Public Safety Policy and Research Center
Office of Financial Management

TRIP Program Manual

TRIP

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 collisions. The purpose of the TRIP program is to develop and maintain 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.

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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.

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Introduction

Purpose

This document describes the history, purpose, goals, and implementation strategy of the Traffic Records Integration Program. This document is intended for current and potential data partners, data customers, oversight entities, and the public.

Office of Financial Management

The Office of Financial Management (OFM) provides vital information, fiscal services and policy support that the governor, Legislature, and state agencies need to serve the people of Washington. OFM plays a central role in budget planning, policy development, and fiscal administration for the executive branch. It is responsible for preparing the executive budget proposal and monitoring budget implementation. Additionally, OFM conducts executive policy research and develops legislation to support the Governor's policy goals. It provides estimates of state and local population, monitors changes in the state economy and labor force, and conducts research on a variety of issues affecting the state budget and public policy (see Figure 1).

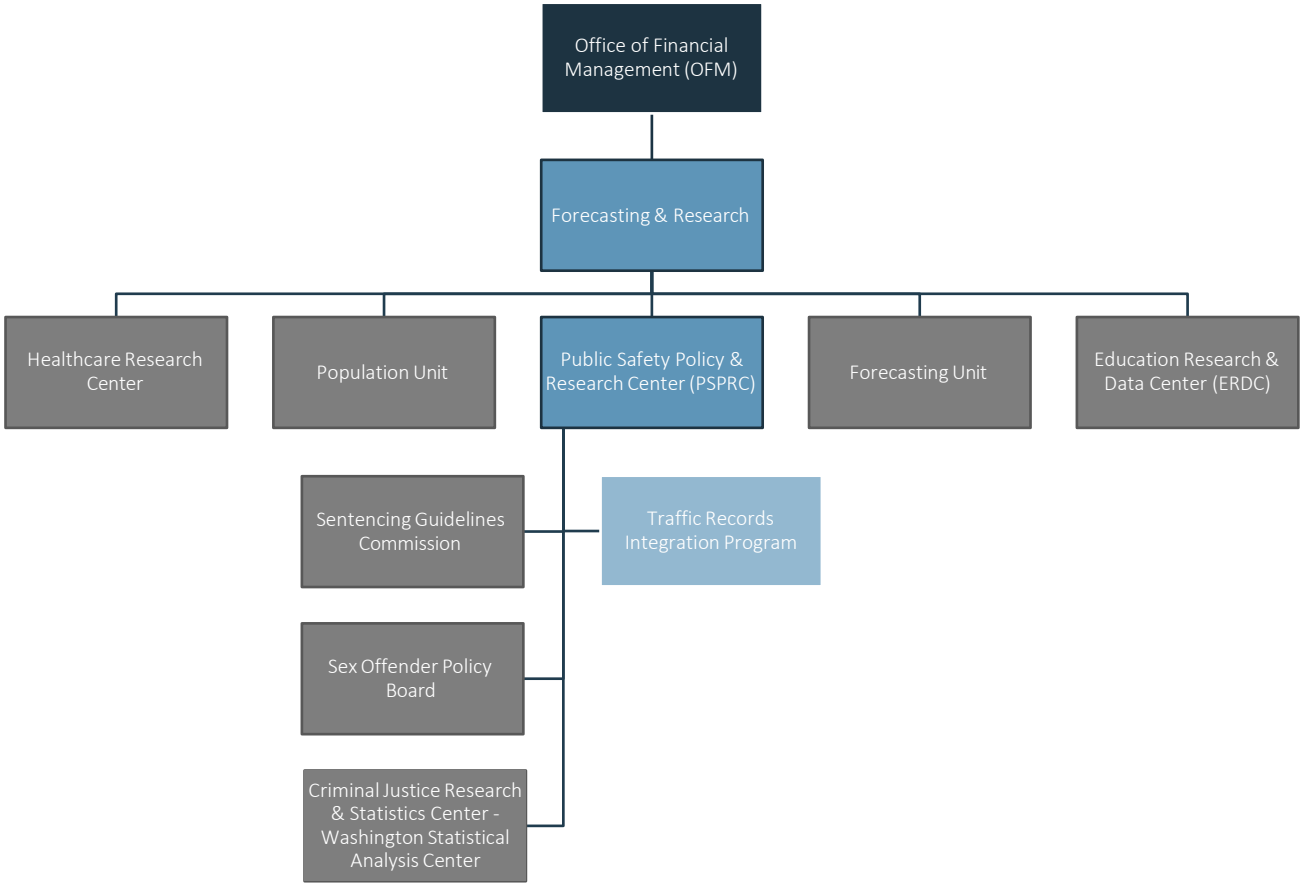
Forecasting and Research

OFM's Forecasting and Research is a data, research, and statistical analysis division of OFM which is uniquely positioned to provide data to and inform decisions made by the Governor, the legislature, other state agencies, research communities, and the public. Forecasting and Research is home to the Public Safety Policy and Research Center (PSPRC), the Population Unit, the Forecasting Systems Units, Health care Research Center (HCRC), and the Education Research and Data Center (ERDC), covering subject areas ranging from health care to education, demographic characteristics, criminal justice, traffic safety, and economic trends. These data and research centers incorporate the values of privacy, security, and access and are committed to promoting diverse and inclusive research communities, reliable data sources, rigorous program evaluations, and accessible information.

Public Safety Policy and Research Center

The Public Safety Policy and Research Center (PSPRC) is a data and research center located within OFM's Forecasting and Research Division. The center maintains data repositories, performs research and analysis and provides expertise related to public safety topics including criminal justice, traffic safety, public health, and corrections. The PSPRC houses the Sentencing Guidelines Commission, the Sex Offender Policy Board, the Criminal Justice Research and Statistics Center - Washington's Statistical Analysis Center, and the Traffic Records Integration Program.

Figure 1: The TRIP Data Flow and Loading Process



Traffic Records Integration Program

History

In 2009, Washington State codified Revised Code of Washington (RCW) 43.59 creating the Washington Traffic Safety Commission (WTSC). The WTSC was tasked with finding solutions to problems related to the "tremendous increase of motor vehicles on our highways and the attendant traffic death and accident tolls."[1] Consistent with its responsibilities, WTSC developed the Target Zero plan which was adopted as Washington State's Strategic Highway Safety Plan. Target Zero reflects Washington's goal of eliminating fatalities and serious injuries on all public roadways by all road users by 2030.[2]

A necessary component of the Target Zero plan and WTSC's public safety goals is access to a high-quality, comprehensive dataset for the identification of contributing factors to crashes, analysis and evaluation of roadway systems and safety performance, identification of targeted safety strategies and countermeasures, assessment of the effectiveness of implemented countermeasures, and evaluation of programs and projects to identify potential needs and updates to the system. Initially housed within WTSC's Research and Development Division, WTSC sought to transfer the development, sustainability, and governance of the program to another state agency. In 2019, WTSC awarded ongoing grant funding to OFM to manage the TRIP, a traffic records system integrating collision-related datasets from across state agencies to provide users with quality traffic data and allow researchers to identify life-saving strategies.

In 2023, the TRIP's repository received approval from the Washington State Institutional Review Board (WSIRB). The WSIRB serves as the oversight body that regulates research which may involve state agencies' data on individuals in Washington State. This approval enables the utilization of this repository in internal and external research efforts that pursue the goals of Target Zero.

Program Overview

The purpose of TRIP is to develop, maintain, and integrate traffic records datasets across six core traffic data systems: collision, driver licensing, vehicle registration, roadway infrastructure, citation and adjudication, and injury surveillance. TRIP links existing administrative datasets from multiple partner agencies to create a comprehensive crash-outcome dataset. A data repository integrating these areas enhances the capacity to assess collision contributing factors and the human and financial toll from crashes; expands the potential to assess behavioral factors; and adds capacity to assess the burden on the state's legal and administrative systems.

TRIP accomplishes this by using collision records as the foundational integration point for linking pre- and post-crash data. TRIP staff and partners perform analysis of TRIP data to generate new information that can only be derived from integrated records to address long-standing traffic safety issues, as well as identify new crash contributors or protective factors for all road users in Washington. By linking traffic records data, the state will have a comprehensive crash-outcome dataset to support traffic safety research and evaluation.

With this effort, the TRIP will create an avenue of information for the public and policymakers to address long standing issues as well as new risks for drivers in Washington. The linkage of this data will give Washington the means to support public health traffic information to save lives on Washington roadways. Additionally, research efforts with the TRIP repository will help inform policy on efficient

[1] https://app.leg.wa.gov/rcw/default.aspx?cite=43.59&full=true

[2] https://targetzero.com/

ways to reduce and eliminate fatalities and serious injuries from traffic collisions; this data repository aims to also provide comprehensive and longitudinal data to evaluate the effectiveness of efforts and programs, best practices, and evidence-based strategies designed to achieve the Target Zero goals.

Mission

The mission of the TRIP is to establish an integrated traffic records system that promotes the goals of the Traffic Records Governance Council (TRGC). Specifically, the goals of the TRIP include:

- maintaining a cross-sector research repository of administrative data associated with motor vehicle collisions; and
- enabling and conducting research related to collisions and their associated impacts on injuries, medical encounters, and police and court interaction outcomes; and
- promoting interagency collaboration to facilitate research, data sharing, and a nuanced understanding of collisions and traffic related policy in Washington state.

Vision

TRIP data is used to identify roadway user risks and develop countermeasures including policy and safety mechanisms that result in the elimination of collision-related traffic fatalities and serious injuries on Washington roadways.

Program Goals

The goals of the TRIP program are as follows:

- Establish agreements to obtain traffic records datasets.
- Identify and implement non-deterministic linkage methods between datasets.
- Develop annual quality reports.
- Develop and implement a complete data governance system.
- Accept membership and participate in Washington's TRGC.
- Track program progress through quarterly and annual program reports.

In addition, during initial implementation, the TRIP team solicited a list of "critical" questions from the TRIP partners that they hoped the TRIP repository might help answer. It is a goal of the TRIP program that the repository will provide sufficient data for internal and/or external researchers to address these questions. Consequently, these questions help shape the development of the TRIP program. A complete list of these critical questions is included in Appendix A.

Program Implementation

This section provides a program-level summary of the initial and ongoing implementation of the TRIP program. For information related to the TRIP program's data governance, privacy, and security policies, refer to TRIP's Data Governance Manual. For technical descriptions of the data repository, the datasets and elements included, and the processes by which the repository is generated and maintained, refer to TRIP's Data Handbook.

Data Sources

To address the requirements of the TRIP program, nine administrative datasets, spanning the six core data areas, were identified as preferred datasets for integration into the TRIP repository. Table 1 lists the datasets targeted for integration into the TRIP repository.

The initial datasets are sourced from the following partner agencies:

- Washington State Department of Transportation (WSDOT),
- Department of Licensing (DOL),
- Washington State Patrol (WSP),
- Administrative Office of the Courts (AOC), and
- Department of Health (DOH).

Table 1: Data sources targeted for integration within the TRIP repository

DATASET	DESCRIPTION	SOURCE AGENCY AND PROGRAM/SYSTEM
Statewide Collision Data	Complete (fatal and non-fatal) motor vehicle collision data from police traffic collision reports	WSDOT – Collision Location Analysis System (CLAS)
DUI-Related Toxicology Results	Toxicology results from drivers assessed for drug and alcohol impairment	WSP – Toxicology Laboratory
Driver License History	Driver licensing, restriction, training, and testing information	DOL – DRIVES
Court Case Filings	Criminal history information from appellate, superior, limited jurisdiction and juvenile courts	AOC – Judicial Information System
Death Data	Data collected on Washington State death certificates	DOH – Death Vital Records
Hospital Inpatient Stay Data	Discharge information for hospital inpatient and observation unit patient stays	DOH – Comprehensive Hospital Abstract Reporting System (CHARS)
Emergency Department Visit Data	Syndromic surveillance data collected from hospitals and clinics	DOH – Rapid Health Information Network (RHINO)
Washington Emergency Medical Services Data	Pre-hospital electronic patient care records repository data	DOH – Washington Emergency Medical Services Information System (WEMSIS)
Trauma Data	Data on seriously injured patients	DOH – Trauma Registry

In an ongoing effort to improve the utility of the TRIP repository for public safety research, TRIP staff continually attempt to identify, acquire, and integrate new administrative datasets into the repository as appropriate. A list of the datasets and data elements currently included in the repository can be found in TRIP's Data Handbook.

System Organization

The system comprising the TRIP data repository is organized around the following components: (1) data loading, (2) data profiling, (3) data modeling, (4) data mappings and validation routines, (5) data linking and identity resolution.

Data Loading

Source data for the TRIP repository is obtained from each data provider on an annual basis using standard, encrypted data transmission formats. Raw data from each source is loaded into a prestaging database and then to a staging database where automated data validation and conformity rules are applied, and data quality flags are assigned. Identity resolution variables associated with the dataset are identified and used for cross-sector data linkage and identity resolution.

When data has been linked, relevant data elements from the staging database are moved to the longitudinal data warehouse, referred to as the Operational Data Store (ODS). No personal identifiable information from the linking process or the staging database are loaded into the ODS, but are instead replaced with unique, anonymized person IDs to allow cross-sector data linkage, which is necessary for longitudinal data analysis.

Finally, based on research needs, subsets of the repository that are relevant and necessary to address specific critical research questions are extracted from the ODS into an analytical data file or DataMart for use by researchers.

Data Profiling

With each data update, raw data is profiled by the TRIP team to confirm data validity and accuracy. When available, data dictionaries are used in the data profiling process, as are all the codes and lookups, business logic around computed variables, and programmatic information as it relates to data elements. Values, ranges, and frequency distributions are compiled and shared back with the data provider for confirmation or, if necessary, for correction.

Data Modeling

When a new data source is introduced, or an existing one modified, data modeling is performed. This process takes the separate sources of related data and combines them into an integrated data model to support the storage of the data. In an integrated traffic records data system, relationships across data sources, such as a person, crash, and address, help analysts understand the best way to model, store, and manage the data efficiently. Modeling also occurs when designing DataMart's, which are subject area specific subsets of data and outcomes to support research needs.

Data Mappings and Validation Routines

When a new data source is introduced, or an existing one modified, data mappings and validation rules are defined and documented. For each dataset and loading step, the mappings, or transformations, that occur to each variable in the dataset as it is loaded from one system into the next are defined and documented. This includes documentation of changes in data type, identifying any standardization of code values that occur, and mapping any logic associated with modification, or categorization of the data.

Likewise, for each dataset, data validation routines are developed and documented. Among other things, this includes logic to standardize data formatting, checks for data completeness and referential integrity, and validation of code values. Validation routines result in the insertion of data quality flags,

which allow downstream processes to preclude the incorporation of invalid or suspected invalid data and provide information regarding the quality of a data element to the end user.

Data Linking and Identity Resolution

Each data source is reviewed to determine which combination of data elements, or "token," is best for identifying a unique person within the dataset. This token is typically the combination of multiple personal identifiers. Identity resolution items are profiled for completeness, consistency, and quality over time. These results help feed the rules that can be used to support the identity resolution and data linking tasks. Deterministic and probabilistic methods are employed to generate linkages between individuals included within each dataset, and manual review is performed to confirm programmatic linkages and resolve questionable ones. The goal of this linkage process is to maximize the correct mapping of individuals in one dataset with those in the rest of the repository, while simultaneously minimizing erroneous matching of records associated with different individuals. For more information about the data linking and identity resolution can be found in TRIP's Data Handbook.

TRIP Team Activities

The TRIP project work is comprised of duties categorized in the following way: (1) Data Governance and Sharing Activities, (2) Data Integration Activities, and (3) Research and Analytical Activities.

Data Governance and Sharing Activities

The TRIP program is responsible for the establishment and maintenance of policies and procedures to appropriately obtain, manage, and protect data within the TRIP program, and to share it as appropriate with external researchers. These activities will continue to support governance of data and the sharing and support of TRIP endeavors (both internal and external). These tasks include:

- Support the data governance program for TRIP:
    - Develop data sharing agreements (DSAs) for data obtained from our data providers and those provided to researchers.
    - Create and maintain the Data Governance Manual.
    - Develop materials for WSIRB and monitor compliance with WSIRB requirements.
- Provide technical support for the development of the TRIP Program:
    - Profile data sources to support linkages across datasets.
    - Create data quality reports for agencies supplying data to the TRIP database.
- Conduct research and analysis with TRIP data related to relevant traffic safety topics:
    - Collaborate with agencies supplying and using TRIP data to identify and evaluate critical research and policy issues and questions.

The TRIP program is responsible for sharing data appropriately with data requestors, its grantor, and the public. To this end, TRIP will develop and maintain data sharing mechanisms:

- Create data resources such as data request processes, data approval processes, and other tools to help data providers and external stakeholders and researchers to utilize the TRIP repository.
- Create a series of reports to show the utility of integrating state records with Washington state crash records in effort to examine six core areas – crash, vehicle, driver, roadway, citation and adjudications, and injury surveillance.
- Create and update the TRIP website to offer more information about the TRIP program, data resources, data dashboards, and publications.
- Use data dashboards to create an avenue of information for the public and policymakers to address long standing and issues for drivers in Washington. The dashboards represent ongoing data analyses, visualizations, and research conducted by TRIP.

All data products will be reviewed by appropriate data providers with input from the Traffic Data Analysis and Evaluation Committee, as appropriate.

Data Integration and Maintenance Activities

The initial and ongoing integration of data sources into the TRIP repository is the central activity for the project. Each data source will undergo the data governance process, and data loading steps. For each dataset, these integration tasks include:

- Evaluating current and potential datasets regarding their appropriateness for inclusion in the TRIP repository.
- Obtaining source datasets from data partners.
- Profiling data for validity, accuracy, and completeness.
- Generating and maintaining documentation related to data readiness and encapsulating correct understanding of the data.

- Importing into data repository, and continuously validating data.
- Designing, creating, testing, and maintaining all related extraction, transformation, and loading data functions.
- Developing business rules and documenting data constraints to maintain data integrity.
- Developing, refining, and executing methodologies to establish linkages between datasets within the repository.
- Integrating into new and updated datasets into the repository data model.

The program will conduct regular reviews with key project staff to identify potential risks to the program; specifically, those that might hinder the program's ability to perform the aforementioned tasks. For each risk, staff articulate and record the source of the risk, trigger, potential impacts, and mitigation strategies.

Research and Analytical Activities

These activities will support the research efforts for internal, external, and collaborative requests. Research and analytical activities are critical for the TRIP's mission and goals. For external requests, this will include completing external research processes, WSIRB processes, data sharing and contract production, and review with data partners. For internal requests, this will include research, analysis, WSIRB application, dashboards, deliverables, and publications. Tasks include:

- Identifying data quality questions and analysis topics related to traffic safety:
    - Soliciting review and feedback from the TRGC, TRIP and TDAE committees on all data analyses and reports intended for public release.
    - Establishing and compiling performance measures.
- Supporting internal and external research requests:
    - Creating data extract methodologies and advanced SQL coding techniques for designing and executing data extracts.
    - Responding to customer questions and concerns related to data quality.
- Assessing appropriate methodologies to develop TRIP data visualizations and analysis:
    - Using different technical software, such as Tableau or PowerBI to clean and verify data quality.
    - Performing requisite analyses and validate analytical results.

Knowledge Dissemination and Translation

A planned strategy for sharing research and evaluation findings and translating those findings into practice and use for decision-making, is essential for any successful program. This section outlines TRIP's plan for translating knowledge gained and communicating knowledge to both internal and external stakeholders and practitioners.

Dissemination Plan

TRIP staff will produce and disseminate knowledge products for each completed project using formats including but not limited to the following:

- **Research Brief**. A research brief is intended to be a one-to-two-page report highlighting the background and the key findings.
- **Report**. A report is intended to be an expansion of the brief to expand on literature, methodologies, findings, and implications.
- **Dashboard**. If applicable, research brief or report content can be converted into a dashboard to make it more digestible to TRIP's audience and to be updated periodically to represent the most recent data.
- **Academic Manuscript**. A manuscript is a thorough research paper written to be published with a peer-reviewed academic journal to contribute to the field the project relates to.
- **Presentations/ Conferences**. A presentation is intended to be an informative and instructional speech, talk, or discussion that explains the research conducted and implications surrounding the work.

In all products, the TRIP will solicit review and feedback to ensure full transparency of projects to relevant data partners, including but not limited to Traffic Data Analysis and Evaluation (TDAE) committee members as well as funders and data partners.

Current Program State

This section describes the state of the TRIP program implementation as of the time of writing.

Dataset Integration

The TRIP team has engaged in discussions with each of the core data providers regarding integration of relevant datasets from their systems into the TRIP repository. Progress toward this integration for each dataset is described in Table 2 below. Datasets that have been fully incorporated into the repository and for which annual updates to the dataset are incorporated into the repository without need for infrastructure changes such as identification of validation routines or definition of the linkage components, are indicated as having entered "maintenance mode" (see Table 2).

Table 2: Status of Dataset Integration

Dataset	Source/System	Data Identified	DSA Signed	Dataset Obtained	Profiling Completed	Validation Routines Defined	Linkage Completed	Integrated Into Repository	Integrated Into Data Products	Maintenance Mode
Collision Reports	WSDOT – CLAS									X
Driver History	DOL – DRIVES									X
Toxicology Results	WSP – Toxicology Laboratory									
Case Filings	AOC – Judicial Information System									
Death Records	DOH – Death Vital Records			*						
Inpatient Stay Data	DOH – CHARS			*						
Emergency Dept. Data	DOH – RHINO			*						
EMS data	DOH – WEMSIS			*						
Trauma data	DOH – Trauma Registry			*						

**DOH data obtained is limited to linkage variables required for dataset integration. Full datasets are not currently provided to TRIP.*

Data Governance

Program-specific data governance procedures have been defined. TRIP staff have published a Data Governance Manual that outlines the data governance policies and processes employed by the program. This includes policies and procedures related to DSAs, data loading steps, process documentation, software, hardware, resources, security and privacy of the data, and data sharing.

TRIP staff have obtained DSAs from all data providers. DSAs governing the data TRIP obtains from its data partners for the TRIP repository have been executed for the core datasets described above. DSAs are necessary to define the dataset provided, clarify responsibilities between the provider and requestor, and the constraints around data utilization, compliance, terms, privacy, and security. As new relevant data sources are identified, DSAs will be executed to allow TRIP to obtain and incorporate these datasets and variables into the TRIP repository.

A procedure for sharing TRIP data to researchers has been developed. This procedure covers the data request process, the process for notifying and obtaining approval of source data providers, includes a DSA template, and covers the data transmittal, usage, and destruction process. This procedure allows

TRIP to share TRIP repository data with external researchers, which is a primary goal of the TRIP program.

Processes and Methods

Data loading processes for the TRIP data are enacted. The infrastructure for loading, storing, and linking dataset within the TRIP repository have been obtained and processes related to these loading steps and rules have been defined. These processes are being employed to load, link, and store the datasets from our data providers. These include but are not limited to processes related to the documentation of a dataset's readiness, as well as the source-to-target mapping documentation that must be completed for each dataset at each step of the data loading process.

Data linkage and identity resolution methods are employed… and are undergoing updates. Linkage and identity resolution methodologies and processes have been developed and implemented. However, multiple changes are being pursued related to these processes.

- The existing data linkage and identity resolution processes were based on those developed for the ERDC data repository. TRIP is working with the linkage team to assess if developing TRIP-specific linkage methodologies and rules would improve the quality of TRIP linkage.
- The current TRIP linkage process involves linking individuals from different datasets. As the TRIP repository contains data centered around specific events (i.e., collisions), the TRIP team is investigating the possibility of developing and integrating event-specific linkage methods.
- The linking team is undergoing a multi-year effort to update and modernize the linkage and identity resolution software from a third-party vendor product to an in-house, open-source platform. This will result in more control over the linkage processes.

Research and Data Products

Data-limited dataset in development. The TRIP team is in the process of developing a "data-limited" dataset to be made available to the public. A data-limited dataset contains relevant data from the TRIP repository, exclusive of personal identifiers and is aggregated to a level that precludes the ability to re-identify individuals and specific events contained within the dataset. Upon completion, the TRIP team will seek WSIRB approval for the dataset. This data-limited dataset will allow anyone access to a limited set of TRIP repository data for research without the need for individual IRB approval.

TRIP pursing research opportunities. The TRIP program staff are in the process of pursuing funding and WSIRB approval for a research project involving the analysis of transportation-related injury and fatality trends across Washington State. The project aims to identify disparities in crash outcomes by geography, race, age, and other demographic indicators. Researchers will utilize a data limited file provided by state agencies to ensure confidentiality while maintaining the integrity of key variables. The findings are expected to inform targeted interventions and policy recommendations to reduce preventable injuries and fatalities. Collaboration with public health and transportation stakeholders will be essential to translating data into action. The team is also developing community engagement strategies to ensure that affected populations have a voice in the research process. Ultimately, the project seeks to advance equity and data-driven decision-making in Washington's traffic safety initiatives.

TRIP providing data for external research. The TRIP program supports broader efforts to understand and improve traffic safety outcomes across Washington State. By sharing data with qualified researchers, TRIP contributes to the development of evidence-based strategies that address critical transportation issues. External partners must undergo a thorough review process, including WSIRB approval, to ensure ethical use of sensitive data. All shared datasets are limited to protect individual

privacy while maintaining key variables necessary for robust analysis. Collaborations with academic institutions and public agencies often result in publications, policy briefs, and actionable recommendations. TRIP staff also provide technical assistance to help researchers accurately interpret the data. This approach strengthens statewide partnerships and reinforces TRIP's role as a vital resource for data-informed decision-making.

Program Oversight

The TRIP program is subject to oversight from the WTSC and the applicable Institutional Review Board. In addition, TRIP staff report TRIP program activities to several committees in which it maintains membership.

WTSC Oversight

As the administrator of the grant that implements the TRIP program at OFM, WTSC provides ongoing oversight of the TRIP program's progress and provides feedback regarding decisions, products, and methodologies implemented by TRIP program staff. In addition to being a regular consumer of the TRIP repository data, WTSC facilitates the TRGC and WTSC staff serve on the various committees providing oversight to the TRIP program. A key deliverable of the TRIP program is the quarterly and annual reporting of TRIP developments and progress toward program objectives to WTSC.

Washington State Institutional Review Board

Per RCW 42.48, the WSIRB is responsible for providing the requisite regulatory review, approval, and oversight of research that may involve these state agencies' clients, beneficiaries, patients, wards and state agency employees or these individuals' state agency personal records, in order to ensure the protection of the rights and welfare of human subjects of research. As the TRIP consists of a traffic and health safety repository of data, the TRIP has obtained approval of its repository from the WSIRB. According to the WSIRB, "*the term* 'Research Registry' means a database or a collection of databases that have been created or organized to facilitate the conduct of multiple research studies, including future studies not yet envisioned. The terms 'Research Registry' and 'Research Data Repository' have the same meaning" (37)[3]

[3] Washington State Institutional Review Board (2021). Washington State Institutional Review Board Procedures Manual. Retrieved from https://www.dshs.wa.gov/sites/default/files/hrrs/documents/Procedures_Manual_111821.pdf

Committee Membership

In pursuit of its mission, the WTSC's Research and Data Division oversees the Washington State Traffic Records Program (TRP). The TRP consists of a grant program administered through coordination with the Traffic Records Governance Council (TRGC) and committees which provide guidance and oversight for key objectives of the TRGC strategic framework.

Traffic Records Governance Council

The TRGC is Washington's traffic records coordinating committee and is responsible for furthering the mission of the TRP. The mission of the TRGC is to enhance transportation safety through coordinated projects to provide more timely, accurate, complete, uniform, integrated, and accessible traffic records data. Ten partner state agencies are represented on the TRGC and support the development, maintenance, and improvement of traffic records data systems including:

- Washington Traffic Safety Commission (WTSC)
- Washington State Department of Transportation (WSDOT)
- Washington State Patrol (WSP)
- Washington State Department of Health (DOH)
- Washington State Department of Licensing (DOL)
- Washington Association of Sheriffs and Police Chiefs (WASPC)
- Washington Technology Solutions (WaTech)
- Washington State County Road Administration Board (CRAB)
- Washington Administrative Office of the Courts (AOC)
- Washington State Office of Financial Management (OFM)

The TRGC includes one voting member from among the TRIP program staff. The TRGC measures the effectiveness of TRP efforts, including those of TRIP, by tracking the following attributes:

- **Timeliness**. The time between the event and the entry of the event into a database.
- **Accuracy**. The degree to which data is error-free and not duplicated in a database.
- **Completeness**. The degree to which records and attributes are present or missing from a database.
- **Uniformity**. The consistency of data from various jurisdictions with the same data definitions and reporting procedures.
- **Integration**. The ability of records in one database to be linked to records in another database using common identifiers.
- **Accessibility**. The ability of legitimate users to successfully obtain data or information.
- **Modernization**. The stability, security, efficiency, and sustainability of systems infrastructure.

The TRGC provides policy oversight and governance for statewide traffic records strategies and activities and is responsible for implementing the key objectives in the TRP strategic framework.

- **Electronic Traffic Information Processing (eTRIP)**. The eTRIP committee is a forum for coordinating the technical aspects of traffic records data systems that support the electronic collection, storage, quality control, and transmission/exchange of traffic records data.
- **Grant Management and Review (GMR)**. The GMR committee facilitates accountability and shared expertise among TRP grantees to ensure efficient and well-coordinated use of TRP resources.

- **Traffic Records Integration Program (TRIP)**. The TRIP committee advises OFM TRIP staff on data governance issues and solutions, provides oversight of data request applications, and contributes traffic record data expertise regarding data use cases.
- **Traffic Data Analysis and Evaluation (TDAE)**. The TDAE committee provides consultation and review of traffic records data analyses, research, and traffic safety program evaluation.
- **SECTOR Replacement Governance (SRG)**. The SRG committee provides executive level oversight of the SECTOR replacement project. This temporary committee will sunset once SECTOR is decommissioned.

Two of these committees – the Traffic Records Integration Program Committee and the Traffic Data Analysis and Evaluation Committee – provide oversight relative to TRIP program activities.

Traffic Records Integration Program Committee

The purpose of the Traffic Records Integration Program (TRIP) Committee is to advise TRIP program staff on data governance issues and to review data user applications that request multi-sector data. In addition, the TRIP Committee is responsible for helping formulate research ideas and critical questions that may be completed using TRIP data. The committee may also provide insight into other potential data sources that may be brought into the TRIP data warehouse.

The TRIP Committee is established as one of the committees supporting the TRGC in its mission to enhance transportation safety in Washington State. TRIP staff facilitate this committee meeting quarterly and report on program progress and updates.

Traffic Data Analysis and Evaluation Committee

The TDAE Committee provides consultation on traffic records data analysis, research, and traffic safety program evaluation. The committee provides guidance and feedback on traffic records research and evaluation. The committee identifies traffic records data gaps and analysis issue areas and recommends solutions or develops standardized best practice/guidance for users of Washington traffic records data.

The TDAE Committee is comprised of subject matter experts who frequently tabulate, analyze and/or conduct research using Washington traffic records data. Members may be assigned by TRGC members or may volunteer to contribute to the duties and responsibilities of the committee.

TRIP staff data scientists are members of this committee. The goal of this committee is to review and provide guidance and feedback on data analysis and reporting, including those of the TRIP program.

Appendix A: Critical Questions

An important element of the TRIP data governance system is identifying a set of critical policy and research questions that the TRIP repository is expected to provide data to answer. These questions are central to the development and maintenance of the data system since answering these questions will require that necessary data elements, measurements and transformation are available. Questions were generated by TRIP staff and additional questions were solicited from WTSC and data partners.

Cross-Sector Research Questions

- Do graduated license requirements reduce crashes involving serious injury or fatalities among those under age 18?
- Does traffic congestion on the road increase fatality rates or serious injuries?
- What are the primary contributing factors to serious or fatal crashes in a specific region?
- Are certain driver demographics (age, sex, prior violations) more associated with types of crashes?
- How effective are roadway improvements or safety counter measures (e.g., roundabouts) or traffic calming measures (e.g., speed bumps) at reducing crashes?
- Do traffic citations (e.g., DUIs, speeding) reduce the likelihood of future crashes for cited drivers?
- What percentage of citations result in convictions, and how does adjudication affect driver behavior?
- Which crash types or locations are associated with the highest rates of severe injuries or fatalities?
- Are trauma care outcomes different for rural versus urban crash victims?
- How do roadway conditions (e.g., lighting, signage, surface quality) correlate with crash rates?
- What are the high-risk roadway segments or intersections based on crashes and citation data?
- What are the most common set of injuries in traffic collisions that lead to fatalities?
- Are multi-vehicle collisions more likely to produce serious injuries or fatalities than single vehicle collisions?
- How do increases in traffic citations or increased enforcement of traffic laws impact serious injury and fatality rates?
- Are certain people who have their licenses suspended more likely to have secondary charges?
- How have driver recidivism rates changed over the past decade?
- What is the driver's abstract profile of the DUI crash-involved driver? Can we derive a crash-risk rating based on information from driver abstracts?
- Does the driver's history of pedestrians and cyclists involved in crashes provide additional insight into the crash circumstances?
- What is the long-term post-crash mortality for serious injuries? How many crash-related fatalities occur more than 30 days after the crash? What are the different circumstances and survival rates in serious injury crashes?
- What are the DUI filing and adjudication rates for crash-involved drivers versus DUIs apprehended roadside?
- What are the different hospitalization rates and costs due to MVC among different age groups?

Cross-Sector Data Validation Questions

- 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?
- What is the frequency of non-fatal crash records that link to toxicology? How often is there a positive toxicology result and the officer did not code a contributing circumstance for drugs? What are those drugs involved in the cases with positive drug toxicology but no contributing circumstance? What is the agreement between toxicology BAC records and police-reported BAC records? How often do the police report BAC without a toxicology result? How often is there a positive BAC toxicology that was not reported to the crash record?
- Can CHARS be used to derive a clinical assessment of injury severity to compare to or replace the officer's assessment of injury severity? How do these assessments differ?
- Do all datasets that contain cause of death align?
- Can the Trauma Registry Injury Severity Score (ISS) variables be used to better identify serious injuries from collisions than data collection methods?
- Are injury outcomes reported by law enforcement consistent with WEMSIS, RHINO, and CHARS data?
- 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?

Appendix B: Glossary of Acronyms

This appendix defines acronyms used throughout this document.

AOC (Administrative Office of the Courts) – The Washington State Administrative Office of the Courts provides support for Washington's non-unified courts through services to promote the efficient administration of justice across the State. AOC maintains a dataset of court case filings that is included in the TRIP data repository.

CLAS (Collision Location Analysis System) – The Collision Location Analysis System (CLAS) is the analysis system used by WSDOT's Collision Data and Reporting Branch for the processing of Police Traffic Collision Report (PTCR) data. Data from this system comprises the central data set in the TRIP data repository.

DOH (Department of Health) – Washington's Department of Health is a state agency responsible for providing comprehensive public health services and programs to residents of the State. The DOH maintains multiple health-related datasets that serve as components of the TRIP data repository.

DOL (Department of Licensing) – The Washington State Department of Licensing is a state agency responsible for driver licensing and vehicle registration. DOL maintains datasets related to these responsibilities that are incorporated into the TRIP data repository.

DRIVES (Driver and Vehicle System) – The Driver and Vehicle System is DOL's system for tracking driver, licensing, and vehicle registration records. Driver license history data from DRIVES is used in the TRIP data repository.

DSA (Data Sharing Agreement) – A Data Sharing Agreement is a contract between two entities that permits confidential data from one to be shared with the other. It includes a description of the data to be shared, the frequency of sharing, limitations on permissible utilization and re-sharing of the data, and oversight, destruction, and notification protocols and other roles and responsibilities of the parties.

ERDC (Education Research and Data Center) – OFM's Education Research and Data Center compiles data about students in Washington as they move through school to the workforce. Many aspects of the ERDC data model, systems, and governance structure were leveraged in the development of the TRIP program.

IRB (Institutional Review Board) – An institutional review board is responsible for providing regulatory review, approval, and oversight of research involving human subjects to ensure the protection of the rights and welfare of the research subjects.

ODS (Operational Data Store) – The Operational Data Store is the longitudinal data warehouse comprising the TRIP data repository. It contains linked data from all source datasets and is used to generate reporting and data extracts for research purposes.

OFM (Office of Financial Management) – The Washington State Office of Financial Management plays a central role in budget planning, policy development, and fiscal administration for the executive branch, and conducts research on a variety of issues affecting the state budget and public policy.

PSPRC (Public Safety Policy and Research Center) – The Public Safety Policy and Research Center is a data and research center located within OFM's Forecasting and Research Division. The center maintains

data repositories, performs research and analysis, and provides expertise related to a variety of public safety topics.

RADD (Research and Data Division) – WTSC's Research and Data Division manages the TRP program and oversees TRIP program activities via the TRGC and component committees.

RCW (Revised Code of Washington) – The Revised Code of Washington is the compilation of all permanent state laws currently in force.

SECTOR (Statewide Electronic Collision and Ticket Online Records) – SECTOR is the statewide electronic records system used by law enforcement agencies in Washington State for citations and collision reporting.

TDAE (Traffic Data Analysis and Evaluation Committee) – The Traffic Data Analysis and Evaluation Committee provides consultation on traffic records data analysis, research, and traffic safety program evaluation.

TRGC (Traffic Records Governance Council) – The Traffic Records Governance Council is Washington's traffic records coordinating committee and is responsible for furthering the mission of the TRP. The TRGC coordinates five committees that are responsible for implementing the key objectives of the TRP strategic framework.

TRIP (Traffic Records Integration Program)

- (Program) The Traffic Records Integration Program is a data integration program implemented by OFM's Public Safety Policy and Research Center which seeks to further Washington's Target Zero plan by developing and maintaining a cross-sector research repository comprised of administrative datasets from state agencies.
- (Committee) The Traffic Records Integration Program Committee exists to advise TRIP program staff on data governance issues and to review data user applications that request multi-sector data.

TRP (Washington State Traffic Records Program) – The Traffic Records Program consists of a grant program administered in accordance with 23 U.S.C. 405(c) through coordination with the TRGC and committees. The TRIP is managed by the WTSC RADD.

WSDOT (Washington State Department of Transportation) – The Washington State Department of Transportation is a state agency responsible for the development and maintenance of the State's multimodal transportation system. WSDOT's Collision Reporting and Analysis Branch maintains the collision data set that is a core component of the TRIP program's data repository.

WSIRB (Washington State Institutional Review Board) – The Washington State Institutional Review Board is the IRB responsible for oversight of research that may involve state agencies' clients, beneficiaries, patients, wards, and state agency employees or these individuals' state agency personal records. The TRIP research repository and any research that involves it is subject to the oversight of the WSIRB.

WSP (Washington State Patrol) – The Washington State Patrol is Washington's State's law enforcement agency. WSP houses the WSP Toxicology Laboratory, which maintains a dataset of driver toxicology results that are used within the TRIP repository.

WTSC (Washington Traffic Safety Commission) – The Washington Traffic Safety Commission is Washington's designated highway safety office. The office is tasked with finding solutions to issues related to the state's growing motor vehicle traffic volume and the associated collisions. The WTSC is responsible for Target Zero, Washington's Strategic Highway Safety Plan.