Tonight, I'll give an overview to BikeMaps.org and showcase some of the data that have been reported over the last few years. Since we're talking about cycling safety and incident reporting, the impost important takeaway from my talk tonight is this: Cycling is safe and healthy. Our experiences also tell that, when it comes to road safety, cycling can be made even safer.

BikeMaps.org is a global online and app based mapping tool that allows cyclists to record the location and details of cycling related near-misses, collisions and falls, with the aim of making cycling safer through better data—more complete data.
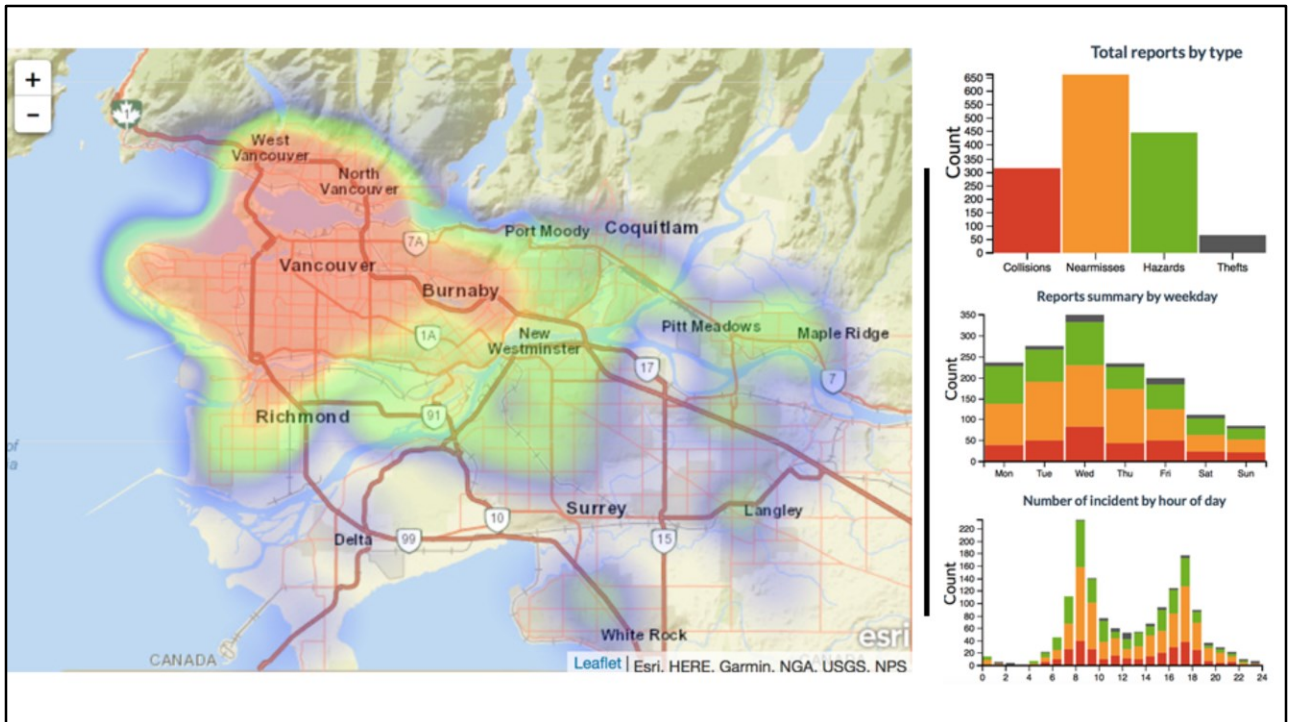
So far on BikeMaps.org, cyclists have contributed more than 7,000 reports globally, 1,500 of which are in Metro Vancouver; the most active mapping by cyclists of any metro area in Canada.
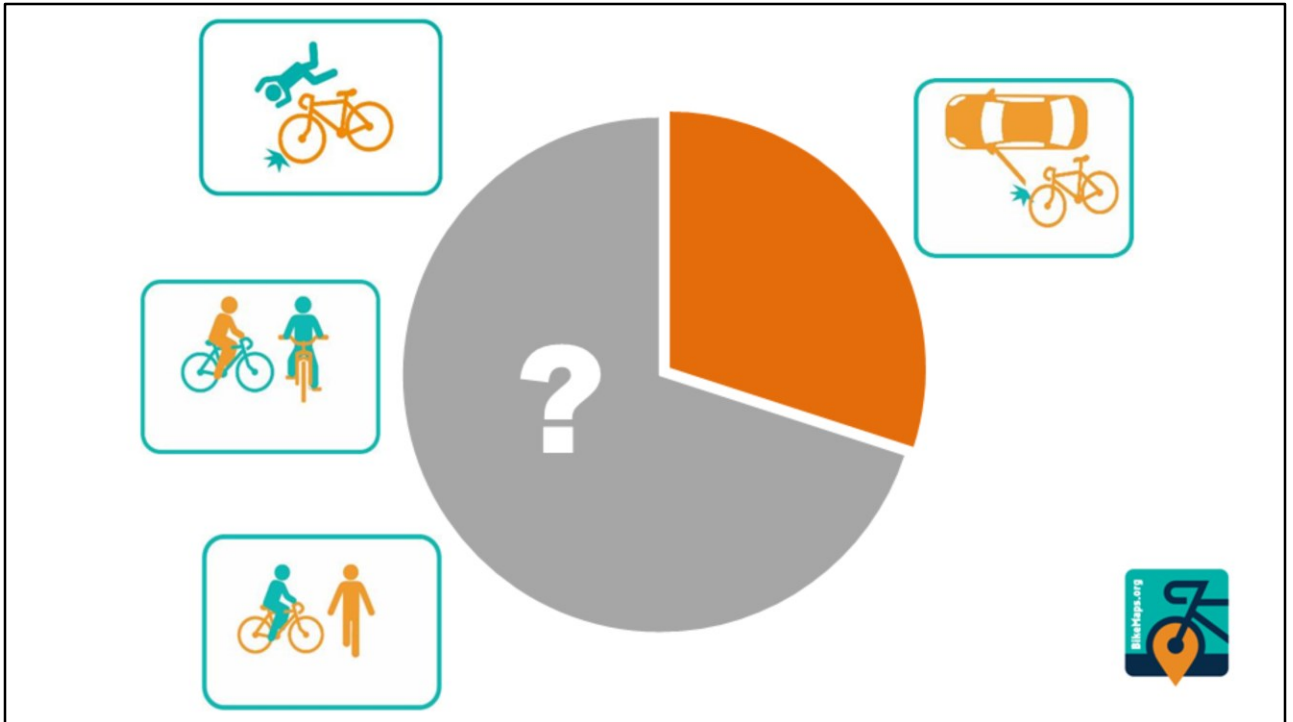
To assess cycling safety, we typically rely on a mix of hospital, police, and insurance records, but only about 1 in 8 cycling incidents are captured in these systems. We miss reports of solo bicycle falls, collisions that don't involve a motor vehicle, and incidents on off-street paths.

We can visualize these incidents as a pyramid. There are a relatively few severe incidents at the top, with increasing numbers of minor events toward the bottom. Prior to **BikeMaps.org**, there was no mechanism to capture the most numerous types of experience—near misses—that can provide a wealth of data.

This is motivation behind BikeMaps.org, why the system was even created. To collect crowdsourced safety data with the intent of supplementing existing reporting systems. It was created to find the missing puzzle pieces for a more complete picture of cycling safety.
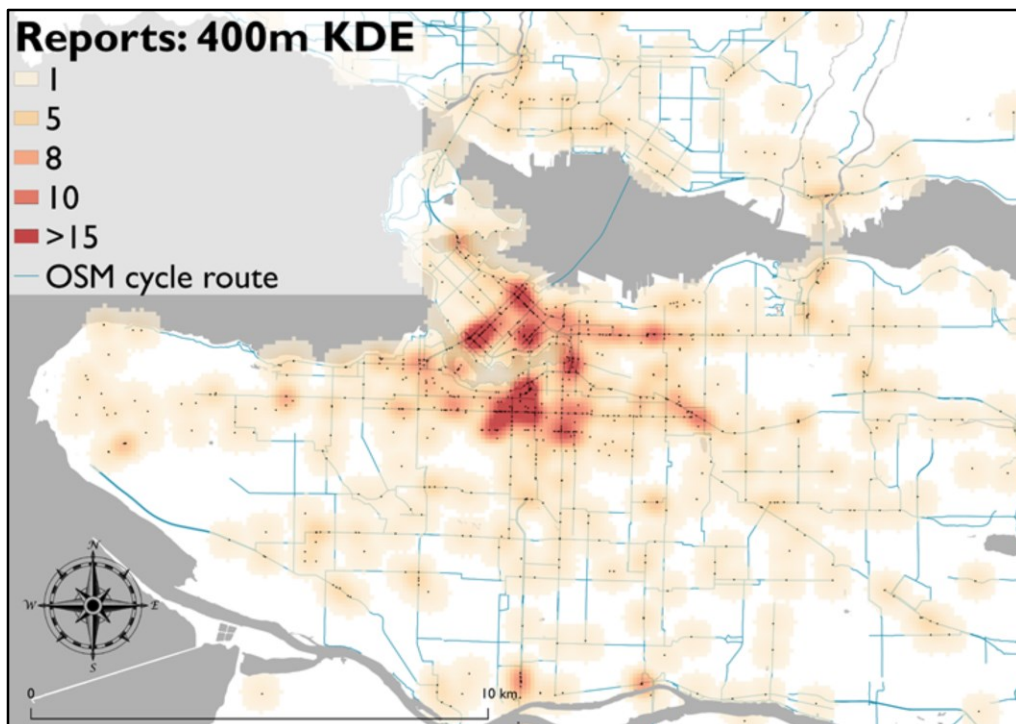
People are reporting where they are riding—lots of pins means lots of cycling. The red areas on this map are locations where we need to keep vigilant; not to avoid! The City of Vancouver is investing in road safety improvements at a number of these sites: the hospital district along the 10th Ave bikeway, for example.
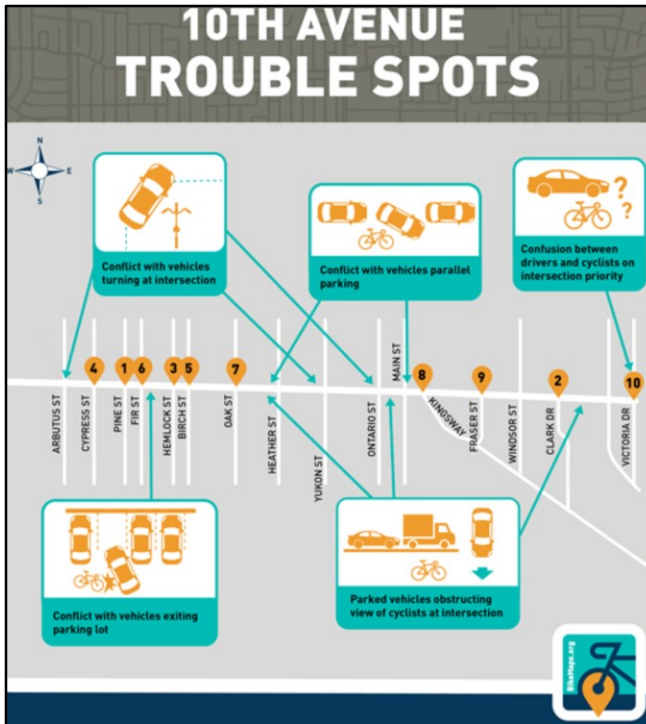
As street improvements are made, it's important for the system to keep up to date. Threats from dooring events and interference from parking cars which characterized the safety issues in this corridor have been largely reduced. These older reports have been turned off; replaced with a new infrastructure pin.
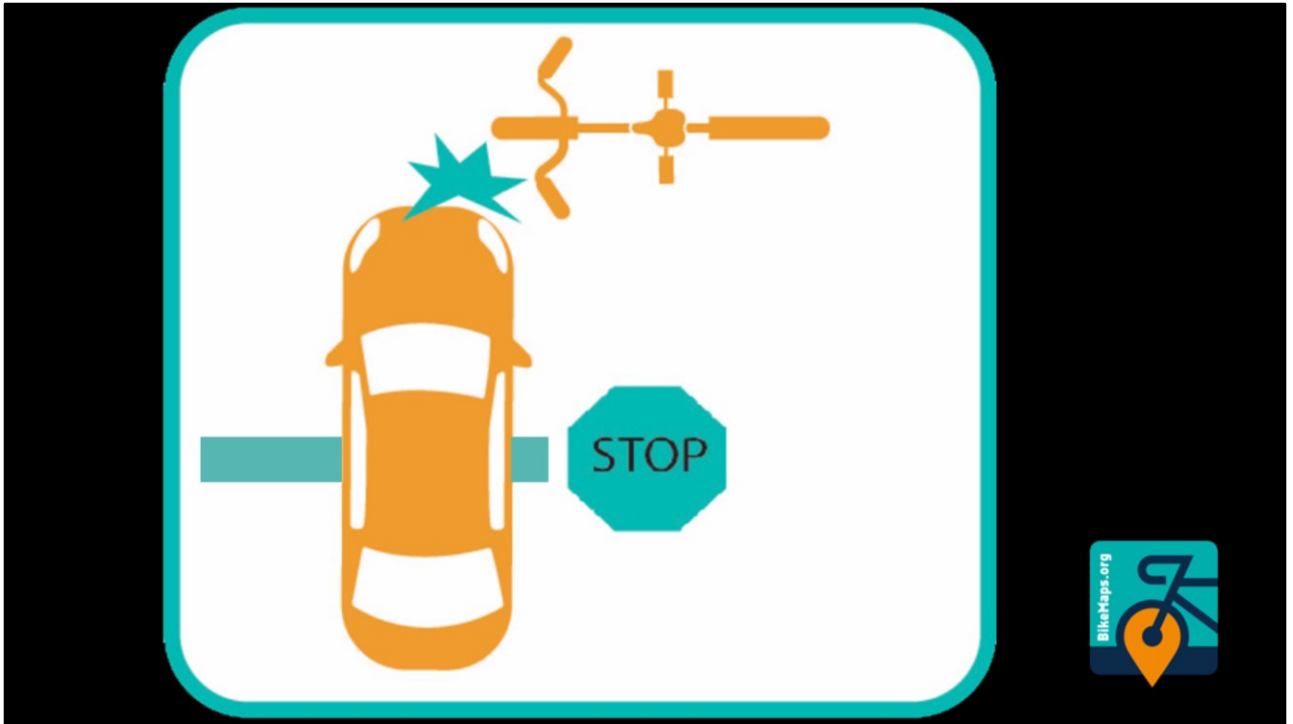
Now let's have a look at some of the top reported incidents in the region. At number one is drivers rolling through stop signs, which appears to be a Metro Vancouver-specific type of report—it doesn't show up nearly as frequently in other cities.
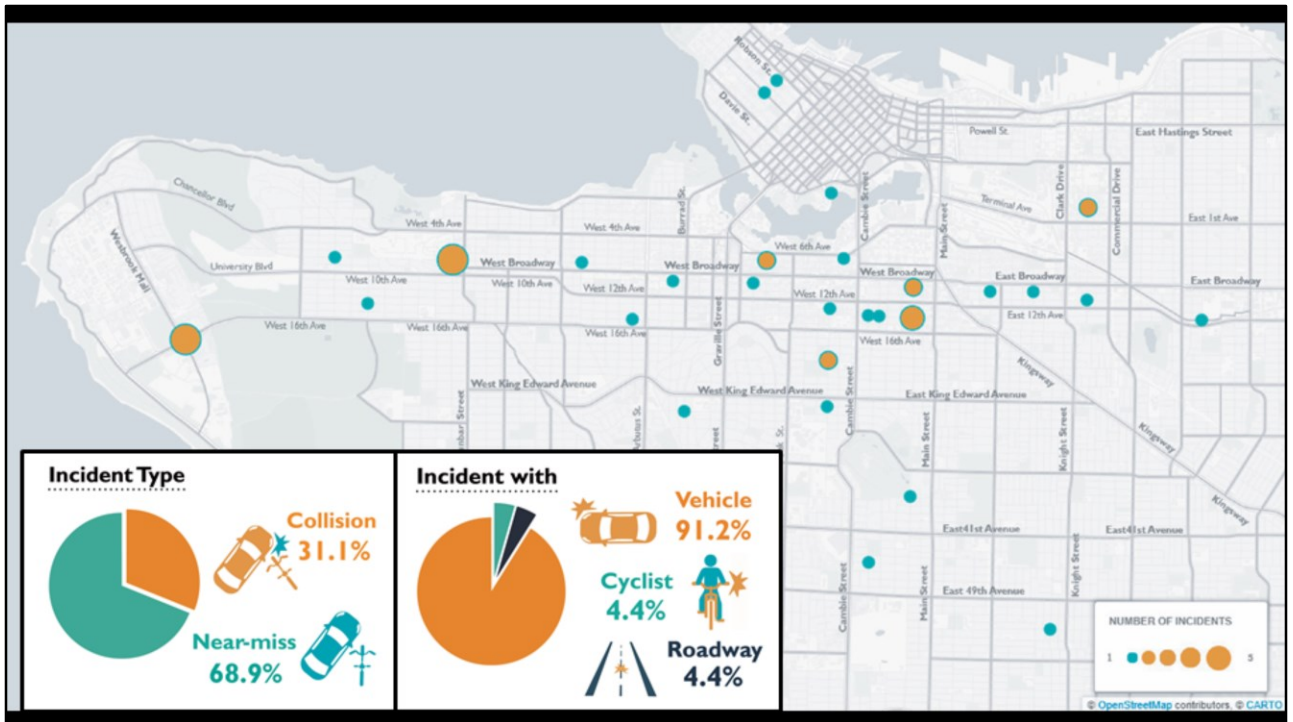
Traffic Circles. They are a ubiquitous traffic control device on our local street bikeways, but they can present significant safety challenges, primarily interactions with motor vehicles. A preponderance of near-miss reports highlights problematic locations throughout the city.

Design solutions that reduce the frequency of these stressful events can go a long way towards making people feel safer while cycling. Here is a simple design solution that can help redress safety issues associated with traffic circles and help boost yielding compliance of motor vehicles on the cross street, undercutting two of the top reported safety challenges.
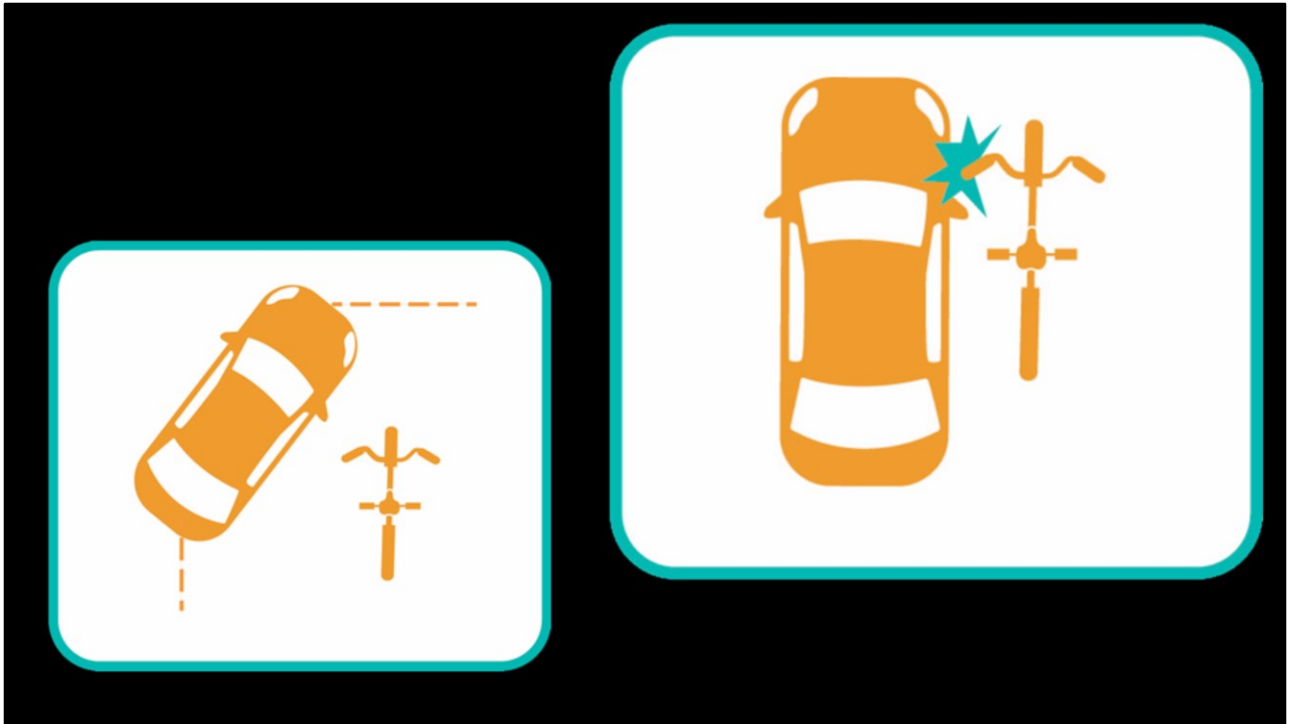
The other two leading incident types reported by cyclists are, in third place, is the right-hook, and in second place, the close pass or sideswipe. Over one-hundred twenty reports, thankfully most are near misses. With near-miss data, we don't need to wait for a collision to take action.

When it comes to the safety of off-street multi-use paths, data are sparse.
Crowdsourced cycling incident reports are filling in a knowledge gap. While this facility type feels safe because it's separated from motor vehicles, cyclist reports identify safety challenges with other pathway users and at road crossings.

Doorings continue to be a common cause of cycling collisions and falls, including on our local street bikeways. To help cyclists avoid this common safety issue we made some maps highlighting popular cycling corridors that provides a visual guide and serves as a reminder to give yourself space from parked cars while cycling.

Preventing doorings is a safety priority. Street designs that move parked cars off the road and incorporate buffer zone next to the parking area will help keep cyclists towards the centre of the roadway, providing plenty of lateral space to avoid this incident type altogether.

If you've ever filled out an incident report on BikeMaps.org, you know we ask for many details about the incident itself, environmental conditions, and personal attributes that we can use to detect patterns of injury. Predictive modelling techniques, like the random forest classification, is used to determine the most important predictors of injury.
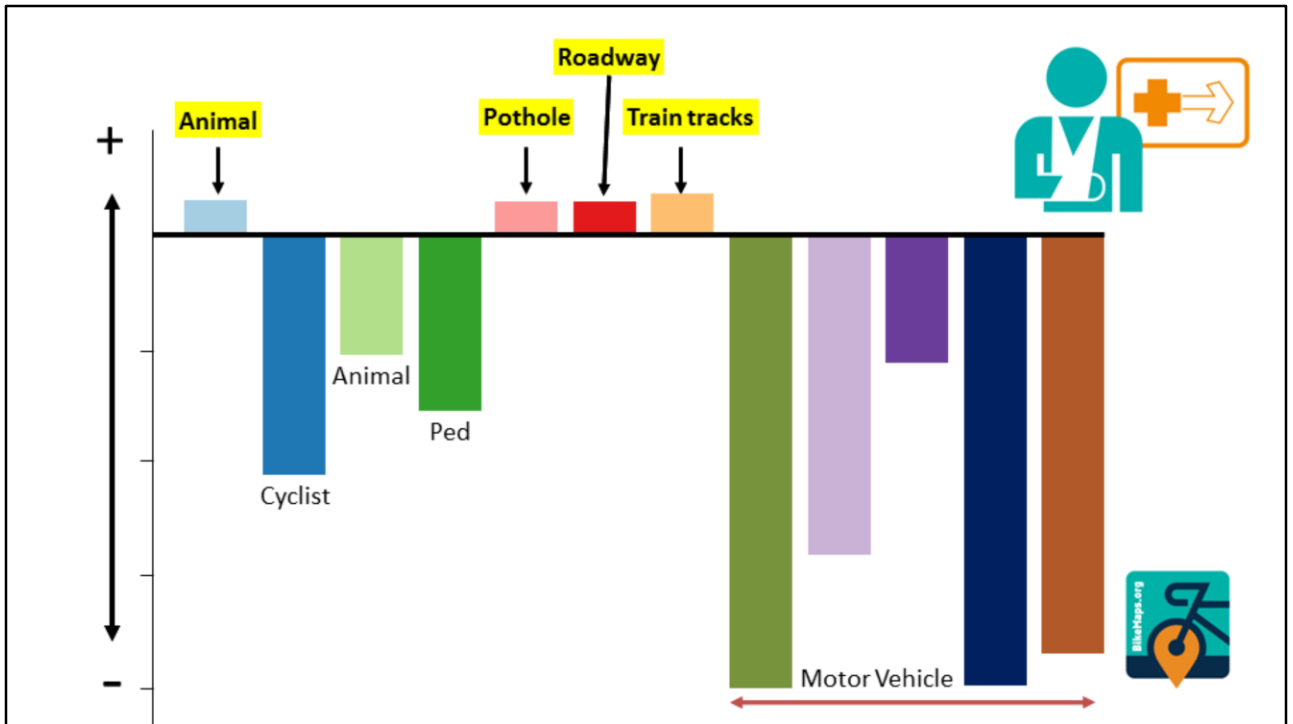
Our best predictor of injury is what you've collided with, with infrastructure elements and solo bicycle falls the top factor. While the more serious injuries that involve a motor vehicle are captured in ICBC records, now we can see the location and circumstances of those incidents not involving a car that are still contributing to the burden of cycling injury.
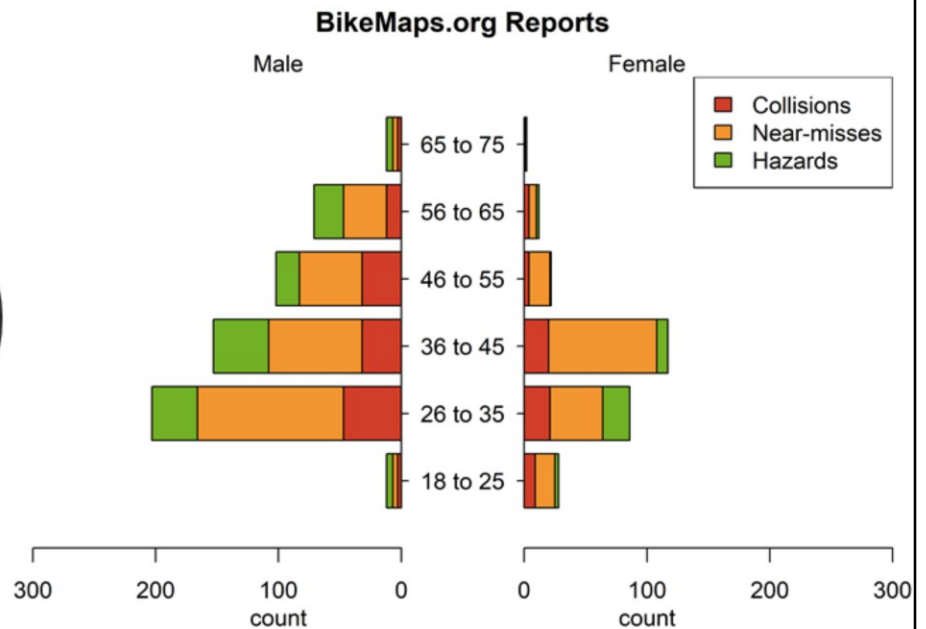
Metro vancouverites who map incidents to BikeMaps.org, people we call BikeMappers, are representative of the cycling population in our region. Just over a third of reports are from women, and the median age is 39 years. As cycling becomes an option for more people, we expect shifts towards greater gender equality.

We end tonight's talk at the beginning: With the founders and spatial analysis team at the University of Victoria who created and launched **BikeMaps.org** in Fall 2014. Since then, advocates and researchers in cities across the world have been working to turn our mapped cycling experiences into improvements on the ground. Thank you!