

Cheyenne Transportation Safety Management Plan

prepared for

Cheyenne Metropolitan Planning Organization

prepared by

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EXECUTIVE SUMMARY

The human cost of traffic crashes is a significant concern in Cheyenne. Recognizing this substantial public concern, Cheyenne was one of the first metropolitan planning organizations (MPO) in the country to develop a dedicated regional safety plan. The regional safety planning process provides an opportunity for safety stakeholders and community leaders to think critically about the safety concerns in their region and to develop a strategic approach to addressing these problems.

Each year, an average of 7 people are killed and more than 400 are injured in traffic crashes on Cheyenne area roadways. Despite the Cheyenne region's population growth, the number of crashes and injuries has been relatively constant over the past 10 years. While fatalities have ticked up slightly, incapacitating and nonincapacitating injuries have declined. This is an important point, as injury crashes are thought to be a better indicator of the actual crash trend, since they are not subject to as much random variation as fatal crashes.

The power of transportation safety planning at the community level is the ability to take a customized approach to problem analysis and strategy development. Development and implementation of safety strategies at a community level can be very effective because community leaders, agencies, institutions, and advocacy groups come together and share resources to develop a comprehensive culture of safety. The key steps in the transportation safety planning process that were undertaken in Cheyenne included:

- Establish a Transportation Safety Advisory Committee (TSAC);
- Review available crash data;
- Develop vision statement and goal;
- Identify safety Emphasis Areas;

- Review and inventory current community programs and determine new strategies;
- Develop action plans to facilitate implementation; and
- Submit a final plan to the local governing body for adoption.

The long-term vision for Cheyenne is for zero fatalities to occur on the roadways. The Federal transportation bill Moving Ahead for Progress in the 21st Century (MAP-21) requires that metropolitan planning organizations (MPO) set safety targets – or adopt state targets – for fatalities, fatality rate (fatalities per 100 million vehicle miles traveled), serious injuries, and serious injury rate (serious injuries per 100 million vehicle miles traveled).

The plan's **fatality** target is no more than 6 fatalities per year by 2020, down from a 2009 to 2013 average of 7 fatalities per year. The **fatality rate** target is 0.87 fatalities per 100 million VMT by 2020, compared to an average of 0.94 from 2009 to 2013. This reflects an improvement of 7 percent by 2020. The **serious injury** target is no more than 19 serious injuries per year by 2020 compared to an average of 27 per year from 2009 to 2013. This reflects an improvement of 30 percent by 2020. The **serious injury rate** target was set at 2.6 serious injuries per 100 million VMT by 2020, compared to an average rate of 3.8 from 2009 to 2013. This reflects an improvement of 30 percent by 2020. For Cheyenne, given the small number of fatalities and serious injuries, it is useful to consider a measure of **total fatalities and injuries** to track safety trends. The target for total fatalities and injuries is 340 per year by 2020 compared to an average of 421 from 2009 to 2013. This reflects an improvement of 19 percent by 2020.

To define the Emphasis Areas for future focus in the plan, the group reviewed the extent to which various crash factors were involved in fatal and incapacitating injury crashes in Cheyenne for the past 10 years. The following emphasis areas were ultimately selected by the TSAC for future safety focus:

- Intersections;
- Vulnerable Users – bicyclists, pedestrians, and motorcyclists;
- Distracted Driving; and
- Safe Driving Policies.

Table ES.1 presents the strategies identified to improve safety in Cheyenne. For each strategy stakeholders identified one or more implementation steps, which are included in the body of the document.

Mission

Reduce fatal and injury crashes involving all roadway users through implementation of effective countermeasures and efficient utilization of resources.

Table ES.1 Cheyenne Emphasis Area Safety Strategies**Intersection Strategies**

Strategy 1: Continue addressing high crash locations via infrastructure improvements and enforcement.

Strategy 2: Identify and implement best practices for systemic safety applications at intersections.

Strategy 3: Identify and implement best practices for pedestrian and bicycle safety at intersections.

Strategy 4: Identify and address policy or design standard inconsistencies affecting intersection safety.

Strategy 5: Develop mechanisms for implementation of existing codes governing intersection safety.

Strategy 6: Conduct education about new infrastructure installations that drivers may find confusing and those for which high levels of violations are observed.

Distracted Driving Strategies

Strategy 1: Conduct outreach on the risks and costs of distracted driving with at-risk populations.

Vulnerable User Strategies

Strategy 1: Conduct an education campaign about safe practices for sharing the road among vehicles, bicyclists, pedestrians, and motorcyclists.

Strategy 2: Consistently implement and evaluate installation of pedestrian- and bicycle-friendly infrastructure.

Strategy 3: Update administrative code as related to bicycle operation.

Strategy 4: Support strengthening of state laws and improve public education to increase bicycle and pedestrian safety.

Strategy 5: Improve data related to walking and bicycling in Cheyenne.

Strategy 6: Research Cheyenne area motorcycle crash statistics and develop appropriate education and enforcement programs.

Table ES.2 Summarizes strategies that involve policy changes. Some of these strategies are duplicated from those in the Emphasis Areas (Table ES.1) but are presented here as a summary of all policy-related strategies.

Table ES.2 Cheyenne Policy Safety Strategies

| Policy Strategies | |
|---|---|
| State-Level Policies and Legislation | Strategy 1: The TSAC will consider supporting strengthening statewide roadway transportation safety laws. |
| | Strategy 2: Support implementation of the margin of safety. |
| Municipal Ordinances, Policies, and Code Revisions | Strategy 3: Strengthen policies against impaired driving. |
| Design Standards and Policies | Strategy 4: Update administrative code as related to bicycle operation. |
| | Strategy 5: Identify and implement best practices for systemic safety applications at intersections. |
| | Strategy 6: Identify and implement best practices for bicycle and pedestrian safety at intersections. |
| | Strategy 7: Identify and address policy or design standards inconsistencies affecting intersection safety. |
| | Strategy 8: Develop mechanisms for implementation of existing codes governing intersection safety. |

Plan implementation will require a structure to support collaboration and communication. The TSAC that led plan development will continue to meet regularly (i.e., quarterly) to provide oversight of the safety effort. The TSAC will determine which strategies to undertake first and engage members and other safety partners to implement the action steps. At TSAC meetings, the group will provide support, help strategy implementers identify needed resources, coordinate among agencies, share information, and identify solutions to implementation challenges. Ideally, the TSAC will be led by two co-chairs who will periodically report progress on TSMP strategy implementation and safety trends to the MPO's Technical Committee, Policy Committee, and Citizens Committee.



SAFETY PROBLEM OVERVIEW

The human cost of traffic crashes is a significant concern in Cheyenne. Not only do the individuals involved in a crash suffer greatly, but the families and friends of those killed or injured in a traffic crash are dramatically impacted. The family breadwinner could be killed or disabled, or a parent could become unable to care for his or her children. The suffering and loss caused by traffic crashes is not simply the price Cheyenne residents must pay for mobility.

In addition to the personal costs of traffic crashes, the economic costs imposed on families and society (e.g., medical expenses, property damage, lost productivity and wages, and congestion) also are substantial. The economic impact of crashes to Laramie County (in which the Cheyenne MPO planning area is located) was estimated at \$375 million in Wyoming's 2013 Report on Traffic Crashes.¹

Recognizing this substantial public concern, Cheyenne was one of the first metropolitan planning organizations (MPO) in the country to develop a dedicated regional safety plan. The regional safety planning process provides an opportunity for safety stakeholders and community leaders to think critically about the safety concerns in their region and to develop a strategic approach to addressing these problems.

Cheyenne's first Transportation Safety Management Plan was adopted in 2008. Since then, a number of successful implementation efforts have been undertaken, including the implementation of a hand-held cell phone use ban in Cheyenne, greater outreach around issues such as seat belt use and distracted driving, an education initiative for older

¹ http://www.dot.state.wy.us/files/live/sites/wydot/files/shared/Highway_Safety/2013/SCHOOL%20BUS/WYO%202013%20Report%20on%20Traffic%20Crashes.pdf.

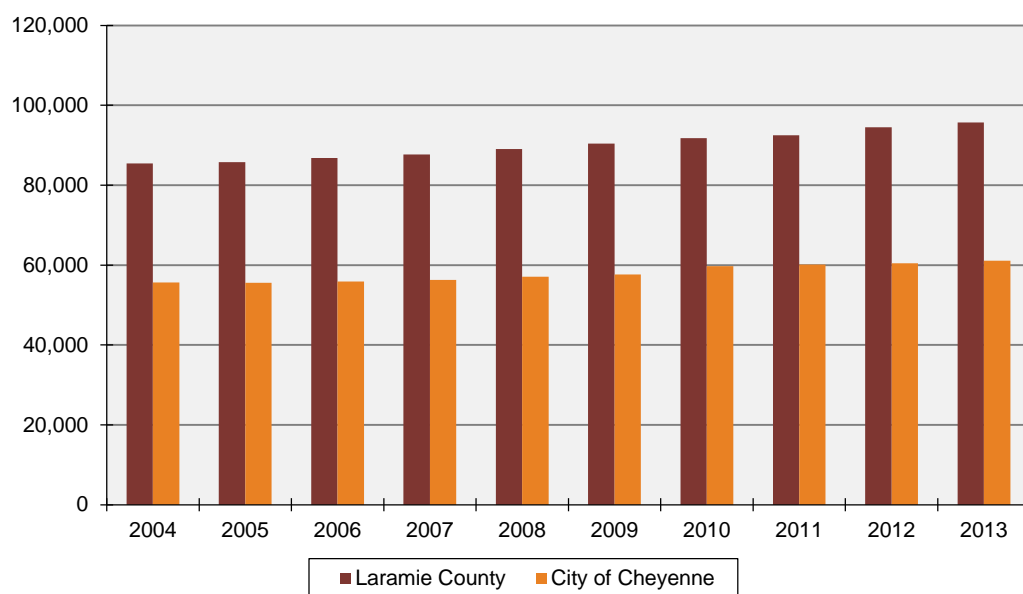
drivers, construction of roundabouts, and installation of flashing yellow arrows for left turns at signals, among others.

Despite these accomplishments, as the Cheyenne area's population continues to grow, and vehicles miles traveled (VMT) increase, roadway users are exposed to increased crash risks. Therefore, continued focus on safety planning is needed in Cheyenne.

OVERALL TRENDS

Steady increases in population have occurred over the past 10 years in the Cheyenne area, as shown in Figure 1.1. Much of the population growth has occurred in unincorporated Laramie County, outside the City of Cheyenne's boundaries, and it is likely this trend will continue, which by its very nature tends to result in more VMT. Increased VMT means increased exposure to risk. While population growth is beneficial in many ways, it does pose challenges for addressing traffic safety problems.

Figure 1.1 Laramie County and City of Cheyenne Population Trends

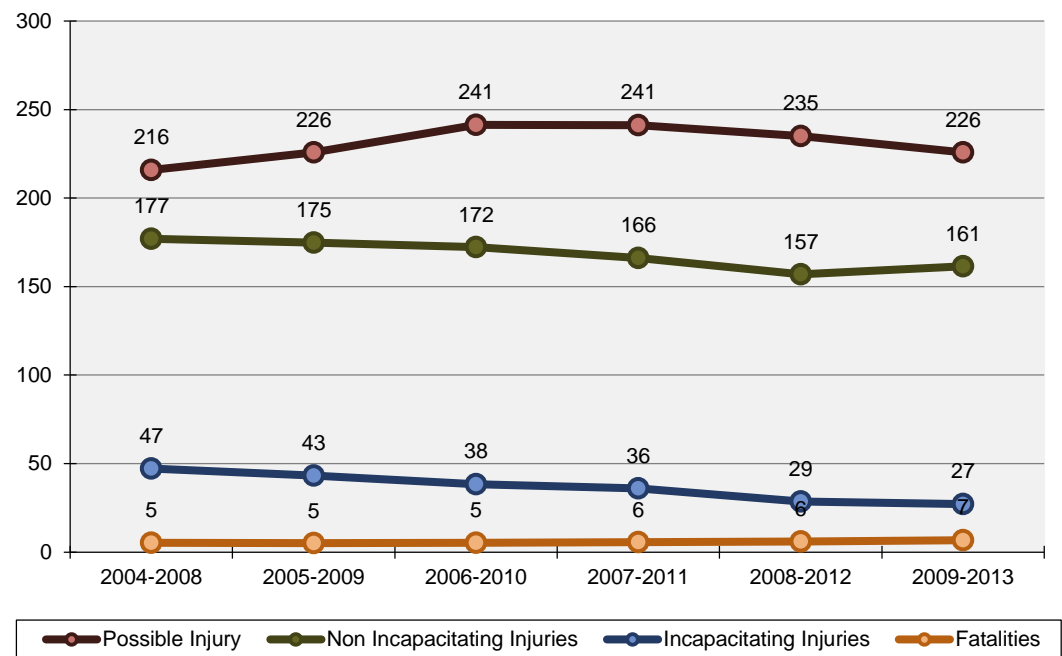


Source: *Economic Indicators for Greater Cheyenne, 2013 Projection from Wyoming Division of Economic Analysis.*

Each year, an average of 7 people are killed and more than 400 are injured in traffic crashes on Cheyenne area roadways. Figure 1.2 shows the number and severity of injuries as a rolling five-year average for each category of injury severity using data from the Wyoming Department of Transportation (WYDOT) crash database. Given that crashes have an element of randomness to them and can be affected by external trends such as weather, it is useful to review data in the form of multiyear averages to ensure that observed trends are meaningful.

Despite the Cheyenne region's population growth, the number of crashes and injuries has been relatively constant over the past 10 years. While fatalities have ticked up slightly, incapacitating and nonincapacitating injuries have declined. This is an important point, as injury crashes are thought to be a better indicator of the actual crash trend, since they are not subject to as much random variation as fatal crashes.

Figure 1.2 Cheyenne Area Fatalities and Injuries
2004-2013



Source: WYDOT, Cheyenne MPO.

MOVING FORWARD

Cheyenne is well positioned to reduce traffic crashes and injuries on all public roads over the next several years, given its access to good quality crash data, and the involvement of multiple stakeholder groups in addressing the issues. Organizations with the most prominent role in solving these problems are local government agencies that manage transportation infrastructure and operations; advocacy organizations that seek to educate and reduce public injury; emergency medical service agencies that respond to crashes and provide medical care; and law enforcement agencies that enforce traffic laws. Significant responsibility also rests with the public who must take the privilege of operating a vehicle seriously and make good choices when on the road. All roadway users, including bicyclists and pedestrians can contribute to reducing the number and severity of crashes. This document outlines a set of ambitious, yet achievable strategies that will help Cheyenne address current roadway safety issues and help to prevent and mitigate future problems.



2

PLAN DEVELOPMENT APPROACH

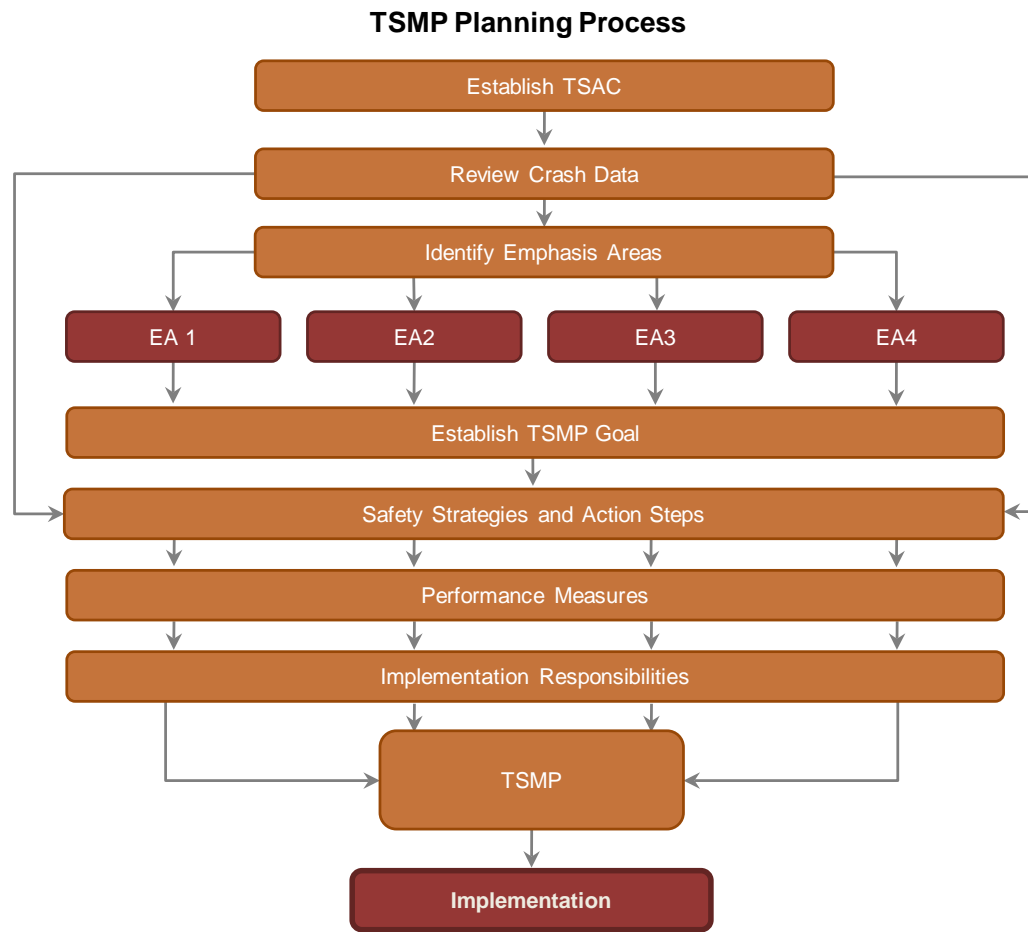
The power of transportation safety planning at the community level is the ability to take a customized approach to problem analysis and strategy development. The traffic safety problems that are most relevant at a community level are often somewhat different than those at a state level, because communities are typically more urban in nature than the state as a whole. As a result, the analysis of safety issues at a community level results in strategies and solutions that are more closely targeted to local problems.

Development and implementation of safety strategies at a community level can be very effective because community leaders, agencies, institutions, and advocacy groups come together and share resources to develop a comprehensive culture of safety. Furthermore, respected community members and local leaders can deliver a message that resonates strongly with local residents and may be more effective at changing behavior. It represents a great opportunity to employ a collaborative and communicative process that utilizes existing transportation safety resources to target local safety problems.

The key steps in the transportation safety planning process that were undertaken in Cheyenne are shown in Figure 2.1, including:

- Establish a Transportation Safety Advisory Committee;
- Review available crash data;
- Develop vision statement and goal;
- Identify safety Emphasis Areas;
- Review and inventory current community programs and determine new strategies;
- Develop action plans to facilitate implementation; and
- Submit a final plan to the local governing body for adoption.

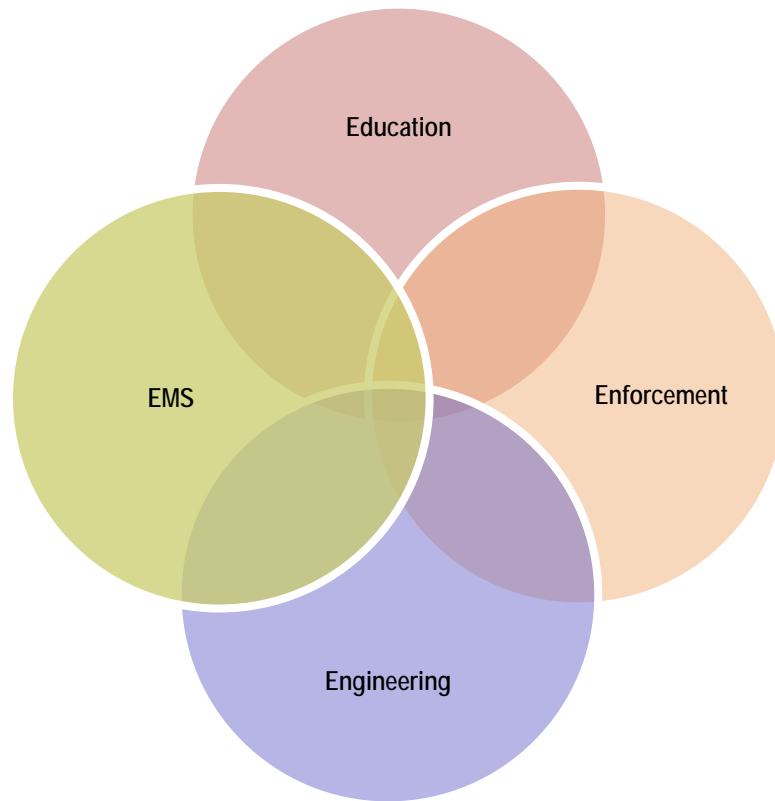
Figure 2.1 Transportation Safety Management Plan Development Process



TRANSPORTATION SAFETY ADVISORY COMMITTEE

The initial step in developing the Cheyenne Area Transportation Safety Management Plan was to establish the Transportation Safety Advisory Committee (TSAC). Several individuals were invited to be part of the plan development process based on their interest in reducing crashes and saving lives in the Cheyenne Area, and their knowledge of and involvement in the 4 Es (education, enforcement, emergency medical services, and engineering) of safety, as shown in Figure 2.2.

Experience has proven that safety strategies are most effective if safety partners and stakeholders from each of the “4 Es” are involved in the process of developing the strategies. It is beneficial for partners to collaborate closely on the practice of safety. Duplication of efforts can be reduced, resources combined, and information shared that enables more efficient use of staff and funds.

Figure 2.2 The 4 Es of Safety

TSAC MEMBERSHIP

The full list of TSAC members is shown in Appendix A. Partners and stakeholders invited to participate in the TSMP update included representatives from the organizations listed below.

- AARP Wyoming;
- Cheyenne Housing Authority;
- City of Cheyenne Engineering;
- City of Cheyenne Fire and Rescue;
- City of Cheyenne Parks and Recreation;
- City of Cheyenne Planning Department;
- City of Cheyenne Public Works;
- Cheyenne/Laramie County Health Department;
- Cheyenne Metropolitan Planning Organization;
- Cheyenne MPO Citizen Advisory Committee;
- Cheyenne Police Department;

- Cheyenne Regional Medical Center;
- F.E. Warren Air Force Base;
- Federal Highway Administration;
- Laramie County;
- Laramie County Prevention Management Organization;
- Laramie County School District #1;
- Laramie County Sheriff's Department;
- National Highway Traffic Safety Administration;
- Wyoming Department of Transportation – District Office;
- Wyoming Department of Transportation – Highway Safety;
- Wyoming Department of Transportation – Local Government Office;
- Wyoming Department of Transportation – Planning Office;
- Wyoming Department of Transportation – Traffic Office;
- Wyoming Highway Patrol;
- Wyoming-Montana Safety Council; and
- Wyoming Technology Transfer Center (LTAP).

TSAC ROLES AND RESPONSIBILITIES

The TSAC played an important role in the development of the TSMP. Specifically, the roles and responsibilities of TSAC members in the update process included:

- Review Cheyenne area crash data;
- Develop a mission, vision, and goals;
- Identify Emphasis Areas; and
- Participate in the development of safety strategies and action steps.

The TSAC also will support and lead implementation of the TSMP.

OVERVIEW OF TSAC INVOLVEMENT IN THE TSMP UPDATE PROCESS

At their first meeting, the TSAC members discussed their role in the safety planning process and defined what the TSAC sought to accomplish. The TSAC members also defined a mission statement to guide their overall efforts in the TSMP development process.

TSAC members reviewed several years of Cheyenne area crash data to identify the key crash types and contributing factors. It was important that decisions about the areas of focus for the safety plan were supported by crash data as well as emerging issues that stakeholders wish to focus on in implementing the plan. The review of crash data and knowledge of local safety stakeholders as well as professionals helped the TSAC identify safety Emphasis Areas on which to focus and prioritize efforts.

Once Emphasis Areas were determined, the group inventoried current safety programs in the community to identify opportunities for enhancement, as well as to identify gaps that could be addressed by future strategies. Next, the TSAC identified potential safety strategies based both on a review of the national literature and what stakeholders felt would be appropriate and effective in the Cheyenne area.

The TSAC met three times over the course of the plan development, in addition to participating in the Safety Summit.

TRANSPORTATION SAFETY SUMMIT

A key step in the development of the TSMP was the Transportation Safety Summit, held on October 17, 2014 at The David R. Romero Youth Activity and Community Center. The objectives of the Summit were to review the development process for the TSMP and develop preliminary safety strategies and action steps that would serve as the basis of the plan. Nearly 60 participants attended this three-hour transportation safety planning workshop (see Appendix B for list of participants).



SAFETY STRATEGIES APPROACH

Safety strategies are targeted efforts to address a specific safety problem. The strategy must be implementable and should have defined action steps. The outcome of each strategy will be tracked to ensure efforts are successful in reducing the numbers of fatal and severe injury crashes.

At the Cheyenne Area Transportation Safety Summit, Emphasis Area discussion groups reviewed the safety data so strategies could be targeted to the specific problems in the Cheyenne area. Groups considered safety strategies proven to work in other states or regions as well as how they could build upon and enhance programs already underway in the Cheyenne area.

Identifying how strategies will be implemented moving forward is a critical part of this plan. At the Summit, participants identified agencies and/or stakeholders that would be most appropriate to be involved in and/or lead each strategy. The anticipated life of the plan is up to five years, after which time crash data should be reviewed and the results of strategy implementation fully evaluated. A potential new set of safety Emphasis Areas and strategies can then be developed based on the key crash factors shown in the crash data at that time.

MISSION AND GOALS

The creation of a mission statement is an important step in the plan development process as it provides an opportunity for stakeholders to come to agreement on the purpose of their work going forward. As such, the development of a mission statement was one of the first actions taken by the TSAC.

The establishment of goals or targets is equally important as they provide an objective means of evaluating progress. Additionally, greater emphasis is being placed on performance-based decision-making across all aspects of transportation planning.

MISSION

The TSAC developed the following mission statement to guide Plan development and implementation activities:

Reduce fatal and injury crashes involving all roadway users through implementation of effective countermeasures and efficient utilization of resources.

SAFETY TARGETS

The Federal transportation bill Moving Ahead for Progress in the 21st Century (MAP-21) requires that metropolitan planning organizations (MPO) set safety targets – or adopt state targets – for fatalities, fatality rate (fatalities per 100 million vehicle miles traveled), serious injuries, and serious injury rate (serious injuries per 100 million vehicle miles traveled). To set targets for the TSMP, the TSAC reviewed historic fatality, serious injury, and total injury data, along with future projections based on linear trends. The group assessed whether continuation of the current trend was acceptable, too aggressive or not aggressive enough and then selected targets based on adjusted forecasts. The group established targets for the four required performance measures as well as an additional target for total fatalities and injuries.

FATALITIES

Cheyenne Safety Vision

Zero Fatalities

The trend for **fatalities** shows a slight increase over the past 10 years; however, given the very small single-digit number of fatalities, it is unclear whether this trend is due to random variation or is actually indicative of a trend. The TSAC clearly identified in its early discussions that the long-term goal for Cheyenne is to reach zero traffic fatalities. The group agreed that a modest reduction target was appropriate: 6 fatalities per year by 2020, down from a 2009 to 2013 average of 7 fatalities per year. It was noted that this is to be viewed as an interim goal given the long-term goal of no fatalities in Cheyenne. The interim target reflects a fatality reduction of 7 percent by 2020.

The **fatality rate** target is 0.87 fatalities per 100 million VMT by 2020, compared to an average of 0.94 from 2009 to 2013. This reflects an improvement of 7 percent by 2020.

SERIOUS INJURIES

Serious injuries have declined by approximately 10 percent per year since 2008. To ensure the target was not unattainably aggressive, the TSAC recommended a 5 percent annual reduction in serious injuries as its target. Therefore, the target is 19 serious injuries per year by 2020 compared to an average of 27 per year from 2009 to 2013. This reflects an improvement of 30 percent by 2020.

The **serious injury rate** target was set at 2.6 serious injuries per 100 million VMT by 2020, compared to an average rate of 3.8 from 2009 to 2013. This reflects an improvement of 30 percent by 2020.

TOTAL FATALITIES AND INJURIES

For Cheyenne, given the small number of fatalities and serious injuries, it is useful to consider a measure of **total fatalities and injuries** to track safety trends. This measure was used in the previous TSMP. Total fatalities and injuries have declined by around 1.1 percent per year over the past 10 years. However, the TSAC decided to set a more aggressive target of a 3 percent annual reduction. Therefore, the target for total fatalities and injuries is 340 per year by 2020 compared to an average of 421 from 2009 to 2013. This reflects an improvement of 19 percent by 2020.

Plan Cheyenne established a number of safety performance measures based on the previous version of the TSMP, including the five measures presented in Table 2.1. These updated targets take into account recent crash trends. In addition to these targets, the plan retains performance measures for each of the emphasis areas, many of which are included in Plan Cheyenne (pedestrian, bicycle, and impaired crashes) and adds new measures for intersection, motorcycle and distracted crashes.

Table 2.1 Cheyenne Safety Targets

| Performance Measure | 2009-2013 Average | Actual Average Annual Change | 2020 Target | Target Average Annual Change | Target Total Change by 2020 |
|--------------------------------|-------------------|------------------------------|-------------|------------------------------|-----------------------------|
| Annual Fatalities | 7 | +5.5% | 6 | -1.1 | -7% |
| Annual Serious Injuries | 27 | -10.4% | 19 | -5% | -30% |
| Annual Fatalities and Injuries | 421 | -1.1% | 340 | -3% | -19% |
| Fatality Rate | 0.94 | +3.3% | 0.87 | -1.1% | -7% |
| Serious Injury Rate | 3.8 | -12.3% | 2.6 | -5% | -30% |

Source: Transportation Safety Advisory Committee.

EMPHASIS AREA SELECTION

To understand how to most effectively focus resources, it is important to identify what types of crashes predominantly contribute to the community safety problem. The American Association of State Highway Transportation Officials' *Strategic Highway Safety Plan: A Comprehensive Plan to Substantially Reduce Vehicle-Related Fatalities and Injuries on the Nation's Highways*, published in 2005, identified 22 safety Emphasis Areas on a national level.

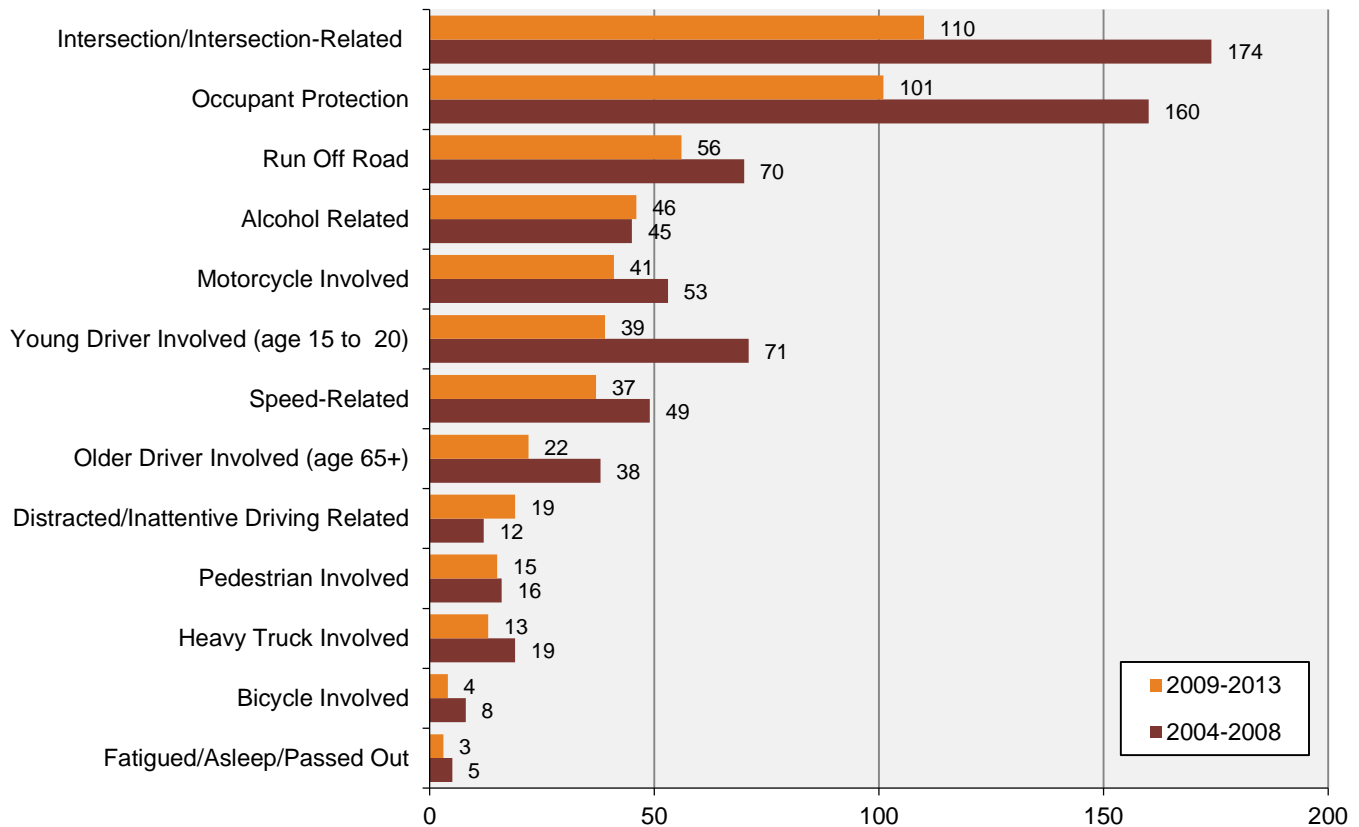
The development of Emphasis Areas represents a relatively new approach to roadway safety by including populations (e.g., older and younger drivers), crash types (e.g., roadway departure crashes, head-on collisions), infrastructure/hazards (e.g., intersections, tree and utility pole collisions), behavior (e.g., lack of occupant protection, inattentive/distracted/fatigued, alcohol and/or drug impaired), and modes (e.g., pedestrian, bicycle, motorcycle, heavy trucks).

Accurate and complete crash data is needed for the identification of emphasis areas and development of effective safety strategies. The Cheyenne area has access to high-quality crash data provided by the Wyoming Department of Transportation (WYDOT). This information helps Cheyenne focus its efforts on the populations, infrastructure and driver behaviors with the greatest need for safety improvement. Once a community has a detailed understanding of the types of crashes that are causing the greatest loss of life

and severe injury, it is possible to target safety strategies to have the greatest safety impact with the resources available.

To define the Emphasis Areas for future focus in the plan, the group reviewed the extent to which various crash factors were involved in fatal and incapacitating injury crashes in Cheyenne for the past 10 years, as shown in Figure 2.3.

Figure 2.3 Fatal and Incapacitating Injury Crashes by Emphasis area



Source: WYDOT, Cheyenne MPO, Occupant Protection represents unrestrained persons sustaining a fatal or incapacitating injury.

TSAC members were asked to ‘vote’ for the above emphasis areas shown in Figure 2.3. The results of the voting served as a starting place for the discussion of which emphasis areas should be included in the plan. The following emphasis areas were ultimately selected by the TSAC for future safety focus:

- Intersections;
- Vulnerable Users – bicyclists, pedestrians, and motorcyclists;
- Distracted Driving; and
- Safe Driving Policies.

While impaired driving is a major issue in Wyoming overall and Cheyenne in particular, significant enforcement and education efforts are ongoing and will continue via the WYDOT Highway Safety Office. Therefore, it was determined that in this plan any impaired driving efforts should be focused on policy modifications, which have a significant potential to effect lasting change.





3

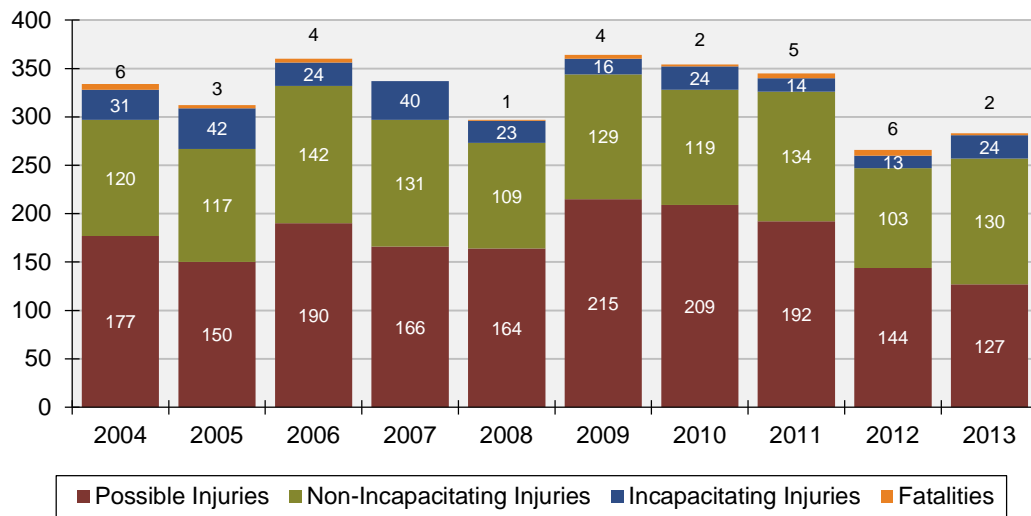
EMPHASIS AREAS

In this section, each of the priority Emphasis Areas is defined and select data that informed safety problem identification within that Emphasis Area are provided. It is important to remember that overlap occurs among Emphasis Areas – that is, more than one factor can be present in a crash. For example, an injured person could be impaired, riding a motorcycle and be involved in a crash at an intersection. A crash could be represented in the data for multiple Emphasis Areas.

INTERSECTIONS

Nowhere on the roadway system are the opportunities for conflict more prominent than at intersections where various road users, including drivers, pedestrians, cyclists, and motorcyclists come together in close proximity. These crashes are especially common when traffic volumes are highest. Figure 3.1 shows the trend in intersection injury crashes over the past 10 years. Given that an average of seven fatalities occur in Cheyenne annually, it is evident that a significant proportion of these severe crashes occur at intersections.

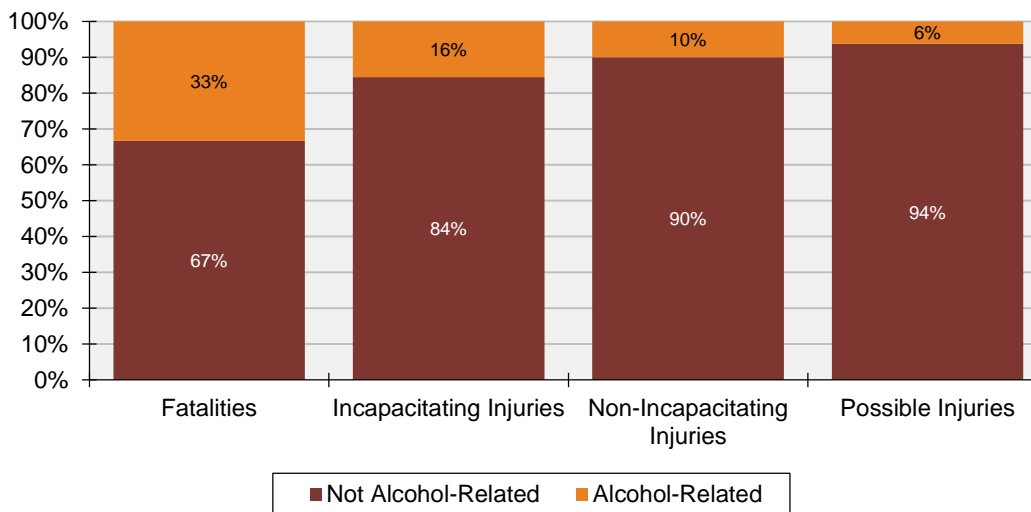
Figure 3.1 Injuries from Intersection Crashes by Year
2004-2013



Source: WYDOT, Cheyenne MPO.

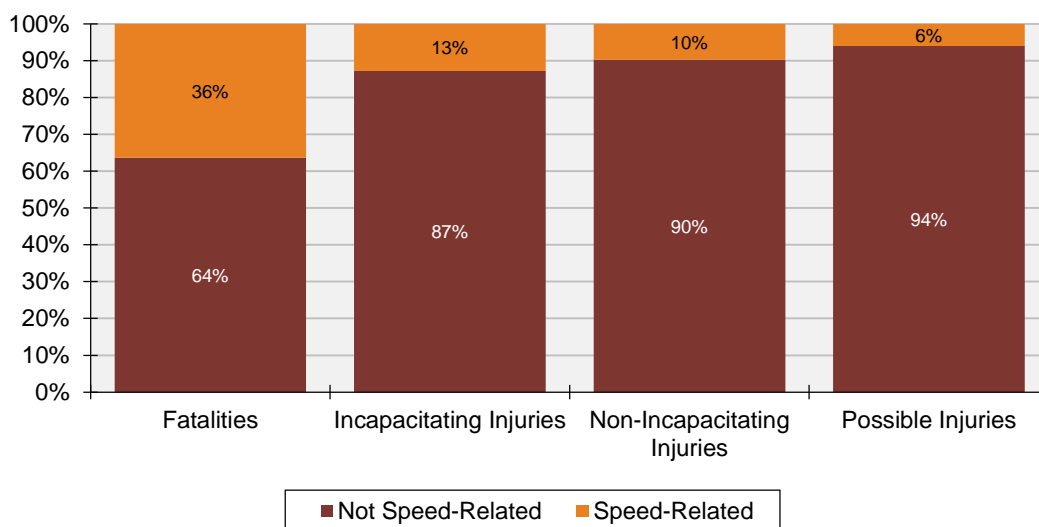
As shown in Figure 3.2, alcohol was involved in one-third of fatalities and 16 percent of incapacitating injuries between 2004 and 2013.

Figure 3.2 Injuries from Intersection Crashes by Alcohol Involvement



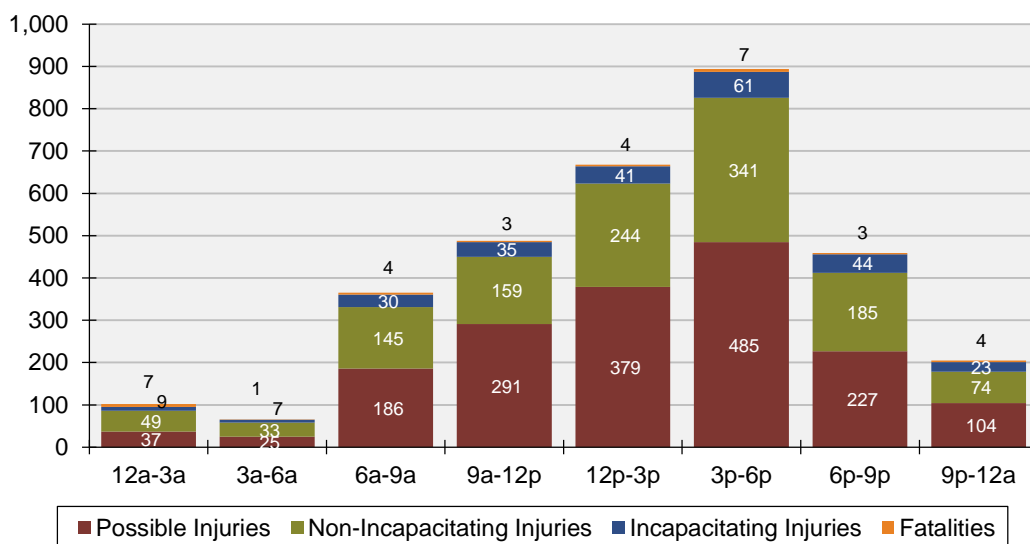
Source: WYDOT, Cheyenne MPO, 2004-2013.

The higher the travel speed during a crash, the more likely injuries will be severe. Figure 3.3 shows that speed is a factor in more than one-third of intersection fatalities.

Figure 3.3 Injuries from Intersection Crashes by Speed Involvement

Source: WYDOT, Cheyenne MPO, 2004-2013.

Evening rush hour – from 3 p.m. to 6 p.m. – is the time period with the largest number of intersection injury crashes, as shown in Figure 3.4. This time period experiences high traffic volumes with both commuters traveling home from work and students returning from school.

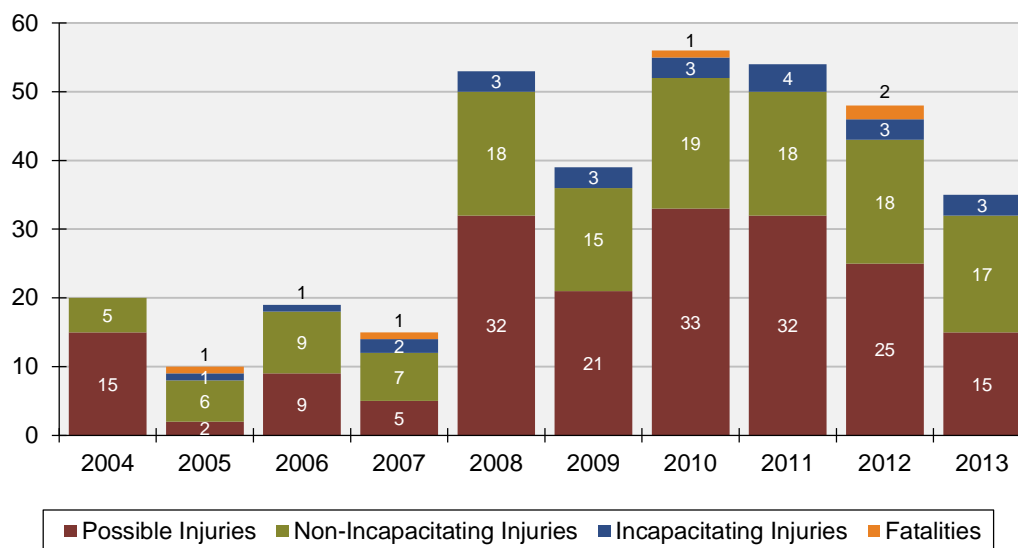
Figure 3.4 Injuries from Intersection Crashes by Time of Day

Source: WYDOT crash database, analysis by Cheyenne MPO, 2004-2013.

DISTRACTED DRIVING

Distracted driving involves operating a vehicle while not giving full attention to the task of driving. While people often first think of electronic devices as being the primary causes of distraction, there are many other reasons a person may not be paying attention to driving. A driver may be distracted by a child on the back seat, by eating or drinking, by picking up something that fell on the floor, by something outside the vehicle, or by the increasingly complicated vehicle dashboard controls. What is known is that distraction's role in crashes is underreported and that the data paint an incomplete picture because often it is difficult for responding officers to be certain if distraction was involved in a crash. In Wyoming, the crash report was modified in 2008 to better account for reporting distraction, as is shown in the data given the large increase in reported incidents in 2008. Figure 3.5 shows distracted driving injury crash trends over the past 10 years.

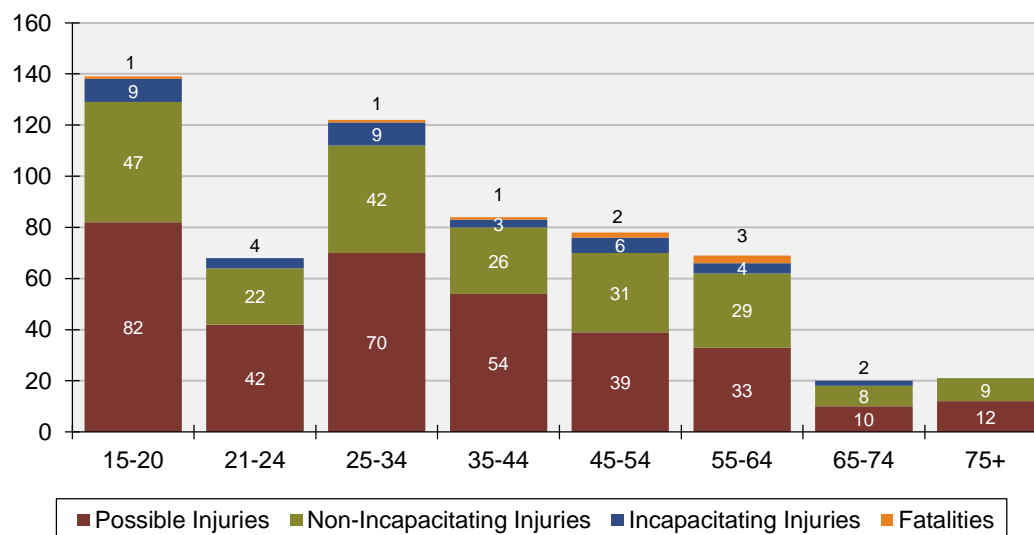
Figure 3.5 Injuries from Distracted Driving Crashes by Year
2004-2013



Source: WYDOT, Cheyenne MPO.

Figure 3.6 shows distracted driving injury crashes by age, with ages 15 to 20 having the highest representation.

Figure 3.6 Injuries from Distracted Driving Crashes by Age



Source: WYDOT, Cheyenne MPO, 2004-2013.

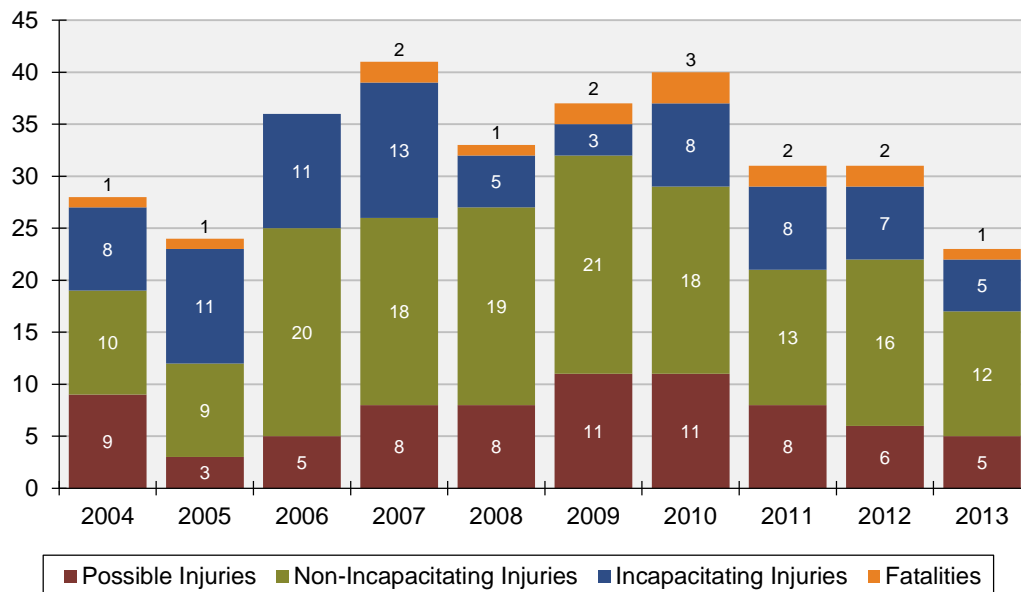
VULNERABLE USERS

The vulnerable users Emphasis Area includes the three categories of roadway users who are not protected from the impact of a crash by the vehicle body: pedestrians, bicyclists, and motorcyclists. Each group has very different safety issues and the data on each is presented separately.

MOTORCYCLES

At the national level, motorcycle riding has increased considerably over recent years, which has resulted in an increase in fatalities and severe injuries. Motorcycles offer no protection in a crash, unlike a passenger vehicle where the occupants are afforded some protection from the vehicle body. Wyoming does not have a mandatory helmet law and many riders do not use helmets, which would protect them from potential head injuries in the event of a crash. Males overwhelmingly experience the highest number of fatalities and serious injuries. As shown in Figure 3.7, on average, one to three motorcyclist fatalities occur each year.

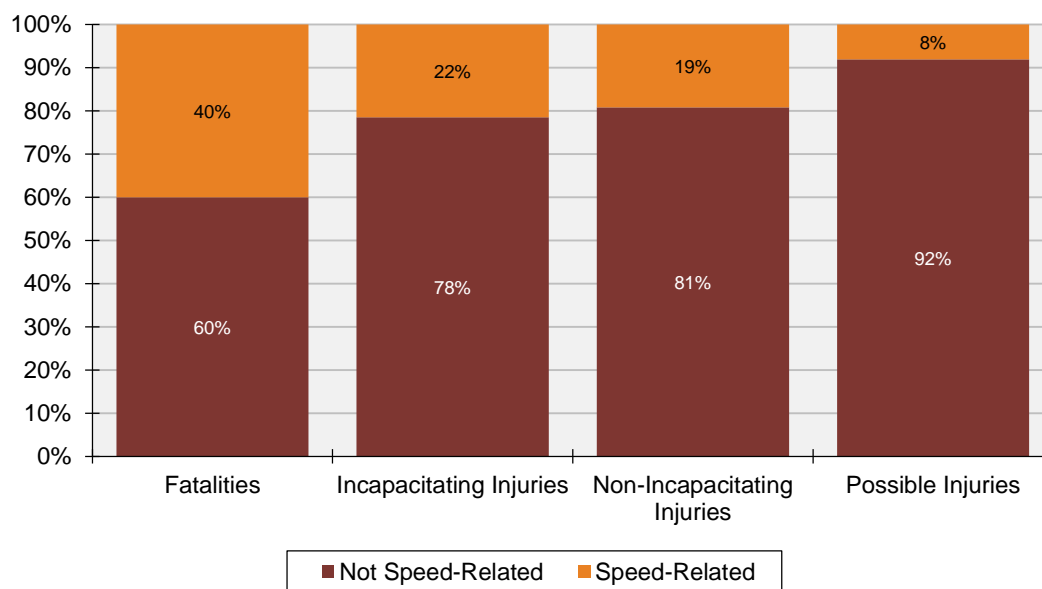
Figure 3.7 Motorcyclist Injuries by Year
2004-2013



Source: WYDOT, Cheyenne MPO.

Figure 3.8 shows the extent to which speed is a factor in motorcyclist injuries. Speed was involved in 40 percent of fatal and 22 percent of motorcyclist serious injuries during the past 10 years.

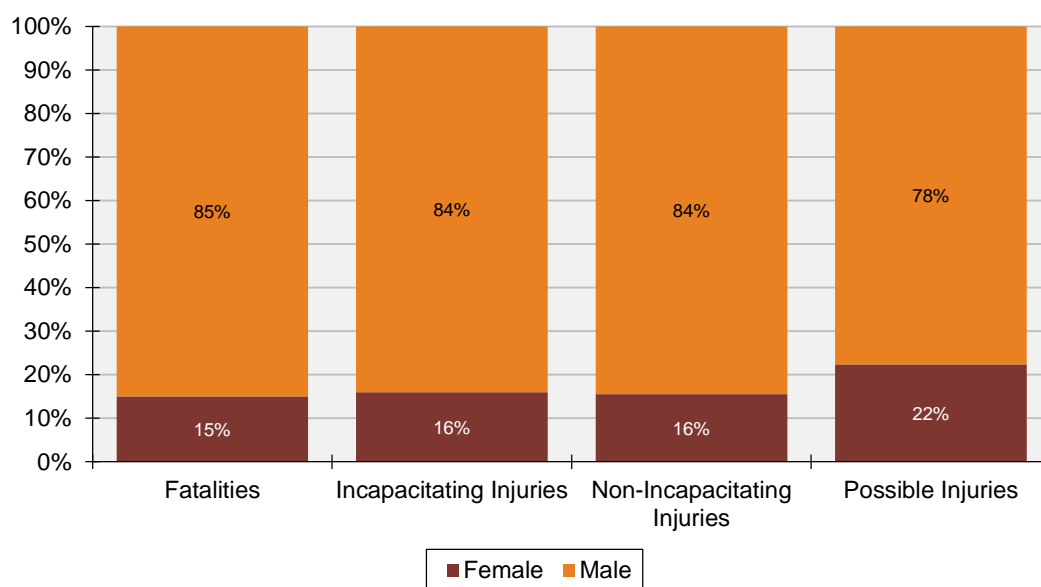
Figure 3.8 Motorcyclist Injuries by Speed Involvement



Source: WYDOT, Cheyenne MPO, 2004-2013.

As shown in Figure 3.9, males are overwhelmingly involved in motorcyclist injuries.

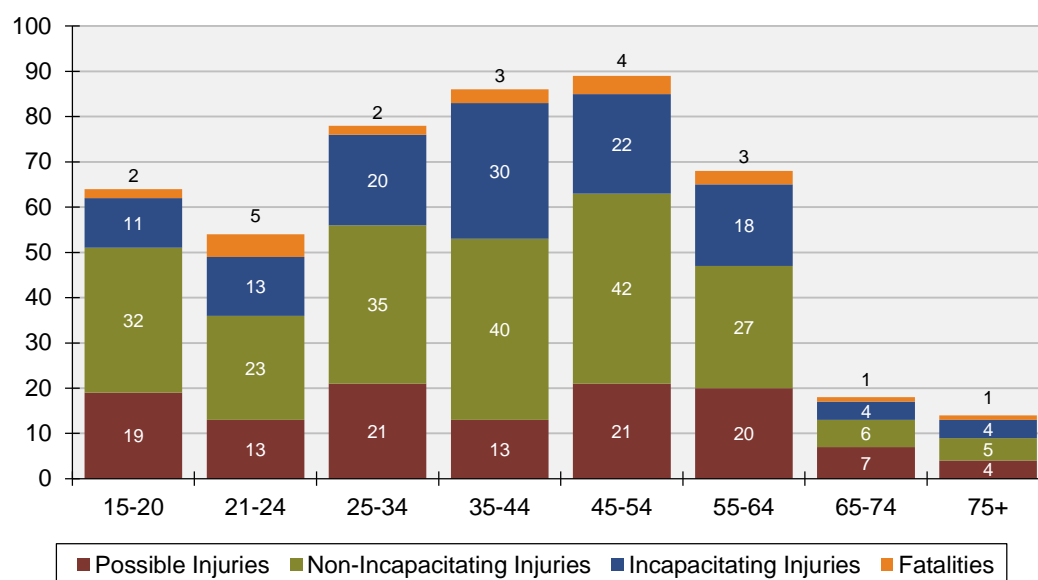
Figure 3.9 Motorcyclist Injuries by Gender



Source: WYDOT, Cheyenne MPO, 2004-2013.

Motorcyclist fatalities and injuries are not limited to younger riders. As shown in Figure 3.10, all ages up to 64 have significant representation in serious crashes. One fatality occurred in each of the two oldest age groups.

Figure 3.10 Motorcyclist Injuries by Age



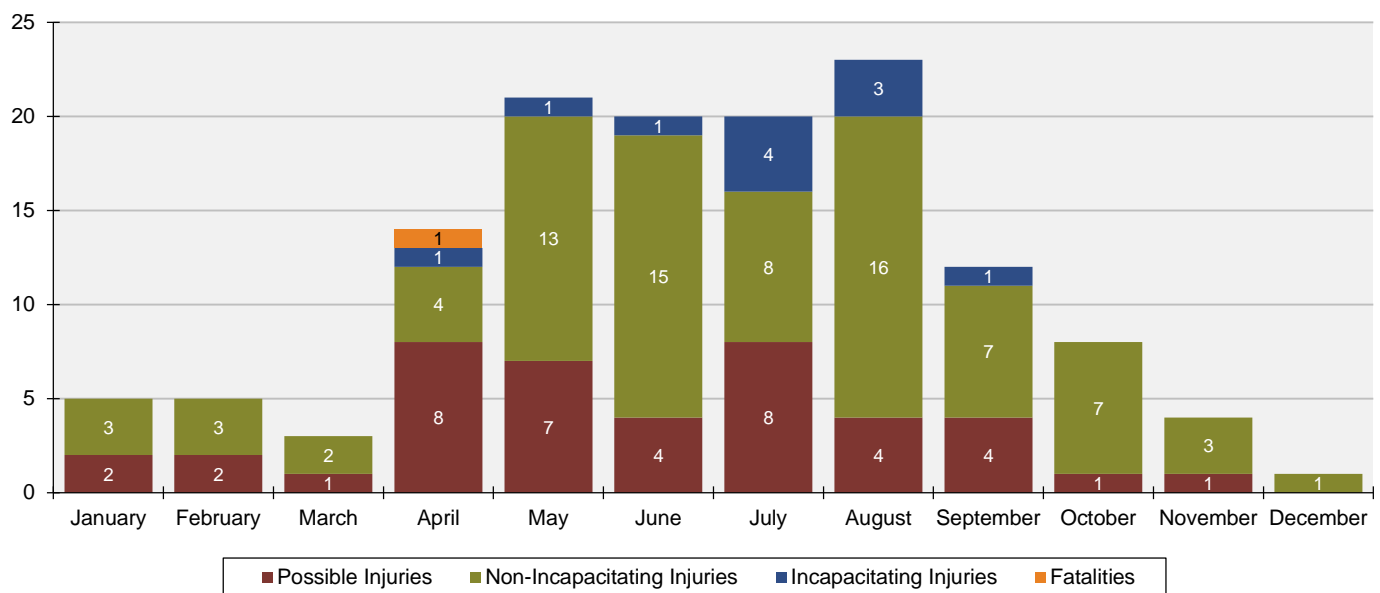
Source: WYDOT, Cheyenne MPO, 2004-2013.

BICYCLES

Cheyenne has placed increased focus on bicycle facilities and seeks to encourage more bicycle riding, particularly given the compact nature of Cheyenne’s urban area. By law, bicyclists operate in the roadway and are afforded the same rights and responsibilities as vehicles; however, bicyclists are much more vulnerable than vehicle drivers.

While Figure 3.11 shows only one fatality and 11 incapacitating injuries during the past 10 years, the challenge is to keep those numbers down given increased interest in bicycling and walking for transportation.

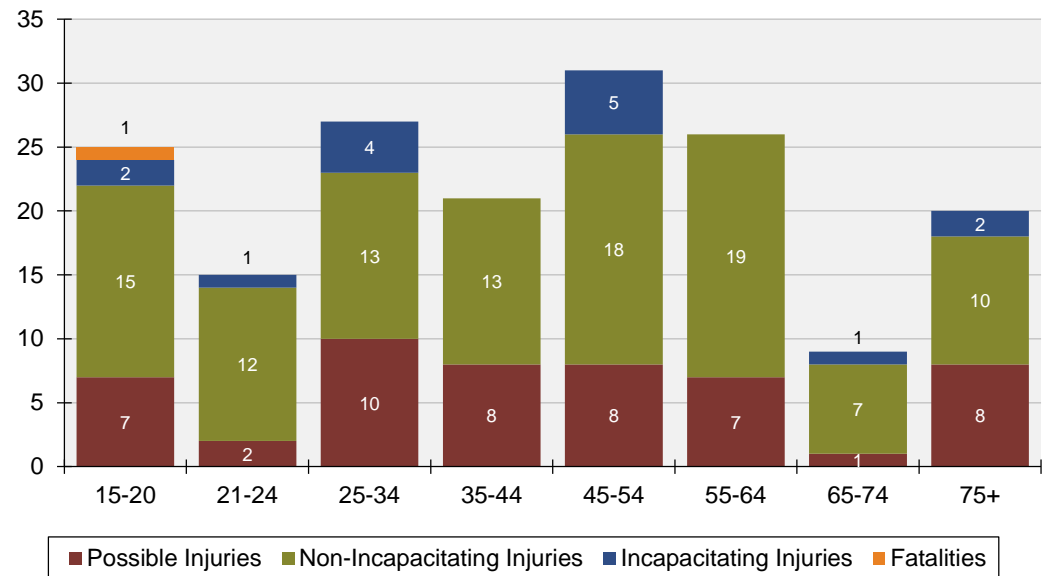
Figure 3.11 Bicyclist Injuries by Year
2004-2013



Source: WYDOT, Cheyenne MPO.

Bicycle injury crash involvement spans all ages, as shown in Figure 3.12.

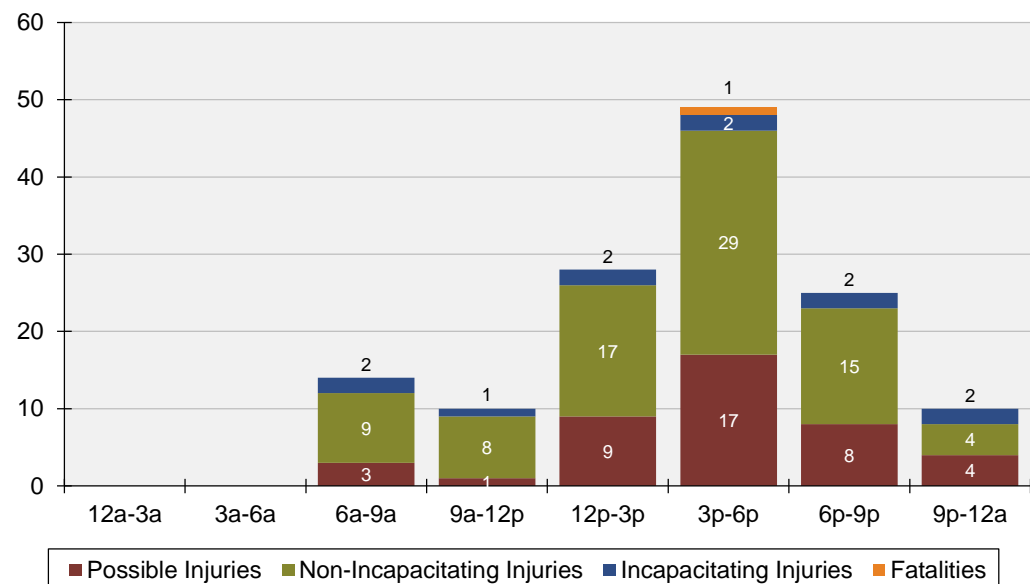
Figure 3.12 Bicyclist Injuries by Age



Source: WYDOT, Cheyenne MPO, 2004-2013.

As shown in Figure 3.13, the time of the day during which most bicyclist injuries occur is the afternoon rush hour (3 p.m. to 6 p.m.), during which a higher volume of travelers is returning from school or work.

Figure 3.13 Bicyclist Injuries by Time of Day



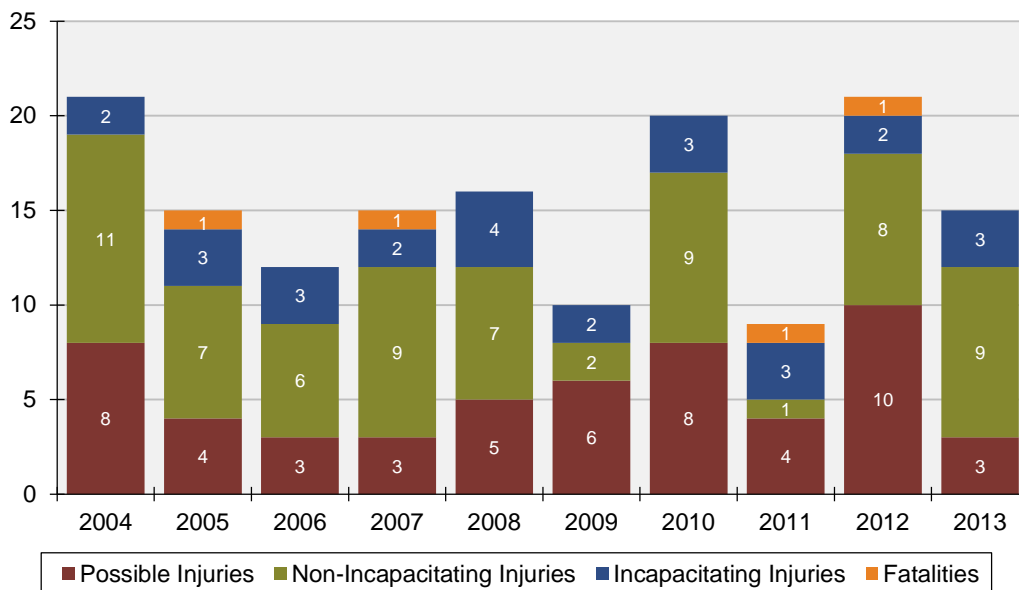
Source: WYDOT, Cheyenne MPO, 2004-2013.

PEDESTRIANS

The crash data presented in this section involves pedestrian crashes with vehicles on any public roadway in Greater Cheyenne. Four pedestrian fatalities have occurred over the past 10 years and an average of two to four incapacitating injuries occur annually, as shown in Figure 3.14.

Research shows that higher vehicle speeds are strongly associated with both a greater likelihood of pedestrian crash occurrence and more serious resulting pedestrian injury. It was estimated that only 5 percent of pedestrians would die when struck by a vehicle traveling at 20 miles per hour or less. This compares with fatality rates of 40, 80, and nearly 100 percent for striking speeds of 30, 40, and 50 miles per hour or more respectively.²

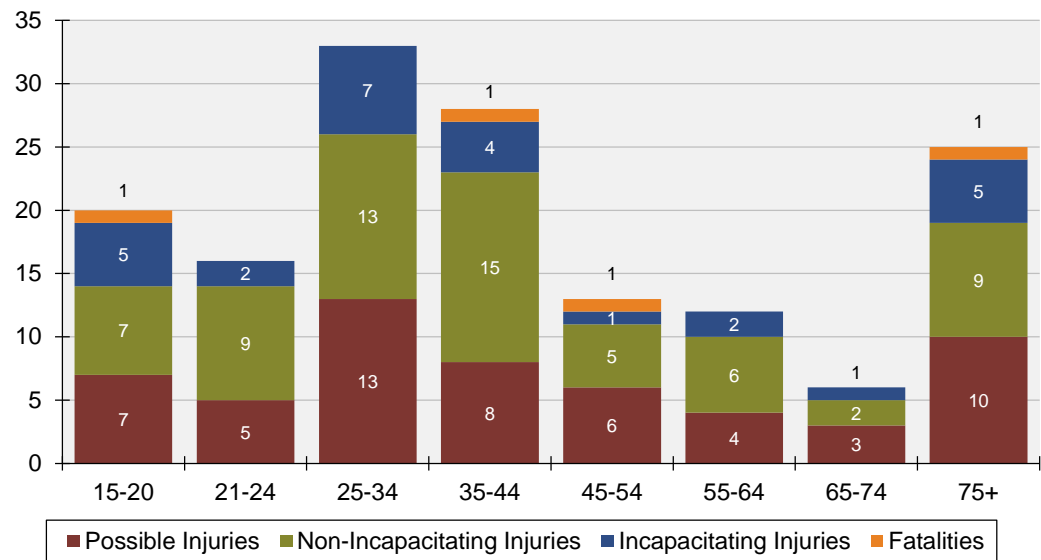
Figure 3.14 Pedestrian Injuries by Year
2004-2013



Source: WYDOT, Cheyenne MPO, 2004-2013.

Young adults between the ages of 15 and 44 represent the largest numbers of pedestrian injuries, as shown in Figure 3.15. In addition, the elderly – over age 75 – experienced a fairly high rate of pedestrian crash injuries, which also may be due to their physical frailty impacting the injuries sustained.

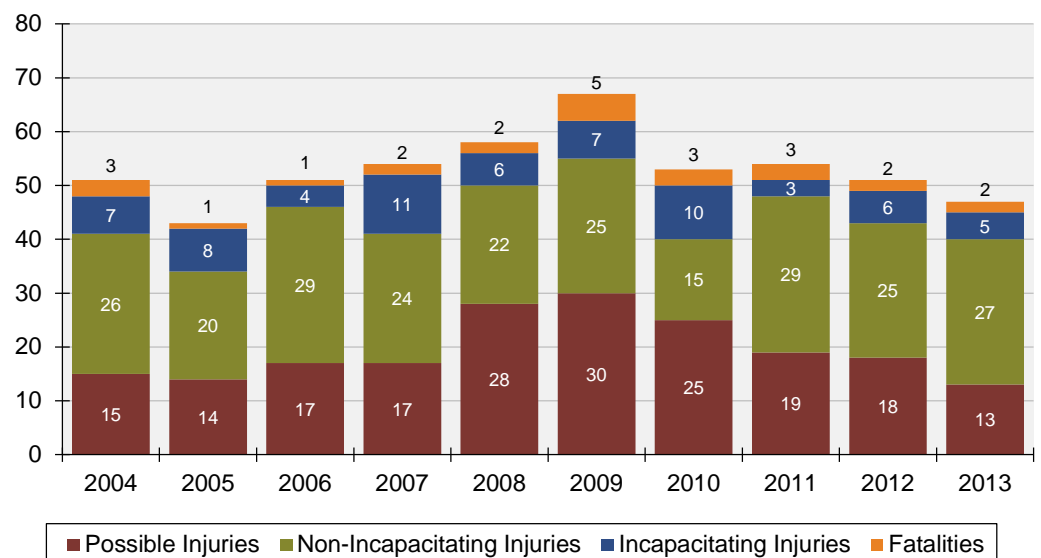
² W.A. Leaf and D.F. Preusser, Literature Review on Vehicle Travel Speeds and Pedestrian Injuries Among Selected Racial/Ethnic Groups, National Highway Traffic Safety Administration, 1999.

Figure 3.15 Pedestrian Injuries by Age

Source: WYDOT, Cheyenne MPO, 2004-2013.

OTHER ISSUES

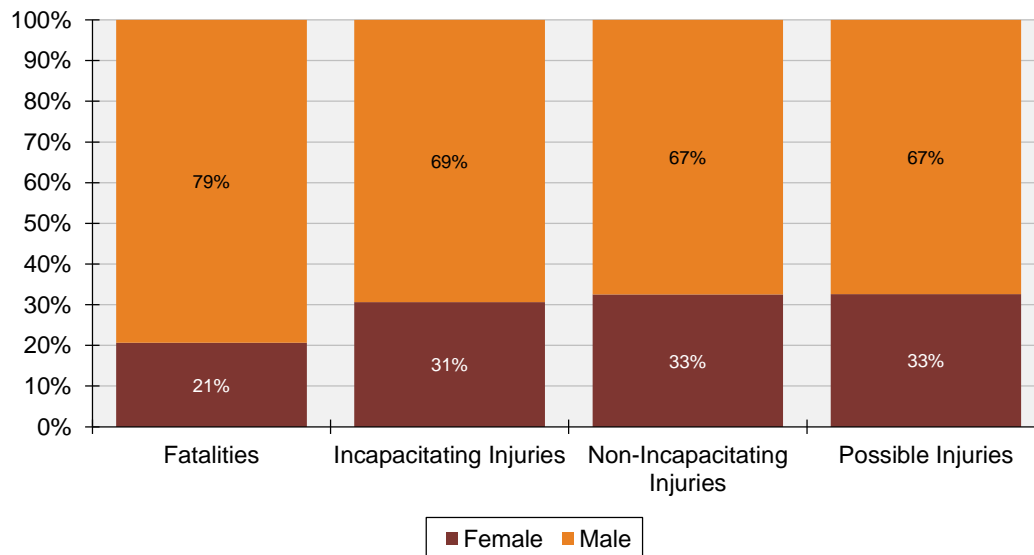
Alcohol involvement in crashes is a significant issue in Wyoming overall as well as in the Cheyenne area. While not selected as an Emphasis Area, impairment by alcohol is an issue that should be monitored. As shown in Figure 3.16, in most years multiple traffic fatalities involve alcohol use by at least one party involved in the crash. Alcohol use is defined by the presence of alcohol by any driver involved in the crash based on a breathalyzer or Blood Alcohol Content test.

Figure 3.16 Injuries from Alcohol-Impaired Crashes by Year 2004-2013

Source: WYDOT, Cheyenne MPO, 2004-2013.

As shown in Figure 3.17, males account for the majority of impaired driving fatalities and injuries.

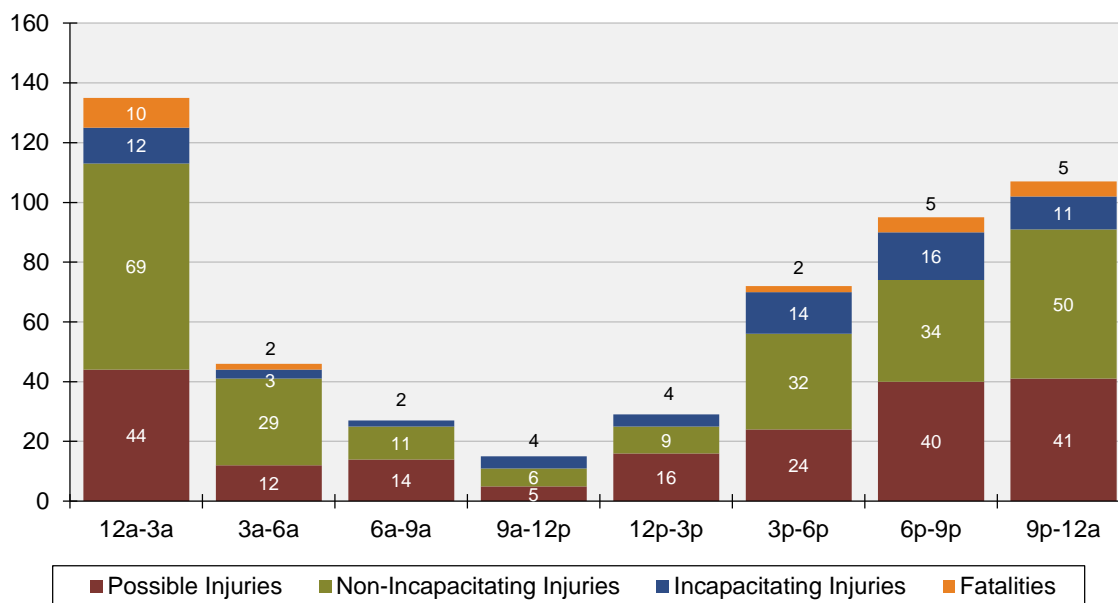
Figure 3.17 Injuries from Alcohol-Impaired Driving Crashes by Gender



Source: WYDOT, Cheyenne MPO, 2004-2013.

As might be expected, the most common hours for serious impaired driving crashes are in the evening into the early morning hours, between 6 p.m. and 3 a.m. The largest spike is in the hours after midnight, as shown in Figure 3.18.

Figure 3.18 Injuries from Alcohol-Impaired Driving Crashes by Time of Day



Source: WYDOT, Cheyenne MPO, 2004-2013.



4

SAFETY STRATEGIES

The most critical element of the safety plan is the strategies and action steps planned to address the defined safety problems. As part of the planning process, the TSAC reviewed current safety-oriented activities within each Emphasis Area, which are described below at the beginning of each Emphasis Area section. The intention is for the strategies in the plan to go beyond the current state of practice based on the data-driven problem identification.

The majority of the content pertains to the safety strategies defined by the TSAC and stakeholders that participated in the Safety Summit. The strategies included in the plan represent those that stakeholders felt would make the greatest impact on safety in Greater Cheyenne.

It is important to note that the Cheyenne region will not be limited to the strategies and action steps listed here. The plan is intended to have a five-year duration, and it is possible that new issues will emerge within that timeframe or the TSAC may feel that a strategy is not fully completed after implementing the action steps listed. In that case, additional action steps should be identified.

INTERSECTIONS

CURRENT SAFETY PROGRAMS

- Pedestrian countdown timers are in place at most major intersections.
- Road safety audits have been held along the Dell Range corridor to provide input into the corridor plan underway.
- Flashing yellow arrows for unprotected left turns have been installed at many signals.
- Backplates are installed on all signals to provide easier visibility of signal colors.
- The City is upgrading overhead street name signs to increase reflectivity and lettering size.
- The City is conducting an impact fee study to evaluate the potential of dedicating funds to intersection upgrades.
- On-street parking ordinances were recently updated. Parking restrictions are indicated via signs versus paint on curbs, which was difficult to maintain.

SAFETY STRATEGIES

Cheyenne is continually maintaining its roadways (e.g., pavement and markings) and the hardware at intersections (e.g., signals and signs). This ongoing maintenance presents an opportunity to consider the latest literature documenting proven effective safety best practices, many of which involve low-cost improvements. Over time, Cheyenne can continue to incrementally improve the way drivers are guided through intersections and seek to manage driver behavior via the information the infrastructure provides. These improvements can be targeted to high crash locations. Infrastructure improvement also can be applied systemically – that is, installation of a certain proven effective safety element at all intersections with certain characteristics. Systemic application of safety treatments has the potential to prevent crashes from occurring and may be more appropriate for a region with relatively small numbers of fatalities and serious injuries, where it can be harder to see patterns in the crash data. Improvements at intersections should always seek to improve conditions for bicyclists and pedestrians, the most vulnerable users of the roadway system.

To improve intersection safety efforts cannot be limited only to infrastructure changes. Enforcement of traffic laws is critical to changing behavior. In addition, effective education programs will contribute to these behavior changes and to continued development of a culture of safety for Cheyenne. Table 4.1 details intersection strategies.

Table 4.1 Intersection Strategies**Strategy 1: Continue addressing high crash locations via infrastructure improvements and enforcement.****Leaders/Partners: Cheyenne Engineering, WYDOT, Cheyenne Police Department**

- 1-a. Based on crash history, travel volume, and other data as needed, identify and investigate high crash locations and implement treatments such as roundabouts, reflective signal backplates, and other proven effective countermeasures.
- 1-b. Implement LED lights on the back side of signals to enable better enforcement of red light running.

Strategy 2: Identify and implement best practices for systemic safety applications at intersections.**Leaders/Partners: Cheyenne Engineering, WYDOT, Cheyenne MPO**

- 2-a. Work with WYDOT to implement flashing yellow arrows at appropriate signal locations.
- 2-b. Develop a policy to ensure roundabouts are considered as an alternative when new intersections are created or at current signalized intersections needing upgrades.
- 2-c. Incorporate traffic calming measures wherever feasible to cue motorists to drive at the signed speed, such as in corridor plans and roadway maintenance and reconstruction projects, with a focus on priority pedestrian corridors.
- 2-d. Review existing intersection policies and compare to national best practices; for example, review policy for placement of stop bars at intersections to provide additional guidance to drivers, motorcyclists, and bicyclists.
- 2-e. Integrate proven effective safety improvements into ongoing intersection upgrades. (See resources in Appendix C).

Strategy 3: Identify and implement best practices for pedestrian and bicycle safety at intersections.**Leaders/Partners: Cheyenne Engineering, WYDOT, Cheyenne MPO**

- 3-a. Revise pedestrian signal timing to adhere to the Manual on Uniform Traffic Control Devices (MUTCD) standards and consider adjusted signal timing for intersections with high pedestrian volumes.
- 3-b. Develop a policy for enhanced bicycle lane markings through intersections, and clarify right-of-way at intersections (and intersection approaches) through the use of pavement markings and signage for bicyclists and motorists.
- 3-c. Implement video detection at intersections to better detect bicycles and motorcycles.

Strategy 4: Identify and address policy or design standard inconsistencies affecting intersection safety.**Leaders/Partners: Cheyenne City Departments and City Council**

- 4-a. Review parking policies for transportation projects involving intersections to ensure visibility is not obstructed.

Strategy 5: Develop mechanisms for implementation of existing codes governing intersection safety.

Leaders/Partners: *Cheyenne City Departments and City Council*

- 5-a. Define city agency staff and their enforcement responsibilities for regulations governing sight distance triangles at intersections.
- 5-b. Review maintenance policies and update as needed to ensure low-cost safety improvements are being integrated into maintenance projects on an ongoing basis, consistent with the latest research and best practices.

Strategy 6: Conduct education about new infrastructure installations that drivers may find confusing and those for which high levels of violations are observed.

Leaders/Partners: *Cheyenne Public Information Officer, Cheyenne Engineering, Cheyenne MPO, Laramie County Sheriff's Office*

- 6-a. Develop and distribute public information about new or modified infrastructure, such as flashing yellow arrows.
- 6-b. Conduct ongoing education using innovative (i.e., social media) and traditional communications outlets about common driving errors based on crash data and law enforcement observations.

DISTRACTED DRIVING

CURRENT PROGRAMS

- An ordinance is in place prohibiting hand-held cell phone use.
- The digital billboard ordinance has restrictions on messages or lights that are blinking, intermittent, flashing, or moving. Changes can occur only every eight seconds.

SAFETY STRATEGIES

Five seconds is the average time your eyes are off the road while texting. When traveling at 55 miles per hour, that's enough time to cover the length of a football field blindfolded.
(VT)

Distracted driving is a challenging area as few proven effective strategies exist. Most activities focus on awareness and enforcement, particularly in urban areas. Improving awareness involves helping people understand the potential life-threatening outcomes of engaging in distracting activities while driving.

Over time, the goal is for all community members to resist driving distracted and support each other in making safe choices. Meaningful change occurs when a teenager reminds another teenager to put the phone away before driving, when members of a family commit to installing apps on their phones that will block incoming calls when driving, or when an employer encourages employees not to take calls while driving. The strategies shown in Table 4.2 all relate to increased education and outreach on the risks of distracted driving.



Table 4.2 Distracted Driving Strategies

Strategy 1: Conduct outreach on the risks and costs of distracted driving with at-risk populations.

Leaders/Partners: *Cheyenne Regional Medical Center Safe Communities Program, CLICK High School Outreach, Mayor’s Youth Council, Cheyenne Police Department, Wyoming Highway Safety Office, Laramie County School District*

- 1-a. Continue to partner with the Safe Communities Program and school and civic organizations (e.g., Kiwanis, Rotary) to promote safe driving and prevent distracted driving; use the distracted driving simulator as part of outreach presentations/events.
- 1-b. Develop and disseminate new outreach and education materials about the risks of distracted driving using proven effective messaging.
- 1-c. Use innovative communications platforms to distribute messages to reduce distracted driving, such as high school Facebook feeds, high school video screens, and dynamic message signs.
- 1-d. Distribute effective TV ads/PSAs in Cheyenne venues such as at movie theaters and on video screens in common areas.
- 1-e. Conduct outreach to high school students via athletic coaches and encourage them to communicate to players the dangers of driving distracted.
- 1-f. Promote educational opportunities such as the Alive at 25 class (free and open to young drivers ages 14 to 25); promote educational programs to judges to increase participation rates.
- 1-g. Pursue increased content on traffic safety, including distracted driving, in high school health courses undergoing curriculum redesign.

VULNERABLE USERS

CURRENT PROGRAMS

BICYCLE AND PEDESTRIAN

- Media programs are generally implemented near the start of school to remind drivers to watch out for bicycles and pedestrians.
- The Safe Routes to School plan prioritizes locations where sidewalks are needed.
- WYDOT leads four in-school education events per year on how to safely bike and walk to school.
- Each school has recommended walking routes posted on its web site, although some are in need of updates.
- A walking audit was conducted along the Pershing corridor, which identified pedestrian improvement needs.

MOTORCYCLE

- Motorcycle operator safety training courses are provided by WYDOT.
- During the summer, WYDOT conducts an awareness campaign targeting drivers and instructing them to watch for motorcycles during the summer.

SAFETY STRATEGIES

Cheyenne is committed to improving the environment for bicyclists and pedestrians, having developed the On-Street Bicycle Plan and Greenway Update and the Pedestrian Plan. Both of these plans make policy and infrastructure recommendations to make nonmotorized travel more appealing, easier, and safer. The safety strategies proposed here includes infrastructure treatments that benefit vulnerable users, as well as education and outreach. As more bicyclists and motorcyclists use Cheyenne roadways it will be beneficial to conduct education campaigns and provide information about each group's roles and responsibilities on the road – how to “share the road.” Some strategies involve improved data collection and documentation, which will help planners better understand trends and pinpoint locations needing improvements. In addition, some strategies involve support of potential state-level activities by the Transportation Safety Advisory that also would benefit Cheyenne. The strategies in Table 4.3 address improvements to vulnerable user safety.

Table 4.3 Vulnerable Users Strategies

Strategy 1: Conduct an education campaign about safe practices for Sharing the Road among vehicles, bicyclists, pedestrians and motorcyclists.

Leaders/Partners: *City of Cheyenne, Cheyenne Cycling Club, Wyoming Tribune Eagle, Cheyenne Police Department, WYDOT, Safe Communities, bicycle shops*

- 1-a. Conduct education campaigns about sharing the road, particularly in the spring as travel increases and at the start of the school year.
- 1-b. Educate the cyclist community about the importance of safe practices, including bicycle maintenance, wearing helmets, use of retroreflective clothing use of lights in dark conditions, and not using headphones while riding.

Strategy 2: Consistently implement and evaluate installation of pedestrian- and bicycle-friendly infrastructure.

Leaders/Partners: *Cheyenne Engineering, Cheyenne Greenway Coordinator, Cheyenne Cycling Club, Prevention Management Organization, Governor's Council on Physical Fitness, Laramie County*

- 2-a. Evaluate the feasibility of implementing infrastructure recommendations from the Bike Plan and pursue implementation of appropriate projects.
- 2-b. Prioritize and implement recommendations from the Cheyenne Pedestrian Plan that improve pedestrian safety at intersections in high-volume pedestrian areas. Treatments could include crosswalk installation, signal timing modifications, or roadway lighting in high-risk locations.
- 2-c. Evaluate routine maintenance and construction projects for potential implementation of pedestrian and bicycle countermeasures, such as those recommended by FHWA (see Tables C.2 and C.3 in the Appendix).

Strategy 3: Update administrative code as related to bicycle operation.

Leaders/Partners: *Cheyenne Engineering, Cheyenne Parks and Recreation, Cheyenne City Council*

- 3-a. Review and adopt the recommended changes proposed in Working Paper 16 of the 2012 On-Street Bicycle Plan for Code Review and Recommendations for the Bicycle Section.

Strategy 4: Support strengthening of State laws and improve public education to increase bicycle and pedestrian safety.

Leaders/Partners: *Transportation Safety Advisory Committee*

- 4-a. Support State implementation of laws improving bicycle safety, such as the 'margin of safety' bicycle passing law.
- 4-b. Support updates to the Wyoming drivers manual to include the rules of the road for bicycle riders.

Strategy 5: Improve data related to walking and bicycling in Cheyenne.

Leaders/Partners: *Cheyenne MPO*

- 5-a. Update Geographic Information Systems (GIS) sidewalk data documenting sidewalk locations to aid in identification of gaps and needs.
- 5-b. Continue to increase collection of pedestrian and bicycle volume data to increase understanding of exposure for nonmotorized modes.

Strategy 6: Research Cheyenne area motorcycle crash statistics and develop appropriate education and enforcement programs.

Leaders/Partners: *WYDOT, PMO, Laramie County Liquor Association, bars, retailers*

- 6-a. Research motorcycle crash statistics and other available data to determine crash contributing factors and behaviors.
- 6-b. Develop a targeted motorcycle education campaign based on motorcycle crash statistics (e.g., age, type of motorcycle, use of alcohol, crash locations, licensure status, etc.) and related data.
- 6-c. Conduct motorcycle enforcement based on crash statistics and other available data.

POLICIES

STRATEGIES

Beyond the policy needs identified within the three Emphasis Areas, the TSAC decided other safety issues needed to be addressed via policy changes of various types.

Therefore, this section identifies needed changes in terms of:

- Statewide policies that Cheyenne can support, even if the community cannot effect change on its own;
- Municipal ordinances and policies;
- Municipal administrative code revisions; and
- Design standard modifications.

Many of the policy strategies overlap with strategies noted above in the Emphasis Area strategies. Corresponding Emphasis Area to which the strategies apply are noted in Table 4.4.



Table 4.4 Policy Strategies

| Policy Strategy | Leaders/Partners | Corresponding Emphasis Area Strategy |
|--|--|--------------------------------------|
| State-Level Policies and Legislation | | |
| Strategy 1: The TSAC will consider supporting strengthening statewide roadway transportation safety laws , which could include: <ul style="list-style-type: none">• State enabling legislation for sobriety check points;• Statewide primary seatbelt law or enabling local laws;• State penalties for unrestrained drivers and passengers;• Regulation on the use of advanced technology while driving, such as handheld electronic devices; and• Ignition interlock enforcement. <hr/> 1-a. Research needs for stronger transportation safety laws, prepare supporting materials, and conduct education and outreach. <hr/> 1-b. Work with partner agencies to conduct briefings and provide information to educate legislators on traffic safety issues. | Transportation Safety Advisory Committee, Wyoming Association of Sheriffs and Chiefs of Police, Governor’s Council on Impaired Driving, CLICK, Safe Kids | None |
| Strategy 2: Support strengthening of state laws and improve public education to increase bicycle and pedestrian safety. <hr/> 2-a. Support State implementation of the ‘margin of safety’ bicycle passing law. <hr/> 2-b. Update the Wyoming drivers manual to include the rules of the road for bicycle riders. | | Vulnerable Users Strategy 4 |
| | | Vulnerable Users Strategy 4-a |
| | | Vulnerable Users Strategy 4-b |
| Municipal Ordinances, Policies, and Code Revisions | | |
| Strategy 3: Strengthen penalties against impaired driving. <hr/> 3-a. Enact municipal law requiring criminal penalty for refusing a breath test; incorporate mandatory sentencing at the municipal level. | Cheyenne City Council, Cheyenne Police Department, Laramie County Prevention of Alcohol Problems, Prevention Management Organization of Wyoming | None |
| | | |
| Design Standards and Policies | | |
| Strategy 4: Update administrative code as related to bicycle operation. <hr/> 4-a. Review and adopt the recommended changes proposed in Working Paper 16 of the 2012 On-Street Bicycle Plan for Code Review and Recommendations for the Bicycle Section. | Cheyenne Engineering, Cheyenne Parks and Recreation, Cheyenne City Council | Vulnerable Users Strategy 3 |
| | | Vulnerable Users Strategy 3-a |

| Policy Strategy | Leaders/Partners | Corresponding Emphasis Area Strategy |
|---|--|--------------------------------------|
| Design Standards and Policies (continued) | | |
| Strategy 5: Identify and implement best practices for systemic safety applications at intersections. | Cheyenne Engineering, WYDOT, Cheyenne MPO | Intersections Strategy 2 |
| 5-a. Develop a policy to ensure roundabouts are considered as an alternative when new intersections are created or at current signalized intersections needing upgrades. | | Intersections Strategy 2-b |
| 5-b. Review existing intersection policies and compare to national best practices; for example, review policy for placement of stop bars at intersections to provide additional guidance to drivers, motorcyclists, and bicyclists. | | Intersections Strategy 2-d |
| Strategy 6: Identify and implement best practices for pedestrian and bicycle safety at intersections. | Cheyenne Engineering, WYDOT, Cheyenne MPO | Intersections Strategy 3 |
| 6-a. Revise pedestrian signal timing to adhere to the Manual on Uniform Traffic Control Devices standards and consider adjusted signal timings for intersections with high pedestrian volumes. | | Intersections Strategy 3-a |
| 6-b. Develop a policy for enhanced bicycle lane markings through intersections and clarify right-of-way at intersections (and intersection approaches) through the use of pavement markings and signage for bicyclists and motorists. | | Intersections Strategy 3-b |
| 6-c. Implement video detection at intersections to better detect bicycles and motorcycles. | | Intersections Strategy 3-c |
| Strategy 7: Identify and address policy or design standard inconsistencies affecting intersection safety. | Cheyenne City Departments and City Council | Intersections Strategy 4 |
| 7-a. Review parking policies for transportation projects involving intersections to ensure visibility is not obstructed. | | Intersections Strategy 4-a |
| Strategy 8: Develop mechanisms for implementation of existing codes governing intersection safety. | Cheyenne City Departments and City Council | Intersections Strategy 5 |
| 8-a. Define city agency staff and their enforcement responsibilities for regulations governing sight distance triangles at intersections. | | Intersections Strategy 5-a |
| 8-b. Review maintenance policies and update as needed to ensure low-cost safety improvements are being integrated into maintenance projects consistent with the latest research and best practices. | | Intersections Strategy 5-b |



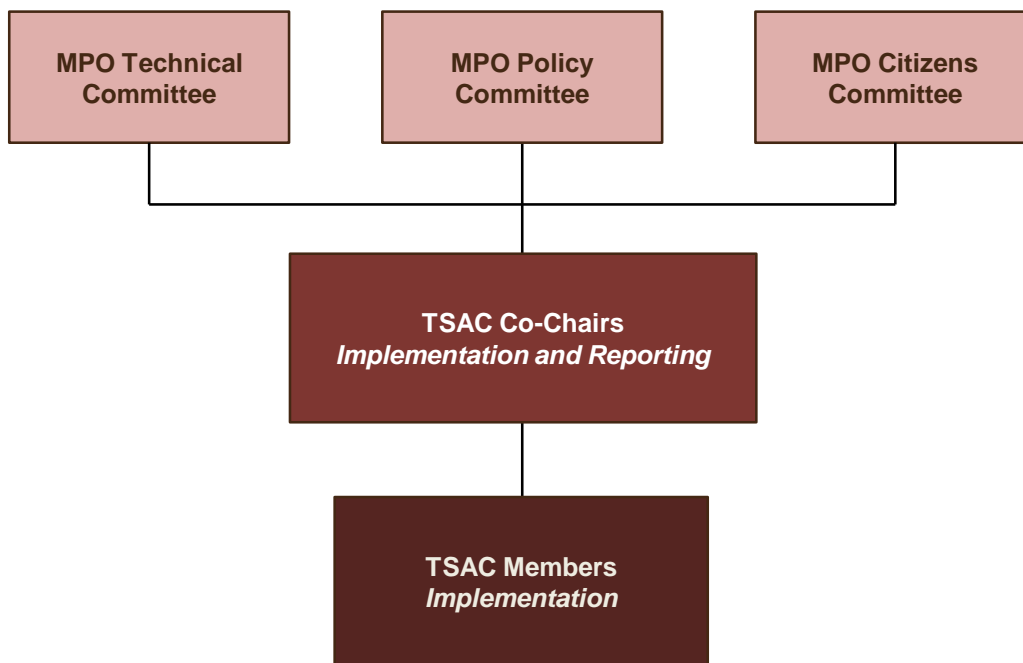
5

IMPLEMENTATION

Completion of the Cheyenne Area Community Transportation Safety Plan is just the first step toward improving safety for Cheyenne area roadway users. For any substantive change to occur, the plan must be *implemented*. The momentum achieved by the TSAC and at the Safety Summit must be maintained to bring safety strategies to fruition.

A committed group of safety partners and stakeholders – the Transportation Safety Advisory Committee (TSAC) – has been established. All TSAC members involved have provided their knowledge, expertise, ideas, and commitment to this safety plan. Throughout plan implementation, TSAC members will need to continue to provide overarching guidance and be involved in implementation of individual strategies.

The TSAC will continue to meet regularly (i.e., quarterly) to provide oversight of the safety effort. The TSAC will determine which strategies to undertake first and engage members and other safety partners to implement the action steps. At TSAC meetings, the group will provide support, help strategy implementers identify needed resources, coordinate among agencies, share information, and identify solutions to implementation challenges. Ideally, the TSAC will be led by two co-chairs who will periodically report progress on TSMP strategy implementation and safety trends to the MPO's Technical Committee, Policy Committee and Citizens Committee. Figure 5.1 shows the implementation structure.

Figure 5.1 TSMP Implementation Structure

The TSAC co-chairs will depend on an active and engaged committee to ensure ongoing strategy implementation, partnerships and information sharing. This approach will ensure that resources are used most efficiently to address the most pressing problems.

EVALUATION

In partnership with the MPO, the TSAC will periodically – at least annually – review safety trends overall using WYDOT crash data. This process should include a review of the five performance measures for which targets were set (Table 2.1). The MPO will be able to provide data on fatalities and injuries by Emphasis Area so those trends can be monitored as well. The MPO can calculate a multiyear rolling average for the performance measures to evaluate overall trends. By carefully monitoring these data, the TSAC can see if the strategies and actions are working and make changes as needed.

Evaluation at the project level also is very important. Because usually more than one safety activity is underway during any given time period, it can be difficult to isolate the direct impact of a safety project or program on the overall crash or injury numbers. Therefore, it is important to develop projects so that evaluation is integrated as part of the project. For some engineering treatments, measuring the impact of a project in terms of the number and severity of crashes before and after an improvement is fairly straightforward. However, for other types of programs, the results are not easily quantified in terms of direct impact on fatalities and serious injuries. For education or enforcement campaigns there are other methods of evaluating programs, such as surveys

of individuals' self-reported knowledge, behavior or perception of risk before and after the campaign, or citations issued.

It is critical to evaluate every program conducted in some way so that effective programs can be repeated and strengthened and ineffective programs can be modified or discontinued. This information will be very useful to the TSAC as it considers how future resources should be spent to move the Cheyenne community closer to its vision of zero fatalities.





APPENDICES

A. APPENDIX A: TSAC MEMBERSHIP

Monti Allsop, WYDOT Highway Safety

Joel Barnett, Federal Highway Admin.

Nathan Beauheim, City of Cheyenne
Engineering

Ken Burnett, Laramie County School
District #1

Matt Carlson, WYDOT Highway Safety

Dan Cooley, Laramie County

Rob Dafoe, City of Cheyenne Police
Department

Todd Eldridge, F.E. Warren
Air Force Base

Mark Escobedo, City of Cheyenne
Engineering

Bart Evans, T2/LTAP

Ed Fritz, WYDOT Planning

Renee Gamino, AARP Wyoming

Rob Geringer, City of Cheyenne
Engineering

Logan Graves, City of Cheyenne
Planning Department

Randy Griesbach, WYDOT District

Dan Hollingshead, Laramie County
Sheriff

Brian Kozak, City of Cheyenne Police
Department

Gus Lopez, Clay-Laramie County
Health Department

James Martin, Cheyenne Fire and
Rescue

Tom Mason, Cheyenne MPO

Bill McHenry, Emergency Management
Agency

Nancy Olson, Cheyenne MPO

Mike Peel, Laramie County School
District #1

Katrina Peterson, Cheyenne/MPO

Phil Pratt, Federal Highway
Administration

Taylor Rossetti, WYDOT

James Sims, Cheyenne MPO

Jan Spires, City of Cheyenne Planning
Department

Brett Walker, City of Cheyenne

Jeff Wiggins, City of Cheyenne Parks
and Recreation

Sreyoshi Chakraborty, Cheyenne MPO

B. APPENDIX B: SAFETY SUMMIT PARTICIPANTS

Lisa Ammons, Prevention Management Organization

Angel Anturo, Mayor's Youth Council

Nathan Beauheim, City of Cheyenne

Sreyoshi Chakraborty, Cheyenne MPO

Tom DeHoff, Wyoming DOT

Joe Dougherty, City of Cheyenne Transit

Guy Driver, City of Cheyenne Police Department

Fred Emerich, Wyoming State Senate

Mark Escobedo, City of Cheyenne

Floyd Esquibel, Wyoming State Senate

Bart Evans, Local Technical Assistance Program, University of Wyoming

Joe Fish, Cambridge Systematics, Inc.

Lynn Fox, Laramie County School District #1

Randy Griesbach, Wyoming DOT

Tom Hood, City of Cheyenne Police Department

Karson James, Wyoming DOT

Jay Harnish, Winhealth Insurance

Mayor Richard Kaysen, City of Cheyenne

Chief Brian Kozak, Cheyenne Police Department

Ken Ledet, Wyoming DOT

Stephanie Lucero, Wyoming DOT

Erin Madison, Cheyenne Cycling Club

James Martin, City of Cheyenne Fire Department

Tom Mason, Cheyenne Metropolitan Planning Organization

Kevin McCoy, Wyoming DOT

Bill McHenry, EMA

Tim Morton, Wyoming DOT

Yvette Moyte, citizen

Kathy Muller Ogle, MPO Citizen's Advisory Committee

Brandi Nash, CRMC, Safe Communities Program

Joe Olson, City of Fort Collins, Colorado

Nancy Olson, Cheyenne MPO

Carol Matteson Pascal, citizen

Pat Persson, Wyoming DOT

Emilygrace Piel, Mayor's Youth Council

Taylor Rossetti, Wyoming DOT

Jeff Purdy, Federal Highway Administration

Mike Reed, Office of the Governor

Colonel Tim Sheppard, MPO Citizens Advisory Committee

James Sims, Cheyenne MPO

Merle Smith, Laramie County School District #1

Paige Smith, citizen

Jan Spires, City of Cheyenne Planning

Josh Tetzlaff, City of Cheyenne

Brett Walker, Laramie County Planning

Audrey Wennink, Cambridge Systematics, Inc.

Mike Weiland, MPO Citizens Advisory Committee

Jeff Wiggins, City of Cheyenne Parks and Recreation

Tim Woodard, Laramie County School District #1

C. APPENDIX C: SAFETY RESOURCES

SAFETY REFERENCES

FHWA: Low-Cost Safety Enhancements for Stop-Controlled and Signalized Intersections – <http://safety.fhwa.dot.gov/intersection/resources/fhwasa09020/>

FHWA: Proven Safety Countermeasures – <http://safety.fhwa.dot.gov/provencountermeasures/>

FHWA: Rectangular Rapid Flashing Beacon (RRFB) Fact Sheet – <http://safety.fhwa.dot.gov/intersection/resources/techsum/fhwasa09009/>

PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection – <http://www.pedbikesafe.org/PEDSAFE/>

BIKESAFE: Bicycle Safety Guide and Countermeasure Selection – <http://www.pedbikesafe.org/BIKESAFE/>

NCHRP Report 500, Volume 22: A Guide for Addressing Collisions Involving Motorcycles – http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_500v22.pdf

NHTSA: Countermeasures that Work – <http://www.nhtsa.gov/staticfiles/nti/pdf/811727.pdf>

FHWA web site on distracted driving prevention – <http://www.distracton.gov>

EMPHASIS AREA-SPECIFIC COUNTERMEASURES

Table C.1 Intersection Countermeasures

| Countermeasure | Implementation Guidance | Resource |
|---|--|---|
| Stop-controlled intersection upgrades (e.g., warning signs, double stop signs, transverse rumble strips, etc.) | Urban and rural stop-controlled intersections with a demonstrated crash history | FHWA: Low-Cost Safety Enhancements for Stop-Controlled and Signalized Intersections |
| Signal upgrades (e.g., 12-inch LED signal lenses, reflective signal backplates, signal head per lane, flashing yellow arrow, protected left turn) | Urban and rural signals with a demonstrated crash history, especially left-turn crashes | |
| Roundabouts | Urban intersections and freeway interchanges with a demonstrated crash history and high volume | FHWA: Proven Safety Countermeasures |

Table C.2 Pedestrian Countermeasures

| Countermeasure | Implementation Guidance | Resource |
|--|--|---|
| Rectangular Rapid Flashing Beacon (RRFB) | Unsignalized intersections and midblock pedestrian crossings on two-lane streets | FHWA: Rectangular Rapid Flashing Beacon (RRFB) Fact Sheet |
| Pedestrian Hybrid Beacon (HAWK signal) | Midblock crossings with consideration of pedestrian volume, traffic volume, and posted speed, per MUTCD guidance | FHWA: Proven Safety Countermeasures |
| Median/refuge island | Multilane roads in urban and suburban areas with significant pedestrian and vehicle traffic (>12,000 ADT) and intermediate or high travel speeds | |
| Pedestrian countdown timers | All pedestrian signal heads where the pedestrian change interval is greater than seven seconds, per MUTCD guidance | FHWA: Manual on Uniform Traffic Control Devices |
| Leading Pedestrian Interval | Signals with conflicts between pedestrians and turning vehicles | PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection |
| Add sidewalks | Urban principal arterials and collectors, or other areas with high pedestrian volume | |

Table C.3 Bicycle Countermeasures

| Countermeasure | Implementation Guidance | Resource |
|--------------------------------------|---|---|
| Bike lanes and separated bike lanes | Urban roads with adequate width | BIKESAFE: Bicycle Safety Guide and Countermeasure Selection |
| Wide curb lanes | Urban and rural roads with adequate width to accommodate a 14-foot outside lane, but not enough for a bike lane or shoulder | |
| Paved shoulders | Roads with adequate width and moderate bike traffic | |
| Separated path or trail construction | Ideally constructed in a separate right-of-way, but with good connectivity to the road network | |

Table C.4 Potential Motorcycle Strategies

| Strategy |
|--|
| Short-Term Strategies |
| <ul style="list-style-type: none"> • Maintain the roadway to minimize surface irregularities and discontinuities • Maintain roadway surfaces in work zones to facilitate safe passage of motorcycles • Reduce roadway debris – such as gravel, shorn treads, snow and ice control treatments (sand/salt), and that resulting from uncovered loads – from the roadway and roadside • Increase motorcyclist awareness of the risks of impaired motorcycle operation • Expand existing impairment prevention programs to include motorcycle riders and specific motorcycle events • Target law enforcement to specific motorcycle rider impairment behaviors that have been shown to contribute to crashes • Increase awareness of the causes of crashes due to unlicensed or untrained motorcycle riders • Increase the awareness of the benefit of high-visibility clothing • Identify and promote rider visibility enhancement methods and technology • Increase the use of protective clothing • Form strategic alliances with the motorcycle user community to foster and promote motorcycle safety • Increase awareness of the consequences of aggressive riding, riding while fatigued or impaired, unsafe riding, and poor traffic strategies |
| Medium-Term Strategies |
| <ul style="list-style-type: none"> • Consider motorcycles in the selection of roadside barriers • Provide advance warning signs to alert motorcyclists of reduced traction and irregular roadway surfaces • Provide a mechanism for notifying highway agencies of roadway conditions that present a potential problem to motorcyclists • Ensure that licensing and rider training programs adequately teach and measure skills and behaviors required for crash avoidance • Identify and remove barriers to obtaining a motorcycle endorsement • Increase the use of FMVSS 218-compliant helmets • Educate operators of other vehicles to be more conscious of the presence of motorcyclists • Include motorcycles in the research, development, and deployment of Intelligent Transportation Systems • Include motorcycle attributes in vehicle exposure data collection programs • Develop a set of analysis tools for motorcycle crashes |
| Long-Term Strategies |
| <ul style="list-style-type: none"> • Provide fully paved shoulders to more than accommodate roadside motorcycle recovery and breakdowns • Identify pavement markings, surface materials, and other treatments that reduce traction for motorcycles and treat or replace with high-traction material • Incorporate motorcycle safety considerations into routine roadway inspections • Develop and implement standardized data gathering and reporting for motorcycle crashes |

Source: NCHRP Report 500, Volume 22: A Guide for Addressing Collisions Involving Motorcycles. 2008.

SELECT RELATED CHEYENNE PLANS

PLAN CHEYENNE – REFLECTIONS AND PROGRESS

<http://www.plancheyenne.org/plancheyenne-reflections-and-progress/>

CHEYENNE ON-STREET BICYCLE PLAN AND GREENWAY UPDATE

<http://www.plancheyenne.org/cheyenne-area-on-street-bicycle-plan-and-greenway-plan-update/>

CHEYENNE PEDESTRIAN PLAN

<http://www.plancheyenne.org/Final%20Ped%20Plan%20and%20SRTS/CHEYENNE%20Ped%20plan.pdf>

D. APPENDIX D: SAFETY ACCOMPLISHMENTS SINCE 2008 TSMP PUBLICATION

While fatalities did increase slightly during the time period covered by the plan (from 5 to 7 per year), incapacitating injuries decreased significantly – from 47 (2004-2008 average) to 27 (2009-2013), and nonincapacitating injuries decreased from 445 (2004-2008 average) to 421 (2009-2013 average). Overall, fewer people are being injured on the roadways.

The TSMP significantly increased the awareness of traffic safety issues in Cheyenne, as well as improved coordination among a range of stakeholders, many of whom had not collaborated previously. The region collaborated on a number of initiatives that were new to Cheyenne, focusing on improving the safety of driving behavior. Initiatives included:

- Conducted Battle of the Belts competition to increase seat belt use among high school students. Central High School achieved an increase of 15 percent in seat belt use as a result of the program.
- Developed the Transit Buddy briefing and transit ride-along program for seniors to assist with the transition from driving to using transit.
- Distracted Driving outreach campaign in partnership with the Chamber of Commerce.
- Supported the SafeRide program for free taxi rides home in partnership with the Laramie County Liquor Association by developing branding and promotional materials.
- Held first-ever CarFit event in Wyoming. CarFit is an educational program created by the American Society on Aging, and developed in collaboration with AARP, AAA, and the American Occupational Therapy Association. Goals of the community-based program are:
 - ☐ Help older drivers improve the “fit” of their vehicles for safety and comfort;
 - ☐ Promote conversations among older adults and families about driving safety and the continued need for mobility options to keep people participating in their communities; and
 - ☐ Link adults with relevant, *local* resources that can help ensure they drive safely longer.

Other achievements in Cheyenne from the perspective of enforcement included:

- Briefing for law enforcement on the importance of enforcing the Wyoming law that requires seat belt use at all time; and
- Implementation of a hand-held cell phone use ban in Cheyenne.

Infrastructure improvements included:

- Implementation of flashing left-turn yellow arrows on signals; and
- Installation of roundabouts.

E. APPENDIX E: DEFINITIONS

REPORTABLE TRAFFIC CRASH

A Reportable Traffic Crash is one which results in bodily injury or death of any person or a total property damage of \$1,000 or more.

CRASH SEVERITY

Fatal Crash – A traffic crash involving one or more persons who were killed.

Injury Crash – A traffic crash involving one or more persons who were injured but there were no fatalities.

Property Damage Only (PDO) – A traffic crash involving property damage of \$1,000 or more with no injuries or fatalities.

INJURY STATUS

Fatal Injury – Any injury resulting in death within 30 days after the traffic crash.

Incapacitating Injury – Any injury, other than a fatal injury, which prevents the injured person from walking, driving or normally continuing any activities the person was capable of performing before the injury occurred.

Nonincapacitating Injury – Any injury, other than a fatal or incapacitating injury, which is evident to observers at the scene of the traffic crash

Possible Injury – No evidence of an injury, but complaint of pain.