# Memorandum

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**To:**     Susie Serres, Traffic and Roadway Principal Engineer
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            City of Hillsboro

**From:**   Kittelson & Associates, Inc.

**RE:**     Transportation Safety Action Plan 2023 Update

## PROJECT FRAMEWORK MEMORANDUM

This memorandum presents a safety analysis framework for the City of Hillsboro Transportation Safety Action Plan (TSAP). The framework presents Kittelson's safety analysis approach and performance measures that will be used to screen the City of Hillsboro's transportation network. The approach integrates a Safe System Approach to support achieving zero fatal and serious injury crashes within the City of Hillsboro.

This memorandum is organized into the following sections:

- Study Area
- Relevant Background Documents
- Comprehensive Approach to Safety
- Framework Plan
- Next Steps

## Study Area

The City of Hillsboro is an urban city located in Washington County in northwest Oregon. The roadway network within the urban growth boundary (UGB) is operated and maintained by three primary jurisdictions: the City of Hillsboro, Washington County, and Oregon Department of Transportation (ODOT). Coordination among the three jurisdictions is required to ensure the transportation system is planned, operated, maintained, and improved to meet the project goals of the TSAP.

The TSAP Update will analyze the public roads within the City of Hillsboro's city limits to identify and prioritize safety countermeasures to support achieving zero fatal and serious injury crashes.

Figure 1 presents the existing roadway network and study area for the TSAP Update.

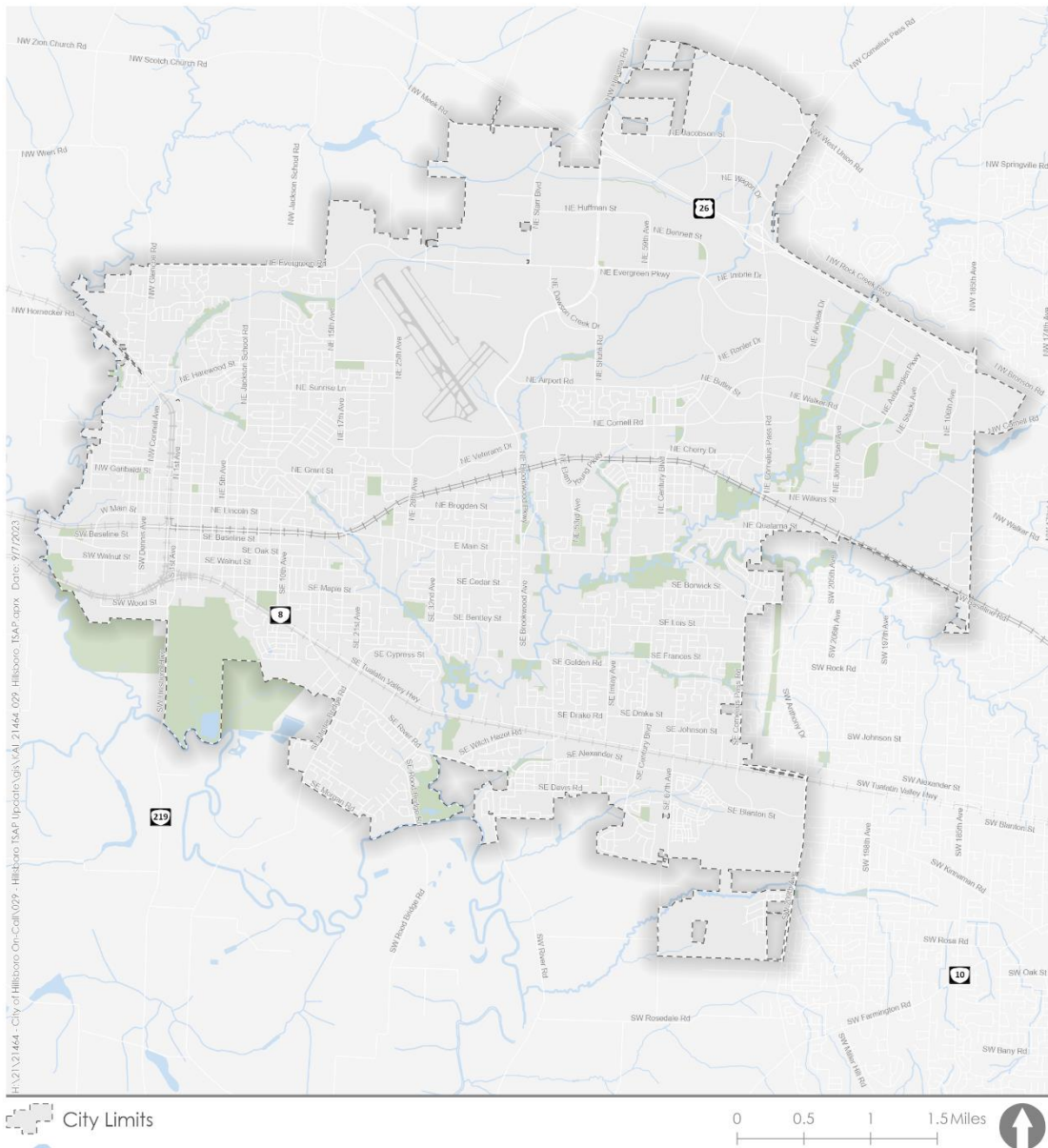**Figure 1. City of Hillsboro Study Area**



Figure 1

**City of Hillsboro
TSAP Update**

# Relevant Background Documents

The City of Hillsboro Transportation Safety Action Plan (TSAP, 2017) and Transportation System Plan (TSP, 2022) were reviewed to identify safety related policies, goals, objectives, as well as establish a baseline for assessing progress made towards the 2017 TSAP vision.

## City of Hillsboro TSAP (2017)

The 2017 TSAP outlines potential strategies to address transportation safety issues and identifies ways to implement these strategies. The 2017 TSAP is based on crash data collected between 2010 and 2014.

### TSAP Vision

Figure 2 provides an executive summary of the 2017 TSAP including the vision, crash trends, statistics and approach to addressing transportation safety.
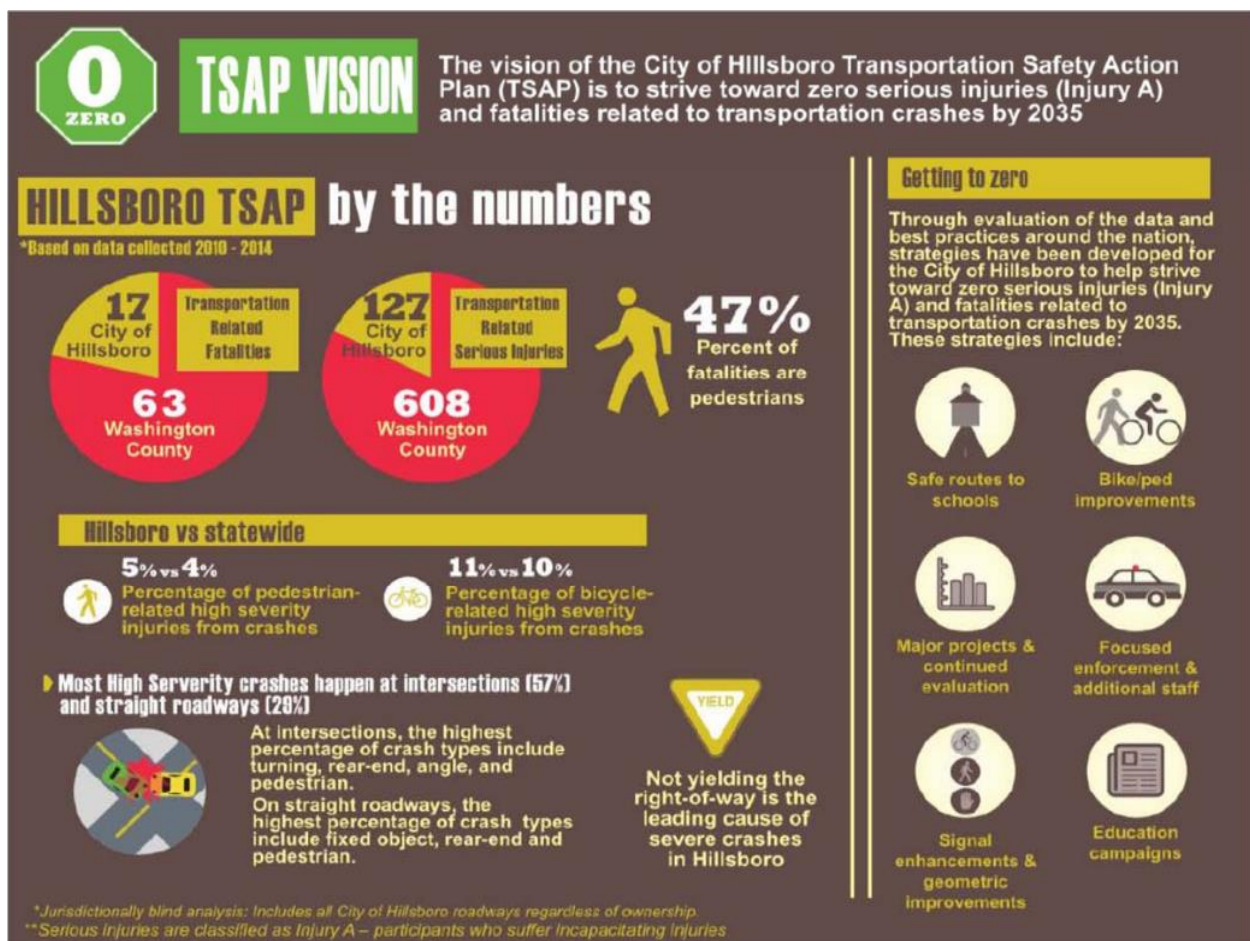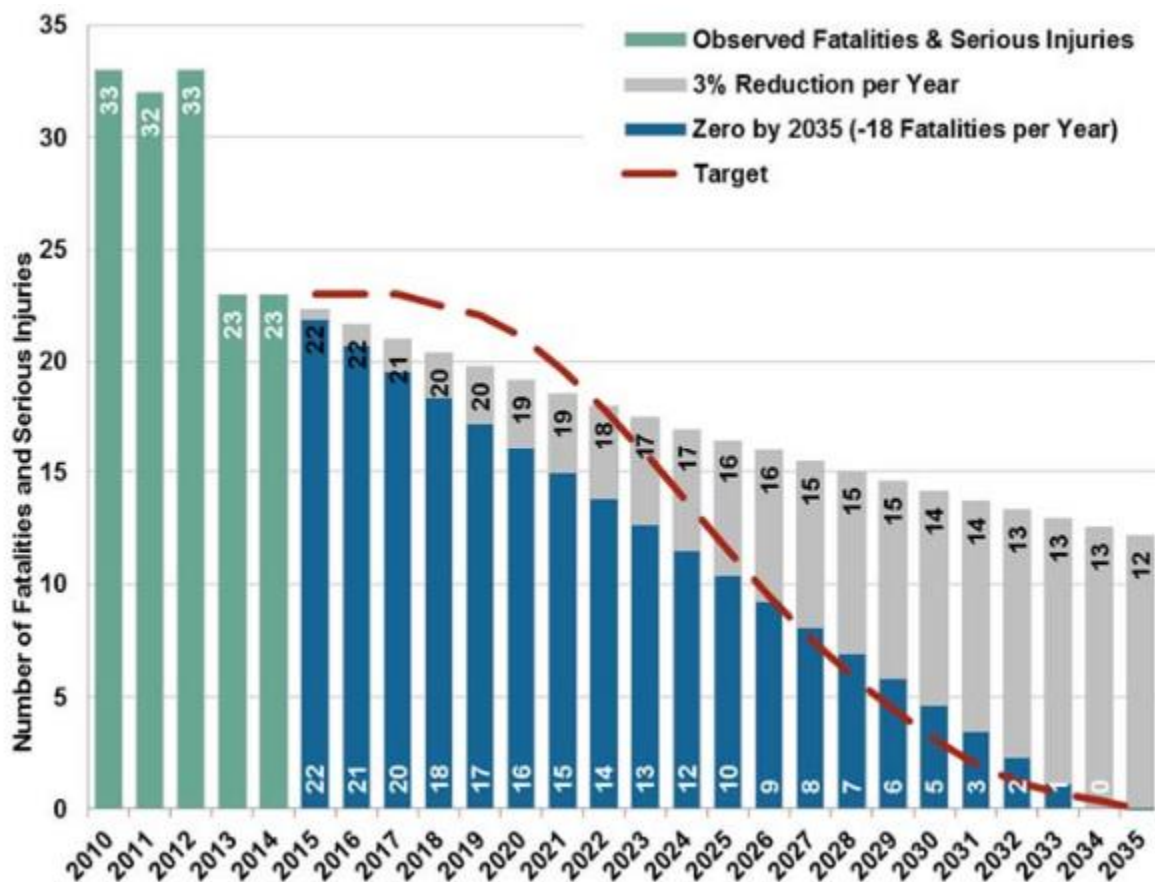
**Figure 2. 2017 TSAP Executive Summary**



Figure 3 shows the 2017 TSAP's estimate of the crash reduction trend that would be needed to reach this vision by 2035. This TSAP Update will consider how the City is performing relative to the needed reduction identified in the 2017 TSAP.

**Figure 3. Reduction Needed to Reach Zero Serious Injuries and Fatalities by 2035**



## Strategies

The 2017 TSAP also identifies strategies to address crash trends. Table 1 summarizes the engineering and enforcement strategies identified in the 2017 TSAP. The TSAP Update will recognize which of these strategies have been implemented, which have not been implemented, and which can be improved on.

**Table 1. Systemic Engineering and Enforcement Strategies for the City of Hillsboro TSAP**

| Crash Trend Identified | Improvement Strategy |
|---|---|
| Pedestrian and bicycle related crashes | Implement a Safe Routes to Schools (SRTS) Program |
| | Pedestrian and Bicycle Specific Studies |
| | Pedestrian and Bicycle Operational Improvements |
| | Pedestrian and Bicycle Focused Design Improvements |
| Crashes involving turning movements at signalized intersections | Gap Dependent Flashing Arrow |
| | Geometric Improvements for Turns |
| Crashes involving younger drivers | Education and Law Enforcement Campaigns |
| | Focused Enforcement |

| Crash Trend Identified | Improvement Strategy |
|---|---|
| Rear-end collisions | Signal Timing Improvements |
| | Speed Reduction |
| Angled crashes | Red Light Improvements |
| | Signal Timing Improvements |
| High critical crash rate intersection locations | Intersection Evaluation to Develop Improvements |
| Crashes where the driver disregarded traffic laws (i.e., did not yield the right-of-way, disregarded the traffic signals, followed too closely) | Focused Enforcement |
| | Police Staff Dedicated to Safety Coordination within the City |

## City of Hillsboro TSP (2022)

The 2022 TSP is the guiding document for the City of Hillsboro's transportation investments over the next 20 years. Goal 1 of the transportation section is "Safety – develop and maintain a transportation system that seeks to eliminate fatalities and serious injuries." The 2022 TSP identifies nine policies related to this safety goal.

- **Policy T 1.1 Safety for all modes.** Develop and maintain the transportation system to enable users of all modes, including pedestrians, cyclists, drivers, and those taking transit, to be equally safe and comfortable.
- **Policy T 1.2 Protection of vulnerable users.** Improve safety for more vulnerable system users, including pedestrians, bicyclists, and those who need special accommodations under the Americans with Disabilities Act.
- **Policy T 1.3 Minimize conflicts.** Design streets and manage access to minimize user conflicts and improve safety.
- **Policy T 1.4 Pedestrian network safety.** Improve pedestrian safety throughout the City, particularly near schools, transit stops and stations, public facilities, and rail and street crossings.
- **Policy T 1.5 Safety monitoring and mitigation.** Monitor the City transportation system to identify, prioritize, and mitigate safety issues, and improve high-crash locations for all modes.
- **Policy T 1.6 Education, awareness, and enforcement.** Partner across agencies and departments to improve transportation system safety education, build awareness, and ensure enforcement across the community.
- **Policy T 1.7 Rail crossing safety.** Ensure that rail crossings are safe for all users.
- **Policy T 1.8 Hazardous materials.** Require safe routing of hazardous materials within the City consistent with state and federal guidelines.
- **Policy T 1.9 Street and path lighting.** Require appropriate illumination that provides for the safety of all users.

The 2022 TSP takes into account the trends and key locations identified in the 2017 TSAP, for developing and prioritizing future capital projects and safety plans.

## Washington County TSAP (2016)

Figure 4 provides an executive summary of the crash trends identified in the Washington County TSAP. The goal of the TSAP is to strive toward zero transportation-related serious injury and fatality crashes. Disregarding traffic laws is the number one cause of crashes in the County.

**Figure 4. Washington County TSAP Executive Summary**
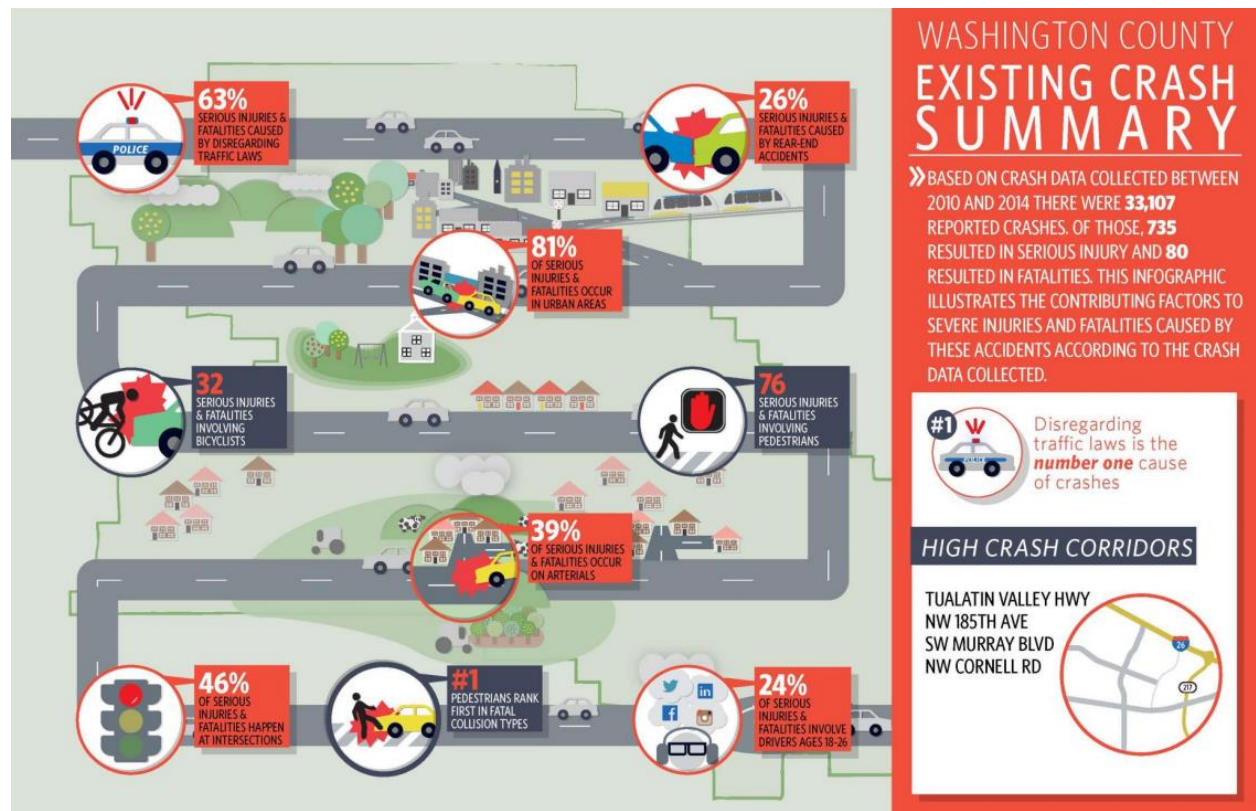


Based on the crash data analysis and input from the committees, the countermeasures described in Table 2 are recommended. Additional details on each countermeasure are provided in the Washington County TSAP.

**Table 2. Systemic Engineering, Education, Enforcement, and Emergency Vehicle Best Practices**

| Countermeasure | Safety Focus |
|---|---|
| Variable Speed Limit Signs | – Speeding |
| Improved Signal Visibility | – Intersections<br>– Pedestrians |
| Improved Roadway Lighting | – Pedestrians |
| Red-Light Improvements | – Speeding<br>– Intersections<br>– Pedestrians |
| Technology Enhancements to Support Connected Vehicles | – Intersections<br>– Speeding<br>– Pedestrians<br>– Alcohol and Drug Impairment |
| Geometric Improvements | – Intersections<br>– Speeding<br>– Pedestrians |
| Road Reconfiguration (road diet, lane width reductions) | – Speeding<br>– Pedestrians |

| Countermeasure | Safety Focus |
|---|---|
| Signal Timing Improvements | – Intersections<br>– Pedestrians |
| Speed Reduction Options | – Speeding |
| Pedestrian and Bicycle Infrastructure Improvements | – Pedestrian |
| Speed Enforcement Signs (Mobile and Fixed): | – Speeding |
| Access Management: | – Intersections<br>– Pedestrians<br>– Speeding |
| Targeted Enforcement | – Alcohol and Drug Impairment<br>– Speeding |
| Positive Culture Framework | – Intersections<br>– Speeding<br>– Pedestrians<br>– Alcohol and Drug Impairment |
| Media Outreach/Campaigns | – Speeding<br>– Pedestrian<br>– Alcohol and Drug Impairment |
| Driver Simulation | – Intersections<br>– Speeding<br>– Pedestrians<br>– Alcohol and Drug Impairment |
| Community Outreach and Engagement | – Intersections<br>– Speeding<br>– Pedestrians<br>– Alcohol and Drug Impairment |
| Additional Staff or Training to Support Safety Focus at Agencies | – Intersections<br>– Speeding<br>– Pedestrians<br>– Alcohol and Drug Impairment |
| Enhanced Emergency Vehicle Preemption | – Intersections<br>– Speeding<br>– Pedestrians<br>– Alcohol and Drug Impairment |
| Enhanced EMS Systems | – Intersections<br>– Speeding<br>– Pedestrians<br>– Alcohol and Drug Impairment |
| Education on Benefits of Alternate Modes | – Pedestrians |
| Strengthen safety legislation and regulations at the State and Federal level | – Intersections<br>– Speeding<br>– Pedestrians<br>– Alcohol and Drug Impairment |
| Policy Changes for Transportation and Land Use priorities | – Pedestrians |

The TSAP Update will recognize which of these strategies have been implemented (to what extent), and which can be improved on.

## Oregon TSAP (2021)

The TSAP serves as the foundation for integrating behavioral and engineering safety practices into all aspects of planning, programming, and policy activities in the state.

Goals, policies, and strategies in the Oregon TSAP focus on changing safety culture and proactively planning, designing, operating, and maintaining a transportation system that eliminates fatalities and serious injuries – this is only possible with the help of safe traveling behaviors of residents and visitors and decision-makers investing in safety programs, policies, and infrastructure projects. The Oregon TSAP's six goal areas include:

1. Improving Safety Culture
2. Improving Infrastructure
3. Facilitating Health and Livable Communities
4. Using Best Available Technologies
5. Communicating and Collaborating
6. Investing Strategically

This latest Oregon TSAP also emphasizes equitable transportation safety for all users and all modes so that burdens and benefits of movement do not disproportionately impact one community over another.

Over the long-term, the Oregon TSAP is intended to provide guidance to policymakers, planners, and designers. In the near-term, it provides actions for reducing fatalities and life-changing injuries in the form of Emphasis Area Actions. The Emphasis Areas include:

- **Risky Behaviors** (recommends various actions for minimizing impaired, unbelted, speeding, and distracted driving crashes)
- **Infrastructure** (recommends various actions for minimizing intersection and roadway departure crashes)
- **Vulnerable Users** (recommends various actions for minimizing pedestrian, bicycle, motorcycle, and aging road user crashes with a focus on low-income communities and communities that have been historically excluded based on race and ethnicity)
- **Improved Systems** (recommends various actions to continually improve data, train and educate transportation and safety staff, support law enforcement and emergency responders, and minimize vehicle crashes)

The Oregon TSAP provides guidance on how the TSAP fits into practice and how it can be implemented across the state through various local partners:

- Evaluate local spot-specific and systemic safety needs; develop plans and programs to address needs.
- Collaborate with state, Metropolitan Planning Organization (MPO), and stakeholder partners to educate the public about city transportation safety-related behavior issues.
- Integrate safety programming, planning, and policy into local planning.
- Develop coalitions with enforcement and EMS providers to target and improve specific community needs.
- Use the TSAP as a resource for local goals, policies, strategies, and actions.

# Comprehensive Approach to Safety

A comprehensive approach to transportation safety acknowledges that policy, planning, programming, and projects are multidisciplinary. Recognizing this, the U.S. Department of Transportation (USDOT) has adopted the Safe System Approach to guide its roadway safety efforts. Figure 5 summarizes the key principles and focus areas of this strategy. Through this approach, the team will center authentic community engagement, education and encouragement; context-sensitive engineering; consistent evaluation and an equity lens.

key focus areas, to the extent practical, by considering strategies related to these "6 Es" of safety:

- Education;
- Emergency Medical Services (EMS);
- Enforcement;
- Engineering;
- Evaluation; and
- Equity

**Figure 5. Safe System Approach**



Source: USDOT

To achieve this multidisciplinary plan, input from a variety of people will be used throughout the project.

- **Project Management Team (PMT)** – The PMT will include key staff from City of Hillsboro who will meet regularly throughout the project to provide technical input at key steps throughout the project.
- **Steering Committee (SC)** – The SC will include City and partner agency staff and public facing partners and interested parties. The SC will meet three times throughout the project to provide input on the existing conditions analysis, the recommendations, and the draft TSAP.
- **Open Houses and In-Person Outreach Events** – There will be at least five  in-person tabling/pop-up style outreach events and two online open houses to provide a diversity of engagement opportunities with the public. The public will provide input on the project goals and objectives, safety concerns, opportunities for multimodal safety improvements, and priorities for the City.

# Framework Plan

Based on the City's desire for a comprehensive, systematic, and objective safety plan, Kittelson and Associates, Inc. (Kittelson) has developed a safety analysis framework that builds upon statewide policies and applies crash analysis tools and methods from the *Highway Safety Manual* (HSM), other published resources from the Federal Highway Administration (FHWA) or National Cooperative Highway Research Program (NCHRP), and considers INRIX Safety View. This section documents the approach that will be used to develop the TSAP Update, the crash analysis tools and methods provided in the HSM, and how INRIX Safety View will be used. The overall framework includes four key phases:

- Due-Diligence
  - Inventory existing data
  - Evaluate potential tools and methods

- Network Screening
  - Track progress from recent TSAPs
  - Establish emphasis area
  - Identify reference populations
  - Select performance measures
  - Screen and evaluate results

- Countermeasure Development
  - Identify contributing factors at sites
  - Identify infrastructure countermeasures
  - Identify non-infrastructure countermeasures

- Implementation
  - Recommend updates to the CIP prioritization process to include safety and equity criteria
  - Develop performance measures
  - Develop annual update plan

- Monitoring
  - Develop performance measures to track how TSAP implementation and crash risk trends

Details on each phase, its purpose, and desired outcomes are described below.

## Due Diligence

**Purpose: Assess and identify tools and methods to apply now and in the future.**

The Due Diligence phase will focus on the following:

1) Assessing data availability and quality;
2) Evaluating methods and recommending the best methods that can be applied in Network Screening with the data available; and
3) Baseline data verification and uploading of City data to INRIX.

Crash, volume, and roadway inventory data are needed to apply an objective analysis in support of a safety management plan. By collecting as much data as is available, Kittelson will gain an understanding of where data is limited or where formats are not conducive for use with analysis tools. In some cases, this

may identify the need to convert data formats to be consistent for application of Network Screening methods.

Table 3 identifies the data requested to complete the safety analysis using network screening, distinguishing between different reference populations, understand behavioral and safety trends, and conduct additional analysis and site diagnosis.

**Table 3. TSAP Data Request**

| Data | Explanation | Expected Source |
|---|---|---|
| Crash History | Most recent five years of crash data within the study area | ODOT |
| Behavioral Information | Behavioral and safety information data including Total Risk Score, Seatbelt Risk Score, Hard Braking Risk Score, Speeding Risk Score, and Vehicle Size Risk Score | INRIX |
| Roadway Network | Roadway centerline data and intersection nodes | City of Hillsboro |
| Street Classification | The functional classification and freight classification of roadways in the study area | City of Hillsboro |
| Number of Lanes | The number of lanes on roads in the study area | City of Hillsboro |
| Turn Lanes | Location and type of turn lanes | City of Hillsboro |
| Accesses and Driveways | Frequency of accesses and driveways along segments | City of Hillsboro |
| Intersection Traffic Control | Traffic control information, such as signal, roundabout, two-way stop control, and all-way stop control in the study area | City of Hillsboro |
| Posted Speed | Posted speed data long the roadway in the study area | City of Hillsboro |
| Traffic Volumes | Data on traffic volumes in the area | City of Hillsboro |
| Bicycle Infrastructure | Bike lanes, vertical separation | City of Hillsboro |
| Pedestrian Infrastructure | Sidewalks, crossings | City of Hillsboro |
| Bicyclist Volumes | Data on bicycle volumes in the study area | City of Hillsboro |
| Pedestrian Volumes | Data on pedestrian volumes in the study area | City of Hillsboro |
| Planned Projects | Information about planned projects in the study area | City of Hillsboro |
| Street Lighting | Location of street lighting or identifications of areas needing more street lighting | City of Hillsboro |
| Land Use | Zoning and land use designations | City of Hillsboro |
| Essential Destinations | Schools, cultural centers, and other essential destinations as deemed appropriate by the City | City of Hillsboro |
| Census Data | Most recent census data to identify equity needs | U.S. Census Bureau |

# Network Screening

**Purpose: Apply objective methods to evaluate the roadway network to identify priority sites with potential for reducing crash frequency or severity.**

Network screening methods are described in detail in Chapter 4 of the HSM. The methods from the HSM will be adapted to fit the context of The City of Hillsboro and the scope of this project. In general, network screening includes the following steps:

1. Establish emphasis areas;
2. Identify reference populations;
3. Select performance measures; and
4. Screen and evaluate results.

Considerations for each of the steps above are discussed in the following subsections.

## Track Progress from Recent TSAPs

The City of Hillsboro TSAP (2017), the Washington County TSAP (2016) and the Oregon TSAP (2021) will be used as a starting point to develop goals, objectives, and strategies to eliminate fatalities and serious injury crashes by identifying projects, as well as providing guidance on changes to prioritization methods, roadway standards, or other programs and policies that may help reduce crashes on the system.

## Establish Emphasis Area

The crash data analysis may identify proportions of crash types, severity, location, and other transportation safety trends that the City will want to address to develop priority locations. The emphasis areas will inform goals and the performance measures selected for use in network screening. A quarter over quarter sequential analysis of trends will be used to determine if the factors change during seasons.

Crash analysis to identify emphasis areas will include a review of the following at a minimum:

- Age
- Contributing factors (to include distraction, aggressive, substance use, weather)
- User type involved (e.g. pedestrian and bicycle crashes)
- Severity
- Crash type

Where appropriate, and where data is available, the crash data will be overlaid with additional information, which may include:

- Bicycle and pedestrian infrastructure with bicycle and pedestrian crashes
- Roadway classification with crash cause
- Intersection control with crash severity, collision type, and/or contributing factors
- Behavioral and safety information data from INRIX including Near Miss Detection, Vulnerable Road User Index, Total Risk Score, Seatbelt Risk Score, Hard Braking Risk Score, Speeding Risk Score, and Vehicle Size Risk Score
- Demographic information related to equity for an equity-based process of identifying safety issues. This may be completed using an equity index or using regions within the INRIX tool.

## Identify Reference Populations

To identify projects that will be most cost-effective at reducing crashes, the network will be organized into reference populations and lists of priority sites will be developed for each population.

The HSM identifies the characteristics listed below as potential characteristics for establishing reference populations. Kittelson will use these same characteristics as a starting place for identifying the appropriate reference population.

- Area type (e.g., urban or rural) – All sites will be considered Urban for this project;
- Traffic control (e.g., signalized, unsignalized, roundabout, etc.);
- Number of approaches (e.g., three-leg or four-leg intersection);

- Cross-section (e.g., number of through lanes and turning lanes);
- Functional Classification; and,
- Traffic volume.

Based on the data available on public roads within the UGB, *functional classification and traffic control will be used to define reference populations*.

## Select Performance Measures

Performance measures are used to evaluate the crash data using a quantitative "score" at each site. The HSM identifies 13 performance measures that can be used in network screening. Performance measure selection is based on data available, desired statistical rigor, and plan priorities. Performance measures with the greatest statistical rigor apply crash prediction models to account for "regression to the mean" bias, which is commonly evident in safety evaluations. Those methods provide the greatest reliability of the screening results and require the greatest amount of data.

Table 4 documents each performance measure and the potential for application in this project.

**Table 4. HSM Performance Measures and Applicability**

| Performance Measure | Applicability to TSAP Update |
|---|---|
| Equivalent Property Damage Only (EPDO) Average Crash Frequency | – This performance measure incorporates both crash frequency and severity and is useful for reference to ODOT's All Roads Transportation Safety Program. |
| Probability of Specific Crash Types Exceeding Threshold Proportion | – These performance measures focus on specific crash types and may be used after the initial analysis to target specific crash types. |
| Excess Proportion of Specific Crash Types | |
| Relative Severity Index | – This performance incorporates both crash frequency and severity, however it does not directly translate for use in ODOT's All Roads Transportation Safety Program. |
| Average Crash Frequency | – These performance measures do not incorporate severity; therefore, they do not align with the intent target fatal and serious injury crashes. |
| Crash Rate | |
| Critical Rate | |
| Level of Service of Safety | – These performance measures require safety performance functions that require data that is not available for this study. |
| Excess Predicted Average Crash Frequency using safety Performance Functions (SPFs) | |
| Expected Average Crash Frequency with Empirical Bayes (EB) Adjustment | |
| EPDO Average Crash Frequency with EB adjustment | |
| Excess Expected Average Crash Frequency with EB Adjustment | |
| Excess Predicted Average Crash Frequency Using Method of Moments | – This performance measure is statistically intensive and outside of the scope of the TSAP Update. |

Based on available data, the City of Hillsboro TSAP will use the equivalent property damage only crash frequency (EPDO crash frequency) performance measure to evaluate the roadway network. This

performance measure incorporates both crash frequency and severity and is a widely used method for an initial screening of the overall network. Additional methods may be used after the initial analysis to target specific crash types.

## Screen and Evaluate Results

Kittelson will use Geographic Information System (GIS) tools to implement network screening methods using data from the City of Hillsboro. Behavioral information from INRIX will be used to supplement crash data with information such as speeding obtained from General Motors Vehicles to further understand risk factors. Input from the community will supplement crash data and behavioral information. The results will provide a ranked list of sites within the City that have the greatest potential for reducing crash frequency and severity. Kittelson will coordinate with the City to select 5 sites for further evaluation to develop for City-funded projects. In some situations, a site in the top 5 may not be selected (e.g., if another project is already planned at that location).

# Countermeasure Development

**Purpose: Identify factors contributing to crashes and specific countermeasures to reduce the frequency and severity of those crashes.**

This step leads to recommendations for infrastructure and non-infrastructure countermeasures. The following sections provide a general overview of the process Kittelson will use to develop these countermeasures.

## Identify Contributing Factors at Sites

Diagnosis includes desktop reviews for the top ranked sites from network screening. For each site, diagnosis includes reviewing the following elements:

1. Crash and volume data trends;
2. Site history (e.g., construction, traffic control modifications, etc.);
3. INRIX SafetyView Behavioral Information (e.g. speeding, near miss detection);
4. Field conditions using aerial imagery; and
5. Community concerns.

Kittelson will work with the City to identify up to 5 sites to be diagnosed to determine factors contributing to crashes, and countermeasures will be identified to address those contributing factors.

## Identify Infrastructure Countermeasures

The contributing factors identified through the desktop reviews can be tied to countermeasures having the potential to reduce the number and/or severity of the crashes. In general, this step requires considering a range of countermeasures and narrowing the options to consider and select preferred countermeasures that have a documented ability (through empirical study) to reduce a specific crash type. This step uses Crash Modification Factors (CMFs) in the HSM and those identified in the Federal Highway Administration's (FHWA) website (http://www.cmfclearinghouse.org). ODOT has developed a list of approved CMFs for use in ARTS applications; these will be used when available for this project. The recommended projects will integrate SS4A grant evaluation criteria elements of sustainability, impacts to climate change, economic competitiveness, and equity.

In addition to identifying site specific countermeasures, we will recommend low-cost systemic treatments that can be applied at a broad scale to address the emphasis areas.

### Identify Non-infrastructure Countermeasures

As documented earlier in this memorandum, engineering (infrastructure) countermeasures are only one component of a comprehensive safety plan. Non-infrastructure recommendations support a Safe System Approach for the City. The analysis, including the information from INRIX data and input from the public, the SC will help form recommendations that center equity and include education, enforcement, emergency response, and engagement.

## Implementation

**Purpose: Implement the recommendations from the TSAP by fully integrating the infrastructure and non-infrastructure recommendations. Track performance and complete future updates and to maintain a current safety plan that addresses relevant issues as conditions change over time.**

Successful implementation of the TSAP will extend beyond identifying a prioritized list of infrastructure and non-infrastructure countermeasures. The TSAP may identify recommendations in the following areas that will help the City continue to enhance safety performance in the long-term**:**

- Updating the Capital Improvement Program (CIP) criteria and methods to incorporate safety performance;
- Updating the development review processes to incorporate safety performance;
- Updating roadway standards and standard details based on findings from the TSAP analysis;
- Identifying new programs to improve education and/or enforcement, considering equity;
- Identifying policy development needs to support the City's long-term vision;
- Identifying data collection needs to reduce statistical bias in future updates of the TSAP;
- Considering public health connections and opportunities to support State and possible future City goals; and
- Recommending approaches for updating the TSAP (methods, frequency) to maintain a current, proactive Plan while continually enhancing the City's roadway safety management plan.
- Opportunities to use INRIX SafetyView for future ongoing safety assessments and/or TSAP updates.

## Monitoring

**Purpose: Develop performance measures to track how well the TSAP is being implemented and how effective the TSAP is at reducing crash risk.**

- Assess INRIX Signal Analytics and SafetyView as a resource for providing ongoing, regular evaluation of safety needs and progress towards goals.
- Identify performance measures to track progress towards achieving the safety goals over time.

Performance measures will be consistent with those applied in the Oregon TSAP and give consideration to those covered in the National Highway Traffic Safety Administration Core Measures.

## NEXT STEPS

Kittelson will begin the Existing Conditions Analysis, which includes summarizing crash data to identify emphasis areas and reference populations. Upon completion of the draft Existing Conditions Summary,

Kittelson will work with the City to identify countermeasure locations, systemic recommendations, and non-infrastructure recommendations.