



Interested in developing your own High Injury Network? You can refer to this checklist to assess your readiness and steps needed to develop one.

READINESS ASSESSMENT

To understand your readiness to develop an HIN, consider the following questions:



DO YOU HAVE INTERNAL RESOURCES TO DEVELOP AN HIN?

- Do you have access to GIS software?
- Do you have staff with existing GIS skills?
- If you do not have staff with GIS skills, could any existing staff develop GIS skills, particularly those focused on joining and visualizing?
- If you find that you lack resources, could you apply for a grant to seek support for developing an HIN? Examples of funding sources for safety plans, which could include HINs, include: [Caltrans Sustainable Transportation Planning Grants](#) and [Caltrans Local Road Safety Plans](#).



DO YOU KNOW HOW TO ACCESS AND REVIEW YOUR JURISDICTION'S SAFETY DATA?

- Can you access safety data via [SWITRS](#), [TIMS](#), or another local source (e.g., local police or fire department data)?
- How much safety data is available and is it a significant amount or is it spotty (i.e., no clear patterns or concentrations)?



HOW STRONG ARE CONNECTIONS ACROSS DEPARTMENTS?

- HINs are often developed in collaboration with multiple departments, such as planning, public health, public works, and police/fire. Understanding the existing relationships between departments can help staff assess the amount of effort that may be needed to establish a foundation for developing an HIN.



DO YOU HAVE POLITICAL OR COMMUNITY SUPPORT?

- In some jurisdictions, Vision Zero and HIN efforts have been motivated and guided by elected officials or community groups. Seeking feedback from stakeholders as you develop your HIN is critical.



DECISIONS TO MAKE

- Will the HIN be developed using internal staff resources or by a consultant?
- Where will you acquire your safety data from? If you have found that the quantity of data is lacking, you may want to pursue an HIN alternative ([described more fully starting on page 22 of this report](#)).
- Which department and staff will take the lead on HIN work?
- Who will work on cultivating internal and external champions for the HIN?



DATA PREPARATION

Once you have conducted a self-assessment for your jurisdiction and decided to move forward with developing an HIN, it is time to consider which datasets you will use.

WHERE WILL YOUR DATA COME FROM? SOME SUGGESTED SOURCES ARE LISTED BELOW.



SWITRS/ISWITRS DATABASE

- The *Statewide Integrated Traffic Records Systems (SWITRS)* takes data gathered from a collision scene. Many jurisdictions use SWITRS to inform their HIN as it includes geocoded information and the severity of injury. Some limitations include SWITRS' slow refresh rate (taking from 8 – 18 months), the removal of helpful contextual data on collisions that may have been included on police reports, and occasionally incorrect data.



TIMS DATABASE

- The *Transportation Injury Mapping System (TIMS)* provides quick, easy and free access to California collision data using the *Statewide Integrated Traffic Records System (SWITRS)*, and has been geocoded to make it easy to map out collisions. TIMS is available, accessible, and not that complicated, and an agency with minimal resources might want to consider using this system.



POLICE OR FIRE DEPARTMENTS

- Police or fire departments may have their own methods of collecting data that include greater detail and narrative on the collision (this type of information is typically stripped when sent into SWITRS), and information sharing can be much faster. Limitations of using police or fire data include the number of resources it would take to establish relationships with the department/s if none presently exist, in addition to the accuracy of some demographic data when left to professional judgment and not self-reporting. For example, in a report by the *UCLA Lewis Center for Regional Policy Studies*, it is noted that race-based demographic data reported at collisions may be inaccurate as they are reported by the police officer at the collision rather than by the parties or victims themselves.



PUBLIC HEALTH DEPARTMENTS

- Some jurisdictions supplement collision data from the police or fire departments and SWITRS datasets with information from their public health department. This is because many injuries initially deemed visible but non-serious may eventually turn serious and even lead to fatalities in the months and time following the collision. Being able to follow the victim in the time after the collision allows for more accurate data reporting. However, the difficulties of using public health data include the number of resources needed to establish a relationship with the department if one was not pre-existing, and the staff knowledge and resources needed to link this dataset with others.



DECISIONS TO MAKE

- Which datasets will your jurisdiction use?
- Will you combine any of the datasets (e.g., combining public health data and SWITRS data)?
- If completing the HIN internally, do your staff have the capacity and knowledge to manipulate the data?
- What kind of formal data-sharing requirements are needed to acquire data from police, fire, or public health departments?



CLEAN DATA + CREATE THE HIN

After extracting the data, you can start the process of cleaning the data, and then mapping and creating the HIN while considering the addition of all the core components mentioned starting on page 9 of this report. This is a multi-step process that will likely take a large amount of staff time.



CLEANING AND QUALITY ASSURANCE

- Once the dataset is compiled, it is critically important to clean the data and ensure it is as accurate as possible. Cleaning the data can involve double-checking the [SWITRS](#) data against what has been reported in police reports and ensuring collisions occurred in the right location, and additionally ensuring the data is in the right format to be mapped.



MAPPING OUT THE COLLISIONS

The most important part of the HIN is mapping it. Every jurisdiction will have a method that suits them best, but this process generally starts with collecting serious injury and fatal collisions and mapping them using GIS. However, simply mapping collisions may not tell the full story of what resources may be needed in a particular area. For example, an intersection with a low collision rate may have an inordinate amount of near-misses and may be an anecdotally concerning location, or be located close to a location with vulnerable populations (e.g., near a school with children), or in a community with a high population of people of color. For this reason, it is important to layer on other potential considerations such as:

- **WEIGHT ASSIGNMENT:** Many HINs have incorporated additional weighting of certain types of collisions. For example, some jurisdictions more heavily weight collisions involving pedestrians, bicyclists, children, or older adults.
- **NORMALIZATION:** Collisions can be normalized by roadway length collision rates, or population, which can provide a more accurate picture of what is occurring on the roads based on differences. Many jurisdictions normalize collisions by mile or HIN segment length, though some use additional methods. Segment lengths may be between 500 feet to quarter mile. In less urban jurisdictions, segment length may be longer.
- **THRESHOLD:** Once the collisions are mapped onto the roadway, it is useful to establish only a certain percentage of the affected roadway as the high injury network (such as the highest concentrations of collisions on a subset of the roadway network). Doing so helps staff prioritize which corridors, intersections or areas need work. Setting separate thresholds may be appropriate within one jurisdiction to account for key contextual factors for safety outcomes, such as collision mode, urban and rural contexts, or to account for political boundaries. This approach may be especially useful for larger jurisdictions, such as counties or MPOs.
- **INTERSECTION/CORRIDOR CONSIDERATION:** Most HINs are developed at the corridor level, while some also develop complementary high injury intersections around customized buffered areas. Identifying these can assist a jurisdiction in applying countermeasures on intersections as well as streets.
- **STREET/FREEWAY CONSIDERATION:** One of the benefits of an HIN is providing a jurisdiction with guidance on where on a roadway network improvements should be made. Including freeways in the HIN, where few, if any jurisdictions, have jurisdictional control, may not be the most effective approach.
- **EQUITY:** HINs may reveal that traffic collisions disproportionately affect one community over another. Jurisdictions can overlay their collision data with equity-related shapefiles.



DECISIONS TO MAKE

- How will you clean your data?
- How will you draw your jurisdiction's HIN?
- What kind of weights or other considerations will you add to your HIN?
- What other types of considerations are you able to add based on the quality of your dataset?
- How are you incorporating equity in your HIN?



PUBLIC EDUCATION + COMMUNITY ENGAGEMENT

It is important to share information on what has occurred and the High Injury Network process (and the Vision Zero process, if there is one) with your community during development of the HIN and once it is completed. Some considerations:



PUBLIC ENGAGEMENT PROCESS

- An engagement process should be carefully designed to ensure outreach to all necessary stakeholders. Residents may provide valuable input on locations with near-misses and near vulnerable communities and other important pieces of information.



LANGUAGE AND FRAMING

- When creating an engagement process, it is important that you are using the audience-appropriate language to make the HIN creation process, which can be very data-oriented, accessible for the communities that you are trying to reach.



DECISIONS TO MAKE

- Who and which organizations will be reached out to on the creation of the HIN, and how will feedback be incorporated?
- What materials will you use to educate the community on what the HIN is and how you created it?
- Who will lead the outreach efforts? Will the same staff and department who did the work be the best people for outreach?



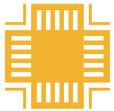
MAINTENANCE + REFRESH

Once the HIN has been created and used by your jurisdiction, it is important to remember that keeping it updated maintains its effectiveness. Jurisdictions may consider refreshing their HIN with updated data every three to seven years, and may additionally introduce refinements.



DATA IMPROVEMENTS

- Over time, you may reconsider the sourcing of data. You may incorporate additional sources, such as data from public health departments.



CHANGES IN THE HIN POST-IMPROVEMENTS

- An HIN may shift based on new traffic patterns, particularly once improvements are made to an HIN corridor or intersection area. Alternatively, streets may drop off the HIN after improvements have been made, even if there have been no improvements made: it then becomes necessary to consider why this happened.



DECISIONS TO MAKE

- Will you use the same methods for extracting data?
- How will you reconcile changes from one HIN to the next?
- How will you streamline processes to ensure maintenance happens regularly?

ADDITIONAL RESOURCES

City of Los Angeles High Injury Network
ladotlivablestreets.org

City/County of San Francisco High Injury Network
visionzerosf.org

City of San Jose High Injury Network
visionzerosj.org

City of Daly City High Injury Network
dalycity.org/936/Vision-Zero-Action-Plan

City of Fremont High Injury Network
fremont.gov/2594/Fremont-Vision-Zero

County of Alameda High Injury Network
alamedaca.gov/Departments/Planning-Building-and-Transportation/Transportation/Vision-Zero

County of Los Angeles High Injury Network
pw.lacounty.gov/visionzero/

SCAG High Injury Network
scag.ca.gov/regional-high-injury-network