

Appendix 4

Housing Needs Analysis

Introduction

Metro is required under state law to complete a buildable land inventory (includes vacant, infill and redevelopment capacity) and an assessment of housing need at least every 5 years. The buildable land inventory methods and results are summarized in appendices 2 and 3, respectively. This report summarizes relevant Census data, key forecast assumptions, forecast results (derived from MetroScope scenarios¹) and compares likely housing demand to the residential growth capacity of the current urban growth boundary.

This analysis uses a range forecast. Once the Metro Council makes a growth management decision and chooses a point in the range forecast for which to plan, this Housing Needs Analysis will be updated to reflect that decision. A final Housing Needs Analysis will then be submitted for consideration by the state Land Conservation and Development Commission.

What's new in the 2014 Urban Growth Report housing needs analysis?

- Eliminated the “residential refill rate²” in the calculation of housing need.
- Replaced refill rate with direct measures of residential infill and redevelopment supply estimates; now included in the single family buildable land inventory (BLI) as *infill* capacity and the multifamily BLI as *redevelopment* capacity. The methodology for how Metro estimated single family infill and multifamily redevelopment is spelled out in the *BLI methodology* whitepaper (see Appendix 2).
- Synchronized the BLI database with MetroScope Urban Growth Report (UGR) scenario and MetroScope land use scenarios – thus enabling a tightly integrated MetroScope scenario to fit with the UGR framework.³ This will lead to better coordination between the UGR and

¹ 3 scenarios: high growth forecast, medium-baseline growth forecast, and a low growth forecast scenario

² Previous Urban Growth Reports used a refill rate to describe the share of future residential growth that would be accommodated through redevelopment and infill. The refill rate was expressed as a percent share of demand and was not tied to the buildable land inventory.

³ The integration of MetroScope within the analysis framework of the UGR provides a more substantial economic planning basis to: 1) improve the inventory of buildable lands, 2) accurately compare how the distribution of households by income bracket, age bracket and household size distributes to available housing supplies, 3) determine housing need by rent and price, 4) document the housing inventory by densities and types of residence by local jurisdiction, 5) and include infill and redevelopment in the evaluation of housing need. Utilizing MetroScope provides a stronger planning basis to test the likely market response/outcome and socio-economic impacts and tradeoffs of ordinances and incentives to increase population densities in urban areas while taking into account 1) key facilities [e.g., transportation infrastructure], 2) ESEE consequences of development [e.g., future settlement patterns after considering economic, social and environmental growth factors], 3) projected use of urban land [i.e., redevelopment].

subsequent forecast allocation work. The MetroScope scenarios used for this analysis are intended to represent a continuation of currently adopted policies.

- Used the Capture rate (i.e., the future share of residential growth and development in the Metro UGB relative to the MSA total) that is an output of MetroScope for making housing needs calculations (instead of using historically observed capture rate figures as with past UGRs). The capture rates used in this analysis are somewhat higher than historic observations.
- Required data on historic residential development trends are reported in a separate report (Appendix 5).

What key aspects are the same in this housing needs analysis?

- Using a range forecast to acknowledge uncertainty.
- Assuming no changes to currently adopted plans and zoning designations.
- Buildable lands for residential uses are inventoried by housing location, type and density.
- Only a portion of the buildable land inventory is expected to be market feasible in the 20-year planning timeframe. This report describes how 20-year estimates were made.
- Number of needed (i.e., demanded) housing units are reported by price / rent ranges and average density.
- The analysis reflects varied housing demand for different household sizes, incomes, and ages.
- Manufactured homes (a construction technique, not a housing type) are assumed to be available to be placed in any jurisdiction in Metro which allows/permits for appropriate residential development densities.
- Mimicking how real markets function, redevelopment and infill supply are linked to household demand (redevelopment and infill become more likely with higher market demand). At the higher end of the forecast demand range, there is increased redevelopment or infill supply.

Data, Forecast and Methods

Buildable Land Inventory (BLI)

- The base BLI is considered a year 2014 estimate of residential and non-residential (employment) supply. The inventory has been reviewed and accepted by local jurisdictions. Data are individual tax lots and stored in a master geodatabase capable of being queried for the UGR and suitable for a MetroScope scenario.
- BLI consists of identified vacant tax lots plus infill and redevelopment tax lots deemed capable of supporting residential development in the future under existing plans and zone designations. The infill and redevelopment supply inventory was designed to be ahead of the 20-year market for MetroScope modeling purposes. The rationale for this is to assume for the model a 20-year land supply on hand at the end of the 20-year forecast horizon.
- For purposes of evaluating the Metro UGB, the geography of the supply inventory is clipped to the current UGB and the timeframe for the supply is estimated to a 20-year inventory.

- For MetroScope modeling, we utilize the longer time frame and additional BLI data estimates which include Clark County, rural and neighboring city capacity estimates. We necessarily include this information so that we can model the Metro UGB capture rate forecast from a seven-county MSA (Clackamas, Columbia, Multnomah, Washington and Yamhill counties in Oregon and Clark and Skamania counties in Clark).
- MetroScope, a market-based land use and transportation model, is used to estimate how much of the infill and redevelopment capacity can be counted on as market feasible in the next 20 years. We count 100 percent of identified vacant land in the BLI, but will only count a fraction of the infill and redevelopment capacity in the BLI for the UGR need analysis in accord with forecast information derived from a MetroScope Scenario⁴.

Forecast⁵

- Regional range forecast (high, baseline and low growth scenarios) for population and employment, 2015 to 2035. Housing demands are derived from these growth range scenarios represented by the population and employment drivers for each forecast range and interval.
- The population forecast is integrated with the employment forecast so that economic trends affect the migration component of population. Natural population increases (births – deaths) are estimated from birth and death rates found in the 2012 National Population Projections. Rates are adjusted so that they calibrate with birth and death rates of the last 10 years for the region.
- Population forecast is converted into households by income bracket, age bracket (age is for the head of household), and household size (we call this household distribution or profile: HIA matrix)
- HIA households are converted into types of housing demand (i.e., needed housing by tenure and structure type).

Housing needs general methodology

1. Determine the portion of households in the regional MSA household forecast that may choose to locate in the Metro UGB. A MetroScope scenario defines the future forecast of residential capture rate. The capture rate measures the proportion of future housing development (i.e., growth) in the Metro UGB relative to growth in the MSA for years 2015 to 2035. The capture rate varies according to the demand forecast.
2. Sort year 2015 and 2035 projected households in the Metro UGB into socio-economic classes by: a) household size, b) income bracket, c) age bracket. This is a “3 dimensional matrix” of household size-income-age. Household size has 5 attribute levels. There are 8 income brackets and 5 age brackets. (We call this the 5 x 8 x 5 HIA matrix.)
3. Estimate the growth by HIA class for 2015 to 2035 to array the 20 year growth in households in size, household income and age brackets. An HIA class in the matrix represents households in

⁴ Additional MetroScope details may be found in Appendix 11.

⁵ Regional forecast details may be found in Appendix 1a.

the same socio-economic strata based on household size, income and age bracket characteristics.

4. Relate a set of residential housing preferences to each HIA class for tenure (own or rent) and housing structure type (single family or multi-family). Residential preference patterns for each HIA class are based on findings from a MetroScope scenario. Each HIA class is found to have proportional affinities to OSF (owner single family), OMF (owner multi-family), RSF (renter single family), and RMF (renter multifamily). These affinities are preferences used going forward to predict – by tenure and structure type – the Metro UGB housing demand projection.
5. Tally the housing need forecast by OSF, RSF, OMF and RMF (forecast results are summarized in table 3)
6. Complete a gap analysis of projected housing need by type (SF – single family and MF – multi-family) against the BLI (sorted by SF and MF), shown in figure 9.

Methodology step by step

Step 1: Capture rate and Metro UGB job forecast

From the regional MSA jobs forecast, we compute how much population (i.e., number of households) growth will locate inside the Metro UGB. A MetroScope UGR scenario (#1462) provides projections for population and households by individual NAICS⁶ sectors so we can compute Metro UGB household shares. Table 1 presents the MSA and UGB household estimates and projections for the baseline growth forecast.

Table 1: Regional Household Forecast - baseline scenario (source: 2014-2040 Regional Range Forecast)

	Metro UGB	MSA Forecast (7 counties)	percent share (UGB / MSA)
2015 (base year) Households	613,000	898,700	68.2 percent
2035 Households	820,100	1,185,800	69.2 percent
2015 Housing Units (6.9 percent vacancy rate)	655,500		
2035 Housing Units (4.0 percent vacancy rate)	852,900		
2015-35 Housing Growth Difference	197,400		

- Total projected housing demand for the Metro UGB (2015 to 2035) is 197,400 dwelling units.
- Percentage of Metro UGB growth was determined from MetroScope Scen. #1262 (baseline scenario)

⁶ North American Industrial Classification system

- MSA forecast for 7 counties includes Columbia, Clackamas, Multnomah, Washington and Yamhill counties in Oregon plus Clark and Skamania counties in Washington State.
- 6.9 percent vacancy rate (source: U.S. Census, 2010)
- 4.0 percent vacancy rate (source: 2009 UGR assumption)
- Implied captured is 72 percent for years 2015 to 2035 (baseline - medium growth scenario)

Step 2: Sort Metro UGB housing forecast into HIA classes

For the sake of brevity, we do not show the year 2015 and year 2035 HIA matrices as they are 3-way tables that are each 5 by 8 by 5 in size (which equals a total of 200 cells), which do not lend themselves to reporting in written form.

Step 3: Estimate the growth in households by HIA⁷

Instead, we summarize the marginal summations of the HIA matrix for illustrative purposes for the change in households between 2015 and 2035. (The actual forecast projections by HIA class are available upon request.)

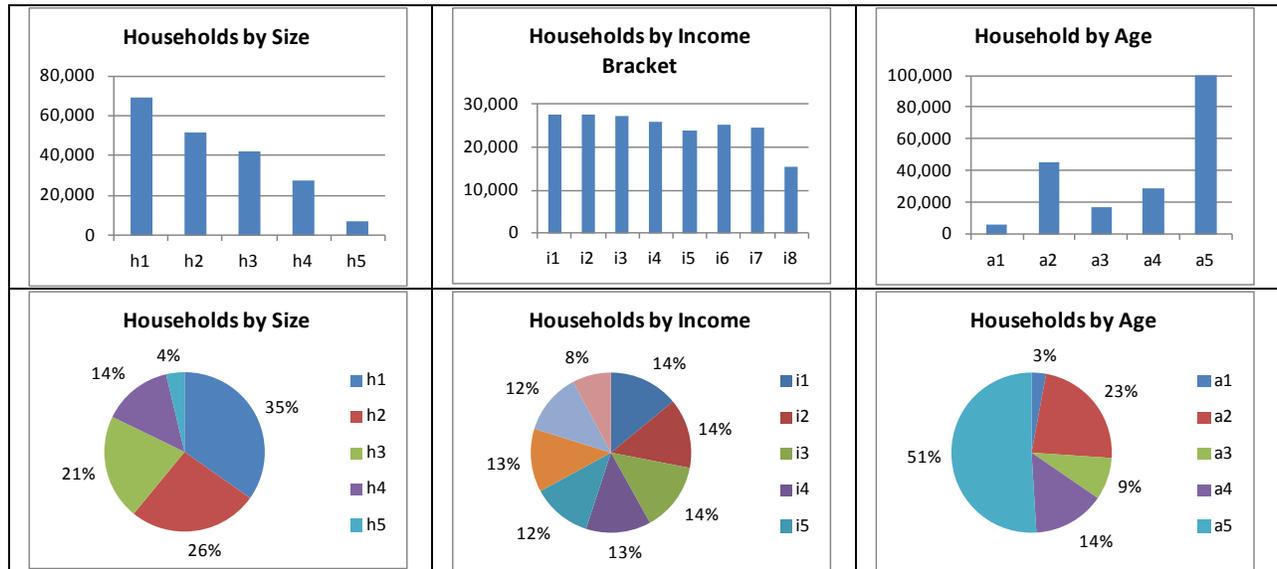


Figure 1: 2015 to 2035 HIA forecast marginal distributions (source: MetroScope Scen. #1262)

⁷ Please note that we use the term “household” and “housing unit” interchangeably. This is because we are talking about units that are dimensioned by housing characteristics (i.e., tenure and type) as well as attributed with household characteristics (age of the householder, income for the household and number of persons who could occupy the dwelling unit).

Glossary for HIA attribute levels:

H1 = 1 person household H2 = 2 person H3 = 3 person H4 = 4 person H5 = household with 5 or more	I1 = under \$15,000 I2 = \$15,000 to \$24,999 I3 = \$25,000 to \$34,999 I4 = \$35,000 to \$49,999 I5 = \$50,000 to \$74,999 I6 = \$75,000 to \$99,999 I7 = \$100,000 to \$149,999 I8 = \$150,000 and over	Head of household: H1 = householder under 25 years H2 = 25 to 44 years old H3 = 45 to 54 H4 = 55 to 64 H5 = 65 years or older
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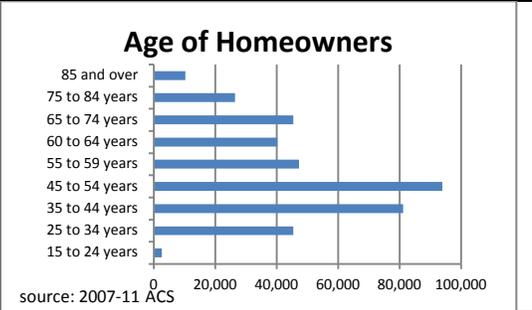
- 61 percent of future households are expected to have only 1 or 2 persons. This is consistent with overall projected declines in average household sizes from 2.60 (in 2010) to 2.47 (in 2035) for the MSA region. Despite a decline in average household size, the absolute number of households with 3 or more persons increases in number by 2035 as compared to 2010 figures.
- Note that the income brackets are not equally spaced. (They were by construction divided into 8 equal proportions to the extent possible.) The regional forecast overall anticipates proportionally fewer households in the middle income bracket with the numbers proportionally bifurcating into both lower and upper end income brackets in general.
- The influence of the baby boom generation is felt in the very large proportion of householders at the margin (51 percent of the net change in households can be characterized as eventually being in the retirement age group, 65 years and older.) An increase in median age of the population is expected due to the increase proportion of retirement age householders, yet the number of householders in younger age categories is expected to increase in absolute numbers.

Steps 5 and 6 are detailed later in this report, beginning with 2010 Census data as a contextual backdrop to the housing need forecast.

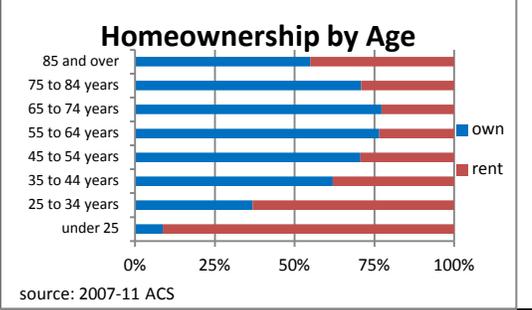
2010 Census of Population and Housing – the current housing story
(unless otherwise noted, data are for the three-county area)

Tenure (own / rent) and Age	
<ul style="list-style-type: none"> • Homeowners held a 22 percentage point edge over the number of renters in the Tri-counties (Clackamas, Multnomah, and Washington). • 392,300 owners • 253,100 renters 	<p style="text-align: center;">Housing Tenure</p> <p style="text-align: right;">source: 2007-11 ACS</p>

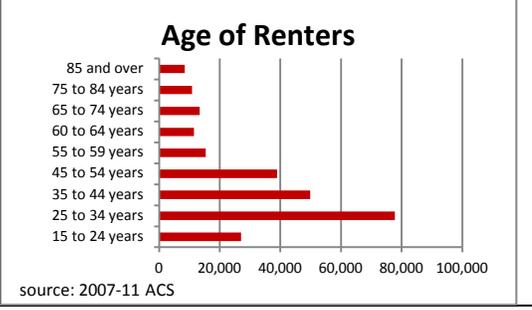
- Absolute number of home owners peaked at middle age (45 to 54 year)
- The drop in home ownership numbers in seniors came from a decline in the number of householders.
- Retirees (65 and over) who owned homes outnumbered renters 2 to 1



- Share of home ownership by age rose and peaked up to age 75 before edging lower.
- Ownership tapered slightly faster at 85 years and over (perhaps age becomes an issue in the upkeep and maintenance of owned homes).
- Ownership share in the oldest cohort was more than half (55 percent).

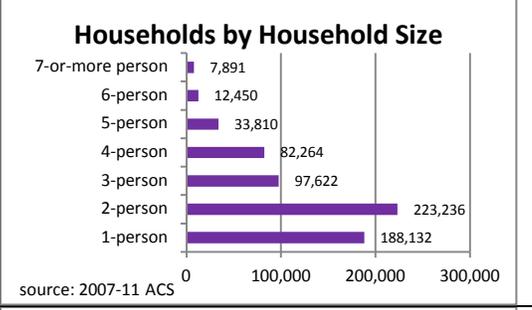


- Renters were more apt to be younger (under 35 years).
- The proportion of renters fell off with age, presumably when they were more likely to be married or starting families.

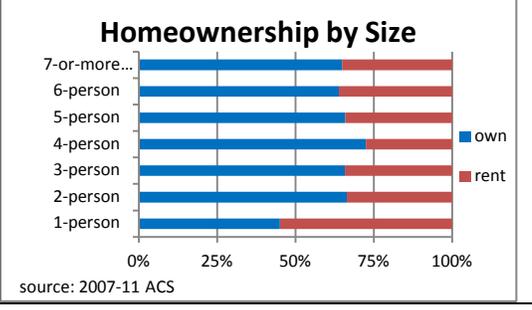


Tenure and household size

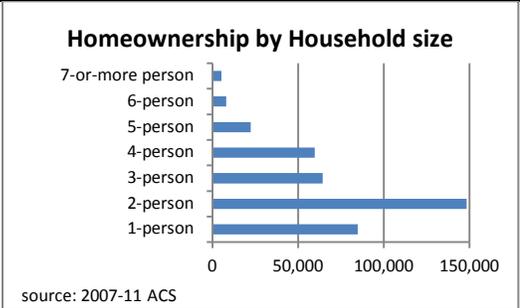
- 645,405 households in the 3-county area.
- 411,400 households were 1 or 2 person
- Household size was related to tenure choice.
- 45 percent of single-person households owned (55 percent rent).



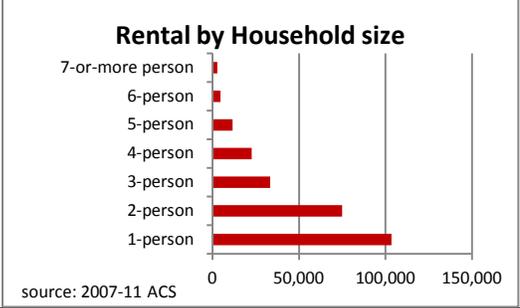
- Home ownership increased with larger households (up to 4-person households, 73 percent own)
- Households with 2 or more residents were more likely to own (about 66 percent).



- Majority of people who own homes lived in households with 2 or more people, although there were over 80,000 1-person households who owned their own home.

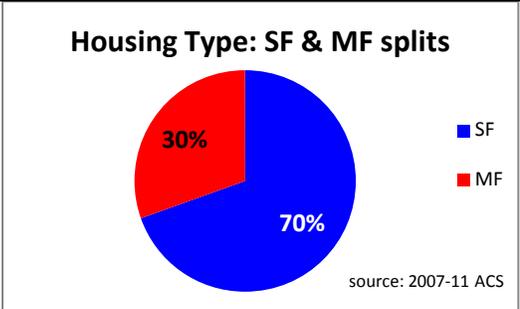


- Majority of renters were 1 or 2 person households.
- 75,000 households with 3 or more persons rented.

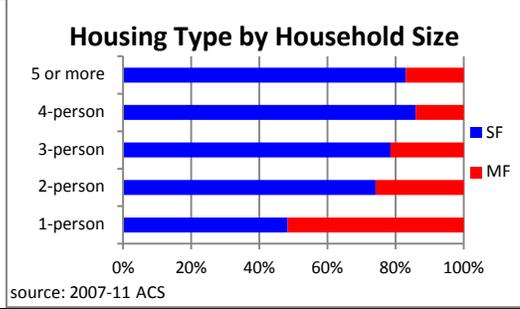


Housing Type: single family (SF) or multifamily (MF) and household size

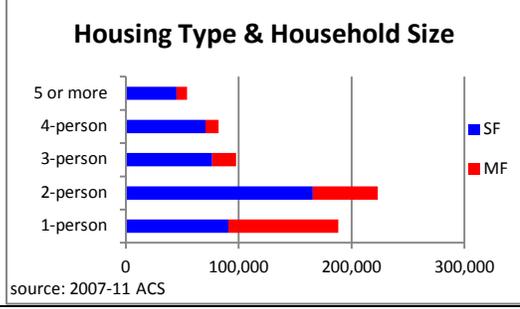
- 70 percent of households occupied a form of single family housing.
- Single family units are defined in these charts as: 1-unit detached or attached, and / or mobile, manufactured home



- Larger households were more likely to occupy single family housing.
- About half of the 1-person households occupied single family housing.

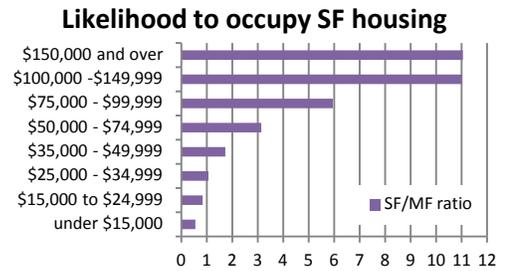


- This graph shows the relationship between household size and housing type for the 3-county area.



Housing Structure Type: single family (SF) or multifamily (MF) and household income bracket

- Households with higher incomes were more likely to live in a SF structure.
- Of the subset of low income bracket homeowners, some were headed up by retirees with fixed incomes.



- The chart (right) shows the distribution or proportion of housing type by household income bracket.
- Lower income household were more likely to occupy multifamily homes and higher income households were more likely to occupy single-family homes.

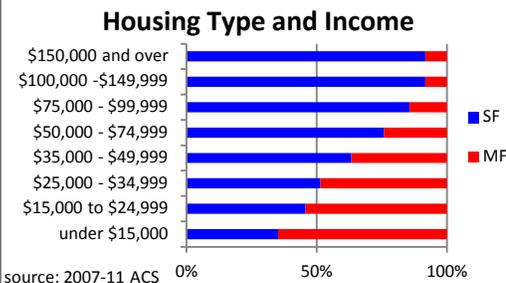


Table 2: 2010 Census, comparing household size, income, and age against demand by structure type and tenure relationships

RESIDENTIAL HOUSING BY SOCIOECONOMIC CLASS (source: Census 2010)											
geography: Tri-county (Clackamas, Multnomah, Washington)										6/11/14	
time span: 2010 data											
Household by size				Demand for:				own rent %own %rent			
				SF	MF	%SF	%MF				
1 person	h1	29%	189,322	95,722	93,600	51%	49%	87,178	102,144	46%	54%
2 persons	h2	35%	225,656	169,783	55,872	75%	25%	153,365	72,291	68%	32%
3 persons	h3	15%	98,293	73,814	24,479	75%	25%	61,828	36,465	63%	37%
4 persons	h4	12%	77,962	64,847	13,115	83%	17%	54,713	23,249	70%	30%
5 or more persons	h5	8%	54,173	44,532	9,640	82%	18%	35,263	18,910	65%	35%
		100%	645,405	448,698	196,707	70%	30%	392,346	253,059	61%	39%

HH by income bracket				Demand for:				own rent %own %rent			
				SF	MF	%SF	%MF				
under \$15,000	i1	13%	83,675	32,424	51,251	39%	61%	22,977	60,699	27%	73%
\$15,000 to \$24,999	i2	11%	70,983	35,184	35,798	50%	50%	27,055	43,928	38%	62%
\$25,000 - \$34,999	i3	11%	70,453	38,706	31,747	55%	45%	31,374	39,079	45%	55%
\$35,000 - \$49,999	i4	15%	97,762	64,976	32,786	66%	34%	54,569	43,193	56%	44%
\$50,000 - \$74,999	i5	19%	122,254	95,367	26,887	78%	22%	83,000	39,253	68%	32%
\$75,000 - \$99,999	i6	12%	78,025	68,211	9,813	87%	13%	62,688	15,337	80%	20%
\$100,000 - \$149,999	i7	12%	75,719	70,307	5,412	93%	7%	67,646	8,074	89%	11%
\$150,000 and over	i8	7%	46,534	43,522	3,011	94%	6%	43,037	3,496	92%	8%
		100%	645,405	448,698	196,707	70%	30%	392,346	253,059	61%	39%

HH by householder age				Demand for:				own rent %own %rent			
				SF	MF	%SF	%MF				
under 25 years old	a1	5%	33,679	23,491	10,187	70%	30%	19,961	13,718	59%	41%
25 to 44 years old	a2	34%	217,562	151,567	65,995	70%	30%	131,488	86,074	60%	40%
45 to 54 years old	a3	21%	135,907	94,629	41,278	70%	30%	83,335	52,572	61%	39%
55 to 64 years old	a4	19%	121,777	84,411	37,366	69%	31%	74,303	47,474	61%	39%
65 years or older	a5	21%	136,480	94,599	41,881	69%	31%	83,258	53,222	61%	39%
		100%	645,405	448,698	196,707	70%	30%	392,346	253,059	61%	39%

source: U.S. Census and Metro Research Center SF = 1 unit attached or detached, mfg. home MF = multifamily unit, apartment or condo

Table 2 summarizes the residential conditions for the Portland tri-county area for year 2010 based on data from the U.S. Census. This table summarizes the 5x8x5 HIA matrix for year 2010.

- 70 percent of households occupied a 1-unit structure (i.e., a single family)
- 30 percent of households occupied a residence with more than 2 attached units (i.e., multifamily, duplex, triplex and other plexes are included in this category)
- 61 percent of households owned their residence
- 39 percent of households rented their residence

The information in table 2 illustrates the historic relationship between household characteristics (household size, income bracket and age bracket) and housing characteristics (tenure and housing structure type (i.e., single family (SF) and multi-family(MF)). The projection for housing demand in the

UGR does not use this Census information to forecast future housing demand. For that, MetroScope data are used and are tabulated in the next section of this report. The next section also includes marginal details of the 5x8x5 HIA matrix used in forecasting residential demand for single and multi-family.

UGR MetroScope scenario results

Data in this section are derived from a MetroScope scenario that is intended to illustrate how the population and employment growth forecast may play out with a continuation of currently adopted land use and transportation policies. These modeled data inform the UGR’s assessment of future housing needs.

Figures 2 to 4 illustrate the demographic shift in household composition between years 2010, the change between 2015 and 2035, and the projected outlook in 2035. The UGR residential need estimate is based on the changes in residential composition and projected shift in housing demand between 2015 and 2035 (based on the baseline – medium growth scenario).

According to our forecast projections:

- 6 out of 10 net new households are expected to be 1 or 2 person.
- Average household size in the Tri-county is expected to fall from 2.54 (in 2010) to 2.48 (in 2035); marginal household size projected to be 2.30. Figure 2 shows proportionally larger increases in 1 and 2 person households.

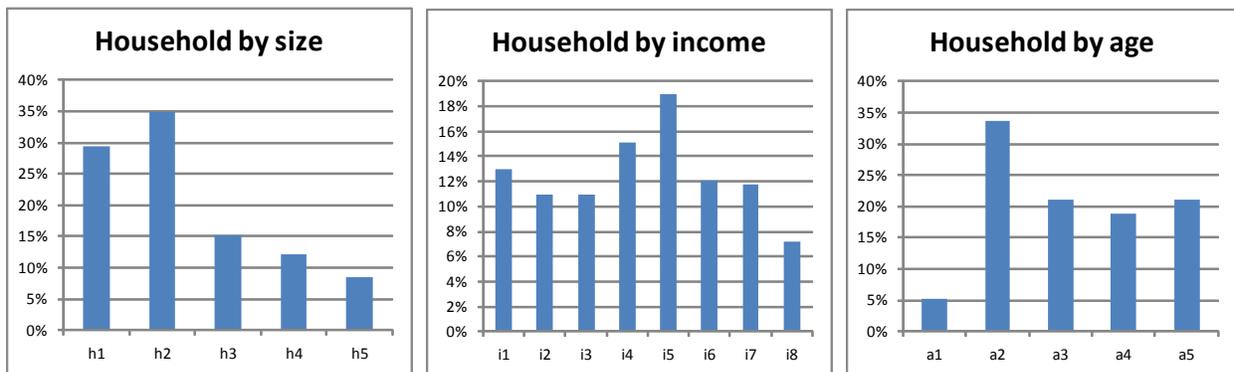


Figure 2: 2010 Household characteristics

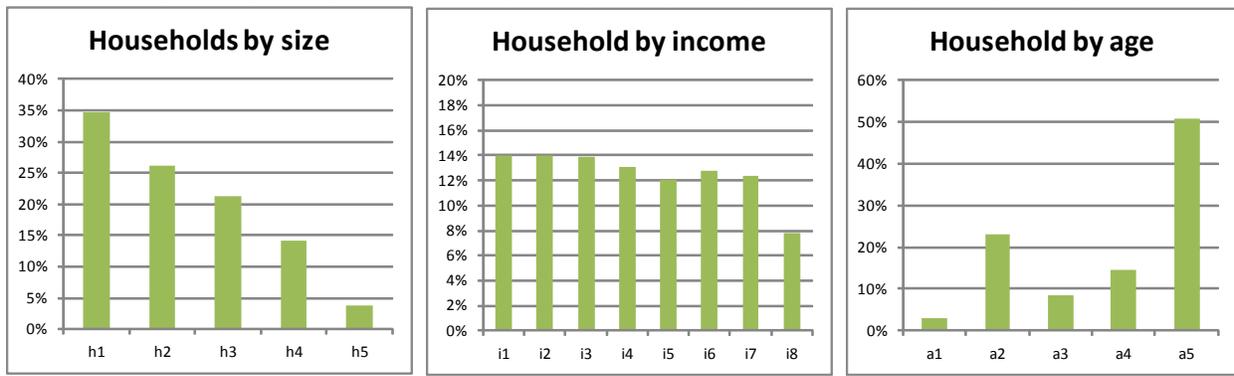


Figure 3: Change in Household characteristics (2015 to 2035) – baseline medium growth scenario

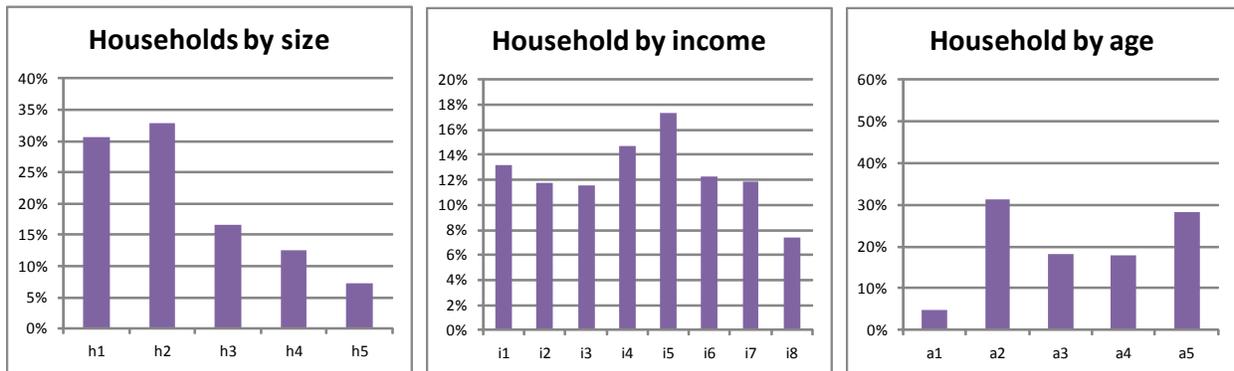


Figure 4: 2035 Household characteristics – baseline medium growth scenario

- Partly due to the increase in numbers of 1-person households, there will be a larger share of lower income households in the margin, Figure 3 (income brackets i1, i2, and i3 – under \$50,000 household income)
- The lower to middle income category (i4 and i5 - \$35,000 to \$74,999) loses share between 2015 and 2035, particularly indicative of the on-going economic pressures on middle-income Americans, Figure 3 (as illustrated for the \$25,000 to \$50,000 income brackets, i2 and i3)
- Largest increase in number of households by age will be seen in the retired cohort (65 years and older), Figure 4.
- 1 of 2 net new households will be 65 and older – consistent with aging baby-boomers

Table 3 summarizes the anticipated demand for residential housing based on MetroScope Scen. #1262 results⁸ (the baseline medium scenario).

⁸ The technical basis for the MetroScope scenario is outlined in Appendix 11, which provides a basic overview of socio-economic, land use, real estate, transportation and policy/political assumptions.

Table 3: Baseline - medium growth scenario

RESIDENTIAL FORECAST PROJECTIONS BY SOCIOECONOMIC CLASS (MetroScope basis)											
geography: Metro UGB										6/11/14	
time span: 2015 to 2035											
Scen #1462 (medium)											
Households by size				Demand for:							
		SF	MF	%SF	%MF	own	rent	%own	%rent		
1 person	h1	35%	68,748	13,047	55,702	19%	81%	34,444	34,304	50%	50%
2 persons	h2	26%	51,465	21,277	30,187	41%	59%	38,348	13,117	75%	25%
3 persons	h3	21%	42,077	26,400	15,678	63%	37%	31,322	10,755	74%	26%
4 persons	h4	14%	27,800	21,207	6,592	76%	24%	22,210	5,590	80%	20%
5 or more persons	h5	4%	7,310	7,083	227	97%	3%	7,049	261	96%	4%
		100%	197,400	89,014	108,386	45%	55%	133,374	64,026	68%	32%
HH by income bracket				Demand for:							
		SF	MF	%SF	%MF	own	rent	%own	%rent		
under \$15,000	i1	14%	27,659	5,825	21,834	21%	79%	9,748	17,912	35%	65%
\$15,000 to \$24,999	i2	14%	27,748	9,082	18,667	33%	67%	14,934	12,815	54%	46%
\$25,000 - \$34,999	i3	14%	27,390	10,169	17,221	37%	63%	16,294	11,096	59%	41%
\$35,000 - \$49,999	i4	13%	25,829	10,835	14,994	42%	58%	17,885	7,943	69%	31%
\$50,000 - \$74,999	i5	12%	23,719	12,284	11,435	52%	48%	18,960	4,759	80%	20%
\$75,000 - \$99,999	i6	13%	25,187	14,380	10,806	57%	43%	19,725	5,462	78%	22%
\$100,000 - \$149,999	i7	12%	24,427	14,833	9,594	61%	39%	20,822	3,604	85%	15%
\$150,000 and over	i8	8%	15,441	11,606	3,835	75%	25%	15,006	435	97%	3%
		100%	197,400	89,014	108,386	45%	55%	133,374	64,026	68%	32%
HH by householder age				Demand for:							
		SF	MF	%SF	%MF	own	rent	%own	%rent		
under 25 years old	a1	3%	5,730	500	5,229	9%	91%	541	5,189	9%	91%
25 to 44 years old	a2	23%	45,712	14,852	30,860	32%	68%	21,026	24,686	46%	54%
45 to 54 years old	a3	9%	16,830	6,485	10,345	39%	61%	11,918	4,912	71%	29%
55 to 64 years old	a4	14%	28,545	12,888	15,657	45%	55%	21,767	6,778	76%	24%
65 years or older	a5	51%	100,584	54,288	46,296	54%	46%	78,122	22,462	78%	22%
		100%	197,400	89,014	108,386	45%	55%	133,374	64,026	68%	32%

source: Metro Research Center

SF = 1 unit attached or detached, mobile home

MF = multifamily unit, apartment or condo

For brevity, the HIA matrices for the high and low growth scenarios are not reported. However, it should be noted that the summary tables for the high and low growth differ from this medium baseline table on tenure and structure type preferences. Under the high growth scenario, the SF/MF ratio is 44 percent / 56 percent and the aggregate tenure is unchanged, but we see small variations in individual household size, income bracket and age. Under the low growth scenario, the SF/MF ratio is 46 percent / 54 percent and unchanged in aggregate for tenure, with subtle variations in the details.

The MetroScope scenario model uses 400 types of households⁹ that are determined by household size, income, household age and whether children are present. To make analysis and presentation feasible, the 400 types have been simplified to eight household types (described as “value class” in some tables in this report).

⁹ Household refers to the residents, not the residence

These eight household types are ranked roughly commensurate with income (income generally increases from household type one to household type eight).

Table 4: Baseline - medium growth scenario

Residential Demand by Value Class										
5/19/2014										
MetroScope UGR Scenario #1462 Results										
2015										
UGB 2015										
Value Class	Total Residential Demand (units)				Residential Prices		Est. Monthly Rent			
	Owner Single Family	Owner Multi-family	Renter Single Family	Renter Multi-family	Owner Single Family	Owner Multi-family	Rental Single Family	Rental Multi-family		
1	32,134	3,981	2,304	17,174	\$ 85,062	\$ 82,228	\$ 594	\$ 341		
2	34,995	2,971	9,215	32,778	120,071	116,423	790	384		
3	41,831	3,116	6,715	28,651	146,220	146,930	969	449		
4	41,709	1,910	8,045	26,407	174,310	166,718	1,136	502		
5	45,403	2,308	5,827	21,694	211,744	203,193	1,314	570		
6	46,250	1,771	9,891	26,187	240,862	228,855	1,505	647		
7	43,644	1,112	10,938	24,263	308,826	278,718	1,814	763		
8	45,834	1,104	14,451	18,389	485,427	434,509	3,168	1,167		
	331,800	18,273	67,386	195,543						
	54%	3%	11%	32%						
2035										
UGB 2035										
Value Class	Total Residential Demand (units)				Residential Prices		Est. Monthly Rent			
	Owner Single Family	Owner Multi-family	Renter Single Family	Renter Multi-family	Owner Single Family	Owner Multi-family	Rental Single Family	Rental Multi-family		
1	36,699	14,726	2,454	27,487	\$ 126,987	\$ 105,755	\$ 764	\$ 467		
2	44,988	15,488	8,464	40,720	182,219	162,159	956	522		
3	46,189	11,101	5,430	36,715	225,363	210,320	1,113	591		
4	55,806	10,406	7,340	37,894	268,789	245,241	1,338	678		
5	53,118	8,079	7,735	34,186	321,264	297,240	1,587	774		
6	59,070	6,749	9,220	32,249	368,411	344,918	1,892	895		
7	53,702	3,203	10,059	29,589	454,937	429,537	2,309	1,065		
8	59,853	3,940	16,393	31,048	734,872	699,781	4,091	1,636		
	409,425	73,692	67,095	269,888						
	50%	9%	8%	33%						

Note: "value class" refers to the eight household types described in Table 4.

- The market share for owner single family (OSF) is expected to fall to 50 percent in 2035, from 54 percent in 2015. In total, the SF market share (own + rent) is 65 percent (54 percent OSF + 11 percent RSF) in 2015 and 58 percent (50 percent OSF + 8 percent RSF) in 2035, a 7 percent drop

in market share expected between 2015 and 2035. (In 2010, the Census estimated the SF market share to be about 70 percent).

- Change in product type mix (2015 to 2035) is nearly equally divided by owner single family (37 percent) and renter multi-family (36 percent).

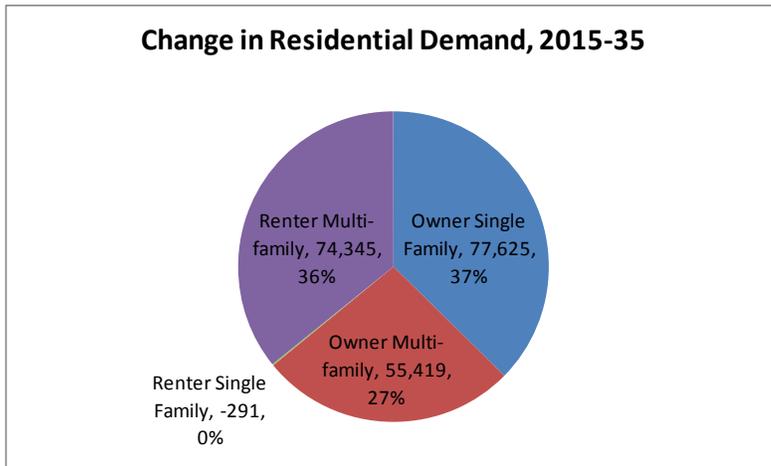


Figure 5: change in residential demand by type and tenure in the UGB (2015-2035)

- Remaining market share of owner multifamily is expected to be driven by a 3 fold increase of condos between 2015 and 2035. This marks a change in consumer product demand.
- Tenure rates (i.e., ownership) are about the same in 2015 (57 percent) and 2035 (59 percent).
- The renter multifamily market (i.e., apartments for rent) is expected to edge up to 33 percent of the market from 32 percent.
- There is little change expected in the renter single family market between 2015 and 2035 as evidenced in the 0 percent change shown in Figure 5.

Residential buildable land inventory capacity

The buildable land inventory includes capacity for about 393,000 dwelling units. Additional detail about the inventory can be found in Appendix 3. This estimate is less than what would be allowable under adopted local zoning codes since not all developed land will redevelop to its fully allowed extent in the next 20 years. Likewise, as described later in this report, not all the buildable land inventory is counted for this analysis. 30 percent of the buildable land inventory's capacity is for single family (SF) homes, of which there are about 119,000 units. SF capacity is defined to include single family detached units, single family attached units, manufactured home capacity or any other unit type that may be considered as a standalone 1-unit structure. About 70 percent of the UGB's residential buildable land inventory capacity is for multifamily residences. Multifamily (MF) capacity includes apartments and condominium units. Typically, this capacity is counted in multifamily residential districts or mixed use residential / commercial districts. Capacity for nearly 274,000 MF dwelling units is estimated in the buildable land inventory.

Table 5: 2014 Buildable Land Inventory by Regionalized Zone Class Designations

Current UGB DU Capacity from latest BLI as of 2014-05-14

	Residential		
	Redev DU	Vacant DU	Total DU
SFR1	595	1,718	2,313
SFR2	636	1,938	2,574
SFR3	4,158	4,984	9,142
SFR4	1,096	1,577	2,673
SFR5	11,183	9,581	20,764
SFR6	11,183	6,046	17,229
SFR7	12,632	11,079	23,711
SFR8	9,332	5,625	14,957
SFR9	4,373	1,724	6,097
SFR10	2,772	1,703	4,475
SFR11	0	0	0
SFR12	2,655	975	3,630
SFR13	0	0	0
SFR14	4,791	509	5,300
SFR15	4,704	1,131	5,835
SFR16	0	0	0
MFR1	3,010	1,485	4,495
MFR2	8,234	2,314	10,548
MFR3	9,915	4,569	14,484
MFR4	2,802	584	3,386
MFR5	31,873	2,140	34,013
MFR6	0	0	0
MFR7	27,833	2,383	30,216
MUR1	2,458	2,329	4,787
MUR2	479	1,665	2,144
MUR3	1,583	1,874	3,457
MUR4	3,170	704	3,874
MUR5	4,164	2,451	6,615
MUR6	2,838	2,886	5,724
MUR7	2,871	978	3,849
MUR8	3,446	663	4,109
MUR9	94,834	4,898	99,732
MUR10	33,618	8,934	42,552
Total in UGB	303,238	89,447	392,685

SFR	70,110	48,590	118,700
MFR	83,667	13,475	97,142
MUR	149,461	27,382	176,843

Table 7: Glossary of Zone Class Density

SFR# where # = specified units per net acre

MFR1: 4 to 15 units per net acre

MFR2: 16 to 20

MFR3: 21 to 25

MFR4: 26 to 30

MFR5: 31 to 35

MFR6: 36 to 45

MFR7: 46 to 85

MUR1: 4 to 15 units per net acre

MUR2: 16 to 20

MUR3: 21 to 25

MUR4: 26 to 30

MUR5: 31 to 35

MUR6: 36 to 45

MUR7: 46 to 65

MUR8: 66 to 100

MUR9: 101 to 125

MUR10: 126 to 700

Table 6 shows the distribution of residential capacity by generalized regional zone classes. The majority of the region's potentially developable supply of housing is found in single family infill (18 percent) and

multifamily redevelopment (59 percent). For reasons described later in this report, not all the infill and redevelopment inventory is counted in this analysis. The rest is vacant capacity, which is all counted in the UGR analysis. Figure 6 illustrates the buildable land inventory capacity by jurisdiction for single family and multifamily housing. Figure 7 and Figure 8, respectively, illustrate the single family and multifamily capacity broken out by infill and vacant for each local jurisdiction.

Figure 6: 2014 Residential buildable land Inventory by jurisdiction

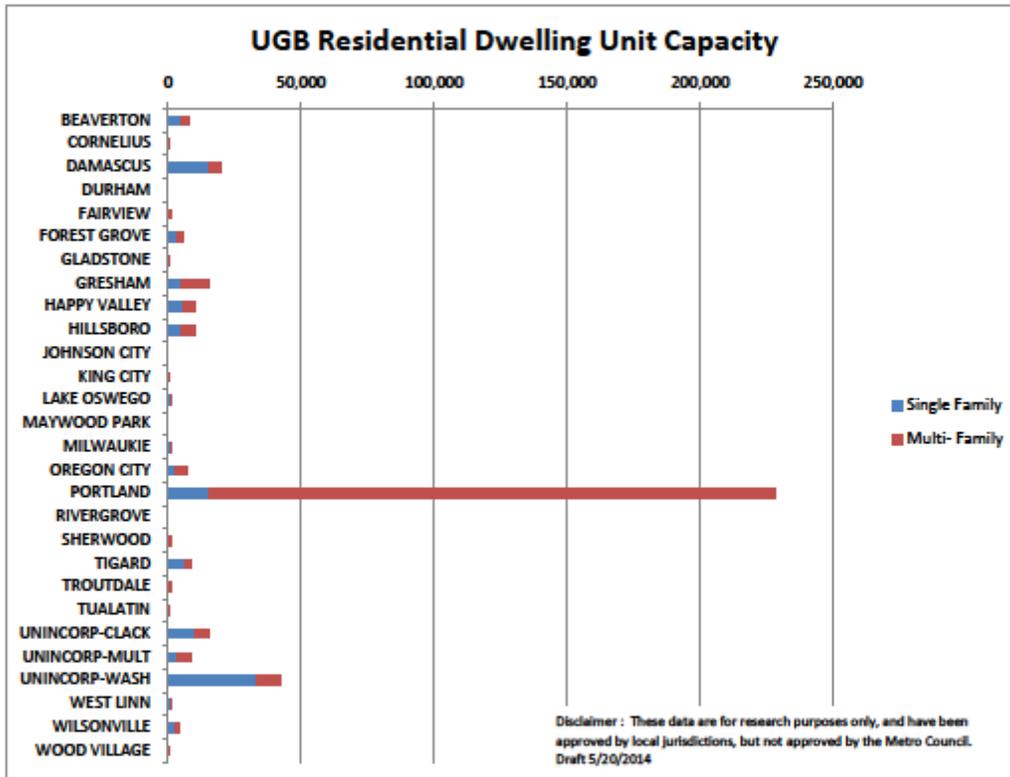


Figure 7: Single-family dwelling unit capacity included in buildable land inventory by jurisdiction

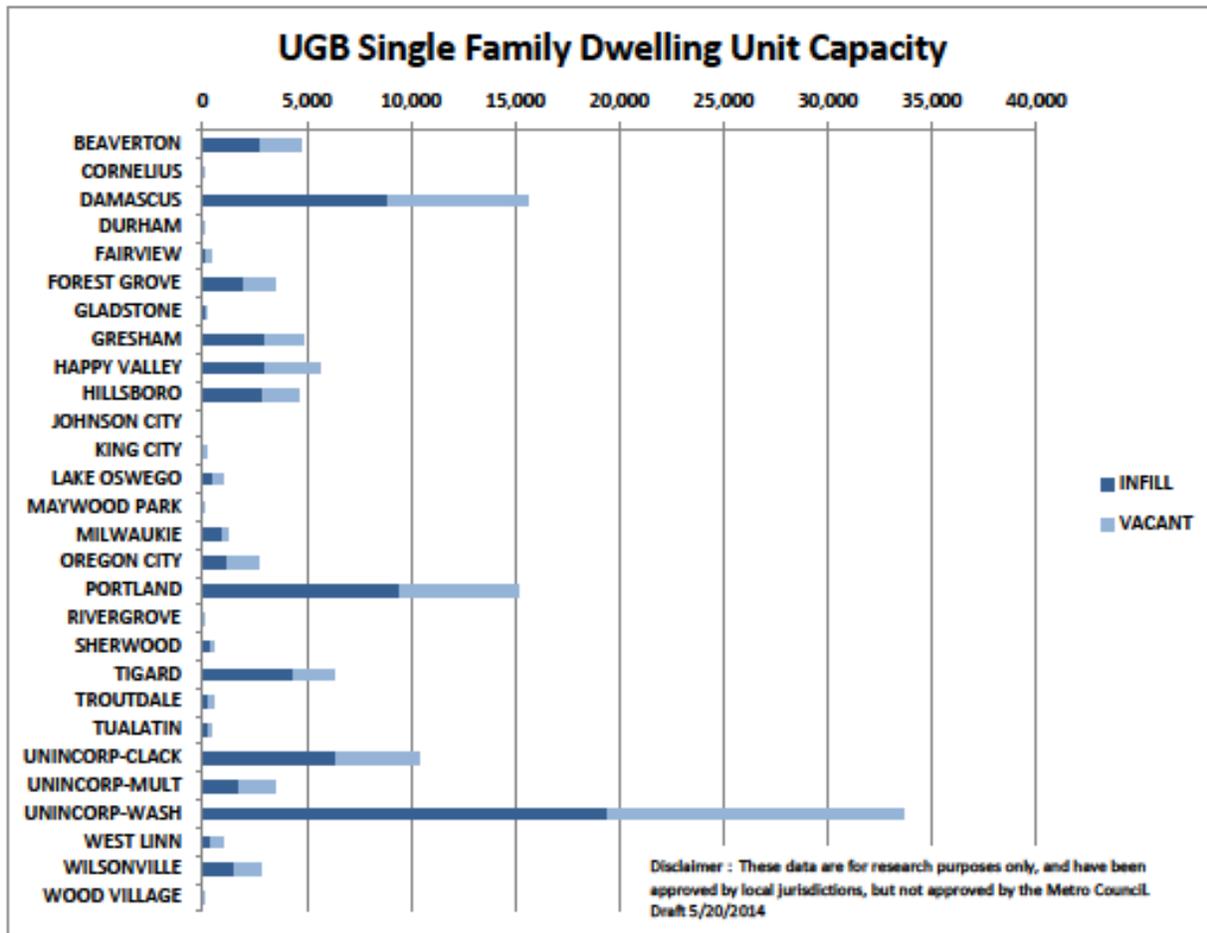
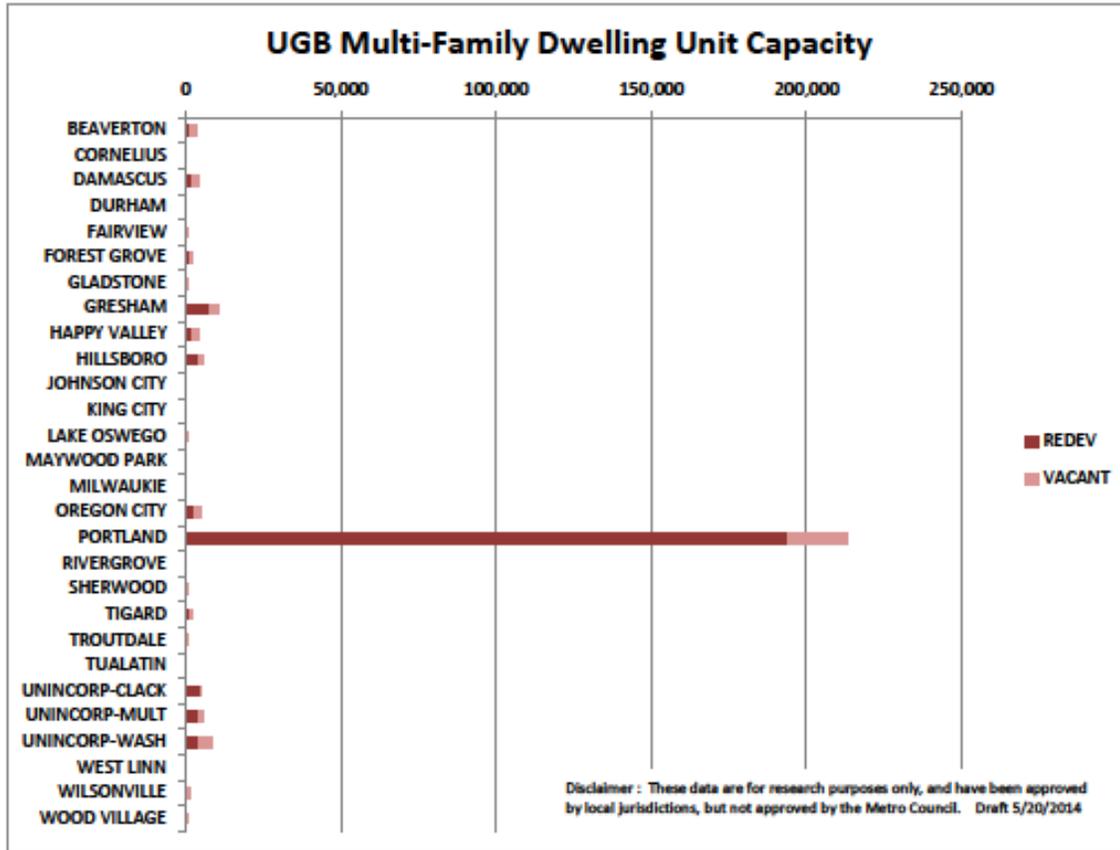


Figure 8: Multifamily dwelling unit capacity included in buildable land inventory by jurisdiction



Market feasibility of the buildable land inventory

This analysis begins with the premise that not all the region’s buildable land inventory is likely to be market feasible in the 20-year timeframe. Some reasons for this include:

- Infrastructure deficiencies
- Annexation challenges
- Land assembly challenges
- Financial feasibility of infill and redevelopment:
 - The buildable land inventory identifies possible candidates for redevelopment and infill
 - Not all redevelopment and infill candidates will actually develop in the next 20 years
 - Not all sites that do redevelop will redevelop to the maximum density allowed under current zoning

This housing needs analysis estimates how much of the buildable land inventory is likely to be market feasible supply between 2015 and 2035. Following the advice of Metro’s public and private sector technical advisory group, MetroScope, an integrated land use and transportation model was used to

make those estimates. A detailed description of the inputs used for this modeling can be found in Appendix 11. To provide additional perspective on possible market absorption of the inventory, the following section extrapolates a variety of historic absorption alternatives.

Testing the reasonableness of the potential supply: a comparison with hypothetical growth trends

How long could the residential buildable land inventory in the current Metro UGB last (without additional replenishment) given different hypothetical absorption rate (i.e., consumption) assumptions?

To provide some comparison with modeled results, this analysis examines how long the buildable land inventory might last with a variety of absorption alternatives based on history, ranging from the extreme (historical high and low growth scenarios that perpetuate for years) to more typical annual development rates for both single and multifamily structure types for a 20 year span. The range of historical data is from annual permits of single (SF) and multifamily (MF) from 1960 to 2012. The absorption rate is carried out for 20 years in a row to see how many years it would take to exhaust the inventory. These are intended as hypothetical illustrations.

Growth scenario alternatives considered:

- Development rate at the historical minimum
 - Historical minimum for SF = 2,300 units (in 1982 – a recession year)
 - Historical minimum for MF = 793 units (in 1983 – a recession year)
- Development rate at historical maximum
 - Historical maximum for SF = 12,348 units (in 1977)
 - Historical maximum for MF = 9,949 units (in 1972)
- Decade by decade average annual absorption rate
 - Historical Highs (9,582; 1990’s decade) and lows (3,311; 2010-12) for SF
 - Historical Highs (6,285; 1970’s decade) and lows (2,141; 2010-12) for MF
- Average annual absorption rate for recession and non-recession years between 1960 to 2012
 - SF: development rate of recession years = 4,741 per year average
 - SF: development rate of non-recession years = 7,836 per year average
 - MF: development rate of recession years = 2,265 per year average
 - MF: development rate of non-recession years = 5,080 per year average
- 1960 to 2012 absorption average over all years
 - SF = 6,960 average per year
 - MF = 4,283 average per year
- UGR (MetroScope scenario) average annual absorption
- Census (HIA based) average annual absorption

Hypothetical absorption rate findings are shown in Table 7.

- The UGR MetroScope scenario estimates current supply of SF capacity could last up to 24 years, which by comparison is most similar to the SF recession scenario at 25 years.
- The Census-based scenario estimates current supply lasting up to 19 years for single family, which, by comparison, is most similar to the average absorption rate over the last 50+ years. (Not a surprising conclusion since the Census scenario is a cumulative sum total of all development in the region for all time and the last 50 years scenario is essentially the half-life for the modern era of this region.)
- By all accounts, there is more than a 20 year inventory of multifamily product for all the scenarios considered based on the supply given in the UGB.

Table 6: hypothetical absorption scenarios for residential buildable land inventory inside the current UGB

Current estimate of Metro UGB SF capacity (SUPPLY):	119,100 units
<u>Hypothetical - Years Available if SUPPLY is consumed at a rate of X thousand per year:</u>	
(hypothetical annual consumption rates)	
historical minimum (2,300 in a year)	52 years
historical maximum (12,300 in a year)	10 years
decade average low (3,300 average)	36 years
decade average high (9,600 average)	12 years
recession years average (4,700 per year)	25 years
non-recession years average (7,200 per year)	15 years
1960 to 2012 average (7,000 per year)	17 years
+/- 1 std. dev.	+/- 5 years
MetroScope annual average absorption (5,000 per year)	24 years
Census (HIA) annual average preference rate (6,400 per year)	19 years
Current estimate Metro UGB MF capacity (SUPPLY):	280,602 unadjusted units
<u>Hypothetical - Years Available if MF SUPPLY is consumed at a rate of X thousand per year:</u>	
(hypothetical annual consumption rates)	
historical minimum (800 in a year)	354 years
historical maximum (10,000 in a year)	28 years
decade average low (2,100 average)	131 years
decade average high (6,300 average)	45 years
recession years average (2,200 per year)	124 years
non-recession years average (5,100 per year)	55 years
1960 to 2012 average (4,300 per year)	66 years
+/- 1 std. dev.	+/- 22 years
MetroScope annual average absorption (4,500 per year)	26 years
Census (HIA) annual average preference rate (3,100 per year)	38 years

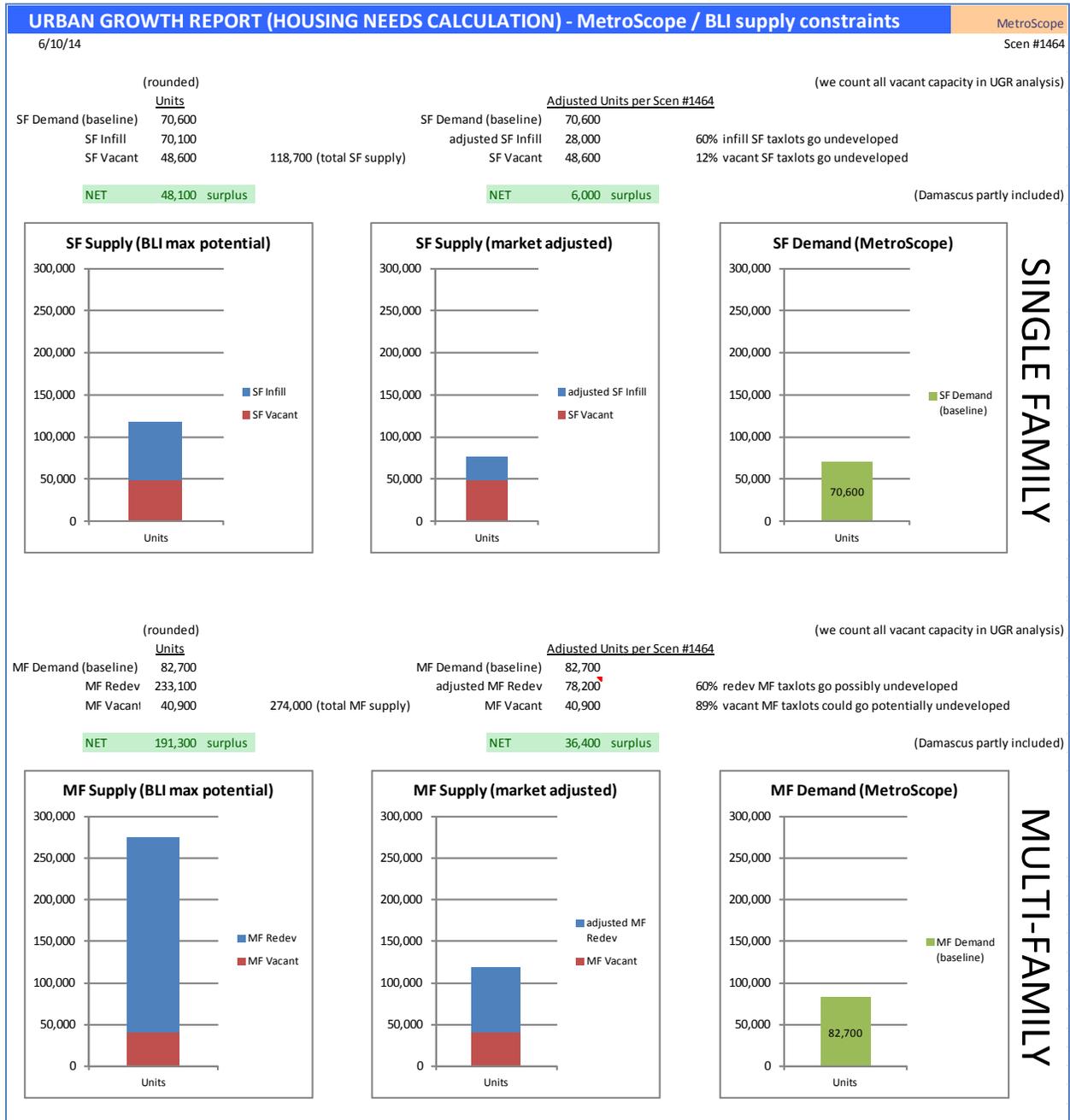
Modeled market absorption of the buildable land inventory

For the following assessments, modeled absorption data are used (not historic). In Figures 8 through 9, “adjusted” supply refers to the amount of the buildable land inventory that gets absorbed in the modeled growth scenario. It is the amount that being counted as growth capacity in the Urban Growth Report. Different demand assumptions (from the range forecast) result in different amounts of redevelopment and infill supply in each scenario.

Low growth scenario summary of housing capacity needs

At the low end of the range forecast for household growth, there is no need for additional growth capacity for multifamily or single-family housing. Detail is provided in Figure 9.

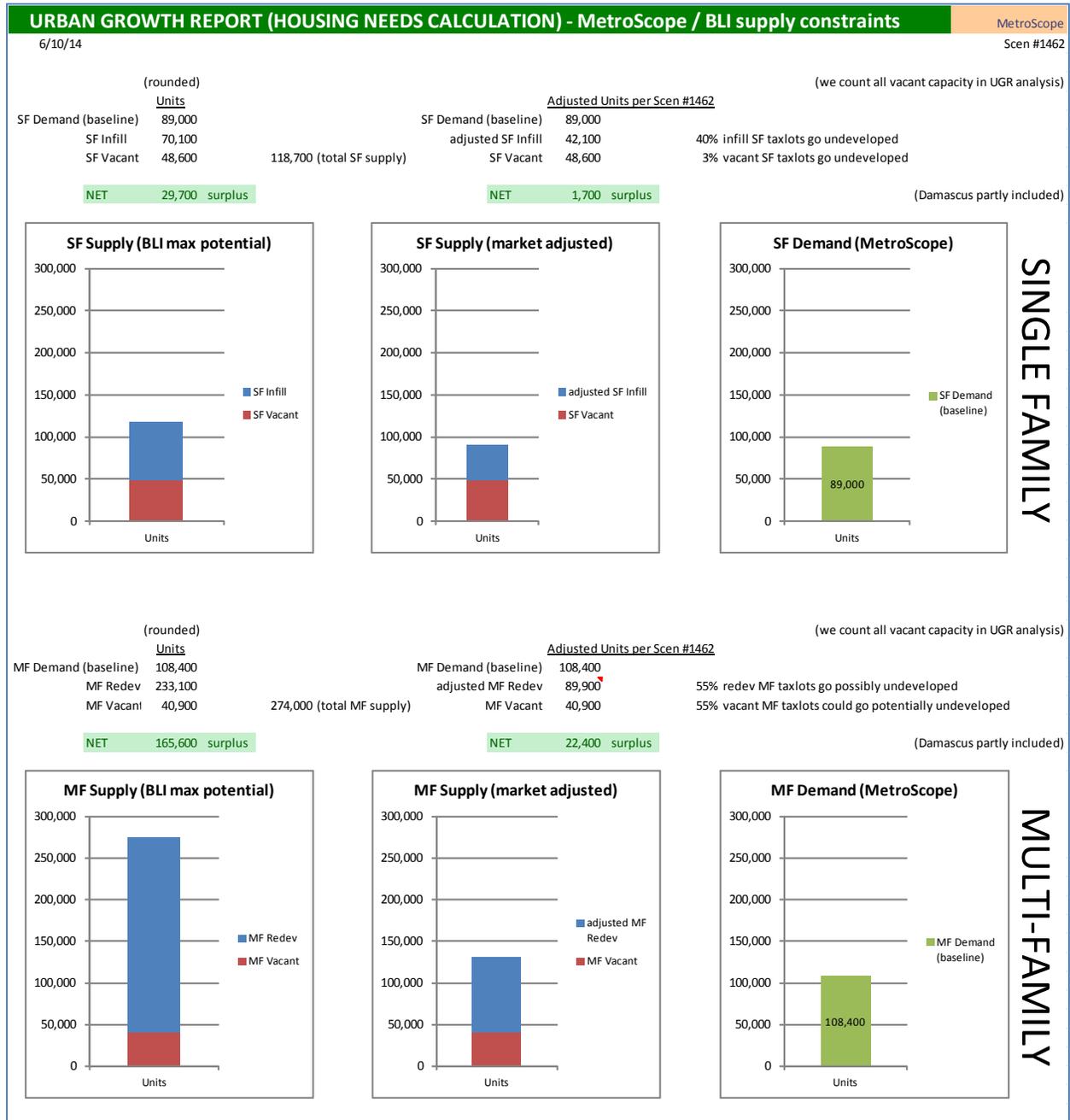
Figure 9: summary of single family and multifamily housing capacity, demand, and need under the low growth scenario (Metro UGB, 2015-2035)



Baseline (medium growth scenario) summary of housing capacity needs

At the midpoint of the range forecast for household growth, there is no need for additional growth capacity for either single family or multifamily housing. Detail is provided in Figure 10.

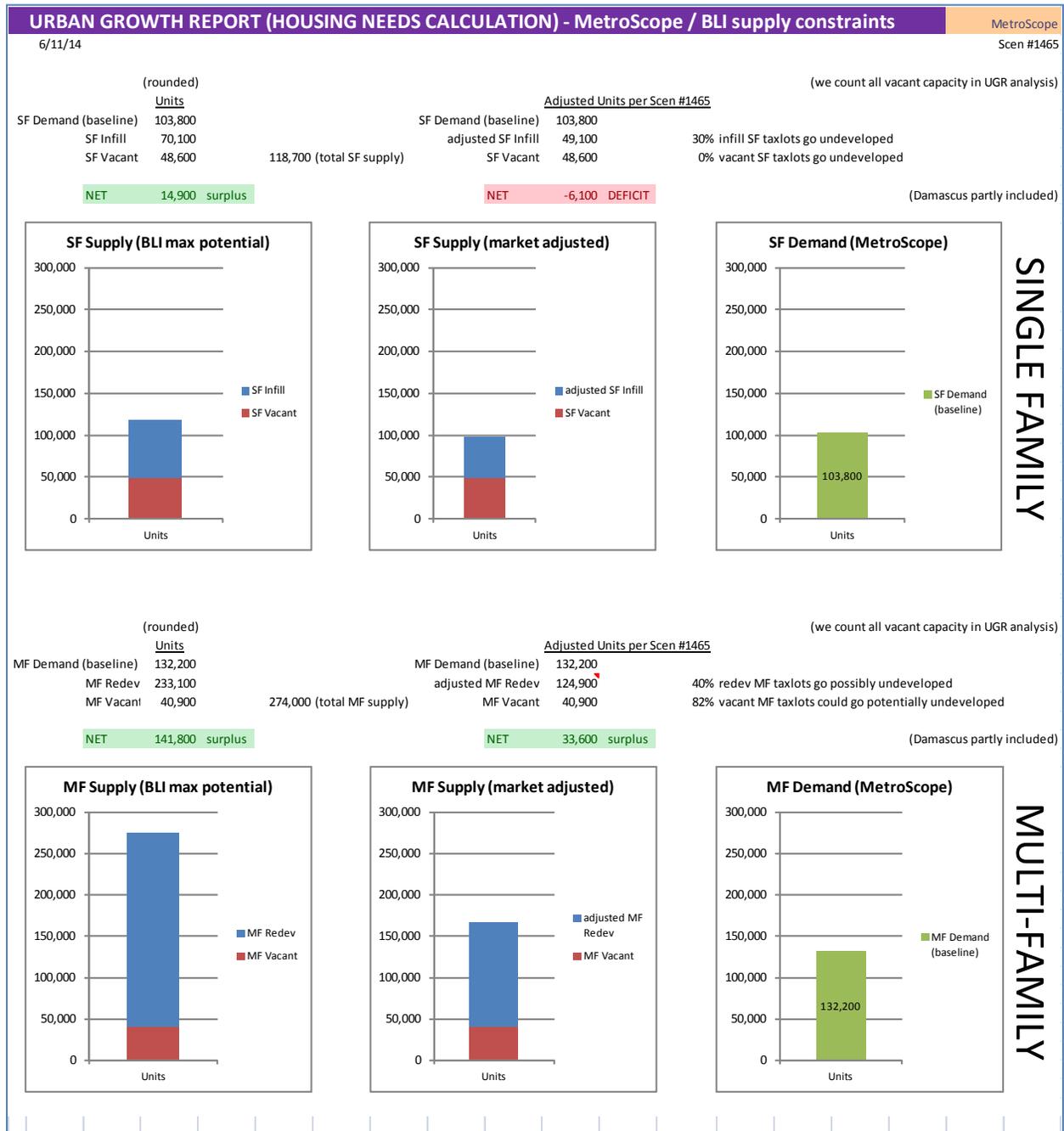
Figure 10: summary of single family and multifamily housing capacity, demand, and need under the baseline (medium) growth scenario (Metro UGB, 2015-2035)



High growth scenario summary of housing capacity needs

At the high end of the range forecast for household growth, there is no need for additional growth capacity for multifamily housing, but there is a deficit for single family housing. Detail is provided in Figure 11.

Figure 11: summary of single family and multifamily housing capacity, demand, and need under the high growth scenario (Metro UGB, 2015-2035)



Summary of housing capacity needs

Table 8 and Table 9 summarize residential capacity needs for the low, medium and high growth scenarios. At the low end of the forecast range and at the midpoint of the forecast range, there is no regional need for additional single-family or multifamily housing capacity. At the high end of the forecast range, there is a regional need for additional single-family housing capacity, but not multifamily.

Table 7: Metro UGB single-family residential needs 2015 to 2035 expressed in dwelling units

	Single-family dwelling units			
	Buildable land inventory	Market-adjusted supply	Demand	Surplus or need
Low growth forecast	118,700	76,600	70,600	+6,000
Middle (baseline) growth forecast		90,700	89,000	+1,700
High growth forecast		97,700	103,800	-6,100

Table 8: Metro UGB multifamily residential needs 2015 to 2035 expressed in dwelling units

	Multifamily dwelling units			
	Buildable land inventory	Market-adjusted supply	Demand	Surplus or need
Low growth forecast	274,000	119,100	82,700	+36,400
Middle (baseline) growth forecast		130,800	108,400	+22,400
High growth forecast		165,800	132,200	+33,600

Additional analysis details from MetroScope scenarios

Three (3) MetroScope-Urban Growth Report Scenarios were prepared for the 2014 Urban Growth Report. The 3 scenarios included were derived from the “high”, “medium or baseline”, and “low” growth population and employment projections¹⁰. The following section provides additional details about those scenarios. Appendix 11 describes in more detail the inputs used for these scenarios.

¹⁰ Detailed specifications for the population and employment growth forecast may be found in Appendix 1a.

Average density by housing type

As required under ORS 197.296, Figure 12 provides an estimate of housing need by type and density range.

Figure 12: Housing need by type and density range for three scenarios (2015- 2035, Metro UGB)

MetroScope UGR LOW -- Scenario #1464									
MetroScope UGR LOW -- Scenario #1462									
MetroScope UGR HIGH -- Scenario #1465									
Zone Class	Nominal Units / Acre	Dwelling Unit Absorption			% of DU Absorbed by Type			general zone class	
		Low	Medium	High	Low	Medium	High		
SFR1	1	367	856	2,307	0.6%	1.0%	2.2%	single family product	
SFR2	2	653	1,337	1,829	1.0%	1.5%	1.7%		
SFR3	3	3,023	6,359	7,757	4.7%	7.2%	7.3%		
SFR4	4	583	1,704	2,193	0.9%	1.9%	2.1%		
SFR5	5	10,063	15,146	17,740	15.5%	17.1%	16.7%		
SFR6	6	10,953	13,944	15,990	16.9%	15.7%	15.0%		
SFR7	7	15,707	18,711	23,051	24.2%	21.1%	21.7%		
SFR8	8	9,881	12,402	14,358	15.2%	14.0%	13.5%		
SFR9	9	4,032	4,552	5,129	6.2%	5.1%	4.8%		
SFR10	10	3,155	3,494	3,897	4.9%	3.9%	3.7%		
SFR11	11	0	0	0	0.0%	0.0%	0.0%		
SFR12	12	1,431	2,345	2,784	2.2%	2.6%	2.6%		
SFR13	13	0	0	0	0.0%	0.0%	0.0%		
SFR14	14	2,088	3,478	4,458	3.2%	3.9%	4.2%		
SFR15	15	3,060	4,235	4,913	4.7%	4.8%	4.6%		
SFR16	16	0	0	0	0.0%	0.0%	0.0%		
MFR1	12.3	768	1,727	2,951	0.5%	1.0%	1.4%	multifamily product	
MFR2	17.8	1,537	2,345	3,614	1.0%	1.3%	1.8%		
MFR3	23.3	5,072	7,927	10,451	3.4%	4.5%	5.1%		
MFR4	29.4	660	847	946	0.4%	0.5%	0.5%		
MFR5	33.4	17,467	22,444	26,144	11.9%	12.8%	12.7%		
MFR6	40	0	0	0	0.0%	0.0%	0.0%		
MFR7	73.1	18,923	21,654	24,724	12.8%	12.3%	12.0%		
MUR1	11.2	547	701	918	0.4%	0.4%	0.4%	multifamily product	
MUR2	18.2	227	297	438	0.2%	0.2%	0.2%		
MUR3	23.1	647	883	1,447	0.4%	0.5%	0.7%		
MUR4	29.1	1,660	2,083	2,717	1.1%	1.2%	1.3%		
MUR5	34.6	1,333	1,796	2,342	0.9%	1.0%	1.1%		
MUR6	40.1	3,527	5,765	9,214	2.4%	3.3%	4.5%		
MUR7	54.6	1,155	1,887	2,528	0.8%	1.1%	1.2%		
MUR8	75.5	1,999	2,360	2,877	1.4%	1.3%	1.4%		
MUR9	110.5	59,609	67,222	75,904	40.4%	38.3%	37.0%		
MUR10	222.5	32,259	35,447	38,158	21.9%	20.2%	18.6%		
TOTAL UNITS ABSORBED		212,388	263,946	311,780	Percent SF/MF split				
single family subtotal		64,998	88,561	106,405	single family	31%	34%	34%	
multifamily subtotal		147,390	175,385	205,375	multifamily	69%	66%	66%	

	Low	Medium	High
Single Family Average Density	7.4	7.2	7.1
Multifamily Average Density	111.1	106.0	101.6
Average Density (all types)	79.4	72.8	69.3

estimates approximate Metro UGB

Regional residential demand summary

Table 10 summarizes scenario details for household, housing, and location choice for residents in the Metro UGB (i.e., forward looking capture rate). The MSA forecast is the starting point because the time-series data (i.e., employment and population) is better for counties than for estimates of the data history of UGB's. Moreover, the best economic / employment data arrive to us from federal and state employment sources as MSA. Historical data with sufficient and necessary detail are not available for the Metro UGB; also, the UGB is periodically amended while counties rarely change boundaries. Having static boundaries means that measurement errors are minimized and therefore economic and demographic forecasts are more reliable (as in the case of counties or MSA's that are grouped together with the same counties).

Table 9: housing needs forecast details

UGR Forecast Details	High (MS Scenario #1465)	Medium (MS Scenario #1462)	Low (MS Scenario #1464)
2015 MSA Household Estimate (source: Metro Regional Forecast)	917,000	898,700	880,300
2035 MSA Household Forecast (source: Metro Regional Forecast)	1,256,700	1,185,800	1,114,400
2015 UGB Household Estimate (source: MetroScope UGR forecast scenario)	625,900 (68.3 percent share)	613,000 (68.2 percent share)	603,600 (68.6 percent share)
2035 UGB Household Forecast (source: MetroScope UGR forecast scenario)	870,900 (69.3 percent share)	821,100 (69.2 percent share)	768,000 (68.9 percent share)
Capture Rate (2015-35) (source: UGR calculation)	72.0 percent	72.1 percent	70.2 percent
2015 Vacancy Rate (source: 2010 Census)	6.9 percent	6.9 percent	6.9 percent
2035 Vacancy Rate (source: UGR assumption)	4.0 percent	4.0 percent	4.0 percent
2015-35 Housing Demand Forecast (source: UGR calculation)	236,600	197,400	153,300

As expected, the high growth regional scenario yields a greater housing unit demand (236,000 total units) for the Metro UGB relative to the metropolitan MSA forecast. Transitively, the medium (or so-called baseline) scenario yields less growth than the high, but more growth than the low alternative. The

household projections were defined from the regional range forecast and the Metro UGB shares and capture rates were derived from MetroScope growth scenarios.

The MetroScope scenarios used for this analysis differ only in the input assumptions for housing demand levels. This means that, for each scenario, the buildable land inventory and all other supply and transportation assumptions remained unchanged across all three. The only difference is that the high growth socio-economic forecast is used for the high growth MetroScope scenario and so on. More population and employment growth generally generates more demand for housing and this level of growth will respond and play itself out in the Metro UGB housing markets a little differently in terms of price, location and residential ownership and structure type demand than in the case of baseline or the low growth forecast alternatives.

Some of these scenario findings like location choice materialize in the capture rate being different for each scenario alternative. The capture rate (as illustrated in Table 10) don't vary across scenarios very much, but compared to historical experience they are somewhat higher than the 63 percent calculated in prior analyses. The higher capture rate projected under the MetroScope scenarios is due to many factors, such as the dwindling residential housing supply going forward in neighbor cities and rural areas adjacent to Metro UGB. Clark County's growth capacity, with its urban growth area, has fewer surpluses in the future as compared to the past. Likewise, as is currently being observed, existing urban areas in the Metro UGB continue to be a draw for growth.

Modeled housing demand

Demographic factors also play a role in some of the shift in housing type demand going forward. As noted in the regional forecast, the share of households made up of 1-person or 2-person households is expected to rise. This means that net new households are, other things being equal, have a greater propensity to demand multi-family (at least until they start forming families with children). Also, an aging population on balance also has a slightly higher affinity to shift into multi-family development forms, although as the Census data suggests, this doesn't happen until at least until individuals are about 80 years old.

Economic factors, in particular household income, play a function in determining tenure and the choice between single-family or multifamily development forms. The regional economic forecast predicts proportionally fewer middle-income bracket households and families, meaning a disproportionate rise in the number of lower income households. This results in a slight increase in renter multi-family (RMF) demand as seen in Table 11.

There is also a rise in the very high income brackets predicted in the net change in households. Disproportionate increases in the number of high income households (especially in the high growth scenario) show up in higher home ownership (65 percent in high scenario, 64 percent in medium, 63 percent in low) as compared to the 2010 Census which rang up 60 percent own and 40 percent rent.

Table 10: MetroScope Scenario Housing Need Alternatives – Household Demand by Tenure and Structure Type

UGR Forecast Details	Census Estimate (2010)	High (Change: 2015 – 35)	Medium (Change: 2015 – 35)	Low (Change: 2015 – 35)
Owner 1-unit structure (OSF)	58 percent	38 percent	37 percent	34 percent
Owner multi-family (OMF)	3 percent	27 percent	27 percent	28 percent
Renter 1-unit structure (RSF)	11 percent	0 percent	0 percent	0 percent
Renter multi-family (RMF)	28 percent	35 percent	36 percent	37 percent

Census definitions for structure types:
 Single family (SF) = 1-unit detached, 1-unit attached, mobile home, and boat, RV, van, etc.
 Multi-family (MF) = 2 units or more

Table 11 summarizes the shift between projected household characteristics (referring to HIA distribution) and their market-clearing demand for housing by type and tenure. Demand shifts materially between the 2010 Census and the future scenarios. But between scenarios, the variations are not very pronounced.

There appears to be a major shift in the type of housing under demand, between single family (SF) and multi-family (MF). Pre-adoption of the Regional Framework Plan (RFP) in 1995, the UGB had a mix of about 70 percent SF and 30 percent MF. After the RFP and local government implementation of regional housing policies, the split between SF and MF became 60 percent / 40 percent, SF over MF. More recently, during the Great Recession, the residential permit ratio between SF and MF became 50 / 50. The recession may have had an outsized impact on the residential development ratio between SF and MF units built, but there appears to be so far favorable increase in MF preferences over the last 10 to 15 year span.

Over the forecast period (2015 to 2035), the growth forecast alternatives derived from MetroScope clearly signal an even greater shift to MF. We surmise that –at least in part – the shrinking share of SF demand may owe to a shift in socio-economic patterns prompted by (1) a decline owing to smaller average household size, (2) a population that is increasingly getting older (rising median population age) and proportionate increase in lower income bracket households.

We can't discount other market clearing factors. The breakdown of the buildable land inventory shows a maximum potential supply of multifamily registering a market share of 70 percent and 30 percent single-family (which includes in its definition 1-unit attached, 1-unit detached, duplexes and triplexes and manufactured homes). Aside from the buildable land inventory and model inputs, a more practical consideration is that the region has struggled to urbanize past UGB expansion areas, which are a primary

source of future single-family housing capacity. The MetroScope scenarios suggest that (although this submarket appears to be very small at this time) the housing market will move to accommodate this demand by providing condominiums (i.e., owner multi-family), especially units that have the square footage to accommodate tomorrow's families.

Table 11: Baseline Forecast illustration of households by size

	Household size	Regional Forecast (medium scenario)		Household Difference	
		2015	2035	(2015-35)	percent share
					35
1 person	1	187,436	256,185	68,748	percent
					26
2 persons (couple)	2	222,250	273,715	51,465	percent
					21
3 persons	3	103,355	145,432	42,077	percent
					14
4 persons	4	79,438	107,237	27,800	percent
					4
5 or more persons	5	63,020	70,330	7,310	percent
					100
	Total	655,500	852,900	197,400	percent

Table 12: Baseline Forecast illustration of households by householder age

	Age Bracket	Regional Forecast (medium scenario)		Household Difference	
		2015	2035	(2015-35)	percent share
					3
under 25 years old	1	41,116	46,846	5,730	percent
					23
25 to 44 years old	2	239,543	285,255	45,712	percent
					9
45 to 54 years old	3	135,190	152,020	16,830	percent
					14
55 to 64 years old	4	110,573	139,118	28,545	percent
					51
65 years or older	5	129,078	229,662	100,584	percent
					100
	Total	655,500	852,900	197,400	percent

The final point is that overall demand for housing (regardless of scenario) will be higher in 2035. The marginal shares of households by size, income and age are certainly shifting up or down over the forecast period as mentioned and these shifts have implications on residential demand, but there is absolute growth in every major category distribution for households. This leads to the conclusion that there will be absolute additional demand for more housing for accommodating families, couples and households made up of 1 person.

Urban renewal (residential reinvestment) capacity and absorption

(source: MetroScope Scen. #1262)

These scenarios include inputs that serve as proxies for existing investment programs such as urban renewal. The rationale behind urban residential incentives (at least how MetroScope models residential reinvestments in the region) is to simulate the kind of market action that might be anticipated areas with existing investment programs. Other things being equal, the residential redevelopment incentive makes these locations relatively more attractive because of a lower cost of construction, but realized growth won't automatically gravitate to these areas unless there is sufficient demand or preference for these locations in the first place. Modeling the economic impact of these investment requires estimates for 1) the number of subsidized units (i.e., capacity) and 2) an investment amount.

The places identified for a residential investment assumption are specified by 1) urban renewal areas (URA), 2) Portland's transit-oriented development tax abatement locations, and 3) Portland's neighborhood prosperity initiative (NPI) sites. The incentivized capacity is defined based on the geography of the site or area and the number of residential dwelling units estimated as potentially redevelopable under the BLI. This residential redevelopment supply is then assumed to get (for modeling purposes) a lower cost of residential construction assumption. For locations designated *central city*, assume \$50,000 incentive; *regional center*, assume \$25,000 incentive; for *all other* incentive areas, assume \$10,000. Over the years, these assumptions have been reviewed with local jurisdictions.

Incentivized locations compete with other potentially developable areas for residential housing. All other market factors in the MetroScope model are active. The resulting modeling and forecasting effect of the incentives is that it tends to speed up the timing of market absorption making the area more attractive (other things being equal) for development to occur going forward.

Figure 12 and Table 14 summarize the model's incentive assumptions as well as modeled absorption of the incentivized units through 2035. As one can observe, the estimated total number of units receiving a form of residential reinvestment incentive is just under 88,000 dwelling units (or 22% of total capacity estimated for the Metro UGB). Overall incentivized housing unit absorption is about 80% and with about 29% of single family (SF) units remaining and 20% of incentivized multi-family units undeveloped by year 2035 (see Table 6). Generally, incentivized units will absorb more quickly than other residential capacity.

Figure 13: Modeled incentivized capacity absorption (capacity that gets absorbed between 2015 and 2035 is shown in "green". The purple segment of each bar represents the capacity that is still undeveloped by year 2035.)

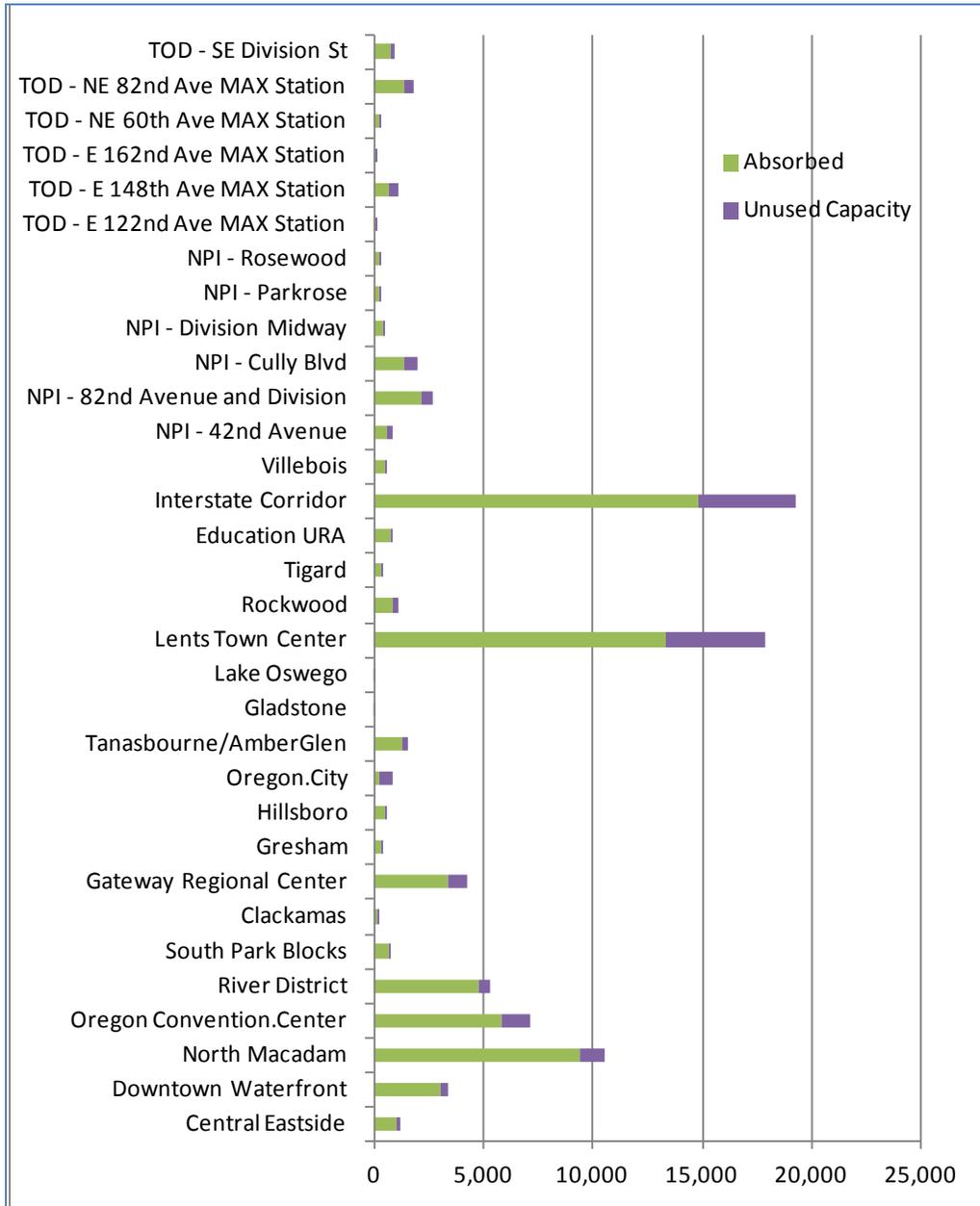


Table 13: Urban Renewal Capacity and Absorption by the Numbers for each location

Urban Renewal Location	Type	Urban Renewal Capacity			UR Capacity Absorbed			Unused Capacity by 2035			% Capacity Remaining		
		SF	MF	Total	SF	MF	Total	SF	MF	Total	SF	MF	Total
Central Eastside	Central City	0	1,196	1,196	0	1,028	1,028	0	168	168	--	14%	14%
Downtown Waterfront	Central City	0	3,376	3,376	0	3,055	3,055	0	321	321	--	9%	9%
North Macadam	Central City	0	10,574	10,574	0	9,402	9,402	0	1,172	1,172	--	11%	11%
Oregon Convention.Center	Central City	0	7,105	7,105	0	5,871	5,871	0	1,234	1,234	--	17%	17%
River District	Central City	0	5,336	5,336	0	4,809	4,809	0	527	527	--	10%	10%
South Park Blocks	Central City	0	787	787	0	707	707	0	80	80	--	10%	10%
Clackamas	Regional Center	0	248	248	0	203	203	0	45	45	--	18%	18%
Gateway Regional Center	Regional Center	0	4,233	4,233	0	3,405	3,405	0	828	828	--	20%	20%
Gresham	Regional Center	14	365	379	9	303	312	5	62	67	39%	17%	18%
Hillsboro	Regional Center	238	408	646	161	342	504	77	66	142	32%	16%	22%
Oregon.City	Regional Center	0	886	886	0	254	254	0	632	632	--	71%	71%
Tanasbourne/AmberGlen	Regional Center	8	1,553	1,561	7	1,267	1,274	1	286	287	11%	18%	18%
Gladstone	Town Center	10	0	10	9	0	9	1	0	1	8%	--	8%
Lake Oswego	Town Center	3	33	36	2	28	30	1	5	6	26%	16%	16%
Lents Town Center	Town Center	682	17,209	17,891	431	12,918	13,349	251	4,291	4,542	37%	25%	25%
Rockwood	Town Center	0	1,135	1,135	0	855	855	0	280	280	--	25%	25%
Tigard	Town Center	67	337	404	33	274	307	34	63	97	50%	19%	24%
Education URA	Non-Center UR	0	831	831	0	757	757	0	74	74	--	9%	9%
Interstate Corridor	Non-Center UR	194	19,036	19,230	184	14,594	14,778	10	4,442	4,452	5%	23%	23%
Villebois	Non-Center UR	530	105	635	464	34	498	66	71	137	12%	67%	22%
NPI - 42nd Avenue	NPI	14	813	827	13	609	622	1	204	205	8%	25%	25%
NPI - 82nd Avenue and Division	NPI	38	2,690	2,728	36	2,144	2,180	2	546	548	5%	20%	20%
NPI - Cully Blvd	NPI	4	1,960	1,964	4	1,392	1,396	0	568	568	5%	29%	29%
NPI - Division Midway	NPI	0	507	507	0	431	431	0	76	76	--	15%	15%
NPI - Parkrose	NPI	2	339	341	2	256	258	0	83	83	22%	24%	24%
NPI - Rosewood	NPI	61	248	309	23	193	216	38	55	93	62%	22%	30%
TOD - E 122nd Ave MAX Station	Portland TOD	6	84	90	4	72	76	2	12	14	33%	15%	16%
TOD - E 148th Ave MAX Station	Portland TOD	128	1,001	1,129	47	638	685	81	363	444	63%	36%	39%
TOD - E 162nd Ave MAX Station	Portland TOD	4	54	58	1	39	40	3	15	18	63%	28%	31%
TOD - NE 60th Ave MAX Station	Portland TOD	1	308	309	1	255	256	0	53	53	5%	17%	17%
TOD - NE 82nd Ave MAX Station	Portland TOD	2	1,851	1,853	2	1,383	1,385	0	468	468	3%	25%	25%
TOD - SE Division St	Portland TOD	1	978	979	1	774	775	0	204	204	6%	21%	21%
UGB Total		2,007	85,586	87,593	1,435	68,292	69,726	572	17,294	17,867	29%	20%	20%

Excel files supporting this writeup:

UGR-HNA 2014 model (LOW).xlsx

UGR-HNA 2014 model (MEDIUM).xlsx

UGR-HNA 2014 model (HIGH).xlsx