

- A network screening analysis of all fatalities and serious injuries on state and local roadways was conducted to identify high-risk vulnerable road user areas. The analysis identified a set of high-risk roadway segment corridors and intersections, and provided insight related to VRU-involved crash characteristics, demographics, and contributing factors.
- Following the network screening, the NDDOT consulted with local governments, Metropolitan Planning Organizations (MPOs), and tribal governments representing the high-risk crash location areas to gather local knowledge and perspectives of vulnerable road user safety needs, challenges, and successes within different community contexts.
- Insight gathered from the network screening analysis and local consultation process were used in tandem to develop a program of VRU-focused safety strategies.

As a guiding planning framework, the VRU Safety Assessment seeks to ensure that vulnerable road user safety remains a key input in NDDOT's project development process across all transportation system project types. Similar to national safety priorities, the overall goal of the VRU Safety Assessment is to achieve North Dakota's long-term vision of zero roadway fatalities and serious injuries. The VRU Safety Assessment includes the following chapters:

- **Chapter 2: Safe System Approach Integration—**provides an overview of the SSA and describes how the SSA principles and elements were integrated throughout the VRU Safety Assessment.
- **Chapter 3: Vulnerable Road User Safety Performance—**presents historical vulnerable road user safety trends and describes progress towards meeting non-motorized safety performance targets.
- **Chapter 4: Identification of High-Risk VRU Areas—**describes the methodology and data used to conduct the network screening crash analysis and identifies VRU high-risk areas.
- **Chapter 5: Local Consultation—**describes the process to consult with local entities representing the VRU high-risk areas and provides a summary of feedback gathered in each local consultation meeting.
- **Chapter 6: Program of VRU Strategies—**describes a set of common themes and key-takeaways from the data analysis and location consultation process, and identifies a program of VRU strategies to improve VRU safety.

2. SAFE SYSTEM APPROACH INTEGRATION

Chapter 2 provides a high-level overview of the Safe System Approach (SSA) and identifies how the principles and elements of the SSA have been integrated within the VRU Safety Assessment.

Overview of the Safe System Approach

As highlighted in the 2022 NRSS, the U.S. DOT adopted the SSA in pursuit of their commitment to achieve Vision Zero – the global movement to end roadway fatalities and serious injuries while prioritizing safe, healthy, and equitable mobility. The SSA is a proven approach which aims to protect all road users, especially those who are vulnerable, by building foundational layers of prevention, protection, and mitigation within the national roadway landscape.

As shown in Figure 10, the SSA is guided by six overarching principles (shown in the outer rings of the pie chart) and five elements (shown as slices of the pie chart) to reduce fatalities and serious injuries. At its core, the SSA acknowledges that collaboration across all safety stakeholders is needed to refocus transportation system planning, design, and operations to minimize risk and save lives. In addition, the foundation of a Safe System ensures that all road users have equal access to affordable and reliable transportation regardless of their income, geography, ability, or chosen mode of travel.

Figure 10. SAFE SYSTEM APPROACH

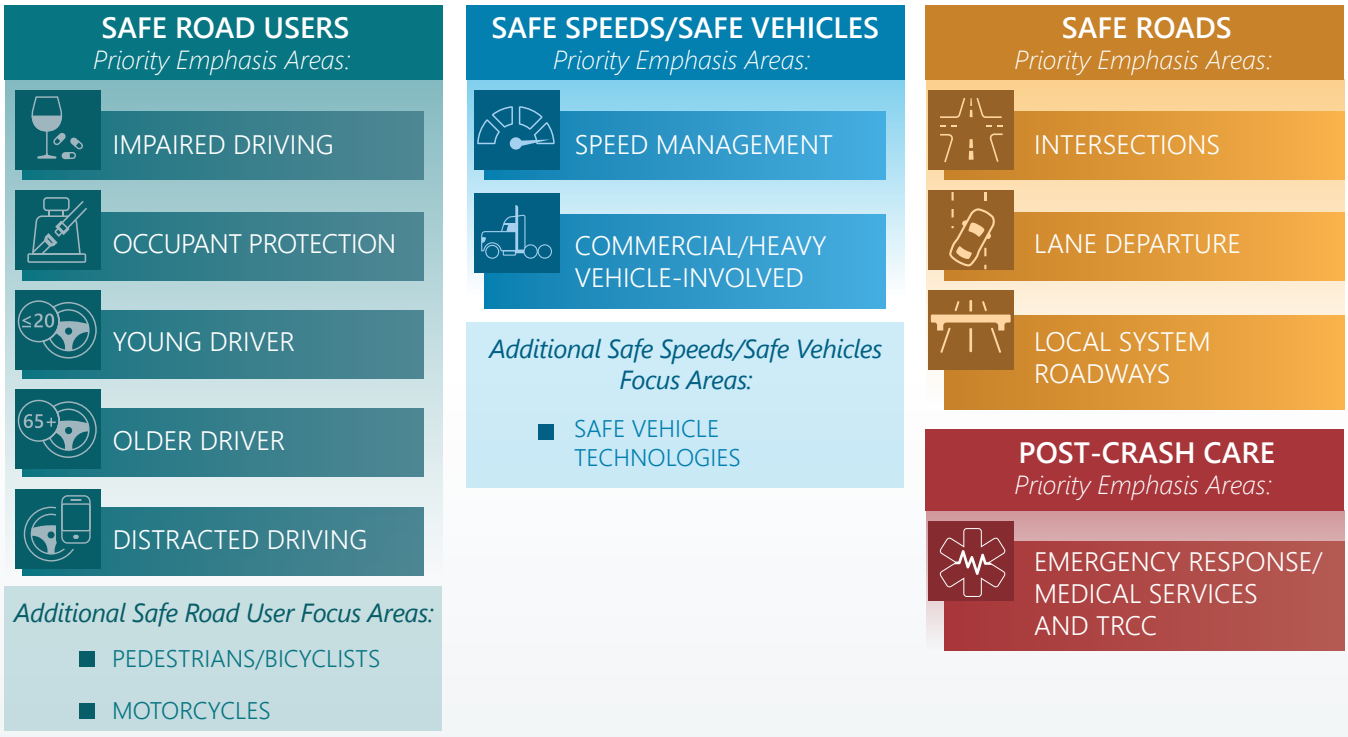
Safe System Approach Integration

As mandated by 23 U.S.C. § 148 (c)(1), all states are required to develop a comprehensive framework and Strategic Highway Safety Plan (SHSP) to identify safety barriers and opportunities to reduce fatalities and serious injuries on state and local roads. North Dakota's SHSP, also known as the Vision Zero Plan, outlines statewide goals, objectives, strategies, and countermeasures to improve roadway safety for all users. In 2023, North Dakota chose to integrate the SSA guiding principles and elements into the *2024 Vision Zero Plan* update.

As identified in the *2024 Vision Zero Plan*, North Dakota is committed to developing a strong safety culture and equitable transportation system to ensure all roadway users, regardless of their demographics, are equally protected. In alignment with this commitment and federal guidance, the VRU Safety Assessment network screening analysis prioritized high-risk VRU roadway segments and intersections within identified equity areas and land use types (further described in Chapter 4 of VRU Safety Assessment).

As shown in Figure 11, the *2024 Vision Zero Plan* also uses the SSA elements—Safe Road Users, Safe Speeds and Safe Vehicles, Safe Roads, and Post-Crash Care—to organize the data-driven statewide Priority Emphasis Areas and Focus Areas. Non-motorists, including bicyclists and pedestrians, are identified as a Focus Area within the Safe Road User Emphasis Area.

Figure 11. 2024 VISION ZERO PLAN EMPHASIS AREA ORGANIZATION



The VRU Safety Assessment intends to develop a program of VRU-specific strategies, which build upon the existing non-motorized-focused strategies identified in the *2024 Vision Zero Plan*. In addition, the program of VRU strategies was developed to address specific challenges identified by the network screening analysis and local consultations, and reflect the SSA principles and elements (further described in Chapter 6 of VRU Safety Assessment).

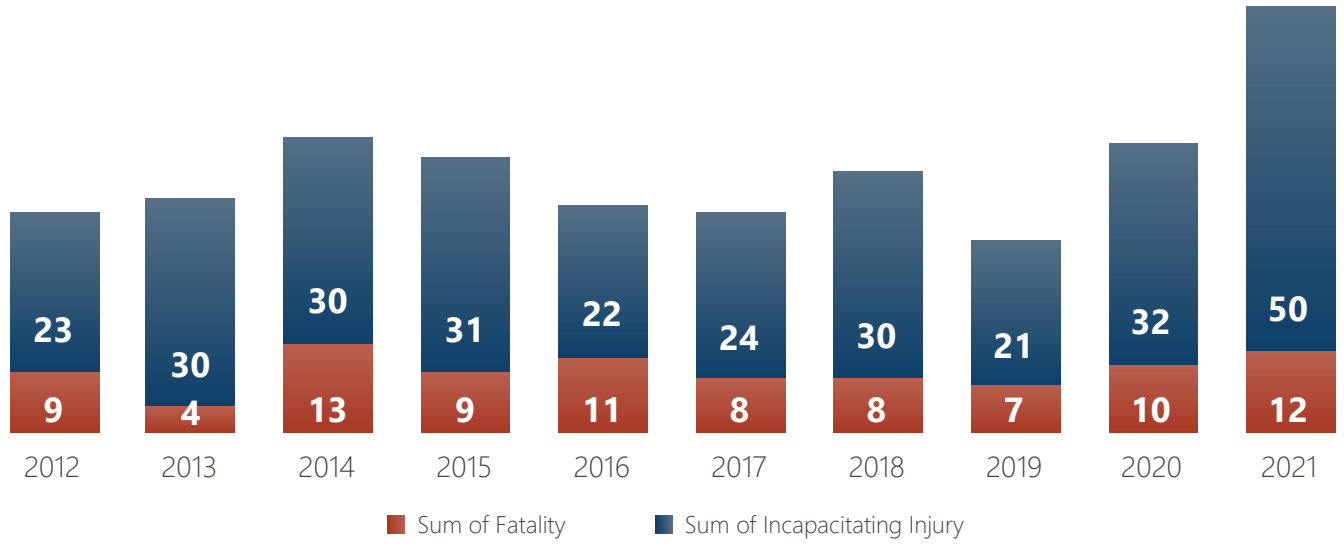
3. VRU SAFETY PERFORMANCE

Chapter 3 presents historical vulnerable road user safety trends in North Dakota and describes progress toward meeting safety performance targets for non-motorized users.

Historical VRU Safety Trends

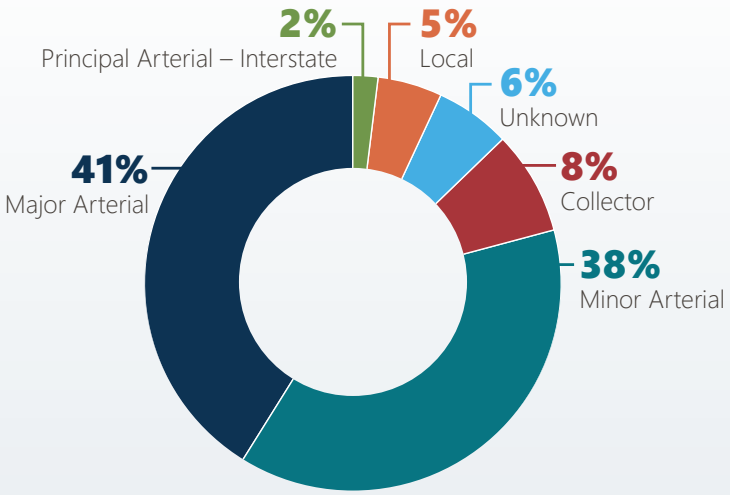
The VRU Safety Assessment analyzed statewide crash data gathered over a 10-year period from 2012 to 2021. As shown in Figure 12, VRU-involved fatalities and serious injuries in North Dakota have gradually increased, a similar trend experienced throughout the nation. Between 2017 and 2021 alone, VRUs represented eight percent of North Dakota's fatalities and six percent of serious injuries on state and local roads.

Figure 12. VRU-Involved Fatalities and Serious Injuries *(2012–2021)*



As shown in Figure 13, more than 75 percent of VRU crashes occur predominantly on arterial roads, suggesting that high speeds are a common contributing factor towards the severity of the crash. These roads are often not as well designed for VRU usage.

Figure 13. VRU CRASHES BY FACILITY TYPE *(2012–2021)*



As shown in Figure 14, the top five counties with the highest number of non-motorized crashes recorded between 2012 and 2021 include Cass County (644 crashes), Burleigh County (433 crashes), Grand Forks County (264 crashes), Ward County (178 crashes), and Williams County (144 crashes). Unsurprisingly, these counties include the largest cities and highest populations. This factor was incorporated into the network screening analysis to avoid skewing of prioritizations due to population size, and guided the selection of entities contacted for local consultations. As shown in Figure 15, **more than 80 percent of crashes occur in urban areas** compared to rural areas, driven by the largest population shares.

Figure 14. VRU Crashes by County *(2012–2021)*

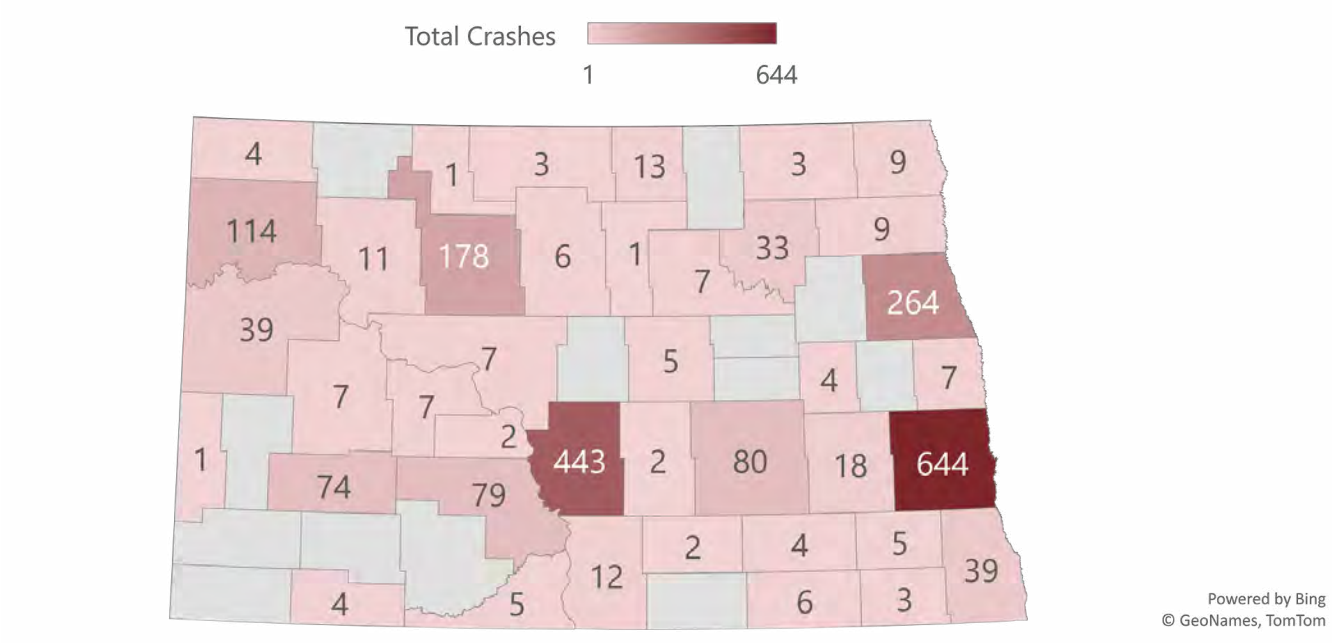
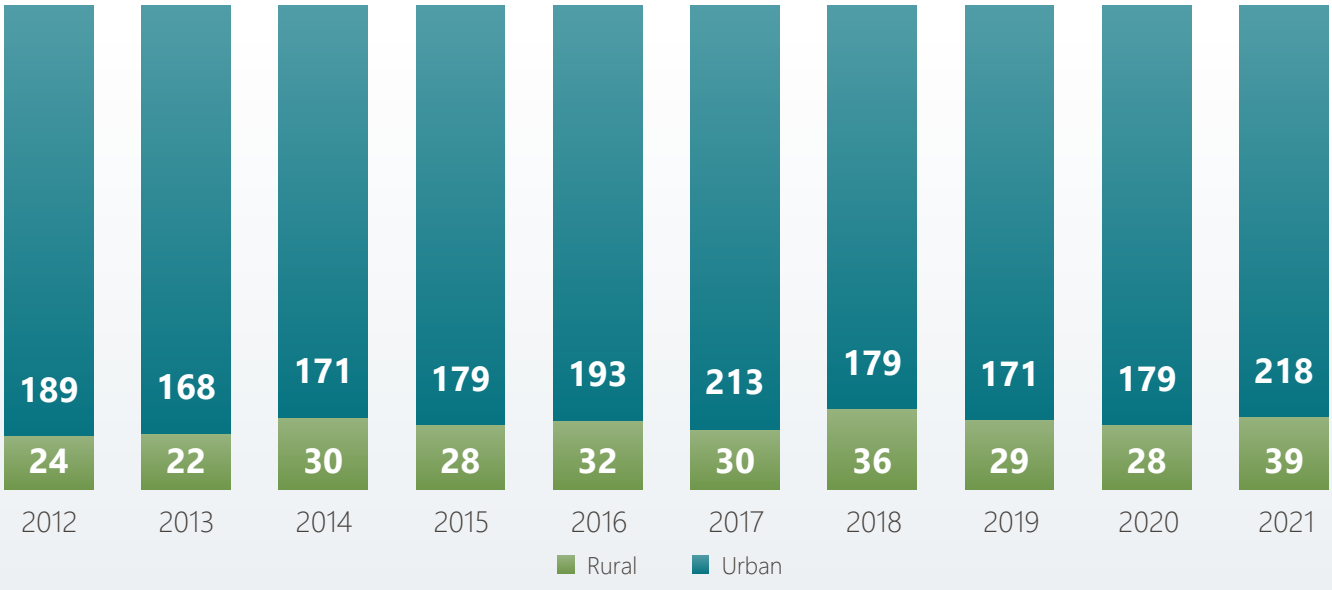


Figure 15. VRU Crashes by Year and Location Type



Non-Motorized Safety Performance Targets

The NDDOT is responsible for coordinating the statewide Vision Zero initiative and to assure compliance with federal SHSP, Highway Safety Improvement Program (HSIP), and Highway Safety Plan (HSP) requirements. Statewide safety performance targets are established and outlined in North Dakota's annual infrastructure-based HSIP and the behavioral-based HSP, which are aligned with North Dakota's short-term target and long-term vision presented in the *2024 Vision Zero Plan*.

North Dakota's 2022 HSP Annual Report was developed in alignment with the *2018 Vision Zero Plan*, which established a short-term safety goal of 75 or fewer motor-vehicle fatalities by 2025 to achieve the long-term desired goal of zero traffic fatalities. As identified in the 2022 HSP, North Dakota established two performance measures to track statewide progress in reducing pedestrian and bicyclist fatalities:

- **Performance Measure C-10 (Number of pedestrian fatalities)—**The 2022 HSP annual report established a five-year (2018–2022) target value of 6.1 based on a one percent annual reduction of the previous reporting period (2016–2020) five-year average.[9]

- **Performance Measures C-11 (Number of bicyclist fatalities)—**The 2022 HSP annual report established a five-year (2018–2022) target value of 2.0 based on a one percent annual reduction of the previous reporting period (2016–2020) five-year average.[10]

As shown in Figure 12, North Dakota's non-motorist fatalities and serious injuries have fluctuated between 2012 and 2021. For example, non-motorist fatalities and serious injuries experienced a decline between 2014 to 2017 but increased between 2019 to 2021. Based on the recent increase in non-motorist fatalities, North Dakota did not meet the behavioral-based 2022 HSP targets.

In addition, North Dakota's 2022 HSIP describes progress toward meeting the 2022 infrastructure-based safety performance targets, and sets the 2023 annual target. As identified in the 2022 HSIP, the non-motorized fatality and serious injury target value was 30.5 and the actual target value was 34.2, implying that North Dakota did not reach the intended target. Based on the 2022 performance, the HSIP identified a new target value of 33.5 for the year 2023.[11]

Although the State did not meet their intended safety performance targets, North Dakota is confident that the strategies presented in the VRU Safety Assessment and the *2024 Vision Zero Plan* will help the State make significant progress to achieve their 2024 SHSP vision of zero traffic fatalities (including 75 fatalities or less by 2030), and mission to prevent all traffic fatalities and serious injuries, and goal of developing a culture of personal responsibility.

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[9] Highway Safety Plan (HSP) Annual Report Fiscal Year 2022, NDDOT: https://www.nhtsa.gov/sites/nhtsa.gov/files/2021-10/ND_FFY%202022_HSP_rev%207_27_2021.pdf

[10] Highway Safety Plan (HSP) Annual Report Fiscal Year 2022, NDDOT: https://www.nhtsa.gov/sites/nhtsa.gov/files/2021-10/ND_FFY%202022_HSP_rev%207_27_2021.pdf

[11] North Dakota Highway Safety Improvement Program (HSIP) 2022 Annual Report: https://highways.dot.gov/sites/fhwa.dot.gov/files/2023-08/ND-HSIP-2022.pdf

4. IDENTIFICATION OF HIGH-RISK VRU AREAS

Chapter 4 describes the methodology and data used to conduct the network screening analysis and identify high-risk VRU areas in North Dakota.

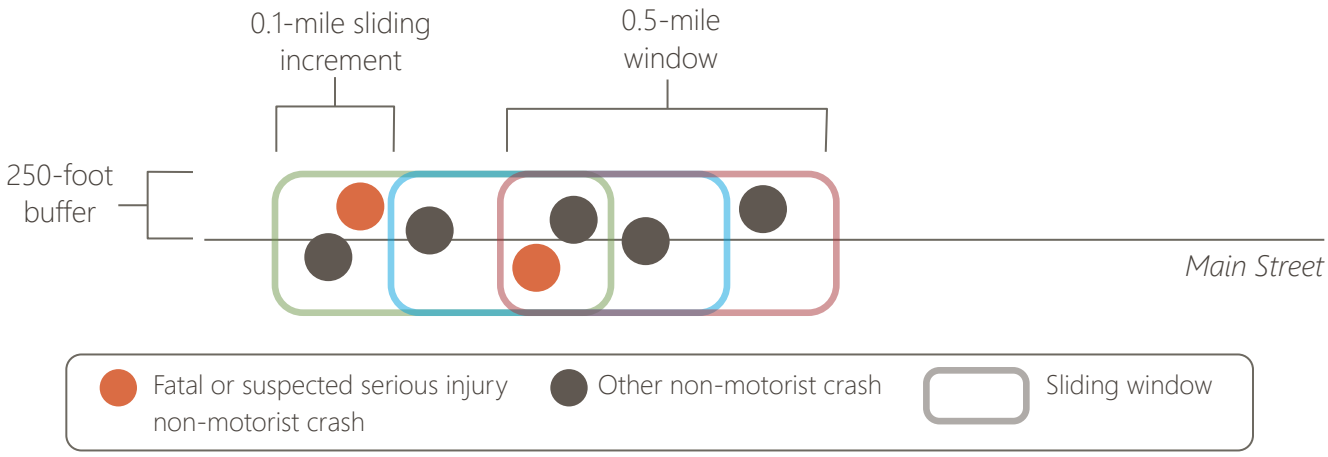
Network Screening Methodology

The network screening approach utilized a sliding window method for road segmentation, which is a recognized method supported by the FHWA in their *Guidebook on Identification of High Pedestrian Crash Locations*.[12] This approach has been widely used in Vision Zero studies to identify High Injury Networks, as well as VRU assessments nationwide.

This sliding window method is a technique employed to identify crashes within finite segments along roadways. This process involves creating windows that cover the transportation road network, with each window offset by a short distance from the previous one. Utilizing overlapping windows mitigates the potential for missing the sections with the highest number of crashes. The analysis is repeated until the entire road network is segmented into overlapping finite windows with which crash data can be overlayed. Within the context of this assessment, the 0.5-mile windows were built along all roads with consistent name, functional class, and proximity to each other. The windows were offset, or slid, along the network in 0.1-mile increments. All U.S., state, and local roads throughout the State were included. An illustrative example is shown below in Figure 16 and the following text.

[12] Guidebook on Identification of High Pedestrian Crash Locations, FHWA, 2018: https://www.fhwa.dot.gov/publications/research/safety/17106/index.cfm

Figure 16. Sliding Window Analysis Illustrative Example



Variables and Formula:

KA = # of fatal or suspected serious injury non-motorist crashes within the sliding window
BCO = Other non-motorist crashes within the sliding window

Crash Score = 3*(KA) + 1*(BCO)

Examples:

Crash Score for Green Window = 3*(3 crashes) + 1*(2 crashes) = 11
Crash Score for Blue Window = 3*(2 crashes) + 1*(2 crashes) = 8
Crash Score for Red Window = 3*(2 crashes) + 1*(2 crashes) = 8

VULNERABLE ROAD USER CRASHES

The process to identify VRU high-risk areas included a network screening analysis of all state and local roads using 10 years of crash data from 2012 to 2021. The analysis resulted in high-risk areas by roadway segment corridors and intersections.

Each VRU-involved crash was assigned an overall crash value, one criterion used to identify and prioritize high-risk areas within North Dakota. Crash values were weighted based on crash severity. Three points were assigned to fatal and incapacitating injury crashes, and one point was assigned to all other crashes. The weighted crash scores were assigned to intersections and road segments based on proximity. Crashes within 250 feet of a road segment were assigned to that segment. Crashes within 150 feet of an intersection were assigned to the intersection as well. This resulted in a cumulative weighted crash score for each road segment and intersection capturing relative frequency and severity of VRU crashes. However, these methods do not include the local context and demographic factors that contribute to VRU crash risks, discussed in the next section.

DEMOGRAPHIC FACTORS

Locations were prioritized within identified equity areas and specific land use types. Following the criteria in North Dakota's *Freight and Rail Plan*, the prioritization methodology considered Justice40 populations where 40 percent were below the poverty line and 50 percent were non-white. These are communities that rely on walking and biking more compared to the general population. Rural areas were also prioritized within the criteria. While encompassing most of North Dakota's roadway mileage, rural communities have relatively low population densities compared to urban areas in the State, making the potential for historical VRU crashes within the same segment or intersection less likely. Also, tribal communities received additional prioritization for having historically underreported crash statistics, outside of fatal crashes. The demographic metrics and scoring weights are explained in Table 1 below.

Table 1. Demographic Metrics and Scoring weights

Factor	Metric	Metric Weight *(Contribution to Factor Score)*
Safety	Bicycle and pedestrian crash score per mile	50%
Equity	Where 40% population below poverty line	10%
Equity	Where 50% population is non-white	13.3%
Land Use	Tribal area	13.3%
Land Use	Rural area	13.3%

The weighted scores were normalized on a 10-point scale. The highest scoring segment received seven points. Any segment scoring more than four points was considered a high-scoring segment. The segments are 0.5 miles long and fragmented for detailed results, as shown in Figure 17. However, the characteristics and surrounding development of a road corridor are similar for longer stretches. For this reason, road corridors with multiple high-scoring segments were combined and considered as a continuous high priority corridor, as shown in Figure 18. This resulted in a list of high priority road corridors.

Similarly, any intersection scoring more than four points was considered a high priority intersection. The priority intersections overlap with many of the high priority corridors. In total, there are 21 priority road corridors and 23 priority intersections spread across the State. The list of prioritized corridors and intersections may be found in Appendix F of the *2024 Vision Zero Plan*.

Figure 17. SNAPSHOT of Sliding Window Analysis for Weighted High-Scoring Segments

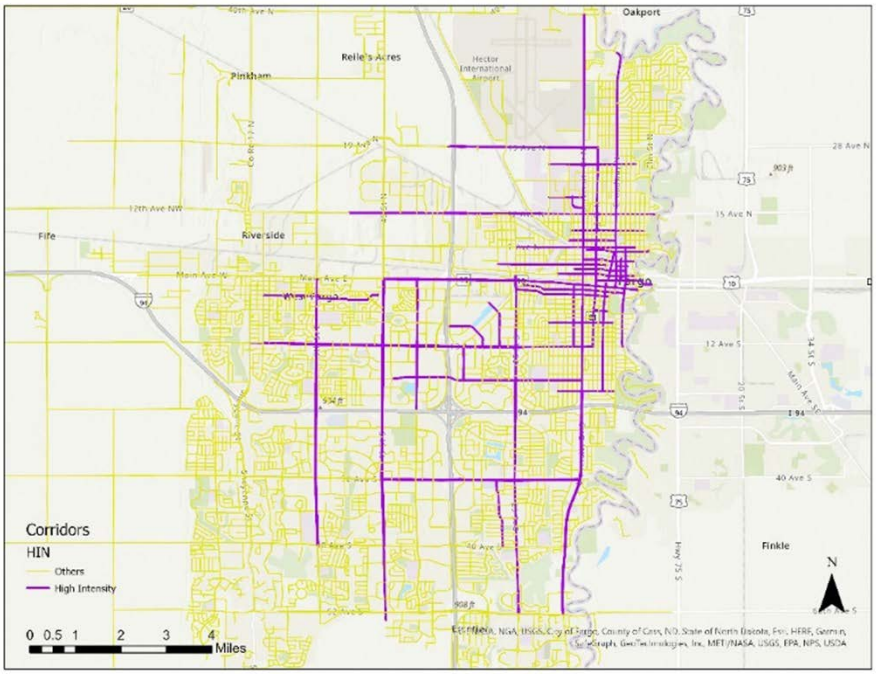
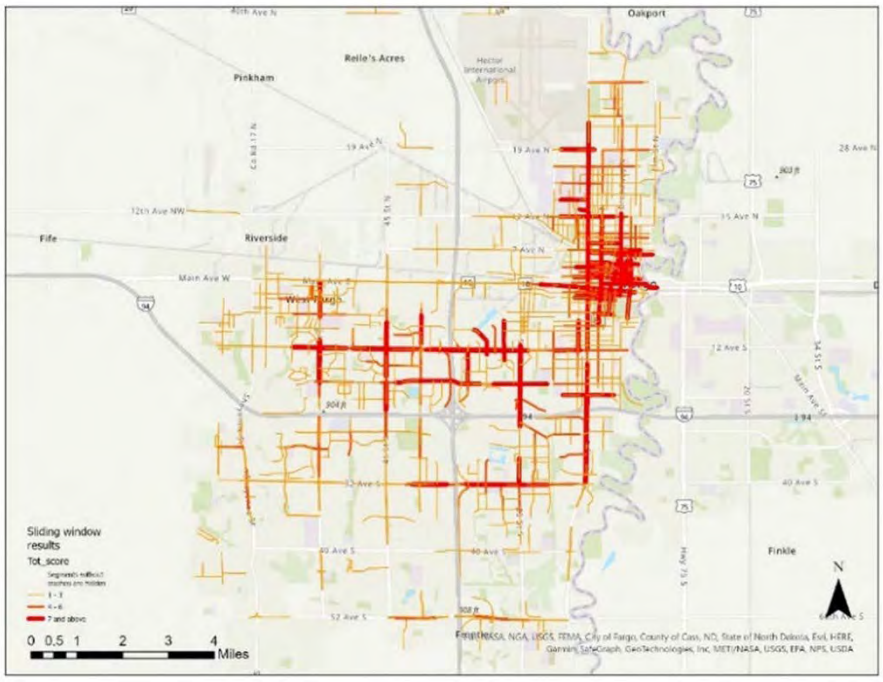


Figure 18. SNAPSHOT of Sliding Window Analysis for Combined High Priority Corridors



5. LOCAL CONSULTATION

Chapter 5 describes the process to conduct local consultations in support of the VRU Safety Assessment, and provides individual summaries of the feedback and input gathered during each local consultation meeting.

Local Consultation Process

In alignment with federal guidance, the NDDOT began the local consultation process by identifying and contacting entities representing the VRU high-risk areas (including local and regional governments located within the top-five counties with the highest number of VRU crashes, as identified in Chapter 3 of the VRU Safety Assessment), tribal areas, and non-motorist transportation activist groups. The purpose of the consultations was to gain an in-depth understanding of unique VRU safety needs, challenges or barriers, successes, and opportunities to improve non-motorized user safety within individual communities. Each consultation meeting was conducted to achieve the following objectives:

- Provide an overview of the VRU Safe Assessment purpose and requirements.
- Discuss VRU safety performance and trends in North Dakota.
- Review the existing *2024 Vision Zero Plan* non-motorist focused strategies and initiatives.
- Explain the methodology to conduct the network screening analysis, review initial findings from the analysis, and gain confirmation on the identified high priority roadway segments and intersections.
- Provide an opportunity to discuss VRU safety challenges and crash contributing factors, identify VRU safety needs, and highlight successful projects or initiatives to improve non-motorist safety.
- Brainstorm local, regional, and statewide safety strategies to reduce VRU involved fatalities and serious injuries.

Based on invitees' willingness to participate and offer feedback, the NDDOT conducted a total of four local consultation meetings with MPOs, local government, and tribal area representatives:

- **Local Consultation Meeting #1:** On September 12, 2023, the NDDOT virtually consulted with tribal government representatives from the Spirit Lake Tribe.
- **Local Consultation Meeting #2:** On September 15, 2023, the NDDOT consulted with regional representatives from Bismarck MPO (Burleigh County), Fargo MPO (Cass County), Grand Forks MPO (Grand Forks County), and Minot MPO (Ward County) during the hybrid virtual/in-person MPO Director's Meeting.
- **Local Consultation Meeting #3:** On September 15, 2023, the NDDOT virtually consulted with tribal government representatives from the Standing Rock Sioux Tribe.
- **Local Consultation Meeting #4:** On September 19, 2023, the NDDOT virtually consulted with local representatives from the City of Williston (Williams County).

Local Consultation Meeting Summaries

The following sections provide a summary of the local input, perspectives and first-hand knowledge gathered in each consultation meeting.

LOCAL CONSULTATION MEETING #1: SPIRIT LAKE TRIBE

Members of the Spirit Lake Tribe identified the greatest challenge to address vulnerable road user safety as lowering motor-vehicle travel speeds while simultaneously reducing the risk of VRU crashes with vehicles traveling at high speeds. As such, Spirit Lake Tribe continues to look for opportunities to provide dedicated space for traveling non-motorists while also reducing vehicle speeds.

For example, community members highlighted the importance of implementing roundabouts to reduce potential intersection conflict points and serve as traffic calming devices. In addition, Spirit Lake Tribe representatives shared their success in implementing low-cost safety countermeasures, such as rumble strips, high-reflectivity signage and chevrons, intersection lighting, and shoulder widening to reduce traffic crashes.

Based on the density of motor-vehicle crash fatalities and serious injuries in the Fort Totten area, the NDDOT is in the process of designating ND Highway 57 as a safety corridor to improve safety for all road users. This includes implementation of behavioral-based strategies such as heightened enforcement to manage vehicle speeds, public awareness outreach, and infrastructure-based improvements. The Fort Totten area is currently installing network-wide intersection improvements, including ADA-compliant infrastructure, Rectangular Rapid Flashing Beacons (RRFB), and tactical blinking solar-powered lighting, to increase VRU awareness and improve mobility for disabled populations. To separate road users in space, the NDDOT has submitted and been awarded a grant for two multi-use trails and crossing enhancements along ND 20/ND 57 from Fort Totten to Devils Lake, and a new pedestrian and bicycle bridge along ND 57 with added lighting and guardrails.[13]

[13] RAISE 2023 Fact Sheets, FHWA: https://www.transportation.gov/sites/dot.gov/files/2023-06/RAISE%202023%20Fact%20Sheets_0.pdf

LOCAL CONSULTATION MEETING #2: MPOS

The MPO Director's meeting included representatives from Bismarck, Fargo, Grand Forks, and Minot. Each MPO was provided the opportunity to offer specific insight related to the identified VRU high-risk roadway segments and corridors in their community. In addition, the NDDOT utilized the Mentimeter polling software to engage representatives in a group discussion about VRU safety challenges, concerns, and opportunities. This discussion is summarized below:

- Children, disabled persons, and the older population were identified as the top three most vulnerable populations on North Dakota's roadways, followed by members of zero-vehicle households, low-income populations, and non-English speakers. In addition, representatives identified the importance of protecting students and the homeless population.

- Intersections, densely populated areas (e.g., downtowns and main streets), popular destination and service areas (e.g., transition centers, assisted living areas, schools, and community centers), and work zones are the types of areas that experience the greatest VRU safety challenges. In addition, representatives identified barriers due to land uses, winter weather, and access management.

- The MPO representatives were asked to rank a set of safety solutions, in alignment with the SSA principles and elements, based on their greatest impact to improve VRU safety within their unique communities.

  - ***Remove Severe Conflicts***—Sidewalks and walkways were ranked as the top solution to remove severe conflicts. This was followed by removing turning movements at intersections, implementing medians and pedestrian refuge islands, creating shared-use pathways, and implementing bicycle lanes and bike boxes as priority. Representatives noted that sidewalks and walkways are the preferred solution as they provide fully separate and dedicated space for non-motorist road users.

  - ***Increase Attentiveness and Awareness***—Curb extensions and sight distance improvements were ranked as the top solutions to increase awareness of VRUs on local roadways. This was followed by installing lighting, implementing crosswalk visibility enhancements, installing rapid flashing beacons, and bicyclist signage and pavement markings.

  - ***Reduce Vehicle Speeds***—In addition to reducing speed limits on local roadways, MPO representatives identified gateway treatments are the top solution to calm traffic, followed by self-enforcing or self-explaining roadways and road diets.

- MPO representatives touched upon the importance of implementing non-infrastructure-based solutions focused on education and enforcement. This includes conducting public outreach on the dangers of speeding, amplifying the message of Vision Zero, educating community members on new safety improvement treatments, educating elected officials on VRU safety countermeasures and safety benefits supported by data-driven analysis and safety studies, and engaging with local community groups and active transportation leaders.

Bismarck MPO

The Bismarck MPO noted the high-risk roadway segments and intersections identified in the network screening analysis are inclusive of areas with large Environmental Justice (EJ) populations. These areas often have a high density of destinations and services (such as apartment complexes, grocery stores, motels, and transition centers) that are frequently accessed by non-motorists, but lack supporting pedestrian and bicyclist infrastructure. Based on these patterns, the community discussed an opportunity to conduct a "safe routes to services" study to identify transportation infrastructure barriers, evaluate accessibility to alternative transportation modes, and implement improvement projects.

In alignment with the SSA, representatives from the Bismarck MPO identified the importance of developing a proactive transportation system to reduce fatalities and serious injuries. For example, community members in Bismarck reported seeing disabled individuals traveling via wheelchair along ND Highway 83. Based on these reports, the City of Bismarck is in process of applying for a shared-use pathway along the ND Highway 83 corridor. In regard to safety project successes, the Bismarck MPO continues to implement treatments to enhance sidewalks and crosswalks, and implement Rectangular Rapid Flashing Beacons (RRFBs) to improve VRU awareness and attentiveness to traveling motor-vehicles.

Fargo MPO

The Fargo MPO identified that their greatest safety challenge is to protect traveling pedestrians on the roadway, especially students and individuals who are homeless. Another looming safety challenge is to reduce bicyclist confusion at intersections. The Fargo MPO continues to prioritize roadway safety improvement projects that aim to develop a more friendly VRU environment, include those described below:

- The roadway corridor along Broadway N between Main Avenue and 6th Avenue N was transformed from an arterial roadway into a local street. The improvements included reducing vehicle speeds, adding bulb-outs, and widening sidewalks.
- The community reconstructed the roadway corridor along Main Avenue between 2nd Street and University Drive by implementing a road diet to narrow the five-lane roadway down to three lanes. In addition, corridor provided widened sidewalks and boulevard separation.
- Along the intersection of 13th Ave S and 9th Street E in West Fargo, the city completed roadway realignment, and added additional turning lanes.

Grand Forks MPO

The Grand Forks MPO identified that non-motorists are most vulnerable in areas with confusing roadway geometry and a lack of pedestrian or bicyclist infrastructure. For example, the MPO noted that non-motorists mistakenly cross at the intersection of N Columbia Ave and 10th Ave N near the Grand Forks Fire Department although sidewalk infrastructure is not provided. As identified by the MPO, the greatest challenge to improving VRU safety comes from the north/south land use divide due to the intersecting east/west rail line located just north of Demers Avenue. The MPO noted that non-motorists traveling north or south from residential areas often travel along the Columbia Road overpass to reach population destinations and services via Demers Avenue, which has the highest Average Annual Daily Traffic (AADT) and narrow sidewalks.

In regard to safety successes, the Grand Forks MPO provided designated crossing areas for students traveling along University Avenue. The Grand Forks MPO also identified an opportunity to provide a pedestrian crossing overpass to protect students traveling to and from the University of North Dakota. In addition, the Grand Forks MPO will be implementing a roundabout at Belmont Road and S 5th Street to reduce vehicle speeds and potential intersection conflict points.

Minot MPO

The Minot MPO confirmed that non-motorist crashes mainly occur on the E Burdick Expressway corridor, which serves as a primary connection between the community schools. In addition, the Minot MPO noted that intersections located near hospitals remain a conflict points for all road users. In regard to successful safety VRU improvements and initiatives, the Minot MPO implemented bicyclist facilities along 46th Street.

LOCAL CONSULTATION MEETING #3: STANDING ROCK SIOUX TRIBE

Representatives from the Standing Rock Sioux Tribe noted success in implementing low-cost countermeasures to improve VRU safety, such as roadway signage, pavement markings and striping, and enhanced lighting. In addition, Standing Rock Sioux Tribal representatives highlighted the importance of installing roundabouts at major intersections to remove conflict points and reduce vehicle speeds, similar to perspectives provided during the Spirit Lake Tribe local consultation meeting.

As identified by representatives, the Standing Rock Sioux Tribe has received feedback from the local council and community members regarding the curved roadway geometry while traveling north on ND Highway 6, which is a high-risk crash location. Based on this feedback, Standing Rock Sioux Tribal members are discussing an opportunity to remove the roadway curve bend and replace the roadway configuration with a T-intersection to improve safety for all road users.

LOCAL CONSULTATION MEETING #4: CITY OF WILLISTON

The City of Williston identified that the non-white population, members of zero-vehicle households, and older populations are the most vulnerable in their community. These groups are most vulnerable when traveling through intersections and accessing popular destinations and services such as senior centers, parks, recreational centers, grocery, and transit stations. Similar to other communities in North Dakota, the City of Williston identified two greatest barriers to the protection of vulnerable road users: reducing motor-vehicle speeds, and a lack of dedicated pedestrian and bicyclist infrastructure. As such, non-motorists have been seen traveling along the shoulders of local roadways and US Route 2.

The City of Williston continues to prioritize low-cost countermeasures to enhance VRU safety, such providing sidewalks and walkways, bicycle signage and pavement markings, curb extensions, and lighting. In addition, the City implemented a road diet along Main Street. The road diet improved roadway safety for non-motorized road users by reducing the four-lane roadway to three lanes, installing bulb-outs, enhancing the pedestrian and bicyclist facilities, and providing enhanced pedestrian lighting.

6. PROGRAM OF VRU STRATEGIES

Chapter 6 describes common themes and key-takeaways used to develop the program of strategies and actions for addressing VRU safety in North Dakota.

VRU Common Themes and Key-Takeaways

The program of VRU strategies is intended to address VRU safety challenges and barriers identified both in the data-driven network screening analysis and local consultation meetings. The following includes a list of common themes and key-takeaways presented within the VRU Safety Assessment, which informed the VRU strategies presented in the next section.

- **VRU Trends—**Over the past 10 years, non-motorized fatalities and serious injuries trends have fluctuated in North Dakota, reaching their peak in 2021. More than 80 percent of VRU crashes occur in high density urban areas and over 75 percent occur on arterial roadways, which are often associated with higher volumes of motor-vehicle traffic and high travel speeds.

- **VRU Demographics—**North Dakota recognizes that vulnerable road users are not just person attribute codes identified in FARS—they are children, disabled persons, older people, individuals experiencing homelessness, students, non-English speakers, and members of low-income communities or zero-vehicle households, who each deserve equal access to safe and reliable transportation. Understanding where potential disadvantaged communities and those who rely on active transportation reside and how they access the transportation network is equally important to understanding safety risks.

- **Land Uses—**Urban roadway corridors and intersections are an integral part of the transportation network, which provide community access to popular destinations and services needed to support everyday activities. Simultaneously, they pose the greatest barriers to address VRU safety. As identified in the local consultation meetings, providing safe accessibility to destinations, including but not limited to commercial areas, transition centers, assisted living areas, schools and universities, community centers, parks, and services for the homeless population, remains challenging. Land use concerns are common within North Dakota's VRU high-risk areas, as community members living in residential areas often have to travel along or across wide and high-speed roadways, which lack pedestrian and bicyclist infrastructure. In many cases, VRUs access popular destinations without sufficient sidewalks or crossing opportunities, making them vulnerable to conflicts with adjacent motor-vehicle traffic. This land use divide disproportionally impacts households without cars and populations with restricted mobility such as disabled people and the older population.

- **Crash Contributing Factors—**North Dakota's communities identified a series of crash contributing factors including intersection conflict points, speeding motor-vehicles, lack of pedestrian or bicyclist infrastructure, and limited visibility and awareness of traveling vulnerable road users.

- **Safety Needs—**The VRU Safety Assessment highlighted a series of VRU-focused safety needs inclusive of engineering, education, and enforcement strategies. Communities identified the continued need to enhance pedestrian and bicyclist infrastructure to support more VRU-friendly environments. These needs include but are not limited to providing safe sidewalks and walkways in compliance with ADA standards, enhancing VRU visibility on the state and local roadways, and implementing traffic calming devices to reduce vehicle speeds. In addition, local representatives identified the importance of educating community members on new safety treatments, educating local officials on the proven benefits and advantages of implementing VRU transportation improvement projects, conducting high visibility enforcement to reduce vehicle speeds, and engaging with local community groups and active transportation leaders.

- **Safety Successes—**North Dakota's communities continue to implement successful roadway improvement projects and treatments to enhance the safety of non-motorized road users. Notable treatments include, but are not limited to, road diets and other roadway reconfigurations, enhanced pavement markings, striping, and signage, increased pedestrian lighting, and enhanced crossing visibility.

VRU Strategies and Actions

The VRU strategies and actions were developed to address the identified VRU barriers and challenges, while also encompassing successful safety initiatives which have been demonstrated to improve VRU safety and support the SSA principles and elements. The presented strategies and actions are not intended to provide location-specific recommendations or replace engineering judgment, but should be used as a planning framework to address VRU risks and concerns. North Dakota encourages local governments, MPOs, and tribal governments to implement the VRU strategies that best fit within their unique community context and needs in order to reach the statewide goal of Vision Zero. The VRU strategies and supporting actions are organized by engineering, education and enforcement solutions.

ENGINEERING SOLUTIONS

STRATEGY #1: Reduce vehicle speeds.

ACTIONS

- ✔ Implement road diets
- ✔ Install roundabouts
- ✔ Implement self-explaining/self-enforcing roadway design
- ✔ Install gateway treatments
- ✔ Narrow travel lanes

STRATEGY #2: Implement proven safety countermeasures and conduct research on emerging and innovative safety countermeasures to remove VRU conflict points intersections.

ACTIONS

- ✔ Install roundabouts
- ✔ Install reduced conflict intersections
- ✔ Remove turning movement at intersections
- ✔ Conduct sight distance reviews at intersections

STRATEGY #3: Implement proven safety countermeasures and conduct research on emerging and innovative safety countermeasures to improve VRU visibility and driver awareness of VRUs.

ACTIONS

- ✔ Install lighting
- ✔ Enhance intersection signage and striping
- ✔ Install curb extensions and sight distance improvements
- ✔ Install medians and pedestrian refuge islands
- ✔ Install crossing countdown timers
- ✔ Install crosswalk visibility enhancements (e.g., leading pedestrian intervals at traffic signals and rapid flashing beacons)
- ✔ Establish safety corridors
- ✔ Investigate and the use of innovative pavement markings and colored pavements

STRATEGY #4: Implement proven safety countermeasures and conduct research on emerging and innovative safety countermeasures to separate VRUs from adjacent motor-vehicle traffic.

ACTIONS

- ✔ Install ADA compliant sidewalks and walkways
- ✔ Install medians and pedestrian refuge islands
- ✔ Install multi-use pathways
- ✔ Install protected bicycle lanes
- ✔ Widen shoulders

STRATEGY #5: Continue to implement access management to reduce VRU conflict points near intersections.

ACTIONS

- ✔ Initiative early outreach in the planning and zoning stages and educate on the importance of access management to reduce potential VRU traffic crashes

STRATEGY #6: Conduct VRU safety studies.

ACTIONS

- ✔ Conduct VRU walking safety reviews or site investigations (e.g., safe routes to schools or safe routes to destinations) to identify VRU infrastructure barriers, challenges, and needs

STRATEGY #1: Conduct public outreach and education focused on the benefits of and how to navigate enhanced or new intersection designs and safety treatments.

ACTIONS

- ✔ Develop and distribute intersection design (e.g., roundabouts) and safety treatment (e.g., RRFBs and LPIs) fact-sheets for English and non-English community members
- ✔ Engage with community groups and active transportation leaders

STRATEGY #2: Educate the public on the dangers of speeding.

ACTIONS

- ✔ Continue to amplify Vision Zero messaging

STRATEGY #3: Educate officials on VRU safety countermeasures and treatment benefits.

ACTIONS

- ✔ Describe why VRU treatments (e.g., speed bumps, roundabouts, and bicycle lanes, and multi-use path) are important to enhance network safety via supporting data and proven studies

STRATEGY #4: Continue to perform high visibility enforcement.

ACTIONS

- ✔ Continue to conduct high visibility enforcement to increase awareness of and compliance with traffic laws that protect the safety of pedestrians and bicyclists

F VRU HIGH PRIORITY CORRIDORS

Appendix F contains the ranked lists of the 21 high priority road corridors and 23 high priority intersections throughout North Dakota, based on the quantitative analysis.

RANKED LIST OF HIGH PRIORITY ROAD CORRIDORS

Rank	Points	County	City/ Reservation	Location
1	6.33	Cass	Fargo	Broadway Ave between Main & 6th Ave N
2	6	Sioux	Standing Rock Reservation	Weasel St near 8th Ave SW
3	5.33	Burleigh	Bismarck	Washington St between Indiana & Main
4	5	Burleigh	Bismarck	3rd St between Arbor Ave & Main Ave
5	4.99	Sioux	Standing Rock Reservation	2nd Ave N
6	4.99	Mountrail	Fort Berthold Reservation	Main St near 89th Ave NW
7	4.99	Mountrail	Fort Berthold Reservation	Eagle Dr near 7th Ave E
8	4.99	Sioux	Standing Rock Reservation	1st St near 2nd Ave N
9	4.99	Benson	Spirit Lake Reservation	Mission Rd near Highway 4
10	4.99	Rolette	Turtle Mountain Reservation	BIA Road 10 near BIA Road 11

Rank	Points	County	City/ Reservation	Location
11	4.99	Benson	Spirit Lake Reservation	35th St between 78th and 79th Ave
12	4.99	Rolette	Turtle Mountain Reservation	BIA Road 9 near Highway 281
13	4.99	Benson	Spirit Lake Reservation	Highway 20 near 31st St NE
14	4.99	Mountrail	Fort Berthold Reservation	Highway 23
15	4.99	Sioux	Standing Rock Reservation	Highway 6 north of 99th St SW
16	4.34	Cass	Fargo	45th St between 15th Ave S & 7th Ave S
17	4.34	Ward	Minot	Burdick Expy between 8th St SW & Main St
18	4.34	Williams	Williston	Main St between 8th St & 1st St
19	4.34	Grand Forks	Grand Forks	University Ave between Yale Dr & Cornell St
20	4.33	Cass	Fargo	Main Ave between 2nd St & University Dr
21	4	Burleigh	Bismarck	7th St between C Ave & Front Ave

RANKED LIST OF HIGH PRIORITY INTERSECTIONS

Rank	Score	County	City/Reservation	Location
1	6	Sioux	Standing Rock Reservation	Weasel St & 8th Ave SW
2	5.34	Williams	Williston	Main St & 2nd St
3	5.33	Grand Forks	Grand Forks	Demers Ave – Grand Forks Fire Department
4	5	Burleigh	Bismarck	University Dr and Denver Ave
5	5	Cass	Fargo	13th Ave S & 25th St
6	5	Burleigh	Bismarck	Front Ave & 3rd St
7	4.99	Sioux	Standing Rock Reservation	93rd St SW & Wolk Ave
8	4.99	Rolette	Turtle Mountain Reservation	BIA Road 9 & Highway 281
9	4.99	Mountrail	Fort Berthold Reservation	Main St & 89th Ave NW
10	4.99	Mountrail	Fort Berthold Reservation	Central Ave & 1st St E
11	4.99	Sioux	Standing Rock Reservation	1st St & 2nd Ave North

Rank	Score	County	City/Reservation	Location
12	4.99	Sioux	Standing Rock Reservation	Golden eagle Ave and Knight Ave
13	4.99	McKenzie	Fort Berthold Reservation	Highway 23 & Highway 22
14	4.34	Cass	Fargo	45th St Interchange with I-94
15	4.33	Cass	Fargo	Broadway Ave & Northern Pacific Ave
16	4.33	Richland	Hankinson	2nd St NW & N Main Ave
17	4.33	Cass	Fargo	Main Ave & 8th St
18	4	Cass	Fargo	Main Ave & University Dr
19	4	Burleigh	Bismarck	Washington St & Bowen Ave
20	4	Burleigh	Bismarck	Washington St & Bowen Ave
21	4	Grand Forks	Grand Forks	32nd Ave S & 20th St
22	4	Cass	Fargo	13th Ave S & 9th St E, West Fargo
23	4	Burleigh	Bismarck	Main Ave & 3rd St

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