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**MEMORANDUM**

TO: Leonard Bauer, Deputy Director, City of Olympia Community Planning and Development Department

FROM: Michael Ambrogi, Senior GIS Analyst, Thurston Regional Planning Council *MA*

DATE: January 19, 2018

SUBJECT: Olympia "Missing Middle" Residential Capacity Assessment

**OVERVIEW**

The City of Olympia requested a residential capacity analysis examining the effects of proposed development regulation changes in the city's R-4-8 and R-6-12 zoning designations. The changes, part of the city's "Missing Middle Housing" initiative, are aimed at encouraging a greater variety of housing types, including accessory dwelling units, cottage housing, courtyard apartments, duplexes, triplexes, and other structures.

In addition, Olympia requested a summary of single-family residence demolitions between 2000 and 2016 in the Lacey-Olympia-Tumwater urban area to better understand the frequency of demolitions, the value of properties demolished, and the resulting structures – if any – that were later constructed.

**KEY FINDINGS**

- Proposed changes in regulations could increase the capacity for new residential units by up to 946 units (785 units citywide and 161 units in the unincorporated Urban Growth Area). Most of the increased capacity would be multifamily units.
- Of all parcels currently containing at least one residence but no additional capacity in the baseline scenario, between 52 (under low scenario) and 99 (under high scenario) would have additional capacity for development due to the proposed changes in regulations. Thirty-four of those were identified as being *likely* to redevelop due to their low building value.
- Of the 210 single-family residence demolitions identified in the Lacey-Olympia-Tumwater urban area, only 6 percent were redeveloped as multifamily structures. The majority (60 percent) were either not redeveloped, or replaced with another single-family residence.
- The average assessed building value of demolished residences was about \$50,000 in 2000 dollars – about \$70,000 in today's dollars.

## BACKGROUND

Thurston Regional Planning Council (TRPC) maintains a land capacity or buildable lands database for Thurston County. This database is used to support the Population and Employment Forecast and the Buildable Lands Report for Thurston County. “Residential capacity” is the number of dwellings likely to be built over a 20-year time period, plus a reasonable market factor (i.e. capacity that is not available due to market conditions). Residential capacity differs from the TRPC forecast in that it shows the theoretical maximum number of dwellings that could be built, while the forecast is a projection of how many of those units are likely to be built by a given year.

The land capacity analysis estimates the residential development capacity of properties across Thurston County, considering such factors as:

- Existing land use and development
- Vested subdivision plans
- Parcel size
- Zoning
- Average development densities
- Critical areas, as they are reflected in development code for various jurisdictions and zoning districts

Existing schools, churches, parks, open space, colleges, prisons, golf courses, commercial and industrial properties, are not considered developable for residential purposes.

The City of Olympia requested an analysis showing the effects of potential development regulation changes on lands with subdivision or residential development potential. The analysis is consistent with the 2014 Buildable Lands Report for Thurston County<sup>1</sup> with the following modifications:

- Updated base data layer to include development through 2016, based on building permit activity
- Assumed that existing dwellings on low-value parcels would be demolished and redeveloped
- Updated density and acreage assumptions for the R-4-8 and R-6-12 zoning designations (Table 1)

These modifications were intended to model the net impact of a wide range of development regulation changes the city is considering on residential capacity and the type of structure the city may expect to see built over the next several decades. To assess the range of outcomes, a “low” scenario and a more aggressive “high” scenario were analyzed. These were compared to a baseline. The main difference between the baseline, low, and high scenarios was the net density assumption. “Net density” is the number of dwelling units that can be built per acre. Average net density was increased in the low and high scenarios since the proposed regulation changes would give property owners more housing options when developing properties, allowing them to build at higher density than observed during the past few decades. The increases remained within the minimum and maximum net density allowed for each zone: between four and eight units per acre for R-4-8 and six and twelve units per acre for R-6-12.

This analysis focused on proposed changes to the R-4-8 and R-6-12 zones (Figure 1) however the city is considering changes to other zones. Those changes were not modeled in this analysis because they would allow additional uses that would provide no additional capacity. In addition, while the proposed changes would affect regulations for accessory dwelling units, ADUs are not included in the analysis’s residential capacity estimates. The model also does not explicitly address internal conversions of existing residence into multifamily units.

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<sup>1</sup> <http://www.trpc.org/164>

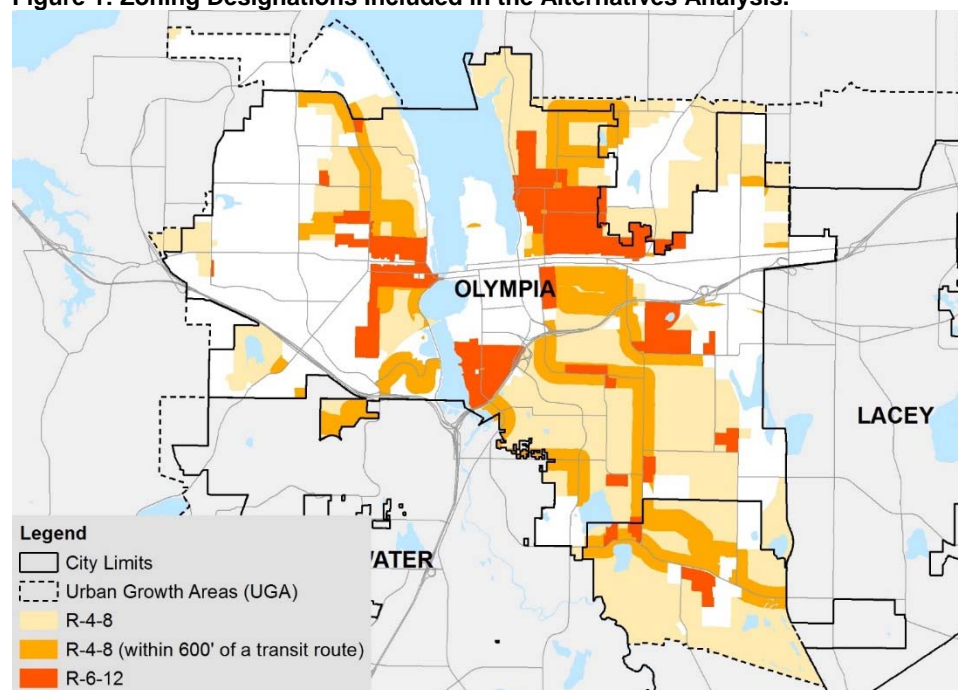
**Table 1: Modeled Density and Acreage Assumptions for Scenarios.**

		Baseline			Low Scenario			High Scenario		
		R-4-8 (City)	R-4-8 (UGA)	R-6-12	R-4-8	R-4-8 (T)	R-6-12	R-4-8	R-4-8 (T)	R-6-12
Net Density		6.25	6.25	8.33	6.50	7.00	9.33	6.75	7.75	10.33
Modeled Minimum Lot Size (1)	Acres	0.20	0.20	0.20	0.175	0.175	0.175	0.15	0.15	0.15
	Sq. Ft.	8,700	8,700	8,700	7,600	7,600	7,600	6,500	6,500	6,500
Acres Set-aside for Existing Dwelling (2)		0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
% Single-family		80%	90%	75%	75%	73%	67%	70%	67%	57%
% Multifamily		20%	10%	20%	25%	27%	30%	30%	33%	40%
% Manufactured Home		0%	0%	5%	0%	0%	3%	0%	0%	3%

Note: The assumptions used in TRPC's models are an approximation of how land is developed based on past trends and market factors. These assumptions may differ from what is allowed in city code. "R-4-8 (T)" is the portions of Zone R-4-8 within 600 feet of a transit line or commercial zoning district.

- 1) "Minimum Lot Size" is the minimum acreage needed before the model assigns additional capacity to a parcel. Zero for parcels with a building value less than \$50,000 (2011 dollars)
- 2) For parcels with existing dwellings, this area is subtracted from the total area when calculating density. Zero for parcels with a building value less than \$50,000 (2011 dollars).

**Figure 1: Zoning Designations Included in the Alternatives Analysis.**



ANALYSIS

The City of Olympia requested an analysis of recent demolitions trends and of residential capacity. The analysis is meant for general planning purposes only and should not be assumed to reflect development capacity at the individual project level where more detailed criteria apply.

*Demolitions Trends*

TRPC staff analyzed all single-family residence demolitions – including manufactured homes outside of mobile home parks – identified in its land use inventories. The goal was to understand how often single-family residences are demolished, their condition, and what types of structures replace them. Table 2 provides a summary of findings. Over 200 demolitions were identified in Lacey, Olympia, and Tumwater's incorporated and unincorporated Urban Growth Areas between 2000 and 2016. Of these residence, 38 percent were not replaced with any structure and 22 percent were replaced with another single-family home. 19 percent were replaced with a single-family subdivision, townhome, or multifamily development. 22 percent were replaced with a commercial building or a government project, such as a fire station or road improvement.

On average, the 2000 assessed value of buildings on parcels with a demolition was just under \$50,000 – about \$70,000 in current dollars. 47 percent of demolitions occurred in a mixed-density or medium density single-family zone, such as Olympia's R-4-8 or R-6-12 zones (Table 3).

**Table 2: Trends in Single-Family Residence Demolitions, Lacey, Olympia, and Tumwater Urban Growth Areas, 2000-2016.**

<b>Redevelopment Type</b>	<b>Number of Demolitions</b>	<b>Percent of Demolitions</b>	<b>Average Assessed Bldg. Value</b>	<b>Maximum Assessed Bldg. Value</b>
Not Redeveloped	79	38%	49,234	232,900
Single-family	46	22%	53,393	160,600
Subdivision	28	13%	56,026	147,100
Townhome	2	1%	43,350	82,100
Multifamily	10	5%	15,470	51,600
Commercial	37	18%	46,843	251,500
Government	8	4%	62,600	112,500
<b>Total</b>	<b>210</b>	<b>100%</b>	<b>49,572</b>	<b>251,500</b>

Note: Average assessed value is from 2000 Thurston County Assessor data.

**Table 3: Single-Family Residence Demolitions by Generalized Zoning Category.**

<b>Generalized Zoning</b>	<b>Not Redev.</b>	<b>Single-family</b>	<b>Sub-division</b>	<b>Town-home</b>	<b>Multi-family</b>	<b>Comm.</b>	<b>Govn't</b>	<b>Total</b>
High Density Multifamily	1	2	1	0	8	0	1	13
High-Moderate Density M.F.	2	1	2	0	0	0	0	5
Moderate Density Multifamily	3	2	2	0	0	0	0	7
Mixed Density Residential	17	12	6	0	0	0	2	37
Medium Density Single-family	23	22	13	2	0	0	1	61
Medium-Low Density S.F.	4	2	2	0	0	0	0	8
Low Density Single-family	3	0	0	0	0	0	1	4
Mixed Use	20	4	1	0	2	30	3	60
Commercial / Industrial	6	1	1	0	0	7	0	15
<b>Total</b>	<b>79</b>	<b>46</b>	<b>28</b>	<b>2</b>	<b>10</b>	<b>37</b>	<b>8</b>	<b>210</b>

Appendix I shows examples of redevelopment types.

*Residential Capacity*

In this analysis “residential capacity” is defined as the modeled number of dwelling units that could be built on a parcel given existing development, zoning and development regulations, critical areas, and other assumptions. Capacity does not take into account reductions due to non-residential uses in residential zones (such as schools, parks, and churches) or capacity for accessory dwelling units or family member units.

Within city limits, modeled residential capacity in the R-4-8 and R-6-12 zones increased 7.4 percent in the low scenario and 15.0 percent in the high scenario. In Olympia’s unincorporated Urban Growth Area, capacity increased 4.5 percent and 8.0 percent. Across all zones, residential capacity in Olympia increased 3.0 percent in the low scenario and 6.1 percent in the high scenario. In the unincorporated Urban Growth Area, citywide capacity increased 3.1 percent in the low scenario and 5.6 percent in the high scenario (Table 4). Maps 1 and 2 show parcels with increased capacity in the low and high scenarios, respectively.

**Table 4: Residential Capacity by Zone and Jurisdiction**

Zone	Residential Capacity			Change from Baseline			
	Baseline	Low Scenario	High Scenario	Low Scenario		High Scenario	
				#	%	#	%
<b>City</b>							
R-4-8	2,913	3,033	3,144	120	4.1%	231	7.9%
R-4-8T	1,104	1,245	1,406	141	12.8%	302	27.4%
R-6-12	1,207	1,330	1,459	123	10.2%	252	20.9%
Other	7,737	7,737	7,737	0	0.0%	0	0.0%
<b>R-4-8, R-6-12</b>	<b>5,224</b>	<b>5,608</b>	<b>6,009</b>	<b>384</b>	<b>7.4%</b>	<b>785</b>	<b>15.0%</b>
<b>Total City</b>	<b>12,961</b>	<b>13,345</b>	<b>13,746</b>	<b>384</b>	<b>3.0%</b>	<b>785</b>	<b>6.1%</b>
<b>Unincorporated Urban Growth Area</b>							
R-4-8	1,597	1,663	1,708	66	4.1%	111	7.0%
R-4-8T	248	261	278	13	5.2%	30	12.1%
R-6-12	165	176	185	11	6.7%	20	12.1%
Other	873	873	873	0	0.0%	0	0.0%
<b>R-4-8, R-6-12</b>	<b>2,010</b>	<b>2,100</b>	<b>2,171</b>	<b>90</b>	<b>4.5%</b>	<b>161</b>	<b>8.0%</b>
<b>Total UGA</b>	<b>2,883</b>	<b>2,973</b>	<b>3,044</b>	<b>90</b>	<b>3.1%</b>	<b>161</b>	<b>5.6%</b>
<b>City and UGA</b>	<b>15,844</b>	<b>16,318</b>	<b>16,790</b>	<b>474</b>	<b>3.0%</b>	<b>946</b>	<b>6.0%</b>

Note: “R-4-8T” is the areas of Zone R-4-8 within 600 feet of a transit route or commercial zoning district. Capacity does not include reductions due to non-residential uses (e.g. churches, schools, or parks) in residential zones.

TRPC's model also includes an assumption of how much residential capacity is likely to develop as single-family, multifamily, or manufacture/mobile homes. Multifamily dwellings saw the greatest increase, making up most of the increase in capacity in both the low and high scenarios (Table 5).

**Table 5: Change in Residential Capacity by Dwelling Type**

Zone	Change in Capacity						Percent Change in Capacity					
	Low Scenario			High Scenario			Low Scenario			High Scenario		
	SF	MF	MH	SF	MF	MH	SF	MF	MH	SF	MF	MH
City												
R-4-8	-52	172	0	-118	349	0	-2%	29%	-	-5%	60%	-
R-4-8T	33	108	0	72	230	0	4%	53%	-	8%	113%	-
R-6-12	3	137	-16	-36	300	-12	0%	62%	-33%	-4%	137%	-25%
Other	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%
<b>R-4-8, R-6-12</b>	<b>-17</b>	<b>417</b>	<b>-16</b>	<b>-83</b>	<b>880</b>	<b>-12</b>	<b>0%</b>	<b>41%</b>	<b>-33%</b>	<b>-2%</b>	<b>87%</b>	<b>-25%</b>
<b>Total</b>	<b>-17</b>	<b>417</b>	<b>-16</b>	<b>-83</b>	<b>880</b>	<b>-12</b>	<b>0%</b>	<b>6%</b>	<b>-18%</b>	<b>-1%</b>	<b>13%</b>	<b>-14%</b>
Unincorporated Urban Growth Area												
R-4-8	-175	241	0	-222	333	0	-12%	140%	-	-16%	194%	-
R-4-8T	-21	34	0	-22	52	0	-9%	189%	0%	-10%	284%	0%
R-6-12	2	11	-1	-2	23	-1	1%	31%	-31%	-1%	65%	-24%
Other	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%
<b>R-4-8, R-6-12</b>	<b>-195</b>	<b>286</b>	<b>-1</b>	<b>-246</b>	<b>407</b>	<b>-1</b>	<b>-11%</b>	<b>127%</b>	<b>-24%</b>	<b>-14%</b>	<b>181%</b>	<b>-18%</b>
<b>Total</b>	<b>-195</b>	<b>286</b>	<b>-1</b>	<b>-246</b>	<b>407</b>	<b>-1</b>	<b>-8%</b>	<b>55%</b>	<b>-6%</b>	<b>-10%</b>	<b>78%</b>	<b>-5%</b>
<b>City &amp; UGA</b>	<b>-212</b>	<b>704</b>	<b>-17</b>	<b>-328</b>	<b>1,287</b>	<b>-13</b>	<b>-3%</b>	<b>9%</b>	<b>-16%</b>	<b>-4%</b>	<b>17%</b>	<b>-12%</b>

Note: "R-4-8T" is the areas of Zone R-4-8 within 600 feet of a transit route or commercial zoning district. Capacity does not include reductions due to non-residential uses (e.g. churches, schools, or parks) in residential zones. Dwelling type abbreviations are single-family (SF), multifamily (MF) and manufactured homes (MH).

Fifty-two parcels with at least one dwelling unit and no capacity under the baseline scenario would see additional capacity in the low scenario (Table 6). These are parcels that could be subdivided, or if redeveloped could see duplex or multifamily development. Seventeen of these parcels have a 2011 assessed building value of less than \$50,000 and would be most likely to be redeveloped. Under the high scenario, 99 partially-developed parcels with no additional capacity under the baseline would see their capacity expand. Of these, one third have an assessed building value less than \$50,000.

**Table 6: Number of Partially-Developed Parcels with Residential Capacity in Low and High Scenarios**

Zone	Number of Parcels, Low Scenario				Number of Parcels, High Scenario			
	Less than \$50,000	\$50,000 or More	Total	Average Acres	Less than \$50,000	\$50,000 or More	Total	Average Acres
<i>City</i>								
R-4-8	6	6	12	0.39	8	12	20	0.38
R-4-8T	7	18	25	0.41	17	37	54	0.39
R-6-12	4	11	15	0.47	8	17	25	0.56
<b>Total</b>	<b>17</b>	<b>35</b>	<b>52</b>	<b>0.42</b>	<b>33</b>	<b>66</b>	<b>99</b>	<b>0.43</b>
<i>Unincorporated Urban Growth Area</i>								
R-4-8	1	5	6	0.37	1	9	10	0.39
R-4-8T	0	1	1	0.50	0	5	5	0.46
R-6-12	0	2	2	0.34	0	3	3	0.52
<b>Total</b>	<b>1</b>	<b>8</b>	<b>9</b>	<b>0.38</b>	<b>1</b>	<b>17</b>	<b>18</b>	<b>0.44</b>
<b>City &amp; UGA</b>	<b>18</b>	<b>43</b>	<b>61</b>	<b>0.42</b>	<b>34</b>	<b>83</b>	<b>117</b>	<b>0.43</b>

Note: "Partially-developed parcels" are those with at least one dwelling unit with no capacity for additional units in the baseline scenario, and with a capacity of at least one unit in the low or high scenarios. These parcels could be subdivided, or be redeveloped as multifamily development if the existing structure is demolished, in the low or high scenarios. Assessed value is from 2011 Thurston County Assessor data; about \$55,000 is current dollars.

*School-age Population*

School-age population for the elementary school service areas in Olympia School District were calculated using the percent change in capacity in each scenario, TRPC's 2040 dwelling unit forecast, and student generation rates from the Olympia School District. Compared to baseline, 2040 school-age population would increase by about 110 students (0.6 percent) in the low scenario, and 330 students (1.8 percent) in the high scenario. Table 7 and Table 8 show school-age population by grade level and elementary school district.

**Table 7: 2040 School-age Population by Elementary School Service Area, Olympia School District, Low Scenario**

	Baseline			Low Scenario			Difference		
	Elem.	Middle	High.	Elem.	Middle	High	Elem.	Middle	High
Boston Hbr.	530	220	270	530	220	270	0	0	0
Centennial	840	350	430	820	350	420	-20	0	-10
Garfield	880	390	440	900	390	450	20	0	10
Hansen	820	350	410	810	350	410	-10	0	0
Lincoln	490	230	240	500	230	240	10	0	0
L.P. Brown	1,270	550	640	1,290	560	650	20	10	10
Madison	690	290	350	690	300	350	0	10	0
McKenny	1,040	440	530	1,060	450	540	20	10	10
McLane	1,070	450	540	1,060	450	540	-10	0	0
Pioneer	800	340	400	810	340	410	10	0	10
Roosevelt	1,260	530	640	1,260	540	640	0	10	0
<b>Total</b>	<b>9,690</b>	<b>4,140</b>	<b>4,890</b>	<b>9,730</b>	<b>4,180</b>	<b>4,920</b>	<b>40</b>	<b>40</b>	<b>30</b>

Note: Change in forecasted dwelling units calculated using the percent change in dwelling unit capacity and the student generation rates (Table 9).

**Table 8: 2040 School-age Population by Elementary School Service Area, Olympia School District, High Scenario**

	Baseline			High Scenario			Difference		
	Elem.	Middle	High.	Elem.	Middle	High	Elem.	Middle	High
Boston Hbr.	530	220	270	530	220	270	0	0	0
Centennial	840	350	430	830	350	420	-10	0	-10
Garfield	880	390	440	910	400	460	30	10	20
Hansen	820	350	410	820	350	410	0	0	0
Lincoln	490	230	240	500	230	250	10	0	10
L.P. Brown	1,270	550	640	1,320	570	660	50	20	20
Madison	690	290	350	700	300	350	10	10	0
McKenny	1,040	440	530	1,070	460	540	30	20	10
McLane	1,070	450	540	1,060	450	540	-10	0	0
Pioneer	800	340	400	830	350	420	30	10	20
Roosevelt	1,260	530	640	1,280	550	650	20	20	10
<b>Total</b>	<b>9,690</b>	<b>4,140</b>	<b>4,890</b>	<b>9,850</b>	<b>4,230</b>	<b>4,970</b>	<b>160</b>	<b>90</b>	<b>80</b>

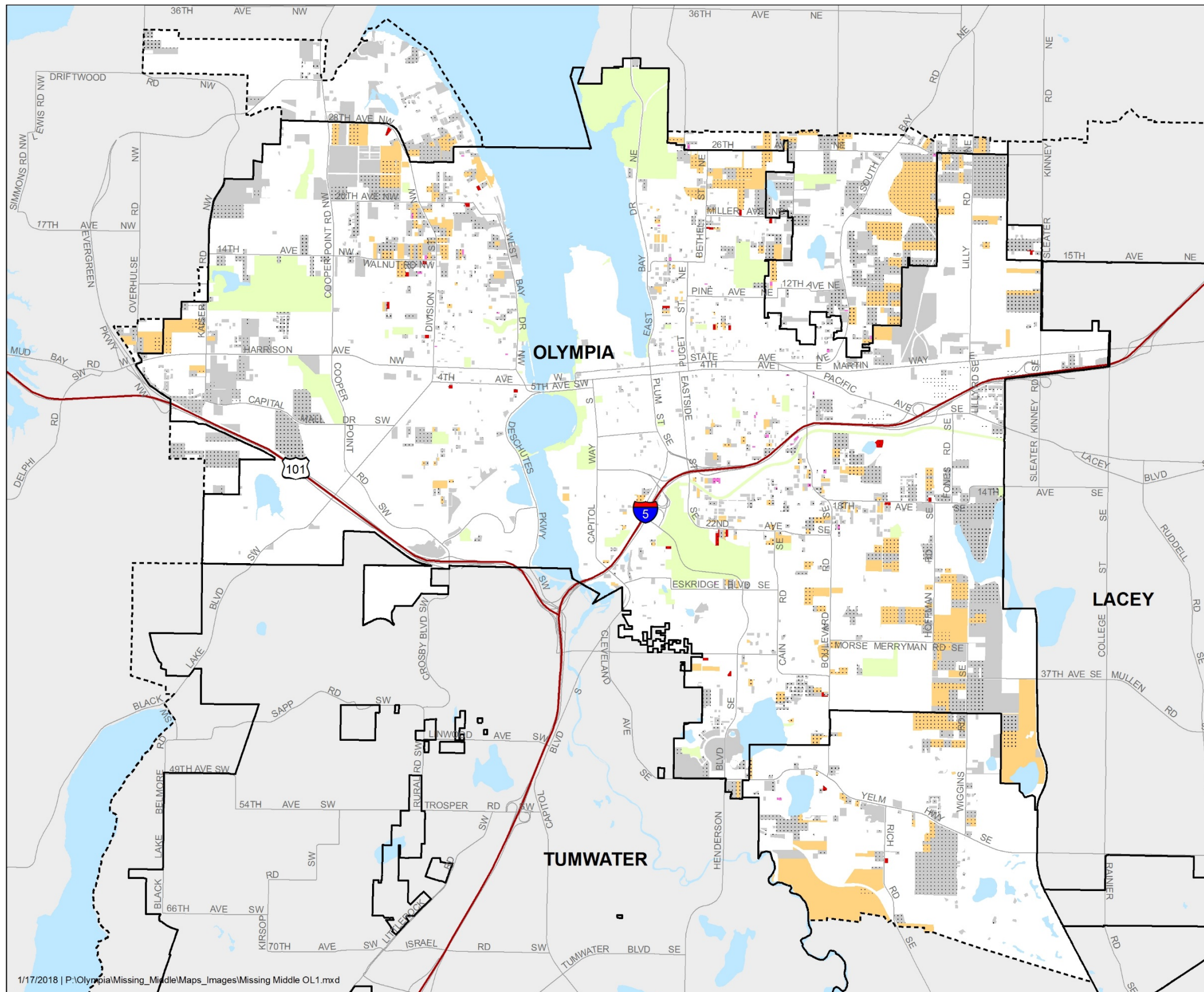
Note: Change in forecasted dwelling units calculated using the percent change in dwelling unit capacity and the student generation rates (Table 9).

**Table 9: Student Generation Rates (Students per Dwelling Unit)**

	Elementary	Middle	High	Total
Single-Family Dwelling	0.309	0.127	0.158	0.594
Multifamily Dwelling	0.119	0.059	0.057	0.235

Source: Olympia School District





## “Missing Middle” Residential Capacity Analysis

### Map 1: Parcels with Additional Residential Capacity: Low Scenario

#### Type of New Residential Capacity

Baseline	Low Scenario
<span style="color: red;">■</span> No capacity	2 or more units
<span style="color: magenta;">■</span> No capacity	<ul style="list-style-type: none"> <li>• Single family home</li> <li>• Multifamily (if existing structure is redeveloped)</li> </ul>
<span style="color: orange;">■</span> 1 or more unit	Increase from Baseline
<span style="color: gray;">■</span> 1 or more unit	No change from baseline
<span style="background-color: gray; border: 1px dotted black;">■</span> Parcel with existing dwelling and additional capacity in Baseline or Low Scenario	

#### Legend

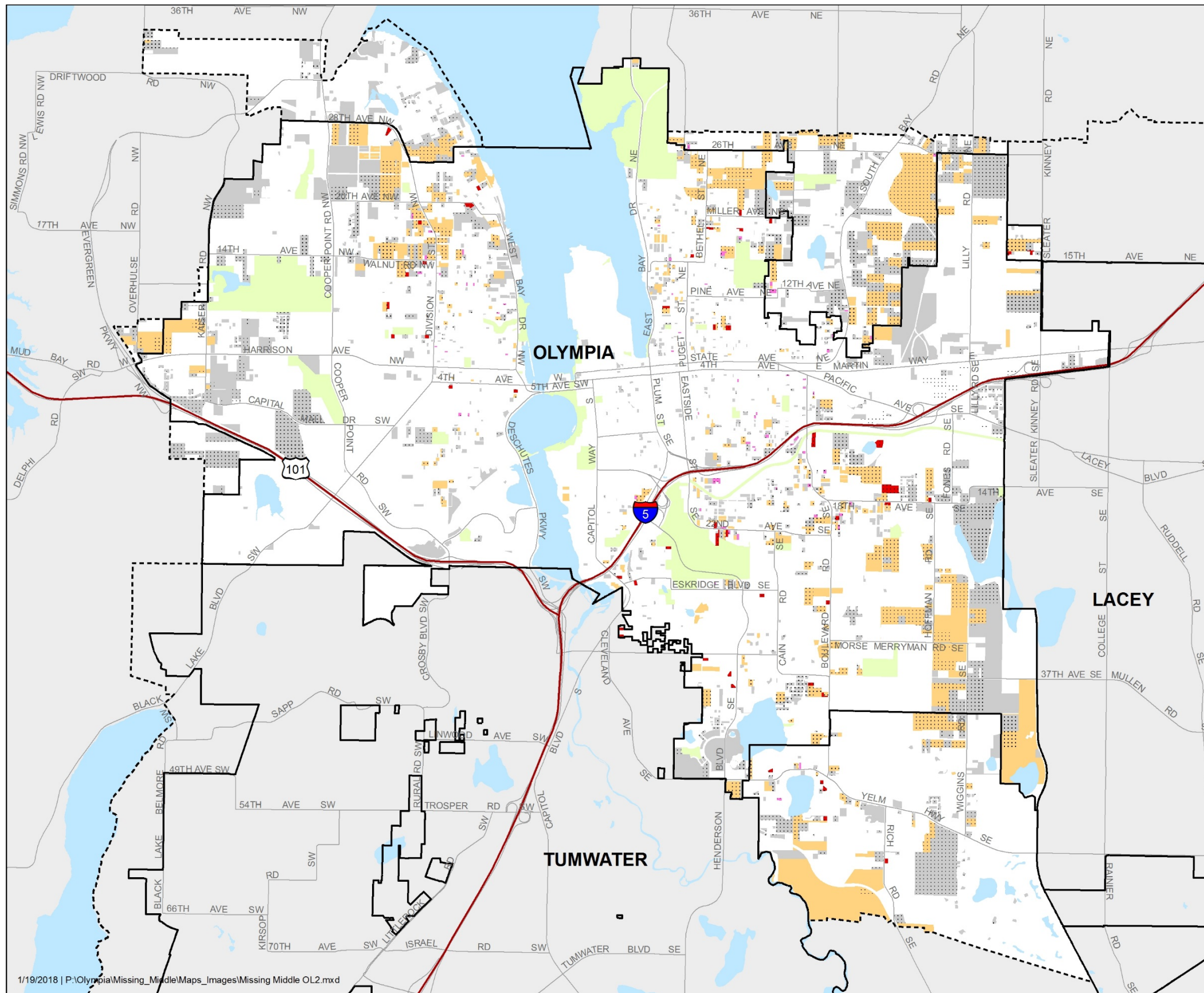
- City Limits
- Urban Growth Areas (UGA)
- Parks and Preserves

Note: "Residential capacity" is the modeled number of dwelling units that could be built on a parcel given existing development, zoning and development regulations, critical areas, and other assumptions. Capacity does not take into account reductions due to non-residential uses in residential zones (such as schools, parks, and churches) or capacity for accessory dwelling units or family member units.



DISCLAIMER: This map is for general planning purposes only. Thurston Regional Planning Council makes no representations as to the accuracy or fitness of the information for a particular purpose.





## “Missing Middle” Residential Capacity Analysis

### Map 2: Parcels with Additional Residential Capacity: High Scenario

#### Type of New Residential Capacity

Baseline	Low Scenario
<span style="color: red;">■</span> No capacity	2 or more units
<span style="color: magenta;">■</span> No capacity	• Single family home • Multifamily (if existing structure is redevelopd)
<span style="color: orange;">■</span> 1 or more unit	Increase from Baseline
<span style="color: grey;">■</span> 1 or more unit	No change from baseline
<span style="background-color: #cccccc; border: 1px dotted black;">■</span> Parcel with existing dwelling and additional capacity in Baseline or High Scenario	

#### Legend

- City Limits
- Urban Growth Areas
- Parks and Preserves

Note: "Residential capacity" is the modeled number of dwelling units that could be built on a parcel given existing development, zoning and development regulations, critical areas, and other assumptions. Capacity does not take into account reductions due to non-residential uses in residential zones (such as schools, parks, and churches) or capacity for accessory dwelling units or family member units.





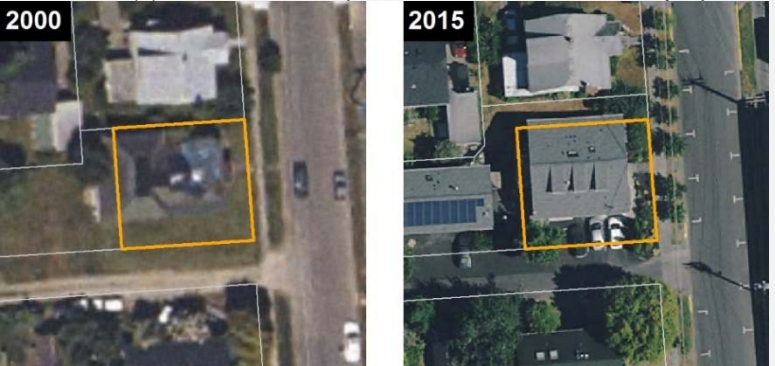



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APPENDIX I

Examples of single family residence demolitions and redeveloped properties.

<p><b>Not Redeveloped</b> Residence is demolished but no structure replaces it.</p> 	<p><b>Single-family</b> Residence is demolished and replaced with another single-family residence</p> 	<p><b>Subdivision</b> Residence is demolished as part of a new subdivision. The images below shows the Georgetown Estates subdivision, platted in 2002.</p> 
<p><b>Townhome</b> Residence is demolished and replaced with a townhome. The image below shows a two-unit townhome on Plymouth Street in Olympia.</p> 	<p><b>Multifamily</b> Residence is demolished and replaced with a duplex, triplex, or other multifamily structure(s), such as this triplex on Quince Street in Olympia.</p> 	<p><b>Commercial</b> Residence is demolished as part of a commercial redevelopment project.</p> 
<p><b>Government</b> Residence is demolished as part of a public works project – such as the roundabout on Yelm Highway pictured below – or other public project, such as a park or fire station.</p> 