

VISION ZERO ACTION PLAN
UPDATE 2023-25



PBOT
PORTLAND BUREAU OF TRANSPORTATION



Saving lives with safe streets

CITY OF PORTLAND | November 2023

Disclaimer

Achieving Vision Zero's goals are dependent upon available funding to implement the City of Portland's strategic policy choices, made in its judgment—in collaboration with its community partners—to best address the factors most often linked to causing traffic violence. Achieving optimal performance of each action under Vision Zero is dependent upon available funding from the City of Portland and other participating governmental agencies.

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Portland's Vision Zero commitment

No person should die or be incapacitated from simply going about their day.

Protecting human lives is core to Vision Zero, the goal to eliminate traffic deaths and serious injuries on Portland streets. Portland committed to this vision in the city's original [Vision Zero Action Plan \(2016\)](#). We reaffirmed again in the [Vision Zero Two-Year Update \(2019\)](#), and here in the Vision Zero Action Plan Update 2023-25.

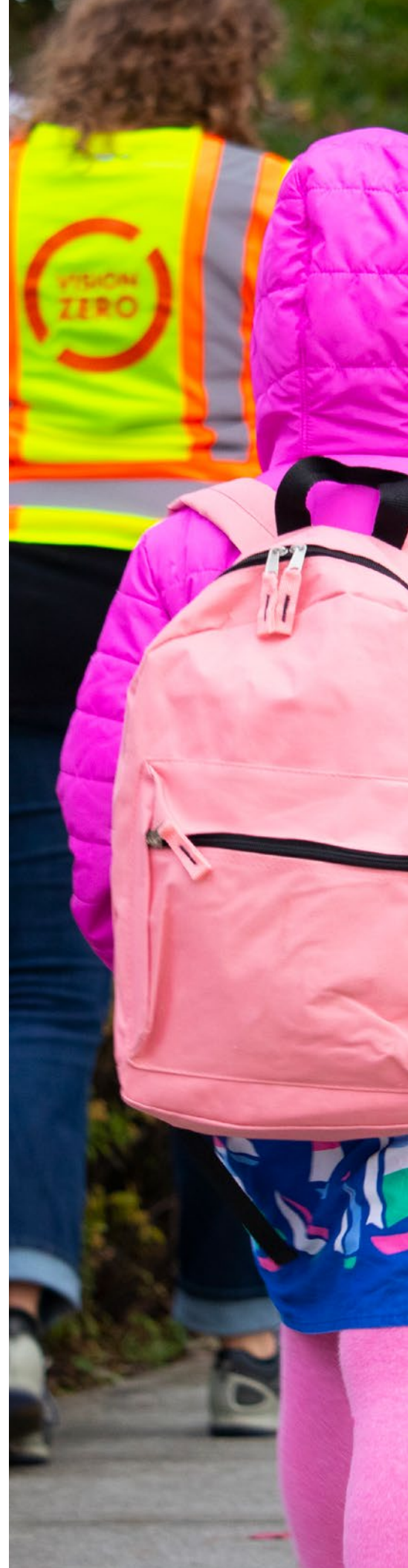
Traffic deaths and serious injuries are preventable.

We have the tools to reverse the trend of rising traffic violence. The Portland Bureau of Transportation (PBOT) is committed to using every tool we have to slow speeds, save lives, and build a culture of shared responsibility.

Since Portland's last Vision Zero update in 2019, the world has changed in significant ways. A global pandemic exacerbated societal struggles. A U.S. movement for racial justice—renewed by the murder of George Floyd by a police officer—reignited conversations about systemic racism in our communities. The impacts of climate change have intensified with deadly temperatures and hazardous air quality.

Some actions in this update respond to these new realities, others continue our work to create a safer transportation system.

This update reflects the progress we've made and the challenges we've faced in the seven years since city council adopted the Vision Zero Action Plan in December 2016. It sets the course for our work through 2025.





HONORING THOSE WHO HAVE DIED FROM TRAFFIC VIOLENCE

Traffic deaths take a huge toll on our community. Each life lost represents a parent, child, sibling, friend, or neighbor who is not coming home, leaving a gaping hole in the hearts of loved ones.

More than 300 people were killed by traffic violence on Portland streets since 2017. Many more survived but have life-altering injuries. This plan—and our work each day—is dedicated to all those killed or injured on our streets.

People killed in traffic in Portland 2017-2022

2017

Jessica M.
Charles U.
Alan M.
Corey S.
Erick F.
Richard N.
Charles C.
Daniel K.
Bruce M.
Eve D.
Theodore J.
Toby H.
John A.
Ryan A.
Erin B.
Brandon L.
Donell W.
Steven T.
Hussain A.
Patrick A.
Lisa W.
Daniel W.
Justin H.
Patrick M.
Wesley A.
Carmen L.
Tamar M.
Joshua B.
Akeeylee B.
Quilly L.
Lawrence C.
Reke A.
Charles B.
Renee B.
Brandon C.
Anthony R.
William R.
Harvey H.
John C.
Madison R.
Enrico R.
Clayton H.
Daniel R.
Alejandro S.
Kim N.
Shad A.
Elizabeth M.

2018

Nathaniel T.
Unknown
Yelena L.
Jeremy S.
Ted J.
Perwin M.
Wes H.
Fuk C.
Logan D.
Dennis F.
James F.
Gregory M.
Christopher C.
Dorothy A.
Jack H.
Jason S.
Daniel F.
Unknown
John S.
Gregory H.
James D.
Hoa N.
Njuguna G.
Sandra G.
Thomas S.
Loan D.
Michael D.
Charles M.
Pamela S.
Darnell J.
Cassidy M.
Jason B.
Dayozjah B.
Calvin B.
Jimmie L.

2019

Lowell G.
Rachelle C.
Donald A.
James M.
Laurie P.
Steven M.
Heaven M.
Ortrud V.
Shawn S.
Calvin W.
William G.
Sandra B.
Dmitriy B.
Deontae F.
Lori W.
Ray I.
Larry D.
Elijah C.
Galen L.
Ana M.
Kaylee M.
Mark H.
Tonya S.
Louanna B.
Magdiel C.
Lance H.
Alfonso M.
Charlene H.
Robin M.
Jamie S.
Donald C.
Elena D.
Karl M.
Tony M.
John S.
Susan B.
Cristian L.
Nazariy S.
Edward W.
Robert H.
Eric T.
Reha S.
Brandon G.
Kristine R.
Fernando V.
Mathew P.
Terry R.
Donald M.

2020

Denise S.
Eugene W.
Salvador C.
Samuel B.
Yevgeniy K.
Stacey E.
Jerry S.
Christopher L.
Chantel D.
Tina B.
Iulia H.
Brandon R.
Alex S.
Francisco V.
Bruce M.
Miro B.
Aundrey G.
Troy C.
Saw P.
Brian J.
Camille B.
Udell P.
Joann M.
Julie D.
Sarah B.
Dylan F.
Zachary C.
Edward T.
Alijah M.
Martin W.
Jessica L.
Christopher C.
Damian A.
Timothy A.
Nathaniel E.
Timothy B.
Brian S.
Katherine C.
Paris G.
Davontay R.
Steven N.
Armando L.
Antonio R.
Daniel L.
Obduwier R.
Jennifer L.
Gavin C.
Robert W.
Gene C.
Gabrielle G.
Cornelius N.
Clayton C.
Aaron G.
Catherine R.

2021

Daniel M.
Andrew L.
Charisa W.
Eddie L.
Charles P.
Joshua S.
Karen M.
Douglas R.
Kenna B.
Antonio A.
Jose C.
Morise S.
Cecilia H.
Inna B.
Susan S.
Kfir H.
Stephen L.
Faustino J.
Unknown
John T.
Roy Y.
Eddy K.
Anthony T.
Jamie P.
David D.
Meagann M.
Natalie G.
Jeremy H.
Delbert D.
Michael G.
Joseph Samuel T.
Michael B.
Kim C.
Edgar P.
Alice T.
Kevin F.
Charles E.
William A.
Bonnie C.
Knysha Latreace W.
Gregory James B.
Joseph Jay R.
Samuel Gene H.
Douglas Allen M.
Austin B.
Tai David U.
Aaron A.
David Randy L.
Ryan D.
Ruby Lee A.
Collin P.
Tralee Ariel M.
Laurie L.
Carrie Lynn S.
Jose R.
Keith P.
Robert Joseph L.
Seksy A.
Corine "Cricket" B.
Terrence T.
Jessie U.
Steven A.
Vivian Gayle P.
Jaimie S.

2022

Salvador Manuel R.
Mariah C.
Levi G.
Mark B.
Kyle B.
Linda B.
Douglas K.
Awbrianna (Anna) R.
Duane D.
Liam O.
Zavhary F.
David W.
Cedar M.
Patrick B.
Derek B.
Raymond M.
James M.
Angela B.
Donald David A.
Joseph D.
Andrew Micahel B.
Shane J.
John E.
Gabriel A.
Emily G.
James B.
Michael Eugene S.
Kirt W.
Martin C.
Brittney C.
Vicki E.
Paul M.
Daniel H.
Flavio M.
James W.
Ruth O.
Ashlee Diane M.
Jason D.
Christian L.
Brian L.
Jerry L.
Ian S.
Kelly Jo S.
Sarah P.
Keon Alexander Z.
Asher D.
Dennis P.
Mekko J.
Mary Beth V.
Ku Nay H.
Lance B.
Deborah J.
Curtiss H.
Dequondre J.
Sasha E.
David L.
Christopher H.
Crystal L.
Christopher R.
David N.
David B.
Aaron K.
Joseph C.

Guiding principles and values

VISION ZERO GUIDING PRINCIPLES

With input from the community and other agencies, the city's original Vision Zero Action Plan (2016) outlined principles that still guide us:

EQUITY

Actions will focus on the inequities in our transportation system, particularly for Portlanders living on a low income and people of color. Our work will not lead to racial profiling.

DATA

Data drives decisions, based on the underlying causes of death and serious injury on our streets, and the places where traffic violence occurs most often.

ACCOUNTABILITY

We measure success by how much we invest in historically underserved communities, and by what degree streets are safer.

SAFETY, RACIAL JUSTICE, AND CLIMATE



We have a moral imperative to eliminate traffic deaths, advance racial justice, and reduce climate emissions. These are all interwoven; we cannot address one without the other two.

PBOT's Strategic Plan outlines the way we prioritize racial equity and climate action.

Both the strategic plan and this one, share goals around **safety**:

- » Make annual progress toward eliminating fatal and serious injury crashes.
- » Build streets that are safer and where people drive slower.

On **racial equity**, the strategic plan identifies two necessary connections to safety. This plan adds a third:

- » Addressing hate in the public right-of-way.
- » Strengthening relationships with diverse communities and working to prevent displacement.
- » Investing in safety where historic underinvestment has most harmed communities.

On **climate**, the strategic plan identifies two connections to safety:

- » Reducing driving lowers carbon emissions. Also, fewer vehicle miles traveled means safer streets.
- » Feeling unsafe is a barrier in people choosing climate-friendly modes of travel.

The strategic plan directs PBOT staff to develop a transportation equity framework.

To advance the framework, PBOT staff have done research related to equity in our transportation system and related to the concept known as Transportation Justice.

Transportation Justice means eliminating disparities in our transportation system by redistributing power, resources, and opportunities to those experiencing the greatest disparities today. When we achieve Transportation Justice, all Portlanders will have the same access to safe, reliable, equitable, and sustainable transportation options.

Two core findings from the research are integrated into the actions in this plan.

1. *We achieve Transportation Justice by eliminating disparities, redistributing power, and working towards the liberation of unjustly burdened*

populations in both our processes (how we do our work) and outcomes (what our work achieves or contributes to in community).

The actions in this update flow from these concepts. We build relationships and collaborate with affected communities (the process), and work to make these communities safer (the outcome).

2. *Solving for traffic violence doesn't address many threats Portlanders of color encounter on Portland's streets—discriminatory policing, hate crimes, and hostile or indifferent traveling public, to name a few.*

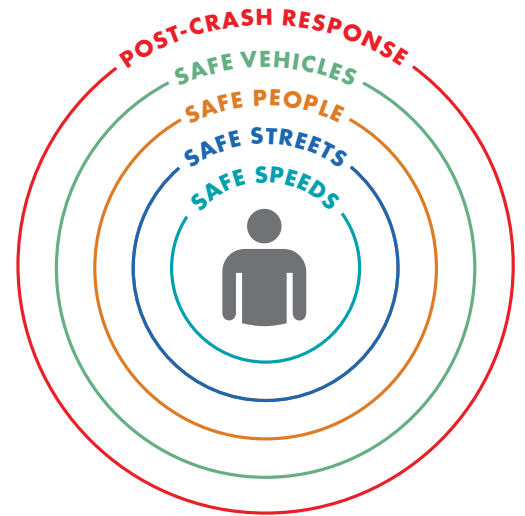
This update builds on the previous Vision Zero commitment to not take action that will result in racial profiling. It adds an element of personal safety – listening to community members' ideas to integrate personal safety elements into projects, such as cultural art, festival lighting, or outdoor celebrations.

SAFE SYSTEM APPROACH

The goal is zero traffic deaths and serious injuries. What's known as a "Safe System approach" is how we get there.

Six principles underpin the Safe System approach:

- 1. Death and serious injuries are unacceptable.**
The Safe System approach rejects the idea that these are simply the price of mobility.
- 2. People make mistakes,** so designs should account for that.
- 3. Human bodies are fragile,** made of soft tissue and bones, and are not able to withstand big forces.
- 4. Responsibility is shared** among those who design, build, and manage streets and vehicles, those who use these streets and vehicles, and those who provide care after crashes.
- 5. Safety is proactive.**
Systemic change is needed to prevent serious crashes.
- 6. Redundancy is crucial.**
If one layer of the system fails, another layer is in place to prevent serious injury.

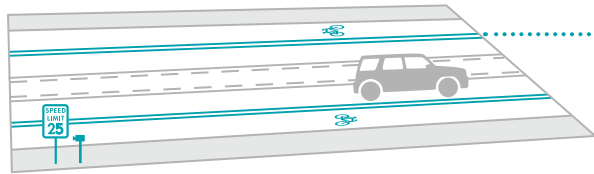


With the Safe System approach, **five elements** work together to create a safe, redundant transportation system.

- » Safe speeds
- » Safe streets
- » Safe people
- » Safe vehicles
- » Post-crash care

In such a system, if one layer fails another layer is in place to prevent serious harm.

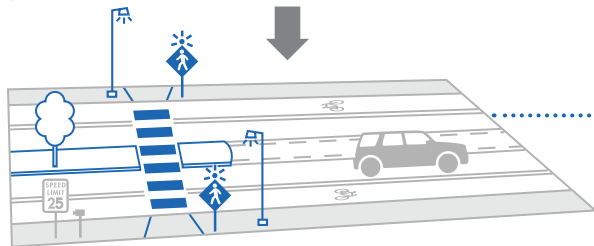
Redundancy creates layers of protection



SAFE SPEEDS

Slow vehicles down to ensure people are not killed or seriously injured in a crash.

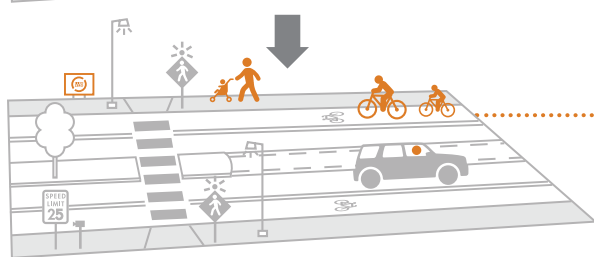
Lead: PBOT



SAFE STREETS

Design streets to protect people.

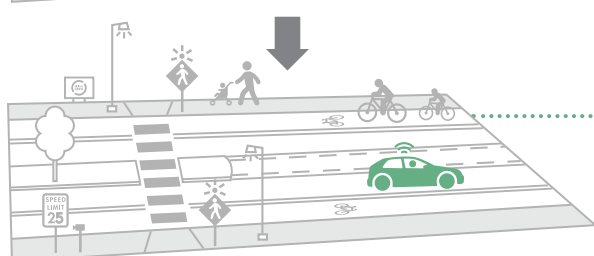
Lead: PBOT



SAFE PEOPLE

Foster a culture where everyone shares responsibility for each other's safety on the streets.

Lead: Community



SAFE VEHICLES

Adopt vehicle policies that integrate technologies to protect those inside and outside of the vehicle and encourage smaller and lighter vehicles.

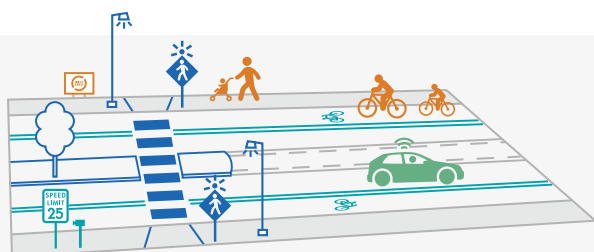
Lead: Other partners



POST-CRASH RESPONSE

Quick emergency medical care makes people more likely to survive a crash.

Lead: Other partners



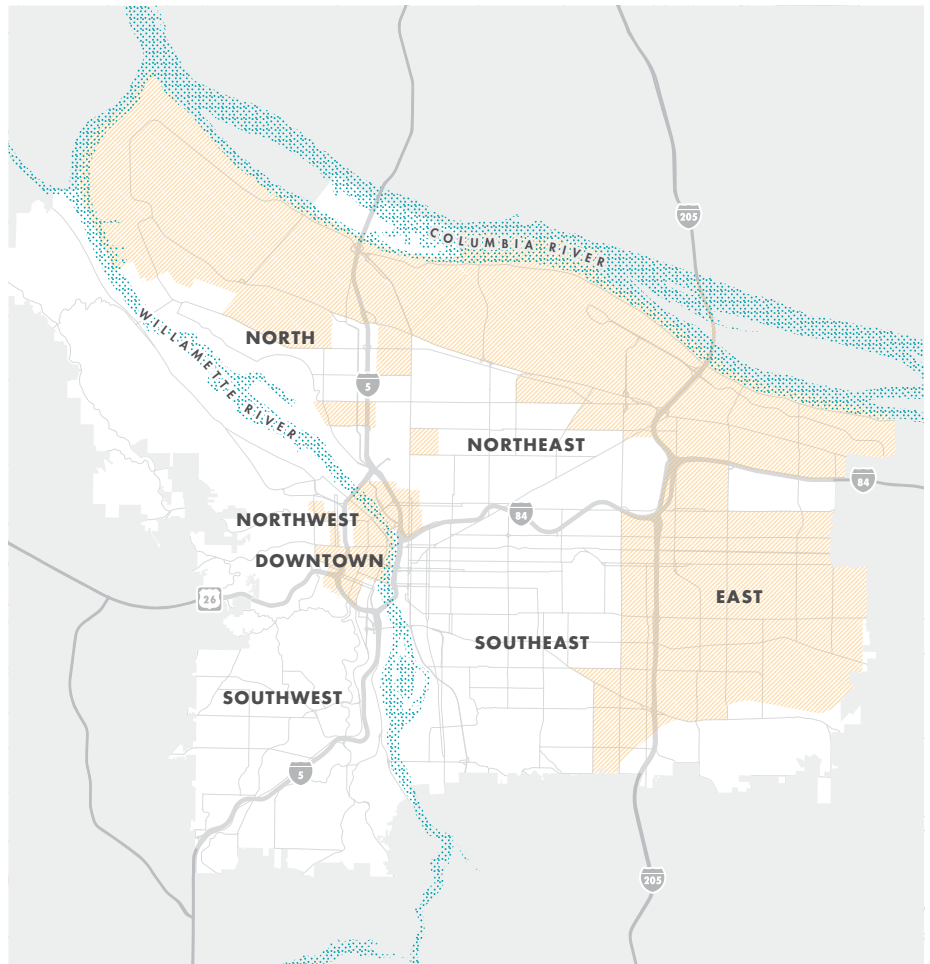
With the Safe System approach, these five elements work together to create a safe, redundant transportation system.

Data guides our investments

Equity data and traffic crash data are used to identify and prioritize investments.

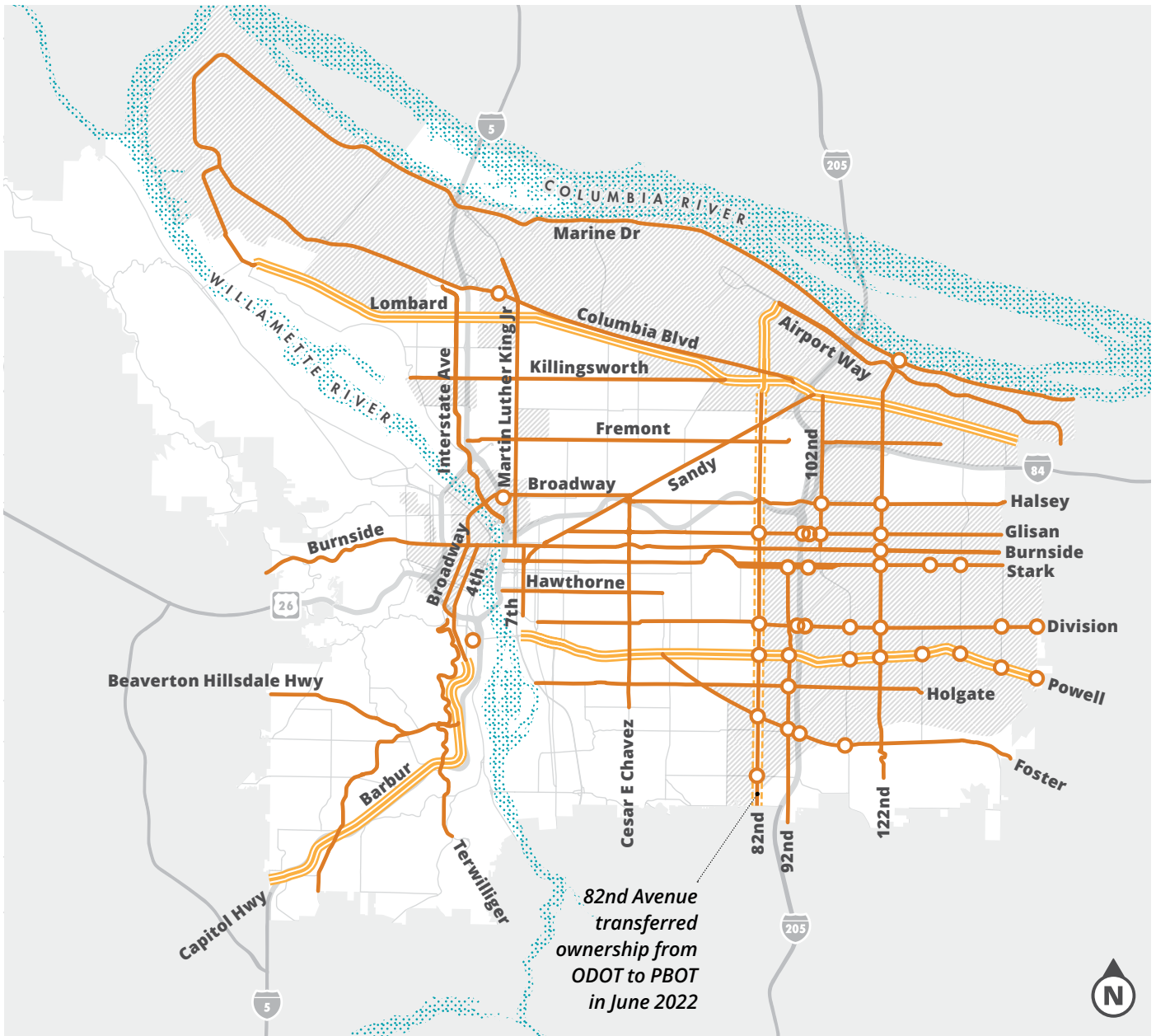
PBOT uses equity data to focus investments in areas with the greatest safety needs. PBOT uses traffic crash data to understand where traffic deaths and injuries most often occur.

Certain areas of Portland are more dangerous for pedestrians. East Portland continues to have nearly twice the number of pedestrian deaths per capita compared to the rest of Portland.¹ Areas that score higher on PBOT's Equity Matrix have three times the number of pedestrian deaths per capita compared to the rest of Portland.² This is where our investment in infrastructure and services is critical.



PBOT Equity Matrix

PBOT's Equity Matrix³ uses data on race, ethnicity, and income to apply a score from 2-10 to each census tract. Census tracts with higher scores have higher proportions of people of color and lower median incomes. Areas that score 8, 9, and 10 are highlighted. Vision Zero prioritizes investments and engagement in these areas.



High Crash Network

The 30 streets and 30 intersections in Portland with the highest number of pedestrian, bicycle, and motor vehicle crashes form what is known as the High Crash Network. The High Crash Network represents 8% of Portland streets and yet it accounted for 62% of traffic deaths in the past five years (2018-2022).

- High crash intersections
- High crash streets owned by PBOT (82% of the network)
- High crash streets owned by ODOT (18% of the network)
- Areas with higher Equity Matrix scores

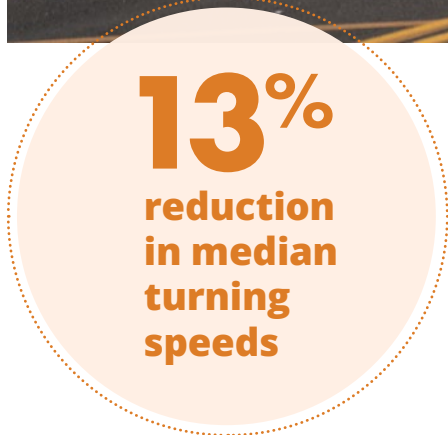
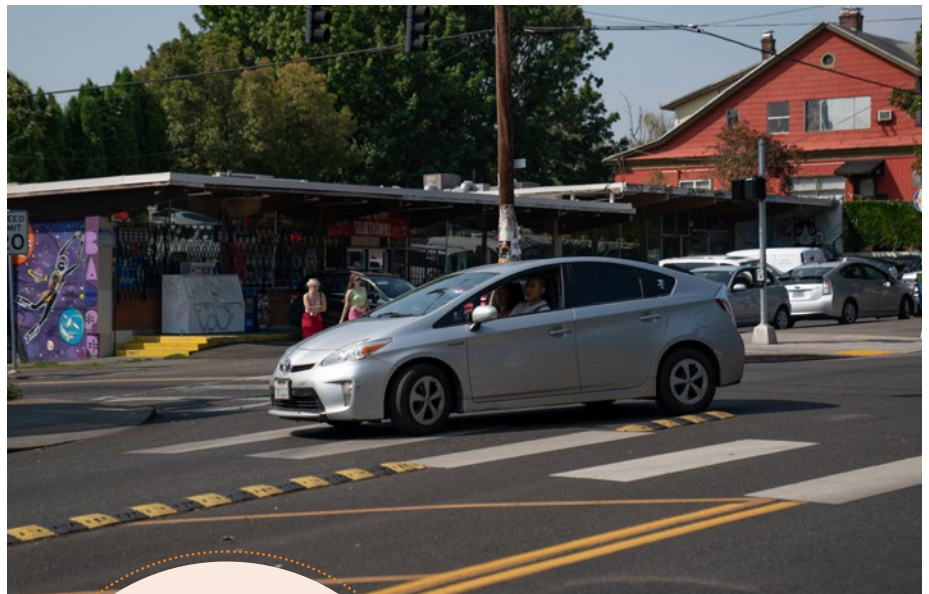
Safety gains since Portland adopted the Vision Zero Action Plan

Make no mistake: since adopting the first Vision Zero Action Plan in December 2016, there has been a marked increase in traffic violence. We state that brutal fact first before outlining some of the areas where we have seen progress.

SAFER LEFT TURNS

Nearly half of pedestrian crashes at signalized intersections involve drivers turning left. In 2019, PBOT piloted a project known as “left-turn calming.” At 42 intersections, PBOT crews installed rubber bumps along the center line before and after the crosswalk. Striped yellow and black, these installations are highly visible and prevent left-turning drivers from cutting corners. It also slows them down, preventing more serious crashes.

An evaluation of the pilot showed a 13% reduction in median turning speeds where the bumps were installed. This tool is now standard practice to improve pedestrian safety at intersections, along with protected left turns and signals that give pedestrians a head start.



At SE Hawthorne Boulevard and 30th Avenue, a person driving is making a left turn, going around the yellow and black striped left-turn calming bump.

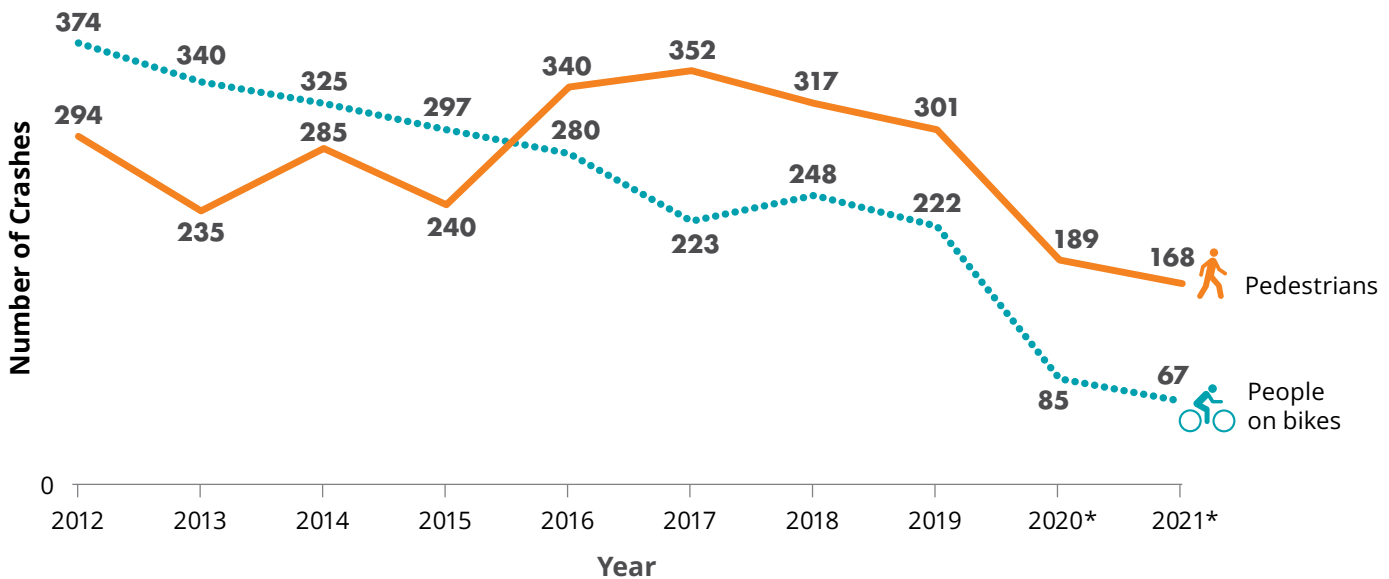
FEWER CRASHES INVOLVING PEDESTRIANS AND PEOPLE BIKING

Pedestrian and bike crashes of all severities have been declining for years.

In 2017, Portland crashes involving pedestrians were at a recent high of 352. This dropped to 301 in 2019. In 2020 and 2021, these numbers plummeted. This is likely due to fewer crashes overall and fewer people self-reporting crashes during the Covid-19 pandemic.

Portland crashes involving people on bikes have declined since 2012. That year there were 374. Year over year, that number has steadily dropped to 222 bike crashes in 2019. Like pedestrian crashes, the 2020 and 2021 numbers dropped precipitously. Again, this is likely due to fewer crashes overall and fewer people self-reporting crashes during the pandemic.

Crashes involving pedestrians and people on bicycles (all severities), 2012-2021



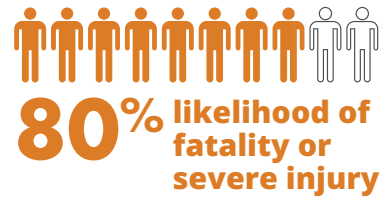
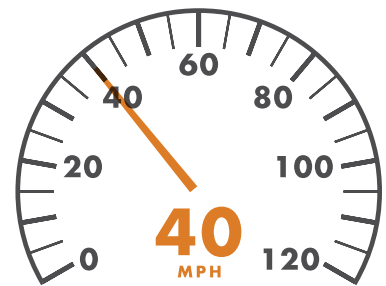
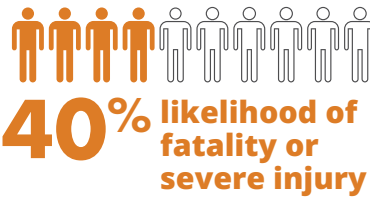
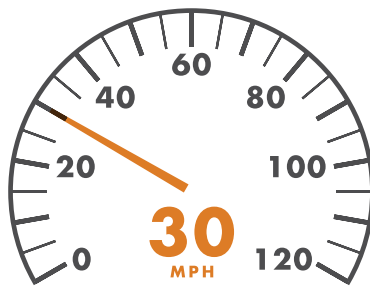
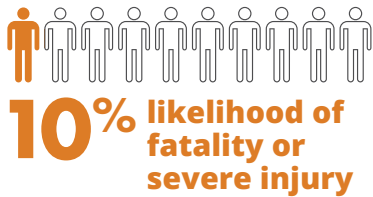
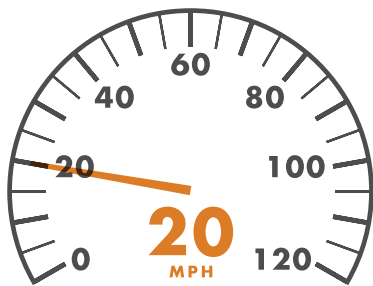
*Crash participants failing to self-report crashes during the COVID-19 pandemic likely contributed to the dramatic drops in reported pedestrian and bicycle crashes in 2020 and 2021.

Source: Oregon Department of Transportation crash data, 2012-2021

SLOWER SPEEDS

Speed directly contributes to the severity of a crash.

At slower speeds, it is easier to avoid collisions altogether. When collisions do occur, it is less likely people are killed or seriously injured.



Source: U.S. Department of Transportation, Literature Review on Vehicle Travel Speeds and Pedestrian Injuries. March 2000.

SPEED-SAFETY CAMERAS

Between 2016-2018, Portland installed eight speed-safety cameras in fixed locations along four high crash corridors. Since installing them, speeding has dropped 71% and top-end speeding (i.e., people driving 10 mph or more over the speed limit) has dropped 94%.



94%
reduction in
top-end
speeding

Speed-safety camera warning sign with a 30 mph speed limit sign and a driver feedback sign posted on SE Division Street east of 148th Avenue.

LANE RECONFIGURATIONS

PBOT’s work to reconfigure travel lanes over the last decade has **reduced top-end speeding** by 72%. With these projects, PBOT reduces the number of vehicle travel lanes, or repurposes them for center turn lanes, bike lanes, or to create more room for pedestrians. This work is typically done on wider arterial streets more prone to speeding and crashes, such as NE 102nd Avenue. Furthermore, data shows these lane reconfigurations have not impacted travel times much. Nor have they caused unexpected increases in traffic on nearby neighborhood streets.



BEFORE
NE 102nd Avenue at Shaver Street, looking south, before the lane reconfiguration project in 2019. The street space was allocated to parking on both sides, two travel lanes in each direction, and an open center-turn lane.



AFTER
NE 102nd Avenue at Shaver Street, looking south, after the lane reconfiguration project in 2019. The street space is allocated to parking on both sides with curb extensions at the crossings, a buffered bike lane in each direction, one travel lane in each direction, and a center turn lane with median islands at pedestrian crossings.

72%
reduction in top-end speeding

SAFER STREETS

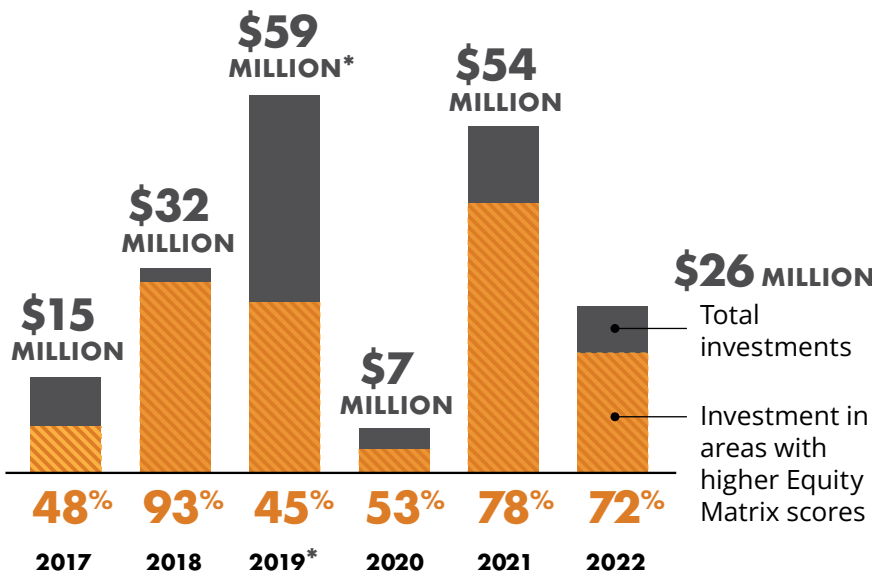
Since 2017, PBOT, along with partner agencies, have invested \$193 million in safety projects on the High Crash Network.

Safety projects on the High Crash Network have varied in scope but often aim to slow driving speeds and make travel safer for pedestrians, people biking, and those taking transit. They also aim to make transit faster and more efficient.

color and people living on low incomes. Of the \$193 million in safety investments on the High Crash Network since 2017, 66% were in neighborhoods with high equity scores, as measured using [PBOT's Equity Matrix](#).

A Vision Zero guiding principle is to prioritize investments in neighborhoods with more people of

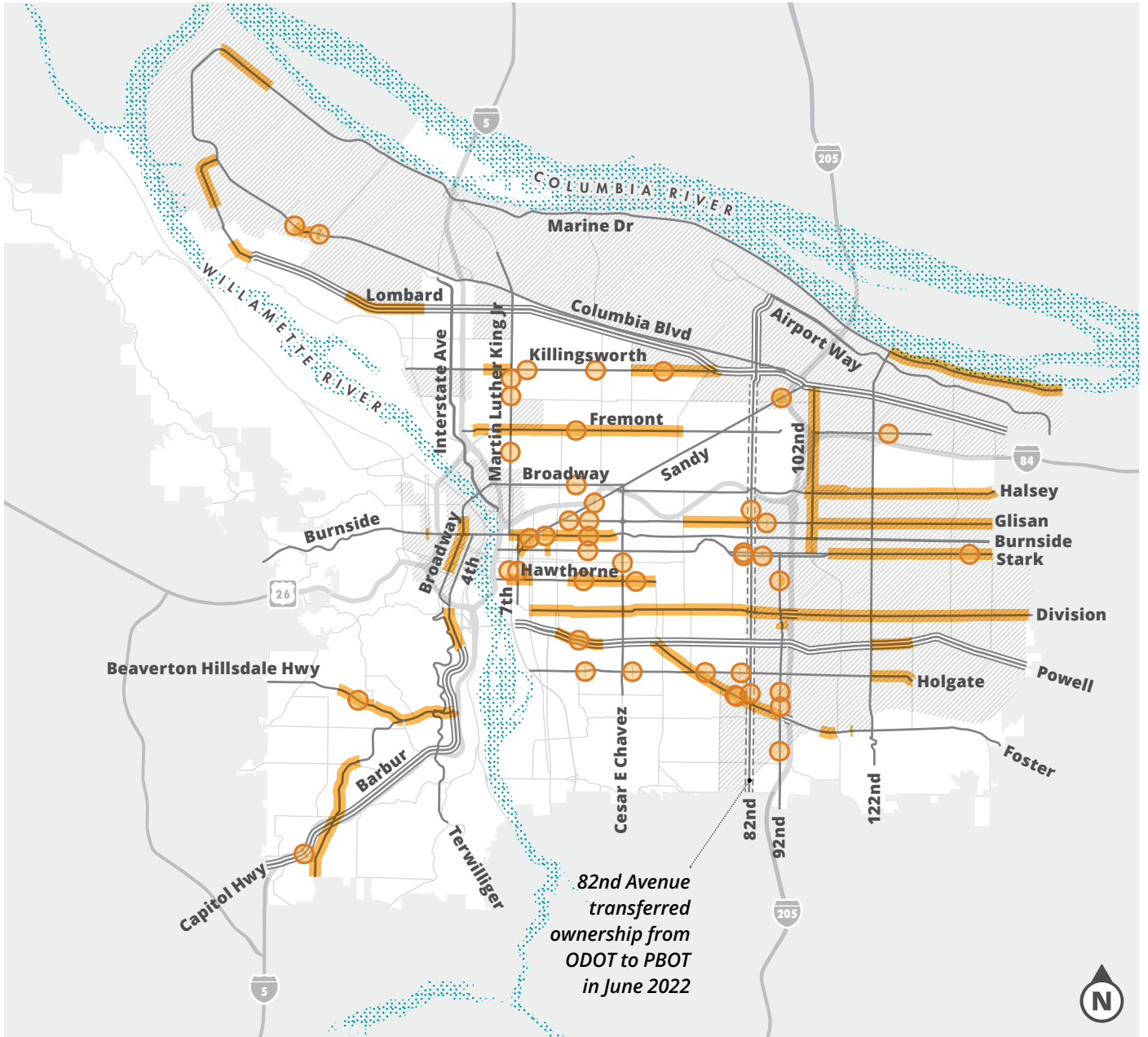
Safety investments on High Crash Network streets, 2017-2022 (approximate)



*2019 investment in higher Equity Matrix score areas is shown at 45% largely because of a \$22.1 million state-funded project on SW Capitol Highway, which is not in a higher Equity Matrix score area of Portland.

Source: PBOT capital projects, 2017-2022

To make progress, we must secure enough funding to make systemic change and redesign Portland's High Crash Network. Limited investments achieve limited results. Major investments are necessary to advance our goal.



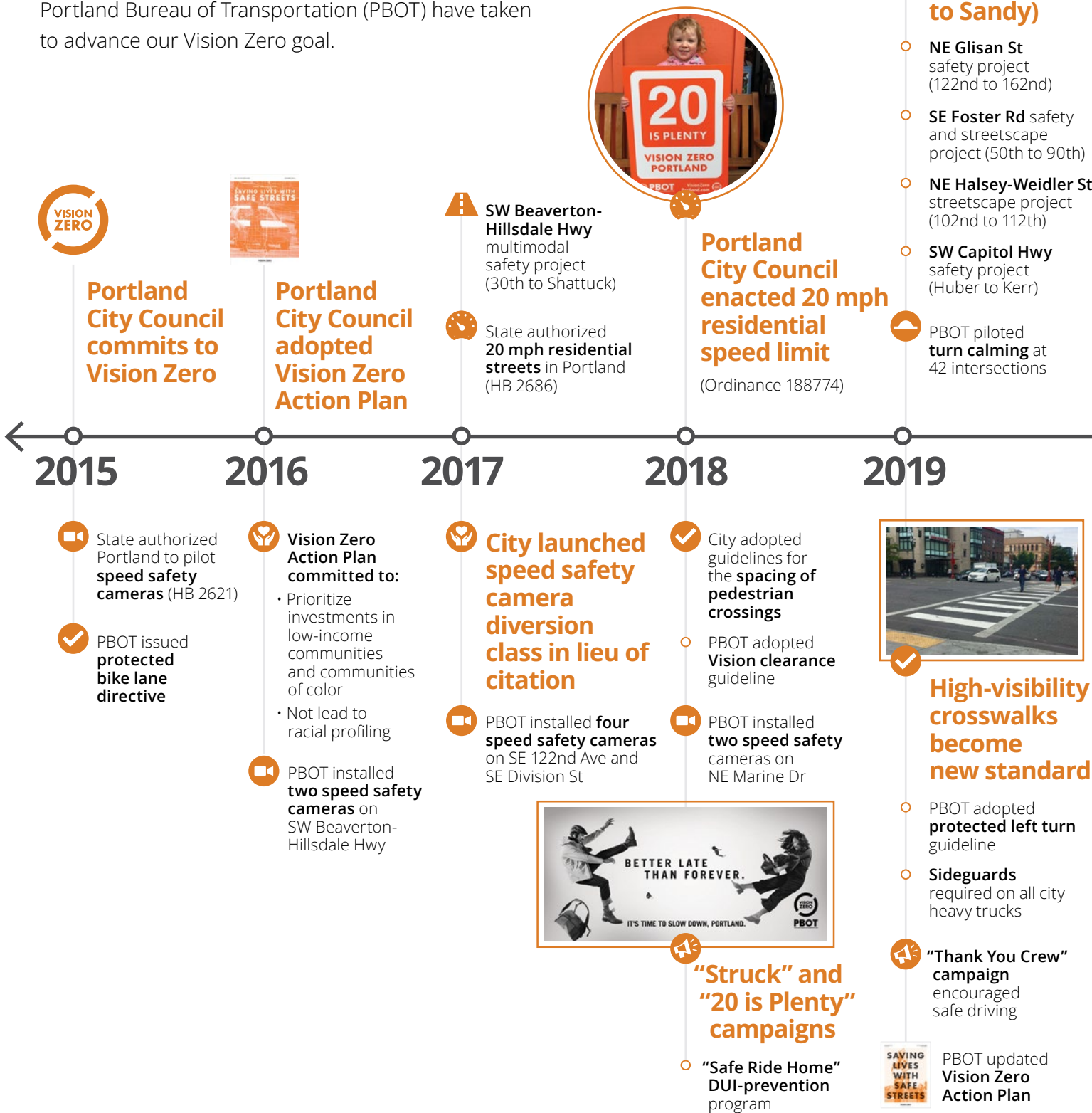
High Crash Network safety projects, 2017-2022

Source: PBOT project management database

- Crossing improvements
- ▬ Corridor improvements
- High crash streets owned by PBOT
- ▬▬▬ High crash streets owned by ODOT
- ▨ Areas with higher Equity Matrix scores

PORTLAND VISION ZERO TIMELINE 2015-2022

This timeline highlights many actions the city and the Portland Bureau of Transportation (PBOT) have taken to advance our Vision Zero goal.



NW Broadway
bike and safety
project (NW Hoyt
to SW Oak)

PSU 20 mph
**residential speed
limit study** finds
safety benefit



PBOT adopted
**turn calming as
routine safety
intervention**

2020

State **eliminated
license suspension**
for failure to pay
fines and fees

Community-led
**safe speed
campaigns** in five
languages

2021

PBOT hired fellow to
examine **equitable
traffic enforcement**
opportunities

State granted
Portland **permanent
use of speed safety
cameras** (HB 2530)

PBOT re-issued
**protected bike
lane directive**

**Vision Zero
dashboard**
launched to
share progress
on actions

2022

State **prohibited police
stops** for certain minor
violations (SB 1510)

For PBOT, PSU students
studied **safety for
pedestrians living
unhoused**

“**Slow the Flock Down**”
campaign in partnership
with Seattle

Pedestrian head starts
become standard on
High Crash Network



City
**installed two
intersection
safety
cameras on
SE Stark St**

NE Glisan St
safety project
(102nd to 122nd)

SW Broadway bike
improvement project
(Oak to Clay)

N Lombard St
multimodal
safety project
(Fiske to
Boston)

**SE Hawthorne
Blvd** pave and
paint project
(23rd to 50th)

SE Hawthorne Blvd and
Madison St multimodal
improvements (Grand
to 12th)

Removed parking at
380 intersections
on the High Crash
Network for better
visibility



**SE Division St
safety project
(80th to 174th)**

State allows local
jurisdictions to apply
for **speed limit
setting authority**
(pursuant HB 3055)

WHAT THE ICONS MEAN

**VISION ZERO
ACTION PLAN**
Overarching policy and
action document

**EQUITY
COMMITMENTS**
Efforts aim to advance
racial equity in traffic
safety

**HIGH CRASH
NETWORK REDESIGNS**
Corridor safety
projects e.g. road
reorganizations, new
crossings, median
islands, bike facilities,
and slow speed designs

**SYSTEMIC
STREET DESIGNS**
Low-cost treatments
that improve safety

**SPEED LIMIT
REDUCTIONS**
Lower speed limits
reduce driving speeds

SAFETY CAMERAS
Speed safety cameras
enforce speeding,
intersection safety
cameras enforce
speeding and red light
running — located on
high crash corridors
and intersections

**SAFETY EDUCATION
CAMPAIGNS**
Raise traffic safety
awareness citywide and
in communities

SAFETY GUIDELINES
New designs and
practices integrated
into policies and project
delivery

Portland crash trends

PBOT's Vision Zero work is data-driven.

We use traffic crash data to understand the who, what, and where:

- » who is most impacted
- » what factors are most prevalent, and
- » where are most serious crashes happening.

When analyzing crash data, we typically use a five-year time range, consider two types of crash severity, and source data from the Oregon Department of Transportation (ODOT) and the Portland Police Bureau (PPB).

Time range

Most often, staff with PBOT's Vision Zero program analyze five years of data. However, we also use 10 years or more to understand broader trends.

Crash severity

PBOT measures our progress by the number of traffic deaths and serious injuries. In order to capture broader trends, we also look at all reported crashes involving pedestrians or people biking, regardless of injury severity.

PBOT's Vision Zero work focuses then on two types of crash data:

- » All deadly and serious injury crashes for all modes – pedestrians, people on bikes, people on motorcycles, and people in motor vehicles.
- » All other crashes involving pedestrians and people on bikes, regardless of severity.⁴

Whenever we refer to our area of focus, we are talking about these two types of crashes.

Sources

The Oregon Department of Transportation (ODOT) compiles the official crash record for the state. This data covers both traffic deaths and injuries and is released about 18 months after each calendar year. For instance, ODOT released crash data for 2021 in May 2023. Additionally, the Portland Police Bureau provides preliminary year-to-date information on crashes with fatalities. This is why our report has injury data only through 2021, whereas fatality data is through 2022.



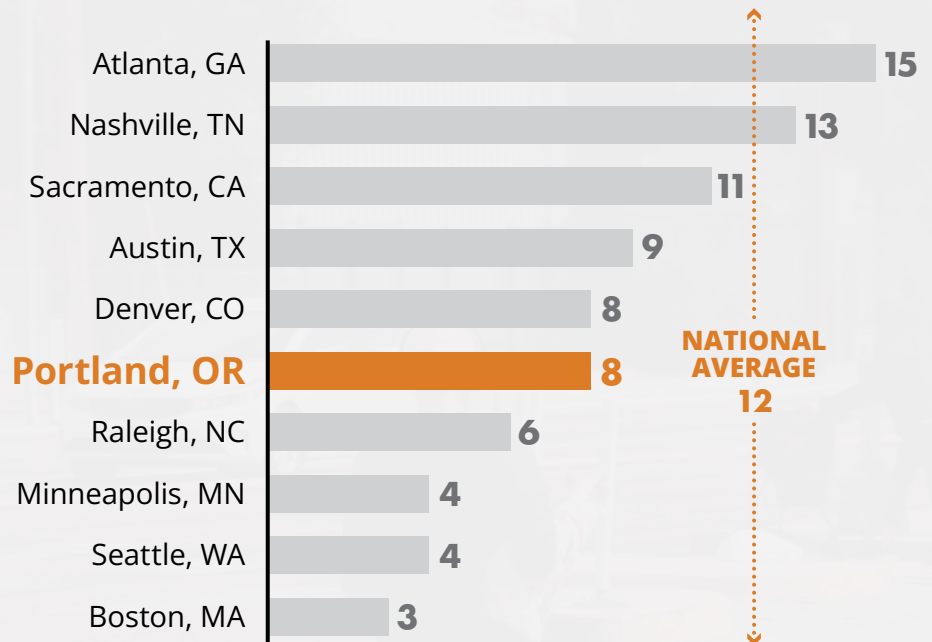
NATIONAL TRENDS

Across the U.S., cities are struggling to reduce traffic deaths.

In 2022, 42,795 people died from traffic violence in the U.S., a 17% increase in the last five years, and a 32% increase since 2011, a recent national low.

Compared to Vision Zero peer cities in the U.S. with similar population, Portland’s traffic death rate is in the middle. In order to save lives, we need a massive investment in traffic safety and a significant cultural shift, both locally and nationally.

Traffic deaths per capita of Vision Zero peer cities*



*Data for each city includes traffic deaths on all facilities (local roads, highways, interstates) within city limits.

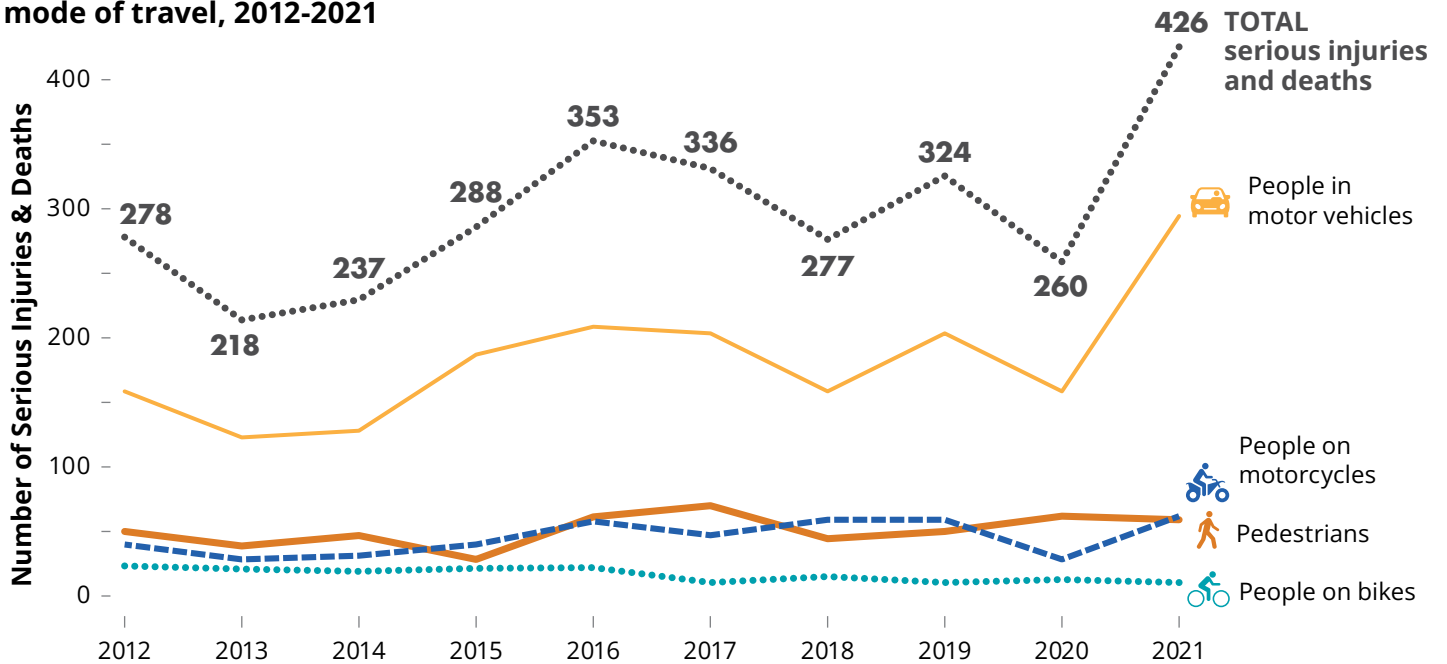
Sources: *Traffic deaths 2017 – 2021, averaged over a 5-year period*, National Highway Traffic Safety Administration (NHTSA): *Motor Vehicle Crash Querying and Reporting*; *Population, 2020 US Census*



PORTLAND TRAFFIC DEATHS AND SERIOUS INJURIES

The number of traffic deaths and serious injuries in Portland has increased in the last twenty years. Hitting a low in 2013, the number steadily increased through the early 2010s, fluctuated in the late 2010s, and spiked in 2021 with the Covid-19 pandemic.

Traffic deaths and serious injuries by mode of travel, 2012-2021



Source: Oregon Department of Transportation crash data, 2012-2021

Pedestrians face the greatest risk in Portland’s transportation network.

Roughly 5.7% of Portlanders primarily walk to work,⁵ yet 40% of all traffic-related deaths from 2018-2022 were pedestrians.



40%
of all traffic-related deaths were pedestrians (2018-2022)

DEMOGRAPHICS OF THOSE KILLED IN TRAFFIC CRASHES

We use demographic data to understand how particular groups are impacted by traffic violence differently. This shapes how we respond and take action.

RACE AND ETHNICITY (2020-2022)⁶

Recent Portland data⁷ shows that Black and Indigenous community members died in traffic crashes at about twice the rate relative to their proportion of the population.⁸ Recent Multnomah County data found a similar disparity.⁹

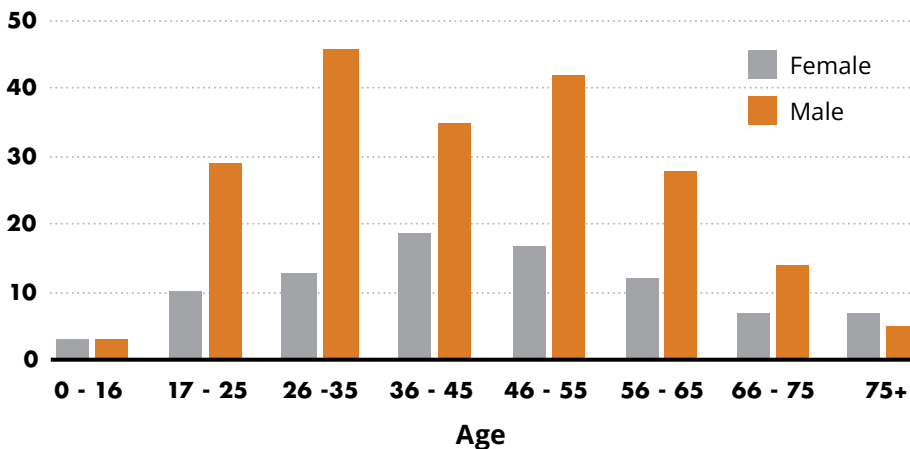
AGE AND SEX (2018-2022)

The ages of traffic victims vary widely, but a majority are in their mid-20s to mid-50s. In Portland, 70% of people who died in traffic crashes were identified as male in the data provided.¹⁰ We can conclude that males ages 26 to 55 are at the highest risk.

HOUSING STATUS (2021-2022)¹²

Housing status data from 2021 and 2022 police crash reports indicate that 55% of pedestrians killed—30 out of 55—were unhoused when they died. The staggeringly disproportionate impact on this population speaks to the extreme risk of persistent exposure to traffic, often on high-speed streets.

Age and sex¹¹ of people who died in Portland traffic crashes, 2018-2022



Sources: Portland Police Bureau, Multnomah County Medical Examiner, and Oregon Department of Transportation, 2018-2022

DISABILITY

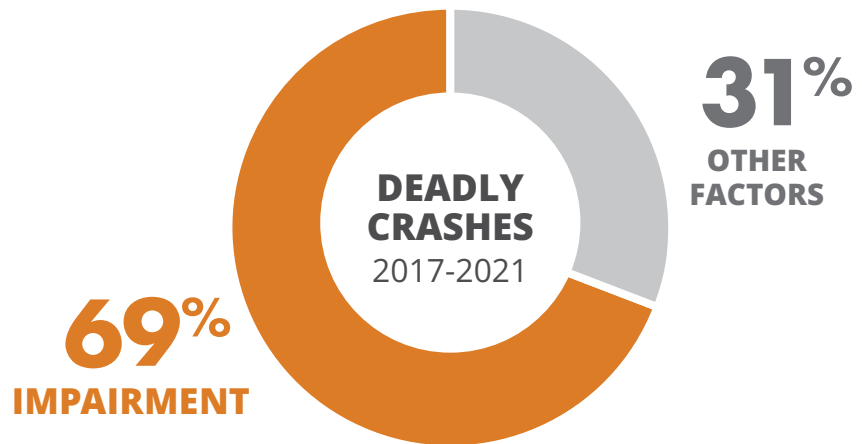
National research finds pedestrians with disabilities have a significantly higher risk of death from traffic violence.¹³ While Portland data on this is incomplete, we understand that social identities – including disability, race, ethnicity, gender identity, social class, religion, and sexual orientation – overlap with one another and can cumulatively impact a person’s safety while getting around.

TOP CONTRIBUTING FACTORS

Certain factors have an outsized impact on traffic safety. This includes behavior, the type of infrastructure, and the kind of vehicle.

IMPAIRMENT

Sixty-nine percent of deadly crashes between 2017 and 2021 involved alcohol and/or drug impairment. In that same period, 430 people died or suffered life-altering injuries due to impairment. In these crashes, 79% of the drivers were impaired.



SPEED

At least 42% of deadly crashes between 2017 and 2021 were because of speed.¹⁴ In five years, 471 people died or suffered life-altering injuries due to speed. Streets with high speed limits are among our most deadly. Fifty-nine percent of fatal crashes occur on the 8% of Portland streets with 35 mph speed limits and higher. The role that speed plays in these crashes is undercounted because the driver's speed is often unknown and many speed limits remain high.¹⁵



Source: Oregon Department of Transportation crash data

LIGHTING

From 2017-2021, crashes at night—from sunset to sunrise—accounted for 44% of all injuries and deaths in our areas of focus. Over that same period, night crashes accounted for 70% of pedestrian deaths and serious injuries. The proportion of night crashes is particularly striking given the reduced nighttime activity, especially for pedestrians. Of note, this data does not specify whether or not there was street lighting at these crash sites. However, the frequency of crashes at night underline the importance of lighting and better visibility.

WIDE STREETS

Wide streets are those with four or more travel lanes, not counting freeways. It is more common for people to speed on wide streets, and they are typically harder to cross. For this and other reasons, wide streets, which make up 4.5% of Portland streets, accounted for nearly half of all deadly crashes in Portland from 2017-2021 and more than half of pedestrian deaths and serious injury crashes (52%).

LARGE VEHICLES

Between 2002 and 2021, the U.S. market share of large vehicles—SUVs, light-duty trucks, and vans—grew from around half of the U.S. market to three-quarters. At the same time, pedestrian deaths in the U.S. increased 52%.¹⁶ Portland has seen a similar increase in pedestrian deaths. Research shows that large vehicles are more deadly to pedestrians than cars,¹⁷ and drivers of large vehicles more often hit pedestrians when turning.¹⁸

70%
of pedestrian deaths and serious injuries occurred at night (2017-2021)

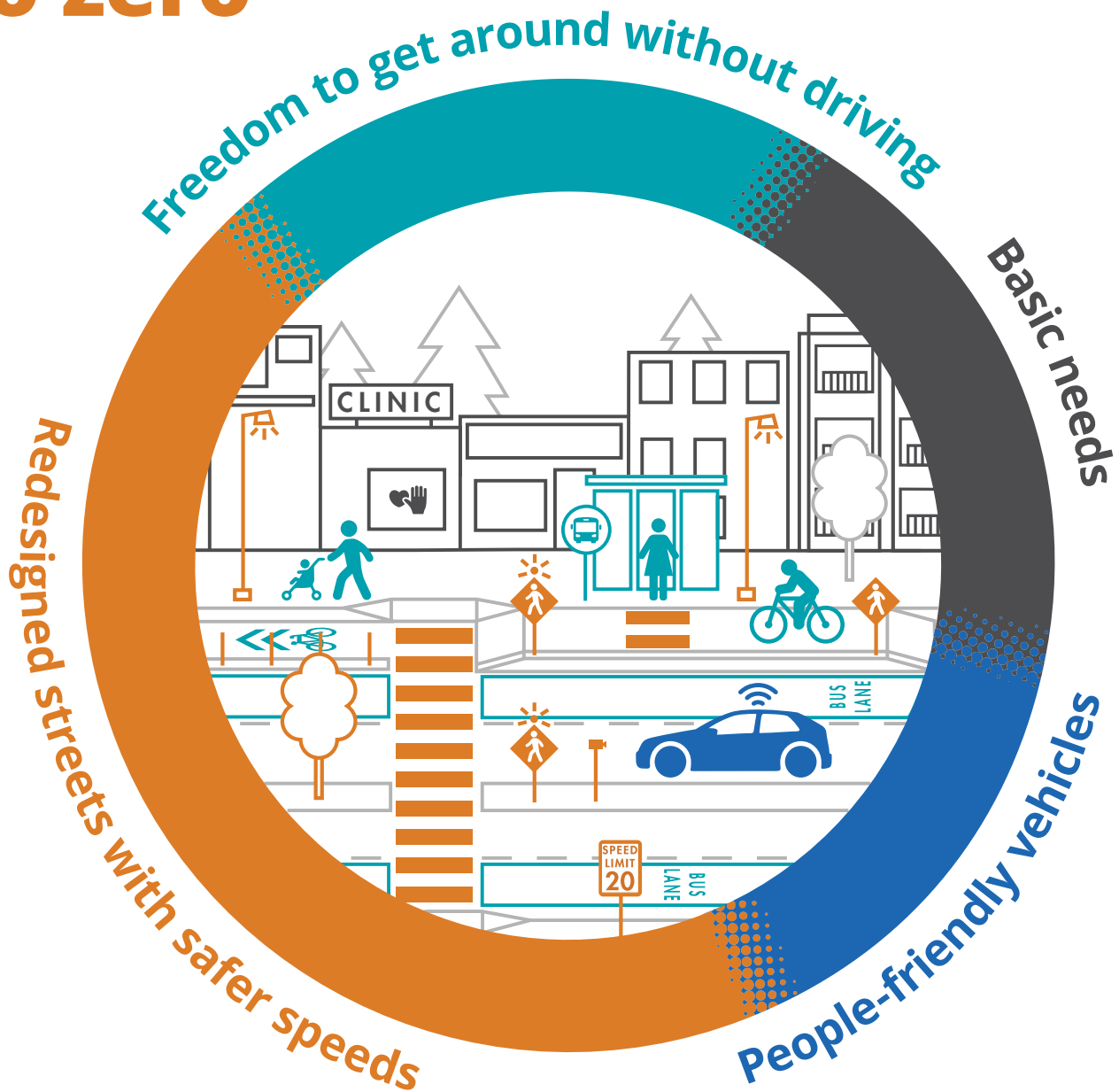
HIT-AND-RUN CRASHES

Hit-and-run crashes were up 27% in the last five years (2017-2021) compared to the five years prior. Hit-and-run crashes represent one in seven deaths or serious injuries of pedestrians and people biking.



How Portland will get to zero

Eliminating traffic deaths and serious injuries in Portland is possible. PBOT can lead the way by significantly changing the design of our most deadly streets to lower speed limits and slow drivers, as well as make it easier for people to get around without a car. However, achieving our goal requires collaboration and commitment from many different partners.



REDESIGNED STREETS WITH SAFER SPEEDS

Lead: PBOT

- » Street features protect people
- » Street design encourages drivers to slow down
- » Safe travel behaviors are intuitive and shared by all
- » Safety cameras deter speeding and running red lights

FREEDOM TO GET AROUND WITHOUT DRIVING

Lead: PBOT and partners

- » Convenient and affordable transit
- » More jobs, homes, and shops in neighborhoods
- » Safe routes for walking, rolling, and biking
- » Public space is safe and comfortable for everyone

BASIC NEEDS

Lead: Partners

- » Housing for everyone
- » Access to education and jobs
- » Access to food and healthcare
- » Substance abuse treatment
- » Mental health services

PEOPLE-FRIENDLY VEHICLES

Lead: Partners

- » Smaller and lighter vehicles
- » Alcohol impairment detection
- » Driver assistance systems
- » Safe speed technology



REDESIGNED STREETS WITH SAFER SPEEDS

Central to PBOT’s Vision Zero work is to redesign big, fast streets in ways that slow down people driving and protect people.

On streets owned by PBOT, street redesign and speed management is fully within our purview. The majority of the 35 Vision Zero actions listed in the following section, “Actions and performance measures,” fall into this category.

FREEDOM TO GET AROUND WITHOUT DRIVING

Reducing driving is core to PBOT's Vision Zero work.

Two metrics are closely correlated with traffic deaths: vehicle miles traveled and car ownership. PBOT builds and designs streets. We also run, regulate, and subsidize programs to make travel easier for pedestrians as well as to encourage more travel by transit, bike, and scooter. Much of this work specifically targets people living on a low income and communities of color. Historic underinvestment in transportation and ongoing displacement from areas of Portland with more travel options has meant that these communities have had less access to other modes of travel.

» **PBOT redesigns and builds streets.**

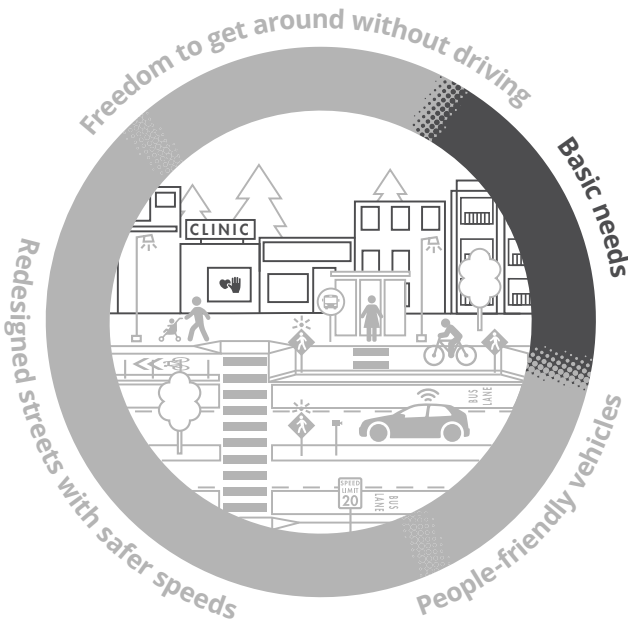
PBOT redesigns streets to move people more safely. This includes major redesigns and lane reconfigurations. It also means giving transit higher priority, building safer bike lanes and pedestrian crossings, lowering speed limits, adding street lighting, and expanding our network of low-traffic streets known as neighborhood greenways.

» **PBOT runs and subsidizes various programs.**

Over the last decade, PBOT has created and/or expanded its programs to support Portlanders' ability to get around in ways other than cars. Safe Routes to School and our Sunday Parkways open streets events help Portlanders build skills and experience joy traveling in new ways. BIKETOWN bike-share and a variety of other programs offer deeply discounted or free travel options for people living on a low income.



- » **PBOT charges for driving.** Charging for driving is one way to encourage people to use other modes to get around. Currently, PBOT charges for parking in some districts where street parking is in demand. In the future, ODOT, in collaboration with PBOT, may charge for people to drive on the interstates in the Portland metro area.
- » **PBOT promotes transit.** Affordable, convenient transit is necessary for Portland and the region to meet its climate, equity, safety, and mobility goals. PBOT oversees and is expanding the Portland Streetcar. PBOT has implemented many transit priority projects in the last five years, including on East Burnside Street, NE Couch Street, SE Hawthorne Boulevard, SW Capitol Highway, SW Jefferson Street, SW Columbia Street, SW Main Street, and soon on SW Fourth Avenue. PBOT supported prioritizing bus movement on TriMet's high-capacity Division transit line that opened in September 2022. PBOT knows that to reach our Vision Zero goals—along with other regional goals—a much more significant investment in affordable, convenient transit will be necessary.



BASIC NEEDS

A societal commitment to meet basic human needs is necessary to reach many of our shared goals, including Vision Zero, and requires leadership from other partners.

People experiencing houselessness do not have refuge from persistent exposure to traffic. People traveling impaired put themselves and others at risk on the road. Partners such as the Portland Housing Bureau, Multnomah County Public Health Department, and service providers are working on elements of this category, however additional coordination and partnership is needed.

PEOPLE-FRIENDLY VEHICLES

Vehicle technology and regulation can make meaningful advances in traffic safety and requires leadership from federal partners.

Many newer technologies - automatic emergency braking, speed limiters, alcohol detection - are promising but lack widespread adoption. Research has shown a link between larger and heavier vehicles and increasing crash severity for pedestrians. Federal regulators have an opportunity to mandate technologies and incentivize smaller vehicle sizes to save lives.

Actions and performance measures



SAFE SPEEDS

A large, thick orange circular graphic with a jagged, broken edge. Inside the circle is a blurred, black and white photograph of a car driving on a road. The background of the entire page is a faded, light-colored photograph of a street scene with utility poles and trees.

Slow people driving to reduce injuries



SAFE SPEEDS

Slowing down people driving reduces crashes and their severity. People who drive slower can stop more quickly to avoid a crash. Driving more slowly also reduces the chance of injury or death when crashes occur.



SAFE SPEEDS

Set safe speed limits

Performance Measures

- | | |
|--|---|
| <p>1 Update speed limits to reflect new state guidelines.</p> | <ul style="list-style-type: none"> » Analyze all city speed limits » Miles of street where we have lowered speed limits |
| <p>2 Make school zones safer. Evaluate all school zones and flashing warning lights, update our guidelines, install new school zones, and lower speed limits around them.</p> | <ul style="list-style-type: none"> » New school zone guidelines in place » Number of school zone adjustments |

Redesign dangerous streets to encourage safe speeds

- | | |
|---|---|
| <p>3 Develop a strategy around street design and speed. Build a toolbox for street design that considers how to slow people driving on busy streets and residential streets.</p> | <ul style="list-style-type: none"> » Develop strategy for High Crash Network and neighborhood streets |
| <p>4 Change signal timing. Where feasible, retime signals on the High Crash Network to slow vehicles down.</p> | <ul style="list-style-type: none"> » Identify where to retime signals » Corridors where we have retimed signals |

Enforce the speed limit

- | | |
|--|---|
| <p>5 Install more cameras for automatic speed enforcement in crash hotspots. Overcome challenges in procuring and installing cameras.</p> | <ul style="list-style-type: none"> » Number of cameras installed or upgraded in 2023 and 2024 |
| <p>6 Analyze speeding citations. Better understand how speeding affects different ZIP codes.</p> | <ul style="list-style-type: none"> » Complete analysis within six months of getting access to the database |



SAFE STREETS



**Design and
maintain streets
to protect people**



SAFE STREETS

Designing a safe transportation system means building streets to protect people even when they make mistakes. Core to this work is slowing down people driving and protecting pedestrians and others outside these vehicles.

Improve street lighting on wide streets in high-equity areas

Performance Measures

7 Design and install new street lighting on streets in the High Crash Network. Address the backlog by prioritizing areas that score higher on PBOT’s Equity Matrix.

- » Number of street segments (measured in miles) where we added street lighting

Maximize signal operations for safety

8 Launch “no turn on red” pilot. Reduce the risk of turning crashes that are particularly dangerous for pedestrians and people bicycling.

- » Begin pilot
- » Evaluate pilot

9 Launch “rest on red” pilot. At night, at some intersections with a history of speed-related crashes, display red lights in all directions to require drivers to slow down as they approach the intersection. Technology at the intersection will detect the vehicle and give a green light.

- » Begin pilot
- » Evaluate pilot

10 Adopt a policy to ensure we make intersections safer whenever signals are rebuilt on the High Crash Network. Determine where and when we are rebuilding signals or adding rapid-flashing beacons to crosswalks. Develop standard operating procedures on where and when to install roundabouts. Write policy that considers and prioritizes all manner of intersection safety measures when we rebuild signals: roundabouts, shortening pedestrian crossings, reducing conflicts from turning, and/or slowing drivers down.

- » Complete location analysis
- » Adopt a policy



Transform wide, fast streets

Performance Measures

- 11 Break ground on multiple major projects along the High Crash Network each year.**

 - » **2023: 82nd Avenue** (NE Lombard Street and SE Foster Road); **E Burnside Street** (NE Martin Luther King Jr Boulevard to 12th Avenue); and **NE Halsey Street** (71st to 80th avenues)
 - » **2024: SW Fourth Avenue** (Lincoln Street to W Burnside Street); **SE Foster Road & Woodstock Boulevard couplet** (96th to 101st avenues); **NE Halsey Street** (65th to 92nd avenues); **NE Killingsworth Street** (53rd Avenue to Lombard Street); and **SE Stark Street & Washington Street couplet** (72nd to 92nd avenues)
 - » **2025: NE Halsey Street** (I-205 overcrossing); **NE Martin Luther King Jr Boulevard** (Cook to Highland streets); **SE Stark Street** (108th to 162nd avenues); and **SE Stark Street & Washington Street couplet** (92nd to 106th avenues)
- 12 Engage community members on key safety projects.** Projects will be on streets in the High Crash Network and in areas that score higher on PBOT’s Equity Matrix.

 - » Develop public engagement plan and perform public engagement in line with timelines for design and construction
- 13 Analyze deficiencies in the High Crash Network using a Safe System approach.** Use analysis to prioritize corridor planning, project development, and funding.

 - » Complete analysis
- 14 Partner with PBOT’s pedestrian program to advance pedestrian safety projects identified in PedPDX.** Priority projects are on streets in the High Crash Network, in areas that score higher on PBOT’s Equity Matrix, in pedestrian districts, and near schools.

 - » Complete project list and investment strategy
 - » Number of new pedestrian crossings PBOT has built on the High Crash Network

Transform wide, fast streets *(continued)*

Performance Measures

15 Upgrade temporary materials (such as rubber curbs and flexible posts) to permanent materials (such as concrete) at priority safety project locations.

- » Develop priority list
- » Identify funding
- » Number of permanent safety improvements built

16 Integrate the Safe System approach into PBOT’s internal decisions and processes. Use the High Crash Network as one input to prioritize projects, maintenance, and paving. Integrate safe speeds and protection for pedestrians and people bicycling into project work and the Complete Streets checklist.

- » Create agreements with relevant divisions

Respond quickly to critical safety needs

17 Install low-cost treatments along street segments with a high concentration of crashes.

Build recommendations from PBOT’s 2023 High Crash Network priority segment analysis.

- » Develop delivery plan and identify funding
- » Number of locations addressed

18 Evaluate spots where fatal crashes occur, identify safety improvements, and install improvements where we can. Multidisciplinary team meets monthly to evaluate locations.

- » Percent of site evaluations completed
- » Number of locations with improvements installed

19 Add low-cost safety elements to existing projects on the High Crash Network. Leverage existing project development process to achieve added safety gains.

- » Number of locations with improvements installed

Measure street design performance

20 Develop project evaluation guide to support consistent PBOT safety evaluations of corridor projects on streets in the High Crash Network.

- » Develop evaluation guide

21 Evaluate all significant corridor projects on streets in the High Crash Network. Define roles and responsibilities for project development and delivery.

- » Percent of High Crash Network safety projects that are evaluated and that follow the evaluation schedule



**SAFE
PEOPLE**

**Foster a culture
of shared
responsibility
for each other's
safety**



SAFE PEOPLE

We all have responsibility for the safety of ourselves and others as we travel on Portland streets. These actions center on education, raising public awareness, and engaging with culturally specific communities about traffic safety.

Advance safety and sense of belonging for culturally specific communities

Performance Measures

- 22 Develop a personal safety resource for use by both PBOT and community members.** The resource will identify ways to integrate personal safety into capital projects and public space programming.

 - » Develop resource

- 23 Collaborate with culturally specific groups.** Share safety resources, and provide ongoing education and engagement.

 - » Number of community events or trainings with a safety focus that Vision Zero staff develop or attend

- 24 Engage with groups who are over-represented as victims of traffic violence.** Share safety resources, and provide ongoing education and engagement.

 - » Number of community events attended, and resources shared, with impacted communities

SAFE PEOPLE

Data shows that Black and Indigenous Portlanders, as well as the unhoused, are disproportionately impacted by traffic violence.



Educate Portlanders about making safe travel choices

Performance Measures

- 25 Host events and raise awareness on traffic safety.**
 Conduct proactive outreach on the Safe System approach. Prioritize events around the High Crash Network and in places that score higher on PBOT’s Equity Matrix.

 - » Events at which Safe System approach was shared

- 26 Place a variable message sign at the site of deadly crashes.** Raise awareness and encourage safe driving behavior where traffic violence occurs.

 - » Percent of eligible sites where a variable message sign was placed

- 27 Integrate Safe System approach into traffic safety education materials for elementary-, middle-, and high-schoolers.**

 - » Integrate Safe System approach into Transportation Academy pilot and Safe Routes to School resources

SAFE PEOPLE

Portland’s Safe Routes to School program identifies two priority outcomes:

- » No child is involved in a serious crash getting to/from school or a school program.
- » Every child who wants to walk, bike, roll, or take transit to school knows how to do so, and do so safely.




Focus enforcement on safety and education outcomes

Performance Measures

- 28 **Partner with the Portland Police Bureau’s Traffic Division on focused enforcement.** Ensure that enforcement focuses on the High Crash Network and the behaviors that contribute to deadly and serious injury crashes. This also means deemphasis of non-moving and minor infractions.

- » Number and percent of citations issued for speed and for driving under the influence of intoxicants (DUII)

 **Portland Police Chief Directive** (June 2021): “Focus on safety violations and enforcement in high crash corridors... and... behaviors that result in serious or fatal crashes, such as speeding, DUII, distracted driving, failure to obey traffic control devices, and things of that nature.”

- 29 **Partner with the Portland Police Bureau’s Traffic Division on training.** Ensure training for new police recruits includes data about traffic safety, how to process DUII offenses, and city and state protocol and laws around making traffic stops. These training elements should focus on advancing safety and equity outcomes.

- » Topics covered in new officer trainings

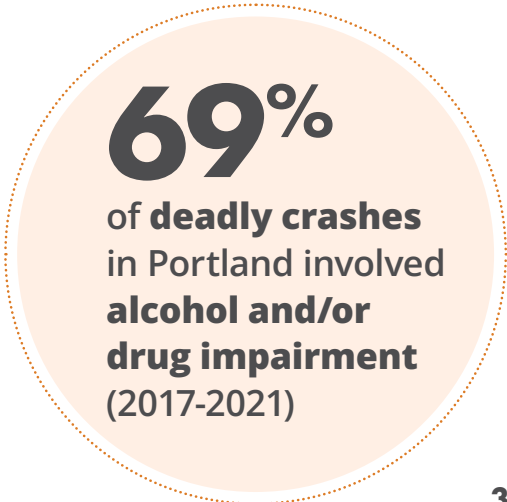
 SAFE PEOPLE

Curb impaired driving

- 30 **Support legislation to lower Oregon’s legal blood alcohol content (BAC) limit from 0.08% to 0.05%.**

- » Supported legislation to lower the legal BAC limit to 0.05%

Utah’s fatal crash rate dropped 20% after they dropped their legal BAC limit from 0.08% to 0.05%. This is compared to just a 6% drop in the U.S. overall over the same period.





**SAFE
VEHICLES**

A large orange circular graphic with a cutout showing a street scene with a car and a person. The text is centered within the cutout.

**Make vehicles
safer for people
inside and outside
of the vehicles**



SAFE VEHICLES

Improving traffic safety through vehicle technology and regulation is a relatively untapped opportunity in the United States. For example, the European Union requires that all new vehicles have automatic braking to prevent possible collisions, speed limiters to prevent vehicles from exceeding the speed limit, and back-up cameras. These features are only available in some cars sold in the U.S. While city governments can demonstrate technology using their own fleets (and require safety features in contracted fleets), federal policy is required for systemic change.

Performance Measures

31 Advocate for stronger national regulations.
Write and lobby in support of requiring vehicle manufacturers to add safety features that address safety overall, and pedestrian and bike safety in particular.

» National efforts that PBOT has supported

32 Partner with City Fleet team on ways to increase traffic safety. Explore emerging technology and demonstrate effectiveness.

» Ways our fleet explores new technologies

Examples:

- » **New York City** installed speed limiters in their fleet.
- » **Boston** developed a simple method of assessing how much drivers can see from the cabs of their trucks.
- » **Washington, D.C.** raised the annual registration fee for heavier vehicles.



POST-CRASH CARE

Provide quick medical response and quality treatment

The fifth pillar of a Safe System approach, “post-crash care,” is about timely emergency response and quality treatment. Quick response to the crash scene and good medical care increases the chance that a traffic crash victim will survive. This pillar is a particular focus of rural areas with greater distances from hospitals and emergency services. PBOT coordinates with Portland Fire & Rescue to ensure projects do not negatively impact emergency response. Multnomah County leads the effort to improve emergency response times.



SAFE VEHICLES



ACCOUNTABILITY



**Share progress
on Vision Zero
work**



ACCOUNTABILITY

PBOT updates the public on our Vision Zero work annually—what work we’ve done, and what areas need more attention. PBOT remains committed to safety, and this kind of reporting helps keep us accountable.

Performance Measures

33 Redesign and update Vision Zero online reporting.

- » Redesign dashboard
- » Provide quarterly updates based on data availability

34 Produce annual summary of PBOT’s Vision Zero work.

- » Write and distribute summary

35 Produce annual report on deadly crashes.

- » Write and distribute report



Youth participating in a community forum to share ideas for improving personal safety and a sense of belonging when traveling on Portland streets (May 2023).

LIMITS ON DATA

Crash data

PBOT does not own or maintain crash data. The Oregon Department of Transportation (ODOT) acts as custodian of all crash data in the state. The Portland Police Bureau (PPB) acts as custodian of crash investigation information in the city.

ODOT does not share their data until about 18 months after the close of the calendar year. This is for numerous reasons, mainly because they need to reconcile multiple sources of crash data across Oregon. That crash data includes drivers' self-reported crash information from the Oregon Department of Motor Vehicles (DMV), local police, and county medical examiners. For instance, ODOT shared their official 2021 crash data in May 2023. Similarly, the Portland Police Bureau may share crash investigation information more than 12 months after a crash, when the investigation is complete.

All this data, either official records from the state, or preliminary from local police, are limited in what they include. For instance, we may want to know how a pedestrian crossed an intersection, but this is not something drivers always report to the DMV or PPB can collect at every crash.

For more on this, visit PBOT's ["How crash data works" page](#).

Income

In the Vision Zero Crash Trends section, we described demographic data of traffic crash victims to shed light on how particular groups are impacted differently by traffic violence. While knowing the impacts of traffic violence on people earning different wages would enhance our understanding of those most at risk, no income data is collected for traffic victims. The way we do use income data is through PBOT's Equity Matrix, which points to the neighborhoods where people tend to earn lower incomes and that are more racially and ethnically diverse.

Disability

Disability is an expansive term and is one factor not fully captured in crash data. ODOT crash data notes pedestrian crashes in which someone was using a wheelchair. However, neither ODOT nor PPB include visual or hearing impairment, or invisible disabilities such as physical, mental, or neurological conditions.

For this reason, we don't have enough data to look at how traffic violence impacts the broader disability community.

Traffic deaths

Not all traffic deaths are included in crash data. This is in accordance with the National Highway Traffic Safety Administration's FARS/CRSS Coding and Validation Manual, the American National Standards Institute's Manual on Classification of Motor Vehicle Traffic Accidents, and ODOT's Motor Vehicle Traffic Crash Analysis and Code Manual. The exclusions are of those who die:

- » More than 30 days after a crash
- » Intentionally (suicide)
- » In an act of homicide (a person intentionally crashes into another person)
- » From a prior medical event (e.g., a heart attack or drug overdose)
- » In a crash in a parking lot
- » In a crash not involving a motor vehicle. Cars, trucks, and buses are examples of motor vehicles. Trains, the MAX light rail, and the Portland Streetcar are excluded because they operate exclusively on rail. Hence, a traffic death involving a pedestrian and the MAX light rail would be excluded. Any crash involving a person on a bike and/or a pedestrian would be excluded if no motor vehicle is involved.

ENDNOTES

- 1 Per capita pedestrian deaths in East Portland are 23 per 100,000 residents, compared to 13 per 100,000 residents in the rest of Portland. Sources: ODOT crash data 2017-2021; U.S. Census data 2020
- 2 Per capita pedestrian deaths in high scoring (>=8) Equity Matrix areas are 27 per 100,000 residents, compared to 9 per 100,000 residents in the rest of Portland. Sources: ODOT crash data 2017-2021; U.S. Census data 2020
- 3 PBOT Equity Matrix, portland.gov/transportation/justice/pbot-equity-matrix
- 4 We do not focus on non-injury or moderate injury crashes involving people in motor vehicles or on motorcycles. Understanding specific circumstances that contributed to deadly and serious injury crashes will best advance our goal of eliminating those crashes. However, because there are fewer pedestrian and bicycle crashes involving serious injury or death, and because the difference between a minor scratch and a life-altering injury can be a matter of seconds, we explore circumstances of all pedestrian and bicycle crashes.
- 5 Source: [U.S. Census Bureau American Community Survey \(2021\)](https://www.census.gov/data/tables/2020/acs/5-year/tables.html)
- 6 Excluded 2018 and 2019 traffic deaths due to limited reporting.
- 7 Race and ethnicity data are reported by Portland Police Bureau (PPB) traffic investigations and the Multnomah County Medical Examiner. Reporting only describes one's perceived race or ethnicity. This data is not self-reported, third parties may misidentify people.
- 8 Black or African American people account for 6% of Portland's population but 9.4% of Portland traffic deaths from 2020 to 2022. American Indian or Alaska Native people account for 0.9% of Portland's population but 2.2% of Portland traffic deaths in the same time period. Sources: PPB and Multnomah County Medical Examiner, 2020-2022; [U.S. Census data 2020](https://www.census.gov/data/tables/2020/acs/5-year/tables.html)
- 9 Multnomah County REACH Transportation Crash and Safety Report, multco.us/reach/physical-activity-strategy
- 10 Sex data is reported by the Portland Police Bureau (PPB), the Multnomah County Medical Examiner, and Oregon Department of Transportation (ODOT). Reporting is categorized based on the binary categories of male and female. Nonbinary, genderfluid, genderqueer and other genders are not reported separately. This data is not self-reported and third parties may misidentify people.
- 11 Ibid.
- 12 The Portland Police Bureau did not track housing status prior to 2021.
- 13 Disability and Pedestrian Road Traffic Injury: A Scoping Review, [sciencedirect.com/science/article/pii/S1353829222001575#](https://www.sciencedirect.com/science/article/pii/S1353829222001575#)
- 14 PBOT included the following ODOT crash codes to calculate the percent of speed-involved crashes: flagged for "Speed"; Crash cause marked as "too-fast," "off road," "failure to stay in lane," or "racing"; or crash type "fixed object." Still, the percentage of speed-involved crashes is underreported as described in endnote 15.
- 15 The role that speed plays in fatal and serious injury crashes is often undercounted. This is because the speed of the driver at the time of the crash is often unknown. Driving faster than the speed limit is common and therefore only reported if speeding was way above the speed limit. Another reason is because speed limits themselves are too high on many of Portland's biggest streets, meaning that speeding won't be marked as a factor even though the driver's speed still may have contributed to the crash.
- 16 Insurance Institute for Highway Safety, Fatality Facts 2021: Pedestrians, www.iihs.org/topics/fatality-statistics/detail/pedestrians
- 17 Insurance Institute for Highway Safety, "New study suggests today's SUVs are more lethal to pedestrians than cars," June 16, 2020, www.iihs.org/news/detail/new-study-suggests-todays-suvs-are-more-lethal-to-pedestrians-than-cars
- 18 Insurance Institute for Highway Safety, "SUVs, other large vehicles often hit pedestrians while turning," March 17, 2022, www.iihs.org/news/detail/suvs-other-large-vehicles-often-hit-pedestrians-while-turning



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