Agenda

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

Meeting: Metro Technical Advisory Committee
Date: Wednesday, December 6, 2017
Time: 10:00 a.m. to noon
Place: Council Chamber

Time	Agenda Item	Action Requested	Presenter(s)	Materials
10:00 a.m. 20 min.	**CALL TO ORDER** **Updates from the Acting Chair** · 2018 RTP comment opportunity planned for January 8 to February 9, 2018 on draft projects and technical evaluation · Final RTP Regional Leadership Forum planned for March 2, 2018 · Proposed 2018 MTAC and TPAC Meeting Schedule		Acting Chair Tom Kloster, Metro	
	· **Citizen Communications to MTAC** · **Updates from Committee Members**		All	
35 min.	**Draft RTP Investment Strategy Evaluation Findings** *Purpose: Provide an overview of the draft results and preliminary findings from the system-level evaluation of the projects submitted to the 2018 RTP*	Informational/ Discussion	John Mermin, Metro	*
45 min.	**Draft Transportation Equity Analysis Findings** *Purpose: Provide an overview of the draft results and preliminary findings from the 2018 RTP Transportation Equity Analysis*	Informational/ Discussion	Grace Cho, Metro	*
Noon	**Adjourn**			

* Material will be emailed with meeting notice
** Material will be emailed at a later date after notice
# Material will be distributed at the meeting.

For agenda and schedule information, call 503-797-1562. To check on closure/cancellations during inclement weather please call 503-797-1700.

2017 MTAC Tentative Agendas

January 4 – Cancelled	**January 18 – Cancelled**
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) o System Measures o Transportation equity analysis
March 1 – Cancelled	**March 15** • Regional Transit Strategy • Regional Freight Plan • Building the RTP Investment Strategy* (Ellis)
April 5 • 2018 Urban Growth Management Decision Work Program Overview • Expectations for cities proposing residential UGB expansions	**April 19** • Building the RTP Investment Strategy* and Project Evaluation Process • Powell-Division Transit and locally preferred alternative resolution and related RTP ordinance • 2040 Grants
May 3 • Building the RTP Investment Strategy* (Recommendation to MPAC) (Ellis)	**May 17 – Cancelled**
June 7 – Cancelled	**June 21 – Cancelled**
July 5 – Cancelled	**July 19 – Cancelled**
August 2 • Proposed code for mid-cycle UGB amendment process (Reid) • Designing Livable Streets (McTighe)	**August 16 – Cancelled**
September 6 • Economic Value Atlas update (Raker) • Southwest Corridor Equitable Development Strategy update (Harper) • Expectations for cities proposing residential UGB expansions (Reid)	**September 20**
October 4 • Regional Transportation Technology Strategy (RTx) (Rose) • Proposed methodology for the urban reserve Goal 14 alternatives analysis (O'Brien)	**October 18 – Cancelled**

November 1 – Cancelled	**November 15** • RTP Investment Strategy update (Ellis) • Overview of technical review draft of safety strategy *(key issues identified for discussion)* (McTighe) • Designing Livable Streets and Trails Guide update (McTighe)
December 6 • Draft RTP Investment Strategy Findings (Ellis) • Draft Transportation Equity Analysis Findings (Cho) •	**December 20**

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

Upcoming Events:

- December 4, 2017 TPAC/MTAC workshop on RTP Evaluation Results (System evaluation and pilot project evaluation) 2 – 5 p.m. at Metro (Council Chamber)
- March 2, 2018: RTP Regional Leadership Forum #4 (Finalizing our Shared Plan for the Region)

Parking Lot – Future Agenda Items

- RTP 2018 Engagement Activities and Regional Leadership Forum #4 (Higgins) – Jan. 17, 2018
- Overview of technical review drafts of freight strategy *(key issues identified for discussion)* (Collins) – Jan. 17, 2018
- Update on technical activities related to land use modeling/growth management (Frkonja); November or December, and January 2018
- Transportation resiliency
- Regional Transit Strategy and System Expansion Policy (Snook) January 2018
- Draft RTX policies and strategies (Rose) January 2018
- Draft RTP Policy Chapter Review (Ellis) January 2018

Memo

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

Date: November 29, 2017
To: Metro Technical Advisory Committee (MTAC) and interested parties
From: Kim Ellis, RTP Project Manager
John Mermin, Regional Transportation Planner
Subject: 2018 RTP Investment Strategy – Preliminary System Evaluation Results and Findings

PURPOSE

The purpose of this agenda item is to update the Metro Technical Advisory Committee (MTAC) on the draft 2018 RTP system evaluation results and findings. Staff will present an overview of key results and findings and highlights of the discussion from the Dec. 4 MTAC/TPAC workshop.

ACTION REQUESTED

No formal action is requested. This is an opportunity for MTAC to discuss the initial evaluation results, and to provide feedback on the findings to be presented to policymakers in 2018.

Questions to consider during the presentation:

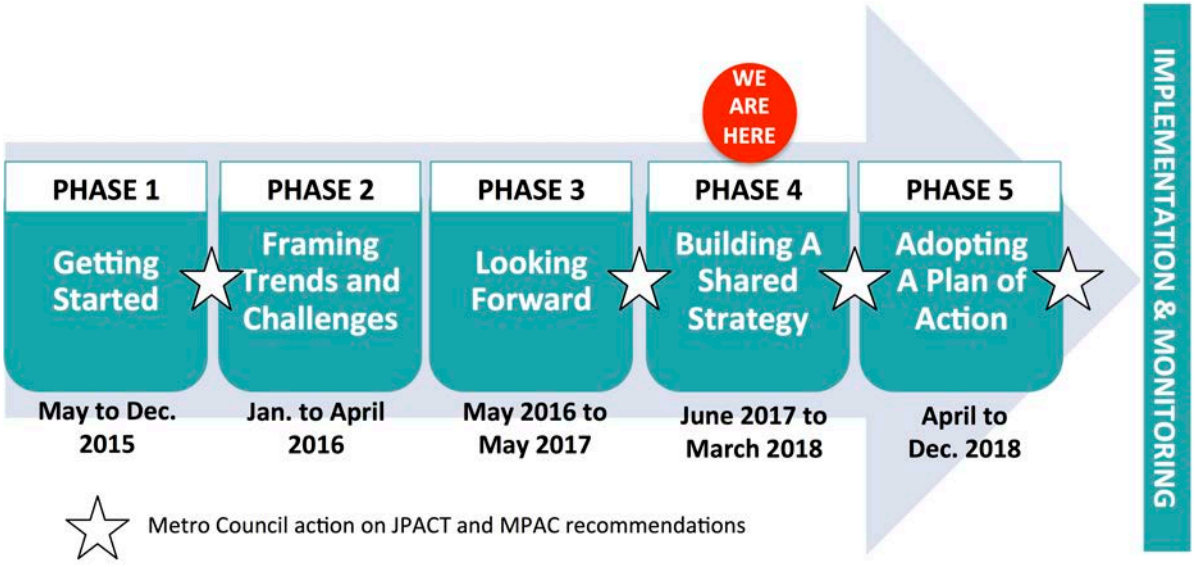
- What does the data suggest to you?
- What information and takeaways are most important to highlight in discussion materials?
- What are the implications for the 2018 RTP and potential refinements to the draft project priorities?

BACKGROUND

The Portland metropolitan region's economic prosperity and quality of life depend on a transportation system that provides every person and business in the region with equitable access to safe, efficient, reliable, affordable and healthy travel options. Through the 2018 RTP update, the Metro Council is working with leaders and communities throughout the region to plan the transportation system of the future by updating the region's shared transportation vision and investment strategy for the next 25 years.

Shown in **Figure 1**, the plan update is in Phase 4 and on schedule.

Figure 1. Timeline for 2018 Regional Transportation Plan Update



In December 2016 and February 2017, the Council reaffirmed their direction to staff to use development of the 2018 RTP to clearly and realistically communicate our transportation funding outlook and align the financially constrained project list with updated financial assumptions. This direction included developing a pipeline of priority projects for the regional transportation system for Metro and other partners to work together to fund and build. The Council also directed the RTP project list and RTP modal and topical strategies be developed in a transparent way that advances adopted regional goals, supports regional coalition building efforts, and emphasizes equity, safety and climate change. On May 30, the Council further directed staff to move forward with the 2018 RTP Call for Projects as recommended by the Metro Policy Advisory Committee (MPAC) and the Joint Policy Advisory Committee on Transportation (JPACT).

As discussed at the last MTAC meeting, staff completed the initial RTP Call for Projects in August, working with the counties and cities, TriMet, ODOT and other agencies to update the region's project priorities based on direction provided by the Metro Council and JPACT.

Metro staff is completing the technical evaluation, using the updated evaluation framework agreed upon by JPACT and the Metro Council in May. Through the end of the year, staff will review the results with the technical work groups, TPAC and MTAC, and develop findings for public review and discussion by JPACT, MPAC and the Metro Council in early 2018. The RTP work groups, TPAC and MTAC will discuss preliminary findings and recommendations from the performance evaluation at the November and December meetings, including a joint MTAC/TPAC workshop planned for December 4. Staff will share highlights from the workshop discussion as part of the MTAC presentation.

/attachments

Attachment 1. System Performance Measures for Intra-MPA Trips *(11/28/18)*

Attachment 2. Streets and Highways System Performance *(11/28/18)*

Attachment 3. Transit service frequencies and access *(11/20/17)*

Attachment 4. Mode Share (Subareas, Selected 2040 Centers and Regional Mobility Corridors) *(11/28/18)*

Metro

2018 Regional Transportation Plan (RTP) Update

System Performance Measures for Intra-MPA* Trips

* within Metropolitan Planning Area (excludes Clark County, Washington)

Technical review draft
11/28/17

		2015 Base		2027 Constrained		2040 No Build		2040 Constrained		2040 Strategic	
Demographic Data											
1	Population	1,605,672		1,904,815		2,178,848		2,178,848		2,178,848	
2	Households	636,467		776,202		896,451		896,451		896,451	
3	Employment	895,094		1,071,017		1,240,653		1,240,653		1,240,653	
Network Data											
1 a	Total Road Miles in Network	3,718		3,755		3,737		3,797		3,817	
	change from 2015			37	1.0%	19	0.5%	79	2.1%	99	2.7%
	change from 2040 No Build							60	2.1%	80	2.7%
b	Freeway Miles	235		235		235		241		241	
	change from 2015			0	0.0%	0	0.0%	6	2.4%	6	2.4%
c	Arterial Miles	3,483		3,520		3,502		3,556		3,576	
	change from 2015			37	1.1%	19	0.5%	73	2.1%	94	2.7%
	change from 2040 No Build							54	2.1%	75	2.7%
2 a	Total Lane Miles	5,480		5,629		5,562		5,791		5,896	
	change from 2015			149	2.7%	82	1.5%	311	5.7%	416	7.6%
	change from 2040 No Build							229	5.6%	334	7.5%
b	Freeway Lane Miles	630		643		639		679		683	
	change from 2015			13	2.1%	9	1.5%	49	7.8%	54	8.5%
	change from 2040 No Build							40	7.7%	44	8.4%
c	Arterial Lane Miles	4,850		4,986		4,923		5,112		5,212	
	change from 2015			136	2.8%	73	1.5%	262	5.4%	362	7.5%
	change from 2040 No Build							189	5.3%	289	7.4%
Travel Data - Average Weekday (AWD)											
1 a	AWD Total Person Trips	5,542,753		6,600,527		7,583,124		7,579,894		7,580,259	
b	AWD Total Work Trips (share of total person trips)	1,899,474	34.3%	2,293,870	34.8%	2,672,283	35.2%	2,670,151	35.2%	2,670,232	35.2%
c	AWD Total Non-Work Trips (share of total person trips)	3,643,279	65.7%	4,306,657	65.2%	4,910,840	64.8%	4,909,743	64.8%	4,910,027	64.8%
2	AWD Total Passenger Vehicle Person Trips	4,687,674		5,447,604		6,298,091		6,152,438		6,106,603	
3	AWD Total Passenger Vehicle Trips	3,591,120		4,162,418		4,829,858		4,687,792		4,649,939	
4	AWD Total Passenger Vehicle VMT	20,392,078		23,816,358		27,485,361		26,899,580		26,690,450	
	change from 2015			3,424,280	16.8%	7,093,283	34.8%	6,507,502	31.9%	6,298,372	30.9%
	change from 2040 No Build							-585,781	-2.1%	-794,911	-2.9%
5	AWD Passenger Vehicle VMT/Capita	12.7		12.5		12.6		12.3		12.2	
	change from 2015			-0.2	-1.5%	-0.1	-0.7%	-0.4	-2.8%	-0.5	-3.5%
	change from 2040 No Build							-0.3	-2.8%	-0.4	-3.6%
6	AWD Passenger Vehicle VMT/Employee	22.8		22.2		22.2		21.7		21.5	
	change from 2015			-0.5	-2.4%	-0.6	-2.8%	-1.1	-4.8%	-1.3	-5.6%
	change from 2040 No Build							-0.5	-2.1%	-0.6	-2.9%

Metro

2018 Regional Transportation Plan (RTP) Update

System Performance Measures for Intra-MPA* Trips

* within Metropolitan Planning Area (excludes Clark County, Washington)

Technical review draft
11/28/17

		2015 Base		2027 Constrained		2040 No Build		2040 Constrained		2040 Strategic	
7	Single Occupant Vehicle (SOV) Percent of Person Trips	47.2%		46.0%		46.8%		45.1%		44.7%	
8	Non-SOV Percent of Person Trips (shared ride, walk, bike, transit)	52.8%		54.0%		53.2%		54.9%		55.3%	
9	AWD Average Trip Length (miles)	5.3		5.4		5.3		5.4		5.4	
10	AWD Passenger Vehicle Average Trip Length (miles)	5.7		5.7		5.7		5.7		5.7	
11	AWD Home-Based Work Average Trip Length (miles)	7.7		7.9		7.9		7.9		7.9	
12	AWD Home-Based Work Passenger Vehicle Average Trip Length (miles)	8.2		8.4		8.5		8.5		8.5	
Passenger Vehicle Data - PM 2 Hour Peak											
1	PM 2-HR Passenger Vehicle Average Travel Time (minutes)	12.5		13.2		13.5		13.5		13.5	
2	PM 2-HR Average Passenger Vehicle Travel Speed (miles per hour)	27.3		26.1		24.9		25.2		25.4	
3 a	PM 2-HR Total Congested miles (0.9 <= v/c < 1) (share of total miles in network)	62	1.7%	92	2.5%	127	3.4%	126	3.3%	123	3.2%
b	PM 2-HR Freeway Congested miles (share of freeway miles in network)	32	13.7%	44	18.5%	49	20.9%	54	22.3%	57	23.5%
c	PM 2-HR Arterial Congested miles (share of arterial miles in network)	29	0.8%	49	1.4%	78	2.2%	72	2.0%	66	1.8%
4 a	PM 2-HR Total Severely Congested miles (v/c >=1) (share of total miles in network)	28	0.8%	58	1.6%	93	2.5%	75	2.0%	68	1.8%
b	PM 2-HR Freeway Severely Congested miles (share of freeway miles in network)	13	5.3%	23	9.8%	30	12.9%	23	9.4%	19	8.1%
c	PM 2-HR Arterial Severely Congested miles (share of arterial miles in network)	15	0.4%	35	1.0%	62	1.8%	52	1.5%	49	1.4%
5	PM 2-HR Passenger Vehicle Hours	111,791		135,900		157,078		155,818		154,292	
6 a	PM 2-HR Passenger Vehicle Hours of Delay (share of total PM 2 Passenger Vehicle Hours)	5,371	4.8%	9,810	7.2%	13,476	8.6%	12,356	7.9%	11,723	7.6%
b	PM 2-HR Freeway VHD (share of total PM 2 Passenger Vehicle Hours)	3,430	3.1%	6,122	4.5%	7,820	5.0%	7,136	4.6%	6,783	4.4%
c	PM 2-HR Arterial VHD (share of total PM 2 Passenger Vehicle Hours)	1,941	1.7%	3,688	2.7%	5,656	3.6%	5,220	3.4%	4,940	3.2%
	Vehicle Hours of Delay (VHD) is the time accrued above the travel time at v/c=0.9										
Passenger Vehicle Data - Midday 1 Hour											
1	MD 1-HR Passenger Vehicle Average Travel Time (minutes)	10.3		10.6		11.1		11.0		10.9	
2	MD 1-HR Average Passenger Vehicle Travel Speed (miles per hour)	30.2		29.5		28.1		28.7		28.9	
3 a	MD 1-HR Total Congested miles (0.9 <= v/c < 1) (share of total miles in network)	11	0.3%	20	0.5%	56	1.5%	36	1.0%	34	0.9%
b	MD 1-HR Freeway Congested miles (share of freeway miles in network)	8	3.2%	11	4.6%	30	12.5%	19	7.8%	17	7.0%
c	MD 1-HR Arterial Congested miles (share of arterial miles in network)	4	0.1%	10	0.3%	27	0.8%	18	0.5%	17	0.5%
4 a	MD 1-HR Total Severely Congested miles (v/c >=1) (share of total miles in network)	5	0.1%	10	0.3%	18	0.5%	13	0.3%	12	0.3%
b	MD 1-HR Freeway Severely Congested miles (share of freeway miles in network)	2	0.7%	5	2.2%	9	3.8%	5	2.2%	5	1.9%
c	MD 1-HR Arterial Severely Congested miles (share of arterial miles in network)	3	0.1%	5	0.1%	10	0.3%	7	0.2%	7	0.2%
5	MD 1-HR Passenger Vehicle Hours	38,249		45,539		54,896		52,876		52,229	
6 a	MD 1-HR Passenger Vehicle Hours of Delay (share of total MD 1 Passenger Vehicle Hours)	317	0.8%	730	1.6%	1,638	3.0%	1,004	1.9%	929	1.8%
b	MD 1-HR Freeway VHD (share of total MD 1 Passenger Vehicle Hours)	192	0.5%	527	1.2%	1,180	2.1%	646	1.2%	595	1.1%
c	MD 1-HR Arterial VHD (share of total MD 1 Passenger Vehicle Hours)	125	0.3%	204	0.4%	458	0.8%	358	0.7%	334	0.6%
	Vehicle Hours of Delay (VHD) is the time accrued above the travel time at v/c=0.9										
Freight Data - Average Weekday (AWD)											
1	AWD Total Truck Trips	26,451		35,666		45,649		45,649		45,649	
2	AWD Truck Average Trip Length (miles)	13.7		14.0		14.3		14.3		14.2	
3	Freight Network Lane Miles	1,849		1,892		1,874		1,955		1,979	
	change from 2015			43	2.3%	25	1.4%	106	5.8%	131	7.1%
	change from 2040 No Build							81	4.3%	105	5.6%

Metro

2018 Regional Transportation Plan (RTP) Update

System Performance Measures for Intra-MPA* Trips

* within Metropolitan Planning Area (excludes Clark County, Washington)

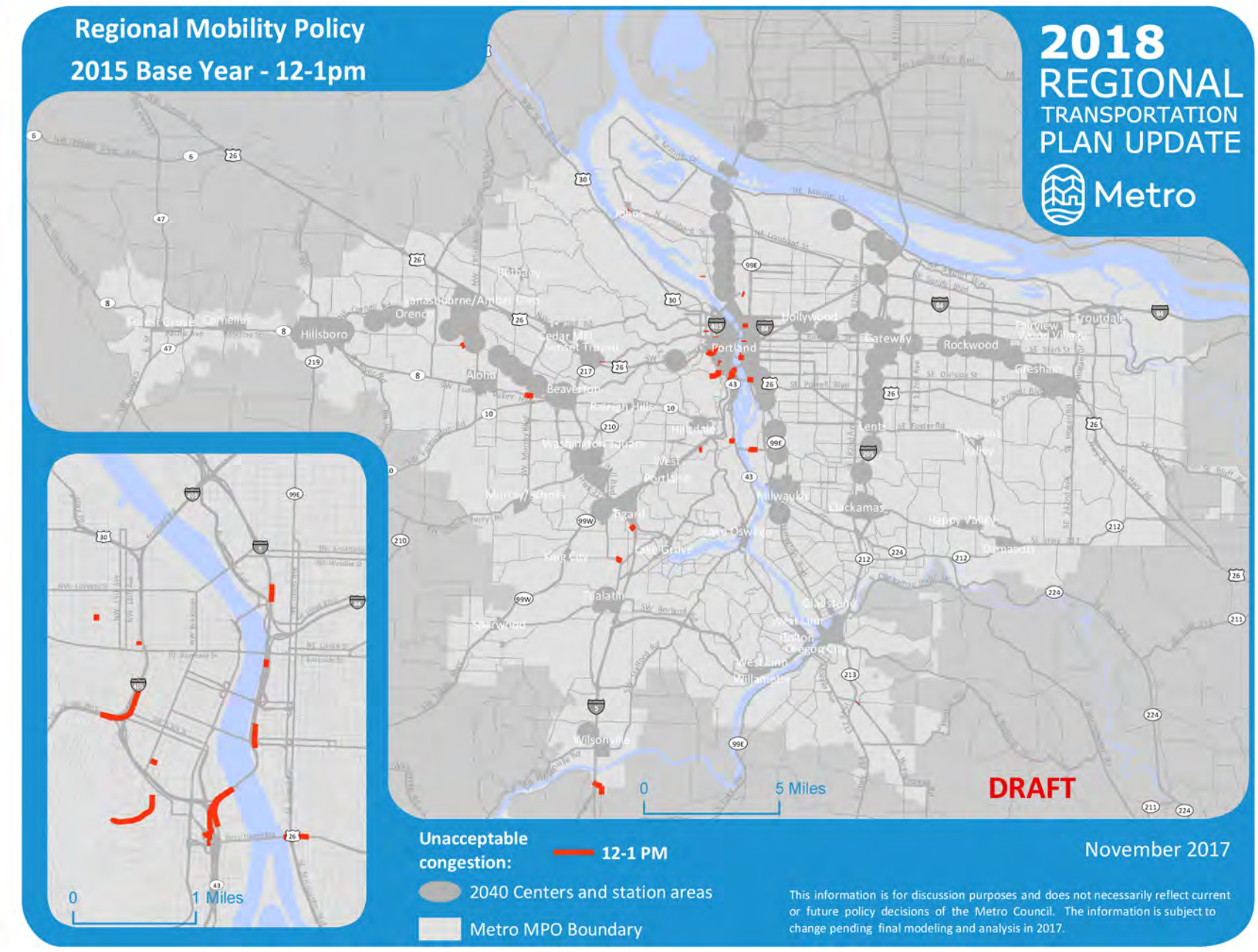
Technical review draft
11/28/17

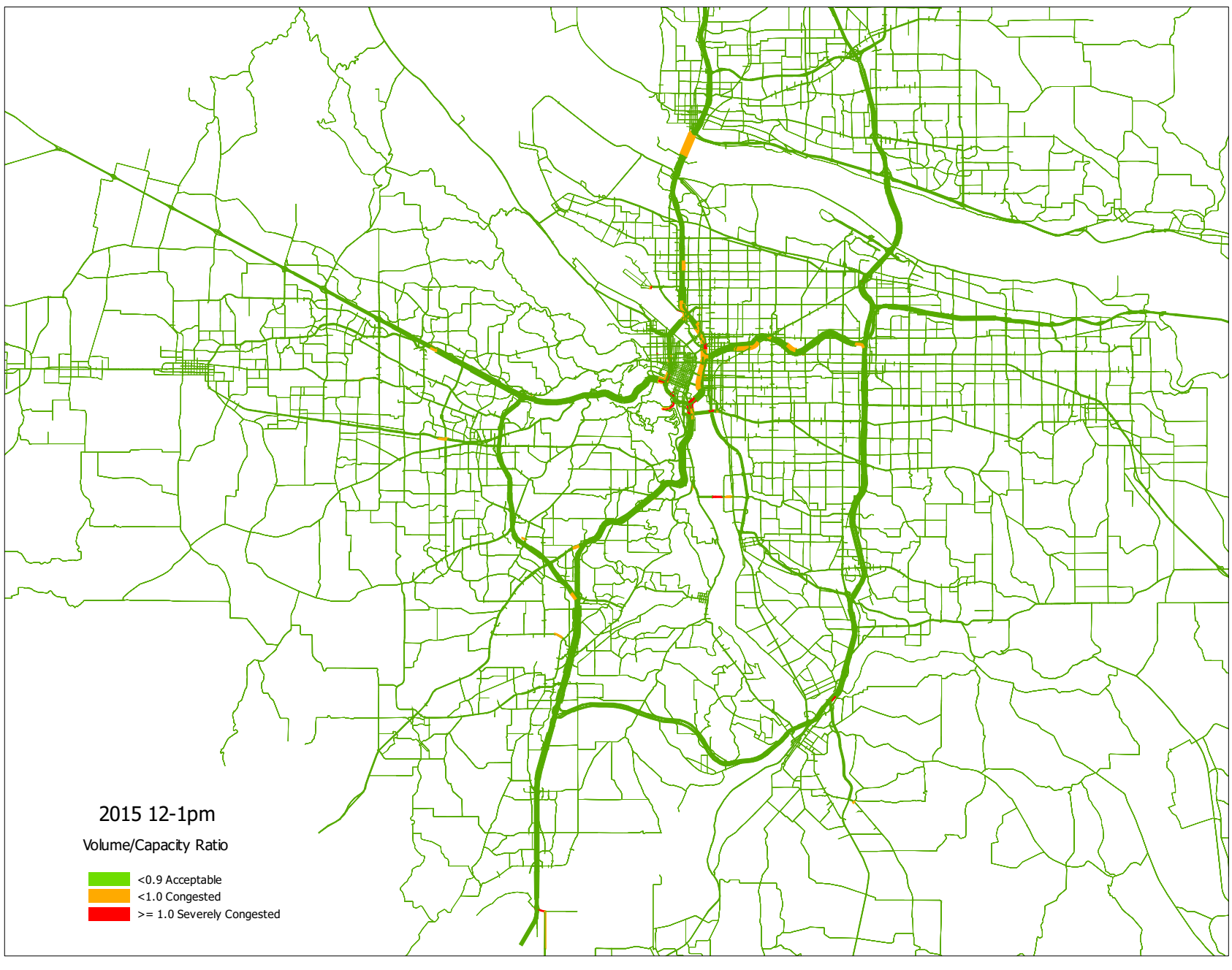
		2015 Base	2027 Constrained		2040 No Build		2040 Constrained		2040 Strategic	
Freight Data - PM 2 Hour Peak										
1	PM 2-HR Truck Average Travel Time (minutes)	28.9	31.6		33.9		33.5		33.3	
2	PM 2-HR Truck Hours	1,126	1,659		2,276		2,254		2,239	
3 a	PM 2-HR Truck Vehicle Hours of Delay (time accrued above v/c > 0.9)	163	361		605		454		439	
b	PM 2-HR Truck Vehicle Hours of Delay on Freight Network	150	336		568		417		401	
Freight Data - Midday 1 Hour										
1	MD 1-HR Truck Average Travel Time (minutes)	25.8	27.5		29.8		29.1		28.9	
2	MD 1-HR Truck Hours	858	1,234		1,712		1,669		1,659	
3 a	MD 1-HR Truck Vehicle Hours of Delay (time accrued above v/c > 0.9)	29	90		222		97		92	
b	MD 1-HR Truck Vehicle Hours of Delay on Freight Network	23	76		196		82		78	
Transit Data										
1	AWD Total Transit Trips (originating riders)	252,472	406,780		412,599		526,788		582,464	
	change from 2015		154,308	61.1%	160,127	63.4%	274,316	108.7%	329,992	130.7%
	change from 2040 No Build						114,189	66.5%	169,865	80.0%
2	Transit Percent of Person Trips	4.6%	6.2%		5.4%		6.9%		7.7%	
Pedestrian Data										
1	AWD Total Walk Trips (does not include walk trips to transit)	428,108	515,782		592,533		614,673		611,762	
2	Walk Percent of Person Trips	7.7%	7.8%		7.8%		8.1%		8.1%	
Bicycle Data										
1	AWD Total Bike Trips	212,228	273,112		321,315		335,268		333,398	
2	Bike Percent of Person Trips	3.8%	4.1%		4.2%		4.4%		4.4%	
3	AWD Bike Miles Traveled (BMT)	711,247	960,953		1,158,195		1,236,783		1,217,766	
4	AWD BMT/Capita	0.4	0.5		0.5		0.6		0.6	

2018 REGIONAL TRANSPORTATION PLAN UPDATE

STREETS AND HIGHWAYS - System performance

2015 12-1pm





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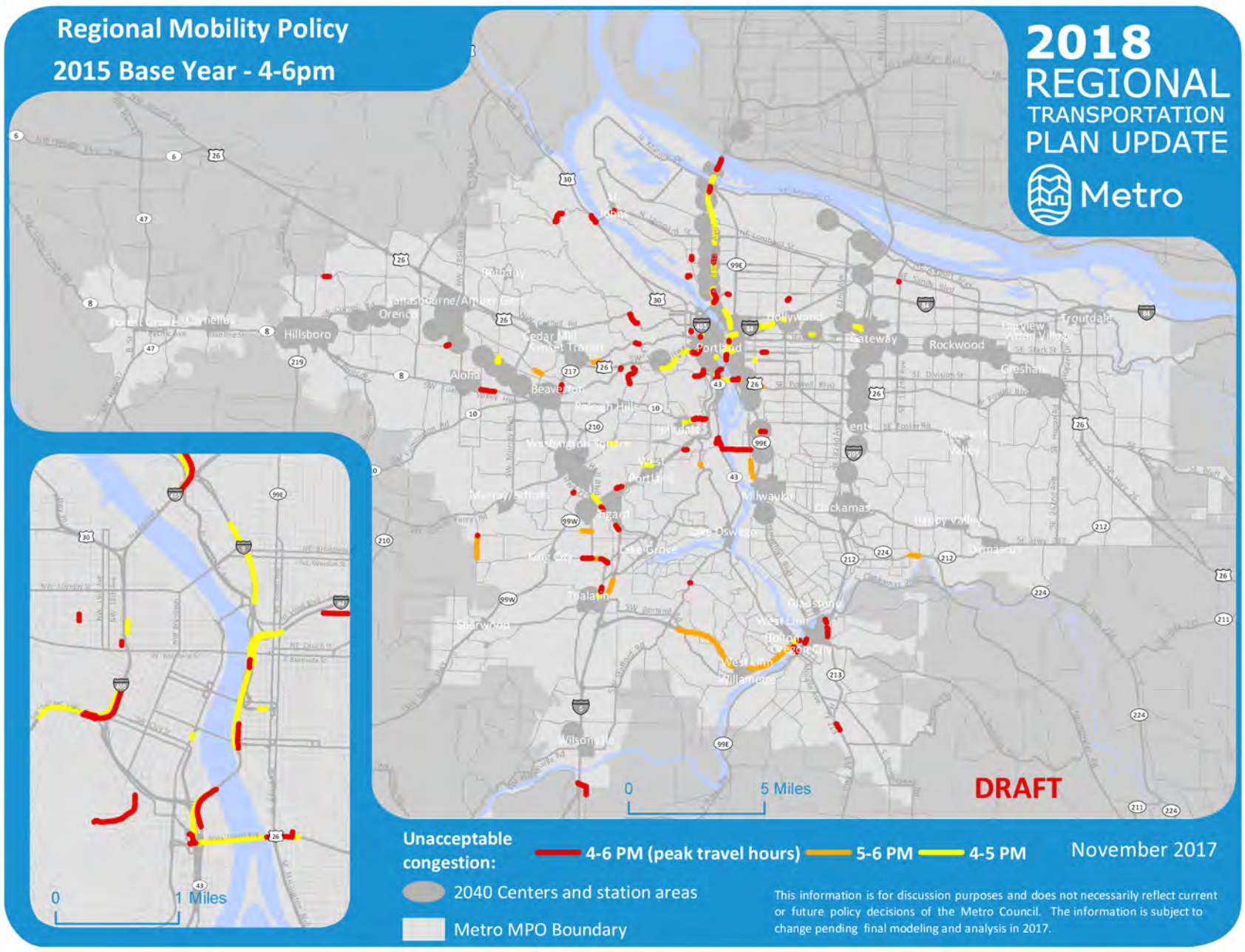
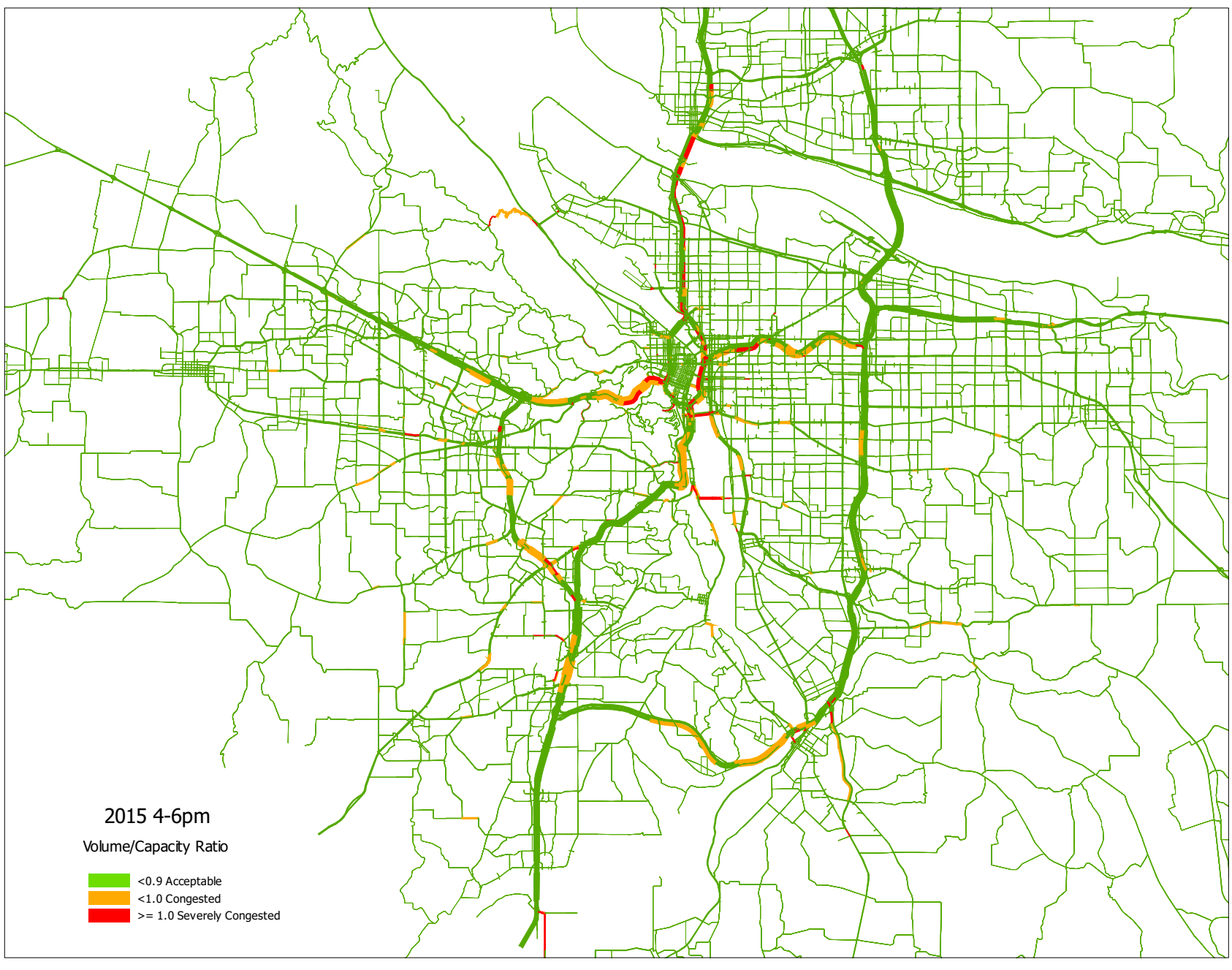
2018 REGIONAL TRANSPORTATION PLAN UPDATE

STREETS AND HIGHWAYS - System performance

2015 4-6pm





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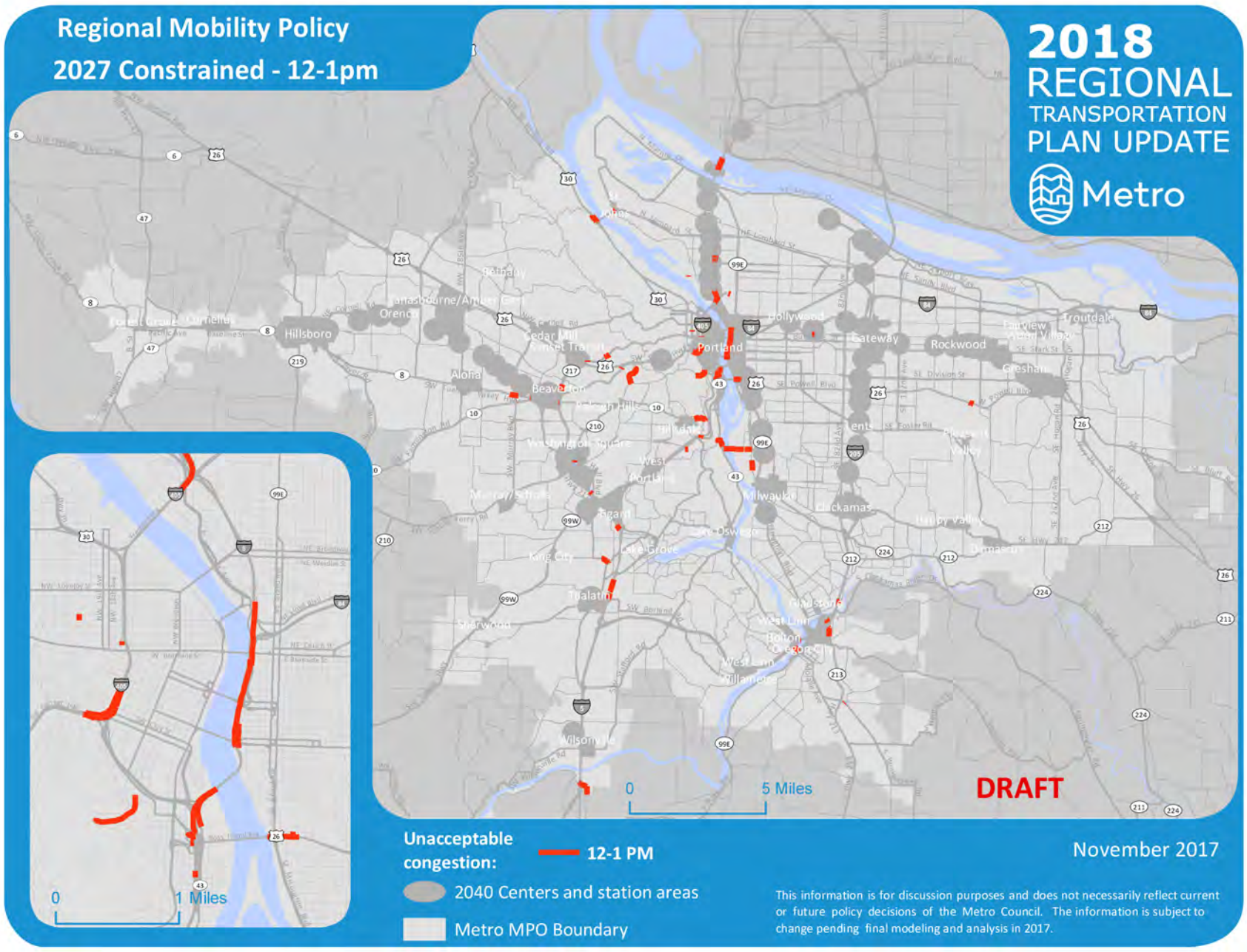
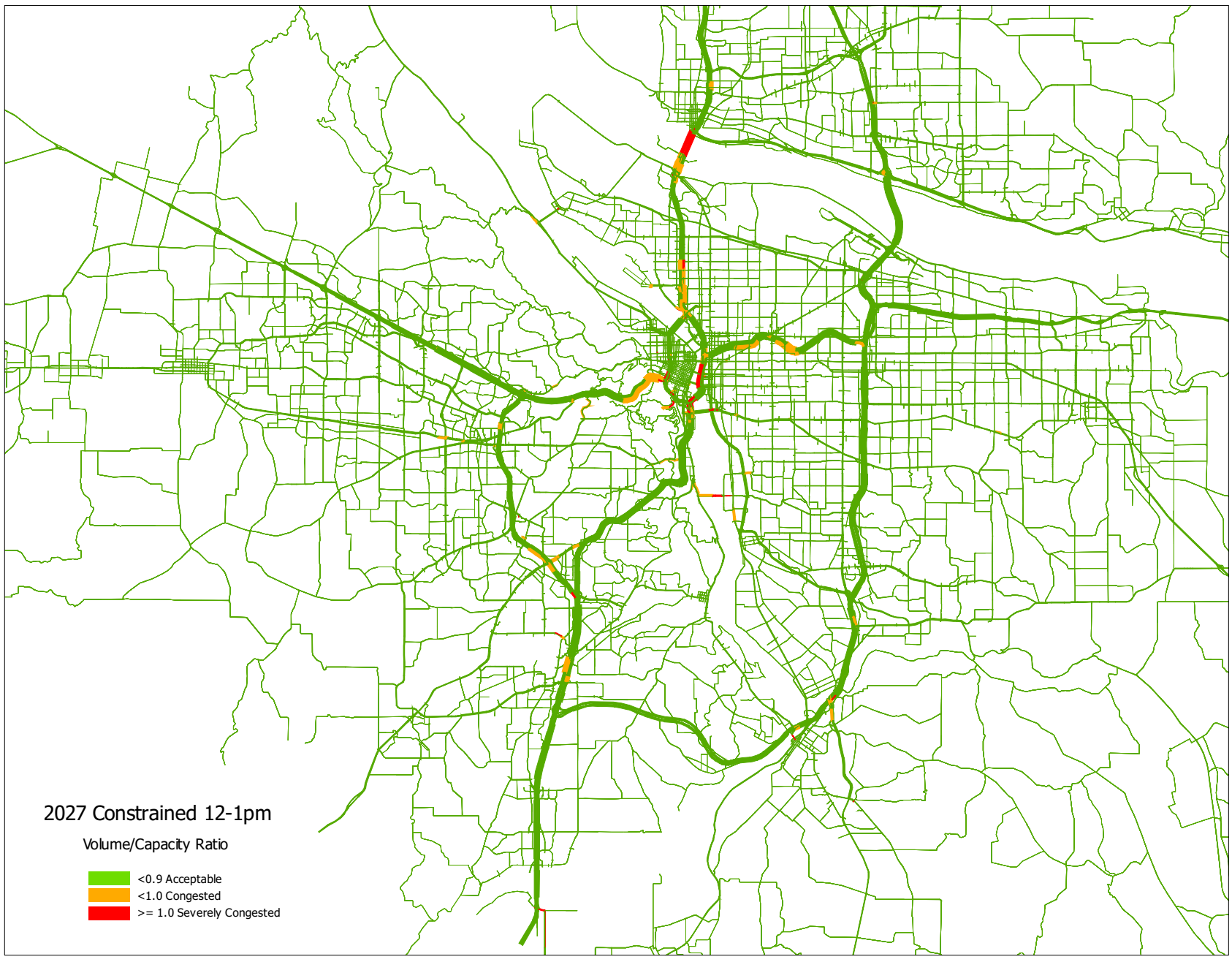
2018 REGIONAL TRANSPORTATION PLAN UPDATE

STREETS AND HIGHWAYS - System performance

2027 CONSTRAINED 12-1pm





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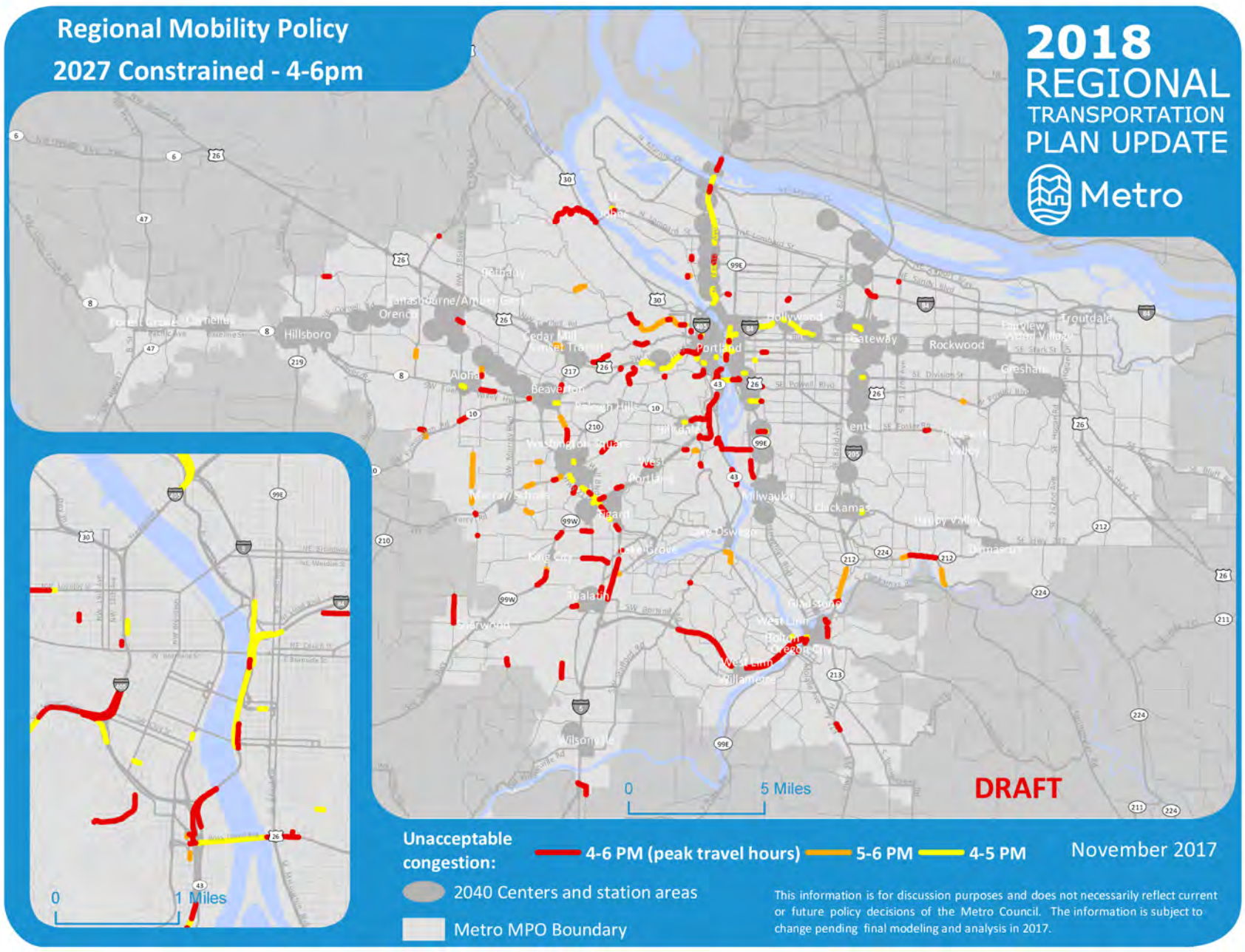
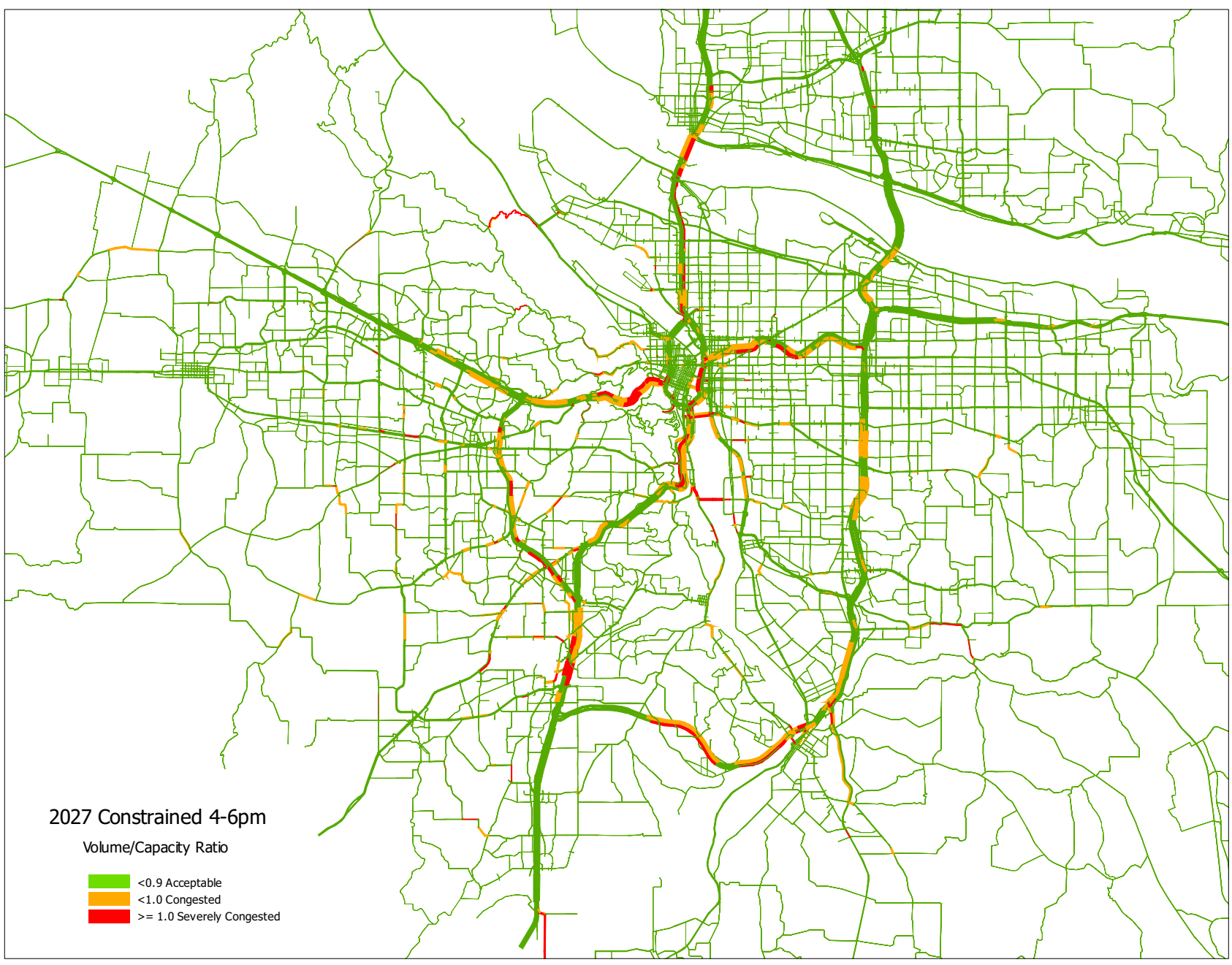
2018 REGIONAL TRANSPORTATION PLAN UPDATE

STREETS AND HIGHWAYS - System performance

2027 CONSTRAINED 4-6pm





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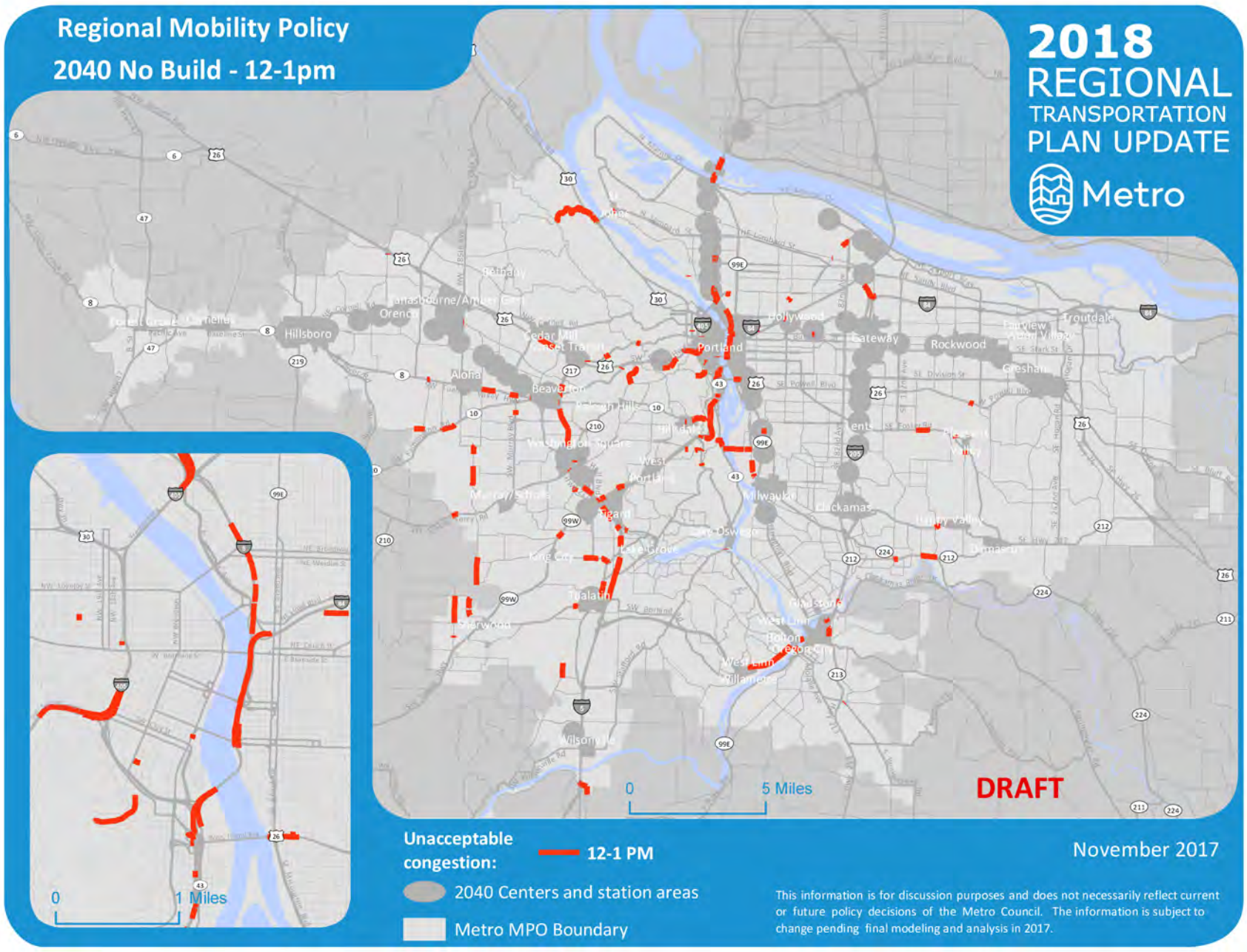
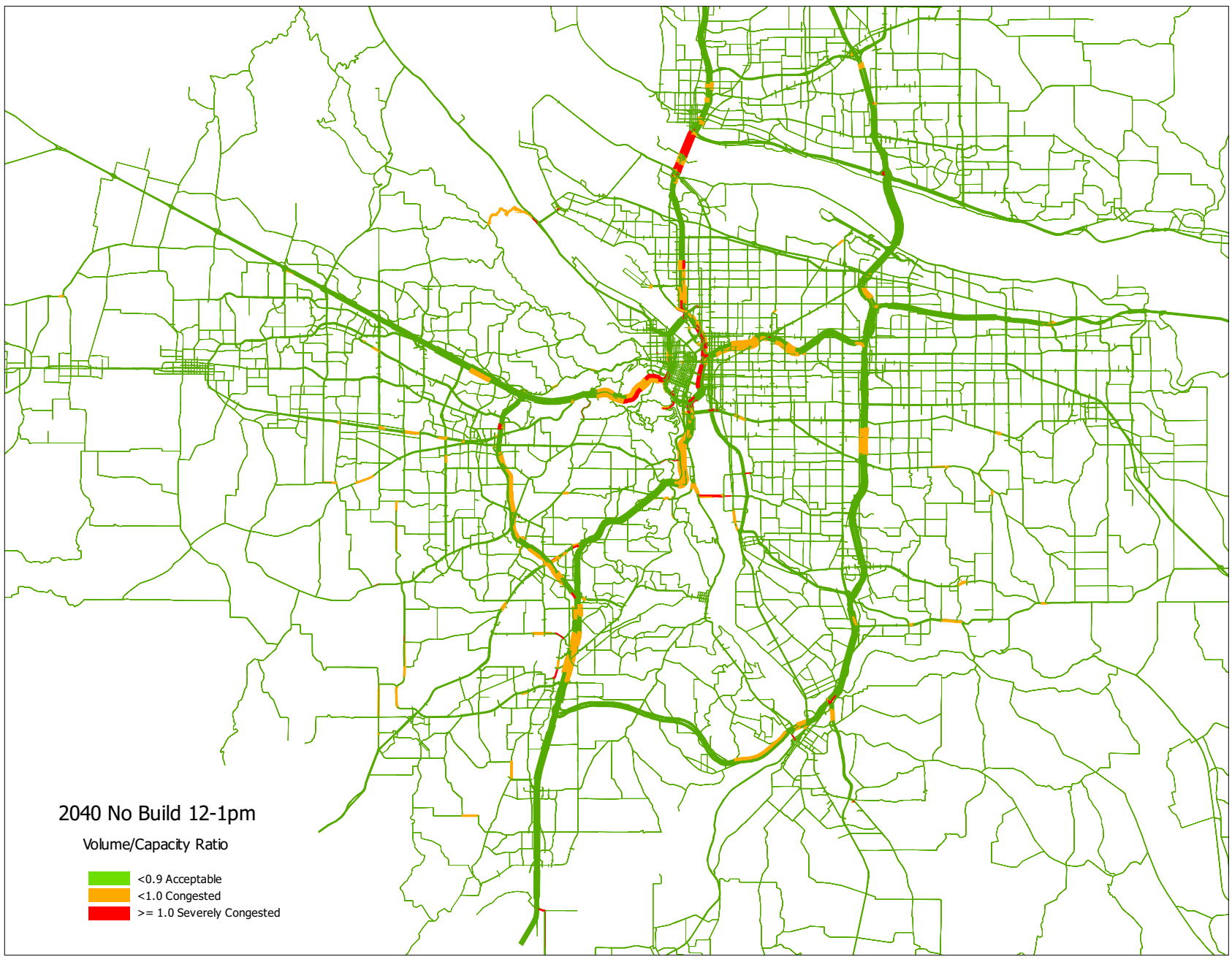
2018 REGIONAL TRANSPORTATION PLAN UPDATE

STREETS AND HIGHWAYS - System performance

2040 NO BUILD 12-1pm





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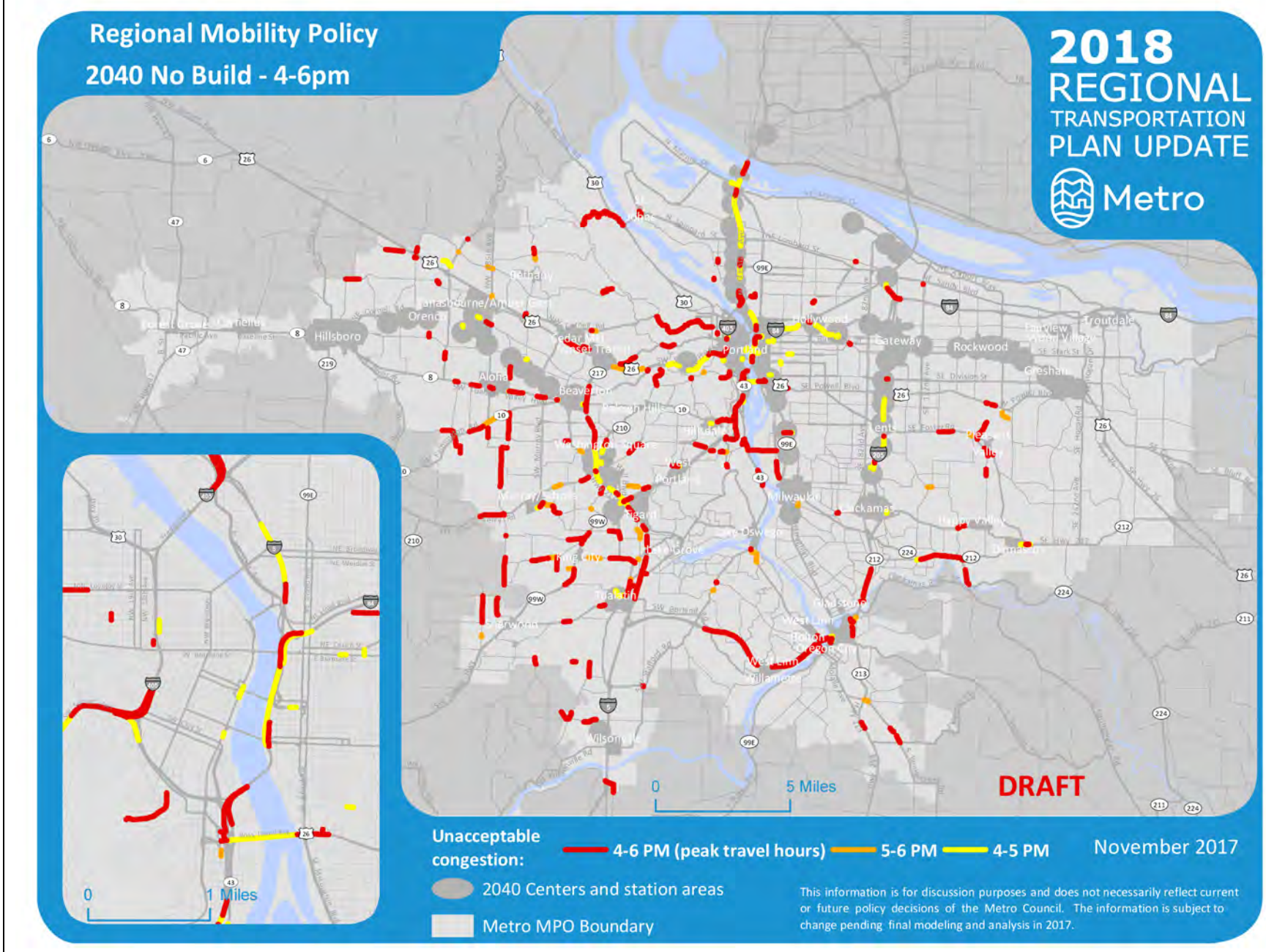
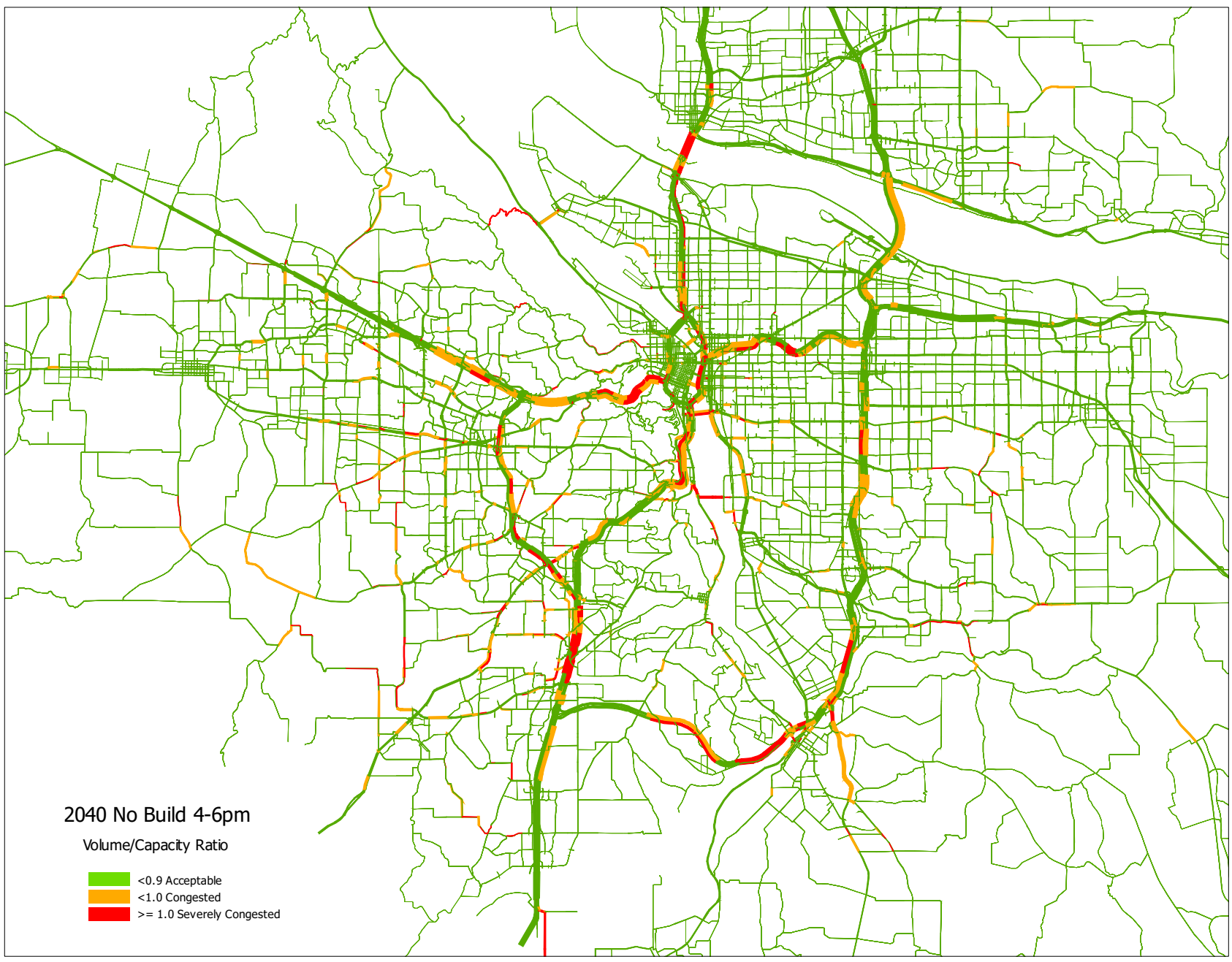
2018 REGIONAL TRANSPORTATION PLAN UPDATE

STREETS AND HIGHWAYS - System performance

2040 NO BUILD 4-6pm





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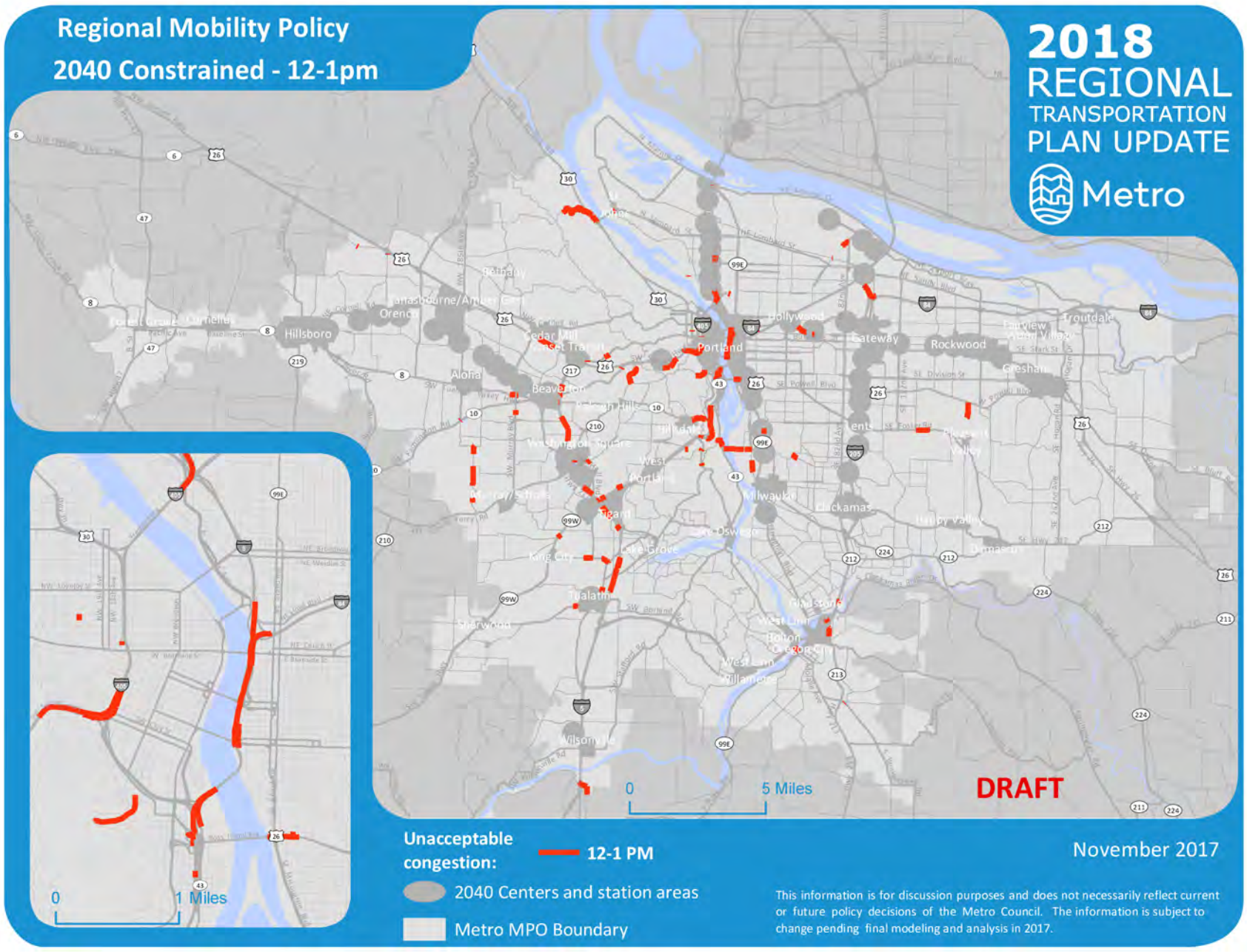
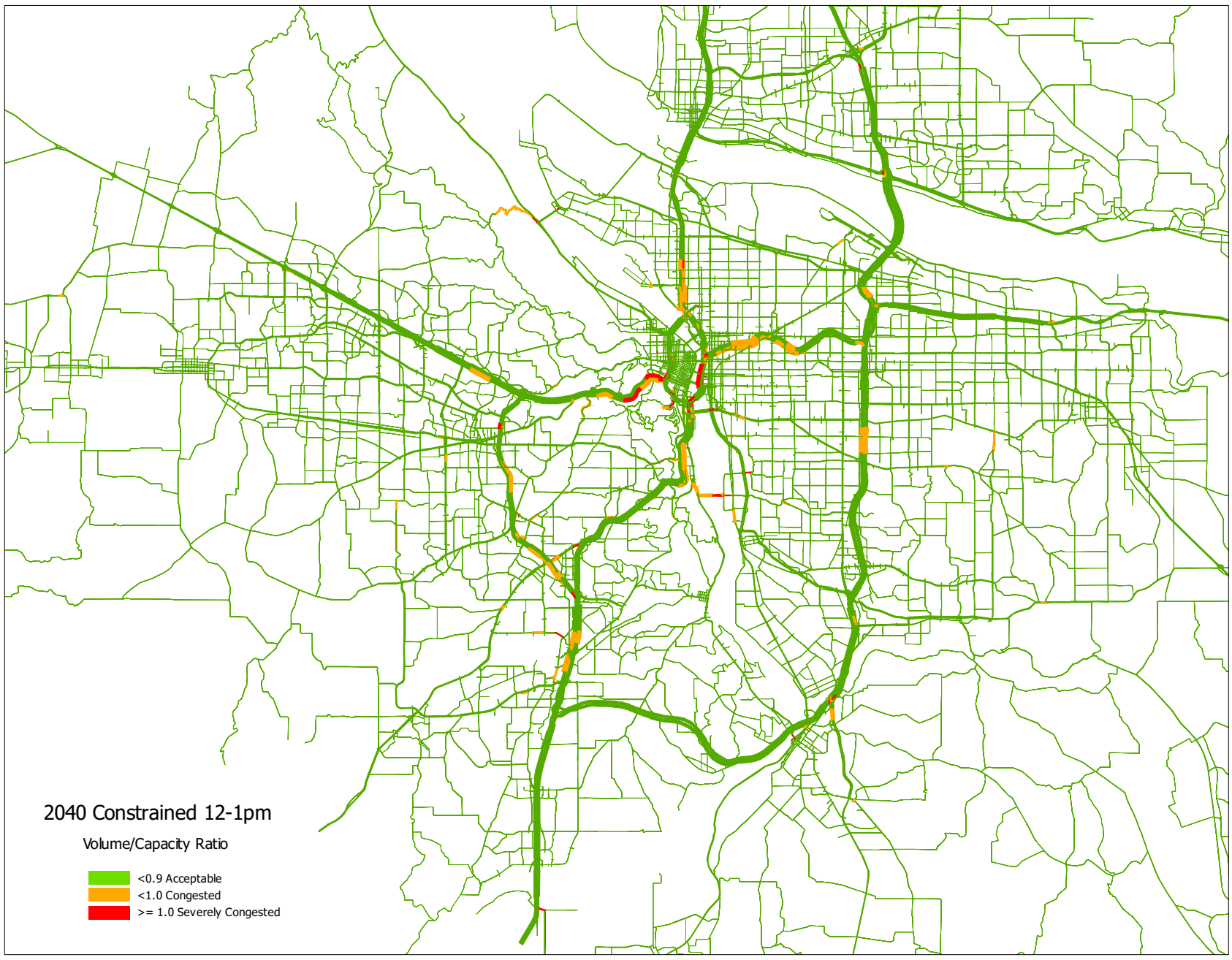
2018 REGIONAL TRANSPORTATION PLAN UPDATE

STREETS AND HIGHWAYS - System performance

2040 CONSTRAINED 12-1pm





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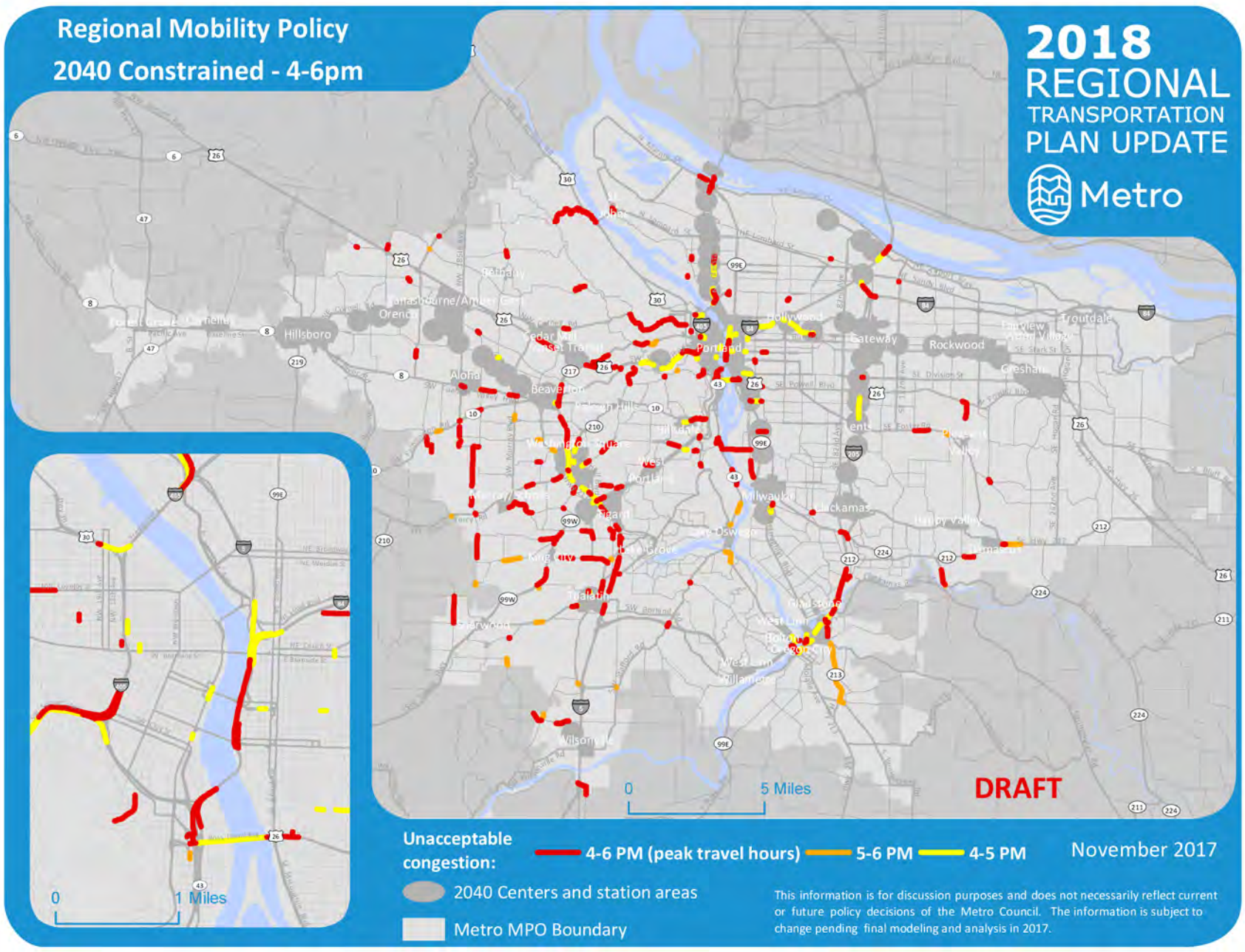
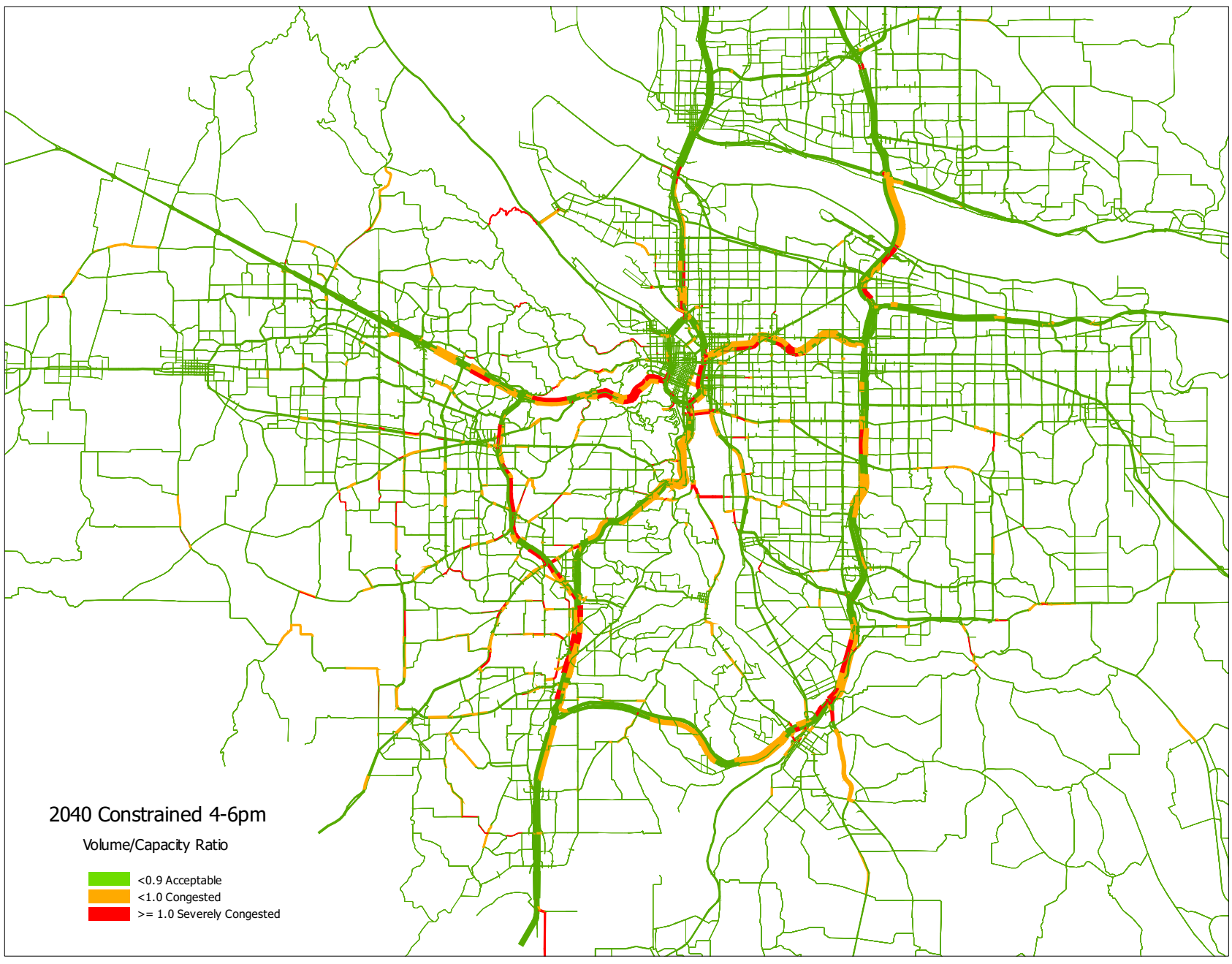
2018 REGIONAL TRANSPORTATION PLAN UPDATE

STREETS AND HIGHWAYS - System performance

2040 CONSTRAINED 4-6pm





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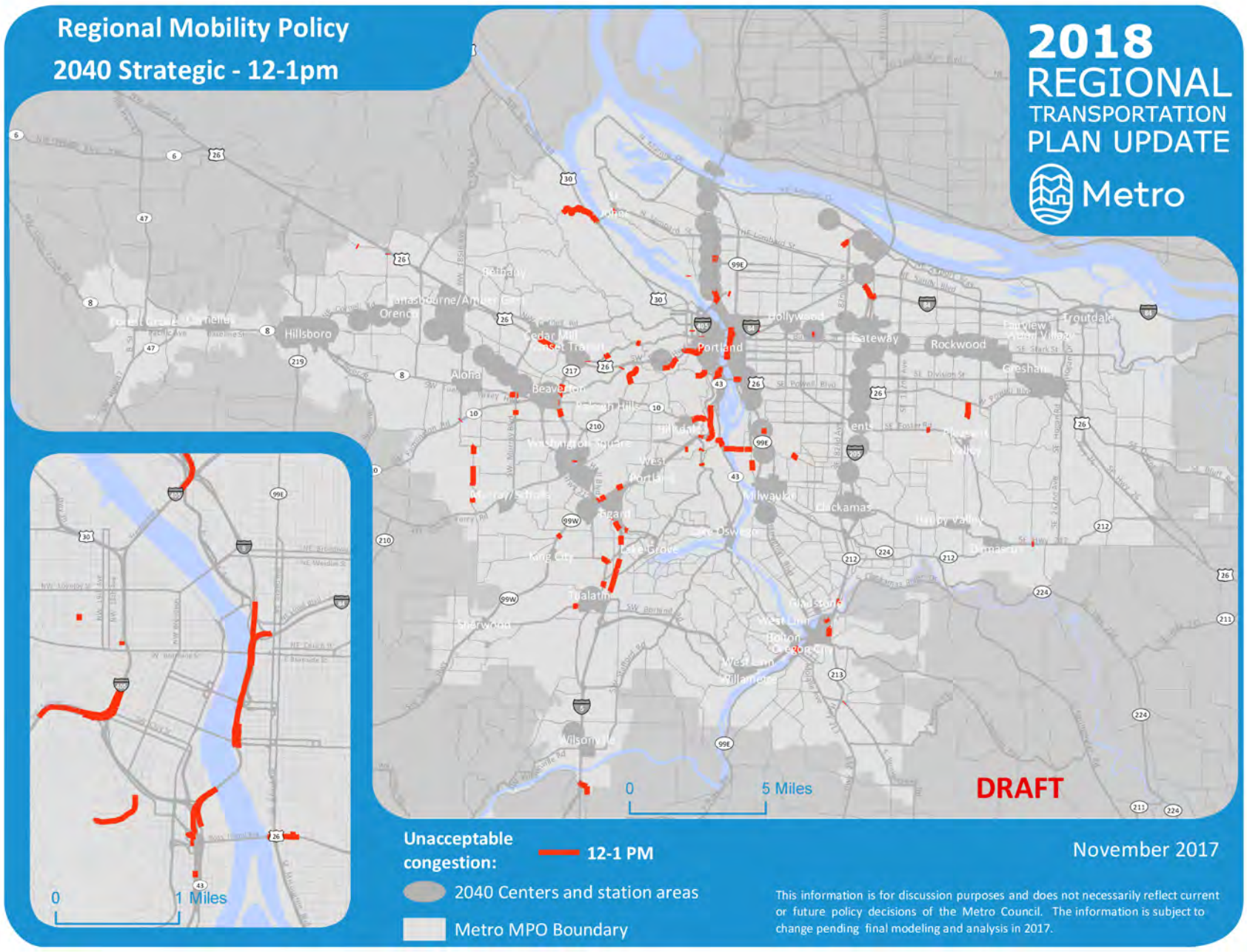
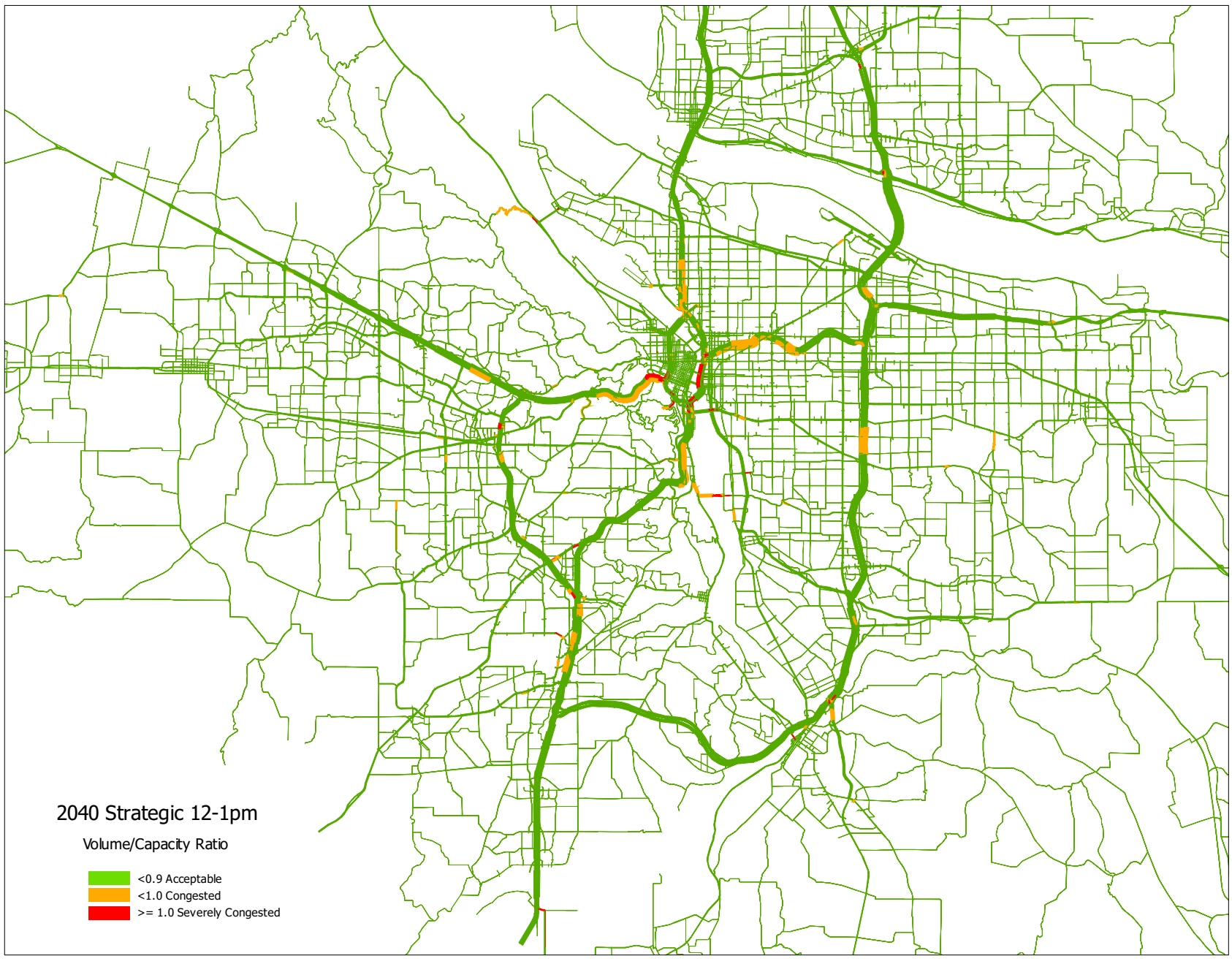
2018 REGIONAL TRANSPORTATION PLAN UPDATE

STREETS AND HIGHWAYS - System performance

2040 STRATEGIC 12-1pm





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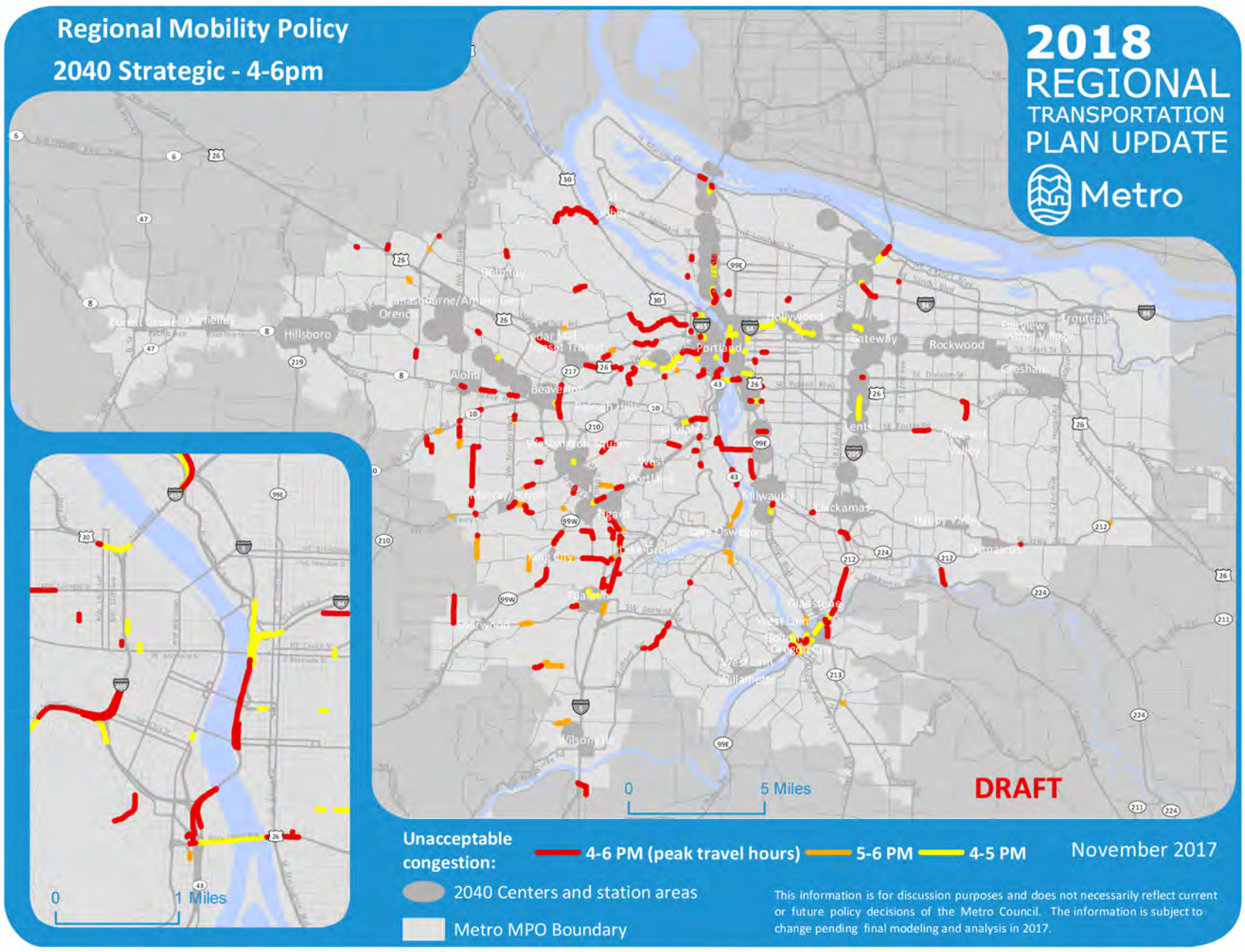
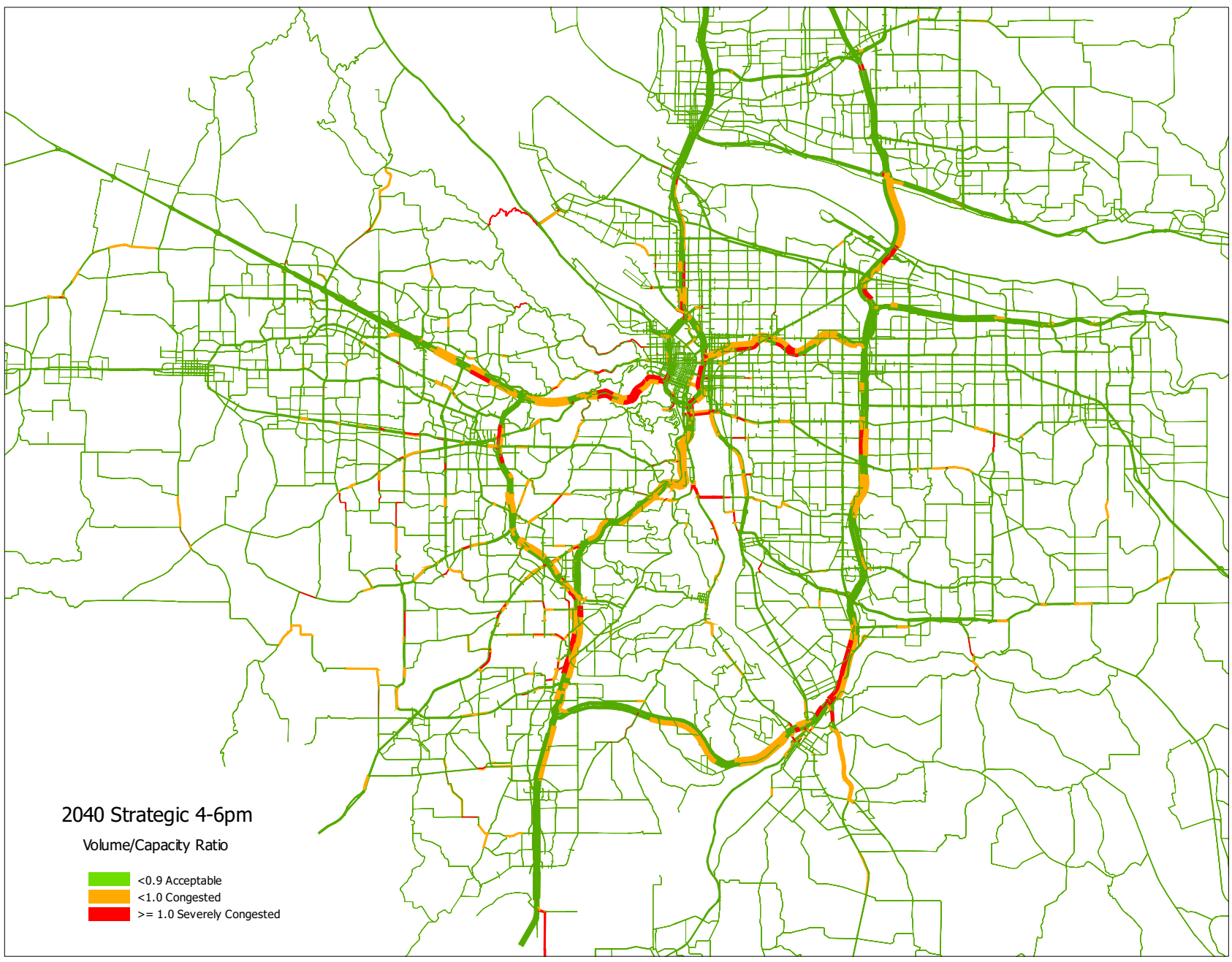
2018 REGIONAL TRANSPORTATION PLAN UPDATE

STREETS AND HIGHWAYS - System Performance

2040 STRATEGIC 4-6pm





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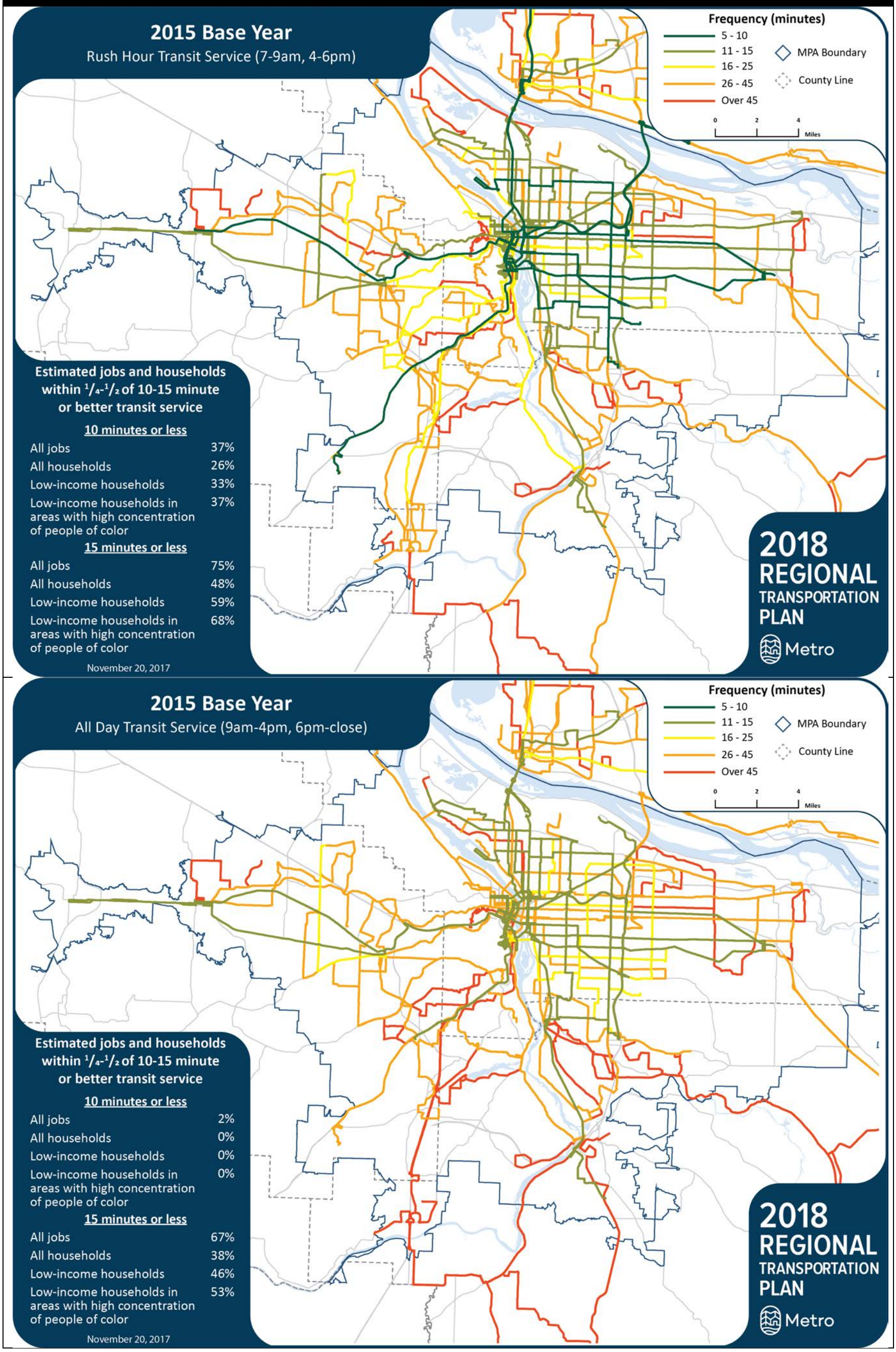
2018 REGIONAL TRANSPORTATION PLAN UPDATE

FIXED-ROUTE TRANSIT SERVICE - Service Frequencies and Access to Transit

2015



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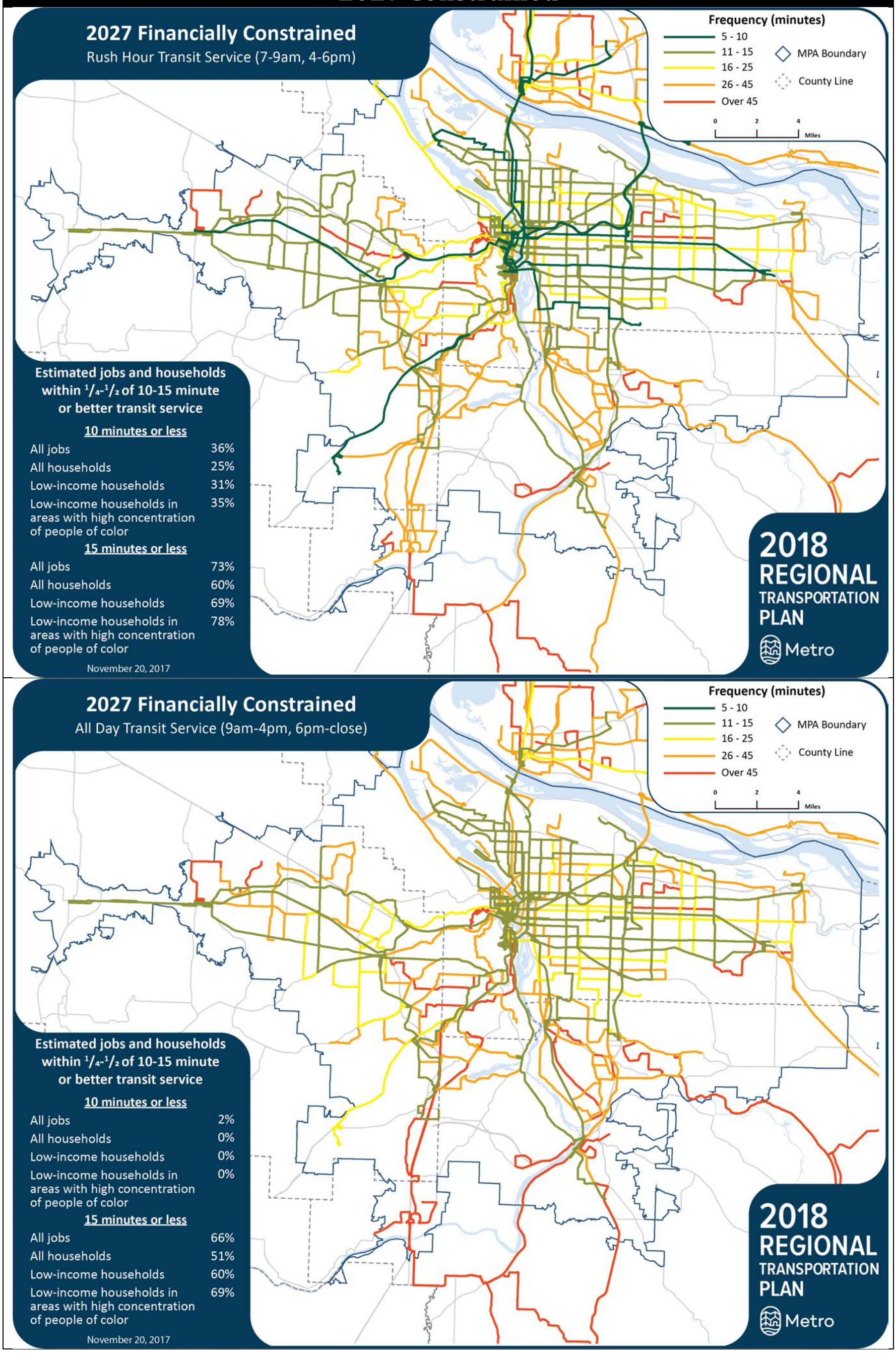
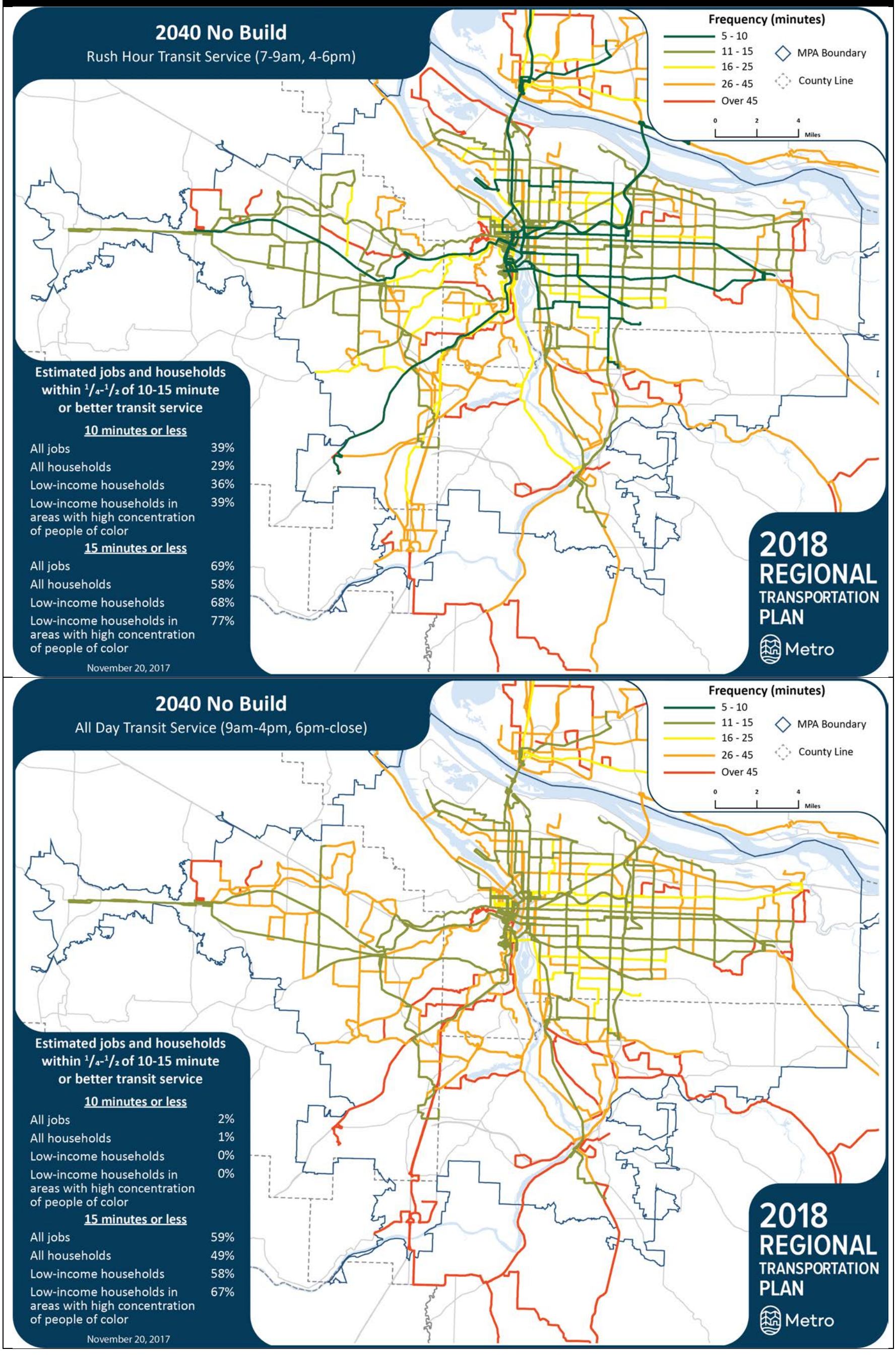
FIXED-ROUTE TRANSIT SERVICE - Service Frequencies and Access to Transit

2027 Constrained



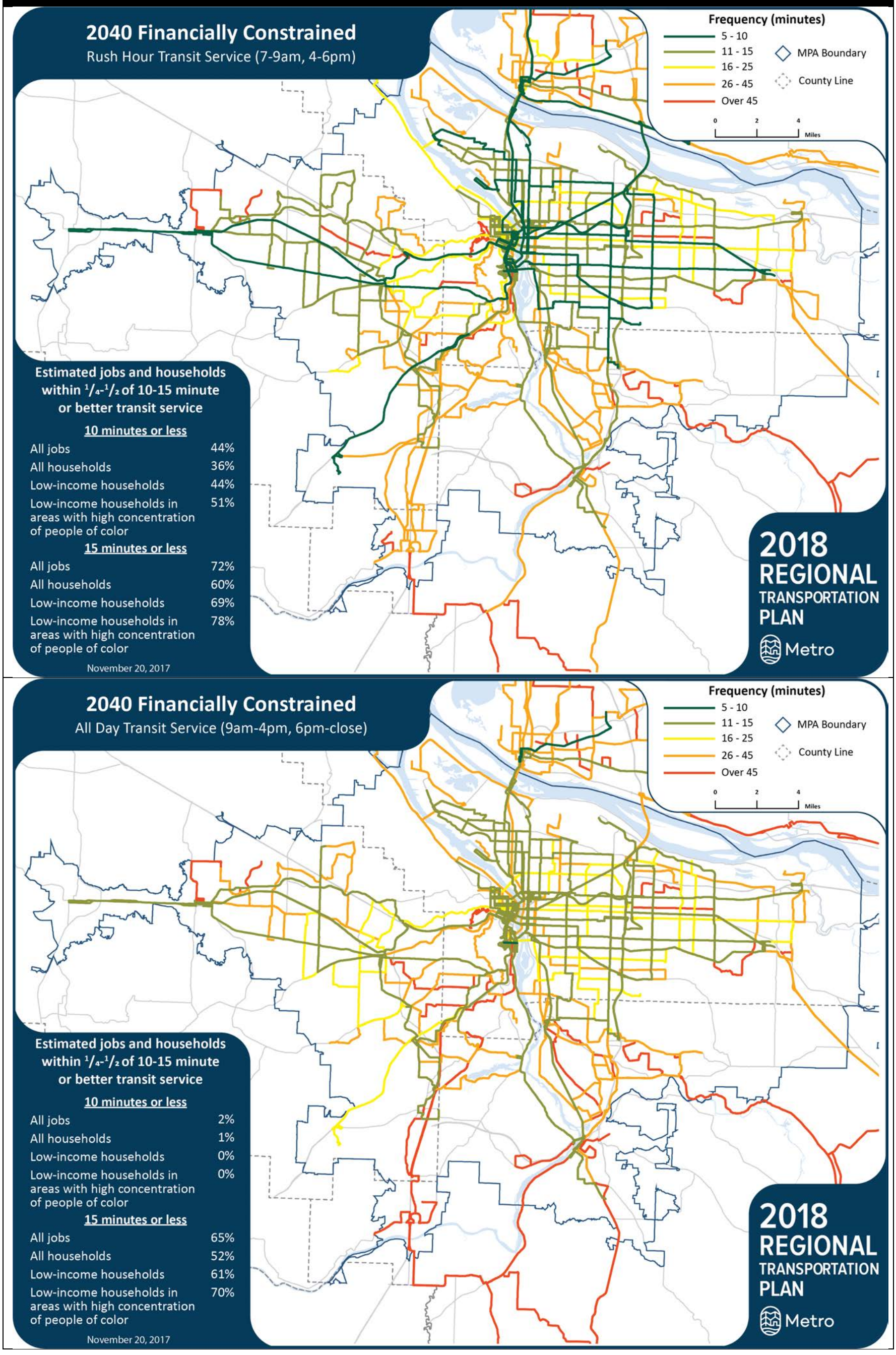
FIXED-ROUTE TRANSIT SERVICE - Service Frequencies and Access to Transit

2040 No Build



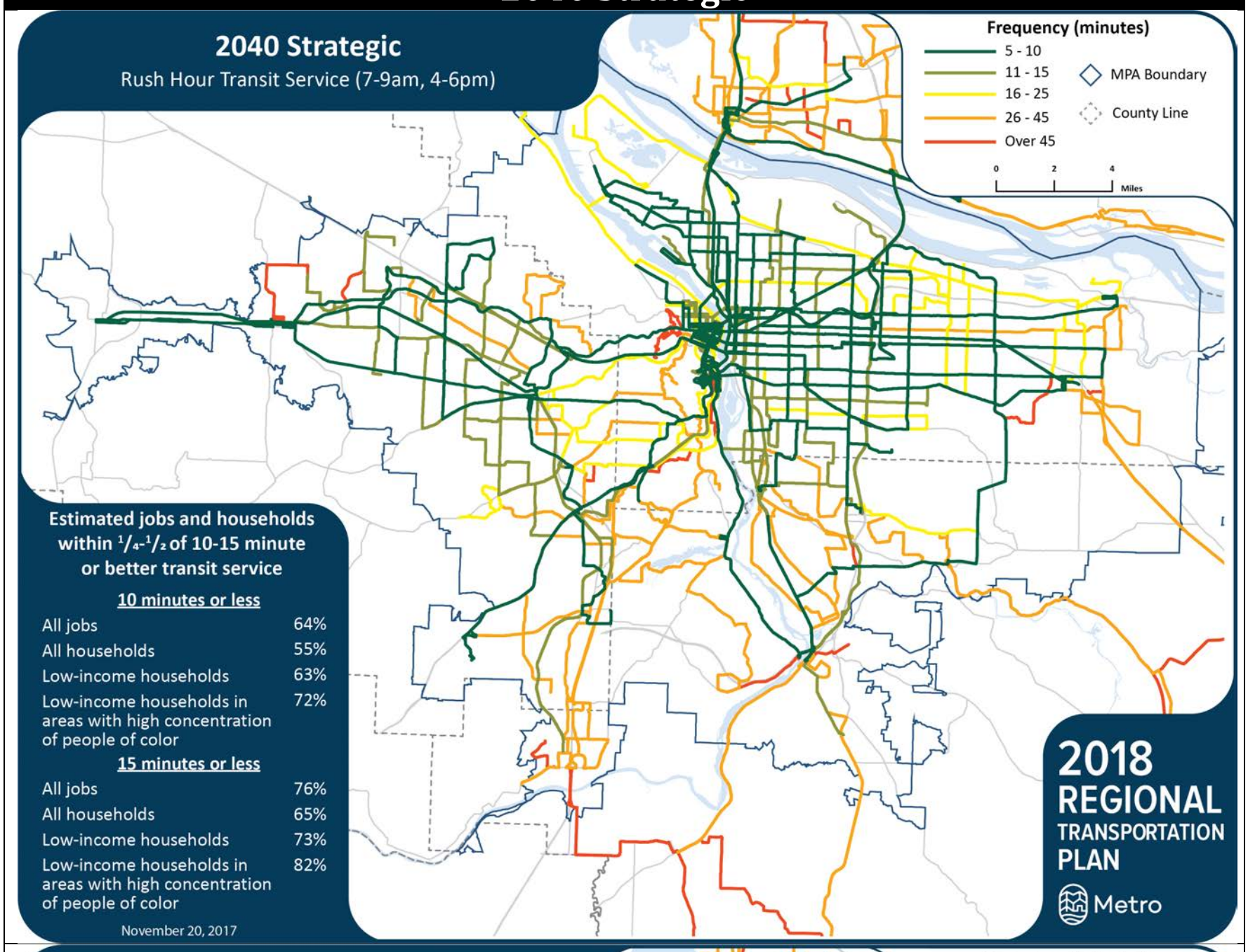
FIXED-ROUTE TRANSIT SERVICE - Service Frequencies and Access to Transit

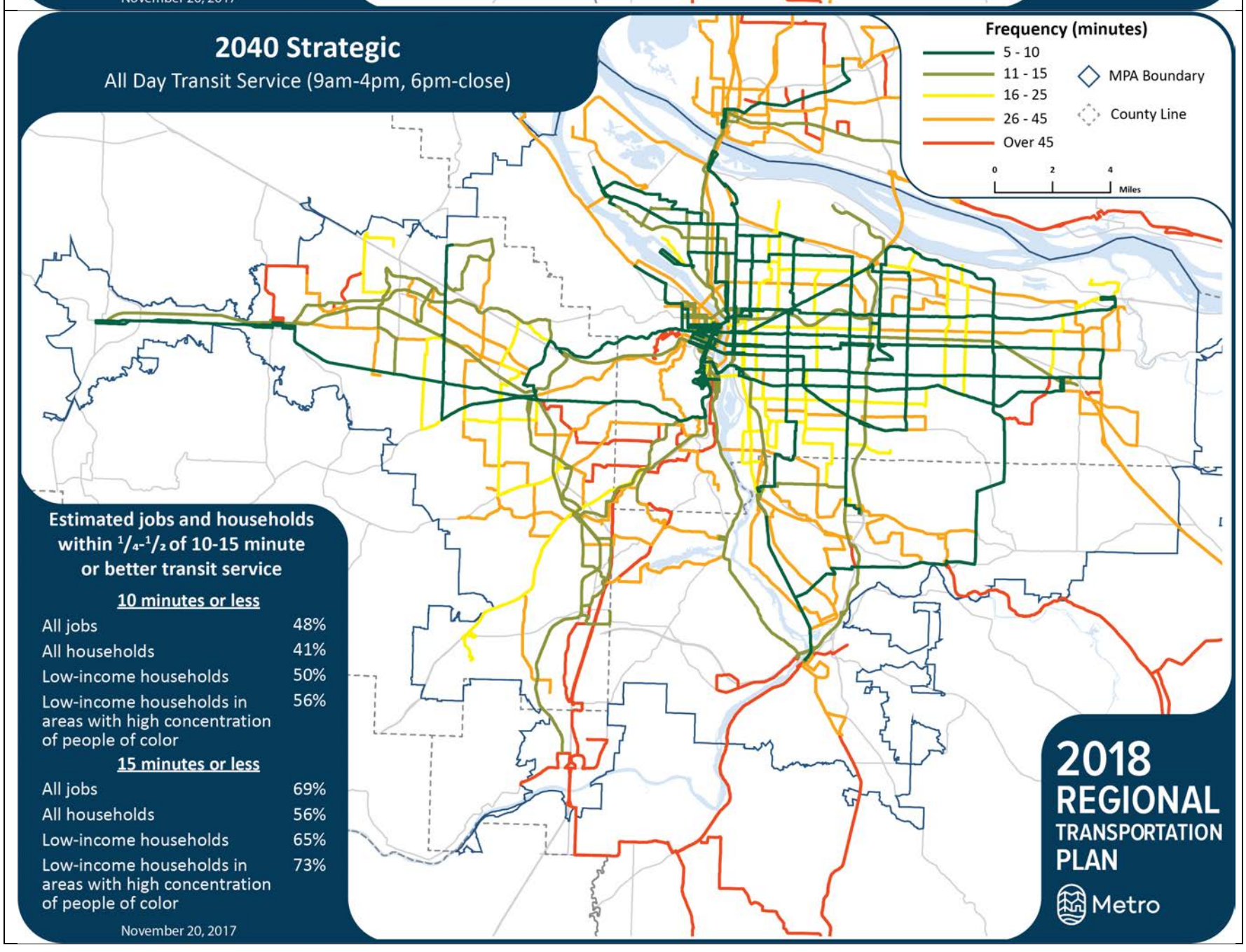
2040 Constrained



FIXED-ROUTE TRANSIT SERVICE - Service Frequencies and Access to Transit

2040 Strategic





Measure 2 Mode Share (Subareas and Selected 2040 Centers)

Technical review draft 11/28/17

Subareas - Active Transportation and Transit Mode Share	2015 Base Year		2027 Constrained		2040 No Build		2040 Constrained		2040 Strategic	
	Trips Within	All Trips*	Trips Within	All Trips*	Trips Within	All Trips*	Trips Within	All Trips*	Trips Within	All Trips*
Total Region - 4-county	15%	14%	16%	15%	16%	15%	17%	16%	18%	17%
MPA - Metropolitan Planning Area	17%	16%	19%	17%	18%	17%	20%	19%	21%	19%
City of Portland	27%	23%	31%	27%	31%	26%	33%	29%	33%	29%
Urban Washington County	13%	11%	13%	12%	13%	11%	14%	13%	15%	13%
Urban Clackamas County	14%	10%	14%	11%	14%	11%	15%	12%	15%	12%
East Multnomah County	16%	12%	16%	12%	15%	12%	16%	13%	17%	14%
Clark County	11%	9%	10%	9%	10%	9%	10%	9%	10%	9%

* Trips to, from and within the subarea

Centers - Active Transportation and Transit Mode Share	2015 Base Year		2027 Constrained		2040 No Build		2040 Constrained		2040 Strategic	
	Trips Within	All Trips*	Trips Within	All Trips*	Trips Within	All Trips*	Trips Within	All Trips*	Trips Within	All Trips*
Portland central city	65%	39%	74%	49%	74%	48%	79%	53%	79%	54%
Amberglen regional center	40%	12%	43%	15%	41%	15%	48%	18%	48%	19%
Beaverton regional center	40%	12%	42%	14%	42%	14%	46%	17%	46%	18%
Clackamas regional center	33%	11%	38%	13%	35%	13%	43%	16%	43%	17%
Gateway regional center	37%	14%	39%	16%	39%	16%	43%	19%	43%	20%
Gresham regional center	31%	13%	33%	14%	33%	14%	38%	17%	38%	17%
Hillsboro regional center	47%	19%	50%	20%	49%	20%	55%	24%	55%	24%
Oregon City regional center	25%	7%	27%	8%	27%	8%	30%	9%	30%	9%
Vancouver, WA central business district	43%	15%	49%	18%	50%	19%	52%	21%	52%	21%
Washington Square regional center	29%	9%	33%	10%	31%	10%	38%	13%	38%	14%

* Trips to, from and within the center

Mobility Corridors - Active Transportation and Transit Mode Share	2015 Base Year		2027 Constrained		2040 No Build		2040 Constrained		2040 Strategic	
	Trips Within	All Trips*	Trips Within	All Trips*	Trips Within	All Trips*	Trips Within	All Trips*	Trips Within	All Trips*
Corridor 1 - Portland Central City to Vancouver	28%	16%	31%	20%	31%	19%	32%	22%	33%	22%
Corridor 2 - Portland to Tigard/Tualatin	16%	11%	19%	14%	18%	13%	21%	16%	21%	16%
Corridor 3 - Tualatin to Wilsonville	14%	8%	15%	10%	14%	9%	16%	11%	16%	11%
Corridor 4 - Portland Central City Loop	53%	33%	61%	40%	61%	40%	64%	44%	64%	45%
Corridor 5 - Portland Central City to Gateway	30%	19%	34%	23%	35%	23%	36%	26%	37%	27%
Corridor 6 - Gateway to Troudale/Wood Village - Fairview	16%	11%	16%	12%	16%	12%	17%	13%	17%	14%
Corridor 7 - Gateway to Clark County	17%	11%	19%	12%	19%	12%	20%	14%	21%	14%
Corridor 8 - Gateway to Oregon City	19%	12%	20%	14%	20%	13%	22%	15%	22%	16%
Corridor 9 - Oregon City to Willamete Valley	19%	9%	18%	10%	18%	9%	19%	10%	19%	10%
Corridor 10 - Oregon City to Tualatin	21%	8%	21%	8%	20%	8%	21%	9%	22%	9%
Corridor 11 - Tigard / Tualatin to Sherwood / Newberg	15%	8%	16%	10%	15%	9%	17%	11%	17%	12%
Corridor 12 - Beaverton to Tigard	14%	9%	15%	11%	15%	10%	17%	12%	17%	13%
Corridor 13 - Portland Central City to Beaverton	47%	27%	50%	32%	50%	31%	52%	34%	53%	35%
Corridor 14 - Beaverton to Hillsboro	14%	11%	15%	12%	14%	12%	16%	13%	16%	14%
Corridor 15 - Hillsboro to Forest Grove	21%	13%	23%	14%	23%	14%	24%	16%	26%	17%
Corridor 16 - Portland Central City to Columbia County	42%	25%	46%	30%	46%	29%	47%	32%	47%	33%
Corridor 17 - Rivergate to I-5	26%	14%	26%	16%	26%	15%	27%	18%	27%	18%
Corridor 18 - Columbia Corridor	18%	11%	20%	13%	19%	13%	20%	14%	20%	15%
Corridor 19 - Portland City Center to Lents	27%	16%	28%	19%	28%	18%	29%	20%	29%	21%
Corridor 20 - Lents to Gresham	19%	11%	18%	12%	18%	12%	19%	13%	19%	14%
Corridor 21 - Portland Central City to Oregon City/West Linn	19%	12%	21%	15%	21%	15%	23%	17%	23%	17%
Corridor 22 - Milwaukie to Clackamas	19%	10%	21%	12%	20%	11%	23%	14%	23%	14%
Corridor 23 - Clackamas to Damascus	15%	8%	16%	9%	15%	9%	17%	10%	17%	11%
Corridor 24 - Fairview / Wood Village / Troutdale to Damascus	16%	11%	16%	11%	15%	11%	16%	12%	17%	13%

* Trips to, from and within the mobility corridor

Memo

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

Date: November 29, 2017
To: MTAC, TPAC and Interested Parties
From: Grace Cho, Associate Transportation Planner
Subject: 2018 RTP Transportation Equity Evaluation – Results and Preliminary Findings

Introduction
As part of the 2018 RTP, a Transportation Equity Assessment is conducted to look at how well the region's planned long-range transportation investments will perform relative to equity goals and demonstrate compliance with regional responsibilities toward federal civil rights laws as they relate to transportation planning and investment. The assessment takes a programmatic look at the region's long-term investment strategy to:

1) determine whether progress is being made towards desired equity outcomes expressed by historically marginalized communities;
2) determine whether the financially constrained long-range transportation investment strategy, in totality, is disproportionately impacting historically marginalized communities and if mitigation measures are necessary; and
3) continue to learn from the assessment and propose technical refinements for future transportation equity evaluations.

Based on a literature review across the nation, equity assessments at a program scale are few and far between. Nonetheless, advocacy and think-tank organizations have put forward best practices to guide and formulate the methods for conducting a transportation equity assessment. The 2018 RTP Transportation Equity Assessment does its best to incorporate and reflect the best practices in the field in measuring equity within the context of the regional transportation planning process.

This memorandum discusses the draft results and initial staff findings from an equity assessment of the 2018 RTP investment strategy. Metro staff seeks feedback on the draft results and initial staff findings to help shape the narrative to take forward to policymakers in 2018. Additional background documentation on the 2018 RTP transportation equity system evaluation are attached to this memorandum as Attachments I – III.

Transportation Equity Analysis Primer
The analysis purpose is to see whether the RTP investment scenarios advance accessibility, safety, and environmental outcomes for historically marginalized communities at a greater rate than the overall region.

Context for the 2018 RTP Transportation Equity System Evaluation
The 2018 RTP transportation equity evaluation looks at how the region's proposed long-term transportation investment strategies are likely to affect outcomes which historically marginalized communities identified as priority issues to address in the transportation system, which were accessibility, affordability, safety, and environment.[1] For the evaluation of each 2018 RTP investment strategy, the entire package of investments was evaluated in combination to look at

[1] As recommended as part of the September meeting of the Transportation Equity work group, the affordability analysis of the 2018 RTP investment strategies is being deferred to the 2023 RTP in order to build out the evaluation tool and in the interim, results from the Center for Neighborhood Technology will be reported out as part of the monitoring metrics.

how these investments interacted to advance outcomes historically marginalized communities identified as priorities.[2]

To provide context for viewing the results of the 2018 RTP transportation equity analysis, the following tables provide information about the 2018 RTP investment scenarios and the population and employment growth assumptions.

Table 1. Contextual Population Information for the 2018 RTP Transportation Equity Assessment

Geography	2015	2027 Forecast	2040 Forecast
Region-wide (Metropolitan Planning Area)[3]	1,605,672[4]	1,904,815	2,178,848
Households	636,467	776,202	896,451
Employment	895,094	1,071,017	1,240,653
Historically Marginalized Communities	1,058,220	1,319,254	1,510,591
Focused Historically Marginalized Communities	630,388	746,662	852,112
People of Color	697,457	789,225	869,587

The 2018 RTP system evaluation assessed three investment strategies:

1) a 2027 RTP financially constrained 10-year investment strategy;
2) a 2040 RTP financially constrained investment strategy; and
3) a 2040 RTP strategic investment strategy.

Each investment strategy builds on the previous. For example, the 2040 RTP financially constrained strategy includes the RTP 10-year investment strategy. The RTP 10-year investment strategy and the 2040 RTP financially constrained strategy represent those transportation priorities which are expected to be completed by 2027 and 2040 respectively under reasonably likely expected revenues. The 2040 RTP strategic represents those investments to address all the region's transportation gaps and deficiencies whether or not reasonably expected revenue is available. For purposes of analysis, all 2040 strategic investments were assumed to be implemented between 2028-2040. A summary of the investment level and type of investment are shown in Table 2.

In addition to the three investment strategies which were evaluated, two additional scenarios were developed for the purposes of comparisons. These include: 1) the 2015 base year scenario; and 2) a 2040 no-build scenario. The 2015 base year scenario represents transportation projects completed and open for service as of 2015. The no-build scenario represents a future condition where no further investment is made into the region's transportation system aside from those which are fully funded as of 2017.

[2] Individual projects were not evaluated as part of 2018 RTP transportation equity system evaluation.

[3] Region-wide is defined as the metropolitan planning area (MPA) boundary. An interactive map gallery which includes the MPA can be found at: http://drcmetro.maps.arcgis.com/apps/webappviewer/index.html?id=d83c2455ea10433bb2d6901dd1f4f564

[4] For consistency purposes, this represents the population estimates in the 2016 adopted land use forecast. This number differs slightly from the decennial census population counts which as of 2010 the region was just over 1.5 million people.

Table 2. Summary of 2018 RTP Investments in Each of the Scenarios Under Evaluation

	Draft 10-Year 2027 Constrained Strategy (2018-2027)			**Draft 2040 Financially Constrained Investment Strategy (2018-2040)**			**Draft 2040 Strategic Investment Strategy (2018-2040)**		
Amount of Investment[5]	$6.2 billion			$14.7 billion			$21.3 billion		
Percentage of Total 2018 RTP Investment*	29.4%			69.2%/100%			100%/N/A		
Number of Projects	374			762			1057		
	Level of Investment, Number of Projects, & Percentage by Investment Category								
	$	**#**	**%**	**$**	**#**	**%**	**$**	**#**	**%**
Active Transportation	$642 M	133	10%	$1.5 B	293	10%	$2.5 B	393	12%
Freight	$132 M	20	2%	$213 M	36	1%	$462 M	48	2%
Other	$5 M	1	<1%	$15 M	3	<1%	$53 M	5	<1%
Roads and Bridges	$1.2 B	149	20%	$2.7 B	309	19%	$4.6 B	432	22%
Throughways	$650 M	14	10%	$4.6 B	24	31%	$6.1 B	38	29%
Transit	$3.3 B	29	54%	$5.2 B	46	36%	$6.3 B	71	30%
TSMO/TDM/TOD	$179 M	28	3%	$361 M	51	2%	$754 M	70	4%

**Reflects the total cost of the 2018 RTP as the federally required financially constrained RTP.*

Results of the 2018 RTP Transportation Equity System Evaluation

Table 3. illustrates a summary of how the 2018 RTP transportation equity system evaluation performs across the outcomes identified for historically marginalized communities.

Table 3. Summary of Transportation Equity System Evaluation Measures Results – At a Glance

Primary RTP Goal	**Measure**	**10-Year**			**2040 FC**			**2040 Strategic**		
		H	**F**	**P**	**H**	**F**	**P**	**H**	**F**	**P**
Economy	Access to Jobs	TBD*								
Expand Transportation Choices	Access to Community Places	TBD*								
Expand Transportation Choices	Access to Travel Options – Connectivity and Completeness	TBD*								
Enhance Safety and Security	Share of Safety Projects									
Enhance Safety and Security	Exposure to Non-Freeway Vehicle Miles Traveled	TBD *								
Promote Environmental Stewardship	Habitat Impact									
Public Health	Clean Air[6]									

[5] Reflects 2016 dollars.

[6] Due to the limitation of the emissions modeling tool, emissions and air pollution is unable to be reported at a geographic scale smaller than region wide. Therefore results reported are not specific to the locations of historically marginalized communities. As recommended at the September work group meeting, the technical improvements are recommended for the clean air measure to be implemented by the 2023 RTP. Results for clean air will be brought forward with broader 2018 RTP system evaluation results.

Primary RTP Goal	Measure	10-Year			2040 FC			2040 Strategic		
		H	F	P	H	F	P	H	F	P
Economy	Affordability	--			--			--		

Green = Target achieved. ***Yellow = performance moving in desired direction*** ***Red = Performance moving in wrong direction from desired outcome***

**To be discussed with the work group before making an overall finding.*
H – Historically marginalized communities; F – Focused historically marginalized communities; P – People/Communities of Color

2018 RTP Transportation Equity System Evaluation Results – Discussion and Findings

A key focus of the 2018 RTP transportation equity analysis is to look whether there are gains in advancing the accessibility, safety, and environmental outcomes and whether those gains are outpacing the region in historically marginalized communities. Data has shown there are disparities experienced by marginalized communities as it relates to the transportation system and gains alone or being on pace with the region may not be enough to make progress towards addressing the disparities gap.

Therefore, in the discussion of the results of several of the 2018 RTP transportation equity system evaluation measures, findings are being framed around the investment strategy performance in historically marginalized communities relative to the region. The desire is to see the 2018 RTP investment strategies advancing outcomes in these communities at a greater rate than as the region overall, even if the region and the historically marginalized communities are seeing positive results.

Access to Community Places

Evaluation Measure Summary
To look at how many existing community places (e.g. schools, libraries, grocery stores, pharmacies, medical facilities, general stores, etc.) can be reached within a certain travel time window for transit (30 minutes), bicycling (15 minutes), and walking (20 minutes) region wide and in historically marginalized communities (in aggregate) and understand if the 2018 RTP investment strategies are further increasing access to community places for historically marginalized communities.

Preliminary Findings

- The draft 2027 Constrained 10-year investment strategy tends to perform at a greater rate for historically marginalized and communities of color compared to the region in increasing the number of community places which can be reached by transit, biking, and walking.
    - But in the 2018 RTP 10-year investment strategy access to community places increases or decreases based on the type of community place trying to be reached (i.e. medical services or a grocery store or a library) and community. For example, focused historically marginalized communities see decreases in access to medical services by transit (off-peak), biking, and walking, but see an increase in access to food.
- The draft 2040 financially constrained and draft 2040 strategic investment strategies tends keep the rate of access steady access to community places in biking, and walking.
    - The exception is in the 2018 RTP strategic investment strategy where historically marginalized communities see slight decrease in access relative to the region to food by a 20 minute walk.

- The draft 2040 financially constrained investment strategy increases access to community places at a greater rate for focused historically marginalized communities and communities of color compared to the region during the off-peak transit.
    - The increase ranges from 1% - 4% in access to community places within 30 minutes by transit during the off-peak and gets better in reaching medical facilities.
- In the draft 2040 strategic investment strategy, the areas with greater density of people of color, people in poverty, and language isolation (a.k.a. focused historically marginalized communities) and communities of color tend to see increased rate of access to community places by transit and increases tend to be different between the peak and off-peak period.
    - In particular access to community places overall (includes food, medical, civic, and general stores) increases by 3% - 7% by transit, depending on peak or off-peak period travel.
- Historically marginalized communities tend to see decreased rate of access to community places relative to the region in the draft 2040 financially constrained and draft 2040 strategic investment strategies.
    - But in general access to community places is increasing overall.
- The mixed results observed in access to community places make it difficult to make a determination as to whether there is a disproportionate impact on historically marginalized communities.
- The travel demand model may not be the strongest analytical tool for understanding accessibility for bicycling and walking for time-based travel sheds because investments may increase more active travel.

Table 4. Access to Community Places

All Community Places												
	10-Year 2027 Constrained (2018-2027)				**2040 Financially Constrained (2018-2040)**				**2040 Strategic (2018-2040)**			
	T-P	**T-OP**	**Bike**	**Walk**	**T-P**	**T-OP**	**Bike**	**Walk**	**T-P**	**T-OP**	**Bike**	**Walk**
Region	*25%*	*43%*	*1%*	*2%*	*26%*	*27%*	*0%*	*1%*	*43%*	*51%*	*0%*	*1%*
HMC	*29%*	*44%*	*5%*	*5%*	*25%*	*24%*	*0%*	*1%*	*41%*	*47%*	*0%*	*1%*
FHMC	*26%*	*42%*	*0%*	*0%*	*29%*	*30%*	*0%*	*1%*	*46%*	*57%*	*0%*	*1%*
POC	*31%*	*48%*	*2%*	*3%*	*28%*	*30%*	*0%*	*1%*	*46%*	*58%*	*0%*	*1%*
Access to Food												
	10-Year 2027 Constrained (2018-2027)				**2040 Financially Constrained (2018-2040)**				**2040 Strategic (2018-2040)**			
	T-P	**T-OP**	**Bike**	**Walk**	**T-P**	**T-OP**	**Bike**	**Walk**	**T-P**	**T-OP**	**Bike**	**Walk**
Region	*26%*	*45%*	*0%*	*0%*	*26%*	*29%*	*0%*	*1%*	*44%*	*55%*	*0%*	*2%*
HMC	*30%*	*47%*	*3%*	*4%*	*24%*	*27%*	*0%*	*1%*	*41%*	*52%*	*0%*	*1%*
FHMC	*25%*	*49%*	*1%*	*2%*	*26%*	*30%*	*0%*	*1%*	*43%*	*56%*	*0%*	*2%*
POC	*31%*	*44%*	*-1%*	*-1%*	*25%*	*30%*	*0%*	*1%*	*43%*	*58%*	*0%*	*2%*
Access to Medical Services												
	10-Year 2027 Constrained (2018-2027)				**2040 Financially Constrained (2018-2040)**				**2040 Strategic (2018-2040)**			
	T-P	**T-OP**	**Bike**	**Walk**	**T-P**	**T-OP**	**Bike**	**Walk**	**T-P**	**T-OP**	**Bike**	**Walk**
Region	*25%*	*43%*	*2%*	*3%*	*26%*	*25%*	*0%*	*1%*	*44%*	*50%*	*0%*	*1%*
HMC	*28%*	*44%*	*6%*	*6%*	*24%*	*22%*	*0%*	*1%*	*41%*	*45%*	*-1%*	*1%*
FHMC	*24%*	*38%*	*0%*	*1%*	*28%*	*28%*	*0%*	*1%*	*46%*	*57%*	*0%*	*1%*
POC	*29%*	*49%*	*3%*	*4%*	*27%*	*29%*	*0%*	*1%*	*47%*	*57%*	*0%*	*1%*

T-P = Transit Peak Period; T-OP = Transit Off-Peak Period

Green = Performance greater than the region

Discussion

Draft 2027 Financially Constrained 10-Year Investment Strategy (2018-2027)

In the 2027 Financially Constrained 10-year investment strategy, access to community places overall tends to perform well in increasing the number of community places historically marginalized communities and communities of color can reach by transit, bicycling, and walking during the peak and off-peak period compared to the overall region. While the region saw increased access to community places (combined) of 43% more places by transit, 1% more by bicycling, and 2% more by walking, historically marginalized communities and communities of color saw increases of 44% and 48% by transit, 5% and 2% by bicycle, and 5% and 3% by walking, respectively. However, in focused historically marginalized communities, which represent those communities with a higher density of people of color, people in poverty, and language isolation, there is a slight decrease in the number of community places which can be reached by transit (42%), bicycling (0%) and walking (0%).

The decrease in access to community places varies a bit by category. For example, access to the number of grocery stores and medical facilities which can be reached within a certain timeframe (30 minutes for transit, 15 minutes for bicycling, and 20 minutes for walking) during peak and off-peak period across transit, bicycling, and walking decreased for those areas with a higher density of people of color, people in poverty, and language isolation, but access to places like pharmacies, hardware stores, schools, libraries, banks or general stores like Fred Meyer increased specifically by transit regardless of peak or off-peak period.

Draft 2040 Financially Constrained Investment Strategy (2018-2040)

In the 2040 RTP financially constrained strategy, areas with a greater density of people of color, people in poverty, and language isolation and communities of color tend to see greater access to community places by transit in the peak and off-peak period, with the exception of accessing grocery stores during the peak period. Additionally, some under performance in transit access to community places is observed in historically marginalized communities in aggregate in both the peak and off-peak periods. During the peak period, performance in accessing grocery stores by transit is less than the overall growth of the region in areas where there is a greater rate of historically marginalized communities, focused historically marginalized communities, and communities of color.

In terms of the access to community places by walking with the 2040 RTP financially constrained strategy, what is observed is that access by walking for historically marginalized communities, communities of color, and places where there is a greater density of these communities and language isolated communities tend to see the same rate of access to these places like libraries, pharmacies, schools, medical services and grocery stores. Access to community places by bicycling with the 2040 RTP financially constrained strategy also see the same rate of access for historically marginalized communities, focused historically marginalized communities, and communities of color relative to the region.

Draft 2040 RTP Strategic Investment Strategy (2018-2040)

In the 2040 RTP strategic investment strategy, access to community places grows quite significantly for transit. Within a 30 minute transit trip, the region has gone from seeing 26% (peak) or 27% (off-peak) of the community places reached to 43% (peak) and 51% (off-peak) with the strategic investments. While the 2040 strategic investment strategy significantly increases access by transit, mainly those areas with a greater density of people of color, people in poverty, and language isolation and communities of color tend to see a greater rate of access to community places by transit in the peak and off-peak period than the region.

Some of the accessibility by transit does underperform relative to the region specifically during the transit peak period when trying to get to grocery stores for focused historically marginalized communities and communities of color. What is also interesting that in general, historically marginalized communities see not as much access to community places compared to the region regardless when looking across different community place subsets (i.e. specifically looking at access to grocery stores or medical services) or all community places. Lastly, similarly to the draft 2040 financially constrained investment strategy, access by bicycling tends to is unchanged from the region with the exception of slightly less access in historically marginalized communities compared to the region to medical facilities. A similar pattern is observed with access to community places by walking where access remains unchanged from the region with the exception of access to food in historically marginalized communities.

Key Thoughts and Observations
A key assumption to highlight in the access to community places system evaluation is that the land use forecast does not spatially allocate for community places (e.g. libraries, grocery stores, medical facilities, etc) to a small enough geography to measure increased access as a result new capital improvements to the regional transportation system. Therefore, unlike with the compendium evaluation measure – access to middle and low-wage jobs – the investments are not being realized against the likely growth in the number of these community places emerging because of population and household growth. Essentially, the access to community places was measured based on the existing locations of community places. The benefit in conducting the evaluation using existing community places helped to isolate the performance of the investment strategy in terms of access, but it is also not a full picture of the access because the future investment strategy were unable to recognize the likelihood of growth of these community places as a result of population growth and demand, especially in existing less developed areas expected to grow. There is an underlying assumption that access will be further realized with the anticipation of new community places opening for service.

Another element to consider in access to community places is how to interpret the results for walking and bicycling. Because the accessibility measure is time-based, improvements to the active transportation system which encourages further or longer travel to get to a separated or protected facility makes it appear there is under performance of the investment program because more time is spent in active travel. Recognizing this unique challenge of the travel demand model, increases or decreases in access to community places or jobs can be viewed in a positive manner and that the investment program is making some positive impact.

Overall, the three 2018 RTP investment strategies provide an increase in access to community places in an absolute sense, but again the purposes of the transportation equity analysis is to look at the performance in historically marginalized communities, focused historically marginalized communities, and communities of color relative to the region to assess a sense of "fairness" for historically marginalized communities.

In general, each of the draft RTP investment strategies see some underperformance in access to community places relative to the region in different profile types of historically marginalized communities (i.e. in areas where there is a greater density or higher than the regional rate of communities of color). There could be some very reasonable rational to the underperformance relative to the region. For example, in the decrease in transit access to community places in 2040 is likely attributed to traffic congestion, especially during the peak period where it is harder to get to as many places in a 30 minute travel window. But what is interesting in the 2040 RTP financially constrained strategy is that for transit, focused historically marginalized communities and

communities of color saw a greater rate of access to medical services or civic places, like schools, libraries, etc. Some of the rationale may relate to the population density of the focused marginalized communities, but nonetheless, the projected population and employment growth in the region by 2040 means there will be more trips taken and congestion will be a challenge to the entire transportation system.

Access to Jobs

Evaluation Measure Summary
To look at how many jobs, particularly low and middle-wage jobs can be reached within a certain travel time window for transit (45 minutes), bicycling (30 minutes), and walking (20 minutes) region wide and in historically marginalized communities (in aggregate) and understand if the 2018 RTP investment strategies are further increasing access to jobs for historically marginalized communities.

Preliminary Findings

- All three of the draft investment strategies show variable results in access to middle and low-wage jobs by transit, bicycling, and walking for historically marginalized communities, focused historically marginalized communities, and communities of color.
    - In general job access increases overall because of the region's land use strategy and local land use plans assumes an increase in population and employment growth by 2040. However, the rate of increased job access varies among the RTP investment strategies where in certain circumstances (e.g. historically marginalized communities access to middle-wage jobs by transit during the peak travel period) underperform relative to the region rate of access.
- The 2027 Constrained 10-year investment strategy sees the greatest variability of increases and decreases in access relative to the region to low and middle-wage jobs by transit, bicycling, and walking.
    - Historically marginalized communities tend to see consistently a greater rate of access to low and middle-wage jobs relative to the region, where areas with greater density of people of color, people in poverty, and language isolation (a.k.a. focused historically marginalized communities) see underperformance relative to the region in accessing low and middle-wage jobs by transit, bicycling, and walking within a given travel time.
- The draft 2040 financially constrained and draft 2040 strategic investment strategies tend to keep the rate of access to low and middle-wage jobs for all marginalized communities by biking, and walking steady.
    - The exception is in the draft 2040 RTP strategic investment strategy where focused historically marginalized communities see slight increase relative to the region in access to low-wage jobs by a 20-minute walk.
- Access to low and middle-wage jobs by transit in the 2018 RTP financially constrained and 2018 RTP strategic investment strategies in historically marginalized communities, focused historically marginalized communities, and communities of color varies in terms of increasing at a greater rate relative to the region or the rate of access decreasing relative to the region.
    - Focused historically marginalized communities tend to see more consistent increases in access to low and middle-wage jobs by transit relative to the region in the long-term investment strategies.

- The travel demand model may not be the strongest analytical tool for understanding accessibility for bicycling and walking for time-based travel sheds because investments may increase more active travel.

Table 5. Access to Low, Middle Wage and All Jobs

All Jobs												
	10-Year 2027 Financially Constrained (2018-2027)*				**2040 Financially Constrained (2018-2040)**				**2040 Strategic (2018-2040)**			
	T-P	**T-OP**	**Bike**	**Walk**	**T-P**	**T-OP**	**Bike**	**Walk**	**T-P**	**T-OP**	**Bike**	**Walk**
Region	*57%*	*78%*	*22%*	*23%*	*28%*	*31%*	*0%*	*1%*	*47%*	*57%*	*0%*	*2%*
HMC	*61%*	*79%*	*24%*	*26%*	*27%*	*28%*	*0%*	*1%*	*45%*	*54%*	*-1%*	*1%*
FHMC	*58%*	*77%*	*24%*	*24%*	*29%*	*32%*	*0%*	*1%*	*47%*	*61%*	*-1%*	*1%*
POC	*64%*	*83%*	*21%*	*21%*	*27%*	*31%*	*-1%*	*1%*	*46%*	*61%*	*-1%*	*2%*
Middle-Wage Jobs												
	10-Year 2027 Financially Constrained (2018-2027)*				**2040 Financially Constrained (2018-2040)**				**2040 Strategic (2018-2040)**			
	T-P	**T-OP**	**Bike**	**Walk**	**T-P**	**T-OP**	**Bike**	**Walk**	**T-P**	**T-OP**	**Bike**	**Walk**
Region	*58%*	*80%*	*24%*	*24%*	*28%*	*31%*	*0%*	*1%*	*47%*	*57%*	*0%*	*2%*
HMC	*62%*	*80%*	*26%*	*27%*	*27%*	*28%*	*0%*	*1%*	*45%*	*54%*	*0%*	*1%*
FHMC	*58%*	*78%*	*22%*	*21%*	*29%*	*32%*	*0%*	*1%*	*47%*	*62%*	*-1%*	*2%*
POC	*64%*	*83%*	*25%*	*25%*	*28%*	*31%*	*-1%*	*1%*	*46%*	*61%*	*-1%*	*1%*
Low-Wage Jobs												
	10-Year 2027 Financially Constrained (2018-2027)*				**2040 Financially Constrained (2018-2040)**				**2040 Strategic (2018-2040)**			
	T-P	**T-OP**	**Bike**	**Walk**	**T-P**	**T-OP**	**Bike**	**Walk**	**T-P**	**T-OP**	**Bike**	**Walk**
Region	*55%*	*75%*	*20%*	*21%*	*28%*	*31%*	*0%*	*1%*	*47%*	*57%*	*0%*	*1%*
HMC	*59%*	*76%*	*22%*	*24%*	*26%*	*28%*	*0%*	*1%*	*44%*	*54%*	*-1%*	*1%*
FHMC	*56%*	*74%*	*19%*	*19%*	*28%*	*32%*	*0%*	*1%*	*46%*	*61%*	*-1%*	*2%*
POC	*62%*	*80%*	*22%*	*23%*	*27%*	*31%*	*-1%*	*1%*	*46%*	*61%*	*-1%*	*1%*

T-P = Transit Peak Period; -OP = Transit Off-Peak Period
** 2018 RTP 10-year investment strategy has not been controlled for land use changes, whereas the RTP investment strategies looking at 2040 have controlled for land use changes.*
Green = Performance greater than the region

Discussion
Draft 2027 Financially Constrained 10-Year Investment Strategy (2018-2027)
In the draft 2027 Constrained 10-year strategy, transit access to jobs in the peak period performs better than the overall region across all wage profiles (e.g. low, medium, high wage) in terms of the number and percentage jobs within a 45 minute travel window for historically marginalized communities, as well as communities of color. Focused historically marginalized communities, which are those communities with a greater density of people of color, people in poverty, and language isolation see slightly less access to middle-wage jobs relative to the region. The result is nearly identical for the off-peak period as well with the exception for focused historically marginalized communities and in one case where access to middle-wage jobs underperforms relative to the region in historically marginalized communities.

For walking access to jobs within a 20 minute travel window, the performance of the 2018 RTP 10-year investment strategy generally saw a greater rate of low and middle wage job access than the

overall region by walking in historically marginalized communities and in one case in communities of color to access low-wage jobs. Bicycle access middle-wage jobs is at a greater rate than the region in historically marginalized communities. Otherwise, bicycling and walking access to middle and low-wage jobs tend to underperform relative to the region in areas where there is a greater density of people of color, people in poverty, and language isolation..

Draft 2040 Financially Constrained Investment Strategy (2018-2040)
When observing the impact of the draft 2040 financially constrained package of investments, access to middle and low-wage jobs by transit tends to underperform relative to the region for historically marginalized communities and communities of color during the peak and off-peak period. Access to middle and low-wage jobs tends to outpace the region when in those areas with the higher density historically marginalized communities in the off-peak period.

For bicycling, access to middle and low wage jobs tend to stay steady with the overall region for historically marginalized communities and in areas where there is a greater density of historically marginalized communities. Slight underperformance is observed with bicycle access to middle and low-wage jobs for communities of color. Access to middle and low wage jobs by walking all perform at the same rate as the overall region in all historically marginalized communities, focused historically marginalized communities and in communities of color.

Draft 2040 Strategic Investment Strategy (2018-2040)
With the draft 2040 strategic investment strategy, focused historically marginalized communities and communities of color see a greater rate of access by transit to middle and low-wage jobs relative to the region. The result is limited to the off-peak travel period. When looking across all jobs, focused historically marginalized communities and communities of color see a greater rate of job access compared to the overall region during the peak and off-peak period. Access to low and middle-wage jobs tend to stay at pace with the overall region or decreases for historically marginalized communities, focused historically marginalized communities, and communities of color when it comes to bicycling and walking. Only in one instance in focused historically marginalized communities, access to low-wage jobs outpaces the region.

Key Observations and Thoughts
The simple rationale for the underperformance in transit access to low and middle wages jobs is likely due to the future projected congestion. With an estimated 573,000 people, 260,000 households, and 345,000 jobs in the region by 2040, there are more travelers sharing the same roads and buses are still stuck with passenger vehicles and trucks. As a result, less jobs are reached within that 45 minute travel time window by transit for the historically marginalized communities. The pattern is further exacerbated during the off-peak period where the frequency becomes reduced and combination of the traffic congestion being observed in the off rush hours impact the number of middle and low wage jobs historically marginalized communities can reach within the 45 minute transit travel window. The draft RTP investment strategies show that building out of congestion is not possible and more transit investment combined with intensive street treatments are needed to move buses.

Additionally, there are some potential different reasons for slight underperformance of transit in accessing low and middle-wage jobs in focused historically marginalized communities. Namely focused historically marginalized communities include a lot of undeveloped areas around the western edge of the region, the far northern side (aka the Columbia corridor) and the eastern side of the region. During the off-peak, these less developed areas generally may not see as much transit service because development has not been fully realized in these areas by 2027 and less mixed activity (i.e. day and night land uses etc.). Additionally, some of the transit solutions slated for these

areas, like the Columbia corridor and in western Hillsboro, are community connecter solutions, which are not currently represented in the travel demand model. Nonetheless, the result is to be mindful of in the 2018 RTP investment strategies because of a number of communities being pushed farther away from the core of the region.

Generally gains or underperformance in low and middle wage jobs by bicycling or walking fell within a range of 1 to 2%, which demonstrate the results for bicycling or walking may be somewhat inconclusive as to whether there access to jobs were increased or decreased for these communities. This is partially due to the travel demand and behavioral model because some capital improvements made to the regional transportation system may increasing travel time for walking and bicycling. For example, when a new facility is added (e.g. a new protected bicycle lane or sidewalk) the attractiveness of the new facility will divert a number of trips. Specifically for bicycling, the new facilities which make it more comfortable to ride, because of protection or lower automobile vehicle volumes or speeds, generates travel behaviors where a person may travel a little bit farther or slightly out-of-direction and therefore travel longer. Since the access to jobs system evaluation measure looked at the number of jobs accessible within a certain time window (i.e. 30 minutes by bicycle), the results for this system measures for biking and walking does not fully capture or illustrate the positive gains or impacts in middle and/or low-wage accessibility unless there is a significant swing in the numbers.

Lastly, the current results do not reflect the new low-income fare structure as a result of the state legislature passing a major new revenue package for transportation. The new funding to support transit operations and the commitment by the region's largest transit agency to implement a low-income fare program will likely result in some gains in transit access to jobs for marginalized communities and communities of color because the reduced fare may induce different travel behavior for certain trips.

Access to Travel Options – System Connectivity and Completeness

Evaluation Measure Summary
To look at how more miles (and ultimately the amount of gaps) and connectivity of the region's active transportation infrastructure (sidewalks, bicycle routes) is getting completed region wide, around transit, and in historically marginalized communities (in aggregate), and understand if the 2018 RTP investment strategies are further increasing the completeness and connectivity of the regional active transportation network for historically marginalized communities. Additionally further look at the timing of the active transportation investments in the 2018 RTP investment strategies.

Preliminary Findings

- In general, the three 2018 RTP investment strategies are increasing or keeping pace in completing the regional active transportation network in historically marginalized communities, areas where there is a greater density of people of color, people in poverty, language isolation, and in communities of color compared to the overall region.
    - There is only two instances in the 2018 RTP strategic investment strategy where sidewalks are not increasing at a lesser rate in historically marginalized communities and communities of color than the region overall.
- In instances where the 2018 RTP investment strategies are outpacing the region, such as sidewalks in communities of color in the 2018 RTP financially constrained strategy, the increment of outpacing is usually within 1% – 2%.

- Nonetheless, all three draft RTP investment strategies make progress in completing the active transportation network region-wide.
- All three draft RTP investment strategies also make progress in furthering connectivity of the bicycle network.
- While investment is increasing overall, the rate of active transportation investment in the draft RTP investment strategies is slightly higher in the outer years of the plan compared to the 10-year investment strategy.

Discussion

System Completeness
In general, all three draft RTP investment strategies increase the miles of sidewalks, trails, and on and off-street bikeways. The additional miles of system completeness for active transportation ranges from 1% - 2% for trails and off-street bikeways to 12% - 17% for sidewalks. These increases demonstrate the 2018 RTP investment strategies are making capital investments into the active transportation network, which is the least complete of the different modal networks (e.g. roads, transit, etc.) Some of the larger increases of additional active transportation network miles are observed in areas where there is a greater density of people of color, people in poverty, and language isolation. The result of the increased miles of sidewalks, bikeways, and trails demonstrates progress in completing the active transportation network in areas with historically marginalized communities.

There are two instances where the 2018 RTP investment strategy does not perform at the same rate as the region in historically marginalized communities. In the 2018 RTP strategic investment strategy, the region's increase in sidewalk miles is 15% greater than the base year. In historically marginalized communities and communities of color, the sidewalk miles increase is 14%.

Table 6. 2018 RTP Investment Strategies – Additional Miles and Completeness of the Active Transportation Network

		Base Year (2015)		Draft 10-Year 2027 Financially Constrained (2018-2027)			Draft 2040 Financially Constrained			Draft 2040 Strategic		
		Mi.	% complete	Mi.	% complete	% Change	Mi.	% complete	% Change	Mi.	% complete	% Change
Side walks	Region	478	60%	532	67%	7%	570	72%	12%	598	75%	15%
	HMC	360	64%	400	71%	7%	426	76%	12%	440	78%	14%
	FHMC	209	66%	238	75%	9%	253	80%	14%	261	83%	17%
	POC	242	66%	274	75%	9%	292	80%	14%	295	81%	14%
On-street bike	Region	545	55%	598	60%	5%	628	63%	8%	664	67%	12%
	HMC	398	58%	434	63%	5%	453	66%	8%	472	68%	11%
	FHMC	225	61%	250	68%	7%	259	70%	9%	268	73%	12%
	POC	253	62%	278	68%	6%	290	71%	9%	300	73%	12%

		Base Year (2015)		Draft 10-Year 2027 Financially Constrained (2018-2027)			Draft 2040 Financially Constrained			Draft 2040 Strategic		
		Mi.	% complete	Mi.	% complete	% Change	Mi.	% complete	% Change	Mi.	% complete	% Change
Trails	MPA	183	36%	189	38%	1%	196	39%	3%	197	39%	3%
	HMC	126	38%	131	39%	1%	136	41%	3%	136	41%	3%
	FHMC	67	39%	71	41%	2%	74	43%	4%	74	43%	4%
	POC	84	43%	88	45%	2%	92	47%	4%	92	47%	4%

Connectivity

Additionally, all three draft RTP investment strategies are increasing the connectivity of the regional bicycling network.[7] In looking at the intersection density of the region's planned bikeways, a greater rate of 3-way ore more intersections completeness with bicycling facilities are observed in historically marginalized communities, areas with a higher density of people of color, people in poverty, and language isolation, and communities of color. The greater rate indicates increased connectivity of the bikeway system.

Table 7. 2018 RTP Investment Strategies – Additional 3-Way or More Bicycle Intersections

Percentage of 3-Way Intersection Completeness							
	Base Year (2015)	Draft 10-Year 2027 Financially Constrained (2018-2027)		Draft 2040 Financially Constrained		Draft 2040 Strategic	
Region	69%	76%	7%	81%	12%	87%	18%
HMC	72%	79%	8%	84%	12%	90%	18%
FHMC	78%	89%	10%	94%	16%	99%	21%
POC	73%	83%	10%	88%	15%	94%	21%

Access to Transit

The results of the Access to Transit measure are still under development. The results will be brought forward to the Transportation Equity work group meeting on November 30th or at the TPAC and MTAC workshop on December 4th.

Timing of Active Transportation Investments

Finally, an issue identified by the equity work group members is the necessity to look at the timing of the active transportation investments to ensure a balance or even a greater level of investment in active transportation, particularly in historically marginalized communities, throughout the 2018 RTP. Recognizing the 2018 RTP represents the investment strategy for the regional transportation system for the next 20 years, the issue identified by the work group is to ensure active transportation investments are not getting slated for the outer years of the plan.

[7] Due to a lack of information about the regional roadway network, the intersection density assessment looking at the roadway network and ultimately of the sidewalk network was unable to be completed.

In looking at the investment summary of the three draft RTP investment strategies, there is a slight increase in the annual amount of investment of the draft 2040 financially constrained investment strategy (approximately $68.2 million per year) compared to the draft 10-year 2027 financially constrained investment strategy (approximately $64.2 million per year). While the increased amount of investment in the draft 2040 financially constrained investment strategy is a positive sign, the result indicates slightly more active transportation investment is slated for the outer years of the plan.

In addition, when looking at the draft 2040 strategic investment strategy, the amount of active transportation investment increases by nearly $1 billion, which is also an indicator of active transportation investment being more conservative in the draft 10-year 2027 and 2040 financially constrained investment strategies.

*Table 8. Summary of 2018 RTP Active Transportation Investment**

	Draft 10-Year 2027 Constrained Strategy (2018-2027)			**Draft 2040 Financially Constrained RTP (2018-2040)**			**Draft 2040 Strategic RTP (2018-2040)**		
	$	**#**	**%**	**$**	**#**	**%**	**$**	**#**	**%**
RTP Investment Strategy	$6.2 B	374	29%	$14.7 B	762	69%	$21.3 B	1057	100%
Active Transportation	$642 M	133	10%	$1.5 B	293	10%	$2.5 B	393	12%
Average Annual Active Transportation Investment	$64.2M			$68.2 M			$113.6 M		
Expected Rate**	--			$1.48 B			--		

**Includes all identified active transportation investments in the 2018 RTP.*
***If the 2018 RTP 10-Year investment strategy annual rate of active transportation investment is carried forward.*

Key Thoughts and Observations
In conducting the analysis of system completion and connectivity based on the investments identified for the 2018 RTP, there were two key issues which emerged which may have a significant implication to the results. One key issue is that a number of active transportation investments identified in the 2018 RTP either: 1) provided geospatial data which was not in alignment with the regional active transportation network in the adopted 2014 RTP; or 2) the active transportation investment is not on the regional active transportation network.

As a result, these investments were not evaluated in the analysis, leaving nearly 414 miles not analyzed. For the number of active transportation investments which provided geospatial data slightly out of alignment, the alignment issue is a technical error which will look to get resolved during the refinement period. In likelihood, the out-of-alignment active transportation investments will increase the overall system connectivity and completeness of the system which may also address the decrease in 1% less sidewalk mileage in historically marginalized communities and communities of color in the 2018 RTP strategic investment strategy. Nonetheless, the result is worthy of monitoring because of the existing disparities in active transportation infrastructure in historically marginalized communities.

The second key issue to emerge from the system completeness and connectivity evaluation is addressing the completeness and connectivity of the roadway network. The analysis of the regional roadway network was unable to be completed, and therefore not discussed in the results. The significant issue encountered with the roadway system completeness and connectivity was defining the planned regional roadway network to get a better understanding of the gaps, deficiencies, and the existing level of completeness for the roadway network. Otherwise the roadway completeness and connectivity is viewed as additions to an already complete system. The impact of not having the planned regional roadway network is being able to speak to the sidewalk and ultimately pedestrian system connectivity in the connectivity analysis. As a result, the connectivity analysis only is able to speak to the intersection density of the bicycle network.

Share of Transportation Safety Projects and Per Capita Spending in Transportation Safety

Evaluation Measure Summary
To look at the number of projects and the per capita investment level focused on reducing fatal and serious injury crashes region wide and in historically marginalized communities (in aggregate), and understand if the 2018 RTP investment strategies are further increasing safety outcomes for historically marginalized communities.

Preliminary Findings

- All three draft RTP investment strategies illustrate the share of safety projects and investments levels are at a greater rate in historically marginalized communities compared to the region.
- The majority of safety investments proposed are located in all permeations of historically marginalized communities and on regional high injury corridors located in historically marginalized communities.
- The draft 10-year 2027 investment strategy has the largest proportion of projects and investment level in safety compared to the draft 2040 financially constrained and draft 2040 strategic investment strategies.
- Nonetheless, for the region to achieve its Vision Zero goal, then greater investment in safety may be necessary as the level of safety investment proposed across all three 2018 RTP investment strategies makes up a range of 3% – 8%.
- There are a number of transportation investments (327) within the draft RTP investment strategies which identified reducing fatalities or serious injuries or reducing crashes as a secondary purpose of the project. Recognizing transportation projects aim to achieve multiple objectives, there may be a greater level of safety investment in the 2018 RTP investment strategies than represented in the analysis.
    - Metro staff will work with the individual sponsoring jurisdictions which identified safety as a secondary purpose during the refinement period to resolve the number of safety projects and the investment level prior to the release of the 2018 RTP public comment draft in June 2018.
- As a result, there is not a disproportionate impact in the level of safety investments in historically marginalized communities, focused historically marginalized communities, and communities of color.

Discussion

Table 9. 2018 RTP – Summary of Identified Transportation Safety Projects

	Total Projects	Estimated 2018 RTP cost	Safety projects	Estimated 2018 RTP safety cost	% Projects	% Investment
Draft 2027 Constrained – 10 Year Investment Strategy	374	$6.3 B	30	$484 M*	8%	8%
Draft 2040 Financially Constrained	762	$14.7 B	45	$598 M*	6%	4%
Draft 2040 Strategic[8]	1057	$21.2 B	53	$664 M*	5%	3%

*Includes the Rose Quarter project at $325 million.

Within the entire 2018 RTP, a total of 53 of the 1057 transportation projects submitted (approximately 5% in total) have been identified as safety projects.[9] While only 5% of transportation projects are identified as safety projects, approximately 3% of the overall draft 2018 RTP investment strategy comprises of safety investment.[10] The portion of the RTP investment strategy focused on transportation safety is stark result knowing that the entire RTP represents all the transportation investments needed to address the needs and deficiencies due to population and employment growth in a financially unconstrained environment. When looking closer at the draft financially constrained RTP, which represents the amount of funding to be reasonably expected to be available, the overall proportion does improve relative to the entire 2018 RTP investment strategy (draft 2040 financially constrained and 2040 strategic investments). In the draft 2040 RTP financially constrained strategy, 6% of projects representing 4% of the financially constrained investment strategy is towards safety.

Nonetheless, what monitoring data has shown is a trending increase in crashes, particularly those which resulted in serious injuries or fatalities in the Portland metropolitan region. Knowing that transportation safety needs to be addressed in the nearer term, looking more in depth at what is planned for the first 10-years of the RTP helps illustrate what is expected to come next. The 2018 RTP 10-year investment strategy (2018-2027) shows brighter promise when it comes to safety investment. Nearly 8% of the projects and the investment level in the 10-year investment strategy focus on safety. The 30 safety projects slated for completion in between 2018-2027 represents over half (56%) of all the safety projects identified in the entire 2018 RTP.

Transportation safety was a key identified concern by historically marginalized communities and a clearly stated desired outcome historically marginalized communities wish to see from the region's transportation system are facilities which reduce crashes that result in fatal and serious injuries. In looking at the 53 safety projects identified in the draft RTP investment strategies, a breakdown of these projects are viewed from where these projects are located relative to historically marginalized communities and the per capita investment in safety.

Table 10. Transportation Safety Investment Levels in Historically Marginalized Communities, Focused Communities, and Communities of Color and Per Capita Expenditure by Investment Scenario

[8] See footnote 10.

[9] In guidance provided to RTP project submissions, safety projects are those which meet the region's definition of a safety project. The region defines a safety project as: a project with the primary purpose of addressing a documented safety problem at a documented high injury or high risk location with one or more proven safety countermeasure(s).

[10] Note, the total number of 2018 RTP projects are from the RTP call-for-projects which was held from June 1 – July 21, 2017. The total number of projects are subject to change during the refinement period and prior to the release of the 2018 RTP public comment draft in June 2018.

Draft 10-Year 2027 Constrained Investment Strategy (2018-2027)					
	Total projects	**% of project total**	**safety cost**	**% of investment total**	**Cost per person**
Total 2018 RTP Safety Projects (draft 10-year 2027 Constrained strategy only)	30 (of 374)	8%	$484 M	8%	$254
Within HMC (transportation safety only)	29	97% (of 8%)	$475 M	7.6%/(95% of 8%)	$360
Within FHMC (transportation safety only)	24	80% (of 8%)	$479 M	7.7%/(96% of 8%)	$642
Within Communities of Color (transportation safety only)	24	80% (of 8%)	$468 M	7.5%/(94% of 8%)	$593
2040 Financially Constrained RTP (2018-2040)					
	Total projects	**% of project total**	**safety cost**	**% of investment total**	**Cost per person**
Total 2018 RTP Safety Projects (2018-2040 constrained)	45 (of 762)	6%	$598 M	4%	$274
Within HMC (transportation safety only)	43	96% (of 6%)	$552 M	3.7%/(93% of 4%)	$366
Within FHMC (transportation safety only)	34	76% (of 6%)	$517 M	3.5%/(88% of 4%)	$607
Within Communities of Color (transportation safety only)	37	82% (of 6%)	$525 M	3.6%/(90% of 4%)	$612
2040 Strategic RTP (2018-2040)					
	Total projects	**% of project total**	**safety cost**	**% of investment total**	**Cost per person**
Total 2018 RTP Safety Projects	53 (of 1057)	8%	$664 M	3%	$304
Within HMC (transportation safety only)	47	87% (of 8%)	$617 M	2.9%/(97% of 3%)	$409
Within FHMC (transportation safety only)	37	70% (of 8%)	$526 M	2.5%/(83% of 3%)	$617
Within Communities of Color (transportation safety only	40	75% (of 8%)	$545 M	2.6%/(87% of 3%)	$627

A more focused look shows that the majority of safety investments are being made in areas where there is a greater presence of people of color, people in poverty, people uncomfortable speaking English, older adults, and young people. Represented in the 10-year investment strategy, the financially constrained long-range investment strategy, and the additional long-range strategic investments are 70% – 90% of safety projects and 83% - 97% are being made in historically marginalized communities, focused historically marginalized communities, and communities of color.[11]

[11] At the time of the 2018-2021 MTIP data request, some transportation safety projects were unable to provide exact locations of where the investments would be made. These investments provided programmatic areas (e.g. City of Gresham or City of Portland), but due to the lack of defined spatial information, they were therefore excluded from the geographic assessment looking at transportation safety investments in

Additionally the per capita rate of spending in these communities is outpacing the region wide per capita rate significantly. The safety projects are also addressing safety issues on the high injury corridors in historically marginalized communities. (See Table 11) This positive trend shows that while safety projects and investments make up a small part of the long-range transportation investment strategy, the safety investments proposed are slated to address and reduce crashes occurring in these communities. These results appear to indicate a level of transportation safety investment is being targeted in historically marginalized communities at a per capita level greater than the region. The results show transportation safety investments levels moving in the direction desired by historically marginalized communities and the assumed outcome would be of these investments would be safer streets for all users.

Table 11. Transportation Safety Projects Located on the High Injury Corridors and within Historically Marginalized Communities, Focused Historically Marginalized Communities, and Communities of Color

Investment Strategy	HMC	FHMC	Communities of Color
2018-2027 (2027 Constrained)	24 of 30/80%	21 of 30/70%	21 of 30/70%
2028-2040 (2040 Financially Constrained)	31 of 45/69%	28 of 45/62%	28 of 45/62%
2028-2040 (2040 Strategic)	33 of 53/62%	30 of 53/57%	30 of 53/57%

Key Thoughts and Observations
There are some different reasons for the overall number and investment level of safety projects in the draft 2018 RTP strategy is a small proportion of the overall investment strategy, regardless whether it is the draft 10-year 2027 constrained investment strategy, the draft 2040 financially constrained investment strategy, or the draft 2040 strategic investment strategy. In general, transportation safety-oriented capital improvements, such as countermeasures, are not as costly as other transportation investments, such as building an additional lane of a freeway, rehabilitating a bridge, or adding a new rail line to the transit system.

Additionally, a review of the projects proposed for the 2018 RTP investment program found local jurisdictions provided an inconsistent response asking whether a project is a "safety project," but then selecting and identifying a non-safety-related primary purpose. There was also a number of projects in the draft 2018 RTP investment strategy which identified reducing crashes as a secondary purpose. Recognizing the region's definition of a safety project is driven by what the sponsoring jurisdiction views as the primary purpose of the project, these were not included in the analysis. However, in initial review, Metro staff suspects there are more safety projects than what has been represented in the assessment. As a result, Metro staff plans to work through the refinement period to work with the individual sponsoring jurisdictions to resolve these "miss-matched" responses projects and further look at projects which identified safety as a secondary

historically marginalized and focused historically marginalized communities. The number of projects affected in this way includes 16 projects representing approximately $32 million of investments. These 16 projects were included as part of the region-wide per capita spending on transportation safety investments.

purpose. A rerun of the evaluation for the investment strategy will be conducted prior to the release of the 2018 RTP public comment draft in June 2018.

Exposure to Vehicle Miles Traveled (VMT) and Crash Risk

Evaluation Measure Summary
To look at the amount of non-freeway vehicle miles traveled (VMT) exposure region wide and in historically marginalized communities (in aggregate), and understand if the 2018 RTP investment strategies are further reducing vehicle miles traveled exposure, which is correlated to crashes, for historically marginalized communities.

Preliminary Findings

- In the draft 10-year 2027 financially constrained investment strategy, VMT is increasing in focused historically marginalized communities and communities of color faster than the region overall. However, the draft 10-year investment strategy has not been controlled for population growth and employment (e.g., staff did not analyze a 2027 No Build scenario for comparison).
- The drat 2040 financially constrained and drat 2040 strategic investment strategies see a decrease in VMT in historically marginalized communities, focused historically marginalized communities and communities of color.
    - In general, the overall VMT is expected to increase due to the growth of population and employment, therefore decreases in VMT observed are based on the performance of the constrained and full investment strategy having an impact to travel behavior and ultimately the exposed VMT.
- But because VMT is correlated with and one of many factors contributing to crashes on the transportation system, the increase in overall projected and rate of VMT growth means the region must be diligent in implementing countermeasures and the other principles of transportation safety (the six E's – engineering, education, encouragement, enforcement, equity, and evaluation), to reduce the overall exposure and risk of crashes.
- Some form of mitigation may be necessary to address the greater increase in VMT growth in historically marginalized communities, particularly in the first 10-years.

Discussion

The region has a goal to reduce vehicle miles traveled (VMT) per capita as a means to address multiple desired outcomes and goals for the transportation system. However, similarly to traffic congestion, VMT is an indicator of numerous other factors such as economic activity and risk of crashes. In general, VMT is expected to grow as the region anticipates seeing an additional estimated 573,000 people (35.6% increase), 260,000 households (40.8% increase), and 345,000 jobs (38.6% increase) in the region by 2040.

Draft RTP 10-Year Investment Strategy

Table 12. Aggregate Vehicle Miles Traveled (VMT) – Base Year (2015) compared with 10-Year RTP Investment Strategy

Base Year (2015) Region wide VMT	RTP Region wide VMT (2018-2027)	Difference in VMT (RTP – Base Year)	Percent Difference
21,441,274	25,579,276	4,138,002	19.3%
Base Year (2015) HMC VMT	**RTP HMC VMT (2018-2027)**	**Difference in VMT (RTP – HMC Base Year)**	**Percent Difference**
14,260,189	16,968,580	2,708,391	19.0%
Base Year (2015) FHMC VMT	**RTP FHMC VMT (2018-2027)**	**Difference in VMT (RTP – FHMC Base Year)**	**Percent Difference**
8,317,834	9,965,249	1,647,415	19.8%
Base Year (2015) POC VMT	**RTP POC VMT (2018-2027)**	**Difference in VMT (RTP – POC Base Year)**	**Percent Difference**
8,814,291	10,580,265	1,765,974	20.0%

What is observed with the draft 10-year 2027 Constrained investment strategy is that VMT is expected to grow region wide by 19.3%. There are several reasons for this anticipated growth in VMT. By 2027, the region is expected to grow an additional estimated 300,000 people (18.6% increase), 140,000 households (21.9% increase), and 175,000 jobs (19.6% increase). This growth would anticipate that overall that travel across all different modes (e.g. walking, bicycling, transit, and driving) would increase. A 19.3% increase in overall VMT relative to 18.6% increase in population and 19.6% increase in jobs seems to indicate the growing rate of vehicle-based trips for getting to work and other trip purposes are increasing, whether in length or in frequency. Despite this rate of vehicle growth, there is a somewhat positive trend; the anticipated growth in VMT is slightly lower in historically marginalized communities than the anticipated region wide growth of 19% and 19.3% respectively.

What this result indicates is the mix in transportation investments across different modes in historically marginalized communities is providing other transportation choices which is influencing the rate of growth in VMT. For the purposes of transportation safety, the less exposure to VMT is a way to address the potential for crashes since VMT is correlated with and one of many factors contributing to crashes on the transportation system.

Nonetheless, it is concerning that in areas with greater than the regional average of people of color and where there is a greater density of people of color, people in poverty, and in language isolation, the rate of VMT growth is outpacing the VMT growth of the region. While the difference in VMT relative to the region may be less than 1%, the anticipated increase in VMT exposure in these communities is concerning since marginalized communities in general experience a disproportionate number of crashes in their communities and a significant amount of the region's identified high injury corridors travel through these communities.

Draft 2040 Financially Constrained and 2040 Strategic Investment Strategies
Table 13. Aggregate Vehicle Miles Traveled (VMT) – 2040 No-Build compared with 2040 RTP Financially Constrained

2040 No Build Region wide VMT	Constrained RTP Region wide VMT (2018-2040)	Difference in VMT (RTP – No Build)	Percent Difference
29,963,906	29,198,802	-765,104	-2.6%
2040 No Build HMC VMT	**Constrained RTP HMC VMT (2018-2040)**	**Difference in VMT (RTP – HMC No Build)**	**Percent Difference**
19,869,637	19,316,297	-553,340	-2.8%
2040 No Build FHMC VMT	**Constrained RTP FHMC VMT (2018-2040)**	**Difference in VMT (RTP – FHMC No Build)**	**Percent Difference**
11,661,297	11,356,738	-304,558	-2.6%
2040 No Build POC VMT	**Constrained RTP POC VMT (2018-2040)**	**Difference in VMT (RTP – POC No Build)**	**Percent Difference**
12,387,947	12,047,468	-340,479	-2.7%

Table 14. Aggregate Vehicle Miles Traveled (VMT) – 2040 No-Build compared with 2040 RTP Financially Constrained

2040 No Build Region wide VMT	2040 Strategic RTP Region wide VMT	Difference in VMT (RTP – No Build)	Percent Difference
29,963,906	28,949,905	-1,014,001	-3.4%
2040 No Build HMC VMT	**2040 Strategic RTP HMC VMT**	**Difference in VMT (RTP – HMC No Build)**	**Percent Difference**
19,869,637	19,145,298	-724,339	-3.6%
2040 No Build FHMC VMT	**2040 Strategic RTP FHMC VMT**	**Difference in VMT (RTP – FHMC No Build)**	**Percent Difference**
11,661,297	11,232,549	-428,747	-3.7%
2040 No Build POC VMT	**2040 Strategic RTP POC VMT**	**Difference in VMT (RTP – POC No Build)**	**Percent Difference**
12,387,947	11,912,851	-475,095	-3.8%

While the draft 10-year 2027 Constrained investment strategy anticipates seeing an overall increase in VMT region wide and in certain historically marginalized communities, what the draft 2040 financially constrained and draft 2040 strategic investment strategies show that overall VMT is anticipated to decrease with the implementation of a full set of transportation investments. Additionally, historically marginalized communities, communities of color, and areas where there is a greater density of historically marginalized communities see the same rate or greater VMT

reduction. Albeit the reduction of VMT in historically marginalized communities relative to the region tends to stay within 1%, this result shows the trend and direction for getting to the transportation safety outcomes historically marginalized communities desire to see. But the exposure to VMT will likely be experienced as incremental or unchanged by these communities.

The VMT results also indicate the draft 2040 financially constrained and draft 2040 strategic investment strategies are having an overall impact to reducing vehicle miles traveled despite population and job growth. By looking at the performance of the draft 2040 financially constrained and draft 2040 strategic investment strategies relative to the 2040 No Build, the results show when growth have been controlled for, anticipated VMT decreases with further investment and contributing to travel behavior changes.[12]

The draft 2040 financially constrained and draft 2040 strategic investment strategies do represent a greater investment in transit and active transportation, which by providing other viable transportation options for different types of travel trips, VMT is being reduced. For the purposes of transportation safety, this means the draft RTP investment strategy is reducing one of the correlated factors contributing to crashes and therefore working to increase safety outcomes. More specifically for historically marginalized communities, the greater reduction in VMT from the region, once controlled for population growth, suggests safety outcomes to be further realized in these historically marginalized communities.

Key Observations and Thoughts
There is recognition exposure to absolute VMT (i.e. # of VMT) will increase regardless of investment in the transportation system due to projections in economic activity and population growth. The increase in absolute VMT means that all communities will experience a higher exposure to VMT and ultimately have some increased risk of exposure to crashes. There is also recognition the growth in VMT experienced will differ throughout the region, including between different historically marginalized communities.

For example, some of the region's focused historically marginalized communities have been identified because of the presence of significant language isolation. These areas tend to be on the underdeveloped edges of the region. The absolute VMT in these underdeveloped areas compared to historically marginalized communities closer in to central Portland may look significantly different due to travel options once controlling for size and growth.

Many different factors may help explain the increase in VMT in focused historically marginalized communities and communities of color the draft 10-year 2027 financially constrained investment strategy. A significant portion of the funding in the draft 10-year investment strategy is committed toward four major megaprojects, which limits the amount of local investment into the region's transportation system to address travel demands and needs.

Additionally, because the draft 10-year investment strategy results are uncontrolled for the impacts of population and employment growth, being able to speak towards the impact of the 10-year strategy is limited since there is not a 10-year no-build scenario which would show the anticipated growth in VMT solely based on population growth.

Nonetheless, the rate of growth in areas where there is a greater density of marginalized communities, language isolated communities, and communities of color is outpacing the region,

[12] The No-Build represents a future scenario if there were no further capital investment in the region's transportation system beyond those transportation projects which are fully funded.

meaning there is increased exposure and risk of crashes for these communities. Additional attention and monitoring may be warranted because marginalized communities in general experience a disproportionate number of crashes in their communities and a significant amount of the region's identified high injury corridors travel through these communities.

Habitat Impact

Evaluation Measure Summary
To look at the number of roadway projects which overlap with high value habitat areas region wide and in historically marginalized communities (in aggregate), and understand if the 2018 RTP investment strategies are potentially impacting high value habitats at a greater rate in historically marginalized communities.

Preliminary Findings

- All three draft RTP investment strategies increase the number of roadway investments which overlap or intersect high value habitats at a greater rate in historically marginalized communities, focused historically marginalized communities, and communities of color at a greater rate than the region.
- This means there is a greater rate of high value habitat with a risk of a potential impact in historically marginalized communities.
- Because the environmental impacts are determined during the project development and design of the project, the known impact and potential options to avoid, minimize, and mitigate are not yet determined.
- As a result, there is a potential disproportionate impact which will require monitoring the implementation of the transportation investments overlapping high value habitats in historically marginalized communities.

Table 15. 2018 RTP Investments Intersecting High Value Habitats and Historically Marginalized Communities & Focused Historically Marginalized Communities[13]

	High Value Habitat (HVH) Units		10-Year Strategy Intersect (2018-2027)		2018 RTP Constrained Intersect (2018-2040)		2018 RTP Strategic (2018-2040)	
	Total	**%**	**Total**	**%**	**Total**	**%**	**Total**	**%**
Region wide	14452	100%	1278	9%	2016	14%	2844	20%
Historically Marginalized Communities (HMC)	8882	61%	955	11%	1433	16%	2021	23%
Focused HMCs	4241	29%	564	13%	829	20%	1108	26%
People of Color	2480	17%	349	14%	578	23%	773	31%

Discussion

Overall, the draft RTP investment strategies intersect with high value habitats in areas where there are historically marginalized, focused historically marginalized communities, and communities of color at a greater rate than the region. The habitat analysis results illustrate typically historically marginalized communities, focused historically marginalized communities, and communities of color see a higher potential of nearby high value habitat areas impacted by the region's proposed transportation investments.

[13] Indicates 2018 RTP which detailed spatial information was provided.

Key Thoughts and Observations
The results of the habitat analysis are not surprising. Because the region wide rate of high value habitats potentially impacted by the region's transportation investment strategy includes a number of the high value habitats in protected areas and/or natural areas (e.g. Forest Park, Cooper Mountain) where transportation-related development is limited or prohibited, the number of overall high value habitat units potentially impacted is unlikely to rise at a greater rate when looking at potential impact to high value habitats within historically marginalized communities generally. This is because the general pattern of historically marginalized communities being in urban areas and more transportation infrastructure proposed in the urban area for the investment strategy.

Nonetheless, high value habitats in urban areas, particularly in historically marginalized communities, remain critically important to monitor and work to ensure these areas remain as intact as possible because of the functions high value habitats serve. Additionally, for historically marginalized communities, the role of impacts to natural and environmental features is particularly acute because of the historical pattern of transportation infrastructure and public investments destroying historically marginalized communities and surrounding resources.

While the potential impact to the high value habitat is greater in these communities, many of the projects have not underwent project planning, design, and the environmental analysis process to determine what those impacts to the high value habitats may be and determine the best course of action for the project (i.e. develop a design which avoids the impact or implement mitigation strategies in tandem). Jurisdictional partners will be required to undergo this process if they seek federal funding or need any form of federal approval to implement the project. Recognizing this step in transportation project development, Metro recommends undertaking a monitoring strategy for these projects, notifying the jurisdictions to be aware of this potential disproportionate impact, and also conducting further programmatic assessment to help identify those projects with the greater potential for high value habitat impact.

2018 RTP Transportation Equity Evaluation – Preliminary Findings and Discussion Questions
The results of the 2018 RTP transportation equity evaluation demonstrate the region's long-range transportation investment strategies tend to perform in mixed way in advancing accessibility, safety, and environmental outcomes expressed by historically marginalized communities. The transportation equity results also raise the significant interconnectivity of broad transportation issues such as traffic congestion and increases in vehicle miles traveled, will pose on the region and impact in different ways. In addition, undertaking the analysis with different investment strategies uncovered new methodology issues which were not observed during the beta testing period with the 2018-2021 MTIP. Metro staff has developed the following preliminary findings, but seeks feedback in shaping the findings.

Preliminary 2018 RTP Transportation Equity Analysis Findings

- There is not a disproportionate impact in the share of safety projects and per capita level of investment in safety in historically marginalized communities compared to the region.
- There is a potential disproportionate impact to high value habitats in historically marginalized communities which need further monitoring.
- Population and employment growth will lead to further congestion which will impact accessibility by transit for historically marginalized communities.
- Increased vehicle miles traveled will pose safety-related risk which need to be monitored.

- More of the region's active transportation network is getting completed and becoming more connected, but the draft 10-year investment strategy is conservative in active transportation investment relative to the draft 2040 financially constrained strategy.

Technical Findings and Discovery

- A no-build scenario for the interim analysis year (2027) may be needed to better look at the draft 10-year investment strategy and understand the implications of the investments slated in the first ten years of the 2018 RTP.
- Time-based accessibility measures for bicycling and walking may not be the most appropriate active transportation accessibility measure based on the existing tools available. Within the existing tool, a refined measure may look at the additional trips being made on higher quality active transportation facilities from historically marginalized communities.
- The evaluation measures are limited by the data and information provided by partners in the RTP call-for-projects. As a result, certain transportation equity evaluation measures are not fully representative of the performance of the investment strategy.

Based on the analysis of the 2018 RTP investments and the results of the transportation equity system evaluation measures, the following discussion questions are being asked for discussion:

1. Based on results of transportation equity analysis, what are your reactions to the preliminary staff findings?
2. The transportation equity analysis represents what outcomes we'd anticipate seeing if the entire investment program identified for each scenario gets implemented. Knowing this, do the results seem to ring true to your experiences? Are there concerns which are not being reflected in the results?
3. What are key messages that should be expressed as part of the findings from the transportation equity system evaluation?
4. When the historically marginalized communities are seeing results which are at pace with the region, is there still a disproportionate impact?
    - Is the same rate as the region fair in advancing accessibility, safety, and environmental outcomes for historically marginalized communities?
5. When historically marginalized communities are seeing results with slight, but increased gains, is there still a disproportionate impact?
    - Is a slightly greater rate compared to the region fair in advancing accessibility, safety, and environmental outcomes for historically marginalized communities?
6. What recommendations do you have for the transportation equity system evaluation? More specifically, what would you like to see different with the investment strategies to better advance the four outcomes identified by historically marginalized communities?

Next Steps

Metro staff will report feedback from the work group in shaping the discussion and findings of the 2018 RTP transportation equity evaluation as part of the presentation to MTAC and TPAC and other technical work groups in December for discussion. The equity work group will meet in January 2018 to provide final feedback to staff on the draft results, findings, and recommendations for the 2018 RTP transportation equity evaluation. Work group recommendations and findings directed towards refinements of the investment scenarios will be discussed with partners and regional technical and policy advisory committees in early 2018. Refinements are expected to be reflected in the RTP investment strategy and a second round of a system performance assessment which will be included public comment draft. The public comment draft is expected to be released in summer 2018.

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Appendix I – 2018 RTP Transportation Equity Evaluation – Evaluation Methods Background, Tools, and Assumptions

2018 RTP Transportation Equity Evaluation Methods

The 2018 RTP transportation equity evaluation is an equity-focused scenario planning analysis looking at base-year conditions and comparing to future-year conditions, which are based on a proposed package of transportation investments. In performing a scenario analysis, the core methodological components to the 2018 RTP transportation equity evaluation are:

1. Community definitions
2. System evaluation metrics
3. Evaluation tools
4. Evaluation inputs and scenarios

The following section discusses the definitions, data, and assumptions for each of the core components of the 2018 RTP transportation equity evaluation.

Community Definitions

Communities included as part of the 2018 RTP transportation equity evaluation include:

- People of Color
- People with Lower-Incomes
- People with Limited English Proficiency
- Older Adults
- Young Persons

The identification of the five communities came from stakeholders desire to see communities which have historically experienced challenges with the transportation system. Additionally, certain communities were identified as demographic groups to address in transportation planning as part of federal civil rights and environmental justice regulations. Demographic data is supplied by the U.S. Census Bureau to help identify communities and general spatial distribution. The regional rate for the individual historically marginalized community (with the exception for age) serves as the threshold for determining the locations of historically marginalized communities. For older adults and younger people, the regional rate must be realized for both communities as the spatial distribution. If just based on the regional rate, younger people and older adults would illustrate patterns where every area in the region would be considered a historically marginalized community.

Historically Marginalized Communities

Community	Definition	Geography Threshold	Date Source
People of Color	Persons who identify as non-white.	Census tracts above the regional rate (26.5%) for people of color.	2010 Decennial Census
Low-Income	Households with incomes equal to or less than 200% of the Federal Poverty Level (2016); adjusted for household size	Census tracts above the regional rate (31.1%) for Household with Lower-Income	American Community Survey, 2011-2015
Limited English Proficiency	Persons who identify as unable "to speak English very well."	Census tracts above the regional rate (8.5%) for Limited English Proficiency (all languages	Oregon Education Department

Community	Definition	Geography Threshold	Date Source
		combined).	School Enrollment Data (LEP only)
Older Adults	Persons 65 years of age and older	Census tracts above the regional rate for Older Adults (11%) AND Young People (22.8%)	2010 Decennial Census
Young People	Persons 17 years of age and younger		

By request of stakeholders and recently adopted Metro agency-wide direction to advance racial equity, a more focused look at the transportation investments is being made in areas in which there are high concentrations of historically marginalized communities, namely those communities identified through civil rights and environmental justice legislation. As a result a population density threshold was applied to define geographic areas with high concentrations of People of Color, Low-Income, and Limited English Proficiency. This request recognizes the wish of stakeholders that with limited amounts of investment, in what areas can the greatest concentration of historically marginalized communities be reached. There was also a request to assess small pockets of concentrated language isolation. Therefore, identified areas of safe harbor communities were also included as part of the focused look.

Additionally, through agency-wide direction a focused look of the analysis will look solely at areas with greater than the regional rate of communities of color. This is to help inform and understand how the outcomes of a programmatic package of transportation investments serve communities of color.

Focused Historically Marginalized Communities

Community	Geographic Threshold
People of Color	The census tracts which are above the regional rate for people of color AND the census tract has twice (2x) the population density of the regional average (regional average is .48 person per acre).
Low-Income	The census tracts which are above the regional rate for low-income households AND the census tract has twice (2x) the population density of the regional average (regional average is .58 person per acre).
Limited English Proficiency	The census tracts which are above the regional rate for low-income households AND the census tract has twice (2x) the population density of the regional average (regional average is .15 person per acre) OR those census tracts which have been identified as "safe harbor" tracts for language isolation.[1]

[1] Safe Harbor is a provision within Title VI of the Civil Rights Act of 1964 which addresses for when and how agencies are to provide language assistance to limited English proficiency persons to ensure access to all public resources. The safe harbor provision mainly addresses translation of documents and language assistance, however for analysis purposes; it may help to identify areas where additional attention is warranted because of a concentration of language isolation. Safe harbor applies when a language isolated group constitutes 5% or 1,000 persons of the total population in the given area.

Appendix I – 2018 RTP Transportation Equity Evaluation – Evaluation Methods Background, Tools, and Assumptions

The transportation equity analysis will run the assessment using three tiers to address the desire to capture where there are higher rates of historically marginalized communities and where there is a concentration and/or pockets of historically marginalized communities.[2] The tiers are described below.

Tier I Analysis – Historically Marginalized Communities
The transportation equity evaluation used the regional rate as the first assessment to look at how well the 2018 RTP investments perform on priority outcomes identified by historically marginalized communities.

Tier II Analysis – Focused Historically Marginalized Communities
The transportation equity evaluation conducted a secondary assessment using a subset of historically marginalized communities, namely people of color, people with lower-incomes, and people with limited English proficiency, and look at how well the 2018 RTP investments perform on priority outcomes identified by historically marginalized communities in areas with the greatest concentration.

Tier III Analysis – Communities of Color
In recognition of Metro's recently adopted agency-wide direction to advance racial equity, the transportation equity evaluation conducted tertiary assessment using the regional rate for people of color and looking at how well the 2018 RTP investments perform on priority outcomes for communities of color.

See attached maps to visualize historically marginalized communities, focused historically marginalized communities, and communities of color.

<u>Transportation Equity System Evaluation Measures</u>
In following a best practice to have historically marginalized communities lead the assessment, the system evaluation measures for the transportation equity evaluation reflect the priorities historically marginalized communities identified to see from the region's transportation system. The common themes identified by historically marginalized communities include: increased access, affordability, safety, and public health.[3] These themes translated into the following system evaluation measures (in no particular order):

- Access to travel options – system connectivity & completeness
- Access to jobs
- Access to community places
- Habitat impact
- Share of safety projects
- Exposure to crash risk
- Affordability[4]
- Clean air[5]

[2] A third assessment tier has been added to the transportation equity assessment which focuses on race and ethnicity as a means of looking at how the RTP investment packages perform for communities of color. The third assessment tier has been added by advisement from the transportation equity work group and through direction from Metro's *Strategic Plan to Advance Racial Equity, Diversity, and Inclusion*.
[3] More information about the process undertaken to gather input from historically marginalized communities to identify the system evaluation measures can be found at: http://www.oregonmetro.gov/public-projects/2018-regional-transportation-plan/equity
[4] The methodology for the affordability measure is being deferred to be built by the 2022 RTP. Some initial prototyping of this measure is currently under way.

These were identified as the priority transportation issues by historically marginalized communities.[6] As a result, the system evaluation took a closer look to see how well these transportation investments perform relative to these priority transportation issues in areas where there is a residential presence of historically marginalized communities. The results compare the base-year conditions to the future-year conditions for the region and for historically marginalized communities to see if there are disproportionate results. Individual methodology sheets, which outline criteria and other factors for each system evaluation measure can be found as part of the appendix.

Transportation Equity Assessment Inputs and Scenarios

The transportation equity evaluation includes those projects/investments which effect the regional transportation system and may seek federal or state funding in the future. The projects/investments are those which were identified through the 2018 RTP call-for-projects which took place from June 1 – July 21, 2017. Local jurisdictions as well as TriMet, ODOT, Port of Portland, and other regional and state partners submitted transportation investment priorities to comprise of the investment strategy. Each nominated transportation investment priority had to identify key pieces of information, such as costs, when the project planned to be open for service, whether the project wants to be considered for the financially constrained project list, a detailed project description, and other details. The information provided helped to shape the different scenarios for evaluation. There were three scenarios which were evaluated: 1) a RTP 10-year investment strategy; 2) a 2040 RTP financially constrained investment strategy; and 3) a 2040 RTP strategic investment strategy. The list of 2018 RTP investments assessed in the transportation equity evaluation and in each scenario can be found online with the 2018 RTP interactive project list tool. www.oregonmetro.gov/2018projects

As part of the assessment, information provided by the nominating agency helped in identifying which transportation equity system evaluation measure would be applicable for each/individual investment priority. For example, in nominating investment priorities, local jurisdictions had to identify whether the priority met the criteria and definition of a safety project to be applicable for the share of safety projects evaluation measure. In addition each project/investment was reviewed to confirm and determine which transportation equity system evaluation measure would be applicable. The list of 2018 RTP investments, found in Appendix II illustrates which investments were applied to the different transportation equity system evaluation measures.[7]

As anticipated with the 2018 RTP system evaluation, there are a suite of transportation investments identified within the 2018 RTP which were unable to be assessed as part of the transportation equity evaluation. For many of these projects, the programmatic nature prevented being able to capture the investment the travel demand model or not enough spatial detail was available. For example, listed within the 2018 RTP are bus purchase and replacement programs and demand management programs. These programs are not represented in the travel demand model and spatial detail is unavailable since the deployment of buses travel all over the transit system and demand management programs are untaken throughout the network. Additionally, the travel demand model does not capture a number of tools used for system management and operations,

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[5] The methodology for the clean air measure is being deferred to be built by the 2022 RTP. At this time, the emissions model will report out region-wide results, but will not be able to report out localized air quality results.

[6] Reflects the priority issues within the limits the 2018 RTP system evaluation can analyze. Other transportation priorities were raised which included displacement and racial profiling in enforcement, which cannot be addressed through the system evaluation, but acknowledged in the assessment findings.

[7] Appendix II forthcoming.

including variable message signs, rapid flashing beacons, or communications architecture. These projects are also identified in Appendix II.[8]

Summary of Tools

Scenario planning requires the use of tools which are able to anticipate what behaviors or effects may occur with investments or policy decisions in the future. As part of Metro's metropolitan planning organization (MPO) function, the Data and Research department has developed a suite of tools to perform the 2018 RTP transportation equity evaluation to analyze future conditions once a certain suite of transportation investments are put into place. The following are brief descriptions of the scenario planning tools.

Metroscope

Metroscope is a suite of decision support tools used to model changes in measures of economic, demographic, land use and transportation activity within the Portland metropolitan area. Three of the tools relevant to the 2018 RTP transportation equity evaluation are:

- The economic model predicts employment by type of industry and the number of households by demographic category.
- The residential real estate location model predicts the locations of households.
- The non-residential real estate location model predicts the locations of employment. Both real estate models measure the amount of land consumed by development, the amount of built space produced and prices of land and built space by zone in each time period.

The Metroscope tool is being used to look at changes in access to employment areas and
In 2016, the region adopted a new land use, population, and employment forecast. The 2016 adopted forecast serves as an input into the economic and real estate (residential and non-residential) models to inform the 2018 RTP transportation equity evaluation.

Travel Demand Model

The travel model predicts travel activity levels by mode (bus, rail, car, walk or bike) and road segment, and it estimates travel times between transportation analysis zones (TAZ) by time of day. The travel demand model also produces a measure of the cost perceived by travelers in getting from any one TAZ to any other. For the 2018 RTP transportation equity evaluation, the transportation investments were organized into four different travel modeled networks, which essentially continued to build on each other. These include: 1) the 2015 base-year, which includes those project which have been built and open for service as of 2015; 2) the 10-year investment strategy, which includes those projects which are anticipated to be built and open for service between 2017 – 2027; 3) the financially constrained plan, which includes those projects to be built and open for service by 2040; and 4) the strategic, which includes those projects that were not included in the financially constrained RTP, but are projects which address all transportation deficiencies and needs regardless of potential revenue to fund the capital improvement. The four identified travel model networks were assessed to represent future conditions.[9]

[8] See footnote 20.

[9] Due to the nature of how the travel demand model operates, certain types of transportation investments cannot be reflected in the travel demand model tool. Some examples include roadway maintenance investments (e.g. repaving) and operations and system management (e.g. variable message signs, variable speed control, signal timing). Transportation investments which have macro-level effects to travel behavior (i.e. widening a roadway, adding a separated or protected bicycling facility, or increasing transit service) are those which the travel demand model can assess. Other "off-model" methods, namely geographic information systems (GIS), are used to assess the transportation investments which are unable to be captured as part of the model assessment.

Geographic Information Systems (GIS)

Geographic Information Systems (GIS) uses spatial data to determine relationships between different data elements and map data. For the 2018 RTP transportation equity evaluation, the transportation investments are mapped to assess the spatial relationships between historically marginalized communities. In particular, access to a connected transportation system and safety considerations are being assessed through GIS.

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

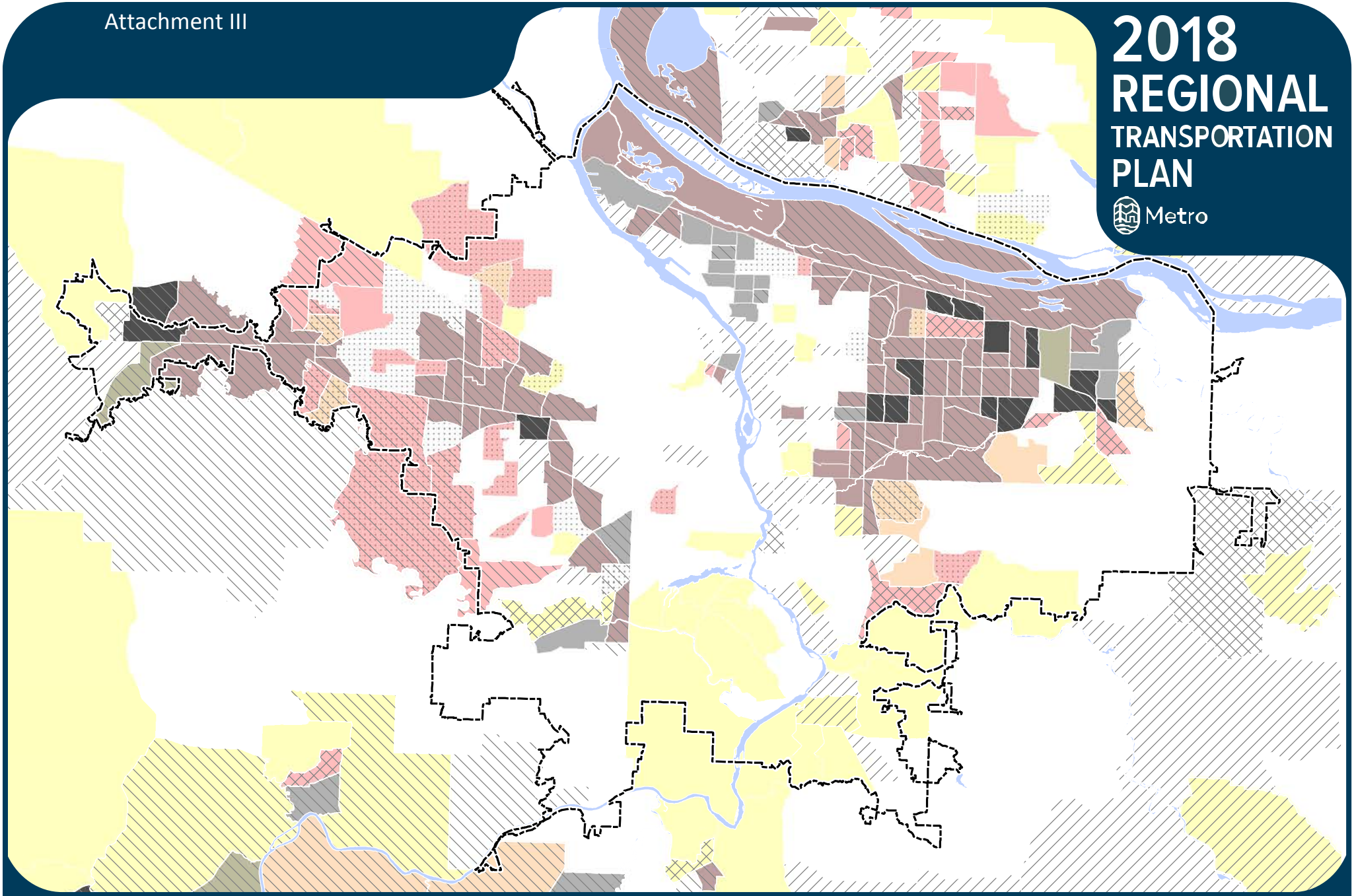
Attachment II – 2018 RTP Project List and Transportation Equity System Evaluation Crosswalk

Available electronically by request

Attachment III

2018 REGIONAL TRANSPORTATION PLAN

Metro



Historically Marginalized Communities

- > 5% or 1000 Single-language Isolation
- < 200% Poverty, not POC
- POC, not < 200% Poverty
- POC and < 200% Poverty
- LEP
- POC, <200% Poverty, and LEP
- < 18 and > 65 Years of Age
- < 18, > 65, and LEP
- < 18, > 65, < 200% Poverty, and POC
- All 5 Categories
- MPA boundary
- Rivers and water bodies

Limited English Proficiency (LEP) and Poverty Data Source: American Community Survey 2011-2015 5-Yr. Average

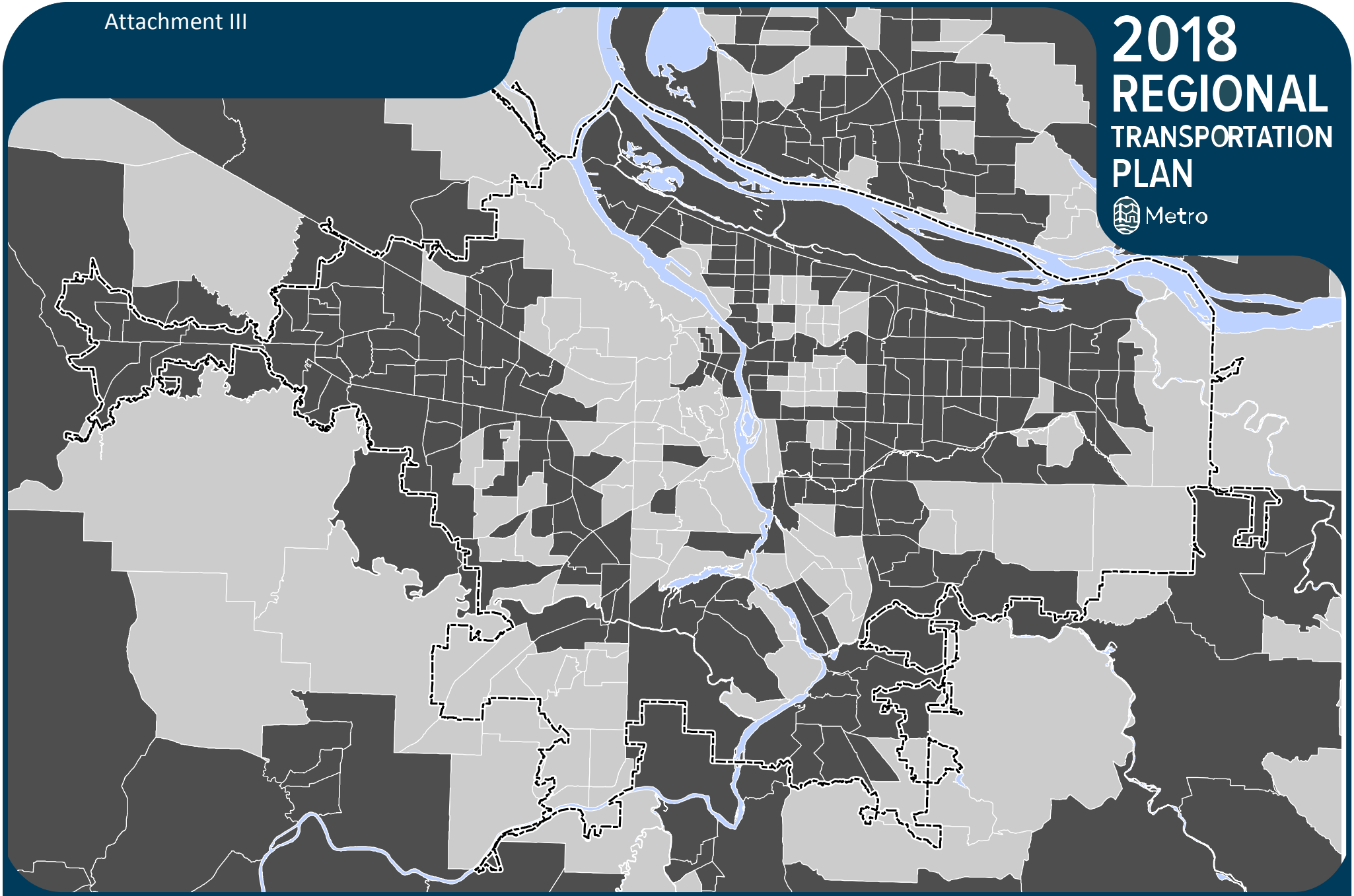
Age and People of Color (POC) Data Source: Census 2010

Map Publication: 4/21/2017

Attachment III

2018 REGIONAL TRANSPORTATION PLAN

Metro



Historically Marginalized Communities

Not included in HMC

Included in HMC

MPA boundary

Rivers and water bodies

A historically marginalized community (HMC) is defined as exceeding regional rates for low income, people of color or limited English proficiency (LEP), or exceeding regional rates for under 18 or over 65 years of age.

Limited English Proficiency (LEP) and Poverty Data Source: American Community Survey 2011-2015 5-Yr. Average

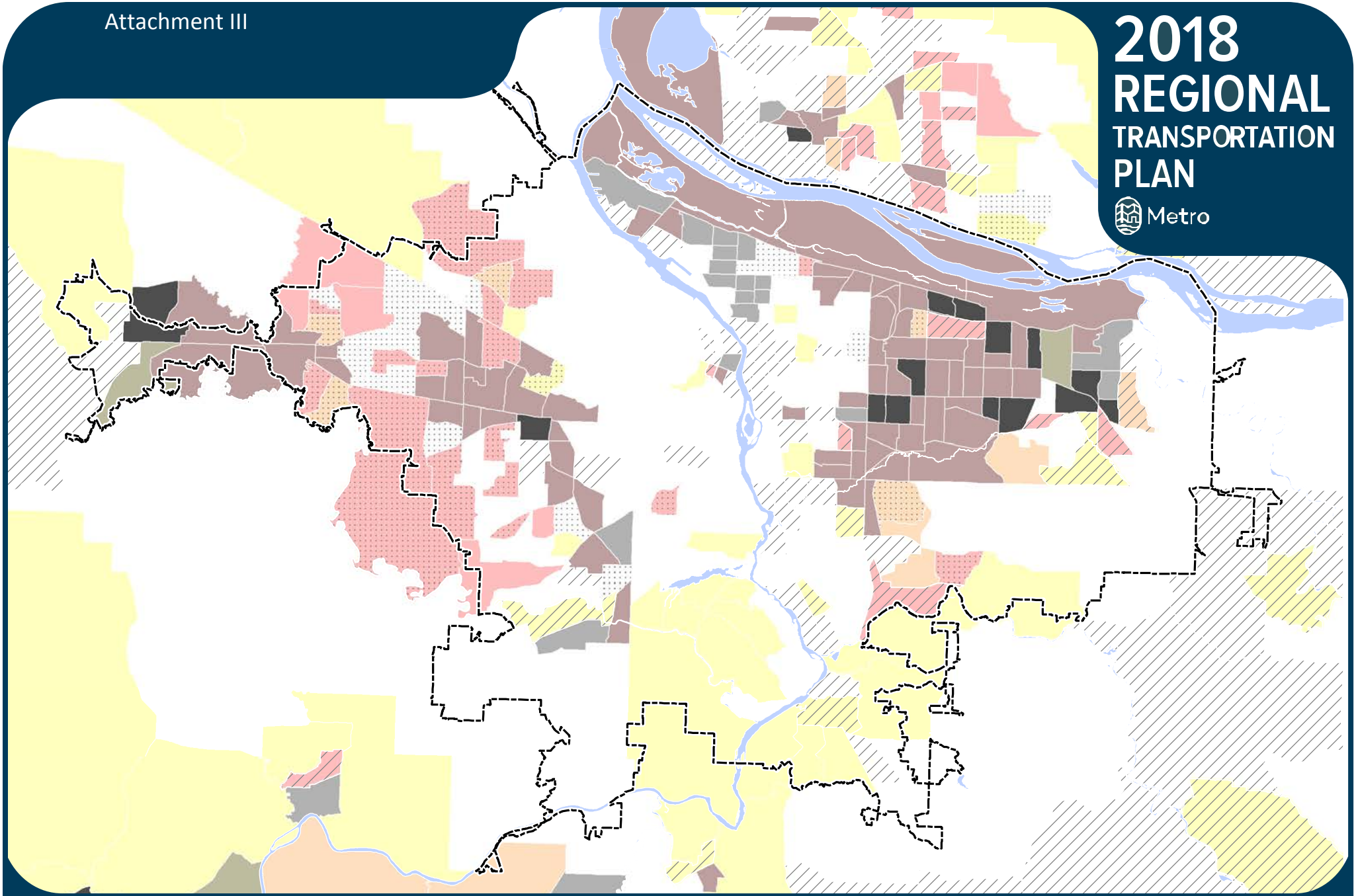
Age and People of Color (POC) Data Source: Census 2010

Map Publication: 4/21/2017

Attachment III

2018 REGIONAL TRANSPORTATION PLAN

Metro



Historically Marginalized Communities above Regional Rates

- < 200% Poverty, not POC
- POC, not < 200% Poverty
- POC and < 200% Poverty
- LEP
- POC, <200% Poverty, and LEP
- < 18 and > 65 Years of Age
- < 18, > 65, and LEP
- < 18, > 65, < 200% Poverty, and POC
- All 5 Categories
- MPA boundary
- Rivers and water bodies

Limited English Proficiency (LEP) and Poverty Data Source: American Community Survey 2011-2015 5-Yr. Average

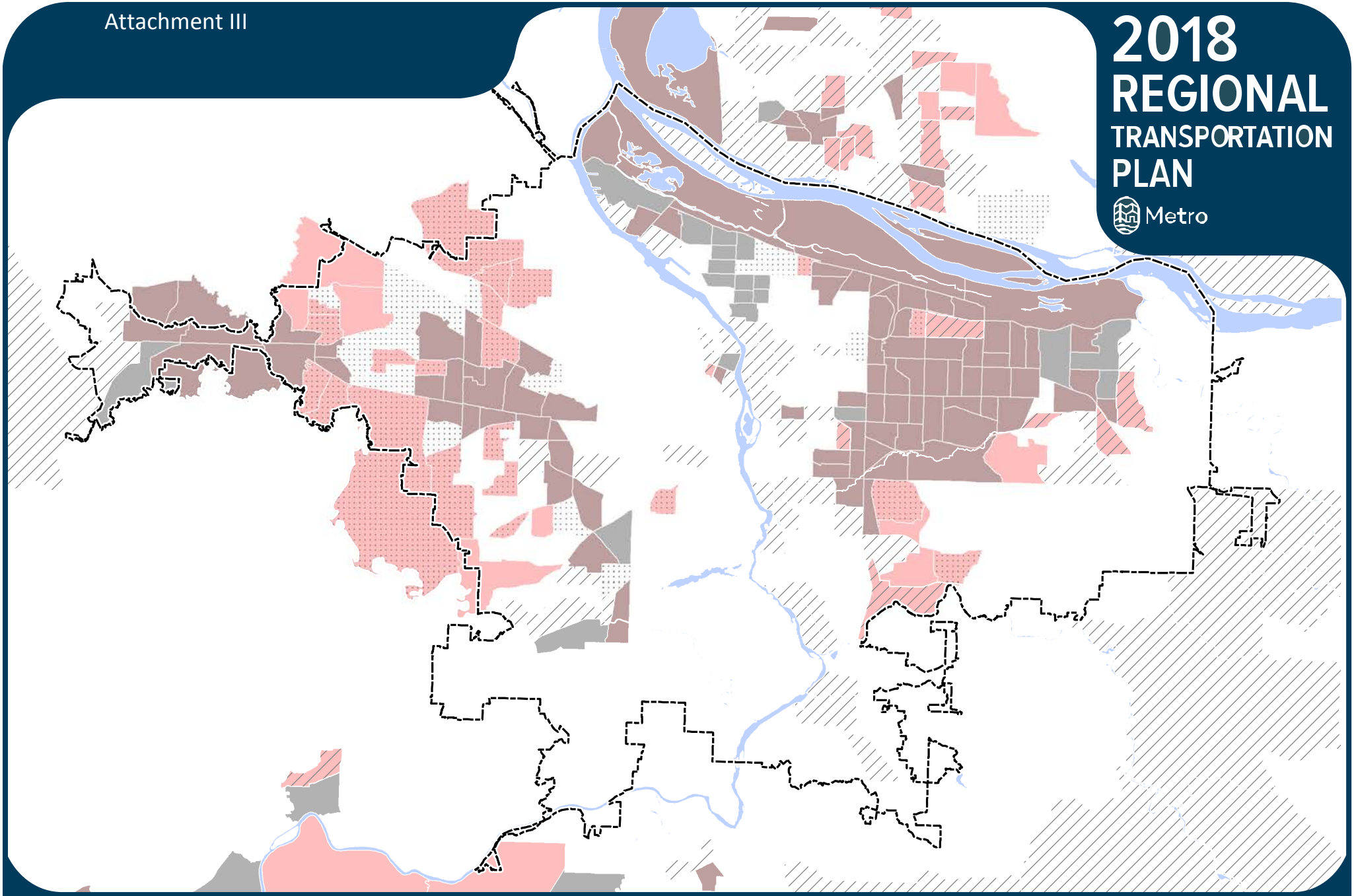
Age and People of Color (POC) Data Source: Census 2010

Map Publication: 4/20/2017

Attachment III

2018 REGIONAL TRANSPORTATION PLAN

Metro



Historically Marginalized Communities Assessed for Access to Jobs

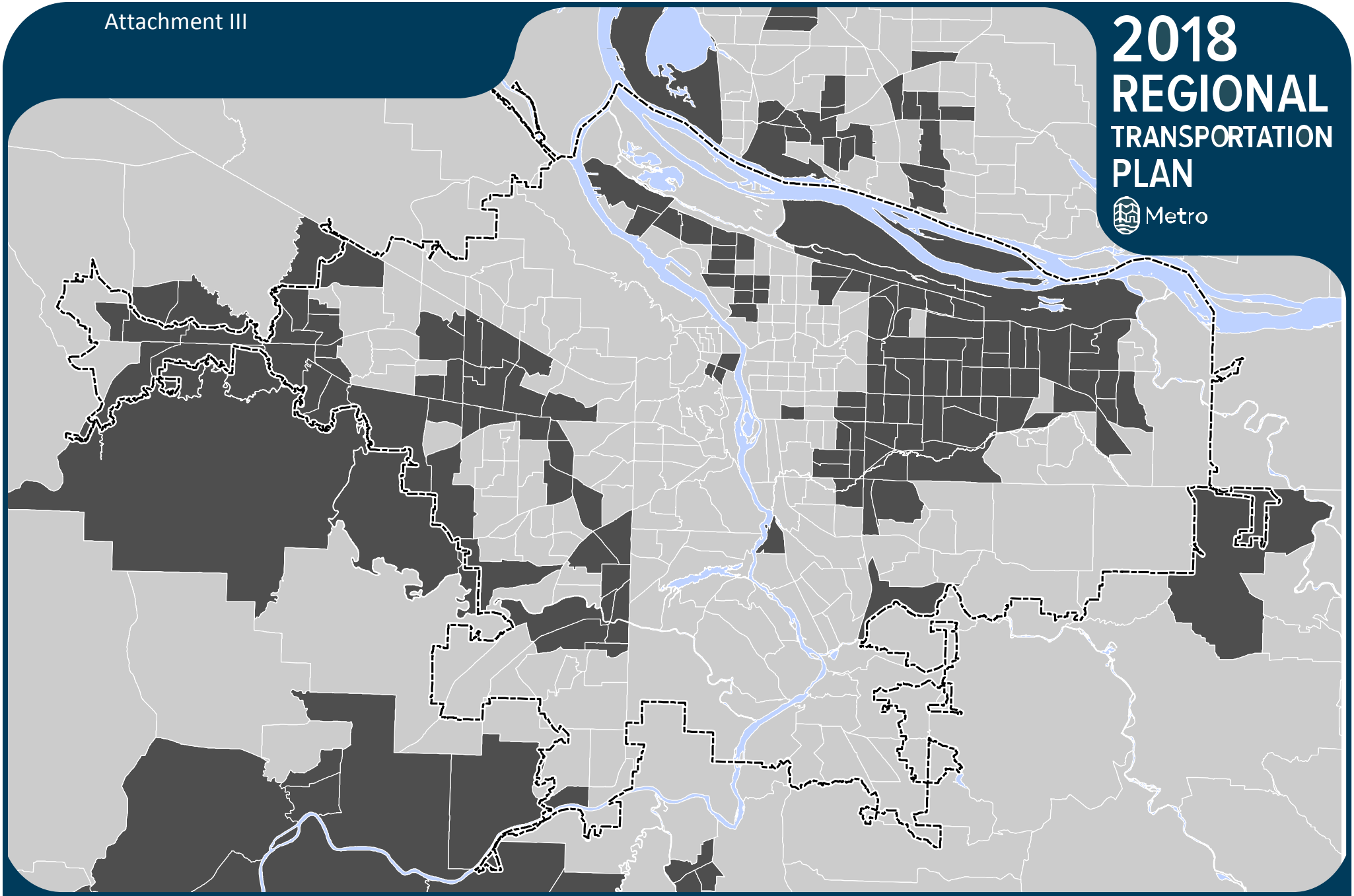
- < 200% Poverty, not POC
- POC, not < 200% Poverty
- POC and < 200% Poverty
- LEP
- POC, <200% Poverty, and LEP
- MPA boundary
- Rivers and water bodies

Limited English Proficiency (LEP) and Poverty
Data Source: American Community Survey
2011-2015 5-Yr. Average
People of Color (POC) Data Source:
Census 2010
Map Publication: 4/20/2017

Attachment III

2018 REGIONAL TRANSPORTATION PLAN

Metro



Focused Historically Marginalized Communities

Not included in FHMC

Included in FHMC

MPA boundary

Rivers and water bodies

A focused historically marginalized community (FHMC) is defined as exceeding regional rates for low income, and exceeding regional rates for people of color or limited English proficiency (LEP), as well as exceeding regional density rates for each variable. An additional federal safe harbor screen is applied in order to include areas with at least 5% or 1000 LEP persons for individual languages.

Limited English Proficiency (LEP) and Poverty Data Source: American Community Survey 2011-2015 5-Yr. Average

Age and People of Color (POC) Data Source: Census 2010

Map Publication: 4/21/2017

Materials following this page were distributed at the meeting.

2018 Regional Transportation Plan

MTAC | 12/6/17

First Look at Results

Presentation overview

1 | Project overview and timeline

2 | How much do people and goods travel?

3 | How efficient is travel?

4 | 2018 Transportation equity evaluation background and initial findings

5 | How safe is travel?

6 | How accessible are travel options, jobs and community places?

7 | How will transportation impact natural resources?

8 | How will transportation impact climate change and air quality?

9 | Information to come

Regional Transportation Plan

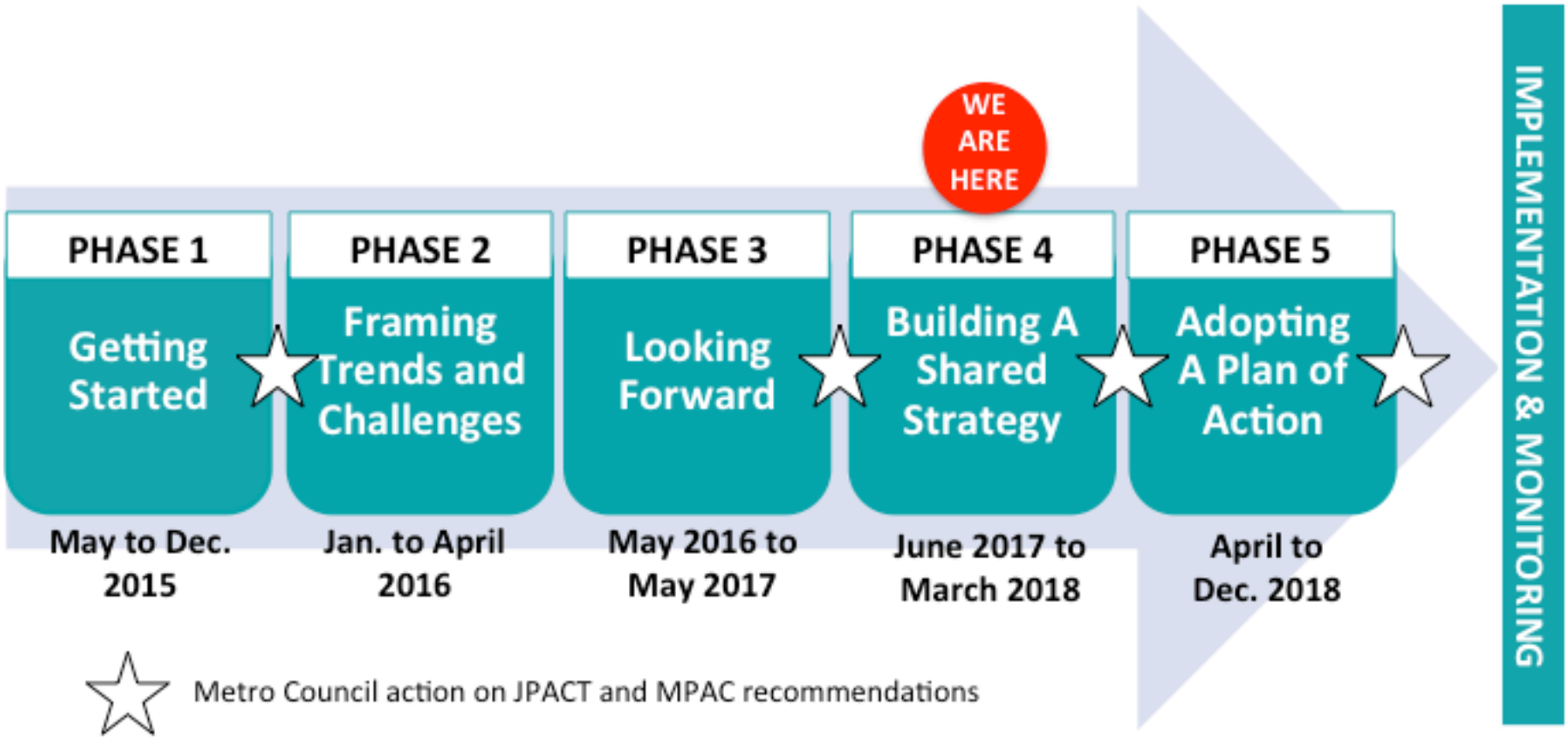
Metro

Sets the course for moving the region safely, reliably and affordably for decades to come

Establishes priorities for federal, state and regional funding

Required at least every 4 years

RTP timeline



2040 Growth Concept is our foundation

2014 REGIONAL
ACTIVE
TRANSPORTATION PLAN

The Future of TRANSIT
TriMet service plans

2040 Growth Concept
Adopted in 1995

Regional
Transportation Plan
Adopted July 17, 2014
www.oregonmetro.gov/rtp
2014

Climate Smart Strategy
for the Portland metropolitan region
oregonmetro.gov/climatestrategy
2014

Adopted State and local plans

Challenges to our economic prosperity and quality of life

Metro

- Aging infrastructure
- Growing congestion, less reliability for people and freight
- Fatal and serious injury crashes
- Earthquake vulnerability
- Social inequity and disparities
- Gaps in transit, biking and walking connections
- Housing and transportation affordability and displacement
- Climate change and air quality
- Emerging technologies



2018 RTP Quick Poll Surveys (2015 and 2016), Regional Snapshots on Transportation (2016-17), technical work groups and regional advisory committee discussions (2016-17) and Regional Leadership Forums 1, 2 and 3 (2016)

Adopted RTP policy goals

WHAT WE WANT TO ACHIEVE
Vibrant communities
Economic prosperity
Transportation choices
Travel efficiency
Safety and security
Environmental stewardship
Public health
Climate leadership

HOW WE GET THERE
Equity
Fiscal stewardship
Accountability

RTP Goals (first adopted in 2010, amended in 2014, and put forward for 2018)

Draft phasing of RTP projects

*% cost = share of costs for all projects in that RTP investment category

Costs have been rounded in 2016 dollars

RTP Investment Category	Draft 2018-2027 Financially Constrained RTP Projects			Draft 2028-2040 Financially Constrained RTP Projects			Draft 2028-2040 Strategic RTP Projects		
	Cost	Count	% cost*	Cost	Count	% cost*	Cost	Count	% cost*
Active transportation	$674M	133	25%	$875M	160	32%	$1.2B	101	43%
Transit capital	$3.4B	30	50%	$1.9B	17	28%	$1.5B	26	22%
Roads & bridges	$1.3B	149	27%	$1.5B	160	32%	$1.9B	123	41%
Throughways	$650M	14	11%	$4B	10	65%	$1.5B	14	24%
TSMO/TDM/TOD	$177M	27	29%	$182M	23	29%	$257M	17	42%
Freight access	$132M	20	28%	$94M	16	20%	$249M	12	52%
Other-planning	$5M	1	9%	$10M	2	19%	$38M	2	71%
All RTP projects	$6.3B	374	29%	$8.5B	388	40%	$6.6B	295	31%

Advancing how we measure outcomes to inform priorities

Metro

New and existing measures assess how draft investment strategy aligns with RTP goals:

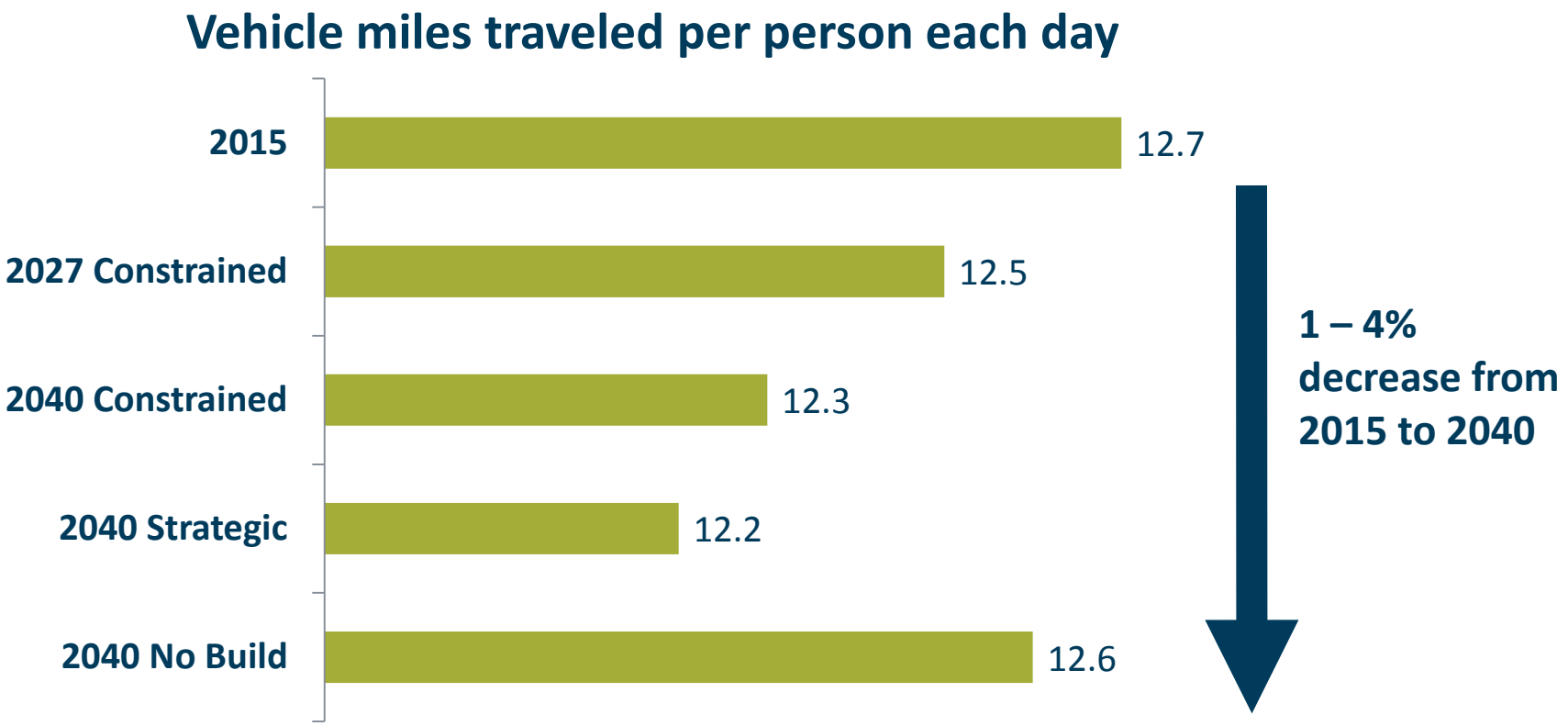
- System-level evaluation
  (all projects)
- Transportation equity analysis*
  (all projects)
- Project-level evaluation pilot
  (48 projects)

* Transportation equity to be measured across multiple outcomes to support federally-required Title VI and Environmental Justice Analysis.


How much do people and goods travel in our region?
WASHINGTON
OREGON
Vancouver
Camas
Washougal
Portland
Gresham
Beaverton
Hillsboro
Forest Grove
Tigard
Tualatin
Sherwood
Newberg
Wilsonville
Lake Oswego
Milwaukie
Oregon City
West Linn
Gladstone
Happy Valley
Damascus
Boring
Estacada
Canby
Urban growth boundary
County boundary
Metro
Miles

Individuals drive less…

Metro
Measure 1a



Trips that begin and end within the metropolitan planning area boundary (excludes Clark County, WA.)

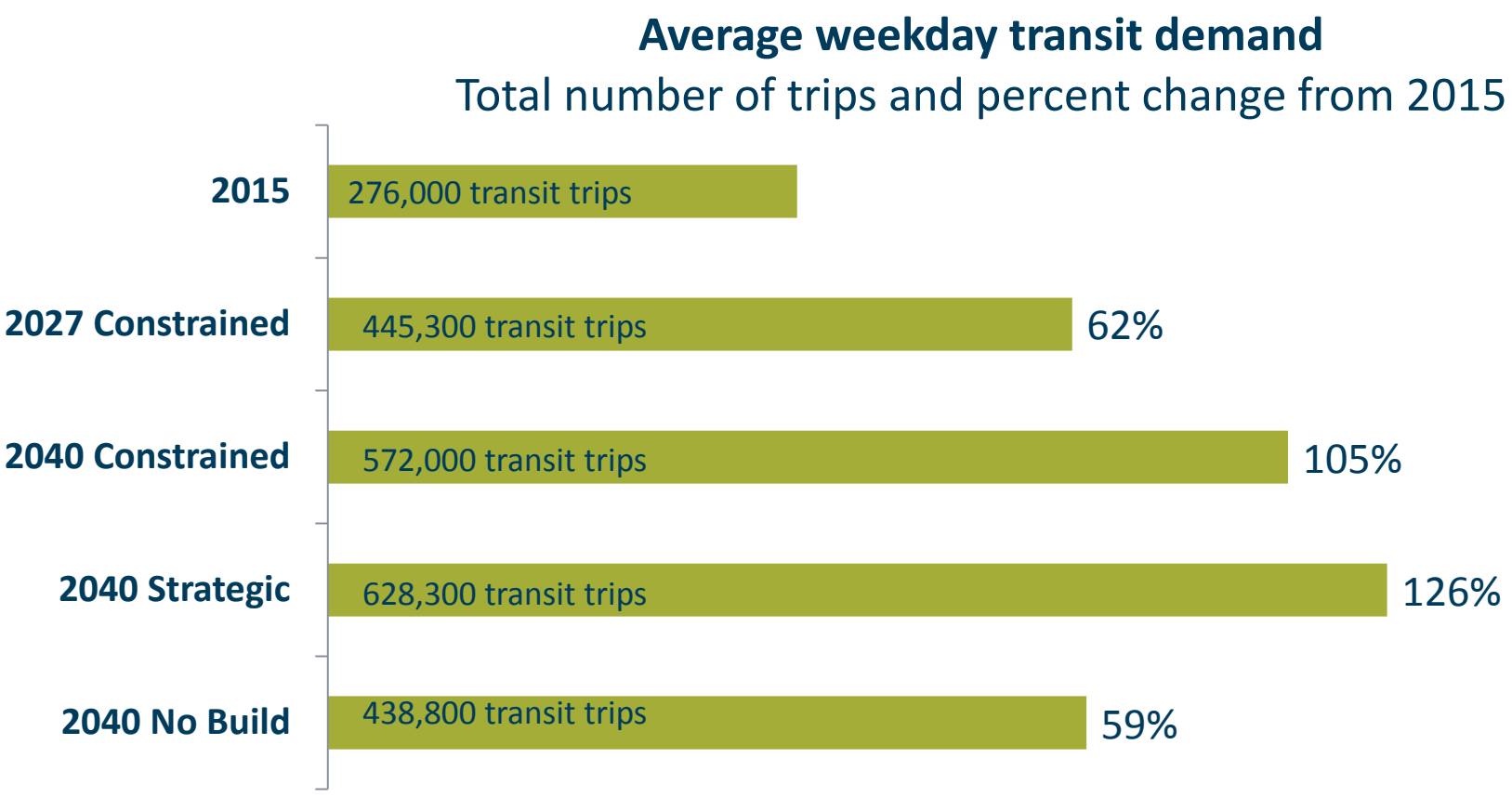
Source: Metro Travel Demand Model

This information is for research and discussion purposes only and does not reflect current or future policy decisions of the Metro Council, MPAC or JPACT. The information is subject to change pending final modeling and analysis in 2018.

Transit demand is growing

Metro

Measure 14.c



Source: Metro Travel Demand Model

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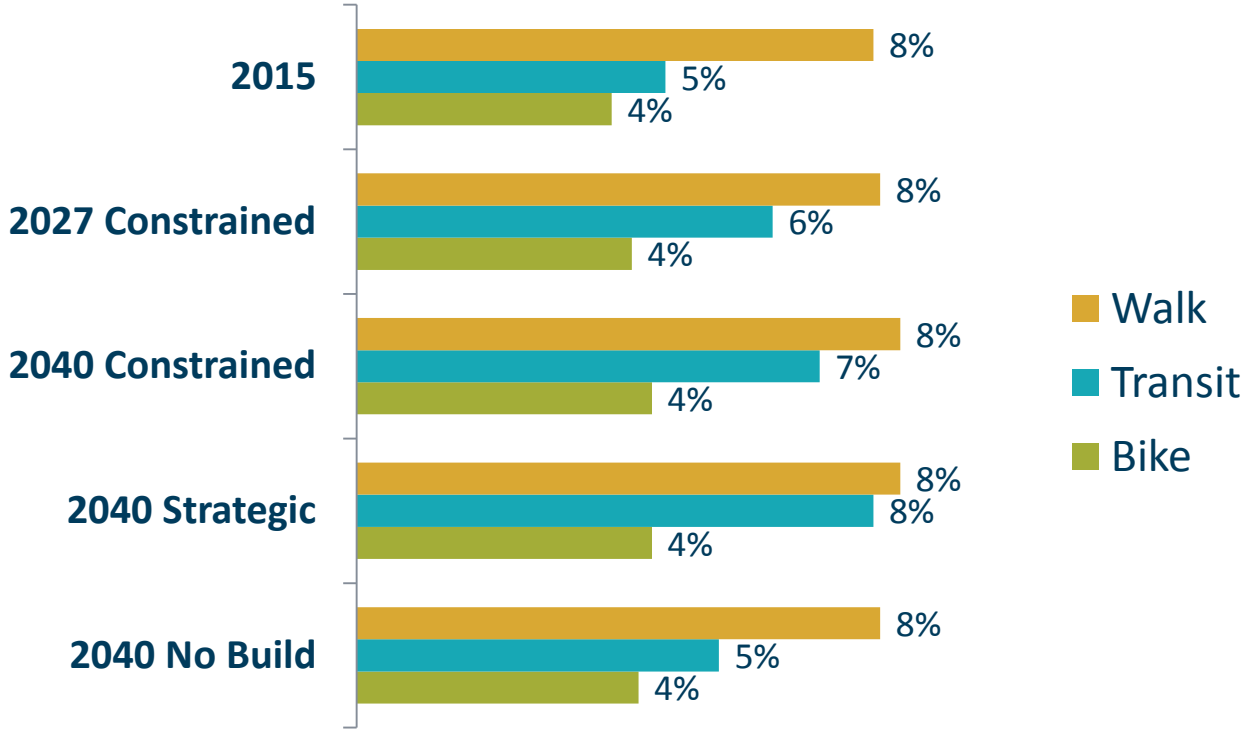
Individuals walk, bike and use transit more

Metro
Measure 2

Mode share system-wide



Trips that begin and end within the metropolitan planning area boundary (excludes Clark County, WA.)

Source: Metro Travel Demand Model

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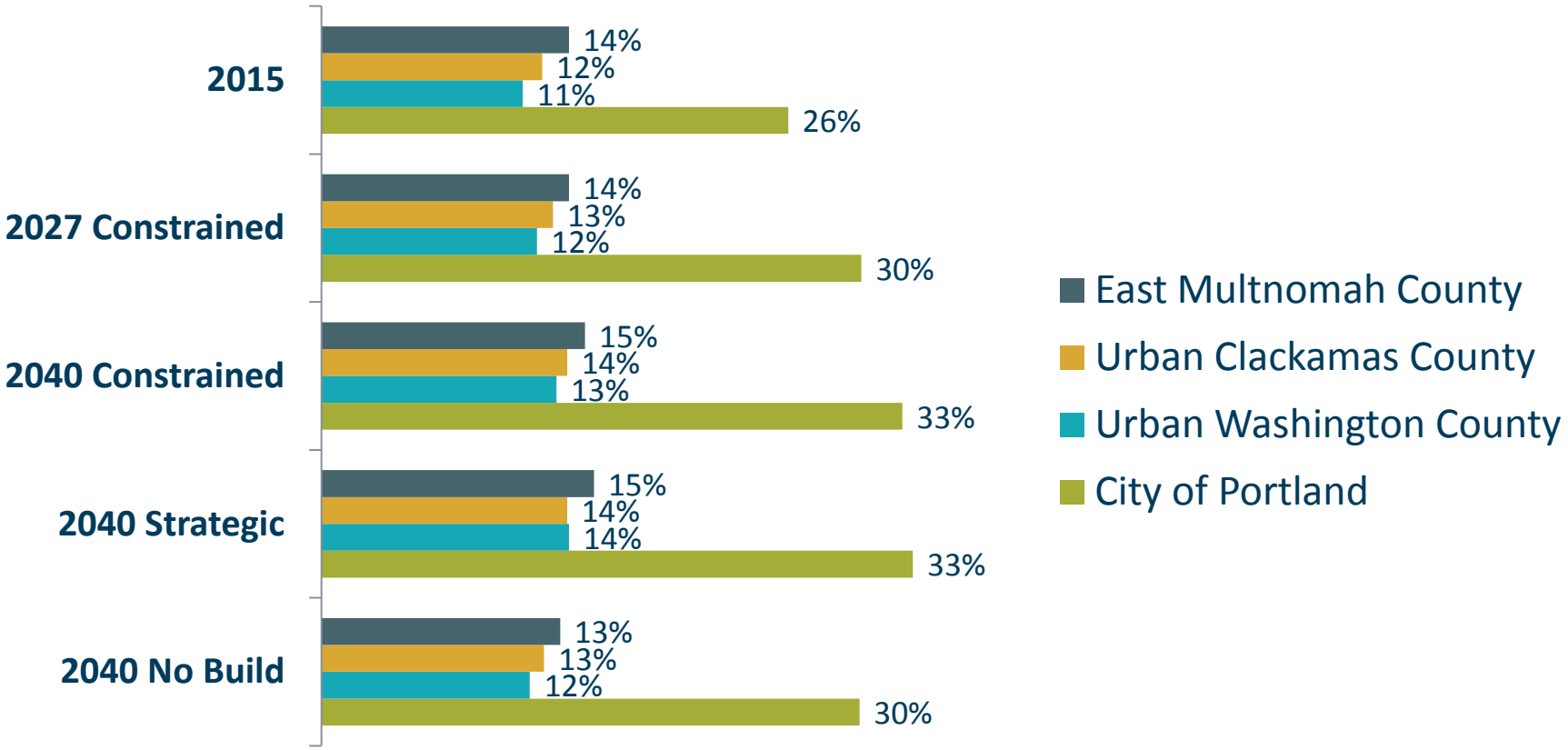
Portland sees greatest increase in walking, biking and transit use

Metro
Measure 2

Non driving mode share by subarea



Trips that begin and end within the metropolitan planning area boundary (excludes Clark County, WA.)

Source: Metro Travel Demand Model

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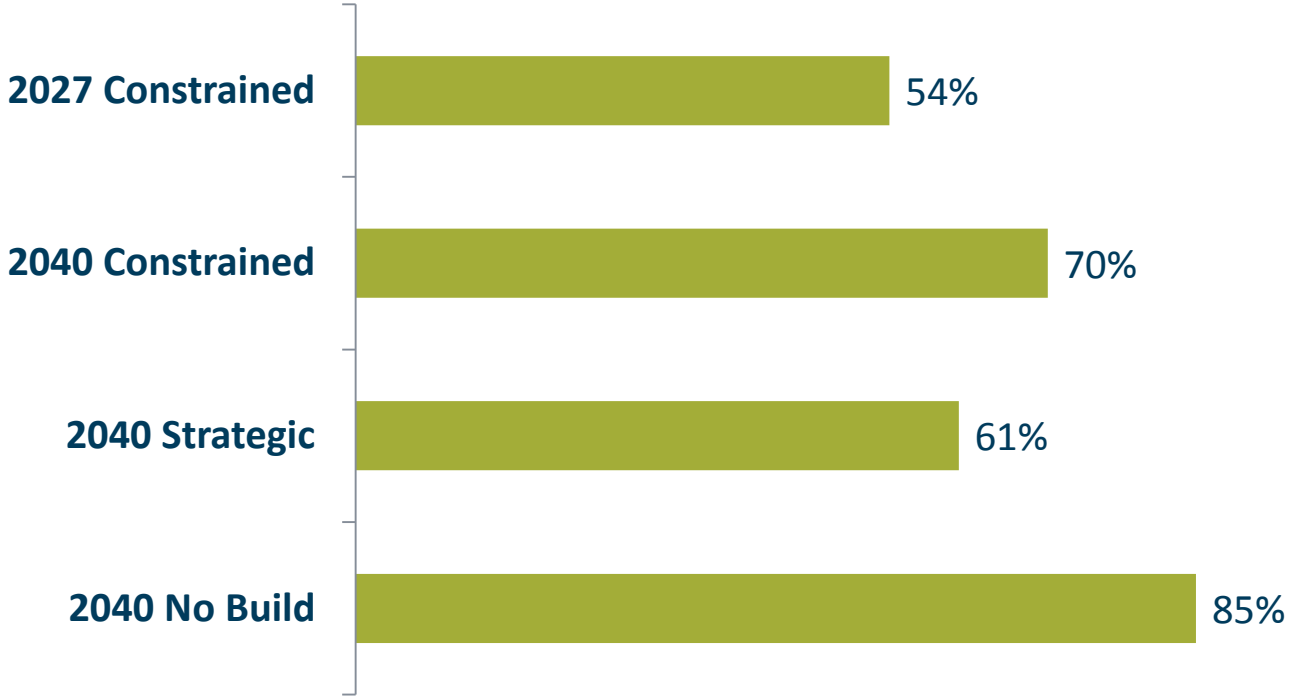
How efficient is auto, freight and transit travel in our region?
WASHINGTON
OREGON
Vancouver
Camas
Washougal
Portland
Gresham
Beaverton
Hillsboro
Forest Grove
Cornelius
Tigard
Tualatin
Sherwood
Lake Oswego
Milwaukie
West Linn
Oregon City
Gladstone
Wilsonville
Newberg
Canby
Estacada
Urban growth boundary
County boundary
Metro
Miles

Drivers spend more time in traffic than today

Metro
Measure 13

Motor vehicle hours of delay per person

Percent change from 2015 in PM 2hr peak



Trips that begin and end within the metropolitan planning area boundary (excludes Clark County, WA.)

Source: Metro Travel Demand Model

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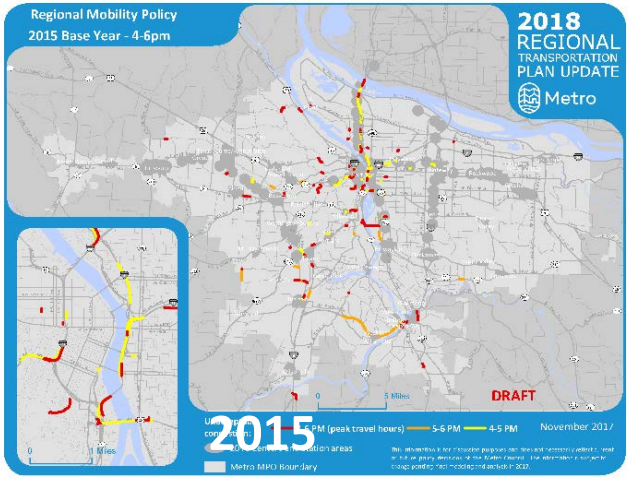
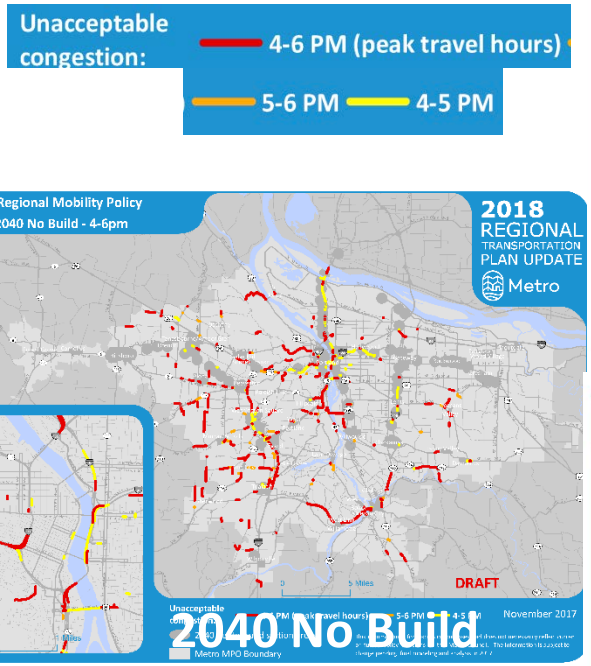
Congestion continues to increase

Measure 13

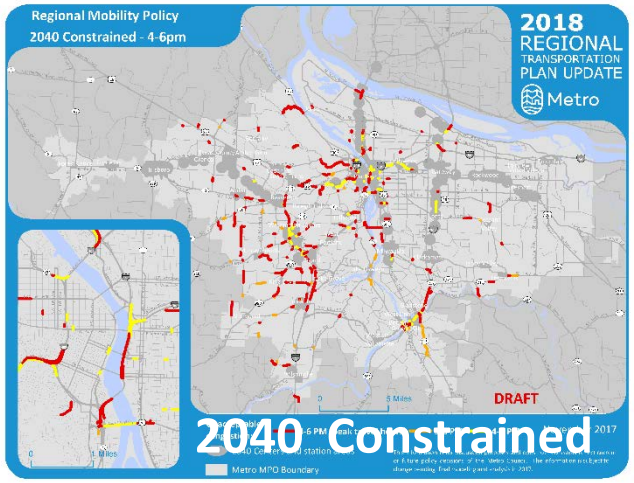
Evening Peak 4-6pm



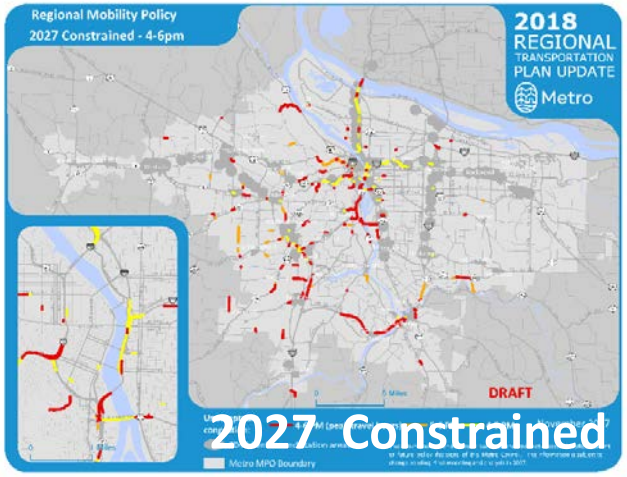
2015



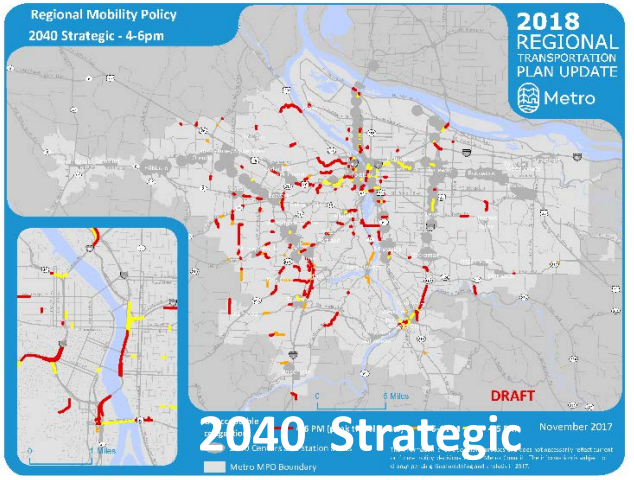
2040 No Build



2040 Constrained



2027 Constrained



2040 Strategic

Unacceptable congestion as defined by the 2014 RTP Interim Regional Mobility Policy

Source: Metro Travel Demand Model

This information is for research and discussion purposes only and does not reflect current or future policy decisions of the Metro Council, MPAC or JPACT. The information is subject to change pending final modeling and analysis in 2018.

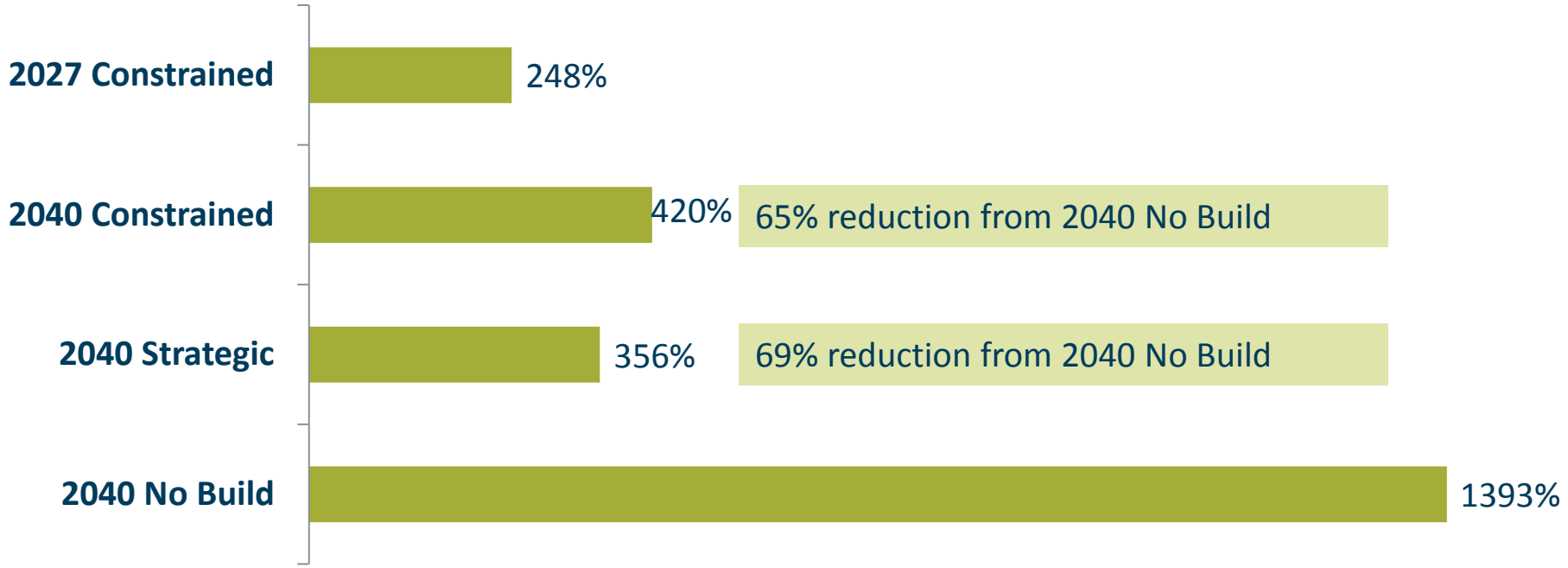
Increased congestion delays freight and goods movement

Metro

Measure 13

Truck hours of delay from 1-3pm on regional freight network

(percent change from 2015)



Trips that begin and end within the metropolitan planning area boundary (excludes Clark County, WA.)

Source: Metro Travel Demand Model

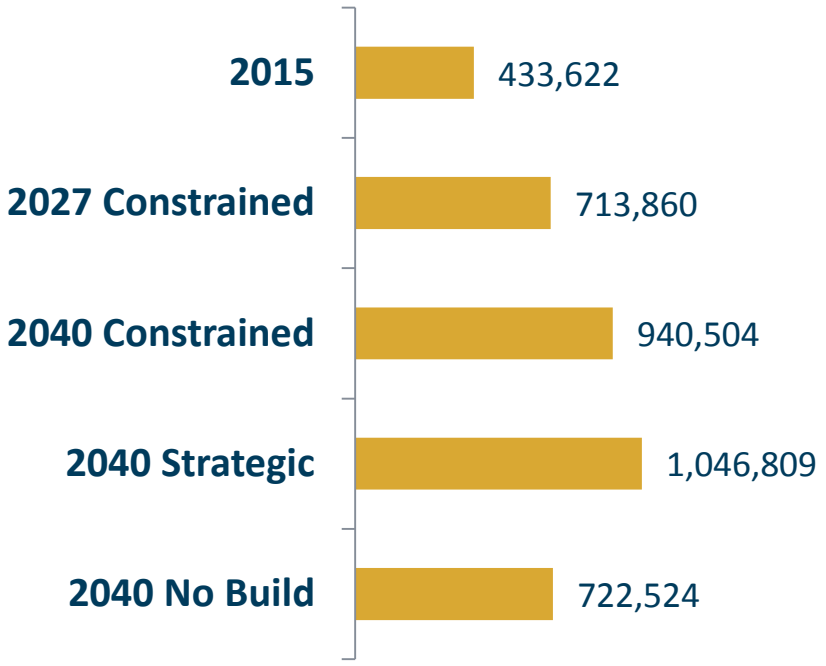
This information is for research and discussion purposes only and does not reflect current or future policy decisions of the Metro Council, MPAC or JPACT. The information is subject to change pending final modeling and analysis in 2018.

Transit is productive, but falls short of Climate Smart transit service

Metro

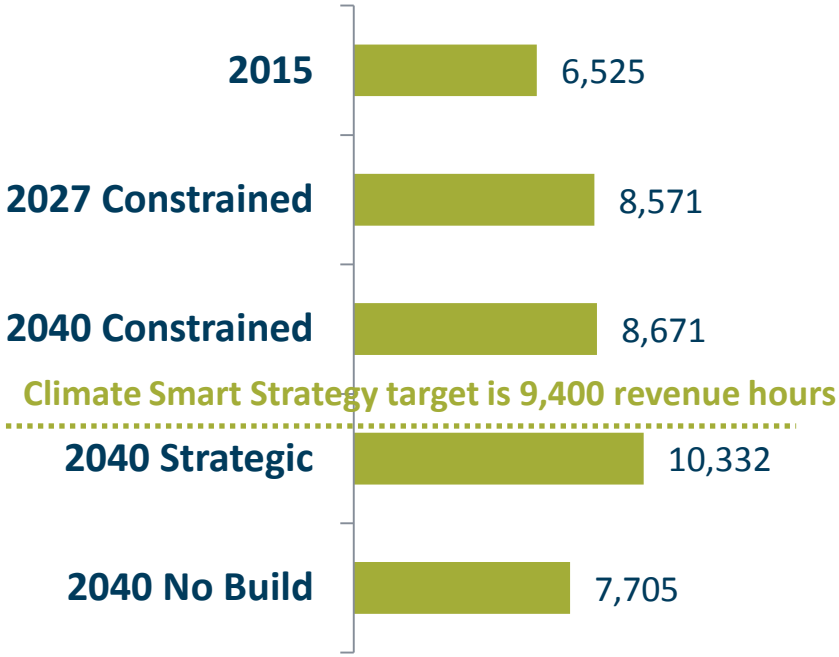
Measure 14

Boardings



Source: Metro Travel Demand Model

Revenue hours of service



* The 2040 Strategic Investment Strategy exceeds the revenue hours target adopted in the Climate Smart Strategy

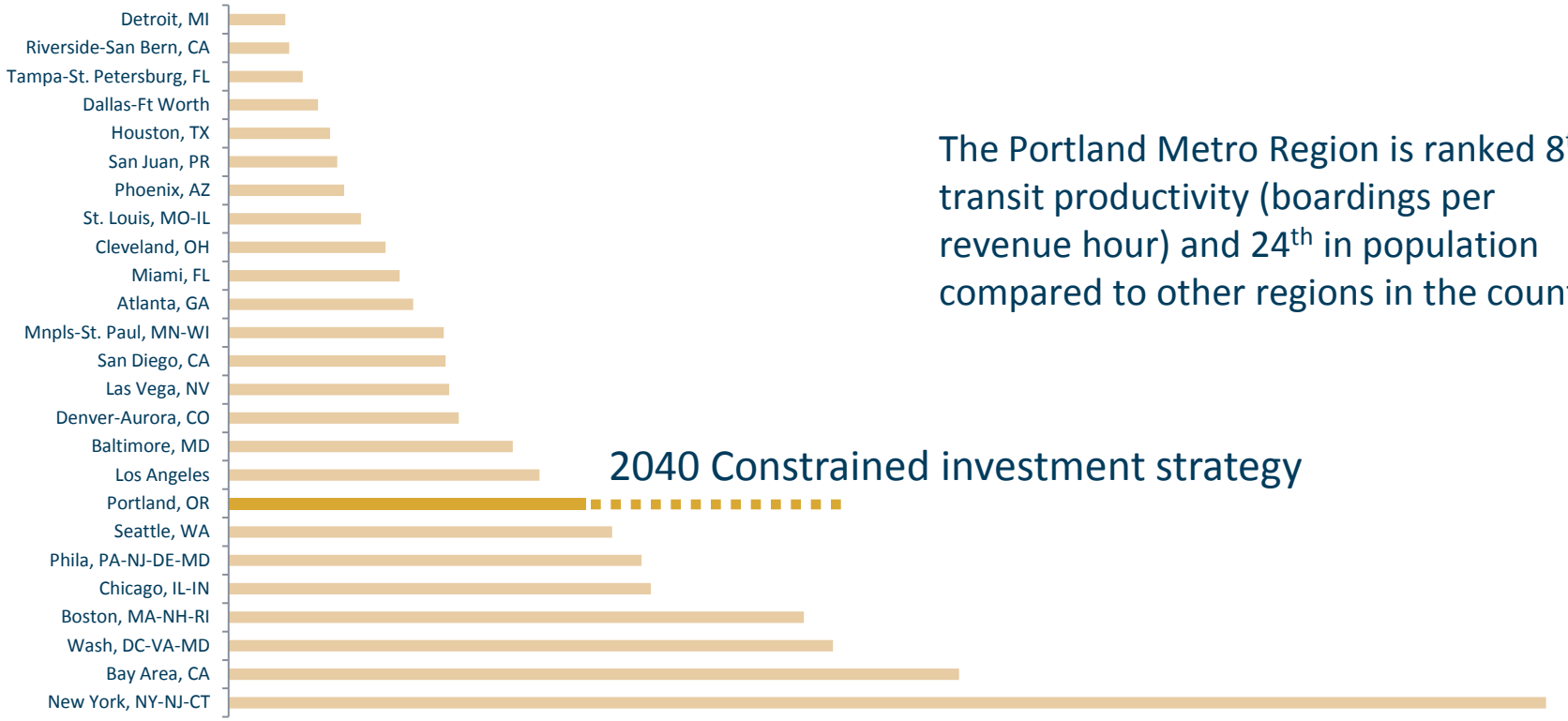
This information is for research and discussion purposes only and does not reflect current or future policy decisions of the Metro Council, MPAC or JPACT. The information is subject to change pending final modeling and analysis in 2018.

Transit is productive

Metro

Measure 14

Boardings per revenue hour



The Portland Metro Region is ranked 8th in transit productivity (boardings per revenue hour) and 24th in population compared to other regions in the country.

Source: National Transit Database (NTD) 2015 Peer Review Summary

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Discussion

What does the data suggest to you?

What information and takeaways are most important to highlight in discussion materials?

What are the implications for the 2018 RTP?

- Initial recommendations for project list refinements for Round 2?
- Initial recommendations for future work needed – post-RTP?

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Remaining 2017 discussions

Dec. 6	MTAC discusses initial findings from technical evaluation
Dec. 12	Council receives project update
Dec. 15	TPAC discusses initial findings from technical evaluation and project evaluation pilot

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DRAFT 2018 RTP Performance Targets Assessment | December 4, 2017

(for travel within the metropolitan planning area boundary)

Green = Meets or exceeds target. Orange = Makes progress toward target, but falls short. Red = Moves in opposite direction from target, losing ground.

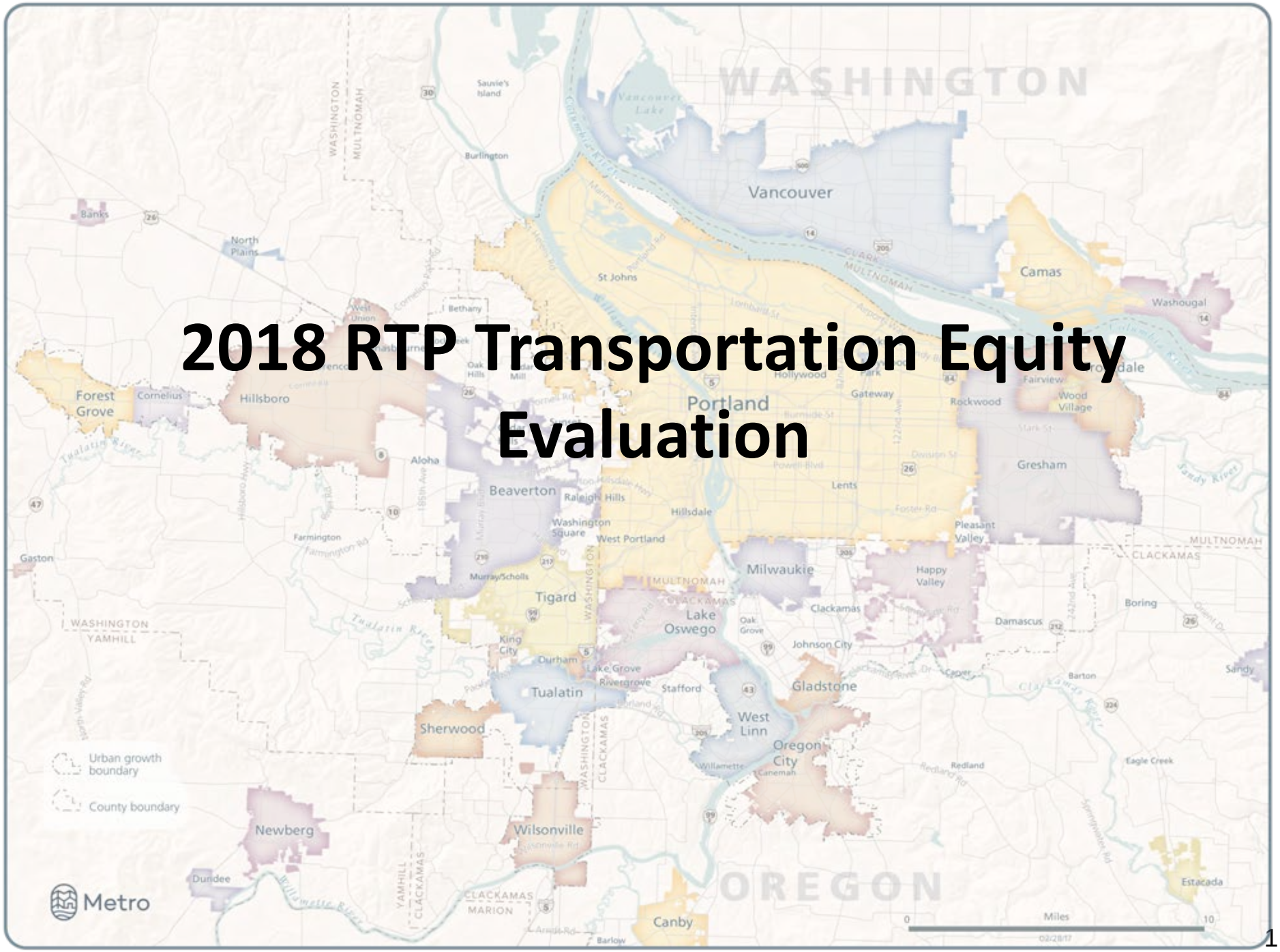
Primary RTP Goal		Measure	2040 Target	2027 Constrained	2040 No Build	2040 Constrained	2040 Strategic
Travel efficiency	1	Vehicle delay per person	-10%	+54% in PM +94% in MD	+85% in PM +281% in MD	+70% in PM +134% in MD	+61% in PM +116% in MD
Economic competitiveness and prosperity	2	Vehicle delay per truck trip[1]	-10%	+39% in PM +70% in MD	+54% in PM +222% in MD	+ 41% in PM + 97% in MD	+34% in PM +83% in MD
Public health	3	Vehicle miles traveled per person	-10%	- 1.6%	-0.78%	-2.3%	-3.1%
Transportation choices	4	Walking mode share	+200%	0% change	0% change	+2.3%	+2.3%
	5	Biking mode share	+200%	+3.33%	+3.33%	+10%	+10%
	6	Transit mode share	+200%	+35.7%	+19%	+57.1%	+69%
	7	Miles of sidewalk, bikeways, and trails	+50%	+6.3%	0% change	+10.7%	+14.7%
Safety and security	8	Fatalities and severe injuries	-50%[2]	This will be monitored in between RTP updates as this measure cannot be forecasted with regional analysis tools at this time.			
Greenhouse gas emissions	9	Transportation-related per capita GHG emissions	Reduce GHGs[3]	*-12.7%*	*-14.9%*	*-16.1%*	*-16.5%*
Environmental stewardship	10	Percent population exposure to at-risk levels of air pollution	Zero	*Decreasing*	*Decreasing*	*Decreasing*	*Decreasing*
Equity	11	Average household combined cost of housing & transportation	-25%	This will be monitored in between RTP updates as this measure cannot be forecasted with regional analysis tools at this time.			
	12	Essential destinations accessible within 30 minutes by bicycling and public transit for low-income minority, senior and disable populations[4]	+50%	*+23%*	+53%	+53%	+81%

[1] Staff recommends updating to "per truck trip truck delay"

[2] Safety target is recommended to be updated as part of 2018RTP – Zero fatalities and serious injuries by 2035, 16% by 2025 and 50% reduction by 2025

[3] While all scenarios reduce transportation-related greenhouse gas emissions, the 2040 Constrained level of transit revenue hours falls short of the adopted Climate Smart Strategy target of 9,400 revenue hours by 2035. The 2040 Strategic level of transit exceeds the Climate Smart Strategy target revenue hours.

[4] Reporting essential destinations accessible within 30 minutes by transit (all day service) for Historically Marginalized Communities. Bicycling not included in analysis. Assumes existing essential destinations since land use forecast does not predict how they will change with future growth.



2018 RTP Transportation Equity Evaluation

Transportation Issues Communities Care About…

Addressing Racial Disparities

Accessibility

Health Outcome Disparities

Meaningful Engagement

Affordability

Transportation Safety

Prioritization

Enforcement

Involuntary Displacement

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Transportation Equity Evaluation Measures

Transportation equity system evaluation measures:

- Access to Jobs (by wage profile) - # 7
- Access to Community Places - # 8
- Completeness and Connectivity of the Active Transportation Network - # 6
- Share of Transportation Safety Projects and Investments - # 4
- Exposure to Non-Freeway Vehicle Miles Traveled (VMT) - # 5
- High Value Habitat Impacts - # 17

- Clean Air - # 16
- Housing + Transportation Expenditure and Cost Burden - # 3

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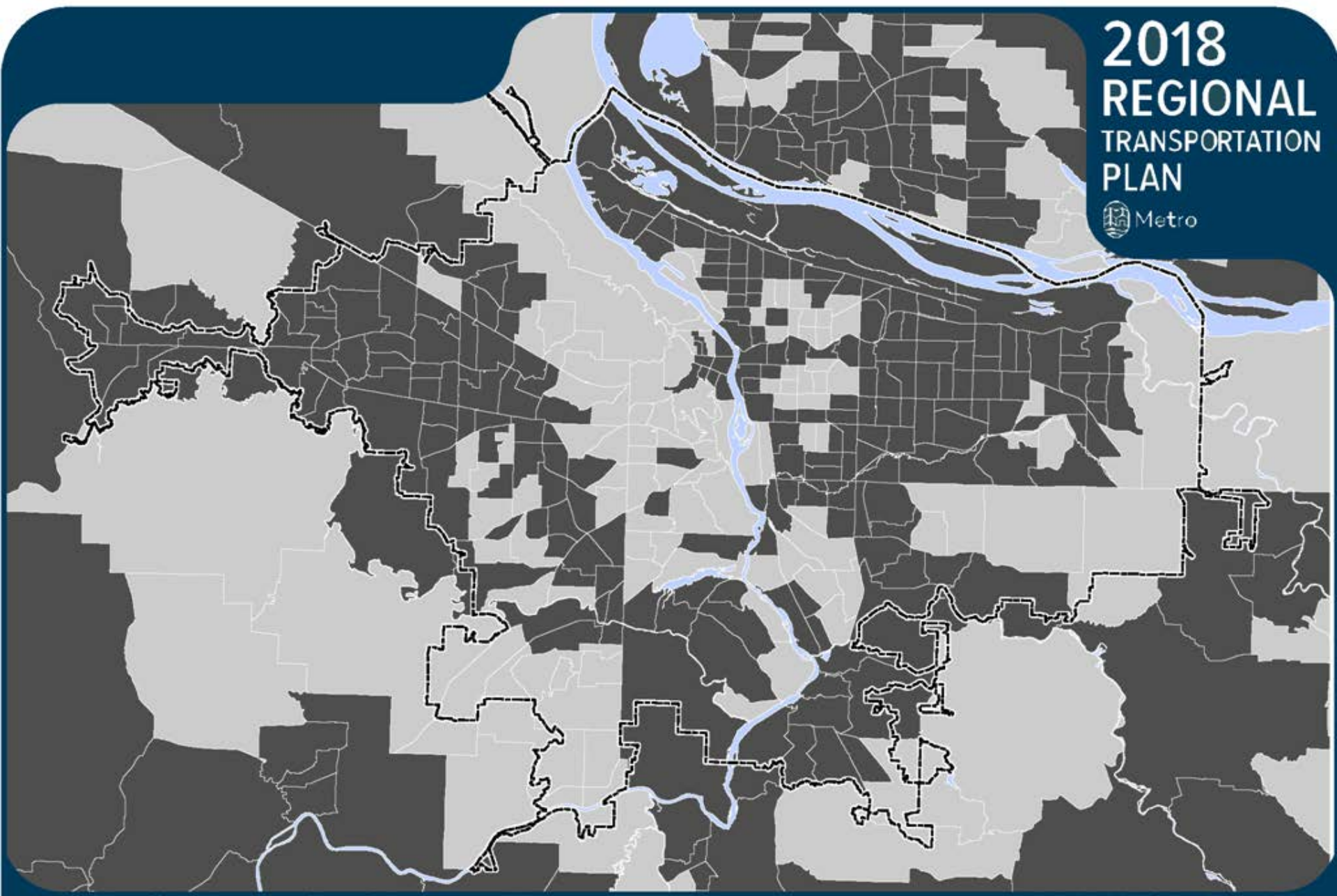
Historically Marginalized Communities
WASHINGTON
OREGON
Vancouver
Camas
Washougal
Portland
Gresham
Troutdale
Fairview
Wood Village
Gateway
Rockwood
Forest Grove
Cornelius
Hillsboro
North Plains
Banks
Sauvie's Island
Burlington
St Johns
Bethany
West Union
Aloha
Beaverton
Raleigh Hills
Hillsdale
Washington Square
West Portland
Lents
Pleasant Valley
Happy Valley
Milwaukie
Clackamas
Damascus
Boring
Tigard
Lake Oswego
Oak Grove
Johnson City
King City
Durham
Lake Grove
Rivergrove
Stafford
Tualatin
Gladstone
Sherwood
West Linn
Oregon City
Willamette
Caneman
Redland
Eagle Creek
Barton
Sandy
Estacada
Newberg
Dundee
Wilsonville
Canby
Barlow
Gaston
Farmington
Murray/Scholls
Urban growth boundary
County boundary
Metro
Miles
0
10
02/28/17

2018 REGIONAL TRANSPORTATION PLAN

Metro



Historically Marginalized Communities

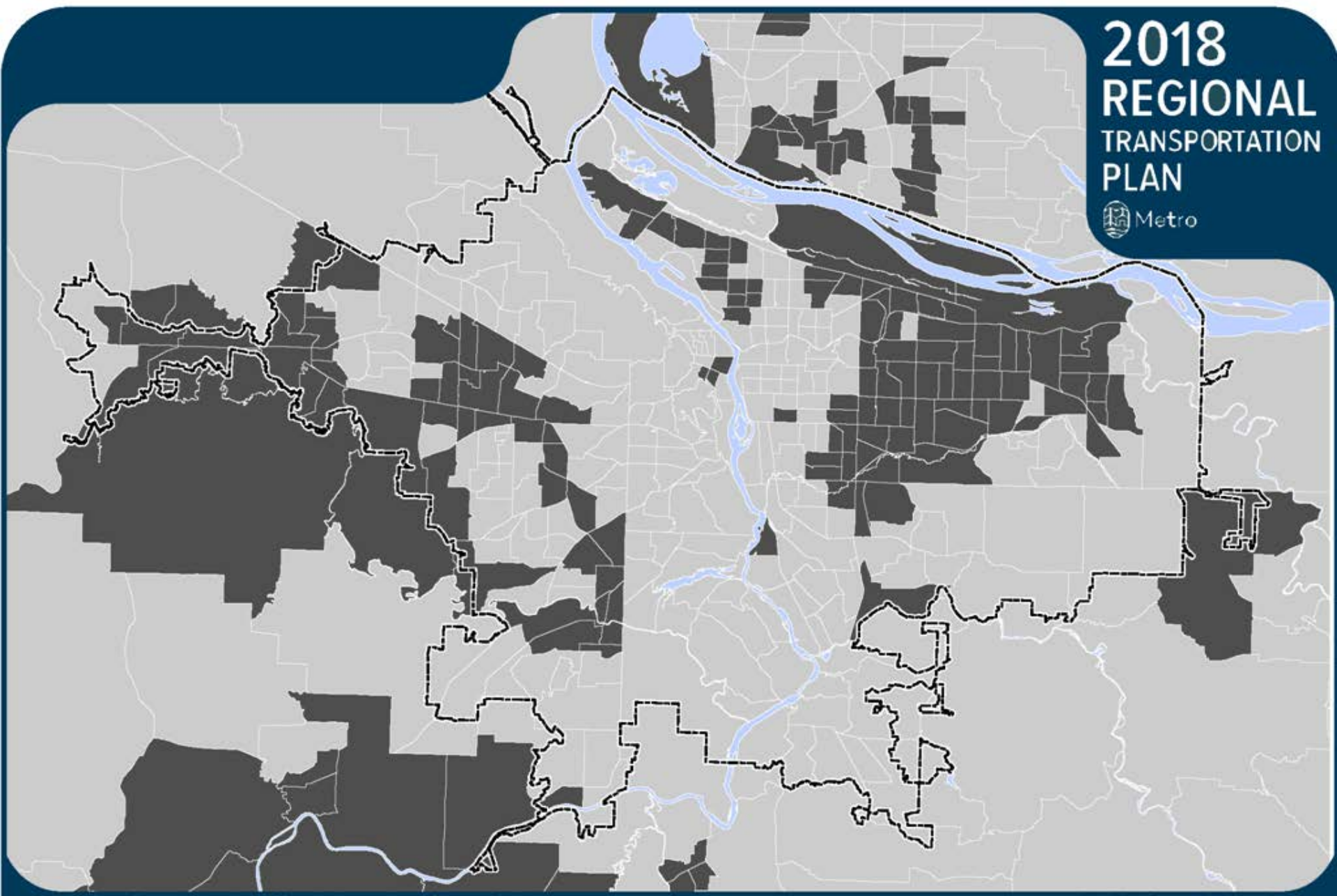
- Not included in HMC
- Included in HMC
- MPA boundary
- Rivers and water bodies

A historically marginalized community (HMC) is defined as exceeding regional rates for low income, people of color or limited English proficiency (LEP), or exceeding regional rates for under 18 or over 65 years of age.

Limited English Proficiency (LEP) and Poverty Data Source: American Community Survey 2011-2015 5-Yr. Average
Age and People of Color (POC) Data Source: Census 2010
Map Publication: 4/21/2017

2018 REGIONAL TRANSPORTATION PLAN

Metro



Focused Historically Marginalized Communities

Not included in FHMC

Included in FHMC

MPA boundary

Rivers and water bodies

A focused historically marginalized community (FHMC) is defined as exceeding regional rates for low income, and exceeding regional rates for people of color or limited English proficiency (LEP), as well as exceeding regional density rates for each variable. An additional federal safe harbor screen is applied in order to include areas with at

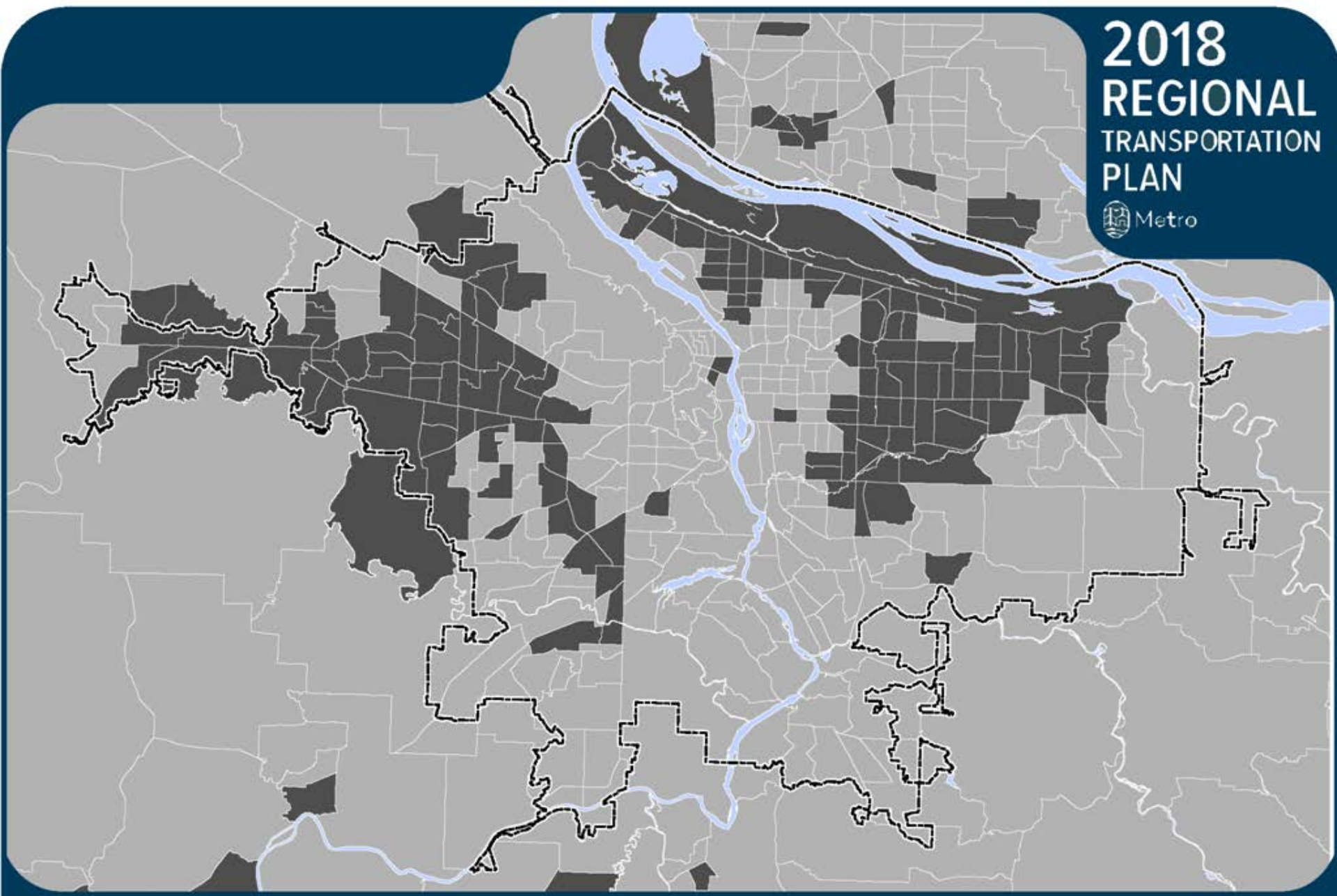
Limited English Proficiency (LEP) and Poverty Data Source: American Community Survey 2011-2015 5-Yr. Average

Age and People of Color (POC) Data Source: Census 2010

Map Publication: 4/21/2017

2018 REGIONAL TRANSPORTATION PLAN

Metro



People of Color

- Below regional rate
- Above regional rate
- MPA boundary
- Rivers and water bodies

Data Source: Census 2010
Map Publication: 11/30/2017

Initial findings from the transportation equity evaluation

- **Safety investments** – Majority of safety projects are in HMCs
- **Crash risk** – Increased vehicle miles traveled will increase potential conflicts that may lead to fatal and serious crashes, depending on other factors
- **Access to jobs and community places** – Growth results in more congestion impacting accessibility by transit for HMCs that will need monitoring
- **Access to travel options** – Making progress completing the active transportation, but 75% of investment in 2028-2040 time period
- **Habitat impacts** – Potential disproportionate impact in HMCs that will need monitoring

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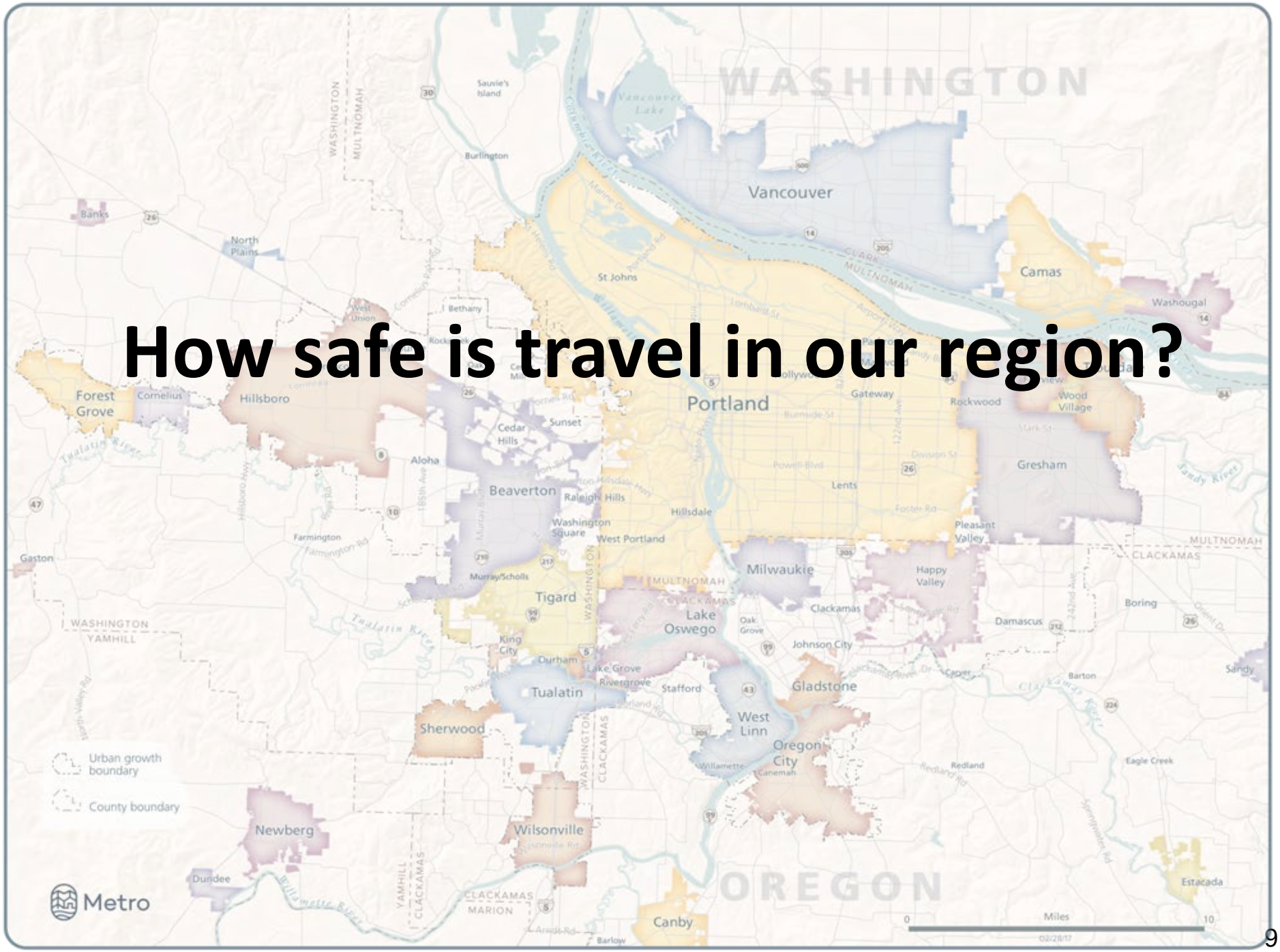
How safe is travel in our region?
WASHINGTON
OREGON
Vancouver
Camas
Washougal
Portland
Gresham
Beaverton
Hillsboro
Forest Grove
Cornelius
Tigard
Lake Oswego
Tualatin
Sherwood
Newberg
Wilsonville
Milwaukie
Oregon City
West Linn
Gladstone
Happy Valley
Damascus
Boring
Estacada
Canby
Urban growth boundary
County boundary
Metro
Miles

For historically marginalized communities…

Metro
Measure 5

Safety investments targeted towards the historically marginalized communities

- Investment is slated in the first 10 years of the 2018 RTP
- May be under representing level of safety investment

Exposure to vehicle miles travel is increasing region-wide and slightly greater in historically marginalized communities

- Monitoring will be needed

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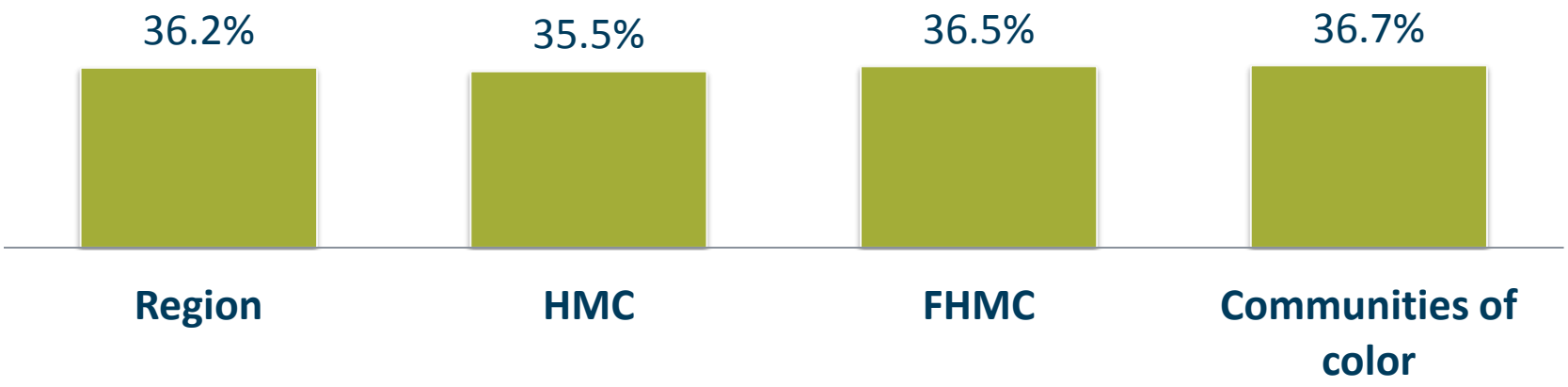
Increase in VMT is slightly higher in FHMC and Communities of Color

Metro
Measure 5

Percent difference in vehicle miles traveled

2015 base year compared to the 2040 Constrained



Trips that begin and end within the metropolitan planning area boundary (excludes Clark County, WA.)

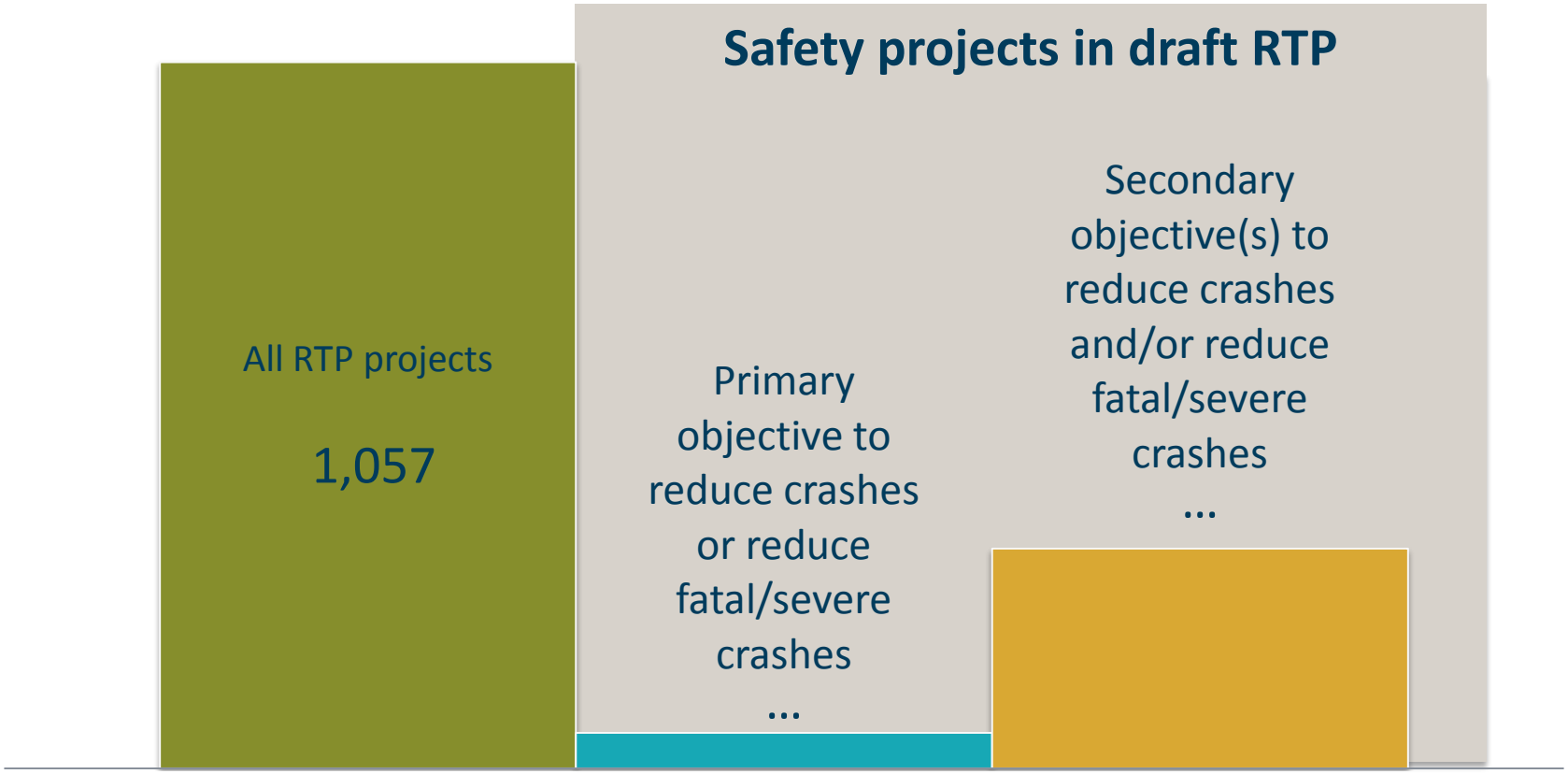
Source: Metro Travel Demand Model

This information is for research and discussion purposes only and does not reflect current or future policy decisions of the Metro Council, MPAC or JPACT. The information is subject to change pending final modeling and analysis in 2018.

Nearly 400 projects identify safety benefits; 53 have the primary objective of reducing crashes, or fatal and severe crashes

Metro

Measure 4



Source: 2018 RTP Project Hub Database

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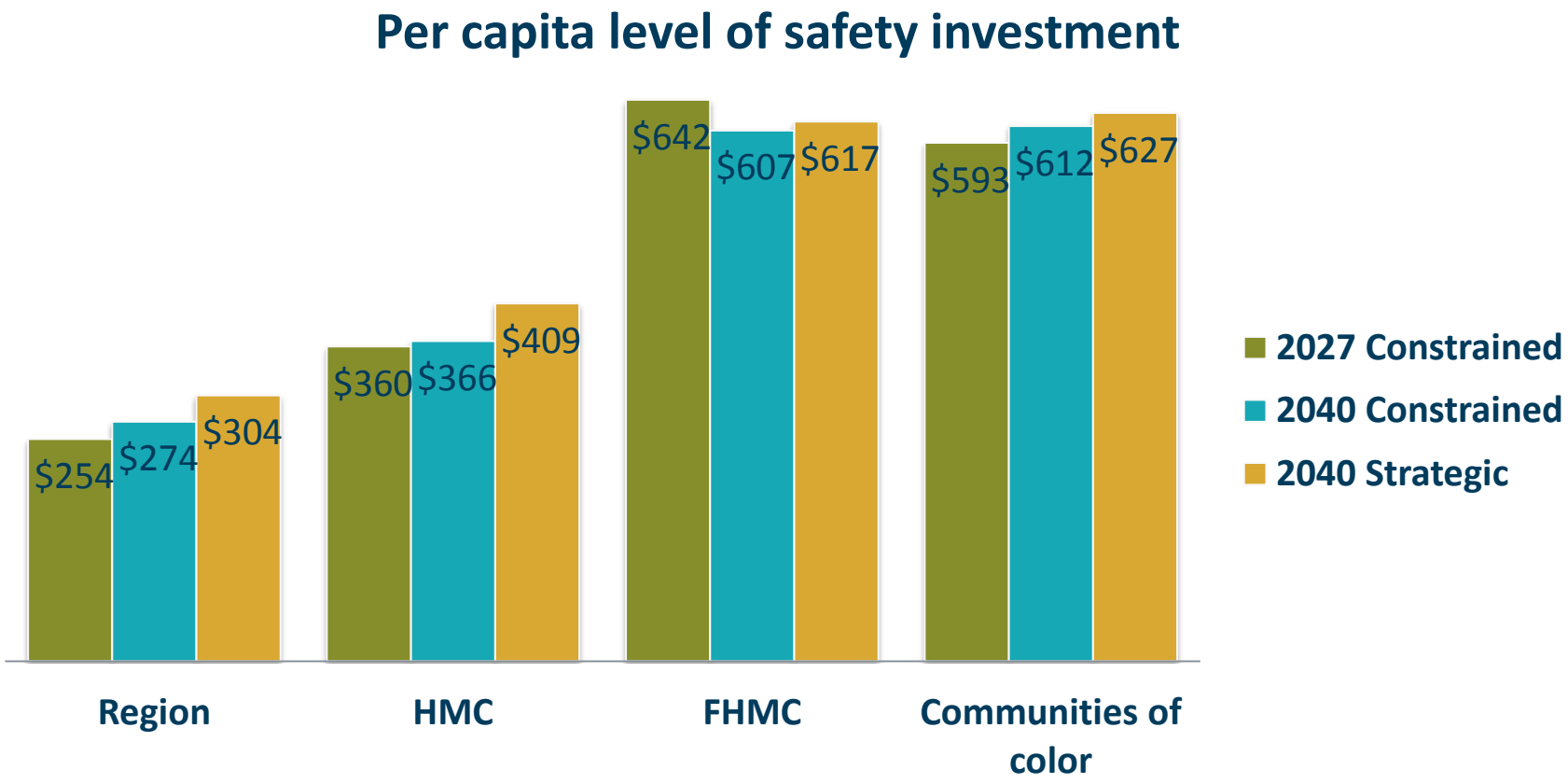
Per capita investment is higher in historically marginalized communities

Metro
Measure 4



Source: 2018 RTP Project Database

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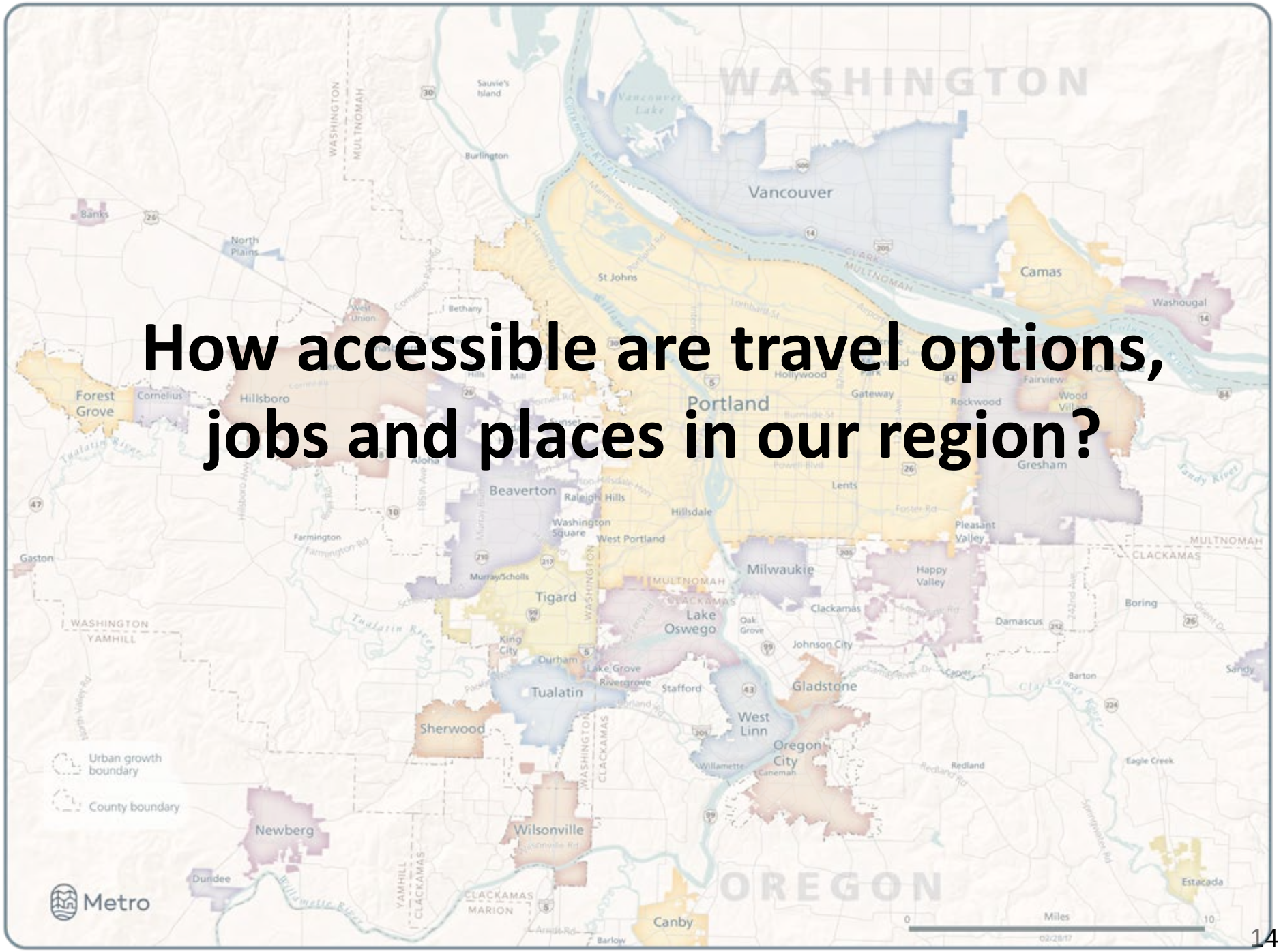
How accessible are travel options, jobs and places in our region?
WASHINGTON
OREGON
Vancouver
Camas
Washougal
Portland
Gresham
Beaverton
Hillsboro
Forest Grove
Cornelius
Tigard
Tualatin
Sherwood
Lake Oswego
Milwaukie
Oregon City
West Linn
Gladstone
Wilsonville
Newberg
Canby
Estacada
Urban growth boundary
County boundary
Metro
Miles

For historically marginalized communities…

Metro
Measure 7

# of households and jobs within a short walk to frequent transit increases for marginalized communities

Getting to jobs and places within a reasonable timeframe see greater gains in the first 10 years, but less by 2040

Making progress on completing and connecting the planned regional active transportation network

- But more investment is slated for 2028-2040

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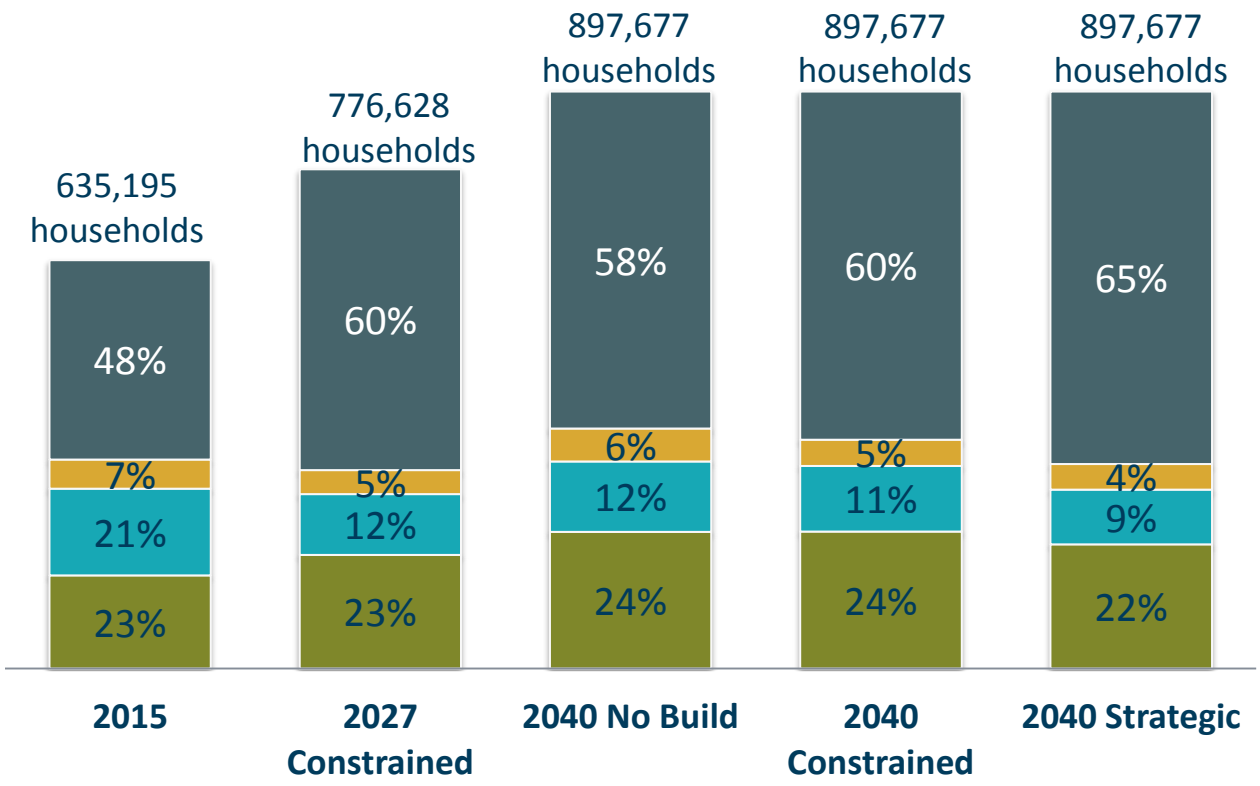
More than three-quarters of region's households have access to transit

Metro
Measure 10

Share of households with access to transit

(1/4-mile proximity to bus, 1/3-mile proximity to streetcar and 1/2-mile proximity to light rail)



Low-Income HH near 15 minute of better transit grows from 59% - 73%

- Best transit- 15 minutes or less
- Good transit - 16 - 24 minutes
- Fair transit - 26 minutes or more
- No fixed route service access

Source: Metro Travel Demand Model

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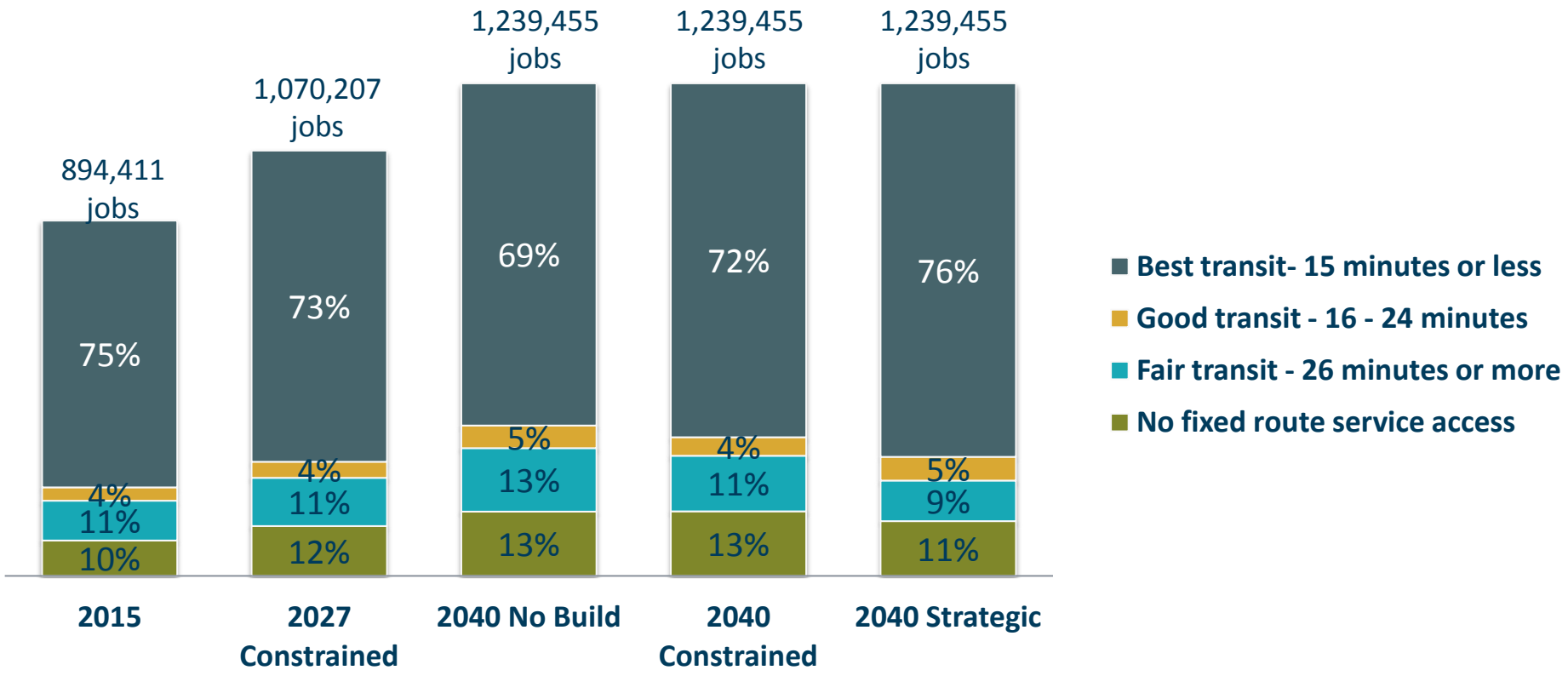
Nearly 90% of region's jobs are accessible by transit

Metro
Measure 10

Share of jobs accessible by transit

(1/4-mile proximity to bus, 1/3-mile proximity to streetcar and 1/2-mile proximity to light rail)



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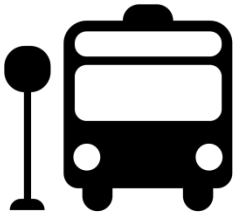
More jobs are within a reasonable commute

Metro
Measure 7

Historically marginalized communities and communities of color see increased number of jobs within a reasonable commute in the first 10-years of investment across modes

All Jobs
33,002 – 41,657



Transit:
45 minutes

Middle-Wage
9,022 – 11,394
Low-Wage
15,758 – 19,830

All Jobs
34,162 – 35,045

Bicycle:
30 minutes

Middle-Wage
9,348 – 9,609
Low-Wage
16,312 – 16,653

All Jobs
5,206 – 5,572

Walk:
20 minutes

Middle-Wage
1,427 – 1,514
Low-Wage
2,500 – 2,691

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But traffic will be an issue at rush hour in the future

Metro
Measure 7

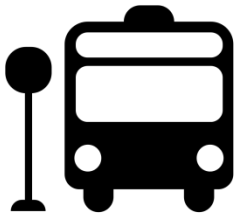
By 2040, gains access to jobs in a reasonable commute gets narrowed to transit

- Mainly in FHMC and sometimes in communities of color

Less change in access to jobs by bike and walking

- Better facilities may = more active travel

All Jobs
40,950 – 59,235



Middle-Wage
11,051 – 16,237
Low-Wage
18,980 – 27,991

All Jobs
39,643 – 40,532

Middle-Wage
10,888 – 11,137
Low-Wage
18,787 – 19,208

All Jobs
6,171 – 6,652

Middle-Wage
1,705 – 1,821
Low-Wage
2,917 – 3,181

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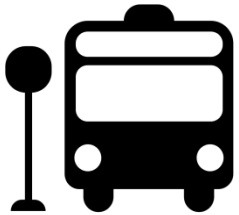
Getting to community places is getting a little easier…

Metro

Measure 8

…but it differs by time of day, where you're going, and mode of travel



Biggest Gains: To all community places and medical services
+ 1% – 6% over the region (10-year investment strategy – HMC & CoC)
+ 3% – 7% over the region (2040 FC and Strategic – FHMC & CoC)

Biggest Gains: To all community places and medical services
+ 4% over the region (10-year investment strategy – HMC)

Biggest Gain: To medical services and grocery stores
+ 3% – 4% over the region (10-year investment strategy - HMC)

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Overall, access to community places improves, but varies for historically marginalized communities

Metro
Measure 8

2027 Financially Constrained 10 –Year Strategy:

- Perform at a greater rate for HMC and communities of color across most modes, most places, and during rush hour and/or all day

2040 Financially Constrained:

- Transit all day and sometimes at rush hour performs at a greater rate for FHMC and communities of color
- Access stays steady in biking and walking

2040 Strategic:

- FHMC and communities of color see increased access by transit during rush hour and all day

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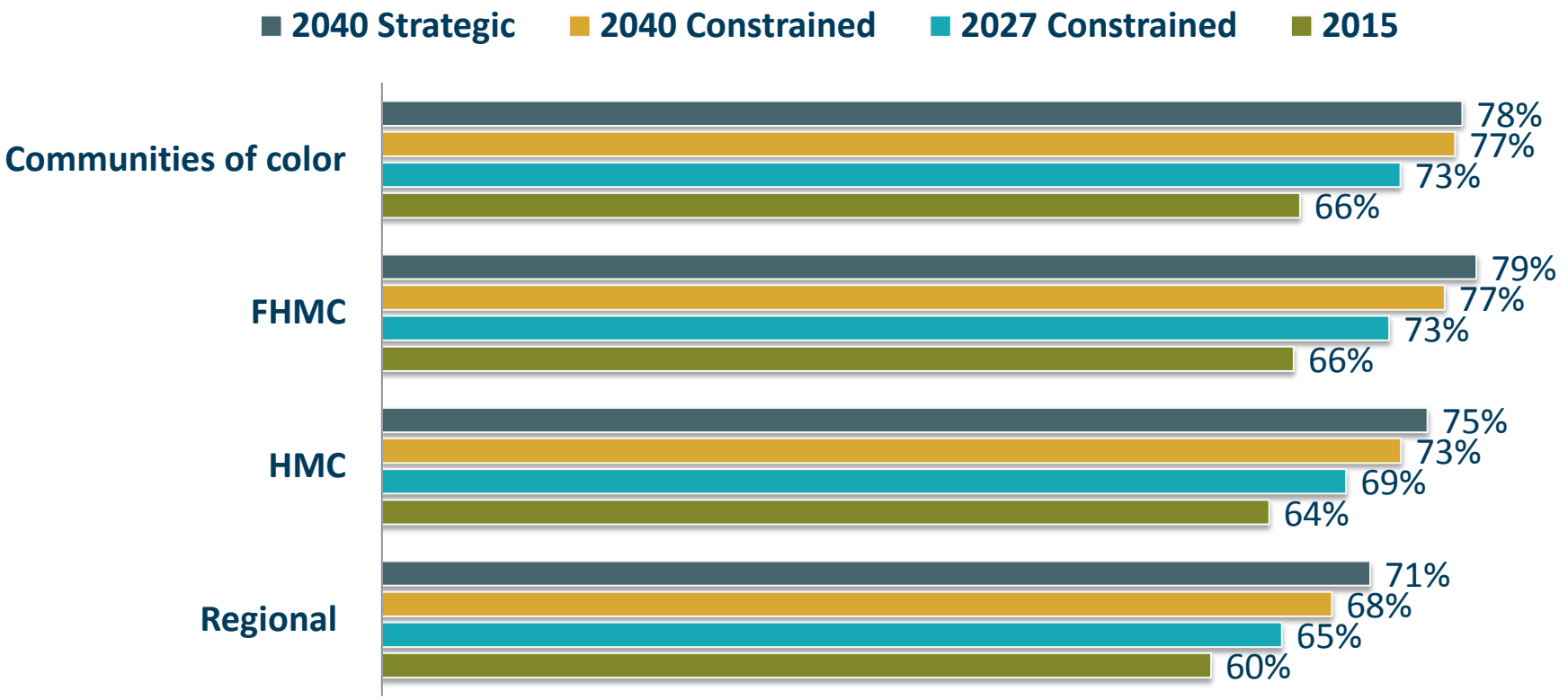
Making progress on completing the planned network and more so in historically marginalized communities in all scenarios

Metro
Measure 6

Example:

Percent of sidewalks completed on planned regional network



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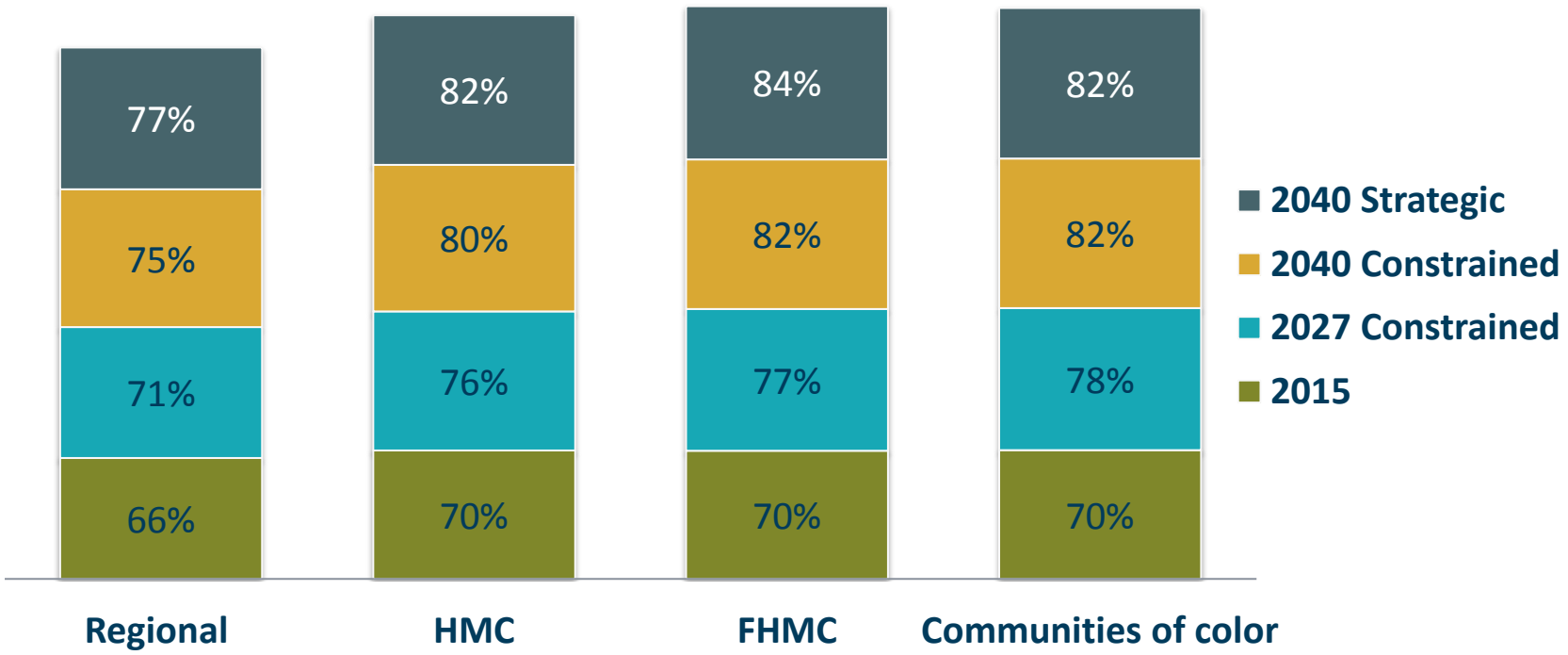
Sidewalk completion near transit is higher compared to overall sidewalk planned network completion AND in marginalized communities

Metro
Measure 6

Percent of sidewalks completed within 1/2-mile of light rail stops, 1/3-mile of street car line, 1/4-mile of bus line



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Most active transportation investment is slated for 2028 to 2040 time period

Metro
Measure 6

	Draft 2027 Financially Constrained RTP (10-year strategy)			Draft 2040 Financially Constrained RTP (for second half of plan)			Draft 2040 Strategic RTP		
	Cost	**Count**	**% cost**	**Cost**	**Count**	**% cost**	**Cost**	**Count**	**% cost**
RTP Investment Strategy	$6.3B	374	29%	$8.5B	388	40%	$6.6B	295	31%
Active transportation	$674M	133	25%	$875M	160	32%	$1.2B	101	43%
Average annual investment in active transportation	**$64.2M (2018-2027)**			**$71.5M (2028-2040)**			**$83.3 M (2028-2040)**		

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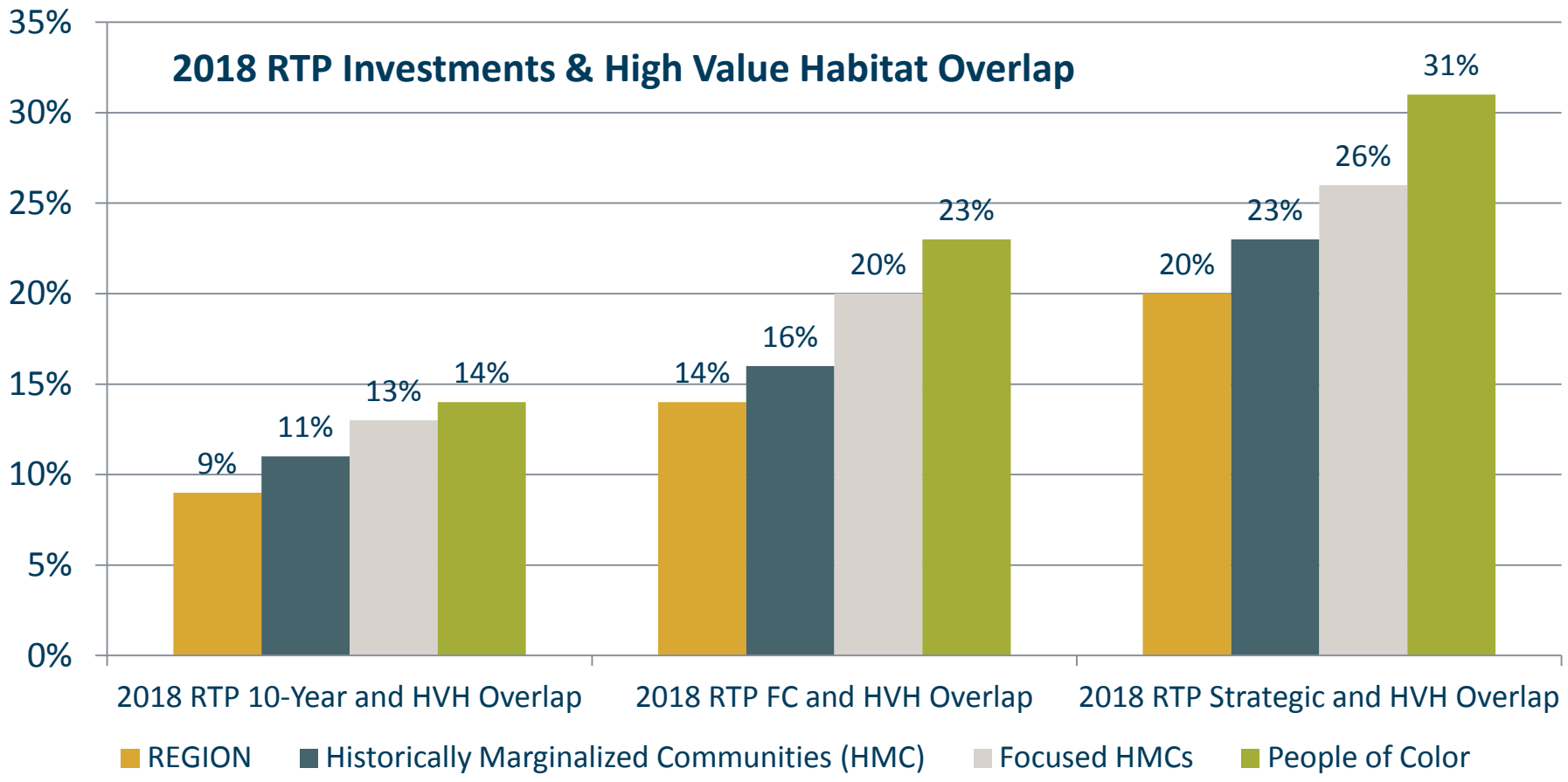
How will transportation impact natural resources?
WASHINGTON
OREGON
Vancouver
Camas
Washougal
Portland
Gresham
Beaverton
Hillsboro
Forest Grove
Cornelius
Tigard
Lake Oswego
Tualatin
Sherwood
Newberg
Wilsonville
Milwaukie
Oregon City
West Linn
Gladstone
Happy Valley
Damascus
Boring
Estacada
Canby
Urban growth boundary
County boundary
Metro
Miles

More roadway investments overlap with habitat in marginalized communities

Metro
Measure 17



Source: 2018 RTP Project Database & Regional Conservation Strategy

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What we learned from the transportation equity evaluation

- **The region is investing at a greater rate in safety and active transportation in historically marginalized communities**
  - But 75% of active transportation investment is in 2028-2040 time period
- **With investments, the projected accessibility (i.e. getting to jobs, services) produced some gains for historically marginalized communities**
  - By 2040, traffic congestion will impact accessibility by transit for historically marginalized communities
- **Population growth and economic activity will increase vehicle miles traveled and the potential for more conflicts**

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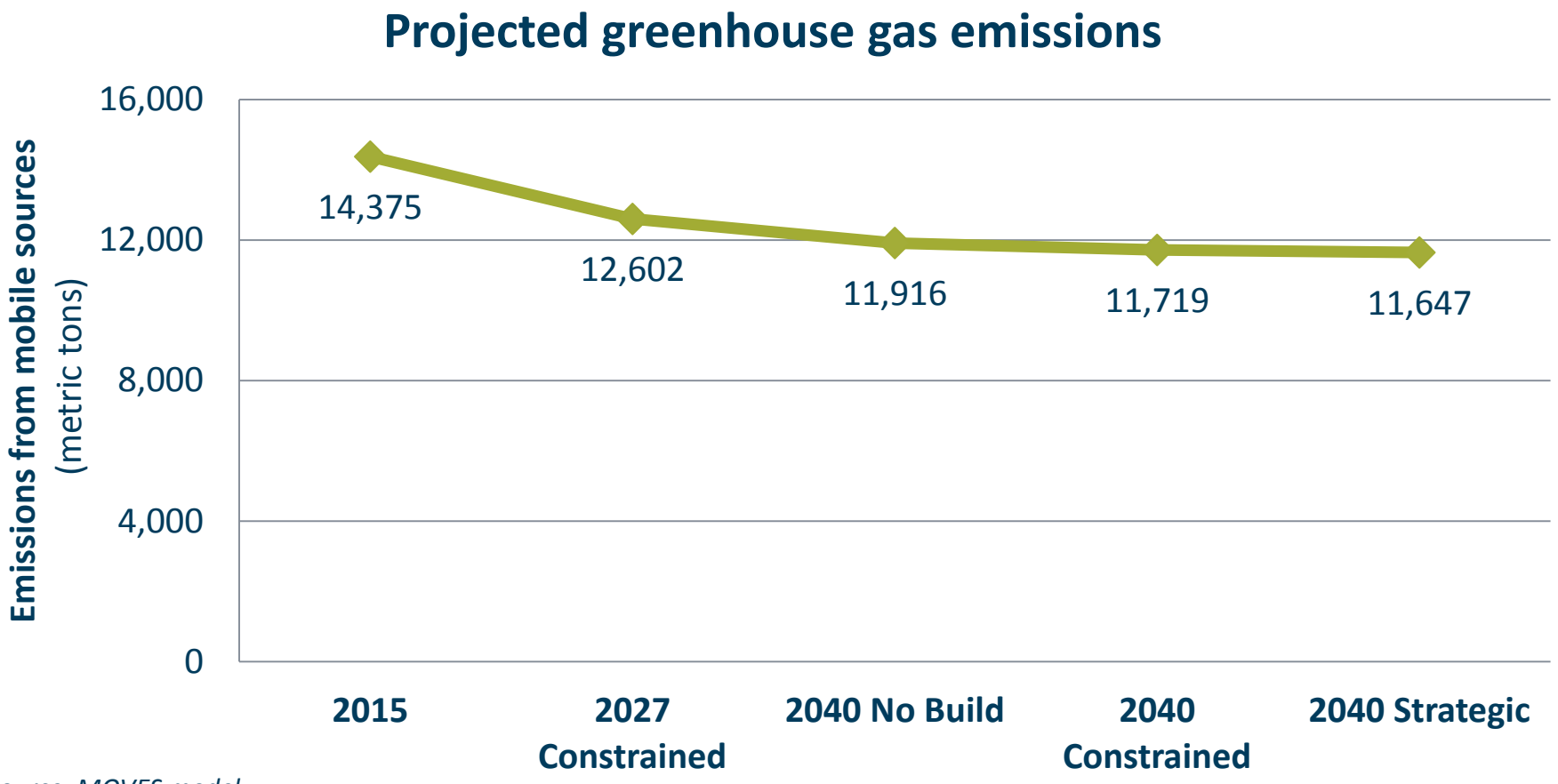
How will transportation impact climate change and air quality?
WASHINGTON
OREGON
Vancouver
Camas
Washougal
Portland
Beaverton
Hillsboro
Forest Grove
Tigard
Tualatin
Sherwood
Newberg
Wilsonville
Lake Oswego
Milwaukie
Oregon City
West Linn
Gladstone
Gresham
Troutdale
Fairview
Wood Village
Happy Valley
Damascus
Boring
Estacada
Sandy
Canby
North Plains
Banks
Gaston
Cornelius
Sauvie's Island
Burlington
St Johns
Hollywood
Gateway
Rockwood
Lents
Pleasant Valley
Clackamas
Johnson City
Oak Grove
Durham
King City
Lake Grove
Rivergrove
Stafford
Barton
Redland
Eagle Creek
Caper
Willamette
Caneman
Raleigh Hills
Hillsdale
Washington Square
West Portland
Murray/Scholls
Farmington
Aloha
Bethany
West Union
Urban growth boundary
County boundary
Metro
Miles
0
10
02/28/17

We're making progress towards our climate goal…but fall short

Metro
Measure 15



Source: MOVES model

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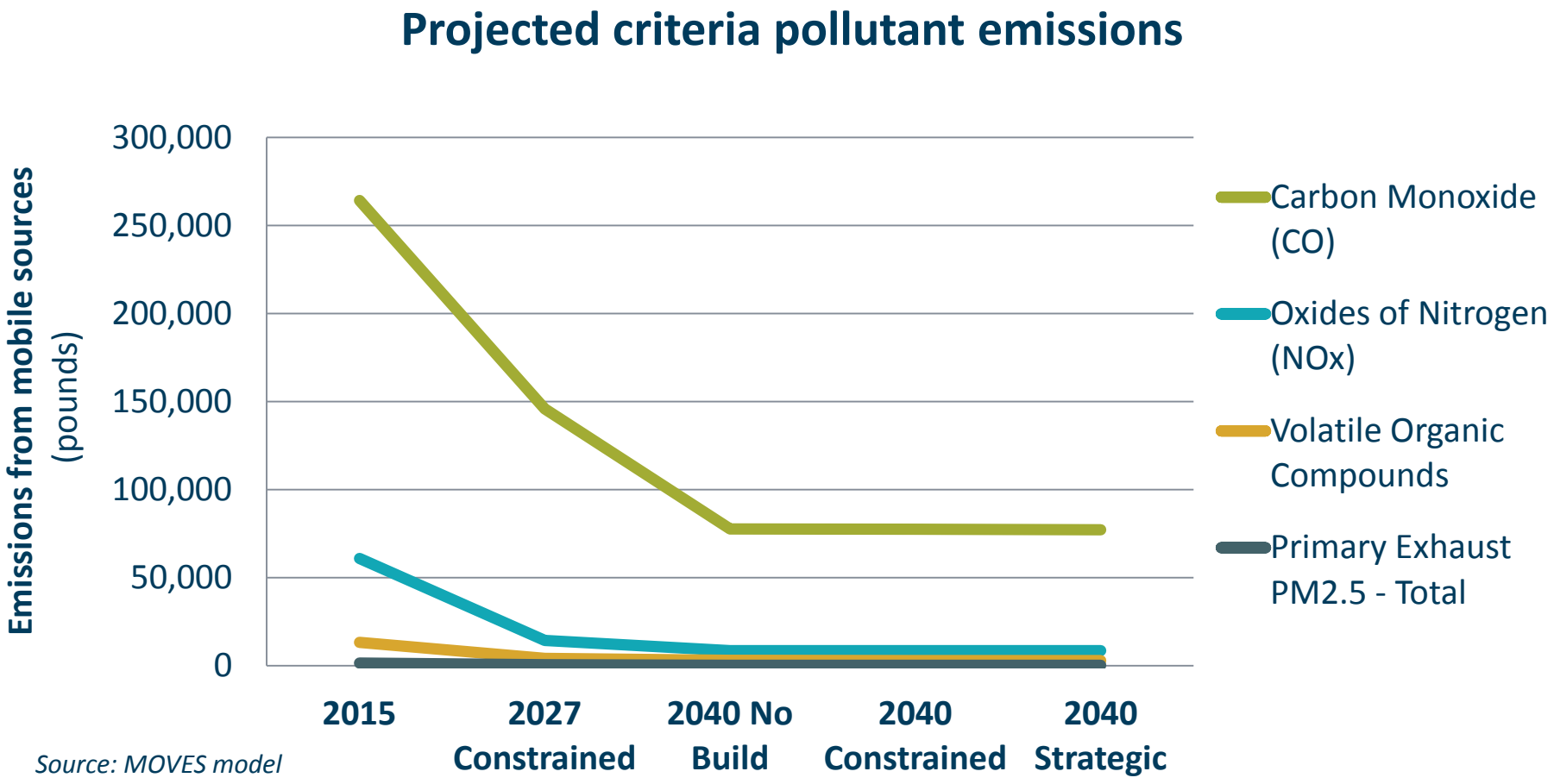
Transportation is expected to contribute less air pollution…

Metro

Measure 16



Source: MOVES model

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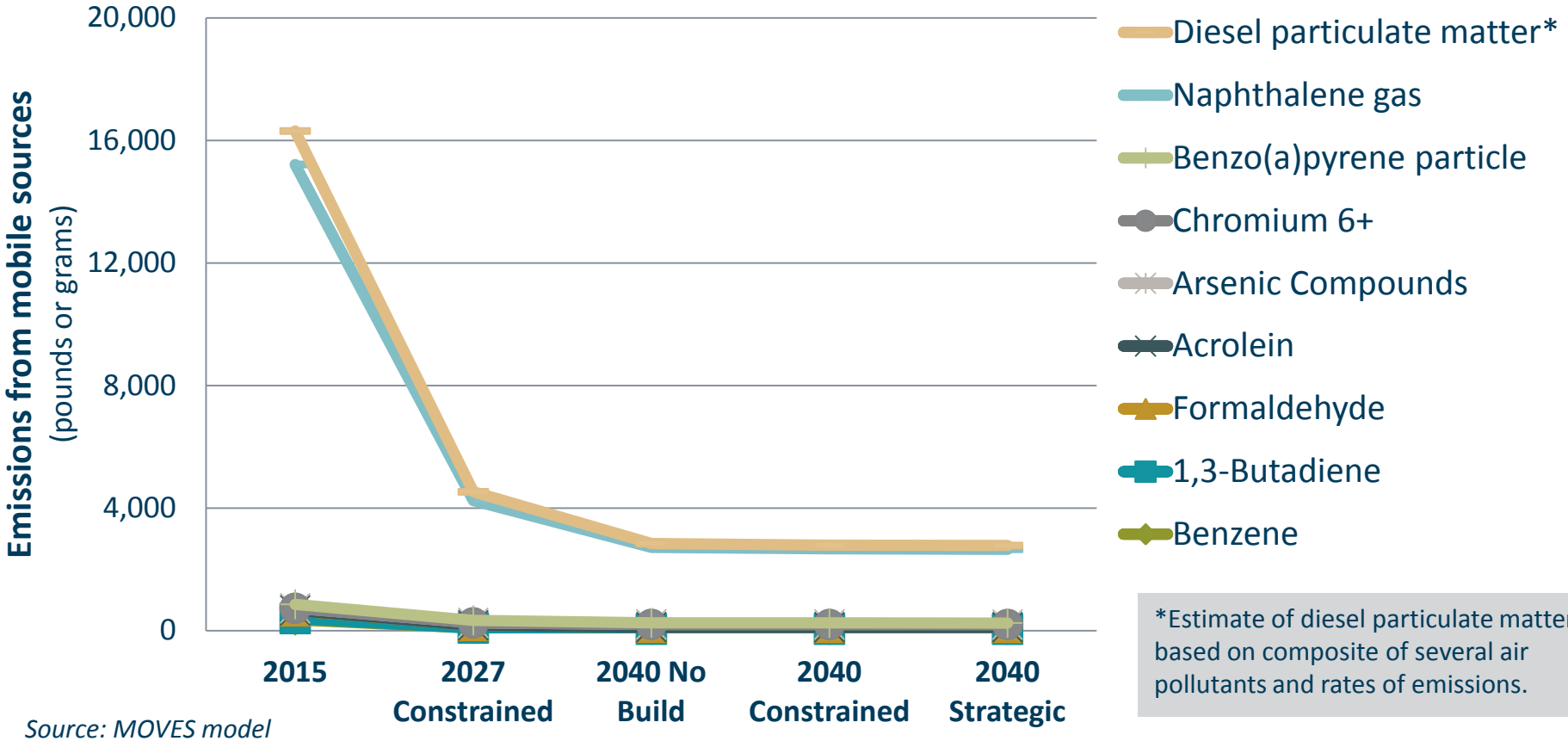
…changes to fleet and improved fuel economy are biggest factor

Metro

Measure 16

Projected air toxics emissions



*Estimate of diesel particulate matter based on composite of several air pollutants and rates of emissions.

Source: MOVES model

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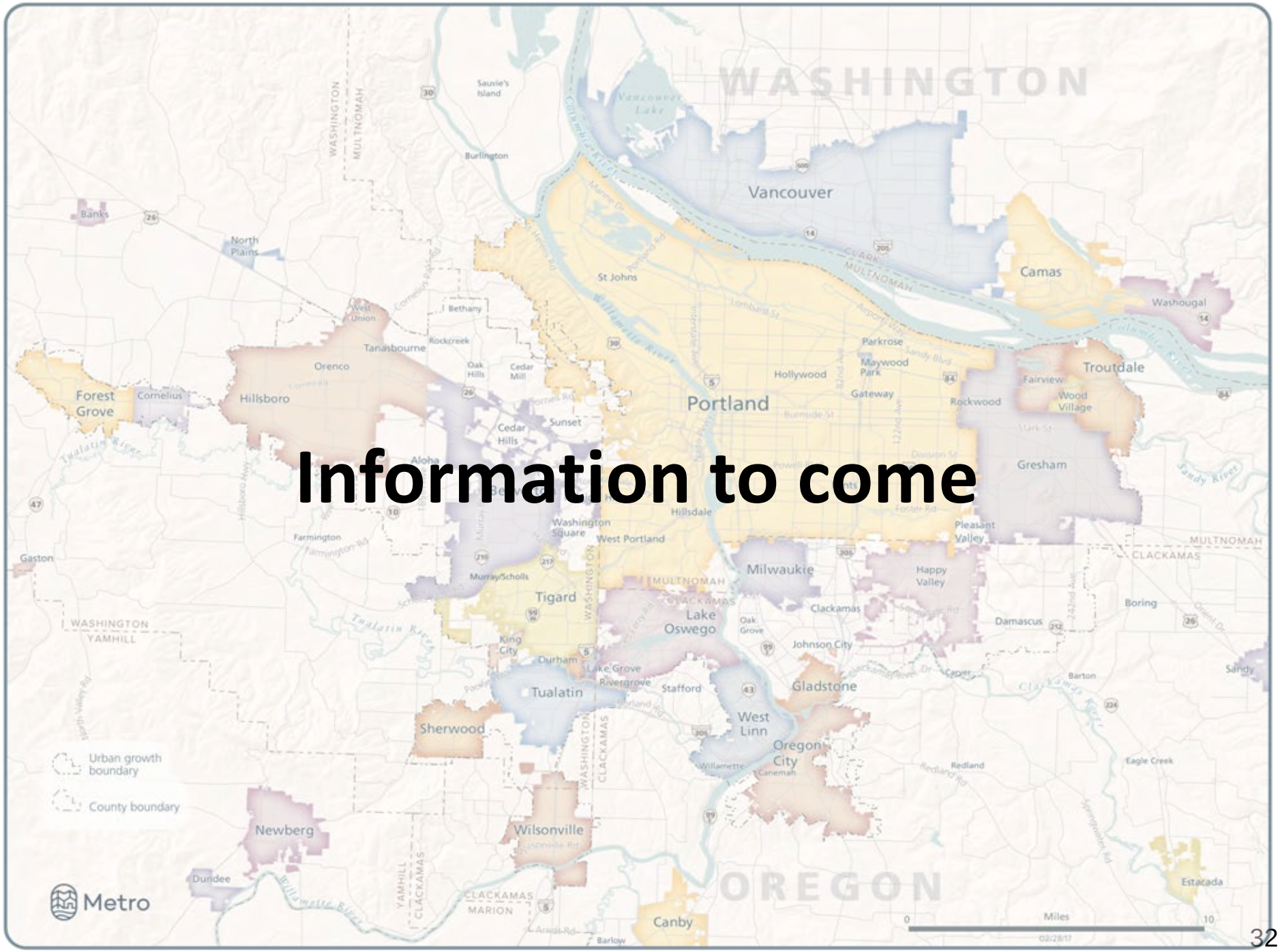
Information to come
WASHINGTON
OREGON
Vancouver
Camas
Washougal
Portland
Gresham
Troutdale
Hillsboro
Forest Grove
Cornelius
Tigard
Lake Oswego
Tualatin
Sherwood
West Linn
Oregon City
Milwaukie
Wilsonville
Newberg
Canby
Estacada
Urban growth boundary
County boundary
Metro
Miles

Analysis still underway

- Health impact assessment by the Oregon Health Authority and Multnomah Co. Public Health staff
- Travel times in regional mobility corridors – auto, bike, freight, transit
- Auto access to jobs
- Connectivity measures
- Transit analysis in support of transit strategy and Enhanced Transit Corridors work
- Costs

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Communicating what we learned and shaping recommendations for 2018

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What does the data suggest to you?

What information and takeaways are most important to highlight in discussion materials?

What are the implications for the 2018 RTP?

- Initial recommendations for project list refinements for Round 2?
- Initial recommendations for future work needed – post-RTP?

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Remaining 2017 discussions

Dec. 4	TPAC/MTAC/work groups workshop on system evaluation
Dec. 6	MTAC discusses initial findings from technical evaluation
Dec. 12	Council receives project update
Dec. 15	TPAC discusses initial findings from technical evaluation, project evaluation pilot, and draft freight strategy

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THANK YOU!

oregonmetro.gov/rtp