

Getting there safely



2018 Regional Transportation Plan update

APPENDIX TO THE REGIONAL TRANSPORTATION SAFETY STRATEGY

High Injury Corridors & Intersections Report

April 2017

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Introduction

Regional High Injury Corridors (HICs) are stretches of roadways in the Portland metropolitan area where the highest concentrations of serious crashes involving a motor vehicle occur on the regional transportation network. ¹ Regional High Injury Intersections are roadway intersections with the highest concentration of serious crashes. ²

The High Injury Corridors and Intersections discussed in this report were determined using 2010-2014 Oregon Department of Transportation crash data. Analysis to determine the corridors will be replicated approximately every five years before the update of the Regional Transportation Plan. It is likely that the corridors will change over time and that there may be fewer corridors as safety plans, policies and projects are implemented.

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. Metro finalized the analysis in April 2017.

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 serious crashes (2010-2014)	% regional transportation network (1,739 miles)	% of all streets (6,565 miles)
Regional Combined 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%

ODOT crash data, 2010-2014

Purpose

Metro identified the high injury corridors and intersections to help meet the safety goals and targets of the Regional Transportation Plan. Understanding where the majority of serious crashes are concentrated provides a tool to support planning and prioritization of safety efforts. Where they will have the greatest impact. It also supports tracking progress over time as, hopefully, high injury corridors fall off the list and the number of corridors decreases.

Background and Process

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

¹ The regional transportation network is comprised of the arterial and throughway, freight, transit, bicycle and pedestrian networks shown in the network maps of the Regional Transportation Plan.

² Serious crashes are Fatal and Injury A crashes combined.

(e.g. drunk driving). While the report identified arterials as being the facility type with the highest number of serious crashes, for all modes and especially for pedestrians, at the time, Metro lacked the methods to identify which specific corridors had the highest concentration of serious crashes and posed the greatest risk to safety.

A recommendation of the 2012 Regional Transportation Safety Plan was to develop a process 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 updated Regional Transportation Safety Strategy and the 2018 Regional Transportation Plan.

Metro worked with the Regional Transportation Plan Transportation Safety Technical Work Group to come to agreement on the methodology, particularly the weighting applied to serious crashes (ten for all serious crashes, regardless of mode), including Injury B and C crashes (minor injury) for pedestrian and bicycle involved crashes (to account for the fewer number of these crashes and because the difference between a minor and serious crash for a person walking or bicycling is often based on just a matter of inches or feet), and limiting the analysis to streets identified as part of the regional transportation network as opposed to all streets (analysis generally excluded collector and local streets).

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.³

³ "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

- Metro used a geographic information system (GIS) to analyze 2010-2014 crash data from the Oregon Department of Transportation. All crashes for all modes of travel were joined to the regional roadway network identified in the Regional Transportation Plan.
- Fatal and Injury A (serious) crashes were weighted higher than other crash types – they were given a weight of 10.
- Roadways were analyzed in mile segments; if a segment has only one Fatal or Injury A crash it must also have at least one B/C (minor injury) crash, for the same mode, to be included in the analysis.
- Roadway segments were then assigned an N-score (or “crash score”) by calculating the weighted sum by mode and normalizing it by the roadway length. To reach 60 percent of Fatal and Severe Injury crashes, roadway segments had to have an N-score of 39 or higher; high injury Bicycle corridors had to have an N-score of 6 or more, and high injury Pedestrian Corridors had to have an N-score of 15 or more. A total of 181 corridors were identified; multiple corridor segments were identified for some streets and highways (e.g. Tualatin Valley Highway, I-5).
- Intersections with the highest weighted crash scores were also identified; 5 percent of intersections had an N-score (or “crash score”) higher than 80 and are also shown on the map, and 1 percent of intersections (the top 1%) had to have an N-score higher than 128. 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.

GIS Analysis Steps

Data analyzed: 2010-2014 ODOT crash data

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

Portland High Crash Network: <https://www.portlandoregon.gov/transportation/54892> and High Collision Intersections: <https://www.portlandoregon.gov/transportation/article/549274>

- 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
 - Fatal/A are given a weight of 10
 - Segments must be ≥ 5280 feet to be included
 - If a segment has only one Fatal/A, there also needed to be at least 1 B/C (in the same mode)
 - Segments are assigned an n-score
2. To achieve 60% of all fatal and severe crashes, segments had to have an n-score \geq to:
 - All Crash nScore_FA ≥ 39
 - Auto only nScore_Auto_FA ≥ 40
 - Bike only nScore_Bike_FA ≥ 6
 - Ped only nScore_Ped_FA ≥ 15

Part 3:

1. High Injury Intersections

- Intersections with the highest weighted crash scores are 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.
- 1% and 5% intersections are not split/identified by mode.

Consistency with other high crash locations

In the greater Portland area several jurisdictions have identified high crash networks or locations, including Portland, Washington County, Clackamas County, and Hillsboro. Additionally, ODOT and many jurisdictions use the 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.⁴

Part of the reason the 2012 Regional Transportation Safety Plan recommended identifying high injury corridors, as opposed to high crash locations, is that a corridor approach highlights the roadways that have high risk factors.

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 Corridors

Identifying corridors that have high crash risk factors (posted speed, signalized intersections, unlit streets, number of liquor establishments, lack of medians, sidewalks, bicycle facilities, driveway density, etc.) but do not necessarily 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 corridors, however most corridors with identified high risk factors will overlap with the high injury corridors. Metro reviewed the “Risk Based Pedestrian and Bicycle Project Corridors” identified in ODOT’s Pedestrian and Bicycle Safety

⁴ 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

Implementation Plan (2014) and found that every risk based corridor in that plan overlapped with a regional HIC.⁵

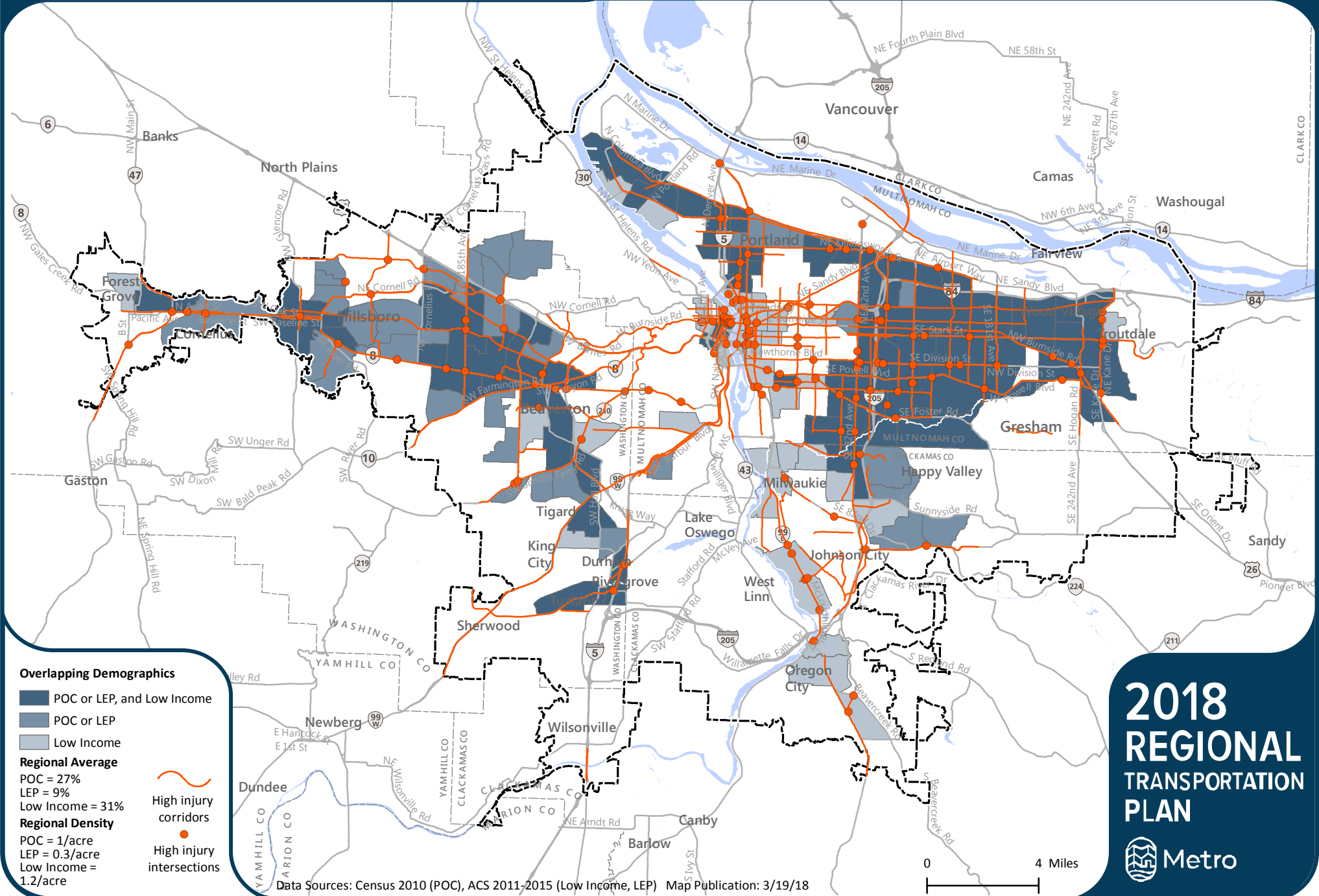
Map of High Injury Corridors

The following map illustrates the High Injury Corridors and Intersections in the greater Portland region. A majority of high injury corridors are in communities with higher concentrations of people of color, people with low incomes and English language learners – these equity focus areas are also shown on the map. The Regional High Injury Corridors and Intersections are identified to help prioritize safety near term investments. Metro will update this map approximately every five years. In the interim, other safety investments may be identified that warrant priority based on other data and analysis.

⁵ https://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/docs/pdf/13452_report_final_partsA+B.pdf

High Injury Corridors Overlapping Communities of Color, English Language Learners, and Lower-Income Communities

This map shows the overlap of regional high injury corridors and road intersections with census tracts with higher than regional average concentrations and double the density of one or more of the following: people of color, people with low income, and English language learners. Census tracts where multiple demographic groups overlap are identified.



List of High Injury Corridors

The following list of high injury corridors determined using 2010-2014 Oregon Department of Transportation crash data. Analysis to determine the corridors will be replicated approximately every five years before the update of the Regional Transportation Plan. It is likely that the corridors will change over time and that there may be fewer corridors as safety plans, policies and projects are implemented.

The list of corridors are ordered based on average annual number of serious crashes per mile, based on five years of data from 2010 to 2014. There are 181 corridors identified. Corridors at the top of the list have an annual average of nearly two serious crashes per mile, corridors at the bottom of the list have approximately 0.2 serious crashes per mile.

The list includes the corridor name, direction if applicable, extent and jurisdiction or facility owner. The list also identifies if the corridor is on the high injury network for pedestrians, bicycles, auto only, all three or the combined network. Some corridors are only on one of the networks, or on all four. Note that some corridors are only on the combined network – the combined network identifies where 60 percent of all serious crashes are occurring, regardless of mode; the other networks identify where 50 percent of serious crashes for each mode are occurring.

Regional High Injury Corridors, 2010-2014 Serious Crashes within the MPO Planning Area					Network						
#	High Injury Corridors (by serious crashes per mile)	From	To	Facility Owner or Jurisdiction	Ped	Bike	Auto	All	Annual Average Serious Crashes/ Mile	Corridor Length (Mile)	Total Serious Crashes 2010- 2014
1	I-5 SB	I-405 at Fremont Bridge	Burnside Bridge	ODOT	●		●	●	1.7	1.5	13
2	SE Division St.	SE 7th Ave.	SE 190th Ave.	Gresham, Portland	●	●	●	●	1.7	9.3	80
3	Hwy 8 - N Adair St.	Pacific Ave.	E Baseline	ODOT		●	●	●	1.7	1.5	13
4	I-5 NB	Marquam Bridge (East Bank)	I-405 at Fremont Bridge	ODOT	●		●	●	1.4	2.5	18
5	SE 11th Ave.	SE Sandy Blvd.	SE Milwaukie Ave.	Portland	●	●	●	●	1.4	1.3	9
6	NW Broadway	NW Naito	SW 4th	Portland	●	●	●	●	1.4	1.9	13
7	Hwy 8 - SE/SW Tualatin Valley Highway	SW Cedar Hills Blvd.	SE 10th Ave. (Hwy 8)	ODOT	●	●	●	●	1.4	8.1	55
8	SE/NE 181st Ave.	NE Sandy Blvd.	SE Yamhill St.	Gresham	●	●	●	●	1.3	2.1	14
9	SE/NE Grand Ave.	SE Powell Blvd.	NE Broadway	Portland	●	●	●	●	1.2	2.7	16
10	SE/NE 82nd Ave.	E Arlington St.	N Killingsworth St.	ODOT	●	●	●	●	1.1	13.1	75
11	SE Foster Blvd.	SE 50th & Powell	SE 136th Ave.	Portland	●	●	●	●	1.1	4.7	26
12	Hwy 30BY - NE Portland Hwy.	NE 42nd Ave.	NE Killingsworth St.	ODOT			●	●	1.1	1.5	8
13	SE Washington St.	SE 74th Ave	SE 109th Ave	Portland			●	●	1.1	1.7	9
14	NE 102nd Ave.	Cherry Blossom Dr.	NE Sandy Blvd.	Portland	●		●	●	1.0	2.9	15
15	SE Powell Blvd.	SE Grand Ave.	SE Mt Hood Highway	Portland, Gresham	●	●	●	●	1.0	12.9	66
16	I-84 WB	82nd Ave	MLK Jr. Blvd.	ODOT			●	●	1.0	4.8	24
17	SE 96th Ave.	SE Washington St.	SE Division St.	Portland	●		●	●	1.0	1.0	5
18	Hwy 8 - SW Baseline/Tualatin Valley Highway	SW 341st St.	SW 17th Ave.	ODOT	●		●	●	1.0	1.0	5
19	I-5 SB	Kruse Way	Carman Dr.	ODOT			●	●	1.0	1.0	5
20	SW/NW 185th Ave.	SW Farmington Rd.	NW Springville Rd.	Hillsboro, Washington County		●	●	●	1.0	6.0	29
21	SE/NE 162nd Ave.	SE Powell Blvd.	NE Sandy Blvd.	Portland, Gresham	●		●	●	1.0	3.8	18
22	NW Everett St.	NW Westover Road	Pacific Hwy W	Portland	●	●		●	0.9	1.5	7
23	SE McLoughlin Blvd.	SE Grand Ave.	Ross Island Bridge	ODOT	●	●	●	●	0.9	2.6	12

Source: Metro

Data: Oregon Department of Transportation Crash Data, 2010-2015

Regional High Injury Corridors, 2010-2014 Serious Crashes within the MPO Planning Area					Network						
#	High Injury Corridors (by serious crashes per mile)	From	To	Facility Owner or Jurisdiction	Ped	Bike	Auto	All	Annual Average Serious Crashes/ Mile	Corridor Length (Mile)	Total Serious Crashes 2010- 2014
24	Hwy 26 - Sunset Highway EB	Hwy 217	Tunnel	ODOT			●	●	0.9	1.9	9
25	SE McLoughlin Blvd.	SE Jefferson	Oregon City Arch Bridge	ODOT	●		●	●	0.9	6.5	30
26	W/E Burnside St.	SW Barnes Rd.	SE Gilham	Portland	●		●	●	0.9	7.7	35
27	Hwy 217 SB	Sunset Highway	SW Beaverton Hillsdale Hwy.	ODOT			●	●	0.9	1.8	8
28	N Interstate Ave.	N Denver St.	N Argyle St.	Portland	●	●		●	0.9	1.8	8
29	NE Halsey St.	Sandy	I-84	Portland			●	●	0.9	1.6	7
30	Hwy 8 - SW Canyon Rd.	Sunset Hwy	Tualatin Valley Hwy	ODOT	●		●	●	0.9	3.9	17
31	I-205 SB	Washington State line	Marine Drive	ODOT			●	●	0.9	1.6	7
32	N/NE Wiedler St.	Broadway Bridge	NE 24th Ave.	Portland		●	●	●	0.9	1.4	6
33	Hwy 217 NB	SW Pacific Hwy (99W)	SW Scholls Ferry Rd	ODOT			●	●	0.9	1.6	7
34	I-84 EB	I-5 interchange	1-205 interchange	ODOT			●	●	0.9	4.9	21
35	Hwy 10 - SW Beaverton Hillsdale Hwy.	SW Capitol Hwy.	Sw Lombard Ave.	ODOT	●		●	●	0.8	5.2	22
36	Hwy 8 - SW/SE Baseline Rd.	SW 17th Ave.	SE 10th Ave. (TV Hwy)	ODOT	●		●	●	0.8	1.7	7
37	SW Cedar Hills Blvd.	SW Farmington Rd.	NW Cornell Rd.	Beaverton			●	●	0.8	3.1	13
38	SE Hawthorne Blvd.	SE Martin Luther King Jr.	SE 51st Ave.	Portland	●	●	●	●	0.8	2.5	10
39	NE/SE Sandy Blvd.	SE 7th Ave.	NE 162nd Ave.	Portland	●		●	●	0.8	9.0	36
40	SE 112th Ave.	Cherry Blossom Dr.	SE Holgate Ave.	Portland			●	●	0.8	1.5	6
41	Hwy 217 NB	SW Beaverton Hillsdale Highway	Sunset Highway	ODOT			●	●	0.8	1.8	7
42	I-5 NB	SW Nyberg St.	Kruse Way	ODOT			●	●	0.8	2.8	11
43	SW 257th Ave.	SE Stark St.	I-84	Troutdale		●	●	●	0.8	2.1	8
44	NE 47th Ave.	NE Glisan	NE Wistaria	Portland			●	●	0.8	1.0	4
45	SE Holgate Blvd.	SE McLoughlin Blvd.	SE 136th Ave.	Portland		●	●	●	0.8	6.4	24
46	SW Allen Blvd.	SW 92nd	SE Davis Rd.	Beaverton		●	●	●	0.7	2.9	11

Source: Metro

Data: Oregon Department of Transportation Crash Data, 2010-2015

Regional High Injury Corridors, 2010-2014 Serious Crashes within the MPO Planning Area					Network						
#	High Injury Corridors (by serious crashes per mile)	From	To	Facility Owner or Jurisdiction	Ped	Bike	Auto	All	Annual Average Serious Crashes/ Mile	Corridor Length (Mile)	Total Serious Crashes 2010- 2014
47	SW Tualatin Sherwood Rd.	SW Nyberg St.	SW Pacific Hwy.	Washington County,Tualatin, Sherwood			●	●	0.7	4.5	17
48	I-5 SB	Ross Island Bridge	Bertha Blvd	ODOT			●	●	0.7	2.7	10
49	I-205 SB	SE Washington St.	SE Division St.	ODOT			●	●	0.7	1.1	4
50	NE Shute Rd.	Brookwood	Shute	Hillsboro			●	●	0.7	1.1	4
51	I-205 SB	NE Alderwood Rd.	I-84 interchange at Killingsworth	ODOT			●	●	0.7	1.6	6
52	NE/SE Cesar Chavez Ave.	SE Woodstock Ave.	NE Wistaria St.	Portland	●	●	●	●	0.7	4.7	17
53	SW/NW 6th Ave.	SW Sheridan St.	NW Irving St (Union Station)	Portland	●		●	●	0.7	1.6	6
54	Hwy 8 - Pacific Ave.	Mountain View Ln.	E St. (Forest Grove)	ODOT			●	●	0.7	2.5	9
55	I-5 SB	Carman Dr.	SW Nyberg Rd.	ODOT			●	●	0.7	1.4	5
56	I-5 SB	Ne Multnomah Blvd.	Sw 48th Ave.	ODOT			●	●	0.7	1.7	6
57	I-205 NB	Airport Way	Washington State line	ODOT			●	●	0.7	1.7	6
58	I-5 SB	NE Butteville Rd	SW Wilsonville Rd.	ODOT			●	●	0.7	1.1	4
59	SE/NE 122nd Ave.	SE Foster Blvd.	NE Skidmore St.	Portland			●	●	0.7	5.3	19
60	NE/SE Kane/257th Dr.	SE Welch Rd.	SE Stark St.	Gresham, Troutdale	●		●	●	0.7	2.2	8
61	SE Bob Schumacher Rd.	SE Idleman Rd.	SE Stevens	Clackamas County, Happy Valley			●	●	0.7	1.1	4
62	E Burnside St.	NE 75th	NE 123rd	Portland	●			●	0.7	2.6	9
63	Hwy 99W - SW Barbur Blvd.	4th & Barbur & Sheridan	Pacific Hwy & SW 64th Ave.	ODOT		●	●	●	0.7	6.3	22
64	SE 182nd Ave.	SE Yamhill St.	SE Powell Blvd.	Gresham	●		●	●	0.7	1.7	6
65	I-5 NB	Bertha Blvd	Marquam	ODOT			●	●	0.7	3.2	11
66	NE/SE Martin Luther King Jr Blvd.	N Marine Dr.	SE Division St.	Portland	●	●	●	●	0.7	8.8	30
67	SE 60th Ave.	Stark	Halsey	Portland	●	●		●	0.7	1.8	6
68	N/S 1st Ave.	1st	Glencoe	Hillsboro			●	●	0.7	1.5	5
69	Hwy 10 - SW Farmington Rd.	Beaverton Hillsdale	Clark Rd.	ODOT			●	●	0.7	6.0	20

Source: Metro

Data: Oregon Department of Transportation Crash Data, 2010-2015

Regional High Injury Corridors, 2010-2014 Serious Crashes within the MPO Planning Area					Network						
#	High Injury Corridors (by serious crashes per mile)	From	To	Facility Owner or Jurisdiction	Ped	Bike	Auto	All	Annual Average Serious Crashes/ Mile	Corridor Length (Mile)	Total Serious Crashes 2010- 2014
70	NE Multnomah St.	Rose Quarter TC	NE 21st	Portland	●	●		●	0.7	1.2	4
71	SW Murray Blvd.	SW Walker	SW Burrows	Beaverton, Tigard		●	●	●	0.7	5.5	18
72	NE Glisan St.	202nd Ave.	NE Sandy Blvd.	Gresham, Portland		●	●	●	0.6	9.3	30
73	SE Jennings Ave.	River Rd.	Webster	Gladstone, Clackamas County			●	●	0.6	1.9	6
74	NW Glisan St.	NW 24th Ave.	Steel Bridge	Portland	●			●	0.6	1.5	5
75	Hwy 212	Hwy 212	172nd	ODOT	●		●	●	0.6	4.3	14
76	Molalla Ave.	7th St.	Hwy 213	Oregon City			●	●	0.6	2.2	7
77	Hwy 8- W Baseline Rd.	SW Brookwood	SE Cornelius Pass Road	ODOT			●	●	0.6	4.5	14
78	NW Lovejoy St.	NW Broadway	NW Cornell Rd.	Portland	●		●	●	0.6	1.3	4
79	I-5 NB	SW Barbur Blvd.	SW Multnomah Blvd.	ODOT			●	●	0.6	2.9	9
80	SW 4th Ave.	Burnside	Barbur & Sheridan	Portland	●			●	0.6	1.3	4
81	E Burnside St.	NE 128th	E Powell	Gresham, Portland			●	●	0.6	8.6	26
82	SE Milwaukie Ave.	SE 11th Ave.	SE Nehalem St.	Portland			●	●	0.6	2.7	8
83	NE Cornell Rd.	E Main St.	NE Butler St.	Hillsboro			●	●	0.6	5.3	16
84	Hwy 224 - Clackamas Hwy	SE Rusk Rd.	SE 82nd Dr.	ODOT			●	●	0.6	1.3	4
85	SE Belmont	Grand & Morrison Bridge	SE 69th	Portland		●		●	0.6	3.3	10
86	NW Evergreen Rd.	NW Cornell Rd.	NW Glencoe Rd.	Hillsboro, Washington County			●	●	0.6	7.0	21
87	SE 50th Ave.	Hawthorne	Foster & Powell	Portland	●	●		●	0.6	1.0	3
88	SW Millikan Way	Millikan	Millikan & Tualatin Valley	Beaverton		●		●	0.6	1.7	5
89	I-205 NB	SE Sunnybrook Blvd.	Strawberry Lane	ODOT			●	●	0.6	2.0	6
90	SE Flavel St.	SE 52nd	SE 72nd	Portland	●			●	0.6	1.0	3
91	NE Marine Dr.	Marine Dr. (at Airport)	NE 122nd Blvd.	Portland		●		●	0.6	2.7	8
92	N/NE Skidmore St.	N Interstate Ave.	NE Martin Luther King Jr.	Portland		●		●	0.6	1.0	3

Source: Metro

Data: Oregon Department of Transportation Crash Data, 2010-2015

Regional High Injury Corridors, 2010-2014 Serious Crashes within the MPO Planning Area					Network						
#	High Injury Corridors (by serious crashes per mile)	From	To	Facility Owner or Jurisdiction	Ped	Bike	Auto	All	Annual Average Serious Crashes/ Mile	Corridor Length (Mile)	Total Serious Crashes 2010- 2014
93	Hwy 99W - SW Pacific Hwy.	Barbur (99W)	SW Rein Rd.	ODOT			●	●	0.6	10.4	31
94	Hwy 30 - N/NE Lombard St.	N Commando Ave	NE Portland Hwy	ODOT	●			●	0.6	7.8	23
95	SW/NW 158th Ave.	NW Cornell Rd.	SW Merlo Rd.	Beaverton		●		●	0.6	1.7	5
96	Hwy 213	Beavercreek	Hwy 213	ODOT			●	●	0.6	3.1	9
97	SW Capitol Hwy.	Taylor's Ferry	SW Lesser Rd.	Portland			●	●	0.6	1.4	4
98	N Columbia Blvd.	Hwy 213	N Burgard/ N Smith	Portland			●	●	0.6	10.4	30
99	N/NE Killingsworth St.	NE Sandy Blvd.	N Greeley Ave.	Portland		●		●	0.6	6.6	19
100	SE Thiessen Rd.	SE Johnson Rd.	SE Hill Rd.	Clackamas County		●	●	●	0.6	1.4	4
101	SE Hogan St.	SE Butler	NE 242nd	Gresham, Troutdale		●		●	0.6	3.9	11
102	SW Brockman Rd.	SW Greenway Blvd.	SW Murray Blvd.	Beaverton			●	●	0.6	1.1	3
103	I-5 NB	N Rosa Parks Way	Columbia Blvd.	ODOT			●	●	0.6	1.1	3
104	N Williams St.	N Wheeler St.	N Killingsworth St.	Portland		●		●	0.6	2.1	6
105	NW Bethany Blvd.	Cornell	West Union	Beaverton, Washington County			●	●	0.6	1.1	3
106	SW Scholls Ferry Rd.	Scholls Ferry	Beaverton Hillsdale	Washington County, Multnomah County, Beaverton, Tigard, Portland			●	●	0.6	9.0	25
107	SW Avery St.	Boones Ferry Road	Tualatin Sherwood Hwy.	Tualatin			●	●	0.6	1.1	3
108	SE Fuller Rd.	King	Harmony	Clackamas County			●	●	0.6	1.1	3
109	SE 136th Ave.	SE Powell Blvd.	SE Foster Blvd.	Portland				●	0.6	1.4	4
110	I-5 SB	Columbia Blvd.	Rosa Parks Way	ODOT			●	●	0.6	1.1	3
111	SW Butler Rd.	Regner	190th	Gresham			●	●	0.6	1.8	5
112	SE Oatfield Rd.	82nd Dr.	SE Thiessen	Milwaukie, Clackamas County				●	0.6	1.5	4
113	SE/NW 12th Ave.	SE Milwaukie Ave.	NE Lloyd Blvd.	Portland	●			●	0.5	1.8	5
114	N/NE Rosa Parks Blvd.	N Willamette Blvd.	N Vancouver St.	Portland		●		●	0.5	1.5	4

Source: Metro

Data: Oregon Department of Transportation Crash Data, 2010-2015

Regional High Injury Corridors, 2010-2014 Serious Crashes within the MPO Planning Area					Network						
#	High Injury Corridors (by serious crashes per mile)	From	To	Facility Owner or Jurisdiction	Ped	Bike	Auto	All	Annual Average Serious Crashes/ Mile	Corridor Length (Mile)	Total Serious Crashes 2010- 2014
115	SE Gladstone St.	26th	42nd	Portland		●		●	0.5	1.5	4
116	SW Garden Home Rd.	SE 92nd	Pacific Hwy	Beaverton, Portland, Washington			●	●	0.5	1.1	3
117	SE Oak St.	10th & Oak	Oak & Tualatin Valley	Hillsboro		●		●	0.5	1.5	4
118	Hwy 224 - Clackamas Hwy	Harrison	SE Lake Rd.	ODOT		●		●	0.5	1.5	4
119	I-205 NB	Cascade Hwy S (approx.)	SE 82nd Dr. (approx.)	ODOT				●	0.5	1.5	4
120	SE/NE 148th Ave.	SW Powell Blvd.	NE Columbia Blvd.	Portland		●		●	0.5	4.6	12
121	NE Halsey St.	NE 82nd	SW 257th	Fairview, Gresham, Portland, Troutdale, Wood			●	●	0.5	9.1	24
122	SE 72nd Ave.	SE Powell	SE Alberta St.	Portland, Multnomah County, Clackamas County		●		●	0.5	3.4	9
123	SW Macadam Ave.	Bancroft	Sellwood Bridge	Portland			●	●	0.5	2.3	6
124	Hwy 47 - NE Nehalem Hwy	UGB	Quince St.	ODOT			●	●	0.5	1.5	4
125	I-5 NB	SW Wilsonville Rd. (approx.)	SW Miley Rd.	ODOT			●	●	0.5	1.2	3
126	SW/NE/NW Brookwood Parkway	Tualatin Valley Highway	NW Evergreen Parkway	Hillsboro			●	●	0.5	3.9	10
127	SE Stark St.	Thorburn	Columbia River & Stark	Gresham, Portland, Troutdale, Multnomah County				●	0.5	11.7	30
128	Hwy 8 - W Baseline St.	Pacific Ave & Adair	Tualatin Valley Hwy & SW 345th Ave.	ODOT				●	0.5	2.0	5
129	SW Lower Boones Ferry Rd.	Upper Boones Ferry	SW Jean Road	Durham, Lake Oswego, Tualatin			●	●	0.5	1.2	3
130	SE Orient Dr.	SE Kane & SE Palmquist	SE Chase Rd.	Gresham			●	●	0.5	1.2	3
131	SE Johnson Creek Blvd.	32nd	SE Highgate Drive	Happy Valley, Milwaukie, Portland, Clackamas County, Multnomah			●	●	0.5	4.0	10
132	NE/SE 28th Ave.	28th & Halsey	28th	Portland	●			●	0.5	2.0	5
133	Hwy 26 - Sunset Highway WB	13th Ave	Hwy 217	ODOT			●	●	0.5	4.9	12
134	Hwy 26 - Sunset Highway EB	Canyon	Hwy 217	ODOT				●	0.5	1.2	3

Source: Metro

Data: Oregon Department of Transportation Crash Data, 2010-2015

Regional High Injury Corridors, 2010-2014 Serious Crashes within the MPO Planning Area					Network						
#	High Injury Corridors (by serious crashes per mile)	From	To	Facility Owner or Jurisdiction	Ped	Bike	Auto	All	Annual Average Serious Crashes/ Mile	Corridor Length (Mile)	Total Serious Crashes 2010- 2014
135	SW Barnes Rd.	W Burnside	NW Cornell	Beaverton, Portland, Washington			●	●	0.5	3.7	9
136	SE Oatfield Rd.	Oatfield	82nd	Gladstone, Clackamas County		●		●	0.5	2.5	6
137	N/S 10th Ave.	10th	10th & Cornelius Schefflin	Cornelius		●		●	0.5	1.2	3
138	NE Broadway	Broadway Bridge	NE 39th	Portland	●	●		●	0.5	2.5	6
139	SW Walker Rd.	SW Canyon (Hwy 8)	NW Amberglen Pkw.	Beaverton, Hillsboro, Washington			●	●	0.5	5.8	14
140	NE 201st Ave.	NE Glisan	NE Sandy	Gresham, Fairview				●	0.5	1.2	3
141	NW Yeon Ave.	NW 29th Ave.	NW Kittridge St.	Portland			●	●	0.5	1.2	3
142	SE 52nd Ave.	52nd & Powell	52nd & Flavel	Portland		●		●	0.5	2.1	5
143	SW/NW 10th Ave.	SW Market St.	NW Northrup St.	Portland	●			●	0.5	1.2	3
144	SW Multnomah Blvd.	19th & I-5 Fwy - Multnomah Blvd	Garden Home	Portland		●		●	0.5	2.5	6
145	NW Cornell Rd.	Cornelius Pass	NW Bethany	Beaverton, Hillsboro, Washington			●	●	0.5	4.7	11
146	E/W Main St.	Bancroft	Oak	Hillsboro			●	●	0.5	3.4	8
146	NE Alberta St.	NE 30th Ave.	NE Martin Luther King Jr.	Portland	●			●	0.5	1.3	3
147	SW Minter Bridge Rd.	Cypress & Minter Bridge & Tualatin Valley	Minter Bridge	Hillsboro, Washington County			●	●	0.5	1.3	3
148	SW Roy Rogers Rd.	Scholls Sherwood	SW Pacific Hwy	Sherwood, Washington County			●	●	0.5	1.3	3
149	SW Jenkins Rd.	Cedar Hills & Jenkins	Baseline & Jenkins	Beaverton			●	●	0.5	2.2	5
150	SW Skyline Blvd.	Burnside	Sunset Hwy (Hwy 26)	Portland			●	●	0.4	1.4	3
151	Hwy 47 - Tualatin Valley Highway	Pacific	SW Seghers Rd.	ODOT				●	0.4	5.1	11
152	SE 174th Ave.	SE Stark St.	SE 174th Ave. & South of SE Powell Blvd.	Gresham, Portland, Multnomah County			●	●	0.4	2.3	5
153	SE Webster Rd.	Oatfield Rd.	SE Roots Rd.	Gladstone, Clackamas County				●	0.4	1.4	3
154	I-84 WB	NE 148th	NE 111th	ODOT			●	●	0.4	1.9	4
155	NE 15th Ave.	NE Knott St.	NE Lombard St.	Portland		●		●	0.4	2.4	5

Source: Metro

Data: Oregon Department of Transportation Crash Data, 2010-2015

Regional High Injury Corridors, 2010-2014 Serious Crashes within the MPO Planning Area					Network						
#	High Injury Corridors (by serious crashes per mile)	From	To	Facility Owner or Jurisdiction	Ped	Bike	Auto	All	Annual Average Serious Crashes/ Mile	Corridor Length (Mile)	Total Serious Crashes 2010- 2014
156	SE 92nd Ave.	SE Stark St.	South of SE Flavel St.	Portland				●	0.4	3.8	8
157	SE Sunnybrook St.	82nd	Sunnybrook & Sunnyside	Happy Valley, Clackamas County				●	0.4	1.5	3
158	SW/NW 18th Ave.	SW Jefferson St.	NW Thurman St.	Portland		●		●	0.4	1.5	3
159	SE River Rd.	McLoughlin	River	Milwaukie, Clackamas County	●			●	0.4	2.5	5
160	NE Prescott St.	Martin Luther King Jr	33rd Ave	Portland	●				0.4	6.0	12
161	NE Century (231st) Blvd.	Baseline	Cornell	Hillsboro	●				0.4	1.0	2
162	NE/SE 28th Ave.	28th & Gladstone	28th & Woodstock	Portland	●	●			0.4	1.1	2
163	N Vancouver Ave.	Vancouver & Weidler &	Martin Luther King Jr	Portland		●			0.4	3.9	7
164	SW/NW 11th Ave.	SW Market St.	NW 11th Ave. & NW Lovejoy St.	Portland	●				0.4	1.1	2
165	NE 57th Ave.	57th & Halsey	57th & Cully	Portland	●				0.3	1.2	2
166	SE 17th Ave.	Center	Nehalem	Multnomah County, Clackamas County, Milwaukie		●			0.3	3.1	5
167	Hwy 43 - Willamette Dr.	Pacific & Willamette	Willamette	ODOT		●			0.3	3.1	5
168	SW Durham Rd.	72nd & Durham	SW Pacific Hwy	Tigard		●			0.3	2.5	4
169	SW Boones Ferry Rd.	Lower Boones Ferry	Greenhill Lane	Durham, Tualatin, Washington County		●			0.3	3.3	5
170	SW/NW Naito Pkwy.	Ross Island Bridge	NW Thurman St.	Portland		●			0.2	3.3	4
171	N Willamette Blvd.	N Ainsworth St.	N Richmond St.	Portland		●			0.2	3.3	4
172	SE Morrison St.	Grand	25th & Morrison	Portland	●				0.2	1.0	1
173	SW 209th Ave.	Tualatin Valley Hwy	Farmington	Hillsboro, Washington County		●			0.2	2.1	2
174	Pilkington Rd.	Boones Ferry & Pilkington	Pilkington	Lake Oswego, Rivergrove, Clackamas County	●				0.2	1.1	1
175	SE Ankeny St.	Martin Luther King Jr	28th & Ankeny	Portland		●			0.2	1.2	1
176	N 19th Ave.	NW Susbauer Rd.	Baseline (Pacific Hwy.)	Forest Grove	●				0.2	1.2	1
177	SW Parkway Ave.	Printer Parkway	SW Town Center Loop	Wilsonville	●				0.2	1.3	1

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Regional High Injury Corridors, 2010-2014 Serious Crashes within the MPO Planning Area					Network						
#	High Injury Corridors (by serious crashes per mile)	From	To	Facility Owner or Jurisdiction	Ped	Bike	Auto	All	Annual Average Serious Crashes/ Mile	Corridor Length (Mile)	Total Serious Crashes 2010- 2014
178	SW Denney Rd.	Scholls Ferry	Hall	Beaverton		●			0.1	1.4	1
179	NE Ainsworth St.	27th	Ainsworth & Vancouver	Portland		●			0.1	1.5	1
180	SE Clinton St.	SE 12th	SE 50th	Portland		●			0.1	2.1	1
181	SW Boones Ferry Rd.	SW Terwilliger	Knaus Rd.	Lake Oswego, Portland, Clackamas County, Multnomah		●			0.1	2.1	1

Source: Metro

Data: Oregon Department of Transportation Crash Data, 2010-2015

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 Council President

Tom Hughes

Metro Council

Shirley Craddick, District 1

Carlotta Collette, District 2

Craig Dirksen, District 3

Kathryn Harrington, District 4

Sam Chase, District 5

Bob Stacey, District 6

Auditor

Brian Evans



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



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