

DRAFT KITTITAS COUNTY LAND CAPACITY ANALYSIS

1.0 OVERVIEW

Kittitas County, in consultation with its cities, is responsible for making three key policy choices with regards to planning for population growth in the 20-Year Comprehensive Plan Update:

- Select a county-wide population projection
- Determine how that population growth will be split between urban and rural areas
- Allocate future urban growth among UGAs

County-wide population projections are discussed in detail in a separate memo entitled *Kittitas County Population Growth Projection Review and Analysis (Dec. 12, 2015)*. The development and definition of study areas for growth allocation is discussed in the memo entitled *Kittitas County Population Growth Allocation and Land Capacity Analysis: Draft Study Area Boundaries (Nov. 16, 2016)*. A map of the study area boundaries is provided in Appendix A. This memo discusses analysis to measure land capacity for population and employment growth by study area.

The supply of vacant, partially developed, and underutilized land was determined through an analysis of available spatial data using Geographic Information Systems (GIS). These data included parcel boundaries and county assessor files, critical area mapping, city and county zoning, planned use developments (PUD), master plan development agreements, and other data. See Appendix B for a detailed presentation of assumptions and analysis steps. The findings in this memo represent a snapshot of conditions in November 2015.

This memo includes six sections and two appendices:

- 1.0 Overview
 - 2.0 Residential Land Supply and Capacity
 - 3.0 Employment Land Supply and Capacity
 - 4.0 Land Capacity Assumptions
 - 5.0 Land Capacity and UGA Sizing
 - 6.0 Next Steps and Issues to Be Resolved
- Appendix A: Kittitas County Study Areas Map
Appendix B: Land Capacity Analysis Methodology

2.0 RESIDENTIAL LAND SUPPLY AND CAPACITY

Exhibit 1 shows the total acreage of vacant, partially developed, and underutilized land currently zoned for residential development. Also included are deductions for acreage assumed not available for development. These assumptions are discussed in Appendix B. In total, there are 2,966 gross acres of vacant and potentially developable land within urban areas and 1,380 net acres after deductions. Excluded from this summary of acreage is land area with pipeline development, including PUDs and plats. These areas are treated differently than vacant or underutilized properties because the agreements already specify the number of allowable units or lots and therefore capacity is not dependent on land area. Pipeline capacity is added during the next stage of the analysis.

Exhibit 1. Residential Developable Land Supply (2015)

UGA Study Areas	Gross Acres		Deductions				Net Acres
	Single-Family	Multi-Family and Mixed Use	Critical Areas	Right-of-Way	Public-Use	Market Factor	
Cle Elum	612	0	56	111	28	98	319
Ellensburg	2,073	53	434	338	85	356	913
Kittitas	111	0	10	20	5	21	55
Roslyn	76	0	6	14	3	13	40
South Cle Elum	94	2	2	19	5	17	54
Non-UGA Study Areas							
Easton	310	0	41	54	13	40	161
Nelson Siding Rd/ Westside Rd	1,109	0	126	197	49	160	578
Ranch on Swauk Creek	501	0	33	94	23	89	263
Ronald	70	0	8	13	3	10	37
Snoqualmie	108	0	20	17	4	13	52
SR 903/Salmon La Sac	755	0	110	129	32	97	387
Suncadia	35	0	3	6	2	5	19
Thorp	172	0	41	26	7	20	79
Vantage	38	0	7	6	2	7	17
Total In Urban Areas	3,006	33	506	507	127	507	1,394
Total in Rural Study Areas	3,100	0	389	542	136	440	1,593

Notes: Mixed use acreage reflects assumption of 50% land capacity for residential uses. Nearly all of Suncadia's acreage is part of a master planned development agreement and therefore treated separately in the land capacity analysis.

Exhibit 2 shows housing and population capacity by study area. This summary does include pipeline development on plats and PUDs. This analysis assumes that current (2015) occupancy rates and household sizes will remain constant during the 20-year planning period.¹ Study areas with a significant percentage of units in seasonal use show a much lower population capacity per housing unit.

Exhibit 2. Housing and Population Capacity (2015)

UGA Study Areas	Housing Unit Capacity	Housing Occupancy Rate	Households	Persons Per Household	Total Population Capacity
Cle Elum	3,195	78%	2,407	2.19	5,434
Ellensburg	5,683	93%	2,835	2.23	11,757
Kittitas	344	91%	167	2.57	807
Roslyn	216	67%	146	2.11	307
South Cle Elum	235	87%	196	2.29	467
Non-UGA Study Areas					
Easton	15	38%	6	3.29	19
Nelson Siding Rd/Westside Rd	173	66%	114	2.34	267
Ranch on Swauk Creek	527	53%	277	3.28	910
Ronald	633	27%	168	2.42	408
Snoqualmie Pass	2,554	28%	710	2.36	1,674
SR 903/Salmon La Sac	95	25%	24	2.54	61
Suncadia	3,514	6%	217	1.75	379
Thorp	22	91%	20	2.35	48
Vantage	742	17%	126	2.42	306
Total In Urban Areas	9,673		8,414		18,772
Total in Rural Study Areas	8,276		1,663		4,072

Source: BERK 2016

¹ Note that in some cases occupancy rates in new development may not be expected to reflect those in existing development. A good example is the PUD in western Cle Elum that adjoins Suncadia. If it is expected for those new homes to be marketed similarly to the Suncadia development it may make sense to reduce occupancy rate assumptions in that are to reflect the likelihood of more vacation homes and fewer full-time residencies.

-
- There is a significant surplus of capacity in Cle Elum compared to all scenarios.

Exhibit 3 compares population capacity to the preliminary allocation scenarios developed by BERK in December 2015. These allocation scenarios are described in greater detail in a separate memo.² Key findings include:

- Among UGA study areas, sufficient capacity is available to accommodate Scenarios 1a and 2a (those that assume moderate population growth).
- There is a capacity deficit in Kittitas under Scenario 1b and both Kittitas and Roslyn in Scenario 2b.
- There is a significant surplus of capacity in Cle Elum compared to all scenarios.

Exhibit 3. Preliminary Allocation Scenarios Compared to Population Capacity

	Scenario 1: Historic Trends			Scenario 2: Current Shares			Population Capacity
	Share of growth	Scenario 1a (OFM Medium)	Scenario 1b (OFM High)	Share of growth	Scenario 2a (OFM Medium)	Scenario 2b (OFM High)	
Kittitas County	100%	11,331	25,116	100%	11,331	25,116	
UGA Study Areas							
Cle Elum	1.1%	129	286	4.4%	498	1,104	5,434
Ellensburg	42.8%	4,855	10,761	48.7%	5,519	12,233	11,757
Kittitas	3.5%	395	876	3.5%	393	872	807
Roslyn	0.0%	0	0	2.1%	238	527	307
South Cle Elum	0.5%	57	127	1.4%	157	348	467
All UGAs (combined)	48.0%	5,436	12,049	60.1%	6,805	15,084	18,772
Non-UGA Study Areas							
Easton	0.3%	29	64	1.1%	126	279	19
Ronald	0.9%	106	234	0.9%	96	214	408
Thorp	1.7%	194	430	0.9%	98	216	48
Snoqualmie Pass	0.0%	0	0	0.6%	65	144	1,674
Vantage	0.0%	5	11	0.2%	20	44	306
Nelson Siding Rd/ Westside Rd	0.5%	55	121	1.5%	176	389	267
Ranch on Swauk Creek	1.1%	125	277	0.4%	40	88	910
Salmon La Sac Rd	2.3%	264	585	1.1%	120	266	61
Suncadia	0.5%	54	119	0.2%	24	53	379
Rural lands outside of study areas	44.7%	5,064	11,225	33.2%	3,762	8,339	

Source: BERK 2016

² See the December 10, 2015 memo entitled Preliminary Kittitas County Population Allocation Scenarios.

3.0 EMPLOYMENT LAND SUPPLY AND CAPACITY

Exhibit 4 shows the total acreage of vacant, partially developed, and underutilized land currently zoned for commercial development. Also included are deductions for acreage assumed not available for development. In total, there are 673 gross acres of vacant and potentially developable land within urban areas 304 net acres after deductions. Excluded from this table are acres with pipeline development, including PUDs – capacity in these areas is added back in during the next stage of the analysis

Exhibit 4. Commercial and Mixed Use Developable Land Supply (2015)

UGA Study Areas	Gross Acres		Deductions				Net Acres
	Commercial	Mixed Use	Critical Areas	Right-of-Way	Public-Use	Market Factor	
Cle Elum	75	0	7	14	3	14	38
Ellensburg	470	50	130	78	19	69	223
Kittitas	64	0	1	13	3	11	37
Roslyn	11	0	2	2	0	2	5
South Cle Elum	1	2	0	1	0	1	2
Non-UGA Study Areas							
Easton	46	0	1	9	2	8	26
Nelson Siding Rd/ Westside Rd	0	0	0	0	0	0	0
Ranch on Swauk Creek	0	0	0	0	0	0	0
Ronald	0	0	0	0	0	0	0
Snoqualmie	5	0	0	1	0	1	3
SR 903/Salmon La Sac	6	0	0	1	0	1	4
Suncadia	0	0	0	0	0	0	0
Thorp	10	0	0	2	0	2	6
Vantage	24	0	3	4	1	3	13
Total In Urban Areas	621	52	140	107	27	96	304
Total in Rural Study Areas	92	0	4	17	4	15	51

Notes: Mixed use acreage reflects assumption of 50% land capacity for commercial uses.
The Suncadia development agreement allows for resort commercial development. Capacity for employment growth is defined by the development agreement and not land area.
PUD acreage is excluded.

Source: BERK 2016

Exhibit 5 Exhibit 4 shows the total acreage of vacant, partially developed, and underutilized land currently zoned for industrial development. Also included are deductions for acreage assumed not available for development. In total, there are 989 gross acres of vacant and potentially developable land within urban areas 488 net acres after deductions.

Exhibit 5. Industrial Developable Land Supply (2015)

UGA Study Areas	Gross Acres	Deductions				Net Acres
		Critical Areas	Right-of-Way	Public-Use	Market Factor	
Cle Elum	198	45	30	8	24	90
Ellensburg	492	77	83	21	68	243
Kittitas	268	18	50	13	48	140
Roslyn	30	6	5	1	4	14
South Cle Elum	1	0	0	0	0	1
Non-UGA Study Areas						
Easton	0	0	0	0	0	0
Nelson Siding Rd/Westside Rd	0	0	0	0	0	0
Ranch on Swauk Creek	0	0	0	0	0	0
Ronald	0	0	0	0	0	0
Snoqualmie	0	0	0	0	0	0
SR 903/Salmon La Sac	0	0	0	0	0	0
Suncadia	0	0	0	0	0	0
Thorp	0	0	0	0	0	0
Vantage	0	0	0	0	0	0
Total In Urban Areas	989	147	168	42	144	488
Total in Rural Study Areas	0	0	0	0	0	0

Source: BERK 2016

Exhibit 6 shows commercial and industrial employment capacity by study area.

Exhibit 6. Employment Capacity (2015)

Cities and UGAs Combined	Commercial	Industrial	Total
Cle Elum	2,637	821	3,458
Ellensburg	5,675	1,910	7,585
Kittitas	798	1,443	2,241
Roslyn	100	102	202
South Cle Elum	36	4	41
Non-UGA Study Areas			
Easton	556	0	556
Nelson Siding Rd/Westside Rd	0	0	0
Ranch on Swauk Creek	0	0	0
Ronald	3	0	3
Snoqualmie	64	0	64
SR 903/Salmon La Sac	79	0	79
Suncadia	425	0	425
Thorp	140	0	140
Vantage	277	0	277
Total In Urban Areas	9,228	4,281	13,509
Total in Rural Study Areas	1,545	0	1,545

Source: BERK 2016

Exhibit 7 compares employment capacity to the preliminary allocation scenarios developed by BERK in December 2015. These allocation scenarios are described in greater detail in a separate memo.³ Key findings include:

- Among UGA study areas, with the exception of Roslyn, there is sufficient capacity is available to accommodate all employment scenarios.
- The City of Roslyn and UGA have insufficient capacity for Scenarios 2a and 2b.
- There is significant surplus capacity in Cle Elum and Kittitas for accommodating all preliminary scenarios.

Exhibit 7. Preliminary Allocation Scenarios Compared to Employment Capacity

	Scenario 1: Historic Trends			Scenario 2: Current Shares			Employment Capacity
	Share of growth	Scenario 1a (Moderate Growth)	Scenario 1b (Higher Growth)	Share of growth	Scenario 2a (Moderate Growth)	Scenario 3b (Higher Growth)	
Kittitas County	100%	5,383	11,024	100%	5,383	11,024	
UGA Study Areas							
Cle Elum	20%	1,069	2,190	12%	620	1,263	3,458
Ellensburg	25%	1,335	2,735	57%	3,043	6,257	7,585
Kittitas	0%	0	0	2%	127	264	2,241
Roslyn	0%	0	0	6%	349	717	202
South Cle Elum	0%	0	0	0%	0	1	41
All UGAs (combined)	45%	2,404	4,924	77%	4,139	8,502	
Non-UGA Study Areas							
Easton	0%	0	0	0%	3	6	556
Ronald	0%	0	0	0%	0	0	3
Snoqualmie Pass	4%	215	441	0%	9	19	140
Thorp	0%	0	0	0%	24	52	64
Vantage	1%	39	81	0%	7	14	277
Nelson Siding Rd/Westside Rd	1%	46	95	0%	2	3	0
Ranch on Swauk Creek	0%	7	14	0%	0	0	0
Salmon La Sac Rd	0%	9	19	0%	2	4	79
Suncadia	4%	213	436	1%	40	82	425
Rural lands outside of study areas							
Upper County	0%	0	0	4%	195	396	
Lower County	45%	2,448	5,014	18%	961	1,946	

Source: BERK 2016

³ See the December 18, 2015 memo entitled Kittitas Employment Projections and Allocation Scenarios.

4.0 LAND CAPACITY ASSUMPTIONS

Exhibit 8 highlights key land capacity modeling assumptions. All deductions are applied to developable acreage (total acreage minus critical areas). A full description of land capacity analysis methodology is available in Appendix B.

Exhibit 8. Highlighted Model Assumptions

Model Assumption	Value	Description
Minimum Lot Size Ratio	3	Assume a developed single-family residential lot has capacity for additional units if the lot size is at least 3 times the minimum acreage allowed. If so, assume zoned density. Does not apply to vacant parcels.
Future ROW Deduction	20%	Assumed percentage of all developable land will be used for public right of way and other infrastructure. Only applied to vacant and partially utilized parcels with capacity for 2 or more units (this assumes no additional right of way is needed for parcels that have already been platted).
Market Factor Deduction (Vacant)	15%	Assumed percentage of land will not likely be available for development during the planning period. Not applied to pipeline development (plats, PUDs, and development agreements).
Market Factor Deduction (Partially Developed and Underutilized)	25%	Assumed percentage of land will not likely be available for development during the planning period. Higher than vacant land due to challenges associated with redevelopment.
Other Public Uses	5%	Assumed percentage of developable land to be used for unknown future institutional or public uses. (e.g. community centers, day cares, religious facilities, etc.). Not applied to pipeline development (plats, PUDs, and development agreements).
Underutilized Improvement Ratio	0.5	For commercial, industrial, mixed use, and multi-family parcels, if ratio of a parcel's improvement to land value is below this value, assume the parcel is underutilized and available for additional development. Also, assume that any single-family home on a commercial, industrial, or multi-family parcel is underutilized and can be removed for redevelopment.
Mixed Use Commercial Percentage	50%	For all mixed use zones county-wide, assumed percentage of capacity will be used for commercial development. Remaining share is assumed to be residential.
Commercial/Industrial Occupancy Rate	95%	Assumed rate of occupancy for all commercial and industrial built space.
Commercial Square Feet Per Employee	500	Gross square footage of commercial built space per one employee.
Industrial Square Feet Per Employee	900	Gross square footage of industrial built space per one employee.
Commercial Floor Area Ratio (FAR) Default	0.25	Default FAR assumption for commercial and mixed use zones without adequate data about historically achieved density.

Industrial Floor Area Ratio (FAR) Default	0.15	Default FAR assumption for industrial zones without adequate data about historically achieved density.
---	-------------	--

Exhibit 9 through 14 show density assumptions for each jurisdiction by zone.

Exhibit 9. Cle Elum Zone Density Assumptions

ZoneName	Zone Code	Units Per Acre	Land Capacity Category	Floor Area Ratio
Entry Commercial	EC	-	Commercial	0.25
General Commercial	GC	-	Commercial	0.25
General Industrial	GI	-	Industrial	0.15
Industrial	I	-	Industrial	0.15
Multiple Family Residential	RM	12	MF Residential	-
Old Town Commercial	OTC	7	Mixed Use	0.25
Planned Mixed Use		<i>Determined by development agreement.</i>		
Public Reserve Area	P	-	Open Space	-
Residential	R	9	SF Residential	-

Exhibit 10. County Zone Density Assumptions

ZoneName	Zone Code	Units Per Acre	Acres per Unit	Land Capacity Category	Floor Area Ratio
Agriculture 20	A-20	-	20	SF Residential	-
Agriculture 3	A-3	-	3	SF Residential	-
Agriculture 5	A-5	-	5	SF Residential	-
Commercial Agriculture	CA	-	20	SF Residential	-
Commercial Forest	CF	-	-	Forest	-
Forest and Range	F-R	-	-	Forest	-
General Commercial	C-G	-	-	Commercial	0.25
General Industrial	I-G	-	-	Industrial	0.21
Highway Commercial	C-H	-	-	Commercial	0.25
Historic Trailer Court	H-T-C	-	5	Residential	-
Light Industrial	I-L	-	-	Industrial	0.15
Limited Commercial	C-L	-	-	Commercial	0.33
Master Planned Resort	MPR	<i>Determined by development agreement.</i>			
Planned Unit Development	PUD	<i>Determined by PUD development agreement.</i>			
Residential	R	6	-	SF Residential	-
Residential 2	R-2	6	-	SF Residential	-
Rural 3	R-3	-	3	SF Residential	-
Rural 5	R-5	-	5	SF Residential	-
Rural Recreation	R-R	-	5	SF Residential	-
Urban Residential	UR	6	-	SF Residential	-

Exhibit 11. Ellensburg Zone Density Assumptions

ZoneName	Zone Code	Units Per Acre	Land Capacity Category	Floor Area Ratio
Central Commercial	CC	-	Commercial	0.83
Central Commercial II	CC II	-	Commercial	0.50
Commercial Highway	CH	-	Commercial	0.25
Commercial Neighborhood	CN	-	Commercial	0.31
Commercial Tourist	CT	-	Commercial	0.25
Industrial Heavy	IH	-	Industrial	0.15
Industrial Light	IL	-	Industrial	0.16
Manufactured Home Park	MHP	7	Residential	-
Public Reserve	PR	-	Open Space	-
Planned Unit Development	PUD	<i>Determined by PUD development agreement.</i>		
Residential High Density	RH	15	MF Residential	-
Residential Low Density	RL	6	SF Residential	-
Residential Medium Density	RM	8	SF Residential	-
Residential Office	RO	8	Mixed Use	0.25
Residential Suburban	RS	7	SF Residential	-

Exhibit 12. Kittitas Zone Density Assumptions

ZoneName	Zone Code	Units Per Acre	Land Capacity Category	Floor Area Ratio
Central Business	C-B	-	Commercial	0.25
Gateway Commercial	G-C	-	Commercial	0.25
Industrial	I-G	-	Industrial	0.15
Single-Family Residence	R-1	6	SF Residential	-
Mixed Residential ⁴	R-2	10	SF Residential	-
Rural Residential	R-R	6	SF Residential	-

Exhibit 13. Roslyn Zone Density Assumptions

ZoneName	Zone Code	Units Per Acre	Zoning Category	Floor Area Ratio
Commercial	C	-	Commercial	0.25
Historic Cemetery	HC	-	Open Space	-

⁴ Assumption used in 2012 City of Kittitas Land Capacity Analysis.

Light Industrial	LI	-	Industrial	0.15
Residential	R	6	SF Residential	-
Urban Forest	UF	-	Open Space	-

Exhibit 14. South Cle Elum Zone Density Assumptions

ZoneName	Zone Code	Units Per Acre	Acres per Unit	Land Capacity Category	Floor Area Ratio
Depot Commercial District	DCD	-	-	Commercial	0.25
Downtown Business District	DBD	15	-	Mixed Use	0.25
Existing Parks	EP	-	-	Open Space	-
Light Industrial District	LID	-	-	Industrial	0.15
Mixed Residential	MR	8	-	SF Residential	-
Urban Residential (Over Five Acres)	UR5+	-	5	SF Residential	-
Proposed Future Parks	PFP	-	-	Open Space	-

5.0 LAND CAPACITY AND UGA SIZING

Kittitas County and cities are in the process of defining growth allocations, and are considering land capacity and other factors. At this stage it is appropriate to reflect on the County and city roles and requirements.

Counties are responsible for allocating population growth and setting urban growth area boundaries in consultation with cities (RCW 36.70A.110). Under the Growth Management Act (GMA), counties must designate Urban Growth Areas (UGAs). These are areas already characterized by urban development 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. In addition to showing that UGAs can accommodate growth, the county must meet GMA goals of focusing growth in urban areas and avoiding sprawl (RCW 36.70a.020).

Given the parameters under GMA the county and cities should consider the desired county-wide population and employment levels in the bookends, as well as identify policy objectives in refining the allocations. UGAs should be sized so that there is a reasonable match between the allocation and capacity to avoid UGAs that are too large and that would prematurely convert rural land to urban purposes. Likewise it is appropriate to avoid UGAs that are too small, thereby pushing growth into rural areas to a greater degree than desired. Other considerations include whether public facilities and services can be made available, whether a community intends to amend its comprehensive plan’s future land use map, and zoning to change the mix of uses to achieve a different balance of capacity in relation to the allocation.

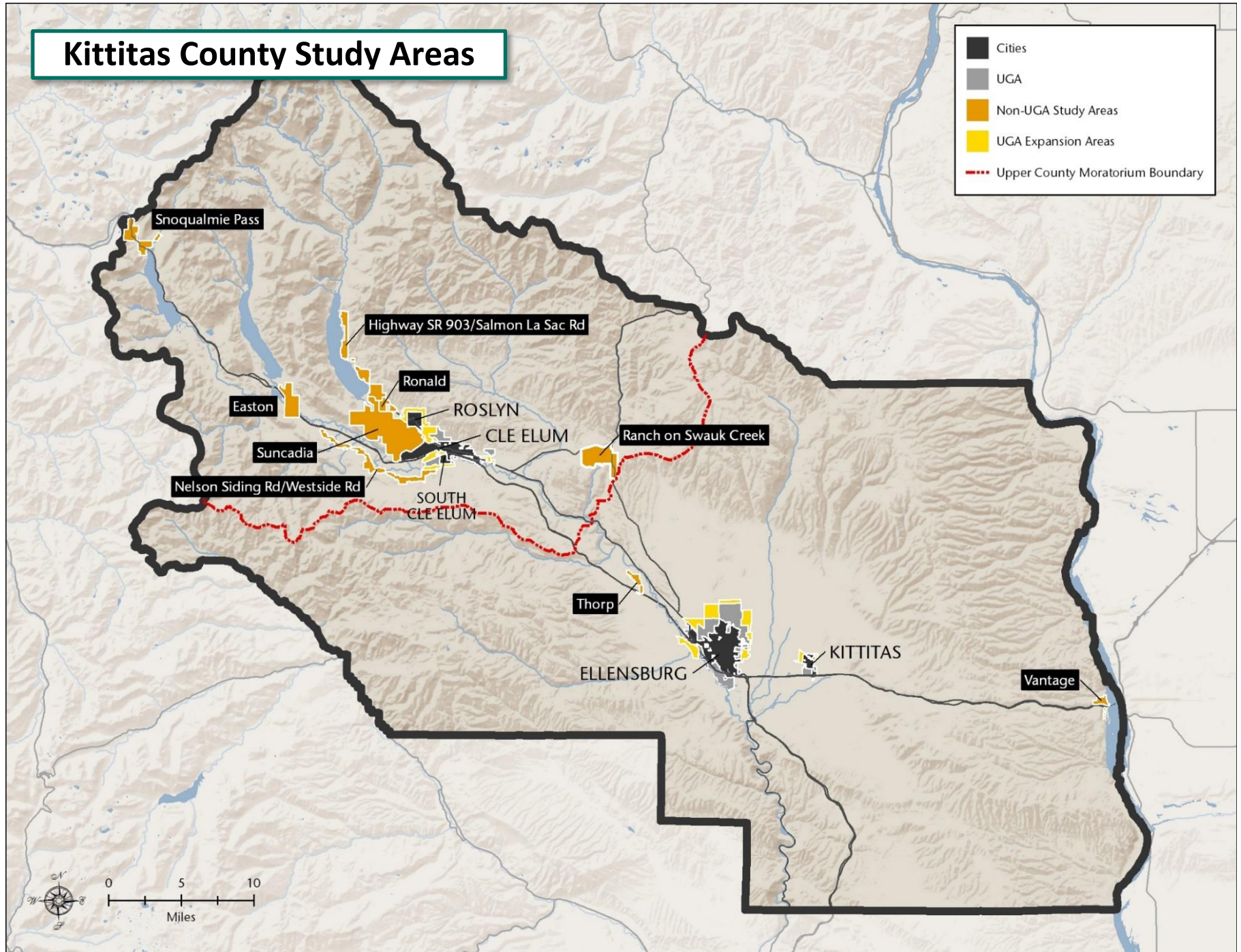
6.0 NEXT STEPS AND ISSUES TO BE RESOLVED

Following the review of population and employment projections, land capacity findings, and preliminary allocations by Kittitas County and city staff, a preferred scenario that reflects county and cities' policy objectives can be prepared.

Direction on the following points would be key to developing a preferred scenario:

- A. Selection of a county-wide population projection within the range of the State Office of Financial Management.
- B. Selection of a county-wide employment projection.
- C. Direction on whether a particular population and employment allocation scenario should be selected, or whether a new adjusted scenario should be developed to account for local interests and circumstances.

DRAFT



APPENDIX B: LAND CAPACITY ANALYSIS METHODOLOGY

Num	Step	Definition	Method / Assumptions	Data Source
Geography/Time Parameters				
1.	Base point in time	Determine point in time at which land capacity will be analyzed.	Base point in time is November 2015 based on the currency of the parcel assessment data received by the county.	County assessor data
2a.	Study area definitions	Determine the list of distinct study areas of Kittitas County that will be analyzed and considered for growth allocation in Task 4.	County provided study area definitions for 5 UGA and 8 Non-UGA study areas. See memo submitted in November 2015 for listing.	County guidance
2b.	Study area boundaries	Spatial boundaries of all study areas to be analyzed in the LCA. Inclusive of both incorporated and unincorporated parcels.	Study area boundaries are defined and finalized. See the online map here: http://arcg.is/1RRYDg2 <i>Note: Capacity in UGA expansion study areas will be evaluated at the parcel scale only and not aggregated into the base UGA Study Area capacity. If the preferred scenario includes UGA expansion, then aggregate study area capacity will be recalculated to include expansion area parcels.</i>	County guidance
Gross Developable Land Inventory				
3.	Developable land: Vacant	Residential, commercial, or industrial zoned parcels on which no significant development has occurred.	A parcel is assumed to be vacant and potentially developable (subject to zoning) if it has zero housing units, improvement value is <\$10,000, and parcel size greater than 2,400 square feet in area.	County parcel and assessor data; City and county zoning
4.	Developable land: Partially used	Rural and single-family zoned parcels with an existing housing unit but capacity to add additional units under current zoning.	<ul style="list-style-type: none"> Single-family parcels that are 3 times larger than the minimum allowed by zoning. Parcels with homes worth more than 75th percentile of home values in study area / jurisdiction are excluded. <i>Current number of housing units by parcel will be determined based on Assessor land use codes and parcel improvement value. Assume no more than one unit per parcel unless better information is available.</i> 	County parcel and assessor data; City and county zoning

KITTITAS COUNTY 20-YEAR COMPREHENSIVE PLAN UPDATE
LAND CAPACITY ANALYSIS METHODOLOGY

Num	Step	Definition	Method / Assumptions	Data Source
5.	Developable land: Under-utilized	Multi-family, commercial, or industrial zoned parcels that have capacity for additional development	<ul style="list-style-type: none"> • Include all multi-family, commercial, industrial zoned parcels occupied by single-family uses • Multi-family, commercial, industrial parcels where the ratio of improvement value to land value is <1.0 	County parcel and assessor data; City and county zoning
6.	Pipeline development	Permitted or approved development that has not yet occurred.	Exclude parcels that have received local permits (e.g. site plans, plats) as of the base point in time but are not yet constructed. These will be added later at the end of process.	County plats; Ellensburg plats; County development agreements
Deduct Critical Areas				
7.	Wetlands	Deduct actual wetlands acres using county and city wetland inventories	County provided critical area deductions will be used for all jurisdictions with the possible exception of Ellensburg. If Ellensburg provides critical areas guidance these can be incorporated as well. See the Appendix below for county critical area deductions.	Wetlands shapefile; Streams shapefile; Floodplain shapefile; Floodway shapefile; Hazardous slopes; County buffer distances by stream/wetland type. Ellensburg buffer distances by stream/wetland type.
8.	Streams	Deduct streams and buffer using county-wide inventories.		
9.	Steep slopes/soils	Deduct slopes greater than 35% and peat soils that are undevelopable using county-wide inventories		
10.	Floodplains	Deduct floodways; also deduct lands that would require elevation 4 feet above adjacent grade.		
11.	Buffers	Buffers based on county and city critical area ordinances.		

Num	Step	Definition	Method / Assumptions	Data Source
Deduct Future Infrastructure and Public Uses				
12.	Rights of way and other development requirements	Percentages of land assumed dedicated to roadways and infrastructure. May vary by community.	<ul style="list-style-type: none"> Assume 20% for consistency with neighboring counties.⁵ Comparison to new suburban development in Ellensburg is consistent. Do not deduct for vacant residential parcels with capacity for only 1 unit. (Assume platted lots have right of way already deducted). 	County parcel and assessor data; City and county zoning
13.	Schools, police/fire stations, water, sewer, recreation/open space, and similar.	Deduct capital facility plans for public facilities (e.g. water, sewer, stormwater, parks schools) and public services (police, fire) if they include financially constrained plans for land usage and specific parcel acquisition.	No additional deduction unless specific parcels are identified. Future infrastructure needs are considered in above ROW deduction.	
14.	Other public/semi-public uses (e.g. community centers, day cares, religious facilities, etc.)	Percent deduction on developable lands for unknown future institutional uses. Percentage may be adjusted through the local jurisdiction review process.	5% deduction	<i>Consistent with assumptions used in several western Washington counties.⁶</i>

⁵ See the 2012 Kitsap County Comprehensive Plan Final Environmental Impact Statement, Appendix A, page 10 for a summary of future ROW/infrastructure deductions used in several western Washington counties’ buildable lands analyses.
http://www.kitsapgov.com/dcd/community_plan/comp_plan/eis/vol_2/final%20seis/FSEIS%20Appendix%20Development%20Trends.pdf

⁶ See the 2012 Kitsap County Comprehensive Plan Final Environmental Impact Statement, Appendix A, page 10 for a summary of “future public purpose” deductions used in several western Washington counties’ buildable lands analyses.
http://www.kitsapgov.com/dcd/community_plan/comp_plan/eis/vol_2/final%20seis/FSEIS%20Appendix%20Development%20Trends.pdf

Num	Step	Definition	Method / Assumptions	Data Source
Market Factor Deduction				
15.	Vacant lands	Percent deduction for land not likely to be available for development during the planning period.	15% deduction (Vacant land more likely to develop than partially used and under-utilized. Thus the market factor deduction is lower for vacant lands.)	<i>Consistent with Assumptions used in several western Washington counties.</i> ⁷
16.	Partially used and under-utilized	Percent deduction for land not likely to be available for development during the planning period.	25% deduction	<i>Consistent with Assumptions used in several western Washington counties.</i> ⁸
17.	Adjustments	Base market factors may be adjusted to account for local and future plans. If market factors are adjusted, the final overall market factor for a UGA should not exceed 25%.	BERK will assume no additional adjustments unless requested by the county.	
Local Jurisdiction Review				
18.	Data generation	Analysis to identify land capacity for each parcel inside study area boundaries.	BERK will generate an online map showing vacant, partially-used, and under-utilized parcels in each study area as well as critical area buffers overlaid on aerial imagery. Maps will also include layers for current zoning and UGA boundaries. See http://arcg.is/1RRYDg2	

⁷ See the 2012 Kitsap County Comprehensive Plan Final Environmental Impact Statement, Appendix A, page 10 for a summary of market factor deductions used in several western Washington counties’ buildable lands analyses.

http://www.kitsapgov.com/dcd/community_plan/comp_plan/eis/vol_2/final%20seis/FSEIS%20Appendix%20Development%20Trends.pdf

⁸ See previous footnote.

Num	Step	Definition	Method / Assumptions	Data Source
19.	Data review	The maps, along with tabular parcel data underlying the maps will be sent to each local jurisdiction for review.	<p>If appropriate, county staff will meet with city staff to discuss any adjustments to developable designations, critical areas, infrastructure deductions, public use deductions, assumed density assumptions, market factor assumptions, and other jurisdiction-specific assumptions; consultant input may be solicited. The range of additional issues that can be considered during the local jurisdiction review process includes but is not limited to the following:</p> <ul style="list-style-type: none"> ▪ Critical areas not identified through GIS analysis ▪ Known market interest in development or redevelopment of particular parcels/areas ▪ Parking and outdoor storage associated with adjacent uses ▪ Other associated/related uses spanning multiple parcels ▪ Irregular parcel shapes making development unlikely 	
Development Density Assumptions				
20.	Determine achieved densities	Achieved development density during previous 5 years after subtracting ROW, critical areas, and public uses. Calculated in units per acre and floor area ratio (FAR) as appropriate.	<p>Ellensburg and Ellensburg UGA: Analyze building footprint and county assessor built square footage data to calculate aggregate achieved floor area ratio on parcels by zone.</p> <p>Remainder of county: Insufficient data available for analysis.</p>	County assessor building characteristics; Ellensburg building footprints
21.	Determine assumed densities	Assumed densities for each zone for use in calculating total capacity for new population and employment growth.	<p>BERK will work with county to determine assumed densities by a review of achieved density in Ellensburg and elsewhere, local land use goals and policies, local market conditions and similar factors likely to impact future development densities. Guidelines include:</p> <ul style="list-style-type: none"> ▪ Using achieved densities as assumed densities if they fit within expected values for particular zones and planned land use areas. Adjustments can be made based on recommendations from local jurisdictions. ▪ Using a midpoint density between the maximum allowed under zoning and either the minimum allowed or achieved density. If the zone includes no maximum, then assume the minimum allowed density or follow city guidance. ▪ Ensuring that incorporated city UGA average assumed densities (over the entire city) remain above accepted thresholds of urban densities (e.g. 4 DUs per acre) ▪ Ensuring that urban densities increase over current patterns. 	

Num	Step	Definition	Method / Assumptions	Data Source
22.	Mixed use development share	In zones that allow for mixed use development: Assumptions about which share of development will be residential or commercial based on recent patterns in mixed use development within each planning area, local jurisdiction plans, and local knowledge of trends and pipeline development.	Assume 50% residential, 50% commercial unless additional guidance is offered by county or cities.	
Determine Population Capacity				
23.	Determine total dwelling units capacity by zone	Total capacity, by study area and zone, for new dwelling units	Multiply net acres of developable land in each zone by assumed density of each zone to determine total dwelling units of capacity. Subtract existing dwelling units. Add in pipeline development.	
24.	Determine total capacity for occupied residential units by Zone	Apply occupancy rate assumptions using State Office of Financial Management (OFM) jurisdiction data or census data to calculate capacity for occupied units.	BERK will analyze OFM and/or census data to determine residential occupancy rates for all UGAs and study areas.	OFM housing occupancy data by city (2015); Census block data (2010)
25.	Determine population capacity by study area	Capacity for full-time population growth in occupied dwelling units, accounting for low occupancy rates in study areas with large numbers of seasonal and vacation units.	BERK will analyze OFM and/or census data to determine average household sizes for all study areas. Household size will be differentiated by single-family and multi-family homes for UGA study areas only unless county provides assumptions for remaining study areas. Aggregate total occupied dwellings into single-family and multi-family categories, using threshold values if necessary. (For instance: all zones allowing more than 9 DUs/acre will be considered multi-family and all those allowing less than 9 DUs/acre will be considered single-family.) Multiply the number of units by average household sizes for single-family and multi-family units.	OFM housing occupancy data by city (2015); Census block data (2010)

Num	Step	Definition	Method / Assumptions	Data Source
Determine Employment Capacity				
26.	Determine total square footage capacity by zone	Capacity for new commercial and industrial built square footage by Zone.	Multiply net acres of commercial and industrial developable land by the assumed FAR for each zone. Subtract existing building square footage on partially used and under-utilized land (Ellensburg only) Add in pipeline development.	
27.	Determine total occupied square footage capacity by zone	Use occupancy rate assumption to calculate total commercial and industrial occupied square footage capacity.	Assume 95% occupancy rate for all commercial and industrial zones. ⁹	
28.	Determine total employment capacity by study area	Use commercial and industrial employment density assumptions to calculate employment capacity by study area.	Use generic commercial and industrial employment density assumptions for most study areas: <ul style="list-style-type: none"> ▪ Commercial: 500 square feet per employee ▪ Industrial: 900 square feet per employee 	<i>Derived from study of employment density by sector conducted for Snohomish County 2007 Buildable Lands Report. The numbers here reflect Kittitas county-wide projected job growth by sector within each broad employment category.¹⁰</i>

How this study considers growth in seasonal and vacation homes

This land capacity analysis is designed to measure capacity to accommodate new growth in year-round population and is not designed to directly measure capacity to accommodate anticipated growth in recreational visitors. Nonetheless, the role of vacation and seasonal-use homes needs

⁹ The 2015 land capacity analysis conducted for the Whatcom County Comprehensive Plan uses a 5% vacancy rate. While rates fluctuate with the economy, 5% is generally considered to be a healthy rate.

¹⁰ These density assumptions are generally consistent with those used in neighboring jurisdictions. For instance see the King County 2007 Buildable Lands Report Appendix C and 2014 Pierce County Buildable Lands Report (p. 20).

to be considered. This analysis will assume that the full-time occupancy rate of each study area will remain constant during the next 20 years. So, if 50% of units in a study area are used as vacation homes now, then we assume that 50% will continue to be vacation homes in the future. This assumption increases the total number of homes per full-time resident that would need to be built to accommodate population growth compared to a study area with a higher occupancy rate.

County-wide critical area deductions

Wetland buffers

Wetland Category	Low Intensity Use and Development	Moderate Intensity Use and Development	High Intensity Use and Development
Category I	125 feet	190 feet	250 feet
Category II	100 feet	150 feet	200 feet
Category III	75 feet	110 feet	150 feet
Category IV	25 feet	40 feet	50 feet

Aquatic habitat conservation area buffers

Aquatic Habitat Conservation Area	Standard Buffer Width
Type F Waters	100 feet
Type Np Waters	50 feet
Type Ns Waters	30 feet

Type S streams (shorelines of the state) buffers

Shoreline Environment Designation	Type S Standard Shoreline Buffer Width (feet)
Urban Conservancy	100
Shoreline Residential	100
Rural Conservancy	100
Natural	150

Other Critical Areas

Other Critical Areas	Include in Land Capacity?
Channel migration zones	No
Geologic hazardous areas	No
Floodways	No