BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF ADOPTING THE DISTRIBUTION OF THE POPULATION AND EMPLOYMENT GROWTH TO YEAR 2040 TO LOCAL GOVERNMENTS IN THE REGION CONSISTENT WITH THE FORECAST ADOPTED BY ORDINANCE NO. 15-1361 IN FULFILLMENT OF METRO'S POPULATION COORDINATION RESPONSIBILITY UNDER ORS 195.036	)))))))))	Ordinance No. 16-1371 Introduced by Chief Operating Officer Martha Bennett in concurrence with Council President Tom Hughes

WHEREAS, ORS 195.025 designates Metro as the local government responsible for coordination of planning activities within the Metro district; and

WHEREAS, ORS 195.036 requires Metro, in coordination with other local governments within its boundary, to issue a population forecast for the entire area within its boundary to be applied by Metro and local governments within the boundary of Metro as a basis for changes to comprehensive plans and land use regulations; and

WHEREAS, on November 12, 2015 the Metro Council adopted a population and employment forecast for the region by Ordinance No. 15-1361 (“For the Purpose of Adopting the 2014 Urban Growth Report and Complying with Regional Growth Management Requirements Under ORS 197.299 and Statewide Planning Goal 14"); and

WHEREAS, Metro planning staff have begun work on a required update to the Regional Transportation Plan, which is scheduled for adoption in 2018 and will need to rely on the most current data regarding the distribution of the forecasted population and employment growth for the region; and

WHEREAS, Metro began the process of distribution of the forecasted population and employment in July 2015 by coordinating with the 24 cities and three counties within the Metro district regarding the proposed distribution, including a series of meetings and a review and comment period designed to improve the accuracy of the distributions; and

WHEREAS, Metro staff made presentations to its advisory committees (MPAC, MTAC, TPAC and JPACT) regarding the distribution and coordination with local governments; and

WHEREAS, Metro incorporated comments and suggestions from the cities and counties to refine the distribution; and

WHEREAS, the forecast distributions shown on the attached Exhibit A are expressed in terms of population, households, and employment, and the household estimates are the basis for Metro’s residential capacity analysis; now, therefore,

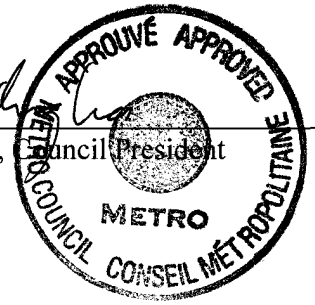
THE METRO COUNCIL ORDAINS AS FOLLOWS:

1. The distribution made to local governments, described in Exhibit A to this Ordinance and in the Staff Report dated August 29, 2016, of the regional population and employment forecast adopted by the Council in Ordinance No. 15-1361, is accepted and adopted as fulfillment of Metro's responsibilities regarding coordination of population forecasts under ORS 195.025 and 195.036 and is endorsed for use by the 24 cities and three counties as their own population and employment forecasts for their planning activities.

2. The Metro Chief Operating Officer shall make the distribution of population and employment available to each city and county in the district.

ADOPTED by the Metro Council this 13 day of October 2016.

Tom Hughes, Council President



Approved as to form:

Alison R. Kean, Metro Attorney

Exhibit A

2040 HOUSEHOLD DISTRIBUTED FORECAST

Created: July 12, 2016

Based on jurisdiction TAZ review accepted by Research Center

City household estimates prorated with 2015 PSU population estimates and Census household size imputations. Estimates and forecasts are bounded by today's city limits.

	2015 Households	FINAL 2040 Household Forecast
INSIDE Metro UGB		
Clackamas County		
Gladstone	4,481	4,877
Happy Valley	5,344	10,219
Johnson City	270	278
Lake Oswego	15,760	17,648
Milwaukie	8,677	10,151
Oregon City	12,682	16,206
Rivergrove	180	195
West Linn	9,723	10,962
Wilsonville	9,553	11,706
Uninc. Clackamas + formerly Damascus	38,652	56,425
Uninc. Clackamas County / future city annex.	35,068	45,143
Damascus / area within 2015 city boundary	3,585	11,281
Clackamas County inside UGB total *	105,323	138,666
Multnomah County		
Fairview	3,771	4,243
Gresham	38,412	45,785
Maywood Park	307	327
Portland	261,804	381,913
Troutdale	5,657	6,544
Wood Village	1,367	1,557
Uninc. Multnomah County /future city annex.	7,247	15,789
Multnomah County inside UGB total *	318,565	456,159
Washington County		
Beaverton	37,808	47,100
Cornelius	3,234	4,908
Durham	777	854
Forest Grove	8,432	13,190
Hillsboro	34,468	47,227
King City	2,005	3,222
Sherwood	6,639	7,454
Tigard	19,585	28,291
Tualatin	10,653	11,362
Uninc. Washington County /future city annex.	79,218	112,605
Washington County inside UGB total *	202,819	276,213
TOTAL inside today's Metro UGB	626,707	871,038
OUTSIDE Metro UGB (including urban reserves/ future UGB adds)		
Rural Cities	15,255	22,151
Uninc. Clackamas County / future city annex.	31,677	39,092
Uninc. Multnomah County /future city annex.	3,923	5,193
Uninc. Washington County /future city annex.	9,574	23,844
TOTAL outside Metro UGB	60,429	90,280
Tri-county TOTAL	687,136	961,318

* Cities in multiple counties are tabulated to the county of majority.

Exhibit A

2040 POPULATION DISTRIBUTED FORECAST

Created: July 12, 2016

City population prorated to match 2015 PSU population estimates.
Estimates and forecasts are bounded by today's city limits.

	2015 Population Estimate (PSU estimate)	FINAL 2040 Population Forecast
INSIDE Metro UGB		
Clackamas County		
Gladstone	11,505	12,083
Happy Valley	17,510	32,314
Johnson City	565	561
Lake Oswego	37,300	40,311
Milwaukie	20,505	23,149
Oregon City	33,940	41,857
Rivergrove	495	515
West Linn	25,605	27,861
Wilsonville	22,870	27,046
Uninc. Clackamas + formerly Damascus	104,353	148,716
Uninc. Clackamas County / future city annex.	93,728	116,447
Damascus / area within 2015 city boundary	10,625	32,269
Clackamas County inside UGB total *	274,648	354,414
Multnomah County		
Fairview	8,940	9,708
Gresham	107,065	123,162
Maywood Park	750	771
Portland	613,355	863,509
Troutdale	16,020	17,884
Wood Village	3,910	4,298
Uninc. Multnomah County /future city annex.	17,809	37,448
Multnomah County inside UGB total *	767,849	1,056,780
Washington County		
Beaverton	94,215	112,651
Cornelius	11,900	17,432
Durham	1,880	1,996
Forest Grove	23,080	34,844
Hillsboro	97,480	128,901
King City	3,425	5,310
Sherwood	19,080	20,674
Tigard	49,280	68,701
Tualatin	26,590	27,372
Uninc. Washington County /future city annex.	213,493	294,279
Washington County inside UGB total	540,423	712,160
TOTAL inside today's Metro UGB	1,582,920	2,123,354
OUTSIDE Metro UGB (including urban reserves/ future UGB adds)		
Rural Cities	42,355	59,608
Uninc. Clackamas County / future city annex.	84,667	100,838
Uninc. Multnomah County /future city annex.	9,641	12,315
Uninc. Washington County /future city annex.	25,802	62,017
TOTAL outside Metro UGB	162,465	234,778
Tri-county TOTAL	1,745,385	2,358,132

* Cities in multiple counties are tabulated to the county of majority.

Exhibit A

2040 EMPLOYMENT DISTRIBUTED FORECAST

Created: July 12, 2016

Based on jurisdiction TAZ review accepted by Research Center

City employment prorated to match 2015 job estimates from QCEW data and OED county estimates. Estimates and forecasts are bounded by today's city limits.

	2015 Employment	FINAL 2040 Employment Forecast
INSIDE Metro UGB		
Clackamas County		
Gladstone	2,700	4,231
Happy Valley	2,858	10,363
Johnson City	8	13
Lake Oswego	19,381	25,265
Milwaukie	12,764	17,376
Oregon City	14,100	22,534
Rivergrove	9	13
West Linn	4,541	6,199
Wilsonville	18,495	26,168
Uninc. Clackamas + formerly Damascus	46,886	76,672
Uninc. Clackamas County / future city annex.	45,554	71,731
Damascus / area within 2015 city boundary	1,333	4,941
Clackamas County inside UGB total *	121,742	188,834
Multnomah County		
Fairview	2,919	6,180
Gresham	35,459	51,998
Maywood Park	16	20
Portland	434,723	559,848
Troutdale	7,893	14,274
Wood Village	2,227	4,190
Uninc. Multnomah County /future city annex.	487	3,585
Multnomah County inside UGB total *	483,724	640,096
Washington County		
Beaverton	57,053	78,471
Cornelius	2,696	4,594
Durham	1,436	1,785
Forest Grove	6,442	9,359
Hillsboro	74,379	114,123
King City	709	1,143
Sherwood	5,463	8,416
Tigard	46,041	63,919
Tualatin	27,342	38,596
Uninc. Washington County /future city annex.	45,040	78,078
Washington County inside UGB total	266,600	398,484
TOTAL inside today's Metro UGB	872,066	1,227,414
OUTSIDE Metro UGB (including urban reserves/ future UGB adds)		
Rural Cities	13,926	24,229
Uninc. Clackamas County / future city annex.	14,960	20,946
Uninc. Multnomah County /future city annex.	2,576	4,527
Uninc. Washington County /future city annex.	6,772	11,936
TOTAL outside Metro UGB	38,234	61,638
Tri-county TOTAL	910,300	1,289,052

* Cities in multiple counties are tabulated to the county of majority.

STAFF REPORT

IN CONSIDERATION OF ORDINANCE NO. 16-1371, FOR THE PURPOSE OF ADOPTING THE DISTRIBUTION OF POPULATION AND EMPLOYMENT GROWTH TO YEAR 2040 TO TRAFFIC ANALYSIS ZONES IN THE REGION CONSISTENT WITH THE FORECAST ADOPTED BY ORDINANCE NO. 15-1361 IN FULFILLMENT OF METRO'S POPULATION COORDINATION RESPONSIBILITY UNDER 195.036.

Date: August 29, 2016 Prepared by: Rebecca Hamilton, x1721

BACKGROUND

Federal and state laws (23 U.S. Code 134 and ORS 197.040, respectively) require Metro to prepare and update a transportation plan for its metropolitan planning area every 5 years. In accordance with these laws, an update of the Regional Transportation Plan (RTP) is currently underway with an intended adoption date of December 2018. This 2018 RTP will need to rely on a traffic analysis zone[1] (TAZ) Distributed Forecast of future population and employment.

In late 2012, Metro adopted the 2035Distributed Forecast that was based on the 2035 Regional Forecast completed in 2009. However, due to recent significant events, the 2035Distributed Forecast is out-of-date. These events include:

- Recovery from the Great Recession was slower and weaker than expected in the 2035 distribution.
- The City of Damascus voted to disincorporate in 2016, making the western portion of the area more likely to develop as part of Happy Valley and the eastern portion unlikely to develop for decades.
- Census data show demographic shifts that have implications for slower regional growth.
- Metro Council adopted a new regional (7-county MSA) forecast in the fall of 2015.

Metro responded to these events by producing the 2040 Distributed Forecast. That product is based on the 2040 Regional Forecast (adopted in 2015) and is designed to ensure that the 2018 RTP is based on the best available information and that the region's land use and transportation plans are consistent.

[1] The TAZ is the geographic unit that serves as the building block of Metro's primary forecasting tools (the travel demand model and MetroScope). The region is divided into 2,162 TAZs. These small subdivisions improve the accuracy of the travel demand model as well as all other aspects of transportation planning. The TAZ-level data also assists land use planners in updating comprehensive plans and zoning, and conducting other types of land use analysis, including neighborhood level analysis.

Oregon land use laws (195.025; ORS 195.036) require Metro to coordinate its regional population and employment forecasts with local governments inside the urban growth boundary for use in updating their comprehensive plans, land use regulations and other related policies. In accordance with this law, Metro coordinated with the local jurisdictions to conduct this Distributed Forecast update for use in the 2018 RTP.

The growth forecast distribution update process

This update was conducted more quickly than previous forecast distribution efforts (which have taken over two years) because it was able to build on the lengthy review conducted for the 2035 Distributed Forecast and the 2014 Urban Growth Report. During those processes, Metro conducted extensive technical engagement to establish the methodology used to identify the region's buildable land inventory (BLI). With this methodology already in place, Metro was able to focus regional coordination efforts on revisions to the base year population and employment counts and the existing BLI based on local knowledge.

The regional coordination of the updated forecast distribution included two main stages of local review.

The first stage involves Metro and local government staff working together to confirm the core inputs to the MetroScope model. These inputs include the 2015 base year numbers for population and employment as well as the buildable land inventory (BLI) that was completed as part of the 2035 Distributed Forecast. Local government staff reviewed these inputs and made revisions based on recent zoning changes, new developments or investments within their respective jurisdictions made since 2012. This review period extended from September 2015 to October 2015.

Metro staff completed modeling using the revised data from this first stage of local review and prepared the results into a draft distribution of population, households and jobs into the region's 2,162 TAZs. The local jurisdictions were then given approximately two months (from mid-November 2015 to mid-January 2016) to examine the TAZ-level results. Jurisdictions wishing to adjust the growth by TAZ (increase or decrease) assigned by the model worked with Metro to re-allocate that growth in a manner consistent with accepted regional figures adopted by the Metro Council.

Metro worked closely with a designated County Lead from each county throughout this second stage to ensure that all participating cities understood their roles and were able to complete their reviews by the deadline. Two additional meetings were held with individual County Leads to review results. With assistance from the County Leads, Metro was able to either accommodate each jurisdiction's proposed changes or negotiate a satisfactory revision where the full change could not be implemented.

In accordance with state law (ORD 195.036), Metro summarized the TAZ distribution (used in transportation modeling) into a jurisdiction-level distribution which is more understandable for local planning activities. In response to feedback from the Metro Technical Advisory Committee (MTAC) and Metro Policy Advisory Committee (MPAC), Metro staff and stakeholders refined this Distributed Forecast for greater accuracy using a revised method of apportioning population, households, and employment to the regional jurisdictions. The resulting product is the draft 2040 Distributed Forecast of population, households and employment to cities and counties in the Portland region.

Regional Planning Directors Involvement

Metro coordinated with regional planning directors throughout the Distributed Forecast update through the local review process. The names of the regional planning directors and leads who participated in this process are included in Attachment 1.

The process began with two kickoff meetings. The first meeting, held in July 2015, convened the planning directors (or designated planning leads) from Clackamas, Multnomah, and Washington Counties. These County Leads acted as liaisons between Metro and the cities within their respective jurisdictions, providing technical guidance to city staff throughout the process and helping to coordinate the timely return of feedback. County Leads also conducted reviews on behalf of several smaller cities with limited planning capacity. The second meeting, held in August 2015, convened the project directors and designated leads from the cities of the region with the County Leads and Metro staff.

Each of these meetings reviewed the purpose, timeline, and instructions for the expedited review process. Based on feedback from the cities at this meeting, Metro revised its proposed timeline in order to provide additional time for review in order to accommodate staff shortages during the holiday season. This revised timeline is included in Attachment 2. Informational materials distributed at these meetings are included in Attachment 3. Technical documentation of the major assumptions and methodology for the model and Distributed Forecast apportionment are included in the Technical Documentation (Attachment 4).

Metro staff communicated with jurisdiction leads primarily via e-mail throughout the local review process. Metro also met with County Leads and cities as needed to coordinate reviews and provide guidance during the second review period. After making the revisions to the draft 2040 Distributed Forecast recommended by MTAC and MPAC, Metro again met with the County Leads to discuss the method used to implement those recommendations and discuss any questions regarding the final product.

Tables showing the draft 2040 Distributed Forecast of population, households and employment for the Portland region are included as Exhibit A.

Metro advisory committee involvement

The updated Distributed Forecast was first presented to the Metro Technical Advisory Committee (MTAC), and Transportation Policy Alternatives Committee (TPAC) in March 2016, and to the Metro Policy Advisory Committee (MPAC) in April 2016 for discussion and comment. Upon incorporating recommendations from these advisory committees, Metro returned to MTAC in July 2016 and received unanimous support for the revised 2040 Distributed Forecast. Metro then brought the revised 2040 Distributed Forecast back to MPAC in September 2016, which unanimously recommended that Council adopt it.

ANALYSIS/INFORMATION

1. **Known Opposition**

   There is no known opposition to the 2040 Distributed Forecast. Metro staff was able to either incorporate local jurisdictions' suggested revisions in the baseline assumptions and distributions or come to agreement on modifications to those assumptions and distributions.

2. **Legal Antecedents**

   Consultation conducted to prepare the 2040 Distributed Forecast satisfies Metro's coordination obligations under ORS 195.025 and 195.036. As requested by DLCD, staff proposes that the Metro Council adopt the 2040 Distributed Forecast by an ordinance that will be acknowledged by DLCD as part of Metro's planning documents in order to support future planning decisions by local governments that rely upon the population forecasts. State law requires cities and counties to adopt coordinated forecasts as part of their comprehensive plans.

3. **Anticipated Effects**

   Adoption of the updated distribution of population and employment forecast will inform the 2018 RTP and ensure that the plan is based on the most recent data available. This localized data will also encourage local governments to use distribution information to conform their land use and transportation plans to regional policies adopted by the Metro Council. Delay of the adoption would delay the development of the 2018 RTP and may delay some local government activities that would be accomplished with the updated 2040 Distributed Forecast information. Note that a new Regional Forecast and Distributed Forecast will be prepared for the Metro Council's consideration as part of its anticipated urban growth management decision in 2018.

4. **Budget Impacts**

   The FY 2015/2016 budget included resources for staff in the Research Center and the Planning and Development Department to work on this project.

RECOMMENDED ACTION

Staff recommends that the Metro Council accept and adopt the updated 2040 Distributed Forecast of population, households and employment which was completed in accordance with Metro's responsibilities on population coordination with local governments in the region to inform the 2018 RTP.

ATTACHMENTS

1. Local government and agency staff involved in process
2. Local review process timeline
3. Guidance documents for local review process
4. Technical Documentation

EXHIBIT

A. 2040 Distributed Forecast of population, households, and employment.

Attachment 1

Local Review Contact List - 2015-2040 Distributed Forecast

LAST_NAME	FIRST_NAME	ORGANIZATION	EMAIL	NOTES
Metro				
Frkonja	Jeff	Metro	jeff.frkonja@oregonmetro.gov	
Williams	John	Metro	john.williams@oregonmetro.gov	
Yee	Dennis	Metro	dennis.yee@oregonmetro.gov	
Reid	Ted	Metro	ted.reid@oregonmetro.gov	
Hamilton	Rebecca	Metro	rebecca.hamilton@oregonmetro.gov	
Copperstone	Paulette	Metro	paulette.copperstone@oregonmetro.gov	
Alfred	Roger	Metro	roger.alfred@oregonmetro.gov	
Counties				
Cerbone	Michael	Multnomah County	michael.cerbone@multco.us	Multnomah County Lead
Barber	Adam	Multnomah County	adam.t.barber@multco.us	Multnomah County Lead
McQuillan	Kate	Multnomah County	katherine.mcquillan@multco.us	
Wardell	Erin	Washington County	Erin_Wardell@co.washington.or.us	Washington County Lead
Hanes	Brian	Washington County	brian_hanes@co.washington.or.us	
Deffebach	Christina	Washington County	Christina_Deffebach@co.washington.or.us	
Singelakis	Andrew	Washington County	andrew_singelakis@co.washington.or.us	
Fritizie	Martha	Clackamas County	mfritzie@co.clackamas.or.us	Clackamas County Lead
Cartmill	M	Clackamas County	barbc@co.clackamas.or.us	
McCallister	Mike	Clackamas County	mikem@co.clackamas.or.us	
Cities				
Smith	Lina	City of Tigard	LinaCS@tigard-or.gov	
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Martin	Brian		brian.martin@greshamoregon.gov	

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Kizzar	Marie		kizzar@ci.wood-village.or.us	
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Kilby AICP	Bradley		kilbyb@sherwoodoregon.gov	

Miller	Michele	City of Sherwood	millerm@sherwoodoregon.gov	
Hurd-Ravich	Aquilla		ahurd-ravich@ci.tualatin.or.us	
Engman	Erin	City of Tualatin	eengman@ci.tualatin.or.us	replaced Cindy Hahn
Franz	Tim		tfranz@ci.cornelius.or.us	
Drake	Rob	City of Cornelius	rdrake@ci.cornelius.or.us	
Damgen	Chris		chris.damgen@troutdaleoregon.gov	
Winstead	Steve		steve.winstead@troutdaleoregon.gov	
Ward	Craig	City of Troutdale	craig.ward@troutdaleoregon.gov	
Palmer	Erika	City of Fairview	palmere@ci.fairview.or.us	
Won	K J	City of Durham	cityofdurham@comcast.net	
Walter	Michael	City of Happy Valley	michaelw@happyvalleyor.gov	
Richards	Sheri	City of Rivergrove	sheri@cityofrivergrove.com	
Kerr	Chris		ckerr@westlinnoregon.gov	
Darren	Wyss	City of West Linn	dwyss@westlinnoregon.gov	
Terway	Laura	City of Oregon City	lterway@ci.oregon-city.or.us	
Boyce	Peter	City of Gladstone	boyce@ci.gladstone.or.us	County Leads managed allocations for these jurisdictions.
Alfino	Chris		calfino@ci.damascus.or.us	
Helm	Diana	City of Damascus	dhelm@ci.damascus.or.us	
Mordock	Kay	City of Johnson City	johnson.city@hotmail.com	
Shay	Ron	City of King City	ronshay@buzzworm.com	
Hardie	Mark	City of Maywood Park	mayorhardie@aol.com	
Other Agencies				
Mai	Chi	ODOT Region 1	chi.mai@odot.state.or.us	
Debbaut	Anne	Oregon Department of Lan	anne.debbaut@state.or.us	
Donnelly	Jennifer	DLCD	jennifer.donnelly@state.or.us	
HARRINGTON	MARK	SW WASHINGTON RTC	mark@rtc.wa.gov	
HART	ROBERT	SW WASHINGTON RTC	bob@rtc.wa.gov	
Bouillion	Tom	Port of Portland	Tom.Bouillion@portofportland.com	

Attachment 2: Local review process timeline

Project Timeline	
July 30, 2015	Convene county coordination leads to review purpose, timelines and roles
Aug. 19, 2015	Convene city/county planning managers for overview of process and timelines
Sept. 15, 2015	Metro Council initial direction on point in range forecast
Sept. 11-Oct. 7, 2015	County leads convene meetings with city staff to confirm: 2015 base year jobs and population Buildable land inventory assumptions (BLI)
Oct. 12-Oct. 30, 2015	Metro staff complete modeling based on local review of base year numbers and BLI
Nov. 2 – Nov. 9, 2015	Metro staff prepares draft distribution results for local review
Nov. 10, 2015 – Jan. 15, 2016	County leads convene meetings with city staff to review draft distribution results
Jan. 19 – Jan 29, 2016	Metro staff finalizes distribution results based on local reviews
March 16 & April 13, 2016	Presentation of draft results to MTAC and MPAC, respectively
April – July, 2016	Metro produces more precise allocation in response to Advisory Committee feedback and coordinates with jurisdictions on revised draft distribution
July 10, 2016	MTAC approves revised draft distribution and recommends it to MPAC
Sept. 14, 2016	MPAC recommends revised draft distribution to Council.
Sept. 29 & Oct. 6	Scheduled 1st and 2nd reads of ordinance before Metro Council

Attachment 3: Guidance documents for local review process

2040 forecast distribution update:
Background and outline of process

What is forecast coordination?
Regional and community plans, policies, and investments work best when they are coordinated and reflect a shared understanding of where household and job growth is likely to occur. One way Metro coordinates its regional forecasts with local governments is to distribute the regional forecasts to smaller geographic areas—Transportation Analysis Zones, or TAZs – using its land use and transportation models. This is called a forecast distribution. These forecast distributions are used to update land use plans, regulations and related policies at the local and regional level.

When was the last time Metro completed a forecast distribution?
Oregon law requires that every six years Metro forecast population and employment growth for the Portland region for the next 20 years. The law requires that Metro then coordinate its regional forecasts with governments within the urban growth boundary. The most recent forecast distribution was adopted by Metro in late 2012 and is based on a regional forecast that was completed in 2009.

Why is a new forecast distribution needed now?
An update of the Regional Transportation Plan (RTP) is getting underway with an intended adoption date of December 2018. The 2018 RTP will need to rely on a TAZ-level forecast distribution. However, the 2012 forecast distribution would provide out-of-date data. To meet RTP deadlines, a new forecast distribution would need to be adopted by the Metro Council by early 2016. Following are some reasons why a new forecast distribution is needed:

- The Great Recession lasted longer and deeper than reflected in the 2012 forecast distribution.
- Recovery from the Great Recession was slower and weaker than expected in the 2012 forecast distribution.
- The City of Damascus appears likely to disincorporate in 2016, potentially making the western portion of the area more likely to develop as part of Happy Valley and the eastern portion unlikely to develop for decades.
- Census data show demographic shifts that have implications for slower regional growth.
- The Metro Council will be adopting a new regional (7-county MSA) forecast in the fall of 2015. Using this new regional forecast as a basis for a TAZ distribution will ensure greater consistency between land use and transportation plans.

How will this process be faster than usual?

The process outlined in the timeline below is faster than previous forecast distribution efforts, which have taken over two years to complete. This update will be conducted more quickly because it will build on the lengthy review conducted for the last forecast distribution and the 2014 Urban Growth Report. During those processes, Metro conducted extensive technical engagement on methods to use to identify the region's buildable land inventory, which is a core input into modeling. This process will not revisit those methodologies. Instead, coordination efforts will focus on base year household and employment counts and revisions to the buildable land inventory that reflect local knowledge.

General timeline (subject to change)

Late July, 2015:	Convene county coordination leads to review purpose, timelines and roles
Early to mid August, 2015:	Convene city and county planning managers or designees for an overview of the process and timelines
September 15, 2015:	Metro Council provides initial direction on point in range forecast
September –October, 2015:	County leads convene meetings with city staff to confirm 2015 base year numbers and buildable land inventory assumptions
Mid November, 2015:	Metro Council urban growth management decision
Early December, 2015:	Metro staff completes modeling
Mid December, 2015:	County leads convene meetings with city staff to review distribution results
Mid January, 2016:	Metro staff finalizes distribution results
Late February, 2016:	Council work session on draft results
Mid March, 2016:	Council consideration of ordinance adopting forecast distribution

2015 TAZ Forecast Distribution: Ground Rules for Redistribution of Growth

Preliminary estimates of employment and household growth distributions (by TAZ) are prepared carefully using the latest information we have on hand based on variables within our control and understanding. Metro will provide a preliminary estimate of TAZ growth allocations that will incorporate the following growth management and transportation forecast inputs:

- A jurisdiction reviewed buildable land inventory
- A regionally accepted regional forecast
- Best available inputs from the transportation demand model
- Current regional land use policies and local zoning codes and regulations

But even so, socio-economic conditions can change quickly or episodic growth occurs in locations and situations that trend expectations would not have foreseen. The economy is comprised of individual businesses and households all growing and responding to socio-economic stimuli and dealing with regulations and rules, but sometimes the actors in the economy may make an idiosyncratic decision that ripples across the region in significant and unpredicted fashion. As a result, the local review of growth allocations is very important to the process.

Metro will provide "preliminary" TAZ-level growth allocations to be reviewed. General ground rules for adjusting these TAZ level growth projections:

1. Cities / jurisdictions will be given a "control" total for the amount of growth expected in jobs and households between 2015 and 2040. If cities / jurisdictions accept their totals, they may adjust their TAZ allocations within their own single city / jurisdiction as they see fit. (Some cities may have urban service boundaries and agreements to perform the planning on behalf of the unincorporated area or adjacent jurisdiction(s). This can be accommodated with the consent of the jurisdictions in order to avoid "double counting".)
2. Cities who want to adjust the total growth (increase or decrease) assigned as a whole must identify the desired change in growth totals and seek county and Metro guidance to make any cross-jurisdiction adjustment(s). It is important to the allocation process that regional and county growth totals match with accepted regional figures handed down from the Metro Council. To the extent possible, mutual agreement is desirable.
3. The county may choose to adjust (increase or decrease) rural or unincorporated growth by swapping growth with incorporated cities from within their own county if the city(s) agree. The county is responsible for maintenance of its assigned unincorporated county growth total and the sum of growth distributed to incorporated cities. If the county feels that its growth total assigned to it needs to be adjusted (increase or decrease), but wants to hold its cities "harmless", it should seek guidance with Metro and the other counties to determine if cross-county redistribution is agreeable. The county is responsible (under state law) for the distribution of growth to cities outside the Metro boundary, but Metro is not. To the extent possible, mutual agreement is desirable for maintaining the county and regional growth totals in this distribution process.
4. Growth allocations with Clark county will be handled outside of this process due to different state rules and regulations.

TAZ Forecast Distribution Outreach & Coordination (2015 to 2040)

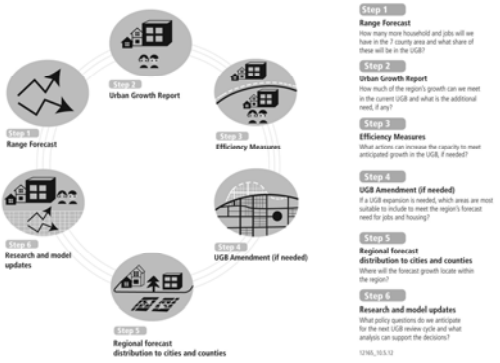
August 19, 2015

Metro Council Chambers

Today's Agenda

Desired outcome: Shared understanding of project purpose, objectives, roles, and proposed timeline.	
10:00	Introductions *(Williams)*
10:05	Review purpose of meeting, project background and linkages to other Research Center priorities *(Frkonja)*
10:10	Connection to Urban Growth Management Decision and Regional Transportation Plan *(Williams)*
10:15	Explanation of consultation diagram and role of County Leads *(Yee, Wardell, Fritzie)*
10:20	Overview of model specifications with identification of items needing review *(Yee)*
10:30	Review project timeline *(Hamilton)*
10:35	Questions and discussion *(All)*
11:00	Adjourn

UGB Growth Management Cycle



Regional Forecast (Demand)

- *2015 base year est.*
- residential income brackets
- employment by industry class (*point in range*)

Capacity (Supply)

- *BLI (Metro)*
- Damascus disincorporation
- Prospective UGB adds
- BLI Tri-county outside UGB
- BLI Clark County
- BLI rural counties

MetroScope

Land Use Forecasting & Growth Distribution Assumptions

Other Forecast Inputs & Assumptions

- SDC fees
- Res. Neighborhood Score
- Transport investments
- Res. Investment Subsidies

2040 TAZ Growth Distribution (finalize by January 2016)

Growth Distribution Facilitation

Case 1: City growth total & TAZ distribution — (may shift allocation around as desired within city so long as jurisdiction stays within its assigned growth allocation)

Case 2: City 1 / City 2 or uninc. part of county — (City 1 consults with other city(s) or county to shift TAZ growth assignment up/down, but is expected to maintain county total)

Case 3: City 1 / City 2 or uninc. part of County 1 / City 3 and other County 2 — (County 1 is unable to maintain its assigned county total and needs to shift growth to another county)

Metro staff will be on hand to help facilitate / coordinate growth allocations in all cases.

Project Timeline

Late July 2015	Convene county coordination leads to review purpose, timelines and roles
Mid-to-late Aug. 2015	Convene city/county planning mgrs. for overview of process and timelines
Sep. 15, 2015	Metro Council initial direction on point in range forecast
Sep. - Oct. 2015	County leads convene meetings with city staff to confirm: • 2015 base year jobs and population • Buildable land inventory assumptions (BLI)
Mid Nov. 2015	Metro Council UGB decision
Early Dec. 2015	Metro staff completes TAZ modeling & forecast
Mid Dec. 2015	County leads convene meeting with city staff to review forecast distribution / results
Mid Jan. 2016	Metro staff finalizes TAZ forecast distribution
Late Feb. 2016	Council work session on TAZ forecast distribution
Mid March 2016	Council consideration of ordinance to adopt TAZ distribution

Q & A and Next Steps

Contact Info

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- County leads:
  - Adam Barber (Multnomah) adam.t.barber@multco.us
  - Martha Fritzie (Clackamas) mfritzie@co.clackamas.or.us
  - Erin Wardell (Washington) erin_wardell@co.washington.or.us
- Buildable Lands Inventory methods (UGR, Appendix 2)

http://www.oregonmetro.gov/sites/default/files/Appendix%202%20-%20BLI%20methods.pdf

MetroScope Scenario Proposal for 2015 RTP TAZ Forecast Allocation

August 2015 Metro Research Center

Theme	Major category	Subcategory	Scenario Assumption
DEMAND (FORECAST)	Forecast control totals for Portland-Hillsboro-Vancouver, OR-WA, MSA (7 counties) *Source: MARIO14.xlsx*	Households	2010: 867,794 (Census 2010) 2035: 1,185,775 (point in range TBD) 2010-35: 317,981 %APR: 1.26%
		Employment	2010: 968,800 (BLS 2010 estimate) 2035: 1,484,500 (point in range TBD) 2010-35: 515,500 %APR: 1.76%
		Income Bracket	Update regional income to Census based 2010 dollars (HIA distr.)
SUPPLY (CAPACITY)	Metro UGB	Vacant Buildable Land	2013 vacant land based on aerial photography, permit data, and assessor records and amended by local review. Environmental constraints based on latest 2010 data and major known utility easements (methodology described in 2014 UGR draft, App. 2)
		Damascus	Utilized the capacity in the disincorporation scenario, i.e., western part phased in at new urban densities per Damascus zoning concepts and eastern part remains as current rural zoning by Clackamas (No Damascus scenario)
		Redevelopment and Infill	Tax lots are eligible for redevelopment if the total real market value (land + improvements) per square foot is less than a "strike price", estimates overseen by the local BLI review process (methodology described in 2014 UGR draft, App. 2)
		Recent UGB Expansions	Post-1994 expansion areas are a combination of local zoning, comp plans, and concept plans. New areas inside the UGB as a result of HB 4078 are assumed to follow the Metropolitan Housing Rule (50% capacity in Multi-family)
		Prospective UGB Expansions	Expansion locations based on the 2011 Urban Reserves decision and HB 4078. Timing of infrastructure availability informed by local jurisdiction review from "gamma forecast"
	Tri-County Outside UGB	Urban Areas	Buildable capacity assumed to be twice the 2000 Census households, except where information was provided by local jurisdictions.
		Rural Residential	Exception land , excluding public ownership and high-value properties. Dwelling unit capacity calculated from minimum lot size of county zoning.
		Measure 49	Assumes three dwelling units per Measure 49 claims
	Clark County	Vacant and Developed Land	2012 VBLM - provided by Clark County GIS, using Clark County methodology
		Rural Residential	2012 Draft rural residential study
		Urban Growth Area Expansions	Clark Co. urban reserve areas in effect in 2009. Zoning is based on latest comp plans
	Columbia, Yamhill, Marion Counties	Urban Areas	Buildable capacity assumed to be twice the 2000 Census households, except where information was provided by local jurisdictions.
OTHER FORECAST INPUTS	Residential Construction Costs (SDC fees)		Per unit construction costs based on Metro and Homebuilders Association surveys.
	Residential Neighborhood Score		Neighborhood score is an input that describes the relative desirability of different neighborhoods based on statistical analysis of historic residential sales data.
	Transportation & Accessibility		Transportation networks from the Metro 2035 RTP: 2015 forecast years: no build network (2014 RTP) 2020, 2025 forecast years: 2017 AQ network (2014 RTP) 2030, 2035 forecast years: "financially constrained" 2040 network (2014 RTP) 2040 forecast year: Climate Smart Communities 2035 network
	Incentivized Redevelopment (e.g. Urban Renewal Subsidies)		Three tiers of location specific incentives ($50,000, $25,000 and $10,000 per new redeveloped unit) which reflect locations with active residential urban renewal or represent other incentives, such vertical housing tax credit. Capacity varies for specific areas receiving subsidies in accord with program boundaries and the units estimated from BLI analysis (please refer to the schedule for incentivized redevelopment in the 2014 UGR, App. 11)

Technical Documentation

2040 Distributed Forecast

Methodology & Assumptions

(2015-40 Distributed Forecast "WILLIAM Scenario #1522")

Metro

- Research Center
- Planning and Development Department

August 2016

2040 Distributed Forecast

This report summarizes major assumptions and methods for the Distributed Forecast and includes summary tables and charts.

Forecast Mandate

Oregon state law mandates that metropolitan service districts prepare a coordinated population forecast[1]. Metro, as the coordinating body for the Portland metropolitan area[2], allocates regional population and employment forecasts to smaller areas within the Metro urban growth boundary. To carry out this function Metro develops Traffic Analysis Zone[3] (TAZ) land use forecasts for use by itself, cities, and counties in the region. The resulting product, the "Distributed Forecast" is a joint effort between Metro and local governments[4] that fulfills the state requirement. This coordinated forecast facilitates periodic land use planning and supports transportation planning.

Metro also serves as the Metropolitan Planning Organization[5] (MPO) designated under federal authority to plan for transportation needs for the Oregon portion of the Portland-Vancouver-Hillsboro, OR-WA urbanized area. Federal planning regulations require Metro to conduct continuing, comprehensive, and collaborative transportation planning that facilitates the efficient and economic movement of people and goods in the metropolitan area.[6] At minimum, the coordination of land use forecasting and transportation planning requires that the region assess and evaluate the impact of land use decisions on the accessibility of goods, services, resources, and other opportunities. Coordinating (or integrating)

[1] ORS 195.033 (Area population forecast)
[2] ORS 195.036 (Metro area population forecast coordination)
[3] Traffic Analysis Zones are travel / commuter sheds that represent areas of concentration of resident locations or commuter work locations. A TAZ is the unit of geography commonly used in Metro's transportation planning models. Zone sizes vary and the number of zones is periodically updated to account for changes in development densities. The current Metro TAZ system has a total of 2162 zones in its urban, suburban and ex-urban settings. 2147 zones belong in the four-county metropolitan area and the remaining zones account for rural ex-urban counties adjacent to the Metro region. Typically, suburban and ex-urban areas have larger zone sizes, while central business districts and densely populated residential areas have much smaller zones. Zones are created from census block information. Typically, these blocks provide the socio-economic data used in Metro's transportation demand models. They are generally the size of census block groups, but have boundaries not related to census tracts or block group delineations nor do the boundaries generally coincide with streets or city limits. Metro's TAZ boundaries are unique geographies designed around transportation "cut lines".
[4] ORS 195.020 (Special district planning responsibilities)
[5] Metropolitan Planning Organizations are responsible for planning, programming and coordination of federal highway and transit investments in urbanized areas.
http://www.bts.gov/external_links/government/metropolitan_planning_organizations.html
[6] http://www.fhwa.dot.gov/hep/guidance/

land use and transportation supports "*smart growth*"[7]. The Metro charter gives the agency the responsibility for regional land use planning and long-range transportation planning. The Distributed Forecast thus also fulfills federal and Metro charter provisions in addition to state requirements.

Metro's forecast distribution process delivers a comprehensive and collaborative regional growth distribution that uses appropriate modeling and forecasting tools. MPO planning rules require Metro to maintain transportation and land use forecasting models and growth projections that are consistent with applicable regulations. Metro operates a regional economic model, a regional travel demand model based on a traditional 4-step approach,[8] and a land use allocation model called MetroScope[9]. These tools incorporate state of the art transportation and land use forecasting methods. Federal and state authorities annually assess and review Metro's data analysis, statistical, and forecasting methods[10]. Metro thus prepares its regional forecasts and growth distributions under scrutiny of federal requirements that meet high levels of forecasting integrity. Metro's models incorporate the latest set of assumptions available at the time of application. The process is as transparent and collaborative as possible, with frequent consultation between Metro, area local governments, and stakeholders. The Distributed Forecast process achieves the Metro goal of providing public value through effective analytical support for policy decisions.

What growth forecast product does Metro produce?

To fulfill Metro's growth planning mandates its staff apply a regional economic model to produce a forecast range of future total population and employment for the region as a whole. During the Urban Growth Management (UGM) process the Metro Council chooses the point within the range that will serve as the *Regional Forecast*. In another part of the UGM process Metro staff apply the MetroScope land use allocation model to disaggregate the Regional Forecast into smaller geographies ("R-zones" for households and "E-zones" for employment; these zones are Census Tracts or groups thereof). The MetroScope forecast informs the capacity analysis required by the UGM process. Metro documents the Regional Forecast, capacity analysis, and related findings in the Urban Growth Report (UGR).

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[7] http://www.fhwa.dot.gov/planning/processes/land_use/

[8] Metro is in the middle of a development cycle to upgrade to a new activity-based transportation model (i.e., DASH) and dynamic traffic assignment models (i.e., Dynameq and DYNUST).

[9] MetroScope is an integrated land use-transportation modeling tool developed by Metro's Research Center. It is a very detailed representation of an urban land market, complete with methods to estimate supply, demand and equilibrium prices and to allocate development trends to specific locations throughout the greater Portland region. Both households and employment are distributed by the MetroScope model to various TAZ locations. The model is an economic simulation tool capable of assessing the economic well-being and potential policy impacts for various demographic groups and subareas of the region given alternative land use and transportation assumptions.

[10] A Unified Planning Work Program (UPWP) is developed annually by Metro. It is a federally-required document and includes a process known as self-certification to demonstrate that the Portland MPO (Metro) planning process is being conducted in accordance with all applicable federal planning requirements.

After completing the UGM process and producing the final UGR, in cooperation with local government planning partners, Metro produces the *Distributed Forecast*. The distribution covers the 7-county region[11] by spatially disaggregating the Regional Forecast to transportation analysis zones (TAZs) using MetroScope and additional tools. Local government land use experts review and fine-tune the preliminary Distributed Forecast before Metro Council adopts the final product. The 2040 Distributed Forecast covers the period from 2015 to 2040[12]. Local governments may then adopt the growth distributions for their city, for example, as they update their own comprehensive plans or transportation system plans (TSPs) while Metro uses the distribution as an input to transportation planning processes such as the Regional Transportation Plan (RTP) update.

The Urban Growth Report includes a range forecast for population and employment for the MSA region. What point in the range is the Distributed Forecast based upon?

The Metro Council has the responsibility of "picking a point within the regional range forecast". In the 2015 growth management decision (per Metro ordinance #15-1361), the Council chose to accept the "baseline forecast" which is midpoint of the forecast range.

What are the geographic extents of the Regional Forecast and Distributed Forecast products?

The Regional Forecast covers the 7 county MSA (Portland-Hillsboro-Vancouver, OR-WA, MSA). This includes the following counties: Clackamas, Columbia, Multnomah, Washington, Yamhill (in Oregon); and Clark and Skamania (in Washington state).

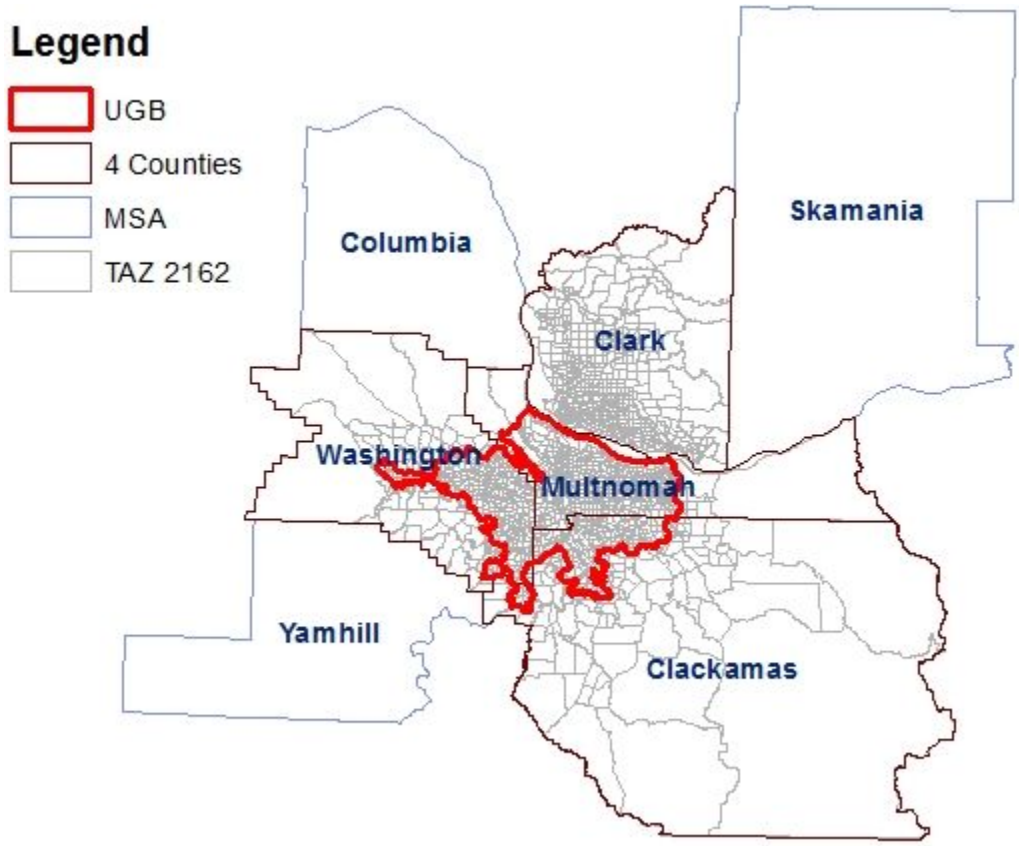
The Distributed Forecast covers the Transportation Analysis Zones (TAZs) used in the regional travel demand forecast model. The TAZs are small geographic areas numbering 2,162 in total. The first 2,147 TAZs cover the 4-county region (Clackamas, Multnomah, Washington and Clark). The remaining TAZ numbers (numbers 2,148 to 2,162) represent "external" zones beyond those four counties. The distribution primarily focuses on the TAZs inside the Metro Urban Growth Boundary (UGB) plus Clark County since those are critical to travel demand forecasting.

[11] The Metro regional forecast is developed from a regional macro-econometric model. Projections from this model include population by age, householders by age, employment by industry (NAICS), wages and income. The regional forecast is an aggregate trend projection for the Portland-Vancouver-Hillsboro, OR-WA metropolitan statistical area (MSA). The MSA includes 5 Oregon counties (Clackamas, Columbia, Multnomah, Washington and Yamhill) and 2 Washington counties (Clark and Skamania). The MetroScope model is later used to spatially disaggregate regionwide growth estimates to TAZ level estimates.

[12] The forecast distribution can optionally be extended an additional 5 years to the year 2045. This extension has not been completed at this time.

The map (below) illustrates the main boundaries of the two products and includes the UGB as well.

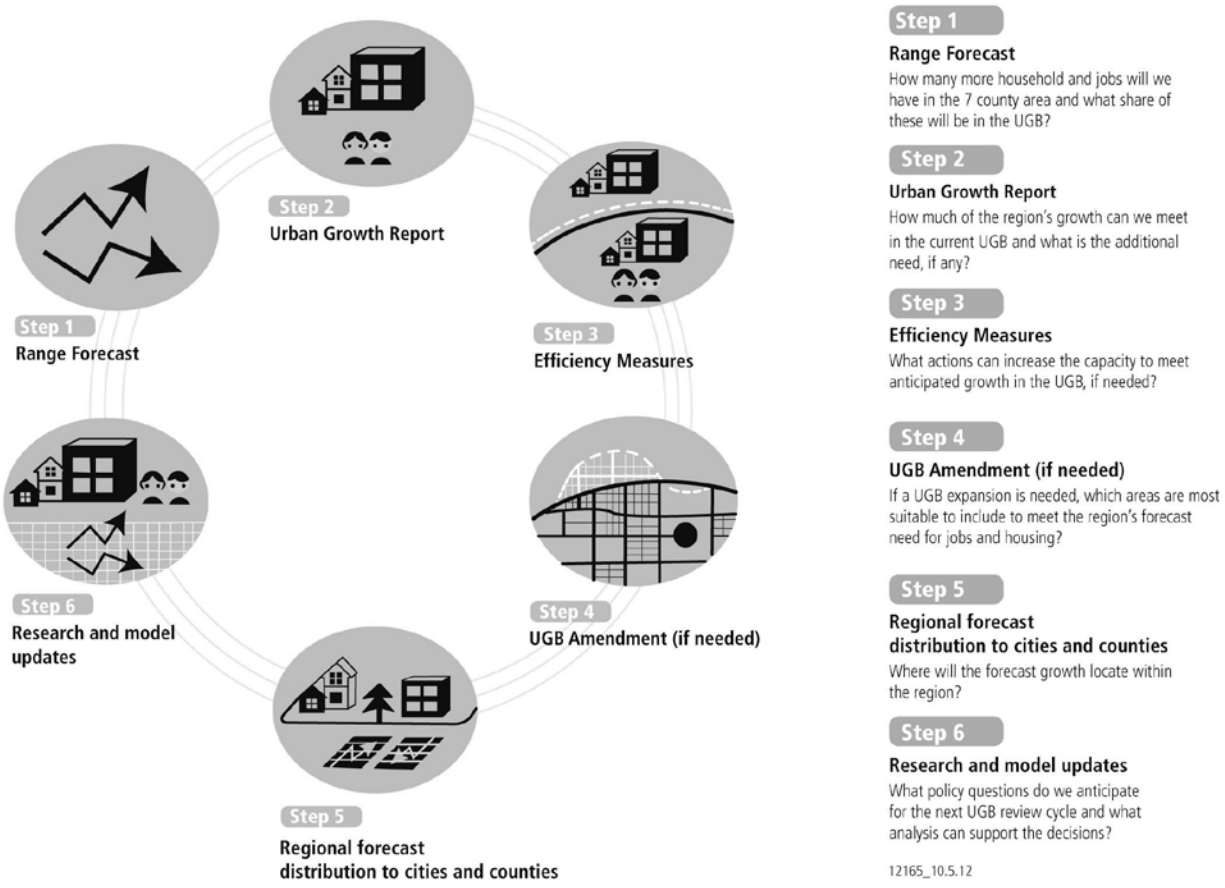
Map 1: Regional Forecast (MSA) and Distributed Forecast (TAZ 2162) Geographies



How often are Metro forecasts and growth distributions updated?

State law requires Metro to assess the region's capacity to accommodate urban growth within the Urban Growth Boundary[13] at minimum every six years. Each Urban Growth Management (UGM) cycle produces a new Distributed Forecast to ensure that forecast products incorporate the latest policy assumptions endorsed by the Metro Council and thereby coordinating transportation planning with growth planning. Figure 1 (below) illustrates the overall process.

Figure 1: Urban Growth Management (UGM) Process



When will the Metro Council adopt this TAZ growth forecast distribution?

At the time of writing, Metro staff anticipates that the Metro Council will review the Distributed Forecast in late September 2016 and adopt it by ordinance in early October 2016.

[13] ORS 197.296(3) requires Metro to complete 1) an inventory of the supply of buildable lands in the UGB; 2) performance measures including actual density and housing mix during the past 5 years; 3) an analysis of a 20-year housing need projection.

When are the next scheduled UGR update and TAZ forecast update?

Metro will prepare a new regional forecast and UGR update earlier than the customary six-year cycle. Metro Ordinance 15-1361 directs "…Metro staff to produce a new draft urban growth report within 3 years from the date of this ordinance", which was adopted in December 2015. Metro plans to produce a new Urban Growth Report based and an updated Regional Forecast, Buildable Land Inventory (BLI), and related analysis by mid-2018. Metro staff will develop at that time an updated Distributed Forecast, if needed, based on the 2018 UGR and any related Council decisions.

What is the relationship between the Regional Forecasts in the Urban Growth Report and the Regional Transportation Plan (RTP) update?

Metro seeks to use the same Regional Forecast for both growth and transportation planning. By adopting in 2016 a 2040 Distributed Forecast based on the 2040 Regional Forecast, the next RTP update can be based on the same economic and population outlook that informed the current UGR and current UGB.

What technical tools and processes does Metro use to create the forecast products (What is MetroScope)?

Metro staff uses MetroScope to estimate where within the region residents and jobs from the Regional Forecast will locate in the future. MetroScope is an econometric land use allocation model based on applied real estate and mainstream economic theories. It mathematically represents behaviors observed in real-world real estate markets; it estimates supply and demand and iterates to find an equilibrium price that matches the two. Modeled real estate supply includes vacant buildable land, market-rate redevelopment and infill, and incentivized redevelopment capacity for the forecast area. The model characterizes residential demand by household attributes and commercial demand by employment categorized by industry type. MetroScope's purpose is to forecast future spatial distributions of employment and households based on a thorough and internally consistent simulation of regional real estate market behavior.

In the MetroScope treatment, demand for residential real estate depends on location factors, demographic characteristics of households, and economic trends. Demand for commercial and industrial real estate depends on the type of economic activity. Supply depends upon construction costs for different building types and prices that households and businesses are willing to pay for residential, commercial, and industrial real estate. The model seeks equilibrium in that it estimates the total cost of housing or commercial space and the price households or businesses are willing to pay for those goods, then places households and jobs where purchaser and supplier prices match.

Census and other economic data from state and federal sources provide the model with base year land use, demographic ,and economic information that can influence the spatial growth trends in future years. The model formulates household (or employment) location choice in behavioral terms that respond to projected changes as influenced by the following inputs:

- future population and employment totals from the adopted Regional Forecast
- land supply estimates and capacity assumptions from the Buildable Lands Inventory (BLI)
- land use regulations (e.g. zoning, urban reserves, concept plans, etc.)
- development incentives (e.g. public investments in urban renewal)
- transportation system performance (e.g. access to opportunities)
- demography (e.g. population ages, incomes, and migration trends)
- economic and employment trends (e.g. fewer manufacturing but more service jobs).

Spatial preferences in MetroScope can vary with location and other factors because the model responds to regional growth projections that include anticipated shifts in the economic make up of the region (e.g., proportionally less manufacturing growth expected) and shifts in demographic structure (e.g., aging populations). As the model accounts for these elements it can estimate faster (or slower) growth across different residential neighborhoods depending upon how well capacity in those places satisfies residential housing demand (and similarly for commercial land markets).

MetroScope is sensitive to public policy inputs. Policy assumptions can provide ceilings for how much growth can be accommodated (e.g. zoning and growth concept plans). Other policies may be designed to influence the market clearing price for residential development in centers and corridors (e.g. urban development incentives). The model also accounts for transportation investments (e.g. those in the Regional Transportation Plan) that can improve future accessibility to housing and jobs and ultimately affect the location choices of business and residents.

MetroScope itself operates in geographic zones (R-zones and E-zones) that are typically Census Tracts or groupings of tracts. After the Metro Council adopts a final Urban Growth Report (UGR), Metro staff employs another software tool known as “Mapback” to disaggregate the UGR-specified Regional Forecast into more-detailed Traffic Analysis Zones (TAZs). Metro then cooperates with local jurisdictions across the region to fine tune the result into the Distributed Forecast.

In summary, a Distributed Forecast produced by the Metro toolkit represents a consistent and thorough estimate of how public land use policies and transportation investments are likely to distribute future regional growth.

Regional Forecast Summary

Overview

Metro forecasts that the region will add 40% to 50% more residents by the year 2040. The median population age is expected to increase. The composition of the population is likely to grow more diverse,

with a proportionally higher concentration of Latino and Asian residents. Economic disparities among residents will likely increase as the porportion of people in the middle income brackets decreases.

Metro expects that the composition of the regional economy will continue to evolve. The emergence of new competitors and technological improvements will drive industrial change. High-technology industries will likely grow while resource-based industries such as forest products and metals are likely to diminish. The forecasts show the non-manufacturing sector growing proportionally faster in the region, especially health and business services providers.

Economy in Review

The Great Recession began late in 2007 and officially ended in the U.S. at midyear 2009. The Portland region entered the recession later than the rest of the nation and lagged even more coming out of it. The region's recovery – like much of the U.S. – at first showed small year-on-year growth. This economic state persisted over roughly three years and prolonged the public impression that the region was still mired in a recession. Only in the year and half beginning in early 2014 has the regional economy demonstrated stronger economic momentum. Table 1 shows year-over-year employment and population growth rates to illustrate this history.

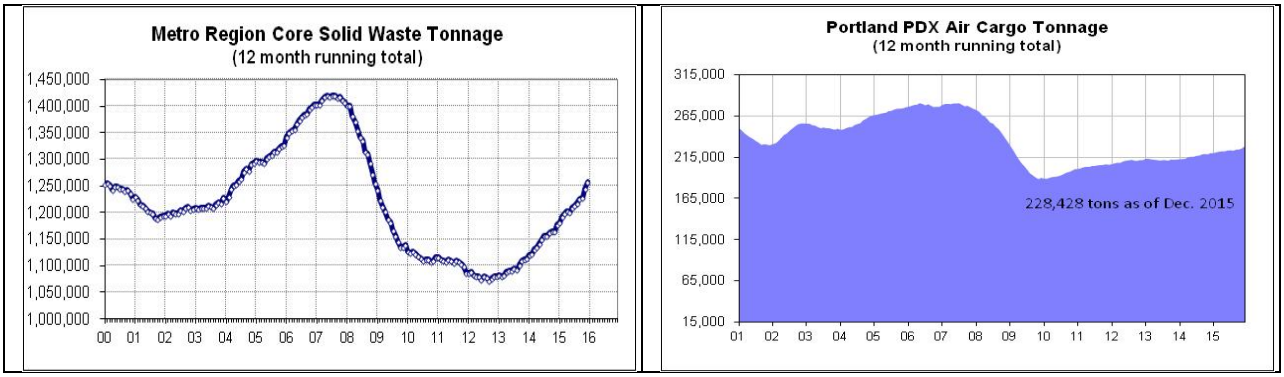
Table 1: Annual Population and Employment Growth Rates, Portland-Hillsboro-Vancouver OR-WA MSA

Year	Annual Employment Growth	Annual Population Growth
2006	3.2%	1.7%
2007	2.0%	1.6%
2008	0.0%	1.6%
2009	-5.7%	1.6%
2010	-0.4%	0.9%
2011	2.0%	1.1%
2012	2.2%	0.7%
2013	2.4%	1.1%
2014	2.9%	1.4%
2015	3.3%	1.6%

Other co-incident economic indicators reveal a regional economy that is finally reducing unemployment in the region and providing economic vitality across all sectors. The region's unemployment rate topped 11.3% at the lowest point of the Great Recession but now stands, on a seasonally adjusted basis, at 4.9% as of December 2015 (below the U.S. at 5.0% and Oregon's statewide 5.4%).

Solid waste figures that Metro collects provide a regional economic indicator (more waste signifies greater economic activity) independently from federal statistics. The historical waste volume figures indicate significant momentum in the region's business cycle and suggest that the recovery still has headroom to peak in comparison with pre-recession figures. A second indicator – the Port of Portland's measurement of air cargo tonnage – delivers the same story about the region's economic situation.

Figure 2: Additional Regional Economic Indicators



2015 to 2040 Regional Forecast Summary

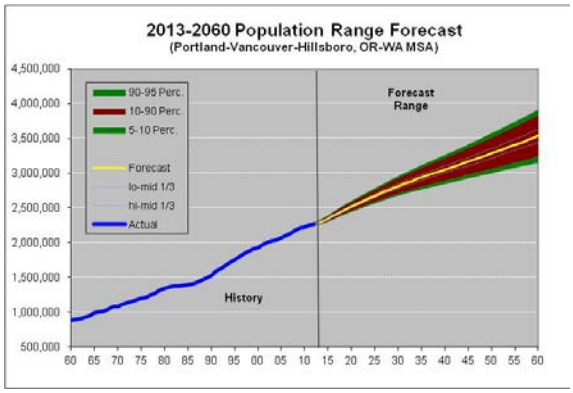
Metro prepared the initial regional forecast in late 2014, based on the IHS Global Insight November 2014 U.S. macroeconomic outlook. The national economic conditions in that outlook did not foresee large year-on-year gains in the short term as economists speculated that growth at or below 2% might be the "new normal" for the near future.

The Metro Council in its acceptance of the 2014 UGR recommendation and 2015 UGB growth management decision selected the midpoint of the regional range forecast. The final 2014 UGR documents the adopted midpoint Regional Forecast; see Appendix 1 of that report[14] for details.

Figure 3: Adopted 2010-40 Regional Population & Employment Summary (7-county MSA)

Total Population: 2015 -2045 Regional Forecast (7-county MSA)

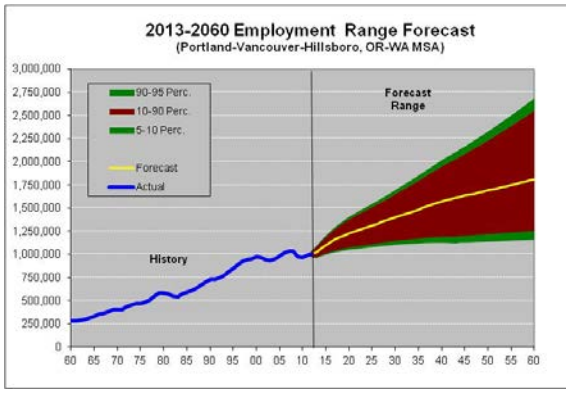
	"WILLIAM scenario"
2005	2,067,325
2010	2,226,009
2015	2,342,500
2020	2,519,200
2025	2,671,800
2030	2,814,100
2035	2,937,900
2040	3,052,100



[14] Appendix 1, 2014 Urban Growth Report, http://www.oregonmetro.gov/urban-growth-report

Total Employment: 2010 -2045 Regional Forecast (7-county MSA)

	"WILLIAM scenario"
2005	983,526
2010	968,800
2015	1,100,000
2020	1,228,100
2025	1,311,600
2030	1,399,800
2035	1.484.500
2040	1,571,300



The regional forecast totals and TAZ-level growth allocations are code named "WILLIAM" for reference and archival purposes. The baseline (yellow line) represents the midpoint of the range. The "red cones" represent approximately one standard deviation and the "green bands" represent up to 2 standard deviations from the baseline projections.

Distributed Forecast Process Overview

To create the Distributed Forecast product Metro staff first verified the Buildable Lands Inventory assumptions with county and local jurisdictions. Metro next applied the land use forecast model toolkit to create a preliminary distribution of households and jobs by TAZ. Third, Metro--working closely with county staff—supplied the preliminary distribution product to local jurisdictions. Since the preliminary distributions contain some uncertainty at detailed geographies, the third step in the process gave local jurisdictions an opportunity to review and propose revisions to the TAZ-level household and employment estimates. Finally, Metro staff checked and incorporated the revisions and, where necessary, rebalanced the distribution to preserve the regional forecast totals again in consultation with county staff.

Metro and the county staff generally requested that each city preserve the preliminary city-level totals but offered, in the few cases where cities wanted to change the preliminary city household or employment totals, to broker cross-jurisdictional re-allocation. In the final analysis, Metro and the counties successfully coordinated a number of change requests and the applied local knowledge increased the accuracy of the Distributed Forecast product. This process meets regulatory mandates for coordination.

The next section lists the numerous process checks carried out over time to ensure that the final Distributed Forecast is both reasonable and accurate to the extent possible.

Outline of Forecast and Coordination Process & Activities

The overall UGM and distribution process manages forecast model uncertainty by providing multiple review points as outlined below. As described above, city and county review is a crucial step in finalizing the Distributed Forecast. The overall process included the following steps:

1. Metro prepared a 7-county mid-point Regional Forecast with employment, economics and population details – (2014), and had that forecast peer reviewed by a panel of non-Metro experts
2. Metro estimated a range forecast for total population / households and total employment – (2014)
3. Metro discussed the range forecast's high, low and midpoint options with stakeholders and the Metro Council, in the context of the draft Urban Growth Report – (2014)
4. Metro Council selected the midpoint of the range as its "point forecast", accepted the final version of the UGR, and made a UGB decision – (2015)
5. Metro and local governments set and acted on the steps for conducting the growth distribution process – (2015)
    a. Metro prepared preliminary model inputs, base year figures, and assumptions
    b. Local jurisdictions reviewed the base year figures
    c. Local jurisdictions reviewed key Buildable Land Inventory (BLI) components:
        i. Vacant land capacity assumptions
        ii. Redevelopment (and infill) BLI capacity assumptions
        iii. Incentivized redevelopment assumptions
        iv. New urban area urbanization assumptions (i.e. post-1997 expansion areas)
        v. Urban reserve urbanization assumptions
        vi. Clark county capacity assumptions
        vii. Ex-urban area neighbor capacity assumptions (e.g., Banks, Canby and Sandy, Columbia, Marion and Yamhill counties)
        viii. Residential development from Measure-49 claims
        ix. Residential development capacity from rural unincorporated areas in the tri-county areas outside the Metro UGB
6. Metro applied its land use model toolkit (including MetroScope) to produce a preliminary Distributed Forecast (2015)
7. Local jurisdictions reviewed, with county coordination and Metro support, the preliminary distribution and made adjustments to create a draft distribution – (2016)
8. Metro has initiated the process to adopt the draft Distributed Forecast (2016)

Model Technology and Socio-Economic Inputs

Metro staff used the MetroScope Generation 4 version to produce the "WILLIAM" growth scenario. Staff supplied the model with updated socio-economic parameters and inputs as described below and in the 2014 Urban Growth Report and Appendix items.

MetroScope Socio-economic data updates:

- Updated base year population from 2010 Census[15] to 2015 base year estimates created by Metro and consistent with TAZ 2162 geographies;
- Used base year 2015 employment estimates from the Bureau of Labor Statistics (BLS) and the state Quarterly Census of Employment and Wages (QCEW) consistent with TAZ 2162 and extrapolated from 2014 information;
- Updated other economic and demographic forecast drivers and variables per Census, BLS, BEA (Bureau of Economic Analysis), and various state data sources;
- Calibrated model to 2010 data (i.e., real estate price calibrations)
- Revised hedonic neighborhood scores as appropriate (i.e., applied Washington County Transportation Futures Study score adjustments), and calibrated to 2010 data
- Updated transportation network and accessibility information to the currently-adopted 2014 RTP using the MetroScope WILLIAM scenario

Regional Density Assumptions

Local jurisdictions fine tuned the land supply assumptions which draw their basis from:

- Current zoning and comprehensive plans, (2013 RLIS data)
- 2012 Buildable Land Inventory – includes vacant, part vacant, infill and redevelopment development supply assumptions (a review and acceptance of both residential and employment supply assumptions – confirms residential capacity in Metro UGB, confirms employment supply acres by industrial and commercial districts) – revised to approximate 2015 using local input and review by cities and counties.
- Clark County Buildable Land Inventory[16] , (2013 VBLM)
- Subsidized Residential Redevelopment Assumption[17]
- Urban Reserve urbanization assumptions (i.e., buildable land inventory measures, timing of UGB expansions and urban density assumptions)
- Ex-urban residential and non-residential capacity assumptions

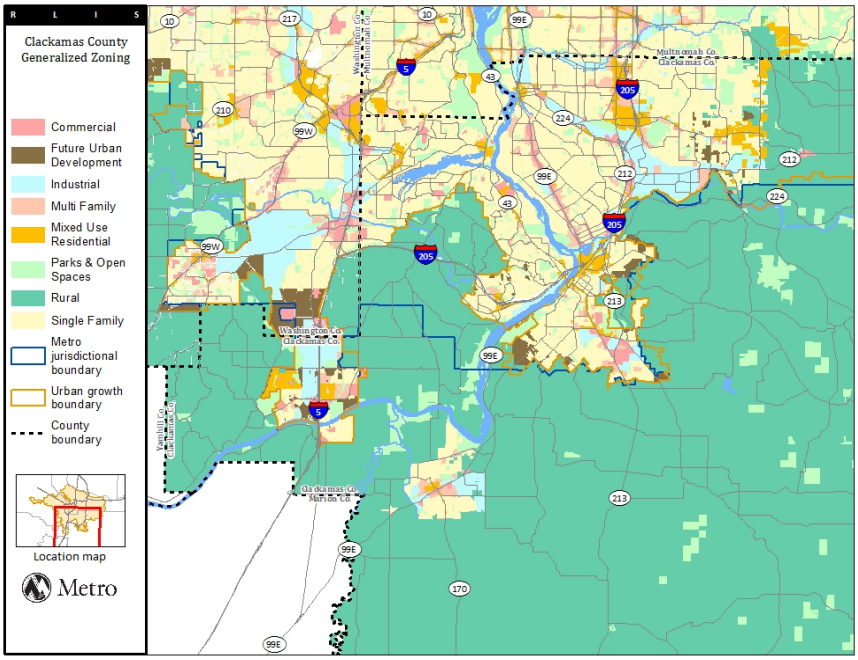
Over 600 local zoning districts exist in the region. However, zoning districts generally share common themes, permit only certain types of development and have common allowable development densities. These common zoning traits allow normalization and each one to be classified into 1 of 48 regional zone class designations. Residential zoning districts are matched up with an appropriate regional zone class designation based on the maximum dwelling unit density allowed and per zone district by the dominant single family, multi-family or mixed use residential entitlement. The commercial and industrial

[15] Demographic data updated to 2010 Census, but MetroScope zone system still at 2000 Census residential zones.
[16] Only Clark County and City of Vancouver participated in the review and subsequent revision of BLI capacity assumptions. The RTC participated but made no recommendations to change capacity assumptions.
[17] There is no comparable assumption for non-residential growth distributions. MetroScope modeling and forecasting does not assert any subsidies for employment lands.

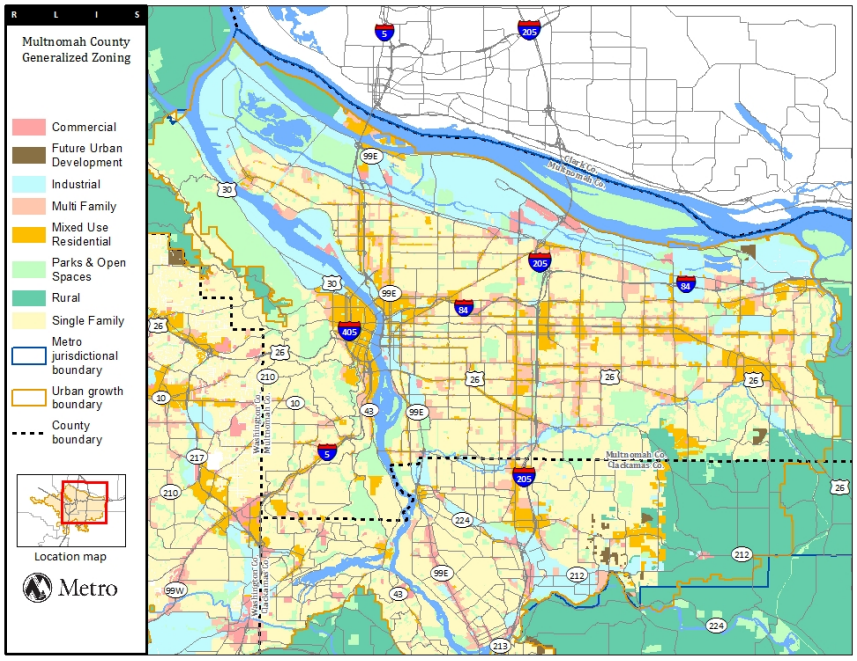
crosswalks were more simply based on the entitlement description for each zoning district. In all, Metro staff cross-walked zoning districts into the regional classifications for all 25 cities and counties in the Metro UGB plus Clark county and ex-urban rural cities.

To see the list of standardized regional zone classes please see Appendix 2. Generalized zoning examples for the region appear below. Some areas are strictly designated for residential or employment/industrial purposes only, while many newer zoning districts allow a mix of commercial and residential establishments. The following series of maps displays the generalized zones and their locations in the region.

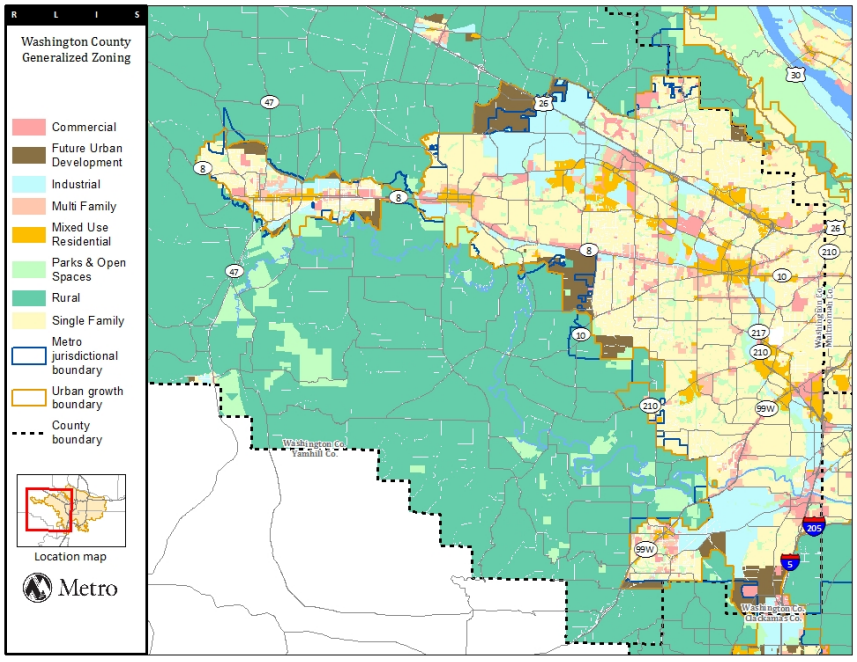
Map 2: Clackamas County Generalized Zoning Map



Map 3: Multnomah County Generalized Zoning Map



Map 4: Washington County Generalized Zoning Map



Recap of Regional Supply & Capacity Assumptions

This section discusses the major land supply inputs and capacity assumptions for the 2015-2040 TAZ growth distribution forecast (WILLIAM scenario). Staff derived the forecast distribution assumptions for

the entire MSA region. These assumptions are formed from actual observed data, surveys, and statistical estimation techniques. The MSA supply is composed of many "layers" of data, not all of which carry the same degree of reliability. On balance, capacity information derived for vacant lands that are based on tax lot data are much more reliable than estimates of redevelopment or infill, which rely on various statistical estimation techniques. Redevelopment comprises many more supplier behavior steps and factors that are harder to predict. The following narrative briefly describes the various data layers and summarizes the projected capacity layers assumed in this forecast distribution.

Several different layers of information feed into the Buildable Land Inventory (BLI). The following is a list of forecast inputs to run a growth distribution scenario:

1. Land supply (or capacity) information
    a. Current zoning, comprehensive plans or concept plans (with zoning trumping comp plans trumping concept plans and other hypothetical zone designations depending on data availability)
    b. Buildable land inventory information including the Metro UGB, Clark county, rural areas and neighbor cities and adjacent counties
    c. Includes vacant capacity measurements and statistical estimates of redevelopment and infill
2. Growth management policy assumptions
    a. Forecasted transportation system performance (e.g. access to jobs)
    b. New urban areas (i.e., assign hypothetical zoning if still rurally zoned)
    c. Other economic development policies
    d. Urban reserves (i.e., assign hypothetical zoning to supersede rural zoning at time each is added as prospective UGB adds)
    e. Incentivized redevelopment (i.e., estimate economic impact of urban renewal district)

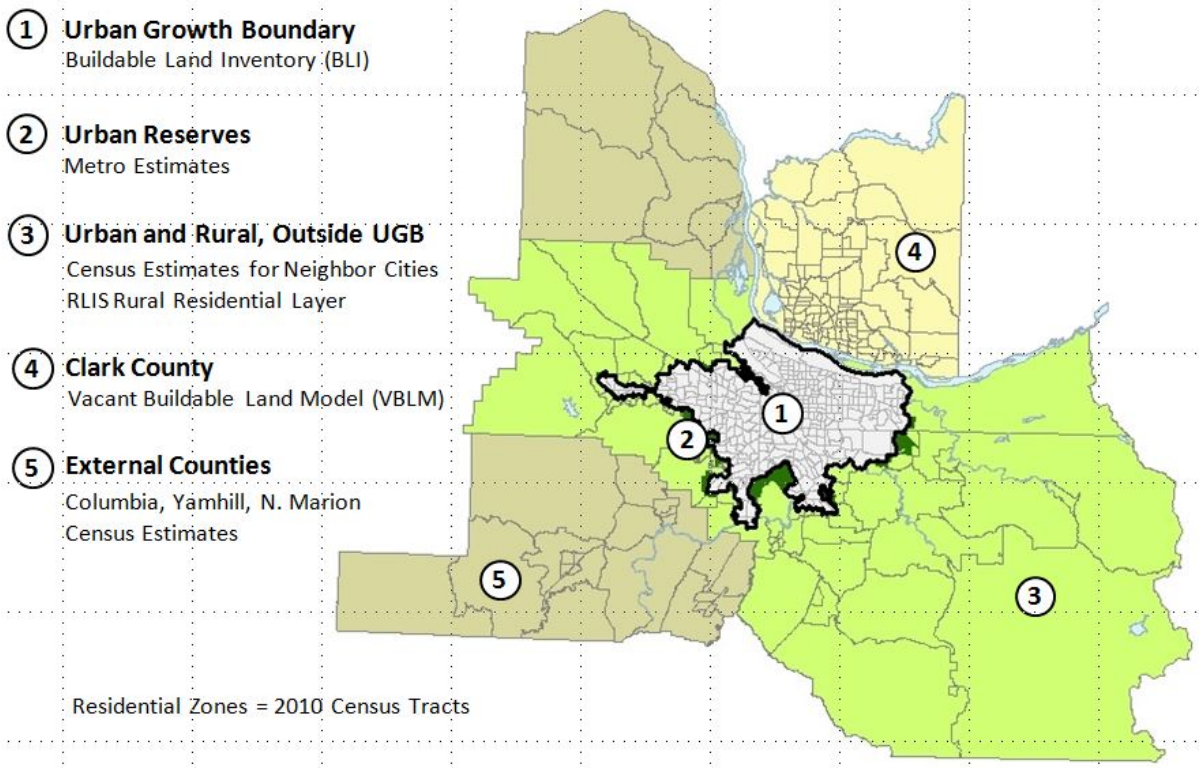
Capacity data enters the modeling process as an input needed for MetroScope's land development forecast methods. Capacity is calculated from current zoning or current comprehensive plan data, and sometimes concept plans when there isn't any urban zoning or urban comp plan data in place. Staff based the vacant land inventory (note that the BLI includes vacant, infill and redevelopment capacities) for the Metro UGB plus Clark County and its cities a 2012 vacant land survey data that was subsequently adjusted by local jurisdiction reviewers to represent 2015 capacity.

The BLI also includes rough capacity estimates for rural areas, neighboring counties, and neighboring cities. The BLI flags its estimates of residential capacity in TOD areas, urban renewal locations, and other public intervention as having a development cost advantage so that MetroScope can tend to assign growth to those lots first, other factors being equal. The BLI supply data is critical to the modeling process as it provides information on regulatory capacities that detail where future development may be accommodated.

Additional MetroScope inputs include policies such as prospective new land development (notably urban reserve designations), regional and municipal land use concept plans, environmental measures for wildlife and water quality protection, and parks and open space provisions that put development off limits. In general, the model policy inputs contain constraints that permit or prohibit growth in certain locations.

The following map illustrates the geographic extent of the input supply data and the source of data layers needed to complete the growth distribution.

Map 5: MetroScope Regional Capacity Sources

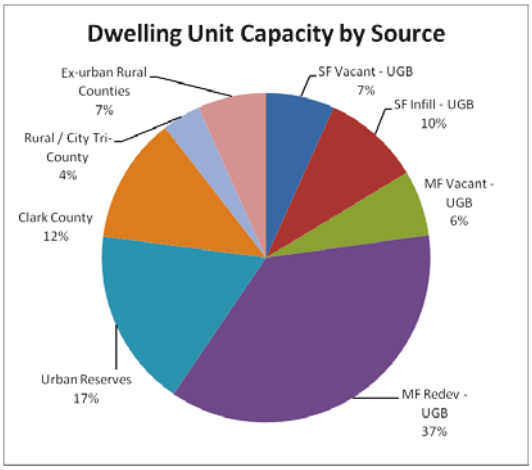


Residential Capacity Estimates derive from many sources

Metro analysts must specify regional supply assumptions across multiple counties in order to run MetroScope. The map depicts the major sources of residential (and employment) capacity available for modeling and forecasting future developments. The model simulates the fact that residents have the choice to reside anywhere in the greater metropolitan area, for example by living in one county and working in another, or to live or work outside the Metro UGB. Possible future location choices and their respective capacities estimates for year 2040 and beyond appear in Table 2.

Table 2: Regional Capacity (Residential Supply) – 7 county MSA

Dwelling Unit Capacity for up to year 2040 and beyond	
SF Vacant – Metro UGB	46,483
SF Infill – Metro UGB	66,186
MF Vacant – Metro UGB	44,204
MF Redev – Metro UGB	252,770
Urban Reserves	120,894
Clark County	85,322
Rural / City Tri-County	26,075
Ex-urban Rural Counties	46,390
Regional Total	688,324



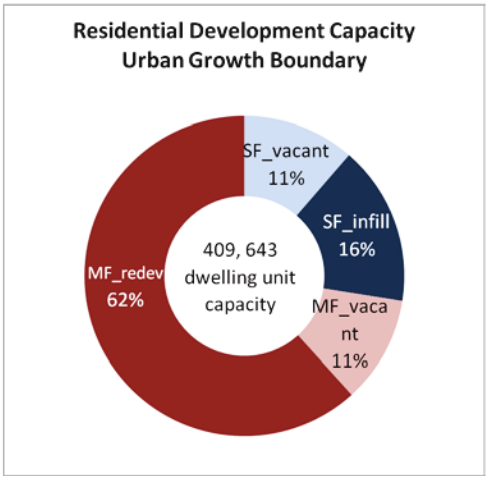
MetroScope accounts for differences in tastes and preference, life cycle and income bracket as well capacity estimates and operates to balance the various housing demands against the available supply of housing choices. Along with the possible choice of living in the Metro UGB, Clark County, rural unincorporated areas adjacent to the Metro UGB, rural cities and ex-urban counties are included as potential choices for housing location.

Metro UGB Residential Capacity

Residential capacity within the Metro UGB totals up to a potential maximum 409,643 units for up to and beyond year 2040. Multi-family redevelopment represents the largest single source of potential development capacity in the future supply projections.

Table 3 Residential Dwelling Unit Capacity (Supply) – Metro UGB (excluding urban reserves)

Dwelling Unit Capacity in Metro UGB for up to year 2040 and beyond		
Single Family	112,669	28%
Multifamily	296,974	72%
Total in UGB	**409,643**	**100%**



Urban Reserves accounts for nearly one-fifth of residential capacity going forward, but this is subject to change as actual zoning becomes adopted. Closer assessment of the urban reserves may change the

projected residential capacities. For purpose of this forecast, staff estimated urban reserve capacities by using density assumptions focused on achieving 15 DU / net buildable acre. Not all of this capacity is likely available and buildable by 2040 because of a lack of infrastructure, financing, and governance provisions. The model accounts for this uncertainty by assuming that only a portion of total capacity can "come online" in any given future analysis year.

Redevelopment and infill represent over three-fourths (16% infill + 62% redev) of the projected UGB capacity. Redevelopment is defined as the net increase in development density, meaning that an older dwelling unit is torn down and a newer structure replaces it with more housing units. Infill is the addition of more dwelling units to a site that already has an existing home or development. Infill capacity is measured from indentifying how many over-sized tax lots (relative to minimum lot size regulations on current zoning) and how many additional unit(s) could physically fit on the undeveloped portion of the site. The capacity projections going forward rely heavily on redeveloping existing, already-built sites to higher densities.

Compared to today's residential mix, the composition of residential supply going forward is expected to sharply change by its whereabouts, by development form, and by redevelopment. The forecasts project that more capacity will be located in central neighborhoods than in suburbs. Forecast future development trends show that marginal (additional) households will choose more multifamily products (i.e., apartments and condos). This forecasted redevelopment would sharply increase density in regional and town centers, corridors and main streets, and near light rail stations.

On this basis, single family (SF) development would decrease while multi-family (MF) development forms rise sharply. The forecasted projected marginal (new) development ratio between single and multifamily for the region is 40% SF and 60% MF. Historically, since World War II marginal development splits between SF and MF were about 70% and 30% respectively. The forecast development patterns reflect the outcome of the 2040 Growth Concept Plan combined with demographic trend effects on the forecasted future population. The latter project that of future *new* households within the region 68% will consist of one or two persons, almost 50% will be headed by someone 65 or older and almost 60% will have an income of less than $50,000.[18]

Table 4: Illustration of Historical Marginal Development Trends and Future Capacity Estimates

	Post WWII	1995 to present	2010 to 2035	2035-2040
Single Family %	70%	60%	40%	30%
Multi-family %	30%	40%	60%	70%

Metro UGB capacity estimates by jurisdictions

Map 6 illustrates the residential development capacity estimated from the Buildable Land Inventory (BLI) process. This process was collaborative and required local input in its creation. First, Metro prepared a draft BLI based on methodology accepted by local jurisdictions. Second, local jurisdictions

[18] Appendix 4, 2014 Urban Growth Report, p. 6 http://www.oregonmetro.gov/urban-growth-report

reviewed the draft BLI used for this TAZ growth forecast distribution in light of the same capacity data employed for the 2014 UGR. Metro provided all jurisdictions the opportunity to edit and revise the BLI dwelling unit capacity estimates to reflect local knowledge. The final BLI includes an estimate of vacant developable residential land and the zoning district assigned to it by local jurisdictions. It includes residential infill estimates as part of single family capacity and potential of residential redevelopment as part of multi-family and mixed use residential zoning districts. Figure 4 summarizes the single family dwelling unit capacity from each jurisdiction for the development potential from vacant and infill tax lots in the Metro UGB. Figure 5 recaps the potential development capacity from mixed use and multi-family zoning districts for each jurisdiction. Tabulations are based on today's city limits and tallied from the jurisdiction-reviewed BLI tables.

Unincorporated Washington County ranks as the jurisdiction with the largest single family residential capacity in the Metro UGB, followed by city of Portland. The City of Portland ranks as the jurisdiction with the most multi-family capacity inside the Metro UGB. The majority of Portland's MF capacity derives from potential unrealized redevelopment, accounting for 85% of the city's projected potential development capacity per the city's adopted plans.

It is important to note that not all potential or planned capacity is absorbed in the forecasts; the forecasting process includes assumptions that bring only a portion of capacity "on line" in any given analysis year to simulate the fact that potential capacity must be made ready for the market by infrastructure provision and other actions that take time to complete.

Map 6: Metro UGB Residential Capacity Data

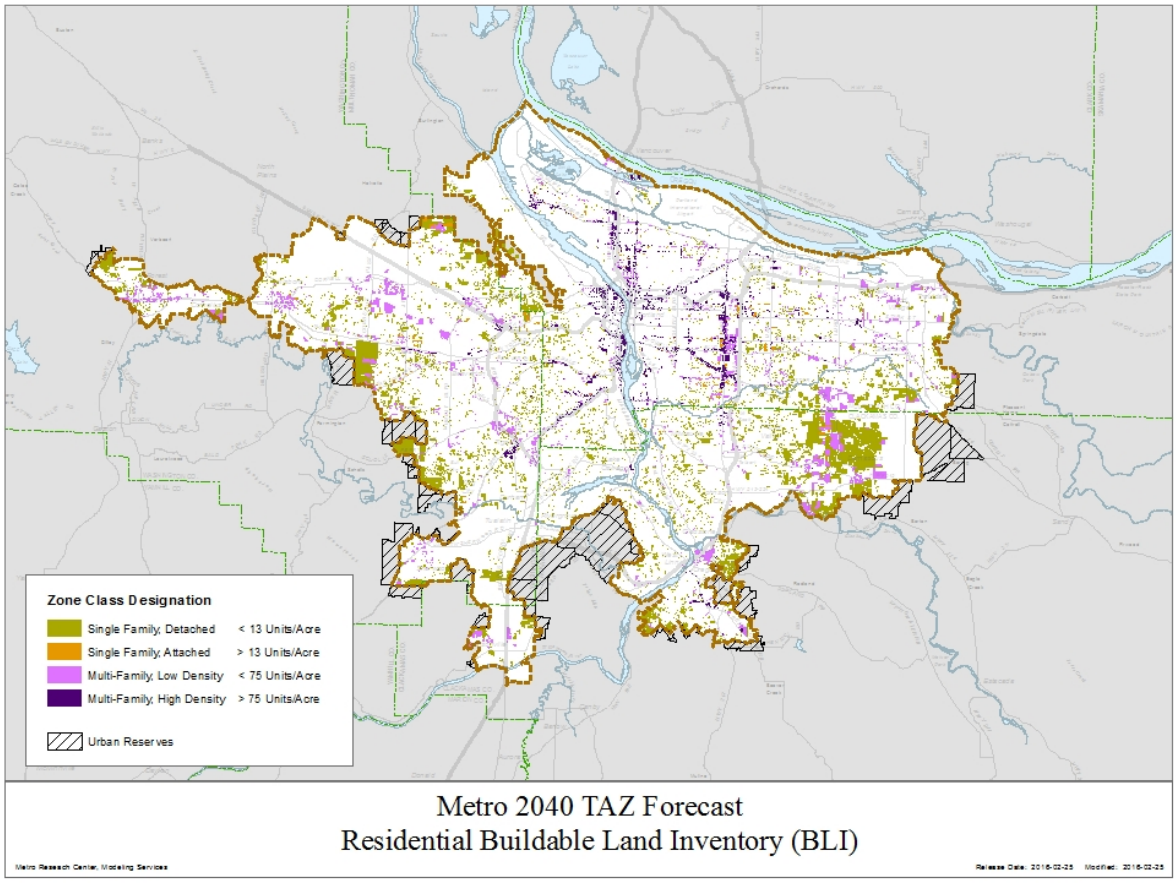
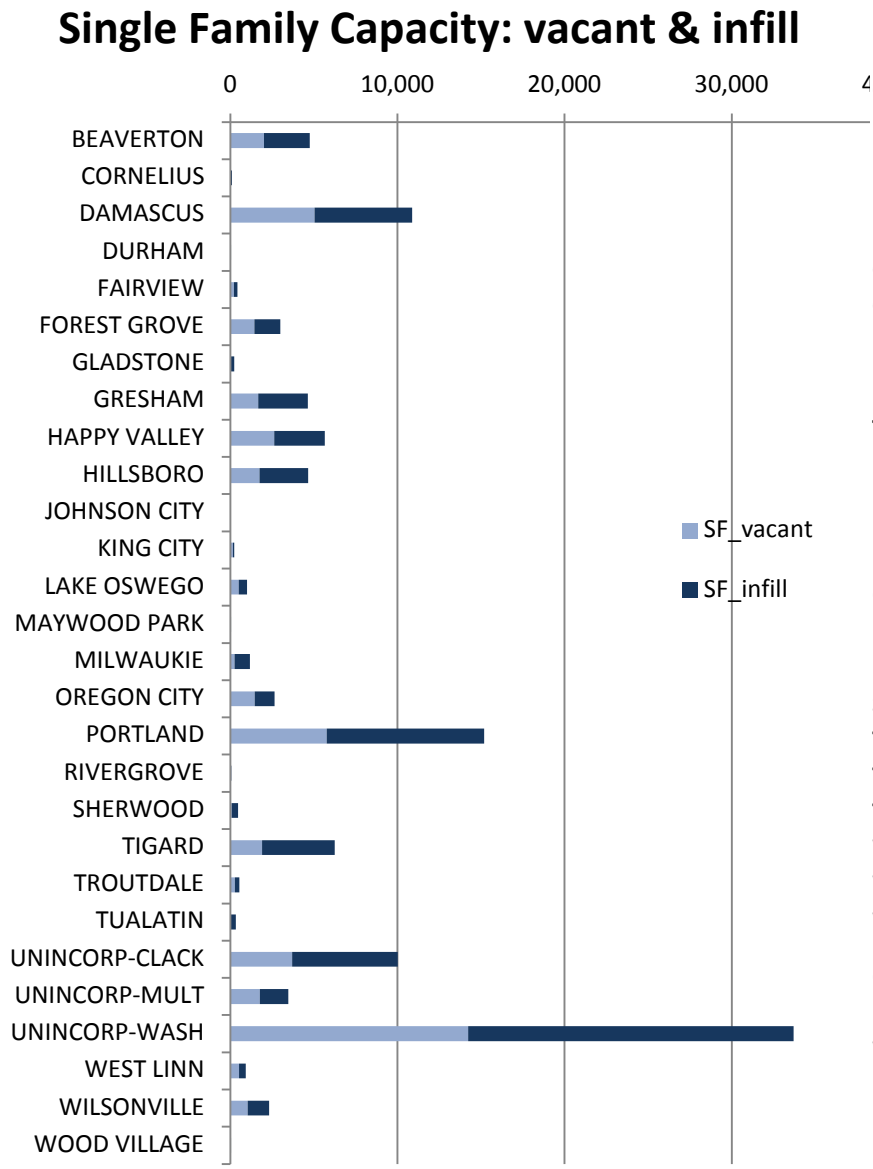
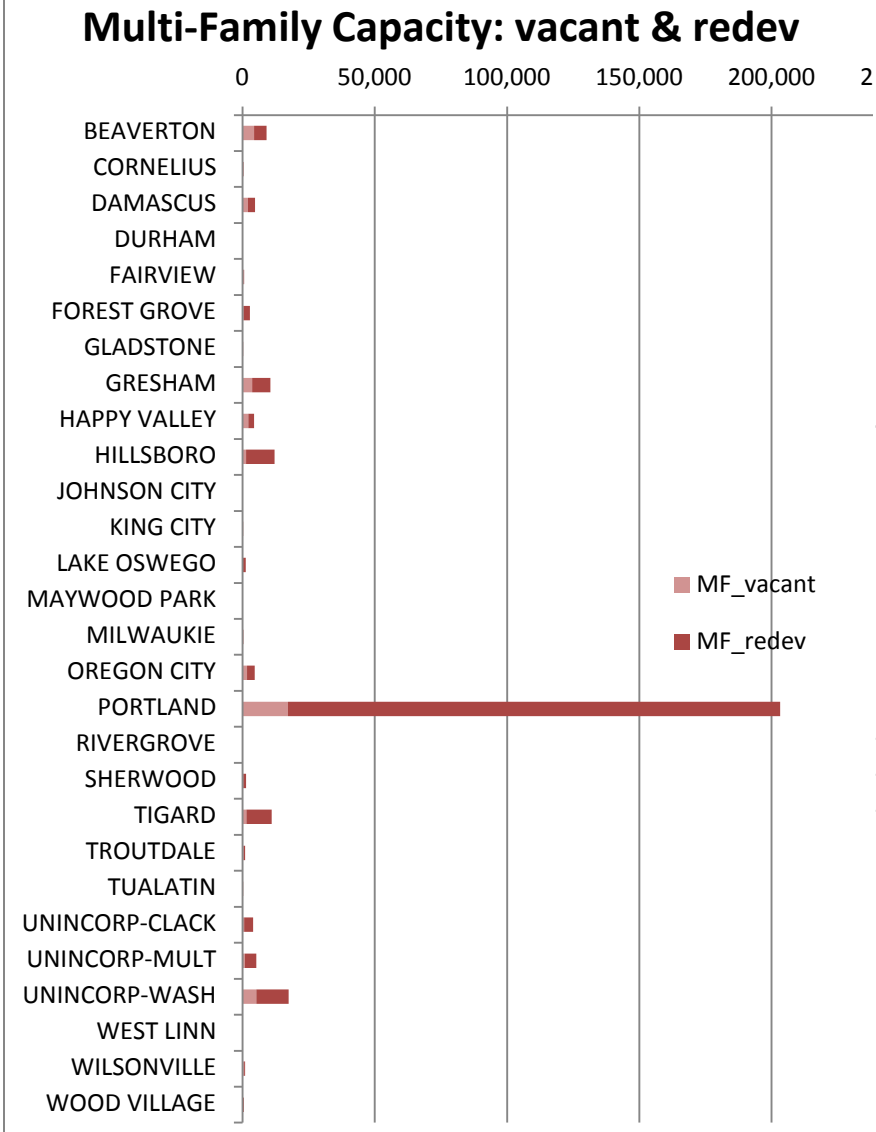


Figure 4: SF Residential Capacity in the Metro UGB (tabulated by city boundary – not TAZ



Projected SINGLE FAMILY Cap.	
Beaverton	4,747
Cornelius	88
Damascus	10,871
Durham	42
Fairview	421
Forest Grove	2,994
Gladstone	236
Gresham	4,632
Happy Valley	5,658
Hillsboro	4,661
Johnson City	0
King City	223
Lake Oswego	1,000
Maywood Park	32
Milwaukie	1,174
Oregon City	2,635
Portland	15,180
Rivergrove	36
Sherwood	467
Tigard	6,243
Troutdale	546
Tualatin	321
West Linn	924
Wilsonville	2,326
Wood Village	39
Clackamas UIA	10,007
Multnomah UIA	3,463
Washington UIA	33,703
UGB Total	112,669

Figure 5: MF Residential Capacity in the Metro UGB (tabulated by city boundary – not TAZ



	Projected MULTIFAMILY Cap.
Beaverton	9,060
Cornelius	372
Damascus	4,810
Durham	33
Fairview	703
Forest Grove	2,783
Gladstone	331
Gresham	10,532
Happy Valley	4,346
Hillsboro	12,175
Johnson City	0
King City	222
Lake Oswego	1,280
Maywood Park	0
Milwaukie	282
Oregon City	4,694
Portland	203,221
Rivergrove	0
Sherwood	1,342
Tigard	11,006
Troutdale	969
Tualatin	332
West Linn	124
Wilsonville	1,019
Wood Village	581
Clackamas UIA	4,022
Multnomah UIA	5,289
Washington UIA	17,446
UGB Total	296,974

Changes in assumptions for selected new(er) urban areas: Past additions to the UGB and current forecast assumptions regarding three areas bear special mention. Metro amended its UGB in 1997 to add Pleasant Valley and Bethany, and to add Damascus in 2002. Prior to this 2014 UGR, Metro staff assumed certain constraints on the future development of those three areas' total potential capacity. The assumed constraints allowed for the additional time necessary to make infrastructure, governance, and financing provisions before potential capacity could actually be developed. At this time urban zoning and infrastructure appear to be largely in place for Pleasant Valley and Bethany so they are treated the same as other areas within the UGB during forecasting. The current forecast includes the capacity estimates for the former Bethany expansion area in the Unincorporated Washington County tally, the annexed part of Pleasant Valley in the Gresham tally, and the mostly unbuildable or difficult-to-urbanize areas in the Unincorporated Multnomah County tally.

Assumptions for the Damascus area: In the case of Damascus, capacity estimates are subject to greater uncertainty than its peer jurisdictions because the city has voted to dis-incorporate. Although the city is thus likely to dissolve, its lands would still remain in the UGB and thus potentially developable; Happy Valley may annex the western part of Damascus. This forecast therefore includes residential and commercial capacity for the Damascus area. Specific details and assumptions for the Damascus disincorporation scenario appear in Appendix 15 of the 2014 Urban Growth Report.

Transportation infrastructure assumptions

In order to accurately assess future development patterns for employment and residential need, the Distributed Forecast incorporates future transportation system performance assumptions. Those assumptions include forecasted TAZ-to-TAZ travel times and auto occupancy based on the existing system modified by planned future infrastructure investments. These travel assumptions determine current and future congestion levels and travel patterns and thus influence the accessibility of residents and businesses as they locate and conduct their affairs in the Metro region. The entire notion of linking transportation and land use comes together through this economic relationship between travel behavior and the location choices of residents and employers.

Metro staff used three different network configurations to simulate the progressive change in network links at each interval of growth projections.

MetroScope Growth Forecast Year	Transportation Network (source: 2014 RTP update)
2015	Base year "existing system"
2020	(interpolation)
2025	2017 Air Quality Conformity network
2030	(interpolation)
2035 and 2040	2040 Financially Constrained roadway network + Climate Smart Communities transit network assumptions

A map of the projects included in future transportation networks appears in an appendix of this report. More details can be found in the links shown below.

- Federal and state regulations require that the region assess the air quality consequences of proposed transportation improvements to ensure compliance with the Clean Air Acts. Metro prepared an air quality conformity transportation network as part of its federal air quality determination for the last RTP update in 2014. For further information concerning the description and technical details of the related network assumptions please refer to the official air quality conformity determination documents: http://www.oregonmetro.gov/air-quality-conformity-determination

The 2014 RTP update represents a step toward implementation of the 2040 Growth Concept, the region's long-range plan for addressing expected growth while preserving our region's livability. For further information concerning the Metro ordinance, amendments, technical appendix, system management and operation plans, freight plan, transit plans, and final project list, please follow this link: http://www.oregonmetro.gov/regional-transportation-plan

Where can one find additional forecast distribution assumptions?

Additional forecast details and assumptions may be found with the 2014 Urban Growth Report (UGR) and its related documents, particularly Appendix 11 for MetroScope modeling details: http://www.oregonmetro.gov/urban-growth-report .

City population, household and employment estimates don't match Census or other federal or state data sources. Why?

The product Metro produces must serve the needs required by Metro's regional transportation model, the Regional Transportation Plan update, and other planning efforts within the region that use transportation models. The Distributed Forecast detailed data aligns to Traffic Analysis Zone (TAZ) boundaries to support the transportation models. Appendix 3 shows a map of these geographies along with the MetroScope forecast model's Rzones and Ezones.

Since neither model's zone structures align precisely to city limits and to comply with state guidance, Metro summarizes the Distributed Forecast to city boundaries. Forecast tables in Exhibit A – for population, employment and households – show summary estimates of the Distributed Forecast TAZ data by allocating the TAZ numbers as precisely as possible to 2015 city boundaries for the base and the forecast years. City limits during the decennial Census may not be the same as those in year 2015, so the Distributed Forecast numbers may not exactly match the Census or other federal and state statistics.

Obtaining the 2040 Distributed Forecast Traffic Analysis Zone data product

The TAZ-level 2040 Distributed Forecast data product is available upon request from the Metro Research Center's Modeling division (transportationmodeling@oregonmetro.gov).

Appendix 1: Council adopted the "baseline / midpoint series" regional forecast

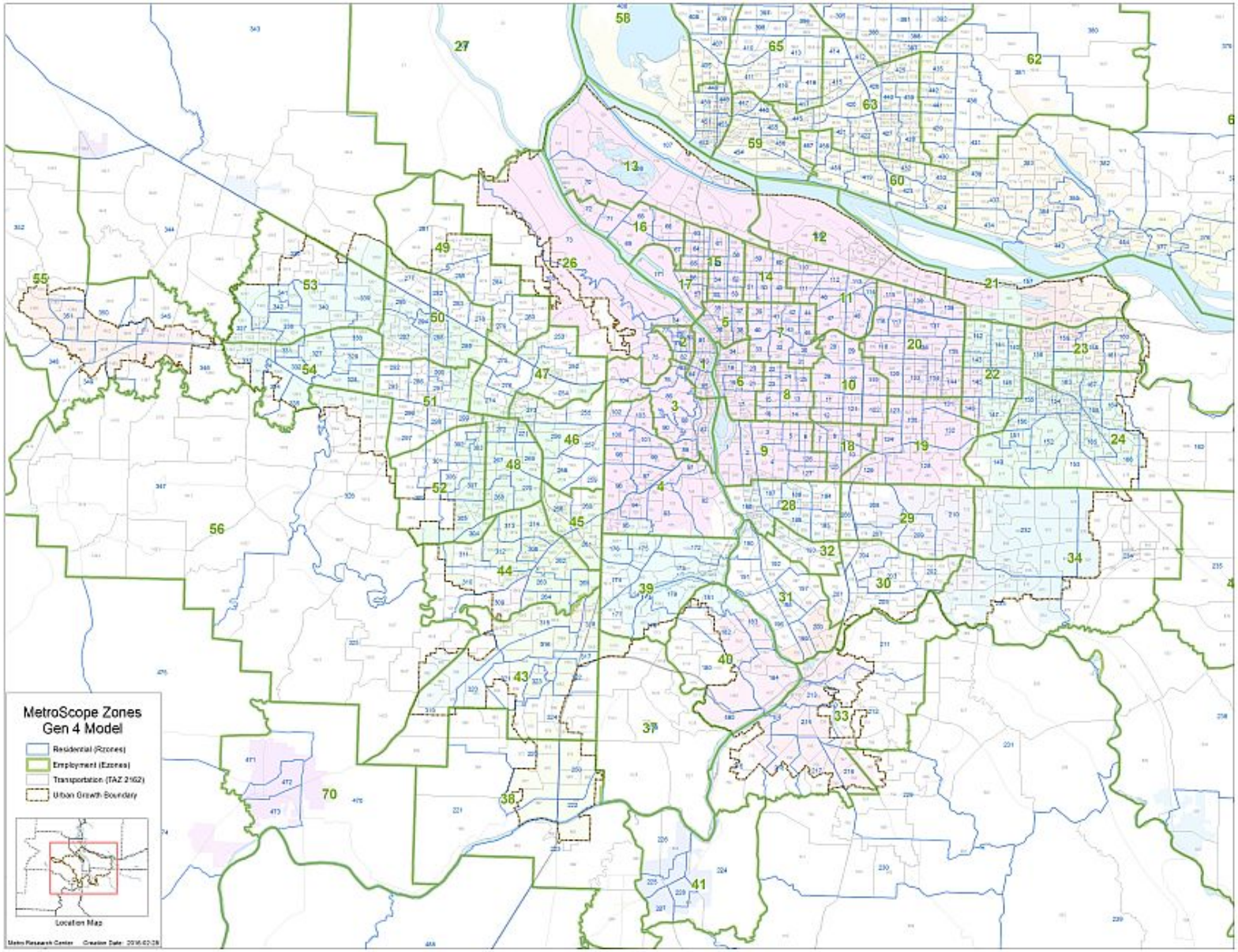
(Regional forecast tables made available upon request.)

Also see: 2104 Urban Growth Report, Appendix 1a, October 2015, http://www.oregonmetro.gov/urban-growth-report

Appendix 2: RLIS Standardized Regional Zone Class and Dwelling Unit Density Crosswalk Table

#	Standardized Regional Zones	Zone Class	Residential Lot Size		Maximum Units Allowed (Dwelling Units / Net Acre)			Zone Class
			Min	Max	Min	Max	Avg. Range Density	
1	Single Family 1 acre tax lot	SFR1	35,000	43,560	0	1	1	SFR1
2	Single Family 1/2 acre tax lot	SFR2	15,000	35,000	1.1	2	2	SFR2
3	Single Family 10,000 sq. ft. lot	SFR3	10,000	15,000	2.1	3	3	SFR3
4	Single Family 9,000 sq. ft. lot	SFR4	9,000	10,000	3.1	4	4	SFR4
5	Single Family 7,000 sq. ft. lot	SFR5	7,000	9,000	4.1	5	5	SFR5
6	Single Family 6,000 sq. ft. lot	SFR6	6,000	7,000	5.1	6	6	SFR6
7	Single Family 5,000 sq. ft. lot	SFR7	5,000	6,000	6.1	7	7	SFR7
8	Single Family 4,500 sq. ft. lot	SFR8	4,500	5,000	7.1	8	8	SFR8
9	Single Family 4,000 sq. ft. lot	SFR9	4,000	4,500	8.1	9	9	SFR9
10	Single Family 3,500 sq. ft. lot	SFR10	3,500	4,000	9.1	10	10	SFR10
11	Single Family 3,000 sq. ft. lot	SFR11	3,000	3,500	10.1	11	11	SFR11
12	Single Family 2,900 sq. ft. lot	SFR12	2,900	3,000	11.1	12	12	SFR12
13	Single Family 2,700 sq. ft. lot	SFR13	2,700	2,900	12.1	13	13	SFR13
14	Single Family 2,500 sq. ft. lot	SFR14	2,500	2,700	13.1	14	14	SFR14
15	Single Family 2,300 sq. ft. lot	SFR15	2,300	2,500	14.1	15	15	SFR15
16	Single Family 2,000 sq. ft. lot	SFR16	2,000	2,300	15.1	16	16	SFR16
17	Multi-family-Very Low Density	MFR1	Approx. FAR = 0.4		4	15	12.3	MFR1
18	Multi-family-Low Density	MFR2	Approx. FAR = 0.5		16	20	17.8	MFR2
19	Multi-family-Moderate Density	MFR3	Approx. FAR = 0.7		21	25	23.3	MFR3
20	Multi-family-Medium Density	MFR4	Approx. FAR = 0.8		26	30	29.4	MFR4
21	Multi-family-Med. High Density	MFR5	Approx. FAR = 1		31	35	33.4	MFR5
22	Multi-family-High Density	MFR6	Approx. FAR = 1.1		36	45	40.0	MFR6
23	Multi-family-Very High Density	MFR7	Approx. FAR = 2.1		46	85	73.1	MFR7
24	Mixed-Use Comm. & Res.	MUR1	Approx. FAR = 0.3		4	15	11.2	MUR1
25	Mixed-Use Comm. & Res.	MUR2	Approx. FAR = 0.5		16	20	18.2	MUR2
26	Mixed-Use Comm. & Res.	MUR3	Approx. FAR = 0.7		21	25	23.1	MUR3
27	Mixed-Use Comm. & Res.	MUR4	Approx. FAR = 0.8		26	30	29.1	MUR4
28	Mixed-Use Comm. & Res.	MUR5	Approx. FAR = 1		31	35	34.6	MUR5
29	Mixed-Use Comm. & Res.	MUR6	Approx. FAR = 1.1		36	45	40.1	MUR6
30	Mixed-Use Comm. & Res.	MUR7	Approx. FAR = 1.6		46	65	54.6	MUR7
31	Mixed-Use Comm. & Res.	MUR8	Approx. FAR = 2.2		66	100	75.5	MUR8
32	Mixed-Use Comm. & Res.	MUR9	Approx. FAR = 3.2		101	125	110.5	MUR9
33	Mixed-Use Comm. & Res.	MUR10	Approx. FAR = 6.4		126	700	222.5	MUR10
34	Future Urban Development	FUD					10	FUD
	Standardized Regional Zones	Zoning						Zoning
35	Commercial - Central	CC						CC
36	Commercial - General	CG						CG
37	Commercial - Neighborhood	CN						CN
38	Commercial - Office	CO						CO
39	Public & semi-public Uses	PF						PF
40	Industrial Campus	IC						IC
41	Industrial Office	IO						IO
42	Industral - Light	IL						IL
43	Industral - Heavy	IH						IH
44	Parks & Open Space	POS						POS
45	Exclusive Farm Use	EFU						EFU
46	Rural Residential	RRFU						RRFU
47	Rural Commercial	RC						RC
48	Rural Industrial	RI						RI

Appendix 3: Traffic Analysis Zones (MetroScope_zones_taz2162.pdf)



Appendix 4.1: Metro UGB - POTENTIAL Buildable Land Inventory (BLI) - ESTIMATED RESIDENTIAL DWELLING UNITS

METRO 2040 TAZ FORECAST

Residential Capacity inside Metro UGB, by City, Source, and Type

Released: 2/22/2016
Modified: 2/22/2016

Metro Research Center, Modeling Services Vintage: Scenario #1522 "William"

MF capacity includes capacity in MFR and MUR zone classes
"Unincorp" = unincorporated areas inside Metro UGB

		Single Family (SF)		Multi-Family (MF)		MF - Low (< 75 DU/acre)		MF - High (> 75 DU/acre)		Total Capacity by Building Type			Percent of Capacity by Building Type						
Local Government	TOTAL DU	Vacant	Infill	Vacant	Redev	Vacant	Redev	Vacant	Redev	SF	MF - Low	MF - High	% SF	% MF - Low	% MF - High	Vacant Total	Redev Total	% Vacant	% Redev
Clackamas Total	**55,775**	**15,164**	**19,703**	**7,974**	**12,934**	**6,743**	**10,345**	**1,231**	**2,589**	**34,867**	**17,088**	**3,820**	**63%**	**31%**	**7%**	**23,138**	**32,637**	**41%**	**59%**
DAMASCUS	**15,681**	5,034	5,837	2,046	2,764	2,046	2,764	0	0	10,871	4,810	0	69%	31%	0%	7,080	8,601	45%	55%
GLADSTONE	**567**	37	199	41	290	41	290	0	0	236	331	0	42%	58%	0%	78	489	14%	86%
HAPPY VALLEY	**10,004**	2,615	3,043	2,266	2,080	2,137	2,042	129	38	5,658	4,179	167	57%	42%	2%	4,881	5,123	49%	51%
JOHNSON CITY	**0**	0	0	0	0	0	0	0	0	0	0	0	--	--	--	0	0	--	--
LAKE OSWEGO	**2,280**	506	494	189	1,091	189	593	0	498	1,000	782	498	44%	34%	22%	695	1,585	30%	70%
MILWAUKIE	**1,456**	241	933	246	36	236	28	10	8	1,174	264	18	81%	18%	1%	487	969	33%	67%
OREGON CITY	**7,329**	1,462	1,173	1,790	2,904	834	1,832	956	1,072	2,635	2,666	2,028	36%	36%	28%	3,252	4,077	44%	56%
RIVERGROVE	**36**	31	5	0	0	0	0	0	0	36	0	0	100%	0%	0%	31	5	86%	14%
WEST LINN	**1,048**	511	413	51	73	51	73	0	0	924	124	0	88%	12%	0%	562	486	54%	46%
WILSONVILLE	**3,345**	1,033	1,293	679	340	679	340	0	0	2,326	1,019	0	70%	30%	0%	1,712	1,633	51%	49%
UNINCORP-CLACK	**14,029**	3,694	6,313	666	3,356	530	2,383	136	973	10,007	2,913	1,109	71%	21%	8%	4,360	9,669	31%	69%
Multnomah Total	**245,608**	**9,718**	**14,595**	**22,684**	**198,611**	**9,219**	**49,883**	**13,465**	**148,728**	**24,313**	**59,102**	**162,193**	**10%**	**24%**	**66%**	**32,402**	**213,206**	**13%**	**87%**
FAIRVIEW	**1,124**	212	209	367	336	367	336	0	0	421	703	0	37%	63%	0%	579	545	52%	48%
GRESHAM	**15,164**	1,669	2,963	3,704	6,828	3,404	6,178	300	650	4,632	9,582	950	31%	63%	6%	5,373	9,791	35%	65%
MAYWOOD PARK	**32**	15	17	0	0	0	0	0	0	32	0	0	100%	0%	0%	15	17	47%	53%
PORTLAND	**218,401**	5,760	9,420	17,274	185,947	4,109	37,869	13,165	148,078	15,180	41,978	161,243	7%	19%	74%	23,034	195,367	11%	89%
TROUTDALE	**1,515**	269	277	433	536	433	536	0	0	546	969	0	36%	64%	0%	702	813	46%	54%
WOOD VILLAGE	**620**	24	15	64	517	64	517	0	0	39	581	0	6%	94%	0%	88	532	14%	86%
UNINCORP-MULT	**8,752**	1,769	1,694	842	4,447	842	4,447	0	0	3,463	5,289	0	40%	60%	0%	2,611	6,141	30%	70%
Washington Total	**108,260**	**21,601**	**31,888**	**13,546**	**41,225**	**12,789**	**34,114**	**757**	**7,111**	**53,489**	**46,903**	**7,868**	**49%**	**43%**	**7%**	**35,147**	**73,113**	**32%**	**68%**
BEAVERTON	**13,807**	2,010	2,737	4,446	4,614	4,109	4,081	337	533	4,747	8,190	870	34%	59%	6%	6,456	7,351	47%	53%
CORNELIUS	**460**	23	65	32	340	32	340	0	0	88	372	0	19%	81%	0%	55	405	12%	88%
DURHAM	**75**	25	17	0	33	0	33	0	0	42	33	0	56%	44%	0%	25	50	33%	67%
FOREST GROVE	**5,777**	1,444	1,550	404	2,379	404	2,379	0	0	2,994	2,783	0	52%	48%	0%	1,848	3,929	32%	68%
HILLSBORO	**16,836**	1,736	2,925	1,385	10,790	1,385	10,790	0	0	4,661	12,175	0	28%	72%	0%	3,121	13,715	19%	81%
KING CITY	**445**	154	69	146	76	146	76	0	0	223	222	0	50%	50%	0%	300	145	67%	33%
SHERWOOD	**1,809**	75	392	269	1,073	269	1,073	0	0	467	1,342	0	26%	74%	0%	344	1,465	19%	81%
TIGARD	**17,249**	1,892	4,351	1,462	9,544	1,456	6,537	6	3,007	6,243	7,993	3,013	36%	46%	17%	3,354	13,895	19%	81%
TUALATIN	**653**	24	297	118	214	118	214	0	0	321	332	0	49%	51%	0%	142	511	22%	78%
UNINCORP-WASH	**51,149**	14,218	19,485	5,284	12,162	4,870	8,591	414	3,571	33,703	13,461	3,985	66%	26%	8%	19,502	31,647	38%	62%
UGB TOTAL	**409,643**	**46,483**	**66,186**	**44,204**	**252,770**	**28,751**	**94,342**	**15,453**	**158,428**	**112,669**	**123,093**	**173,881**	**28%**	**30%**	**42%**	**90,687**	**318,956**	**22%**	**78%**

Appendix 4.2: Metro UGB - POTENTIAL Buildable Land Inventory (BLI) - NON-RESIDENTIAL ACRES

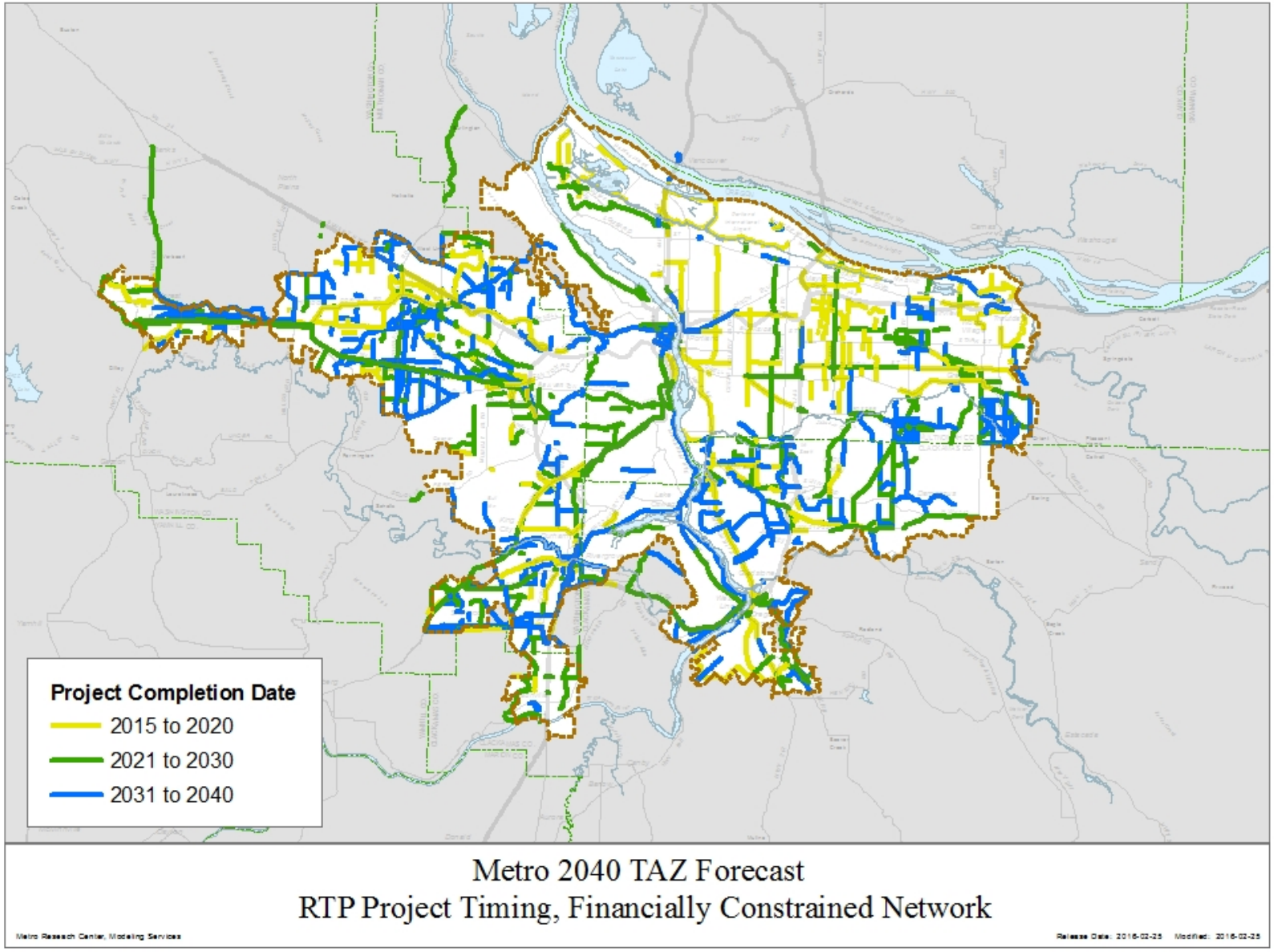
METRO 2040 FORECAST

Employment Capacity inside Metro UGB, by City, Source, and Type

Released: 2/22/2016
Modified: 2/22/2016 Metro Research Center, Modeling Services Vintage: Scenario #1522 "William"

		Industrial		Commercial		Commercial on COM		Commercial on MUR		Total Capacity by Land Type			Percent of Capacity by Land Type						
Local Government	**TOTAL ACRES**	**Vacant**	**Redev**	**Vacant**	**Redev**	**Vacant**	**Redev**	**Vacant**	**Redev**	**IND**	**COM**	**MUR**	**% IND**	**% COM**	**% MUR**	**Vacant Total**	**Redev Total**	**% Vacant**	**% Redev**
Clackamas Total	**1,975**	**352**	**538**	**399**	**686**	**107**	**159**	**292**	**527**	**889**	**266**	**820**	**45%**	**13%**	**42%**	**751**	**1,224**	**38%**	**62%**
DAMASCUS	**297**	25	0	119	152	50	0	69	152	25	50	222	8%	17%	75%	144	152	49%	51%
GLADSTONE	**68**	1	57	3	7	3	7	0	0	58	10	0	85%	15%	0%	4	64	5%	95%
HAPPY VALLEY	**489**	127	16	154	191	15	0	140	191	143	15	331	29%	3%	68%	281	207	58%	42%
JOHNSON CITY	**0**	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0	0	0%	0%
LAKE OSWEGO	**28**	2	9	4	13	0	0	4	12	10	1	16	38%	3%	60%	6	22	21%	79%
MILWAUKIE	**60**	1	42	8	9	0	6	8	2	43	7	10	72%	11%	17%	10	50	16%	84%
OREGON CITY	**308**	43	101	50	113	0	19	50	94	145	19	144	47%	6%	47%	93	215	30%	70%
RIVERGROVE	**0**	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0	0	0%	0%
WEST LINN	**14**	1	0	9	4	0	1	9	3	1	1	12	6%	8%	87%	10	4	68%	32%
WILSONVILLE	**279**	57	171	18	33	11	26	7	8	228	36	15	82%	13%	5%	75	204	27%	73%
UNINCORP-CLACK	**434**	95	142	33	164	28	100	6	64	237	127	70	55%	29%	16%	129	305	30%	70%
Multnomah Total	**4,302**	**1,507**	**1,342**	**328**	**1,124**	**132**	**212**	**196**	**912**	**2,849**	**344**	**1,109**	**66%**	**8%**	**26%**	**1,836**	**2,466**	**43%**	**57%**
FAIRVIEW	**165**	102	0	32	32	21	28	11	4	102	49	15	62%	29%	9%	134	32	81%	19%
GRESHAM	**666**	364	97	96	108	32	7	65	101	462	39	166	69%	6%	25%	461	205	69%	31%
MAYWOOD PARK	**0**	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0	0	0%	0%
PORTLAND	**2,421**	649	753	130	889	64	161	66	727	1,402	225	793	58%	9%	33%	779	1,642	32%	68%
TROUTDALE	**328**	247	6	42	32	4	6	38	26	253	11	64	77%	3%	20%	290	38	88%	12%
WOOD VILLAGE	**69**	5	31	8	25	1	3	7	22	35	4	29	51%	7%	42%	13	56	19%	81%
UNINCORP-MULT	**653**	140	454	20	39	10	7	10	32	594	17	42	91%	3%	6%	160	493	24%	76%
Washington Total	**4,472**	**2,332**	**1,132**	**274**	**735**	**170**	**219**	**104**	**516**	**3,463**	**389**	**620**	**77%**	**9%**	**14%**	**2,606**	**1,867**	**58%**	**42%**
BEAVERTON	**230**	32	72	66	59	3	12	64	48	105	14	111	46%	6%	48%	99	132	43%	57%
CORNELIUS	**111**	35	1	18	56	18	54	0	3	36	72	3	33%	65%	2%	54	57	48%	52%
DURHAM	**6**	5	1	0	0	0	0	0	0	6	0	0	100%	0%	0%	5	1	84%	16%
FOREST GROVE	**171**	95	0	12	64	1	4	11	60	95	5	71	56%	3%	41%	107	64	62%	38%
HILLSBORO	**1,632**	570	847	74	140	74	31	0	109	1,417	105	109	87%	6%	7%	644	987	39%	61%
KING CITY	**5**	0	0	1	4	1	4	0	0	0	5	0	0%	0%	0%	1	4	0%	0%
SHERWOOD	**133**	83	0	17	33	11	9	6	24	83	20	30	62%	15%	22%	100	33	75%	25%
TIGARD	**268**	25	28	35	179	18	25	16	154	54	44	170	20%	16%	64%	60	207	22%	78%
TUALATIN	**272**	210	7	15	40	15	40	0	0	216	56	0	79%	21%	0%	225	47	83%	17%
UNINCORP-WASH	**1,645**	1,275	176	36	157	29	39	7	118	1,451	68	126	88%	4%	8%	1,311	333	80%	20%
UGB TOTAL	**10,749**	**4,191**	**3,011**	**1,001**	**2,546**	**409**	**590**	**592**	**1,956**	**7,202**	**999**	**2,548**	**67%**	**9%**	**24%**	**5,192**	**5,556**	**48%**	**52%**

Appendix 5: Illustration of the Timing of Transportation Projects and Investments



Appendix 6: Subsidized Redevelopment Supply Assumptions

METRO 2040 TAZ FORECAST DISTRIBUTION
Subsidized Redevelopment Assumptions

Released: 2/24/2016
Modified: 2/24/2016

Metro Research Center, Modeling Services
Vintage: Scenario #1522 "William"

Location	Type	SF Cap	MF Cap	Total Cap	Subsidy per Unit	Total Estimated Subsidy
Central Eastside	Central City	0	1,367	1,367	$50,000	$68,350,000
Downtown Waterfront	Central City	0	3,474	3,474	$50,000	$173,700,000
Education URA	Central City	0	838	838	$50,000	$41,900,000
North Macadam	Central City	0	14,740	14,740	$50,000	$737,000,000
Oregon Convention Center	Central City	0	7,311	7,311	$50,000	$365,550,000
River District	Central City	0	6,713	6,713	$50,000	$335,650,000
South Park Blocks	Central City	0	787	787	$50,000	$39,350,000
				0		$0
Gateway Regional Center	Regional Center	0	5,197	5,197	$25,000	$129,925,000
Gresham	Regional Center	16	2,211	2,227	$25,000	$55,675,000
Hillsboro	Regional Center	291	4,375	4,666	$25,000	$116,650,000
Oregon City	Regional Center	0	1,094	1,094	$25,000	$27,350,000
Tanasbourne/Amber Glen	Regional Center	8	3,729	3,737	$25,000	$93,425,000
Vancouver*	Regional Center	0	6,000	6,000	$25,000	$150,000,000
				0		$0
Gladstone	Town Center	10	0	10	$25,000	$250,000
Lake Oswego	Town Center	7	684	691	$25,000	$17,275,000
Lents	Town Center	837	18,006	18,843	$25,000	$471,075,000
Rockwood	Town Center	1	1,345	1,346	$25,000	$33,650,000
Tigard	Town Center	67	4,187	4,254	$25,000	$106,350,000
Clackamas	Town Center	1	288	289	$25,000	$7,225,000
				0		$0
Interstate Corridor	Non-Center URA	332	21,299	21,631	$50,000	$1,081,550,000
Villebois	Non-Center URA	686	591	1,277	$10,000	$12,770,000
				0		$0
TOD - E 122nd Ave MAX Station	TOD	6	133	139	$10,000	$1,390,000
TOD - E 148th Ave MAX Station	TOD	146	1,336	1,482	$10,000	$14,820,000
TOD - E 162nd Ave MAX Station	TOD	64	125	189	$10,000	$1,890,000
TOD - NE 60th Ave MAX Station	TOD	4	331	335	$10,000	$3,350,000
TOD - NE 82nd Ave MAX Station	TOD	5	1,874	1,879	$10,000	$18,790,000
TOD - SE Division St.	TOD	1	1,380	1,381	$10,000	$13,810,000
				0		$0
NPI 42nd Avenue	NPI	20	846	866	$10,000	$8,660,000
NPI 82nd Avenue and Division	NPI	38	2,474	2,512	$10,000	$25,120,000
NPI Cully Blvd	NPI	12	2,009	2,021	$10,000	$20,210,000
NPI Division-Midway	NPI	0	528	528	$10,000	$5,280,000
NPI Parkrose	NPI	3	445	448	$10,000	$4,480,000
NPI Rosewood	NPI	7	215	222	$10,000	$2,220,000
				0		$0
Sandy*	Rural City	0	600	600	$10,000	$6,000,000
Canby*	Rural City	0	600	600	$10,000	$6,000,000
REGION TOTAL		**2,562**	**117,132**	**119,694**		**$4,196,690,000**
Central City		0	35,230	35,230		$1,761,500,000
Regional Center		315	22,606	22,921		$573,025,000
Town Center		923	24,510	25,433		$635,825,000
Non-Center		1,018	21,890	22,908		$1,094,320,000
TOD		226	5,179	5,405		$54,050,000
NPI		80	6,517	6,597		$65,970,000
Rural City		0	1,200	1,200		$12,000,000

* Outside Metro UGB

TOD = Metro Transit Oriented Development
NPI = PDC Neighborhood Prosperity Initiative
Subsidy assumtion for each location is an estimate based on multiplying "Total Capacity" X "Subsidy per Unit"
Subsidy per Unit is a hypothetical amout meant to monetize the economic benefit of the active urban renewal areas

Appendix 7: Urban Reserve Capacity Assumptions (residential dwelling units and non-residential acres)

METRO 2040 TAZ FORECAST DISTRIBUTION
Urban Reserves Capacity Assumptions

Released: 2/24/2016
Modified: 2/24/2016

Metro Research Center, Modeling Services
Vintage: Scenario #1522 "William"

Code	Location	Year Available	Residential Units SF	MF	Total	Commerical Acres	Industrial Acres
1C	Gresham East	2040	2,815	4,443	7,258	28	0
1D	Boring	2045	0	0	0	0	1,159
1F	Boring	2045	0	0	0	0	492
2A	Damascus	2045	2,648	4,179	6,827	26	0
3B	Holcomb	2045	713	1,574	2,287	10	0
3C	Holly Lane	2045	658	1,454	2,112	9	0
3D	Maplelane	2035	1,052	2,324	3,376	14	0
3F	Henrici	2030	685	1,514	2,199	9	0
3G	Beaver Creek Bluffs	2030	479	1,058	1,537	7	0
4A	Stafford	2040	1,293	2,856	4,148	18	0
4A	Stafford	2045	4,282	8,109	12,390	51	0
4B	Rosemont	2040	343	759	1,102	5	0
4C	Borland	2045	1,790	3,955	5,745	25	0
4D	Norwood	2045	2,863	6,325	9,188	39	0
4E	I-5 East – Washington Co	2045	2,132	4,710	6,842	29	0
4F	Elligsen Road North	2045	694	1,533	2,227	10	0
4G	Elligsen Road South	2040	1,409	3,071	4,480	23	0
4H	Advance	2035	949	631	1,580	8	0
5A	Sherwood North	2035	247	545	792	3	0
5B	Sherwood West	2030	4,405	6,952	11,357	43	0
5D	Sherwood South	2035	1,223	1,929	3,152	12	0
5F	Tonquin	2035	0	0	0	0	257
5G	Grahams Ferry	2035	403	890	1,292	6	0
5H	Wilsonville Southwest	2030	239	340	579	2	0
6A	South Hillsboro	2035	2,369	3,368	5,737	21	0
6B	South Cooper Mountain	2035	2,644	4,173	6,817	26	0
6B	South Cooper Mountain	2045	804	1,269	2,073	8	0
6C	Roy Rogers	2030	694	1,314	2,008	8	0
6C	Roy Rogers	2035	433	820	1,254	5	0
6C	Roy Rogers	2045	429	813	1,243	5	0
6D	Beef Bend South	2035	445	702	1,147	4	0
6D	Beef Bend South	2045	815	1,543	2,358	10	0
7A	David Hill	2040	377	882	1,259	4	0
7A	David Hill	2045	420	0	420	5	0
8A	North Hillsboro	2030	206	0	206	0	3
8C	Bethany West	2035	663	1,046	1,709	7	0
8F	West Union	2035	1,453	2,742	4,195	17	0
		2030 Total	6,708	11,177	17,885	70	3
		2035 Total	11,881	19,171	31,052	124	257
		2040 Total	6,237	12,010	18,248	77	0
		2045 Total	18,247	35,463	53,711	226	1,651
			43,073	77,821	120,894	497	1,911

Appendix 8: MetroScope "WILLIAM" land use scenario assumptions

MetroScope Scenario for 2015-40 TAZ Forecast Allocation

November 2015 (revised) Metro Research Center

Theme	Major category	Subcategory	Scenario Assumption
DEMAND (FORECAST)	Forecast control totals for Portland-Hillsboro-Vancouver, OR-WA, MSA (7 counties) *Source: MARIO14.xlsx*	Households	2010: 867,794 (Census 2010) – MSA control total 2040: 1,244,000 (Metro Council) – MSA control total 2010-35: 376,200 %APR: 1.21%
		Employment	2010: 968,830 (BLS 2010 estimate) – MSA control total 2040: 1,571,300 (Metro Council) – MSA control total 2010-40: 602,500 %APR: 1.6%
		Income Bracket	Update regional income to Census based 2010 dollars (HIA distr.) 2010 forecast base year
SUPPLY (CAPACITY)	Metro UGB	Vacant Buildable Land	2013 vacant land based on aerial photography, permit data, and assessor records and amended by local review. Environmental constraints based on latest 2010 data and major known utility easements (methodology described in 2014 UGR draft, App. 2)
		Damascus	Utilized the capacity in the disincorporation scenario, i.e., western part phased in at new urban densities per Damascus zoning concepts and eastern part remains as currently rural zoning by Clackamas (i.e., No Damascus scenario is described in the 2014 UGR, App. 15)
		Redevelopment and Infill	Tax lots are eligible for redevelopment if the total real market value (land + improvements) per square foot is less than a "strike price", estimates overseen by the local BLI review process (methodology described in 2014 UGR draft, App. 2)
		Recent UGB Expansions	Post-1994 expansion areas are a combination of local zoning, comp plans, and concept plans. New areas inside the UGB as a result of HB 4078 are assumed to follow the Metropolitan Housing Rule (50% capacity in multi-family)
		Prospective UGB Expansions	Expansion locations based on the 2011 Urban Reserves decision and HB 4078. Timing of infrastructure availability informed by local jurisdiction review from "gamma forecast"
	Tri-County Outside UGB	Urban Areas	Buildable capacity assumed to be twice the 2000 Census households, except where information was provided by local jurisdictions.
		Rural Residential	Exception land, excluding public ownership and high-value properties. Dwelling unit capacity calculated from minimum lot size of county zoning.
		Measure 49	Assumes three dwelling units per Measure 49 claims
	Clark County	Vacant and Developed Land	2013 VBLM - provided by Clark County GIS, using Clark County methodology to estimate future capacity (includes redevelopment)
		Rural Residential	2012 Draft rural residential study
		Urban Growth Area Expansions	Clark Co. urban reserve areas in effect in 2009. Zoning is based on latest comp plans
	Columbia, Yamhill, Marion Counties	Urban Areas	Buildable capacity assumed to be twice the 2000 Census households, except where information was provided by local jurisdictions.
OTHER FORECAST INPUTS	Residential Construction Costs (SDC fees)		Per unit construction costs based on Metro and Homebuilders Association surveys.
	Residential Neighborhood Score		Neighborhood score is an input that describes the relative desirability of different neighborhoods based on statistical analysis of historic residential sales data; updated with 2010 data (calibration year = forecast years) Other adjustments? => WCTFS assumptions modified for WILLIAM
	Transportation & Accessibility		Transportation networks from the Metro 2014 RTP update (Harold): 2015 forecast year: No-build network *2010 forecast year: (interpolation)* *2025 forecast year: 2017 AQ network* *2030 forecast year: (interpolation)* *2035 & 2040 forecast year:* 2040 Financially Constrained network + Climate Smart Communities 2040 transit network assumptions
	Incentivized Redevelopment (e.g. Urban Renewal Subsidies)		Three tiers of location specific incentives ($50,000, $25,000 and $10,000 per new redeveloped unit) which reflect locations with active residential urban renewal or represent other incentives, such as vertical housing tax credits. Capacity varies for specific areas receiving subsidies in accord with program boundaries and the units estimated from BLI analysis (please refer to the schedule for incentivized redevelopment in the 2014 UGR, App. 11)