Public Safety Policy and Research Center
Office of Financial Management

TRIP Data Handbook

TRAFFIC RECORDS INTEGRATION PROGRAM

About TRIP

The Washington State Traffic Records Integration Program (TRIP) is a data integration program housed within the Office of Financial Management's Public Safety and Research Policy Center and is funded by a grant through the Washington Traffic Safety Commission. TRIP works with various state agencies to collect and integrate data related to motor-vehicle crashes. The purpose of the TRIP program is to develop and maintain a data repository for public health and safety research to further the goals of the Washinton's Target Zero plan to achieve zero fatalities or serious injuries on Washington roadways.

Contact Us

Phone	Fax	Address	Email
360-902-0599	360-725-5174	1500 Jefferson Street SE, Suite 1145 Olympia, WA 98501	trip@ofm.wa.gov

Acknowledgements

This program would not be possible without the help and support of the Washington Traffic Safety Commission (WTSC) and our data contributors – the Washington State Department of Transportation (WSDOT), Washington Department of Licensing (DOL), Washington State Patrol (WSP) – Toxicology Laboratory, Washington Administrative Office of the Courts (AOC), and Washington Department of Health (DOH).

This document and the program and processes would not have been possible without the help and support of OFM's Education Research and Data Center (ERDC). Many of these policies and procedures have been directly adapted from ERDC efforts.

Version History

Date	Version	Author(s)	Revision Note
05/09/2025	1.0	Vasiliki Georgoulas-Sherry, PhD, Trevor Annis, MS, & Ian Kinder-Pyle, MS	Document creation
02/10/2026	2.0	Vasiliki Georgoulas-Sherry, PhD	Update WSDOT language

Table of Contents

About TRIP **1**
Introduction **3**
Purpose 3
TRIP Core Data **4**
TRIP Repository Administrative Data Limitations 4
Flow of Contributor Data 5
Identity Resolution Process **6**
Creation of PKeys and Assignment of PersonIDs 6
Phases of Identity Resolution 7
Blocking 7
Evaluation 8
Cardinality Analysis 8
Merging 9
Core TRIP Contributor Data **9**
Washington State Department of Transportation 10
Washington State Department of Licensing 10
Washington State Administrative Office of the Courts 12
Washington State Patrol 13
Washington State Department of Health 14
Cross-sector Research **16**

Introduction

Purpose

This document describes the data available through the TRIP and the appropriate use of that data for different purposes. This Handbook provides a high-level description of each data source including details on the state agency that manages the data collection, substantive changes in data collection over time, an overview of the type of data available, any relevant policy or program changes, a description of how the data could be used, and impacts of external events (e.g., COVID-19 pandemic) on the data. This is done so that researchers, analysts, and data requesters can understand the data lineage and the breadth and depth of the information available through the TRIP repository data system.

While not a comprehensive look at any individual source data set, this Handbook is a body of knowledge that can help support an informed understanding of the data that TRIP has available and how it can be used for public safety and public health research.

For more information on program history including mission and vision, please review the TRIP Program Manual. For more information on data governance structure and processes, please review the TRIP Data Governance Manual.

TRIP Core Data

The TRIP receives a variety of administrative datasets from agency partners that are incorporated into the TRIP repository. These administrative datasets are outlined in Table 1, based on the category of data and data source. These datasets vary in subject matter, from the roadway to the crash, to police interaction, to court interaction, to health encounters. As such, TRIP's repository is the most comprehensive longitudinal crash-record public safety system in the state.

Table 1: The TRIP Core Data Sources

Sector	Data Contributor (Source) and Agency Description
Statewide Crash Data – Crash Location	Washington State Department of Transportation - Crash Data WSDOT maintains records of Washington state crash information including contributing factors and crash location
Driver License History and Ignition Interlock Device (IID)	Department of Licensing DOL maintains driver license history and IID data (i.e., instrument to measure breath alcohol content (BAC) level)
Court Case Filings – Judicial Information System	Administrative Office of the Courts AOC maintains statewide electronic court records database for all cases seen by courts in Washington state (excluding King County Superior courts as of 2019)
DUI-related Toxicology Results	Washington State Patrol - Toxicology Laboratory WSP maintains driving under the influence (DUI)-related toxicology results.
Comprehensive Hospital Abstract Reporting System	Department of Health - CHARS DOH maintains information on inpatient and observation patient community hospital stays in Washington state.
Rapid Health Information Network	Department of Health - RHINO DOH maintains real-time healthcare encounter data from all non-federal emergency department (ED) and critical access hospital facilities in Washington State
Washington Emergency Medical Services Information System (WEMSIS)	Department of Health - WEMSIS DOH maintains records associated with episodes for individuals accessing (pre-hospitalization) emergency medical service.
Death Vital Records	Department of Health - Vital Records DOH maintains data associated with death that took place in Washington state.
Trauma Registry Data	Department of Health - Trauma Registry DOH maintains the registry of patient information for individuals who sustain serious injuries and are treated in trauma designated Washington state hospitals, including individuals who were dead on arrival or transferred to another acute care facility.

TRIP Repository Administrative Data Limitations

While all the datasets above are processed to the highest quality standards by the data contributing agencies, it is important to recognize that inaccuracies may exist within administrative data. Unlike other data, where both cross- and within-subject controls are possible, such measures are often unfeasible and impossible to incorporate in administrative data. Administrative data is also not typically

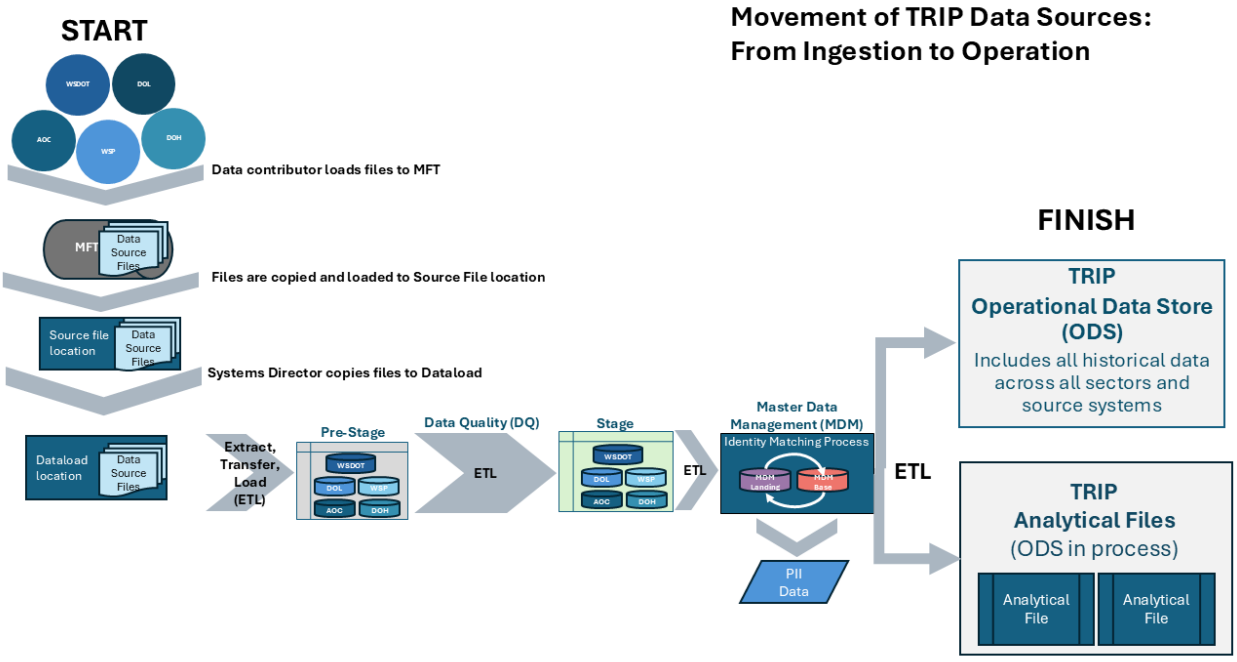
collected for research or evaluation purposes but to meet the administrative needs of specific programs and specific state or federal reporting or monitoring requirements. Administrative data is collected as both transactional and summative datasets by local administrators and submitted to an agency authority, making variance among data collectors a potential source of bias in each dataset. Quality control processes may be imposed after data is submitted to agency authorities, which could impact data quality in ways that are difficult to detect within the final dataset.

The limitations described in this Handbook are not meant to suggest that the administrative data loaded into the TRIP repository is unreliable. TRIP advises researchers to keep these potential concerns in mind as they request data and conduct research. Administrative data must always be thought of as the combination of both the collected data and the process used to collect the data. The data summaries in this Handbook delve into these processes. Researchers who use TRIP data for analysis purposes should review all the available data documentation and adjust their models according to the research question and the administrative data collection procedures.

Flow of Contributor Data

Figure 1 illustrates how TRIP loads contributor data from contributing agencies. Once data is received through a secure file transfer process, the data is loaded to a pre-stage database, then it undergoes a series of quality checks before it is transferred to a stage database. Personally identifiable information (PII) is separated at that point from the rest of the data and used for identity resolution. Once the identity resolution process is complete, de-identified data are moved into the TRIP Operational Data Store (ODS) and become available for analysis. All PII data from the source files are excluded from the TRIP data repository and is unavailable to researchers. TRIP Analytical Files include selected de-identified data elements from the TRIP ODS that represent several public safety outcomes and measures.

Figure 1: Flowchart of data through stages of the TRIP loading process



Identity Resolution Process

The core feature of the TRIP repository is the linking of cross-sector data. Through an identity resolution process, TRIP links individuals across data files from contributing agencies to facilitate longitudinal and cross-sector analysis. Identity resolution is the process of identifying records that belong to the same entity (e.g. person or household). The purpose of TRIP's identity resolution process is to identify and create linkages across multiple data sources so that crash records associated with a given individual are linked to related records associated with that individual and event in the roadway, police interaction, court interaction, and health encounters datasets. For the TRIP repository, this involves linking individual-level data, such as names and birth dates, across multiple sources and identifying these individuals with unique person identifiers. These identifiers are referred to as "PersonIDs." PersonIDs are assigned to all individual-level data received by TRIP from our data contributors. As additional linking activities occur, PersonIDs are updated to reflect the most recent data available.

It is important to understand the identity resolution process so the researcher can evaluate whether it may impact the analysis, especially if the research includes linking the TRIP repository data to additional data.

Creation of PKeys and Assignment of PersonIDs

Before individual-level PersonIDs can be created or assigned, identity resolution tokens referred to as a "PKeys" are created for each record in a dataset. A "PKey" is an identifier or combination of identifiers from a dataset that are unique to an individual within the dataset. TRIP reviews each dataset to establish PKeys specific to the dataset. Identifier and individual characteristic data from the datasets and associated with the PKeys are then loaded into the identity resolution system for linkage. PKeys that already exist in the identity resolution system are attributed with the PersonID assigned to that PKey. PKeys that do not already exist in the identity resolution system are assigned a unique preliminary PersonID which may be overwritten in the identity resolution steps described below.

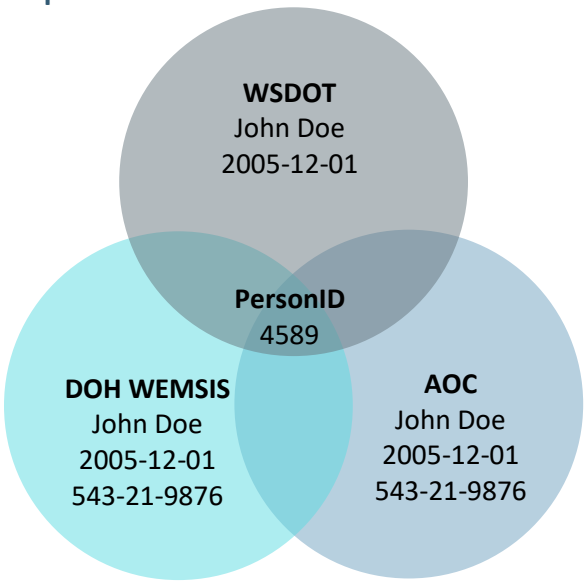
Table 2: Identity components in data sources

Sector	Dataset	Birthdate	First Name	Middle Name	Last Name	SSN	License #
WSDOT	Crash	✓	✓	✓	✓		✓
DOL	Licensing						✓
WSP	Toxicology	✓	✓	✓	✓		
AOC	Court Filings	✓	✓	✓	✓		
DOH	CHARS	✓	✓	✓	✓	✓	
	DEATH	✓	✓	✓	✓	✓	
	RHINO	✓	✓	✓	✓		
	TRAUMA	✓	✓	✓	✓	✓	
	WEMSIS	✓	✓	✓	✓	✓	

No single set of identifiers is common to all data sources, so the identity resolution process and match rules are tailored to the source of data being matched. For example, DOH data has names, birth date, and Social Security Number (SSN) whereas AOC data has names and birth date. As a result, rules linking each are limited to the available identifiers.

Two datasets with different sets of available identifiers can be indirectly matched by involving other sources of individual data. For example, the Licensing dataset above can only be directly linked to the Crash data, but the Crash data can be linked to all other datasets. Consequently, the licensing data may be linked *indirectly* to all datasets in the TRIP repository.

Figure 2: Identity token components in data sources



Phases of Identity Resolution

TRIP's identity resolution process has four phases which are performed sequentially for each iteration of linkage.

1. Blocking
2. Evaluation
3. Cardinality analysis
4. Merging

Blocking

Blocking is the process of creating potential pairs between new PersonIDs and pre-existing PersonIDs in the identity resolution system. This is accomplished by a set of match rules. An example of a match rule is "match two records if they have the same names, same birth dates, and same SSNs." When new PersonIDs are matched against the pre-existing PersonIDs, the result is a set of prospective PersonID match pairs.

The quality of the match pairs depends on the match rule. For match rules involving the exact match between many ID fields, such as the "same names, same birthdates, and same SSNs", the false positive rate is low. The match quality is lower when the match rules involve a small number of fields, when fuzzy logic (such as the SOUNDEX algorithm[1]) is used, or when matching on partial strings within name fields.

[1] SOUNDEX is an algorithm that indexes words based on their sound. This enables comparisons of words or names based on phonetic differences. https://en.wikipedia.org/wiki/Soundex

Once blocking is done, the identity resolution system calculates a probabilistic match score for each potential match pair using the Expectation Maximization (EM) algorithm.

Evaluation

The set of potential match pairs is split into three categories:

High-probability matches. These PersonID match pairs are the result of application of conservative match rules (e.g., "same name, same birth date, same SSN"). For this set, undermatching (or not correctly identifying an actual match) is not a significant concern, as the conservative match rules are designed to ensure extremely low false positive rates. Probabilistic match scores might also be used to further delineate the set of high probability matches.

Mid-probability matches. These potential match pairs result from the application of looser match rules than the ones used to create the high probability matches (e.g., "same name, same birth date"). The match pairs and probabilistic scores, and associated identifiers (names, dates of birth, etc.) are brought into one dataset. The match pairs are then manually reviewed in Excel. The match pairs that are deemed to be actual positive match pairs are flagged, and the results are integrated into the prospective match pairs within the identity resolution system. At this point, the identity resolution system contains the set of provisional match pairs.

Low-probability matches. These potential match pairs result from very loose match rules (e.g., "same county of residence, same gender, same first name"). Based on low probabilistic match scores, none or very few of these potential match pairs are provisional match pairs, hence these potential match pairs are ignored.

Cardinality Analysis

Cardinality analysis is a key component of the identity resolution process. It allows for more aggressive matching, while at the same time, improving the quality of the existing PersonID linkages in identity resolution system. In cardinality analysis, the provisional match pairs are merged on a trial basis. Then the cardinal relationships are determined between the PersonIDs in the subject dataset and those in the repository being matched against. These relationships can be 1:1, 1:Many, Many:1, or Many:Many. For example, a 1:Many relationship indicates that one PersonID in the subject dataset matches multiple PersonIDs in the universe of data being matched against. The 1:1 relationship, where two PersonIDs are paired exclusively, are accepted. The relationships involving non-1:1 relationship are manually reviewed to resolve them as accurately as possible.

In addition to reviewing matches of records for the current dataset, the cardinality analysis step permits the analyst the opportunity to review matched records from previous iterations of the identity resolution process. The analyst may choose to merge or unmerge previously matched pairs based on new information associated with the records. Consequently, the identity resolution process yields continually improving linkages across datasets.

Once the cardinal relationships are verified, the results are fed back into the identity resolution system. The result is that some PersonIDs might be unmerged, some could be merged, and some provisional match pairs might be deemed not to be positive match pairs.

Merging

After the cardinality phase is concluded, the match table now contains a list of positive match pairs of PersonIDs. These match pairs are then incorporated into the identity resolution system using an automated process. The result is that people who had been previously represented by multiple preliminary PersonIDs are now represented by a single PersonID.

Core TRIP Contributor Data

This section provides a set of descriptions or quick references to the core data files that feed into the TRIP repository. Please note, all data comes with its limitations. This report identifies a few major limitations, and there are likely more not listed that could impact work that utilize this data. This information is not an exhaustive list of data in the TRIP repository, nor does it provide the detail needed for a researcher to sufficiently complete a TRIP Data Request Form. Rather, these descriptions are designed to:

- guide researchers toward data that are relevant to their research questions
- provide metadata that will inform research design
- provide examples of how the data is used in research

This Data Handbook is designed to be used in conjunction with the TRIP Data Dictionary to understand the specific data elements and years of data available. To utilize this additional information, see TRIP's Data Resources website.

Washington State Department of Transportation

The Washington State Department of Transportation (WSDOT) collects and maintains comprehensive crash data to improve road safety and transportation planning across the state. This data includes detailed records of traffic crashes, including factors such as location, time, weather conditions, road characteristics, and the involvement of pedestrians, cyclists, and motor vehicles. Law enforcement agencies submit crash reports, which WSDOT compiles into a centralized database. By analyzing this data, transportation officials, policymakers, and researchers can identify trends, high-risk areas, and contributing factors to accidents, ultimately informing strategies to reduce traffic fatalities and injuries.

One of the primary uses of WSDOT crash data is to enhance traffic safety by identifying patterns and implementing targeted interventions. For instance, crash data analysis helps in recognizing high-crash locations, commonly referred to as "hot spots," where accidents frequently occur. This information enables WSDOT to prioritize infrastructure improvements such as better signage, road redesigns, traffic signal adjustments, and pedestrian safety enhancements. Additionally, the data supports the development of traffic enforcement strategies, including targeted DUI checkpoints and speed control measures in high-risk areas.

The crash data is also crucial for evaluating the effectiveness of existing road safety initiatives and policies. By comparing crash trends before and after the implementation of safety measures—such as new traffic laws, roadway redesigns, or public awareness campaigns—WSDOT can assess whether these efforts are reducing accidents. This evidence-based approach ensures that state resources are directed toward initiatives that have a measurable impact on improving road safety. Additionally, the data is used to support grant applications and funding requests for transportation safety projects at both the state and federal levels.

Notes and Limitations of the WSDOT dataset

WSDOT fully codes, processes, and applies quality assurance checks to all "reportable" crashes which are identified by law (RCW 46.52.030) as crash with at least $1,000 in damages and/or injury, involving a motor vehicle, and on a public roadway. Such crashes require law enforcement officer investigation and reporting. WSDOT also processes crash reports of interest to WSDOT's safety and design programs, which may fall outside the scope of the "reportable" definition. For example, WSDOT processes

pedalcyclist-pedalcyclist crashes to provide safety data related to pedalcyclist and pedestrian road users. These crashes comprise the TRIP crash dataset.

However, many crash reports submitted to WSDOT are not processed by the crash processing branch. These non-reportable crashes include crashes occurring on private property and not adjacent to a public roadway, crashes occurring in parking lots, or crashes reported by private citizens to a call-in "Traffic Reporting Unit" but which was not investigated by law enforcement. Such crashes are not included in the TRIP data repository. For this reason, users may expect to see discrepancies when comparing crashes in the TRIP repository to other sources of crash information (e.g., DOH data for patients seeking care for crash-related injuries).

Tribes within the state are not required to report crashes on tribal lands but frequently do. Periodic changes to governance within the tribes (change in tribal police chief, or tribal council) or change in policy may result in changes to the reporting of the tribal crash data to WSDOT. This results in inconsistent reporting of crashes on tribal lands over time.

In many cases, identifying information for an individual involved in a crash is not captured on the Police Traffic Crash Report or the identifiers are insufficient to distinguish the individual from another with similar identifiers. In such cases, TRIP is unable to link the individual to other TRIP datasets, such as health or court interactions, and licensing history.

Washington State Department of Licensing

The Washington State Department of Licensing (DOL) collects and manages a vast amount of data related to driver licensing, vehicle registration, and professional certifications across the state. This data includes information on issued driver licenses and identification cards, vehicle ownership and registration records, driver record history (i.e. license suspensions and revocations, violations and/or convictions), driver license restrictions and/or endorsements, driver training and testing history, commercial driver certifications, and even professional and business licenses for various industries. DOL's database plays a crucial role in maintaining public safety, ensuring compliance with state laws, and facilitating efficient transportation and business operations. By managing and securing this data, the agency helps support law enforcement, insurance providers, and other government entities that rely on accurate licensing and registration records.

One of the most important uses of DOL data is ensuring road safety through driver monitoring and enforcement. The agency tracks driving records, including violations, suspensions, and revocations, helping law enforcement and the judicial system identify high-risk drivers. This data is also used to enforce penalties for DUI offenses, excessive speeding, reckless and negligent driving, and other infractions that could endanger public safety. Additionally, the DOL collaborates with the Washington Traffic Records Governance Council (TRGC) to improve data integration and analysis, ensuring that driver-related information is accurately shared across agencies for more effective safety measures. By maintaining and securing this vast collection of data, the Washington State Department of Licensing plays a critical role in promoting public safety, regulatory compliance, and efficient government operations.

Notes and Limitations of the DOL dataset

DOL generates the license history dataset from the WSDOT crash dataset by linking drivers' license numbers available on the PTCR to driver license numbers within the DOL system. This is sufficient to identify license history records for a majority of drivers in the crash dataset. However, DOL data is not

provided in cases when the driver license number is missing or mis-typed, or when the driver presents an out-of-state driver's license.

Washington State Administrative Office of the Courts

The Washington State Administrative Office of the Courts (AOC) plays a crucial role in managing and maintaining data that reflects the functioning and efficiency of the state's judicial system. This office is responsible for collecting, analyzing, and distributing a wide range of court-related data from across Washington's superior, district, and municipal courts. The data encompasses various types of cases, including civil, criminal, family law, juvenile justice, and appellate matters.

One of the primary uses of AOC data is to inform legislative and policy decisions. By analyzing the data on case filings, resolutions, and court processing times, policymakers can identify patterns and areas where the justice system may need reform or additional resources. For example, the AOC tracks the volume of cases in various categories, helping lawmakers gauge where interventions such as funding increases or policy adjustments are needed. Furthermore, data on case outcomes can guide decisions related to sentencing guidelines, bail reform, and other justice-related initiatives. The AOC's ability to provide detailed insights into these areas helps ensure that Washington's justice system remains efficient and responsive to the public's needs.

Notes and Limitations of the AOC dataset

The AOC dataset typically contains records from Washington State's court system, including superior, district, and municipal courts. It includes case filings, case types (criminal, civil, family, juvenile, etc.), dispositions, sentencing outcomes, and sometimes financial/fee data. Data is drawn from case management systems used across multiple courts. For AOC data, Washington state has a non-unified court system which means that Washington's courts operate more independently at the county and municipal level instead of being managed as one single, centrally administered system. As such, all courts are not all managed under a single statewide system – therefore, local governments (counties and cities) are primarily responsible for funding their trial courts, not the state.

Data are entered at the local court level, which can cause variation across counties in coding, timeliness, or completeness. For example, there could be variations across jurisdictions in how clerks enter data (e.g., charge codes, disposition reasons). There is also variability in local court practices – for example, municipal courts may process certain misdemeanors differently than district courts, and fines, fees, and restitution practices differ across jurisdictions and may be recorded unevenly. Juvenile, dependency, mental health, and other confidential case types are often redacted or entirely missing; and expunged/sealed records are removed, which can bias analyses of outcomes over time. Additionally, as this is administrative data with limited comments, the data does not take into account local practices (e.g., plea agreements, deferred prosecutions) which may not always map cleanly to standardized codes.

The AOC data focuses on case processing, and therefore there is no underlying circumstances (e.g., no narrative context, no details on the incident itself). What gets recorded reflects court processes, not necessarily underlying behavior or criminal activity. For example, arrests that do not result in charges are not present in this dataset; prosecutor discretion heavily shapes what enters the dataset. There is potential for charge and disposition variability which includes, for example, offense codes may change due to statutory updates, local ordinance differences, or reclassification over time. Dispositions (e.g., dismissal, plea, trial outcome) may not be consistently categorized. More so, only filed charges are included — not those screened out by prosecutors or resolved outside court.

Court data often have a lag before they are validated and uploaded to AOC systems. Furthermore, due to changes in policy over time, older records may lack detail or be inconsistent compared to more recent data – for example, charge codes and case types may be recoded or redefined over time. Additionally, there is inconsistent use of local offense codes vs. state statute codes - the exact coding practices can vary between jurisdictions or evolve over time - this data covers cases filed and processed as early as 2009, though availability of certain fields may differ by year.

There is also potential that there is missing or miscoded fields (e.g., race, ethnicity, sentence length), and certain offenses (e.g., traffic, municipal infractions) may not be uniformly reported. Furthermore, there is limited defendant characteristics (race, ethnicity, age, gender often inconsistently recorded) – this means that there is potential bias in data collection since demographic fields are often observer-coded, implicit bias from clerks or officers can affect race/ethnicity reporting. Additionally, in all criminal justice datasets, certain groups may be systematically underrepresented or misclassified – for example, race and ethnicity are often missing, inconsistently recorded, or based on officer/clerk perception rather than self-identification and gender is usually binary (male/female), which excludes nonbinary or transgender identities. The dataset provides no information on circumstances of the offense (e.g., context of a domestic violence charge, victim-offender relationship).

Washington State Patrol

The Washington State Patrol (WSP) Toxicology Laboratory is responsible for analyzing biological samples related to impaired driving, drug-related crimes, and death investigations. This laboratory plays a critical role in the criminal justice system by testing blood and other biological samples for the presence of alcohol, drugs, and toxic substances. The data collected from these analyses helps understand suspected impairment in drivers, confirm the presence of controlled substances in criminal cases, and provide crucial evidence in court proceedings. The WSP Toxicology Laboratory's work is essential for ensuring public safety and enforcing Washington State's impaired driving laws.

One of the primary uses of WSP toxicology data is in DUI (Driving Under the Influence) investigations. When a driver is suspected of impairment, law enforcement officers collect blood samples that are sent to the WSP Toxicology Laboratory for analysis. The results determine whether alcohol, cannabis, prescription medications, or illicit drugs were in the driver's system at the time of the incident. This data is crucial in DUI cases and shaping policies related to drug-impaired driving. The increasing prevalence of poly-drug use, where multiple substances are found in a driver's system, has made toxicology data even more valuable in understanding and addressing impaired driving trends.

The toxicology data also plays a key role in drug-related fatalities and forensic investigations. When a person dies under suspicious circumstances, medical examiners and coroners rely on toxicology reports to determine whether drugs, alcohol, or other toxic substances contributed to the death. These findings are used in homicide investigations, accidental overdose cases, and suicides. By analyzing trends in drug-related deaths, public health officials and policymakers can develop targeted interventions, such as improved addiction treatment programs and educational campaigns on substance abuse.

Notes and Limitations of the WSP data

There are several limitations regarding WSP toxicology data that will be described here. The presence and/or quantity of drugs in each blood test or sample is not necessarily an indicator of impairment. Potentially impairing drugs include all psychoactive substances. The mechanism by which drugs affect an individual, the extent to which they impair, and the time course for the impairment can differ.

The Laboratory's scope of testing is routinely updated, and testing may vary based on testing services requested. In 2023, WSP implemented limited testing scopes for DUI case submissions When an ethanol result of 0.09 g/100mL or greater is detected, no subsequent drug testing is conducted. When ethanol results are below 0.09 g/100mL, then WSP tests for cannabinoids. If THC results are less than 7.0 ng/mL and more comprehensive drug testing is requested, then WSP will conduct a broader test for additional drugs. Additional information and current scope of testing can be found here.

Washington State Department of Health

The Washington State Department of Health (DOH) collects and manages a vast amount of public health data to monitor the well-being of residents, track disease outbreaks, and guide policy decisions. This data encompasses a wide range of health-related areas, including vital statistics (birth and death records), disease surveillance, immunization records, healthcare facility licensing, and environmental health factors. By compiling and analyzing this information, the DOH plays a critical role in identifying public health trends, responding to emergencies, and improving healthcare outcomes across the state.

One of the most essential uses of DOH data is in tracking and managing communicable diseases. The agency collects real-time information on infectious diseases such as influenza, COVID-19, tuberculosis, and sexually transmitted infections. Healthcare providers and laboratories are required to report cases of certain diseases to the DOH, allowing for quick responses to outbreaks. This data enables the department to coordinate with local health agencies, issue public health alerts, and implement disease control measures such as vaccination campaigns and quarantine guidelines.

The DOH also oversees vital statistics, including birth and death records, which are crucial for public health planning and research. This information is essential for shaping policies related to healthcare access, preventive care, and emergency response planning.

Sector	Dataset	Description
DOH	CHARS	Comprehensive Hospital Abstract Reporting System; collection of record level information on inpatient and observation patient community hospital stays.
	DEATH	Death rates and counts for leading causes of death in Washington state.
	RHINO	Rapid Health Information Network; automated, electronic reporting from all Washington state emergency departments with a focus on identifying, investigating and designing rapid responses to public health threats.
	TRAUMA	Trauma Registry; demographics, injuries, care, and outcomes of trauma patients.
	WEMSIS	Washington Emergency Medical Services Information System; emergency medical services/prehospital data repository for electronic patient care records.

Notes and Limitations of the DOH data

DOH TRIP data comes from 5 different resources (i.e., CHARS, WEMSIS, RHINO, Death, and TRAUMA). TRIP receives PII data from these data sets but does not house additional information such as injury data. Researchers can work with TRIP and DOH to link this data to gather additional insights.

For Death, CHARS, and Trauma data, the earliest data is from 2009. For RHINO, DOH filters records that are associated with traffic injury related incidents/conditions. They provide records that meet the "All Traffic related V2" ESSENCE syndrome definition. Automated, electronic reporting of syndromic surveillance data from all Washington emergency departments is required by RCW 43.70.057. For WEMSIS, RCW 70.168.090 requires all licensed ambulance and aid services in Washington to report response data to WEMSIS This requirement was implemented beginning in 2024. Recent years contain

around 98% of EMS responses and earlier years having considerably less. The earliest WEMSIS data is from January 1, 2016 but coverage was limited across the state in 2016 to 2017.

Cross-sector Research

By fostering collaboration among transportation agencies, public health organizations, law enforcement, and research institutions, the TRIP will ensure that crash data is not only comprehensive but also actionable. A well-integrated repository allows interested parties to analyze crash trends, identify high-risk areas, and develop data-driven strategies to enhance roadway safety. This level of coordination will enable policymakers to implement targeted interventions, such as improved infrastructure design, enhanced enforcement measures, and public education campaigns aimed at reducing risky driving behaviors. Additionally, sharing standardized data across agencies will facilitate more accurate and timely assessments of traffic safety initiatives, ensuring continuous improvements toward the Vision Zero 2030 goals.

The integration of diverse data sources, including emergency medical services, hospital records, insurance claims, and roadway characteristics, will provide a deeper understanding of crash risk factors and their broader societal impacts. This comprehensive dataset will enable researchers to examine how factors such as road conditions, vehicle technology, driver behavior, and environmental influences contribute to crash outcomes. Additionally, the ability to track injuries and fatalities over time will help identify disparities in traffic safety, ensuring that vulnerable populations, such as pedestrians, cyclists, and motorcyclists, receive the attention and resources necessary to enhance their protection. The TRIP repository will serve as a critical tool for guiding evidence-based policy decisions that prioritize equity and effectiveness in traffic safety measures.

By leveraging cross-sector collaboration, the TRIP will also support the development of proactive safety measures that prevent crashes before they occur. With access to high-quality, integrated data, researchers and policymakers can identify patterns and emerging risks, allowing for timely interventions such as road design modifications, enhanced traffic law enforcement, and public awareness campaigns. These preventative strategies will not only save lives but also contribute to a safer and healthier transportation system for all Washington residents. Ultimately, the TRIP's comprehensive approach to crash data analysis will play a vital role in shaping policies that reduce fatalities and serious injuries while promoting long-term public health and safety.

Cross-sector research and analyses are essential for improving traffic crash safety and public health by fostering collaboration between transportation, healthcare, law enforcement, and policy sectors. Traffic crashes are a leading cause of injury and death worldwide, and addressing this issue requires an integrated approach that considers road design, driver behavior, emergency response, and medical outcomes. By combining crash data from transportation agencies with injury reports from hospitals and public health departments, experts can identify high-risk areas, common injury patterns, and the most effective interventions. This data-driven approach helps design safer roadways, improve vehicle safety standards, and implement policies that reduce crash-related fatalities and long-term health consequences.

Technological advancements and innovative policies in traffic safety also benefit significantly from cross-sector collaboration. For example, partnerships between the automotive industry, urban planners, and public health experts have led to advancements such as crash-avoidance systems, better pedestrian infrastructure, and improved post-crash care. Research integrating data from law enforcement and medical institutions can also highlight the impact of impaired driving, speeding, and seatbelt use on crash severity. By analyzing this information, policymakers can implement targeted safety campaigns, stricter enforcement measures, and infrastructure improvements such as roundabouts, speed bumps, and dedicated bike lanes. These strategies not only reduce crash frequency but also enhance public health by preventing severe injuries and fatalities.

Cross-sector analyses also inform long-term strategies that promote sustainable transportation and healthier communities. Public health professionals working alongside transportation planners can advocate for policies that encourage walking, cycling, and public transit while reducing reliance on private vehicles. This shift not only decreases traffic congestion and crash risks but also improves air quality and reduces chronic health conditions such as respiratory diseases and obesity. Economic research further strengthens these efforts by demonstrating the financial benefits of investing in safer road infrastructure and preventative public health initiatives. Through cross-sector collaboration, societies can develop comprehensive, evidence-based solutions that improve both traffic crash safety and overall public health.

Critical questions related to data quality, linkage, and outcomes using TRIP may include:

- What is the data quality of the source data needed for linking? What can be improved?
- What percentage of crash records are successfully linked to corresponding records? What is the frequency of unlinked records?
- How often is there a positive toxicology result for a likely impairing drug and the officer did not code a contributing circumstance for under the influence of drugs? What are those drugs involved in the cases with drug toxicology positive for a likely impairing drug but no crash contributing circumstances for that driver?
- What is the agreement between BAC values from a toxicology record and police-reported BAC on crash reports? Does impairment information on the PTCR match the toxicological outcomes reported? i.e. How often is there a positive BAC toxicology that was not reported to the crash record?
- Can hospital records be used to derive a clinical assessment of injury severity to compare to/supplement the officer's assessment of injury severity? How do these assessments differ?
- What additional insights and risk factors can be gathered from linked data sources in non-fatal injury crashes? To what extent can non-fatal injury crashes inform the likelihood of fatal crashes in the same location?
- Can driver citation and adjudication history be a predictor of future crashes?
- What are the total objective hospital costs associated with non-fatal serious crashes resulting in medium- and long-term health care?
- What is the post 30-day mortality rate related to a serious crash (fatalities are currently defined as death within 30 days)?
- What are the characteristics and potential interventions for drivers involved in multiple crashes over time?
- What proportion of crashes involve RCW violating contributing circumstances, such as speeding, but no citations/adjudication were issued due to behaviors leading to the crash?