

Appendix B. Capacity Analysis

This appendix documents the methodology used to develop the analysis of capacity on buildable land for the Gresham Housing Capacity Analysis (HCA). The appendix also provides detailed tables (by zone) for information presented in chapters 5 and 6 of the HCA document. ECONorthwest developed the assumptions for the capacity analysis in conversations with City staff. The key steps of the capacity analysis were:

1. Determine net density assumptions by zone, using either historic or maximum densities
2. Calculate gross density using the net to gross conversion methodology required by Metro.
3. Calculate dwelling unit capacity of buildable land by zone

Once capacity was calculated by zone, we summarized the information to compare to the demand for new dwelling units, which was calculated by zoning district groupings of lower, medium, and higher density zones. The calculation of land sufficiency (i.e., compare capacity to demand for new dwelling units over the 20-year period) is provided in Chapter 6.

Density Assumptions

Calculating dwelling unit capacity on buildable acres requires a density assumption for each zone. In some cities, historic data provides enough information to continue to assume historic densities will continue, while in other cities maximum density (or a percentage of maximum density) is a better assumption of what will occur over the 20-year period. Factors in these methodological decisions include availability of historic density information, reliability of permit data, and recent zoning changes.

Chapter 3 of the HCA (Exhibit 16) provides the results of the historic density analysis by zone for single-family and multifamily development in Gresham between 2000 and 2020. In discussion with Gresham City staff and in review of historic achieved densities compared to maximum densities defined for zones in the Gresham Development Code, we used a hybrid approach for density assumptions by zone:

- For zones where the historic data sample was large enough (e.g., more than 100 units built in low or medium density zones) or aligned with what City staff would expect, we assumed the historic density for future capacity over the 2021–2041 period.
- For zones where historic data was not available or not a sufficient sample size, we assumed 80% of maximum density for future capacity over the 2021–2041 period.

- For zones with no maximum density designated in the Gresham Development Code, we assigned the highest max density allocated to zones in the higher density zoning district grouping (60 dwelling units per acre, or 48 dwelling units per acre at 80% max density).

Exhibit 92 shows the density assumptions used for each zone. Zone highlighted in **blue** used a historic density assumption, and zones highlighted in **orange** used an 80% of maximum density assumption.

Exhibit 1. Density Assumptions by Zone, Gresham City Limits, Pleasant Valley, and Springwater, 2021

Source: City of Gresham, Metro RLIS, ECONorthwest analysis.

Zone	Historic Net Density	80% Max Density
Lower Density (less than 9 du/ac)		
Low Density Residential - Gresham Butte	1.3	0.8
Very Low Density Residential - Springwater	3.9	2.9
Low Density Residential - 7	3.7	5.0
Low Density Residential - Springwater	7.5	5.8
Low Density Residential - 5	7.4	7.0
Low Density Residential - Pleasant Valley	8.2	6.3
Medium Density (9-24 du/ac)		
Moderate Density Residential - 12	8.3	9.7
Office Residential	18.9	9.7
Downtown Residential Low-Rise-1	7.6	10.0
Transit Low Density Residential	10.7	16.0
Moderate Commercial	7.4	32.0
Townhouse Residential - Springwater	15.9	13.9
Moderate Density Residential - Pleasant Valley	8.4	16.0
Moderate Density Residential - 24	19.2	19.4
Transition Residential	17.2	14.5
Corridor Multi-Family	18.0	19.2
Corridor Mixed Use	21.6	19.2
Higher Density (more than 24 du/ac)		
High Density Residential - Pleasant Valley	n/a	24.0
Rockwood Town Center	22.8	32.0
Town Center - Pleasant Valley	n/a	32.0
Community Commercial	8.6	32.0
Civic Neighborhood Residential Mid-Rise	25.9	24.0
Civic Neighborhood Transit Moderate Density	49.5	48.0
Downtown Mixed Use	22.3	48.0
Downtown Residential Low-Rise-2	27.8	48.0
Downtown Transit Mid-Rise	29.1	48.0
Mixed Use Employment - Pleasant Valley	n/a	48.0
Station Center	36.8	48.0
Downtown Commercial Core	44.5	48.0
Downtown Commercial Low-Rise	n/a	48.0
Downtown Employment Mid-Rise	n/a	48.0
Neighborhood Commercial - Pleasant Valley	n/a	48.0
Village Commercial - Springwater	n/a	48.0
Civic Neighborhood Transit High Density	60.0	48.0

Net to Gross Density

The next step in the capacity analysis was to convert net densities to gross densities. As described in Chapter 5, Metro requires cities to use a net to gross density conversion based on site size using the following methodology:

- Tax lots under 3/8 acre: assume a 0% set aside for future streets
- Tax lots between 3/8 acre and 1 acre: assume a 10% set aside for future streets
- Tax lots greater than an acre: assume an 18.5% set aside for future streets.

Exhibit 93 shows the net to gross density conversions for each zone for the historic or maximum density assumption as shown in Exhibit 92.

Exhibit 2. Net to Gross Density Conversion by Zone, Gresham City Limits, Pleasant Valley, and Springwater, 2021

Source: ECONorthwest analysis.

Zones	Tax Lots Smaller than 0.38 acre			Tax Lots > 0.38 and < 1.0 acre			Tax Lots larger than 1.0 acre		
	Net Density (DU/net acre)	% for Rights-of-Way	Gross Density (DU/gross acre)	Net Density (DU/net acre)	% for Rights-of-Way	Gross Density (DU/gross acre)	Net Density (DU/net acre)	% for Rights-of-Way	Gross Density (DU/gross acre)
Lower Density (less than 9 du/ac)									
Low Density Residential - Gresham Butte	0.8	0%	0.8	0.8	10%	0.7	0.8	18.5%	0.7
Very Low Density Residential - Springwater	2.9	0%	2.9	2.9	10%	2.6	2.9	18.5%	2.3
Low Density Residential - 7	3.7	0%	3.7	3.7	10%	3.4	3.7	18.5%	3.1
Low Density Residential - Springwater	5.8	0%	5.8	5.8	10%	5.3	5.8	18.5%	4.8
Low Density Residential - 5	7.4	0%	7.4	7.4	10%	6.7	7.4	18.5%	6.0
Low Density Residential - Pleasant Valley	8.2	0%	8.2	8.2	10%	7.4	8.2	18.5%	6.7
Medium Density (9-24 du/ac)									
Moderate Density Residential - 12	9.7	0%	9.7	9.7	10%	8.7	9.7	18.5%	7.9
Office Residential	9.7	0%	9.7	9.7	10%	8.7	9.7	18.5%	7.9
Downtown Residential Low-Rise-1	10.0	0%	10.0	10.0	10%	9	10.0	18.5%	8.1
Transit Low Density Residential	10.7	0%	10.7	10.7	10%	9.6	10.7	18.5%	8.7
Moderate Commercial	32.0	0%	32.0	32.0	10%	28.8	32.0	18.5%	26.1
Townhouse Residential - Springwater	15.9	0%	15.9	15.9	10%	14.3	15.9	18.5%	13.0
Moderate Density Residential - Pleasant Valley	16.0	0%	16.0	16.0	10%	14.4	16.0	18.5%	13.0
Moderate Density Residential - 24	19.2	0%	19.2	19.2	10%	17.3	19.2	18.5%	15.7
Transition Residential	17.2	0%	17.2	17.2	10%	15.4	17.2	18.5%	14.0
Corridor Multi-Family	18.0	0%	18.0	18.0	10%	16.2	18.0	18.5%	14.7
Corridor Mixed Use	21.6	0%	21.6	21.6	10%	19.5	21.6	18.5%	17.6
Higher Density (more than 24 du/ac)									
High Density Residential - Pleasant Valley	24.0	0%	24.0	24.0	10%	21.6	24.0	18.5%	19.6
Rockwood Town Center	22.8	0%	22.8	22.8	10%	20.5	22.8	18.5%	18.6
Town Center - Pleasant Valley	32.0	0%	32.0	32.0	10%	28.8	32.0	18.5%	26.1
Community Commercial	32.0	0%	32.0	32.0	10%	28.8	32.0	18.5%	26.1
Civic Neighborhood Residential Mid-Rise	25.9	0%	25.9	25.9	10%	23.3	25.9	18.5%	21.1
Civic Neighborhood Transit Moderate Density	49.5	0%	49.5	49.5	10%	44.6	49.5	18.5%	40.4
Downtown Mixed Use	22.3	0%	22.3	22.3	10%	20.1	22.3	18.5%	18.2
Downtown Residential Low-Rise-2	27.8	0%	27.8	27.8	10%	25	27.8	18.5%	22.6
Downtown Transit Mid-Rise	29.1	0%	29.1	29.1	10%	26.2	29.1	18.5%	23.7
Mixed Use Employment - Pleasant Valley	48.0	0%	48.0	48.0	10%	43.2	48.0	18.5%	39.1
Station Center	36.8	0%	36.8	36.8	10%	33.1	36.8	18.5%	30.0
Downtown Commercial Core	44.5	0%	44.5	44.5	10%	40.1	44.5	18.5%	36.3
Downtown Commercial Low-Rise	48.0	0%	48.0	48.0	10%	43.2	48.0	18.5%	39.1
Downtown Employment Mid-Rise	48.0	0%	48.0	48.0	10%	43.2	48.0	18.5%	39.1
Neighborhood Commercial - Pleasant Valley	48.0	0%	48.0	48.0	10%	43.2	48.0	18.5%	39.1
Village Commercial - Springwater	48.0	0%	48.0	48.0	10%	43.2	48.0	18.5%	39.1
Civic Neighborhood Transit High Density	60.0	0%	60.0	60.0	10%	54	60.0	18.5%	48.9

Calculate Capacity

The final step in the capacity analysis was to calculate dwelling unit capacity by zone using the gross density assumptions in Exhibit 93 and the number of buildable acres in Exhibit 90. For commercial zones, we did not assume all of the buildable acres would develop as residential uses. Using the data from the historical density analysis, we found that about 7% of developed commercial land in Gresham was developed with commercial uses. Zones included in the commercial land capacity calculation were:

- Office Residential
- Moderate Commercial
- Community Commercial
- Downtown Commercial Core
- Downtown Commercial Low-Rise
- Downtown Employment Mid-Rise
- Neighborhood Commercial - Pleasant Valley
- Town Center – Pleasant Valley
- Mixed Use Employment – Pleasant Valley
- Village Commercial - Springwater

Exhibit 94 shows the dwelling unit capacity by zone. It also incorporates the additional planned units referenced in Chapter 2, owned by Gresham Redevelopment Commission (108 units) and Albertina Kerr (150 units). Gresham has capacity for 12,609 dwelling units at an average gross density of 9.4 dwelling units per acre, and an average net density of 11 dwelling units per acre.

Exhibit 3. Dwelling Unit Capacity by Zone, Gresham City Limits, Pleasant Valley, Springwater, 2021

Source: City of Gresham, Metro RLIS, ECONorthwest analysis.

Zones	Tax Lots Smaller than 0.38 acre			Tax Lots > 0.38 and < 1.0 acre			Tax Lots larger than 1.0 acre			Total, combined		
	Buildable Acres	Density Assumption (DU/gross acre)	Capacity (Dwelling Units)	Buildable Acres	Density Assumption (DU/gross acre)	Capacity (Dwelling Units)	Buildable Acres	Density Assumption (DU/gross acre)	Capacity (Dwelling Units)	Additional Planned Units	Buildable Acres	Capacity (Dwelling Units)
Lower Density (less than 9 du/ac)	116	6.3	727	109	5.7	621	751	5.6	4196		976	5,544
Low Density Residential - Gresham Butte	1	0.8	1	1	0.7	-	7	0.7	4		9	5
Very Low Density Residential - Springwater	0	2.9	1	1	2.6	1	37	2.3	84		38	86
Low Density Residential - 7	35	3.7	128	31	3.4	106	73	3.1	225		139	459
Low Density Residential - Springwater	1	5.8	5	1	5.3	5	110	4.8	529		112	539
Low Density Residential - 5	77	7.4	571	65	6.7	434	220	6.0	1,322		362	2,327
Low Density Residential - Pleasant Valley	3	8.2	21	10	7.4	75	303	6.7	2,032		316	2,128
Medium Density (9-24 du/ac)	11	16.6	187	68	15.9	1077	204	12.5	2552	150	283	3,966
Moderate Density Residential - 12	0	9.7	4	0	8.7	-	1	7.9	10		2	14
Office Residential	0	9.7	-	0	8.7	-	0	7.9	-		0	-
Downtown Residential Low-Rise-1	2	10.0	15	1	9.0	8	45	8.1	-		2	23
Transit Low Density Residential	2	10.7	16	9	9.6	88	45	8.7	389		56	493
Moderate Commercial	0	32.0	4	1	28.8	27	3	26.1	73		4	104
Townhouse Residential - Springwater	0	15.9	3	1	14.3	11	14	13.0	184		15	198
Moderate Density Residential - Pleasant Valley	1	16.0	10	3	14.4	40	109	13.0	1,411		112	1,461
Moderate Density Residential - 24	0	19.2	6	8	17.3	140	4	15.7	59		12	205
Transition Residential	2	17.2	34	14	15.4	221	17	14.0	233		33	488
Corridor Multi-Family	1	18.0	22	15	16.2	244	4	14.7	63	150	21	479
Corridor Mixed Use	3	21.6	73	15	19.5	298	7	17.6	130		26	501
Higher Density (more than 24 du/ac)	11	44.8	492	20	37.4	734	58	30.5	1765	108	89	3,099
High Density Residential - Pleasant Valley	0	24.0	2	2	21.6	38	17	19.6	341		19	381
Rockwood Town Center	2	32.0	67	5	28.8	138	3	26.1	67	108	10	380
Town Center - Pleasant Valley	0	32.0	-	0	28.8	-	2	26.1	56		2	56
Community Commercial	0	32.0	-	0	28.8	4	1	26.1	15		1	19
Civic Neighborhood Residential Mid Rise	0	25.9	-	0	23.3	-	8	21.1	173		8	173
Civic Neighborhood Transit Moderate Density	0	49.5	-	1	44.6	53	15	40.4	593		16	646
Downtown Mixed Use	0	48.0	14	0	43.2	-	0	39.1	-		0	14
Downtown Residential Low-Rise-2	2	48.0	77	1	43.2	56	1	39.1	43		4	176
Downtown Transit Mid-Rise	3	48.0	144	3	43.2	129	0	39.1	-		6	273
Mixed Use Employment - Pleasant Valley	0	48.0	-	0	43.2	1	2	39.1	76		2	77
Station Center	3	48.0	163	7	43.2	306	3	39.1	105		13	574
Downtown Commercial Core	0	48.0	6	0	43.2	4	0	39.1	-		0	10
Downtown Commercial Low-Rise	0	48.0	4	0	43.2	3	0	39.1	-		0	7
Downtown Employment Mid-Rise	0	48.0	3	0	43.2	-	0	39.1	4		0	7
Neighborhood Commercial - Pleasant Valley	0	48.0	-	0	43.2	2	1	39.1	28		1	30
Village Commercial - Springwater	0	48.0	-	0	43.2	-	1	39.1	49		1	49
Civic Neighborhood Transit High Density	0	60.0	12	0	54.0	-	4	48.9	215		5	227
Total	139	-	1,406	197	-	2,432	1,013	-	8,513	108	1,348	12,609