REVIEW OF 2014 URBAN GROWTH REPORT RESIDENTIAL LAND FINDINGS

PORTLAND METRO AREA

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Contents

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I. Introduction & Executive Summary

Introduction

PNW Economics has been retained by the Homebuilders of Metropolitan Portland ("HBAMP") to provide review and economic analysis of the Metro 2014 Urban Growth Report ("2014 UGR"), specifically the residential land analysis assumptions and findings found in that document.

The primary purpose of this study is to provide independent review of various housing supply and demand analysis assumptions and findings in light of Oregon Housing Goal 10 guidelines for estimating housing needs and capacity with an Urban Growth Boundary ("UGB"). This report is divided into the following sections:

I. Introduction & Executive Summary

II. Review of Key Urban Growth Report Findings

III. Housing Goal 10 Requirement Review Analysis

IV. Alternative Housing Needs Analyses

V. Affordability Implications

VI. Public Subsidy & Urban Renewal Implications

Executive Summary

The 2014 Urban Growth Report projects dramatic, unprecedented, and historically unsubstantiated changes in how households will require housing over the next twenty years.

The UGR further reaches the conclusion that land within the current Urban Growth Boundary is more than sufficient to meet the needs of population growth over the next twenty years.

Direct contradiction of historical trends by UGR projections, as well as artificially constrained housing capacity that force households into a multifamily housing choice led PNW Economics to conclude that the Urban Growth Report should be viewed as inconsistent with Oregon Housing Goal 10 requirements per Oregon Revised Statute (ORS 197.296 particularly) and legal clarification of inconsistencies is in order.

- The UGR predicts that 63% of future housing demand will be multifamily units, when historically 35% to 40% of regional housing need has been multifamily units.
- The UGR predicts that 37% of future housing demand will be single-family units, when historically 60% to 65% of regional housing need has been single-family units.
- For-sale attached housing will be nine times greater than historically realized;

- Projected housing demand will be in direct contradiction to both historical building permit evidence as well as housing demand preferences evidenced in detail by the May 2014, Metro-co-sponsored Residential Preferences Housing Study;
- Housing demand will unprecedentedly shift to the City of Portland by virtue of Portland high-density and very high-density zoning capacity (58% of capacity within the UGB) compared to dwindling single-family residential capacity outside of Portland;
- 77% of total regional housing capacity will be redevelopment, guided almost solely by zoning designation, and of uncertain or hypothetical financial feasibility at best over the full twenty-year planning period;
- Average residential demand will see densities of over 98 du/acre for twenty years when the previous, historical average was 40 du/acre and below;
- Suburban community population and housing growth remaining at or below Great Recession levels for twenty years due to regional housing demand allocation to redevelopment within the City of Portland.

In essence, 2014 UGR analysis by Metro amounts to a forced choice by future households into multi-family housing based on price, all things equal, and explains the projected, dramatic reversal of housing trend in the region: predominance of single-family units (60% average) compared to multifamily units (40% average).

For the following reasons, 2014 UGR analysis of housing capacity, future housing need, and the reconciliation of need and capacity are questionable in light of ORS 197.296 and render 2014 UGR findings legally and methodologically questionable.

- Housing capacity analysis does not fully weigh affordability and locational choice for residents among other factors, instead emphasizing absolutely capacity by zoning regardless of price – as evidenced by assumptions of massive, necessary public subsidy to achieve a measure of affordability – particularly within the City of Portland.
- Unlike standard Goal 10 implementation procedure, the 2014 UGR *filters household growth and future housing demand through existing housing capacity* instead of determining housing need independently of capacity.
- Instead, Metroscope implicitly assumes the existing UGR land capacity as fixed and housing need is then solved for as a function of a priori UGB capacity, in turn forcing households into a multifamily housing choice.
- Because of changes to Metroscope redevelopment modeling in recent years, housing demand is allocated to zoned multifamily capacity without regard to observed housing type preferences. Thus it is impossible for the model to achieve a "zero" land capacity solution, i.e. a housing type running out of land, because the model allocates those households to multifamily capacity regardless of their observed needs and preferences.

- The inability to even estimate a zero land capacity finding under the assumptions of Metroscope seemingly violates the intent of ORS regarding UGB capacity and need methodology, where insufficient capacity is a clear methodological possibility with specific statutory requirements for potentially reaching that conclusion and remedy for it.
- Importantly, the 2014 UGR's housing needs analysis is a complete departure from the methodology used in the 2010 UGR as well as the methodology recommended by the Department of Land Conservation and Development (DLCD) for Goal 10 implemented throughout the State.

To better understand the implications of constrained housing capacity analysis in the 2014 UGR and the risk of undersupplying different residential product types, PNW Economics conducted an alternative housing needs analysis utilizing 2014 Metro demographic forecasts that were utilized by Metro for housing needs results in question.

PNW Economics utilized historical housing data and documented demographic housing preferences, including significant growth in households aged 65 and over, to find that the Portland metro region has a twenty-year shortage of 44,075 single-family housing units.

Demand findings and reconciliation with 2014 UGR estimates of housing capacity are found in Figure A.

FIGURE A | Unconstrained Housing Need Reconciliation, Portland Metro UGB 2015-2035

HOUSING UNIT RECONCILIATION	SF	MF	Total Units	% of Units
Need:	134,075	63,325	197,400	100%
20-Year BLI*:	90,000	130,100	220,100	
Surplus/(Deficit)	(44,075)	66,775	22,700	

*Baseline 20-Year market-adjusted supply. From 2014 UGR, Appendix 4, Tables 8 & 9.

Despite the above findings, the region will see acceleration in the escalation of housing costs over the next twenty years.

- Assuming the 2014 UGR constrained housing scenario is realized, the region is estimated to see 3.8% to 4.8% annual housing cost escalation.
- The resulting increase in housing price growth would exacerbate the gap between regional income growth and housing price growth to the point of becoming the worst metro area among competitive western U.S. metro markets.

A full 67% of multifamily housing development relied upon by the UGR constrained housing analysis will require over $2.8 billion in public subsidy in fixed 2015 dollars as documented by Metro, or with inflation, over $4 billion in true subsidy cost.

The 2014 UGR is somewhat silent on the true market feasibility or reality of having the lion's share of residential capacity requiring redevelopment, particularly within the City of Portland. Typically without public incentives, redevelopment of multifamily housing does not fetch high enough rents or sales prices in order to justify the cost of their development, including purchase of property with existing improvements, their removal, and new construction in their place.

- Conservatively accounting for inflation, actual subsidy expense is estimated at $4.8 billion over twenty years throughout the region, but the vast majority within Portland urban renewal districts.
- Although various assumptions for average subsidy and location were reviewed by stakeholders, total estimated subsidy cost given the scale of assumed redevelopment requiring incentives more than likely and significantly exceeds current maximum indebtedness of existing urban renewal districts per Oregon Revised Statute.
- Substantial amendments would likely be required simply to fund development incentives, not to mention preserve allocation of funds for other urban renewal district functions such as community development and business development activities.

Finally, it is found that the 2014 UGR is silent on the critical sensitivity of analysis to households behaving as historically versus as Metroscope was specified by policy assumptions.

- Even if households behave in entirely unprecedented manner over the next 20 years, the UGR predicts acceleration in housing costs, and thus, affordability issues.
- But if households behave reasonably consistently with past observed behavior, undersupply of single-family housing poses potentially significant regional housing cost impacts and equity issues for vulnerable households.

And yet, despite these very real risks, the 2014 UGR is silent on risks to regional affordability and equity goals and objectives. Redevelopment efforts in Portland have to date, unfortunately, had varying difficulties with gentrification, housing affordability, and price-induced household relocation. The findings of the 2014 UGR absolutely depend upon a major acceleration of redevelopment of broader geographic scope in Portland, though the greater and highly likely risk to affordability for vulnerable populations is not at all treated by the document and policy discussion.

In conclusion, PNW Economics advises the HBAMP to view the 2014 UGR as a hypothetical scenario as a result of sophisticated economic and land use modeling. However, the document has many findings inconsistent with historical evidence, is likely inconsistent at least with the intent of several components of Oregon Housing Goal 10, significantly threatens already-precarious regional housing affordability balance, and would require dramatic increases in public debt and subsidy that are likely currently not legal and would require substantial amendments to Portland urban renewal districts.

II. Review of Key Urban Growth Report Findings

The purpose of this section of the report is to provide a summary and independent review of key findings in the 2014 Urban Growth Report pertaining to Portland metro area residential land need through 2035.

Overall, the 2014 Revised Draft Urban Growth Report predicts very dramatic and unprecedented reversals in how the region will grow over the next twenty years. Housing demand forecasted by Metro is a dramatic departure from both historical household behavior and revealed preferences described in the statistically sophisticated 2014 Residential Preferences Study. The result is that that both the credibility of the forecast and its compliance with State Planning Goal 10 should be called into question.

20-Year Regional Household & Residential Development Growth

Household growth and housing need are discussed in several different appendices of the 2014 UGR. The focus of this section is housing need forecast results expressed in Appendix 4, the Housing Needs Analysis.

Housing Unit Demand: Unprecedented Multifamily Demand for 20 Years

According to the 2014 UGR, Metro projects the region to grow from 613,002 residential units in 2015 to 820,100 residential units in 2035.[1] Figure 1 provides Metro estimates of housing units in 2015, 2035, and resulting net, 20-year growth. Metro also expresses results for 2015, 2035, and 20-year net growth in terms of:

- *Structure Split:* Single-family (SF) units vs. multifamily (MF) units; and
- *Tenure Split:* Owner-occupied or renter-occupied.

FIGURE 1 | Summary of 2014 UGR Housing Demand Findings: Households by Structure & Tenure

Gross Estimates

2015	Own	Rent	
SF	331,800	67,386	399,186
MF	18,273	195,543	213,816
	350,073	262,929	**613,002**

2035	Own	Rent	
SF	409,425	67,095	476,520
MF	73,692	269,888	343,580
	483,117	336,983	**820,100**

20-Year Change	Own	Rent	
SF	77,625	-291	77,334
MF	55,419	74,345	129,764
	133,044	74,054	**207,098**

SOURCE: 2014 Revised 2014 UGR, Appendix 4, Table 4

The region is expected to add 207,098 new residential units between 2015 and 2035 for an average annual growth rate of 1.47%.

Overall, Metro strikingly projects that the largest increase in housing unit need will be in:

[1] The 2014 UGR actually reports conflicting estimates of 20-year household growth and housing demand. Table 4 from Appendix 4 provides the most detailed cross-tabulated data for Medium Growth scenario demand based on housing prices and both tenure split (ownership vs. rent) and structure split (single-family vs. multifamily) and thus it is primarily utilized. In Table 3 of Appendix 4, 20-year Medium Growth scenario household demand growth is estimated at 197,400.

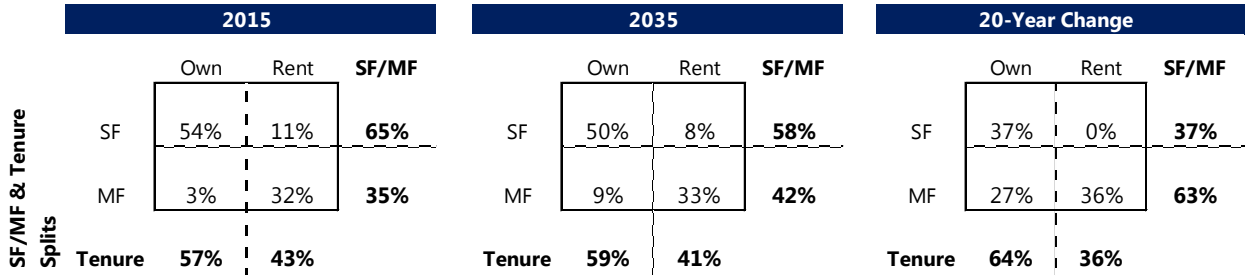
- Single-family ownership (77,625 new units);
- Multifamily rental (74,345 new units); and
- Multifamily ownership (55,419 new units).

A more precise way to view the housing demand forecast is to see how the demand for housing splits between single-family and multifamily units (Structure Split) and between ownership and rental units (Tenure Split). Metro's forecast of housing demand by structure and tenure split is found in Figure 2.

For the next twenty years, Metro forecasts:

- 37% of all new homes will be single-family units – compared to 65% currently.
- 63% of all new homes will be multifamily units – compared to 35% currently.
- 27% of all for-sale homes will be multifamily – compared to 3% currently.

FIGURE 2 | Summary of 2014 UGR Housing Demand Findings: Structure & Tenure Splits



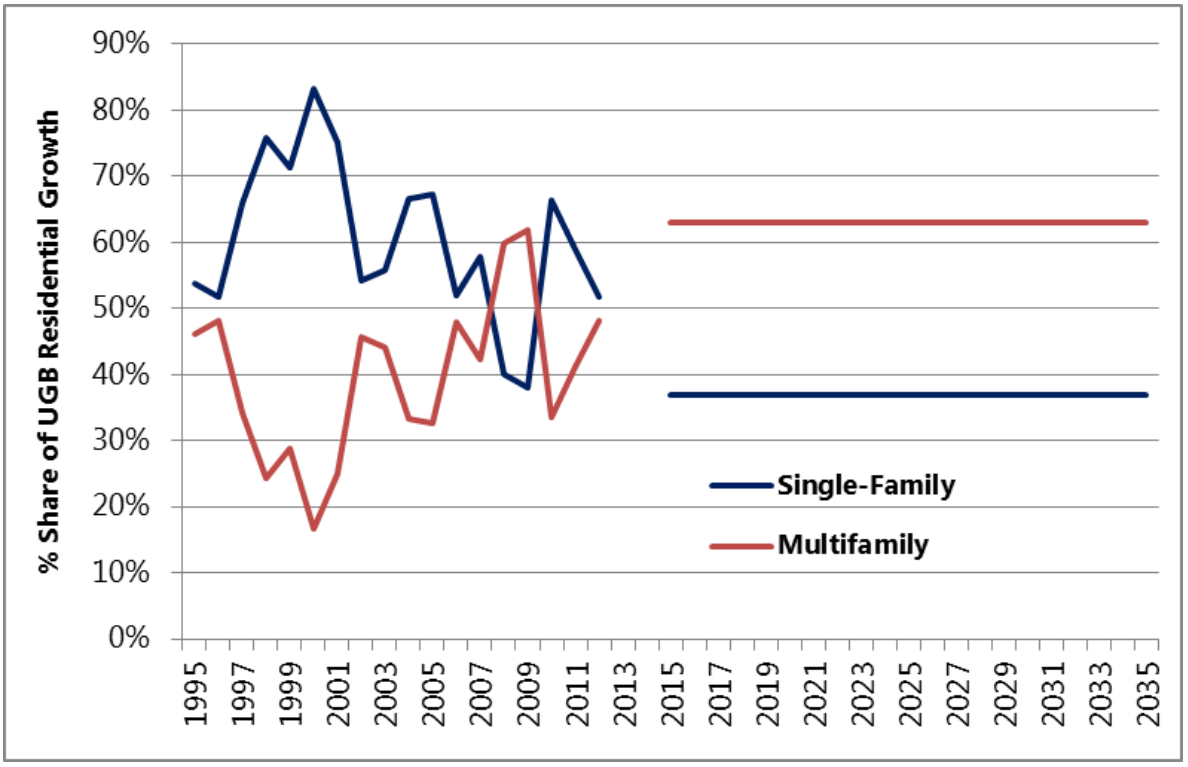
SOURCE: PNW Economics, LLC percentage calculations from 2014 Revised 2014 UGR, Appendix 4, Table 4 data

Historical Record – Single-Family Predominance Within the UGB

In other words, the 2014 UGR projects new households to the region will unprecedentedly demand the exact opposite of what presently exists in the region. According to Metro data, as displayed in Figure 3, housing development within the UGB has averaged the following in recent years:

- 2010-2012 (Since 2010 UGR): 58% Single Family, 42% Multifamily
- 2008-2012 (Great Recession & Recovery): 48% Single Family, 52% Multifamily
- 2002-2012 (Previous Decade of Metro Data): 55% Single Family, 45% Multifamily

FIGURE 3 | Metro UGB New Residential Unit Share by Structure, 1995 to 2012 and 2014 UGR



Source: Metro 2010 Urban Growth Report (Appendix 8, Figure 5.3) and 2014 UGR (Appendix 5, Table 1 and Appendix 4, Table 4 data)

In contrast, 2014 UGR forecasted structure split multifamily and single-family are also displayed, demonstrating the significant disparity between historical and projected.

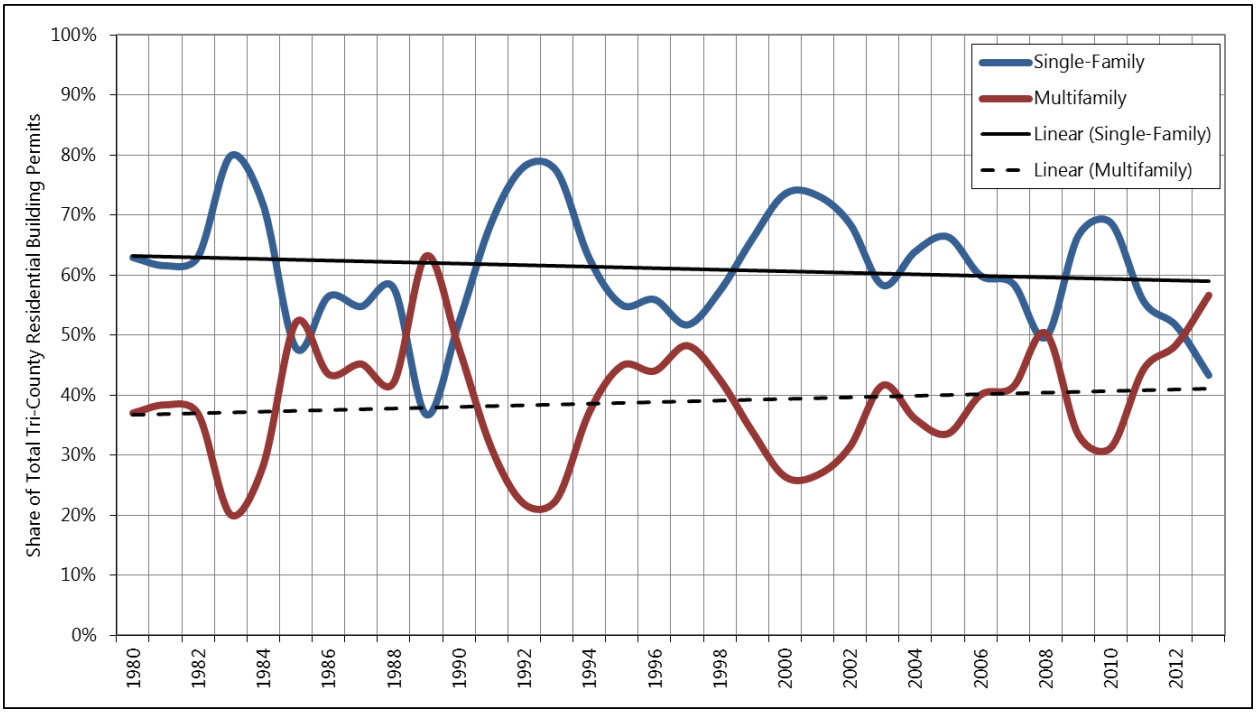
- 20-year forecasted multifamily structure split has not at all been achieved since 1995 within the Metro UGB, the closest being 62% in 2009 – the absolutely worst year of the Great Recession.
- Likewise in the 2009 trough of the Great Recession, single-family structure split was at its lowest at 38% compared to the 20-year average forecast of 37% through 2035.

Historical Record – Single-Family Predominance in the Tri-County Metro Job Shed

Historical UGB permitting data in Figure 2 also portray a downward trend in single-family housing from almost 70% in 1995 to roughly 52% in 2012. Likewise, an upward trend in multifamily housing within the UGB has emerged, from a roughly 30% average in 1995 to 48% in 2012.

But from a broader job shed perspective in Figure 4, the tri-county region that includes jurisdictions nearby but outside of the Portland metro UGB, single-family housing permits as a share of the regional total have trended very gradually downward over the years according to data in Figure 4. At the same time, multifamily permitting has also gradually trended upward.

FIGURE 4 | Three-County Region Historical Residential Building Permits, 1980 to 2013



Source: U.S. Department of Housing & Urban Development (HUD)

In other words, broader regional single-family housing needs for the metro area economy are being met by a wider geographic area, and as a result, longer commutes and more commuting. Growth contained within the Portland metro urban growth boundary is increasingly multifamily by virtue of households strongly preferring single-family housing and commuting from outside the Portland metro UGB.

As Figure 4 also indicates, the 2014 UGR forecast is also contrary to residential development for most of the last 30 years throughout the tri-county area job shed. Though the UGB is within the three-county area, communities such as Sandy, North Plains, Banks, Estacada, Canby, and other jurisdictions outside the UGB but within Clackamas, Multnomah, and Washington County have shown considerably faster residential growth than employment growth over the years and thus are important indicators of housing need given Portland metro region job-induced growth. In the three-county region overall, residential building permits have only once dropped to 37% single-family: 25 years ago in 1989.

Careful review of historical data also indicates the following: multifamily permitting always accelerates significantly shortly after the worst year of a recession. Note that in 1984, 1994, 2002, and 2011, multifamily permitting reversed course and accelerated, signaling the beginning of the recovery of the housing industry. A similar pattern can be seen in recent data as well.

Further note that during the very difficult 1980s, multifamily housing permits and construction twice exceeded single-family permitting and construction. It should be underscored that if only 1985 to 1989 were the historical basis for residential need planning within the region in 1990, at an average of 50% multifamily housing the previous five years, demand projections for single-

family housing would have been dramatically conservative and thus short-sighted. Single-family permitting averaged well over 60% from 1991 to 2006.

The primary upshot, upon review, is that like the mid-to-late 1980s, the Portland Metro region currently risks very short-sighted error regarding future single-family housing need. More than five years of tumultuous economy made single-family housing demand recede due to uncertainty about long-term employment and financial standing for home buying in the 1980s. And like then, as the region continues to recover from a long-term, severe recession, the market has similarly delivered more multifamily housing than single-family housing. But with economic recovery, 32 years of history indicates markets will return to long-term trend: strong preference for single-family housing but growing demand for multifamily units.

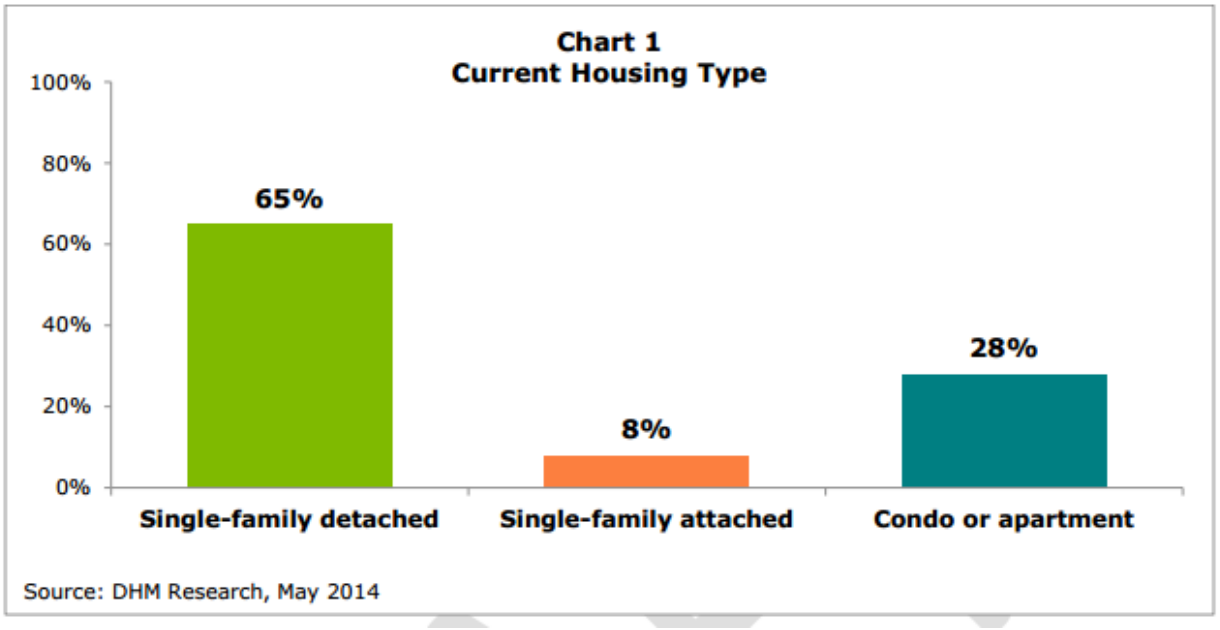
Recent Household Needs Verification – Residential Preferences Study

The 2014 UGR housing demand analysis is not only contrary to long-term and recent, historical housing demand an development data, it is also contrary to carefully gauged housing preferences as expressed in the 2014 Residential Preferences Study sponsored by a regional partnership including Metro and the Home Builders of Metropolitan Portland.

Recognized for its technical sophistication and different statistical sampling techniques, the study identified:

- 65% of households are currently in detached single-family housing and 8% are in single-family attached housing, for a combined total of 73% in single-family housing. (Figure 5)
- 28% of existing households are in condominium or apartment housing. (Figure 5)

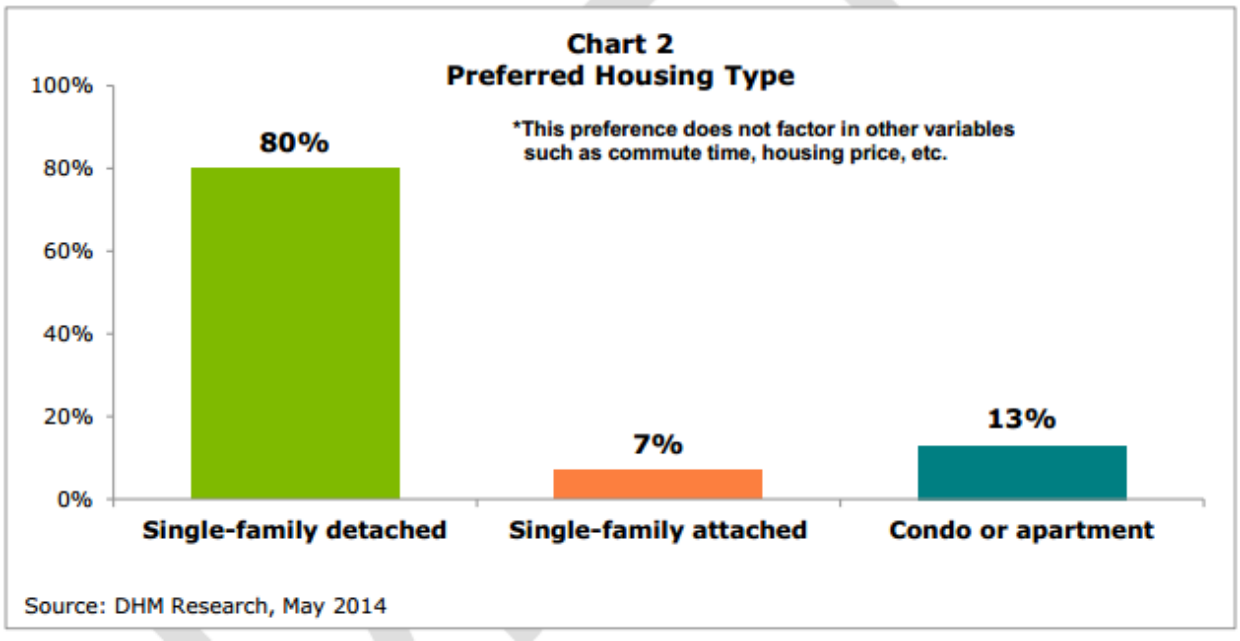
FIGURE 5 | Portland Metro Residential Preference Study 2014 Current Structure Split



SOURCE: Draft Metro Residential Preferences Study, DHM Research, May 2014

- Regardless of current housing type and location, 80% of households would prefer to be in single-family detached housing. (Figure 6)

FIGURE 6 | Portland Metro Residential Preference Study 2014 Absolute Preferred Structure Split



SOURCE: Draft Metro Residential Preferences Study, DHM Research, May 2014

- 7% of households would prefer to be in attached single-family housing regardless of current situation, for a total single-family housing absolute preference of 87%. (Figure 6)

- Regardless of current housing and location, 28% of households would prefer to be in condominium or apartment housing. (Figure 6)

UGB Residential Capacity Assumptions & Demand Implications

Residential Capacity by Density – Highest Densities, Overwhelmingly Redevelopment

Figure 7 displays a summary of 2014 UGR estimated residential capacity within the Portland metro urban growth boundary. Details are provided by county, single-family, and multifamily structure type.

Geographically, Metro has estimated a strong majority of future capacity within Multnomah County. Alternatively, the typically faster-growing suburban counties show far less capacity.

- Overall, 65% of 391,328-unit regional residential capacity for the next twenty years of growth is estimated in Multnomah County.
- Clackamas and Washington Counties, historically the fastest-growing counties in the metro area, each have 15% and 19% of future residential capacity, respectively.

Residential capacity is also not only concentrated in Multnomah County, but it is also largely multifamily unit capacity and concentrated in the highest residential density category, 75 dwelling units (DU) or more per acre.

FIGURE 7 | Portland Metro 2014 UGR Residential Unit Capacity Summary

	Total		Single	Multifamily	
County	Units	% Share	Family	<75 DU/Acre	>75 DU/Acre
Clackamas	60,614	*15%*	40,326	16,976	3,312
Multnomah	255,834	*65%*	24,532	59,493	171,809
Washington	74,880	*19%*	53,165	20,227	1,488
Subtotals	***391,328***		***118,023***	***96,696***	***176,609***
% Share	*100%*		*30%*	*25%*	*45%*

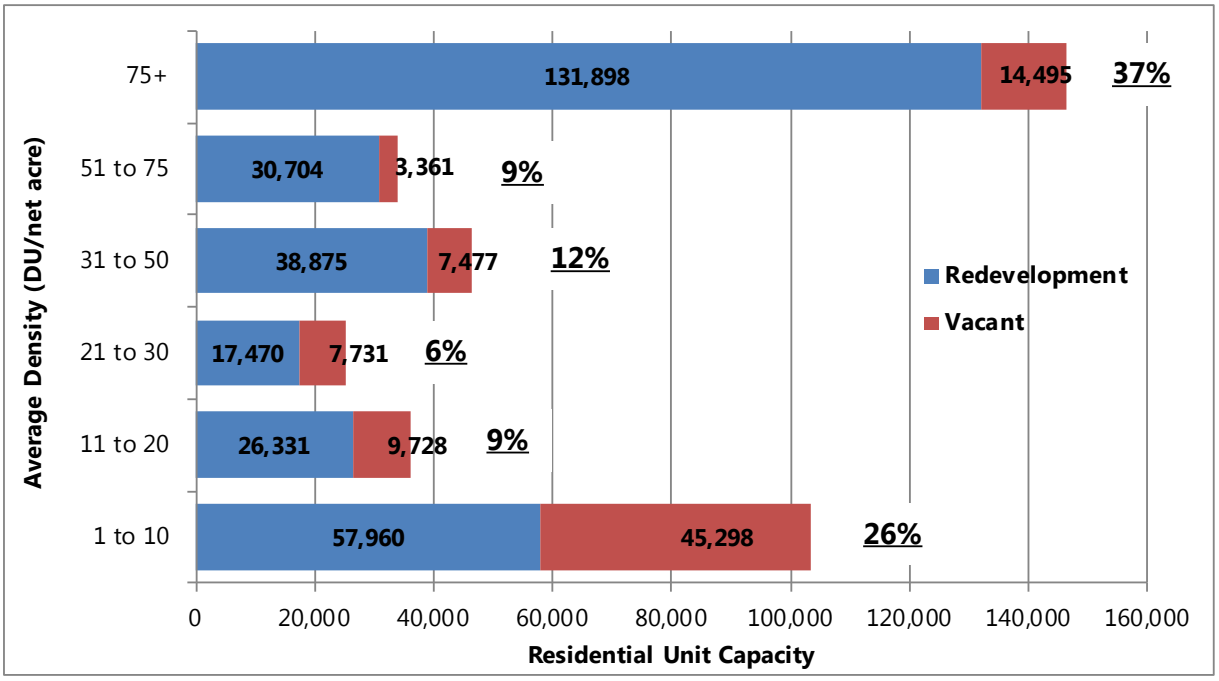
SOURCE: 2014 UGR (Appendix 3)

- 70% of all future residential capacity is in multifamily dwellings at 273,305 estimated units.
- 45% of all future capacity is in the >75 DU per acre category, the highest density category in the 2014 UGR.
- A mere 30% of future residential capacity is in the single-family residential unit category at 118,023 units.

Figure 8 displays a summary of total regional residential capacity by different density ranges, with detail for whether capacity requires redevelopment or whether capacity is on vacant land. Data in Figure 8 are based on capacity by different zoning designations throughout the Portland

metro UGB, specifically average unit yield per net acre rather than minimums per acre as expressed in Figure 7.

FIGURE 8 | 2014 UGR Residential Capacity By Average Density (Net/Acre) & Improvement Status



SOURCE: 2014 UGR (Appendix 4, Table 5), percentage calculations by PNW Economics, LLC

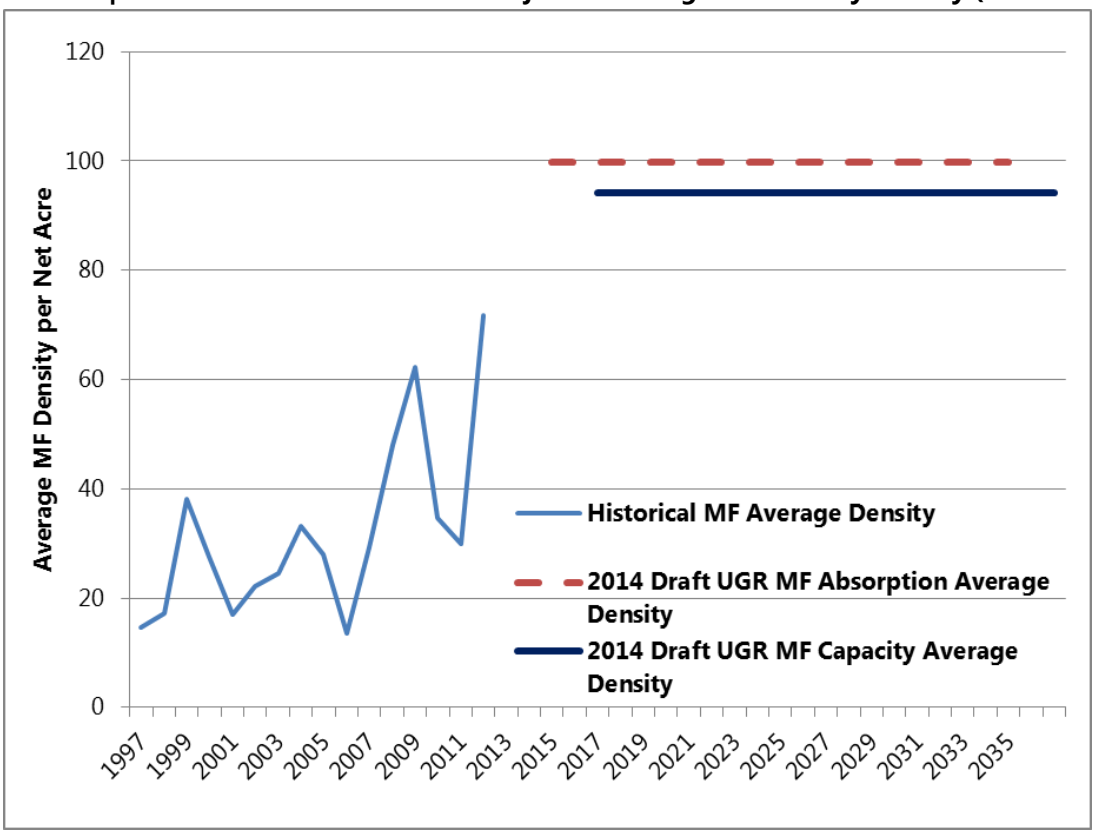
- A full 77% of all residential capacity within the Portland metro UGB would require some redevelopment.
- Only 23% of all residential unit capacity in the UGB is classified as vacant land.
- Zoning usually associated with detached single-family residences (1 to 10 units/acre) represents only 26% of regional capacity for the next twenty years.
- Highest-capacity zoning, frequently associated with large mid-rise or high-rise construction (>75 units average/acre) comprises 37% of regional capacity.
- Attached single-family and lower-density multifamily zoning (11-20 units average/acre) comprises 9% of total residential capacity.

Historical Multifamily Development by Density – Two Years Higher Than 40 DU/Acre

Although historical residential development by average density is reported by Metro in the 2014 Draft UGB, the 2015-2035 forecast has no resemblance to realized history, similarly to every other measure of residential development reviewed in this document.

Figure 9 displays average multifamily unit densities of development within the UGB according to Metro data in the 2010 UGR and the 2014 UGR. Figure 9 also displays average multifamily unit density expected for the next 20 years.

FIGURE 9 | Portland Metro Historical & Projected Average Multifamily Density (Per Net Acre)



SOURCE: 2010 UGR (Appendix 8, Figure 5.5) and 2014 UGR (Appendix 5, Table 2 and Appendix 4, Table 4 data)

- Since 1997, Portland metro UGB multifamily development has largely remained under 40 DU per net acre, including as recently as 2012.
- For three years, average multifamily density failed to exceed 20 DU per net acre.
- Only two years over the past sixteen have seen multifamily development within the UGB exceed 60%: 2009 (62.2 DU/net acre) when single-family development came to a recession-induced standstill, and in 2012 (71.8 DU/net acre), arguably the first year of true construction recovery after three years of population growth and failed recovery in the broader housing market.

In contrast, the 2014 UGR anticipates that multifamily demand and absorption will average 98.3 DU/net acre every year for the next twenty years.

- The projection exceeds the 94.3 DU/net acre weighted average density of current multifamily capacity within the UGB.

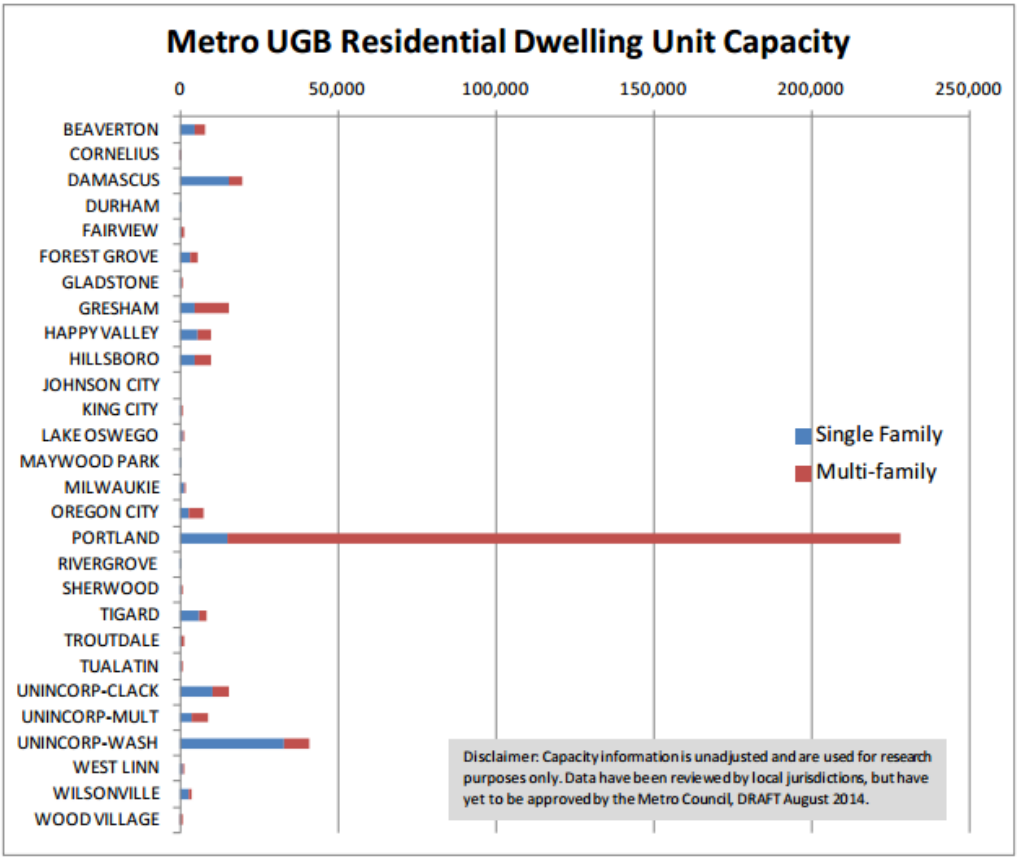
- The projected 20-year average has never been achieved within the Portland metro UGB, with the highest year on record, 2012, roughly falling short by 20%.

In other words, projected future multifamily residential densities are unprecedented, far exceed historical experience, and thus cannot be viewed as based on historical rates or even a reasonable interpretation of density trend.

Residential Capacity by City – Overwhelming Portland Capacity, Greatly Redevelopment

Of the estimated 391,328-unit residential capacity within the Portland metro UGB, 228,426 or 58% are within the City of Portland. Figure 10 provides estimates of residential unit capacity by Portland metro UGB city jurisdiction. The figure is extracted directly from Appendix 4 of the 2014 Draft UGB. All other jurisdictions pale in comparison to Portland for estimated total capacity and multifamily residential capacity.

FIGURE 10 | Portland Metro Draft Total Residential Capacity by Geography (2014 UGR)



SOURCE: 2014 UGR (Appendix 4, Figure 7)

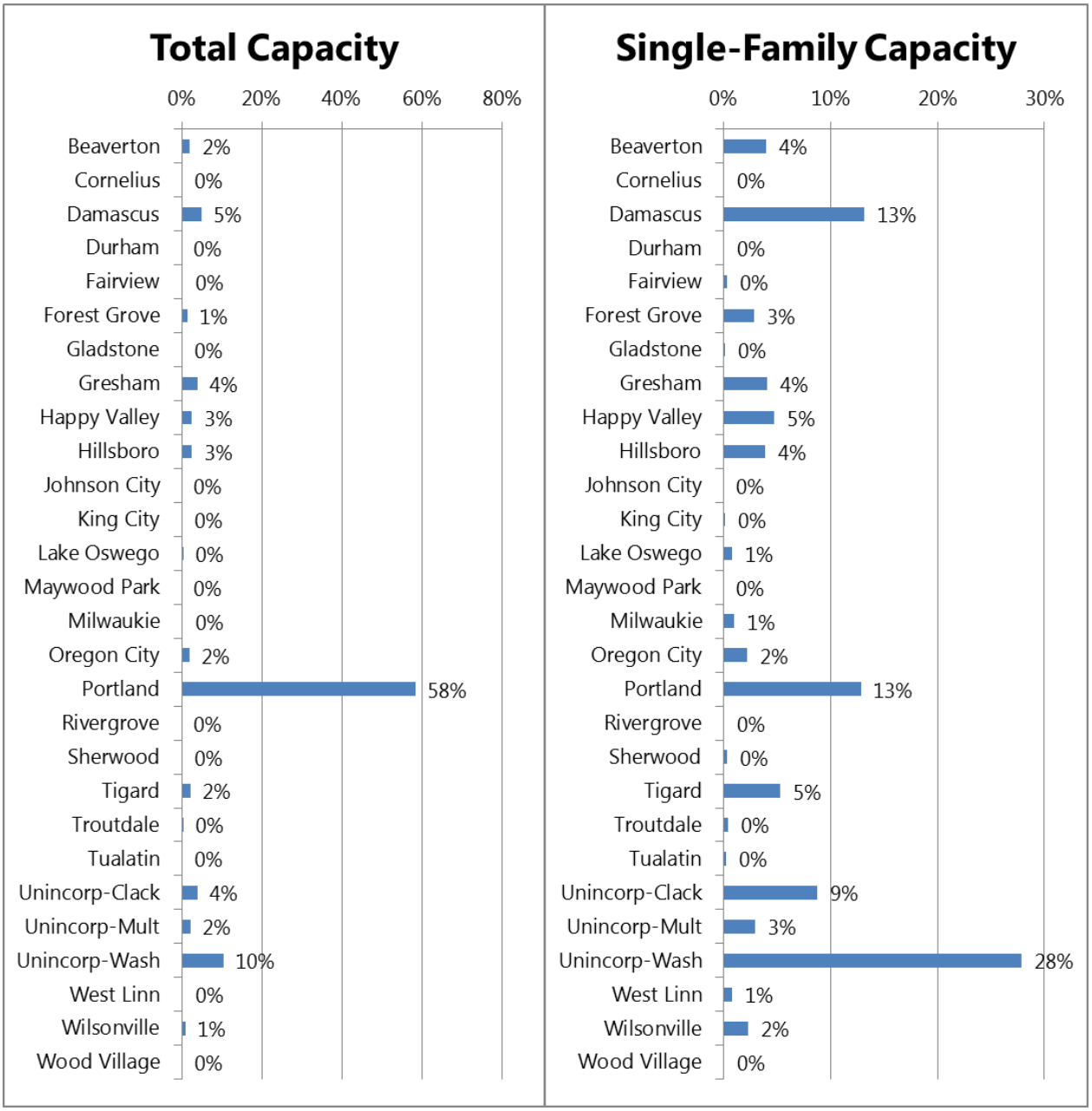
For detailed comparisons, Figure 11 displays the share of UGB total capacity within each city, as well as the share of UGB single-family unit capacity within each city. By the numbers:

- City of Portland residential capacity is nearly six times the capacity of the jurisdiction with the second-highest capacity, unincorporated Washington County (10%).

- Damascus estimated residential capacity is the third-highest in the region at 5% of the UGB total, though capacity is far from certain due to political and planning uncertainties.

While single-family units only represent 30% of UGB capacity, unincorporated Washington County does comprise the largest share of capacity (28%) for the structure type, followed by infill-dominated Portland capacity (13%) and likely disputable Damascus capacity (13%).

FIGURE 11 | 2014 UGR Residential Capacity Measures: City % Share of Total & Single-Family



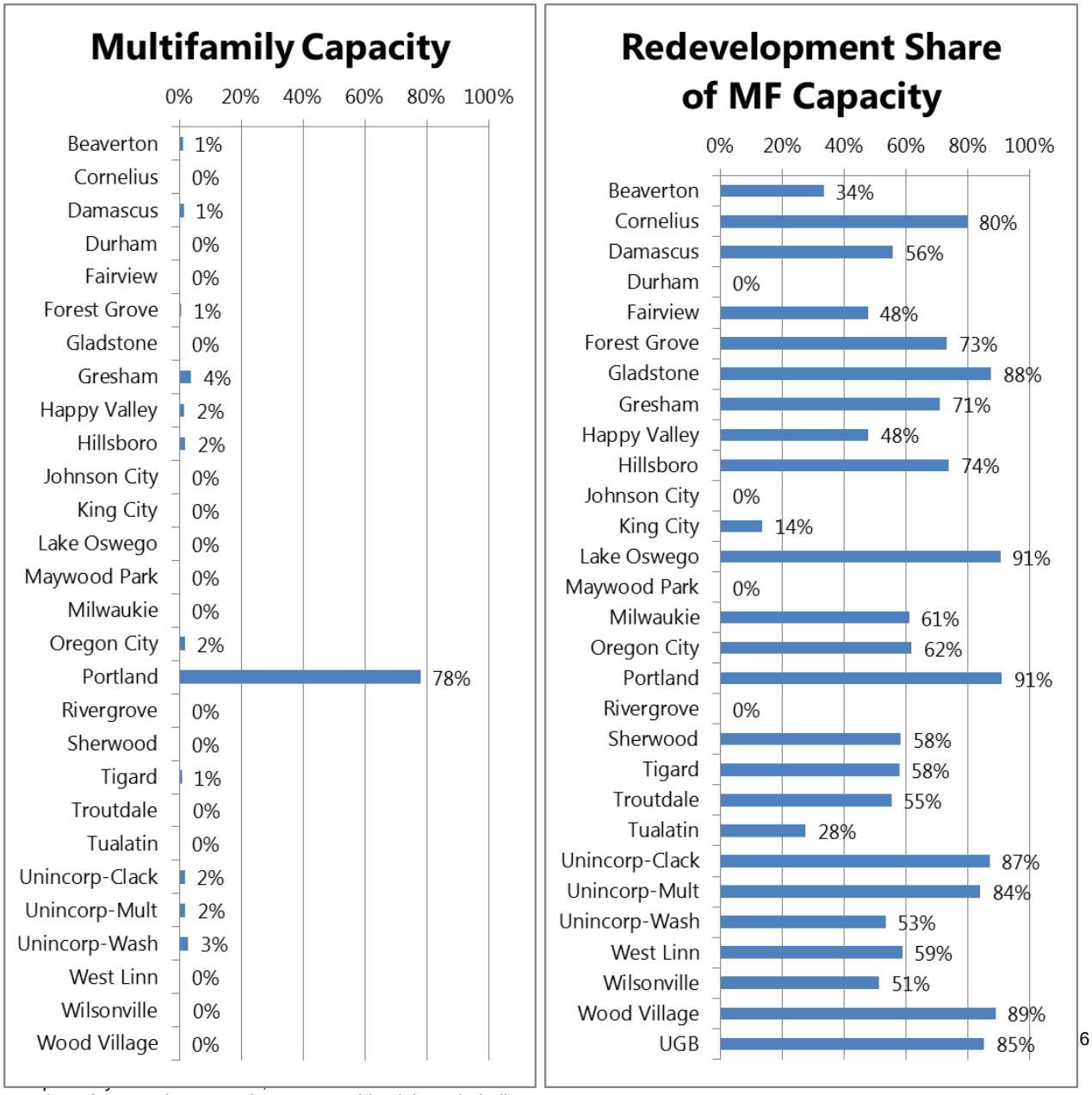
SOURCE: 2014 UGR (Appendix 3), percentage calculations by PNW Economics, LLC

Figure 12 provides greater jurisdictional detail for multifamily unit capacity within the UGB, which comprises roughly 70% of total UGB residential capacity. Overwhelmingly, Portland represents regional capacity for multifamily housing over the next twenty years. Gresham, with 4% of regional multifamily capacity, has the second-highest regional share behind Portland.

As Figure 12 also demonstrates, the great share of regional housing capacity, by virtue of 70% of it being multifamily housing, is on land that would require redevelopment rather than vacant land.

- Throughout the UGB, 85% of multifamily capacity will require redevelopment of existing improvements, or 233,128 total (multifamily) residential units.
- Of 28 jurisdictions within the UGB, the multifamily residential capacity of twelve jurisdictions, overwhelmingly within the City of Portland.

FIGURE 12 | 2014 UGR Multifamily Capacity Measures: City % Share of Total & Redevelopment



SOURCE: 2014 UGR (Appendix 3), percentage calculations by PNW Economics, LLC

Because the 2010 Urban Growth Report employed different residential capacity methodology, there is no "apples-to-apples" comparison of past capacity with current capacity details. The fact that so much of UGB residential capacity must be redevelopment, and the vast majority of that within the City of Portland, is a potentially significant vulnerability to the market reality of estimated regional capacity.

As will be discussed later in this document, dramatic increases in urban renewal district maximum indebtedness and spending – estimated by Metro at between $2 billion and $3 billion on residential units alone – will be required to induce unit construction so that they are "market feasible."

The 2014 UGR is somewhat silent on the true market feasibility or reality of having the lion's share of residential capacity requiring redevelopment, particularly within the City of Portland. Typically without such incentives, redevelopment of multifamily housing does not fetch high enough rents or sales prices in order to justify the cost of their development, including purchase of property with existing improvements, their removal, and new construction in their place.

Realized Residential Development – Past Growth by City and 2010 UGR vs. 2014 UGR

Figure 13 provides side-by-side comparisons of annual residential growth project by the 2014 UGR for all primary jurisdictions within the UGB, along with:

- Annual residential growth experienced between 2000 and 2013; and
- Annual residential growth projected by the 2010 UGR through 2030.

Comparing historical residential trends to predicted growth trends in the 2014 UGR indicates that the majority of jurisdictions will experience a sizeable decrease in residential growth during the 2015 through 2035 time period compared to experience over the last 13 years, as well as compared to allocations in the 2010 UGR.

Except for Damascus, anticipated to not even be available for residential development until closer to 2035, the 2014 UGR allocates the vast majority of growth to Multnomah County (+83% vs. historical), overwhelmingly in Portland (+110% vs. historical).

Jurisdictions outside of Multnomah County, including all of Washington County (-49%) and most jurisdictions in Clackamas County (-31%), are predicted to experience a substantial decrease in residential growth for the next twenty years. As a rule, jurisdictions west and southwest of the City of Portland are expected to experience a significant decrease from historical trends.

The reversal of development for the next twenty years compared to performance since 2000 and to the 2010 UGR forecast is striking.

- After only averaging 2,570 new residential units annually over the last 13 years, the 2014 UGR projects annual new construction in Portland to more than double to an annual average of 5.399 units.
- The 2014 UGR forecast of Portland residential growth is also a 21% increase over the 2010 UGR forecast for all of Portland.

FIGURE 13 | Realized Residential Growth, 2010 UGR Growth Forecast, & 2014 UGR Compared

	Annual HH Growth			
	Historical* 2000-13	2010 UGR to 2030	Draft 2014 UGR to 2035	% Chg Hist-2035
Clackamas County	**1,725**	**2,350**	**1,191**	**-31%**
Damascus**	71	592	417	491%
Gladstone	16	110	58	262%
Happy Valley	224	300	185	-18%
Lake Oswego	87	124	41	-53%
Milwaukie	18	126	85	370%
Oregon City	228	596	223	-2%
West Linn	111	356	39	-65%
Wilsonville	191	146	143	-25%
Multnomah County	**3,126**	**5,190**	**5,725**	**83%**
Gresham-Wood Village-Fairview-Troutdale	556	740	326	-41%
Portland	2,570	4,450	5,399	110%
Washington County	**3,106**	**2,950**	**1,587**	**-49%**
Beaverton	470	456	364	-23%
Forest Grove-Cornelius	157	186	117	-25%
Hillsboro	800	656	271	-66%
Sherwood	158	100	144	-9%
Tigard-King City-Durham	310	358	307	-1%
Tualatin	99	264	78	-21%
Washington County (Uninc.)	1,111	930	306	-72%

*Historical Data for Damascus is based on U.S. Census estimates and proxies using HUD data for unincorporated Clackamas County.
SOURCE: 2014 UGR, 2010 UGR, U.S. Department of Housing & Urban Development (HUD), U.S. Census and PNW Economics, LLC

- Damascus, Milwaukie, and Gladstone are projected to see unprecedented, annual residential growth 491%, 262%, and 370% higher, respectively than historical experience.
- All other jurisdictions have been allocated slower growth for the next twenty years than either recorded historically or even projected in the 2010 UGR.
- Unincorporated Washington County (-72%), Hillsboro (-66%), West Linn (-65%), and Lake Oswego (-53%) have been allocated the most sizeable decrease in residential growth through 2035 versus historical experience.
- All four jurisdictions have been allocated sizeable growth allocation decreases compared to the 2010 UGR, as well.

III. Housing Goal 10 Requirement Review Analysis

Housing: Planning Goal 10 Requirements

In conducting the housing need analysis for the Draft Urban Growth Report (UGR), Metro, like other jurisdictions responsible for planning urban growth boundaries, is guided by Oregon Statewide Planning Goal 10 and the statutes and administrative rules which implement it (i.e., Oregon Revised Statutes (ORS) 197.295 – 197.314 and 197. 475 – 197.490 as well as Oregon Administrative Rules (OAR) 660-007 and 660-008).

These interrelated and interdependent guidelines direct jurisdictions in the determination of residential housing needs at varied locations, densities and type of housing structure for the purpose of providing housing at appropriate level of price ranges.

Planning Goal 10: Availability, Affordability, Variety

GOAL 10: HOUSING OAR 660-015-0000(10) To provide for the housing needs of citizens of the state.

The priorities for Oregon housing planning as related to housing need are described in Goal 10. These priorities for housing need include, in short, availability, affordability and variety:

> Buildable lands for residential use shall be inventoried and plans shall encourage the availability of adequate numbers of needed housing units at price ranges and rent levels which are commensurate with the financial capabilities of Oregon households and allow for flexibility of housing location, type and density.

Goal 10 includes a definition of "needed housing" which is based on ORS 197.303:

> *Needed Housing Units (based on 197.303)* – means housing types determined to meet the need shown for housing within an urban growth boundary at particular price ranges and rent levels. On and after the beginning of the first periodic review of a local government's acknowledged comprehensive plan, "needed housing units" also includes government-assisted housing. For cities having populations larger than 2,500 people and counties having populations larger than 15,000 people, "needed housing units" also includes (but is not limited to) attached and detached single-family housing, multiple-family housing, and manufactured homes, whether occupied by owners or renters.

Affordability is emphasized throughout Goal 10 along with the need to offer a variety of "housing location, type and density", which in the Portland Urban Growth Boundary (UGB) and in general, is a key determinate in driving affordability,

Goal 10 Housing Need & Capacity Methodology

ORS 197.296 Factors to establish sufficiency of buildable lands within urban growth boundary; analysis and determination of residential housing patterns.

While not the only ORS to implement Goal 10, it is the primary ORS detailing the required methodology for conducting an analysis of housing need. The two key objectives of ORS 197.296 relate to determining housing capacity and housing need. Subsection (3) of ORS

197.296 directs a UGB-planning agency to perform two independent analyses in order to comply:

> (a) Inventory the supply of buildable lands within the urban growth boundary and determine the housing capacity of the buildable lands; and
>
> (b) Conduct an analysis of housing need by type and density range, in accordance with ORS 197.303 and statewide planning goals and rules relating to housing, to determine the number of units and amount of land needed for each needed housing type for the next 20 years.

While subsection (4) of 197.296 provides greater detail regarding the methodology of (3)(a), subsection (5) provides guidelines in conducting (3)(b), including a provision allowing for an expanded time period in the event that the data otherwise collected may not be representative of trends affecting housing need:

> (5)(a) Except as provided in paragraphs (b) and (c) of this subsection, the determination of housing capacity and need pursuant to subsection (3) of this section must be based on data relating to land within the urban growth boundary that has been collected since the last periodic review or five years, whichever is greater. The data shall include:
>
> > (A) The number, density and average mix of housing types of urban residential development that have actually occurred;
> >
> > (B) Trends in density and average mix of housing types of urban residential development;
> >
> > (C) Demographic and population trends;
> >
> > (D) Economic trends and cycles; and
> >
> > (E) The number, density and average mix of housing types that have occurred on the buildable lands described in subsection (4)(a) of this section.
>
> (c) A local government shall use data from a wider geographic area or use a time period for economic cycles and trends longer than the time period described in paragraph (a) of this subsection if the analysis of a wider geographic area or the use of a longer time period will provide more accurate, complete and reliable data relating to trends affecting housing need than an analysis performed pursuant to paragraph (a) of this subsection. The local government must clearly describe the geographic area, time frame and source of data used in a determination performed under this paragraph.

Lastly, subsection (7) draws a clear distinction between an analysis of housing need by type and density range based on actually occurring development and historical trends (as required by subsections (3)(a) and (5)) and a subsequent analysis which determines needed housing as it relates to housing capacity and/or desired density and mix of housing types. The two clearly distinct analyses are then reconciled.

> (7) Using the analysis conducted under subsection (3)(b) of this section, the local government shall determine the overall average density and overall mix of housing types at which residential development of needed housing types must occur in order to meet housing needs over the next 20 years. If that density is greater than the actual density of development determined under subsection

(5)(a)(A) of this section, or if that mix is different from the actual mix of housing types determined under subsection (5)(a)(A) of this section, the local government, as part of its periodic review, shall adopt measures that demonstrably increase the likelihood that residential development will occur at the housing types and density and at the mix of housing types required to meet housing needs over the next 20 years.

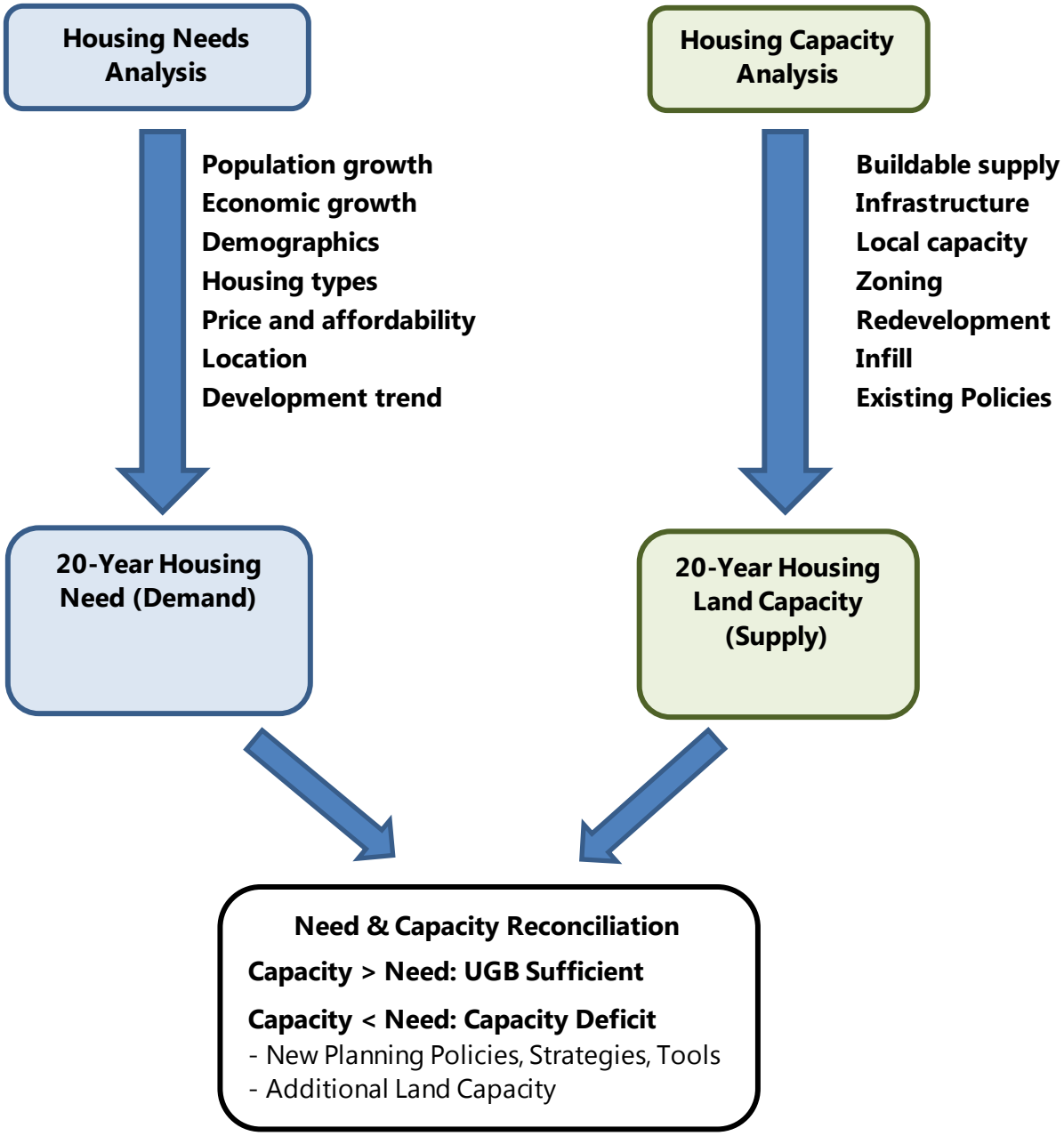
In summary, the key requirements are as follows:

- UGB planning requires analysis of housing need independent of housing capacity.
- The analysis of housing need must be based on data from actually occurring development as well as historical trends.
- Given the extent of the recession from 2008-2011 and the likely impact on data during the Great Recession, subsection (5)(c) allowing for a longer time period of data observations to shape housing need is applicable. Metro employed a longer time period in the 2010 UGR to gain more accurate results.
- Subsection (7) directs UGB planning agencies to draw a distinction between the housing need determined in subsections (3)(b) and (5) based on historical data and trends and the housing need which is based on jurisdictional limitations.
- Furthermore, from Goal 10, inventoried buildable lands and housing need should encourage varied location, type and density of housing options and meet the financial capabilities of Oregon households.

Figure 14 provides a visual schematic demonstrating the typical process associated with a Planning Goal 10 process compliant with the various, related Oregon statutes and administrative rules applying to an agency responsible for UGB management.

- Both the housing need (demand) analysis and the housing capacity (supply) analysis are conducted *independent of one another* to fully understand both issues, as well as for compliance with statute and administrative rules.
- Figure 14 lists typical variables factored into the housing needs analysis (population growth, demographics, price and affordability, etc.) as well as the housing capacity analysis (buildable land, infrastructure, existing policies, redevelopment, etc.).
- Once 20-year estimates of population-driven housing needs and current, 20-year UGB capacity are both understood, the two are reconciled to understand whether existing capacity exceeds or falls short of future growth.
- If existing capacity is insufficient, jurisdictions have different options to explore including new policies, strategies, and planning tools, as well as the addition of land for residential use to the existing UGB.

FIGURE 14 | Typical Planning Goal 10 Implementation Process Schematic

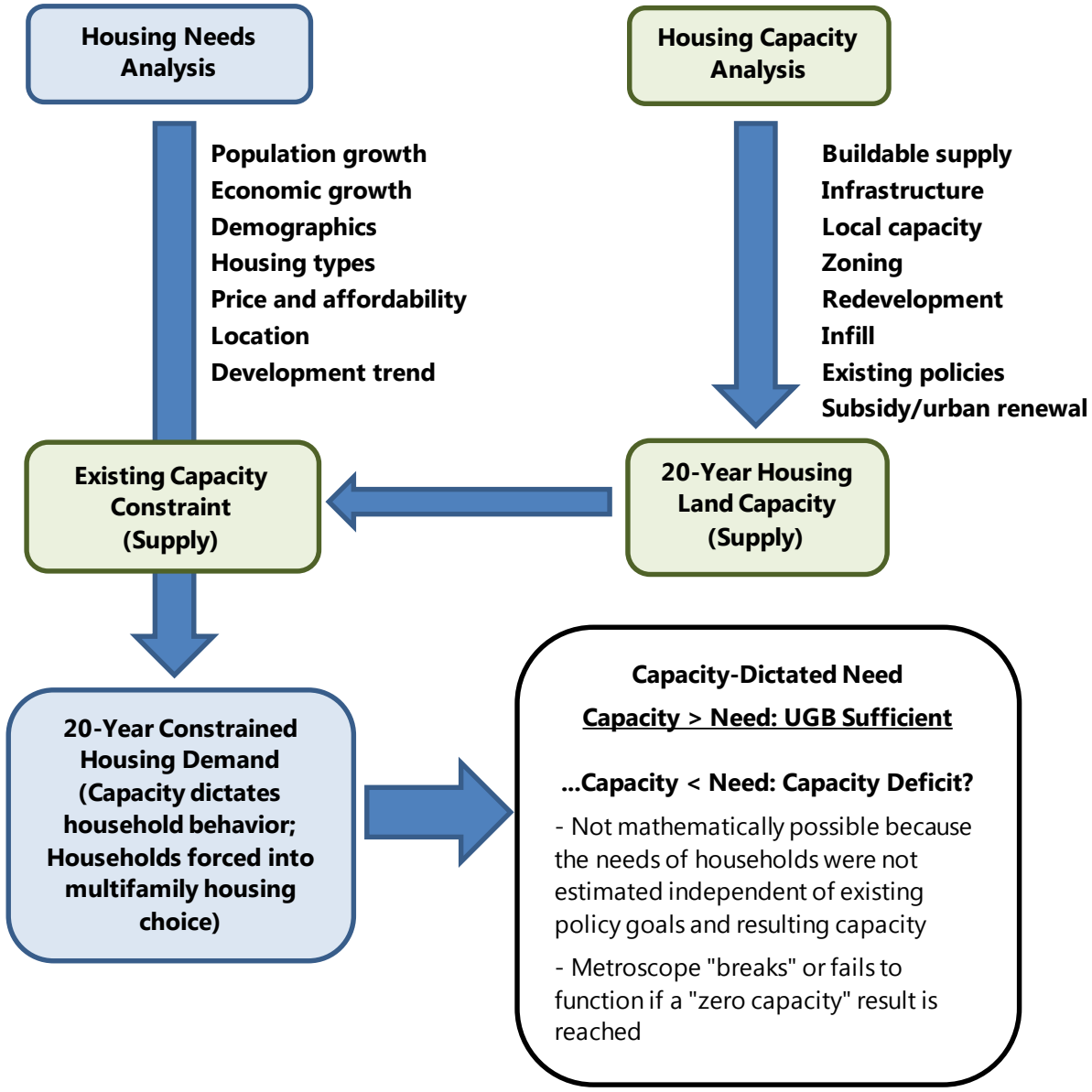


2014 UGR: Policy-Dictated Household Behavior & Goal 10 Inconsistency

After careful review of the 2014 UGR document, PNW Economics finds many inconsistencies and potential legal issues between statute-guided Goal 10 and the housing analysis found in the 2014 UGR.

As will be documented below, the 2014 UGR in its implementation of housing *policy* forecasting, rather than *housing need* forecasting, seemingly falls short of every major key requirement of Goal 10 discussed earlier in this document. Figure 15 provides a summary schematic of 2014 UGR housing analysis for contrast with standard Goal 10 process (Figure 14).

FIGURE 15 | Metro 2014 UGR Housing Process Schematic



As will be explored in later detail below, the 2014 UGR undergoes a subtle, but profoundly different process than required by Goal 10. Metro has in effect forecasted the effect of regional housing *policies*, rather than true household *needs* for future housing.

- A reasonably standard population, household, and economic forecast process is undertaken by Metro for setting up a housing demand analysis.
- A reasonably standard housing capacity process was undertaken by Metro for estimating 20-year housing capacity, though some findings and assumptions can and should be questioned.
- Unlike standard Goal 10 implementation procedure, the 2014 UGR *filters household growth and future housing demand through existing housing capacity* instead of determining housing need independently.

This last point is crucial to understand, as the 2014 UGR estimate of housing need is actually a policy scenario that assumes future households will accept current capacity – overwhelmingly multifamily housing – as a given and will live with a forced choice of condominiums and apartments instead of single-family houses.

The forced choice by future households into multifamily housing explains the dramatic reversal of housing trend in the region from long-historical predominance of single-family units to multifamily housing through 2035 as outlined in the previous section of this report.

Failure of Population Housing Needs to Not Be Dictated by Policy & Capacity

According to ORS 197.296(3)(b), Housing needs analysis and housing supply/capacity analysis are two distinct, independent processes and outcomes.

ORS 197.296(3) calls for an inventory of buildable land and separately an analysis of housing need to determine the "number of units and amount of land required for each needed housing type." To comply with this subsection of the statute, the analysis of housing need must be determined independently of buildable land or capacity. Furthermore, the analysis of housing need should be conducted according to 197.296(5), which requires an analysis based on historical evidence and trends.

According to the 2014 UGR, Metro departed from the methodology of previous UGRs with the integration of Metroscope UGR scenarios with the Buildable Land Inventory (BLI) database. In other words, the introduction of capacity into the estimation of demand for housing is a major component in determining overall housing demand. Appendix 11 of the 2014 UGR states the following:

> *The **location choice for this market demand for housing is dependent** on:*
>
> ***1. The location and amount of housing capacity, type of housing, by census tract***
>
> *2. Household characteristics (household size, income, householder age, and whether the household includes children)*
>
> *3. Proximity to work locations/choices*
>
> *4. Relative home prices (Emphasis added)*

Metroscope Specification: Policy Scenario Model, Not Household Need Model

The 2014 UGR further describes the greater integration with Metroscope as a method by which to "accurately compare how the distribution of households by income bracket, age bracket and household size distributes to available housing supplies."

Based on an interview with Metro staff, it is the understanding of PNW Economics that results from the Metroscope scenario applied in the 2014 UGR are therefore not a market-deterministic forecast of household housing needs and preferences given location and type of housing, but rather are driven by policy assumptions related to housing capacity.

Housing capacity in this case, according to the BLI found in Appendix 3, is a high number of potential multifamily capacity in the City of Portland.

- Portland multifamily unit capacity accounts for 54 percent of total capacity in the UGB.
- In contrast, single-family capacity throughout the UGB accounts for 30 percent of total capacity.
- The remaining 16 percent comprises multifamily capacity distributed throughout the UGB outside of Portland.
- Overall, multi-family capacity accounts for 70 percent of total capacity.

Applying these capacity numbers to the estimation of housing demand creates a situation where demand will necessarily "need" to shift in favor of multi-family housing choices. This situation is valid for the analysis of housing need under ORS 197.296(7) but is problematic with the requirements of subsection (3).

By solving housing demand and location as a dependent function of a fixed residential capacity within the Portland Metro UGB, it is *mathematically impossible* for Metro to find that the region has insufficient land for different unit types, notably single-family residences. If future residents are effectively forced to choose multifamily housing, no matter how inappropriate except for price level, Metroscope will never estimate a "zero" or depleted capacity for a residential unit type because households are always forced to choose an alternative in the policy scenario modeled in the 2014 UGR.

It is further the understanding of PNW Economics that Metroscope cannot mathematically reach a "zero capacity" solution, or in other words find that the region ever runs out of single-family unit capacity.

- As capacity of a housing type depletes, the remaining capacity of a competing housing type captures an increasing share of demand, thus the forced transition to a different unit type for future households.
- Total depletion of capacity for a housing type is therefore impossible as specified in Metroscope.

2010 UGR Compared to 2014 UGR Methodology

Importantly, the 2014 UGR's housing needs analysis is a complete departure from the methodology used in the 2010 UGR as well as the methodology recommended by the Department of Land Conservation and Development (DLCD) or any other Goal 10 implemented throughout the State.

Quoting from the 2010 UGR, "demand for housing is a function of individual preferences, demographics, shifting market dynamics and overall population growth." The housing needs analysis completed for the 2010 UGR was an independent analysis (based on actual development and historical trends) and then reconciled with capacity.

Like Goal 10 completed throughout the State, it followed a methodological prescription, based on ORS 197.296 requirements and directed by DLCD. In the document, *Planning for Residential Growth*,[2] DLCD points out that despite the inter-related nature of land supply and housing need, the two "function independently at first and then join to form one" during reconciliation at the end of the process.

The mathematical impossibility of finding insufficient housing capacity of any type, as modeled by Metroscope in the 2014 UGR, is seemingly inconsistent with the methodology and intent of housing capacity analysis and need reconciliation laid out by ORS 197.296.

Specifically, the *de facto* impossibility of finding insufficient housing capacity by Metroscope specification calls into question the integrity of process under ORS 197.296(3)(b) and the resulting requirements should a *good-faith* housing needs assessment per (3)(b) lead to greater housing need than estimated capacity per (6):

- "If the housing need determined pursuant to (3)(b) of this section is greater than the housing capacity determined pursuant to subsection (3)(a) of this section, the local government shall take one or more of the following actions to accommodate the additional housing need.."

Technical Concerns Related to Metroscope Results

As described on page 17 in Appendix 11 of the 2014 UGR, Metroscope is a market equilibrium model. In other words, the model will always seek to solve for the point where supply and demand are equal.

In a competitive housing market, housing supply and housing demand shift as quantity and price impact consumer behavior. For example, an oversupply of housing will generally put downward pressure on prices. Stagnant or lower prices in turn begin to have the effect of encouraging more housing demand, frequently by households who could not afford housing options at previously higher prices. Magnitude of demand will increase and head towards an equilibrium: where demand is equal to supply.

[2] http://www.oregon.gov/LCD/docs/publications/planning_for_residential_growth.pdf

But as supply, particularly of single-family unit capacity, is fixed in the Metroscope equilibrium model, the model solves for where demand will fall given what total constrained supply does exist: overwhelmingly multifamily units, primarily in the City of Portland. Therefore, the equilibrium model has no other option, given supply, but to find that demand will necessarily be multifamily, and in great proportion, in the City of Portland.

From a technical standpoint, market equilibrium models are often estimated using a method which solves for supply and demand simultaneously. Within this framework there is allowance for the use of dependent variables, such as allowing supply to influence demand and visa versa. However, when supply is basically held constant, the estimation of these simultaneous equations for supply and demand falls apart creating a situation where the results of the model are unreliable.

In other words, the estimation of demand under such circumstances, as seen in the Metroscope results for the UGR draft, are not based on independent variables which influence household housing demand but rather are based directly upon, or in other words, dictated by policy-constrained supply.

The imposition of Metroscope's policy and capacity-constrained results will likely result in distorted housing prices throughout the Metro area. Rather than meeting the requirements to provide adequate housing at varied locations and types, because of the dependency on supply in estimating housing demand, the 2014 UGR's finding indicate an overwhelming "need" for multifamily housing within the Portland UGB.

As will be specifically treated later in this document, the likely effect from this will be single-family housing throughout the Portland UGB experiencing accelerated increases in prices, as any constrained market is likely to see. Multifamily pricing is likely to experience increased demand only because there is no other choice in housing. All in all, rather than offering needed housing to meet financial capabilities of regional households, housing prices will experience severe hikes due to distortion and constrained supply.

Dramatic Departures from Long-Term Historical Data

Per ORS 197.296(5), Housing Needs are to be based on historical data and trends for land within the UGB since at least the last review of five years, unless there is reason, such as a recession, to include data from a longer time period.

Although Metro *reports* historical data consistent with ORS 197.296(5), it should not be concluded that housing need, a complete departure from historical data over the past five years, is "based on" such data given the wild departure of 2014 UGR findings from historical data.

Appendix 4 of the 2014 UGR specifically states that the projection of housing demand "does not use [2010] Census information to forecast future housing demand." Rather, the Draft UGB uses Metroscope-generated data.

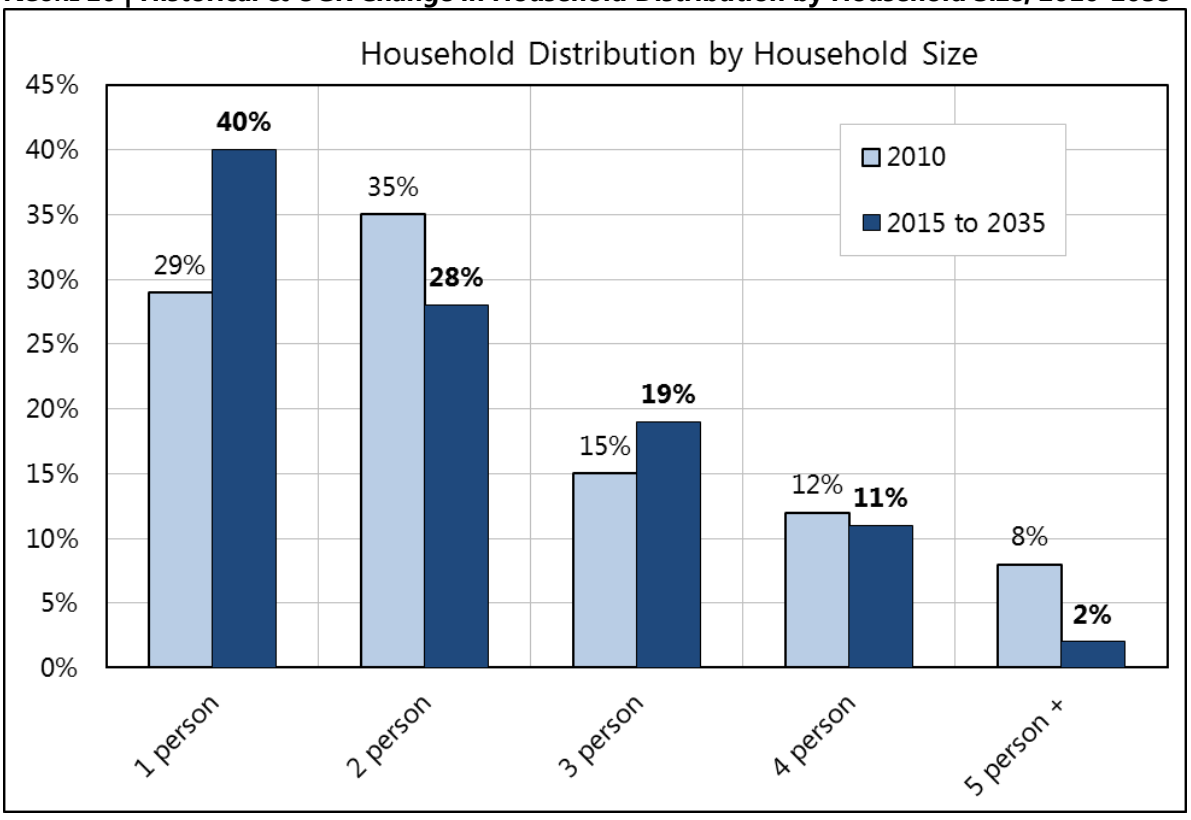
As noted above, the 2014 UGR implements greater integration with Metroscope to "accurately compare how the distribution of households by income bracket, age bracket and household size distributes to available housing supplies." Households in this scenario are distributed based on a housing preference attributed by Metroscope.

It is unclear exactly how or what basis is made for the resulting, overwhelming multifamily housing allocation or "forced choice." However housing preferences are presumably based, in part, on expected changes in demographics such as the impact of Millennials noted in the 2014 UGR.

However, review of changes to key demographic factors in 2010 compared to 2015-2035 Metroscope-estimated growth indicates some substantial demographic shifts. Historical versus projected change in the demographic makeup of the UGB can be seen in Figures 16, 17, and 18 for the following respectively:

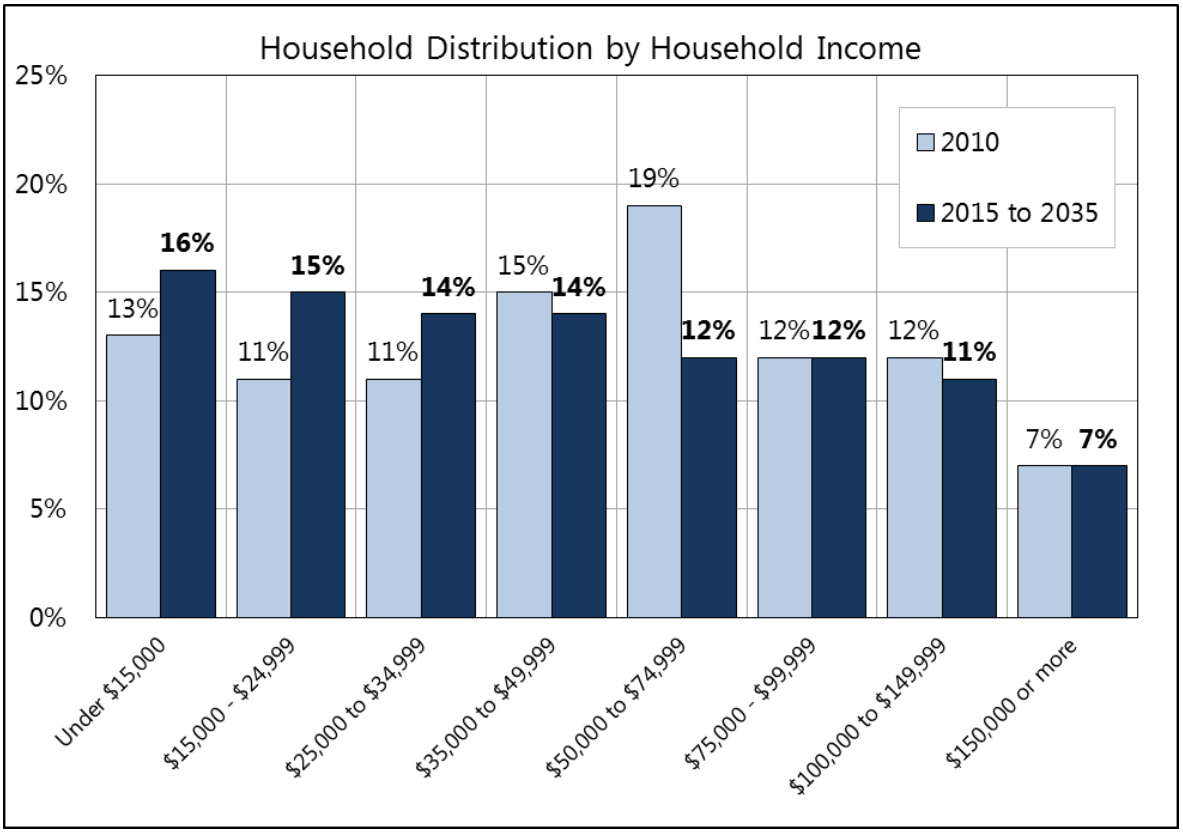
- Regional household distribution by household size;
- Regional household distribution by household income; *and*
- Regional household distribution by age of householder.

FIGURE 16 | Historical & UGR Change in Household Distribution by Household Size, 2010-2035



Source: 2014 UGR (Appendix 4, Tables 2 & 3)

FIGURE 17 | Historical & UGR Change in Household Distribution by Household Income, 2010-2035



Source: 2014 UGR (Appendix 4, Tables 2 & 3)

The following are key anticipated changes include smaller households, a shift to lower-income households, and dramatic addition of 65+ households:

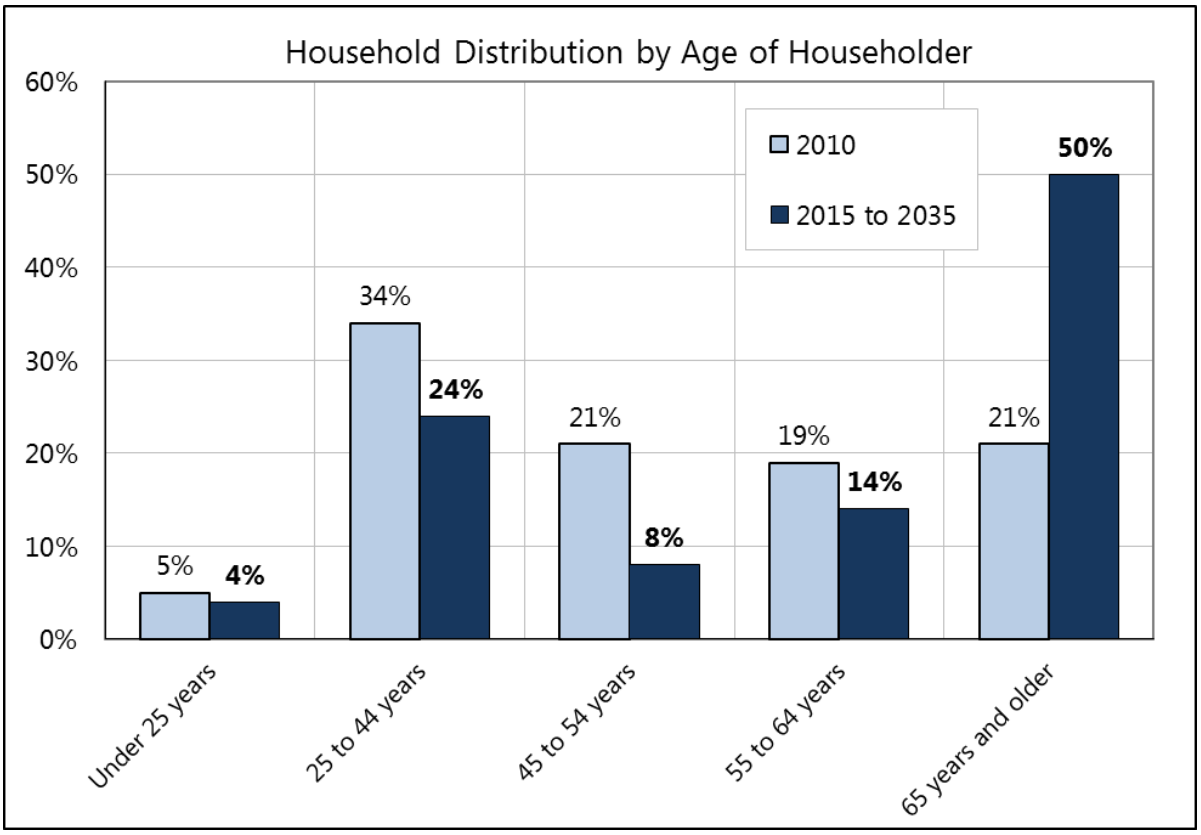
- Single-Person Households: 40% of growth through 2035 is projected by to by 1-person households, compared to 29% of the overall total in 2010.
- Downward Shift in Household Income: Metro projects households in the three most-modest income groups to comprise 45% of 20-year growth compared to their 35% share of population in 2010.
- Relative Loss of Middle-Income Households: 26% of household growth to 2035 will earn between $35,000 and $75,000 compared to the 2010 share of 34%.
- Shift to Households Aged 65+: A full 50% of projected household growth to 2035 will be aged 65+ compared to the 2010 total share of 21%.

Despite percentage representation of different cohorts changing, overall total population across all demographic groups is projected to grow in total counts through 2035. This means demand for housing by all demographic groups will increase, though some groups will see higher percentage demand gains than others.

Focus on Households Aged 65 & Over

Overall, the 2014 UGR documents projections that households headed by individuals 65 years of age or older will be the largest single cohort growth driver for regional housing through 2035. This is demonstrated in Figure 18, where households aged 65 years and over show the largest percentage increase in regional population through 2035.

FIGURE 18 | Historical & UGR Change in Household Distribution by Household Age, 2010-2035



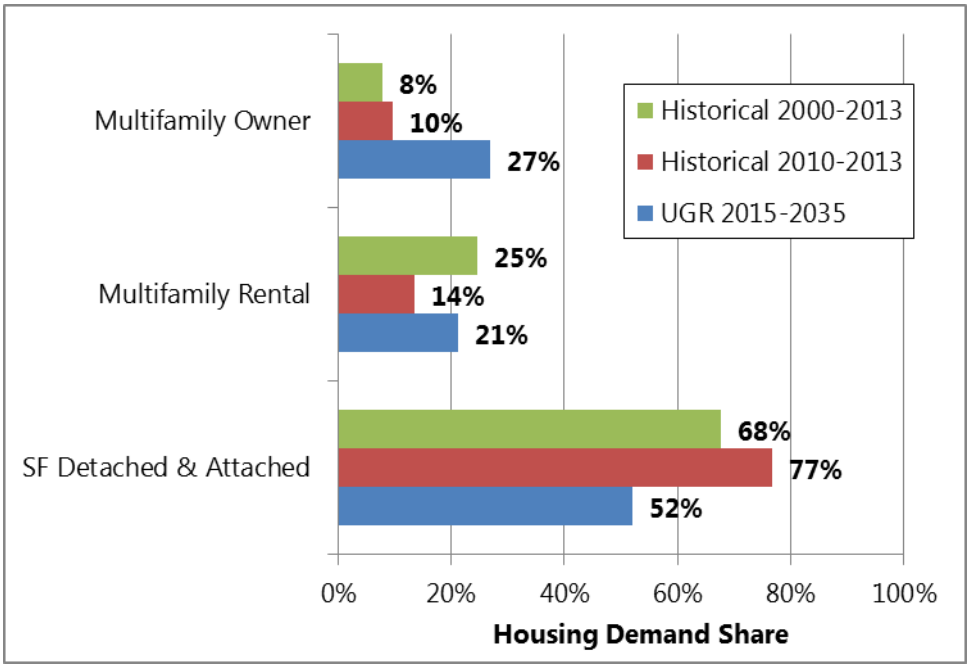
Source: 2014 UGR (Appendix 4, Tables 2 & 3)

Figure 19, alternatively, demonstrates how the UGR forecasts 65+ households will seek housing compared to both longer term (13-year) and recent (3-year) trend reported by the U.S. Census American Community Survey. For households aged 65 and over, UGR-predicted housing need is also specifically at odds with recent and longer-term housing trend in the region.

- 68% of 65+ aged households new to the region since 2000 have chosen to live in single-family units;
- Since 2010, the trend has accelerated with 77% of households aged 65+ choosing single-family housing.
- In direct contrast, the UGR predicts these households will significantly reverse course despite long-term trend and acceleration in single-family housing preference over the last three years. The UGR predicts that only 52% of 65+ aged households new to the region will choose single-family units.

- The gulf is predicted to be made up in ownership multifamily housing units, which the UGR predicts will roughly triple in magnitude of demand compared to longer-term and recent historical choices by households aged 65 and older.

FIGURE 19 | Historical & UGR Forecast of 65+ Household Residential Demand by Type



Source: U.S. Census ACS and 2014 UGR

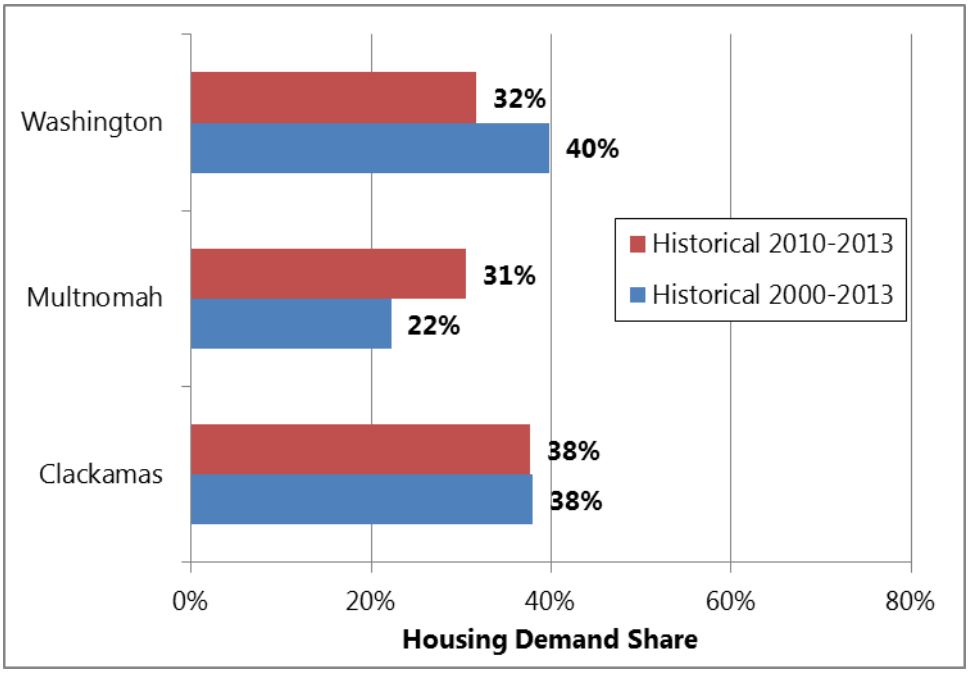
According to the 2014 Housing Preferences Study, cosponsored by Metro, households aged 55 and over, the closest demographic breakdown in that report, have a 68% stated preference for single-family detached housing compared to multifamily housing of any type.[3] Expressed housing preference of 68% is identical to what households aged 65 and over and new to the region have chosen for their housing type as confirmed by the American Community Survey in Figure 19.

Given findings of strong housing demand allocation to the City of Portland, Figure 20 displays where households aged 65 and over and new to the region have chosen to live between 2000 and 2013, as well as more recently between 2010 and 2013.

- Since 2000, 78% of all 65+ aged households new to the region have chosen to live outside of Multnomah County.
- Since 2010, Multnomah County has grown in its share of new 65+ aged households to 31%. The shift is largely due to a decline in the popularity of Washington County for these households in favor of Multnomah County.
- Clackamas County has maintained its 38% share of new 65+ aged households consistently since 2000.

[3] Draft Metro Residential Preference Study, Page 9, May 2014, DHM Research.

FIGURE 20 | Historical 65+ Household Residential Demand by County



Source: U.S. Census American Community Survey

Comprehensive Tenure Split Summary: Growing Multifamily Share, Single-Family Majority

Regarding historical tenure split discussed at greater length in the previous section, Figure 21 provides a succinct summary of historical realized development from numerous standard sources including the 2014 UGR.

FIGURE 21 | Historical and Projected Share of Housing Type Preference Summary

	Time Range	SF	MF	Source
Projection	2009	59.3%	40.7%	2010 UGR, Ap. 8, p. 4
Historical	1998-2008	58%	42%	2010 UGR, p. 104
Projection	**2014**	**39%**	**61%**	**Draft UGR, Ap. 4, p. 14**
Historical	**2007**	**57.8%**	**42.2%**	**Draft UGR, Ap. 5, p. 3**
Historical	**2008**	**40.1%**	**59.9%**	**Draft UGR, Ap. 5, p. 3**
Historical	**2009**	**38.0%**	**62.0%**	**Draft UGR, Ap. 5, p. 3**
Historical	**2010**	**66.4%**	**58.9%**	**Draft UGR, Ap. 5, p. 3**
Historical	**2011**	**58.9%**	**41.1%**	**Draft UGR, Ap. 5, p. 3**
Historical	**2012**	**51.8%**	**48.2%**	**Draft UGR, Ap. 5, p. 3**
Historical	**2007-2012**	**50.5%**	**49.5%**	**Draft UGR, Ap. 5, p. 3**
Historical	**2010**	**70%**	**30%**	**U.S. Census Draft UGR, Ap. 4, p. 11**
Historical	1980-2013	60%	40%	U.S. Dept. of Housing & Development
Historical	1980-1989	55%	45%	U.S. Dept. of Housing & Development
Historical	1990-1999	61%	39%	U.S. Dept. of Housing & Development
Historical	2000-2009	64%	36%	U.S. Dept. of Housing & Development
Historical	2010-2013	52%	48%	U.S. Dept. of Housing & Development

Historically, at least since 1980, the split for single-family versus multifamily housing has averaged 60 percent demand for single-family detached housing with short-term variation in different years. However, in recent years as economic and financial sector recovery has slowly progressed following the Great Recession at its worst in 2009, single-family development has averaged 53.8% of total household residential growth.

As indicated in Figure 21, the 2014 UGR Appendix 4 finding that for twenty years 61% of future housing demand will be multifamily units directly contradicts historical data presented by Appendix 4, but also contradicts housing trend findings in 2014 UGR Appendix 5, specifically Table 1.

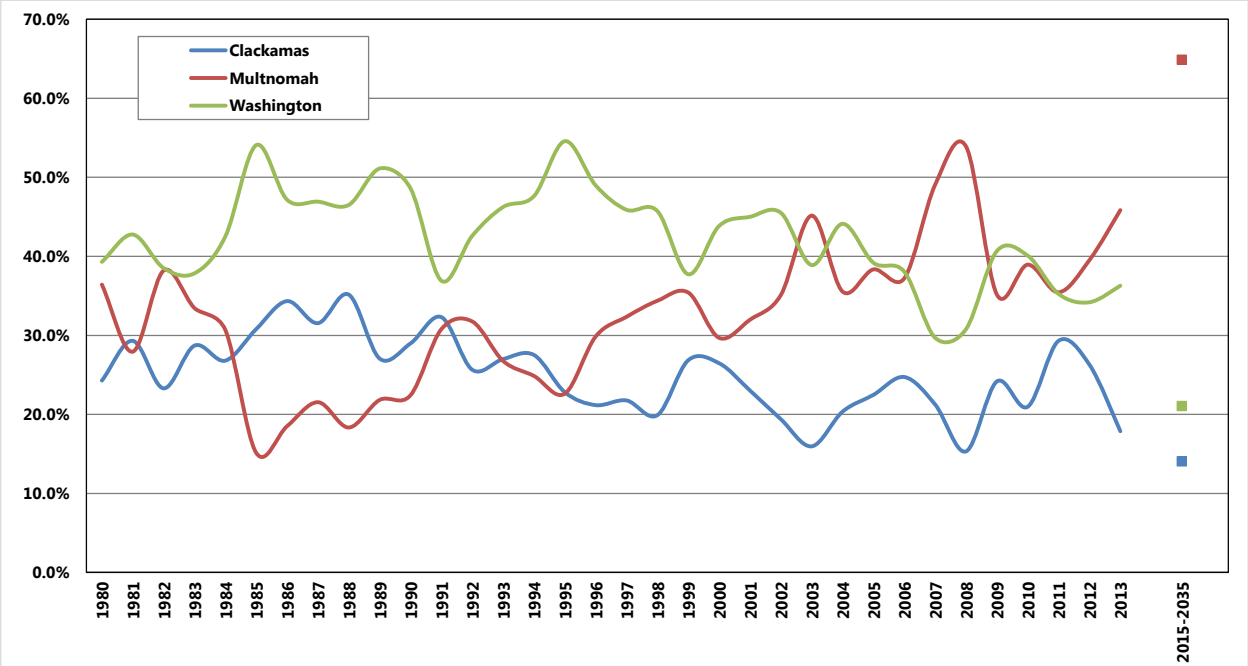
This remarkable finding by Metro that through 2035, housing need will average 61% multifamily units – an exact contradiction of historical data provided by Metro for the previous five years – reiterates questions of compliance with Goal 10 housing need procedure, particularly per ORS 197.296(5), which requires that "housing capacity and need … must be based on data relating to land within the urban growth boundary that has been collected since the last periodic review or five years, whichever is greater." Figure 4 provides residential building permit data for the tri-county region from 1980 to 2013.

Historically, as described in the previous section of this report, permitting and construction activity has varied greatly year to year with changing economic conditions. For this reason, ORS 197.296(5)(c) provides for UGB data set collection and use extending beyond five years "if the analysis of a wider geographic area or the use of a longer time period will provide more accurate, complete and reliable data relating to trends affecting housing need.."

Given the extent of the Great Recession and its likely impact on data during the five year time period, the provision provided by ORS 197.296(5)(c) should be considered applicable.

A similar departure from historical norm can be seen in the location of future demand. Due to the high capacity in Portland and by consequence, Multnomah County, location share of future housing need are unrelated to historical trend. Figure 22 illustrates historical versus projected shares by UGB County.

Figure 22 | Share of Housing (Historical and Projected) by County 1980-2035



SOURCE: Metro & 2014 UGR

Goal 10: Price Ranges, Rent Levels & Location, Type, and Density Flexibility

4. Goal 10 Housing need should above all allow for price ranges and rent levels commensurate with financial capabilities of households and secondarily allow for flexibility of housing location, type and density

Given the unprecedented nature of the results of Metro's analysis due to supply-constrained or "forced demand" analysis, it is unclear whether the UGR has met the state mandated rule that housing need analyses should allow for a variety of housing based on location, type and density. The UGR's lack of historical basis for results greatly increases the uncertainty of whether housing will be adequate and whether housing will be affordable in the next 20 years period. Per Figure 21, single-family building permits have averaged or varied around 60%, yet the UGR has an ongoing rate of 39 percent from 2015 to 2035.

While a variety of housing is built into the 2014 UGR, the variety predicted is a departure from historical trend as well as a departure from well documented and established preferences for housing. As such, does the 2014 UGR meet the state mandated rule for variety?

In addition, it is unclear exactly how this will impact housing prices, but it is likely that housing prices will experience significant increases, particularly for single-family housing. Moreover, given the overwhelming proportion of future housing in the City of Portland, housing outside the City of Portland, particularly housing close to employment outside the City of Portland, will experience higher than normal price increases.

IV. Alternative Housing Needs Analyses

Discussion in previous sections of this document have indicated that future housing needs analysis conducted by Metro for the 2014 UGR have utilized an *a priori* – and likely contrary to Housing Goal 10 - assumption that land supply constraint will transform housing demand from long-time observed housing preferences to unprecedented demand for attached housing, particularly for-sale attached housing.

The hypothetical scenario modeled by Metroscope is the lone housing needs study conducted in the 2014 UGR and driving the conclusions of that document. There exists no range estimate of regional housing need by type based on alternate assumptions about how demonstrated household preferences should shape housing need in the future.

For the purpose of providing a picture of housing demand based on Goal 10 procedures and intent and specifically the methods laid out in ORS 197.296(3)(b) and ORS 197.296(5), PNW Economics utilized population, household and demographic data from the UGR appendices for an alternate analysis of housing demand: reflecting unconstrained housing demand preferences and realized development activity trend.

- PNW Economics implemented the 2014 UGR HIA class breakdowns by household size, income bracket and age of householder determined by Metro
- We further utilized historical building permit trends discussed in the previous sections to forecast preferences for single-family and multi-family housing through 2035.

Finally, a "Housing Preference" scenario is modeled assuming absolutely unconstrained housing preferences, as documented in the May 2014 Residential Preferences Study. It can be reasonably argued that to a good extent, realized housing development over the past ten years, specifically multifamily housing, has in part been a function of medium-term constraints to the normal function of the single-family housing market:

- Severe recession, which not only froze and even reversed single-family homeownership rates due to foreclosure, but also limited incoming new households to the region to renters that did not have a home to sell in another distressed metro area from which they relocated.
- Preferred single-family housing choices found unavailable within the Portland UGB, but available within "exurban" UGBs still within the broader Vancouver-Portland-Salem job shed. These areas include communities such as Newberg, McMinnville, Sandy, Canby and Clark County, Washington.

Therefore, new household growth within the Portland UGB reflects only a partial and multifamily housing-skewed picture of Portland regional growth. It should be expected that as North Bethany and South Hillsboro reach true market delivery, the new and sizeable availability of

single-family housing product will reverse the recent and temporary growth in multifamily housing demand. The "Housing Preference" scenario reflects this likelihood.

Unconstrained Housing Scenario Findings

Figure 24 summarizes housing need findings assuming household housing needs are not land supply constrained *a priori* as indicated in the 2014 UGR. The analysis is based on the "medium growth" scenario contained in the 2014 UGR. Assumed vacancy and capture rates are consistent with those used in the 2014 UGR.

If households are not forced to substitute multifamily housing instead of single-family due to assumed land supply constraint, we find that the region needs over 134,000 single-family units (134,075 units) over the next twenty years.

Alternatively, unconstrained multifamily housing demand is estimated to average 32 percent of new demand through 2035 if households are allowed to buy or rent their true housing type of need. We find 20-year demand, consistent with realized development trend before and after the Great Recession, to be 63,325 units region-wide.

FIGURE 24 | Unconstrained Housing Need Analysis, Portland UGB 2015-2035

Demand By METRO HIA CLASS		Household by Size		SF	MF	%SF	%MF	own	rent	%own	%rent
1 person	h1	39%	76,877	46,617	29,570	61%	39%	37,121	36,972	50%	50%
2 person	h2	29%	56,323	39,471	17,002	70%	30%	38,866	18,062	68%	32%
3 person	h3	19%	36,579	26,848	9,978	73%	27%	27,904	9,671	74%	26%
4 person	h4	11%	22,537	17,188	5,581	75%	25%	18,610	4,862	79%	21%
5+ person	h5	3%	5,083	3,951	1,194	77%	23%	4,361	970	82%	18%
		100%	**197,400**	**134,075**	**63,325**	**68%**	**32%**	**126,863**	**70,537**	**64%**	**36%**
		HH by Income bracket		**SF**	**MF**	**%SF**	**%MF**	**own**	**rent**	**%own**	**%rent**
Under $15,000	i1	11%	21,016	10,555	10,461	50%	50%	5,784	15,232	28%	72%
$15,000 - $24,999	i2	10%	19,506	11,249	8,257	58%	42%	8,384	11,122	43%	57%
$25,000 to $34,999	i3	10%	20,601	12,602	8,000	61%	39%	10,352	10,249	50%	50%
$35,000 to $49,999	i4	14%	28,407	18,578	9,828	65%	35%	16,770	11,636	59%	41%
$50,000 to $74,999	i5	20%	39,929	28,371	11,558	71%	29%	28,258	11,671	71%	29%
$75,000 - $99,999	i6	14%	28,513	21,301	7,212	75%	25%	22,341	6,172	78%	22%
$100,000 to $149,999	i7	14%	28,440	22,241	6,199	78%	22%	24,348	4,092	86%	14%
$150,000 or more	i8	6%	10,989	9,180	1,809	84%	16%	10,626	363	97%	3%
		100%	**197,400**	**134,075**	**63,325**	**68%**	**32%**	**126,863**	**70,537**	**64%**	**36%**
		HH by householder age		**SF**	**MF**	**%SF**	**%MF**	**own**	**rent**	**%own**	**%rent**
Under 25	a1	4%	7,668	3,457	4,212	45%	55%	1,291	6,377	17%	83%
25-44	a2	25%	50,244	30,210	20,033	60%	40%	24,161	26,083	48%	52%
45 - 54	a3	9%	17,910	12,312	5,598	69%	31%	11,816	6,094	66%	34%
55-64	a4	14%	28,290	20,255	8,035	72%	28%	20,341	7,949	72%	28%
65+	a5	47%	93,287	67,841	25,446	73%	27%	69,254	24,033	74%	26%
		100%	**197,400**	**134,075**	**63,325**	**68%**	**32%**	**126,863**	**70,537**	**64%**	**36%**

Given findings for unconstrained housing demand and need within the Portland metro UGB, a reconciliation with the 2014 UGR buildable land inventory can then be conducted. Findings are supplied in Figure 25.

FIGURE 25 | Unconstrained Housing Need Reconciliation, Portland Metro UGB 2015-2035

HOUSING UNIT RECONCILIATION				
	SF	MF	Total Units	% of Units
Need:	134,075	63,325	197,400	100%
20-Year BLI*:	90,000	130,100	220,100	
Surplus/(Deficit)	(44,075)	66,775	22,700	

*Baseline 20-Year market-adjusted supply. From 2014 UGR, Appendix 4, Tables 8 & 9.

If households are not forced to choose multifamily housing over the next twenty years due to assumed, fixed land capacity supply, no matter now realistically or unrealistically the behavior, we estimate that the region has a deficit of 44,075 single-family residential unit capacity and an oversupply of over 66,775 multifamily housing units.

We are careful to note that the findings are very sensitive to changes in assumptions. For instance, the market will not likely be able to deliver for-sale housing priced below $130,000, though micro-housing products may mitigate some of that market.

Even so, households that need for-sale housing priced below $130,000 will either move outside of the region to affordable choices or will be forced to choose multifamily housing. The latter choice, of course, has far greater probability of development given the many more financial incentive programs for affordable housing.

The resulting change for low-income households to strictly multifamily housing – if they remain in the region – would shift the tenure split closer to 60% single-family and more consistent with long-term housing trend. Further discussion of housing affordability and equity issues is reserved for Section VII of this document.

Housing Preference Scenario Findings

Figure 26 implements the preferences found in the Residential Preferences Study (RPS). The RPS found an overwhelming preference for single-family housing, up to 87 percent preference for single-family and 13 percent preference for multi-family, were imposed on the projected share of building permits and then applied to 2014 UGR HIA Classes.

Assuming sufficient capacity allows households to choose single-family residences consistent with higher rates reported in the Residential Preferences Study, the single-family capacity deficit would be even greater. Historically, it can be argued that the UGB land constraint has already forced some households into multifamily housing, which is consistent with Residential Preferences findings that households already in multifamily housing have the strongest preference for single-family housing among demographic cohorts.

Overall:

- True housing preference demand for single-family housing is estimated at 143,122 units region-wide through 2035;
- Resulting multifamily housing demand is estimated at 54,278 units through 2035.
- Utilizing 2014 region-wide housing unit capacity, the region is short over 53,000 single-family units through 2035 assuming household preferences are fully accommodated by regional policy (Figure 27).

FIGURE 26 | Housing Preference Housing Need Analysis, Portland UGB 2015-2035

Demand By METRO HIA CLASS	Household by Size		SF	MF	%SF	%MF	own	rent	%own	%rent
1 person h1	39%	76,877	50,230	26,647	65%	35%	37,121	36,972	50%	50%
2 person h2	29%	56,323	42,033	14,290	75%	25%	38,866	18,062	68%	32%
3 person h3	19%	36,579	28,492	8,087	78%	22%	27,904	9,671	74%	26%
4 person h4	11%	22,537	18,190	4,347	81%	19%	18,610	4,862	79%	21%
5+ person h5	3%	5,083	4,176	907	82%	18%	4,361	970	82%	18%
	100%	**197,400**	**143,122**	**54,278**	**73%**	**27%**	**126,863**	**70,537**	**64%**	**36%**
	HH by Income bracket		**SF**	**MF**	**%SF**	**%MF**	**own**	**rent**	**%own**	**%rent**
Under $15,000 i1	11%	21,016	11,383	9,633	54%	46%	5,784	15,232	28%	72%
$15,000 - $24,999 i2	10%	19,506	11,889	7,616	61%	39%	8,384	11,122	43%	57%
$25,000 to $34,999 i3	10%	20,601	13,274	7,328	64%	36%	10,352	10,249	50%	50%
$35,000 to $49,999 i4	14%	28,407	19,576	8,831	69%	31%	16,770	11,636	59%	41%
$50,000 to $74,999 i5	20%	39,929	30,116	9,813	75%	25%	28,258	11,671	71%	29%
$75,000 - $99,999 i6	14%	28,513	22,799	5,713	80%	20%	22,341	6,172	78%	22%
$100,000 to $149,999 i7	14%	28,440	24,037	4,403	85%	15%	24,348	4,092	86%	14%
$150,000 or more i8	6%	10,989	10,048	941	91%	9%	10,626	363	97%	3%
	100%	**197,400**	**143,122**	**54,278**	**73%**	**27%**	**126,863**	**70,537**	**64%**	**36%**
	HH by householder age		**SF**	**MF**	**%SF**	**%MF**	**own**	**rent**	**%own**	**%rent**
Under 25 a1	4%	7,668	3,830	4,132	48%	52%	1,291	6,377	17%	83%
25-44 a2	25%	50,244	32,563	18,338	64%	36%	24,161	26,083	48%	52%
45 - 54 a3	9%	17,910	13,131	4,755	73%	27%	11,816	6,094	66%	34%
55-64 a4	14%	28,290	21,539	6,577	77%	23%	20,341	7,949	72%	28%
65+ a5	47%	93,287	72,060	20,476	78%	22%	69,254	24,033	74%	26%
	100%	**197,400**	**143,122**	**54,278**	**73%**	**27%**	**126,863**	**70,537**	**64%**	**36%**

FIGURE 27 | Housing Preference Housing Need Reconciliation, Portland UGB 2015-2035

HOUSING UNIT RECONCILIATION - PREFERRED HOUSING				
	SF	**MF**	**Total Units**	**% of Units**
Need:	143,122	54,278	197,400	100%
20-Year BLI*:	90,000	130,100	220,100	
Surplus/(Deficit)	(53,122)	75,822	22,700	

*Baseline 20-Year market-adjusted supply. From 2014 UGR, Appendix 4, Tables 8 & 9.

V. Affordability Implications

Whether or not the region sees housing growth as projected by Metroscope in the 2014 UGR, the cost of housing – both sales prices and rent levels – can be expected to accelerate. The following section provides two discussions:

- Housing cost growth expected by the 2014 UGR; *and*
- Potential housing cost growth given single-family unit undersupply documented in the previous section.

2014 UGR Housing Cost Projections

Analysis of housing demand and prices through 2035 found in the 2014 UGR includes projections of anticipated housing price growth should the future materialize as forecast by Metroscope, namely a predominant allocation of housing demand in multifamily units.

Ownership Housing Cost Growth

Figure 28 provides two sets of housing cost for ownership housing, both single-family units and multifamily units.

- "Inflation Adjusted" 2035 housing prices exactly as reported in the 2014 UGR for each of the eight household demographic groups modeled by Metroscope.
- "Actual With Inflation" 2035 housing prices estimated by PNW Economics utilizing UGR "Inflation Adjusted" numbers and U.S. Department of Commerce housing price index data.

Without annual inflation included, the 2014 UGR projects the following:

- Single-Family Ownership: Constant-dollar prices will grow on average from $231,474 in 2015 to over $355,000 in 2035.
- Multifamily Ownership: Average condo and townhouse constant-dollar prices are projected to grow from $170,383 in 2015 to nearly $242,000 by 2035.

With annual inflation, however, the actual prices that households will pay in 2035 will be between 140% and 155% higher than 2015 prices.

- Ownership single-family housing will grow from $231,474 on average in 2015 to $597,873 in 2035 accounting for inflation.
- Multifamily ownership home prices are estimated to grow from $170,383 on average in 2015 to $407,802 in 2035 accounting for inflation.

FIGURE 28 | Ownership Housing Price Projections, Portland UGB UGR 2015-2035

	UGR Residential Cost Estimates		With Inflation (Actual)		
Value Class*	Current 2015	Inflation Adjusted 2035	Price 2035	20-Year Increase	Annual Increase
Owner: Single Family					
1	$85,062	$126,987	$213,702	151%	4.7%
2	$120,071	$182,219	$306,520	155%	4.8%
3	$146,220	$225,363	$378,945	159%	4.9%
4	$174,310	$268,789	$451,959	159%	4.9%
5	$211,744	$321,264	$540,419	155%	4.8%
6	$240,862	$368,411	$619,599	157%	4.8%
7	$308,826	$454,937	$765,859	148%	4.6%
8	$485,427	$734,872	$1,236,245	155%	4.8%
Average:	**$231,474**	**$355,400**	**$597,873**	**155%**	**4.8%**
Owner: Multifamily					
1	$82,228	$105,755	$178,656	117%	4.0%
2	$116,423	$162,159	$273,379	135%	4.4%
3	$146,930	$210,320	$354,322	141%	4.5%
4	$166,718	$245,241	$412,864	148%	4.6%
5	$203,193	$297,240	$500,475	146%	4.6%
6	$228,855	$344,918	$580,308	154%	4.8%
7	$278,718	$429,537	$722,262	159%	4.9%
8	$434,509	$699,781	$1,175,347	171%	5.1%
Average:	**$170,383**	**$241,788**	**$407,082**	**140%**	**4.5%**

SOURCE: 2014 Revised Draft UGR, U.S. Department of Commerce, and PNW Economics, LLC

* Value Classes are eight distinct demographic groups that comprise the Portland metro population with different housing needs.

Rental Housing Cost Growth

Rents throughout the Portland metro region are also expected to grow, but somewhat slower than ownership prices assuming the growth scenario projected in the 2014 UGR. Figure 29 summarizes inflation-adjusted rents in 2015 and 2035 as found in the 2014 UGR, as well as estimated actual rents including inflation for 2035.

- Multifamily rents that households will actually pay, or "With Inflation" rents are projected to grow by an average of 4.3% annually and 110% overall between 2015 and 2035.

- Rental houses are projected to see rent growth of 3.8% annually and 110% overall through 2035.

FIGURE 29 | Housing Rent Projections, Portland UGB UGR 2015-2035

	UGR Residential Cost Estimates				
		Inflation	With Inflation (Actual)		
Value Class*	Current 2015	Adjusted 2035	Price 2035	20-Year Increase	Annual Increase
Renter: Single Family					
1	$594	$764	$1,291	117%	4.0%
2	$790	$956	$1,618	105%	3.6%
3	$969	$1,113	$1,886	95%	3.4%
4	$1,136	$1,338	$2,266	99%	3.5%
5	$1,314	$1,587	$2,685	104%	3.6%
6	$1,505	$1,892	$3,198	112%	3.8%
7	$1,814	$2,309	$3,902	115%	3.9%
8	$3,168	$4,091	$6,910	118%	4.0%
Average:	**$1,669**	**$2,174**	**$3,674**	**110%**	**3.8%**
Renter: Multifamily					
1	$341	$467	$788	131%	4.3%
2	$384	$522	$881	129%	4.2%
3	$449	$591	$998	122%	4.1%
4	$502	$678	$1,144	128%	4.2%
5	$570	$774	$1,306	129%	4.2%
6	$647	$895	$1,509	133%	4.3%
7	$763	$1,065	$1,795	135%	4.4%
8	$1,167	$1,636	$2,758	136%	4.4%
Average:	**$582**	**$812**	**$1,369**	**130%**	**4.3%**

SOURCE: 2014 Revised Draft UGR, U.S. Department of Commerce, and PNW Economics, LLC

* Value Classes are eight distinct demographic groups that comprise the Portland metro population with different housing needs.

Housing Affordability Variables: Portland Metro & Competitive Regions

Given the above expected growth in home prices and rents should the 2014 UGR scenario materialize, affordability of housing to regional households is then the issue. Although housing prices can climb, provided regional income can climb commensurately, housing affordability can potentially remain stable.

Housing affordability can be worsened if housing cost gains outpace income growth. To understand where the Portland metro region has been regarding housing price growth and income growth, as well as what would happen to that trend if the 2014 UGR scenario plays out, Figure 30 displays historical measures of both trends as well as dollar-value "Inflation Included" estimates based on 2014 UGR projections.

For comparison purposes, Figure 30 also displays similar affordability trend data for competitive metro areas including San Francisco, Seattle, Denver, and Phoenix.

FIGURE 30 | Portland Metro & Competitive Metro Areas Housing Affordability Variables, 1994-2014

	Annual Growth Rate				
Affordability Variable	**Portland**	**San Francisco**	**Seattle**	**Denver**	**Phoenix**
Personal Income[1]	3.4%	4.5%	4.1%	3.9%	3.3%
Home Prices[2]	4.2%	5.4%	4.4%	4.3%	3.6%
Difference: Historical	*-0.8%*	*-0.8%*	*-0.3%*	*-0.4%*	*-0.2%*
Personal Income[1]	3.4%				
Home Prices: UGR-Predicted Price	**4.7%**				
Difference: UGR Scenario	***-1.3%***				

1 Bureau of Economic Analysis Regional Accounts data

2 S&P Case-Schiller Home Price Indices

SOURCE: 2014 UGR and PNW Economics

Comparing Case-Schiller Home Price Index data for Portland and the other metro areas with personal income trend data from the Bureau of Economic Analysis, the following can be concluded:

- Long-term, annual income growth trend in the Portland region (3.4%) has been the second-lowest behind Phoenix (3.3%) over the last twenty years.
- Similarly, annual home price growth in the Portland region (4.5%) has also been the second lowest among the peer group behind Phoenix (3.6%).
- When comparing average annual income growth to housing price growth, however, Portland region home prices have outpaced personal income at the fastest pace (-0.8%), tied with San Francisco (-0.8%).
- The 2014 UGR predicts acceleration in home price gains to 4.7% annually. When compared with historical income growth in the Portland region, the affordability gap widens to -1.3% annually over the next twenty years.

In other words, should income growth trend continue as is in the Portland metro region, housing affordability will indeed become a worsening problem compared to historically within the region as well as compared to other competitive metro areas in the western United States. A widening gap would undoubtedly have significant socioeconomic and business development consequences for the region.

VI. Public Subsidy & Urban Renewal Implications

Because a substantial amount of housing capacity in the region documented in the 2014 UGR is redevelopment (Figure 12), housing demand analysis by Metro makes detailed assumptions about public subsidies that would be required to make redevelopment economically feasible.

Figure 31 provides a detailed summary of assumed subsidies by jurisdiction, public financial tool (urban renewal, Neighborhood Prosperity Initiative, or Transit-Oriented Development). Anticipated unit counts requiring subsidy, average subsidy per unit, and jurisdiction are all data as published in the 2014 UGR.

The UGR does not, however, calculate total subsidy by jurisdictions and public financial vehicle type. Total subsidy cost calculations, in 2015 dollars, are also found in Figure 31.

- A total of 86,958 future residential units within the UGB will require subsidy ranging from $10,000 to $50,000 per unit.
- Redevelopment subsidy will be required for a full 67% of multifamily housing need projected by Metro in the 2014 UGR.
- In total, redevelopment within the UGB will require combined public subsidy estimated at $2.89 billion in constant 2015 dollars.
- Urban renewal districts region-wide would subsidize the vast majority of redevelopment, estimated at $2.78 billion in 2015 dollars.
- Among jurisdictions, redevelopment within the City of Portland is estimated to require $2.784 billion over twenty years, in 2015 dollars.
- Portland urban renewal districts will be the source of $2.673 billion over twenty years in constant 2015 dollars.
- Interstate Corridor URA ($961.5 million) followed by North Macadam URA ($528.7 million) will see the highest need to subsidize redevelopment as projected by the 2014 UGR.
- Jurisdictions outside of Portland are estimated to combine for only $108.9 million in redevelopment subsidy, all from city urban renewal districts.

Although public subsidy figures are substantial for ensuring feasibility of redevelopment within the UGB, average subsidies per unit are reported in constant 2015 dollars. Over a twenty year period, as housing prices are expected to escalate, construction costs and underlying land values will also escalate over time, effectively escalating the true cost of public subsidy per unit and in total.

Accordingly, Figure 31 also provides estimates of total residential unit subsidy costs through 2035 assuming development costs increase at pace with housing prices, or roughly 4.4% annually including inflation. We would view this as a conservative assumption as construction costs can easily exceed 8% escalation annually, with varying appreciation of underlying land

values as well. Furthermore, each redevelopment project tends to take down "lower-hanging fruit" property, on average leaving remaining sites with higher redevelopment difficulty.

FIGURE 31 | Summary of Assumed Public Subsidy of Housing Redevelopment (2015 Dollars)

Jurisdiction	Avg. Subsidy Per Unit	SF Units	MF Units	Total Units	Total Subsidy ($Millions) 2015 Dollars	With Inflation
City of Portland						
UR - Central Eastside	$50,000	0	1,196	1,196	$59.8	$99.9
UR - Downtown Waterfront	$50,000	0	3,376	3,376	$168.8	$282.0
UR - North Macadam	$50,000	0	10,574	10,574	$528.7	$883.2
UR - Oregon Convention Center	$50,000	0	7,105	7,105	$355.3	$593.5
UR - River District	$50,000	0	5,336	5,336	$266.8	$445.7
UR - South Park Blocks	$50,000	0	787	787	$39.4	$65.7
UR - Gateway Regional Center	$25,000	0	4,233	4,233	$105.8	$176.8
UR - Lents Town Center	$10,000	682	17,209	17,891	$178.9	$298.9
Education URA (PSU)	$10,000	0	831	831	$8.3	$13.9
UR - Interstate Corridor	$50,000	194	19,036	19,230	$961.5	$1,606.2
NPI - 42nd Avenue	$10,000	14	813	827	$8.3	$13.8
NPI - 82nd Avenue & Division	$10,000	38	2,690	2,728	$27.3	$45.6
NPI - Cully Blvd	$10,000	4	1,960	1,964	$19.6	$32.8
NPI - Division Midway	$10,000	0	507	507	$5.1	$8.5
NPI - Parkrose	$10,000	2	339	341	$3.4	$5.7
NPI - Rosewood	$10,000	61	248	309	$3.1	$5.2
TOD - E 122nd Ave MAX	$10,000	6	84	90	$0.9	$1.5
TOD - E 148th Ave MAX	$10,000	128	1,001	1,129	$11.3	$18.9
TOD - E 162nd Ave MAX	$10,000	4	54	58	$0.6	$1.0
TOD - NE 60th Ave MAX	$10,000	1	308	309	$3.1	$5.2
TOD - NE 82nd Ave MAX	$10,000	2	1,851	1,853	$18.5	$31.0
TOD - SE Division St	$10,000	1	978	979	$9.8	$16.4
Within City of Portland Total:		**1,137**	**80,516**	**81,653**	**$2,784.2**	**$4,651.1**
Portland Urban Renewal Cost					*$2,673.2*	*$4,465.8*
Other UGB Jurisdictions (Urban Renewal)						
Clackamas	$25,000	0	248	248	$6.2	$10.4
Gresham	$25,000	14	365	379	$9.5	$15.8
Hillsboro	$25,000	238	408	646	$16.2	$27.0
Oregon City	$25,000	0	886	886	$22.2	$37.0
Tanasbourne/AmberGlen	$25,000	8	1,553	1,561	$39.0	$65.2
Gladstone	$10,000	10	0	10	$0.1	$0.2
Lake Oswego	$10,000	3	33	36	$0.4	$0.6
Rockwood	$10,000	0	1,135	1,135	$11.4	$19.0
Tigard	$10,000	67	337	404	$4.0	$6.7
Other UGB Jurisdictions Total:		**340**	**4,965**	**5,305**	**$108.9**	**$181.8**
Combined Total Subsidy		**1,477**	**85,481**	**86,958**	**$2,893.0**	**$4,832.9**
Combined Urban Renewal Cost					*$2,782.1*	*$4,647.6*

SOURCE: 2014 UGR Appendix 11, Table 5. Total subsidy calculations by PNW Economics, LLC.

With inflation accounted in subsidized development costs, PNW Economics finds the following:

- Total, inflation-accounted public redevelopment subsidy of $4.83 billion over twenty years.
- $4.651 billion in public subsidy for redevelopment within the City of Portland, mostly from city urban renewal districts ($4.466 billion over twenty years).
- Total urban renewal subsidy within the UGB at estimated at $4.647.6 billion over twenty years.

These inflation-accounted costs would be what various urban renewal districts and other jurisdictions would be required to actually fund under assumptions of the 2014 UGR rather than constant-dollar estimates.

What is not clear, however, is if each of the urban renewal districts in particular have the tax increment capacity at present to accommodate all planned urban renewal expenditure required to achieve the estimated 67% of multifamily housing need projected in the 2014 UGR.

Urban renewal districts must follow Oregon Revised Statute Chapter 457, which provide for limitations on total assessed value as a percentage of City taxable assessed value, geographic scope, and maximum indebtedness.

Although required subsidy costs per unit might have been coordinated and reviewed with various jurisdictions, review of publicly available financial statements about Portland urban renewal districts would indicate that most of the projected subsidies would require substantial amendments to existing district plans.

The likelihood of estimated subsidies far exceeding urban renewal district maximum indebtedness, or spending maximums, is also heightened due to the fact that Portland urban renewal districts fund district business development efforts and community development efforts as part of public revitalization mission. Individual redevelopment project incentives are only a portion of URA efforts and financial obligations.

VII. Affordability & Equity Implications

In its assumptions and projections, the 2014 UGR presents a number of housing affordability and equity policy questions that strongly merit discussion. And based on this review of the UGR, significant undersupply of single-family housing throughout the region points to worsening, policy-induced housing affordability.

What is the True Impact to Housing Affordability in the Region?

As discussed in Section V of this report, results of the 2014 UGR imply an uptick in housing prices region-wide. Accelerated housing cost growth when compared to traditional income growth in the region means a worsening future affordability gap on par with San Francisco.

And as described in Section IV of this report, it was found that under a standard housing demand analysis, or the "Unconstrained Demand" scenario, UGR analysis leaves the region undersupplied by roughly 44,075 housing units through 2035. Compared to 2015 household counts estimated by the 2014 UGR, this amounts to a single-family housing shortfall of roughly 33%.

The very basic rule of economics is that reductions in supply generally result in higher prices for that product, all things equal. Conceptually, therefore, undersupply of single-family housing would only exacerbate housing price growth trends for the Portland metro region.

It is also true that different populations will be able to accommodate housing price gains differently than other demographic groups. In general, lower-income households would be most sensitive to growing home prices, which would be accelerated by a general undersupply of homes.

A fixed number of households all seeking preferred housing type and location, when confronted with a reduced number of homes to bid on, generally results in households better-able to afford bid-up prices to still buy a desired home, while those households out-bid on a housing choice are forced to seek alternative housing type and/or location. In other words, this supply shortage reality is the very basis of the housing demand analysis methodology in the 2014 UGR.

Given review of UGR projections and comparisons to recent and long-term historical data, there is really no historical evidential basis to the assertion in the UGR that households will willingly choose multifamily housing in place of long-held, consistently exhibited preferences for single-family units of different types. The risk of significant under-supply of single-family housing is particularly troubling from a housing price/scarcity standpoint.

Ultimately, the 2014 UGR is silent on the implications to housing affordability from the policy assumptions utilized to achieve land need findings. A risk assessment, or sensitivity analysis, of various home price outcomes is certainly appropriate and should be part of the regional policy discussion.

What is the True Impact to Housing Equity in the Region?

Hand-in-hand with the risk of decreasing affordability in the region is the impact to housing and economic equity within the Portland metro area. Not only are there major questions regarding risks to housing affordability moving forward – as well as guaranteed housing cost acceleration

if the 2014 UGR is accurate – 2014 UGR-projected demographics indicate increasing populations vulnerable to housing affordability problems.

As Section III of this report indicates, the 2014 UGR anticipates household growth to be proportionately greater than historically among households that earn modest incomes ($35,000 and less) as well as dramatic increases in household counts aged 65 and over. All of these demographic groups are projected to grow more than they have relative to current population.

Unfortunately, there is little to no discussion about neither the UGR-projected housing price increases nor about the risks to housing affordability for vulnerable populations if future households behave as they historically have – occupying residences at a 60% single-family, 40% multifamily split – while the region undersupplies single-family housing by up to 33%.

Compounding the problematic absence of equity and affordability risk analysis is the overwhelming dependence upon economically uncertain redevelopment to meet future housing need, particularly within the City of Portland. By all measures, the magnitude of high-density redevelopment projected by the 2014 UGR within Portland significantly exceeds historical activity, which has unfortunately been associated with issues of gentrification and affordability-induced relocation.

The acceleration and geographic broadening of redevelopment into more neighborhoods in Portland is an important economic and policy issue, though the topic is not given similar treatment for regional policy consideration.

Finally, as demonstrated in Section VI, Metro assumes nearly $2.9 billion in public subsidy *in constant dollars* or $4.8 billion in actual, nominal dollars for housing redevelopment, largely concentrated in Portland through 2035. This amounts to a major acceleration in public debt, the legal capacity for which is speculative at best.

Furthermore, the addition of such expenditure by urban renewal would amount to a significant repurposing of Portland urban renewal mission, which does include other community and business development objectives besides housing development subsidy. This alone raises significant equity policy issues about which the 2014 UGR is entirely silent, and it is unclear about whether the City of Portland and Portland Development Commission are aware of the cumulative subsidy expense for which they would be responsible simply for new housing, mostly market-rate apartments and condominiums.