CHAPTER 3

Emphasis Areas and Countermeasures

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3.1 INTEGRATING THE SSA ELEMENTS: STRENGTHEN ALL PARTS

Systems thinking leads to system-based solutions by:

1. analyzing transportation safety trends,
2. assessing the influence from interacting system elements, and
3. adjusting as needed to support system goals.

For the Target Zero Plan, the foundation for successful outcomes begins with data-informed approaches to identify and better understand the contributing factors to fatal and serious injury crashes. We apply the results to determine appropriate strategies to improve the safety outcomes.

This safety management process has resulted in a set of SSA-aligned strategies to address the emphasis areas, which represent different layers of safety countermeasures being taken. For example, as driver speed and vehicle size increase, so do the severity of crashes, leading to more serious injuries. Countermeasures to address this include federal and state legislation changes, roadway design changes, additional emphasis patrols, regulation of vehicle size and features, driver training and licensing, enhanced emergency services planning, and public service campaigns educating road users about safe behaviors.

All Target Zero emphasis areas can be addressed by multiple types of strategies, and no emphasis area can be completely addressed by any one SSA element alone. This integrated approach is vital because of the complex nature of roadway safety. In the Safe System Approach, the elements come together to form a single interdependent system. Changes to one of these elements (i.e., sub-systems) can affect others, and these interactions are important to understand.

Past and present decisions and actions at the system level can (1) create conditions that prompt unsafe acts, and (2) produce weak defenses against crashes and injury outcomes. Here is a hypothetical example of how these factors can converge:

> A truck driver, driving after a sleepless night, crashed while driving too fast for road conditions (driver error) after a recent snowfall on a rural highway. The driver's speed was motivated by the long-standing company policy to give financial bonuses for on-time or early delivery. The unplowed and unsanded winter road conditions resulted in part from the budgetary decision made the previous year to reduce funding for winter maintenance services.

While the final critical action in the crash causal chain was the driver's, it took place within a broader transportation system the driver does not control. Our truck driver's experience demonstrates that decisions and actions by safety partners and influencers in the past can result in the potential for a future crash. In this case, the crash occurred because the fatigued driver's speeding (individual action) occurred within a weakened system caused by the bonus policy (private company) and budgetary decision (policymakers). Our shared responsibility is to make decisions and take actions that create a system that has adequate defenses to prevent harm.

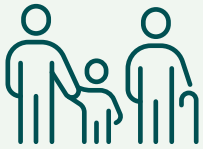
3.2 EMPHASIS AREA CATEGORIES

The emphasis areas are categorized into four groups: *High Risk Behavior*, *Crash Type/Location*, *Road Users by Age Group*, and *Road Users by Mode of Travel*. Neither the categorized groups nor the emphasis areas themselves are mutually exclusive. Safety is a complex system where strategies to address each emphasis area also affect other areas. Each emphasis area chapter includes an introductory description and crash history trends, along with some key issues for that topic. The chapter then focuses on priority strategies to address the data-informed safety characteristics and contributing factors.

EMPHASIS AREA CATEGORIES

HIGH RISK BEHAVIOR

CRASH TYPE / LOCATION



ROAD USERS BY AGE GROUP

ROAD USERS BY MODE OF TRAVEL

Strategies in this section range from short-term (e.g., high visibility enforcement of existing traffic safety laws, curve warning signs) to long-term (e.g., roundabout installations, support for speed limiters as standard equipment on motor vehicles). During the life of this plan, efforts will further refine and prioritize projects and strategies by location, implement those treatments, and evaluate their effectiveness.

3.3 HIGH RISK BEHAVIOR

IMPAIRMENT • SPEEDING • DISTRACTION • UNRESTRAINED OCCUPANTS

Human behaviors are a factor in most fatal and serious injury crashes. In fact, more than three-quarters of fatalities in Washington involve one or more of the "fatal four" road user behaviors: impairment by alcohol and/or drugs, speeding, lack of restraints (seat belts and child passenger seats), and/or distraction. Getting to zero fatalities and serious injuries will require a change in behaviors through education and enforcement, and by minimizing the effects of these behaviors through infrastructure projects. It also requires systems thinking, which can include letting go of judgment around these behaviors as only personal failings. Thinking upstream about root causes, and about transportation as a single system within a complex system of community life, can help us implement the Safe System Approach related to behavior.

This section evaluates which behaviors are likely to result in fatal and serious injury crashes, and how to address those behaviors and their effects to get to Target Zero.

The Washington Traffic Safety Commission's Together We Get There public education campaign encourages prosocial traffic safety culture and safe road user behaviors. Public service announcements have been created and broadcast to target specific audiences that may engage in higher risk behaviors or be disproportionately affected by traffic crashes.

IMPAIRMENT

Drugs like alcohol, cannabis, opioids (including fentanyl), benzodiazepines, and others affect a person's central nervous system, which in turn impairs cognition, judgment, vision, balance, reflexes, and gross and fine motor control. When these essential faculties are degraded, a person's ability to drive safely is significantly reduced. Impaired drivers are less able to moderate speed, maintain vehicle direction within lanes and roadways, and react appropriately to traffic conditions and emergency situations. Impaired road users may be struggling with addiction, emotional trauma, or other issues that lead to driving under the influence. Someone who is impaired is at high risk of taking unsafe actions. Impaired road users may travel in lanes improperly, depart from appropriate travel lanes or pathways, and fail to yield the right-of-way at signals or intersections. Due to the cognitive impairment that results from alcohol and/or drug use, drivers who are impaired are also more likely to engage in other high-risk behaviors, including speeding and lack of seat belt use.

RCW 46.61.502 states that a person is guilty of driving while under the influence of intoxicating liquor, cannabis, or any drug when:

- The person has a blood alcohol concentration of 0.08 % or higher within two hours of driving;
- The person has a blood THC concentration of 5.00 ng/mL or higher within two hours of driving;
- The person is under the influence or affected by intoxicating liquor, cannabis, or any drug; or
- The person is under the combined influence of intoxicating liquor, cannabis, or any drug.

Violation of this statute is a gross misdemeanor. Violations are classified as a class B felony if:

- The person has three or more prior offenses within 15 years (increased from 10 years by HB 1493 in June 2024).
- The person has been previously convicted of:
  - » Vehicular homicide while under the influence.
  - » Vehicular assault while under the influence.
  - » A comparable out-of-state offense.

RCW 46.61.504 contains similar provisions for a person who has actual physical control of a vehicle while under the influence of intoxicating liquor, cannabis, or any drug.

Violations of RCW 46.61.502 and .504 carry several potential sanctions, including imprisonment between 24 hours and 364 days, electronic home monitoring, 24/7 sobriety program monitoring, monetary fines ranging from $350 to $5,000, license suspension, and/or the requirement of an alcohol ignition interlock. Penalties for individuals convicted of multiple offenses, those with an alcohol concentration of 0.15 or higher, or for drivers who refuse to submit to a test may be increased.

RCW 46.20.720 describes Washington's interlock program, which features a compliance-based approach. It is also graduated based upon the offense history of the individual.

CRASH HISTORY

Motor vehicle drivers impaired by alcohol or drugs were involved in 51% of traffic fatalities during 2020-2022 and 20% of serious injury crashes. Data from the most recent period shows increases in the number of crashes resulting in fatalities that involved an alcohol- or drug-impaired driver. The tables below include fatalities and serious injuries in crashes where one or more road users (including drivers, pedestrians, and bicyclists) was impaired.

TABLE 4. IMPAIRED ROAD USER INVOLVED FATALITIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
FATALITIES	334	292	294	341	408	439	**+29%**
PROPORTION OF FATALITIES	59%	54%	55%	59%	61%	59%	

For updates to fatalities after 2022, refer to the WTSC Impairment Fatalities Dashboard.

TABLE 5. IMPAIRED ROAD USER INVOLVED SERIOUS INJURIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
SERIOUS INJURIES	430	497	452	589	663	676	**+40%**
PROPORTION OF SERIOUS INJURIES	19%	22%	20%	24%	23%	22%	

For updates to serious injuries after 2022, refer to WSDOT Crash Data Portal.

OVERLAPPING FACTORS

Of the 1,188 fatalities in crashes involving Impaired Road Users (2020-2022):

- 27.6% (328) involved a Distracted Road User
- 35.9% (427) involved a Speeding Driver
- 48.0% (570) involved a Lane Departure

Note: The speeding or distracted driver involved was not necessarily the impaired road user. Categories are not mutually exclusive.

SYSTEM CHALLENGES

Behaviors: In the 2023 Statewide Road User Survey, 5.4% of respondents reported driving a vehicle under the influence of alcohol within the last 12 months, and 5.6% of respondents reported driving under the influence of cannabis within the last 12 months.

Legal: Public attitudes about impaired driving have evolved significantly and continue to change over time. Washington first established a law prohibiting driving under the influence of alcohol with a *per se* 0.10% BAC limit in 1979. The *per se* BAC limit was reduced from 0.10% to 0.08% in 1998. These limits apply to individuals of legal drinking age or older holding a standard driver license. The threshold for individuals under the age of 21 is 0.02% BAC and 0.00 THC. Federal law establishes the BAC limit for Commercial Driver's License holders at 0.04%. (It is important to note that a person can be arrested for impairment even if they are below the *per se* limit. In these cases, the officer's observations of impairment and the results of the Standard Field Sobriety Test provide evidence of impairment.[1])

1 See: Driving under the influence, RCW 46.61.502, and Physical control of a vehicle while under the influence, RCW 46.61.504

Norway established the first *per se* BAC limit for DUI at 0.05% in 1936. Since then, BAC limits of 0.05% or lower (e.g., 0.03% in Japan and 0.02% in parts of the European Union) have been set in countries that are home to 84% of the world's population. NHTSA found that a driver's risk of a crash at 0.05 BAC is double the risk of a sober driver. The risk is more than triple at 0.07 and nearly quadrupled at Washington's current *per se* limit of 0.08 BAC.

Most impaired drivers are affected by drugs obtained legally. Alcohol is the most common impairing substance found in drivers involved in fatal crashes, followed by cannabis. Washington voters passed Initiative 502 in 2012, which legalized recreational cannabis use for adults ages 21 and older. I-502 also established the current threshold of THC concentration of 5.00 nanograms of delta-9 THC per mL or higher for impaired driving.

Legislation to lower the BAC limit for alcohol to 0.05% has been introduced in the Washington legislature four times, including 2017, 2022, 2023, and 2024. Legislation is expected to be introduced again in 2025. The 0.05% BAC limit is the most common standard internationally, and it has been found to reduce alcohol-involved fatal crashes by 11% on average across several countries studied. In Washington, there were more than 1,100 fatal crashes involving alcohol-positive drivers over the last decade.

Beyond the criteria for determining impairment, there are additional legal issues which allow impaired driving to persist at such high rates in Washington. These include delays in processing evidence (e.g., toxicology), delayed or inconsistent charging decisions, lack of experienced DUI prosecutors handling these cases, the current public defender shortage, and coordination of records between agencies and systems. These delays result in delayed access to assessment and treatment, application of sanctions, and delays in license suspensions or ignition interlock requirements.

COVID-19: When Washington first saw increases in fatalities in 2020, there was a suspicion that the impact of the pandemic on the population's emotional health led to increases in substance use. Eventually, surveys and other research documented that emotional wellbeing was harmed and substance use did increase. It was initially thought that this impact was temporary and would begin to resolve as the state and the nation returned to "normal." But after three years, it is clear the "new normal" includes higher rates of substance use and impaired driving. Temporary COVID-19 measures were enacted in 2020 to allow bars and restaurants to sell alcohol during a statewide lockdown. While some of these provisions have ended, Washington continues to allow alcohol sales to include home delivery and takeout of single-serve drinks when purchased with meals.

In addition to changes in driver behaviors towards impaired driving during and after the pandemic, the state's already low staffing levels for law enforcement were reduced further due to impacts from the COVID-19 pandemic.

Prior to the pandemic, Washington's ratio of law enforcement officer per population was the lowest in the U.S. Additionally, many law enforcement officers became eligible to retire. COVID-19 exacerbated the low staffing levels leading to fewer Driving Under the Influence (DUI) stops and arrests.

PRIORITY STRATEGIES

Because impaired driving crashes can occur anywhere, regardless of road conditions or road type, comprehensive behavioral interventions to support safer road use must be implemented broadly to prevent impaired driving, to intervene when it occurs, and to respond in ways that deter future impaired driving and address underlying substance use disorders, when they are present.

Impairment and Prosocial Traffic Safety Culture

We are more likely to see more safe, sober road users (Individuals) if they have the:

- Attitude that they are responsible for their own safety and for the safety of others.
- Knowledge that alcohol and other impairing drugs cloud their judgement and have physical and cognitive effects that prevent safe road use and safe driver behavior.
- Skills and awareness to make alternative travel plans to get home safely without driving while impaired.

Friends, family, and others in the social network can support safe, sober road use if they:

- Create and reinforce social norms that everyone drives only when sober.
- Provide safe travel alternatives (other than driving themselves) to people who have used impairing substances.
- Intervene if someone is about to drive impaired.
- Model use of other modes of travel when they themselves have consumed impairing substances.
- Do not serve or encourage people to consume impairing substances if they know the person is going to drive.

Organizations support safe and sober road use if they:

- Establish policies and norms for sober road use.
- Serve or sell impairing substances legally and responsibly, if they are in that business.

Communities support sober road use if they:

- Establish and support education and prevention programs to prevent substance use and misuse.
- Provide transit service, ride-home programs, active transportation infrastructure, free overnight parking, and other opportunities for all residents to get home safely when they have used alcohol and/or drugs.
- Reinforce social norms around sober driving through deterrence, enforcement, treatment, and rehabilitation services.
- Provide self-enforcing roads, separated and protected active transportation infrastructure, and other elements of roadway design that will reduce the likelihood and severity of a crash if a driver chooses to drive impaired.

Policymakers support safe and sober travel if they:

- Appropriate necessary funding for education, prevention, deterrence, enforcement, treatment, intervention.
- Enact laws that are effective to prevent impaired driving and to intervene effectively when someone travels in an unsafe manner due to alcohol or drug impairment.
- Establish regulations for vehicles that prevent someone from driving impaired.
- Establish regulations and funding for infrastructure treatments that reduce the risk of serious injuries or fatalities when an impaired driver is involved.

Safer Road Users: WTSC hosts the Washington Impaired Driving Advisory Council (WIDAC), which is a multi-disciplinary council comprised of citizens, people affected by impaired driving crashes, treatment providers, public health specialists, law enforcement, prosecutors, judges, and other public agency representatives.

Partnerships in Public Health and Prevention: Through WIDAC, SPE, and the Washington Healthy Youth (WHY) Coalition, WTSC collaborates closely with partners across the local and state levels of public health and prevention. These collaborations include offering and receiving consultation on social marketing campaigns, supporting mutually beneficial legislation, attending training and conferences, collaborating on and disseminating research, and identifying ways to leverage resources to shore up existing programming that promotes mental health and prevents driving impaired. Traffic safety partners collaborate with LCB to ensure the effective enforcement of alcohol and cannabis licensees. WTSC supports coalitions statewide in the implementation of alcohol, cannabis, and opioid prevention programs. Each of these touch points strengthen the overall traffic safety system and offer upstream prevention practices to align with upstream traffic safety strategies.

Education and Prevention: Schools, community coalitions, and public health agencies provide education to children about substance misuse to prevent early initiation of substance use. The developing brain is vulnerable to substance use; eliminating the early use of alcohol or cannabis reduces the likelihood they will develop a substance use disorder. Developmentally appropriate education and prevention services throughout school grades can help reduce the incidence of substance use and misuse and dependence during adolescence and early adulthood.

As young people approach driving age, more education is needed on the specific impacts of alcohol and, especially, cannabis use on driving. The general population can also be better educated on the risks of impaired driving and on safer alternatives to driving impaired.

Unfortunately, BAC limits have led some drivers to believe that driving is safe if they are below the 0.08% *per se* limit, and they are unaware that exhibiting signs of impairment (even at lower BAC levels) can result in arrest. Education is necessary to correct this misunderstanding and to provide accurate information on the risks associated with driving after consuming alcohol, cannabis, or other impairing substances, including prescription medications, alone or in combination. The fastest growing type of impairment involved in fatal crashes is polysubstance use—most often involving alcohol and cannabis together.

Prevention efforts are deployed to avoid impaired driving incidents from occurring. These efforts are directed at all drivers and bystanders. Viable alternatives to driving for someone who has consumed impairing substances are a critical aspect of prevention. These include alternative forms of transportation, including transit, taxis, ride shares, and sober drivers. Positive traffic safety culture encourages bystanders to intervene to prevent friends and family from driving impaired by offering safe alternatives, such as a sober ride or a place to sleep.

For individuals with a substance abuse disorder, access to treatment can also help avoid impaired driving and criminal justice involvement. Training and compliance monitoring for licensed alcohol and cannabis retailers also helps to prevent sales and service to minors and over-service to impaired individuals.

Early Intervention: Washington recently modified the provisions for deferred prosecution on Driving Under the Influence (DUI) charges to encourage defendants to use this option on a first-time offense. The law allows a person to have a second deferred prosecution if they are used on the first and the second offense, in recognition of the nature of substance use disorders. We know that relapse is a predictable occurrence and often a stage in recovery.

Intervention and Treatment: DUI courts combine the benefits of treatment, deterrence, and accountability. Victim impact panels, which are one component of treatment courts, can help DUI offenders understand the devastating impacts of their behavior on victims. Treatment courts are effective when done well. But they are also much more resource-intensive, requiring both time and commitment for implementation.

Effective treatment courts rely upon the availability of treatment services that are accessible, affordable, and effective. Like many states, Washington experiences shortages of qualified and experienced treatment providers. This is particularly challenging in more rural areas and remote geographic regions.

Drivers with multiple DUI charges or convictions are likely to meet the criteria for a substance use disorder, as their substance use interferes with major life activities.

The Washington Impaired Driving Advisory Council (WIDAC) has identified several other strategies to reduce impaired driving on Washington roads.

Safer Alternative Modes to Driving Impaired: Safer roads and active transportation facilities reduce the likelihood of impaired driving. Sidewalks, marked crosswalks, taxis and ride-hailing services, and reliable transit service provide safer travel options to those who choose to use impairing substances. Safety features in the built environment—such as rumble strips, median barriers, and separation of modes—can also help reduce the chances of a serious or fatal crash when someone chooses to drive impaired.

Public policy:

- Reduce the legal *per se* limit for DUI from 0.08% to 0.05% blood alcohol concentration.
- Overcome legal barriers to conducting publicized sobriety checkpoints.
- Increase treatment availability and access for DUI offenders, including deferred prosecution and pre- and post-conviction.
- Remedy the DUI case backlog at the State Toxicology Lab by addressing the root causes of the backlog, including turnover of toxicologists. Consider ways to outsource some testing to private labs to relieve and reduce the backlog of testing. Improve data system integration to increase communication about case status among law enforcement, prosecutors, the courts, and the toxicology lab.

Support and justice for victims/families:

- Increase the use of advocates for victims and survivors.
- Enforce accountability for offenders who endanger, injure, or kill while driving impaired.

Increased law enforcement capacity:

- Establish or reinstate dedicated traffic patrol units (will require increased staffing levels overall in many jurisdictions).
- Establish dedicated patrol positions to deter impaired drivers and intervene in suspected DUI.
- Coordinate across city, county, Tribal, and state jurisdictions for high-visibility emphasis patrols, crash investigations, data sharing, and opportunities for training and mentoring.
- Continue to increase access and participation for officers to receive Advanced Roadside Impaired Driving Enforcement (ARIDE) and Drug Recognition Expert (DRE) training.
- Expand the capacity of the interlock program, ensure access for indigent clients, increase interlock compliance, and expedite timely adjudication of interlock violations.
- Continue training to address the potential for bias in policing.

Toxicology:

- Increase comprehensive drug testing in crashes and DUI arrests, including expansion of the phlebotomy program (officers trained to take blood samples from suspected impaired drivers subject to a warrant).
- Increase ability to screen for impairing drugs (current and novel substances).

Data sharing and integration:

- Increase the availability and awareness of local-level data regarding locations where DUI-related crashes are occurring.
- Increase efforts to collect "last drink" locations of drivers arrested for DUI for alcohol and disseminate among traffic safety and justice system partners.
- Improve information sharing between law enforcement, Department of Licensing, and the Administrative Office of the Courts to assess whether pre-adjudication restrictions and requirements (e.g., license suspension or interlock installation) are applied for each DUI defendant and that due process requirements are met.
- Improve information sharing among agencies throughout the DUI case, including adjudication and probation/monitoring to ensure that information about each driver's status is accurate and up-to-date.

Prosecution:

- Direct training to prosecutors to include standards of evidence, trial preparation, use of experts, scientific knowledge of impairment, and changes in case law related to impaired driving offenses.
- Mentoring and supporting prosecutors to handle and specialize in DUI prosecution.
- Discourage some practices like dismissing or pleading down impaired driving charges.

Adjudication and probation:

- Increase treatment availability and promote treatment participation.
- Expand use of a therapeutic court model, including DUI and drug courts.
- Use validated risk assessment instruments to inform pre-adjudication, adjudication, and post-adjudication decisions.
- Consistent monitoring of offenders through visits, drug testing, and/or electronic monitoring to reduce recidivism.
- Educate judges, magistrates, hearing examiners, and other officials.

Drowsy driving is another form of impaired driving. A drowsy driver was involved in 39 deaths and 240 serious injuries from 2020 to 2022, which reflect 18% and 15% increases, respectively, from 2017-2019. Data on drowsy driving is most likely underreported since drivers may be reluctant to admit they dozed off prior to a crash.

A driver who has been awake for 18 hours experiences cognitive impairment like that of driver with a blood alcohol content (BAC) of 0.05%. After 24 hours of being awake, a driver's impairment is like a BAC of 0.10% or higher, beyond the current 0.08% legal limit in Washington. In addition to drowsiness from lack of sleep, factors such as alcohol, drugs, and over-the-counter and prescription medications can contribute to drowsiness.

Washington addresses drowsy driving through education campaigns and infrastructure solutions like rumble strips and rest areas.

Treatment and rehabilitation:

- Increase the use of treatment as an alternative to incarceration.
- Screen all DUI offenders for a substance use disorder.
- Increase access to treatment and address geographic inequities across the state.
- Ensure that DUI offenders have access to recommended treatment regardless of financial or insurance status.
- Programs may also include accountability measures to victims or their families impacted by the impaired driver's behavior.

Licensing:

- Educate every licensed driver in the state on the risks and impacts of impaired driving.
- Provide timely and efficient due process to drivers cited for DUI.
- Expand use of interlock devices and support compliance of drivers with interlock requirements.

More expansive and detailed strategies, efforts, programs, and goals are outlined in WIDAC's Strategic Plan (2023).

SPEEDING AND SPEED MANAGEMENT

The speed at which a driver operates a vehicle is a factor in all crashes. At higher speeds greater crash forces result during a crash, resulting in more serious injuries to the occupants and people outside the vehicle. Controlling driving speed can prevent crashes and reduce their impact by lessening the severity of injuries sustained by the victims.

This is true regardless of whether a driver is speeding (driving over the legal posted limit) or traveling at a legal speed that carries these forces into the crash. The SSA's emphasis on safer speeds applies to excessive speeds, to speeds too high for current road and weather conditions, and to the need to design roads and set regulatory speed limits to achieve vehicle operating speeds that minimize the potential for personal injury.

Speeding is defined in Washington as exceeding the posted speed limit or driving too fast for conditions at the time of the crash as reported by the investigating officer. Drivers may be traveling well under the posted speed limit, but they may be considered to be speeding when road conditions, traffic (including people using all modes), or weather conditions such as icy roads, poor visibility, or fog are present.

OVERLAPPING FACTORS

Of the 633 fatalities in crashes involving a Speeding Driver (2020-2022):

- 66.5% (421) involved an Impaired Driver
- 61.6% (390) involved a Lane Departure
- 34.0% (214) involved a Younger Driver (15–24)

Note: Categories are not mutually exclusive.

Crash forces increase exponentially with speed.

CRASH HISTORY

TABLE 6. SPEEDING FATALITIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
FATALITIES	174	182	152	173	207	253	**+25%**
PROPORTION OF FATALITIES	31%	34%	28%	30%	31%	34%	

For updates to fatalities after 2022, refer to the WTSC Speeding Fatalities Dashboard.

TABLE 7. SPEEDING SERIOUS INJURIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
SERIOUS INJURIES	499	522	548	647	703	740	**+33%**
PROPORTION OF SERIOUS INJURIES	22%	23%	24%	27%	24%	24%	

For updates to serious injuries after 2022, refer to WSDOT Crash Data Portal.

SYSTEM CHALLENGES

Perceptions of Speed and Safety: A 2023 WTSC survey of more than 10,000 Washington residents 18 years or older found that 66% of drivers reported driving 10+ mph over the speed limit at some time in the previous 30 days. Only 33% of drivers reported that they never drove 10+ mph over posted speeds in the last month.

Speeding in School Zones: A 2022-2023 study of speed in school zones by the Washington Traffic Safety Commission (WTSC) found that in 118 school zones with permanent or temporary speed reductions in school zones to 20 MPH most drivers were speeding 6+ MPH over the posted speed limit.[1] Nearly 75% of drivers in the study were speeding in school zones. Drivers passing through the school zone on their way to somewhere else were slightly more likely to speed than those entering or leaving the school sites.

Increased Crash Likelihood: There is a limit to the rate at which the visual system and brain can process information, and this ability is reduced as traveling speed increases. The higher the speed, the less information can be processed over the distance traveled. This effectively narrows the field of vision that the brain can process. As a result, a driver's ability to respond to visual inputs is reduced (e.g., the driver is less likely to recognize when another road user or other object enters their field of vision). This, along with negatively affecting the ability of other drivers and active transportation users to react, increases the likelihood of a crash.[2]

Increased Crash Severity: Force in equation form is $KE=(1/2)mv^2$, where KE = Kinetic Energy; m = Mass of an object; and v = Velocity. This means that the energy transferred in a roadway crash increases exponentially by the speed a driver travels, making it the primary factor in the amount of force in a crash. This is particularly concerning when a crash involves an active transportation user, because the force is applied directly to the human rather than to a vehicle designed to direct force away from its passengers.

It's Not Just "Speeding": Over a 10-year period, 58% of active transportation user fatalities occurred on roads with posted speed limits of 40 mph or lower. Among these, only 5% included crashes in which the driver was reported to be exceeding the posted limit. These data suggest that higher observed or anticipated active transportation and transit use should influence changes to posted speed limits.

COVID-19: The 2020 pandemic response correlated with unprecedented levels of speeding on previously-congested highways and arterials. In addition to changes in driver behaviors towards speeding during and after the pandemic, law enforcement levels were reduced during this time.

> A listening session participant in King County said that automated enforcement is effective in areas where she drives. She has observed people driving visibly slower and more safely in areas where speed cameras are used.

1 WTSC, 2023, Driver Speeding Behavior in 20 MPH School Zones

2 Speed, Tunnel Vision, and Reaction Time. America Walks, October 2022.

SPEED MANAGEMENT ADVISORY BODIES

Washington State Injury Minimization and Speed Management Policy Elements and Implementation Recommendations: WSDOT convened a multi-agency, multidisciplinary group to study multiple reports, scientific papers, statutes, manuals, and recommendations from across the country on the issues related to speed and safety. As expected, the information reviewed showed a direct link between driver speed and more severe injury outcomes for those involved in a traffic crash. The facts provided robust justification for an injury minimization and speed management policy.

The resulting Washington State Injury Minimization and Speed Management Policy Elements and Implementation Recommendations includes recommendations relevant for cities, counties, and the state:[1]

- Adopt and implement an injury minimization speed setting approach.
- Adopt a broader Safe System Approach to identify and prioritize locations for speed management improvements.
- Consider injury minimization and speed management in all transportation investments and project phases regardless of funding source.
- Collaborate with neighboring jurisdictions for consistency.
- Require training for transportation agency practitioners on injury minimization and speed management techniques.
- Adopt access control, access management policies, and land use development policies/ordinances and practices that consider desired vehicle operating speeds that minimize the potential for personal injury.

WSDOT is developing speed management workshops to offer to local agencies and is updating its Design Manual and Traffic Manual to support safer speeds.

Speed Management Advisory Cooperative (SMAC): The SMAC was established in 2024 by the WTSC to develop a statewide plan to slow speeds and improve traffic safety reflective of the Safe System Approach. It will provide analysis and recommendations for promoting safer speeds. It will encourage the expansion of Local Road Safety Plans to reflect the full complement of principles and elements of the Safe System Approach, including safer speeds.

PRIORITY STRATEGIES

States and local jurisdictions should set appropriate speed limits to reduce the significant risks drivers impose on others—especially vulnerable road users—and on themselves. To achieve desired speeds, agencies often implement other speed management strategies concurrently with setting speed limits, such as self-enforcing roadways, traffic calming measures, and speed safety cameras. (Safe System Roadway Design Hierarchy, FHWA, 2024).

1 Washington State Injury Minimization and Speed Management Policy Elements and Implementation Recommendations.

Regulatory Speed Limit Setting: Standard maximum speed limits are established in RCW 46.61.400: 25 miles per hour on city and town streets, 50 mph on county roads, 60 mph on state highways. Per RCW 46.61.415 local authorities can establish a higher (up to 60 mph) or lower speed limit based on an engineering and traffic investigation, sometimes called a speed study. Cities, towns, counties, and WSDOT may also set a maximum speed limit of 20 mph on a nonarterial street or road without conducting such a study if they have established procedures for doing so. Additional guidance is found under WAC 468-95-045 to specify that factors such as roadside development and environment, parking practices, pedestrian activity, crash experience, and other factors such as Comprehensive Plans should be considered—in essence, the context for the street or road.

Safer Speeds for All: Several local jurisdictions have developed speed limit setting policies based on the Washington State Injury Minimization and Speed Management Policy Elements and Implementation Recommendations. These policies consider contextual elements like functional classification, geometric design, land use, access density, and signal density as they relate to the possibility of a given crash type that either would or wouldn't be fatal at a given operating speed. This approach supports a shift to safer land use by considering the existing and future context of a roadway and how that land use can play into safer speeds on Washington's roads.

Self-Explaining Roads and Speed Management: Measures include the use of road and roadside design elements, such as lane narrowing, reduce turn radii, remove right turn lanes, install protected intersections, bulb-outs, gateways, refuge islands, road reallocations, landscaping, roundabout designs, and horizontal and vertical deflection, to elicit lower driving speeds along the roadway. Land use strategies should also be considered, including setbacks.[1]

Smart Signage: By alerting the right driver at the right time, with the right message addressing specific behaviors, this smart signage has the unique ability to address a driver's specific behavior. Intelligent driver feedback signs that can identify speeding, distracted driving, and unbelted drivers and notify them in real-time to correct the risky driver behavior that is detected. Pierce County and King County each have a pilot program utilizing this technology. Spokane Public Schools is developing a pilot model for using smart signage to develop a School District Traffic Safety Plan. Advised by the SMAC, the WTSC will collect speed, distraction, and seat belt use data in school zones. These data points will inform the development of local road safety planning efforts.

High Visibility Enforcement (HVE): Washington experienced a 32% increase in fatalities involving speeding drivers (2017-19 to 2020-22). During this time, enforcement of traffic laws dropped due to the COVID pandemic and personnel shortages. Particularly on highways and arterial roads that lack traffic calming designs, HVE is necessary to reduce speeding and intervene when drivers are travelling at speeds that are unsafe for the road context and conditions. Safety improvements from HVE include preventing speeding among drivers generally and intervening with drivers who evidence unsafe behaviors.

1 WSDOT Design Manual, 1103 Speed Management

Tracking Habitual Speeders: In January 2024, the National Transportation Safety Board issued a recommendation that asks states to implement a program to identify repeat speeding offenders and measurably reduce speeding recidivism. Research is underway by the DOL to gather data about habitual traffic offenders, specifically habitual speeders, and habitual speeders who are also impaired by alcohol or drugs (or vice versa).

Speed Safety Cameras: Unlike HVE campaigns which are episodic, automated enforcement can provide reminders and deter speeding motorists at set locations all day every day. Automated speed enforcement is an evidence-based countermeasure that has been found to reduce injury crashes by 20% to 25% in the areas where conspicuous cameras are placed.[1] Currently, there are at least 15 cities in Washington which use speed safety cameras, including Bellevue, Des Moines, Everett, Federal Way, Fife, Kenmore, Kent, Lake Forest Park, Lakewood, Lynnwood, Moses Lake, Renton, Seattle, Spokane, and Tacoma. The legislature passed updated legislation in 2024, making additional changes to local Automated Traffic Safety Camera programs that were amended in 2022 as part of the Move Ahead Washington package. The new law, effective June 6, 2024[2]:

- Authorizes automated traffic safety cameras to be used to detect speed violations on state routes within city limits that are classified as city streets and in work zones on city streets and county roads.
- Authorizes certain civilian employees to review infractions detected using automated traffic safety cameras and automated bus safety cameras and to issue notices of infraction.
- Establishes a maximum $145 fine amount for all traffic safety camera violations, as adjusted for inflation every five years, and authorizes the doubling of the fine amount for school zone speeding infractions.
- Requires that traffic camera infraction penalties for a first violation and subsequent violation within 21 days of the first violation be reduced to 50% of the penalty for recipients of certain state public assistance programs.
- Restricts the use of revenue generated by traffic cameras to cities and counties for certain traffic safety activities—including capital projects, maintenance, and related costs—and be used in overburdened communities in proportion to their populations, with exceptions.
- Requires local agencies to conduct an equity analysis before adding or relocating cameras in new locations.

Speed Limiters for Motor Vehicles: The WTSC supports the adoption of active or passive speed limiters as standard equipment in commercial and passenger vehicles and encourages the National Highway Traffic Safety Administration (NHTSA) to consider rules that would require this technology. Passive speed limiters alert the driver if they are exceeding the posted speed limit, and active speed limiters restrict the driver's ability to travel at speeds above set limits.

1 Around the world (e.g., the United Kingdom), automated speed enforcement systems generate citations that go on the driver's record.

2 Relevant RCW for state routes: RCW 46.63.200. For non-state routes: RCW 46.63.220 and RCW 46.63.250.

DISTRACTION

Distraction is a risky behavior that can increase the likelihood of roadway crashes. In Washington, many people understand the risk and danger of distracted driving, but some still choose to drive, walk, roll, and bike distracted. Like speeding, engaging or not engaging in distracting activities is a decision that road users can make at any time during their trip.

Distracted driving is any activity that takes attention away from the task of driving. It is often associated with electronic device use, but it doesn't have to be. Distracted driving comes in three different forms:

- **Cognitive/mental distraction.** The driver's mind is not focused on driving.
- **Visual distraction.** The driver looks at anything other than the road ahead.
- **Manual distraction.** The driver takes one or both hands off the wheel for any reason.

The Driving Under the Influence of Electronics (E-DUI) Act, passed in 2017 in Washington, states:

- Drivers **cannot** hold a phone or any other electronic device with their hands while driving.
  - » Even when stopped in traffic or at traffic signal.
  - » Includes all electronic devices, including phones, tablets, laptops, and video games.
  - » No typing messages or accessing information.
  - » No watching videos or using cameras.
- Drivers **can** use your electronic devices if:
  - » Hands-free and can start use by a single touch or swipe of a finger.
  - » Parked or out-of-the-flow of traffic.
  - » Contacting emergency services.

In addition to the E-DUI Act, the Dangerously Distracted law also passed in 2017. The law defines "dangerously distracted" as any activity that a driver does that interferes with safe driving, such as grooming, smoking, eating, or reading. "Dangerously distracted" is a secondary offense. That means that a driver can only receive a ticket for "dangerously distracted" if they have committed another traffic offense, too. A ticket for dangerously distracted will add an additional $100 to the citation.

CRASH HISTORY

TABLE 8. DISTRACTED ROAD USER FATALITIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
FATALITIES	162	128	127	104	128	115	**-17%**
PROPORTION OF FATALITIES	29%	24%	24%	18%	19%	15%	

For updates to fatalities after 2022, refer to the Target Zero Performance Dashboard.

TABLE 9. DISTRACTED ROAD USER SERIOUS INJURIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
SERIOUS INJURIES	643	621	617	428	557	540	**-19%**
PROPORTION OF SERIOUS INJURIES	29%	28%	27%	18%	19%	17%	

For updates to serious injuries after 2022, refer to WSDOT Crash Data Portal.

OVERLAPPING FACTORS

Of the 374 fatalities in crashes involving Distracted Road Users (2020-2022):

- 53.6% (186) involved a Lane Departure
- 50.4% (175) involved an Impaired Road User

Note: Categories are not mutually exclusive.

Reporting Limitations. The ability for law enforcement personnel to collect distracted driving information is limited. Therefore, it is reasonable to assume that the proportion of distracted driving in the crash database is underreported compared to other attributes.

Distracted Driving Data Changes: Due to a coding change in the Police Traffic Collision Report (PTCR) in 2020 related to distracted driving, WTSC studied the effects of that change, promotion of the Driving Under the Influence of Electronics (E-DUI) Act, and other factors on the Distracted Road User Involved data. Researchers discovered that the discontinuation of the "inattention" code in the PTCR correlated with use of "other distractions" and "unknown distraction" increased at the same rate, essentially replacing that code. In addition, use of the specified distraction codes also increased—most notably cell phone use and distractions outside the vehicle.[1] Researchers concluded that these changes are unlikely to affect the data for analysis purposes.

1 Hoff, S. Distracted Driving in Washington State During COVID-19: 2020 Observation Survey, Enforcement, and Crashes, WTSC, 2021.

SYSTEM CHALLENGES

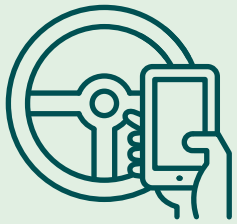
The Science of Attention: Inattentional blindness occurs when a person's attention is on one thing and that person does not notice unexpected things entering the visual field. It limits a person's attentional, cognitive, and processing resources. Attention plays a major role in visual perception. Driving distracted allows the driver's attention to shift, choosing another task to be the focus. Even when looking ahead at the road, a driver's visual field can be limited if the driver is focused on something other than driving. For instance, when talking on the phone—even hands free, looking ahead, and with both hands on the wheel—a driver's visual field will be limited because the focus is on being present on the phone call.

Vehicles: While vehicle manufacturers are adding safety features, such as collision alerts and automatic braking, they are also adding features likely to distract drivers, including large video displays. Current vehicles include capabilities (some of which are illegal under Washington state law) to connect smartphones and other devices, allowing drivers to use dashboard screens to check email and use other smartphone applications. Lane-keeping assistance, automatic braking, and other similar features can reduce the likelihood of crashes resulting from distraction. However, it is important that advanced features remain supplementary. They are not intended to be used as an excuse for drivers to use distracting devices like cell phones.

Driver Perception of Risk

- **Not everyone chooses to drive distracted.** In fact, the WTSC 2018 Observational Survey shows that 8.2% of drivers were driving distracted, down from 9.2% in both 2016 and 2017. These surveys involve point-in-time observations. The statewide survey conducted in 2023 found that 61-72% of respondents reported that they have not held, talked on, looked at, read, manually typed, or interacted with a cell phone or device in the last 30 days.
- **Avoiding distractions most of the time is not enough.** While most people understand that distracted driving is unsafe and choose to avoid distractions most of the time, people may still lapse into brief behaviors that are distracting, which increases the likelihood of crash involvement. Combining distraction and higher speeds increases the likelihood a crash will result in a serious injury or a fatality.
- **Even if a person is a very skilled driver, that person cannot perform well in the driving environment while distracted.** In a survey conducted in March 2017, the WTSC asked questions regarding distracted driving to 847 drivers ages 16–34. A large percent (96%) of these drivers agreed that using a cell phone while driving is dangerous; however, 55% said they felt safe driving using just one hand on the steering wheel while using a phone, and 81% said they felt safe using a hands-free device to talk while driving. But research indicates that cell phone use reduces brain activity associated with driving by 37% or more.
- **A person can only do one task at a time.** You can toggle from one task to the other, but it is impossible for a person to do any two tasks at the exact same time. Further, drivers who toggle between other tasks while driving might experience inattention blindness and visually miss things in the environment. Returning a driver's focus to the road is not instant. A period of readjustment occurs after the driver's eyes have returned to the road and will delay response time.

PHONE USE WHILE DRIVING



65%

Have not held and talked on the phone while driving

DRIVERS AGED 18–34

Are signficantly more likely to talk on their phones while driving than other age groups

Source: Market Decisions Research

PRIORITY STRATEGIES

Improve Data Reporting: To the extent possible, strive to improve crash data collection on crash reports with the inclusion of source of distraction such as hands-free mobile phone, handheld phone, other electronic device, or vehicle integrated devices.[1] Explore the use of other sources of data such as telematics data collected from devices, vehicles, and roadway infrastructure.

Education about Distraction: Educate drivers (teen driver education), walkers, riders, scooters, and skaters about the dangers of distracted driving, walking, riding, or rolling.

Roadway Treatments: Traditional engineering solutions for motor vehicle drivers such as warning signs, longitudinal and transverse rumble strips, and roadside devices such as guardrail and cable barrier can help reduce the number and severity of crashes resulting from distraction.

Advanced Vehicle Safety Features: Lane-keeping assistance, automatic braking, and other similar features can reduce the likelihood of crashes resulting from distraction. However, these features must be activated and understood to be helpful. Educating drivers about proper use of these tools is important.

High Visibility Enforcement (HVE): The objective of HVE is to deter cell phone use by increasing the perceived risk of getting caught by combining public outreach activities with support of enforcement activities. Law enforcement officers actively seek out cell phone users through special roving patrols or through a variety of enforcement techniques such as the spotter technique where a stationary officer will radio ahead to another officer when a driver using a cell phone is detected. Officers report that higher vantage points, SUVs, and unmarked vehicles are strategies useful in identifying violators.[2] Additionally, semi-automated enforcement systems can detect distracted driving and seat belt violations, sending the information to an officer stationed downstream who can respond to the infraction.

Workplace Efforts: WTSC has developed a program designed to help businesses create a workplace culture of safe and responsible driving. Drive Focused at Work helps employers educate their workforce about distracted driving, keep employees safe, and lower costs. Elements include understanding how distracted driving impacts the workplace, implementing a policy, conducting training, and continuing a dialogue with employees to promote a culture that includes focused driving. Without explicit policies directing employees to avoid distractions, they may feel obligated to conduct business calls while driving, such as answering the phone when a supervisor calls.

1 https://www.nhtsa.gov/book/countermeasures-that-work/distracted-driving/data-surveillance

2 https://www.nhtsa.gov/book/countermeasures-that-work/distracted-driving/countermeasures/enforcement/high-visibility-cell-phone-enforcement

UNRESTRAINED OCCUPANTS

Seat belts are a powerfully effective tool to reduce the severity of a traffic crash for drivers and passengers inside motor vehicles. Per the Traffic Safety Commission's 2023 study, "Seat Belt Use in Washington State," 93.3% of front seat occupants were using their seat belt.[1]

Restraining all occupants of a vehicle to improve safety involves use of two categories of devices – safety restraint systems (seat belts) installed in the vehicle, and child passenger safety systems that are added to increase the safety of children riding in vehicles (car seats and booster seats).

Washington State Restraint Laws: RCW 46.61.688 covers passengers over 16 years of age. People driving or riding in a motor vehicle shall wear a seat belt. Drivers are responsible for ensuring all child passengers under the age of 16 either wear a seat belt or use an approved child restraint device.

RCW 46.61.687 covers child passengers:

- Children under the age of two must be properly secured in a rear-facing car seat.
- Children between the ages of two and four must ride in a car seat with a harness (rear or forward facing).
- Children ages four and older must ride in a car or booster seat until they are 4'9" tall.
- Children over 4'9" tall must be secured in a properly fitted seat belt (typically starting at 8-12 years old).
- Children under 13 must ride in the back seat when practical to do so.

CRASH HISTORY

TABLE 10. UNRESTRAINED OCCUPANT FATALITIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
FATALITIES	104	107	108	110	152	155	**+31%**
PROPORTION OF FATALITIES	18%	20%	20%	19%	23%	21%	

For updates to fatalities after 2022, refer to the WTSC Unrestrained Occupants Fatalities Dashboard.

TABLE 11. UNRESTRAINED OCCUPANT SERIOUS INJURIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
SERIOUS INJURIES	228	232	201	291	341	346	**+48%**
PROPORTION OF SERIOUS INJURIES	10%	10%	9%	12%	12%	11%	

For updates to serious injuries after 2022, refer to WSDOT Crash Data Portal.

1 https://wtsc.wa.gov/wp-content/uploads/2024/03/Seat-Belt-Use-in-WA-State-2023_Feb2024.pdf

OVERLAPPING FACTORS

Of the 417 fatalities in crashes involving an Unrestrained Occupant (2020-2022):

- 69.5% (290) involved an Impaired Road User
- 69.0% (288) involved a Lane Departure
- 44.6% (186) involved a Speeding Driver
- 31.4% (131) involved a Young Driver (15–24)

Note: Categories are not mutually exclusive.

SYSTEM OBSERVATIONS

Seat Belt Observational Data: Washington has one of the highest front seat seat belt use rates in the country at 93.3%. Despite a sustained high belt use rate for many consecutive years, the number of unrestrained fatalities and serious injuries has increased. Between 2017-19 and 2020-22, the 3-year average unrestrained occupant fatalities have increased 31% and serious injuries increased 48%. In 2020-22, unrestrained motor vehicle drivers and occupants represented 21% of traffic fatalities in the state.

Behaviors and Beliefs around Seat Belt Use:[1]

- 90% said they always wear a seat belt in a vehicle within a few miles of their home.
  - » 93% always wear a seat belt in a vehicle many miles away from their home, and 83% always wear a seat belt when in the backseat of a vehicle.
- 73% asked someone who was not using a seat belt to use a seat belt.
- 92% reported having a family rule about always wearing a seat belt.
- 47% of those employed said their employer has a policy about always using a seat belt.
- 81% said that those important to them would somewhat or strongly approve if they asked someone who was not using a seat belt to use a seat belt.
- 89% believe that people in their community usually or always wear a seat belt.
- 80% would be very or extremely comfortable asking someone to use a seat belt.

SEAT BELT USE: WHO, WHEN, & WHERE

Source: Market Decisions Research

1 2023 Washington Traffic Safety Survey

Risks Associated with Non-Use of Seat Belts: According to NHTSA, people who buckle up in the front seat of a passenger car can reduce the risk of fatal injury by 45% and moderate to critical injury by 50%. Wearing a seat belt in a light truck can reduce the risk of fatal injury by 60% and moderate to critical injury by 65%. According to the Insurance Institute of Highway Safety, exposure to unbelted occupants increases the risk of injury or death to other occupants in the vehicle by 40% (MacLennan et al., 2004).[1] In a frontal crash, an unbelted rear-seat passenger sitting behind a belted driver increases the risk of fatality for the driver by 137% compared with a belted rear-seat passenger.[2] NHTSA reports that rear seat passengers (ages 8 and above) are three times more likely to be killed in a crash if they are unrestrained.

Populations Less Likely to Use Seat Belts: Currently, we know–based on seat belt citation and fatal crash history data, as well as other research–that some people from population groups are less likely to use seat belts.

- **Race, Ethnicity, and Gender.** There is a variety of evidence demonstrating that Hispanic males, American Indian and Alaska Native (AI/AN) males, and males aged 55 and older are more likely not to be wearing seat belts while driving. According to the WTSC's Research and Data Division's 2024 brief on AI/AN traffic deaths, one-third of AIAN deaths were unrestrained vehicle occupants, versus less than 20% of all other races.
- **Rural Geographies.** A recent study found states with lower seat belt use among drivers and passengers residing in rural areas.
- **Younger Occupants.** From 2020-2022, there were 267 fatalities of drivers and occupants for ages 15-24. Of these, 40% were unrestrained, compared to 35% for all vehicle occupants.

1 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1730165/

2 https://pubmed.ncbi.nlm.nih.gov/23411155/

CHILD PASSENGER SAFETY

In Washington between 2018-2022, 68 children ages 0-15 years old died in crashes in which they were unrestrained vehicle occupants. From 2018-2022, 5% of unrestrained passenger fatalities were children ages 0-15 years old.

Knowledge of Child Passenger Restraint Use and State Law: Child restraint systems can be complicated, and many are installed incorrectly. Many parents and caregivers know how complicated these systems can be: rear facing, forward facing, booster seats, and harnesses; different cars have different anchor points; seats are different; and more. Data collected from Washington car seat checks in FFY 2023 shows 73.6% misuse of child restraints. Much of the observed misuse involved the harness or seat belt being too loose or not being used correctly with the harness slot or lower anchors. A 2023 observational survey showed that the proportion of children in proper restraints and seating positions decreased as the children's age increased (see **Figure 11**).

Availability of Child Restraints for Use by Nondriving Caregivers: No state or federal law requires ride-hailing services such as Uber or Lyft to provide child restraint seats. Taxis do not routinely have them available and are not required to. Micro-transit services that local transit agencies are experimenting with fall under taxi laws. Also, public agencies that transport children should have adequate child passenger restraint devices and training.

Nondriving parents seeking to use these services would be expected to carry a child restraint seat that may weigh up to 30 pounds or more, along with their child, when utilizing these modes of transportation. Since many nondrivers may not drive due to disability, this lack of child-safe transportation represents an equity issue.[1]

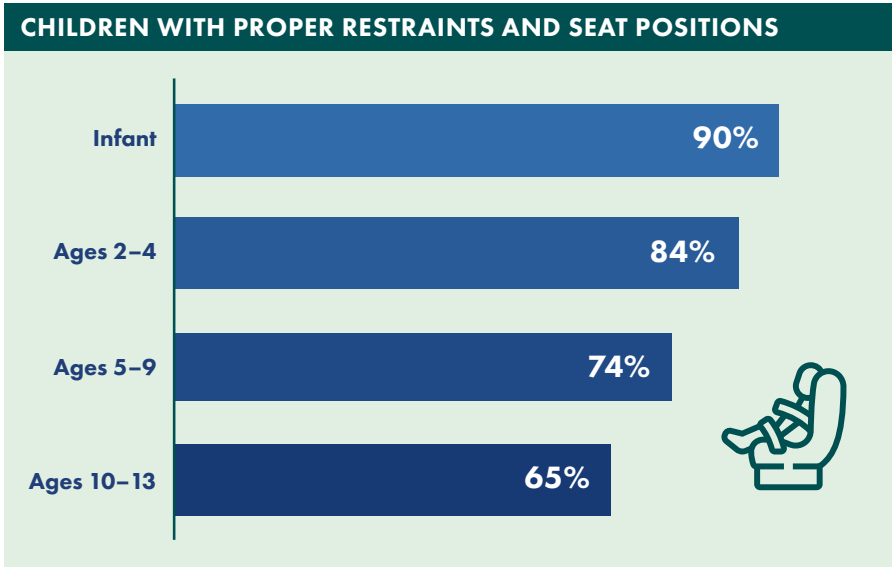


FIGURE 11. PROPORTION OF OBSERVED CHILDREN WITH PROPER RESTRAINTS AND SEATING POSITIONS

Source: 2023 CPS Observational/Intercept Surveys

1 Anna Letitia Zivarts, *When Driving Is Not an Option: Steering Away from Car Dependency*, 2024, Island Press

Modeling Seat Belt Use: Several studies have identified a link between adult and child occupant restraint status (Benedetti et al., 2017; Lee et al., 2019; Raymond et al., 2018; Starnes, 2003; Vachal, 2019). A study of child passengers in North Dakota found that when drivers were wearing their seat belts, children were 35 times more likely to be restrained than when the driver was not wearing a seat belt (Vachal, 2019). In other words, children are more likely to be restrained when the adults in the vehicle are also restrained. Additionally, a nighttime observational study in Tennessee found a link between front-seat passenger belt use and driver belt use, where 82% of front-seat passengers were restrained when drivers were also restrained, compared to just 42% when drivers were not restrained (Boakye et al., 2019).[1]

PRIORITY STRATEGIES

Proper Car Seat Use: Awareness and Education: Proper use of child restraints is important to improve safety. Parents and caregivers should be educated with culturally relevant and audience-appropriate materials to install child safety seats appropriately. A study found significant increases in overall observed restraint use and booster seat use following exposure to interventions and concluded that applying messages that increase perception of vulnerability is a promising approach to increase booster seat use.[2]

Proper Car Seat Use: Law Enforcement Training: Trained law enforcement officers determine if a child restraint system is appropriate for the child's individual height, weight, and age based on state law. Because of the duration of time required for a formal certification training in child seat use, in 2011 the WTSC supported the creation of a Car Seat Awareness training for law enforcement agencies.

Modeling Seat Belt Use: Educate parents about the importance of the link between adult and child seat belt use.

Seat Belt-Focused Enforcement Patrols: Washington supports aggressive efforts to publicize seat belt patrols and seat belt use alongside law enforcement aggressively enforcing the state's seat belt law. Traffic and transportation safety professionals sharing seat belt usage messages across communities while participating in annual Click it or Ticket programs provide a statewide platform that communicates the importance of seat belt safety.

Employer-Based Projects: Workplace seat belt programs include a variety of components such as education, messaging, and incentives. Common elements of effective workplace seat belt use programs involved management's commitment to their employees' safety, including formal policies that require the use of a seat belt when in a company-owned vehicle or driving/traveling in a motor vehicle while on the job, education and safety training workshops, and incentives for wearing a seat belt as well as costs for non-compliance.[3]

Real-Time Occupant Restraint Feedback Signage: Smart signage provides immediate feedback to drivers and passengers. These signs are being tested in Washington in 2024.

1 https://www.nhtsa.gov/book/countermeasures-that-work/seat-belts-and-child-restraints/understanding-problem

2 https://www.nhtsa.gov/book/countermeasures-that-work/seat-belts-and-child-restraints/countermeasures/other-strategies-behavior-change/programs

3 https://www.nhtsa.gov/book/countermeasures-that-work/seat-belts-and-child-restraints/countermeasures/other-strategies-behavior-change/employer

The data show that crashes involving lane departure and intersections are top emphasis areas because of their high proportion of roadway fatalities and serious injuries.

Safe System Roadway Design Hierarchy[1]: In 2019 Washington introduced the Safe System Hierarchy of Controls as a structure to prioritize policies and safety countermeasures by effectiveness. Adapted from previous efforts by the Centers for Disease Control (CDC), this structure helps guide design operational decision making for WSDOT. The five tiers are arranged from most to least aligned with the Safe System Approach principles (arranged from top to bottom). This approach emphasizes the importance of engineering to support the agency's Complete Streets approach and the use of Level of Traffic Stress (LTS) to evaluate a roadway's active transportation qualities. LTS is a quantitative index that incorporates roadway width, posted speed, and traffic volume measures (factors that contribute to crash exposure and severity). It provides performance metrics that align with the top tiers of the Hierarchy of Controls.

For an approved list of engineering countermeasures related to crash type and location, see Appendix B: Select Emphasis Area Strategies.

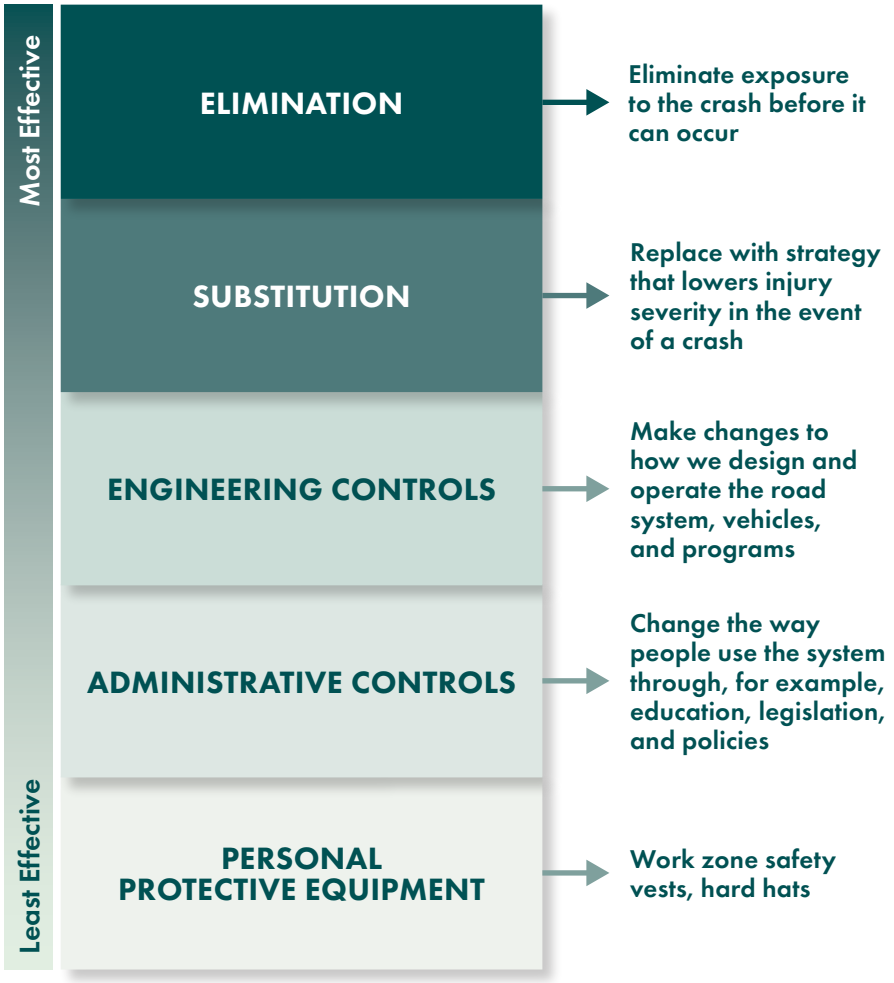


FIGURE 12. HIERARCHY OF CONTROLS FROM THE 2019 TARGET ZERO PLAN

1 Hopwood C., K. Little, D. Gaines, "Safe System Roadway Design Hierarchy: Engineering and Infrastructure-related Countermeasures to Effectively Reduce Roadway Fatalities and Serious Injuries," FHWA-SA-22-069, Washington, DC, 2024.

In 2024, the FHWA adapted and built upon this approach when developing the Safe System Roadway Design Hierarchy to support implementation of the Safe System Approach in the U.S. The FHWA Safe System Roadway Design Hierarchy includes four tiers. In this hierarchy, physical changes to the system are more effective than changes that rely on road users to make safe decisions.

FIGURE 13. SAFE SYSTEM ROADWAY DESIGN HIERARCHY, FHWA, 2024[1]

LANE DEPARTURE

A lane departure crash involves a driver unintentionally leaving their lane of travel. This includes leaving a lane to the right (run-off-the-road crashes) as well as leaving a lane to the left (either head-on or run-off-the-road crashes). It excludes crashes where a driver encroaches on another lane of travel in the same direction and wrong way crashes. The surrounding environment, and particularly the roadside, can be designed or modified to reduce the severity of these crashes.

CRASH HISTORY

TABLE 12. LANE DEPARTURE FATALITIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
FATALITIES	265	260	272	248	308	321	**+10%**
PROPORTION OF FATALITIES	47%	48%	51%	43%	46%	43%	

For updates to fatalities after 2022, refer to the Target Zero Performance Dashboard.

1 https://highways.dot.gov/sites/fhwa.dot.gov/files/2024-01/Safe_System_Roadway_Design_Hierarchy.pdf

TABLE 13. LANE DEPARTURE SERIOUS INJURIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
SERIOUS INJURIES	852	785	857	1023	1161	1179	**+35%**
PROPORTION OF SERIOUS INJURIES	38%	35%	38%	42%	40%	38%	

For updates to serious injuries after 2022, refer to WSDOT Crash Data Portal.

OVERLAPPING FACTORS

Of the 877 fatalities in crashes involving lane departure (2020-2022):

- 64.9% (570) involved an Impaired Road User
- 44.4% (390) involved a Speeding Driver
- 32.8% (288) involved an Unrestrained Occupant

Note: Categories are not mutually exclusive.

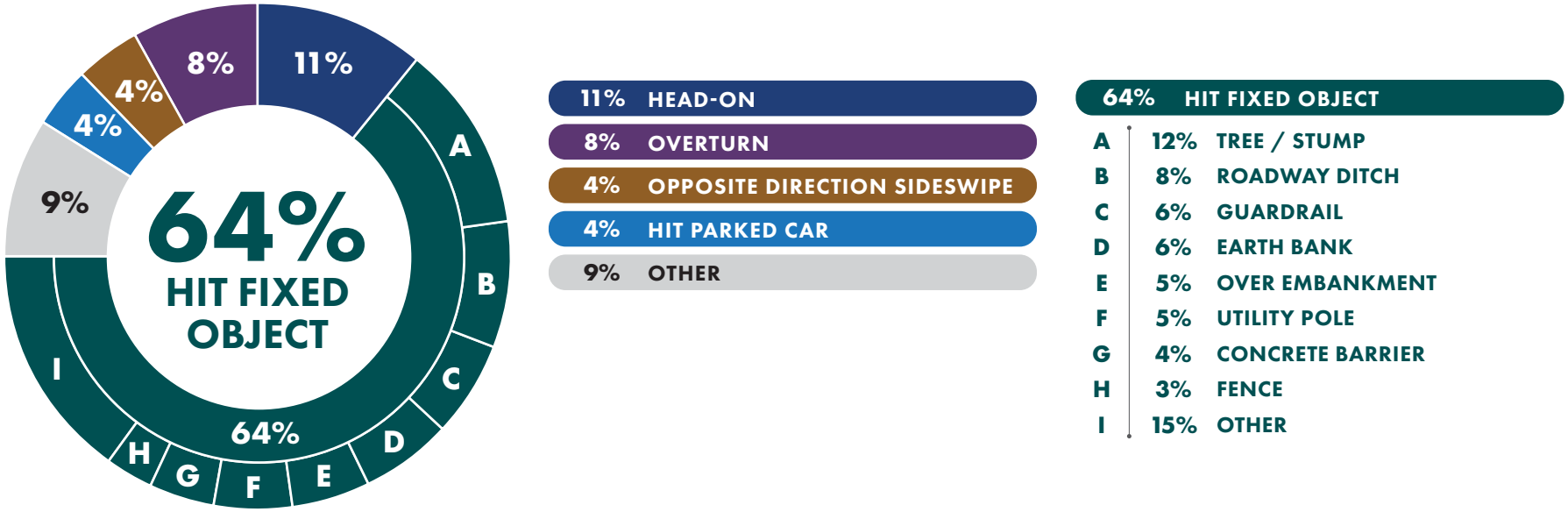


FIGURE 14. TYPES OF LANE DEPARTURE CRASHES RESULTING IN FATALITIES AND SERIOUS INJURIES (2018-2022)

Lane Departure by Location: Lane departure crashes that result in fatalities and serious injuries occur on all types of roadways in Washington, not just state routes, and not just county roads. For example, only one-third of fatalities and serious injuries involving lane departure occurred on state highways (see **Figure 15**).

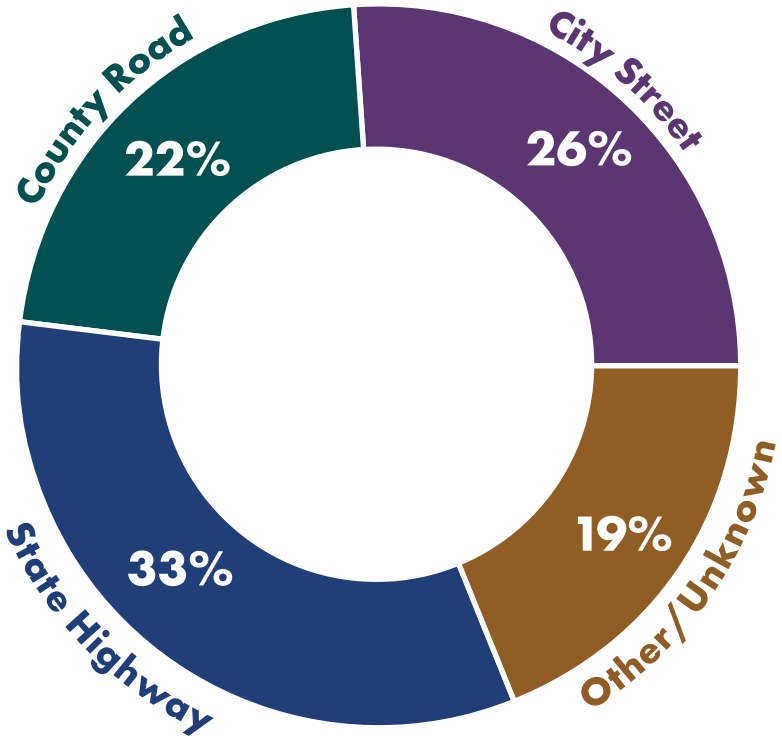


FIGURE 15. ROAD OWNERSHIP OF LANE DEPARTURE FATALITIES AND SERIOUS INJURIES

Safety in Rural Areas: Rural communities face many of the same traffic safety issues as their urban counterparts, but often with a greater proportion of morbidity and mortality. Nationally, nearly half of all fatal crashes (45%) occur on rural roads even though only 19% of the U.S. population lives in rural areas (GHSA, 2022). The risk of dying in a crash is 62% higher on a rural road than an urban road for the same length trip. Crash and mortality rates in rural communities are impacted by many of the same issues that urban communities face but are exacerbated by factors such as poorer roadway infrastructure, limited emergency medical services resources, and more risky driver behavior.

PRIORITY STRATEGIES

Systemic Data Collection, Analysis, and Evaluation: Analyzing and evaluating data to determine roadway alignments and making an inventory of existing fixed objects will assist in prioritizing safety investment projects, tracking changes, and making modifications over time. Tools like LiDAR and emerging technologies using machine learning can help agencies develop and maintain and inventory of roadside assets.

Lane Departure Safety Framework: Like the Roadway Design Hierarchy, a three-level framework assists in reducing lane departure fatal and serious injury crashes. The most cost-effective countermeasures focus on keeping drivers on the roadway and within their lane. If this fails, then helping a driver return to their lane before a crash occurs is the next best strategy. If a crash does occur, engineers aim to minimize the injury outcome of the crash; this is the most expensive and least effective set of treatments.

FIGURE 16. LOW-COST DELINEATORS APPROACHING A HORIZONTAL CURVE. (WSDOT LOCAL PROGRAMS)[1]

- **Keep drivers on the roadway:** If drivers stay within their intended lane of travel, then by definition, lane departure crashes do not occur. Several design changes increase the likelihood that drivers will stay on the roadway.
  - » Install curve warning signs, chevron signs, and/or delineators at horizontal curves.
  - » Enhance signing with flashing beacons, including actuated beacons based on approaching driver's presence or speed.
  - » Improve friction via high friction surface treatments (HFST) or basic roadway surface overlays.
  - » Install lighting.
  - » Install edge lines, especially on curves.
  - » Install wider edge lines.
  - » Install center lines.
  - » Install delineation on roadside hardware.
  - » Reduce posted speeds in locations where road geography increases the risks of road or lane departure.

1 LRSP Virtual Workshop, WSDOT, 2023.

- **Help drivers re-enter their lane:** Once a driver departs their lane (off the roadway or into oncoming traffic), the following treatments can aid the driver to return to their lane before a crash occurs.
  - » Reduce motor vehicle operating speeds.
  - » Centerline and edge line rumble strips.[1]
  - » Pavement edge treatments.
  - » Add and widen shoulders.
  - » Traversable roadsides (slope flattening).
  - » Remove objects from clear zones.
- **Minimize the consequences of leaving the roadway:** If drivers are unable to stay on or get back on the roadway, then the best option remaining is to minimize the consequences of encountering the roadside. Strategies to reduce injury severity on the roadside include the following:
  - » Design necessary appurtenances (signs, lighting, etc.) within the clear zone as breakaway or yielding.
  - » Install crashworthy barriers (guardrail, median barrier, crash cushions).
  - » Install, update, and maintain guardrail end treatments.
  - » Note: There is increasing concern that larger and heavier vehicles are being marketed, such as SUV and light duty truck models, which exceed the design limits of guardrail treatments. This is something that should be considered and addressed as part of the comprehensive Safe System Approach. HB 1674 (introduced in 2023), if passed, would require vehicle dealers to provide written disclosure that describes the increased risk, add fines for certain traffic infractions is committed using a light truck or SUV, and require educational awareness campaigns.

1 Rumble strips installations should provide room for people to walk, bike, and roll outside the rumble strip, especially areas where people depend on using the shoulder for active transportation.

INTERSECTIONS

Intersections manage the flows of road users across multiple roadways. However, where routes intersect and paths cross, each of the resulting conflict points represents potential for crashes. The opportunity for fatal and serious injury crashes increases by approach speed, type of conflict, and by the combination of road users, including vulnerable road users.

Intersection crashes vary based on the operation of the intersection. Intersection types can include traditional intersection designs (i.e., 4 legs, 4 directions of travel intersection at a central point) and circular designs like roundabouts. Reducing vehicle speeds and separating different road user modes can reduce the number of type of conflict points, which affects crash likelihood and severity. This can be achieved with traditional and innovative intersection design and treatments.

CRASH HISTORY

From 2020 to 2022, 24% of fatalities and 33% of serious injuries were intersection related.

> *"Structurally changing the roads to make them safer will improve safety 24/7."*
>
> *—Listening session participant in King County*

OVERLAPPING FACTORS

Of the 472 fatalities in intersection-related crashes (2020-2022):

- 50.8% (240) involved an Impaired Road User
- 22.7% (107) were Active Transportation Users

TABLE 14. INTERSECTION-RELATED FATALITIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
FATALITIES	130	111	113	150	147	175	**+33%**
PROPORTION OF FATALITIES	23%	21%	21%	26%	22%	24%	

For updates to fatalities after 2022, refer to the Target Zero Performance Dashboard.

TABLE 15. INTERSECTION-RELATED SERIOUS INJURIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
SERIOUS INJURIES	738	800	763	780	973	1,069	**+23%**
PROPORTION OF SERIOUS INJURIES	33%	36%	34%	32%	33%	35%	

For updates to serious injuries after 2022, refer to WSDOT Crash Data Portal.

PRINCIPAL COMPONENTS OF INTERSECTION SAFETY

There are five main considerations in intersection safety[1]:

1. **Number and Type of Conflict Points.** More potential points of conflict lead to higher likelihood of crashes. Crossing movements, which include left-turns (at unsignalized intersections, or during permissive left phases of signalized intersections and right-angle ("T-bone" crashes) have the highest potential for fatalities and serious injuries.
2. **Speeds at the Intersection.** Higher speeds result in the potential for greater injury severity.
3. **Visibility.** Road users need to know an intersection is upcoming (user expectation). Once they approach, road users need to be able to see other conflicting movements.
4. **Combination of Road User Modes.** Any conflicts involving pedestrians or bicyclists have a relatively high potential for fatal and serious injury outcomes.
5. **Assignment of Right of Way for Crossing and Turning.** How drivers and active transportation operate at the intersection in terms of yielding, stopping, turning, and crossing.

1 For more information, see the functional characteristics of intersections described in WSDOT Design Manual, Section 1310.

PRIORITY STRATEGIES

Intersection design can limit conflict points, promote lower speeds, increase visibility for all users, and reduce conflicts between different road users.

Minimizing and Modifying Conflict Points

Conflict points at an intersection represent the crossing of potential paths from each entry and exit point of a roadway approach, each of which represents an opportunity for a crash. Depending on the type of conflict, the likelihood of a higher severity injury due to a crash is possible.

- **Crossing conflicts** (often associated with left-turns, or when a driver disobeys a stop sign or red traffic signal indication) result in the greatest potential for fatal and serious injury outcomes.
- **Merging and diverging conflicts points** — where road users are moving in the same direction — are associated with less severe crash types.

Intersection layouts include a multitude of designs including stop-controlled, traditional signalized, roundabouts, median U-turn intersections, and several other designs. Each type of intersection has different conflict point characteristics. Roundabouts have a quarter of the conflict points of a traditional intersection. To reduce conflicts and lower severity, future designs should move away from traditional intersections wherever possible and replace them with roundabouts and other intersection types described on the following pages.

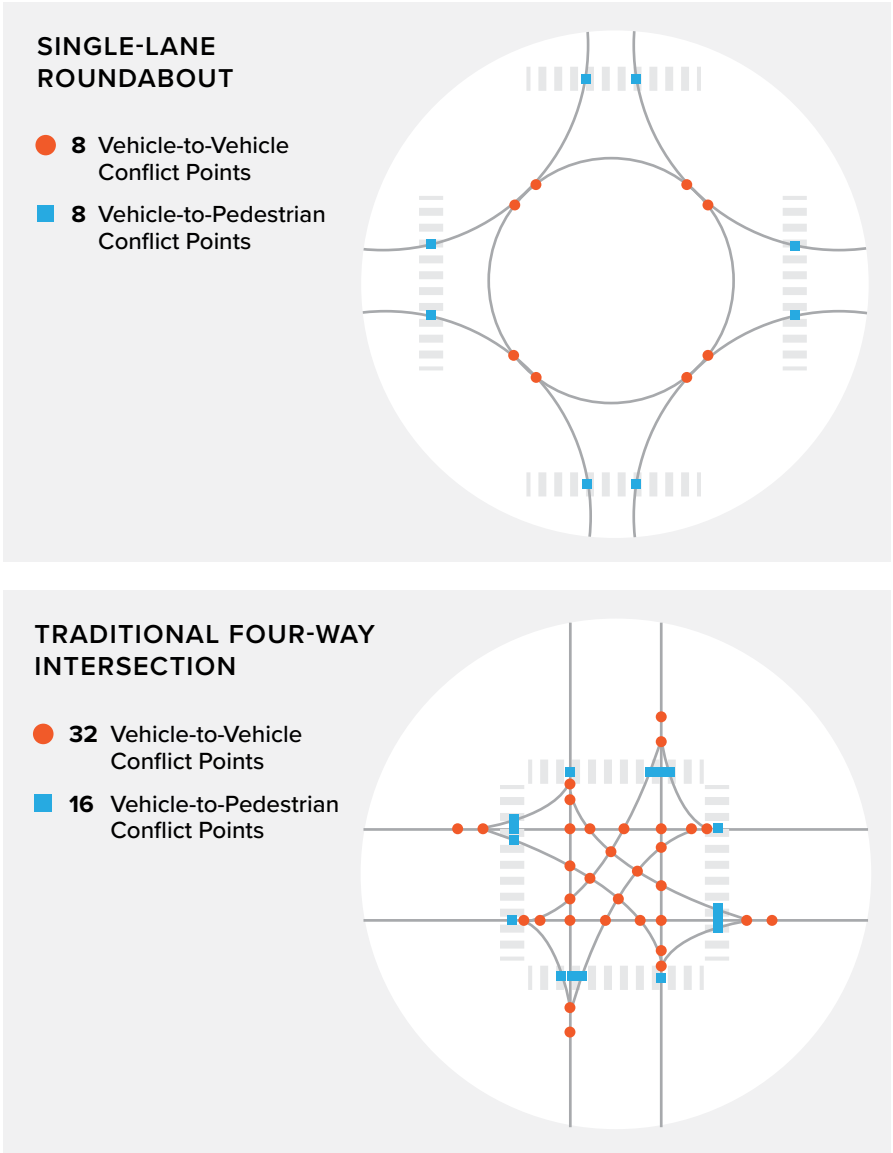


FIGURE 17. INTERSECTION CONFLICT POINTS

Source: Guidelines for the Planning and Design of Roundabouts (this image pulled from https://www.mass.gov/info-details/what-are-roundabouts)

In these changes, the infrastructure and information provided to roadway users must address the needs of people walking, rolling, and bicycling, as well as drivers. Pedestrians who are blind or visually impaired have particular needs in these less common road configurations that can be met through accessible pedestrian signals and design cues.

When right-of-way and funding are available, innovative intersection design has been proven to offer benefits over traditional intersections. Below is a list of a few of these designs.

Restricted Crossing U-Turn (RCUT): intersections can reduce the number of left turn conflicts by half and assist in decreasing crash potential on divided roadways. **Figure 18** illustrates the allowed movements at an RCUT intersection.

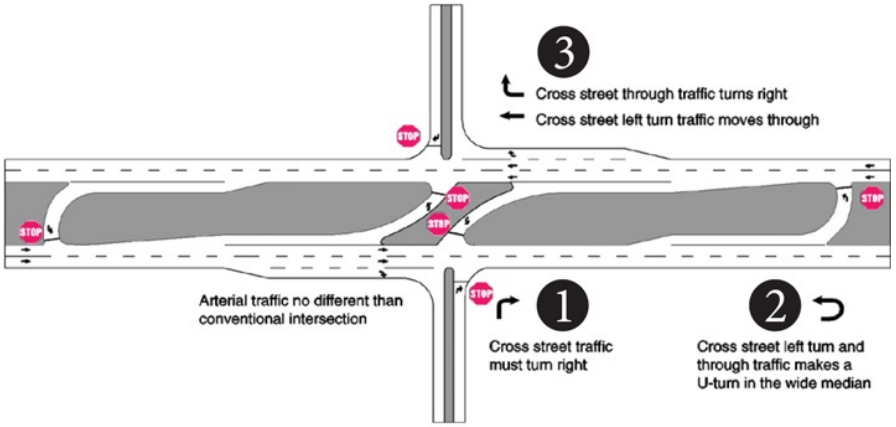


FIGURE 18. RESTRICTED CROSSING U-TURN (RCUT) INTERSECTION [FHWA PROVEN SAFETY COUNTERMEASURES, 2021]

FIGURE 19. DIVERGING DIAMOND INTERCHANGE AT I-5 AND SR-510, LACEY, WA (WSDOT)

Diverging Diamond Interchange (DDI): is also known as a double crossover diamond interchange. The primary difference between a DDI and a conventional diamond interchange is the design of directional crossovers on either side of the interchange. This eliminates the need for left-turning drivers to cross the paths of approaching through-vehicles. It also incorporates what is essentially a two-phase signal operation versus what can be up to eight phases at a traditional diamond interchange configuration. The overall design can increase vehicle throughput and safety without the need to widen beyond the existing road or bridge footprint at a limited access interchange [WSDOT DDI website]. Washington's first DDI was completed in Lacey, WA, at Interstate 5 and State Route 510.

Roundabouts: Have proven to be the most effective in severity reductions by eliminating all left turn conflicts, reducing speeds, and adjusting the angle of a crash should it occur. Roundabouts also provide benefits for efficiency, resiliency, and sustainability. Despite concerns from pedestrian and bicycle advocates about accessibility and stress that they may experience at a roundabout, numerous studies in the U.S have shown that roundabouts do work for bicyclists and pedestrians, including those who are blind or visually impaired. Washington has approximately 600 roundabouts with zero recorded pedestrian or bicycle fatalities.

Compact Roundabouts: Where funding or right-of-way are not available, agencies have started to implement smaller innovative intersections which can be built faster and cheaper and capture the safety benefits of roundabouts. In the roundabout vernacular, they are called “compact” roundabouts. Compact roundabouts enable investments at a larger number of intersections, increasing the overall safety benefit.

FIGURE 20. LEFT: SINGLE-LANE ROUNDABOUT (WSDOT).[1] RIGHT: COMPACT ROUNDABOUT (FHWA)

1 https://www.wsdot.wa.gov/publications/manuals/fulltext/m22-01/1320.pdf

Stop Controlled Intersections: Many intersections in Washington are controlled with two-way or all-way stop control. Several safety countermeasures can be implemented to prevent future crashes at these unsignalized intersections:

- Improved Visibility – Enhanced Signing, Delineation and Lighting.
- Improved Maintenance – A suitable schedule for inspection, cleaning and replacement should be established and damaged signs should be replaced. Vegetation maintenance ensures signs can be seen.
- Install Stop Bars – on a minor road approach and where conditions allow a stop bar can be seen by an approaching road user.
- Supplemental Stop Signs Mounted over the Roadway – can provide approaching motorists a clear message that they must stop ahead.
- Flashing Beacons – provides a visible signal ahead.
- Transverse Rumble Strips – warn motorists that something unexpected is ahead.

Protected Intersections: A protected intersection is a comprehensive design approach that keeps bicyclists physically separated from drivers up to the intersection, including the corners. Protected intersections also provide benefits for pedestrians. The term protected in this context refers to the separation provided between general purpose vehicle lanes, bicyclists, and pedestrians.[1]

Intersection Speeds

Intersection Design: The approach speed and speed through an intersection are critical factors in the outcome of a crash for the occupants of a vehicle or a pedestrian or bicyclist struck by a driver at an intersection. This is connected directly to the angle of entry. Most intersections built in the US prior to 2000 were 90-degree intersections. This angle is least successful in mitigating a crash that will cause bodily harm to users, be it a driver-to-driver crash or a driver striking an active transportation user. Alternative designs like RCUTs and roundabouts modify these approach angles, which reduces vehicle speeds and changes the conflict types to merging and diverging. In addition, turning vehicle speeds can be managed by designing tighter corner radii with mountable aprons.

Improve Driver Compliance: Speed safety cameras, red light cameras, and high-visibility enforcement can all assist with driver compliance through an intersection.

1 WSDOT Design Manual, Chapter 1310: Intersections

Intersection Visibility

Low-Cost Treatments: At signalized intersections, low-cost treatments include advance signing, retroreflective backplates, and adding signal heads (per lane and supplemental) to increase visibility. Signing and pavement marking can reduce crashes at unsignalized crashes. Intersection lighting provides greater visibility at night, and the luminaire structures can provide a daytime benefit, designating an intersection ahead. Vegetation maintenance is important to ensure all traffic signal heads are visible.

Intersection conflict warning systems can be installed to warn drivers in real-time (on mainline or side streets) of conflicting motor vehicle traffic. These systems are most often used at high-speed rural intersections or at locations with identified sight distance restrictions.

Separating Movements and Modes

Protected left-turn phases at signalized intersections and turn lanes at all intersections can help separate different driver movements from one another, though care must be taken to consider the effect of additional lanes on pedestrian and bicyclist safety. Leading pedestrian intervals allow for people walking and biking to begin crossing earlier in the phase, allowing for less exposure and increased visibility. Disallowing permissive left turns and right turns during the WALK phase, and disallowing vehicles to make a right turn on red at traffic signals can reduce conflicts with crossing pedestrians.

DESIGN POLICY

Intersection Control Analysis/Evaluation (ICE) Policy: Washington State DOT Design Manual Chapter 1300 provides policy directing the way that WSDOT evaluates a change in intersection control. This policy incorporates the three major considerations for intersection safety.

WSDOT Design Manual: This manual guides the design of state facilities. Cities and Counties may adopt their own design manuals and/or refer to the WSDOT Design Manual. It is updated annually and now incorporates treatments such as protected intersections, a comprehensive design approach with a suite of design features that keep bicyclists physically separated from motorists and provide benefits for pedestrians as well.[1]

Roundabout First Policy: Washington is implementing a roundabout first policy to identify roundabouts as a preferable choice in comparison to signalization in most conditions.

Active Transportation Programs Design Guide: WSDOT's 2024 guide is intended to support local agency and Tribal grant applicants in understanding what types of treatments will receive more favorable consideration for active transportation grant program funding because of their proven effectiveness. It brings together guidance from national publications into one place and has material on intersections as well as accessibility and other topics.[2]

1 https://wsdot.wa.gov/engineering-standards/all-manuals-and-standards/manuals/design-manual

2 https://wsdot.wa.gov/sites/default/files/2024-02/WSDOT-Active-Transportation-Programs-Design-Guide_0.pdf

Highway-Rail Grade Crossings: The train-involved crash data in Target Zero is limited to fatal and serious injury crash events between trains and motor vehicles at highway-rail grade crossings. Between 2020 and 2022, there were one fatality and four serious injuries involving trains and vehicles at these crossings. Active transportation user-involved crashes with a train, even if the crash occurred at the roadway crossing with the rail line, are not included in the typical crash database, but are included in the Washington State Utilities and Transportation Commission (UTC) Highway-Rail Grade Crossing State Action Plan. When scoring higher-risk at-grade crossings, UTC assigns each crossing a transportation equity index score associated with its respective block group.[1]

The Washington UTC has regulatory authority over safety at most public railroad crossings. The UTC's Rail Safety Program oversees rail operations in the state, inspects railroad crossings, resolves complaints received from the public and other partners, and funds rail safety projects. The commission also promotes public awareness in partnership with the national nonprofit Operation Lifesaver Program. Strategies to prevent train and vehicle crashes include outreach and projects to improve safety at public crossings. For more information, visit the UTC website.[2]

These crossings are multi-jurisdictional, meaning both roadway and railroad authorities are responsible for different aspects of design and maintenance. WSDOT maintains more than 100 at-grade railroad crossings on the state highway system. The agency also works in partnership with railroads, port authorities, cities, counties, and others to improve safety at highway-rail grade crossings. WSDOT provides technical support, standard plans, and design assistance through the Development Division Railroad Liaison.[3] WSDOT has several programs that fund safety improvement projects at railroad crossings.[4] It also participates in Operation Lifesaver, and WSDOT's Railroad Liaison serves on the National Committee on Uniform Traffic Control Devices and the Highway-Railroad Community of Interest dedicated to improving safety at crossings.

1 https://www.utc.wa.gov/public-safety/rail-safety/state-action-plan

2 https://www.utc.wa.gov/public-safety/rail-safety

3 https://wsdot.wa.gov/engineering-standards/design-topics/utilities-railroad-agreements/highway-railroad-coordination

4 https://wsdot.wa.gov/business-wsdot/support-local-programs/funding-programs/highway-safety-improvement-program/highway-safety-improvement-program-call-projects

Work Zones: From 2020-22, there were 18 fatalities and 98 serious injuries related to work zones. The most frequently occurring factors were driver distraction and inattention (39%), lane departure (31%), young driver involvement (30%), and speeding (26%).

Safety of workers and the traveling public is a high priority during project development and construction, maintenance work, or any other roadway activities. Detailed work zone policy and guidance documents help agencies develop comprehensive transportation management plans to address work zone safety impacts. Current and upcoming safety strategies include the following:

RCW 46.61.212 defines roadway work zones and requires drivers approaching a work zone to reduce their speed and, if the opportunity exists, yield the right of way by making a lane change or moving away from the lane or shoulder occupied by a work zone vehicle.

RCW 46.61.527, directs the secretary of transportation to adopt standards for the use of traffic control devices in roadway construction zones on state highways, including the establishment of reduced speeds. This statute makes it an infraction for drivers to violate posted construction zone speeds.

Site-specific, multimodal traffic control plans to address unique work zone safety and mobility impacts.

Positive protection devices, such as concrete barriers or transportable attenuators whenever possible. This protects workers from nearby traffic, and the traveling public from equipment, materials, or excavation.

Speed safety cameras. The legislature established provisions to allow WSDOT and WSP to use speed safety cameras in work zones on state highways, including interstates. Enacting legislation through SB 5272 in 2023. A second bill to modify provisions was enacted in 2024 through SB 6115.

Traffic Safety: A Lifelong Journey | Lifecycle of Road Users

Driving a personal vehicle is often considered the normal or default mode of travel in the U.S. However, everyone uses multiple modes of travel across their lifespan. Traffic safety approaches must consider the needs of every road user, including people walking, rolling, and cycling.

A human-centered approach reframes this perspective, considering the needs and experiences of individuals throughout their lives. Such an approach also recognizes that not everyone drives for transportation, due to age, ability, personal choice, or economic factors. It also recognizes that a driver's skill and experience change over time. By considering changing needs and abilities, an equity-based approach also considers pedestrians, bicyclists, and transit riders, and recognizes that each of us will need to use multiple modes of travel in our lives for safe movement. We can understand this as a multimodal continuum over time.

This new paradigm starts at the very beginning of life, long before someone is responsible for their own transportation. During the pre-novice stage, children can be exposed to age-appropriate traffic safety education, fostering awareness and positive behaviors from a young age. Washington's new school-based bicycle safety education program launched in 2022 will reach 90% of all students in the state at full implementation. This program will reinforce knowledge of traffic laws and train students to be confident and competent riders, while also building empathy for bicyclists for the next generation of motor vehicle drivers. The availability of free transit passes for youth around the state is creating a new generation of people riding transit, passenger rail, and Washington State Ferries (where these services are available).

As some become novice drivers in their teens, personalized learning, performance-based assessments, and graduated licensing programs can provide the necessary skills and experience for safe driving. Others may become novice drivers in adulthood. Personalized, language-specific learning opportunities can prove critical for safety, too.

This approach also acknowledges the dynamic nature of individual needs. As people navigate life transitions, like changes during midlife and their senior years, their abilities and circumstances change that may require a need for different approaches to driving and other travel modes. Neurodivergent drivers, for instance, may require specific accommodations and support. Similarly, adults experiencing cognitive or physical decline may need assistance in planning for transportation independence after their driving years end, if that has been their primary form of transportation. Friends and family members need information to encourage their loved ones to acquire new skills that enable them to maintain their transportation independence for as long as possible. Recognizing these diverse needs allows us to provide proactive support and resources throughout the life course, ensuring everyone can navigate the road safely and confidently. People with visual, hearing, or other physical disabilities may require other accommodations to allow them to drive or to provide sufficient alternatives for travel. This includes impairments that may be permanent, as well as those that may develop as the result of an injury, illness, or the aging process.

This lifelong approach offers several advantages. By understanding the unique needs of each stage, approaches become more relevant and effective. Tailored education, personalized support, and flexible transportation options create a system that caters to individuals, not just statistics. This, in turn, fosters a prosocial culture of shared responsibility and community engagement with traffic safety, ultimately leading to safer roads for everyone.

YOUNG DRIVERS

Young drivers face an increased crash risk due to both their relative immaturity and inexperience. According to the National Institutes of Health (NIH), the development of the prefrontal cortex, which is responsible for executive brain functions, is not complete in most humans until the age of 25. Executive functions include the capacity to plan, self-monitor, and control impulses. When a young person is learning to drive, they lack the skills and experience necessary to recognize and respond to risk appropriately. NIH reports that motor vehicle crashes are one of the primary causes of death and injury for individuals ages 15 to 24 years.[1]

Young drivers are defined in Target Zero as ages 15-24 years old. In Washington, a young person can obtain an instruction permit at age 15. At age 16, they can obtain an intermediate license under RCW 46.20.075, after several conditions are met, including six months with an instruction permit and completion of an approved driver safety education course in accordance with the standards established in RCW 46.20.100. A young person who obtains a license to drive at age 18 or older is not required to meet these requirements.

CRASH HISTORY

TABLE 16. YOUNG DRIVER (AGE 15-24) INVOLVED FATALITIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
FATALITIES	151	143	127	143	200	176	**+23%**
PROPORTION OF FATALITIES	27%	27%	24%	25%	30%	24%	

For updates to fatalities after 2022, refer to the WTSC Young Driver Fatalities Dashboard.

TABLE 17. YOUNG DRIVER (AGE 15-24) INVOLVED SERIOUS INJURIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
SERIOUS INJURIES	677	605	625	698	824	897	**+27%**
PROPORTION OF SERIOUS INJURIES	30%	27%	28%	29%	28%	29%	

For updates to serious injuries after 2022, refer to WSDOT Crash Data Portal.

1 Arain, M. et. al. (2013). Maturation of the adolescent brain, *Neuropsychiatric Disorders and Treatments*, 9: 449-461.

Young drivers ages 15-24 make up just 10.6% of the driving population, but they were involved in crashes that resulted in 26% of all fatalities and 29% of all serious injuries between 2020 and 2022.

OVERLAPPING FACTORS

Among the 519 fatalities involving a Younger Driver (age 15–24) between 2020 and 2022:

- 56.4% (293) involved an Impaired Driver
- 48.5% (252) involved a Lane Departure
- 41.2% (214) involved a Speeding Driver

Note: Categories are not mutually exclusive.

Impairment, speeding, and unrestrained occupants were the top risky driver behaviors that were present in young driver-involved fatalities between 2020 and 2022 (driver impairment is significantly higher among those 21-24 years old compared to drivers 15-20 years old). Higher rates of these behaviors correlates with brain research which shows that teens and young adults below the age of 25 are more likely to engage in high-risk behaviors because they tend to be more impulsive and less likely to understand or think about the consequences of their decisions to drive after using alcohol or drugs, drive at higher speeds, or to not use a seat belt.

SYSTEM CHALLENGES

Washington's graduated driver license system helps young drivers gain valuable experience safely, but a substantial proportion of Washington's young drivers are waiting until age 18 to get their licenses. At age 18 they can get a license without going through any professional driver training if they can pass the written and driving exams. Reasons young adults wait to get their license include the expenses associated with being a licensed driver, required driver education classes to earn a license at age 16 or 17 (including the cost of these classes), and lack of access to a motor vehicle.[1] (WTSC, 2020)

The data show significant differences in fatal and injury crash involvement (i.e., crash rate per population of licensed drivers in that age group) based upon completion of a driver education course. Novice drivers licensed at age 18-20 years old with no driver training prior to licensure had a 78% higher rate of fatal and injury crash involvement, compared to same-age drivers who had completed driver training. Slightly older drivers also showed a significant difference in crash rates between those who have and have not completed driver training. Specifically, drivers age 21-24 who lacked driver education had crash rates that were 67% higher compared to their peers who had completed a driver training course. These findings suggest that formal driver training is associated with significantly reduced injury and fatality outcomes.

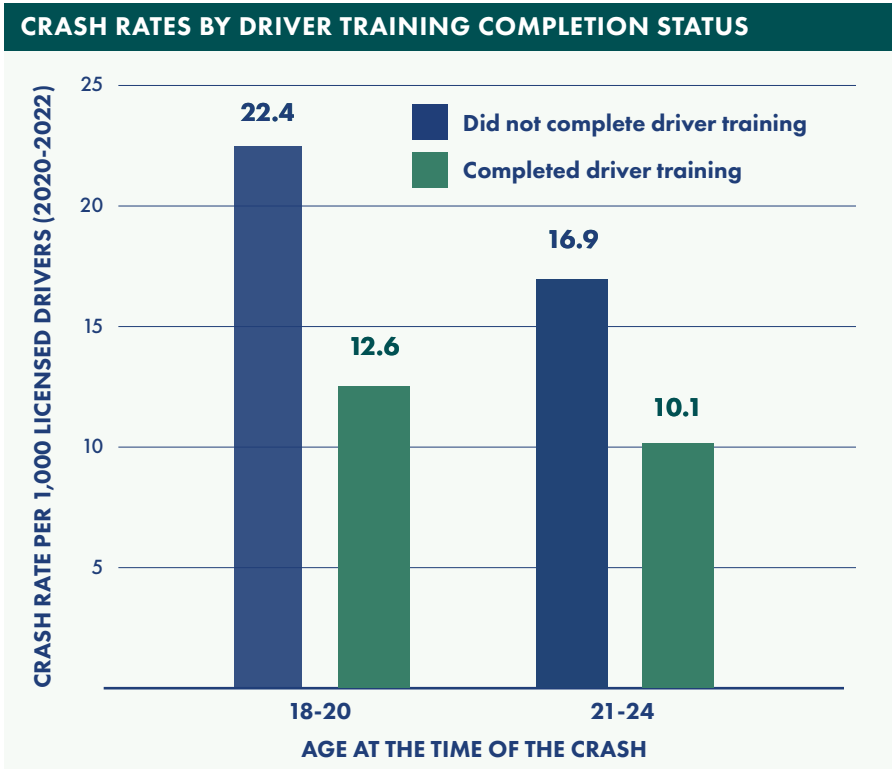


FIGURE 21. CRASH INVOLVEMENT RATES FOR 18-24 YEAR OLDS, INJURY AND FATAL CRASHES IN WASHINGTON BY DRIVER TRAINING COMPLETION STATUS

1 https://wtsc.wa.gov/wp-content/uploads/dlm_uploads/2020/09/GDL-Program-Attitude-and-Behavior-Survey-Results-V2_Oct2020.pdf

> "Many [youth] are driving without a license, no driver education background, and lack of familiarity with traffic laws."
>
> *—Tribal listening session participant, describing the lack of driver's education opportunities in rural areas*

PRIORITY STRATEGIES

Extend Intermediate Requirements: Extending intermediate license and driver training requirements to older novice drivers (18+ years old) is another approach to increasing safe driving behaviors. In this approach, it would also be advisable to increase access to and affordability to state authorized driver training courses to avoid exacerbating existing inequities. Extending these requirements without improving the accessibility and affordability of driver training could lead to young people further delaying licensure to "wait out" the requirements, or choosing to drive unlicensed. WTSC estimates that extending requirements for driver education and intermediate licensing through age 24 would result in approximately 4,000 fewer injury crashes in Washington per year.

SB 5583 requires DOL to research the feasibility, and provide recommendations, for expanding mandatory driver education as a requirement for obtaining a driver license from age 18 to 24.

This includes, but is not limited to:

- Courses that can satisfy this expanded educational requirement.
- Assessment of public and private resources.
- Current access to drivers' education (and how to improve access).
- Developing a plan for public outreach and education.
- Collaboration with Educational Service Districts to determine if they can support facilitation.
- Options to address financial need (for students enrolled in schools and private settings).
- Approaches by other states who have similar requirements.
- Requiring DOL to research mandatory driver education refresher courses on the topics of risk management and hazard protections one year after licensure and appropriateness for intermediary card holders, and
- Assessment of directly providing driver training education or facilitating partnerships with driver educators to close availability and accessibility gaps in rural and underserved areas.

Opportunities also exist in Washington to strengthen Graduated Driver Licensing (GDL) restrictions, one of which is to adjust nighttime restrictions to begin at 9:00 pm instead of 1:00 am.[1]

1 WTSC Policy Brief: Reducing the Risks of Injury and Fatal Crashes among Young Drivers, 16 through 25 Years of Age.

Improve Driver Education and Intervention: Encourage improvement of training programs and standards with inclusion of hazard identification and traffic safety instructor development to match NHTSA standards. Support mentorships, teen/parent driving contracts, and legislation and funding for financial assistance to underserved populations to cover a portion or the full cost of the driver training.

Foster Compliance with Washington's GDL Laws and Strengthen Restrictions: Adjust licensing restrictions with extended nighttime restrictions (i.e., start the nighttime restriction earlier), a lengthier permit holding period, and strengthened passenger restrictions. Provide parents, law enforcement, and driver education program providers information about the GDL program to encourage support for legislation. Provide education and training to parents about driving risks their children face and how to set appropriate limits to reduce these risks. Encourage Tribal communities to adopt GDL laws and provide resources to improve awareness.

Make Driver Education Accessible: Policy makers can increase access to driver education by reducing the cost for students generally or subsidizing the cost for low-income drivers specifically. Tribal representatives identified this need, seeking more funding for programs in rural areas that serve Tribal populations and an education incentive program. Making driver safety education more affordable would allow more drivers to receive training and an intermediate license at age 16- or 17-years-old.

Peer to Peer Education: Programs such as Teens in the Driver Seat provide peer-based traffic safety education in Washington high schools, junior highs, and colleges, empowering youth to actively promote traffic safety. The program addresses all major risks for this age group, including impairment, speeding, and distraction. It applies several frameworks—peer-to-peer, traffic safety culture, shared risk, and protective factors—to change behaviors among young people.

Individual Incentives: Incentivizing safe driving choices on the individual level to encourage newer drivers to establish good driving habits. One example of this is the smartphone app "You in the Driver Seat," where any young driver in Washington can earn gift cards for driving distraction free and not speeding.

Education by Community Influencers: Empowering influential community members, such as law enforcement and first responders, to deliver in-school traffic education through assemblies or small group presentations.

Driver Skills Exam Update: A pilot study is underway to modernize Washington's driver skills exam. This effort includes identifying critical components that should appear on a driver skills test to evaluate a driver's potential. The pilot study has the potential to introduce Hazard Perception testing. Washington would be the first state in the U.S. to include this feature.

Provide Active Transportation and Transit: Providing active transportation facilities and transit availability will help offer additional modal options for young people, which will positively affect young driver safety by reducing their use of motor vehicles. Increasing the frequency, reliability, and availability of transit services supports this. Move Ahead Washington introduced free transit services for riders ages 18 and younger. This was recently expanded to Amtrak services in the state.[1]

1 https://wsdot.wa.gov/about/news/2022/youth-can-ride-transit-free-most-washington

OLDER DRIVERS

People aged 70 years old and older are the fastest growing segment of the population in Washington. The aging of the state's population brings with it new issues and challenges, including how to keep older drivers safe and mobile. Driving means independence to an older individual. It enables connection with community and health related visits.

Fatalities involving older drivers in Washington have been trending upward, with a recent fatality increase of 11% from 2017-2019 to 2020-2022. This is partially due to increased exposure: there are a greater number of older adults in the state, and they are keeping their licenses longer and driving more than previous generations. Between 2020 and 2022, 96% of the population aged 70-74 years old held a valid driver license; and 75% of the population aged 85+ years old had a driver license.

CRASH HISTORY

TABLE 18. OLDER DRIVER (AGE 70+) INVOLVED FATALITIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
FATALITIES	71	66	89	74	83	94	**+11%**
PROPORTION OF FATALITIES	13%	12%	17%	13%	12%	13%	

For updates to fatalities after 2022, refer to the Target Zero Performance Dashboard.

TABLE 19. OLDER DRIVER (AGE 70+) INVOLVED SERIOUS INJURIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
SERIOUS INJURIES	199	210	258	256	287	295	**+26%**
PROPORTION OF SERIOUS INJURIES	9%	9%	11%	11%	10%	10%	

For updates to serious injuries after 2022, refer to WSDOT Crash Data Portal.

OVERLAPPING FACTORS

Of the 251 fatalities involving an Older Driver (70+):

- 39.0% (98) were Intersection-related
- 38.6% (97) involved an Impaired User
- 33.4% (84) involved a Lane Departure

Note: Older driver may not be the impaired road user. Categories are not mutually exclusive.

SYSTEM CHALLENGES

As people age, they may experience declines in their driving abilities because of age-related changes and/or medical conditions. Older people are particularly vehicle-dependent because unlike younger people, they live disproportionately in more remote, rural areas with few, if any, transportation choices. Increased availability of transit service, including micro-transit, paratransit, Dial-a-Ride, and other flexible services in addition to fixed-route service can increase transportation independence in such areas.

Car ownership and driving are strongly linked to independence and life satisfaction for older adults who can drive for transportation. However, most people still outlive their ability to drive. The average American male outlives his ability to drive by six years, and the average American female by 10 years.[1]

Fragility is more common in older adulthood – for a given crash force, an older person will sustain a greater level of injury and have a harder time recovering from a resulting injury. This is true for older people outside the vehicle as well as inside.

PRIORITY STRATEGIES

Identify Drivers at Elevated Medical Risk: Establish and develop updated guidelines for medical conditions and the potential for medications to affect driving. Driver license restrictions or revocations, when needed, can assist in limiting risks.

Improve Methods for Evaluating Driving Abilities: Implement programs that allow for screening and evaluating of older drivers' physical and cognitive abilities along with training for law enforcement, licensing providers, medical professionals, and community members to recognize diminishing abilities. With the new guidelines and education, reevaluation referrals can assist in providing proper screening.

Train driver licensing office representatives on how to best identify customers with physical and cognitive conditions that can interfere with the safe operation of a motor vehicle. Adding restrictions to licenses such as daylight driving only, specific geographical areas, or low speed roads can assist with risk reduction.

Involve caregivers and family members of older drivers in discussions and education about aging and driving and provide techniques they can use to help the older driver assess safe driving, and, when necessary, transition from driving.

1 AAA Foundation. These data are included on a gender binary because that's how the referenced study collected the data. This plan acknowledges that it does not represent everyone.

Improve Older Driver Competency: Increase driver education opportunities, with the development of classes and partnerships to introduce older road users to new vehicle technologies, roadway technologies, and roadway designs to support continued learning of safe vehicle and road use.

Road Visibility Improvements: Improving signage, pavement markings and the readability of roadway signs can better accommodate the needs of older drivers. These treatments also make the system safer for all road users.

Provide Active Transportation and Transit Options: Providing active transportation facilities and transit availability will help keep older people active and better drivers (making travel safer for everyone) by supporting their overall health, and when they are unable to drive themselves, these facilities will offer additional modal options. Access to transit is limited across most of Washington, as are services to take older individuals to appointments. Making improvements to these options will positively affect older driver safety. Increase the frequency, reliability, and availability of transit services, carpooling, etc., to provide lifelong mobility options for older road users.

Older Driver Study Proviso (HB 1125, Section 208): This study has been commissioned by the legislature to develop a comprehensive plan aimed at improving older driver safety, including a report on the plan by December 1, 2024. The plan will include the following:

- A comprehensive review of DOL policies surrounding older drivers and medically at-risk drivers, including the medical assessment review process and the counter assessment process in licensing service office.
- A feasibility analysis of DOL establishing a medical advisory board to advise on general policy for at-risk drivers, driving privileges for individual medically at-risk drivers, and an appeals process for drivers whose privileges are revoked or restricted due to medical conditions.
- A recommended assessment tool to determine a driver's potential risk to themselves or others when operating a motor vehicle so DOL may make informed decisions on appropriate courses of action within the older driver program.
- Detailed information on how each component of the plan improves the safety associated with older drivers, while preserving the maximum level of older driver independence and privacy.

3.6 ROAD USERS BY MODE OF TRAVEL

ACTIVE TRANSPORTATION USERS

The Washington State Vulnerable Road Users Safety Assessment, completed in November 2023, is provided in Appendix D.

Active transportation users are people who use a human-scale and often human-powered means of travel. Active transportation includes walking, bicycling, using a mobility assistive or adaptive device such as a wheelchair or walker, micromobility devices such as skateboards, and electric-assist devices such as e-bikes and e-foot scooters. People may use those modes for the entire length of a trip or to access public transportation, passenger rail, ferry service, or airports. They are essential to a multimodal system.

Walking, bicycling, and rolling are distinct modes with some differences in trip characteristics, and in the infrastructure and operational strategies that may be recommended. They are combined here for purposes of discussion because they share many common factors–most notably vulnerability to crash forces in a vehicle collision.

During the 2020-2022 study period, 21% of all traffic fatalities and 17% of all traffic serious injuries were active transportation users. These figures continue to trend upwards. In 2021 active transportation user deaths reached their highest number ever recorded in Washington. Compared to 2017-2019, the 2020-2022 figures show a 19% increase in fatalities for people who walk, bike, and roll; and a 2% increase in serious injuries. Combined 2020–2022 active transportation user fatalities and serious injuries (3,675) in Washington constituted an average of 3.3 people per day who were killed or seriously injured while walking, biking, or rolling.

CRASH HISTORY

TABLE 20. ACTIVE TRANSPORTATION USER FATALITIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
FATALITIES	124	119	116	123	160	145	**+19%**
PROPORTION OF FATALITIES	22%	22%	22%	21%	24%	20%	

For updates to fatalities after 2022, refer to the WTSC Active Transportation User Fatalities Dashboard.

TABLE 21. ACTIVE TRANSPORTATION USER SERIOUS INJURIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
SERIOUS INJURIES	449	523	460	397	509	550	**+2%**
PROPORTION OF SERIOUS INJURIES	20%	23%	20%	16%	17%	18%	

For updates to serious injuries after 2022, refer to WSDOT Crash Data Portal.

SYSTEM CHALLENGES

Exposure. Between 2017 and 2022, motor vehicle miles traveled (VMT) decreased by 9%, which should have decreased exposure for active transportation users.[1] This decrease in VMT reflected changes in driving patterns during the COVID pandemic when many commuters shifted to teleworking. However, the number of crashes involving people walking and biking increased during this time. An increase in drivers traveling at speeds significantly above posted speed limits resulted in more severe injury outcomes in crashes involving active transportation users.

Effect of Vehicle Size. Another trend is the increase in larger passenger vehicles such as light duty trucks and SUVs on the road. The mass, size, and shape of the striking vehicle directly affect the severity and nature of injuries sustained by the active transportation user. Not only are pickup trucks and SUVs heavier than traditional passenger cars, but their height also significantly changes the crash angles when an active transportation user is struck. According to a recent study by the Insurance Institute for Highway Safety, a vehicle hood's leading edge that is 40 or more inches above the road surface increases the risk of a pedestrian fatality in a crash by 45%, compared to vehicles with a leading edge that is only 30 or fewer inches off the ground.[2]

Speed. Driving speed is the most important factor associated with pedestrian and bicyclists fatalities and serious injuries. Seventy-eight percent of pedestrian fatalities and 74% of bicyclist fatalities occurred on roads with a posted speed above 25 mph. Where a motorist is traveling faster than 25 mph, crashes are more likely to occur, and when they do they are more likely to result in serious injuries or fatalities. Only 1% of pedestrian and bicyclist serious injuries and fatalities occurred on roads with a reported posted speed limit of 20 mph.

Designing roads at higher speeds often lead to longer intersection spacings and fewer traffic controls, resulting in crossing locations that require the pedestrian to travel longer distances and to judge closing speed of the driver to decide whether they have time to cross. The alternative is to follow along the shoulder or sidewalk—if available—with associated costs and burdens in time, potential security concerns, adverse weather conditions, and other tradeoffs.

1 Vehicle Miles Traveled

2 Vehicles with higher, more vertical front ends pose greater risk to pedestrians, IIHS, 2023

Pedestrian Crashes at Crossings. Three out of every five pedestrian fatal and serious injury crashes (60%) occur when the pedestrian is crossing the street. In most of these crashes the person walking was either reported as using the roadway (47%) or a marked or unmarked crosswalk (49%). 56% of the pedestrian crashes were documented as being intersection related, yet limited infrastructure data is available to help understand the contributing factors of those crashes. State and local jurisdictions don't have complete, current inventories of the presence or absence of sidewalks or crosswalk markings; a pedestrian may be in the roadway because no other option to cross has been provided.[1]

In 52% of bicyclist fatal and serious injury crashes, the bicyclist was using the roadway. This may reflect the lack of separated bicyclist lanes, which is especially concerning at intersections where separated bicycle lanes are dropped to make space for motor vehicle turn lanes. More data regarding the availability of bicycle lanes and sidewalks will help to determine the extent to which investments are needed to address bicyclist and pedestrian crashes occurring in the roadway.

Crashes by Location. Most fatal and serious injury crashes for both pedestrians (87%) and bicyclists (85%) occur in population centers (cities and census designated places). Of the crashes that occur in population centers, 81% were in high equity index census tracts—in locations where it's more likely that people rely on walking, bicycling, and transit access for everyday transportation, and where pedestrian/bicyclist facilities are less likely to be provided.

Only 4% of pedestrian fatal and serious injury crashes and 6% of bicyclist fatal and serious injury crashes occurred in rural areas.

Underserved road users in rural and Tribal areas also use active modes of travel - sometimes to travel relatively long distances. Rural roadways are much less likely to have separated pedestrian and bicyclist facilities.

Nighttime Crashes. About 57% of pedestrian fatal and serious injury crashes occurred at night. Of those, 72% occurred at a location where streetlights were on, suggesting that typical street lighting practices may not be adequate for reducing the potential for pedestrian crashes in dark conditions. Pedestrian scale lighting design seeks to address this concern, but is not yet widely implemented in most areas.

Road Characteristics: Crash Severity, Likelihood and Vehicle Speed: Pedestrian and bicyclist fatalities appear more likely to occur at locations where more active transportation users are found and where posted speed limits or operating speeds are higher. More than half (56%) of pedestrian and bicyclist fatal and serious injury crashes occur on roads with a posted speed limit greater than 25 mph. Looking at fatalities alone, 78% of pedestrian fatalities and 74% of bicyclist fatalities occurred on roads with a posted speed above 25 mph. Only 1% of pedestrian and bicyclist serious and fatal crashes occurred on roads with a posted speed of 20 mph (as noted previously, at 20 mph 9 out of 10 people were survive being hit by a motor vehicle).

1 In 2023 the legislature appropriated $5 million to develop a comprehensive statewide inventory of sidewalks that will assess their accessibility and condition. That work is underway. https://sidewalks.washington.edu/2024/06/07/washington-state-proviso/

Inequitable Outcomes in Active Transportation User Safety:
Both pedestrian and bicyclist fatal and serious injury crashes were more likely to occur in high equity score census tracts. While not the only measure of equity-related variables, certain racial, cultural, and ethnic group identities are overrepresented in the crash data. People who are American Indian or Alaska Native comprise 1% of the Washington population but make up 7% of active transportation fatalities. Those who have a multiple racial heritage make up less than 9% of the population and 14% of fatalities. African Americans make up just over 4% of the population, but 6% of pedestrian fatalities. No data is available on whether a crash victim had a disability or was low-income, both of which are additional factors associated with reliance on walking, biking, and/or transit access.

Active transportation users ages 65 and older are two to eight times more likely to die than younger people when struck by a motor vehicle. Approximately 15% of pedestrians 65 and older die after being hit by a motor vehicle, in part due to a decline in physical resiliency. Population trend predictions indicate that this is an issue that is expected to increase in coming years. In 2022, 17.1% Washington residents were 65 and older and by 2030, the baby boomer generation (those born between 1946 and 1964) will make up 1 of every 5 individuals in Washington. By the year 2050, the number of adults over 60 is forecasted to represent over 29% of the state's total population.

Data is lacking for traffic deaths of people who are houseless, the numbers of whom have increased in our state over the last 10 years. Focusing implementation efforts on destinations that serve this population will be important for eliminating fatal and serious injury crashes that involve them.

RELATED PLANS AND PROGRAMS

Several recent plans provide detailed recommendations for specific safety measures. These include the Action Plan for Implementing Pedestrian Crossing Countermeasures at Uncontrolled Locations (2018 Safe Transportation for Every Pedestrian (STEP) Plan), Washington State Injury Minimization and Speed Management Policy Elements and Implementation Recommendations (2020), Washington State Active Transportation Plan (2021) and WSDOT Vulnerable Road Users Safety Assessment Report (2023). These documents collectively provide a systematic framework of information and guidance for addressing pedestrian and bicyclist issues and potential safety improvement measures.

In 2019, the legislature passed Substitute Senate Bill 5710, which required the WTSC to convene the Cooper Jones Active Transportation Safety Council (ATSC), governed by RCW 43.59.156. The purpose was to use data to identify patterns related to fatalities and serious injuries of active transportation users, with the goal of identifying improvements. The council may monitor implementation progress of ATSC recommendations and seek opportunities to expand consideration and implementation of the principles of systematic safety, including data collection improvement. To better understand active transportation user data, the WTSC conducts fatal case file reviews with members of the ATSC. The observations from the case reviews often lead to the development of study teams, which in turn, can lead to ATSC recommendations. The council provides these recommendations to the legislature annually in the Cooper Jones Active Transportation Safety Council's Annual Report. To date, the legislature has acted on 15 recommendations, including expanding the use of traffic safety cameras, making it easier for local jurisdictions to lower speed limits, and providing funding for research to recommend active transportation user lighting standards.

In 2022 the legislature passed SB 5687 which expanded the allowable use of 20 mph speed limits to local authorities and beyond only residential and business districts. In 2023 the legislature passed HB 1181, updating the Growth Management Act. This requires jurisdictions to apply multimodal level of service standards and give priority to multimodal safety in Comprehensive Plan updates. Local jurisdictions must include a transition plan for transportation as required in Title II of the Americans with Disabilities Act (ADA) of 1990. Taken together, these policy directives point to the need for robust planning for safe, accessible active transportation and transit access in local land use decisions.

Action Plan for Implementing Pedestrian Crossing Countermeasures at Uncontrolled Locations: The STEP Plan provides recommendations for process change to improve current practice and inform a desired future state in which appropriately controlled crossings are available to meet pedestrian needs that have not been addressed in the design and construction of the current driving-oriented facilities.

Recommendations include several statewide policy changes already underway, along with actions that need more work to fully implement. These include the following:

- Ongoing data collection, analysis, and evaluation.
- Land use context and modal facilities and treatments, volume, and behavior analysis to inform facility types and locations.
- Methodologies for prioritizing pedestrian improvements that are responsive, flexible, and transparent.
- Crossing enhancements following guidance that considers posted speed, traffic volume, crossing proximity, and roadway configuration.

Washington State Active Transportation Plan: The Washington State Active Transportation Plan (ATP) describes the state's active transportation network as an incomplete patchwork, with high-quality segments in some locations and no facilities in others. Development of the plan included the first-ever comprehensive evaluation of state routes for active transportation purposes and an equity and safety analysis. The plan was built on the STEP, the speed management policy framework, and other sources to arrive at recommendations.

In areas with greater population density, there are opportunities to encourage road users to shift from motor vehicles to bicycling and walking. Land use planning plays an important role for increasing population density, planning shorter routes of travel, and reserving spaces for safe active transportation travel.

Network needs include:

- Creating facilities suitable for people of all ages and abilities, using the level of traffic stress (LTS) index to measure how wide, fast, and busy a road is.
- Increasing safe crossings for active transportation users.
- Designing crossings to address the context of the roadway, including road size, speed, and volume of vehicle traffic.
- Installing wayfinding signs to allow active transportation users to navigate an area, such as guide signs for motor vehicle users.
- Improving the state's capacity to understand and manage assets.
- Partnering across jurisdictions to provide network connectivity.

ATP implementation is supported by the 2022 Move Ahead Washington legislation, including increased investments in grants to local agencies and the Complete Streets requirement on WSDOT projects changing state routes over time to improve active transportation safety, accessibility, and connectivity (a requirement for projects greater than $500,000 under RCW 47.04.035).

Access to High Capacity Transit: Upcoming transit expansion in Washington will add more than 100 new High-Capacity Transit (HCT) stations, many of which will be along high-posted-speed-limit state routes with high vehicle volumes. WSDOT's Management of Mobility Division is completing a project titled "Removing Highway Barriers to High-Capacity Transit Station Access" that addresses the need for safe, well-planned access to HCT by active transportation users. The draft document contains national best practices and recommendations for infrastructure treatments, suggested changes to the WSDOT Design Manual, and recommended policy language to improve safety for people who walk, bike, and roll to and from HCT.

Active Transportation Crash Analysis for Washington State Target Zero Plan: Crash data from 2020 through 2022 gives additional insight into the patterns associated with fatal and serious injury pedestrian and bicyclist crashes. The findings point to road characteristics, places, and population groups where safety investments will likely have the greater potential to reduce future deaths and serious injuries among these travelers as well as for people using other modes.

PRIORITY STRATEGIES

Using the Safe System Approach to address crash exposure, likelihood, and severity is the core of this Target Zero Plan. For active transportation users, this starts with three main opportunities: lowering driving speeds, increasing crossing treatments, and separating facilities from motorized traffic traveling along the system.

> "We prioritize maintenance for car features of the road, but not sidewalks or bike lanes."
>
> *—Community listening session participant in Yakima County*

The following active transportation safety treatments can be relatively low-cost, but each will require political leadership and a true commitment to changing the transportation system.

- Road reconfigurations: Set a standard for a change to every road that has less than 15,000 vehicles per day. Reduce the number of travel lanes, assess posted speed limit, narrow travel lanes, and install separated bicycle and pedestrian facilities. Road reconfigurations can also be considered on roadways with greater than 15,000 vehicles where appropriate.
- Increase use of automated traffic safety cameras.
- Use default and/or category speed limit setting practices and post lower speeds, iterating down to the target speed for the land use and mix of people and destinations.
- Leading pedestrian intervals at all traffic signals.
- Raised crossings.
- Right turn lane and slip lane removal at intersections
- Curb extensions, median islands, or other treatments to reduce crossing distance for people walking or biking and make them more visible to drivers who are turning.

The following are recommendations and serve as topics to expand on in the Target Zero Implementation Plan:

Reducing Driving Speeds

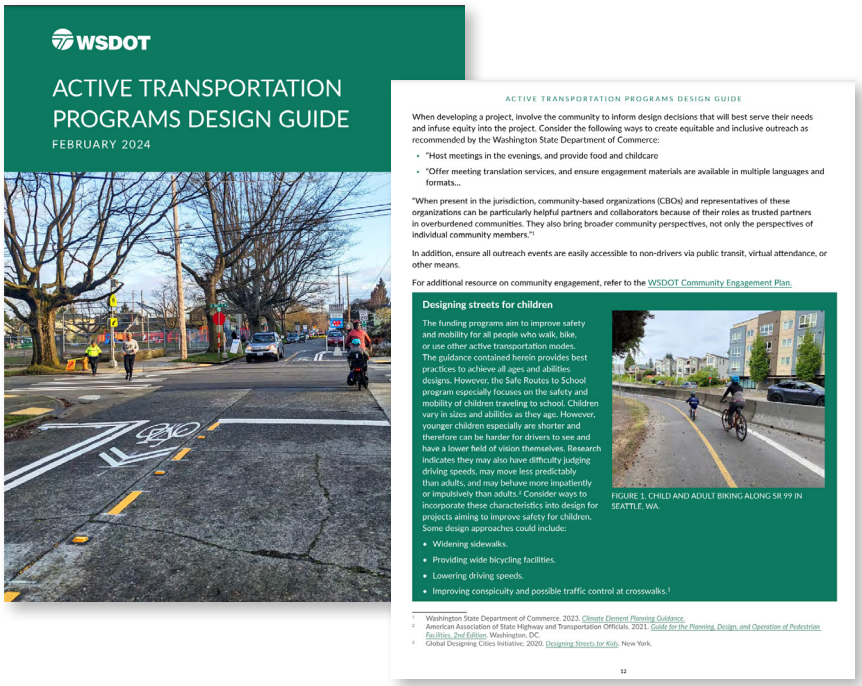
- Inventorying the transportation system to identify multimodal networks and their associated speed limits and differences from target speeds in population centers; tracking progress of speed reduction efforts.
- Communicating the importance of lower speed limits for the safety of all road users to drivers, the public, and elected officials.
- Changing the way that posted speed limits are set with the goal of minimizing injury severity and likelihood, implementing the approach outlined in the Injury Minimization and Speed Management policy framework in population centers.
- Installing speed management treatments such as road diets, roundabouts, automated traffic safety cameras and gateway treatments with culturally relevant installations – refer to the WSDOT Active Transportation Funding Programs Design Guide.
- Right-sizing Washington roads. This process includes the following elements:
  - » Inventorying multilane roads.
  - » Evaluating road reconfiguration.
  - » Systematically implementing road reconfiguration to lower speeds and create space utilized for separated active transportation users.

Investing in pedestrian and bicyclist crossings:

- Implementing the Washington State Safe Transportation for Every Pedestrian Action Plan for Implementing Pedestrian Crossing Countermeasures at Uncontrolled Locations.
- Inventorying the transportation system to identify multimodal roadways where there are destinations, transit connections, and other pedestrian/bicyclist crossing needs with the goal of minimizing out-of-direction travel by optimizing the frequency of low traffic stress crossings in population centers.
- Based on the inventory, installing crossing treatments with higher frequency in population centers at legal crossings and at mid-block crossing locations.
- Utilizing leading pedestrian intervals and pedestrian scrambles at traffic signals.
- Providing adaptive pedestrian signals in locations that can be expected to have higher numbers of slower-moving pedestrians, so time is extended to accommodate their travel speeds.

Providing separated pedestrian/bicyclist linear facilities.

- Installing separated pedestrian and bicyclist facilities such as sidewalks, shared use paths and bicycle boulevards – refer to the WSDOT Active Transportation Funding Programs Design Guide.
- Institute requirements for construction of new roads in population centers to include active transportation facilities.
- Prioritizing walk/bike facilities including appropriately controlled crossings and linear facilities for access to public transportation stops and schools.



Other Opportunities:

- Lowering vehicle miles traveled.
  - » Implementing recommendations in the WSDOT Vehicle Miles Traveled (VMT) Targets – Final Report.
  - » Changing the way the vehicle miles traveled are calculated to include consideration for the safer miles traveled via public transportation.
  - » Implementing strategies that affect the cost of motor vehicle use, like congestion pricing and parking fees.
  - » Considering how public transportation systems like buses and light rail help to reduce crash exposure by removing vehicles from the system and investing in transit systems for their contributions to safety and other co-benefits.
- Creating transportation efficient communities through land use policy by reducing walkable/bikeable distances to destinations.
- Focusing on improvements that will serve Tribal communities:
  - » Investing in active transportation and transit on Tribal lands.
  - » Working with Tribal governments to understand and meet their needs.
- Supporting public transportation for safer multimodal travel by:
  - » Completing an equity analysis of gaps in transit service where transit would reduce potential for serious/fatal crashes.
  - » Providing transit passes tied to income, and to seniors, like the youth free passes funded under Move Ahead Washington.
  - » Increasing the frequency of service to decrease the time cost of public transportation and increase ridership, which will mean fewer people driving and save lives by decreasing exposure.
  - » Reduce the potential for crashes at public transportation stops and nearby crossings. When necessary, eliminate stops on high-speed, high-volume roads, which will require alternate routes or changes to the roadway to consider the safety of public transportation riders.

WHO CAN MAKE A DIFFERENCE:

- Policymakers, including those who make zoning decisions for housing, businesses, and public resources.
- Policymakers who set taxes and fees, which create incentives and disincentives to use different modes of travel.
- Owners of public roads, streets, and highways in Washington.
- Entities who communicate with and inform the public about the importance of lower speeds, their role in driving the speed limit or lower, and what it will take to achieve a positive traffic safety culture.
- Agencies that provide public transportation.
- The public.

MOTORCYCLISTS

Motorcyclists constitute a subset of vulnerable road users facing an elevated level of risk, primarily due to the limited protection motorcycles offer riders compared to other types of vehicles. A motorcycle is also smaller, making it less visible to drivers than other motorized vehicles. According to the U.S. Department of Transportation (USDOT), in 2021 a crash involving a motorcyclist was nearly 24 times more likely to be fatal per 100 million VMT than a standard vehicle.[1]

Motorcycles are 3% of registered vehicles in Washington. From 2020 to 2022, motorcyclists involved in just 1.8% of all reported motor vehicle crashes, but they constituted 16.8% of all people killed in traffic crashes in the state. Between the years 2017-2022 the overall number of motorcycle crashes decreased but the number of fatalities and serious injuries increased. Combined 2020 – 2022 motorcyclist fatalities and serious injuries (1,758) constituted an average of 1.6 crashes in Washington each day that resulted in a rider being killed or seriously injured.

CRASH HISTORY

TABLE 22. MOTORCYCLIST FATALITIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
FATALITIES	80	80	95	93	92	133	**+25%**
PROPORTION OF FATALITIES	14%	15%	18%	16%	14%	18%	

For updates to fatalities after 2022, refer to the WTSC Motorcyclist Fatalities Dashboard.

TABLE 23. MOTORCYCLIST SERIOUS INJURIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
SERIOUS INJURIES	400	400	421	424	470	546	**+18%**
PROPORTION OF SERIOUS INJURIES	18%	18%	19%	17%	16%	18%	

For updates to serious injuries after 2022, refer to WSDOT Crash Data Portal.

1 USDOT Traffic Safety Facts 2021 Data

OVERLAPPING FACTORS

Of the 318 motorcyclist fatalities (2020-2022):

- 53.4% (170) involved an Impaired Driver
- 47.7% (152) involved a Speeding Driver
- 33.6% (107) involved a Lane Departure

Note: Categories are not mutually exclusive.

SYSTEM CHALLENGES

Interactions between motorcycles and larger vehicles carry additional risks due to the design of motorcycles and the lack of protection for riders and passengers. Motor vehicle drivers may not be aware of required maneuvers for a motorcycle to avoid a crash. Drivers may have a difficult time judging the speed or distance of a motorcycle on the roadway due to its narrow profile.[1] Due to the lack of protection and relative instability, motorcycles and their riders will generally suffer far worse damage and injury.

There is also a significant disconnect between riders' perception of risk and the actual causes and contributing factors of serious crashes involving motorcycles. Most riders involved in motorcycle crashes, regardless of severity, were found to have taken specific actions that contributed to the crash and/or increased its severity.

Unendorsed Riders: In Washington, 20% of motorcycles are registered to individuals without an endorsement. In fatal crashes where a motorcycle driver or passenger were killed, 35% of the motorcycle drivers were unendorsed.

Motorcyclist Safety Risks. In Washington's 2023 statewide survey, motorcycle riders were asked what they believe are the greatest risks to motorcycle riders' safety. In nearly 75% of the responses provided, riders thought their greatest potential for crashes were other drivers on the road who were impaired, driving too fast, driving agressively, driving distracted, not looking for motorcyclists or checking blind spots, and not adhering to safety or traffic laws. Some listed pedestrians, weather, and stationary and moving objects including potholes, debris, animals, and children. The reality is that most serious injury and fatal motorcycle crashes (around 75%) are caused by rider error and choices.

From 2021-2024, law enforcement has reported an increase in the number of riders who are traveling at excessive speeds, sometimes over 100 mph. Law enforcement is reporting an increase in the number of riders failing to stop for law enforcement officers (eluding police).

1 Traffic Safety Facts: Motorcyclists, NHTSA, 2022.

PRIORITY STRATEGIES

Rider Education and Endorsement: Educate and collaborate with dealers and manufacturers to promote motorcycle training. Include additional incentives, to complete training classes and outreach opportunities.

Prosocial Traffic Safety Culture among Motorcycle Riders: Promote self-policing within the motorcycle community to discourage impaired riding and reckless behaviors. Increase the desire to obtain ongoing training.

Prosocial Traffic Safety Culture for Vehicle Drivers: Promote safe motor vehicle operation to reduce the potential for motorcyclist-involved crashes.

Increase Rider Safety Awareness: Education of motorcycle vulnerability and enhancement to the visibility of the rider can provide added safety. Increase outreach to the dangers of riding and how to minimize the risks. Address rider behavior through education, training, and awareness campaigns to enhance overall motorcycle safety in Washington. Washington's Motorcycle Safety Program promotes safe and sober riding.

Motorcycle-Specific Safety Equipment: Encourage motorcyclists to wear all the gear all the time. Protective equipment includes motorcycle helmets that meet USDOT safety standards, gloves, boots, long pants, and a durable long-sleeved jacket, and eye and face protection. Washington has a primary motorcycle helmet law in RCW 46.37.530.

Proper helmet use can limit lives lost in a motorcycle crash. The NHTSA estimates 37% effectiveness in preventing fatalities for motorcycle riders and 41% for passengers.[1] Additionally, motorcyclists should be encouraged to implement visibility enhancement methods to include highly visible and reflective protective gear, lane placement, and technological advances.

1 Source: USDOT Traffic Safety Facts 2021 Data

Law Enforcement Motorcycle Awareness: Enforcement is a deterrent for dangerous and illegal behaviors on our roads. Education to law enforcement officers about motorcycle laws increases their understanding of crash causation factors and motorcycle safety violations. In addition to training, information and refreshers are provided through social media and roll call videos designed for law enforcement audiences.

High visibility enforcement (HVE) campaigns are conducted in areas where data show there have been a larger number of serious and fatal motorcycle crashes. Patrols watch for behaviors by motorcyclists and motor vehicle drivers that increase risk, including impairment and excessive speed. Following or riding too closely also endangers motorcyclists. Law enforcement is also encouraged to increase their use of the authority to impound a motorcycle from unendorsed riders. If this becomes a more common practice, it will provide a powerful incentive for those who ride to obtain their endorsements.

Increase Motorist Awareness of Motorcyclists: This countermeasure can reduce motorcycle crashes by addressing the behaviors of other motor vehicle drivers (non-motorcyclists) and raising motorist awareness of motorcycles. These programs include Watch Out For Motorcyclists, Share the Road, and Look Twice-Save A Life. Education and outreach include responsibility as a driver, blind spots, motorcycle visibility, searching for motorcyclists, humanizing motorcyclists, following distance, space management around motorcycles, inattentional blindness, selective attention, distractions, and cultural equity.

Additional Strategies:

- Use relevant communication components in all motorcycle safety outreach and education programs, including peer-to-peer messaging.
- Provide messages that are culturally relevant, multilingual, and appropriate to the audience. WTSC uses a wide mix of media channels including social media, websites, and traditional including print, TV, and radio.
- Expand the motorcycle safety work group into a more extensive Motorcycle Safety Advisory Council.

Wildlife Involved: Wildlife-involved crashes resulted in 11 fatalities and 60 serious injuries from 2020 to 2022. Of the 11 fatalities where wildlife was involved, 10 were motorcyclists. Forty-eight of the 60 serious injuries sustained in wildlife-involved crashes were motorcyclists. WSDOT identifies locations with high rates of wildlife strikes through crash data and carcass removal data. To prevent future wildlife crashes in those locations, WSDOT has used variable message signs, flashing beacons, warning signs, wildlife crossing structures, barrier fencing, wildlife detection systems, and maintenance of roadside vegetation.

HEAVY VEHICLES

Heavy vehicles play a vital role in Washington State's transportation industry, facilitating the movement of goods over long distances and within commercial and residential neighborhoods. As an international gateway with commercial seaports, land border crossings, and distribution networks, Washington relies on heavy trucks to support its economy.[1]

Heavy vehicles present unique safety challenges due to their size, weight, maneuverability, and longer stopping distances compared to passenger vehicles. These attributes result in a small margin of error for drivers.

> "Truck crashes do not occur in isolation, but as part of a larger system, involving the roadway and environment, vehicle condition, and the other vehicles in the traffic system. If we want to reduce the toll of truck [crashes], we need to broaden our understanding beyond just trucks and truck drivers so that human fallibility does not lead to human fatalities."
>
> *—Daniel Blower, University of Michigan*

From 2020 to 2022, 13% of fatalities occurred in crashes that involved a heavy vehicle. Note that involvement does not mean the heavy vehicle driver was at-fault or that they were the party killed in the crash.

1 Washington State Freight System Plan, WSDOT, 2022.

CRASH HISTORY

TABLE 24. HEAVY VEHICLE-INVOLVED FATALITIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
FATALITIES	85	64	83	69	96	90	**+10%**
PROPORTION OF FATALITIES	15%	12%	15%	12%	14%	12%	

For updates to fatalities after 2022, refer to the Target Zero Performance Dashboard.

TABLE 25. HEAVY VEHICLE-INVOLVED SERIOUS INJURIES

	2017	2018	2019	2020	2021	2022	CHANGE: 2017-2019 TO 2020-2022
SERIOUS INJURIES	166	138	128	124	189	193	**+1%**
PROPORTION OF SERIOUS INJURIES	7%	6%	6%	5%	6%	6%	

For updates to serious injuries after 2022, refer to WSDOT Crash Data Portal.

OVERLAPPING FACTORS

Of the 255 fatality crashes involving a Heavy Vehicle (2020-2022):

- 51.3% (131) involved an Impaired Road User

SYSTEM CHALLENGES

Driver Behavior: The behavior of heavy vehicle drivers and other drivers sharing the roadway with them influences the outcome of heavy truck crashes. Including heavy vehicles in the Target Zero Plan allows for a focus on initiatives aimed at improving driver training, addressing fatigue management, and promoting adherence to safety regulations such as speed limits and hours-of-service rules.

According to the Insurance Institute of Highway Safety, large truck drivers spending more than 8 hours traveling are twice as likely to be involved in a roadway crash. Longer working hours can cause sleep deprivation, disrupted sleep patterns, and general fatigue.[1]

In 2022, 35% of fatal crashes in Washington involving a large truck involved a large truck driver who had previously been in a recorded traffic crash. In that same year, 25% of fatal crashes involving a large truck involved a large truck driver who had a previous speeding conviction in the previous 5 years.[2]

1 IIHS, https://www.iihs.org/topics/large-trucks#overview

2 Previous Driving Records of Large-Truck Drivers Compared to Drivers of Other Vehicle Types in Fatal Crashes, USDOT.

Shared Responsibility: Other Drivers. Other drivers share this responsibility and must be aware of heavy vehicles. A national study of crashes from the 1990s identified drivers of passenger vehicles alone contributed to 70% of fatal, two-vehicle crashes that involved a heavy truck.[1] Most importantly, the research supports the Safe System Approach principles of shared responsibility, supporting safe road user behaviors, and reducing large crash forces.

Safer Vehicles: Truck safety inspections: In 2019, 18% of heavy trucks inspected in Washington were placed out of service due to critical safety violations. Research performed in Washinton in the late 1980s, concluded large defective truck and trailer equipment is twice as likely to be involved in a crash than without defects (Jones & Stein, 1989). In addition, improperly loaded cargo can lead to truck instability and crashes. In 2019, 22% of truck inspections in Washington found cargo securement violations.[2] Increased safety equipment and technologies can help mitigate and potentially prevent significant crash severity. This can be achieved by advancing driver assistance system technologies (rear and side cameras, blind spot detection, adaptive cruise control, etc.) that assist driver awareness of their surroundings, prevent lane departures, and assist with proper braking.

Post-Crash Care: In 2020, the average emergency medical system response time to heavy truck crashes in Washington was 14 minutes, with longer response times in rural areas.[3]

PRIORITY STRATEGIES

Motor Carrier Safety Assistance Program (MCSAP): The Motor Carrier Safety Assistance Program (MCSAP) is a federal grant program that provides financial assistance to states to help reduce the number and severity of crashes and hazardous materials incidents involving commercial motor vehicles. The goal of the MCSAP is to reduce commercial motor vehicle-involved crashes through consistent, uniform, and effective safety programs. Washington State's Commercial Vehicle Safety Plan (CVSP) is required as part of the MCSAP. Federal goals established through the state's Commercial Vehicle Safety Program align closely with state goals and enhance national goals. The full coordination with our federal partners through the MCSAP provides for an exchange of data that Washington can use to better identify crash reduction goals.

Expand beyond Vehicle Inspections: Approximately 3.5 million commercial motor vehicle inspections are conducted each year nationally to ensure trucks and buses driving on the highways are operating safely (Motor Carrier Safety Assistance Program – Grant Comprehensive Policy, FMCSA, 2018). Inspection programs were expanded in the 1980s in response to vehicle quality concerns. Partially because of these inspections, vehicle defects are currently not identified as a primary contributor in most heavy vehicle crashes.

1 Blower, D.F. The Relative Contribution of Truck Drivers and Passenger Car Drivers to Two-Vehicle, Truck-Car Traffic Crashes

2 Commercial Vehicle Safety Plan, Federal Motor Carrier Safety Administration

3 Source: Washington State Department of Transportation

Driver behavior does remain a primary contributor in fatal and serious injury crashes involving heavy vehicles, so a shift to a driver-focused program—at the local, regional, state, and national levels—could result in a more effective change to traffic safety outcomes regarding heavy trucks. Research-backed programs focused on heavy truck-involved crash causation could support a shift toward addressing those causes, while maintaining the most vital aspects of the current vehicle inspection efforts.

Provide Additional Road Infrastructure: Due to the potential fluctuations of heavy vehicle loads, these vehicles can be susceptible to overturns on horizontal curves. Installation of curve warning signs, interactive signing, and truck rollover warning signs can aid in the reduction of collisions. In some cases, these signs specifically identify heavy vehicles and only interact with them (e.g., by detecting vehicle height, then turning flashers on a truck rollover warning sign).

Truck Parking and Rest Areas: The USDOT has noted truck parking shortages are a national safety concern. An increase in truck parking can play a role in reducing potential fatigue related crashes by providing locations for heavy vehicle drivers to rest. The 2022 Washington Truck Parking Assessment[1] documents a process of compiling a new truck parking inventory, identifying truck parking needs and issues, and conducting a truck parking conditions analysis.

The 2023 Washington State Safety Rest Area Strategic Plan's[2] mission is to provide "safe, sustainable option for rest during road trips." Its five focus goal areas include safety, commercial truck parking, sustainable operations, customer experience, and resilience.

Driver Training: Heavy Vehicle Drivers and Others: Increasing education efforts, curriculum, and improved safety and hazard awareness can provide more skills to heavy vehicle drivers. In addition, analysis supports the importance of focusing on behavior of the drivers of the other vehicles.[3] Raising awareness of safe driving practices and consideration for sharing the transportation system with trucks can support shared responsibility among road user modes.

Technological Advancements: The inclusion of heavy trucks in the SHSP provides an opportunity to leverage technological advancements in vehicle safety systems (e.g., collision avoidance systems, lane departure warnings, and electronic stability control) to mitigate the risks associated with these vehicles. In 2020, only 15% of heavy trucks in the United States were equipped with advanced safety features like lane departure warning systems and automatic emergency braking.[4]

Local Law Enforcement Training: WTSC has developed and implemented a program to train local law enforcement to assess heavy vehicle drivers for impairment. While WSP has received this training historically, expanding it to local enforcement provides them the confidence and skills to know what to look for.

1 Washington Truck Parking Assessment, WSDOT, 2022.

2 Washington State Safety Rest Areas Strategic Plan, WSDOT, 2023.

3 Driver-Related Factors in Crashes Between Large Trucks and Passenger Vehicles, FHWA, 1999.

4 Source: American Transportation Research Institute, 2020

School Bus Involved: From 2020 to 2022, there were four fatalities and 20 serious injuries involving a school bus. However, none of the fatalities and only seven serious injuries were a school bus occupant. The Office of Superintendent of Public Instruction (OSPI) has overall responsibility for school bus safety. Statewide, regional transportation coordinators liaison between OSPI and local school districts. The transportation coordinators assist with school bus driver certification, initial and continuing driver training, and development of guidance documents for school districts. The OSPI and regional coordinators also collaborate with the WSP's Commercial Vehicle Division (CVD) for executing annual, high-quality, and thorough school bus safety inspections. To prevent injuries related to school buses, OSPI supports training on student management and school bus operations, and approval of higher-visibility lighting, exterior-mounted back-up cameras, and other advanced safety features (e.g., electronic stability control, collision mitigation technology) on school buses.

Other Buses: From 2020-2022, 12 fatalities and 41 serious injuries occurred in traffic crashes involving a non-school bus (e.g., transit bus, charter bus). Riding transit is one of the safest modes of transportation available.

In considering students' traffic safety, Target Zero partners are not just concerned with school bus riders. In February 2015, WSDOT, WTSC, OSPI, and the Department of Health (DOH), updated the state's School Walk and Bike Routes guide. This guide is used by school districts to develop, modify, and maintain safe school walk and bike routes. WSDOT intends to update it in the future.[11]

1 https://wtsc.wa.gov/wp-content/uploads/dlm_uploads/2014/09/SchoolWalkBikeGuide_TechnicalUpdate.pdf