Agenda

Metro
600 NE Grand Ave.
Portland, OR 97232-2736

Meeting: Metro Technical Advisory Committee
Date: Wednesday, February 1, 2017
Time: 10:00 a.m. to Noon
Place: Council Chamber

Time	Agenda Item	Action Requested	Presenter(s)	Materials
10:00 a.m.	**CALL TO ORDER** **Updates from the Chair**		Tyler Frisbee, Acting Chair	
	Citizen Communications to MTAC		All	
30 min.	**2018 RTP: Vision Zero and Safety Update** *Purpose: To update and receive feedback from MTAC about updated elements of the RTP Safety Action Plan*	Informational/ Discussion	Lake McTighe, Metro	
60 min.	**Urban Growth Management: Continued discussion of Metro Code amendments** *Purpose: To update and receive feedback from MTAC about proposed Metro Code amendments*	Informational/ Discussion	Ted Reid, Metro	
Noon	**Adjourn**			

Metro respects civil rights

Metro fully complies with Title VI of the Civil Rights Act of 1964 and related statutes that ban discrimination. If any person believes they have been discriminated against regarding the receipt of benefits or services because of race, color, national origin, sex, age or disability, they have the right to file a complaint with Metro. For information on Metro's civil rights program, or to obtain a discrimination complaint form, visit www.oregonmetro.gov/civilrights or call 503-813-7514. Metro provides services or accommodations upon request to persons with disabilities and people who need an interpreter at public meetings. If you need a sign language interpreter, communication aid or language assistance, call 503-797-1890 or TDD/TTY 503-797-1804 (8 a.m. to 5 p.m. weekdays) 5 business days before the meeting. All Metro meetings are wheelchair accessible. For up-to-date public transportation information, visit TriMet's website at www.trimet.org.

Thông báo về sự Metro không kỳ thị của

Metro tôn trọng dân quyền. Muốn biết thêm thông tin về chương trình dân quyền của Metro, hoặc muốn lấy đơn khiếu nại về sự kỳ thị, xin xem trong www.oregonmetro.gov/civilrights. Nếu quý vị cần thông dịch viên ra dấu bằng tay, trợ giúp về tiếp xúc hay ngôn ngữ, xin gọi số 503-797-1890 (từ 8 giờ sáng đến 5 giờ chiều vào những ngày thường) trước buổi họp 5 ngày làm việc.

Повідомлення Metro про заборону дискримінації

Metro з повагою ставиться до громадянських прав. Для отримання інформації про програму Metro із захисту громадянських прав або форми скарги про дискримінацію відвідайте сайт www.oregonmetro.gov/civilrights. або Якщо вам потрібен перекладач на зборах, для задоволення вашого запиту зателефонуйте за номером 503-797-1890 з 8.00 до 17.00 у робочі дні за п'ять робочих днів до зборів.

Metro **的不歧視公告**

尊重民權。欲瞭解Metro民權計畫的詳情，或獲取歧視投訴表，請瀏覽網站 www.oregonmetro.gov/civilrights。如果您需要口譯方可參加公共會議，請在會議召開前5個營業日撥打503-797-1890（工作日上午8點至下午5點），以便我們滿足您的要求。

Ogeysiiska takooris la'aanta ee Metro

Metro waxay ixtiraamtaa xuquuqda madaniga. Si aad u heshid macluumaad ku saabsan barnaamijka xuquuqda madaniga ee Metro, ama aad u heshid warqadda ka cabashada takoorista, booqo www.oregonmetro.gov/civilrights. Haddii aad u baahan tahay turjubaan si aad uga qaybqaadatid kullan dadweyne, wac 503-797-1890 (8 gallinka hore illaa 5 gallinka dambe maalmaha shaqada) shan maalmo shaqo ka hor kullanka si loo tixgaliyo codsashadaada.

Metro**의 차별 금지 관련 통지서**

Metro의 시민권 프로그램에 대한 정보 또는 차별 항의서 양식을 얻으려면, 또는 차별에 대한 불만을 신고 할 수www.oregonmetro.gov/civilrights. 당신의 언어 지원이 필요한 경우, 회의에 앞서 5 영업일 (오후 5시 주중에 오전 8시) 503-797-1890를 호출합니다.

Metro**の差別禁止通知**

Metroでは公民権を尊重しています。Metroの公民権プログラムに関する情報について、または差別苦情フォームを入手するには、www.oregonmetro.gov/civilrights。までお電話ください公開会議で言語通訳を必要とされる方は、Metroがご要請に対応できるよう、公開会議の5営業日前までに503-797-1890（平日午前8時～午後5時）までお電話ください。

ការម Metro

ការគោរពសិទ្ធិពលរដ្ឋរបស់ ។ សំរាប់ព័ត៌មានអំពីកម្មវិធីសិទ្ធិពលរដ្ឋរបស់ Metro ឬដេម៊ីទទួលពាក្យបណ្តឹងរើសអើងសូមចូលទស្សនាគេហទំព័រ www.oregonmetro.gov/civilrights។

បើលោកអ្នកត្រូវការអ្នកបកប្រែភាសានៅពេលអង្គបរបង្ហុសាធារណៈ: សូមទូរស័ព្ទមកលេខ 503-797-1890 (ម៉ោង 8 រពឹកដល់ម៉ោង 5 ល្ងាច ថ្ងៃធ្វើការ) ប្រាំពីរថ្ងៃ ថ្ងៃធ្វើការ មុនថ្ងៃរដុំដេម៊ីអោចឲ្យគេសម្រួលតាមសំណើរបស់លោកអ្នក

إشعار Metro بعدم التمييز

تحترم Metro الحقوق المدنية. للحصول على معلومات حول برنامج Metro للحقوق المدنية أو لإيداع شكوى ضد التمييز، زر موقع Metro الإلكتروني www.oregonmetro.gov/civilrights. إن كنت بحاجة إلى مساعدة في التحدث إلى شخص ما بلغة أخرى، يجب عليك الاتصال قبل 5 أيام عمل من موعد الاجتماع (503-797-1890 من الساعة 8 ص حتى الساعة 5 م، أيام الاثنين إلى الجمعة).

Paunawa ng Metro sa kawalan ng diskriminasyon

Iginagalang ng Metro ang mga karapatang sibil. Para sa impormasyon tungkol sa programa ng Metro sa mga karapatang sibil, o upang makakuha ng porma ng reklamo sa diskriminasyon, bisitahin ang www.oregonmetro.gov/civilrights. Kung kailangan ninyo ng interpreter ng wika sa isang pampublikong pulong, tumawag sa 503-797-1890 (8 a.m. hanggang 5 p.m. Lunes hanggang Biyernes) lima araw ng trabaho bago ang pulong upang mapagbigyan ang inyong kahilingan.Notificación de no discriminación de Metro.

Notificación de no discriminación de Metro

Metro respeta los derechos civiles. Para obtener información sobre el programa de derechos civiles de Metro o para obtener un formulario de reclamo por discriminación, ingrese a www.oregonmetro.gov/civilrights . Si necesita asistencia con el idioma, llame al 503-797-1890 (de 8:00 a. m. a 5:00 p. m. los días de semana) 5 días laborales antes de la asamblea.

Уведомление о недопущении дискриминации от Metro

Metro уважает гражданские права. Узнать о программе Metro по соблюдению гражданских прав и получить форму жалобы о дискриминации можно на веб-сайте www.oregonmetro.gov/civilrights. Если вам нужен переводчик на общественном собрании, оставьте свой запрос, позвонив по номеру 503-797-1890 в рабочие дни с 8:00 до 17:00 и за пять рабочих дней до даты собрания.

Avizul Metro privind nediscriminarea

Metro respectă drepturile civile. Pentru informații cu privire la programul Metro pentru drepturi civile sau pentru a obține un formular de reclamație împotriva discriminării, vizitați www.oregonmetro.gov/civilrights. Dacă aveți nevoie de un interpret de limbă la o ședință publică, sunați la 503-797-1890 (între orele 8 și 5, în timpul zilelor lucrătoare) cu cinci zile lucrătoare înainte de ședință, pentru a putea să vă răspunde în mod favorabil la cerere.

Metro txoj kev ntxub ntxaug daim ntawv ceeb toom

Metro tributes cai. Rau cov lus qhia txog Metro txoj cai kev pab, los yog kom sau ib daim ntawv tsis txaus siab, mus saib www.oregonmetro.gov/civilrights. Yog hais tias koj xav tau lus kev pab, hu rau 503-797-1890 (8 teev sawv ntxov txog 5 teev tsaus ntuj weekdays) 5 hnub ua hauj lwm ua ntej ntawm lub rooj sib tham.

Metro

2017 MTAC Tentative Agendas

January 4	**January 18**
February 1 · 2018 RTP: Vision Zero and Safety Plan Update (McTighe) · Urban Growth Readiness Task Force Recommended Code Updates Update	**February 15** · Powell-Division Update · RTP Evaluation Framework (Mermin, Cho) - System Measures - Transportation equity analysis
March 1 · Building the RTP Investment Strategy* (Ellis) · Regional Transit Vision (Snook) · Regional Freight Plan (Collins) · Work Program for 2018 Urban Growth Management Decision (Reid)	**March 15** · Designing Livable Streets (McTighe) · Building the RTP Investment Strategy* <u>Recommendation to MPAC</u> (Ellis)
April 5	**April 19**
May 3 · 2018 RTP Call for Projects (Ellis)	**May 17**
June 7	**June 21**
July 5	**July 19**
August 2	**August 16**
September 6	**September 20** · Update on RTP Investment Strategy (Ellis)
October 4	**October 18**
November 1 · RTP Investment Strategy Finding (Ellis) · Background on RTP Regional Leadership Forum #4	**November 15**
December 6	**December 20**

Parking Lot – Future Agenda Items

- Bonny Slope and North Bethany update
- ODOT Highway Performance Measures Project
- Economic Value Atlas
- City of Vancouver Columbia River Waterfront presentation
- Lessons learned from completed CPDG projects

Parking Lot – Future Events

- Regional Leadership Forum Series #4: Drafting our Shared Plan for the Region (October 2017)

**RTP Revenue Forecast, Priorities, Evaluation Framework and Call for Projects*

Memo

Metro
600 NE Grand Ave.
Portland, OR 97232-2736

Date: Thursday, January 19, 2017
To: MTAC and interested parties
From: Lake McTighe, Senior Transportation Planner
Subject: 2018 RTP: Vision Zero and Safety Plan update

Purpose
The purpose of this agenda item is to update and receive feedback from MTAC on completed elements of the updated Regional Transportation Safety Action Plan, including a regional Vision Zero target and performance measures, and regional High Injury Corridors.

Background
Safety is one of several policy focus areas for the update of the 2018 Regional Transportation Plan (RTP). Improving transportation safety by targeting fatal and severe crashes is a primary goal of the RTP update. In 2015, there were 519 fatal and severe injury crashes in the region; the number of pedestrian deaths has increased annually for the past four years. The safety work program adopted by the Metro Council calls for these key tasks:

1. Update safety crash data in the Metro State of Safety Report
2. Update safety targets and develop performance measures, consistent with MAP-21 rulemaking
3. Identify High Injury Corridors in the region
4. Update actions in the Regional Transportation Safety Action Plan
5. Formally adopt and incorporate it into the 2018 RTP. Identifying safety projects in the RTP will help the region track investments in safety, regardless of the funding source.

A Safety Technical Work Group has met three times since May 2016. Over the course of the three meetings the Work Group developed the following elements of the Regional Transportation Safety Action Plan, and which are presented for MTAC discussion.

- **Transportation Safety Policy Framework Report –** this report provides the federal, state, regional, and local policy context for the update of the safety plan and recommends establishing a Vision Zero target for the region. Development of the report included an assessment of current state, regional and local activities and actions related to transportation safety.
- **Recommended Vision Zero target and annual targets** – information on the targets are included in the attached Transportation Safety Performance Measures and Targets report. The Safety Work Group provided direction on several drafts of the target. The recommended target is consistent with the statewide target adopted by the OTC and complies with MAP-21 performance target setting requirements for MPOs and state DOTs.
- **Safety system evaluation measures and a definition of safety projects -** information on the evaluation measures and safety project definition are included in the attached Transportation Safety Performance Measures and Targets report. The Safety, Equity, and Performance Measures Work Groups provided input throughout their development.

- **Regional High Injury Corridors –** information on the High Injury Corridors is provided in the attached report. Identification of High Injury Corridors was identified as a follow up action in the 2014 RTP as a way to help guide transportation investments in the region.

The next phase of work for the Work Group will be to incorporate these elements into an updated Regional Transportation Safety Action Plan and identify actions and strategies to meet safety targets. Metro staff seeks input from MTAC on the questions below as the work program transitions into identifying actions for the updated safety plan.

Questions for MTAC
Metro staff seeks input from MTAC on the following questions – responses from MTAC will be summarized for the updates to the Metro Council, JPACT and MPAC listed below.

1. Does MTAC support moving forward with the Vision Zero transportation safety targets?
2. Does MTAC support moving forward with the transportation safety system evaluation measures?
3. Does MTAC support moving forward with the Regional High Injury Corridors as a tool to help inform prioritizing investments in the 2018 RTP?

Next Steps
Metro staff will be updating the Metro Council and Metro advisory committees on Vision Zero and the Transportation Safety Plan.

- Metro Council work session – February/March
- JPACT - March
- MPAC - March

The Safety Work Group is scheduled to meet in April to discuss draft actions for the updated Regional Transportation Safety Action Plan; feedback provided by the Metro Council and regional technical and policy advisory committees will be brought back to the Work Group at this meeting.

A draft Regional Transportation Safety Action Plan is anticipated to be available for MTAC review in October 2017.

Background Materials
1. Safety Technical Work Group members
2. Transportation Safety Policy Framework Report, July 2016 (w*ill only be provided electronically, will not be included in printed packet*)
3. Transportation Safety Performance Measures and Targets Report, January 2017 (w*ill only be provided electronically, will not be included in printed packet*)
4. Regional High Injury Corridors Report, January 2017 (w*ill only be provided electronically, will not be included in printed packet*)

2018 RTP Safety Technical Work Group			
First Name	**Last Name**	**Title**	**Affiliation**
Becky	Bodoyni	Program Specialist, Community Wellness and Prevention Program	Multnomah County Health
Katherine	Burns	Traffic Analyst, Traffic Division	Region 1, ODOT
Tegan	Enloe	Project Manager, Public Works	Hillsboro
Nick	Fortey	Senior Community Planner	OR Division, FHWA, U.S. DOT/ TPAC member
Joe	Marek	Transportation Safety Program Manager, Transportation Engineer	Clackamas County
Noel	Mickelberry	Executive Director	Oregon Walks
Stephanie	Noll	Interim Executive Director	The Street Trust
Jeff	Owen	Active Transportation Planner	TriMet
Amanda	Owings	Traffic Engineer	Lake Oswego
Luke	Pelz	Senior Transportation Planner	Beaverton
Lidwien	Rahman	Principal Planner	Region 1, ODOT (alternate)
Stacy	Revay	Associate Transportation Planner	Beaverton (alternate)
Kari	Schlosshauer	Pacific Northwest Regional Policy Manager	National Safe Routes to School Partnership
Stacy	Shetler	Principal Traffic Engineer, Department of Land Use & Transportation	Washington County (alternate)
Chris	Strong	Transportation Planning Manager	Transportation Division, Gresham/ MTAC member
Aszita	Mansor	Transportation Engineer	Multnomah County
Dyami	Valentine	Senior Planner, Department of Land Use & Transportation	Washington County
Clay	Veka	Program Manager, Vision Zero Action Plan/High Crash Corridor Program	Portland
Zef	Wagner	Associate Planner	Portland (alternate)
Mike	Ward	Civil Engineer, Engineering	Wilsonville

Getting there safely

2018 Regional Transportation Plan update

REGIONAL TRANSPORTATION SAFETY PLAN

Transportation Safety Policy Framework Report

July 2016

Metro
Making a great place

Metro respects civil rights

Metro fully complies with Title VI of the Civil Rights Act of 1964 and related statutes that ban discrimination. If any person believes they have been discriminated against regarding the receipt of benefits or services because of race, color, national origin, sex, age or disability, they have the right to file a complaint with Metro. For information on Metro's civil rights program, or to obtain a discrimination complaint form, visit www.oregonmetro.gov/civilrights or call 503-797-1536.

Metro provides services or accommodations upon request to persons with disabilities and people who need an interpreter at public meetings. If you need a sign language interpreter, communication aid or language assistance, call 503-797-1700 or TDD/TTY 503-797-1804 (8 a.m. to 5 p.m. weekdays) 5 business days before the meeting. All Metro meetings are wheelchair accessible. For up-to-date public transportation information, visit TriMet's website at www.trimet.org.

Metro is the federally mandated metropolitan planning organization designated by the governor to develop an overall transportation plan and to allocate federal funds for the region.

The Joint Policy Advisory Committee on Transportation (JPACT) is a 17-member committee that provides a forum for elected officials and representatives of agencies involved in transportation to evaluate transportation needs in the region and to make recommendations to the Metro Council.

The established decision-making process assures a well-balanced regional transportation system and involves local elected officials directly in decisions that help the Metro Council develop regional transportation policies, including allocating transportation funds.

Project website: www.oregonmetro.gov/rtp

The preparation of this report was financed in part by the U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration. The opinions, findings and conclusions expressed in this report are not necessarily those of the U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration.

TABLE OF CONTENTS

INTRODUCTION

This report provides an overview of the policies that currently exist at the federal, state and regional level related to transportation safety, highlighting those that have changed since the region's first Regional Transportation Safety Plan (RTSP) was completed in March 2012.[1] In addition to federal, state and region policies, this report includes an overview of equity and health polices as they relate to transportation safety. It also includes city, county and transit profiles documenting policies and actions taken at the local level.

The information in this report will provide the content for the "Federal, State & Regional Policy Framework" chapter of the updated Regional Transportation Safety Plan, planned for adoption in 2018 as part of the update of the 2018 Regional Transportation Plan. More importantly, however, the information in this report sets the direction and framework for the update of the Regional Transportation Safety Plan, including updated goals, performance measures, targets, and actions.

Since the Regional Transportation Safety Plan was completed in 2012, transportation safety has continued to be a central focus at the federal, state, regional and local levels. Efforts to eliminate fatal and serious crashes, Towards Zero Deaths and Vision Zero, have expanded across the country; states, regions, counties and cities are adopting Towards Zero Deaths or Vision Zero in an effort to highlight the urgency of improving transportation safety and to provide a policy framework that leads to less fatal and serious crashes sooner.

Public health and equity are also being tied more explicitly to transportation safety policies because of the direct relationship of crashes to health, and the growing recognition that some populations, including people with low incomes and older adults, can be disproportionately impacted by crashes.

Liability for jurisdictions and agencies is a concern that often comes up when identifying transportation safety problems and developing policy for safety plans. **23 United States Code 409** (liability code) addresses this issue, stating that "Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data."

2

[1] See Section 2.0 "Federal, State & Regional Policy Framework" in the 2012 Regional Transportation Safety Plan.

[2] 23 United States Code 409 (liability code) https://www.gpo.gov/fdsys/pkg/USCODE-2011-title23/pdf/USCODE-2011-title23-chap4-sec409.pdf

FEDERAL POLICIES

The federal transportation planning process requires Metropolitan Planning Organizations (MPOs) to address ten planning factors, including safety.[3] The degree to which each factor is addressed will vary depending on the unique conditions of the area, but efforts should be made to think through and carefully consider how to address each factor.

The safety factor has created challenges for some MPOs as to how safety should be addressed. SAFETEA-LU established the Highway Safety Improvement Program (HSIP) as a core Federal-aid program for the first time indicating the importance attached to transportation safety at the federal level. The overall purpose of this program is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads through the implementation of infrastructure-related highway safety improvements.

Since the Regional Transportation Safety Plan was completed in March 2012, two Federal transportation reauthorization bills were signed into law: MAP-21 and the FAST Act. Both bills continue the focus and prioritization of safety in SAFETEA-LU.[4] One of the major policy changes, since 2012, is the creation of Federal transportation performance measures, including a Federal Safety performance measure.

MAP-21

On July 6, 2012, President Obama signed into law a two year transportation reauthorization bill, the Moving Ahead for Progress in the 21st Century Act (MAP-21).[5]

MAP-21 established Safety Performance Measures **-** MAP-21 established a performance-based Federal program, with safety being one of the six performance areas. The Final Rule for the Safety Performance Measures and the Highway Safety Improvement Program (which revised existing regulation in 23 CFR 924) was released in March, 2016.[6,7] Metro will be required to report on the safety and other federal performance measures. Each of the performance

---

[3] The Metropolitan Planning Program under SAFETEA-LU provided funding for the integration of transportation planning processes in the Metropolitan Planning Organizations (MPOs) into a unified metropolitan transportation planning process. Title 23 of the United States Code describes Federal Planning Factors issued by Congress to emphasize planning factors from a national perspective. Under Map-21 these planning factors remained unchanged. Two additional planning factors were added under the FAST-ACT.

[4] Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, signed into law in 2005. The overall purpose of the HSIP program is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads through the implementation of infrastructure-related safety improvements.

[5] https://www.fhwa.dot.gov/map21/safety_overview.cfm

[6] The Federal Highway Administration (FHWA) published the Highway Safety Improvement Program (HSIP) and Safety Performance Management Measures (Safety PM) Final Rules in the Federal Register on March 15, 2016, with an effective date of April 14, 2016. http://safety.fhwa.dot.gov/hsip/spm/measures_final_rules.cfm

[7] MMUCC: http://www.mmucc.us/sites/default/files/MMUCC_4th_Ed.pdf Some attribute names and definitions changed from the 3rd Edition of MMUCC even though the "KABCO" acronym remains. Most notably, "Suspected Serious Injury" (A) has replaced "Incapacitating Injury" and "Suspected Minor Injury" (B) has replaced "Non-incapacitating Injury."

measures are required to have an annual target, set by states and MPOs. The targets are based on a five-year rolling average.[8]

The **Safety Performance Measure Final Rule** establishes five performance measures to carry out the HSIP. (1) Number of Fatalities, (2) Rate of Fatalities per 100 million VMT, (3) Number of Serious Injuries, (4) Rate of Serious Injuries per 100 million VMT, and (5) Number of Non-motorized Fatalities and Non-motorized Serious Injuries. The measures will be calculated based on a 5-year rolling average. The new rule establishes the process for State DOTs and MPOs to establish their safety targets and report on progress towards the safety targets. Both Oregon's DOT and Metro will need to set targets for the Federal performance measures.
These safety performance measures are applicable to all public roads regardless of ownership or functional classification. The Safety Performance Measure Final Rule also establishes a common national definition for serious injuries, determined using MMUCC, which utilizes the KABCO scale.

The **HSIP Rule** updates the existing HSIP requirements under 23 CFR 924 to be consistent with the MAP-21 Act and the FAST Act, and to clarify existing program requirements. Specifically, the HSIP Final Rule contains three major policy changes: Strategic Highway Safety Plan (SHSP) Updates, HSIP Report Content and Schedule, and the Subset of the Model Inventory of Roadway Elements (MIRE).

MAP-21 increased size of HSIP **-** MAP-21 increased the size of the Highway Safety Improvement Program (HSIP). MAP-21 supported the Department of Transportation's (DOT) aggressive safety agenda, and continued the HSIP, doubling funding for infrastructure safety, strengthening the linkage among modal safety programs, and creating a positive agenda to make significant progress in reducing highway fatalities. It also continued to build on other aggressive safety efforts, including the Department's fight against distracted driving and its push to improve transit and motor carrier safety.

MAP-21 special rule for drivers and pedestrians over 65 - MAP-21 also includes a special rule (23 U.S.C. 148(g)(2)) related to drivers and pedestrians over 65: if statewide traffic fatalities and serious injuries per capita for these groups increase during the most recent two-year period for which data are available, the state must include strategies in its SHSP to address those issues.

FAST Act

Fixing America's Surface Transportation (FAST Act) passed Congress in December 2015, replacing MAP-21. The FAST Act continues the performance-based program implementation as enacted in MAP-21, and establishes a Performance Data Support Program. No new performance measures were added. Overall HSIP funding levels are maintained at the current baseline.

[8] For the update of the Oregon Transportation Safety Action Plan, ODOT provides summary of the federal rule and relationship to safety performance targets.
https://www.oregon.gov/ODOT/TD/TP/TSAP/201604_Memo_FederalRuleSummary.pdf

FAST Act supports flexibility in design – the FAST Act adds the AASHTO Highway Safety Manual and the Urban Street Design Guide by the National Association of City Transportation Officials to the list of resources to be utilized for design criteria development. Local entities that are direct recipients of Federal dollars may be allowed to use a design publication that is different than one used by their State DOT. Additionally, the FHWA has recently released multiple resources that support and provide more guidance on flexibility in design, especially for bicycle and pedestrian facilities.[9]

Additional FAST ACT policy changes related to safety[10]

- Removes MAP-21 eligibility which allowed use of Highway Safety Improvement Program funds for non-infrastructure safety programs, such as education and enforcement activities.
- Requires FMCSA to remove safety scores assigned to truck companies from a public website.
- Prohibits rental car agencies and car dealers with fleets of more than 35 cars from renting vehicles that have been recalled but not repaired.
- Triples the maximum fine the NHTSA can levy against an automaker that violates safety defect regulations from $35 million to $105 million per violation.
- Doubles the time automakers would have to retain safety records from five years to ten years.
- Requires the government to revise the 5-star rating system for new cars to reflect not only the ability of a vehicle to protect passengers in a crash, but also whether the vehicle comes equipped with crash avoidance systems like automatic braking and lane-change monitoring.
- Provides $21 million for research into in-vehicle sensor technology that can determine if a driver has a dangerously high level of alcohol in his or her body and automatically lock the ignition.
- Requires a study on the impacts of marijuana-impaired driving.
- Sec. 1105 Nationally Significant Freight and Highway Projects (NEW) – projects are required to include safety benefits.
- Safety data collection now required on rural roads.
- Eliminates the need for State DOTs to collect safety data and information on unpaved/gravel roads.

[9] FHWA Bicycle and Pedestrian Program Resources: ww.fhwa.dot.gov/environment/bicycle_pedestrian/index.cfm

[10] AASHTO Summary of the FAST Act: http://fast.transportation.org/Documents/AASHTO%20Summary%20of%20FAST%20Act%202015-12-16%20FINAL.pdf

- If a State DOT does not achieve or make significant progress toward achieving targets in any performance measurement area after one reporting cycle, State must submit a report describing the actions they will undertake to achieve their targets in the future.

Toward Zero Deaths

The Federal focus on developing a national strategy for Towards Zero Deaths has continued since the Regional Transportation Safety Action Plan was completed in March 2012.[11] The Toward Zero Deaths (TZD) vision is a way of clearly and succinctly describing how an organization, or an individual, is going to approach safety – even one death on our transportation system is unacceptable. The FHWA has adopted a national target of zero deaths, including bicycle and pedestrian deaths.[12]

> *We embrace the vision of Toward Zero Deaths; it provides an overarching and common vision that drives and focuses our efforts to achieve our shared goal to eliminate injuries and fatalities on our roadways. The U.S. Department of Transportation will do our part by aggressively using all tools at our disposal – research into new safety systems and technologies, campaigns to educate the public, investments in infrastructure and collaboration with all of our government partners to support strong laws and data-driven approaches to improve safety.*
>
> –U.S. Transportation Secretary Anthony Foxx

FHWA has a Safety Strategic Plan to focus different offices at FHWA on a common safety vision.[13] Since 2012, the following elements of the strategy have been developed:

- A growing number of state and cities have adopted "Zero" fatality visions.[14]
- Published *Toward Zero Deaths: A National Strategy on Highway Safety* (June, 2014), part of USDOT's development of a national strategy with National Cooperative Highway Research Program.[15]

Global Actions

As a member of the United Nations, the United States is partner to the "Global Plan for the Decade of Action for Road Safety 2011-2020."[16] The plan identifies four pillars and associated activities to reduce forecast level of road traffic fatalities around the world by 2020: Road Safety Management, Safer Roads and Mobility, Safer Vehicles, Safer Road Users, and Post Crash Response.

---

[11] US DOT FHWA Safety, Toward Zero Deaths: http://safety.fhwa.dot.gov/tzd/
[12] FHWA Strategic Agenda for Bicycle and Pedestrian Transportation https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/strategic_agenda/fhwahep16086.pdf
[13] Safer Roads for a Safer Future- a Joint Safety Strategic Plan http://www.towardzerodeaths.org/strategy/
[14] Strategic Highway Safety Plan Community of Practice identifies state's that support Toward Zero Deaths in the State Highway Safety Plan https://rspcb.safety.fhwa.dot.gov/shsp_cop.aspx
[15] Toward Zero Deaths: A National Strategy on Highway Safety (June 2014) http://www.towardzerodeaths.org/strategy/
[16] http://www.who.int/roadsafety/decade_of_action/plan/plan_english.pdf?ua=1

STATE POLICIES

Safety continues to be an important focus in Oregon's transportation plans and policies. The Oregon Department of Transportation has been expanding its focus to include non-state owned facilities in programs such as the All Roads Transportation Safety (ARTS) program and the Safety Priority Index System (SPIS). One of the main areas for policy changes at the state level will be with the adoption of the updated Transportation Safety Action Plan (TSAP) in 2016.

In 2013, ODOT and the Oregon Health Authority (OHA), Public Health Division, officially signed a Memorandum of Agreement on coordination and joint policy objectives. The two agencies identified joint work tasks that will create efficiencies and leverage resources, such as data collection and research.

Oregon Transportation Plan

The Oregon Transportation Plan (OTP) is the long-range blueprint for the state's transportation system. The OTP's Goal 5 – Safety and Security, sets statewide policy for improving the safety for all modes and transportation facilities. The OTP serves as the framework for the Oregon Transportation Safety Action Plan, and all ODOT modal and topic plans. The Transportation Safety Action Plan serves as Oregon's Strategic Highway Safety Plan, as required by federal law.

Oregon Transportation Safety Action Plan

Oregon is in the process of updating the state's Transportation Safety Action Plan (TSAP).[17] The existing Transportation Safety Action Plan was adopted in 2011 and focuses primarily on implementing actions. It is adopted by the Oregon Transportation Commission and establishes the state's approach to transportation safety. The Plan serves as Oregon's Strategic Highway Safety Plan (SHSP) as required by federal law. This federal law, now the FAST Act, continues a requirement that SHSPs be updated every five years, and adds additional requirements for inclusion of Highway Safety Improvement Program planning elements. The TSAP also serves as Oregon's long-range safety policy plan that is integrated with ODOT's other long-range transportation plans and refines the direction of the Oregon Transportation Plan (OTP). State DOTs are required to consult with MPOs as part of the SHSP (TSAP) development.

Like the 2011 Plan, the updated TSAP will set statewide vision, goals, polices, strategies, targets and performance measures for reducing fatalities and serious injuries on the state transportation system. A vision statement for the plan has been finalized by the TSAP Policy Advisory Committee. The Committee will develop targets and performance measures to achieve the vision. The current 2011 Oregon TSAP sets a target of 9.25 deaths per 100,000 in 2020 and 8.75 per 100,000 in 2030. The draft plan identifies specific actions for vulnerable users, risky

[17] ODOT Transportation Safety Action Plan update https://www.oregon.gov/ODOT/TD/TP/Pages/tsap.aspx

behaviors, infrastructure, and improved systems and includes a zero deaths and life-changing injuries vision.[18]

> *Oregon envisions no deaths or life-changing injuries on Oregon's transportation system by 2035.*
> –Preliminary Report, Oregon Transportation Safety Action Plan Update, Nov. 2015 Draft

Oregon Highway Plan

Based on both the OTP and TSAP, the Oregon Highway Plan (1999), the plan emphasizes "Efficient management of the system to increase safety, preserve the system and extend its capacity." Safety is referred to throughout the plan. Goal 2: System Management seeks to create a transportation system the "Enhances system efficiency and safety." Policy 2F: Traffic Safety, calls for the state to continually improve safety for all users of the highway system and to address safety problems with treatments involving engineering, education, enforcement, and emergency medical services. A set of actions are identified to implement Policy 2F. Under Investment Policies, the plan states that safety is an element of all major programs, and that it is the policy of the State of Oregon to place the highest priority for making investments in the state highway system on safety and managing and preserving the physical infrastructure." The plan also directs ODOT to: "Focus safety expenditures where the greatest number of people are being killed or seriously injured."

Other State Plans

The TSAP is a one of several modal and topic plans that informs and updates the Oregon Transportation Plan. Since 2012, the state has developed Oregon's first Transportation Options Plan (2015), has updated the Oregon Bicycle and Pedestrian Plan (2015 draft, pending adoption), and is in the process of starting an updated to the Oregon Public Transportation Plan. Since 2012, ODOT's Traffic-Roadway Section has also developed several plans and guidelines that focus on specific safety issues, including bicycle and pedestrian, intersections, bicycle and pedestrian safety, and safe routes to school. A plan for roadway departure safety was developed in 2010.

Oregon Transportation Options Plan –This topic plan addresses safety throughout. The first goal of the plan is related to safety, and notes that safety is a public health issue.

Oregon Bicycle and Pedestrian Plan - The Oregon Bicycle and Pedestrian Plan is proposed for adoption by the Oregon Transportation Commission sometime this year. Safety is a major focus

[18] Vulnerable Users, Risky Behaviors, Infrastructure and Improved Systems Actions Matrices:
https://www.oregon.gov/ODOT/TD/TP/TSAP/201604_VulnerableUserActions.pdf
https://www.oregon.gov/ODOT/TD/TP/TSAP/201604_RiskyBehaviorActions.pdf
https://www.oregon.gov/ODOT/TD/TP/TSAP/201604_InfrastructureActions.pdf
https://www.oregon.gov/ODOT/TD/TP/TSAP/201604_ImprovedSystemsActions.pdf

area of the plan which establishes a new safety goal, as well as policies and actions to improve safety for people walking and bicycling.

> *Eliminate pedestrian and bicycle fatalities and serious injuries, and improve the overall sense of safety of those who bike or walk.*
>
> –Goal 1: Safety, Oregon Bicycle and Pedestrian Plan Update, Nov. 2015 Draft
>
> *To provide a safe transportation system through investments in education and training for roadway designers, operators, and users of all modes.*
>
> -Safety, Goal 1, Oregon Transportation Options Plan, 2015

Bicycle and Pedestrian Safety Implementation Plan- In 2014, the Traffic-Roadway Section developed the Bicycle and Pedestrian Safety Implementation Plan (following up on the 2010 Roadway Departure Safety Plan). The plan identifies high priority locations on both state and non-state roadways using a crash based (hot-spot) and risk-based systemic methodology. The plan provides a toolbox of countermeasures.

Oregon Intersection Safety Implementation Plan – Completed in June 2012, ODOT partnered with FHWA to develop this plan that focuses on reducing crashes at intersections. Countermeasures for each Region were developed to apply both systemic improvements as well as hot spot improvements.

A Guide to School Area Safety – Draft February 2016 – updates a 2009 guide. The guide clearly states that it does not set policy, but does provide a comprehensive reference

Implementing the Highway Safety Improvement Program

In addition to updating the TSAP, ODOT has developed resources to support implementation of the Highway Safety Improvement Program (HSIP).

ODOT Highway Safety Improvement Guide - In April 2016, ODOT published the "ODOT Highway Safety Improvement (HSIP) Guide."[19] The purpose of the guidebook is to document program philosophy and the project selection process for all Highway Safety funding, including HSIP funds. A process was developed and piloted in 2012 to include both on-state and off-state highways into the Safety Priority Index System (SPIS), making it easier to dedicate HSIP funding to these roadways. ODOT has also developed guidance on the application of the Highway Safety Manual.[20]

All Roads Transportation Safety - Following the Federal HSIP requirements, ODOT has developed a new safety program, known as the All Roads Transportation Safety (ARTS)

[19] https://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/docs/pdf/odot_safety_program_guide.pdf

[20] The 1st Edition of the Highway Safety Manual (HSM) was published by the American Association of State Highway Transportation Officials (AASHTO) in 2010. It was developed to help measurably reduce the frequency and severity of crashes on highways by providing tools for considering safety in the planning and project development processes. https://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/Pages/highway_safety_manual.aspx

Program, which addresses safety on all public roads including non-state roadways. ODOT worked with the representatives from the League of Oregon Cities (LOC) and the Association of Oregon Counties (AOC) to document principles for a jurisdictionally blind safety program for Oregon to address safety on all public roads of the state, which eventually led to the development of the ARTS Program. The "ODOT Highway Safety Improvement (HSIP) Guide" provides guidelines for ARTS. [21]

[21] https://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/docs/pdf/odot_safety_program_guide.pdf

REGIONAL POLICIES

Several new plans and policies have been adopted by Metro since the Regional Transportation Safety Plan was completed in 2012. These plans and policies continue the region's commitment to a safe transportation system that serves all people equitably.

2014 Regional Transportation Plan

The region updated its transportation system plan in 2014. The plan continues the focus on outcomes based planning. The regional vision, goals, targets and performance measures related to safety did not change substantially in the updated plan. The regional safety target was slightly updated to compare crash numbers to a combined average, as opposed to one year of crash data.[22]

> *By 2040, reduce the number of fatal and severe injury crashes for pedestrians, bicyclists, and motor vehicle occupants each by 50% compared to 2007-2011.*
>
> -Regional Transportation Safety Performance Target, 2014 RTP

Two goals in the 2014 RTP directly relate to safety. Goal 5: Enhance Safety and Security states that multi-modal transportation and infrastructure and services must be safe and secure for the public and goods movement. Goal 7: Enhance Public Health states that multi-modal transportation infrastructure and services provide safe, comfortable and convenient options. Policy 1 of the Arterial and Throughway Network Vision is to "Build a well-connected network of complete streets that prioritize safe and convenient pedestrian and bicycle access." This policy notes that "safety is a primary concern on the regional arterial system" and directs Metro to develop "an objective metric to measure safety on the region's arterials, regardless of jurisdiction."

Climate Smart Strategy

Adopted in 2014, the Climate Smart Strategy for the Portland metropolitan region identifies safety in several of its strategy policy areas and performance measures were identified to track progress.[23] The Climate Smart Strategy identifies a set of possible actions, for the state, Metro, cities and counties, and special districts to implement the strategy and policy areas – many of the actions relate to transportation safety.

[22] http://www.oregonmetro.gov/regional-transportation-plan
[23] http://www.oregonmetro.gov/climate-smart-strategy

Policy Area: Make biking and walking safe and convenient
Safety Measure: Bike and pedestrian fatal and severe injury crashes (existing)

Policy Area: Make streets and highways safe, reliable and connected
Safety Measure: Motor vehicle, bike and pedestrian fatal and severe injury crashes (existing)

- Climate Smart Strategy for the Portland metropolitan region,2014

2014 Regional Active Transportation Plan

Safety for people of all ages and abilities is a primary topic in the Regional Active Transportation Plan (ATP)and is reflected in the plan's vision, recommendations, policies and actions.

Policy 1: Make walking and bicycling the most convenient, safe and enjoyable transportation choices for short trips less than three miles.

Policy 2: Develop well-connected regional pedestrian and bicycle routes and districts integrated with transit and nature that prioritize safe, convenient, accessible and comfortable pedestrian and bicycle access for all ages and abilities.

- Regional Active Transportation Plan, 2014

Recommendation #2 in the ATP "Make it safe to walk and ride a bicycle for transportation" is one of nine recommendations in the ATP. The recommendation identifies filling gaps in the bike and pedestrian networks, providing more frequent roadway crossings, providing more separation from traffic, designing facilities so that walking and bicycling is safe and comfortable for people of all ages and abilities, and increasing education and awareness as actions to support implementing the recommendation.

SOCIAL EQUITY RELATED POLICIES

Federal, state and regional transportation equity policies related to transportation refer to safe transportation systems. However, equity has not typically been addressed explicitly in transportation safety plans, including the 2012 Regional Transportation Safety Plan. There is, however, a growing practice of applying an "equity lens" to all areas of planning and identifying equity in goals, policies, actions, targets and performance areas.

Metro has established a Transportation Equity Work Group for the 2018 RTP update. This work group will be the primary place where equity transportation policies and performance measures will be examined, and will coordinate with the Safety and other RTP technical work groups. Safety has been identified as an important topic area by the work group.

Federal Regulations

Policy context research developed for the RTP Transportation Equity Work Group provide an overview of federal and state requirements for incorporating social equity in regional transportation planning and an assessment of regional equity policies. [24] The research identifies Federal regulations and guidance, starting in the 1960s through the 2010s, concerning transportation equity in regional plans; while there is no explicit direction to address equity in transportation safety plans, it is clear that equity should guide planning overall.

State and Regional Related Policies

- *Oregon Statewide Planning Goal 12: Transportation* - States that transportation plans shall "meet the needs of the transportation disadvantaged" by improving transportation options.
- *Oregon Transportation Plan Policy 1.2* - Equity, Efficiency and Travel Choices: It is the policy of the State of Oregon to promote a transportation system with multiple travel choices that are easy to use, reliable, cost-effective and accessible to all potential users, including the transportation disadvantaged.
- *Metro Six Desired Outcomes* (adopted in the Regional Framework Plan in 2010)– Equity is one of the Six Desired Outcomes.[25] One of the key recommendations from the Equity Baseline Framework Report developed in 2015 was to apply an "Equity + 5" framework to the Six Desired Outcomes – meaning that each of the other five Desired Outcomes, including "Safe and Reliable Transportation," would be assessed through an equity lens. The framework has not been formally approved by the Metro Council and does not replace Metro's Six Desired Outcomes. The Equity + 5 framework is likely to be considered as part

[24] Aaron Golub, Katherine Selin, Portland State University. April 5, 2016 Memo to Metro Transportation Equity Work Group. "Review of Federal and State Requirements for Incorporating Social Equity in Regional Transportation Planning." Grace Cho, Metro. April 5, 2016 Memo to the Transportation Equity Work group "Regional Policy and Implementation Tools – Overview of Policies Related to Social Equity."

[25] The Six Desired Outcomes are: Equity, Vibrant Communities, Leadership on Climate Change, Transportation Choices, Economic Prosperity, Clean Air and Water.

of the recommendations for adoption consideration as part of Metro's Strategic Plan to Advance Racial Equity, Diversity, and Inclusion.

- *2014 RTP Outcomes-Based Framework: Equity, Environment and Economy* - The RTP uses an outcomes based framework to inform transportation planning and investment decisions based on these three balanced objectives. The intent is that Equity, is inherent in all of the policies.
- *2014 Regional Transportation Plan, Goal: 8 Ensure Equity*- The benefits and adverse impacts of regional transportation planning, programs and investment decisions are equitably distributed among population demographics and geography, considering different parts of the region and census block groups with different incomes, races and ethnicities.
- *2014 RTP Regional Active Transportation Network Vision, Policy 5: Ensure that the regional bicycle and pedestrian network equitably serves all people.*

PUBLIC HEALTH RELATED POLICIES

Increasingly, transportation plans and policies are being viewed through the public health lens, and the level of fatal and severe injury crashes is being described as a public health issue. Like equity, public health policies can be incorporated into transportation safety plans and policies. There are many plans, policies and reports that link public health, including traffic safety, and transportation. The following summary is not intended to be comprehensive, but to provide a starting place for understanding how the link between traffic safety and health has thus far been addressed in policies.

International

Reducing road traffic fatalities and injuries is approached as health issue and is a program of the World Health Organization. A "Global Status Report on Road Safety" is released every year, along with many other resources and data. [26] WHO is a partner in the Decade of Action Plan.

Federal

Although federal agencies do not require consideration of public health in transportation decisions, several US DOT planning factors are implicitly related to healthy communities, such as quality of life, economic vitality, safety, and energy conservation.

- US Department of Health and Human Services, Step It UP! The Surgeon Generals Call to Action to Promote Walking and Walkable Communities – Goal 2- "Design Communities to Make it Safe and Easy to Walk for People of All Ages and Abilities." Strategy 2.A. Design and maintain streets and sidewalks so that walking is safe and easy."[27]

State and Regional Related Policies

Not all current state and regional health related transportation policies do not explicitly link reducing fatalities and injuries with public health, but several do, and current research and reports point to integrating the policies more.

> *The health of Oregonians is also directly connected to transportation safety.*
> -Oregon Transportation Options Plan, 2015

- *Oregon Transportation Plan* –Two policies in the OTP mention health: Goal 1 – Mobility and Accessibility and Policy 4.3 – Creating Communities.
- *ODOT, Oregon Bicycle and Pedestrian Plan Health and Transportation White Paper, November 2014* - Provides a summary of transportation and health related policies. Policy

[26] http://www.who.int/violence_injury_prevention/road_safety_status/2015/en/
[27] http://www.cdc.gov/physicalactivity/walking/call-to-action/index.htm?s_cid=bb-dnpao-calltoaction-002

considerations indentified in the paper include supporting integrating health into transportation planning.

- *Oregon Health Authority,, Oregon Pedestrian Safety Policy and Systems Change Strategies, 2012-2015*[28] - This best practices summary provides policy, systems and environmental change strategies for improved pedestrian safety in Oregon.
- *Oregon Health Authority, Oregon Injury and Violence Prevention Plan, 2016-2020* [29]- The Motor Vehicle Traffic Injuries Section of this plan identifies a goal to reduce deaths and injuries caused by motor vehicle traffic (MVT). It identifies a target to reduce the overall MVT mortality rate to below 7 per 100,000, and reduce MVT deaths among older drivers (65 years of age and older) to < 10 per 100,000.The plan includes the National Healthy People 2020 Objectives, and strategies for preventing fatalities.
- *Oregon Health Authority, Community Climate Choices Health Impact Assessment*[30] – This HIA was conducted for the Regional Climate Smart Strategy. It includes findings related to Traffic Safety and concludes that more aggressive plans to reduce reliance on single-occupancy vehicles have more aggressive traffic safety benefits and avoid more traffic fatalities. The HIA includes a set of recommendations to Metro from the Public health Department to reduce traffic fatalities

> *In order to reduce the risk of increased exposure to traffic injury and air pollution for all road users, PHD recommends that Metro prioritize the design and maintenance of non-automobile facilities by:*
> *-Including safety features for pedestrians and bicyclists such as separation from motorized traffic when possible. Prioritize non-automobile users in design and maintenance of streets.*
> *-Providing a parallel bicycle route one block removed from high-volume roads when feasible to reduce exposure to localized pollution while still maintaining access to community destinations.*
> - Oregon Health Authority, Community Climate Choices Health Impact Assessment

- *2014 Regional Transportation Plan, Goal 7: Enhance Human Health* – Multi-modal transportation infrastructure and services provide safe, comfortable and convenient options that support active living and physical activity, and minimize transportation-related pollution that negatively impacts human health.

[28] http://www.safekidsoregon.org/wp-content/uploads/2013/07/OHA8611_-OR-Safety-Policy_final.pdf
[29] https://public.health.oregon.gov/DiseasesConditions/InjuryFatalityData/Documents/OregonInjuryPreventionPlan.pdf
[30] https://public.health.oregon.gov/HealthyEnvironments/TrackingAssessment/HealthImpactAssessment/Documents/CCC%20HIA/CCC%20HIA%20031714%20FINAL_version%201.2.pdf

LOCAL POLICIES

Local agencies across the region are implementing a wide variety of plans and actions to improve the safety of the region's transportation system. The following updated local profiles were submitted by staff to provide a snapshot of efforts underway since 2012 by city, county and transit agencies.

Beaverton – The City of Beaverton's Comprehensive Plan Transportation Element includes Goal 6.2.3, "A safe transportation system" and policies and actions to improve traffic safety through engineering, education and enforcement. The City monitors intersection collision history through Washington County and ODOT's safety priority index system. Intersections with high collision rates are given special attention for safety improvements. Also, as ODOT crash reports are pulled by the Transportation Division they are reviewed to reveal changes in crash patterns. The source of new trends is investigated and geometric improvements and/or changes to policy are identified as a way to resolve high crash rates and are implemented. Reporting of safety issues is available by phone, on-line, and at public meetings. The Beaverton Police Department also monitors crash information for subsequent analysis and potential actions. In addition, the City has partnered with ODOT and Washington County to complete a Transportation Safety Action Plan for the areas in and around the Creekside District and for the Old Town section of downtown Beaverton. The City has also partnered with Washington County and the City of Hillsboro on a plan to improve safety and access to transit along TV Highway. The plan calls for signalized crossings, separated bike lanes (where feasible), the provision of pedestrian islands, and general geometric upgrades to improve the pedestrian and bicycling environment.

Gresham –The City of Gresham puts a high importance on safety with a number of safety policies, programs and projects. The City's Transportation Subcommittee provides recommendations for safety policies, programs and projects. City staff track safety data through analysis of annual top 10 crash locations in the city. The analysis is to better understand fatalities and injury accidents, identify crash trends, monitor issues and identify countermeasures for prevention. A City Safety Education Program enhances safety for bicyclists, walkers, transit users and motorists and teaches all to share the road. Other programs and amenities that support bicyclists, walkers and transit users include: bike rack installations, bike helmet distributions and distribution of a City Bicycle Guide, and a partnership with Gresham Police for Crosswalk Enforcement Actions, resulting in warnings or citation to drivers, bicyclists and pedestrian that do not follow Oregon crosswalk laws. The City also partners with local schools to provide resources and opportunities to make walking, biking and rolling to school a fun and safe experience through its Safe Routes to Schools Program.

Hillsboro – The City is committed to creating a safe environment for travelers of all modes. City staff respond to and investigate safety related citizen requests, which often involves review of crash records, field work, and more. The City also holds a monthly public meeting with its Transportation Committee, which is made up of three City Council members and one Citizen Advisory member. This meeting focuses on transportation related issues and often involves

resident feedback on safety within the community. The City works with the Hillsboro School District to develop safe routes to school action plans and events. Additionally, the City of Hillsboro is developing a Transportation Safety Action Plan that will be designed to reduce fatal and serious injury crashes by identifying targeted areas for crash reduction, safety programs, and prioritized projects.

Lake Oswego – Safety awareness is an active program implemented by the Lake Oswego Police Department. At least four events are advertised to the public and staged throughout the year. Police set up events at school zones to enforce the 20 mph zones and at marked crosswalks to encourage compliance with Oregon laws indicating traffic must stop for pedestrians in a crosswalk. Each campaign is intended to emphasize the laws through data collection and additional enforcement. The results have shown that the local population has responded well and compliance with the laws is increasing. The Pedestrian Safety Enforcement is a grant through the Bicycle Transportation Alliance to bring awareness to drivers regarding pedestrians; School Zone Enforcement is made possible with a traffic safety grant from Clackamas Safe Communities program.

Oregon City – Oregon City's Transportation System Plan, adopted in 2012, identifies the need to manage the performance of congested locations with strategies that reduce traffic conflicts, increases safety, and encourages more efficient usage of the transportation system. The City of Oregon City has a Transportation Advisory Committee, which advises the City Commission, Planning Commission and Urban Renewal Agency on transportation-related matters and guides preparation of transportation plans and programs. Currently, the Transportation Advisory Committee is working with city staff on the Drive Safe Oregon City Campaign, a transportation safety program designed to inspire communication among residents about traffic safety and awareness.

Portland – In 2015, the Portland City Council adopted by ordinance a goal of Vision Zero. As a Vision Zero city, Portland is committed to eliminating serious injuries and deaths from roadways by 2025. Vision Zero is a safety philosophy that rejects the notion that traffic crashes are simply "accidents" but instead are preventable incidents that can be systematically addressed. City Council also created a Vision Zero Task Force to create a Vision Zero Action Plan to reduce traffic fatalities and serious injuries in 10 years. The action plan will call out specific 2-year and 5-year actions in four focus areas: speeding, impairment, disobeying traffic laws and road design. As part of Vision Zero, Portland is taking steps to slow speeds through road design, lowering speed limits and automated enforcement. Portland is piloting fixed speed cameras on four high crash corridors. Portland continues to make capital improvements on its High Crash Network, including enhanced pedestrian crossings and better transit access. Portland regularly conducts crosswalk education and enforcement actions, and its Safe Routes to School program works with K-12 schools across the city. The City continues to develop and enhance neighborhood greenways to provide people walking and biking with a low-stress active transportation network as an alternative to busier streets. A Vision Zero Task Force meets quarterly and annually reviews progress toward the Vision Zero goal and actions.

Tigard – The City of Tigard inputs the state crash data into GIS, and analyzes the data to identify locations that have one or more of the following: a) a high frequency of crashes; b) a high rate of crashes per entering vehicle; c) a high frequency of severe crashes; d) a high rate of severe crashes per entering vehicle; e) high rates of crashes involving pedestrians or bicyclists. The City then performs a more detailed analysis on the crash data and site conditions at these locations to identify if there are any engineering/infrastructure improvements that would reduce these crash rates. This information is considered in selecting upcoming street projects and the data is shared with the City's police department to keep informed of each other's issues.

Troutdale - The City adopted an updated Transportation Plan in 2014. Some of the goals and policies concerning safety include: Goal 1. Transportation facilities shall be designed and constructed in a manner which enhances the livability of Troutdale. Policy A. Minimize the "barrier" effect of large arterial streets (for example 257th Avenue). Action: The City shall develop and maintain pedestrian crossing spacing, traffic signal spacing and landscape standards for large arterial streets in Troutdale, in coordination with Multnomah County and Metro. Policy B. Make streets as "unobtrusive" to the community as possible. Action: The City shall maintain design standards for local streets which address landscaping, cross section width, and provision of alternative modes for each functional classification. Policy C. Build neighborhood streets to minimize speeding. Action: The City shall allow for neighborhood traffic management in new development as well as existing neighborhoods for City streets. Measures to be developed may include narrower streets, humps, traffic circles, curb/sidewalk bulbs, curving streets, diverters and/or other measures. Policy D. Encourage pedestrian and bicycle accessibility by providing safe, secure and desirable walkway routes, with a preferred spacing of no more than 330 feet, between elements of the pedestrian network. Action: The City shall develop and maintain a "pedestrian grid" in Troutdale, outlining pedestrian routes. Sidewalk standards shall be developed to define various widths, as necessary, for City street types. In 2015, in partnership with Multnomah County three safe routes to school crosswalk enhancements projects were completed. Two of the crossings included solar powered rapid flashing beacons. The City incorporates a seven member Public Safety Advisory Committee to advise the City Council on all matters concerning public safety.

Clackamas County –Clackamas County has had an adopted Transportation Safety Action Plan (TSAP) since late 2012. This plan was incorporated into the update of the Transportation System Plan and is being used as a foundation for other County planning documents. Clackamas County is the only county in Oregon with an adopted TSAP. With the priority on safety, the County has restructured the department around the goal of safety by creating a Transportation Safety Program within our Transportation Division of the Department of Transportation and Development. The approach has aligned safety-related functions and the development of performance measures to track progress towards Zero fatalities as part of the Drive-to-Zero (DTZ) campaign. The DTZ effort calls for a 50% reduction in Fatal and Serious Injury Crashes by 2022 with an ultimate goal of zero. The program uses a 5E approach, Education, Emergency Medical Service, Engineering and Evaluation and is also supported through efforts of the County's Traffic Safety Commission. An update of the TSAP will begin in late 2016.

Multnomah County - Multnomah County emphasizes safety as among its top criterion in guiding policy, and is a goal for the County's transportation plans and programs. The County is in the process of updating its Transportation System Plan (TSP) in 2016, which includes safety policies and a range of solutions that address safety issues for all modes of transportation. Multnomah County utilizes Safety Priority Index System (SPIS) data and partners with ODOT on the Highway Improvement Safety Program (HSIP) and the All Roads Transportation Safety (ARTS) Program to identify and address safety concerns. Safety is also a criterion used in the County's Capital Improvement Plan and Program (CIPP) to prioritize transportation capital projects. The County also partners with East Multnomah County cities, schools, neighborhood associations and community organizations in the Safe Routes to School (SRTS) program that includes a focus on safety to support SRTS activities that encourage students to bike and walk to school.

Washington County – Washington County addresses safety issues for all modes of transportation by regularly monitoring its transportation facilities, improving its transportation plans, participating in the activities of a variety of local and regional boards and agencies, and maintaining a robust website. The website promotes topical safety issues such as vegetation removal; construction; back to school; winter weather; new laws; and share the road. Washington County maintains and annually reviews a Safety Priority Index System (SPIS) list. Washington County also participated in ODOT's OASIS (Oregon Adjustable Safety Index System) program which is an all roads SPIS list. Washington County has an active Traffic Safety Campaign Committee whose goal is to facilitate coordination with other agencies to maximize the exposure of safety messages to the public. The County also has multiple staff positions directly working on public safety. (A more detailed listing can be found in Appendix A).

SMART-South Metro Area Regional Transit (SMART) is committed to providing safe, secure, clean, reliable, and efficient public transportation services. In the interest of safety and security, SMART is currently updating its System Safety Program & Plan. This Plan documents policies, functions and responsibilities necessary to achieve a high degree of system and user safety and applies to all areas of the SMART transit system including operations, maintenance and outreach programs. This Plan serves as the blueprint for SMART's efforts in strengthening its overall safety management and its goal of continuous improvement in safety performance.

TriMet – Safety is the focus for all of TriMet's operational, planning and strategic decisions. Rather than thinking of it as a single priority—we are renewing our efforts to create a culture where safety is a core value. A safety management system is being implemented to facilitate proactive identification and control of safety risks to provide for safer transit operations for the community it serves. Among the strategies implemented is safety education. TriMet has a Safety Education Advisory Committee composed of community representatives who have a shared interest and stake in promoting safe interactions between bicyclists, pedestrians, drivers and transit users. Members of this group work together on common education efforts and advise TriMet. In addition, our outreach staff works directly with schools to educate faculty, parents and students on how to behave safely around buses, MAX light rail and WES commuter rail.

Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy and sustainable transportation and living choices for people and businesses in the region. Voters have asked Metro to help with the challenges and opportunities that affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to providing services, operating venues and making decisions about how the region grows. Metro works with communities to support a resilient economy, keep nature close by and respond to a changing climate. Together we're making a great place, now and for generations to come.

Metro | *Making a great place*

Metro Regional Center
600 NE Grand Ave.
Portland, OR 97232-2736
www.oregonmetro.gov

2018 Regional Transportation Plan

www.oregonmetro.gov/rtp

Getting there safely

2018 Regional Transportation Plan update

TRANSPORTATION SAFETY

Performance Targets & Measures - DRAFT

January 2017

Metro
Making a great place

INTRODUCTION

This report outlines the recommended 2018 Regional Transportation Plan (RTP) safety targets and performance measures developed by the Regional Transportation Safety Work Group.

Safety Performance Target

By 2035 eliminate transportation related fatalities and serious injuries for all users of the region's transportation system, with a 16% reduction by 2020 (as compared to the 2015 five year rolling average), and a 50% reduction by 2025.

Safety System Evaluation Measures

1. Safety Infrastructure Investments – Number, cost and percent of safety projects in the RTP investment packages region-wide and in areas with historically marginalized communities.[1]

2. Exposure to Crash Risk – Approximates the risk of exposure to crashes by identifying whether the package of future transportation investments increases or decreases the sum of all non-freeway vehicle miles traveled (VMT) in Transportation Area Zones (TAZ) for RTP investment packages region-wide and in areas with historically marginalized communities.

Safety Monitoring Measures and Targets

For monitoring purposes, identifies annual targets, based on a five year rolling average of the number of people killed and seriously injured in traffic crashes in the region, by mode, per 100 million vehicle miles traveled, and per 100 thousand people. These safety monitoring measures and targets fulfill the requirements of the FAST-ACT and FHWA for MPO safety performance targets.

[1] Historically Marginalized Communities are identified as areas where there are high concentrations of people of color, people with low-incomes, people with limited English proficiency, older adults, and youth relative to the region.

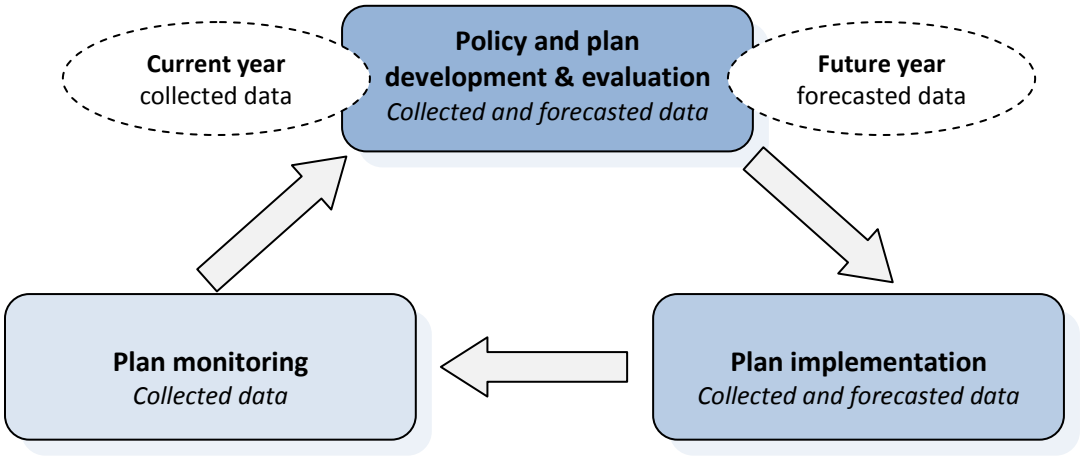
POLICY FRAMEWORK FOR SETTING PERFORMANCE TARGETS AND MEASURES

Performance measures are indicators that enable decision-makers and other stakeholders to monitor changes in system condition and performance against established visions, goals, objectives and policies. The policy framework guiding the update of regional transportation safety performance measures and targets is captured in Metro's Regional Transportation Safety Plan Policy Framework Report (July 2016). It includes an overview of the policies that currently exist at the federal, state and regional level related to transportation safety, highlighting those that have changed since the region's first Regional Transportation Safety Plan was completed in March 2012. In particular, the report highlights policies that reflect:

- Continued emphasis on improving transportation safety
- Growing use of the Towards Zero Deaths and Vision Zero frameworks and targets
- Use of data, performance measurement, and evaluation
- Recognition of vulnerable users
- Integration of equity and public health perspectives

Performance measures serve as the dynamic link between RTP goals and plan implementation by formalizing the process of target-setting, evaluation and monitoring to ensure the RTP advances toward achievement of the region's transportation, land use, economic, and environmental goals. The RTP refers to the process of plan development, evaluation and monitoring over time as the performance measurement system, as shown in Figure 1.

Figure 1: RTP Performance Measurement System



Metro's Performance Measures Scoping Report (April 2016) provides the background and context for reviewing and refining adopted regional transportation performance measures and targets for the 2018 RTP.[2] The report describes the three layers of measurement in the 2014 RTP. These are listed in Table 1 table below with the corresponding 2014 RTP safety measures.

Table 1: Current & Proposed Targets and Performance Measures

Measure/Target	2014 RTP Measure/Target	Recommended 2018 RTP Measure/Target
RTP Performance Targets set time bound, quantifiable goals for achieving the region's desired policy outcomes for investment in the region's transportation system. These measures use a combination of modeled and observed data.	*"By 2040, reduce the number of fatal and severe injury crashes for pedestrians, bicyclists, and motor vehicle occupants each by 50% compared to 2007 2011 average."*	By 2035 eliminate transportation related fatalities and serious injuries for all users of the region's transportation system, with a 16% reduction by 2020 (as compared to the 2015 five year rolling average), and a 50% reduction by 2025.
RTP System Evaluation Measures compare the base year conditions with alternative investment packages (projects) to document how well each package of transportation investments performs on an array of measures that are linked to RTP goals, and in most cases, overlap with the RTP performance targets.	The region does not currently forecast the regional safety target, though this is being explored.	1. Number, cost and percent of safety projects in the RTP investment packages region-wide and in areas with historically marginalized communities. 2. Exposure to crash risk through the sum of all non-freeway vehicle miles traveled (VMT) in Transportation Area Zones (TAZ) for RTP investment packages region-wide, and in historically marginalized communities.
RTP Monitoring Measures support the region's federally-required Congestion Management Process reporting between RTP update cycles. State DOTs and MPOs are now required to set performance targets for the Federal safety performance measures identified in MAP-21.	*"Number of fatalities, serious injuries and crashes per vehicle mile traveled for all modes of travel region-wide."* The region does not currently set targets for monitoring measures, but will do so to comply with federal regulations.	Annual targets, based on a five year rolling average of the number of people killed and seriously injured in traffic crashes in the region, by mode, per 100 million vehicle miles traveled, and per 100 thousand people.

[2] See the 2018 RTP Performance Measures page: http://www.oregonmetro.gov/public-projects/2018-regional-transportation-plan/performance and the meeting packet for April 25, 2016

PERFORMANCE TARGET

RTP Performance Targets set time bound, quantifiable goals for achieving the region's desired policy outcomes for investment in the region's transportation system.

Metro's Regional Transportation Safety Plan Policy Framework Report (July 2016) demonstrates existing policy direction for the region to develop a target of eliminating transportation related fatalities and serious injuries. Additionally, several current or soon to be adopted plans have "zero deaths" visions and/or targets, including the Oregon Transportation Safety Action Plan, Portland Vision Zero Action Plan, Clackamas County Transportation Safety Action Plan, Washington County Transportation Safety Action Plan, and the Hillsboro Transportation Safety Action Plan. In 2016, the Federal Highway Administration adopted a national target of zero traffic fatalities.

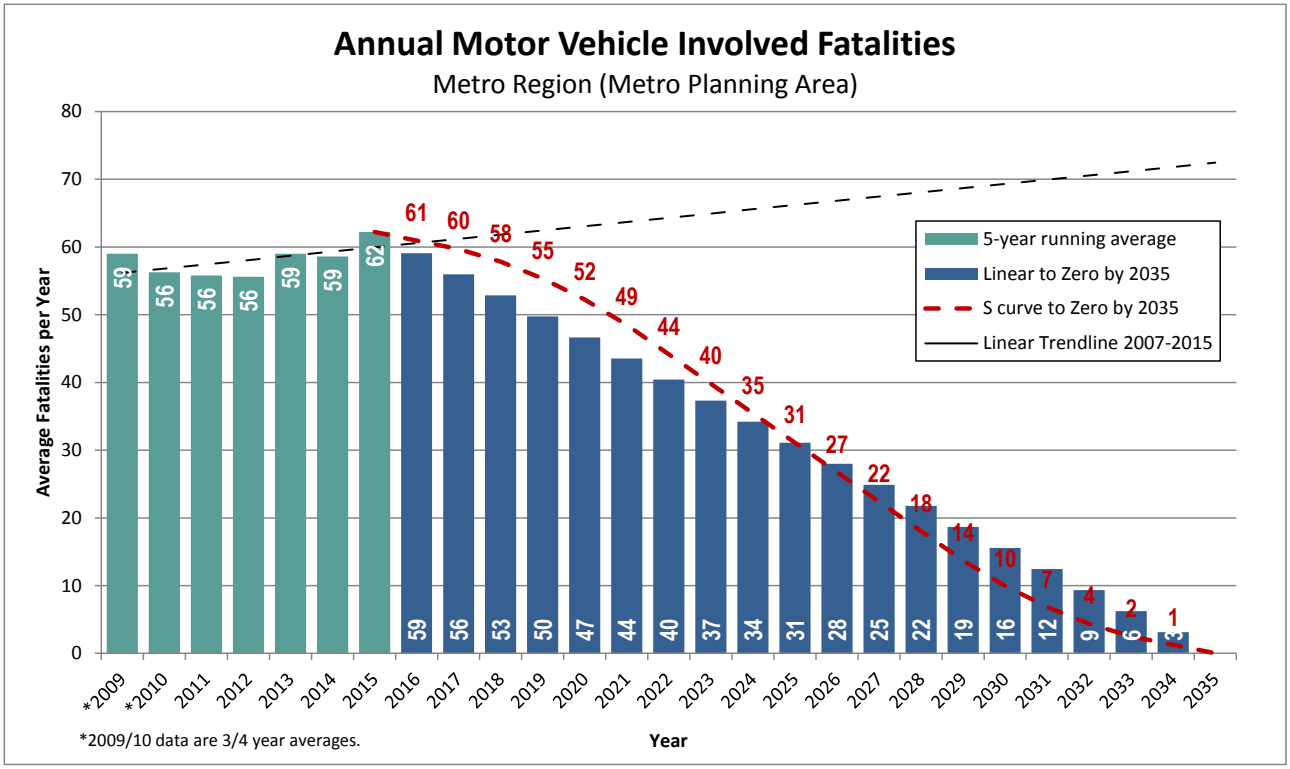
The Safety Work Group recommends a target of zero deaths and fatalities by 2035; the target includes a specified date, refers to "all users" of the transportation system, and includes interim targets. The interim targets correspond with the monitoring measures annual targets.

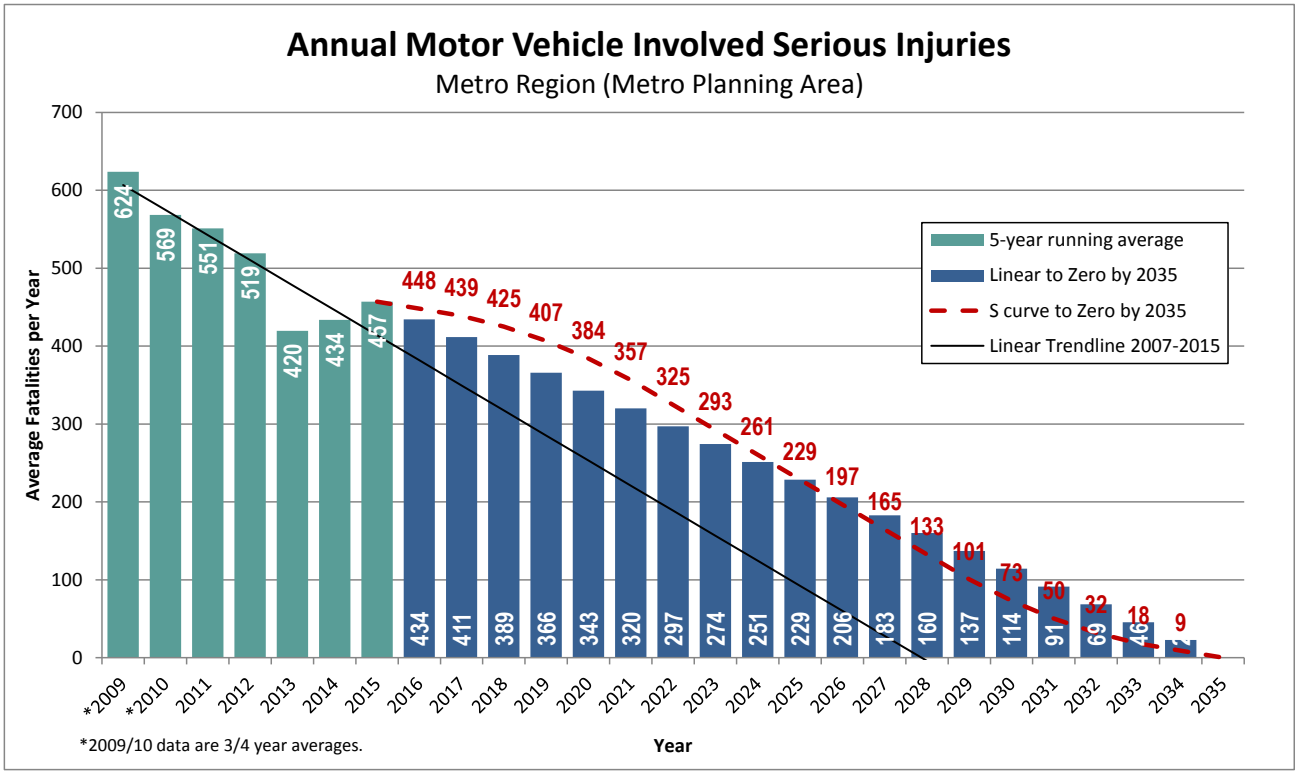
Recommended 2018 RTP Safety Performance Target

"By 2035 eliminate transportation related fatalities and serious injuries for all users of the region's transportation system, with a 16% reduction by 2020 (as compared to the 2015 five year rolling average), and a 50% reduction by 2025."

- This target would replace the current 2014 Safety Performance Target.
- A five year rolling average of ODOT crash data is used to track the target.
- Progress towards meeting the 2035 target (annual and interim targets) would be tracked through the annual rolling monitoring targets.
- The target year of 2035 would not change in subsequent RTP updates.

The two graphs on the next page show the linear trend line for fatalities and serious injuries in the region. The trend for fatalities is increasing because of the trend in pedestrian deaths. The graphs also shows two different ways to forecast future deaths and fatalities – one using a linear trend based on a zero deaths and serious injuries by 2035 and one an "S-curve" forecasted trend line, also based on zero deaths and fatalities by 2035, but anticipating a less immediate change as plans and policies take time to be implemented; ODOT is employing this method in the recently adopted state safety action plan. Metro recommends using the "S-curve" forecasting method.


Annual Motor Vehicle Involved Fatalities
Metro Region (Metro Planning Area)
Average Fatalities per Year
Year
*2009/10 data are 3/4 year averages.
5-year running average
Linear to Zero by 2035
S curve to Zero by 2035
Linear Trendline 2007-2015


Annual Motor Vehicle Involved Serious Injuries
Metro Region (Metro Planning Area)
Average Fatalities per Year
Year
*2009/10 data are 3/4 year averages.
5-year running average
Linear to Zero by 2035
S curve to Zero by 2035
Linear Trendline 2007-2015

SYSTEM EVALUATION MEASURES

RTP System Evaluation Measures compare the base year conditions of the transportation system with alternative investment packages of projects and programs to document how well each package of transportation investments performs on an array of measures that are linked to RTP Goals, and in most cases, overlap with the RTP Performance Targets.

The current RTP does not include system evaluation measures for safety. The RTP Transportation Equity Work Group recommended both safety system evaluation measures be included in the 2018 RTP.

Transportation Safety – Infrastructure Investments

This system evaluation measure identifies the number, cost and percent of safety projects in the RTP investment packages region-wide, and the number, cost and percent of safety projects in areas with historically marginalized communities to identify where and at what level of investment the package of future transportation projects addresses transportation safety.

This system evaluation measure requires providing a definition of a "safety project" in order to track safety investments.

For the purpose of the RTP and infrastructure investments system evaluation measure, **safety projects are defined as**: Infrastructure projects with the primary intent to address a safety issue, and allocate a majority of the project cost to a documented safety countermeasure(s) to address a specific documented risk, or improve safety for vulnerable users, including people walking and bicycling, older adults and youth.

Safety countermeasures are actions taken to improve transportation safety and therefore decrease the number of injuries and fatalities. Safety countermeasures may include geometric design, systemic safety, and intelligent transportation systems. Examples of proven safety countermeasures include, but are not limited to, FHWA's nine proven safety countermeasures: road diets, medians and pedestrian crossing islands, pedestrian hybrid beacons, roundabouts, access management, retroreflective backplates, safety edge, enhanced curve delineation, and rumble strips.[3]

Transportation Safety – Exposure to Crash Risk

This system evaluation measure approximates the risk of exposure to crashes by identifying whether the package of future transportation investments increases or decreases the sum of all non-freeway vehicle miles traveled (VMT) in Transportation Area Zones (TAZ) for RTP investment packages region-wide, and in historically marginalized communities

[3] http://safety.fhwa.dot.gov/provencountermeasures/

MONITORING MEASURES

RTP Monitoring Measures support the region's federally-required Congestion Management Process reporting between RTP update cycles. (Metro has had limited resources and capacity to track System Monitoring Measures every two years as intended, and, observed data is not always readily available; crash data for example, is usually at least one year old. To aid better reporting, Metro will be moving toward a new online "Mobility Corridors" tool for monitoring.)

State DOTs and MPOs must now report on the federally required performance measures identified in MAP-21 and the FAST Act.[4] Metro will report on these measures in each update of the RTP, and in the Metropolitan Service District report of performance measures that Metro is required to submit in accordance with ORS 197.301 to the Department of Land Conservation and Development (DLCD) every two years.

The measures identified in Table 3, below, are proposed to replace the 2014 RTP safety monitoring measure: "Number of fatalities, serious injuries and crashes per vehicle mile traveled for all modes of travel region-wide."

The measures in Table 3 include the five FHWA safety measures that Metro is required to report on and additional monitoring measures proposed by Metro and the Safety Work Group, to measure: "The five year rolling average of the number of people killed and seriously injured in traffic crashes in the region, by mode, per 100 million vehicle miles traveled, and per 100 thousand people."

Table 2: Annual Monitoring Targets for FHWA and RTP Transportation Safety Performance Measures

Reporting Year (based on a 5-year rolling average)	FHWA Performance Measures						
	Fatalities (People)	Fatality Rate		Serious Injuries (People)	Serious Injury Rate		Non-Motorized Fatalities and Serious Injuries (People)
		Per VMT (People/ 100 MVMT)	Per capita (People/ 100k pop)		Per VMT (People/ 100 MVMT)	Per capita (People/ 100k pop)	
2011 - 2015 (Base)	62	0.9	4.0	457	6.4	29.4	113
2014 - 2018	58	0.8	3.6	425	5.8	26.5	105
2015 - 2019	55	0.7	3.4	407	5.5	25.1	101
2016 - 2020	52	0.7	3.2	384	5.1	23.4	95
2017 - 2021	49	0.6	2.9	357	4.7	21.5	88

Note: Due to rounding, addition of numbers across modes may result in minor variation from totals.

[4] The final safety rule can be accessed at: http://safety.fhwa.dot.gov/hsip/rulemaking/ Significant federal rulemaking activities to implement the performance provisions first included in the Moving Ahead in the 21st Century Act (MAP-21) Act and subsequent provisions contained in the Fixing America's Surface Transportation (FAST) Act have been underway for nearly 4 years by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA).

Reporting Year (based on a 5-year rolling average)	Motor Vehicle Only					
	Fatalities (People)	Fatality Rate		Serious Injuries (People)	Serious Injury Rate	
		Per VMT (People/ 100 MVMT)	Per capita (People/ 100k pop)		Per VMT (People/ 100 MVMT)	Per capita (People/ 100k pop)
2011 - 2015 (Base)	38	0.5	2.4	368	5.2	23.7
2014 - 2018	35	0.5	2.2	343	4.7	21.3
2015 - 2019	34	0.5	2.1	328	4.4	20.2
2016 - 2020	32	0.4	1.9	309	4.1	18.8
2017 - 2021	30	0.4	1.8	287	3.8	17.3

Note: Due to rounding, addition of numbers across modes may result in minor variation from totals.

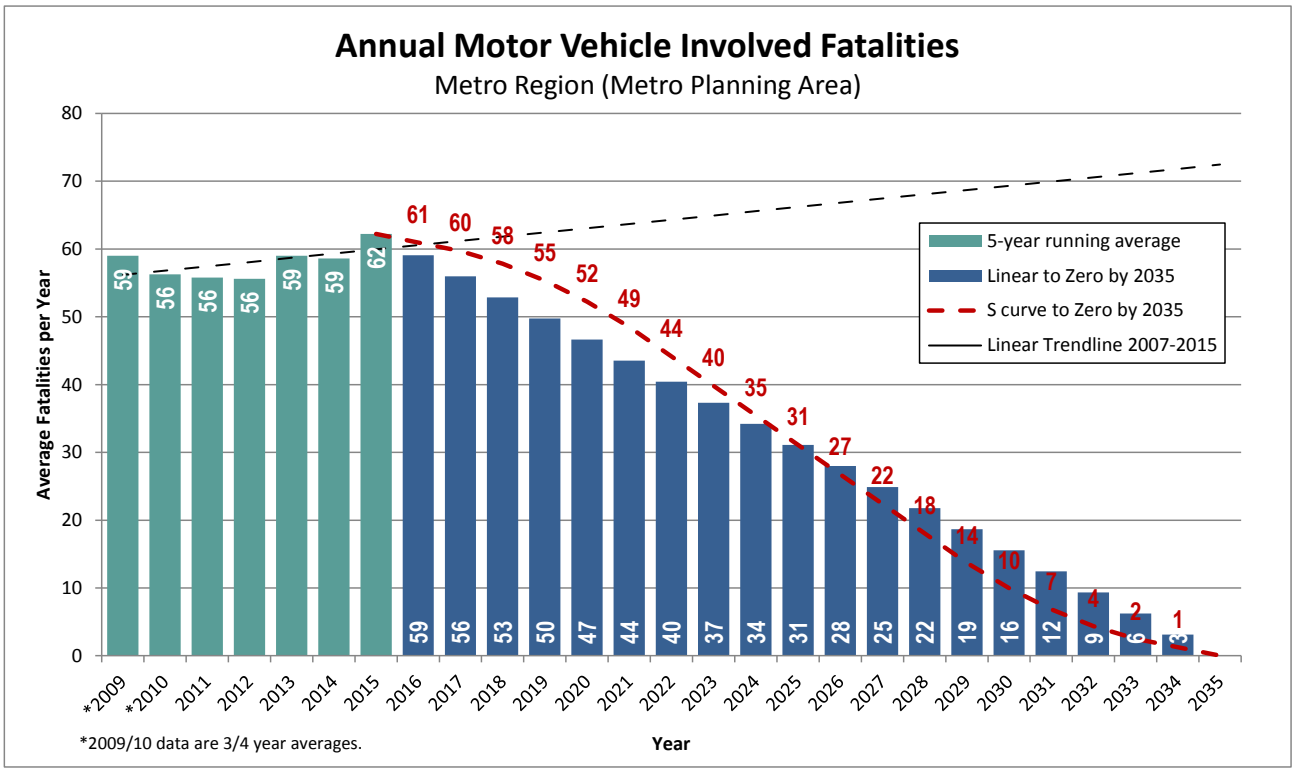
Reporting Year (based on a 5-year rolling average)	Pedestrians					
	Fatalities (People)	Fatality Rate		Serious Injuries (People)	Serious Injury Rate	
		Per VMT (People/ 100 MVMT)	Per capita (People/ 100k pop)		Per VMT (People/ 100 MVMT)	Per capita (People/ 100k pop)
2011 - 2015 (Base)	22	0.3	1.4	56	0.8	3.6
2014 - 2018	20	0.3	1.3	52	0.7	3.2
2015 - 2019	20	0.3	1.2	49	0.7	3.0
2016 - 2020	18	0.2	1.1	47	0.6	2.8
2017 - 2021	17	0.2	1.0	43	0.6	2.6

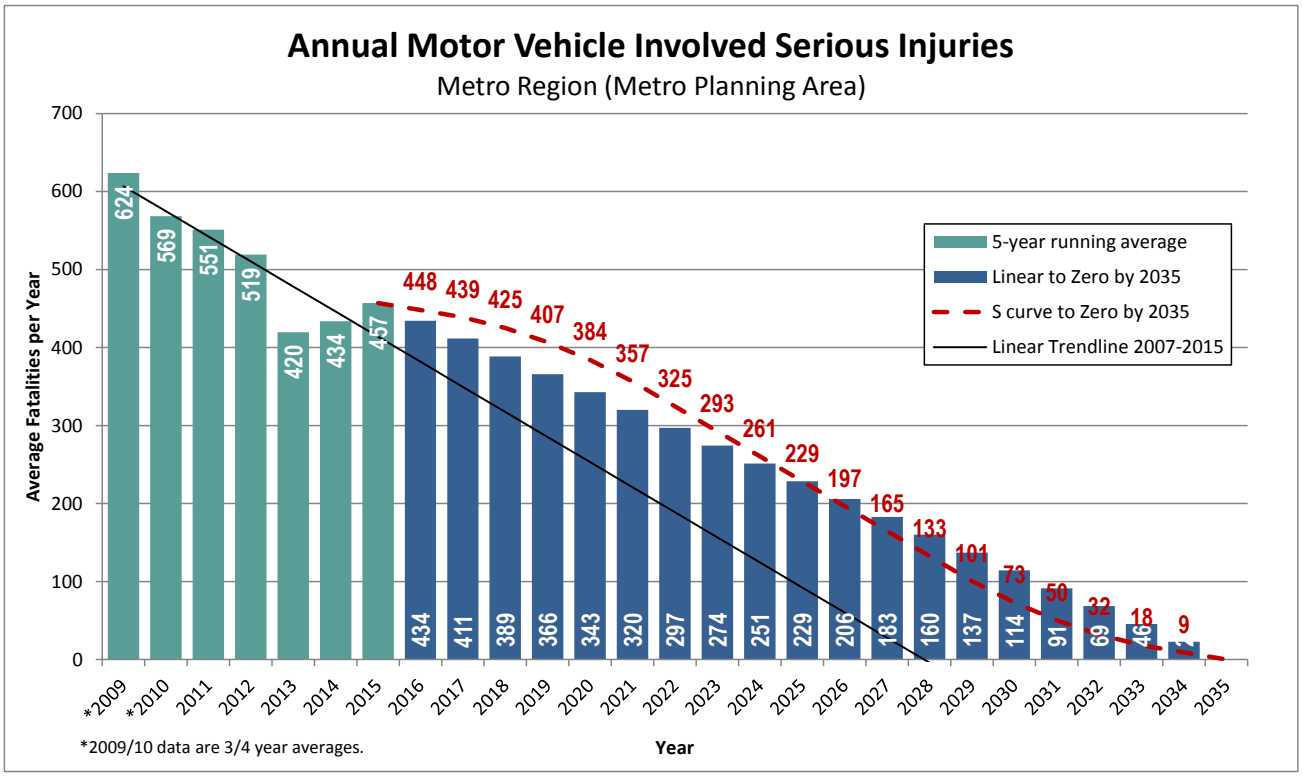
Note: Due to rounding, addition of numbers across modes may result in minor variation from totals.

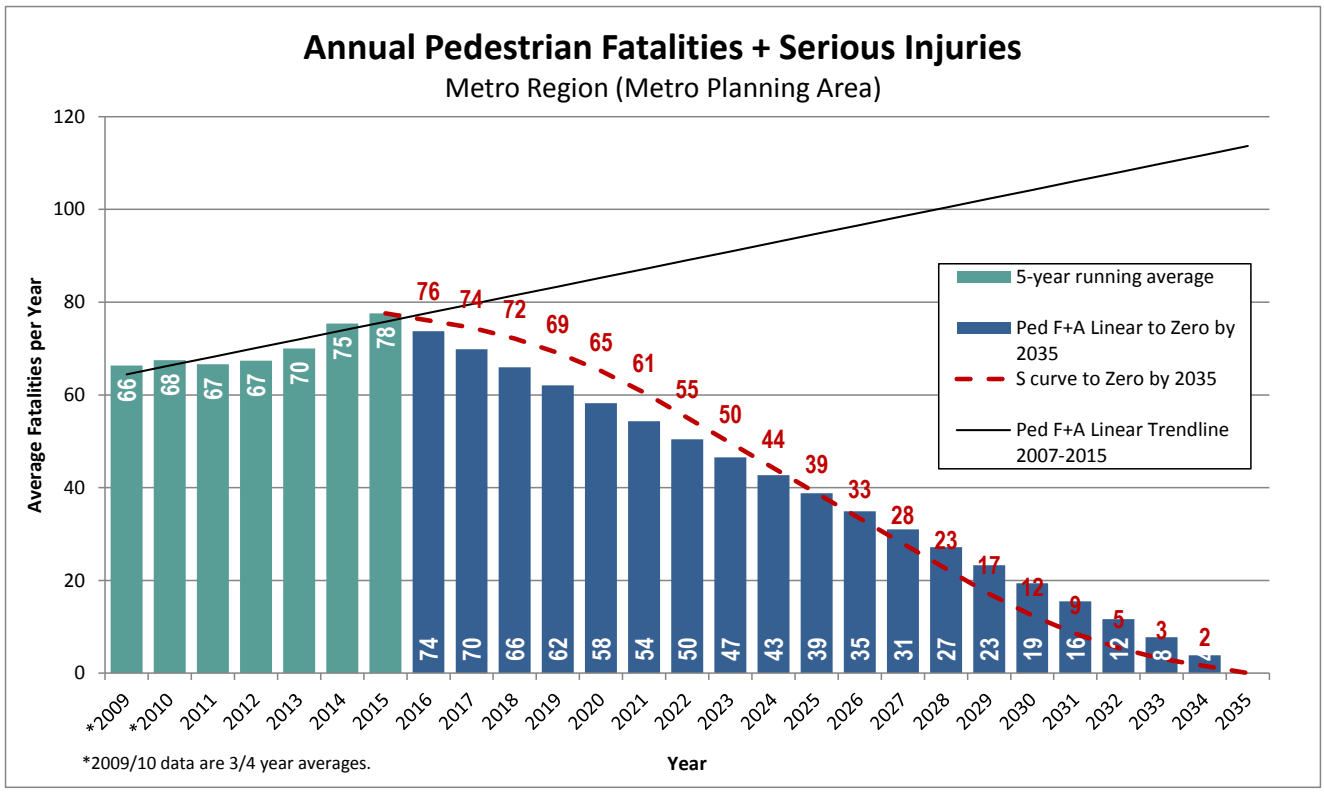
Reporting Year (based on a 5-year rolling average)	Bicyclists					
	Fatalities (People)	Fatality Rate		Serious Injuries (People)	Serious Injury Rate	
		Per VMT (People/ 100 MVMT)	Per capita (People/ 100k pop)		Per VMT (People/ 100 MVMT)	Per capita (People/ 100k pop)
2011 - 2015 (Base)	2.2	0.03	0.14	33	0.5	2.1
2014 - 2018	2.0	0.03	0.13	31	0.4	1.9
2015 - 2019	2.0	0.03	0.12	30	0.4	1.8
2016 - 2020	1.8	0.02	0.11	28	0.4	1.7
2017 - 2021	1.7	0.02	0.10	26	0.3	1.6

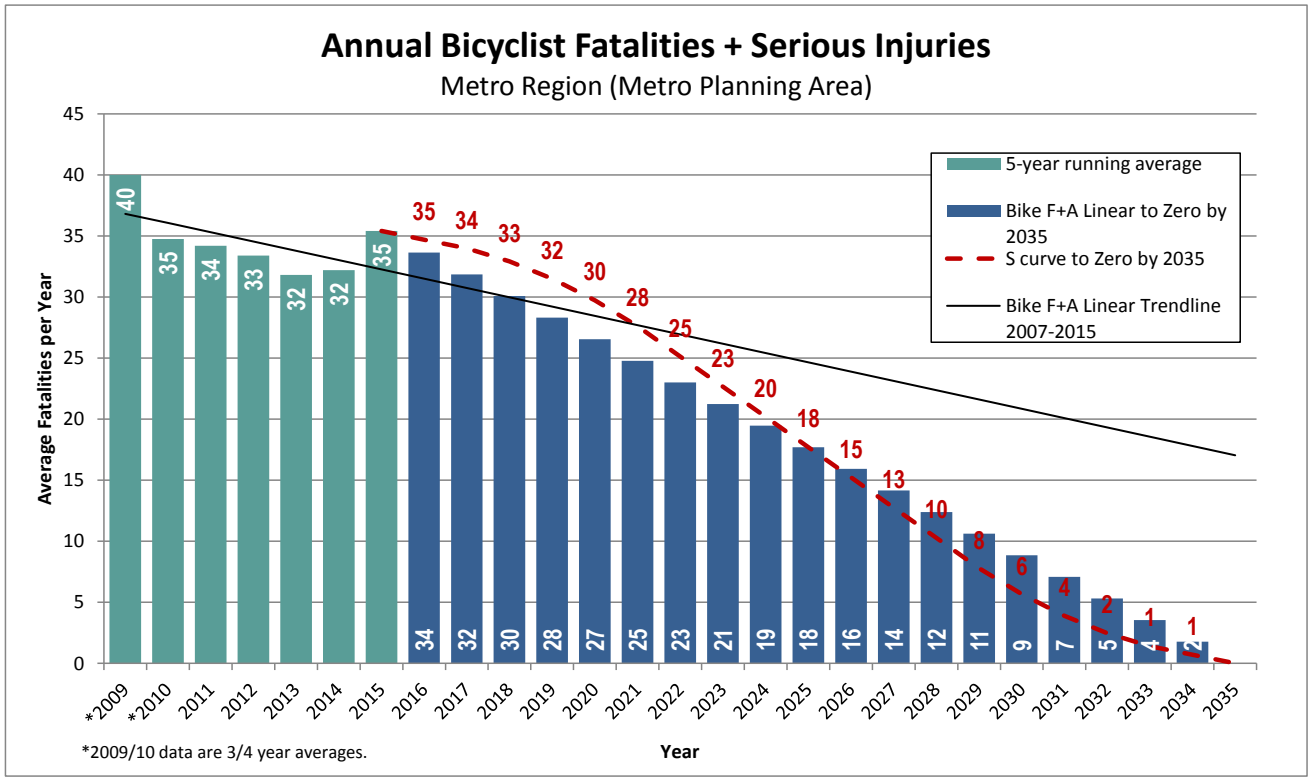
Note: Due to rounding, addition of numbers across modes may result in minor variation from totals.

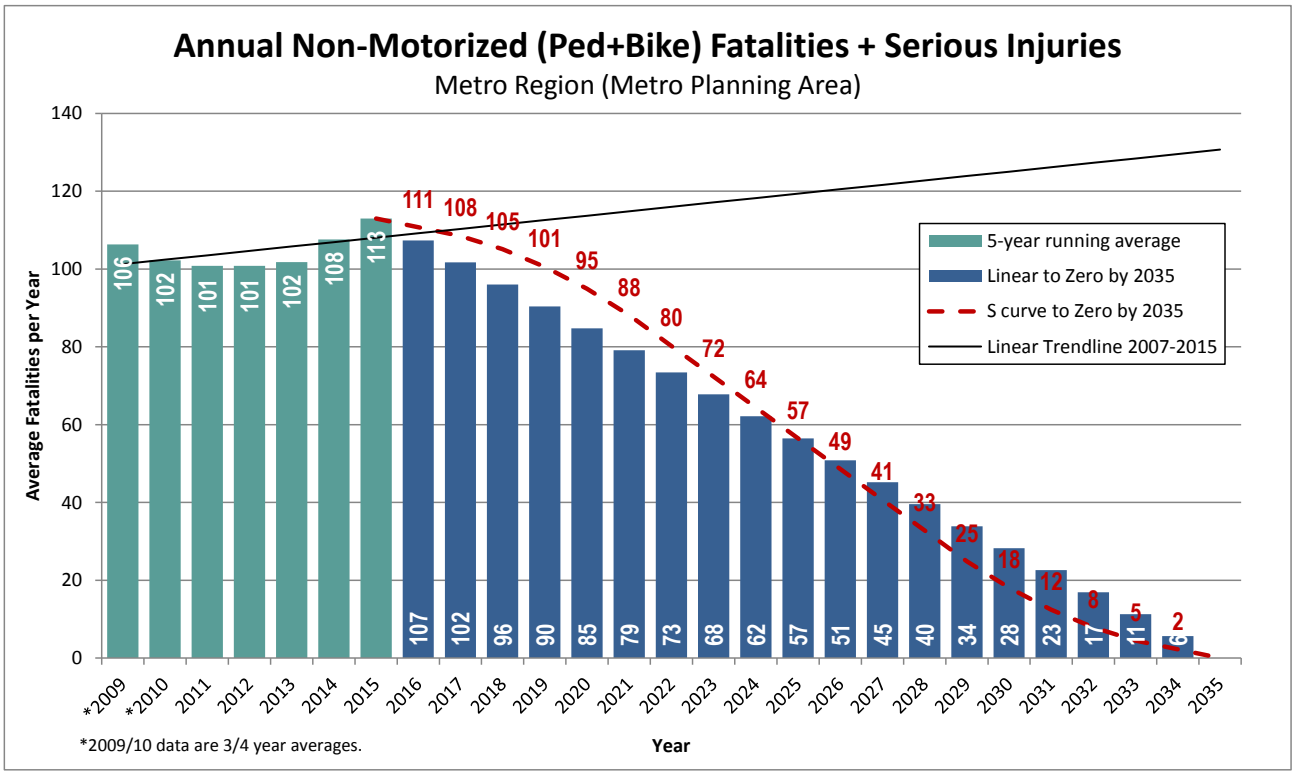
The annual targets are calculated using the "S-curve" forecasting trend. The S-curve forecast method was developed assuming the five-year average number of crashes may be relatively flat in the near future; start to decline in a few years in recognition of different projects, programs and actions implemented in the region and/or automated vehicles; an flatten out again in the future as it becomes more difficult to address the remaining fatalities.


Annual Motor Vehicle Involved Fatalities
Metro Region (Metro Planning Area)
Average Fatalities per Year
Year
*2009/10 data are 3/4 year averages.
5-year running average
Linear to Zero by 2035
S curve to Zero by 2035
Linear Trendline 2007-2015


Annual Motor Vehicle Involved Serious Injuries
Metro Region (Metro Planning Area)
Average Fatalities per Year
Year
*2009/10 data are 3/4 year averages.
5-year running average
Linear to Zero by 2035
S curve to Zero by 2035
Linear Trendline 2007-2015


Annual Pedestrian Fatalities + Serious Injuries
Metro Region (Metro Planning Area)
Average Fatalities per Year
Year
*2009/10 data are 3/4 year averages.
5-year running average
Ped F+A Linear to Zero by 2035
S curve to Zero by 2035
Ped F+A Linear Trendline 2007-2015


Annual Bicyclist Fatalities + Serious Injuries
Metro Region (Metro Planning Area)
Average Fatalities per Year
Year
*2009/10 data are 3/4 year averages.
5-year running average
Bike F+A Linear to Zero by 2035
S curve to Zero by 2035
Bike F+A Linear Trendline 2007-2015


Annual Non-Motorized (Ped+Bike) Fatalities + Serious Injuries
Metro Region (Metro Planning Area)
Average Fatalities per Year
Year
*2009/10 data are 3/4 year averages.
5-year running average
Linear to Zero by 2035
S curve to Zero by 2035
Linear Trendline 2007-2015
140
120
100
80
60
40
20
0
106
102
101
101
102
108
113
107
102
96
90
85
79
73
68
62
57
51
45
40
34
28
23
17
11
6
111
108
105
101
95
88
80
72
64
57
49
41
33
25
18
12
8
5
2
*2009
*2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035

Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy and sustainable transportation and living choices for people and businesses in the region. Voters have asked Metro to help with the challenges and opportunities that affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to providing services, operating venues and making decisions about how the region grows. Metro works with communities to support a resilient economy, keep nature close by and respond to a changing climate. Together we're making a great place, now and for generations to come.

Metro | *Making a great place*

Metro Regional Center
600 NE Grand Ave.
Portland, OR 97232-2736
www.oregonmetro.gov

2018 Regional Transportation Plan

www.oregonmetro.gov/rtp

Getting there safely

2018 Regional Transportation Plan update

TRANSPORTATION SAFETY

High Injury Corridors - DRAFT

January 2017

Metro
Making a great place

REGIONAL HIGH INJURY CORRIDORS

Regional High Injury Corridors (HICs) are stretches of roadways in the Portland metropolitan area where the highest concentrations of severe crashes involving a motor vehicle occur on the regional transportation network. [1] Metro developed a replicable and quantitative assessment of the crash performance on roadways on the regional transportation network to support planning and prioritization of corridor safety efforts.

A majority (60%) of severe crashes in the region occur on 23% of the roadways on the regional transportation network, and 6% of all streets in the region.

Corridors	Miles of Streets	% of all severe crashes (2010-2014)	% regional transportation network (1,739 miles)	% of all streets (6,565 miles)
Regional HIC (auto, bike, pedestrian)	398	60%	23%	6%
Auto HIC (auto only)	282	50%	16%	4%
Bike HIC (bike/auto)	177	50%	10%	3%
Ped HIC (pedestrian/auto)	133	50%	8%	2%

Purpose

Metro developed the HICs to help meet the safety goals and targets of the Regional Transportation Plan (RTP).[2] As part of the 2018 update of the RTP, Metro is updating the 2012 Regional Transportation Safety Plan and the 2012 Metro State of Safety Report. The 2014 RTP identified the need to identify HICs in the update of the transportation safety plan to provide another tool to support planning and prioritization of safety efforts.

The 2012 Metro State of Safety Report identified several factors contributing to high severe crash rates in the region: arterial roadways, multi-lane roadways, lack of lighting, and behavior (e.g. drunk driving). At the time, however, Metro lacked the ability to quantify risk by specific roadways.

[1] The regional transportation network is comprised of the arterial and throughway, freight, transit, bicycle and pedestrian networks shown in the network maps in Chapter 2 of the 2014 Regional Transportation Plan, http://www.oregonmetro.gov/regional-transportation-plan

[2] Metro is currently updating the RTP, including the safety performance measures and targets. A new safety target will be proposed in the 2018 RTP: "By 2035 eliminate transportation related fatalities and serious injuries for all users of the region's transportation system, with a 16% reduction by 2020 (as compared to the 2015 five year rolling average), and a 50% reduction by 2025."

A recommendation of the 2014 Regional Transportation Safety Plan was to develop performance measurements to identify high-crash arterials in the region. Metro began to research methods for identifying regional high injury corridors in 2015 to fulfill this recommendation and incorporate the findings into the update Regional Transportation Safety Plan and the 2018 RTP.

Project evaluation criteria and evaluation processes for the RTP have not yet been decided on, but safety will most likely be included and high injury corridors may also be used in the RTP evaluation. Projects submitted to the RTP will identify if they are on a high injury corridor and whether they are a safety project.[3] This information will be used to help assess the level of investment in the plan specifically directed towards safety and specifically addressing safety issued on a high injury corridor. This information may also possibly be used in the RTP project evaluation.

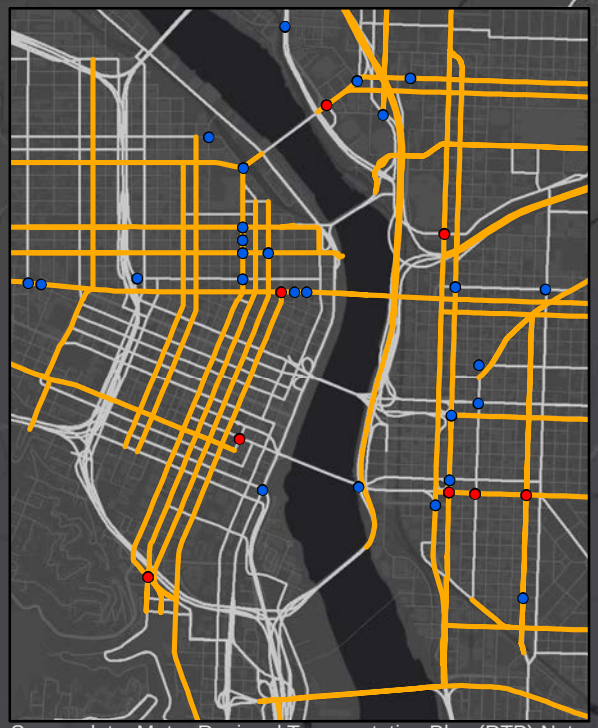
High Injury Corridors

The following maps show the combined high injury corridors and for each mode. The thirty-five corridors with the highest severe crashes per miles for each mode and combined are listed after each map. A full list of corridors for each mode and combined is provided at the end of the report.

[3] In the RTP, regional safety projects are defined as infrastructure projects with the primary intent to address a safety issue, and allocate a majority of the project cost to a documented safety countermeasure(s) to address a specific documented risk, or improve safety for vulnerable users, including people walking and bicycling, older adults and youth. Example safety countermeasures include, but are not limited to, FHWA's nine proven safety countermeasures: road diets, medians and pedestrian crossing islands, pedestrian hybrid beacons, roundabouts, access management, retroreflective backplates, safety edge, enhanced curve delineation, and rumble strips.

Oregon Metro
High Injury Corridors

60% of Severe Crashes Occur on 6% of All Streets



1% top crash intersections

5% top crash intersections

High Injury Corridors

RTP Network

0 3 6 Miles

Source data: Metro Regional Transportation Plan (RTP) Network, RTP Bikeways, RTP Pedways, ODOT crash data (2010-2014)

Top 35 Combined (Ped/Bike/Auto) High Injury Corridors –Severe Crashes per Mile

Corridor	From	To	Jurisdiction	# of Severe Crashes	Length	Severe Crashes per Mile	In Top 35 HIC?		
							Ped	Bike	Auto
I-5 Southbound	I-405 at Fremont Bridge	Burnside Bridge	Portland	13	1.5	8.61			X
Adair	Baseline	Pacific Highway	Cornelius & Forest Grove	13	1.5	8.48		X	X
Division	7th	190th	Gresham & Portland	80	9.6	8.29	X	X	X
I-5 Northbound	Marquam Bridge	I-405 at Fremont Bridge	Portland	18	2.5	7.13			X
181st	Sandy	182nd (Merging)	Gresham	14	2.1	6.62	X	X	X
Tualatin Valley Highway	Hocken	10th	Washington Co, Beaverton & Hillsboro	55	8.3	6.60		X	X
Broadway	SW 4th	Naito	Portland	13	2.0	6.36	X	X	X
Ross Island Bridge	Grand	I-5	Portland	8	1.4	5.81			X
82nd	Killingsworth	E. Berkeley	Clackamas Co, Gladstone & Portland	75	13.4	5.60	X	X	
Foster	136th	50th & Powell	Portland	26	4.7	5.57	X	X	
102nd	Sandy	Cherry Blossom (Merging)	Maywood Park & Portland	15	2.9	5.19	X		X
Powell	Burnside	McLoughlin	Portland	65	12.9	5.04	X	X	
I-84 Westbound	82nd	Martin Luther King Jr.	Gresham & Portland	24	4.8	5.04			X
Rosa Parks	42nd	Killingsworth	Portland	8	1.6	4.98			X
96th	99th & Washington	Division	Portland	5	1.0	4.96	X		X
I-5 Southbound	Hwy 217	Tualatin River	Tigard	5	1.0	4.85			X
185th	Springville	Farmington	Washington Co & Hillsboro	29	6.0	4.82		X	X
SE/NE 162nd	Powell	Sandy	Gresham & Portland	18	3.8	4.76	X		
Martin Luther King Jr.	Columbia Blvd.	Division	Multnomah Co, Beaverton & Portland	27	5.8	4.66	X	X	
Sunset Highway (Eastbound)	Hwy 217	Tunnel	Portland	9	1.9	4.63			X
Grand Avenue	Broadway	Powell	Portland	16	3.5	4.63	X	X	
Highway 217 Southbound	Beaverton Hillsdale	Sunset Highway	Beaverton	8	1.8	4.57			X
Washington Street	Stark	Thorburn	Portland	9	2.0	4.56			X
Tualatin Valley Highway	341st	17th	Washington Co, Cornelius & Hillsboro	5	1.1	4.54			X
Halsey	I-84 at NE 67th	Sandy	Portland	7	1.6	4.48			X
McLoughlin	Jefferson	Oregon City Bridge	Clack Co, Gladstone, Milwaukie, Ore City	30	6.8	4.41	X		
Highway 8 / Canyon	Hocken	Sunset Highway	Portland	17	3.9	4.41			
I-205 Southbound	Washington State Line	Marine Dr	Beaverton	7	1.6	4.36			X
Wiedler	24th	Broadway (Merging)	Portland	6	1.4	4.31		X	
Highway 217 – Northbound	Pacific Highway	Scholls Ferry	Beaverton & Tigard	7	1.6	4.29			X
I - 84 Eastbound	I-5	I-205	Portland	21	4.9	4.28			X
Highway 8 / Baseline	TV Highway (near SW 17th)	TV Highway (near SE 10th)	Hillsboro	7	1.7	4.22	X		
Beaverton Hillsdale	Capitol Highway	Lombard	Washington Co, Beaverton & Portland	22	5.3	4.13			X
112th	Holgate	Market	Beaverton	6	1.5	3.98			
Highway 217 - Northbound	Beaverton Hillsdale	Sunset Highway	Clack Co, Wash Co, Lake Oswego, Tigard & Tualatin	7	1.8	3.96			X

Oregon Metro
High Injury Corridors

50% of Severe Auto Crashes Occur on 4% of All Streets

Auto HIC

RTP Network

0 3 6 Miles

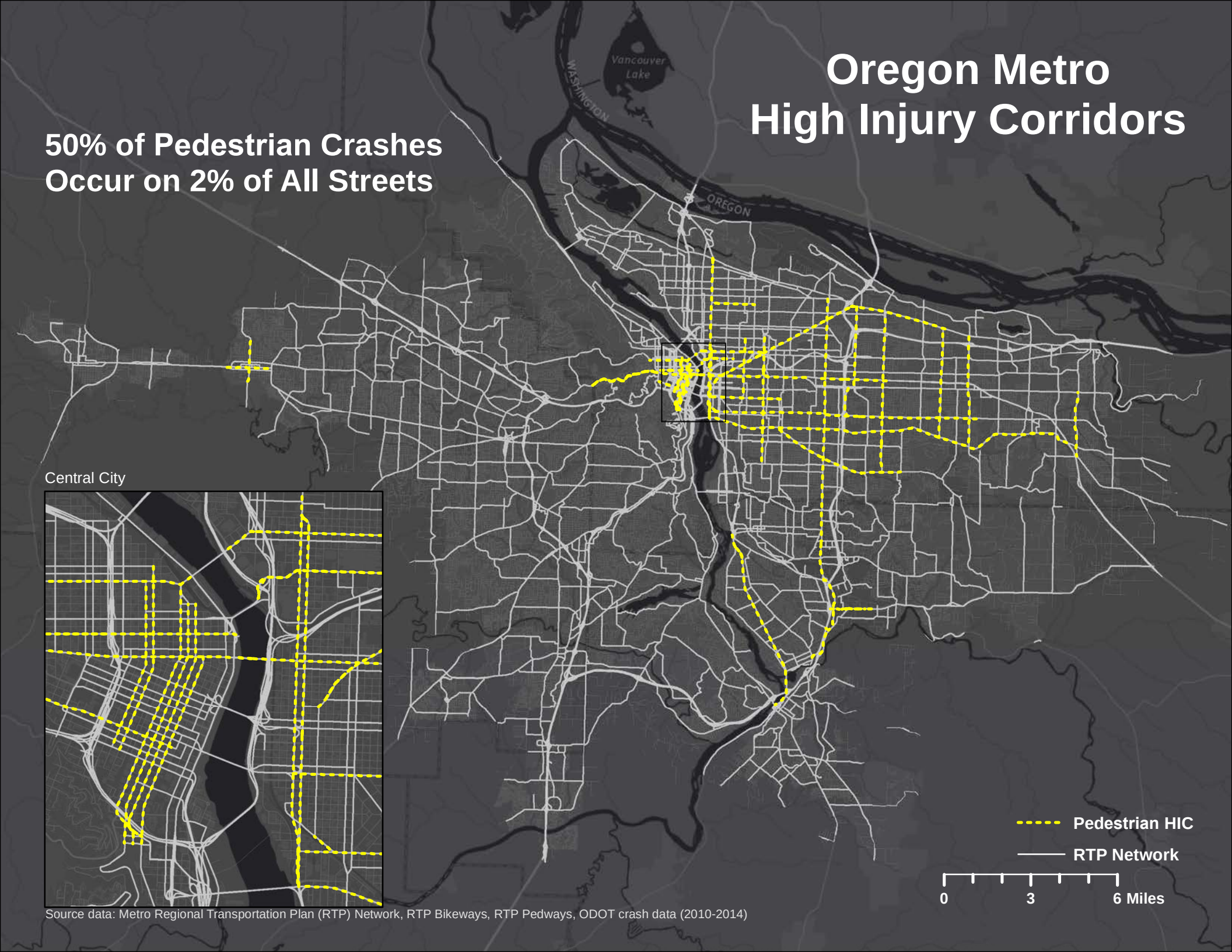
Source data: Metro Regional Transportation Plan (RTP) Network, RTP Bikeways, RTP Pedways, ODOT crash data (2010-2014)

Top 35 Auto High Injury Corridors – Severe Crashes per Mile

Corridor	From	To	Jurisdiction	# of Crashes	Length	Severe Crashes per Mile
I-5 Southbound	I-405 at Fremont Bridge	Burnside Bridge	Portland	11	1.5	7.28
Adair	Baseline	Pacific	Cornelius & Forest Grove	11	1.5	7.18
I-5 Northbound	Marquam Bridge	I-405	Portland	16	2.5	6.34
Division	7th	190th	Gresham & Portland	54	9.6	5.60
181st	Sandy	182nd	Gresham	11	2.1	5.20
Ross Island Bridge	Grand	I-5	Portland	7	1.4	5.08
Rosa Parks	Cully	Killingsworth	Portland	8	1.6	4.98
I-5 - Southbound	Hwy 217	Tualatin River	Tigard	5	1.0	4.85
Tualatin Valley Highway	Hocken	10th	Washington County, Beaverton, & Hillsboro	40	8.3	4.80
Sunset Highway (Eastbound)	Hwy 217	Tunnel	Multnomah County, Beaverton, & Portland	9	1.9	4.63
Hwy 217 Southbound	Sunset Highway	Beaverton Hillsdale	Beaverton	8	1.8	4.57
I-84 Westbound	Martin Luther King Jr.	82nd	Portland	21	4.8	4.41
I-205 Southbound	Washington State Line	Marine Dr	Portland	7	1.6	4.36
Hwy 217 Northbound	Scholls Ferry	Pacific Highway	Beaverton & Tigard	7	1.6	4.29
185th	Springville	Farmington	Washington County & Hillsboro	25	6.0	4.16
I-84 Eastbound	I-5	I-205	Portland	20	4.9	4.07
Washington Street	Stark St.	Thorburn	Portland	8	2.0	4.05
96th	SE Washington St.	SE Division St.	Portland	4	1.0	3.97
Hwy 217 Northbound	Beaverton Hillsdale	Sunset Highway	Beaverton	7	1.8	3.96
I-5 Northbound	Kruse	Nyberg	Clack. Co, Wash. Co, L. Oswego, Tigard & Tualatin	11	2.8	3.96
Broadway	SW 4th	Naito	Portland	8	2.0	3.92
Halsey	I-84 at NE 67th	Sandy	Portland	6	1.6	3.84
47th	Glisan	Wistaria	Portland	4	1.0	3.83
102nd	Sandy	Cherry Blossom	Maywood Park & Portland	11	2.9	3.81
Tualatin Sherwood	Pacific Highway	Nyberg	Washington County & Sherwood & Tualatin	17	4.5	3.75
I-205 Southbound	Washington State Line	Division	Portland	4	1.1	3.70
Brookwood	Shute	Sunset Highway	Hillsboro	4	1.1	3.68
Tualatin Valley Highway	341st	17th	Washington County, Cornelius, & Hillsboro	4	1.1	3.63
I-5 Southbound	Nyberg	Kruse	Tigard & Tualatin	5	1.4	3.62
I-205 Northbound	Airport Way	Washington State Line	Portland	6	1.7	3.59
I-5 Southbound	Wilsonville Road	Miley	Clackamas County & Wilsonville	4	1.1	3.58
SE Bob Schumacher Road	Idleman & Otty	Stevens	Clackamas County & Happy Valley	4	1.1	3.49
I-5 Northbound	Bertha Blvd	Marquam Bridge	Portland	11	3.2	3.45
Allen	Davis	92nd	Beaverton	10	2.9	3.41
Beaverton Hillsdale	Capitol Highway	Lombard	Washington County, Beaverton, & Portland	18	5.3	3.38

Oregon Metro
High Injury Corridors

50% of Pedestrian Crashes Occur on 2% of All Streets



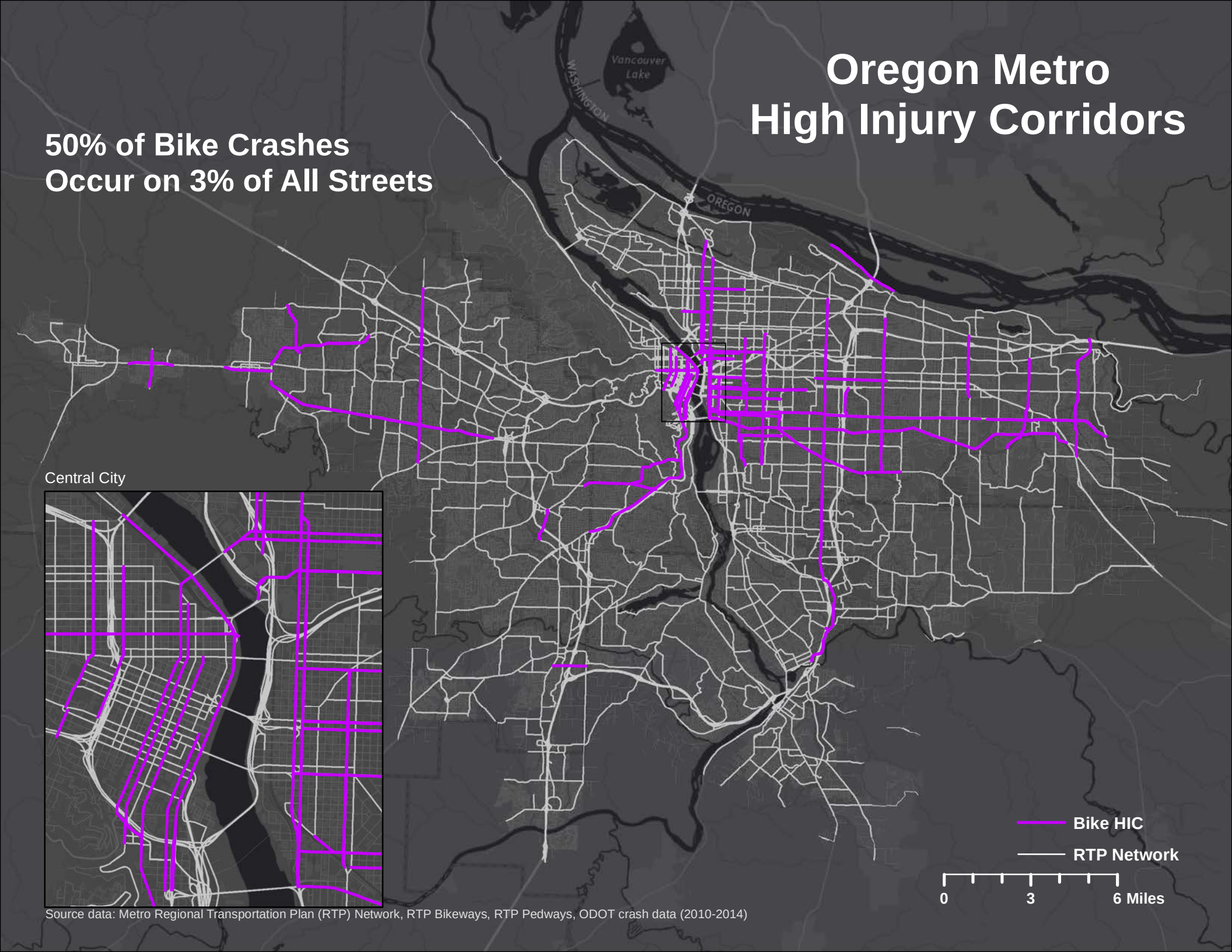
Source data: Metro Regional Transportation Plan (RTP) Network, RTP Bikeways, RTP Pedways, ODOT crash data (2010-2014)

34 Pedestrian High Injury Corridors –Severe Crashes per Mile

Corridor	From	To	Jurisdiction	# of Severe Crashes	Length (MI)	Severe Crashes per Mile	# of Minor Crashes
Division	7th	190th	Gresham & Portland	22	9.6	2.28	61
82nd	Killingsworth	Causey	Clackamas Co., Gladstone & Portland	27	13.4	2.02	93
Broadway	SW 4th	Naito	Portland	4	2.0	1.96	24
McLoughlin	Jefferson	Oregon City Bridge	Clackamas Co., Gladstone, Milwaukie, Oregon City	13	6.8	1.91	32
Foster	136th	50th Ave & Powell Blvd.	Portland	8	4.7	1.71	18
East Burnside	75th	124th	Portland	4	2.6	1.55	7
SW 4th	Sheridan	Burnside	Portland	2	1.3	1.53	20
SE 28th	Madison	Knott	Portland	3	2.0	1.49	5
SE/NE 102nd	Sandy	Cherry Blossom	Maywood Park & Portland	4	2.9	1.38	19
Burnside	At SW Barnes	NE 68th	Portland	14	10.2	1.37	56
Alberta	33rd	Martin Luther King Jr.	Portland	2	1.5	1.34	13
SE/NE 162nd	Powell	Sandy	Gresham & Portland	5	3.8	1.32	11
Highway 212	I-205	East of HWY 224 Interchange	Clackamas County & Happy Valley	3	2.4	1.25	9
Baseline	TV Highway (near SW 17th)	TV Highway (near SE 10th)	Hillsboro	2	1.7	1.21	12
Powell	Burnside	McLoughlin	Gresham & Portland	15	12.9	1.16	75
Grand	Broadway	Powell	Portland	4	3.5	1.16	12
SE 182nd	Highland & Powell	181st	Gresham	2	1.7	1.15	7
Everett	Westover	Naito	Portland	2	1.8	1.10	13
SW/NW 6th Ave.	Sheridan	Irving	Portland	2	1.8	1.10	10
Martin Luther King Jr.	Columbia	Division	Portland	6	5.8	1.03	31
SE 96th	Washington Street	Division	Portland	1	1.0	0.99	5
SE 181st	Sandy	182nd	Gresham	2	2.1	0.95	16
Sandy	7th	165th	Maywood Park & Portland	9	9.6	0.94	41
Multnomah Street	Steel Bridge	21st	Portland	2	2.2	0.91	14
Kane	257th & Stark	Orient & Palmquist	Gresham & Troutdale	2	2.2	0.89	15
SW/NW 11th	Lovejoy	Market	Portland	1	1.1	0.89	7
Cesar E. Chavez	Wistaria	Woodstock	Portland	4	4.7	0.85	27
SW/ NW 10th Ave.	Northrup	Market	Portland	1	1.2	0.80	8
Broadway	Broadway Bridge	Sandy	Portland	2	2.5	0.80	26
Lovejoy	Cornell	Broadway	Portland	1	1.3	0.77	8
NE/SE 122nd	Skidmore	Foster	Portland	4	5.5	0.73	30
1st	Glencoe	Wood	Hillsboro	1	1.5	0.68	12
Hawthorne	51st	Martin Luther King Jr.	Portland	2	3.1	0.66	18
SW/NW 5th	Irving	Sheridan	Portland	1	1.8	0.55	14

Oregon Metro
High Injury Corridors

50% of Bike Crashes
Occur on 3% of All Streets



Source data: Metro Regional Transportation Plan (RTP) Network, RTP Bikeways, RTP Pedways, ODOT crash data (2010-2014)

Top 35 Bike High Injury Corridors –Severe Crashes per Mile

Corridor	From	To	Jurisdiction	# of Severe Crashes	Length (MI)	Severe Crashes per Mile	# of Minor Crashes
SE 50th	Powell	Division	Portland	2	1.1	1.79	5
NE Wielder	24th	Broadway	Portland	2	1.4	1.44	19
Marine Drive	122nd	Portland Airport	Portland	3	2.7	1.12	3
NW Everett	Westover	Naito	Portland	2	1.8	1.10	13
Skidmore	Interstate	Martin Luther King Jr.	Portland	1	1.0	0.99	11
SW/NE 257th	I-84	Kane & Stark	Troutdale	2	2.1	0.97	6
SE 28th	Woodstock	Gladstone	Portland	1	1.1	0.88	3
SE Ankeny	28th	Martin Luther King Jr.	Portland	1	1.2	0.84	14
10th	Cornelius Schefflin	Oleander	Cornelius	1	1.2	0.81	3
Powell	Burnside	McLoughlin	Gresham & Portland	9	12.9	0.70	45
Martin Luther King Jr.	Columbia	Division	Portland	4	5.8	0.69	38
SW/NW 18th	Thurman	Collins & Jefferson	Portland	1	1.5	0.69	7
Ainsworth	Vancouver	27th	Portland	1	1.5	0.67	5
Gladstone	42nd	52nd	Portland	1	1.5	0.67	7
Hawthorne	51st	Martin Luther King Jr.	Portland	2	3.1	0.66	46
Adair	Baseline	Pacific	Cornelius & Forest Grove	1	1.5	0.65	6
Foster	136th	50th & Powell	Portland	3	4.7	0.64	25
Oak	Baseline & T.V. Highway	10th	Hillsboro	1	1.6	0.62	4
Tualatin Valley Highway	Hocken	10th	Washington Co., Beaverton & Hillsboro	5	8.3	0.60	26
Grand	Broadway	Powell	Portland	2	3.5	0.58	34
Broadway	SW 4th	Naito	Portland	1	2.0	0.49	37
Clinton	50th	12th	Portland	1	2.1	0.48	7
Williams	Jessup	Wheeler	Portland	2	4.2	0.48	25
Vancouver	Weilder	Martin Luther King Jr.	Portland	3	6.3	0.47	30
SE/NE 181st	Sandy	182nd	Gresham	1	2.1	0.47	19
Multnomah	Steel Bridge	21st	Portland	1	2.2	0.45	16
Cesar E. Chavez	Wistaria	Woodstock	Portland	2	4.7	0.42	19
Division	7th	190th	Gresham & Portland	4	9.6	0.41	52
Belmont	69th	Grand	Portland	2	4.8	0.41	15
Broadway	Broadway Bridge	Sandy	Portland	1	2.5	0.40	54
SE 11th	Sandy	Clinton	Portland	1	2.6	0.39	19
Multnomah Blvd.	Garden Home	I-5	Portland	1	2.7	0.37	10
185th	Springville	Farmington	Washington Co. & Hillsboro	2	6.0	0.33	21
Barbur Drive	65th	Sheridan	Portland	2	6.3	0.32	26
NE/SE 82nd	Killingsworth	Berkeley St.	Clackamas Co., Gladstone & Portland	4	13.4	0.30	61

Methodology

Metro reviewed methods used by San Francisco, Los Angeles, Florida, Toledo, Hillsborough County MPO, Kentucky, San Diego, Mid-Ohio Regional Planning Commission, Portland and ODOT. Metro had several goals for the methodology:

- that it be replicable so that it could be used over time to track changes;
- that it be quantifiable so that assessments could be made objectively;
- that it focus on severe crashes and not fender benders;
- that it focus on the regional transportation network;
- that it identify high injury corridors and not only hot spots;
- that it capture a majority of the fatal and severe crashes in the region while also resulting in a subset of roadways in order to support planning and prioritization;
- that segments be normalized by segment length.

Metro primarily utilized the approaches developed by San Francisco and Portland and then developed a GIS based analysis that achieved the goals. [4]

1. 2010-2014 crash data from the Oregon Department of Transportation was analyzed weighting fatal and severe crashes higher than other crashes.
2. Regional transportation networks for freight, arterial and throughway, transit, bicycle and pedestrians indentified in the 2014 RTP were combined into one regional transportation network.
3. Corridors were created based on the location of severe crashes, which were given an aggregate crash score based on the frequency and severity of crashes, normalized by the length of the segment.
4. The corridors identified as high injury corridors are the roadway segments with the highest crash score per mile on the regional transportation network. The analysis was done separately for auto only crashes, bicycle/auto crashes, and pedestrian/auto crashes to identify the corridors where at least 50% of all severe crashes for each of the modes are occurring.
5. The combined high injury corridors identify 60% of all severe crashes.

[4] "Identifying High Injury Density Corridors and Areas for Targeted Safety Improvements to Reduce Severe and Fatal Pedestrian Injuries: A Methodology" 2013 http://www.sfhealthequity.org/images/Merged_HIC_Methods_2015.pdf
Portland High Crash Network: https://www.portlandoregon.gov/transportation/54892 and High Collision Intersections: https://www.portlandoregon.gov/transportation/article/549274

6. Intersections with the highest weighted crash scores are also identified. There are 42 intersections, or 1% of all 4,200 intersections in the region that have a weighted crash score greater than 128. There are 174 intersections in the top 5%, with weighted crash scores higher than 80.

The crashes/ corridors are not normalized by vehicle miles traveled (VMT) or by population. Normalizing by VMT and population is helpful to understand crash rates, and the Metro State of Safety Report provides crash rates at various levels of geography. The high injury corridors weighted crash scores are purposefully not normalized by VMT or population because the intent was to identify corridors and intersections with the highest concentrations of severe crashes, compared to the rest of the region, no matter the number of VMT or population. This intent is tied directly to achieving a zero deaths and severe injuries target.

Consistency with other high crash locations

In the Portland metropolitan area several jurisdictions have identified high crash networks or locations, including Portland, Washington County, Clackamas County, and Hillsboro. Additionally, ODOT and many jurisdictions use Safety Priority Index System (SPIS) and All Roads Transportation Safety (ARTS) program high crash locations. The regional high injury corridors do not contradict the locations identified by these agencies, but do provide:

- a regionally consistent methodology for the regional transportation network,
- focus on fatal and severe crashes,
- are specific to the urban region,
- and identify corridors as opposed to hot spots.[5]

Both ARTS and SPIS focus on specific locations, while the HICs identify corridors. HICs and ARTS focus on severe crashes. SPIS captures locations where there are also high frequency and rate of crashes, in addition to severe crashes; a roadway segment becomes a SPIS site if a location has three or more crashes or one or more fatal crashes over the three year period. The ARTS program identifies hotspot locations, defined as a location that has at least one fatal or serious injury crash within the last five years. SPIS sites and ARTS hotspots overlap with the high injury corridors and the regional high crash intersections identify high crash locations that are not necessarily on a high injury corridor.

High risk areas

Identifying areas that have high crash risk factors (posted speed, signalized intersections, unlit streets, number of liquor establishments, lack of medians, driveway density, etc.) but do not have high concentrations of severe crashes provides a useful for further prioritizing safety efforts. Metro is exploring availability of data, resources, possibility of developing high risk

[5] The San Francisco analysis noted that "corridor-level and area-level analysis is necessary for efficient and effective injury prevention." http://www.sfhealthequity.org/images/Merged_HIC_Methods_2015.pdf

corridors, however most corridors with identified high risk factors will overlap with the high injury corridors. Part of the reason the 2012 RTSP recommended identifying high injury corridors, as opposed to high crash locations, is that a corridor approach highlights the roadways that have high risk factors. Metro reviewed the "Risk Based Pedestrian and Bicycle Project Corridors" identified in ODOT's Pedestrian and Bicycle Safety Implementation Plan (2014) and found that every risk based corridor in that plan overlapped with a regional HIC. [6]

[6] https://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/docs/pdf/13452_report_final_partsA+B.pdf

GIS ANALYSIS METHODOLOGY

Part 1:

1. Prepare streets and crashes for analysis
   - Streets:
     - Combine RTP networks and save a copy of those within the study area
     - Recalculate empty "STREETNAME" and "DIRECTION" fields as NULL
     - Create a dataset of only the freeways/highways dissolved by "STREETNAME" and "DIRECTION"
     - Create a dataset of streets other than freeways/highways dissolved by "STREETNAME", where the name is not NULL
     - Merge the freeways and non-freeways datasets
     - Break the streets at each intersection
   - Crashes:
     - Select crashes within the study area that occurred during or after a specified year
     - Save a copy of the selected crashes that intersect the RTP Network
2. Select and merge streets where crashes occurred
   - Create a layer of the crashes where the injury severity is Fatal/A or B/C for modes pedestrian or bicycle
   - Flag RTP cross-streets that intersect the crashes layer
   - Combine street segments with the same "STREETNAME", "DIRECTION", and crash flag (1/yes or 0/no)
   - Add adjacent street segments that are equal or less than ¼ mile
3. Separate multi-part streets that are more than 75 feet apart
4. Combine streets by name, direction, and buffer location to get crash corridors

Part 2:

1. Join crashes to corridors and calculate weighted sum by mode and normalized by street length

Corridors (percent severe injuries)	Miles	RTP Network (1,739 miles)	All Streets (6,565 miles)
Regional HIC (60%)	398	23%	6%
RHIC – auto (50%)	282	16%	4%
RHIC – bike (50%)	177	10%	3%
RHIC – ped. (50%)	133	8%	2%

>= 5280 feet
60% severe crashes

Combined (Ped/Bike/Auto) High Injury Corridors –Severe Crashes per Mile									
Corridor	**From**	**To**	**Jurisdiction**	**# of Severe Crashes**	**Length**	**Severe Crashes per Mile**	**# Severe Ped**	**# Severe Bike**	**# Severe Auto**
I-5 Southbound	I-405 at Fremont Bridge	Burnside Bridge	Portland	13	1.5	8.61	2	0	11
Adair	Baseline	Pacific Highway	Cornelius & Forest Grove	13	1.5	8.48	1	1	11
Division	7th	190th	Gresham & Portland	80	9.6	8.29	22	4	54
I-5 Northbound	Marquam Bridge	I-405 at Fremont Bridge	Portland	18	2.5	7.13	2	0	16
181st	Sandy	182nd (Merging)	Gresham	14	2.1	6.62	2	1	11
Tualatin Valley Highway	Hocken	10th	Washington Co. & Beaverton & Hillsboro	55	8.3	6.60	10	5	40
Broadway	SW 4th	Naito	Portland	13	2.0	6.36	4	1	8
Ross Island Bridge	Grand	I-5	Portland	8	1.4	5.81	1	0	7
82nd	Killingsworth	E. Berkeley	Clackamas Co. Gladstone, Portland	75	13.4	5.60	27	4	44
Foster	136th	50th & Powell	Portland	26	4.7	5.57	8	3	15
102nd	Sandy	Cherry Blossom (Merging)	Maywood Park & Portland	15	2.9	5.19	4	0	11
Powell	Burnside	McLoughlin	Gresham & Portland	65	12.9	5.04	15	9	41
I-84 Westbound	82nd	Martin Luther King Jr.	Portland	24	4.8	5.04	2	1	21
Rosa Parks	42nd	Killingsworth	Portland	8	1.6	4.98	0	0	8
96th	99th & Washington	Division	Portland	5	1.0	4.96	1	0	4
I-5 Southbound	Hwy 217	Tualatin River	Tigard	5	1.0	4.85	0	0	5
185th	Springville	Farmington	Washington County & Hillsboro	29	6.0	4.82	2	2	25
SE/NE 162nd	Powell	Sandy	Gresham & Portland	18	3.8	4.76	5	1	12
Martin Luther King Jr.	Columbia Blvd.	Division	Portland	27	5.8	4.66	6	4	17
Sunset Highway (Eastbound)	Hwy 217	Tunnel	Multnomah Co. Beaverton & Portland	9	1.9	4.63	0	0	9
Grand Avenue	Broadway	Powell	Portland	16	3.5	4.63	4	2	10
Highway 217	Beaverton Hillsdale	Sunset Highway	Beaverton	8	1.8	4.57	0	0	8
Washington Street	Stark	Thorburn	Portland	9	2.0	4.56	1	0	8
Tualatin Valley Highway	341st	17th	Washington Co. Cornelius & Hillsboro	5	1.1	4.54	1	0	4
Halsey	I-84 at NE 67th	Sandy	Portland	7	1.6	4.48	1	0	6
McLoughlin	Jefferson	Oregon City Bridge	Clackamas Co, Gladstone, Milwaukie & Oregon City	30	6.8	4.41	13	1	16
Highway 8 / Canyon	Hocken	Sunset Highway	Beaverton	17	3.9	4.41	3	1	13
I-205 Southbound	Washington State Line	Marine Dr	Portland	7	1.6	4.36	0	0	7
Wiedler	24th	Broadway (Merging)	Portland	6	1.4	4.31	0	2	4
Highway 217 –	Pacific Highway	Scholls Ferry	Beaverton & Tigard	7	1.6	4.29	0	0	7

Combined (Ped/Bike/Auto) High Injury Corridors –Severe Crashes per Mile									
Corridor	**From**	**To**	**Jurisdiction**	**# of Severe Crashes**	**Length**	**Severe Crashes per Mile**	**# Severe Ped**	**# Severe Bike**	**# Severe Auto**
I - 84 Eastbound	I-5	I-205	Portland	21	4.9	4.28	1	0	20
Highway 8 / Baseline	TV Highway (near SW 17th)	TV Highway (near SE 10th)	Hillsboro	7	1.7	4.22	2	0	5
Beaverton Hillsdale	Capitol Highway	Lombard	Washington Co. Beaverton & Portland	22	5.3	4.13	4	0	18
112th	Holgate	Market	Portland	6	1.5	3.98	1	0	5
Highway 217 -	Beaverton Hillsdale	Sunset Highway	Beaverton	7	1.8	3.96	0	0	7
I-5 Northbound	Nyberg	Kruse	Clackamas Co. Washington Co, Lake Oswego Tigard & Tualatin	11	2.8	3.96	0	0	11
Cedar Hills	Farmington	Cornell	Beaverton	13	3.3	3.92	2	0	11
257th	I-84	Stark	Troutdale	8	2.1	3.90	1	2	5
Everett	Westover	Naito	Portland	7	1.8	3.85	2	2	3
47th	Glisan	Wistaria	Portland	4	1.0	3.83	0	0	4
Sandy	7th	165th	Portland	36	9.6	3.76	9	0	27
Allen	Davis	92nd	Beaverton	11	2.9	3.75	0	1	10
Tualatin Sherwood	Pacific	Nyberg	Washington Co. Sherwood & Tualatin	17	4.5	3.75	0	0	17
I-5 Southbound	Bertha Blvd	Powell	Portland	10	2.7	3.73	1	0	9
Highway 212	122nd / Highway 224	Clackamas Highway / 224	Clackamas County & Happy Valley	6	1.6	3.72	1	0	5
I-205 Southbound	Division St	Washington	Portland	4	1.1	3.70	0	0	4
Brookwood	Shute	Sunset Highway	Hillsboro	4	1.1	3.68	0	0	4
I-205 Southbound	Killingsworth	Alderwood	Maywood Park & Portland	6	1.6	3.66	1	0	5
Highway 8 / Pacific	Baseline	E St. (Forest Grove)	Cornelius & Forest Grove	9	2.5	3.63	1	0	8
I-5 Southbound	Nyberg	Kruse	Tigard & Tualatin	5	1.4	3.62	0	0	5
Cesar E. Chavez	Wistaria	Woodstock	Portland	17	4.7	3.61	4	2	11
I-5 Southbound	Multnomah	Capitol Highway	Portland	6	1.7	3.59	1	0	5
I-205 Northbound	Airport Way	Washington State Line	Portland	6	1.7	3.59	0	0	6
I-5 Southbound	Wilsonville Rd	Miley	Clackamas County & Wilsonville	4	1.1	3.58	0	0	4
Kane	257th & Stark	Orient & Palmquist	Gresham & Troutdale	8	2.2	3.56	2	0	6
Burnside	75th	124th	Portland	9	2.6	3.49	4	0	5
122nd	Skidmore	Foster	Portland	19	5.5	3.48	4	0	15
11th	Sandy	Clinton	Portland	9	2.6	3.48	1	1	7
Barbur	65th	Sheridan	Portland	22	6.3	3.47	3	2	17

Combined (Ped/Bike/Auto) High Injury Corridors –Severe Crashes per Mile									
Corridor	**From**	**To**	**Jurisdiction**	**# of Severe Crashes**	**Length**	**Severe Crashes per Mile**	**# Severe Ped**	**# Severe Bike**	**# Severe Auto**
Farmington	170th	Beaverton Hillsdale	Washington County & Beaverton	18	5.2	3.46	4	1	13
182nd	Powell	181st (Merging)	Gresham	6	1.7	3.45	2	0	4
Burnside	Barnes	68th	Portland	35	10.2	3.42	14	1	20
1st	Glencoe (Merging)	Wood	Hillsboro	5	1.5	3.38	1	0	4
6th	Sheridan	Irving (Union Station)	Portland	6	1.8	3.29	2	0	4
Hawthorne	51st	Martin Luther King Jr.	Portland	10	3.1	3.28	2	2	6
Lovejoy	Cornell	Broadway	Portland	4	1.3	3.08	1	0	3
Murray	Barrows	Walker	Beaverton & Tigard	18	5.9	3.08	1	2	15
4th	Sheridan	Burnside	Portland	4	1.3	3.06	2	0	2
Highway 224	82nd	Rusk Rd.	Clackamas County & Milwaukie	4	1.3	3.01	1	0	3
Highway 8 / Baseline	Tualatin Valley Highway	Pacific	Cornelius	7	2.3	3.01	1	0	6
Highway 8 / Baseline	Jenkins	Brookwood & Main	Washington Co, Beaverton & Hillsboro	14	4.6	3.01	1	0	13
Cornell	Main	Butler	Hillsboro	16	5.3	3.01	1	1	14
Evergreen	Glencoe	Cornell	Washington Co & Hillsboro	21	7.0	3.00	1	1	19
Millikan	Tualatin Valley Highway	Hocken	Beaverton	5	1.7	2.99	1	1	3
Skidmore	Interstate	Martin Luther King, Jr.	Portland	3	1.0	2.98	0	1	2
158th	Cornell	Jenkins	Beaverton	5	1.7	2.92	1	1	3
Highway 212	Mckinley	122nd Ave / Hwy 224	Clackamas Co & Happy Valley	7	2.4	2.91	3	0	4
Johnson Creek	45th	Highgate	Clackamas Co, Happy Valley, Milwaukie & Portland Airport	10	3.5	2.88	0	1	9
Capitol Highway	Lesser (Merging)	Taylors Ferry	Portland	4	1.4	2.87	1	0	3
Burnside	127th	Powell	Gresham & Portland	26	9.1	2.85	3	2	21
Jennings	River	Webster	Clackamas Co & Gladstone	6	2.1	2.84	1	0	5
Pacific Highway	Main	Barbur	Washington Co, Portland, Sherwood, Tigard & Tualatin	31	10.9	2.84	5	2	24
Hogan	242nd (Merging)	Butler	Gresham & Troutdale	11	3.9	2.83	1	2	8
Lombard	42nd	Pier Park	Portland	23	8.5	2.70	8	1	14
50th	Powell	Division	Portland	3	1.1	2.69	1	2	0
Gladstone	42nd	52nd	Portland	4	1.5	2.68	1	1	2
Garden Home	Multnomah	92nd Place	Washington Co, Beaverton & Portland	3	1.1	2.66	0	0	3
Glisan	Cesar E Chavez	202nd	Gresham & Portland	30	11.5	2.61	6	3	21
Glisan	Steel Bridge	24th	Portland	5	1.9	2.60	2	0	3

Combined (Ped/Bike/Auto) High Injury Corridors –Severe Crashes per Mile									
Corridor	**From**	**To**	**Jurisdiction**	**# of Severe Crashes**	**Length**	**Severe Crashes per Mile**	**# Severe Ped**	**# Severe Bike**	**# Severe Auto**
Lower Barnes Ferry	Pilkington	Upper Boones Ferry	Durham, Lake Oswego & Tualatin	3	1.2	2.51	0	0	3
Stark	76th	Historic Columbia River HWY	Multnomah Co, Gresham, Portland & Troutdale	30	12.0	2.50	7	2	21
28th	Madison	Knott	Portland	5	2.0	2.48	3	0	2
Oak	Baseline & T.V. Highway	10th	Hillsboro	4	1.6	2.47	1	1	2
10th	Cornelius Schefflin [illegible]	Oleander	Cornelius	3	1.2	2.44	0	1	2
10th	Northrup	Market	Portland	3	1.2	2.40	1	0	2
Broadway	Broadway Bridge	Sandy	Portland	6	2.5	2.39	2	1	3
Holgate	136th	McLoughlin Blvd	Portland	24	10.0	2.39	4	2	18
Killingsworth	Greeley	Sandy	Portland	23	9.8	2.35	8	2	13
Minter Bridge	Noland	Tualatin Valley Highway	Washington Co & Hillsboro	3	1.3	2.29	0	0	3
Main	Brookwood	Oak	Hillsboro	8	3.5	2.27	0	0	8
Multnomah	Garden Home	I-5	Portland	6	2.7	2.22	0	1	5
Belmont	69th	Grand	Portland	10	4.8	2.07	2	2	6
185th	Thurman	Jefferson & Columbia	Portland	3	1.5	2.06	1	1	1
Alberta	33rd	Martin Luther King, Jr.	Portland	3	1.5	2.01	2	0	1
Molalla	Garden Meadow	7th	Oregon City	4	2.0	1.97	0	0	4
Multnomah	Steel Bridge	21st	Portland	4	2.2	1.82	2	1	1
223rd	Halsey	Eastman (Merging)	Fairview & Gresham & Wood Village	3	1.7	1.81	0	0	3
11th	Lovejoy	Market	Portland	2	1.1	1.77	1	0	1
5th	Irving	Sheridan	Portland	3	1.8	1.64	1	0	2
Williams	Jessup	Wheeler	Portland	6	4.2	1.44	0	2	4
Sunnyside	82nd	119th	Clackamas Co & Happy Valley	3	2.1	1.40	0	0	3
Division	Troutdale	Eastwood	Multnomah Co & Gresham	6	4.4	1.35	3	0	3
Capitol Highway	Beaverton Hillsdale / [illegible]	Barbur	Portland	3	2.3	1.31	1	0	2
Eastman	223rd & Fairview	Towle (South Of Powell)	Gresham	2	1.7	1.17	0	0	2
26th	Holgate	Division	Portland	1	1.0	1.00	0	0	1
30th	Division	Stark	Portland	1	1.0	1.00	0	0	1
Jefferson	Vista	3rd	Portland	1	1.0	0.99	0	0	1
Ankney	28th	Martin Luther King, Jr.	Portland	1	1.2	0.84	0	1	0

Auto High Injury Corridors –Severe Crashes per Mile						
Corridor	**From**	**To**	**Jurisdiction**	**# of Crashes**	**Length**	**Severe Crashes per Mile**
I-5 Southbound	I-405 at Fremont Bridge	Burnside Bridge	Portland	11	1.5	7.28
Adair	Baseline	Pacific	Cornelius & Forest Grove	11	1.5	7.18
I-5 Northbound	Marquam Bridge	I-405	Portland	16	2.5	6.34
Division	7th	190th	Gresham & Portland	54	9.6	5.60
181st	Sandy	182nd	Gresham	11	2.1	5.20
Ross Island Bridge	Grand	I-5	Portland	7	1.4	5.08
Rosa Parks	Cully	Killingsworth	Portland	8	1.6	4.98
I-5 - Southbound	Hwy 217	Tualatin River	Tigard	5	1.0	4.85
Tualatin Valley Highway	Hocken	10th	Washington County, Beaverton, & Hillsboro	40	8.3	4.80
Sunset Highway (Eastbound)	Hwy 217	Tunnel	Multnomah County, Beaverton, & Portland	9	1.9	4.63
Hwy 217 Southbound	Sunset Highway	Beaverton Hillsdale	Beaverton	8	1.8	4.57
I-84 Westbound	Martin Luther King Jr.	82nd	Portland	21	4.8	4.41
I-205 Southbound	Washington State Line	Marine Dr	Portland	7	1.6	4.36
Hwy 217 Northbound	Scholls Ferry	Pacific Highway	Beaverton & Tigard	7	1.6	4.29
185th	Springville	Farmington	Washington County & Hillsboro	25	6.0	4.16
I-84 Eastbound	I-5	I-205	Portland	20	4.9	4.07
Washington Street	Stark St.	Thorburn	Portland	8	2.0	4.05
96th	SE Washington St.	SE Division St.	Portland	4	1.0	3.97
Hwy 217 Northbound	Beaverton Hillsdale	Sunset Highway	Beaverton	7	1.8	3.96
I-5 Northbound	Kruse	Nyberg	Clack. Co, Wash. Co, L. Oswego, Tigard & Tualatin	11	2.8	3.96
Broadway	SW 4th	Naito	Portland	8	2.0	3.92
Halsey	I-84 at NE 67th	Sandy	Portland	6	1.6	3.84
47th	Glisan	Wistaria	Portland	4	1.0	3.83
102nd	Sandy	Cherry Blossom	Maywood Park & Portland	11	2.9	3.81
Tualatin Sherwood	Pacific Highway	Nyberg	Washington County & Sherwood & Tualatin	17	4.5	3.75
I-205 Southbound	Washington State Line	Division	Portland	4	1.1	3.70
Brookwood	Shute	Sunset Highway	Hillsboro	4	1.1	3.68
Tualatin Valley Highway	341st	17th	Washington County, Cornelius, & Hillsboro	4	1.1	3.63
I-5 Southbound	Nyberg	Kruse	Tigard & Tualatin	5	1.4	3.62
I-205 Northbound	Airport Way	Washington State Line	Portland	6	1.7	3.59
I-5 Southbound	Wilsonville Road	Miley	Clackamas County & Wilsonville	4	1.1	3.58
SE Bob Schumacher Road	Idleman & Otty	Stevens	Clackamas County & Happy Valley	4	1.1	3.49

Auto High Injury Corridors –Severe Crashes per Mile						
Corridor	**From**	**To**	**Jurisdiction**	**# of Crashes**	**Length**	**Severe Crashes per Mile**
I-5 Northbound	Bertha Blvd	Marquam Bridge	Portland	11	3.2	3.45
Allen	Davis	92nd	Beaverton	10	2.9	3.41
Beaverton Hillsdale	Capitol Highway	Lombard	Washington County, Beaverton, & Portland	18	5.3	3.38
Canyon	Hocken	Sunset Highwa	Beaverton	13	3.9	3.37
I-5 Southbound	Bertha Blvd	Powell	Portland	9	2.7	3.36
112th	Holgate	Cherry Blossom	Portland	5	1.5	3.32
Cedar Hills	Farmington	Cornell	Beaverton	11	3.3	3.32
82nd	Killingsworth	Causey	Clackamas County & Gladstone & Portland	44	13.4	3.29
Pacific	Baseline	E St (Forest Grove)	Cornelius & Forest Grove	8	2.5	3.23
Foster	136th	50th & Powell	Portland	15	4.7	3.21
Powell	Burnside	McLoughlin	Gresham & Portland	41	12.9	3.18
162nd	Powell	Sandy	Gresham & Portland	12	3.8	3.17
Hwy 212	Highway 224 (near 122nd)	Highway 224 (near 152nd)	Clackamas County & Happy Valley	5	1.6	3.10
I-5 Northbound	Multnomah	99W	Portland	9	2.9	3.06
I205 Southbound	Killingsworth	Alderwood	Maywood Park & Portland	5	1.6	3.05
Baseline	TV Highway (near SW 17th)	TV Highway (near SE 10th)	Hillsboro	5	1.7	3.01
I-5 Southbound	Multnomah	Capitol Highway	Portland	5	1.7	2.99
I-205 Northbound	South of SE Sunnybrook Blvd.	Strawberry	Clackamas County	6	2.0	2.99
Martin Luther King Jr.	Columbia	Division	Portland	17	5.8	2.93
Grand	Broadway	Powell	Portland	10	3.5	2.89
Weidler	24th	Broadway	Portland	4	1.4	2.87
Brockman	125th & Greenway	Beard	Beaverton	3	1.1	2.82
Sandy	7th	165th	Maywood Park & Portland	27	9.6	2.82
I-5 Northbound	Rosa Parks	Columbia	Portland	3	1.1	2.81
Baseline	Jenkins	Brookwood & Main	Washington County, Beaverton & Hillsboro	13	4.6	2.80
Avery	Tualatin Sherwood	Boones Ferry	Tualatin	3	1.1	2.78
I-5 Southbound	Rosa Parks	Columbia	Portland	3	1.1	2.77
Butler	190th & Pleasant View	Regner	Gresham	5	1.8	2.75
122nd	Skidmore	Foster	Portland	15	5.5	2.75
Evergreen	Glencoe	Cornell	Washington County & Hillsboro	19	7.0	2.71
11th	Sandy	Clinton	Portland	7	2.6	2.70
1st	Glencoe	Wood	Hillsboro	4	1.5	2.70

Auto High Injury Corridors –Severe Crashes per Mile						
Corridor	**From**	**To**	**Jurisdiction**	**# of Crashes**	**Length**	**Severe Crashes per Mile**
Barbur	65th	Sheridan	Portland	17	6.3	2.68
Bethany	West Union	Cornell	Washington County & Beaverton	3	1.1	2.68
Kane	257th & Stark	Orient & Palmquist	Gresham & Troutdale	6	2.2	2.67
Garden Home	Multnomah	92nd Place	Washington County, Beaverton, &Portland	3	1.1	2.66
Cornell	Main	Butler	Hillsboro	14	5.3	2.63
Highway 47	David Hill	Martin	Washington County & Forest Grove	4	1.5	2.62
Johnson Creek	42nd	Highgate	Clackamas Co, Happy Valley, Milwaukie & PDX	9	3.5	2.59
Baseline	Tualatin Valley Highway	Pacific	Cornelius	6	2.3	2.58
I-5 Northbound	Wilsonville Road	Miley	Clackamas County & Wilsonville	3	1.2	2.58
Brookwood	Shute	Tualatin Valley Highway	Hillsboro	10	3.9	2.57
Murray	Barrows	Walker	Beaverton & Tigard	15	5.9	2.56
Halsey	84th	244th	Fairview, Gresham, PDX, Troutdale & W.V.	24	9.5	2.54
Lower Boones Ferry	Pilkington	Upper Boones Ferry	Lake Oswego & Tualatin	3	1.2	2.51
Farmington	170th	Beaverton Hillsdale	Washington County & Beaverton	13	5.2	2.50
Orient	Kane & Palmquist	Welch	Gresham	3	1.2	2.49
Barnes	Burnside	118th	Washington County, Beaverton & Portland	8	3.2	2.48
257th	I-84	Kane & Stark	Troutdale	5	2.1	2.44
Jennings	River	Webster	Clackamas County & Gladstone	5	2.1	2.37
McLoughlin	Jefferson	Willamette Drive	Clack Co, Gladstone, Milwaukie & Oregon City	16	6.8	2.35
Cesar E. Chavez	Wistaria	Woodstock	Portland	11	4.7	2.33
Lovejoy	Cornell	Broadway	Portland	3	1.3	2.31
Burnside	127th	Powell	Gresham & Portland	21	9.1	2.30
182nd	Highland & Powell	181st	Gresham	4	1.7	2.30

Pedestrian High Injury Corridors – Severe Crashes per Mile							
Corridor	**From**	**To**	**Jurisdiction**	**# of Severe Crashes**	**Length**	**Severe Crashes per Mile**	**# of Minor Crashes Mile**
Division	7th	190th	Gresham & Portland	22	9.6	2.28	61
82nd	Killingsworth	Causey	Clackamas Co., Gladstone & PDX	27	13.4	2.02	93
Broadway	SW 4th	Naito	Portland	4	2.0	1.96	24
McLoughlin	Jefferson	Oregon City Bridge	Clackamas Co., Gladstone, Milwaukie, & Oregon City	13	6.8	1.91	32
Foster	136th	50th Ave & Powell Blvd.	Portland	8	4.7	1.71	18
East Burnside	75th	124th	Portland	4	2.6	1.55	7
SW 4th	Sheridan	Burnside	Portland	2	1.3	1.53	20
SE 28th	Madison	Knott	Portland	3	2.0	1.49	5
SE/NE 102nd	Sandy	Cherry Blossom	Maywood Park & Portland	4	2.9	1.38	19
Burnside	At SW Barnes	NE 68th	Portland	14	10.2	1.37	56
Alberta	33rd	Martin Luther King Jr.	Portland	2	1.5	1.34	13
SE/NE 162nd	Powell	Sandy	Gresham & Portland	5	3.8	1.32	11
Highway 212	I-205	East of HWY 224 Interchange	Clackamas County & Happy Valley	3	2.4	1.25	9
Baseline	TV Highway (near SW 17th)	TV Highway (near SE 10th)	Hillsboro	2	1.7	1.21	12
Powell	Burnside	McLoughlin	Gresham & Portland	15	12.9	1.16	75
Grand	Broadway	Powell	Portland	4	3.5	1.16	12
SE 182nd	Highland & Powell	181st	Gresham	2	1.7	1.15	7
Everett	Westover	Naito	Portland	2	1.8	1.10	13
SW/NW 6th Ave.	Sheridan	Irving	Portland	2	1.8	1.10	10
Martin Luther King Jr.	Columbia	Division	Portland	6	5.8	1.03	31
SE 96th	Washington Street	Division	Portland	1	1.0	0.99	5
SE 181st	Sandy	182nd	Gresham	2	2.1	0.95	16
Sandy	7th	165th	Maywood Park & Portland	9	9.6	0.94	41
Multnomah Street	Steel Bridge	21st	Portland	2	2.2	0.91	14
Kane	257th & Stark	Orient & Palmquist	Gresham & Troutdale	2	2.2	0.89	15
SW/NW 11th	Lovejoy	Market	Portland	1	1.1	0.89	7
Cesar E. Chavez	Wistaria	Woodstock	Portland	4	4.7	0.85	27
SW/ NW 10th Ave.	Northrup	Market	Portland	1	1.2	0.80	8
Broadway	Broadway Bridge	Sandy	Portland	2	2.5	0.80	26
Lovejoy	Cornell	Broadway	Portland	1	1.3	0.77	8
NE/SE 122nd	Skidmore	Foster	Portland	4	5.5	0.73	30
1st	Glencoe	Wood	Hillsboro	1	1.5	0.68	12
Hawthorne	51st	Martin Luther King Jr.	Portland	2	3.1	0.66	18
SW/NW 5th	7th	190th	Portland	1	1.8	0.55	14
Jefferson	Vista	3rd	Portland	0	1.0	0.00	8

Bike High Injury Corridors –Severe Crashes per Mile							
Corridor	**From**	**To**	**Jurisdiction**	**# of FA Crashes**	**Length**	**FA Crashes per Mile**	**# of BC Crashes**
SE 50th	Powell	Division	Portland	2	1.1	1.79	5
NE Wielder	24th	Broadway	Portland	2	1.4	1.44	19
Marine Drive	122nd	Portland Airport	Portland	3	2.7	1.12	3
NW Everett	Westover	Naito	Portland	2	1.8	1.10	13
Skidmore	Interstate	Martin Luther King Jr.	Portland	1	1.0	0.99	11
SW/NE 257th	I-84	Kane & Stark	Troutdale	2	2.1	0.97	6
SE 28th	Woodstock	Gladstone	Portland	1	1.1	0.88	3
SE Ankeny	28th	Martin Luther King Jr.	Portland	1	1.2	0.84	14
10th	Cornelius Schefflin	Oleander	Cornelius	1	1.2	0.81	3
Powell	Burnside	McLoughlin	Gresham & Portland	9	12.9	0.70	45
Martin Luther King Jr.	Columbia	Division	Portland	4	5.8	0.69	38
SW/NW 18th	Thurman	Collins & Jefferson	Portland	1	1.5	0.69	7
Ainsworth	Vancouver	27th	Portland	1	1.5	0.67	5
Gladstone	42nd	52nd	Portland	1	1.5	0.67	7
Hawthorne	51st	Martin Luther King Jr.	Portland	2	3.1	0.66	46
Adair	Baseline	Pacific	Cornelius & Forest Grove	1	1.5	0.65	6
Foster	136th	50th & Powell	Portland	3	4.7	0.64	25
Oak	Baseline & T.V. Highway	10th	Hillsboro	1	1.6	0.62	4
Tualatin Valley Highway	Hocken	10th	Washington Co., Beaverton & Hillsboro	5	8.3	0.60	26
Grand	Broadway	Powell	Portland	2	3.5	0.58	34
Broadway	SW 4th	Naito	Portland	1	2.0	0.49	37
Clinton	50th	12th	Portland	1	2.1	0.48	7
Williams	Jessup	Wheeler	Portland	2	4.2	0.48	25
Vancouver	Weilder	Martin Luther King Jr.	Portland	3	6.3	0.47	30
SE/NE 181st	Sandy	182nd	Gresham	1	2.1	0.47	19
Multnomah	Steel Bridge	21st	Portland	1	2.2	0.45	16
Cesar E. Chavez	Wistaria	Woodstock	Portland	2	4.7	0.42	19
Division	7th	190th	Gresham & Portland	4	9.6	0.41	52
Belmont	69th	Grand	Portland	2	4.8	0.41	15
Broadway	Broadway Bridge	Sandy	Portland	1	2.5	0.40	54
SE 11th	Sandy	Clinton	Portland	1	2.6	0.39	19
Multnomah Blvd.	Garden Home	I-5	Portland	1	2.7	0.37	10
185th	Springville	Farmington	Washington Co. & Hillsboro	2	6.0	0.33	21

Bike High Injury Corridors –Severe Crashes per Mile							
Corridor	**From**	**To**	**Jurisdiction**	**# of FA Crashes**	**Length**	**FA Crashes per Mile**	**# of BC Crashes**
Barbur Drive	65th	Sheridan	Portland	2	6.3	0.32	26
NE/SE 82nd	Killingsworth	Berkeley St.	Clackamas Co., Gladstone & Portland	4	13.4	0.30	61
Naito	Ross Island Bridge	15th & Front	Portland	1	4.0	0.25	19
26th	Holgate	Division	Portland	0	1.0	0.00	11
4th	Sheridan	Burnside	Portland	0	1.3	0.00	14
Capitol Highway	Beaverton Hillsdale & Bertha	Barbur Blvd	Portland	0	2.3	0.00	24
30th	Division	Stark	Portland	0	1.0	0.00	9
28th	Madison	Knott	Portland	0	2.0	0.00	16
Eastman	223rd & Fairview	Towle	Gresham	0	1.7	0.00	13
6th	Sheridan	Irving & Stanton	Portland	0	1.8	0.00	10
122nd	Skidmore	Foster	Portland	0	5.5	0.00	32
96th	99th & Washington	Division & Powell	Portland	0	1.0	0.00	6
Kane	257th & Stark	Orient & Palmquist	Gresham & Troutdale	0	2.2	0.00	12
25th	Evergreen	Veterans	Washington County & Hillsboro	0	1.8	0.00	9
Burnside	75th	124th	Portland	0	2.6	0.00	13
14th	Northrup	Jefferson	Portland	0	1.0	0.00	5
Cornell	Main	Butler	Hillsboro	0	5.3	0.00	22
223rd	Halsey	Eastman & Fairview	Fairview, Gresham & Wood Village	0	1.7	0.00	8
Morrison	25th	Grand	Portland	0	2.0	0.00	9
Division	Troutdale	Eastwood	Multnomah County & Gresham	0	4.4	0.00	19
1st	Salmon	Grover	Portland	0	1.2	0.00	5
Greenburg	Hall	North Dakota	Beaverton & Tigard	0	1.1	0.00	5
Sagert	Boones Ferry	65th	Tualatin	0	1.2	0.00	5

Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy and sustainable transportation and living choices for people and businesses in the region. Voters have asked Metro to help with the challenges and opportunities that affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to providing services, operating venues and making decisions about how the region grows. Metro works with communities to support a resilient economy, keep nature close by and respond to a changing climate. Together we're making a great place, now and for generations to come.

Metro | *Making a great place*

Metro Regional Center
600 NE Grand Ave.
Portland, OR 97232-2736
www.oregonmetro.gov

2018 Regional Transportation Plan

www.oregonmetro.gov/rtp

Oct. 26, 2015

Memo

Metro
600 NE Grand Ave.
Portland, OR 97232-2736

Date: January 25, 2017
To: Metro Technical Advisory Committee
From: Ted Reid, Principal Regional Planner
Subject: Urban Growth Readiness Task Force recommendations: Metro code amendments

NOTE – This is an updated version of the memo that was included in MTAC's December 7, 2016 meeting packet that reflects MTAC's discussion. MTAC discussion notes are in the margins. Proposed code language deletions are shown as ~~strikethrough~~ and additions are shown as underline.

Background on the Urban Growth Readiness Task Force

As part of its 2015 urban growth management decision, the Metro Council expressed its intent to work with its partners to explore possible improvements to the region's urban growth management processes. Specifically, the Metro Council seeks more flexibility to respond to city proposals for modest residential urban growth boundary (UGB) expansions into acknowledged and concept-planned urban reserves. Council President Hughes has convened an Urban Growth Readiness Task Force that has met four times since May to develop recommendations to achieve that flexibility.

Overview of concepts recommended by the Task Force

The Task Force found consensus[1] around three concepts to implement in the nearer term. The Task Force recommends making a fourth concept (UGB exchanges) a longer-term discussion item. The three recommended concepts are generally described as follows:

1. Clarify expectations for cities proposing modest residential UGB expansions
   The Task Force has recommended that cities that propose residential UGB expansions should make the case that they are implementing best practices for providing needed housing in their existing urban areas as well as in the proposed expansion area. The Task Force has recommended that staff continue to work with MTAC to achieve a balance between certainty and flexibility in proposed Metro code amendments.

2. Seek greater flexibility for determining regional housing needs
   The Task Force has recommended pursuing changes to state law and Metro code to allow for a mid-cycle growth management decision process that would be capped at a total of 1,000 gross acres of expansion per mid-cycle decision. The Task Force also recommended that mid-cycle decisions be

[1] The Task Force agreed that "consensus" meant they could all live with the recommendations even if they may individually prefer something different.

made three years after the completion of a decision under the standard six-year cycle (one mid-cycle decision per six-year cycle).

Seek greater flexibility when choosing among urban reserves for UGB expansion

The Task Force has recommended that the Council have the flexibility to choose among the urban reserves being proposed for expansion by cities rather than being required to assess all urban reserves. This would require changes to state law and Metro's code. The Task Force further recommends that this flexibility be limited to mid-cycle decisions.

MTAC advice sought

For now, staff seeks MTAC's assistance in developing code language to address Concept One (Clarify expectations for cities proposing residential UGB expansions). Concepts Two and Three require changes to state law. Staff anticipates returning to MTAC at a later date to discuss how to synchronize Metro code with any amendments to state law. Staff expects that all proposed amendments to Metro code that implement the three concepts will be considered by the Metro Council – with MTAC and MPAC's advice – during the fall of 2017.

Title 11 (Planning for New Urban Areas) of the Urban Growth Management Functional plan provides guidance for cities developing concept plans for urban reserves. MTAC has previously indicated that existing Title 11 requirements are adequate for providing guidance regarding these concept plans. Consequently the primary focus of MTAC's work to address Concept One will be to clarify expectations that speak to citywide actions (not just in the proposed UGB expansion area). These expectations would be included in amendments to Title 14 (Urban Growth Boundaries) of the Urban Growth Management Functional Plan and would apply to all city proposals for residential UGB expansions.

MTAC has previously discussed possible Metro code amendments to address Concept One. In those discussions, MTAC members and Metro staff preliminarily identified actions and conditions – listed below – that cities should demonstrate when requesting residential UGB expansions. Those suggestions echo the themes expressed by the Metro Council and the Task Force.

MTAC members also expressed a desire for the Task Force to clarify whether code amendments should emphasize certainty or flexibility with several MTAC members expressing the view that more specificity (certainty) was needed. The Task Force has subsequently responded that code amendments should strive for a balance. Staff seeks MTAC's advice on how best to achieve the Task Force's request for a balance of certainty and flexibility in these requirements. To achieve more balance, staff believes that MTAC should focus its effort on proposing ways to lend greater specificity to these requirements~~, particularly items C, D, E and F (staff's sense is that it is more evident how a city would address items A and B)~~:

(A) The city has an ~~acknowledged~~ housing needs analysis that is consistent with ~~under~~ Statewide Planning Goal 10 (Housing), that was completed in the last six years, and that is coordinated with Metro's most recent forecast; and

(B) ~~The city is in compliance with the state's Metropolitan Housing Rule regarding densities and the mix of housing; and~~

Comment [TR1]: MTAC felt that items A and B should also be discussed, as reflected below.

Comment [TR2]: MTAC suggested dropping the word "acknowledged" to recognize that cities typically only seek state acknowledgement of a housing needs analysis if they were updating their comprehensive plan.

Comment [TR3]: MTAC suggested the six-year requirement to ensure that analyses are reasonably up to date, but to also recognize that conducting these analyses requires resources, so the requirement shouldn't be overly stringent. MTAC landed on six years as a reasonable timeframe that is consistent with Metro's requirement to conduct a new urban growth report analysis at least every six years. This helps to ensure that city analyses are consistent with recent Metro forecasts.

Comment [TR4]: MTAC suggested that this clause is unnecessary. If a city has a current and complete housing needs analysis, it will show that the city is in compliance with the Metropolitan Housing Rule.

(C) The housing planned for the expansion area would be likely to be built in fewer than 20 years. Cities shall demonstrate this through completion of a concept plan that is consistent with Title 11 of Chapter 3.07 of the Metro Code and by providing a letter of intent signed by the property owners of at least 75% of the land area proposed for the UGB expansion. The letter of intent shall, at a minimum, indicate support for the expansion and concept plan. To show additional property owner support, the letter may also, for example, indicate a willingness to assemble properties or to allow access for infrastructure provision; and

(D) The city is making progress towards the actions described in section 3.07.620[2]; and

(E) The city has implemented best practices for increasing the supply and diversity of affordable housing such as regulatory approaches, public investments, incentives, partnerships, and streamlining of permitting processes; and

(F) The city has taken actions in its existing jurisdiction as well as in the proposed expansion area that will advance Metro's six desired outcomes set forth in Chapter One of the Regional Framework Plan; and

(G) The UGB expansion would provide housing of a type, tenure, and price that is likely to reduce spillover growth into neighboring cities outside the Metro UGB.

Comment [TR5]: MTAC suggested using a percentage, but did not specify one. 75% is an initial staff suggestion for further discussion.

Comment [TR6]: MTAC did not get around to proposing language for this section. This is an initial suggestion from staff.

Comment [TR7]: MTAC did not get around to discussing D through G at its December 7, 2016 meeting

[2] Title 6 is attached to this memo for reference.

Title 6: Centers, Corridors, Station Communities and Main Streets

3.07.610 Purpose

The Regional Framework Plan identifies Centers, Corridors, Main Streets and Station Communities throughout the region and recognizes them as the principal centers of urban life in the region. Title 6 calls for actions and investments by cities and counties, complemented by regional investments, to enhance this role. A regional investment is an investment in a new high-capacity transit line or designated a regional investment in a grant or funding program administered by Metro or subject to Metro's approval.

(Ordinance 97-715B, Sec. 1. Ordinance 98-721A, Sec. 1. Ordinance 02-969B, Sec. 7. Ordinance 10-1244B, Sec. 5.)

3.07.620 Actions and Investments in Centers, Corridors, Station Communities and Main Streets

(a) In order to be eligible for a regional investment in a Center, Corridor, Station Community or Main Street, or a portion thereof, a city or county shall take the following actions:

(1) Establish a boundary for the Center, Corridor, Station Community or Main Street, or portion thereof, pursuant to subsection (b);

(2) Perform an assessment of the Center, Corridor, Station Community or Main Street, or portion thereof, pursuant to subsection (c); and

(3) Adopt a plan of actions and investments to enhance the Center, Corridor, Station Community or Main Street, or portion thereof, pursuant to sub(d).

(b) The boundary of a Center, Corridor, Station Community or Main Street, or portion thereof, shall:

(1) Be consistent with the general location shown in the RFP except, for a proposed new Station Community, be consistent with Metro's land use final order for a light rail transit project;

(2) For a Corridor with existing high-capacity transit service, include at least those segments of the Corridor that pass through a Regional Center or Town Center;

(3) For a Corridor designated for future high-capacity transit in the RTP, include the area identified during the system expansion planning process in the RTP; and

(4) Be adopted and may be revised by the city council or county board following notice of the proposed boundary action to the Oregon Department of Transportation and to Metro in the manner set forth in subsection (a) of section 3.07.820 of this chapter.

(c) An assessment of a Center, Corridor, Station Community or Main Street, or portion thereof, shall analyze the following:

(1) Physical and market conditions in the area;

(2) Physical and regulatory barriers to mixed-use, pedestrian-friendly and transit-supportive development in the area;

(3) The city or county development code that applies to the area to determine how the code might be revised to encourage mixed-use, pedestrian-friendly and transit-supportive development;

(4) Existing and potential incentives to encourage mixed-use pedestrian-friendly and transit-supportive development in the area; and

(5) For Corridors and Station Communities in areas shown as Industrial Area or Regionally Significant Industrial Area under Title 4 of this chapter, barriers to a mix and intensity of uses sufficient to support public transportation at the level prescribed in the RTP.

(d) A plan of actions and investments to enhance the Center, Corridor, Station Community or Main Street shall consider the assessment completed under subsection (c) and include at least the following elements:

(1) Actions to eliminate, overcome or reduce regulatory and other barriers to mixed-use, pedestrian-friendly and transit-supportive development;

(2) Revisions to its comprehensive plan and land use regulations, if necessary, to allow:

(A) In Regional Centers, Town Centers, Station Communities and Main Streets, the mix and

intensity of uses specified in section 3.07.640; and

(B) In Corridors and those Station Communities in areas shown as Industrial Area or Regionally Significant Industrial Area in Title 4 of this chapter, a mix and intensity of uses sufficient to support public transportation at the level prescribed in the RTP;

(3) Public investments and incentives to support mixed-use pedestrian-friendly and transit-supportive development; and

(4) A plan to achieve the non-SOV mode share targets, adopted by the city or county pursuant to subsections 3.08.230(a) and (b) of the RTFP, that includes:

(A) The transportation system designs for streets, transit, bicycles and pedestrians consistent with Title 1 of the RTFP;

(B) A transportation system or demand management plan consistent with section 3.08.160 of the RTFP; and

(C) A parking management program for the Center, Corridor, Station Community or Main Street, or portion thereof, consistent with section 3.08.410 of the RTFP.

(e) A city or county that has completed all or some of the requirements of subsections (b), (c), and (d) may seek recognition of that compliance from Metro by written request to the COO.

(f) Compliance with the requirements of this section is not a prerequisite to:

(1) Investments in Centers, Corridors, Station Communities or Main Streets that are not regional investments; or

(2) Investments in areas other than Centers, Corridors, Station Communities and Main Streets.

(Ordinance 97-715B, Sec. 1. Ordinance 98-721A, Sec. 1. Ordinance 02-969B, Sec. 7. Ordinance 10-1244B, Sec. 5.)

3.07.630 Eligibility Actions for Lower Mobility Standards and Trip Generation Rates

(a) A city or county is eligible to use the higher volume-to-capacity standards in Table 7 of the 1999 Oregon Highway Plan when considering an amendment to its comprehensive plan or land use regulations in a Center, Corridor, Station Community or Main Street, or portion thereof, if it has taken the following actions:

(1) Established a boundary pursuant to subsection (b) of section 3.07.620; and

(2) Adopted land use regulations to allow the mix and intensity of uses specified in section 3.07.640.

(b) A city or county is eligible for an automatic reduction of 30 percent below the vehicular trip generation rates reported by the Institute of Traffic Engineers when analyzing the traffic impacts, pursuant to OAR 660-012-0060, of a plan amendment in a Center, Corridor, Main Street or Station Community, or portion thereof, if it has taken the following actions:

(1) Established a boundary pursuant to subsection (b) of section 3.07.620;

(2) Revised its comprehensive plan and land use regulations, if necessary, to allow the mix and intensity of uses specified in section 3.07.640 and to prohibit new auto-dependent uses that rely principally on auto trips, such as gas stations, car washes and auto sales lots; and

(3) Adopted a plan to achieve the non-SOV mode share targets adopted by the city or county pursuant to subsections 3.08.230 (a) and (b)of the RTFP, that includes:

(A) Transportation system designs for streets, transit, bicycles and pedestrians consistent with Title 1 of the RTFP;

(B) A transportation system or demand management plan consistent with section 3.08.160 of the RTFP; and

(C) A parking management program for the Center, Corridor, Station Community or Main Street, or portion thereof, consistent with section 3.08.410 of the RTFP.

(Ordinance 97-715B, Sec. 1. Ordinance 98-721A, Sec. 1. Ordinance 02-969B, Sec. 7. Ordinance 10-1244B, Sec. 5.)

3.07.640 Activity Levels for Centers, Corridors, Station Communities and Main Streets

(a) A Centers, Corridors, Station Communities and Main Streets need a critical number of residents and workers to be vibrant and successful. The following average number of residents and workers per acre is recommended for each:

(1) Central City - 250 persons

(2) Regional Centers - 60 persons

(3) Station Communities - 45 persons

(4) Corridors - 45 persons

(5) Town Centers - 40 persons

(6) Main Streets - 39 persons

(b) Centers, Corridors, Station Communities and Main Streets need a mix of uses to be vibrant and walkable. The following mix of uses is recommended for each:

(1) The amenities identified in the most current version of the *State of the Centers: Investing in Our Communities*, such as grocery stores and restaurants;

(2) Institutional uses, including schools, colleges, universities, hospitals, medical offices and facilities;

(3) Civic uses, including government offices open to and serving the general public, libraries, city halls and public spaces.

(c) Centers, Corridors, Station Communities and Main Streets need a mix of housings types to be vibrant and successful. The following mix of housing types is recommended for each:

(1) The types of housing listed in the "needed housing" statute, ORS 197.303(1);

(2) The types of housing identified in the city's or county's housing need analysis done pursuant to ORS 197.296 or statewide planning Goal 10 (Housing); and

(3) Accessory dwellings pursuant to section 3.07.120 of this chapter.

(Ordinance 97-715B, Sec. 1. Ordinance 98-721A, Sec. 1. Ordinance 02-969B, Sec. 7. Ordinance 10-1244B, Sec. 5. Ordinance 15-1357.)

3.07.650 Centers, Corridors, Station Communities and Main Streets Map

(a) The Centers, Corridors, Station Communities and Main Streets Map is incorporated in this title and is Metro's official depiction of their boundaries. The map shows the boundaries established pursuant to this title.

(b) A city or county may revise the boundary of a Center, Corridor, Station Community or Main Street so long as the boundary is consistent with the general location on the 2040 Growth Concept Map in the RFP. The city or county shall provide notice of its proposed revision as prescribed in subsection (b) of section 3.07.620.

(c) The COO shall revise the Centers, Corridors, Station Communities and Main Streets Map by order to conform the map to establishment or revision of a boundary under this title.

(Ordinance 02-969B, Sec. 7; Ordinance 10-1244B, Sec. 5; Ordinance 11-1264B, Sec. 1.)

Title 6 Centers, Corridors, Station Communities and Main Streets Map as of October 29, 2014

(Ordinance 14-1336.)

Materials following this page were distributed at the meeting.

2018 RTP: Vision Zero and Transportation Safety Plan Update

MTAC

February 1, 2017

Update Regional Transportation Safety Action Plan

1. Update Metro State of Safety Report data
2. Update safety targets, develop performance measures
3. Identify High Injury Corridors
4. Update and adopt Regional Transportation Safety Action Plan

The problem

- U.S. roads
  - 2000 – 2009: 411,212 people killed
  - Average of one person killed every 13 minutes….24/7 for 10 years straight
  - Leading cause of accidental deaths
  - Leading cause of all deaths, ages 5 – 34
- Metro region roads
  - 2007 – 2014: 470 people killed, 4,040 severely injured
  - Societal costs of **>$1 Billion/year**

2012 RTSP Findings

- Arterials are the major safety challenge in the region
- Alcohol/Drugs, Speed, and Aggressive Driving are major factors to be addressed
- Higher VMTs = more serious crashes
- Streets with more lanes = higher serious crash rates, particularly for people walking
- Risk for people walking increases most after dark
- Street lighting is important for bikes and peds

2016 Policy Framework for update

- Continued emphasis on improving transportation safety
- Use of data, performance measurement, and evaluation
- Recognition of vulnerable users
- Integration of equity and public health perspectives
- Growing use of the Towards Zero Deaths and Vision Zero frameworks and targets

Vision Zero – Toward Zero Deaths

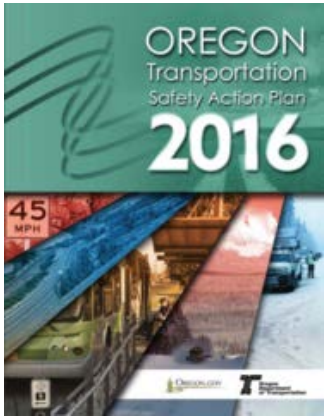
VISION ZERO

LET'S STOP CRASHES
DRIVE to ZERO
IN CLACKAMAS COUNTY

VZ SF 2024

VISION ZERO SF

TZD Toward Zero Deaths™
National Strategy on Highway Safety



VISION ZERØ
SAFER STREETS FOR SEATTLE

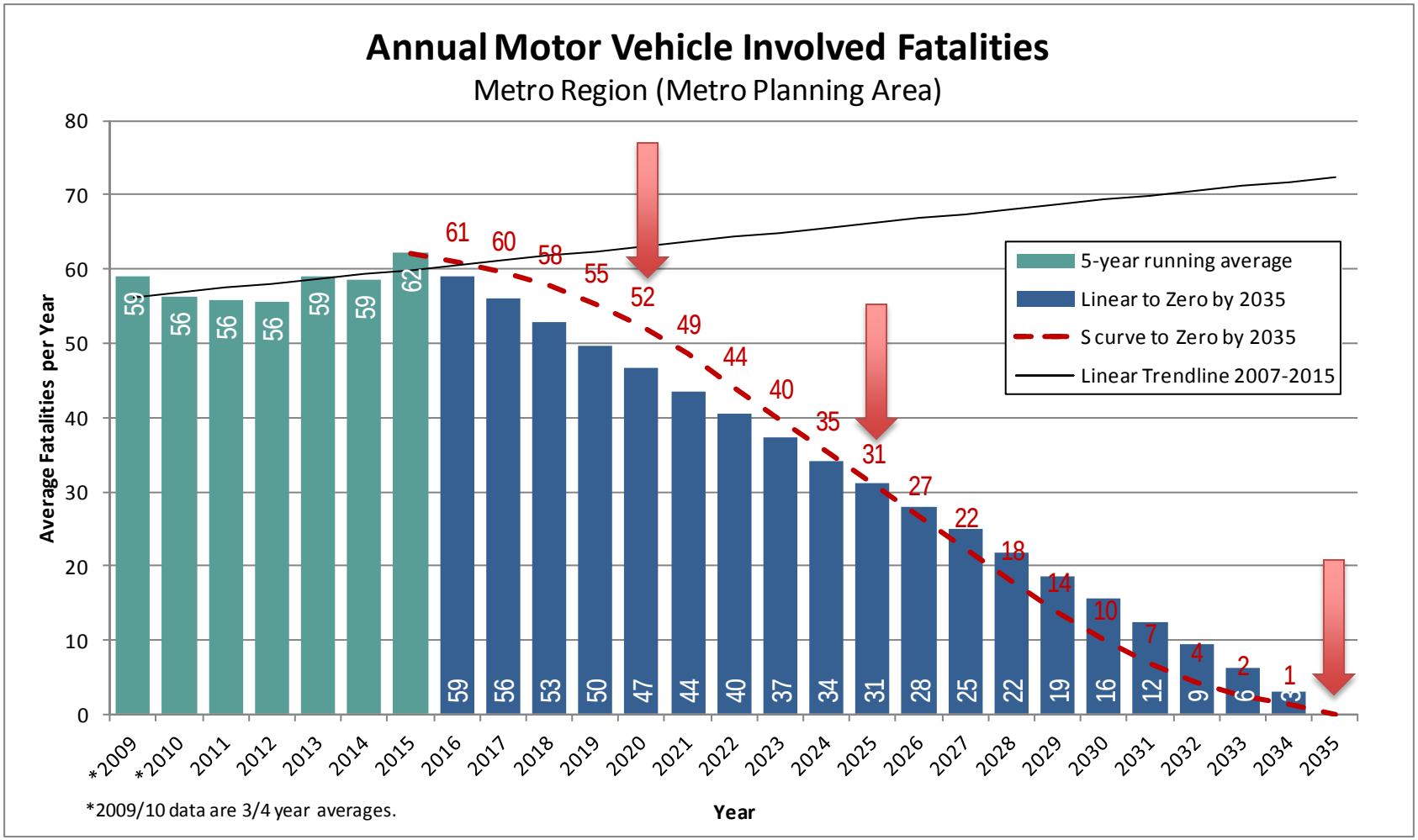
VISION ZERO
LOS ANGELES | 2015-2025

vision zero ATX

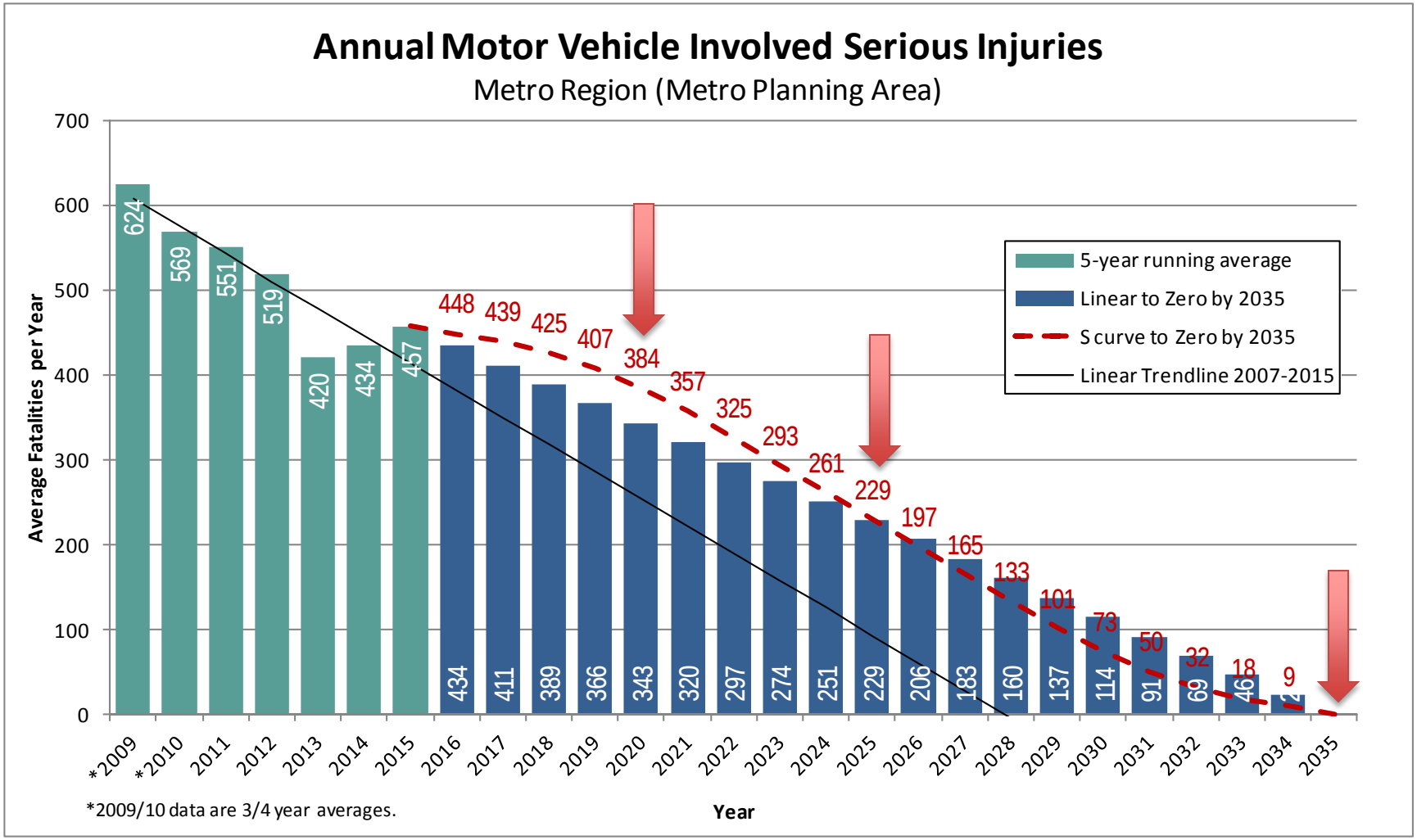
2035 Vision Zero target

By 2035 eliminate transportation related fatalities and serious injuries for all users of the region's transportation system, with a 16% reduction by 2020 (as compared to the 2015 five year rolling average), and a 50% reduction by 2025.

16% reduction by 2020 (52 deaths)
50% reduction by 2025 (31 deaths)
zero deaths by 2035



16% reduction by 2020 (384 serious injuries)
50% reduction by 2025 (229 serious injuries)
zero serious injuries by 2035



Evaluation Measures for RTP Investment Packages

Share of safety projects - Percent of the number and cost of safety projects in the RTP investment packages region wide, in areas with historically marginalized communities, in areas with focused historically marginalized communities and per person in each area.

Evaluation Measures – share of safety projects

Safety Projects in the RTP are capital infrastructure projects with the primary intent to address a safety issue, and allocate a majority of the project cost to a documented safety countermeasure(s) to address a specific documented risk, or improve safety for vulnerable users, including people walking and bicycling, older adults and youth.

Evaluation Measures – share of safety projects

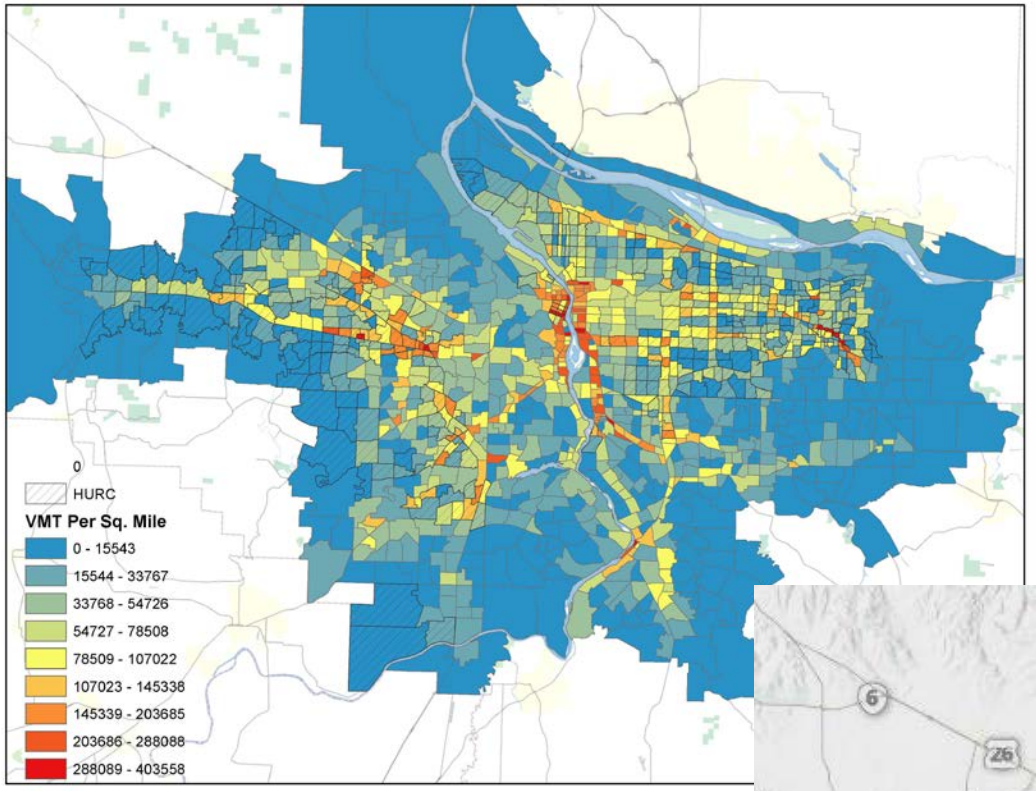
Safety countermeasures are actions taken to improve transportation safety and therefore decrease the number of injuries and fatalities. Safety countermeasures may include geometric design, systemic safety, and intelligent transportation systems. *Countermeasures should be selected based on analytical techniques that prove effectiveness.*

Evaluation Measures – share of safety projects

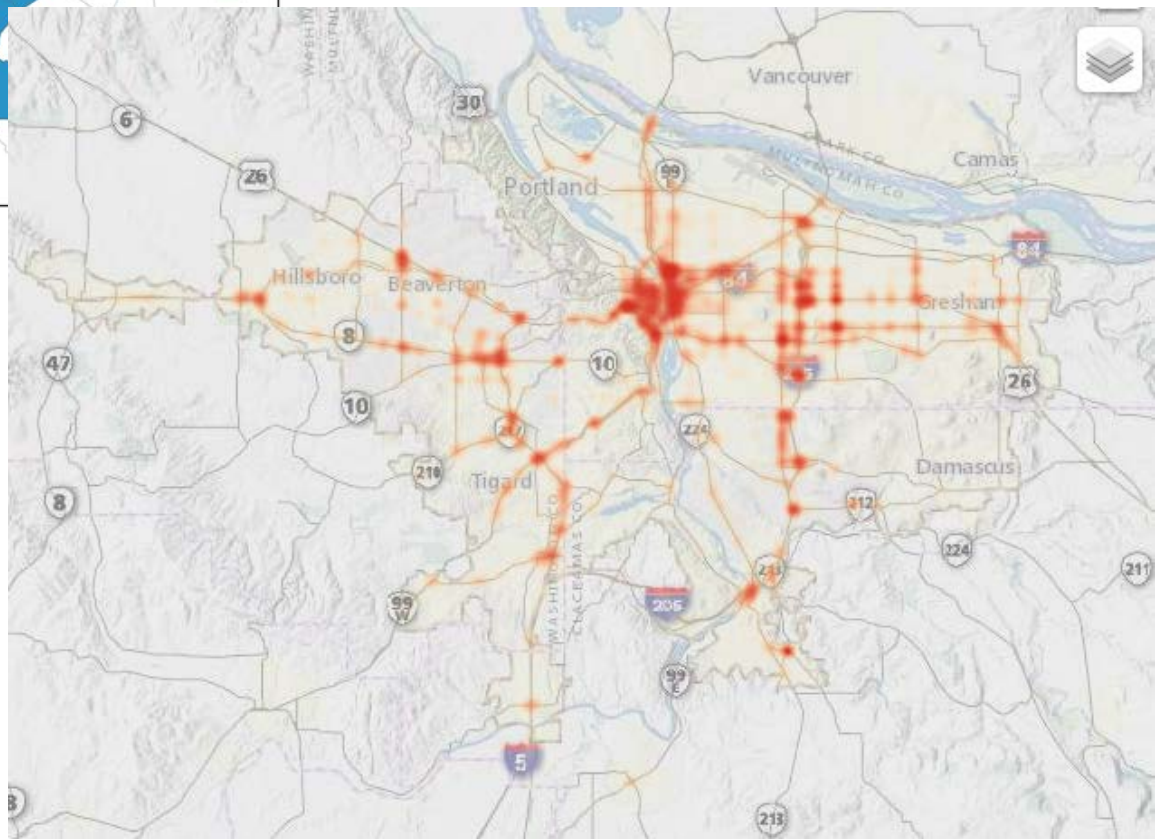
Area	Base Year	Interim Year	Future Year – Financially Constrained	Future Year – Strategic
Region-wide	% Safety Projects, % cost allocated to Safety Projects, % Per person			
Historically marginalized communities	% Safety Projects, % cost allocated to Safety Projects, % Per person			
Focused historically marginalized communities	% Safety Projects, % cost allocated to Safety Projects, % Per person			

Evaluation Measures for RTP Investment Packages

Exposure to crashes - The sum of all non-freeway vehicle miles traveled (VMT) in Transportation Area Zones (TAZ) for RTP investment packages region-wide, in historically marginalized communities, and in focused historically marginalized communities.



VMT/sq. foot TAZ



Metro crash map screen shot

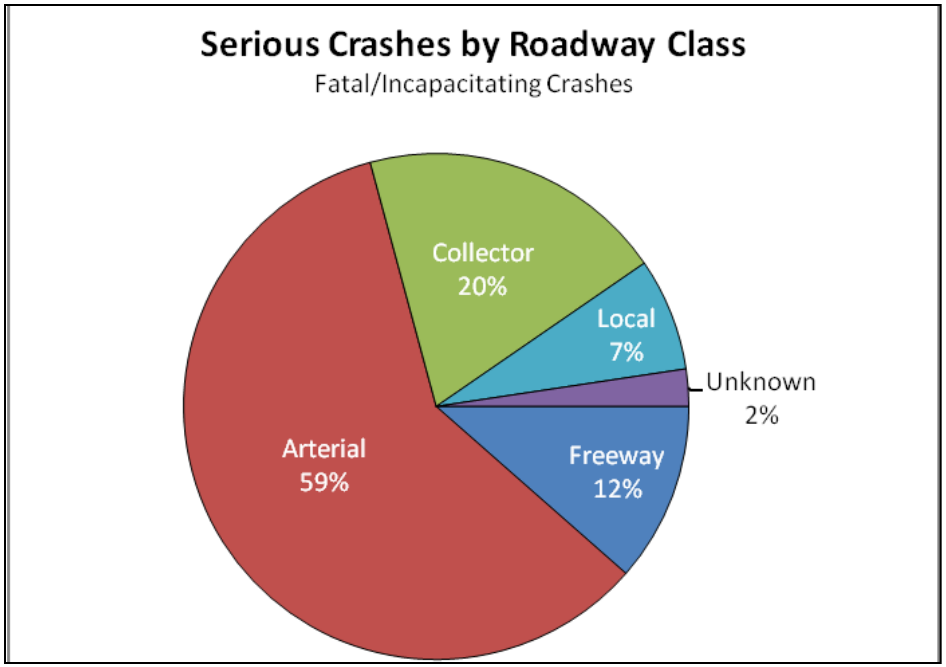
Evaluation Measures – exposure to crashes

	Base Year	Interim Year	Future Year – Financially Constrained	Future Year – Strategic
Region-wide	VMT			
Historically Marginalized Communities	VMT			
Focused Historically Marginalized Communities	VMT			

Output Units: Sum of vehicle miles traveled per TAZ area (VMT/sq. foot TAZ)

High Injury Corridors

- Arterials are the major safety challenge in the region.

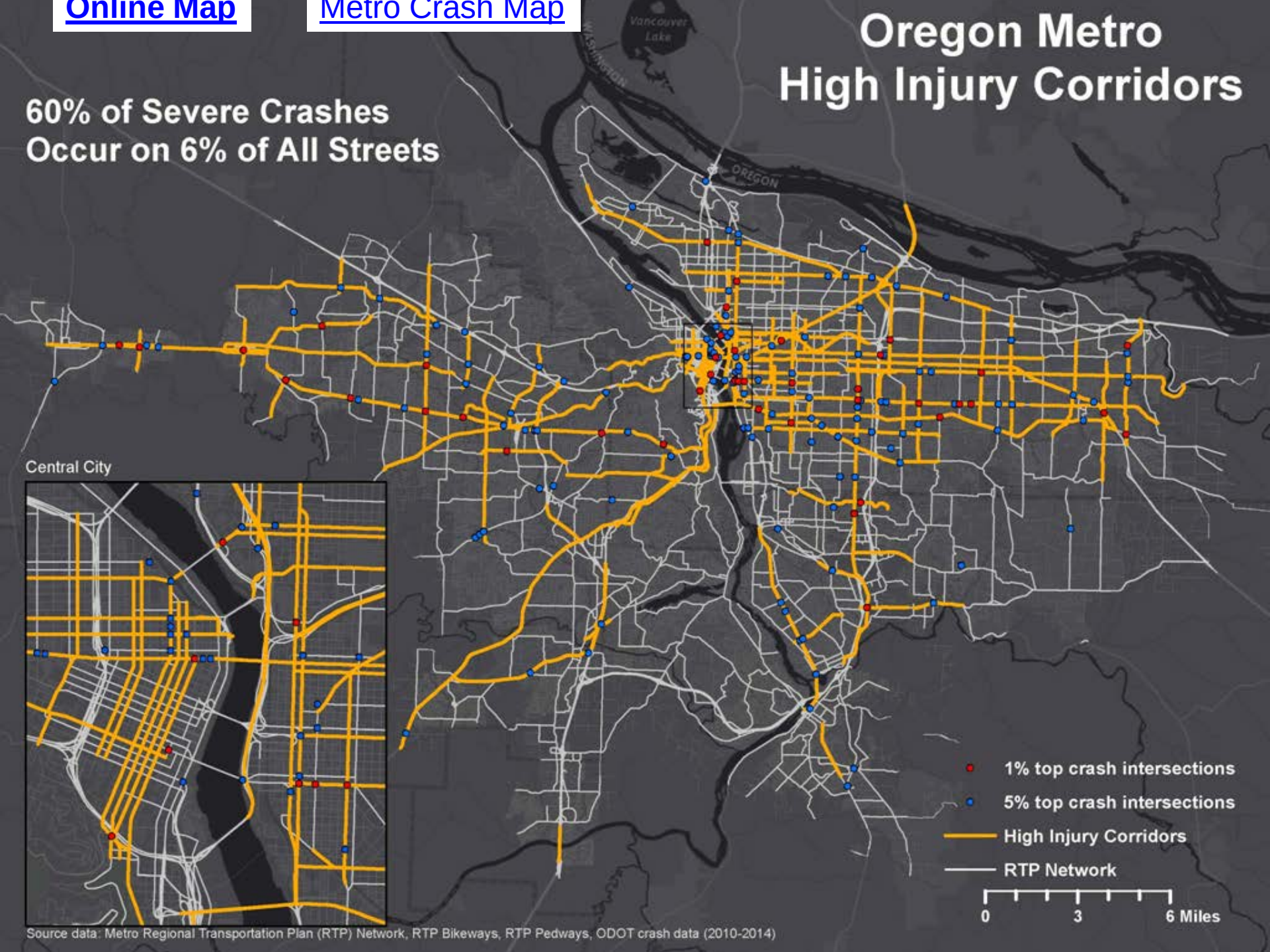


2012 RTSP Recommendation: Develop arterial safety program to identify high severity crash arterials across the region.

Online Map | Metro Crash Map

Oregon Metro High Injury Corridors

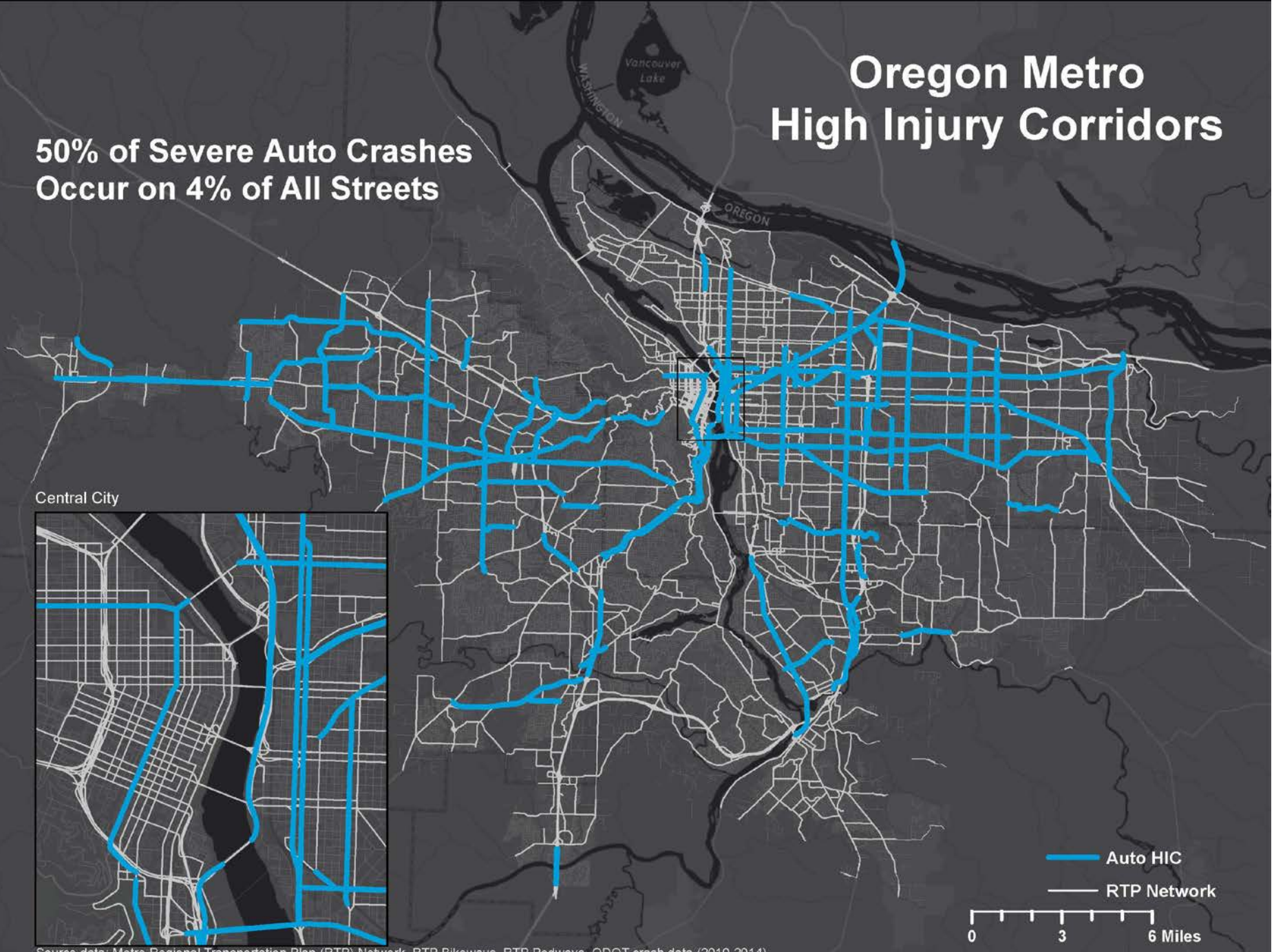
60% of Severe Crashes Occur on 6% of All Streets



Source data: Metro Regional Transportation Plan (RTP) Network, RTP Bikeways, RTP Pedways, ODOT crash data (2010-2014)

Oregon Metro
High Injury Corridors

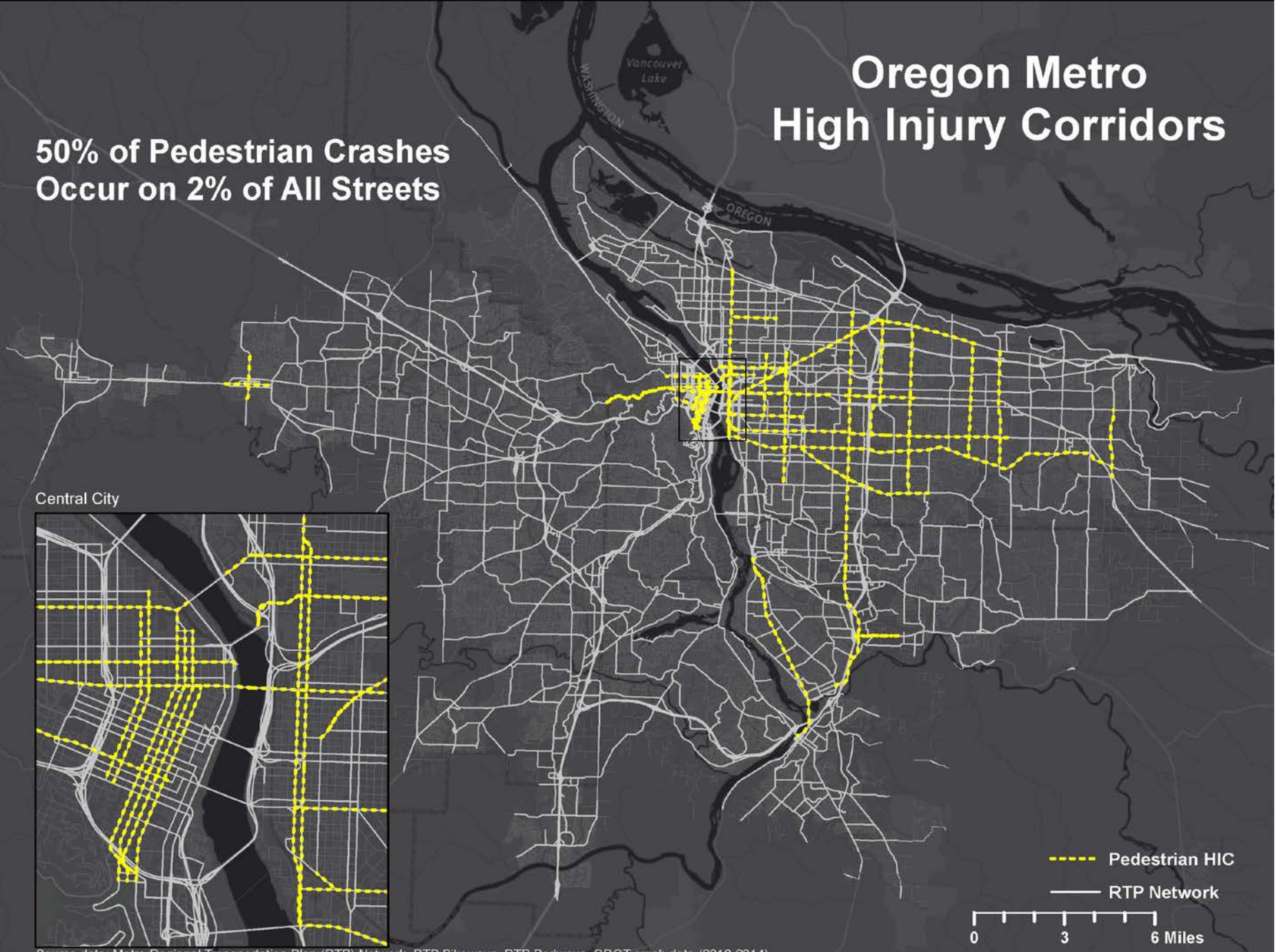
50% of Severe Auto Crashes Occur on 4% of All Streets



Source data: Metro Regional Transportation Plan (RTP) Network, RTP Bikeways, RTP Pedways, ODOT crash data (2010-2014)

Oregon Metro
High Injury Corridors

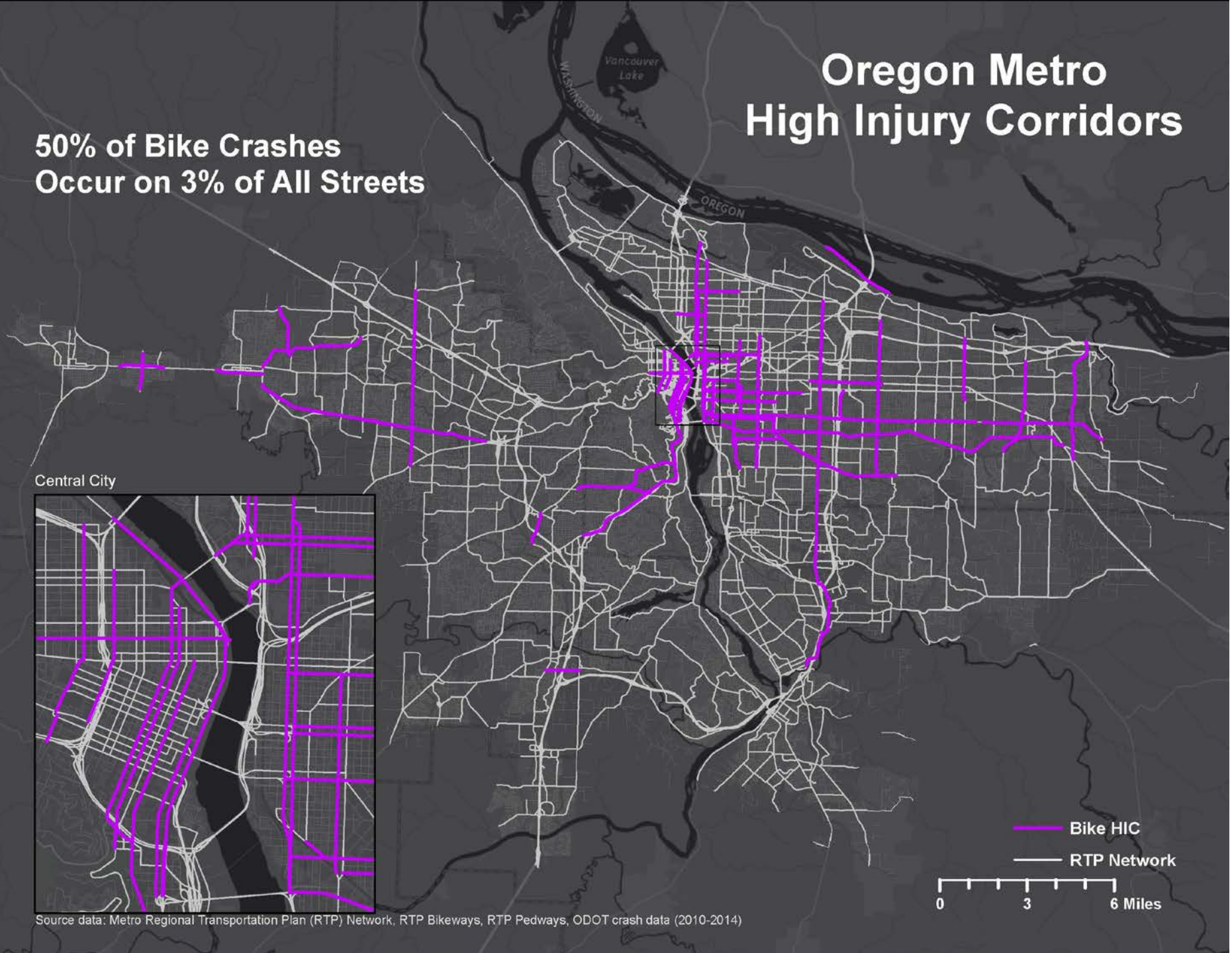
50% of Pedestrian Crashes Occur on 2% of All Streets



Source data: Metro Regional Transportation Plan (RTP) Network, RTP Bikeways, RTP Pedways, ODOT crash data (2010-2014)

Oregon Metro
High Injury Corridors

50% of Bike Crashes
Occur on 3% of All Streets



Source data: Metro Regional Transportation Plan (RTP) Network, RTP Bikeways, RTP Pedways, ODOT crash data (2010-2014)

Questions for MTAC

Does TPAC support moving forward with:

1. **Vision Zero target?**
2. **Transportation safety system evaluation measures?**
3. **Regional High Injury Corridors as a tool to help inform prioritizing investments?**

Next steps

- Metro Council work session – Feb. 28
- JPACT - March 16
- MPAC - March 22 (tent.)
- Next Safety Work Group meetings – April, July, October
- Draft updated safety plan for review in late fall 2017

Annual targets – FHWA performance measures

Reporting Year (based on a 5-year rolling average)	FHWA Performance Measures						
	Fatalities (People)	Fatality Rate		Serious Injuries (People)	Serious Injury Rate		Non-Motorized Fatalities and Serious Injuries (People)
		Per VMT (People/ 100 MVMT)	Per capita (People/ 100k pop)		Per VMT (People/ 100 MVMT)	Per capita (People/ 100k pop)	
2011 - 2015 (Base)	62	0.9	4.0	457	6.4	29.4	113
2014 - 2018	58	0.8	3.6	425	5.8	26.5	105
2015 - 2019	55	0.7	3.4	407	5.5	25.1	101
2016 - 2020	52	0.7	3.2	384	5.1	23.4	95
2017 - 2021	49	0.6	2.9	357	4.7	21.5	88
Note: Due to rounding, addition of numbers across modes may result in minor variation from totals.							

Annual targets motor vehicle only

Reporting Year (based on a 5-year rolling average)	Motor Vehicle Only					
	Fatalities (People)	Fatality Rate		Serious Injuries (People)	Serious Injury Rate	
		Per VMT (People/ 100 MVMT)	Per capita (People/ 100k pop)		Per VMT (People/ 100 MVMT)	Per capita (People/ 100k pop)
2011 - 2015 (Base)	38	0.5	2.4	368	5.2	23.7
2014 - 2018	35	0.5	2.2	343	4.7	21.3
2015 - 2019	34	0.5	2.1	328	4.4	20.2
2016 - 2020	32	0.4	1.9	309	4.1	18.8
2017 - 2021	30	0.4	1.8	287	3.8	17.3

Note: Due to rounding, addition of numbers across modes may result in minor variation from totals.

Annual targets pedestrians

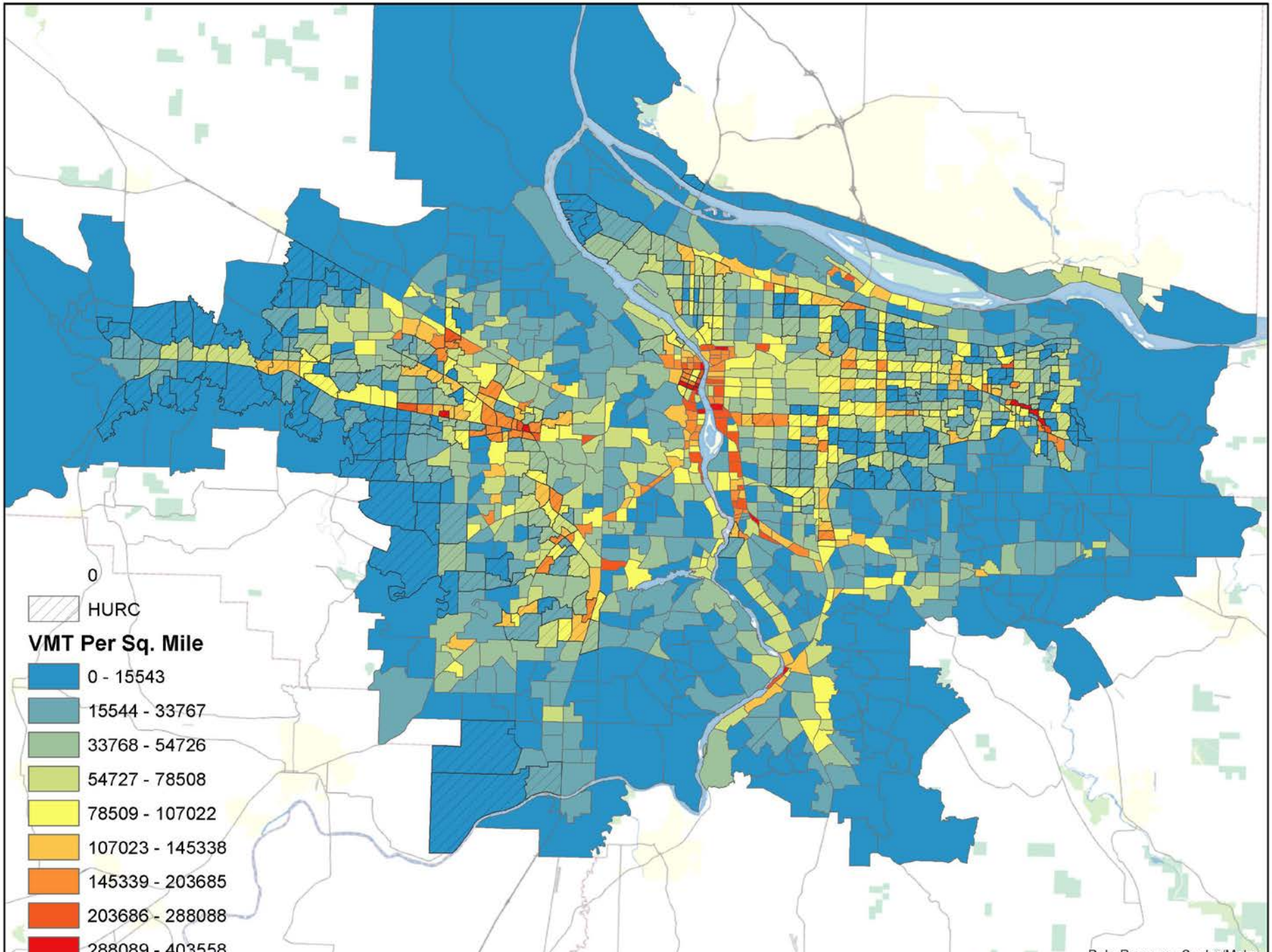
Reporting Year (based on a 5-year rolling average)	Pedestrians					
	Fatalities (People)	Fatality Rate		Serious Injuries (People)	Serious Injury Rate	
		Per VMT (People/ 100 MVMT)	Per capita (People/ 100k pop)		Per VMT (People/ 100 MVMT)	Per capita (People/ 100k pop)
2011 - 2015 (Base)	22	0.3	1.4	56	0.8	3.6
2014 - 2018	20	0.3	1.3	52	0.7	3.2
2015 - 2019	20	0.3	1.2	49	0.7	3.0
2016 - 2020	18	0.2	1.1	47	0.6	2.8
2017 - 2021	17	0.2	1.0	43	0.6	2.6

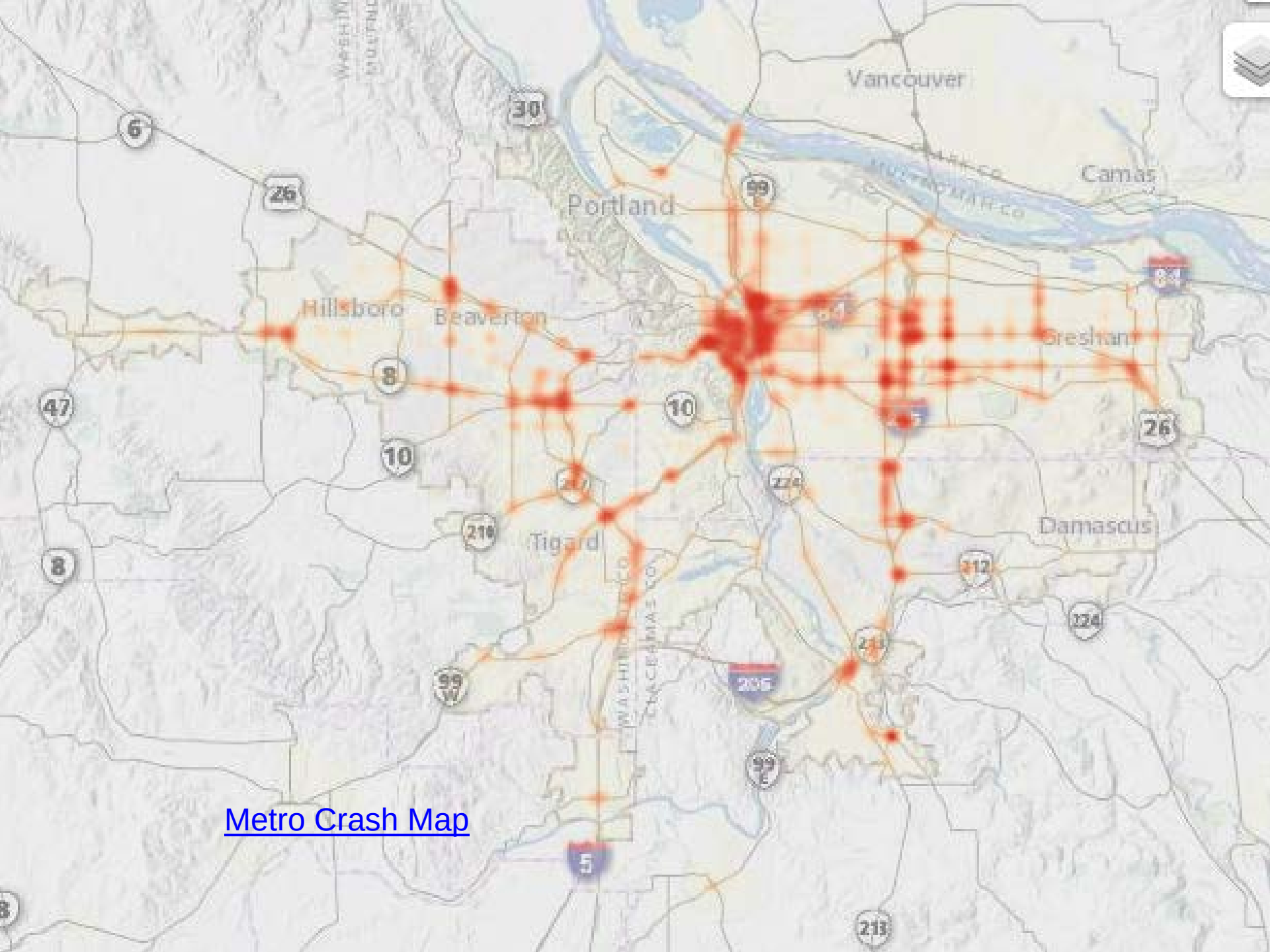
Note: Due to rounding, addition of numbers across modes may result in minor variation from totals.

Annual targets bicyclists

	Bicyclists					
		Fatality Rate			Serious Injury Rate	
Reporting Year (based on a 5-year rolling average)	Fatalities (People)	Per VMT (People/ 100 MVMT)	Per capita (People/ 100k pop)	Serious Injuries (People)	Per VMT (People/ 100 MVMT)	Per capita (People/ 100k pop)
2011 - 2015 (Base)	2.2	0.03	0.14	33	0.5	2.1
2014 - 2018	2.0	0.03	0.13	31	0.4	1.9
2015 - 2019	2.0	0.03	0.12	30	0.4	1.8
2016 - 2020	1.8	0.02	0.11	28	0.4	1.7
2017 - 2021	1.7	0.02	0.10	26	0.3	1.6

Note: Due to rounding, addition of numbers across modes may result in minor variation from totals.


0
HURC
VMT Per Sq. Mile
0 - 15543
15544 - 33767
33768 - 54726
54727 - 78508
78509 - 107022
107023 - 145338
145339 - 203685
203686 - 288088
288089 - 403558


Vancouver
Portland
Camas
Hillsboro
Beaverton
Gresham
Tigard
Damascus
Metro Crash Map