

**Health Impact Review of SB 5002
Concerning alcohol concentration
(2023 Legislative Session)**

December 22, 2022

Staff contact:

Lindsay Herendeen (she/her)

Phone: 360-628-6823

Email: lindsay.herendeen@sboh.wa.gov

WASHINGTON STATE 
BOARD OF HEALTH

 **HEALTH
EQUITY**
Governor's Interagency Council
on Health Disparities

Full review

The full Health Impact Review report is available at:

<https://sboh.wa.gov/sites/default/files/2022-12/HIR-2022-06-SB5002.pdf>

Acknowledgements

We would like to thank the key informants who provided consultation and technical support during this Health Impact Review.

Contents

Executive Summary	3
Introduction and Methods	4
Analysis of SB 5002 and the Scientific Evidence	6
Logic Model.....	16
Summaries of Findings	17
Annotated References	35

Executive Summary
SB 5002, Concerning alcohol concentration
(2023 Legislative Session)

Evidence indicates that SB 5002 would likely result in some drivers becoming aware of a 0.05% per se BAC, which would result in some drivers modifying alcohol-impaired driving behavior and some reduction in alcohol-impaired driving crashes and fatalities. The impacts on equity are unclear.

BILL INFORMATION

Sponsors: Lovick, Liias

Summary of Bill:

- Amends driving under the influence (DUI)-related crimes by lowering the per se blood or breath alcohol concentration (BAC) from 0.08%* to 0.05% for driving or being in actual physical control of a vehicle while under the influence of intoxicating liquor.

HEALTH IMPACT REVIEW

Summary of Findings:

This Health Impact Review found the following evidence for relevant provisions in SB 5002:

- **Informed assumption** that modifying DUI-related crimes by lowering the per se BAC from 0.08% to 0.05% will result in some drivers becoming aware of the new DUI per se BAC. This is based on information from key informants in Washington State and the Utah State Highway Safety Office.
- **Informed assumption** that modifying DUI-related crimes by lowering the per se BAC from 0.08% to 0.05% would likely not change enforcement of the DUI per se BAC. This assumption is based on information from key informants in Washington State and evidence from Utah.
- **A fair amount of evidence** that some drivers becoming aware of the lower DUI per se BAC will result in some people modifying alcohol-impaired driving behaviors.
- **A fair amount of evidence** that some people modifying alcohol-impaired driving behavior would result in some reduction of crashes and fatalities involving alcohol-impaired driving.
- **Unclear evidence** how decreasing alcohol-impaired driving crashes and fatalities may impact equity for drivers and non-drivers.
- “Other Considerations” includes potential impacts of criminal legal system involvement for drivers with lower BACs as well as impacts on administrative penalties.

* [RCW 46.04.015](#) defines alcohol concentration as: 1) grams of alcohol per two hundred ten liters of a person’s breath (g/210L); or 2) grams of alcohol per one hundred milliliters of a person’s blood (g/100mL or g/dL). Blood and breath alcohol concentration (BAC and BrAC, respectively) are commonly noted as percentages. This review uses percentages to note concentration and the acronym BAC to refer to both blood and breath alcohol concentration, unless specified.

Introduction and Methods

A Health Impact Review is an analysis of how a proposed legislative or budgetary change will likely impact health and health disparities in Washington State ([RCW 43.20.285](#)). For the purpose of this review ‘health disparities’ have been defined as differences in disease, death, and other adverse health conditions that exist between populations ([RCW 43.20.270](#)). Differences in health conditions are not intrinsic to a population; rather, inequities are related to social determinants (access to healthcare, economic stability, racism, etc.). This document provides summaries of the evidence analyzed by State Board of Health staff during the Health Impact Review of Senate Bill 5002 ([SB 5002](#)).

Staff analyzed the content of SB 5002 and created a logic model depicting possible pathways leading from the provisions of the bill to health outcomes. We consulted with experts and contacted key informants about the provisions and potential impacts of the bill. We conducted an objective review of published literature for each pathway using databases including PubMed, Google Scholar, and University of Washington Libraries. We evaluated evidence using set criteria and determined a strength-of-evidence for each step in the pathway. More information about key informants and detailed methods are available upon request.

The following pages provide a detailed analysis of the bill, including the logic model, summaries of evidence, and annotated references. The logic model is presented both in text and through a flowchart (Figures 1). The logic model includes information on the strength-of-evidence for each pathway. The strength-of-evidence has been established using set criteria and summarized as:

- **Very strong evidence:** There is a very large body of robust, published evidence and some qualitative primary research with all or almost all evidence supporting the association. There is consensus between all data sources and types, indicating that the premise is well accepted by the scientific community.
- **Strong evidence:** There is a large body of published evidence and some qualitative primary research with the majority of evidence supporting the association, though some sources may have less robust study design or execution. There is consensus between data sources and types.
- **A fair amount of evidence:** There is some published evidence and some qualitative primary research with the majority of evidence supporting the association. The body of evidence may include sources with less robust design and execution and there may be some level of disagreement between data sources and types.
- **Expert opinion:** There is limited or no published evidence; however, rigorous qualitative primary research is available supporting the association, with an attempt to include viewpoints from multiple types of informants. There is consensus among the majority of informants.
- **Informed assumption:** There is limited or no published evidence; however, some qualitative primary research is available. Rigorous qualitative primary research was not possible due to time or other constraints. There is consensus among the majority of informants.

- **No association:** There is some published evidence and some qualitative primary research with the majority of evidence supporting no association or no relationship. The body of evidence may include sources with less robust design and execution and there may be some level of disagreement between data sources and types.
- **Not well researched:** There is limited or no published evidence and limited or no qualitative primary research and the body of evidence was primarily descriptive in nature and unable to assess association or has inconsistent or mixed findings, with some supporting the association, some disagreeing, and some finding no connection. There is a lack of consensus between data sources and types.
- **Unclear:** There is a lack of consensus between data sources and types, and the directionality of the association is ambiguous due to potential unintended consequences or other variables.

This review was completed during the interim and was not subject to the 10-day turnaround required in statute. However, this review was subject to time constraints, which influenced the scope of work for this review. The annotated references are only a representation of the evidence and provide examples of current research. In some cases, only a few review articles or meta-analyses are referenced. One article may cite or provide analysis of dozens of other articles. Therefore, the number of references included in the bibliography does not necessarily reflect the strength-of-evidence. In addition, some articles provide evidence for more than one research question, so are referenced multiple times.

Analysis of SB 5002 and the Scientific Evidence

Summary of relevant background information

- Alcohol concentration can be measured by breath or blood.^{†1} Blood alcohol concentration tests provide the most accurate measurement of alcohol in a person's body, as breath alcohol concentration loses some value in the exchange from the body's breath and lungs (personal communication, Washington State Patrol [WSP], May 2022). Breath testing is a scientifically accepted and reliable test to determine blood alcohol concentration (personal communication, WSP, December 2022).
- Standardized Field Sobriety Tests (SFSTs) were developed in the 1970s and early 1980s and are validated at a blood or breath alcohol concentration (BAC) level of 0.08% and higher.² The National Highway Traffic Safety Administration (NHTSA) cited SFSTs as 91% accurate at identifying drivers with a BAC level above 0.08%.¹ SFSTs include the horizontal gaze nystagmus test, the walk and turn test, and the one-leg stand test.²
- The U.S. Centers for Disease Control and Prevention (CDC) reports predictable effects on driving at various BAC levels:
 - At a BAC of 0.02%, drivers experience decreased visual functions and decreased ability to perform two tasks at the same time.
 - At a BAC of 0.05%, drivers experience reduced coordination, decreased ability to track a moving object, difficulty steering, and reduced response to emergency driving situations.
 - At a BAC of 0.08%, drivers experience effects on concentration, short-term memory, and speed control; reduced information processing; and impaired perception.
 - At a BAC of 0.10%, drivers experience reduced ability to maintain lane position and brake accordingly.³
- The U.S. Department of Health and Human Services' Healthy People 2030 Initiative includes a transportation goal to "reduce the proportion of motor vehicle crash deaths involving an alcohol-impaired driver with a [BAC]...of 0.08[%] or higher" from 29.3% (2017 baseline data) to 28.3%.⁴
- Since 1909, it has been illegal to operate a motor vehicle in Washington State while intoxicated by alcohol.⁵ In 1979, the Washington State Legislature passed legislation ([Chapter 176, 1979 Laws](#)) creating a per se BAC of 0.10%.⁶ A "*per se* law makes it illegal *in and of itself* to operate a motor vehicle with an alcohol concentration measured at or above the established [...] level, regardless of whether or not the driver exhibits visible signs of intoxication."⁷ In 1998, ahead of federal action, the Legislature passed legislation ([Chapter 213, 1998 Laws](#)) lowering the per se BAC from 0.10% to 0.08%.⁸ The law became effective January 1, 1999.

[†] [RCW 46.04.015](#) defines alcohol concentration as: 1) grams of alcohol per two hundred ten liters of a person's breath (g/210L); or 2) grams of alcohol per one hundred milliliters of a person's blood (g/100mL or g/dL). Blood and breath alcohol concentration (BAC and BrAC, respectively) are commonly noted as percentages. This review uses percentages to note concentration and the acronym BAC to refer to both blood and breath alcohol concentration, unless specified.

- In Washington State, a driver age 21 years and older may be charged with driving ([RCW 46.61.502](#)) or being in actual physical control of a vehicle ([RCW 46.61.504](#)) while under the influence of intoxicating liquor if a BAC test shows a result of 0.08% or higher or if they are “found to be driving [or in actual physical control of] a vehicle under the influence or affected by alcohol...regardless of the concentration of alcohol in their breath or blood.”⁹
- RCWs 46.61.502, 46.61.504, and [46.61.5055](#) specify criminal sanctions for driving or being in actual physical control of a motor vehicle while under the influence of intoxicating liquor, cannabis, or any drug (i.e., DUI-related crimes).[‡]
 - Driving under the influence (DUI) (RCW 46.61.502) is a gross misdemeanor unless it meets specific criteria.¹⁰ DUI is a class B felony if the person has:
 - Three or more prior DUI offenses within 10 years (RCW 46.61.5055); or
 - Previously been convicted of:
 - Vehicular homicide ([RCW 46.61.520](#)[1][a]);
 - Vehicular assault ([RCW 46.61.522](#)[1][b]);
 - An out-of-state offense comparable to these offenses while under the influence of intoxicating liquor or any drug; or
 - A violation of RCW 46.61.502(6) or RCW 46.61.504(6).¹⁰
 - Being in actual physical control of a vehicle while under the influence of intoxicating liquor (RCW 46.61.504) is a gross misdemeanor unless it meets specific criteria.¹¹ Washington State does not have a strict definition for “being in actual physical control of the vehicle” (personal communications, Washington Association of Prosecuting Attorneys [WAPA], June 2022). There is case law related to “being in actual physical control” and the jury deliberates on the charge in a specific case (personal communications, WAPA, June 2022). It is a class C felony if the person has:
 - Three or more prior offenses within 10 years (RCW 46.61.5055); or
 - Previously been convicted of:
 - Vehicular homicide (RCW 46.61.520[1][a]);
 - Vehicular assault (RCW 46.61.522[1][b]);
 - An out-of-state offense comparable to these offenses while under the influence of intoxicating liquor or any drug; or
 - A violation of RCW 46.61.504(6) or RCW 46.61.502(6).¹¹
 - A person arrested for a DUI-related crime may experience criminal sanctions (e.g., jail or prison time) and/or administrative sanctions (e.g., license suspension or revocation by the Department of Licensing [DOL]) or neither depending on the circumstances, BAC level, and other available resolutions (e.g., deferred

[‡] RCWs 46.61.502 and 46.61.504 relate to driving or being in actual physical control of a vehicle, respectively, while under the influence of intoxicating liquor, cannabis, or any drug. Since SB 5002 modifies only the criminal sanctions related to alcohol concentration, this report will collectively refer to the changes as “Driving Under the Influence (DUI)-related crimes” and will focus the discussion on alcohol (i.e., intoxicating liquor).

sentencing).^{9,12} See Other Considerations for a discussion of administrative sanctions.

- A person is subject to enhanced statutory penalties (RCW 46.61.5055) if their BAC level is 0.15% or higher, they refuse a breath alcohol test, or someone under 16 years of age was in the vehicle when the DUI-related crime occurred.¹³
 - Under [RCW 46.20.308](#), anyone operating a motor vehicle in Washington State is “deemed to have given consent [...] to a test or tests of [their] breath for the purpose of determining [BAC] if arrested for any offense where, at the time of the arrest, the arresting officer has reasonable grounds to believe the person had been driving or was in actual physical control of a motor vehicle while under the influence of intoxicating liquor...”¹⁴
- Washington State has a complex history of DUI case law related to BAC testing; notably:
 - In 1960, the Washington Supreme Court approved in *State v. Baker* the use of alcohol breath test machines (i.e., breathalyzers) to determine breath alcohol concentration.⁵
 - In 2004, the Legislature amended [RCW 46.61.506](#) in response to case law to codify 8 foundational requirements for the admissibility of valid breath test machine results.^{5,15}
 - In 2010, the state toxicologist developed [WAC 448-16-060](#) specifying methods for calculating and rounding results to determine agreement between duplicate breath samples (as required by RCW 46.61.506).^{5,15} The state toxicologist also approved use of the Dräger Alcotest 9510 breath test machine for use in Washington State.⁵ The Dräger Alcotest 9510 is currently the only evidential BAC test used in Washington State (personal communication, WSP, December 2022).
 - On June 13, 2022, the Kitsap County District Court ruled that BAC results are inadmissible as evidence in suspected DUI cases.⁵ Kitsap County District Court ruled that the Dräger Alcotest 9510 breath test machine truncates instead of rounds BAC results, violating WAC 448-16-060 and RCW 46.61.506.⁵ The Court found that the Dräger breath test machine, “fails to produce accurate, precise, and reliable breath test results as required by state toxicologist scientifically approved methods and regulations, and state statute.”⁵ The Court concluded that as of June 13, 2022, “Dräger generated breath test printouts are...not admissible in any Kitsap County District Court cases...”⁵ In August 2022, the Washington Supreme Court began a review of the Kitsap County District Court order as the “decision has the potential to affect a great number of Washington prosecutions for [DUI-related crimes]...”¹⁶
 - On July 5, 2022, Washington State Patrol (WSP) filed a CR-101 providing notice of possible rulemaking to “correct an administrative oversight in WAC 448-16-060(2) regarding the method for determining agreement between duplicate breath samples obtained during an evidential breath test.”¹⁷ The notice stated that this

change would align rule language with the truncation output method of the Dräger breath test machine.^{17,18}

- On October 6, 2022, the King County District Court also ruled that the Dräger breath test machine does not comply with Washington State Law and that “[n]o defendant would be assured that the test results from this machine... would in fact reflect a reliable and accurate measure of [their] breath content.”¹⁹ The ruling also stated that WSP proposed WAC changes “reflect what the Dräger is currently doing and has been doing for the last decade. This [is] in direct violation of both the current law and [the state toxicologist’s] previously filed sworn declarations.”¹⁹
- On October 6, 2022, WSP filed a CR-103 with final rule language that struck the requirement that BAC results be rounded and instead changed WAC 448-16-060 to require that, “[f]or the Dräger instrument, the mean of all four results will be calculated and truncated to four decimal places.”²⁰
- Each Tribe in Washington State has their own DUI-related laws, including per se BAC levels that apply to Tribal people driving within the Tribe’s jurisdiction (personal communication, Tribal Police Chief, December 2022).
- In Federal Fiscal Year 2001, as part of provisions in the Department of Transportation and Related Agencies Appropriations Act, U.S. Congress passed provisions adopting a federal per se BAC of 0.08% and requiring all states to implement 0.08% BAC laws by October 2003 or risk losing federal highway construction funding.²¹
 - By 2004, all 50 states had enacted a DUI per se BAC law of 0.08%.¹⁸
 - The federal DUI per se BAC law of 0.08% applies to drivers on federal lands (e.g., military bases, national parks and forests).²²
 - All states have had a DUI per se BAC law of 0.02% or lower for drivers ages 20 years or younger since 1998.^{21,23}
- In 2013, the National Transportation Safety Board issued *Reaching Zero: Actions to Eliminate Alcohol-Impaired Driving* and recommended that all 50 states, the Commonwealth of Puerto Rico, and the District of Columbia lower per se BAC laws to 0.05%.¹⁸
- The World Health Organization (WHO) published BAC levels for 178 countries based on 2016 policy.²⁴ Published alcohol policies included banning alcohol or having a zero-tolerance policy (13% of countries); a BAC level between 0.01% and 0.04% (18%); a BAC level of 0.05% (30%); and BAC level of 0.08% (25%, including the U.S.).²⁴ Eleven percent of countries did not have a BAC standard.²⁴ WHO, along with the American Medical Association and others, recommends a per se BAC level of 0.05% or lower.¹⁸
- In 2017, Utah became the first state to adopt a per se BAC below 0.08%.²⁵ [HB 155](#), Driving Under the Influence and Public Safety Revisions, modified Utah Code §41-6a-502 and lowered the per se BAC to 0.05%.^{25,26} The new law took effect on December 30, 2018.²⁵ As of December 2022, no other state has adopted a per se BAC lower than 0.08% for the general population of drivers age 21 years or older.

Summary of SB 5002

- Amends driving under the influence (DUI)-related crimes by lowering the per se BAC from 0.08% to 0.05% for driving or being in actual physical control of a vehicle while under the influence of intoxicating liquor.

Health impact of SB 5002

Evidence indicates that SB 5002 would likely result in some drivers becoming aware of a 0.05% per se BAC, which would result in some drivers modifying alcohol-impaired driving behavior and some reduction in alcohol-impaired driving crashes and fatalities. The impacts on equity are unclear.

Pathway to health impacts

The potential pathway leading from the provisions of SB 5002 to health inequities are depicted in Figure 1. We made the informed assumption that modifying DUI-related crimes by lowering the per se BAC from 0.08% to 0.05% will result in some drivers becoming aware of the new DUI per se BAC. This informed assumption is based on information from key informants in Washington State and the Utah State Highway Safety Office.²⁵ We made the informed assumption that modifying DUI-related crimes by lowering the per se BAC from 0.08% to 0.05% would likely not change enforcement of the DUI per se BAC. This assumption is based on information from key informants in Washington State and evidence from Utah.²⁵ There is a fair amount of evidence that some drivers becoming aware of the lower DUI per se BAC will result in some people modifying alcohol-impaired driving behaviors.^{25,27,28} There is a fair amount of evidence that some people modifying alcohol-impaired driving behavior would result in some reduction of crashes and fatalities involving alcohol-impaired driving.^{21,25,28-30} There is unclear evidence how decreasing alcohol-impaired driving crashes and fatalities may impact equity for drivers and non-drivers.

Scope

Due to time limitations, we only researched the most direct connections between provisions of the bill and health equity and did not explore the evidence for all possible pathways. For example, we did not evaluate potential impacts related to:

- Health impacts of alcohol consumption. This review focuses on health outcomes resulting from alcohol-impaired driving crashes and does not evaluate more direct or proximal health impacts of alcohol consumption.
- Prevention or treatment of substance use disorders, including alcohol use disorder. SB 5002 does not include provisions related to the prevention or treatment of alcohol use disorder.
- Access to alcohol. SB 5002 does not include provisions that would change the environment for accessing, purchasing, or consuming alcohol in Washington State.
- Impacts on families and communities. The National Academies stated that, “[t]he costs and consequences of alcohol-impaired driving extend beyond the driver to include health, economic, social, and emotional costs borne by other road users, their families and friends, social and medical institutions, and society at large.”²² Researchers and key informants have noted that impacts may be broad and affect drivers’ and non-drivers’ physical and psychological well-being, economic and social well-being, work and

employment, childcare and elder care, and legal involvement (personal communication, May 2022).²² Penalties, legal financial obligations (LFOs), and collateral consequences of criminal legal system involvement for impaired drivers may also impact their families and communities. Research indicated that collateral consequences of conviction may require people with LFOs to depend on family and friends for financial support^{31,32} and may negatively affect family and dependent children. Criminal legal system involvement may also affect family structure and perpetuate cycles of generational trauma, especially for communities of color (personal communication, May 2022).

- Industry, including the alcohol, food and beverage, and tourism industries. When the BAC standard was lowered from 0.10% to 0.08%, some people expressed concern that the change would have a “negative economic impact on the alcohol industry, especially loss of jobs because of decline in on-premises drinking.”²⁸ Data from Utah indicated that the implementation of the 0.05% per se BAC law had no impact on alcohol sales, sales tax revenues, or tourism in the 21 months after the bill passed and the 12 months after it went into effect.²⁵ However, the drinking culture and alcohol environment in Utah may not be generalizable to Washington State.
- Impacts on out-of-state drivers. When an out-of-state driver is arrested and convicted for impaired driving, conviction notices are sent to the state where the driver holds a license (personal communications, DOL, May 2022). If a person with an out-of-state license receives a criminal conviction based on a BAC below 0.08%, it is unknown if the state in which they are licensed would enter the conviction into its data system (personal communication, DOL, May 2022). With the implementation of the 0.05% per se BAC law in Utah, oppositional media campaigns ran in other states (e.g., Nevada, Idaho) deterring people from visiting Utah through messaging like “Utah: Come for vacation, leave on probation.”²⁵ Data from Utah indicated that domestic air travel and the number of visitors to state and national parks continued upward trends following the implementation of the 0.05% per se BAC law, suggesting the new law had no impact on overall tourism.²⁵
- Polysubstance[§] use. Polysubstance use involves using two or more substances, or one or more substances mixed with alcohol,³³ either simultaneously or such that effects overlap and/or interact. Such interactions can create greater impairment than from one substance or alcohol on its own.³⁴ The Washington Traffic Safety Commission (WTSC) reports that polysubstance use is becoming more prevalent in fatal crashes.³³ According to the WTSC 2020 Traffic Safety Annual Report, in the previous 5 years, “[polysubstance] impaired drivers involved in fatal crashes have increased by 15[%] per year and [...] account for a quarter of all traffic deaths.”³³ From 2008 through 2017, 45.1% of fatal crashes involving an impaired driver involved polysubstance impairment.³⁴ In 2021, 70% of fatal crashes involving an impaired driver involved polysubstance impairment.³⁵ In Washington State, the most common polysubstance combination involved in fatal crashes is alcohol and

[§] Some sources use the term “poly-drug use” to refer to the consumption of more than one substance (e.g., cannabis, illicit substances, over-the-counter drugs, and/or prescription medications) either simultaneously or within a specified period such that effects overlap and/or interact. This review uses the term polysubstance use to align with health literature.

cannabis.³³ As the provisions of SB 5002 do not amend the per se Tetrahydrocannabinol (THC) concentration level, the interaction between alcohol and cannabis and the effect of impairment on traffic crashes were not examined in this analysis.

Magnitude of impact

Provisions of SB 5002 most directly impact people aged 21 years and older driving or in physical control of a vehicle while intoxicated by alcohol. However, the bill has the potential to impact everyone in Washington State, including all road users: drivers, passengers, bicyclists, pedestrians, etc.

Drinking behavior

In 2019, ^{**} approximately 56% of Washington adults age 18 years and older reported having at least one drink of alcohol within the past 30 days.³⁶ This is higher than the 53.8% of U.S. adults who reported having at least one drink of alcohol within the past 30 days.³⁶

It is difficult to estimate the number of people who drive while intoxicated by alcohol. A 2014 nationally-representative survey found that about one-third of drivers age 21 years or older stated they had driven within two hours of consuming any amount of alcohol.²⁷ People age 65 years and older were significantly more likely than other age groups to report driving within two hours of consuming any alcohol (54% versus 32% for people age 21 through 34 years and 36% for people age 35 through 64 years).²⁷ Drivers that had driven within two hours of consuming any alcohol reported doing so about 3 times in the past month, with men reporting significantly more times than women.²⁷ Of people who reported driving within two hours of drinking alcohol at least once, “the frequency of driving when [they] thought they were legally impaired was an average of 3 times in the past year...”²⁷

Alcohol-impaired driving crashes and fatalities

Based on 2019 data from the Fatality Analysis Reporting System (FARS) managed by the NHTSA,^{††} there were 33,487 fatal motor vehicle crashes in the U.S. (1.03 fatal crashes per 100 million vehicle miles travelled).³⁷ Of these, NHTSA estimated 9,269 (28%) of fatal crashes involved alcohol-impaired driving, meaning at least one driver in the crash had a BAC of 0.08% or higher.^{‡‡37}

Out of total drivers involved in fatal crashes in 2019, drivers aged 21 through 24 years had the highest percentage (27%) of fatal alcohol-impaired driving crashes compared to other age groups.³⁸ Similarly, males and drivers operating a motorcycle had higher percentages (21% and 29%) compared to females and drivers of all other types of vehicles, respectively.³⁸ While data is typically reported for BAC levels of 0.08% or higher (i.e., the federal per se level), 68% of fatal

^{**} Data is reported for 2019, which is the last full year of data available before the COVID-19 pandemic. During the pandemic, some data collection resources were diverted, and datasets may not be complete or available. Additionally, researchers have noted anomalies in 2020 and 2021 data due to the pandemic. Therefore, for data consistency and clarity, we are reporting data related to alcohol-impaired driving for 2019.

^{††} For data to be included in FARS, a crash must occur on a public roadway and result in the death of a vehicle occupant or non-occupant. Non-fatal injury data is not uniformly collected. This report relies on FARS data and focuses on fatal injury resulting from alcohol-impaired driving crashes.

^{‡‡} NHTSA uses BAC test results, when available. When test results are unknown, NHTSA uses a protocol for estimating alcohol involvement in a motor vehicle crash.

alcohol-impaired driving crashes occurred when at least one driver had a BAC of 0.15% or higher.³⁸ Research using FARS data also showed that 15% of fatal alcohol-impaired driving crashes involved a driver with a BAC level less than 0.08%.³⁰

Sixty-three percent (63%) of fatalities in alcohol-impaired driving crashes were drivers with a BAC of 0.08% or higher, 13% were passengers riding with a driver with a BAC of 0.08% or higher, 14% were occupants of other vehicles, and 10% were pedestrians, bicyclists, or other non-occupants.³⁸

In 2019, 175 of 513 fatal crashes (34%) in Washington State involved alcohol-impaired driving,³⁷ including 37% of single-vehicle crashes and 30% of multiple vehicles crashes.³⁷ The majority (57%) of fatal alcohol-impaired driving crashes occurred from midnight to 2:59 am.³⁷ WTSC data showed that, from 2017 through 2021, about 14% (49 out of 339) of alcohol-impaired driving fatalities included a driver with a BAC below 0.08%.³⁵ WTSC has noted that data may underestimate the number of drivers intoxicated by alcohol as “49% of drivers involved in fatal crashes [in Washington State] were not tested for drugs or alcohol [from 2017 through 2021].”³⁹

Traffic fatalities have increased significantly during the COVID-19 pandemic. In 2020, traffic fatalities nationally increased 7.2% from 2019, even while vehicle miles travelled decreased by 13.2%.⁴⁰ In 2021, traffic fatalities increased 10.5% from 2020, marking a 16-year high and the “largest annual percentage increase in [FARS reporting] history.”⁴¹ NHTSA reported that, “research suggests that throughout the [COVID-19] national public health emergency and associated lockdowns, driving patterns and behaviors changed significantly, and that drivers who remained on the roads engaged in more risky behavior, including speeding, failing to wear seat belts, and driving under the influence of drugs or alcohol.”⁴⁰ In Washington State, traffic fatalities increased by 4% in 2020 compared to 2019.³⁷

DUI-related crimes

Based on data submitted by Washington State law enforcement agencies, there were 22,070 DUI-related arrests in 2020, which accounted for 15% of all arrests statewide.⁴² The majority of people arrested for DUI-related crimes were male and age 25 years through 29 years.⁴²

Washington State court data related to DUI-related crimes are incomplete and have limitations. While the Administrative Office of the Courts (AOC) collects data for most court systems in the state, Washington State has a non-unified court system, meaning that “courts do not operate under a standard set of rules or procedures. Instead, local jurisdictions (e.g., counties and municipalities) are responsible for operating their courts.”⁴³ As a result, information and data are not consistently collected or reported by each court system (personal communication, AOC, July 2020).

AOC collects data related to charges and convictions in Superior Courts and courts of limited jurisdiction (i.e., district and municipal courts) for RCW 46.61.502, RCW 46.61.504, and Seattle Municipal Code (SMC) 115602000. These laws relate to driving or being in actual physical control of a vehicle while under the influence of intoxicating liquor, cannabis, or any drug. Court data include the statute or ordinance of the charge as indicated by law enforcement or

prosecutors on the initial charging document (personal communication, AOC, December 2022). Generally, for DUI-related cases, charges and convictions were recorded under the law's main statute and do not specify a subsection (e.g., for RCW 46.61.502, subsection [1][a] relates to alcohol and subsection [1][b] relates to cannabis). Therefore, while available court data provide a total count of charges and convictions for DUI-related crimes, it is not possible to determine the number of charges or convictions separately or specifically for driving or controlling a vehicle under the influence of alcohol versus cannabis, any drug, or in combination.

Based on unpublished data from AOC (personal communication, AOC, September 2022), from 2017 through 2021, 200 people received an initial charge related to RCW 46.61.502 or RCW 46.61.504 in Superior Court and 8,843 people received an initial charge related to RCW 46.61.502, RCW 46.61.504, or SMC 115602000 in a court of limited jurisdiction. For all courts, 9,043 people from 2017 through 2021 (an average of 1,809 people per year) received an initial DUI charge (unpublished data, AOC, September 2022). Over the same period, for all courts, 2,610 (29%) of people who received a DUI charge were convicted of a DUI-related crime (an average of 522 people per year) (unpublished data, AOC, September 2022).

DUI-related felony charges are filed in Superior Court (personal communication, WAPA, October 2022). Key informants noted that the majority of DUI-related charges and convictions are not felonies (personal communication, WAPA, October 2022). From 2017 through 2021, 45 people received an initial DUI-related felony charge (0.5% of all people with an initial DUI charge filed in any court), accounting for a total of 78 charges (unpublished data, AOC, September 2022). For people where the charge history result is known (about 73%), 25 people (about 1% of all people with a final DUI conviction in any court) received a final DUI-related felony conviction (i.e., "guilty" result) (unpublished data, AOC, September 2022).

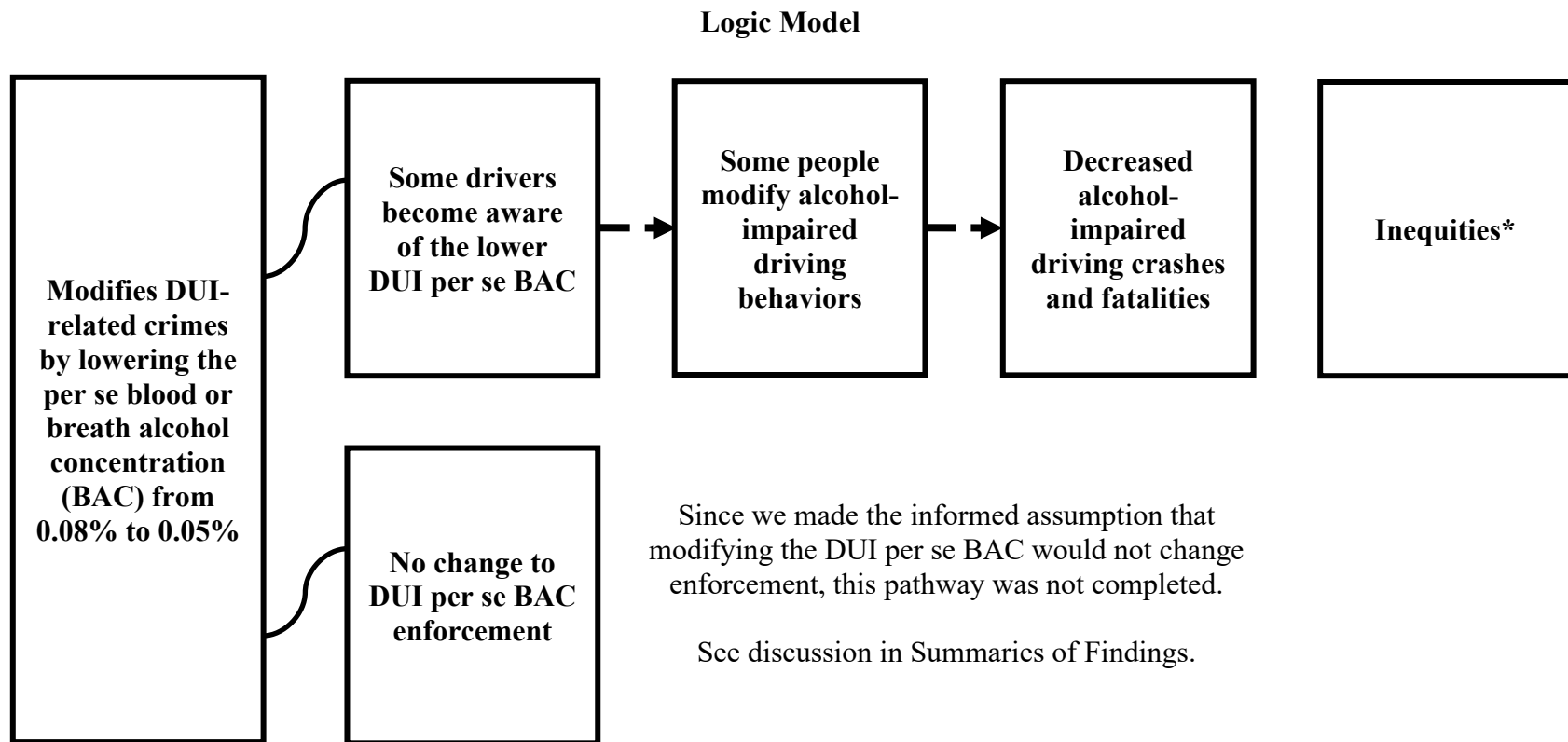
BAC data is only available for DUI charges filed in a court of limited jurisdiction and are not available for charges filed in a Superior Court (personal communication, AOC, September 2022). From 2017 through 2021, district and municipal court data indicated that a blood or breath test was used to obtain BAC for 444 people (5% of people who received a DUI charge and 19% of people who received a DUI conviction over the same period) (unpublished data, AOC, September 2022). BAC test results for people who were tested ranged from 0.01% to 0.79% (unpublished data, AOC, September 2022). About 1% of people had a BAC level from 0.01% to 0.079% (i.e., below the DUI per se BAC of 0.08%) and 99% had a BAC level of 0.08% or higher, including about 3% of people with a BAC level of 0.08%; 50% of people with a BAC of 0.09% to 0.149%; and 46% of people with a BAC level of 0.15% or higher (unpublished data, AOC, September 2022).

Available information reported by law enforcement or court documents indicated that approximately 75% of people who received a DUI charge or conviction in a court of limited jurisdiction were male and 25% were female (unpublished data, AOC, September 2022). People who received a DUI charge ranged in age from age 16 years to 88 years, with most people about 30 years old (unpublished data, AOC, September 2022). About 62% of people who received a DUI charge were white, 15% were Black, 5% were Asian, 2% were American Indian and Alaska Native, and less than 1% were Native Hawaiian and Pacific Islander (unpublished data, AOC,

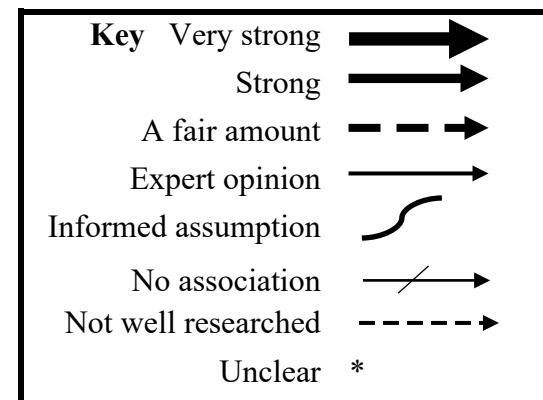
September 2022).^{§§} About 9% of people who received a DUI charge were Hispanic (unpublished data, AOC, September 2022). For convictions, 67% of people were white, 11% were Black, 5% were Asian, 3% were American Indian and Alaska Native, and less than 1% were Native Hawaiian and Pacific Islander (unpublished data, AOC, September 2022). About 11% of people with DUI convictions were Hispanic (unpublished data, AOC, September 2022). Since sex and race/ethnicity information may not be based on self-report, these data may not accurately reflect a person's identity.

Overall, while provisions of SB 5002 will most directly impact people aged 21 years and older driving or in actual physical control of a vehicle while intoxicated by alcohol, the bill has the potential to impact all road users in Washington State.

^{§§} Court documents do not report information for "Two or More Races." Additionally, race/ethnicity is unknown for about 6% of people who received a DUI-related charge and about 4% of people who received a DUI-related conviction.



**Figure 1:
Concerning alcohol concentration
SB 5002**



Summaries of Findings

Will modifying driving under the influence (DUI)-related crimes by lowering the per se blood or breath alcohol concentration (BAC) from 0.08% to 0.05% result in some drivers becoming aware of the new DUI per se BAC?

We have made the informed assumption that modifying DUI-related crimes by lowering the per se BAC from 0.08% to 0.05% will result in some drivers becoming aware of the new DUI per se BAC. This informed assumption is based on information from key informants in Washington State and the Utah State Highway Safety Office.

Key informants stated that the current public health approach to alcohol-impaired driving is abstinence; that is, people should not drink and drive at any level (personal communications, May-June 2022). Public health campaigns often reinforce the message “don’t drink and drive”, rather than message about the per se BAC level, which could suggest to the public that there is a safe level to drink and drive (personal communications, May-June 2022). The U.S. Centers for Disease Control and Prevention (CDC) states impacts on driving performance occur at 0.02% BAC.³

A 2013 qualitative study with national organizations that have an interest in reducing alcohol-impaired driving crashes, injuries, and fatalities found that organizations were concerned that lowering the BAC to 0.05% could undermine efforts to eliminate alcohol-impaired driving.²⁸ For example, when a 0.05% BAC was initially proposed, Mothers Against Drunk Driving (MADD) “who officially supported [lowering the BAC to] 0.08%...[had] not taken a position on further lowering the BAC [level]...” instead focusing on their Campaign to Eliminate Drunk Driving.²⁸ MADD has since come out in support of lowering the BAC from 0.08% to 0.05% (personal communication, MADD, May 2022). However, generally, researchers have noted that political and environmental changes since the effort to lower the BAC from 0.10% to 0.08% may make it difficult to further lower the per se BAC, including “changing demographics and an aging of the population, changes in safety culture, new technologies aimed at reducing impaired driving, and changes in level of commitment and support from various stakeholders.”²⁹

Since SB 5002 has the potential to impact all drivers in Washington State, key informants stated that all drivers would need to be made aware of the DUI per se BAC change if the bill were to pass (personal communications, June 2022). SB 5002 does not include provisions related to driver awareness, education, or health promotion campaigns that may make drivers aware of the change. Based on information from key informants, Washington State Health Care Authority (HCA), Washington Traffic Safety Commission (WTSC), and Washington State Liquor and Cannabis Board (LCB) would attempt to alert drivers to the change (personal communications, June-December 2022).

HCA is the designated single state authority on substance use and the lead agency for health promotion and education related to alcohol and substance use prevention in Washington State (personal communication, HCA, June 2022). Currently, HCA receives limited federal funding to maintain specific health promotion campaigns focused on prevention of substance use and underage drinking (personal communication, HCA June 2022). Funding for health promotion campaigns is limited and often tied to specific behavior change goals (e.g., campaigns must be

focused on prevention of early use of alcohol), which means HCA may have limited resources to direct to an education or awareness campaign about changes to the DUI per se BAC (personal communication, HCA, June 2022). However, HCA staff stated that the agency would attempt to educate drivers about the change within existing resource limitations (personal communication, HCA, June 2022).

WTSC conducts statewide and regional media educational campaigns as part of the Target Zero Strategies for Reducing Impairment Fatalities and Serious Injuries.³⁴ Target Zero has an objective to reduce and eliminate impaired driving, in part, by raising awareness through these campaigns.³⁴ For example, WTSC has focused educational efforts on encouraging drivers to arrange alternative transportation rather than driving while intoxicated (personal communication, WTSC, December 2022). WTSC has also conducted outreach to drivers following previous changes to driving laws (mandatory seatbelt and child seat laws, anti-distracted driving laws, etc.), and staff indicated they would work to educate drivers about any change in the per se BAC level (personal communication, WTSC, December 2022).

Staff from LCB also stated they would educate businesses licensed to serve alcohol about the DUI per se BAC change (personal communication, LCB, May 2022). Staff stated that, while SB 5002 does not directly impact businesses licensed to serve alcohol and does not change the definition of overservice, servers would need training about signs of intoxication at a BAC of 0.05% compared to 0.08% (personal communication, LCB, May 2022). LCB staff stated that this education for servers could also help educate the public about a change in per se BAC (personal communication, LCB, May 2022).

Additionally, drivers may become aware of the change through media coverage. During the 2022 Legislative Session, various media outlets published stories related to SB 5982, Concerning alcohol concentration, which had similar provisions to SB 5002 to lower the DUI per se BAC. If SB 5002 were to pass, any media coverage of the new law may also alert drivers of the change.

Lastly, Utah did not undertake any major media or health promotion campaign following the passage and implementation of Utah's 0.05% per se BAC law.²⁵ After the law took effect, the Utah State Highway Safety Office conducted a telephone survey. The survey found that the percentage of people who consumed alcohol and who correctly reported the per se BAC level increased from 31.3% in 2018 to 54.2% in 2019 (when the 0.05% per se BAC law went into effect),²⁵ suggesting an increased awareness of the per se BAC even in the absence of a specific awareness campaign.

While SB 5002 does not include provisions related to driver awareness, education, or health promotion campaigns, since HCA, WTSC, LCB, other partners, and the media may work to alert drivers, and evidence from Utah suggests drivers may become aware of a new law, we made the informed assumption that modifying DUI-related crimes by lowering the per se BAC from 0.08% to 0.05% may result in some drivers becoming aware of the lower DUI per se BAC.

Will modifying DUI-related crimes by lowering the per se BAC from 0.08% to 0.05% change enforcement of the DUI per se BAC?

We have made the informed assumption that modifying DUI-related crimes by lowering the per se BAC from 0.08% to 0.05% would likely not change enforcement of the DUI per se BAC. This assumption is based on information from the Washington Association of Sheriffs and Police Chiefs (WASPC), Washington State Patrol (WSP), and evidence from Utah.

A 2013 qualitative study with national organizations noted that law enforcement officers are faced with numerous challenges to enforcing the current 0.08% BAC, including: the need to establish probable cause, laws prohibiting sobriety checkpoints, increases in driving under the influence of alcohol and other substances combined (i.e., polysubstance use), ability of law enforcement officers to detect driving behaviors at 0.08% versus higher BAC levels, lack of law enforcement training around the impact of driving at 0.08%, lack of law enforcement resources, problems with breathalyzer calibration, use of outdated technology, difficulty obtaining timely blood samples, etc.²⁸ When asked if further lowering the BAC to 0.05% would introduce new enforcement challenges, national organizations stated that current challenges would likely be magnified as “the detection of impairment would become increasingly challenging if the standard was lowered to 0.05%” and there would be a “need to revalidate standardized field sobriety tests [SFSTs]...for the lower BAC level.”²⁸ While the National Highway Traffic Safety Administration (NHTSA) has cited SFSTs as 91% accurate at identifying drivers with a BAC level above 0.08%,¹ it is unknown whether SFSTs would be suitable to detect a BAC level between 0.05% and 0.079%.² A mixed-methods study among law enforcement officers, prosecutors, and defense attorneys across the U.S. evaluated whether SFSTs would be able to detect a BAC below 0.08%, and “34% of law enforcement officers, 45% of prosecutors, and 100% of defense attorneys said that training for the [walk and turn] test should be changed; and 38% of law enforcement officers, 35% of prosecutors, and 100% of defense attorneys said that training for the [one leg stand] test should be changed.”²

Key informants in Washington State also emphasized a number of these existing enforcement challenges and shared that lowering the BAC to 0.05% would likely exacerbate or increase challenges. For example, key informants stated that, at least in the short-term, SFSTs would continue to be validated at 0.08% and law enforcement resources (e.g., number of officers enforcing; amount of time it takes to arrest, process, and complete a report) would remain unchanged (personal communications, June-December 2022). Researchers and key informants noted that increased education and training for law enforcement officers could help overcome some challenges.²⁸ While law enforcement officers would learn about the new law and would adhere to the new per se BAC during investigation of suspected DUI-related cases (personal communications, June 2022), SB 5002 does not include provisions specifically related to officer training, education, or resources.

National organizations also explained that, when the BAC was lowered from 0.10% to 0.08%, people were concerned that the change would result in “increased burden on law enforcement and overloading of the court and jail systems because of the increase in arrests that would result from lowering the BAC [level].”²⁸ Some key informants in Washington State also expressed concern that lowering the BAC to 0.05% could lead to more pullovers and arrests (personal communications, June 2022). However, key informants representing law enforcement

organizations stated that SB 5002 would only change the DUI per se BAC, does not address existing enforcement challenges or practices, and would not impact what officers are looking for as signs of impairment, or lawful basis for a DUI stop or detention (personal communication, WASPC, June 2022). Rather, law enforcement officers would continue to look for common impaired driving behaviors, like people weaving in and out of traffic, failure to maintain lane position, stopping at a green light, driving too slowly, etc., and signs of intoxication, like smell of alcohol, bloodshot eyes, lack of coordination, slurred speech, etc. (personal communication, WASPC, June 2022). Overall, key informants representing law enforcement stated that officers would likely continue to pull people over based on driving behavior and indicators of intoxication regardless of whether the DUI per se BAC was set at 0.08% or 0.05% (personal communications, June 2022).

Similarly, the Utah Department of Public Safety stated that “the new [0.05% BAC per se] law would not involve significant changes to the State’s DUI enforcement approach.”²⁵ Messaging stated that “DUI enforcement and prosecution would continue as usual with no changes in arrest or prosecution procedures because of the lower BAC [level]. What little media was circulated by the [State of Utah] focused on the idea that officers would continue to make arrests based on observed impairment and that BAC level was only one element in determining driver impairment.”²⁵ Based on data from the Utah Department of Public Safety Driver License Division, DUI arrests in 2019 (the first year the 0.05% BAC was in effect) were similar to the previous five years.²⁵ Evidence from the 21 months after the law was passed and for the first 12 months after it was in effect showed “no large spikes in overall arrests or arrests per population relative to the passage of the law. In 2019, there was a slight increase in number and proportion of arrests of drivers with BACs between [0.05% and 0.079%] relative to the prior few years, which was expected given that law enforcement could now cite drivers for a per se offense in this BAC range.”²⁵

Since enforcement challenges exist at 0.08% BAC and SB 5002 does not include provisions that may address these challenges, increase law enforcement resources, or provide new education or training for officers, and since evidence from Utah showed no significant increase in arrests, we have made the informed assumption that enforcement practices will likely not change as a result of SB 5002. Therefore, this pathway was not completed in the Logic Model. See Other Considerations for discussion of how provisions of SB 5002 may impact criminal legal system involvement.

Will some drivers becoming aware of the lower DUI per se BAC result in some people modifying alcohol-impaired driving behaviors?

There is a fair amount of evidence that some drivers becoming aware of the lower DUI per se BAC will result in some people modifying alcohol-impaired driving behaviors. Researchers have noted that lowering the BAC has the potential to result in people abstaining from alcohol-impaired driving (i.e., BAC=0.0%), complying fully with the lower BAC level (i.e., BAC<0.05%), shifting to driving with lower BAC levels (e.g., from driving in the 0.08% to 0.099% range to driving in the 0.05% to 0.079% range), or making no change to alcohol-impaired driving.²⁹ However, it is difficult to predict how people may modify alcohol-impaired driving as, “[d]rivers’ responses to a BAC policy are complicated and based on a number of factors including: how the policy is publicized, enforced, and adjudicated; the traffic safety and

[alcohol-impaired driving] culture of the community in which the policy is implemented; and the public's perception of the policy."²⁹

Health behavior research has shown that information alone is not sufficient to change behavior.^{44,45} Rather, behavior change is related to a person's underlying knowledge, attitudes, and beliefs.^{44,45} Additionally, social and environmental context may influence behavior. Key informants stated that lowering the DUI per se BAC is a preventive policy as it reinforces not drinking and driving (personal communications, June 2022). The Community Preventive Services Task Force hypothesized that lowering the BAC may reduce alcohol-impaired driving by fostering social norms that reduce "the acceptable amount of alcohol to consume before driving" and by increasing the perceived risk of detection and punishment.²¹ Overall, a person's knowledge, attitudes, beliefs, and perceptions about alcohol consumption, BAC, per se BAC laws, and perceived likelihood of enforcement may influence their decision to drive while intoxicated by alcohol.

Key informants stated that BAC laws necessitate people learn about BAC, understand alcohol consumption levels that correspond with BAC levels, and interpret what this may mean for their individual consumption choices (personal communications, June 2022). A 2014 survey of 1,011 nationally representative drivers age 21 years or older found that only 40% of drivers could correctly name the current BAC in their state and 60% incorrectly stated the current BAC, including about 39% that did not know the current BAC.²⁷ Drivers generally underestimated the number of drinks they could consume before reaching a 0.08% BAC level, believing they could consume about 3 drinks in 2 hours and still be safe to drive.²⁷ However, a person's BAC level is impacted by a "myriad of factors...including alcohol consumption history and whether or not a person had eaten, the [person's] weight difference as compared to the average person, and the alcohol level of the drinks..."²⁷ Key informants stated that the consumption level equivalent for 0.05% BAC is different for each person depending on these person-specific characteristics (personal communications, June 2022). Researchers have noted the "inability of people to understand BAC (or accurately equate impairment with BAC level)..."²⁸ Similarly, the National Academies cited evidence suggesting that people "may not understand the relationship between the quantity of alcohol consumed and the resulting [BAC]."²² Therefore, lowering the BAC would require people to make choices based on their own understanding of BAC and alcohol consumption level (personal communications, June 2022), which may or may not accurately reflect actual BAC level.

Researchers at University of Michigan Transportation Research Institute conducted two studies to examine the attitudes of national organizations and the public related to lowering the BAC standard to 0.05%. Together, the two studies suggest "only modest support" for lowering the BAC to 0.05%.²⁸ In 2013, researchers conducted a qualitative study with national organizations that have an interest in reducing alcohol-impaired driving crashes, injuries, and fatalities.²⁸ Researchers found that organizations thought, "it would be harder to convince people about the scientific evidence supporting a [0.05% BAC] standard...given people's misconceptions about impairment in general, the greater likelihood of individual variation at [the 0.05%] level, and the lack of restrictions on other driving behaviors that result in impairment (e.g., various driving distractions...)." National organizations also cited concerns that further lowering the BAC may be perceived as "criminalizing social drinkers."²⁸ Overall, national organizations expressed that

“as you get lower on the BAC ladder, the incremental benefits get smaller and it is harder to make the case for change.”²⁸

These attitudes were further reflected in the 2014 survey of 1,011 nationally representative drivers age 21 years or older that examined drivers’ knowledge, attitudes, and beliefs about lowering the per se BAC from 0.08% to 0.05%.²⁷ Approximately 60% of drivers felt that the per se BAC should remain at 0.08% and 30% of drivers thought it should be lowered.²⁷ Drivers felt that a BAC of 0.05% would be moderately acceptable to them personally but rated the change as less acceptable to the general public.²⁷ Notably, 63.9% of drivers indicated that lowering the BAC to 0.05% would “have no effect on their decisions to drink and drive.”²⁷ People that reported drinking in the past year were significantly more likely to state that lowering the BAC would not impact their decision to drink and drive (66.2% versus 55.9% of people that did not drink in the past year).²⁷ Similarly, 79.2% of drivers felt that “a lower BAC [level] would not reduce general alcohol consumption.”²⁷ Drivers also generally felt that the change would not effectively reduce drinking and driving or reduce crashes and injuries.²⁷ Overall, researchers concluded that drivers “did not think lowering the BAC [level] to [0.05%] would have much of an effect on general alcohol consumption, decisions to drive after consuming alcohol, or [alcohol-impaired driving]-related crashes, injuries, or deaths.”²⁷

The Utah State Highway Safety Office’s telephone survey found that of people who consumed alcohol, 32.3% had a very negative view of the state’s 0.05% BAC per se law in 2019, compared to 4.6% of people who did not consume alcohol.²⁵ Approximately 22% of people who consumed alcohol indicated that they had changed their behavior as result of the lower BAC standard.²⁵ Of people that changed their behavior, the most common changes reported were: using alternate forms of transportation (25.5%), only drinking at home (23.6%), decreasing the amount of alcohol consumed (20.0%), being more aware/careful (14.5%), and not drinking and driving (12.7%).²⁵ While this evidence from Utah suggests drivers may abstain from alcohol-impaired driving or may shift to driving at lower BAC levels as a result of lowering the BAC standard to 0.05%, results may not be generalizable to Washington State. Data from the Behavioral Risk Factor Surveillance System (BRFSS) showed that, in 2016 (prior to the passage of Utah’s 0.05% BAC per se law), 31.7% of Utah adults reported having at least one drink of alcohol within the past 30 days compared to 54% of U.S. adults and 58.7% of Washington State adults.³⁶ Therefore, since the drinking culture and alcohol environment in Utah may not be generalizable to Washington State, Washington drivers may not change their behavior to the same degree as Utah drivers as a result of lowering the DUI per se BAC.

Lastly, criminal legal research has suggested that deterrence theory is based on whether the certainty, severity, or swiftness of legal punishments will lower crime rates.^{1,22,46} For example, deterrence theory suggests that perception of punishment matters if increased punishment is “recognized by the public.”⁴⁶ BAC laws seek to influence driver behavior through both specific deterrence (i.e., legal consequences) and general deterrence (i.e., discouraging drinking and driving).¹⁸ Therefore, if people perceive that modifying DUI-related crimes by lowering the per se BAC will result in certain, severe, or swift sanctions at 0.05%, the perception of criminal charges may also impact behavior. The 2014 survey of drivers’ knowledge, attitudes, and beliefs about lowering the per se BAC from 0.08% to 0.05% found that drivers “thought the most likely outcome of alcohol-impaired driving was getting into a crash (3.9 [out of 5, with 1 being “not at

all likely” and 5 being “very likely”). The likelihood ratings for the remaining three outcomes (getting stopped, arrested, or convicted for drinking and driving) were all above 3, the midpoint of the scale, suggesting that they were also considered to be moderately likely outcomes.”²⁷ The authors concluded that lack of knowledge about the current BAC, “combined with [drivers’] reporting moderate likelihood of an alcohol-impaired driver being stopped by police or being arrested are suggestive of the usefulness (but are not conclusive) of publicity and enforcement to increase knowledge of the [BAC level] and the perception that drivers will be stopped when in violation of this level.”²⁷ While information from key informants indicates SB 5002 would likely not change enforcement of the DUI per se BAC, some key informants have expressed concern that lowering the BAC to 0.05% may increase pullovers and arrests (personal communications, June 2022). Therefore, it is not possible to conclude how the bill may impact people’s perception of being stopped, arrested, or convicted for alcohol-impaired driving.

Researchers have noted that the “effects of any change in [BAC laws] depend on the public’s compliance with the law.”²⁹ Overall, while it is not possible to quantify how many drivers in Washington State may modify alcohol-impaired driving behavior to comply with a BAC level of 0.05%, there is a fair amount of evidence that some drivers becoming aware of the new DUI per se BAC will result in some people modifying alcohol-impaired driving behavior, including some people who will abstain from alcohol-impaired driving and some people who will comply with the lower BAC level.

Will some people modifying alcohol-impaired driving behavior decrease alcohol-impaired driving crashes and fatalities?

There is a fair amount of evidence that some people modifying alcohol-impaired driving behavior, including some people abstaining from drinking and driving and some people complying with the lower BAC level, would decrease alcohol-impaired driving crashes and fatalities.*** Prior research has shown that the risk of being involved in a motor vehicle crash increases as driver BAC increases.²⁵ Compared to a person with a BAC of 0.00%, a driver with a BAC of 0.05% is 1.38 times more likely and a driver with a BAC of 0.08% is 2.69 times more likely to be involved in a motor vehicle crash.²⁵ For drivers with a BAC above 0.08%, the risk of being involved in a motor vehicle crash increases exponentially.²⁵ The Community Preventive Services Task Force (Task Force) stated that alcohol-impaired driving crashes are a major public health problem and account for a large proportion of motor vehicle crash fatalities.²¹ Healthy People 2030 includes a transportation goal to “reduce the proportion of motor vehicle crash deaths involving an alcohol-impaired driver with a [BAC] of 0.08[%] or higher” from 29.3% in 2017 to 28.3% by 2030.⁴

The National Academies stated that, “[a]lthough there may be increased risk of a crash at BACs above 0.05%, that does not necessarily mean that lowering the [per se BAC] to 0.05% would reduce crashes or crash fatalities.”²² The majority of research demonstrating that lowering the per se BAC to 0.05% reduces alcohol-impaired driving crashes and fatalities has been conducted in international settings, which may not be fully generalizable to the U.S. due to differences in populations and cultures, constitutional rights, and law enforcement strategies.²² The National Academies stated that international research varied in rigor and results, with some research

*** Non-fatal injury data is not uniformly collected. This report relies on FARS data and focuses on fatal injury resulting from alcohol-impaired driving crashes.

suggesting that reductions in alcohol-impaired driving crashes and fatalities were temporary and that the magnitude of the impact and consistency of the effect depended on coupling lowering the per se BAC with other interventions (e.g., increased enforcement, sobriety checkpoints, administrative sanctions, public information campaigns).²² Despite research limitations and limited generalizability to the U.S., the National Academies concluded that “[o]verall, the majority of international evidence suggests that lowering the BAC [level] to 0.05% reduces alcohol-related crashes and driving fatalities” and “the preponderance of evidence indicates that lowering the BAC [level] to 0.05% significantly and substantially reduces crash and fatality risk...not only among those drivers at or around a BAC of 0.05% or in the range 0.05[% to] 0.079%, but also at *all BAC levels*.”²²

In the U.S. context, the Task Force issues recommendations to help decision-makers identify and implement evidence-based, effective public health interventions.²¹ In 2001, the Task Force conducted a systematic review of 5 laws and community-based interventions aimed to reduce alcohol-impaired driving and alcohol-impaired driving crashes, including lowering the DUI per se BAC from 0.10% to 0.08%.²¹ The Task Force found strong evidence that 0.08% BAC laws were an effective way to reduce alcohol-impaired driving crashes.²¹ Seven of the 9 studies evaluating BAC laws reported a decrease in alcohol-impaired driving crash fatalities after lowering the BAC level from 0.10% to 0.08%.²¹ Study findings indicated an approximate 7% decrease (range 4% to 15%) in alcohol-impaired driving crash fatalities after implementing a 0.08% BAC law.²¹ Research also suggested that lowering the per se BAC changed alcohol-impaired driving behavior at all BAC levels.^{18,47}

Further lowering the per se BAC from 0.08% to 0.05% may further reduce alcohol-impaired driving traffic crashes and fatalities. In a study analyzing 2018-2019 FARS data, researchers found that states with more restrictive alcohol policies were less likely to have alcohol-impaired driving crashes, and more likely to have reduced odds of alcohol involvement in crashes at BAC levels between 0.05% and 0.08%.³⁰ However, the magnitude of this reduction will depend on whether and how people modify their drinking and driving behavior in response to a BAC of 0.05%.

Experts have also noted that the alcohol environment has changed since the BAC standard was lowered to 0.08%, and “as you get lower on the BAC ladder, the incremental benefits get smaller...”²⁸ In the 2013 qualitative study with national organizations, groups stated that the health and economic impacts of lowering the BAC level from 0.10% to 0.08% included, “reductions in drinking; reductions in drinking and driving; reductions in alcohol-related crashes and resulting fatalities and injuries; greater thought given by individuals to their own alcohol consumption; improvements in server training; and increased recognition of the need for treatment for [substance use disorders], as well as increased provision of treatment itself.”²⁸ However, while organizations felt that lowering the BAC to 0.05% may have similar benefits, the impacts “were generally not considered to be of the same magnitude.”²⁸ National organizations stated that, “it is less clear how much of a reduction [in injury and death] could be expected given that most alcohol-related fatalities are associated with higher BACs.”²⁸ Therefore, further lowering the BAC may not have the same reduction in alcohol-impaired driving crashes and fatalities since the change would be unlikely to influence drinking and

driving behaviors of people who consume alcohol at high BAC levels or who drink and drive frequently.²⁸

To determine potential impacts on health and economic indicators, in 2018, researchers modeled five potential scenarios of how lowering the BAC level from 0.08% to 0.05% may affect alcohol-impaired driving.²⁹ One scenario assumed that lowering the BAC to 0.05% would follow the changes seen in the U.S. after lowering the BAC from 0.10% to 0.08%.²⁹ If similar impacts occurred, the model suggested that 1,281 lives would be saved and 48,000 injuries would be prevented, with a 13% to 16% decrease in alcohol-impaired driving crashes.²⁹ However, the authors stated that these “public health gains could [only] be achieved by an optimal response [in driver behavior] to a change in [alcohol-impaired driving] policy” and “the scenarios do not reflect realistic changes in [alcohol-impaired driving] policy at this time.”²⁹ Depending on the scenario, the authors found wide variation in potential impacts on alcohol-impaired driving fatalities, injuries, and costs, further suggesting that the benefits of lowering the BAC are dependent on driver compliance and behavior.²⁹

NHTSA evaluated two datasets to determine the impact of Utah’s 0.05% BAC per se law on crash and driver measures.²⁵ State-level data from the Utah Transportation and Public Safety Crash Data Initiative from January 1, 2010, to December 31, 2019, showed “reductions for almost all of the crash- and driver-level measures...there were fewer crashes and lower alcohol involvement...for the 21 months after the law passed, and the 12 months after it went into effect, compared to what would be expected based on statistical projections from the baseline period.”²⁵ Based on national FARS data from the same period, “the fatal crash rate reduction from 2016 to 2019 in Utah was 19.8%, and the fatality rate reduction was 18.3%” compared to a reduction of 5.6% and 5.9% (respectively) in the U.S.²⁵ State data from Utah showed a significant reduction (8.9% decrease) in alcohol positive crashes per 100 million vehicle miles travelled.²⁵ Data also showed that crashes involving at least one driver with a BAC level of 0.05% or higher decreased 14.7%, crashes involving a driver with a BAC level of 0.08% or higher decreased 13.7%, and crashes involving a driver with a BAC level of 0.15% or higher decreased by 9.1%.²⁵

Based on these data, NHTSA concluded that, “passage of the [0.05% BAC] per se law had demonstrably positive impacts on highway safety in Utah.”²⁵ However, similar to potential impacts on driver behavior, NHTSA noted that evidence from Utah may not be generalizable to other states due to Utah’s “low level of alcohol-impaired crashes relative to other [s]tates.”²⁵ In other publications, NHTSA also noted “[s]everal external factors that affect alcohol-impaired driving fatalities, [including] geography, urbanization, road structure and conditions, and economic activity, as well as [s]tate laws and programs. For these reasons the current level of alcohol-impaired driving and the progress in reducing alcohol-impaired driving vary greatly [s]tate to [s]tate.”¹ In 2016 (the last full year of data before Utah’s 0.05% per se BAC law took effect), 18% of fatal crashes in Utah involved alcohol-impaired driving, compared to 30% in the U.S. and 29% in Washington State.³⁷ Since Utah experiences a much lower percentage of fatal alcohol-impaired driving crashes, the impact of lowering the DUI per se BAC in Washington State may not result in the same level of reduction of alcohol-impaired driving crashes and fatalities seen in Utah after the policy change.

While there is strong evidence that lowering the DUI per se BAC would likely reduce alcohol-impaired driving crashes and fatalities, we have downgraded the body of evidence to a fair amount of evidence for three reasons. First, the majority of empirical, U.S.-based evidence has evaluated the impact of lowering the per se BAC from 0.10% to 0.08% and researchers have noted that further lowering the BAC may not have the same level of impact on traffic crashes and fatalities.²⁸ Second, evidence from Utah related to further lowering the per se BAC to 0.05% may not be fully generalizable to Washington State due to differences in the drinking culture, alcohol environment, and alcohol-impaired driving.²⁵ Third, the extent of the impact on traffic crashes and fatalities would be dependent on the number of people who abstain from alcohol-impaired driving or comply with the lower DUI per se BAC,²⁹ and it is not possible to quantify the number of drivers in Washington State that may modify alcohol-impaired driving behavior to comply with a BAC level of 0.05%.

Therefore, there is a fair amount of evidence that some people modifying alcohol-impaired driving behavior would result in some reduction of alcohol-impaired driving crashes and fatalities.

Will decreasing alcohol-impaired driving crashes and fatalities impact equity?

There is unclear evidence how decreasing alcohol-impaired driving crashes and fatalities may impact equity for drivers and non-drivers. National 2019 FARS data showed that, of fatalities^{†††} in alcohol-impaired driving crashes, 63% of people were drivers with a BAC of 0.08% or higher, 13% of people were passengers riding with drivers with a BAC of 0.08% or higher, 14% of people were occupants of other vehicles, and 10% of people were pedestrians, bicyclists, or other non-occupants.³⁸ Few empirical studies have evaluated how changing the per se BAC law for drivers aged 21 years and older may impact alcohol-impaired driving crashes and fatalities for different groups of drivers and non-drivers.

However, evidence indicates that driver age and sex, patterns of drinking, and prior DUI convictions are factors most likely to increase the risk of being involved in a fatal alcohol-impaired driving crash. Potential inequities may also exist for non-drivers and by indigeneity and jurisdiction.

Inequities by driver age and sex

Out of total drivers involved in fatal crashes in 2019, drivers aged 21 through 24 years had the highest percentage (27%) of fatal alcohol-impaired driving crashes (i.e., at least one driver had a BAC of 0.08% or higher) compared to other age groups.³⁸ Similarly, males and drivers operating a motorcycle had higher percentages (21% and 29%) compared to females and drivers of all other types of vehicles, respectively.³⁸ International studies evaluating the impact of lowering the per se BAC to 0.05% have suggested that reductions in alcohol-impaired driving crashes and fatalities have been greatest among groups at highest risk.²² For example, international studies have found that after lowering the per se BAC to 0.05%, alcohol-impaired driving fatality rates decreased more for younger age groups compared to older age groups and for males compared to females.²² In the U.S., lowering the per se BAC from 0.10% to 0.08% reduced alcohol-impaired

^{†††} Non-fatal injury data is not uniformly collected. This report relies on FARS data and focuses on fatal injury resulting from alcohol-impaired driving crashes.

driving fatalities “particularly among young drivers, the age group at the highest risk for alcohol-related driving fatalities.”²²

Inequities by driver patterns of drinking

In 2019, 68% of fatal alcohol-impaired driving crashes occurred when at least one driver had a BAC of 0.15% or higher.³⁸ Researchers and key informants have noted that these drivers may be less likely to change their behavior as a result of lowering the per se BAC. Researchers stated that “those who drive while impaired by alcohol have difficulty [changing their drinking and driving behavior]...”, especially those who repeatedly drink and drive.²² National organizations stated that the change in per se BAC may be unlikely to influence drinking and driving behaviors of people who consume alcohol at high BAC levels or who drink and drive frequently.²⁸ The National Academies found that there is a “substantial body of evidence [indicating] that binge drinking is strongly associated with alcohol-impaired driving.”²² Additionally, “binge drinking (i.e., higher per occasion consumption) was more strongly associated with alcohol-impaired driving than heavy drinking (i.e., high average consumption).”²²

People with alcohol use disorder are also at increased risk of alcohol-impaired driving and are more likely to report alcohol-impaired driving behaviors in the past year compared to people who drink alcohol but do not have alcohol use disorder.⁴⁸ Researchers suggested that separate interventions may be necessary to reduce alcohol-impaired driving among people who engage in binge drinking or experience alcohol use disorder (e.g., changes related to alcohol purchasing and marketing environments, access to treatment).²²

Inequities by prior DUI convictions

People with one or more DUI convictions are also disproportionately represented in fatal alcohol-impaired driving crashes.¹⁸ NHTSA estimated that drivers with a BAC of 0.08% or higher involved in a fatal crash are 7 times more likely to have a prior DUI conviction than drivers with a BAC of 0.0%.¹⁸ Researchers noted that people with prior DUI convictions may have “different levels of motivation to change their behaviors”,¹⁸ including drivers that may be more or less likely to change driving behavior as a result of a change in the per se BAC.

While some drivers may modify alcohol-impaired driving behavior to comply with a per se BAC of 0.05% and prior research has suggested that lowering the per se BAC level may change alcohol-impaired driving behavior at all BAC levels,¹⁸ there has been little research evaluating the impact of lowering the per se BAC for different groups of adult drivers. Additionally, it is not possible to determine which drivers or to what extent drivers in Washington State may modify their driving behavior as a result of lowering the per se BAC. Therefore, it is unclear how decreasing alcohol-impaired driving crashes and fatalities may impact equity for drivers involved in fatal alcohol-impaired driving crashes.

Inequities for non-drivers

It is also unclear how decreasing alcohol-impaired driving crashes and fatalities may impact equity for non-drivers involved in fatal alcohol-impaired driving crashes. Fatal alcohol-impaired driving crashes are more likely to occur in September (9.5%) and July (9.4%), on a weekend (26%), in hours of darkness (68%), in clear/cloudy weather conditions (90%), in urban areas (56%), and on non-interstate roads (87%).³⁸ Since fatal alcohol-impaired driving crashes have

the potential to impact multiple non-driver groups and may occur under a myriad of conditions, and since there is limited evidence about how various non-drivers may be impacted by lowering the per se BAC, this relationship is also unclear.

Inequities by indigeneity and jurisdiction

It is well-documented that American Indian and Alaska Native communities “experience high rates of substance use and some mental health issues (e.g., posttraumatic stress) compared with the U.S. general population.”⁴⁹ While national survey data indicate that American Indians and Alaska Natives are less likely to drink alcohol than other groups, those “who consume alcohol are more likely to drink larger amounts and to binge drink.”⁵⁰ Living with alcohol use disorder and binge drinking have been associated with alcohol-impaired driving.^{22,48} Researchers note that it is important to consider substance use, including alcohol use, in American Indian and Alaska Native communities within the context of historical trauma;^{49,50} “that is, intergenerational impact of massacres; forced relocation; involuntary removal of children to boarding schools; and bans on native language, traditions, and cultural practices.”⁴⁹ Inequities are also linked to the social determinants of health (poverty, violence and victimization, chronic stress, etc.)⁴⁹ and exposure to other risk factors (family history of alcohol use disorder, acculturation stress, etc.).⁵⁰

FARS does not routinely collect data related to race/ethnicity or indigeneity.⁵¹ Available data have shown that American Indian and Alaska Native drivers experience the highest risk of fatal alcohol-impaired driving crashes.^{22,51} National Academies stated that, “for fatal crashes among [American Indian and Alaska Native] persons in 2012, 42[%] were alcohol[-]related, while only 31[%] were alcohol[-]related for other [racial/ethnic groups] overall.”²² Key informants from Washington State also noted that Tribal communities experience high rates of alcohol-impaired driving and fatalities (personal communications, June-December 2022). Data from WTSC showed that, from 2016 through 2020, the rate of impairment-involved traffic fatalities for American Indians and Alaska Natives was 4.7 times higher than the rate for all other racial/ethnic groups.⁵²

While provisions of SB 5002 would lower the state per se BAC level from 0.08% to 0.05%, the per se BAC would not change Tribal per se BAC levels. Each Tribe in Washington State has their own DUI-related laws, including per se BAC levels that apply to Tribal people driving within the Tribe’s jurisdiction (personal communication, Tribal Police Chief, December 2022). If SB 5002 were to pass, each Tribe could decide whether to implement a 0.05% per se BAC (personal communication, Tribal Police Chief, December 2022). However, approximately 71% of American Indians and Alaska Natives live in urban areas, not on Tribal land.⁵³ Therefore, it is unclear how lowering the state per se BAC level may impact Native people driving on Tribal land (personal communications, June-December 2022).

Overall, there is unclear evidence how decreasing alcohol-impaired driving crashes and fatalities may impact equity for drivers and non-drivers. See Other Considerations for discussion about potential equity impacts related to criminal legal system involvement.

Other considerations

This Health Impact Review focused on the most direct pathways between provisions in the bill and health outcomes and equity. Evidence for other potential pathways is discussed below.

Impacts of criminal legal system involvement

Modifying DUI-related crimes by lowering the per se BAC may also result in criminal legal system involvement for some drivers with lower BACs. Based on available evidence, it is unknown how the passage of SB 5002 would impact decisions of arrest, prosecution, and adjudication for drivers with BACs from 0.05% to 0.079% and how court decisions may change compared to the status quo. Therefore, this pathway was not included in the Logic Model.

Arrests

Under current state statute, a person can be pulled over and arrested for DUI if their BAC level is below 0.08%, as statute allows for an arrest to occur if the driver is exhibiting behaviors common to impairment (personal communications, May-June 2022). While we have made the informed assumption that modifying DUI-related crimes by lowering the per se BAC from 0.08% to 0.05% would likely not change enforcement of the DUI per se BAC, there was some disagreement among key informants as to whether the passage of SB 5002 would result in more DUI-related arrests or no change from status quo (personal communications, May-June 2022). Evidence from Utah showed “a slight increase in number and proportion of arrests of drivers with BACs between [0.05% and 0.079%] relative to the prior few years, which was expected given that law enforcement could now cite drivers for a per se offense in this BAC range.”²⁵ Therefore, lowering the per se BAC to 0.05% has the potential to increase DUI-related arrests and the likelihood that cases involving drivers with lower BACs are referred for prosecution.

Prosecution and adjudication

If DUI-related arrests increased, it could lead to an increase in prosecution and convictions of DUI-related cases in the 0.05% to 0.079% BAC range (personal communication, WAPA, June 2022). A key informant representing prosecuting attorneys in Washington State shared that lowering the per se BAC from 0.08% to 0.05% would likely affect prosecuting attorneys’ decisions to take a case to trial or to offer alternative resolutions (e.g., treatment) (personal communication, WAPA, June 2022).

When deciding whether to go to trial, prosecuting attorneys consider BAC results, the arresting officer’s documented observations from the SFSTs, history of DUI, and other relevant information (personal communication, WAPA, June 2022). While a prosecutor can use other evidence to prove someone was driving while impaired, BAC results are useful in connecting the symptoms of impaired driving to alcohol intoxication rather than other potential factors (age, mental health concerns, a disability, etc.) (personal communication, WAPA, June 2022). From the prosecuting attorney’s perspective, jurors generally consider BAC results a significant factor, particularly results at or above the per se level (personal communication, WAPA, June 2022). However, in 2022, at least two courts (i.e., Kitsap County and King County District Courts) in Washington State ruled that BAC test results are inadmissible as evidence in suspected DUI cases.^{5,19} The Washington Supreme Court stated the “decision has the potential to affect a great number of Washington prosecutions for [DUI]....”¹⁶

Prosecuting attorneys also use BAC results as a loose guide for deciding what type of offer to extend (personal communication, WAPA, June 2022). For example, prosecuting attorneys may have sufficient evidence to bring a trial to a jury if the person arrested for a DUI-related crime

has a BAC at the per se level (personal communication, WAPA, June 2022). However, a prosecuting attorney may offer a reduction in charges if it was the person's first offense (personal communication, WAPA, June 2022). Such flexibility typically decreases for second or subsequent offenses or for higher BAC levels (personal communication, WAPA, June 2022).

In a 2013 qualitative study with national organizations that have an interest in reducing alcohol-impaired driving crashes, injuries, and fatalities, organizations noted numerous challenges to adjudicating cases at the current 0.08% BAC level, including: lack of prosecutors to try cases related to complex BAC laws, challenges related to results of SFSTs, trying cases in a timely manner, and judges accepting per se impairment arguments without behavioral evidence.²⁸ When asked if further lowering the BAC to 0.05% would introduce new adjudication challenges, organizations stated there would be more challenges to establishing probable cause, especially without revalidation of SFSTs.²⁸ Organizations also highlighted a need to educate prosecutors, judges, and juries that impairment exists at 0.05%.²⁸ SB 5002 does not include provisions for training prosecutors, judges, or juries.

Lastly, while initial evaluation of Utah's 0.05% per se law looked at the impact on arrests, evaluation measures did not include the impact of Utah's 0.05% per se BAC level on prosecution or adjudication.²⁵

Penalties

If passed, SB 5002 would not change the criminal penalties for DUI-related crimes. However, modifying DUI-related crimes by lowering the per se BAC from 0.08% to 0.05% may result in courts imposing criminal sanctions for some drivers with lower BAC levels. Under Washington State law, driving while under the influence (RCW 46.61.502) or being in actual physical control of a vehicle while under the influence (RCW 46.61.504) of intoxicating liquor are gross misdemeanors unless the offense meets specific criteria.^{10,11} If the offense meets specified criteria, DUI is a class B felony and being in actual physical control of a vehicle while under the influence of alcohol is a class C felony.¹¹ Class B and C felony offenses are punishable under [chapter 9.94A RCW](#) for adults.^{10,11}

Key informants noted that most DUI-related charges and convictions are not felonies (personal communication, WAPA, October 2022). From 2017 through 2021, for people where the charge history result is known (about 73%), 25 people (about 1% of all people with a final DUI conviction in any court) received a final DUI-related felony conviction (i.e., "guilty" result) (unpublished data, AOC, September 2022).

Collateral consequences of criminal charges and/or convictions

If SB 5002 were to pass and courts imposed criminal sanctions for drivers with lower BACs, the proposal would extend some number of collateral consequences associated with DUI-related crimes to some drivers with lower BAC levels. Collateral consequences are sanctions, restrictions, or disqualifications resulting from criminal history that are imposed by federal, state, or local laws and policies.⁵⁴

In 2019, the U.S. Commission on Civil Rights (The Commission) released a report which cited 955 sources, entitled "Collateral Consequences: The Crossroads of Punishment, Redemption,

and the Effects on Communities.”⁵⁴ Nationally, The Commission found, among approximately 44,631 collateral consequences, nearly 40% (17,436) are caused by any felony conviction and about 19% (8,294) are prompted by any misdemeanor.⁵⁴ Evidence indicates that “[m]any collateral consequences are unrelated either to the underlying crime for which a person has been convicted or to a public safety purpose.”⁵⁴

Beyond administrative sanctions (e.g., license suspension) and higher motor vehicle insurance premiums,⁵⁵ a DUI-related conviction can also have other collateral consequences (prevent entry into Canada, limit employment opportunities, etc.). Additionally, DUI-related felony convictions are treated like other felonies (personal communications, WAPA, November 2022), and people who receive a DUI-related felony conviction would face collateral consequences elicited by any felony conviction.

Access to employment opportunities

As Washington is an employment-at-will state, having a DUI-related conviction can result in a person being fired.⁵⁵ Most companies provide an employee handbook which details the expected duties and conduct on and off the work premises.⁵⁵ If a DUI results in the violation of company policy, the decision to terminate is at the employer’s discretion.⁵⁵ The decision may be influenced by how relevant driving is to the position (e.g., if driving is an essential duty/responsibility).⁵⁵ For positions that do not require an employee to drive, the possibility of job loss is relatively low.⁵⁵

While Washington State provides several protections for applicants with a criminal record, employers may review an applicant’s criminal record later in the hiring process and are allowed to consider arrests from the previous 10 years.⁵⁵ Additionally, criminal background checks include convictions for the previous 7 years⁵⁵ and often act as barriers to employment for people with a criminal record. For example, results of an audit study found that applicants with a criminal record are 50% less likely to receive a callback or job offer than applicants without criminal records.⁵⁴ Licensing requirements also act as barriers for people who were convicted of a crime, and about 30% of U.S. workers need licenses.⁵⁴ Nationally, approximately 8,000 documented state licensing restrictions apply to people convicted of any felony conviction and over 4,000 apply to people convicted of any misdemeanor.⁵⁴

Access to economic stability

Every state allows for the imposition and enforcement of legal financial obligations (LFOs). [RCW 9.94A.030\(31\)](#) defines LFOs as “a sum of money that is ordered by a [S]uperior [C]ourt of the [S]tate of Washington for [LFOs] which may include restitution to the victim, statutorily imposed crime victims’ compensation fees as assessed pursuant to [RCW 7.68.035](#), court costs, county or interlocal drug funds, court-appointed attorneys’ fees, and costs of defense, fines, and other financial obligation that is assessed to [a person] as a result of a felony conviction.”⁵⁶ While not explicitly defined in statute, district and municipal courts also impose monetary sanctions understood as LFOs. LFOs generally fall into four categories: fines, costs, fees, and restitution.⁵⁷

A person convicted of a DUI-related crime may be subject to a variety of LFOs. For example, effective January 1, 2022, a DUI-related criminal conviction carries a mandatory fine ranging from \$990.50 to \$5,000 depending on the driver's BAC result and whether they have a prior offense.¹² An additional fine (ranging from \$1,000-\$10,000 plus assessments) applies if a passenger under age 16 years was in the vehicle at the time of the DUI-related offense.¹² Furthermore, state statute (RCW 46.61.5055[5]) requires that "if the court orders that a person refrain from consuming any alcohol, the court may order the person to submit to alcohol monitoring" and "the person shall pay for the cost of the monitoring," unless the court specifies the cost be paid with funds from an alternative source identified by the court.¹³ Other costs may apply depending on the circumstances.

A number of studies have indicated that LFOs, and the interest on them, are one of the biggest barriers to successful re-entry into communities following conviction and may perpetuate a cycle of poverty.⁵⁸⁻⁶³ In 2018 and 2022, the Washington State Legislature passed legislation ([Chapter 269, Laws of 2018](#) and [Chapter 260, Laws of 2022](#), respectively) which reduces the burden of LFOs and the interest accrued on them, particularly for people who do not have the current or likely future ability to pay (i.e., someone who is indigent as defined in [RCW 10.01.160\[3\]](#)).

When a person is experiencing high levels of debt, they are limited in their ability to open bank accounts, have favorable credit terms, or build credit scores.⁶³ Nonpayment or inability to comply with court orders can also result in an individual being unable to access credit and other banking services, such as checking and savings accounts, loans, and insurance.⁶⁴ For example, LFOs may show up on credit reports which can negatively impact someone's ability to secure financing to purchase a car, which can affect access to transportation, which can further impact access to employment or educational opportunities (personal communications, December 2021). People with LFOs in Washington State also shared that people with LFOs may be hesitant to formally engage with financial institutions as "holding banking accounts with money in them opens the door to wages being garnished [to pay LFOs]."⁶⁵ An inability to pay LFOs may also perpetuate fear and mistrust in financial institutions, which could result in other financial decisions and consequences (e.g., not paying taxes).⁶⁴

Access to housing

Evidence indicates that people who cannot vacate a criminal conviction have difficulty affording housing costs and may face restrictions related to their criminal record. For example, a study in Seattle, Washington, found that outstanding LFOs, as opposed to other types of debt (i.e., credit card debt, medical debt, student debt, and payday loans), was associated with study participant-reported current periods of houselessness, which averaged 1.9 years.⁶⁶

While there is very strong evidence that reducing collateral consequences of conviction would likely improve access to employment opportunities, economic stability, and housing, this research is not DUI-specific and most of the research reviewed focused on collateral consequences resulting from felony convictions and incarceration. However,

anyone convicted of a crime (including those who are not incarcerated) may experience collateral consequences to varying degrees.

Inequities in criminal legal system involvement due to racism

It is well-documented that people of color are disproportionately represented in all steps of the criminal legal system. In 2010, the Task Force on Race and the Criminal Justice System was convened to address racial inequities in Washington State’s criminal legal system. Its 2012 report concluded that racial bias influences criminal legal system outcomes more than the rate at which crimes are committed (crime commission rates).⁶⁷ Specifically, “facially race-neutral policies that have a disparate impact on people of color contribute significantly to [inequities] in the criminal [legal] system”, and “racial and ethnic bias distorts decision-making at various stages in the criminal [legal] system, contributing to [inequities].”⁶⁷ In a 2021 update, the Task Force built on previous work and evaluated data related to stops, searches, arrests, convictions, LFOs, incarceration, etc.⁶⁸ For example, while not specific to DUI-related crimes, data for the Spokane City Police Department show that among officer-initiated traffic stops from 2014 through June 30, 2020, Black people and Asian people were stopped at greater rates (2.65 times and 1.23 times, respectively) than non-Hispanic white people.⁶⁸ The 2021 Task Force’s Research Working Group concluded that “race *still* matters in ways that are not fair, that do not advance legitimate public safety objectives, that produce racial [inequities] in the criminal [legal] system, and that undermine public confidence in our legal system.”⁶⁷

Black people as well as American Indians and Alaska Natives are disproportionately charged with and convicted of DUI-related crimes compared to their respective proportion of the Washington State population.^{†††} About 4% of people in Washington State are Black;⁶⁹ however, available race/ethnicity information reported by law enforcement or court documents^{§§§} in Washington State showed that 15.2% of people who experienced a DUI charge and 11.5% of people who experienced a DUI-related conviction from 2017 through 2021 were Black (unpublished data, AOC, September 2022). About 1% of people in Washington State are American Indian and Alaska Native,⁶⁹ compared to 2% of people who experienced a DUI-related charge and 3% of people who experienced a DUI-related conviction (unpublished data, AOC, September 2022). Since race/ethnicity information may not be based on self-report, these data may not accurately reflect a person’s identity.

Key informants also expressed concern that SB 5002 may disproportionately impact people of color (personal communications, May-December 2022). Key informants stated that drivers of color are more likely to be pulled over (i.e., for DUI-related or non-DUI-related driving scenarios) and may be more likely to be investigated at lower BAC levels (personal communications, May-December 2022). Key informants also stated that people of color may be disproportionately arrested, prosecuted, and convicted at BAC levels from 0.05% to 0.079% and

††† The proportion of the state population who are people of color reflects how the Washington State Office of Financial Management directs state agencies to aggregate and report Census data for any person who selects more than one racial category as “Two or More Races.” This methodology of reporting on race/ethnicity data undercounts or misclassifies people of color. For American Indians and Alaska Natives, this methodology misclassifies roughly half of Washington State’s American Indian and Alaska Native population as “Two or More Races.”

§§§ Moreover, court documents do not report information for “Two or More Races.”

more likely to experience criminal sanctions for DUI-related crimes (personal communications, May-December 2022).

Since it is unknown how the passage of SB 5002 would impact decisions of arrest, prosecution, and adjudication for drivers with BACs from 0.05% to 0.079% and how this may change status quo, and as at least two courts in Washington State have ruled BAC test results inadmissible,^{5,19} it is unclear how courts may consider a 0.05% DUI per se BAC level and this pathway was not included in the Logic Model.

Impacts on administrative penalties

Provisions of SB 5002 would not amend the administrative penalties or driver license suspension authorized in [RCW 46.20.308](#). Statute requires DOL to suspend, revoke, or deny the person's license, permit, or privilege to drive for at least 90 days if a driver, age 21 years or older, submits to a test (breath or blood draw) and their BAC is 0.08% or higher¹⁴ for all collected measurements (personal communication, DOL, December 2022). If the driver refuses to take the test, their driver's license, permit, or privilege to drive will be revoked or denied for at least one year and their refusal may be used in a criminal trial.¹⁴ Under current statute, people arrested for impaired driving may receive administrative charges from DOL (at the 0.08% BAC level and higher) separately and at different points in time, compared to receiving criminal penalties (personal communication, DOL, December 2022).

The dual processes, administrative and criminal, currently cause confusion for many people who have been arrested for alcohol-impaired driving (personal communications, DOL, May 2022). If passed, SB 5002 would create a lower BAC threshold for criminal penalties (0.05%) than administrative penalties, which would remain at 0.08%. Key informants shared that a discrepancy between BAC levels for administrative and criminal penalties may cause additional confusion or make it more difficult for drivers to understand the law (personal communication, DOL, May 2022). Since SB 5002 would not amend administrative penalties associated with DUI-related crimes, this pathway was not included in the Logic Model.

Annotated References

1. **Venkatraman V., Richard C. M., Magee K., et al. Countermeasures That Work: A Highway Safety Countermeasure Guide for State Highway Safety Offices.10th edition, 2020. National Highway Traffic Safety Administration;2021. DOT HS 813 097.**

This report from the National Highway Traffic Safety Administration (NHTSA) is intended to “assist State Highway Safety Offices in selecting effective, science-based traffic safety countermeasures for major highway safety problems.” Chapter 1 of the report focused on alcohol- and drug-impaired driving countermeasures. NHTSA noted, “[s]everal external factors that affect alcohol-impaired-driving fatalities include geography, urbanization, road structure and conditions, and economic activity, as well as State laws and programs. For these reasons the current level of alcohol-impaired driving and the progress in reducing alcohol-impaired driving vary greatly from State to State.” Authors outlined four basic strategies to reduce impaired-driving crashes: deterrence (i.e., enacting, publicizing, enforcing, and adjudicating laws prohibiting impaired-driving), prevention (i.e., reducing drinking and drug use), communications and outreach ; and alcohol and drug treatment. Authors state that “deterrence works by changing behavior through fear of apprehension and punishment.” Consequences should be swift, sure, and severe and provided through standard penalties. The guide stated that “[l]aboratory studies show impairment in driving ability begins at levels below [0.08%] BAC.” Authors noted that some countries and jurisdictions have enacted laws to address BAC below 0.08%. For example, in 2010, British Columbia, Canada, established “an administrative 3-day license suspension and possible vehicle impoundment for drivers with BACs from [0.05% to 0.08%]...The year after the law took effect, there was a 40% decrease in alcohol-related fatal crashes.” Additionally, results of roadside surveys showed a 44% and 59% decrease in drivers with BACs of 0.05% or higher and 0.08% or higher, respectively. Authors concluded that “administrative penalties [e.g., license suspension] beginning at [0.05%] BAC appear to increase deterrence among the general population without creating additional burdens on the court system.” This report also discussed a variety of other countermeasures and ranks each measure’s effectiveness (i.e., reduction in crashes or injuries unless otherwise noted) based on available evidence.

2. **Fiorentino D. D., Martin B. D. Survey regarding the 0.05 blood alcohol concentration limit for driving in the United States. *Traffic Injury Prevention*. 2018;19(4):345-351.**

Fiorentino and Martin conducted survey questionnaires and focus groups among 32 law enforcement officers, 20 prosecutors, and 4 defense attorneys (including one from Washington State) to measure opinions regarding the enforcement of the 0.05 BAC limit in the US. No judges were willing to participate in the study. The authors summarized driving cues (e.g., maintaining lane position, speed control and braking), which predict BACs of 0.10 g/dL and higher when observed by law enforcement, and standardized field sobriety tests (validated to detect BACs of 0.08 g/dL and higher). They noted that “a study needs to be performed to validate the use of the 3 sobriety tests to detect BACs of 0.05 g/dL and above.” Surveys were conducted in 10 states (Texas, Michigan, Florida, North Carolina, California, Indiana, South Dakota, Maine, New Jersey, and Washington). Researchers held 9 focus groups across 5 states: 1 with defense attorneys in California; 4 with law enforcement officers in Texas, Florida, Michigan, and North Carolina; and 4 with prosecutors in Texas, Florida, Michigan, and North Carolina. Participation ranged from 4-10 people per group. The average length of participants’

experience on the job was 222.72 months. The majority of study participants were white males, with 5 women and 2 African American (prosecutors) and 4 Hispanic/Latino (one law enforcement officer and 3 prosecutors) participants. Paired sample t-tests were used to analyze within-subject ratings of questionnaire items. In the focus groups, participants reported on the current utility of 0.05% law visual cues for traffic stops, and what would need to change to these in the event of widespread 0.05% level law adoption. Study participants were prompted to rate the usefulness of National Highway Traffic Safety Administration's (NHTSA's) DWI driving cues comparing the 0.08% law and the 0.05% level (ranging from 1 = not useful at all to 7 = very useful). Study participants were also asked what elements of the field sobriety tests should be modified before widespread lowering the BAC level to 0.05%. Usefulness was rated lower under the 0.05% BAC level among all 3 participant groups. Results showed "34% of law enforcement officers, 45% of prosecutors, and 100% of defense attorneys said that training for the [walk and turn] WAT test should be changed; and 38% of law enforcement officers, 35% of prosecutors, and 100% of defense attorneys said that training for the [one leg stand] OLS test should be changed." Participants were also asked to elaborate on breath alcohol concentration and BAC testing and the likelihood of testing procedures changing under an 0.05% law compared to the 0.08% law. Participants reported a statistically significant difference for tests being delayed 2 hours or more, "with delays more likely under the [0.05% level]." Participants were also asked to report on the current state of criminal legal system case status. There were statistically significant differences between the 0.08% law and an 0.05% law on the following: more likely for it to be difficult for prosecutors to prepare due to caseload under a 0.05% law (10% of prosecutors thought that caseload made it always/almost always difficult to prepare adequately under the 0.08% law and 30% thought so if the 0.05% level was in place), more cases would be withdrawn under the 0.05% level, fewer plea agreements under the 0.08% law, and fewer guilty pleas charged under a 0.05% law. Prosecutors expressed concern that a 0.05% law would result in poorly investigated cases and an overburdened court system, while defense attorneys expressed concern about the negative socio-economic impact of a 0.05% level. When participants were asked about measures aimed to change behavior and reduce recidivism (i.e., reincarceration), measures "were rated equally effective under the 0.08[%] law and the 0.05[% level] for both first and second offenses". However, treatment (for a first offense) and electronic monitoring (for a first and second offense) were rated less useful under a 0.05% law. When participants were asked about their opinions on the enforceability of a 0.05% level, the majority of law enforcement officers and prosecutors believed that a law that lowers the illegal level to 0.05% would be enforceable (81.2% and 70%, respectively) and would save lives (96.6% and 80% respectively); however, the majority of defense attorneys (75%) believed that such a law would not be enforceable and would not save lives. During the focus groups, participants expressed concern surrounding the ignorance and skepticism of the impacts of impaired driving, noting that convincing juries, judges, prosecutors, and law enforcement officers that "0.05 g/dL is impairing is going to be difficult". The authors called for better education efforts and further study of sobriety tests before implementing a 0.05% level law.

3. Impaired Driving: Get the Facts. 2020; Available at: https://www.cdc.gov/transportationsafety/impaired_driving/impaired-driv_factsheet.html. Accessed May 20, 2022.

This Centers for Disease Control and Prevention (CDC) webpage provides information about transportation safety and alcohol-impaired driving, including the impacts of different levels of blood alcohol concentration (BAC) on driving behavior.

4. **Healthy People 2030 --SU-11. 2020; Available at:** <https://health.gov/healthypeople/objectives-and-data/browse-objectives/drug-and-alcohol-use/reduce-proportion-motor-vehicle-crash-deaths-involve-drunk-driver-su-11>. Accessed 6/23/2022.

Healthy People 2030 includes a transportation goal to “reduce the proportion of motor vehicle crash deaths involving an alcohol-impaired driver with a blood alcohol concentration (BAC) of 0.08 grams/deciliter (g/dL) or higher” from 29.3% (2017 baseline data) to 28.3%.

5. **Court Kitsap County District. *State of Washington v. Austin River Keller* -- Findings of Fact and Conclusions of Law Regarding Defense Motion to Suppress Drager Generated Breath Test Results. 2022.**

On June 13, 2022 the Kitsap County District Court filed “Findings of Fact and Conclusions of Law Regarding Defense Motion to Suppress Drager Generated Breath Test Results” as part of the case *State of Washington v. Austin River Keller*. The Kitsap County District Court ruled that breath alcohol concentration results are inadmissible as evidence in suspected DUI cases. Kitsap County District Court ruled that the Drager Alcotest 9510 breath test machine truncates rather than rounds results, putting it in violation of WAC 448-16-060 and RCW 46.61.506. Essentially, the Court found that the Drager breath test machine, which is used across Washington State, “fails to produce accurate, precise, and reliable breath test results as required by state toxicologist scientifically approved methods and regulations, and state statute.” The briefing concluded that as of June 13, 2022, “Drager generated breath test printouts are...not admissible in any Kitsap County District Court cases because the State is unable to produce prima facie evidence of admissibility as required by [*State v. Baker*] and RCW 46.61.506.” The brief also included a summary of relevant historical case law.

6. **Substitute House Bill No. 665, Motor Vehicle Offenses Involving Alcohol or Drugs--Penalties--Appropriation, Revised Code of Washington(1979).**

This Washington State law added a new section to Chapter 46.61 RCW creating a per se BAC level of 0.10%.

7. **Administration National Highway Traffic Safety. Final Report: Legislative History of .08 Per Se Laws. U.S. Department of Transportation;2001. DOT HS 809 286.**

This U.S. DOT report released by NHTSA documents the legislative history of 0.08% per se laws at the state level. The report includes discussion of six states: four of which had successfully passed 0.08% per se legislation (including Washington, Texas, Virginia, and Illinois) and two which had, at the time of the study, attempted to pass this legislation for multiple years (Maryland and Minnesota). Authors outlined the key participants in the policy debate, arguments in favor and against 0.08% per se laws, supportive strategies, and barriers to passage.

8. **Engrossed Senate Bill 6257, Lowering statutory levels for legal alcohol intoxication, Revised Code of Washington(1998).**

This Washington State law revised RCWs 46.20.308, 46.20.3101, 46.61.502, 46.61.504, 46.61.506, and 88.12.025 to lower the BAC level from 0.10 to 0.08.

9. **DUI (Driving Under the Influence). 2022; Available at: <https://www.dol.wa.gov/driverslicense/dui.html>. Accessed 6 December, 2022.**

The Washington State Department of Licensing summarized current information about driving under the influence (DUI) laws, including information about when a driver may be charged with a DUI.

10. **RCW 46.61.502 - Driving under the influence, RCW 46.61.502 Revised Code of Washington(2017).**

RCW 46.61.502 defines driving under the influence (DUI) of intoxicating liquor, cannabis, or any drug. The statute establishes defenses to a DUI violation, use of breath and blood alcohol concentration samples, and criminal offenses associated with a DUI violation.

11. **RCW 46.61.504 - Physical control of vehicle while under the influence, RCW 46.61.504 Revised Code of Washington(2022).**

RCW 46.61.504 describes being in physical control of a motor vehicle while under the influence of intoxicating liquor, cannabis, or any drug; establishes defenses to a violation as well as the use of breath and blood alcohol samples and criminal offenses associated with this DUI-related violation.

12. **Court DUI Sentencing Grid: CrRLJ 4.2g DUI 1 DUI Attachment. In: Courts WSAOot, ed. Olympia, WA2021:1-8.**

This DUI sentencing grid from Washington's Administrative Office of the Courts became effective January 1, 2022. It details criminal and administrative sanctions for crimes on or after January 1, 2022. Sanctions are based on BAC results (i.e., less than 0.15%, greater than or equal to 0.15%, no test result, or test refusal) and whether the person has a prior DUI offense(s).

13. **RCW 46.61.5055 - Alcohol and drug violators—Penalty schedule, RCW 46.61.5055 Revised Code of Washington(2020).**

RCW 46.61.5055 details the penalty schedule for anyone who is convicted of a violation of RCWs 46.61.502 or 46.61.504. The penalties increase for those with prior offenses (1-2 within the previous 7 years; 3 or more within 10 years), for those with an alcohol concentration equal to or greater than 0.15%, and for those who had a minor passenger in the vehicle when they committed the offense.

14. **RCW 46.20.308 - Implied consent—Test refusal—Procedures., RCW 46.20.308 Revised Code of Washington(2022).**

RCW 46.20.308 outlines implied consent for an alcohol concentration test as well as related Department of Licensing (DOL) administrative actions, dependent on the results or refusal of a breath test. This statute grants DOL the authority to suspend, revoke, or deny the person's license, permit, or privilege to drive following a DUI-related arrest.

15. RCW 46.51.506 - Persons under influence of intoxicating liquor or drug— Evidence—Tests—Information concerning tests, RCW 46.51.506 Revised Code of Washington (2022).

RCW 46.51.506 stipulates testing requirements for breath and blood alcohol concentration.

16. Washington Supreme Court of the State of. Ruling Granting Direct Review of RALJ Decision. 2022.

On August 25, 2022, the Supreme Court of Washington State granted a ruling that the Supreme Court would review the Kitsap County District Court order finding that Draeger breath tests are invalid. The court stated that "this decision has the potential to affect a great number of Washington prosecutions for driving under the influence..."

17. Patrol Washington State. CR-101 Preproposal Statement of Inquiry-- WAC 448-16-060 Determining agreement of duplicate breath samples. 2022.

On July 5, 2022, Washington State Patrol filed a CR-101, Preproposal Statement of Inquiry, providing notice of possible rulemaking related to WAC 448-16-060 Determining agreement of duplicate breath samples. The intent of rulemaking was to "correct an administrative oversight in WAC 448-16-060(2) regarding the method for determining agreement between duplicate breath samples obtained during an evidential breath test." The notice stated that this change would align rule language with the truncation output method of the Dräger breath test machine.

18. Board National Transportation Safety. Reaching Zero: Actions to Eliminate Alcohol-Impaired Driving. Safety Report. Washington, D.C. 2013.

The report included recommendations for states to achieve meaningful reductions in alcohol-impaired driving crashes. The report was informed by representatives of federal, state, and local governments, as well as leading researchers, law enforcement officers, members of the judiciary, industry representatives, treatment experts, and advocates. The National Transportation Safety Board's (NTSB) ultimate goal is to reach zero fatalities, injuries, and accidents involving alcohol-impaired driving. The report analyzed FARS data from 1982 to 2011. Data showed a plateau in the proportion of fatalities associated with alcohol-impaired drivers since 1995. The contribution of alcohol-impaired driving to crashes and fatalities is likely underestimated due to the under-reporting of police reports and crash reports. FARS data averaged from 2008 to 2010 showed that Washington State had a mid-range driving fatality rate with .33 deaths per 100 million vehicle miles traveled (VMT) with 169 deaths in 2010. The lowest fatality rate was observed in Utah (0.17 deaths per 100 million, 46 deaths in 2010) and the highest fatality rate was observed in South Carolina (0.76 deaths per 100 million, 353 deaths in 2010). The report stated that "[d]espite decades of public campaigns and other efforts to discourage driving after drinking, survey and observational data show that many people continue to do so." Young men, binge drinkers, and people who do not regularly wear seatbelts have higher reported rates of drinking and driving. NTSB recommends that all 50 states, the Commonwealth of Puerto Rico, and the District of Columbia establish a per se BAC limit of 0.05 or lower for all drivers who are not already required to adhere to lower BAC limits. Alcohol is a drug that depresses the central nervous system. It affects cognitive performance, mood, and behavior. Alcohol is considered dose-dependent, and the more that is consumed, the greater the impact on the nervous system. Blood alcohol concentration (BAC) is the mass of alcohol per volume of blood. BAC can be measured through blood directly and by other biological samples such as urine and exhaled

breath. The report provided how a person's performance may be reduced at BAC levels below 0.08. Half or more than half of behavioral tests in a 2000 study indicated consistent impairment of cognitive tasks, psychomotor skills, and choice reaction time with BAC levels ranging from 0.060 to 0.069 and consistent impairment of tracking with BAC levels ranging from 0.050 to 0.059. Other studies have reported that alcohol use is associated with reduced seat belt use, which also impacts crash severity. The report sites numerous studies and concluded that there is a significantly increased fatal crash involvement with BACs between 0.050 and 0.079. The report also cites numerous studies that show that lowering per se BAC limits is associated with reductions in impaired driving crashes and fatalities. Though most alcohol-impaired crashes have BAC levels over 0.08, laws that lower the legal BAC limit have been shown to reduce the drinking and driving behaviors of drivers at all BAC levels. Other recommendations within the report included conducting high-visibility enforcement of impaired driving laws and incorporating passive alcohol sensing technology into enforcement efforts; expanding the use of in-vehicle devices to prevent operation by an impaired driver; using driving while intoxicated (DWI) courts and other programs to reduce recidivism by repeat DWI offenders; and establishing measurable goals for reducing impaired driving and tracking progress toward those goals. Enforcement influences driver behavior. Small proportions of impaired driving trips result in detection and arrest. The report cited research that estimates that alcohol-impaired drivers make an average of 80 impaired driving trips before being detected and arrested. High-Visibility Enforcement (HVE) includes media campaigns, enforcement efforts (e.g., saturation patrols and sobriety checkpoints), and swift and certain penalties. HVE has been found successful in reducing alcohol-impaired driving and encouraging other safety efforts such as seatbelt use. Detection could also be improved with passive alcohol sensors used by enforcement officers at sobriety checkpoints. The report concluded passive alcohol sensors are an effective, but underutilized technology. The report recommended expanding interlock devices to prevent an impaired driver from driving, advising all states to enact laws to require the use of alcohol ignition interlock devices for all people who are convicted of driving while intoxicated. Interlocks could also be utilized instead of more restrictive penalties such as house arrest. The report stated that in 2011, 7% of all alcohol-impaired drivers in fatal crashes had more than one arrest for driving while intoxicated. People with one or more convictions were disproportionately represented in the fatal crash population. People who have more than one conviction are more likely to have different types of alcohol or drug problems, with different levels of motivation to change their behaviors. The report recommends additional countermeasures for people who have multiple driving-while-intoxicated convictions, such as tailored programs that may include the use of intensive treatment, alcohol/drug testing, and graduated sanctions.

19. Court King County District. *State of Washington vs. Leonid Malinovskiy*. 2022.

On October 6, 2022, the King County District Court ruled that the Dräger breath test machine does not comply with Washington State Law and that “[n]o defendant would be assured that the test results from this machine...would in fact reflect a reliable and accurate measure of [their] breath content.”

20. Patrol Washington State. CR-103 Rule-making Order-- WAC 448-16-060 Determining agreement of duplicate breath samples. 2022.

On October 6, 2022, Washington State Patrol filed a CR-103 Rule-making Order, providing final rulemaking related to WAC 448-16-060 Determining agreement of duplicate breath samples.

The final rule becomes effective 31 days after filing. Final rule language struck the requirement that BAC results be rounded and instead changed WAC 448-16-060 to require that, "[f]or the Drager instrument, the mean of all four results will be calculated and truncated to four decimal places."

21. Shults R.A., Elder R.W., Sleet D.A., et al. Reviews of Evidence Regarding Interventions to Reduce Alcohol-Impaired Driving. *American Journal of Preventive Medicine*. 2001;21:66-88.

The Task Force on Community Preventive Services issues recommendations to help decision-makers identify and implement evidence-based, effective public health interventions. The Task Force conducts and publishes systematic reviews to determine the effectiveness of public health interventions on a range of health topics, including topics addressing behavior change, disease prevention, and environmental changes. The Guide to Community Preventive Services (The Community Guide) presents these findings, along with a rating of the strength of the evidence for a specific intervention. In 2001, the Task Force conducted a systematic review of 5 laws and community-based interventions aimed to reduce driving while intoxicated by alcohol and alcohol-related motor vehicle crashes. They stated that alcohol-related motor vehicle crashes are a major public health problem and accounted for a large proportion of motor vehicle crash deaths. The Task Force found strong evidence that 0.08 BAC laws were an effective way to reduce alcohol-related crashes. The Task Force evaluated two pathways related to BAC laws: 1) Lowering BAC levels may reduce alcohol-impaired driving by increasing the perceived risk of detection and punishment; and 2) Lowering BAC levels may foster a social norm that reduces the acceptable amount of alcohol to consume before driving. Taken together, the Task Force posited that changing perceived risk of arrest and social norms regarding consumption may influence drinking and driving (i.e., driver behavior), which may decrease alcohol-related crashes and reduce fatal and nonfatal injuries. BAC was considered the most objective measure of alcohol-relatedness of crashes. The systematic review evaluated 9 articles that looked at the impact of changing BAC from 0.10 to 0.08 on crashes occurring on public roadways. Seven of the 9 studies reported a decrease in post-law alcohol-related motor vehicle fatalities. Study findings indicated an approximate 7% decrease (range 4% to 15%) in alcohol-related motor vehicle fatalities after implementing a 0.08 BAC law. The Task Force reported that findings were generally consistent in direction and size across studies and states and should be generalizable to most drivers. In addition to BAC interventions, the review also found strong evidence for lowering the minimum legal drinking age and implementing sobriety checkpoints. They also found sufficient evidence for lowering BACs for young and inexperienced drivers and implementing training programs for people that serve alcoholic beverages.

22. National Academies of Science Engineering, and Medicine. *Getting to Zero Alcohol-Impaired Driving Fatalities: A Comprehensive Approach to a Persistent Problem*. Washington, D.C.: The National Academies Press.;2018.

The National Academy of Sciences published "Getting to Zero Alcohol-Impaired Driving Fatalities: A Comprehensive Approach to a Persistent Problem." Among other interventions, the authors summarized the existing body of evidence evaluating the impact of BAC laws on alcohol-impaired driving crashes. They stated that, "[a]lthough there may be increased risk of a crash at BACs above 0.05%, that does not necessarily mean that lowering the [per se BAC] to 0.05% would reduce crashes or crash fatalities." However, "[o]verall, the majority of

international evidence suggests that lowering the BAC limit to 0.05% reduces alcohol-related crashes and driving fatalities, and those effects are greatest among those groups at highest risk.” The authors found that international research varied in rigor and results. Prior international research generally found that lowering the per se BAC decreased alcohol-impaired driving crashes and fatalities through general deterrence as “reductions in crash fatalities have been observed across a range of BAC levels, not just those from 0.05% to 0.079%.” Some international studies have found that reductions were temporary, and researchers hypothesized this may be due to public perception that “the actual risk of apprehension was not as high as perceived risk when the BAC was first lowered.” Other international studies found that the magnitude of the impact and consistency of the effect depended on coupling lower the per se BAC with increased enforcement measures (e.g., sobriety checkpoints), administrative sanctions, and public information campaigns. International studies have also suggested that fatality rates decreased more for younger age groups compared to older age groups and for males compared to females. The authors noted that generalization of findings to the U.S. may be limited due to differences in populations, constitutional rights, and law enforcement strategies. They stated that evidence from the U.S. has demonstrated that, when per se BAC levels were lowered from 0.10% to 0.08%, alcohol-impaired driving fatalities decreased “particularly among young drivers, the age group at the highest risk for alcohol-related driving fatalities.” Overall, the authors concluded that, even with limited generalizability, “the preponderance of evidence indicates that lowering the BAC limit to 0.05% significantly and substantially reduces crash and fatality risk...not only among those drivers at or around a BAC of 0.05% or in the range 0.05[% to] 0.079%, but also at all BAC levels.” They also stated that, “[e]ffectiveness will also be enhanced by efforts to publicize 0.05% per se laws through mass media campaigns, by strong and sustained enforcement efforts, and through the implementation and enforcement of laws and policies to prevent illegal alcohol sales to underage or intoxicated persons...” The authors also discussed background research showing that, “those who repeatedly drink and drive compared to those who do not...know [DUI] law better, but are poorer planners (i.e., in planning a transportation alternative), lack self-control, and are more impulsive...preferring short-term rewards over bigger, long-term rewards.” Moreover, “those who drive while impaired by alcohol have difficulty [changing their drinking and driving behavior]...” The authors stated that “swiftness of punishment and increasing the perceived chances of getting caught are critical to deterrence.” The authors also stated that “people are often not aware of how impaired they are because they misjudge the rates of alcohol absorption and elimination, or because they may not understand the relationship between the quantity of alcohol consumed and the resulting [BAC].”

23. Administration National Highway Traffic Safety. Determine Why There Are Fewer Young Alcohol-Impaired Drivers. In: Transportation USDo, ed.

Chapter Four of this National Highway Traffic Safety Administration report discussed several factors that may have contributed to the youth drinking and driving decrease that occurred from 1982 to 1998. For example, it provides a history of minimum legal drinking ages (MLDA) in the U.S., states’ transition to implementing an MLDA of 21 years, and discussion of the effects of these laws. To advance MLDA policies in states which had not adopted such laws by the early 1980s, U.S. Congress enacted the Uniform Drinking Age Act in 1984, which stated that “states that failed to raise their MLDA to 21 would lose a portion of their federal-aid highway construction funding.” By 1988 all states had increased the MLDA to 21 years. Congress used the same strategy in 1995 to advance states’ adoption of zero tolerance laws, which prohibit

youth from drinking alcohol and per se laws that make it illegal to drive with a BAC exceeding a specified level. Authors noted, “[m]ost zero tolerance laws use an 0.02[%] BAC limit rather than an absolute 0.00[%] limit to allow for small measurement errors in BAC test instruments and to avoid challenges from youth who claim they have taken medication with small amounts of alcohol.” All states had zero tolerance laws in place by 1998.

24. Legal BAC limits by country. Global Health Observatory data repository 2018; Available at: <https://apps.who.int/gho/data/view.main.54600>. Accessed June 3, 2022.

The World Health Organization published legal alcohol concentration levels for for 178 countries based on 2016 policy for each country's general population. In 2016, nearly half of the countries had a legal alcohol concentration level of 0.01% to 0.05% (30% of countries had a legal alcohol concentration of 0.05%, and 18% had a legal alcohol concentration between 0.01% and 0.04%). There were 13% of countries with either a ban on alcohol or a zero-tolerance policy. There were 11% of countries without a legal alcohol concentration level. A quarter of the countries (25%) had a legal alcohol concentration level of 0.08%, including the United States.

25. Thomas F. D., Blomberg R., Darrah J., et al. Evaluation of Utah's .05 BAC per se law (Report No. DOT HS 813 233). National Highway Traffic Safety Administration;2022.

In 2022, the National Highway Traffic Safety Administration (NHTSA) completed an evaluation of Utah's 0.05% BAC per se law. In 2017, Utah became the first state to adopt a per se BAC below 0.08%. House Bill 155 modified Utah Code §41-6a-502 and lowered the per se BAC from 0.08% to 0.05%. The new law took effect on December 30, 2018. The intent of the evaluation was to: 1) document the legislative process for this change; 2) examine changes related to crashes and fatalities; alcohol-impaired driving arrests; driver knowledge, perceptions, and attitudes toward alcohol-impaired driving; state education or prevention strategies; and economic indicators, including alcohol sales, sales tax revenues, and tourism. Statistical analyses “focused on changes in the State crash data measures for the 21 months after the law was passed (but not yet in effect), and for the first 12 months after it was in effect” compared to 2016 (the last full year of data available before the change). More detailed methods are available in the report. The intent of lowering the per se BAC was to improve traffic safety. People were concerned the change would negatively impact the economy, penalize social drinkers, and not positively impact safety. NHTSA evaluated two different datasets to determine the impact of the 0.05% BAC per se law on crash and driver metrics. State data from the Utah Transportation and Public Safety Crash Data Initiative from January 1, 2010 to December 31, 2019 showed “reductions for almost all of the crash- and driver-level measures...there were fewer crashes and lower alcohol involvement...for the 21 months after the law passed, and the 12 months after it went into effect, compared to what would be expected based on statistical projections from the baseline period.” Twelve months after the 0.05% BAC went into effect, Utah experienced a statistically significant ($p < 0.05$) reduction in total crashes per 100 million vehicle miles traveled (9.6% decrease), injuries and fatalities from crashes per 100 million vehicle miles traveled (10.8% decrease), single vehicle nighttime injuries and fatalities from crashes per 100 million vehicle miles traveled (13.7% decrease), and alcohol positive crashes per 100 million vehicle miles traveled (8.9% decrease). Over the same time period, Utah experienced a statistically significant reduction in percentage of drivers suspected of alcohol (12.5% decrease), percentage of drivers positive for alcohol (14.6% decrease), percentage of drivers with a BAC greater than or equal to 0.05% (22.5% decrease), percentage of drivers with a BAC greater than or equal to 0.08%

(22.9% decrease), and percentage of drivers with a BAC greater than or equal to 0.15% (22.5% decrease). Based on national FARS data from the same time period, “the fatal crash rate reduction from 2016 to 2019 in Utah was 19.8%, and the fatality rate reduction was 18.3%” compared to a reduction of 5.6% and 5.9% in the U.S., respectively. In 2016, Utah had 0.86 fatal crashes per 100 million vehicle miles traveled. In 2019, this rate had dropped to 0.69 fatal crashes per 100 million vehicle miles traveled, representing a 19.8% decrease in fatal crashes for the first year the 0.05% BAC per se law was in effect. Utah Department of Public Safety stated that “the new law would not involve significant changes to the State’s DUI enforcement approach.” Authors stated that, “[i]t is important to note that Utah did not undertake any major media or enforcement efforts specifically related to the new [0.05%] per se [standard].” Messaging that was used stated that “DUI enforcement and prosecution would continue as usual with no changes in arrest or prosecution procedures because of the lower BAC [standard]. What little media was circulated by the State focused on the idea that officers would continue to make arrests based on observed impairment and that BAC level was only one element in determining driver impairment.” Based on data from the Utah Department of Public Safety Driver License Division, DUI arrests in 2019 (the first year the 0.05% BAC was in effect) were similar to the previous five years. Overall, data showed “no large spikes in overall arrests or arrests per population relative to the passage of the law. In 2019, there was a slight increase in number and proportion of arrests of drivers with BACs between [0.05% and 0.079%] relative to the prior few years, which was expected given that law enforcement could now cite drivers for a per se offense in this BAC range.” Utah State Highway Safety Office (USHSO) conducted focus groups and telephone surveys in 2018 and 2019 to understand perceptions of the law and self-reported behaviors. In both 2018 and 2019, USHSO completed 4 focus groups with a total of 25 people each year. Approximately 800 randomly-selected people completed phone interviews each year. Results from the telephone survey showed that 31% of respondents consumed alcohol in 2019. The number of people who consume alcohol and who could state the correct BAC increased from 31.3% in 2018 to 54.2% in 2019, indicating increased awareness of the new law. Of people who consume alcohol, 32.3% had a very negative view of the law in 2019, compared to 4.6% of people who do not consume alcohol. Additionally, 22.1% of people who consume alcohol indicated that they had changed their behavior as result of the lower BAC standard. Of people that reported changing their behavior, the most common changes were using alternate forms of transportation (25.5%), only drinking at home (23.6%), decreasing the amount of alcohol consumed (20.0%), being more aware/careful (14.5%), and not drinking and driving (12.7%). Data indicated that the law had no impact on alcohol sales, sales tax revenues, or tourism, which followed trends and continued to increase at a steady pace. NHTSA concluded that “passage of the [0.05%] per se law had demonstrably positive impacts on highway safety in Utah.” Lastly, NHTSA noted that interpretation of the results must include “whether Utah is somehow anomalous when it comes to alcohol-impaired driving and, specifically, the effects of a lowered per se DUI [standard] because of the makeup of its population and its low level of alcohol-impaired crashes relative to other States.”

26. H.B. 155 Driving Under the Influence and Public Safety Revisions. *Utah Code. 2017 General Session ed. United States: Utah State Legislature; 2017.*

The Utah State Legislature passed House Bill 155, and the Governor signed the bill into law on March 23, 2017. The law prohibits people who are 21 years and older from driving a

noncommercial vehicle with a blood alcohol concentration (BAC) of 0.05 g/dL or greater. It established driving with a BAC of 0.05 g/dL as a per se offense.

27. Eby D. W., Molnar L. J., Kostyniuk L. P., et al. Perceptions of alcohol-impaired driving and the blood alcohol concentration standard in the United States. *J Safety Res.* 2017;63:73-81.

Eby et al. conducted a survey of 1,011 nationally representative drivers 21 years of age or older in the U.S. to determine people's perceptions about lowering the per se blood alcohol concentration (BAC) below 0.08%. The survey was conducted in April 2014 and included questions related to "driving habits, alcohol consumption habits, drinking and driving habits, attitudes about drinking and driving, experiences with and opinions of drinking and driving laws, opinions about strategies to reduce drinking and driving, general concerns about traffic safety issues, and demographics." The authors noted that findings can be used to understand "how knowledge, attitudes, and beliefs could influence compliance with a lower [BAC level] if it were instituted." Approximately 56% of drivers reported drinking alcohol in the past year. Generally, 40% of drivers correctly stated the current BAC and 60% incorrectly stated the current BAC, including about 39% that stated they did not know the current BAC. Drivers generally underestimated the number of drinks they could consume before reaching the BAC level and believed they could consume about 3 drinks in 2 hours and still be safe to drive. Author's noted that a person's BAC levels are impacted by a "myriad of factors...including alcohol consumption history and whether or not a person had eaten, the respondent's weight difference as compared to the average person, and the alcohol level of the drinks being reported." Approximately one-third of drivers stated that they had driven within two hours of consuming any amount of alcohol; people aged 65 and older were significantly more likely than other age groups to report driving within two hours of consuming any alcohol (54% versus 32% for people aged 21-34 years and 36% for people aged 35-64 years). Drivers that had driven within two hours of consuming any alcohol reported this behavior about 3 times in the past month, with men reporting significantly more times than women. Of people who reported at driving within two hours of drinking at least once, "the frequency of driving when one thought they were legally impaired was an average of 3 times in the past year with men reporting more incidents than women." However, only 0.3% of drivers "who consumed alcohol in the past year reported that they drove while they thought they were over the legal BAC standard." Survey results also showed that drivers "thought the most likely outcome of alcohol-impaired driving was getting into a crash (3.9 [out of 5, with 1 being "not at all likely" and 5 being "very likely"]). However, the likelihood ratings for the remaining three outcomes (getting stopped, arrested, or convicted for drinking and driving) were all above 3, the midpoint of the scale, suggesting that they were also considered to be moderately likely outcomes." Approximately 60% of drivers stated that the BAC should remain 0.08 and 30% of drivers thought BAC should be lowered. Overall, drivers felt that a BAC of 0.05% would be moderately acceptable to them personally (approximately 3 out of 5, with 1 being "not at all acceptable" and 5 being "very acceptable"). Drivers felt a BAC of 0.05% would be less acceptable to the general public. However, 63.9% of drivers indicated that lowering the BAC to 0.05% would "have no effect on their decisions to drink and drive." There were no significant differences by age, sex, or knowledge of the state's current BAC. However, people that drank were significantly more likely to report that lowering the BAC would not impact their decision to drink and drive (66.2% versus 55.9% of people that do not drink). Similarly, 79.2% of drivers felt that "a lower BAC level would not reduce general alcohol

consumption.” Drivers also felt that, generally, lowering the BAC would not effectively reduce drinking and driving (2.5 likelihood rating out of 5) or reduce crashes and injuries (2.8 likelihood rating out of 5). Drivers were more likely to perceive that lowering the BAC to 0.05% would reduce drinking and driving if they were women, reported driving after drinking, did not know the current BAC level, or believed drivers were more likely to be arrested for drinking and driving. Where applicable, the authors presented findings by age, sex, drinking behaviors, and knowledge of current BAC levels. Overall, the authors stated that drivers “did not think lowering the BAC standard to .05% would have much of an effect on general alcohol consumption, decisions to drive after consuming alcohol, or [alcohol impaired driving]-related crashes, injuries, or deaths.” They also found that lack of knowledge about the current BAC, “combined with the [drivers’] reporting moderate likelihood of an alcohol impaired driver being stopped by police or being arrested are suggestive of the usefulness (but are not conclusive) of publicity and enforcement to increase knowledge of the legal BAC level and the perception that drivers will be stopped when in violation of this level.” The authors concluded that more research is needed on the impacts of lowering BAC on traffic collisions, arrests, driving while intoxicated by alcohol, and other alcohol-related behaviors. The authors also presented previous research. For example, a 2013 study found that the risk of arrest for driving with a BAC of 0.08% or higher is 1 in 1,016 trips.

28. Molnar L. J., Eby D. W., Kostyniuk L. P., et al. Stakeholder perceptions of lowering the blood alcohol concentration standard in the United States. *Ann Epidemiol.* 2017;27(12):757-762.

Molnar et al. conducted purposive, in-depth interviews between July and September 2013 with 20 organizations that “have an interest and investment in the potential impacts of strategies to decrease alcohol-impaired related crashes and injuries” to understand the change in BAC from 0.10 % to 0.08% and to explore perceptions of further lowering the BAC. Participants included national organizations representing the alcohol industry, automotive/trucking industry, government, insurance, judicial, law enforcement, medical/health, and nongovernmental organizations (e.g., American Beverage Institute; American Medical Association; Association of Prosecuting Attorneys; Governors Highway Safety Association, Mothers Against Drunk Driving (MADD), National Highway Traffic Safety Administration). Questions included topics such as, “arguments for and against the change; stakeholders on both sides of the issue; strategies to support or oppose change; health and economic impacts; enforcement challenges; and adjudication challenges.” The authors analyzed responses to identify themes by question. All responses were reported in aggregate (i.e., not attributed to specific organizations). Stakeholders stated that the most compelling reason to lower the BAC from 0.10% to 0.08% was to reduce crashes and associated injuries and deaths. Other reasons included, “many other countries have already lowered their standard to 0.08% or...lower, with good results; too many people were dying in alcohol-related crashes and lowering the BAC standard to 0.08% was reasonable, publicly supported, and compatible with a larger trend toward lower impairment levels, and it would be easier to prosecute higher BAC cases with a lower standard.” Stakeholders noted the importance of stories from MADD and in Congress threatening to without road construction funds. The authors discussed findings for each of the main questions. The authors concluded that, “moving the BAC standard below the current level [of 0.08%] will require considerable effort and time...There was strong, but not complete agreement, that it will be difficult, and maybe infeasible in the short-term, for states to implement a BAC standard lower than 0.08% as

a countermeasure to reduce [alcohol impaired driving] and the associated crashes, injuries, and deaths.” Lastly, stakeholders reported that “there were other [alcohol impaired driving] countermeasures that could yield greater benefits with less difficulty to implement them” (e.g., ignition interlocks, sobriety checkpoints).

29. Kostyniuk L. P., Eby D. W., Molnar L. J., et al. Potential effects of lowering the BAC limit on injuries, fatalities, and costs. *J Safety Res.* 2018;64:49-54.

Kostyniuk et al. modeled five potential scenarios of how lowering BAC to 0.05% may affect alcohol-impaired driving to determine potential impacts of changing BAC from 0.08% to 0.05% on health and costs. More specifically, “[p]otential health and cost impacts of lowering the BAC limit for U.S. drivers below [0.08%] were explored through analyses of reductions in crash incidence, injury severity, and costs based on five scenarios with varying assumptions about how the change to a [0.05%] BAC...might affect alcohol-impaired driving.” The authors developed models based on previous research and data to estimate the relative risk of crashes by BAC level and likely injury incidence associated with each BAC level. Generally, risk of crash and injury severity increase with BAC level. The authors made the assumption that “the public health impacts of lowering [BAC laws] below [0.08%] should be manifested in a reduction in vehicle crashes and the deaths, injuries, and property damage associated with them.” However, the “effects of any change in [BAC laws] depend on the public’s compliance with the law.” Therefore, the authors developed five compliance scenarios included: 1) all drivers would stop driving while intoxicated by alcohol; 2) all drivers would drive with a BAC under 0.05% (i.e., all drivers would comply with the law); 3) drivers who drove with a BAC near 0.08% (i.e., +/- 0.03%) before the change would shift to driving with a BAC near 0.05% (drivers who drove with a BAC below 0.05% or above 0.10% would likely not change behavior); 4) modeled on conditions in Adelaide, Australia after lowering the BAC from 0.08% to 0.05%, percentages of drivers would shift to driving with lower BACs (e.g., of drivers who drove with a BAC between 0.05% and 0.079%, 40% would shift to driving with a BAC of 0.01%); and 5) modeled on conditions in the U.S. after lowering the BAC from 0.10% to 0.08%, 15% of drivers who drove with a BAC at or above 0.05% would shift to driving with a BAC below 0.05% (i.e., assumes 15% of drivers would change their behavior). The authors reported percentage change in total motor vehicle fatalities and in alcohol-related motor vehicle fatalities. The authors noted that Scenario 1 and 2 “while clearly not achievable, offered two “best case” scenarios for comparisons.” Therefore, Scenarios 3-5 would likely reduce total motor vehicle fatalities by 1.8-3.9% and alcohol-related motor vehicle fatalities by 5.0-12.5%. Findings showed that “[e]stimated reductions in alcohol-related fatalities were 88% in scenario 1, 71% in scenario 2, 5% in scenario 3, 10% in scenario 4 and 13% in scenario 5. Estimated reductions in alcohol-related injuries were 99% in scenario 1, 75% in scenario 2, 4% in scenario 3, 12% in scenario 4, and 14% in scenario 5.” If lowering the BAC to 0.05% follows the changes seen in the U.S. after lowering the BAC from 0.10% to 0.08%, the model suggests that 1281 lives would be saved and 48,000 injuries would be prevented, with a 13% to 16% decrease in alcohol related crashes. The authors stated that these “public health gains could [only] be achieved by an optimal response to a change in [alcohol impaired driving] policy” and “the scenarios do not reflect realistic changes in [alcohol impaired driving] policy at this time.” Depending on the scenario, the authors found wide variation in potential impacts on alcohol-related motor vehicle fatalities, injuries, and costs, suggesting “the sensitivity of BAC policy benefits to driver compliance behavior.” The authors also stated, “many changes have occurred between the passage of the last state law to a [0.08%

BAC] and the present environment. These include changing demographics and an aging of the population, changes in safety culture, new technologies aimed at reducing impaired driving, and changes in level of commitment and support from various stakeholders. Thus, the public's response to the lowering of the [BAC] might also be different than before." Lastly, "[d]river's responses to a BAC policy are complicated and based on a number factors including: how the policy is publicized, enforced, and adjudicated; the traffic safety and [alcohol impaired driving] culture of the community in which the policy is implemented; and the public's perception of the policy."

30. Lira M. C., Sarda V., Heeren T. C., et al. Alcohol Policies and Motor Vehicle Crash Deaths Involving Blood Alcohol Concentrations Below 0.08. *Am J Prev Med.* 2020;58(5):622-629.

Lira and colleagues conducted a repeated, lagged cross-sectional study to analyze 2000-2015 Fatality Analysis Reporting System data in 2018-2019 regarding motor vehicle crash (MVC) fatalities. "The objectives of this study were to (1) describe alcohol-involved MVC fatalities below the legal BAC limit of 0.08% in comparison with higher BAC fatalities and (2) analyze the relationship between more restrictive state alcohol policy environments and the odds of alcohol involvement in MVC fatalities involving alcohol below 0.08% compared with no alcohol involvement." Alcohol policy environments were evaluated by state-year using the Alcohol Policy Scale (APS) (based on the presence of 29 alcohol policies in each U.S. state, selected by 10 alcohol policy experts). Analysis was conducted using generalized estimating equation alternating logistic regression models and calculating odds that a fatality involved alcohol below the legal threshold. The authors found that lower BAC crash fatalities accounted for a meaningful proportion of all alcohol-involved MVC fatalities (37% of motor vehicle crash fatalities died in alcohol-involved crashes, and 15% of those alcohol-involved fatalities had BAC <0.08). Lower BAC MVC decedents were more likely (55%) to be individuals other than a drinking driver and were more likely to be youth. Authors also found that more restrictive state policies were less likely to have alcohol involved MVCs and with reduced odds of alcohol involvement at BAC levels between 0.05 – 0.08; a 10% increase in the APS corresponded to a similar decrease in the odds of alcohol involvement in these crashes. "This study suggests that strengthening alcohol policies could reduce alcohol involved crash fatalities at all BAC levels."

31. Pleggenkuhle B. The Financial Cost of a Criminal Conviction: Context and Consequences. *Criminal Justice and Behavior.* 2017;45(1):121-145.

Legal financial obligations (LFOs) are "cumulative monetary assessments charged over various points of a criminal sentence." Pleggenkuhle conducted semi-structured qualitative interviews with a purposive sample of 131 people under correctional supervision in Missouri in 2011 and 2012 to understand the prevalence of LFOs for people that have experienced incarceration and the impact of LFOs on re-entry (e.g., impacts on employment, social support, housing). Of the 131 participants, all had been convicted of a felony: 55% were convicted of a sex offense, 45% were convicted of a personal or property crime and 13% were convicted of a drug offense. Approximately 75% were under parole supervision, 16.8% were incarcerated, and 8.4% were on probation. No response rate was calculated. The author used a grounded theory approach to analyze responses and also evaluated responses for emerging themes. Overall, the author found that the majority of people under correctional supervision have some form of LFOs, including fines, supervision costs, and child-support-related fees and that LFOs "diminished positive

opportunities for [people] by compounding precarious financial states, limiting opportunities for upward social movement, and weakening positive cognitive change.” Participants in the study reported difficulty in their role within their family and their ability to support their families, or the ability to establish or maintain familial partnerships, contributing to a negative sense of self-worth. Additionally, the study found child support debt drastically increased financial obligations. The author also provides the background that research on the scope of LFOs often does not consider the impact of child support orders and accrual, because, though potentially substantial, it is not a penalty directly related to a conviction. The article presents ranges of sentencing costs for various types of LFOs. The author concluded that social and emotional responses are not just connected to financial instability, but directly to LFOs due to the associated criminal conviction, limiting employment and housing potential and establishing credit, perpetuating social and economic inequalities.

32. Harris A. A Pound of Flesh: Monetary Sanctions as Punishment for the Poor. New York: Russell Sage Foundation; 2016.

This book, written by sociologist Dr. Alexes Harris, focused on the rise of monetary sanctions as a tool of the criminal justice system and the ways in which these sanctions marginalize and penalize the poor. While Harris presented data from across the United States, she focused her analysis on the court practices of five counties in Washington State. To illustrate how these monetary sanctions perpetuate inequality, Harris drew conclusions from quantitative and qualitative data including sentencing data, legal documents, court hearing observations, and eighty-nine interviews with judges, clerks, attorneys, and defendants. Harris further used evidence to support two main arguments throughout the book: “(1) monetary sanctions imposed by the criminal justice system create and sustain inequality in the United States and, (2) the system of monetary sanctions is enforced by criminal justice bureaucrats whose discretion is shaped by a culture of accountability.”

33. Commission Washington Traffic Safety. Washington 2020 Traffic Safety Annual Report. December 2020.

The Washington Traffic Safety Commission submitted its annual report to the Legislature in December 2020. The report included an assessment of the state’s progress as well as performance activity measures and program updates.

34. Commission Washington State Traffic Safety. Target Zero: Washington State Strategic Highway Safety Plan 2019.2019.

The Washington State Traffic Safety Commission’s (WTSC) 2019 Target Zero plan presents data from 2003 to 2017. The report outlines objectives and strategies to reduce traffic crashes and fatalities, including an objective to reduce and eliminate impaired driving by raising awareness through statewide and regional educational campaigns. The section of the report focused on impairment briefly discussed changes in state policy resulting from Initiatives 1183 and 502. Initiative 1183 approved the privatization of liquor sales and distribution in Washington, which increased access to alcohol (i.e., 328 stores in 2010 compared to 7,976 stores in 2019). Initiative 502 legalized the production, possession, delivery, and distribution of cannabis. In this environment, authors noted polydrug use (i.e., polysubstance use) was becoming more prevalent in fatal crashes. Despite Washington State’s focus on and progress toward decreasing impairment in motor vehicle crashes, data show that impairment factored into

19% of all collisions that involved serious injuries in Washington and continued to be “the main factor in 58% of fatal crashes in Washington” from 2015 through 2017. Speeding and lane departure were the two most common factors occurring with impaired driving. For example, from 2015 through 2017, there were 958 fatalities that involved impairment, with 33% of these also involving speeding, 53% also involving lane departure, and 24% involving both speeding and lane departure. During this period, the percentage of all fatal and serious crashes ranged from 0% (in Columbia and Garfield counties) to 43% (in Stevens County). In most Washington counties (27 of 39), 10-30% of fatal and serious crashes occurring from 2015 through 2017 were impairment related. In addition to presenting data, the report briefly described efforts by the WTSC and its advisory body, the Washington Impaired Driving Advisory Council (WIDAC), a partnership between the public and private sectors to coordinate planning, training, programs, and research to reduce the incidence of impaired driving. WIDAC identified 9 areas of concentration to guide this work. WTSC also partnered with the Center for Health and Safety Culture (CHSC) to “study the increase in drivers who are involved in deadly crashes testing for multiple substances”, most commonly alcohol and cannabis. The 2018 surveys found “[m]ost adults (91%) reported not driving within two hours of consuming alcohol and cannabis, have a negative attitude about such behavior (81%), and believe it is unacceptable (83%).” Based on survey results, they proposed interventions and media campaigns to influence the beliefs and behaviors of the 9% of drivers who drive under the influence of cannabis and alcohol. Finally, the Target Zero report discussed law enforcement and training, adjudication and probation, and other elements related to impairment.

35. Crash Data Dashboards. 2022; Available at: <https://wtsc.wa.gov/research-data/dashboards/>. Accessed May 23, 2022.

This webpage is a resource for state, county, and city-level crash information available on the website of the Washington Traffic Safety Commission.

36. Prevention Centers for Disease Control and. Behavioral Risk Factor Surveillance System (BRFSS): Table of Alcohol Consumption. 2016, 2019.

The Centers for Disease Control and Prevention (CDC) conducts the Behavioral Risk Factor Surveillance System (BRFSS) on an annual basis. BRFSS is a "continuous, state-based surveillance system that collects information about modifiable risk factors for chronic diseases and other leading causes of death." BRFSS includes questions related to alcohol consumption, including a measure for "[a]dults who have had at least one drink of alcohol within the past 30 days." In 2016 and 2019, 54% and 53.8% (respectively) of U.S. adults reported having at least one drink of alcohol within the past 30 days. In 2016 and 2019, 31.7% and 31.13% of Utah adults reported having at least one drink of alcohol within the past 30 days. In 2016 and 2019, 58.69% and 55.97% of Washington adults reported having at least one drink of alcohol within the past 30 days. Based on this data, Utah adults consume alcohol at a lower rate than the U.S. population and Washington adults consume alcohol at a higher rate than the U.S. population. Therefore, Utah's drinking culture and alcohol environment may not be generalizable to the U.S. as a whole or to Washington State.

37. Administration National Highway Traffic Safety. Fatality Analysis Reporting System (FARS): Traffic Safety Facts Annual Report Tables. 2022.

The National Highway Traffic Safety Administration manages the Fatality Analysis Reporting System (FARS). FARS is a nationwide census of fatal injuries due to motor vehicle traffic crashes in the U.S. NHTSA publishes “Traffic Safety Facts Annual Report Tables”, allowing comparison on certain crash and driver metrics. In 2016 (the last year of full data before Utah passed a 0.05% per se BAC standard), the U.S. as a whole had 1.09 fatal crashes per 100 million vehicle miles traveled, with 30% involving alcohol-impaired driving. Utah had 18% of fatal crashes involving alcohol-impaired driving and Washington State 29% of fatal crashes involving alcohol-impaired driving. Based on this data, Utah experiences a much lower percentage of fatal crashes involving alcohol-impaired driving than the U.S. or Washington State. More current data from 2019 (the last year of full data before the COVID-19 pandemic). In 2019, there were 33,487 fatal crashes in the U.S. (1.03 fatal crashes per 100 million vehicle miles travelled). Of these, 9,269 (28%) of fatal crashes involved alcohol-impaired driving. Utah had 36 out of 225 fatal crashes (16%) involving alcohol-impaired driving. Washington had 175 out of 513 fatal crashes (34%) involving alcohol-impaired driving. In 2020, the percentage of fatal crashes involving alcohol-impaired driving increased to 36% in Washington State.

38. Administration National Highway Traffic Safety. 2019 Data: Traffic Safety Facts, Alcohol-Impaired Driving.2021.

This NHTSA factsheet presents data from the Fatality Analysis Reporting System (FARS) related to alcohol-impaired driving including information about fatalities and crash characteristics. National FARS data indicate that 28% of all traffic fatalities in 2019 involved alcohol-impaired driving (i.e., when at least one driver had a BAC of 0.08% or higher) and 10,142 people were killed in alcohol-impaired driving crashes. Drivers involved in fatal alcohol-impaired driving collisions were more likely to be 21 to 24 years old (27%), male (21%), and riding a motorcycle (29%). Sixty-eight percent (68%) of fatal collisions involving alcohol-impaired driving occurred when at least one driver had a BAC of 0.15% or higher. Of fatalities in alcohol-impaired driving crashes, 63% of people were drivers with a BAC of 0.08% or higher, 13% of people were passengers riding with drivers with a BAC of 0.08% or higher, 14% of people were occupants of other vehicles, and 10% of people were pedestrians, bicyclists, or other non-occupants. Fatal crashes involving alcohol-impaired driving were more likely to occur in September (9.5%) and July (9.4%), on a weekend (26%), in hours of darkness (68%), in clear/cloudy weather conditions (90%), in urban areas (56%), and on non-interstate roads (87%). Drivers with a BAC of 0.08% or greater and with a previous DUI conviction were 4 times more likely to be involved in a fatal crash than drivers with a BAC of 0.00% and a previous DUI conviction.

39. Commission Washington Traffic Safety. Discussion: Changing Washington's per se blood alcohol concentration (BAC) limit from .08% to .05% BAC.2022.

In September 2022, the Washington Traffic Safety Commission (WTSC) published a report with Washington State data relevant to the potential DUI per se BAC change from 0.08% to 0.05%. They noted that more than half of fatal crashes in Washington State involve a driver impaired by alcohol or drugs. WTSC noted that data may underestimate the number of drivers intoxicated by alcohol as “49% of drivers involved in fatal crashes [in Washington State] were not tested for drugs or alcohol...Only 31[%] of those who were tested did not test positive for alcohol, cannabis, or other drugs that could be impairing.” The report summarized findings from the

evaluation of Utah's 0.5% per se BAC law change, BAC levels from other countries, and potential economic benefits of reducing alcohol-impaired driving crashes and fatalities.

40. 2020 Fatality Data Show Increased Traffic Fatalities During Pandemic [press release]. Washington, D.C., 06/03/2021 2021.

This press release from the National Highway Traffic Safety Administration (NHTSA) presented 2020 Fatality Analysis Reporting System (FARS) data showing a 7.2% increase in fatal motor vehicle crashes compared to 2019, even while vehicle miles travelled decreased by 13.2%.

NHTSA reported that, "research suggests that throughout the [COVID-19] national public health emergency and associated lockdowns, driving patterns and behaviors changed significantly, and that drivers who remained on the roads engaged in more risky behavior, including speeding, failing to wear seat belts, and driving under the influence of drugs or alcohol."

41. Newly Released Estimates Show Traffic Fatalities Reached a 16-Year High in 2021 [press release]. Washington, D.C., 05/17/2022 2022.

This press release from the National Highway Traffic Safety Administration (NHTSA) presented 2021 Fatality Analysis Reporting System (FARS) data showing a 10.5% increase in fatal motor vehicle crashes from 2020, marking the "largest annual percentage increase in [FARS reporting] history."

42. Chiefs Washington Association of Sheriffs and Police. Crime in Washington Report 2020. In: Program WSUCR, ed. *Annual Report 2021*.

The Washington Association of Sheriffs and Police Chiefs (WASPC) publishes an annual summary of data submitted by Washington State law enforcement agencies through the National Incident-Based Reporting System (NIBRS) to the Washington State Uniform Crime Reporting (UCR) Program. The UCR Program collects information related to "criminal offenses, arrests, law enforcement officers killed or assaulted, and full-time law enforcement employees." In 2020, there were 22,070 DUI-related arrests, which accounted for 15% of all arrests in Washington State. The majority of people arrested for DUI-related crimes were male and age 25 years through 29 years.

43. Policy Washington State Institute for Public. Legal Financial Obligations in Washington State: Background, Statutes, and 50-State Review. 2021.

In 2021, the Washington State Legislature allocated funding in the 2021-2023 operating budget for the Washington State Institute for Public Policy (WSIPP) to conduct a study of LFOs as defined in RCW 9.94A.030.14. The budget proviso directed the study to recommend to the Legislature "potential methods and processes to delink court-related funding and other county and local funding from the collection of [LFOs] and to provide such funding through other means." An initial report, "Legal Financial Obligations in Washington State: Background, Statutes, and 50-State Review" was submitted to the Legislature in December 2021. Among other topics, this report provides context about the Washington State court system and LFOs, including a discussion of data limitations.

44. Glanz K., Rimer B.K., K. Viswanath. *Health Behavior and Health Education: Theory, Research, and Practice*. 4th Edition ed. San Francisco, CA: Jossey-Bass; 2008.

Glanz et al. present current theories and models of health behavior change. Many theories note that information alone is not sufficient to change behavior. Instead, health behavior change is dependent on a number of factors, spanning from an individual's underlying beliefs, knowledge, and attitudes to broader political, economic, and social determinants of health.

45. Kelly M. P., Barker M. Why is changing health-related behaviour so difficult? *Public Health*. 2016;136:109-116.

The authors propose six common errors of politicians and policy-makers in thinking about health behavior change. Kelly explains that information alone is not enough to change people's behaviors and that, "giving people information does not make them change." He also explains it is false that, "if you tell people what is good for them and what they need to do to protect their health, they will do it." He states that based on our historical and current knowledge of behavior change science, we recognize that even when people are armed with information, behavior change is challenging. He concludes that behavior change requires an understanding of people's motivation and context, including their social and economic environment.

46. Paternoster Raymond. How much do we really know about criminal deterrence? *The Journal of Criminal Law and Criminology*. 2010;100(3):765-824.

Paternoster summarized the current body of evidence related to deterring crime through sanctions (e.g. fines, probation, imprisonment). The author notes that, while "empirical evidence leads to the conclusion that there is a marginal deterrent effect for legal sanctions...it is difficult to state with any precision how strong a deterrent effect the criminal justice system provides." The author also noted that even less is known about relative or marginal deterrent effects (e.g. "does adding three years to a prison sentence for the use of a gun deter firearm-related felonies?"). Previous research has suggested that deterrence theory is based on whether the certainty, severity, or swiftness of legal punishments will lower crime rates. Laws that have increased sentencing for firearms have sought to increase the severity of punishments, but may not have changed certainty or swiftness, which could reduce the effectiveness of the change. The perception of punishment also matters. For example, increasing penalties for firearm possession only matters if the increased punishment is "recognized by the public, including would-be felons." In summary, "evidence does not suggest that either imprisonment itself or the length of imprisonment is effective in deterring crime for those who experience it." Lastly, the author concluded, "there is greater confidence that non-legal factors are more effective in securing compliance than legal threats."

47. Hingson R., Heeren, T., Winter, M. . Lowering State Legal Blood Alcohol Limits to 0.08%: The Effect of Fatal Motor Vehicle Crashes *American Journal of Public Health* 1996;86(9):1297-1299.

The authors reviewed state-level data among five states who lowered the legal blood alcohol limit from 0.10% to 0.08% "to determine whether reductions in alcohol-related fatal crashes following adoption of 0.08% legal blood alcohol limits were independent of general regional trends". There were five states in the U.S. that lowered the legal BAC limit from 0.10% to 0.08% prior to 1992. Hingson and colleagues compared fatal crash data from each of these five states with a nearby state that maintained a 0.10% BAC level for the maximum number of post-law years available at the time of the study (ranging from 1983 – 1991). To examine whether 0.08% BAC laws reduced crashes involving severely intoxicated drivers, the study analysis used the

proportion of crashes with drivers who had a BAC level of 0.15% or higher, regardless of whether or not the crashes resulted in fatalities. The proportion of fatal crashes involving drivers with BAC at or above 0.08% or 0.15% was examined to control for the downward trend in total fatal crashes from 1980 – 1993, as well as other socioeconomic variables that may have influenced the number of fatal crashes. The relative change within each state pair was calculated using meta-analytic methods. Authors found that data from four out of five state pairs showed a reduction in the proportion of crashes with a fatally injured driver whose BAC was 0.08% or greater in states who implemented the 0.08% BAC law. The pooled estimate indicates a 16% post-law reduction of fatal crashes with a fatally injured driver whose BAC was 0.08% or greater, and an 18% reduction of fatal crashes with a fatally injured driver whose BAC was 0.15% or greater. This study did not examine results of nonfatal crashes. The authors conclude that “the results of this study suggest that 0.08% laws, particularly in combination with administrative license revocation, reduce the proportion of fatal crashes involving drivers and fatally injured drivers with blood alcohol levels of 0.08% or higher and 0.15% or higher.”

48. **Roberts W., Moore K.E., Pittman B.P., et al. High Risk of Alcohol-Impaired Driving in Adults with Comorbid Alcohol and Substance Use Disorders in the U.S. Population. *Journal of Studies on Alcohol and Drugs*. 2019;80:114-119.**

Roberts et al. cited background information demonstrating that people living with alcohol-use disorder are at greater risk of alcohol-impaired driving. People who have received prior DUI-related charges are also at greater risk of alcohol-impaired driving. The authors used data from the National Epidemiologic Survey on Alcohol and Related Conditions-III, a nationally representative survey of adults conducted by the National Institute on Alcohol Abuse and Alcoholism. Of survey participants, 25,778 adults who reported drinking alcohol in the past year were included in this study. The authors examined rates of alcohol-impaired driving among four groups: 1) people without a diagnosis of alcohol use disorder or another substance use disorder; 2) people with alcohol use disorder and without another substance use disorder; 3) people with another substance use disorder and without alcohol use disorder; and 4) people with alcohol use disorder and one or more comorbid substance use disorders. Overall, they found that “people with [alcohol use disorder] had greater odds of past-year alcohol-impaired driving behaviors.” The authors also found an additive risk for people with comorbid alcohol use disorder and other substance use disorders.

49. **SAMHSA Park-Lee, E., Lipari, R. N., Bose, J., Hughes, A., Greenway, K., Glasheen, C., Herman-Stahl, M., Penne, M., Pemberton, M., & Cajka, J. . Substance use and mental health issues among U.S.-born American Indians or Alaska Natives residing on and off tribal lands. In: Services DoHaH, ed. <https://www.samhsa.gov/data/2018>.**

Authors from the Substance Abuse and Mental Health Services Administration (SAMHSA) reported on ways to gather behavioral health outcome data among American Indian/Alaska Native (AI/AN) populations and some statistics on mental health and substance use among AI/AN. Researchers used 2005 – 2014 National Survey on Drug Use and Health (NSDUH) data of adults 12 or older, where the total N = approximately 31,900 people, where n = 5,400 resided on tribal lands, and n = 26,500 resided off tribal lands. The authors provided background on the unique experiences of AI/ANs, including the importance of highlighting historical context for the high rates of mental health and substance use rates among these groups. The authors summarized, “The prevalence of substance use and mental health issues among AI/ANs is linked

with social determinants of health, including poverty, lack of opportunity, violence and victimization, chronic stress, and barriers to culturally competent behavioral health care. Disparities in the prevalence of substance use and mental health issues among AI/ANs may also be viewed as a legacy of historical trauma— that is, the intergenerational impact of massacres; forced relocation; involuntary removal of children to boarding schools; and bans on native language, traditions, and cultural practices.” The researchers’ analyses evaluated: 1) the feasibility of using NSDUH data to assess AI/AN mental health and substance use, 2) any biases introduced by census-based changes, 3) the comparability of these estimates, and 4) the comparison of behavioral health characteristics of AI/AN living on compared to living off tribal lands. Study data showed that U.S.-born AI/AN people living on tribal lands were equally or less likely than U.S.-born AI/AN adults and adolescents living off tribal lands to experience behavioral health challenges and past-year mental health problems. When comparing to U.S.-born AI/AN adults living off tribal lands, U.S.-born AI/AN adults living on tribal lands were less likely to smoke cigarettes daily and to use alcohol, marijuana, cocaine/crack, and heroin in the past month, were more likely to have past year substance use disorder and alcohol use disorder and were less likely to receive substance use treatment. When comparing to U.S.-born AI/AN adolescents living off tribal lands, U.S.-born AI/AN adolescents residing on tribal lands were less likely to have a past year major depressive episode and were more likely to use cigarettes or tobacco in the past month. Although the AI/AN adolescents living on tribal lands were not more likely to use alcohol or illicit drugs in the past month than those residing off tribal lands, they were more likely to need substance use treatment. The authors called for additional research of NSDUH data and evaluation of U.S.-born AI/AN people on, near, or off of tribal lands.

50. Spillane S., Shiels, M., Best, A., Haozous, E., Withrow, D., Chen, Y., Berrington de Gonzalez, A., Freedman, N. . Trends in Alcohol-Induced Deaths in the United States, 2000-2016. *JAMA Network Open*. 2020;3(2).

Spillane et al. conducted a cross-sectional study using 2000 - 2016 U.S. vital statistics data for residents older than 15 years. The researchers examined trends in alcohol-induced mortality by sex, race/ethnicity, age, county-level socioeconomic status, rurality level, and US state. In data analyses, authors restricted the American Indian and Alaska Native (AIAN) population data to Indian Health Service Purchased and Referred Care Service Delivery Area counties “to minimize misclassification within this population”. The largest increases by race/ethnicity were observed among American Indian and Alaska Native men (AAPC, 3.3%; 95%CI, 2.6% to 4.0%), American Indian and Alaska Native women (AAPC, 4.2%; 95%CI, 3.8% to 4.6%), and white women (AAPC, 4.1%; 95%CI, 3.6%to 4.7%). In the discussion section, authors describe the social and historical context through which these data must be examined. “National surveys indicate that AIAN individuals are less likely to drink alcohol than other groups, but those who consume alcohol are more likely to drink larger amounts and to binge drink. Within the AIAN population, alcohol misuse should be considered within the context of historical trauma and exposure to other risk factors, which include poverty, family history of alcohol use disorder, availability of alcohol at a younger age through peer groupings that include older relatives, and acculturation stress. Additionally, available treatment and testing interventions have largely been developed for other populations and are poorly suited to AIAN populations. Dramatic underfunding of the Indian Health Service and under-allocation of funding for mental health and substance use disorder services are also associated with alcohol related morbidity and mortality.”

The authors conclude by sharing that their findings, coupled with the downstream impacts of alcohol-related morbidity and mortality point to an urgent public health crisis.

51. Hingson R., Winter M. Epidemiology and Consequences of Drinking and Driving. National Institute on Alcohol Abuse and Alcoholism;2003.

In 2003, National Institute on Alcohol Abuse and Alcoholism prepared a report summarizing data and information discussing who may be disproportionately at-risk for involvement in fatal alcohol-impaired driving crashes. The report discusses inequities by BAC level, age, sex, race/ethnicity, alcohol use disorder, prior DUI-related convictions, type of vehicle, and other related risk-taking behaviors (e.g., seatbelt use).

52. Commission Washington Traffic Safety. American Indian/Alaska Native (AIAN) Traffic Deaths.2022.

In this brief, Washington Traffic Safety Commission (WTSC) summarizes available traffic crash and fatality data, including fatal alcohol-impaired driving data, specific to American Indians and Alaska Natives.

53. Urban Indian Health. Available at. Accessed Dec. 16, 2022.

The Urban Indian Health Institute (UIHI), a Division of the Seattle Indian Health Board, reports on the history, health, and resilience of urban Indians. This website highlights that urban Indians experience health disparities at disproportionate rates compared to other ethnic groups. The UIHI provides health and community information to other urban Indian-serving organizations through this website.

54. Rights USCoC.Collateral Consequences: The Crossroads of Punishment, Redemption, and the Effects on Communities.Washington, DC: United States Commission on Civil Rights; June 2019 2019.

This briefing report from the U.S. Commission on Civil Rights (The Commission) "provides an overview of the relevant data and arguments for and against the imposition of collateral consequences on people with criminal records." It defines the collateral consequences as "sanctions, restrictions, or disqualifications that attach to a person because of the person's criminal history." Of particular relevance to this Health Impact Review, it discusses barriers to securing employment, obtaining housing, and receiving public assistance faced by people who were formerly incarcerated. It also discusses disproportionality and how collateral consequences inequitably impact those with intersectional identities that are marginalized and oppressed. The Commission also provides recommendations based on its findings to address collateral consequences that "do not serve public safety, bear no rational relationship to the offense committed, and impede people convicted of crimes from safely reentering and becoming contributing members of society."

55. StateRecords.org. DUI in Washington. Available at: <https://washington.staterecords.org/dui>. Accessed 10 November 2022, 2022.

This StateRecords.org answers frequently asked questions related to DUI in Washington State. The organization's mission is to "provide easy, affordable, and prompt access to government-generated public records." It is not operated by or affiliated or associated with any state or local government or agency.

56. RCW 9.94A.030 - Definitions, Revised Code of Washington(2021).

RCW 9.94A.030(31) (within Definitions) defines a "legal financial obligation" in Washington State statute.

57. Commission Washington State Supreme Court Gender and Justice. 2021 Gender Justice Study.Olympia, WA September 2021.

This report from the Washington Supreme Court Gender and Justice Commission is a follow-up to the Court's 1989 report on the impact of gender on selected areas of the law. Chapter 15, entitled "The Gendered Impact of Legal Financial Obligations [LFOs]" discusses the historical roots of, the current imposition of, potential reforms for, and recommendations regarding LFOs. Overall, available evidence "led [authors] to the same frustrating conclusion about the effect of gender in Washington State courts: trustworthy, factual data about the effect of gender in Washington courts is hard to find, and it is especially hard to find for Black, Indigenous, other people of color, and LGBTQ+ people." Two points stood out from the data in which authors had a high degree of confidence in: "(1) gender matters – it does affect the treatment of court users (including litigants, lawyers, witnesses, jurors, and employees); and (2) the adverse impact of these gendered effects is most pronounced for Black, Indigenous, other women of color, LGBTQ+ people." The Commission put forward 5 goals for future action that prioritize work on the areas of highest need.

58. Collateral Costs: Incarceration’s Effect on Economic Mobility.Washington, DC: The Pew Charitable Trusts;2010.

This report by the Pew Charitable Trusts is an analysis of the impacts of incarceration on economic mobility. The authors included data from the Bureau of Justice Statistics, National Longitudinal Survey of Youth, and March Current Population Survey in their analysis. Data show that in the United States, the criminal legal system has a particularly high overrepresentation of men, young people, people with low education levels, and racial/ethnic minorities. Further, incarceration has a negative impact on a person’s economic prospects and these individuals experience less upward economic mobility in their lifetime than those who are never incarcerated. Data show that being incarcerated reduces the total earnings of males by 2%, 6% and 9% for white, Hispanic, and Black males respectively. Recommendations from the authors include strategies such as connecting people who were formerly incarcerated with the labor market to increase job training and employment, and capping the percent of a previous offender's income that can be subject to deduction for unpaid financial obligations.

59. Bannon A., Nagrecha M., Diller R. Criminal Justice Debt: A Barrier to Reentry.New York University School of Law: Brennan Center for Justice;2010.

In this report, the authors examine criminal legal fees in the fifteen states (Washington was not examined) with the highest prison populations, which account for over 60% of all state criminal filings in the United States. Evidence indicates that across the board, states included in this analysis are adding new fees, raising existing fee amounts, and intensifying their efforts to collect outstanding fees, fines, and restitution. One defendant's inability to pay their debt can lead to an endless cycle of additional late fees and interest that perpetuates poverty. Further, criminal legal debt in many states is associated with a loss of voting and/or driving privileges. The authors also found that at least some jurisdictions in all the included states have arrested

offenders who failed to pay their debt or did not appear for a debt-related hearing. They also indicated that many states use threat of probation or parole revocations as a tactic for collecting debts. The authors propose recommendations for reforming the use of fees in the criminal legal system including: exempting indigent defendants from user fees and allowing for payment plans; eliminating penalties for individuals who are unable to pay debt all at once; eliminating the ability for a person to be incarcerated for inability to pay debt; and offering community service programs as an alternative to repaying debt.

60. Beckett K., Harris A., Evans H. The Assessment and Consequences of Legal Financial Obligations in Washington State. Washington State Minority and Justice Commission;2008.

In this report, Beckett et al. examine the assessment and consequences of legal financial obligations (LFOs) assessed by the Washington State Superior Court. The authors use two sources of data including 3,366 Washington State Superior Court cases from January and February 2004 as well as qualitative interviews with fifty Washington residents who were assessed in one of four selected counties. Data from court records indicate that Hispanic defendants, male defendants, and persons convicted of drug crimes have significantly higher fees and fines than their counterparts, including those convicted for violent crimes. Further, there is significant variation of median LFO by county, even among cases where the charges and prior criminal histories are identical. The authors found that counties with, "smaller populations, higher drug arrest and violent crime rates, and/or comparatively small proportions of their budgets devoted to law and justice assess significantly higher fees and fines." Findings from interview data demonstrate that LFOs exacerbate many difficulties that individuals face when trying to reintegrate into their community following a criminal conviction. Examples of some of these added difficulties due to LFOs include reducing income and worsening credit scores; hindering efforts to pursue education, training, and employment; and reducing eligibility for federal benefits. The authors concluded by presenting recommendations that would reform the current LFO practices in Washington.

61. Vander Giessen M. L. Legislative Reforms for Washington State's Criminal Monetary Penalties. *Gonzaga Law Review*. 2011;47.

Vander Giessen described Washington's legal financial obligation (LFO) system and the ways in which the assessment of LFOs disproportionately impacts racial and ethnic minorities. The author presented current Washington law surrounding LFOs and the ways these laws create barriers for persons convicted of crime, and their families. Evidence suggests that a large percentage of people who are currently or were previously incarcerated have outstanding LFOs to pay and that the interest on these LFOs is one of the biggest impediments to successful re-entry into their community. The interest, more so than the LFO itself, can exacerbate poverty for those who are already in vulnerable financial situations. The author goes on to present a summary of the historical responses to LFOs as well as potential legislative reforms to consider. This review was written prior to the passage and implementation of E2SHB 1783 (2018) which eliminated the 12% interest rate on non-restitution LFOs.

62. Modern-Day Debtors Prisons: The Ways Court-Imposed Debts Punish People for Being Poor. American Civil Liberties Union of Washington, and Columbia Legal Services;2014.

This report focused on four counties in Washington state to highlight the legal financial obligation (LFO) practices used in the courts with the goal that this information will drive the legislature to reexamine and reform current policies. The authors observed court proceedings; reviewed court records; and interviewed debtors, attorneys, and community members in each of the four selected counties, which were Benton, Clark, Clallam, and Thurston counties. The findings showed that many courts were not properly considering a defendant's ability to pay when imposing discretionary LFOs and this often then required people to choose between buying basic necessities and paying off their debt. Further, the state's 12% interest rate continued to create insurmountable debt for individuals who are already living in poverty. In this way, LFOs are a barrier for successful re-entry into communities upon release from custody. The authors concluded by presenting recommendations to help relieve the burden of LFOs on indigent persons as well as save resources for counties who put tremendous effort into collecting debts. Note, this review was written prior to the passage and implementation of E2SHB 1783 (2018) which eliminated the 12% interest rate on non-restitution LFOs.

63. Harris A., Evans H., Beckett K. Drawing blood from stones: Legal debt and social inequality in the contemporary United States. *American Journal of Sociology*. 2010;115(6):1753-1799.

Harris et al. analyze national and Washington state-level data to better understand the social and legal consequences of legal financial obligations (LFOs). The authors present a brief history of the use of monetary sanctions and the ways that they have changed over time. Findings show that the use of monetary sanctions is growing in the U.S. and that the dollar value assessed is substantial compared to expected earnings, which is something courts are supposed to consider when assessing LFOs but rarely do. These sanctions create long-term debt that has negative consequences such as: loss of income and heightened stress; constraint on opportunities for growth such as housing, education, and employment; and potential for further warrants, arrest, and reincarceration as a result of nonpayment. The authors conclude that additional research is necessary to better understand the magnitude of the legal debt that is created by the entire criminal legal system.

64. Shannon S., Huebner B. M., Harris A., et al. The Broad Scope and Variation of Monetary Sanctions: Evidence From Eight States. *UCLA Criminal Justice Law Review*, 4(1). 2020:269-283.

Shannon et al. conducted an eight state, multi-method study (Multi-State Study of Monetary Sanctions) to examine the multi-tiered system of monetary sanctions. Washington State was among those state systems analyzed. The study identified common themes and policy implications by documenting LFO policies and practices, conducting interviews with individuals with past or present legal debt and criminal legal stakeholders, and observing court proceedings. Four themes were identified. First, there is not a transparent process for implementing LFOs. LFOs policy and practices vary across federal, state, and local levels. In Washington, superior court clerks send detailed payment requests, and lower courts follow this practice. However, it is often very difficult for an individual with legal debt to have access and resources to understand the total LFOs owed. Second, there was significant variation within and between lower-courts' imposed costs, in cost type and amount. Third, there are a multitude of additional consequences (stress, family obligations, housing, and medical bills, among other necessities) that stem from the inability to pay. Nonpayment or inability to comply with court orders can result in an

individual being unable to access credit and other banking services (e.g., checking and savings accounts, loans, insurance) and add to financial institutional stresses. Fourth, data collection across states is variable. In Washington, researchers were able to attain statewide data for all court types and cases for multiple years, with detailed information on LFOs. The researchers' policy recommendations included: considering an individual's ability to pay and their language of indigence, concluding that monetary sanctions lead to statutory inequality, and result in penalties that increase and extend a court sentence; decoupling unpaid debt from criminal legal consequences; developing continuing education on monetary sanction law and practice; and developing and maintaining court data and access procedures.

65. Espinosa D., Bosch A.B., Pacheco-Jones C. The Cost of Justice: Reform Priorities of People with Court Fines and Fees. Living with Conviction; October 2021.

This supplemental report by Living with Conviction (LwC) was produced under contract with the Washington State Administrative Office of the Courts (Personal Services Contract 21690) to accompany the Minority and Justice Commission's (MJC) forthcoming report "The Price of Justice: Legal Financial Obligations in Washington State" (Report). LwC is an advocacy partnership between people who were formerly incarcerated and lawyers and law student allies to bring an end to the imposition of legal financial obligations (LFOs) at the policy and individual levels. LwC convened three virtual sessions with nine of its justice-involved storytellers and trainers to consider and discuss the Report findings and to generate their own recommendations for LFO reform. Participants included seven women and two men, of which three are African American, one is Asian-Pacific Islander, one is Latino, one is Native American, and three are white. They reside in the following counties: King (2), Kitsap (3), Pierce (1), and Spokane (3). Authors note that time limitations prevented presentation of the bulk and breadth of relevant findings. Thus, the scope of participants' recommendations was limited.

Recommendations were categorized as relating to: 1) reducing barriers to LFO remission; 2) reducing barriers to paying off LFOs; 3) reducing the amount of LFOs imposed; and 4) conducting additional research. Participants noted skepticism regarding whether judges truly apply the ability-to-pay when considering LFO debt, as the three most commonly reported reasons for why courts impose LFOs by judicial officers were: 1) cost recovery / fund the criminal justice system (51 responses), 2) because the Legislature says so (29 responses), and 3) punishment (26 response).

66. Mogk J., Shmigol V., M. Futrell, et al. Court-imposed fines as a feature of the homelessness incarceration nexus: a cross-sectional study of the relationship between legal debt and duration of homelessness in Seattle, Washington, USA. *Journal of Public Health*. 2019:1-13.

Mogk et. al examined the relationship between incarceration, legal debt, and the duration of homelessness in Seattle, Washington, through a retrospective cross-sectional questionnaire-based study. The study surveyed 101 adults experiencing homelessness in King County regarding the outcome variable (i.e., duration of current episode of homelessness) as well as predictor and confounding variables (i.e., demographics, health status, legal system involvement, debt and finances, and demographic information). The final regression model included 92 participants. The regression model found that outstanding LFO debt has a statistically significant association with current durations of homelessness ($p > 0.001$), with an average current episode of experiencing homelessness of 1.9 years. Other debt, including medical debt, student loan debt,

credit card debt, and payday loans was not statistically associated with duration of homelessness. The regression model controlled for age, race (white vs. not white) and gender (male vs. non-male). The authors discuss the relationship between LFO debt and experiencing homelessness, citing pre-existing research of the 'homelessness-incarceration nexus,' where homelessness and incarceration are reciprocally linked. More than 60% of respondents had been convicted of a crime or had a warrant for their arrest, and more than 75% had been incarcerated. Approximately 25% of respondents reported difficulty finding permanent housing as a result of their involvement in the criminal legal system. All participants were below the threshold for housing affordability. The researchers considered the total time an individual experiences homelessness, as opposed to an isolated episode of experiencing homelessness.

67. Research Working Group Task Force on Race and the Criminal Justice System. Preliminary Report on Race and Washington's Criminal Justice System. *Washington Law Review*. 2012;87(1).

The Task Force on Race and the Criminal Justice System's Research Working Group was convened in 2010 to address racial inequities in Washington's criminal legal system. The creation of the group was prompted by remarks of justices on the Washington Supreme Court that there was racial bias in the state's criminal legal system. Members of the Research Working Group include individuals from Washington State's schools of law. The larger Task Force includes representatives from a range of professional, legal, and community associations (e.g., Bar Association, Washington State Commission on Minority and Justice, prosecuting attorneys, advocacy organizations, etc.). In this report, the Research Working Group, Task Force on Race and the Criminal Justice System reports on disproportionality in Washington State's court, prison, and jail populations by race/ethnicity. The report concluded that, "Washington State criminal justice practices and institutions find that race and ethnicity influence criminal justice outcomes over and above [crime] commission rates." The Task Force found that the disproportionality in Washington State's criminal justice system, "is explained by facially neutral policies that have racially disparate effects...facially race-neutral policies that have a disparate impact on people of color contribute significantly to disparities in the criminal justice system. We find that racial and ethnic bias distorts decision-making at various stages in the criminal justice system, contributing to disparities." Lastly, "race and racial bias matter in ways that are not fair, that do not advance legitimate public safety objectives, and that undermine public confidence in our legal system."

68. Race and the Criminal Justice System Task Force 2.0. Commons SUSoLD. Race and Washington's Criminal Justice System: 2021 Report to the Washington Supreme Court. Fred T. Korematsu Center for Law and Equality;2021.

This 2021 report was authored by the Research Working Group of the Task Force 2.0: Race and Washington's Criminal Justice System, a follow-up to the previous Task Force on Race and the Criminal Justice System (2010-2012). The Research Working Group was charged with updating the work of the previous Task Force and investigating disproportionalities in the criminal justice system and possible causes, where disproportionalities existed. The Research Working Group designed its approach to inform "recommendations for change in order to promote fairness, reduce disparity, ensure legitimate public safety objectives, and instill public confidence in [Washington State's] criminal justice system." The report focused on the treatment and experience of adults in the criminal justice system as well as race. However, it does not consider

the intersection of race and gender, which, authors note, may obscure the experience of women of color in the criminal justice system and may underestimate the severity of experiences by certain men of color (e.g., Black men). The report included available data on stops, searches, use of force, arrests, convictions, legal financial obligations (LFOs), incarceration sentences, death penalty sentences, and disproportionate incarceration. Wherever possible, authors provide data documenting disproportionality. Specifically, evidence showed that both Black Americans and Indigenous people "encounter racialized policing and overrepresentation in every stage of [Washington State's] criminal justice system." However, lack of accurate, consistent, and/or complete data collection prevented a clear picture of racialized policing and overrepresentation of Latino/as at some stages of the criminal justice system. Similarly, inconsistent and/or incomplete data collection or reporting made it impossible to provide a full picture of the representation of Native Hawaiians and Other Pacific Islanders in the criminal justice system. Authors concluded, "Our examination of the data leads us to repeat the conclusions we reached ten years ago. In 2021, race *still* matters in ways that are not fair, that do not advance legitimate public safety objectives, that produce racial disparities in the criminal justice system, and that undermine public confidence in our legal system."

69. Management Washington State Office of Financial. Estimates of population by age, sex, race, and Hispanic origin. 2020.

The Washington State Office of Financial Management provides population estimates by age, sex, race and Hispanic origin from 2011 through 2020 (results from the 2020 U.S. Census are not yet available). In 2020, the total Washington State population was 7,656,200.