Improve Non-Motorist Safety

Key Performance Measures (2012-2016 Annual Averages)

- ✓ *2,239 crashes involved pedestrians and bicyclists [1.9% of all crashes]*
- ✓ *55 pedestrians/bicyclists were killed [9.9% of all traffic fatalities]*
- ✓ *2,171 pedestrians/bicyclists suffered injuries [5.3% of all injuries]*
- ✓ *311 pedestrians/bicyclists suffered incapacitating injuries [9.8% of all incapacitating injuries]*

The figures below show the number of pedestrians and bicyclists involved in and injured in crashes

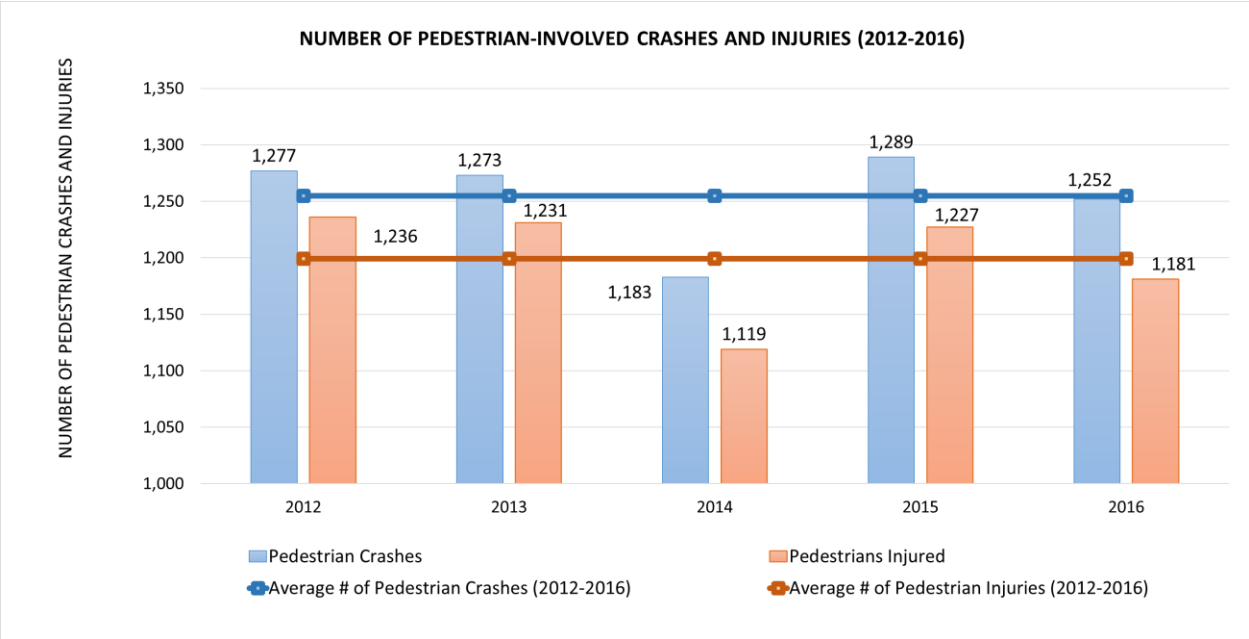

Figure 11: Pedestrian-Involved Crashes and Injuries

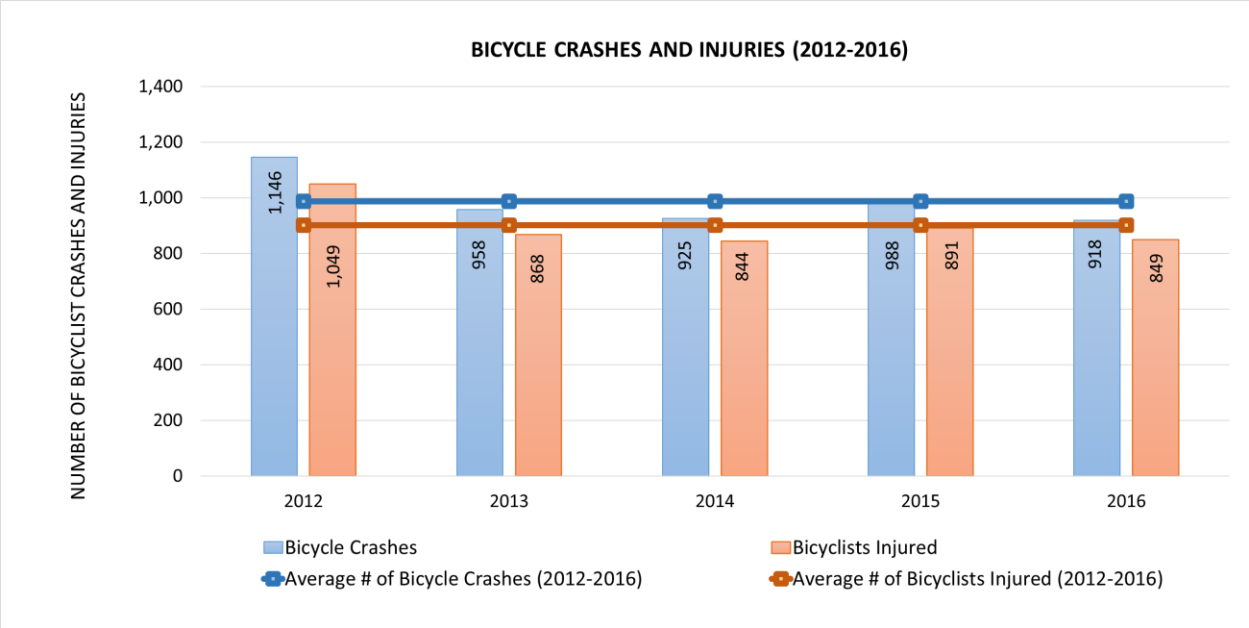

Figure 12: Bicycle Crashes and Injuries

Background

The Wisconsin Department of Transportation has hosted training workshops and provided technical guides to reduce pedestrian and bicycle injury and fatal crashes. WisDOT developed the "Wisconsin Guide to Pedestrian Practices" which provides detailed information to improve safety in the pedestrian environment. This guide functions parallel to the "Wisconsin Pedestrian Policy Plan 2020."

WisDOT produced the Wisconsin Bicycle Facility Design Handbook as part of the "Wisconsin Bicycle Plan 2020." This handbook gives bicyclists information about their rights, expectations, and safe riding principles.

WisDOT provides trainings annually to reduce injury and fatal pedestrian and bicycle crashes. Designing for Pedestrian Safety workshops are hosted in partnership with the Federal Highway Administration to instruct engineers, designers, and planners on the best countermeasures to improve pedestrian safety. These courses are well attended by WisDOT employees as well as representatives from local government. WisDOT also hosts a Teaching Safe Bicycle series with instruction provided by Share & Be Aware ambassadors. This is a "train-the-trainer" style workshop that teaches attendees the skills they need to instruct youth cycling.

Additionally, WisDOT hosts a Wisconsin Pedestrian/Bicycle Law Enforcement training course to provide local law enforcement with an in-depth overview on laws related to pedestrians, bicyclists, and motorists. Finally, high-visibility enforcement grants are provided to increase traffic enforcement related to non-motorist users, including motorist violation laws. Whenever possible, local law enforcement should enact a plan to enforce traffic laws as part of their regular duties. In locations where crashes are extremely high, WisDOT should provide additional funding to enhance traffic enforcement initiatives.

WisDOT provides financial support and direction for the Share & Be Aware program. This initiative is a collaborative effort with the Wisconsin Bike Federation. The Share & Be Aware program is a statewide campaign that strives to make walking and biking more safe by educating all road users (pedestrians, bicyclists, and motorists) about traffic safety.

Performance Measure Goals

Outcomes

- Reduce the five-year average of pedestrian/bicyclist crashes by 5% by 2020.
- Reduce the five-year average of pedestrian/bicyclist injury crashes by 5% by 2020.
- Reduce the number of fatal and serious injury pedestrian/bicyclist crashes by 5% by 2020.

Outputs

- Continue to install infrastructure which increases the safety of pedestrians and bicyclists.
- Provide better education about the presence of pedestrians and bicyclists, and remind the public to yield to them.
- Educate the public and law enforcement about the consequences of failing to yield to a pedestrian or bicyclist.
- Encourage the public to walk and bike more often.

SHSP Action Plan

Task #1: Infrastructure and engineering

- Make designing facilities that increase pedestrian/bicyclist safety a priority, with an emphasis on infrastructure for people walking and biking (for example, sidewalks and bike lanes).

- During new construction and resurfacing projects, emphasize road diets, bike lanes, sidewalks, and other proven safety countermeasures for pedestrians.
- Provide paved shoulders on highway projects. Fill in sidewalk gaps and provide continuity in the bike and pedestrian transportation network.
- Increase the use of signage and pavement markings to improve safety for bicyclists/pedestrians.
- Utilize improved lighting at crosswalks, paths, and intersections to improve nighttime pedestrian/bicyclist visibility to motorists.
- Create "rescue islands" so pedestrians can cross a street in more than one signal cycle

Task #2: Education for both motorists and non-motorists

- Provide education targeted toward motorists to reduce crashes, especially serious injury and fatal pedestrian/bicyclist crashes.
- Educate motorists about laws requiring them to yield for pedestrians in crosswalks.
- Inform motorists about how driver behavior causes crashes (for example, speeding and red light violations).
- Educate motorists about distracted driving and how it has led to an increase in crashes.
- Instruct motorists to always watch and look for bicyclists and pedestrians. It is easy to miss what you are not expecting.
- Dispel incorrect assumptions about non-motorist laws to reduce animosity between motorists and non-motorists.
- Educate pedestrians and bicyclists about the traffic laws that impact their method of travel.
- Ensure that non-motorists understand and obey laws to reduce crashes. Encourage pedestrians to cross streets where crosswalks are provided to increase safety.
- Educate pedestrians and bicyclists on avoiding distracted walking and bicycling.
- Educate pedestrians and bicyclists on the benefits of wearing protective clothing.

Task #3: Enforcement

- To successfully reduce pedestrian/bicyclist crashes, injury crashes, and fatal crashes, law enforcement must be actively engaged in managing traffic in their communities.
- Educate law enforcement about enforcing traffic laws that result in pedestrian/bicycle crashes, including failure to yield to pedestrians in crosswalks, red light violations, speeding, 3' when passing, inattentive driving, impaired driving, sudden pedestrian movement, and pedestrians/bicyclists failing to yield.
- Law enforcement should provide education and enforcement in the event of a crash.
- Provide a comprehensive law enforcement training program in Wisconsin to reduce the knowledge gap related to pedestrian/bicyclist laws.
- Because Wisconsin law does not address pedestrian attire, failure to yield laws of motorists should be enforced despite the color of the clothes worn by pedestrians and lighting levels.

Task #4: Public information campaign

- Create a pedestrian/bicyclist safety campaign similar to *Click It or Ticket*; pair this safety campaign with education and enforcement focusing on motorist and bicyclist/pedestrian behaviors that cause crashes.
- Make looking and stopping for pedestrians in crosswalks (marked or unmarked) a key message.
- Focus the campaign on specific motorist behaviors that cause crashes; for example, speeding, distracted driving, and impaired driving.
- Personalize the messaging to attract public attention and/or use a celebrity.

- Remind pedestrians to cross streets at crosswalks and not at any other location.

***Task #5:* Road diets, speed reduction, and stop laws**

- Implement and improve road diets to slow down motor vehicle traffic and to increase pedestrian/bicycle visibility and safety.
- Increase the number of pedestrians/bicyclists in the traffic environment which will increase safety for non-motorists and encourage them to walk and bike more often.
- Establish rational speed limits on state and local roads.
- Consider changing "yield" to "stop" for pedestrians because the current law to yield can be ambiguous to drivers, pedestrians, bicyclists, and law enforcement.

***Task #6:* Create a work group that meets quarterly regarding non-motorist safety**

- Establish quarterly meetings.
- Review tasks set out by the Peer Exchange and define needed actions and participants.
- Identify new stakeholders as needed.
- Create incentive-based funding proposals.
- Develop a minimum commitment scale that illustrates a county's commitment to implementing the SHSP.

Highlighted Safety Initiatives

- A high-visibility pedestrian enforcement and education pilot was developed in the city of La Crosse to address crashes.
- A bicycle safety PSA was created to encourage the use of safety gear while biking.
- Due consideration given to Trans 75 requiring bikeways and sidewalks on state and federally funded highway construction and reconstruction projects.
- Improved design guidance on enhancing pedestrian/bicyclist safety infrastructure at intersections, including shortening crossing distances and providing refuge areas.
- Began implementation and developed outreach materials for enhanced pedestrian crosswalk solutions including Pedestrian Hybrid Beacons (PHB) and Rectangular Rapid Flashing Beacons (RRFB).
- In 2016, WisDOT received a Pedestrian/Bicyclists Safety Assessment by a panel of experts through NHTSA.

Improve Safety of Intersections

Key Performance Measures (2012-2016 Annual Averages)

- ✓ *45,268 intersection crashes [37.8% of all crashes]*
- ✓ *161 deaths in intersection crashes [29.1% of all traffic fatalities]*
- ✓ *20,740 non-fatal injuries in intersection crashes [50.8% of all non-fatal injuries]*
- ✓ *1,241 incapacitating injuries in intersection crashes [39% of all incapacitating injuries]*

Background

Intersection safety is a national, state, and local transportation priority because intersection crashes represent a disproportionate percentage of the safety problem on our roadways. Intersections make up only a small fraction of Wisconsin's roadway system, yet over 25% of all fatal crashes occur at intersections, and over 50% of all non-fatal injuries result from intersection crashes. Intersections are planned points of conflict in a roadway system where motorized and non-motorized users cross paths as they travel through or turn from one route to another, so it is not surprising that crashes are concentrated at intersections. Strategies to address intersection safety are diverse and constantly evolving.

Performance Measure Goals

Outcomes

- Reduce the five-year average number of intersection crashes by 5% by 2020.
- Reduce the five-year average number of injuries in intersection crashes by 5% by 2020.
- Reduce the five-year average number of fatal and incapacitating injuries in intersection crashes by 5% by 2020.

Outputs

- Install reduced conflict intersections and interchanges. Encourage and support this installation by providing design guidance, training, and outreach to stakeholders. Prove that reducing the number and type of conflict points at intersections lowers the frequency and severity of crashes.
- Provide roundabout outreach and education to reduce improper lane use and failure to yield issues.
- Install Intersection Conflict Warning Systems (ICWS) at high-speed rural intersections to reduce right angle crashes, which are often severe.
- Install a signal per lane at signalized intersections to improve the visibility of traffic signals and signs.
- Install flashing yellow arrow lights at signalized intersections to improve driver compliance with permissive left turn signal indications. Continue education efforts through design guidance, training, and outreach to stakeholders. Improve compliance with left turn signal indications to reduce the frequency of left turn crashes, which are widely recognized as the highest risk movements at signalized intersections.
- Optimize traffic signal timing through a periodic retiming program.
- Implement a systemic approach to safety to reduce targeted crash types at high-risk intersections. Develop a pilot program within Wisconsin's Highway Safety Improvement Program.
- Continue development of standards, policies, and evaluation tools that enhance safe decision making. Develop an intersection inventory to facilitate a more efficient evaluation of intersection safety.
- Increase visibility at intersections by improving sight distance, clearing brush and other obstacles from sight triangles. Offset turn lanes where appropriate.

- Continue to enhance pedestrian and bicycle safety at intersections by installing infrastructure treatments that fit the context of the intersection and surrounding corridor.

SHSP Action Plan

Task #1: Improve data and decision support

- Improve safety data management tools, such as the WisTransPortal, to share crash data across WisDOT and with local transportation partners. Develop more timely data and improved graphical capabilities in order to share crash data across WisDOT and with local transportation partners.
- Develop a process to inventory intersection data including traffic volumes, roadway attributes, and traffic asset data for use in traffic safety evaluations.
- Develop safety performance benchmarks for a range of intersection types to improve intersection safety decision making. Develop a process to compare the benefits of installing alternative safety treatments as part of transportation improvement projects.
- Include new research findings and crash modification factors (CMF) in WisDOT's CMF table for new signalized intersection technologies including retroreflective backplates, advanced signal timing strategies, and flashing yellow arrows. If national data does not exist, consider state-specific safety evaluations.
- Develop a process for completing before and after safety evaluations for new safety treatments.
- Implement the Highway Safety Manual to allow quantitative safety evaluation of intersection alternatives.
- Calibrate the Highway Safety Manual intersection Safety Performance Functions (SPF) for use on Wisconsin's State Trunk Network. The calibration factors should incorporate Wisconsin data to more accurately analyze safety data.

Task #2: Support knowledge development and knowledge sharing

- Institutionalize traffic safety fundamentals through training and outreach to state, local, and consultant practitioners. Specific topics should include:
    - Intersection safety analysis training.
    - Design and operation of roundabouts.
    - Design and operation of traffic signals.
    - Alternative intersection analysis and design.
    - Highway Safety Manual.
    - Pedestrian/bicyclist facility planning and design.
- Identify dedicated staff to serve as leaders for roundabout safety, design, and operational elements.
- Participate in national research on intersection safety to share knowledge with other agencies and to discuss implementation planning. WisDOT should continue to participate in the following research:
    - FHWA's Highway Safety Manual Implementation Pooled Fund Study.
    - FHWA's Evaluation of Low-Cost Safety Improvements Pooled Fund Study.

Task #3: Implement concepts

- Install reduced conflict intersections and interchanges including, but not limited to, roundabouts, restricted crossing U-turns (RCUT), and diverging diamond interchanges (DDI).
- Develop pilot projects using proven safety countermeasures identified in the Evaluation of Low-Cost Safety Improvements Pooled Fund studies.

- Install Intersection Conflict Warning Systems (ICWS) at high-speed rural intersections to reduce right angle crashes.
- Complete pilot testing of traffic signal technologies to improve dilemma zone detection on high-speed signalized intersection approaches.
- Install proven safety countermeasures identified in the Safe Transportation for Every Pedestrian (STEP) initiative.
- Consider policy modifications:
    - Incorporate Highway Safety Manual methods to quantify safety to the Intersection Control Evaluation (ICE) process.
    - Pedestrian Facility Design Manual development.

Task #4: Convene a multi-disciplined work group on intersection safety

- Establish quarterly meetings.
- Review tasks set out by the Peer Exchange and define needed actions and participants.
- Identify new stakeholders as needed.
- Create incentive-based funding proposals.
- Develop a minimum commitment scale that illustrates a county's commitment to implementing the SHSP.

Highlighted Safety Initiatives

Improve data and decision support

- Created a new Wisconsin Motor Vehicle Crash Report Form (DT4000) and created a new crash database to enhance the usability for intersection safety studies.
- Completed third phase of Roundabout Safety Evaluation.
- Developed policy and guidance for quantifying safety on WisDOT projects using Crash Modification Factors (CMF).
- Updated policy and guidance for WisDOT's Intersection Control Evaluation (ICE) process:
    - Clarified what instances require an ICE report and the preferred timeline for the process.
    - Developed Brainstorming Guide and Traffic Control Summary Tables to assist with intersection alternative development.
    - Incorporated use of Crash Modification Factors (CMF) in safety analysis within ICE process.

Support knowledge development and knowledge sharing

- Hosted 5th Annual International Roundabout Conference.
- Hosted four days of in-person training on the Highway Safety Manual crash prediction methods.
- Provided training to state, local, and consultant practitioners on improving design and operation of intersections.

Implement concepts

- Continued installation of reduced conflict intersections.
- Began installation of Intersection Conflict Warning Systems (ICWS).