PSRC Regional Safety Action Plan

October 25 High Injury Network Workshop

Puget Sound Regional Council

We are leaders in the region to realize equity for all. Diversity, racial equity and inclusion are integrated into how we carry out all our work.

psrc.org/equity

Agenda

1. What is a High Injury Network?
    a. What do they include?
    b. What are they used for?
    c. What are the key variables?/differences?
2. PSRC RSAP High Injury Network Demonstration

    a. RSAP project team to discuss approach to HIN development and provide demonstration of network through widget

3. Local Agency High Injury Network Examples

    a. Local jurisdictions will share current approaches

4. Final discussion/ Q&A

    a. What is the right level of consistency across HINs in the region?

5. Anything else?

What is the High Injury Network

Contributes to the *Safety Analysis* requirement of USDOT RSAP

1. What is it used for?

2. What does it include?

3. What are variables and differences?

High Injury Network – Introduction

High Injury Networks (HIN) are:

1. A collection of roadways and intersections where crashes resulting in serious injuries or fatalities have occurred within a given roadway network.

   A. **Roadway Network** is a term used to describe the collection of roadways considered in the HIN.

   B. **High Injury Network** is a term used to describe the subset of roadways in the full roadway network that have experience the most crashes resulting in serious injuries or fatalities.

2. Used to quantify historical crash information in multitude of ways, such as:

   A. Frequency per mile (on network).

   B. Crash density (quantities of crashes).

   C. Can apply weighting to crash severity.

   D. Can be prioritized some other way.

High Injury Networks (HIN) are not:

1. A predictive tool used to identify future crash locations.

High Injury Network – Introduction

High Injury Networks (HIN) are developed to:

1. Provide a data-driven approach to help agencies identify patterns and hotspots of traffic-related injuries and fatalities. They are:

   A. Geospatial – tied to real locations.

   B. A term used to describe the subset of roadways that have historically experienced the most severe crashes.

   C. Used to help identify priority locations that have shown to have historically experienced more crashes.

2. Fulfill SS4A Requirement of Safety Analysis

High Injury Network – Introduction

High Injury Networks (HIN) consider a multitude of variables, including:

1. A roadway network

   A. A grouping of roadways such as within a jurisdiction or facility class.

2. Quantify crashes that have occurred within study period

   A. Filters can be applied to prioritize crash severity such as Serious Injury or Fatality crash locations.

PSRC High Injury Network
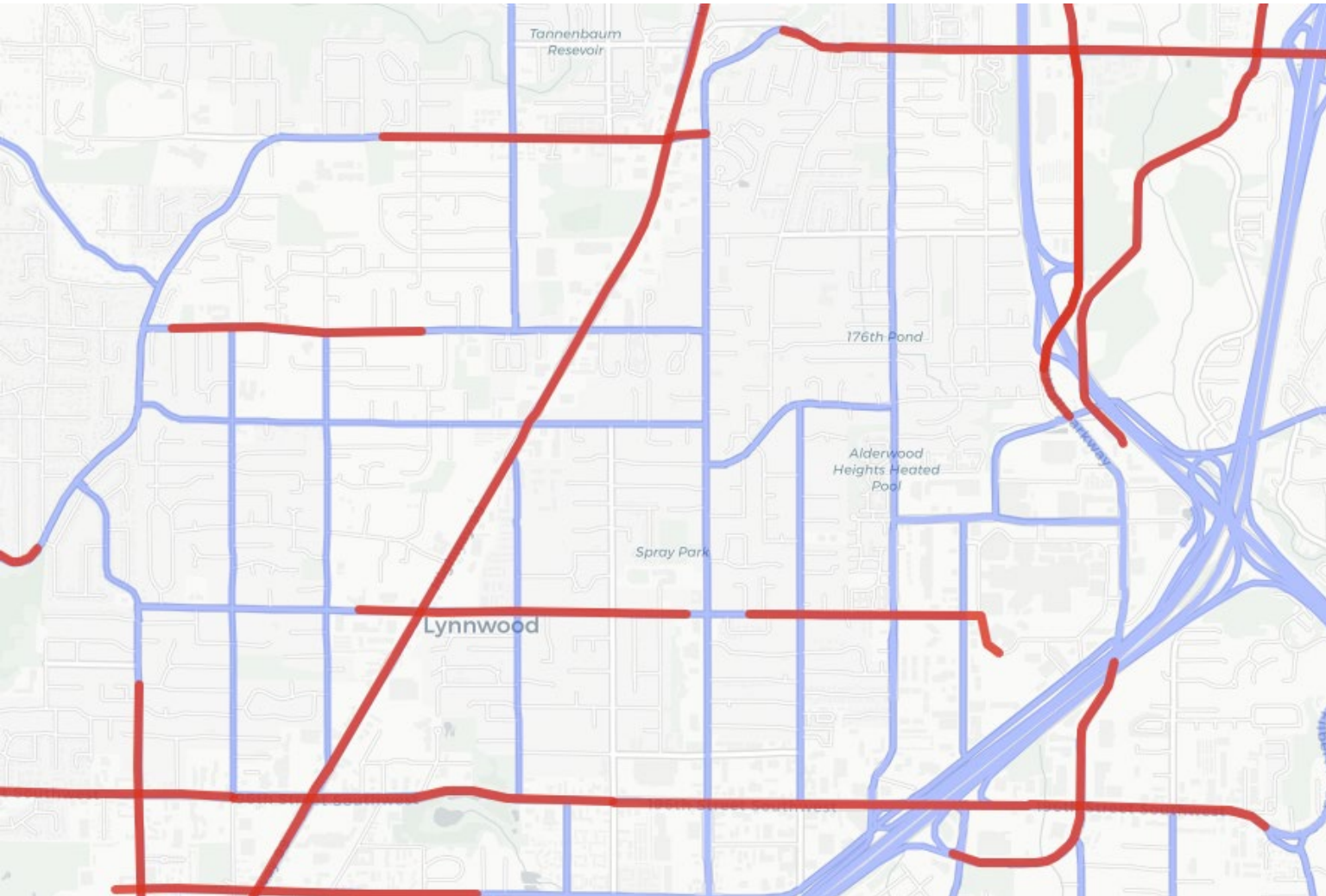
- Highlights the worst contiguous segments (over 1,000 meters) on the regional network.

- Tabular data is available for download and analysis via the web, shapefiles will be available soon.

PSRC HIN Data Sources

This method requires two geospatial inputs:

- **WSDOT crash data**: Point data indicating crash locations, we only use fatality and severe injury crashes (KSI) for the HIN.
- **PSRC regional network**: Roadways of regional significance including arterials, state routes, and freeways used in the regional demand model.

Combining these two datasets provide the means to calculate the KSI per mile metric.
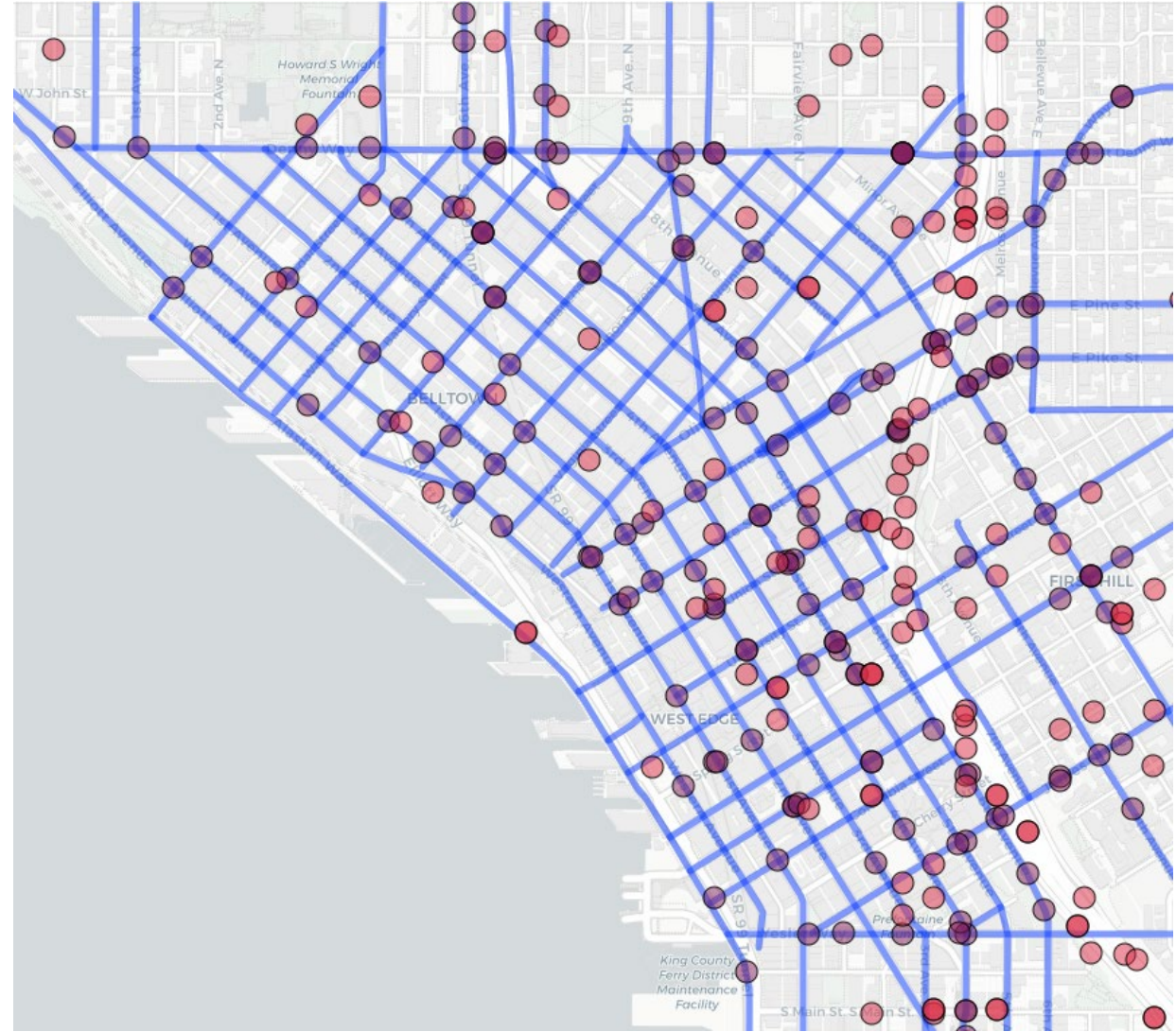
A snapshot of crashes and base network in downtown Seattle

High Injury Network – PSRC Demo

High Injury Network – PSRC Methodology

PSRC HIN Methodology, included:

1. Calculated KSI per mile on Regional Network.

   - Fatality and serious injuries were treated equally.

2. Determined 85th percentile of KSI per mile.

3. Applied 1000-meter (0.6 mile) minimum for HIN corridors.

   - Assured issues were corridor based and not intersections.

4. Applied a minimum threshold 2 KSI for all HIN segments.

   - Assured HIN segments experienced multiple KSI injury.

High Injury Network – Differences

High Injury Networks (HIN) can be inconsistent with one another:

1. High Injury Networks can show different results depending on:

    A. Roadways considered in the network

        i. High Injury Networks compare performance of roadways in the network. If different roadways are considered, a particular roadway may shift out of or into the High Injury Network.

    B. Year of data inputs

        i. Different years of crash data will have different quantities crashes or quantities of crash severity which can produce different results.

    C. Application of severity thresholds

        i. High Injury Networks can be built with a multitude of filters depending on an agency's goal(s).

Local Agency HIN Examples

Other Discussion & Next Steps

Discussion

What is the right level of consistency across HINs in the region?