

# Land Capacity

## Comprehensive Plan Update – Integration of Draft Land Use Element and Existing Conditions Report Land Capacity Analysis

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### Purpose

The Existing Conditions and Trends Report (March 2017)<sup>1</sup> lays out the City’s long-standing method in calculating land capacity for the current Comprehensive Plan Land Use Plan / Zoning Map, comparing it to a County method (see Chapter 2 and Appendix C of the report).

As the Draft Comprehensive Plan Update has evolved, the Land Capacity results have been updated in the Draft Land Use Element (pp. 2-18 and 2-19)<sup>2</sup>, most recently for the Planning Commission Recommendations in July 2017.

Various maps have been prepared to support the Comprehensive Plan and Municipal Code Amendments, and provided at public workshops last November 2016, and February and March 2017 including vacant and underutilized land, critical areas, and others.<sup>3</sup> This document integrates the Land Capacity results of the various identified reports.

### Background and Analysis

The City of Chelan is considering its appropriate boundary for growth in its Comprehensive Plan Update for the years 2017-2037.

Counties are responsible for allocating population growth and setting urban growth area (UGA) boundaries in consultation with cities (RCW 36.70A.110). UGAs are to include areas already characterized by urban development

<sup>1</sup> Existing Conditions and Trends Report, March 9, 2017, available: [https://cityofchelan.us/pdftdocs/2017/03/4\\_Existing-Conditions-Report\\_2017\\_0309\\_wAppx.pdf](https://cityofchelan.us/pdftdocs/2017/03/4_Existing-Conditions-Report_2017_0309_wAppx.pdf).

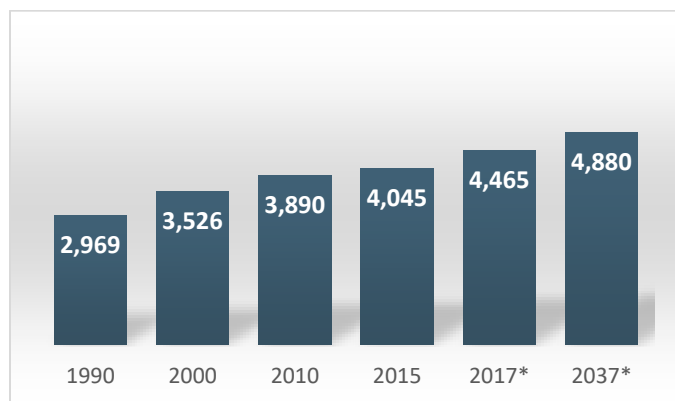
<sup>2</sup> Draft Comprehensive Plan Update, July 19, 2017, available: [https://cityofchelan.us/pdftdocs/2017/07/2\\_Consolidated\\_Elements\\_2017\\_0719\\_PC\\_-met.pdf](https://cityofchelan.us/pdftdocs/2017/07/2_Consolidated_Elements_2017_0719_PC_-met.pdf).

<sup>3</sup> February 2017 Workshop Results with maps: [https://cityofchelan.us/pdftdocs/2017/03/Chelan-Land-Use-Workshop-Summary-Notes\\_2017\\_0227\\_wAppx.pdf](https://cityofchelan.us/pdftdocs/2017/03/Chelan-Land-Use-Workshop-Summary-Notes_2017_0227_wAppx.pdf). March 2017 Workshop Results with maps: [https://cityofchelan.us/pdftdocs/2017/08/March-2017-Outreach-Summary-2017\\_04\\_wattch\\_sm.pdf](https://cityofchelan.us/pdftdocs/2017/08/March-2017-Outreach-Summary-2017_04_wattch_sm.pdf).

or adjacent to areas characterized by urban development. These UGAs should include “areas and densities sufficient to permit the urban growth that is projected to occur in the county or city for the succeeding twenty-year period.” (RCW 36.70a.110 (2)) Designated UGAs must also have services available or planned to support future urban growth in these areas.

Chelan’s permanent city population is about 4,045. The Unincorporated UGA is estimated to have another 355 residents, for a total City and UGA population of about 4,400 as of 2015. By 2017, the City and UGA are anticipated to grow slightly to 4,465 persons. Based on growth allocations developed by Chelan County, Chelan city limits and UGA would add about 415 people for a total of 4,880 people over the 2017 to 2037 period.

#### **Exhibit 1. Chelan: Permanent Population 1990-2037**



City population 1990-2015 \*2017 and 2037 = City + unincorporated UGA

Source: Washington State Office of Financial Management 2015, Chelan County Resolution 2015-112, BERK Consulting 2016

Chelan’s average annual growth rate was 1.24% during 1990-2015. During 2017-2037 the rate slows to 0.45% based on county targets. If the City grew at the rate of 1.24% over the 20-year period, the net change in permanent population would be more like 1,254.

While population is a key driver of the UGA sizing, the City and County must consider other uses: “As part of this planning process, each city within the county must include areas sufficient to accommodate the broad range of needs and uses that will accompany the projected urban growth including, as appropriate, medical, governmental, institutional, commercial, service, retail, and other nonresidential uses.” (RCW 36.70a.110 (2))

Since the City’s economy is tied to tourism and recreation, the incorporation of employment uses including resort and tourism accommodations is important to the mix of uses in the community. Further, the City has a traditional downtown, a large-format commercial area at the Apple Blossom Center, and an industrial and in the east part of town and wishes to have family wage jobs.

### **Chelan County Method**

Chelan County uses a method that identifies vacant land as areas that are not tax exempt and that have a low improvement value of less than \$15,000 and a parcel size greater than 4,000 square feet (0.092 of an acre). Land that does not meet these considerations is considered built and not part of the analysis. Other assumptions and steps include removing critical areas (based on zone-wide percentages) and land for public facilities, as well as market factor, and assumption that some land will be developed with larger lots.

Between 2017 and 2037, the City of Chelan and corresponding UGA would increase from a population of 4,465 to 4,880 or 415 people. Given the current persons per household of 2.38, the City and UGA will need to provide an additional 174 dwellings. The Land Supply analysis, summarized below, indicates that the City and UGA has the capacity to serve 11,491 persons or 4,828 future residential building lots.

The County's analysis addresses a request by the City to reduce the UGA in three locations and to increase it in a minor way due to a property owner request:

*The City of Chelan has requested a reduction in the UGA boundary in three areas; one area to the north contains split, UGA and County, jurisdiction; and, the other two areas, south and east, were requested reductions from the property owners. The total reduction would be approximately 745 acres.*

*Additionally, there is a property owner request to include 0.74 acre lot within the UGA boundary, west of Tuscan Village Planned Development. This minor inclusion is on land already developed residential lot would not impact the Land Supply analysis.*

*The County is recommending a reduction in the UGA by approximately 745 acres, as requested by the City, and the minor expansion as requested by Lucas Evans for parcel 27-22-17-140-060 of 0.74 acres.*

## Exhibit 2. Chelan County Land Capacity Analysis of the City of Chelan and its UGA

	Vacant Land	Public Infrastructure (25%)	Critical Areas (10%)	Market Factor (25%)	Economic Impact (0%)	Conversion of Use (30% in UGA)	Ancillary Uses (49%)	Density Allowance per acre	Possible Lots	2010 Census Persons Per Household	Estimated Population Served
<b>Chelan City</b>											
Single-Family Residential	711.3	533.5	480.1	360.1	360.1	360.1	183.6	0.14	1312		
Multi-Family Residential	75.7	56.8	51.1	38.3	38.3	38.3	19.5	0.12	163		
Tourist Accommodations	947.6	710.7	639.6	479.7	479.7	479.7	244.7	0.12	2039		
Special Use District	88.9	66.7	60.0	45.0	45.0	45.0	23.0	0.17	135		
<b>CITY TOTALS</b>	<b>1823.5</b>	<b>1367.6</b>	<b>1230.9</b>	<b>923.1</b>	<b>923.1</b>	<b>923.1</b>	<b>470.8</b>	<b>n/a</b>	<b>3648</b>	<b>2.38</b>	<b>8,683</b>
<b>Urban Growth Area</b>											
Single-Family Residential	269.7	202.3	182.0	136.5	136.5	95.6	48.7	0.14	348		
Multi-Family Residential	0	0.0	0.0	0.0	0.0	0.0	0.0	0.12	0		
Tourist Accommodations	253.2	189.9	170.9	128.2	128.2	89.7	45.8	0.12	381		
Special Use District	153.9	115.4	103.9	77.9	77.9	54.5	27.8	0.17	164		
<b>UGA TOTALS</b>	<b>676.8</b>	<b>507.6</b>	<b>456.8</b>	<b>342.6</b>	<b>342.6</b>	<b>239.8</b>	<b>122.3</b>	<b>n/a</b>	<b>893</b>	<b>2.38</b>	<b>2,126</b>

Source: Chelan County 2016

The County's analysis indicates a capacity for 10,809 persons. UGA reductions would slightly reduce growth capacity as follows. Results show a loss of 18 dwelling units or 43 population capacity, approximately. It would not change the County's overall conclusions that the City and UGA can meet the growth target assigned.

## Exhibit 3. Chelan County Method: Capacity to be Withdrawn with UGA Reductions

<b>UGA Exclusion Areas</b>	<b>R-L</b>	<b>T-A</b>	<b>W-I</b>
<b>Vacant</b>	88.54	245.36	110.29
<b>Public (25%)</b>	66.40	184.02	82.72
<b>Critical Area (10%)</b>	6.64	18.40	8.27
<b>Market (25%)</b>	1.66	4.60	2.07
<b>Conversion (30%)</b>	1.16	3.22	1.45
<b>Ancillary (49%)</b>	0.59	1.64	0.74

<b>UGA Exclusion Areas</b>	<b>R-L</b>	<b>T-A</b>	<b>W-I</b>
<b>Density Allowance</b>	0.14	0.12	-
<b>Total Possible DU</b>	4.23	13.69	-
<b>PPDU</b>	2.38	2.38	-
<b>Pop Capacity</b>	<b>10.08</b>	<b>32.57</b>	-

Source: BERK Consulting 2016

## City Land Capacity Methods

The City's land capacity method is similar to Comprehensive Plan Appendices C and G, and summarized below. The City deductions are more tailored by zone, and updated to the latest GIS information and American Community Survey (ACS) estimates for 2014.

### Exhibit 4. City of Chelan Land Capacity: Table of Assumptions

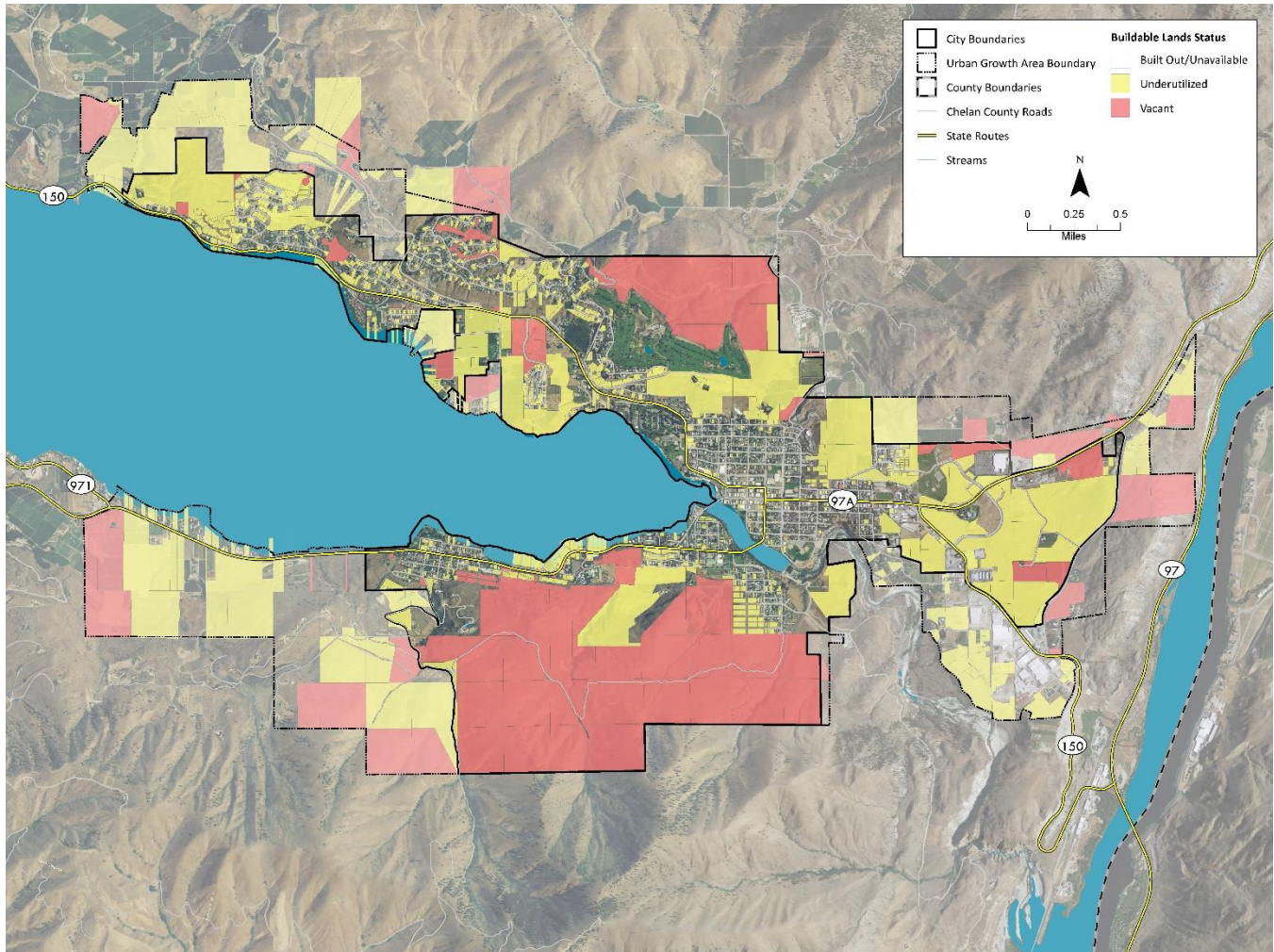
<b>Factor</b>	<b>Assumption</b>	<b>Sources</b>
<b>Vacant Land</b>	Use Code	Assessor Code, Excluding Tax Exempt
<b>Underutilized Land</b>	Formula	Assessor Market Land Value > 50% of Improvement Value (e.g. Orchards); Excluding Tax Exempt
<b>Slope Factor: GIS Based</b>	40.00	GIS Deduction
<b>Safety Market Deduction</b>	0.25	Comp Plan Appendices C & G
<b>Public Purpose Deduction</b>	0.25	Comp Plan Appendices C & G
<b>Unavailable Land Deduction</b>		
R-L	0.30	Comp Plan Appendices C & G
R-M	0.20	Comp Plan Appendices C & G
SUD	0.50	Comp Plan Appendices C & G
T-A	0.50	Comp Plan Appendices C & G
<b>Density Multiplier: Current Plan</b>		
R-L	3.0	Comp Plan Appendices C & G
R-M	9.0	Comp Plan Appendices C & G
SUD	3.0	Comp Plan Appendices C & G
T-A	3.0	Comp Plan Appendices C & G
<b>Density Multiplier: Draft Plan July 2017</b>		
R-L	3.0	Comp Plan Appendices C & G
R-M / DMR	9.0	Comp Plan Appendices C & G
SUD	1.7	Draft Comprehensive Plan Land Use Element
T-A	1.0	Draft Comprehensive Plan Land Use Element
<b>Seasonal Occupancy: General Discount</b>	0.32	ACS 2010-2014
<b>Seasonal Occupancy: T-A Discount</b>	0.75	Comp Plan Appendices C & G
<b>Persons Per Dwelling Unit</b>	2.35	ACS 2010-2014

Note: ACS = American Community Survey

Source: City of Chelan 2011; BERK Consulting 2016

The lands considered as vacant and underutilized in the analysis are identified in the following map. It should be noted that some lands may develop and others may not regardless of the analysis, based on property owner wishes, market conditions, applicable regulations, etc. The map identifies those with more potential to change based on the method. The purpose of the analysis is to identify sufficient capacity to meet population growth targets.

## Exhibit 5. Gross Vacant and Underutilized Lands per Land Capacity Method – Current Planning Area

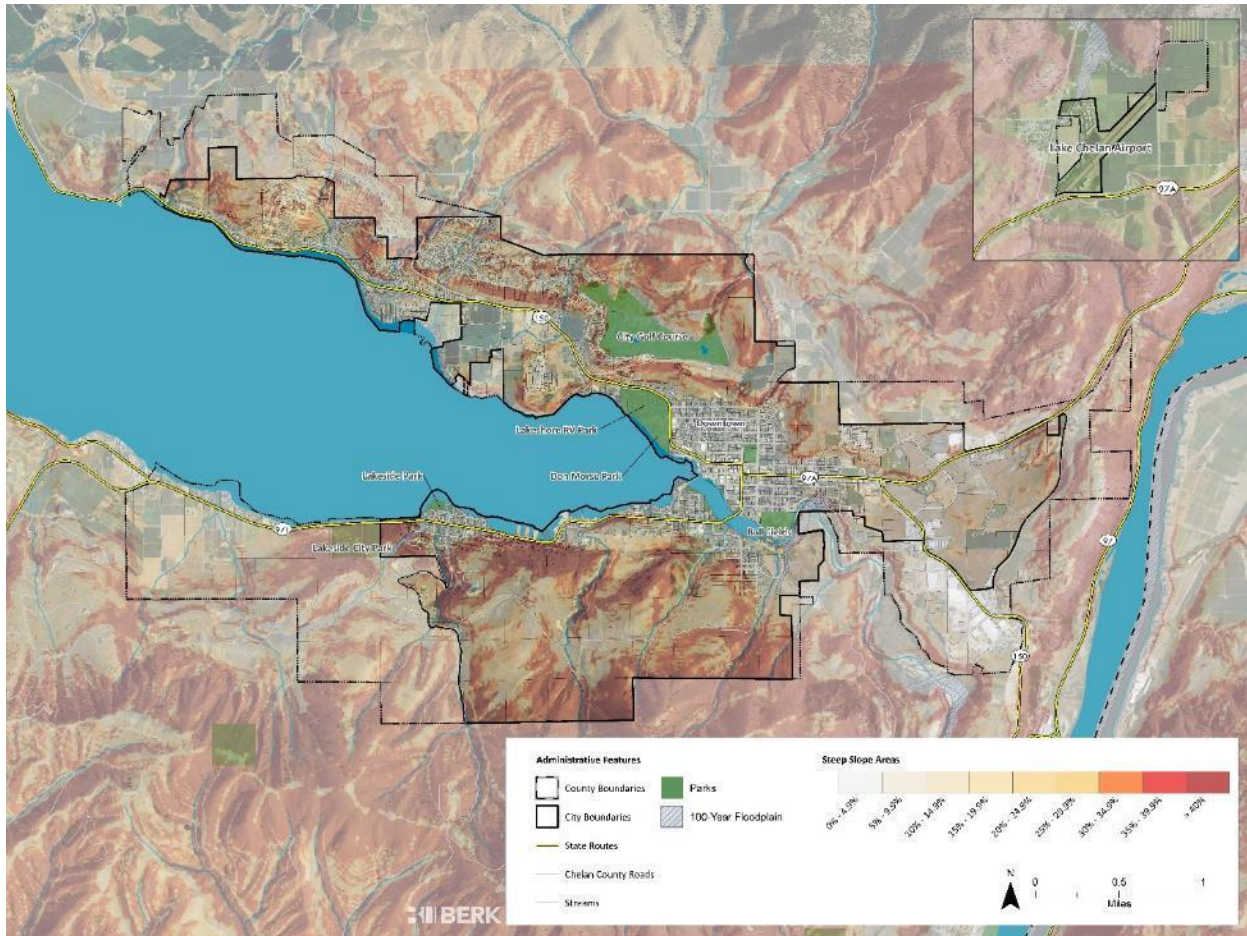


Source: BERK Consulting 2017

Steep slopes above 40% are removed in the City's land capacity method. The City's Critical Areas regulations limit clearing on steep slopes. Development is possible but limited on such slopes, particularly above 40%. A map of steep slopes has been developed as part of the Comprehensive Plan Update, as shown below.



## Exhibit 6. Steep Slopes in 5 Percent Increments



Source: University of Washington, BERK Consulting 2017

Note: The steep slopes shown were generated by using geographic information system software to convert a digital elevation model (DEM). The DEM was created from satellite imagery of the area and was taken in 10-meter resolution.

## Current Comprehensive Plan – Land Capacity

Results of the City's methods show less population capacity than the County's method, though growth targets can be met in the city limits.

### Exhibit 7. City of Chelan Land Capacity Analysis – Current Plan: City Limits

City	R-L	R-M	SUD	T-A
1. Sum Gross Vacant and Underutilized Acres, Excluding Tax Exempt	779.4	129.8	172.6	963.8
2. 40% Slopes	260.5	6.2	-	272.3
3. Net Vacant and Underutilized Acres, Excluding Slopes (1-2)	518.9	123.7	172.6	691.6
4. Deduct Safety Market Factor (25%)	389.2	92.7	129.4	518.7
5. Deduct Streets/Roads/Public Purposes (25%)	291.9	69.6	97.1	389.0
6. Deduct Land Unavailable (20-50%)	204.3	55.6	48.5	194.5
7. Multiply by Density Assumption for Zone	3	9	3	3
8. Gross Units	613.0	500.8	145.6	583.5
9. Deduct Seasonal Unit Occupancy (32-75%)	416.8	340.6	99.0	145.9
10. Total year Round Population (PPDU 2.35)	980	800	233	343
<b>Total Population Capacity: City Limits</b>	<b>2,355</b>			

Source: BERK Consulting 2016

The population capacity of the UGA is less than the city limits but still consequential.

**Exhibit 8. City of Chelan Land Capacity Analysis – Current Plan: UGA**

UGA	R-L	R-M	SUD	T-A
1. Sum Gross Vacant and Underutilized Acres, Excluding Tax Exempt	533.41	-	392.42	285.46
2. 40% Slopes	32.66	-	0.84	-
3. Net Vacant and Underutilized Acres, Excluding Slopes (1-2)	500.8	-	391.6	285.5
4. Deduct Safety Market Factor (25%)	375.6	-	293.7	214.1
5. Deduct Streets/Roads/Public Purposes (25%)	281.7	-	220.3	160.6
6. Deduct Land Unavailable (20-50%)	197.2	-	110.1	80.3
7. Multiply by Density Assumption for Zone	3.00	9.00	3.00	3.00
8. Gross Units	591.5	-	330.4	240.9
9. Deduct Seasonal Unit Occupancy (32-75%)	402.2	-	224.7	60.2
10. Total year Round Population (PPDU 2.35)	945	-	528	142
<b>Total Population Capacity: UGA</b>	<b>1,615</b>			

Source: BERK Consulting 2016

The initial analysis of land capacity in March 2017 also considered potential changes in land capacity on the Butte and in UGAs to support the Comprehensive Plan Update. If excluding the Butte area (TA zone upslope from state route in city limits) from residential capacity, such as if it were predominantly used for non-residential uses (e.g. hotel, recreation, and trail uses, the capacity loss would be 272 persons. If excluding the proposed UGA reduction areas contemplated in Fall 2016, the loss of capacity would be about 175 persons.

In any case, the City's land capacity results for the Current Comprehensive Plan shows one-third the population capacity of the County's method. Growth targets can be met with or without the capacity of the Butte or the UGA exclusion areas.

**Exhibit 9. City of Chelan Land Capacity Analysis – Current Plan: Summary**

<b>City + UGA Capacity Full 2016 Boundaries</b>	<b>3,970</b>
Butte Population	272
UGA Exclusion Population	175
<b>City +UGA with Butte as non-residential and reducing UGA</b>	<b>3,523</b>
<b>Growth Target City+UGA: 2017-2037</b>	<b>415</b>
<b>Surplus (Deficit)</b>	<b>3,108</b>

Source: BERK Consulting 2016

*Comprehensive Plan Update July 2017 – Land Capacity*

Based on the Planning Commission recommended Future Land Use Plan / Zoning, land capacity would be lower given the UGA boundaries and balance of R-L, R-M, DMR, SUD, and T-A lands. Nevertheless, the City can more than meet its growth target.

**Exhibit 10. City of Chelan Land Capacity Analysis – City Limits: Planning Commission Recommended Plan**

City	R-L	R-M	DMR	SUD	T-A
1.Sum Gross Vacant and Underutilized Acres, Excluding Tax Exempt	643.7	174.2	38.1	173.9	1,021.4
2. 40% Slopes	260.5	6.2	-	-	272.3
3. Net Vacant and Underutilized Acres, Excluding Slopes (1-2)	383.2	168.0	38.1	173.9	749.1
4. Deduct Safety Market Factor (25%)	287.4	126.0	28.6	130.4	561.8
5. Deduct Streets/Roads/Public Purposes (25%)	215.6	94.5	21.4	97.8	421.4
6. Deduct Land Unavailable (20-50%)	150.9	75.6	17.1	48.9	210.7
7. Multiply by Density Assumption for Zone	3	9	9	1.7	1.0
8. Gross Units	452.7	680.6	154.2	81.7	210.7
9. Deduct Seasonal Unit Occupancy (32-75%)	307.8	462.8	104.9	55.5	52.7
10. Total year Round Population (PPDU 2.35)	723	1,088	246	131	124
<b>Total Population Capacity: City Limits</b>	<b>2,312</b>				

Note: For a conservative analysis, the density assumptions for SUD and T-A reflect lower range assumptions in the proposed plan and code changes for the Gateways and Butte; however, within development clusters, the net densities are similar to 3 du /ac and would then increase capacity.

Source: BERK Consulting 2017

**Exhibit 11. City of Chelan Land Capacity Analysis – UGA: Planning Commission Recommended Plan**

UGA	R-L	R-M	DMR	SUD	T-A
1.Sum Gross Vacant and Underutilized Acres, Excluding Tax Exempt	266.58	10.13	-	392.42	-
2. 40% Slopes	32.66	-	-	0.84	-
3. Net Vacant and Underutilized Acres, Excluding Slopes (1-2)	233.9	10.1	-	391.6	-
4. Deduct Safety Market Factor (25%)	175.4	7.6	-	293.7	-
5. Deduct Streets/Roads/Public Purposes (25%)	131.6	5.7	-	220.3	-
6. Deduct Land Unavailable (20-50%)	92.1	4.6	-	110.1	-
7. Multiply by Density Assumption for Zone	3	9	9	1.7	1.0
8. Gross Units	276.3	41.0	-	183.9	-
9. Deduct Seasonal Unit Occupancy (32-75%)	187.9	27.9	-	125.1	-
10. Total year Round Population (PPDU 2.35)	442	66	-	294	-
<b>Total Population Capacity: UGA</b>	<b>801</b>				

Note: For a conservative analysis, the density assumptions for SUD and T-A reflect lower range assumptions in the proposed plan and code changes for the Gateways and Butte; however, within development clusters, the net densities are similar to 3 du /ac and would then increase capacity.

Source: BERK Consulting 2017

**Exhibit 12. City of Chelan Land Capacity Analysis – Proposed July 2017 Plan**

<b>City + UGA Capacity July 2017 Boundaries</b>	<b>3,113</b>
<b>Growth Target City+UGA: 2017-2037</b>	<b>415</b>
<b>Surplus (Deficit)</b>	<b>2,698</b>