

June 20, 2006

Marty Snell
Long Range Planning
1300 Franklin Street
Vancouver, WA 98660

Dear Marty,

Thank you for inviting me to participate in the Board Work Session on Tuesday, June 20, 2006. Please find the attached analysis of the population and jobs accommodated on critical lands, using the October 4, 2005 assumptions.

I relied on two spreadsheets obtained from Mike Mabrey at Clark County:

1. Alt 1 UGA Capacity Analysis
2. Internal Review Map "R" UGA Capacity Analysis

Rather than calculate each city, I used a county wide average for DU/Acres. Note that out of the 12,000 acres of critical, vacant and underutilized lands in the UGA's, the plan assumes that nearly 7,000 acres will be developed.

I have also attached notes on park and school land.

Thank you again,



Jerry Olson, P.E., P.L.S.

Critical Lands in the Urban Growth Boundary

Analysis by Jerry Olson

This is an attempt to determine how many future residents and future jobs will be accommodated on critical lands using the current assumptions.

POPULATION			
	GROSS CRITICAL ACRES	DEVELOPED CRITICAL ACRES	POPULATION ON CRITICAL ACRES
Existing UGB	4,613	2,307	26,797
Expansion Area	2,324	1141	12,471
TOTAL	6,937	3,448	39,268

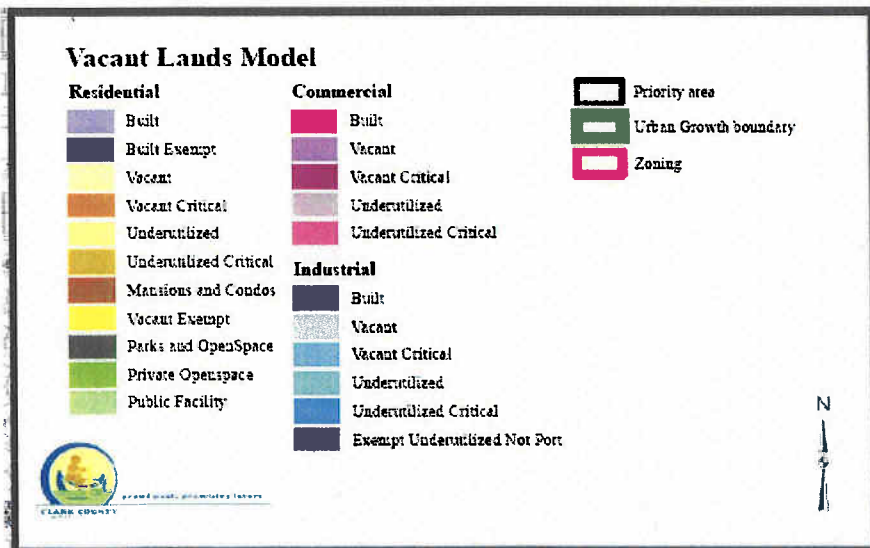
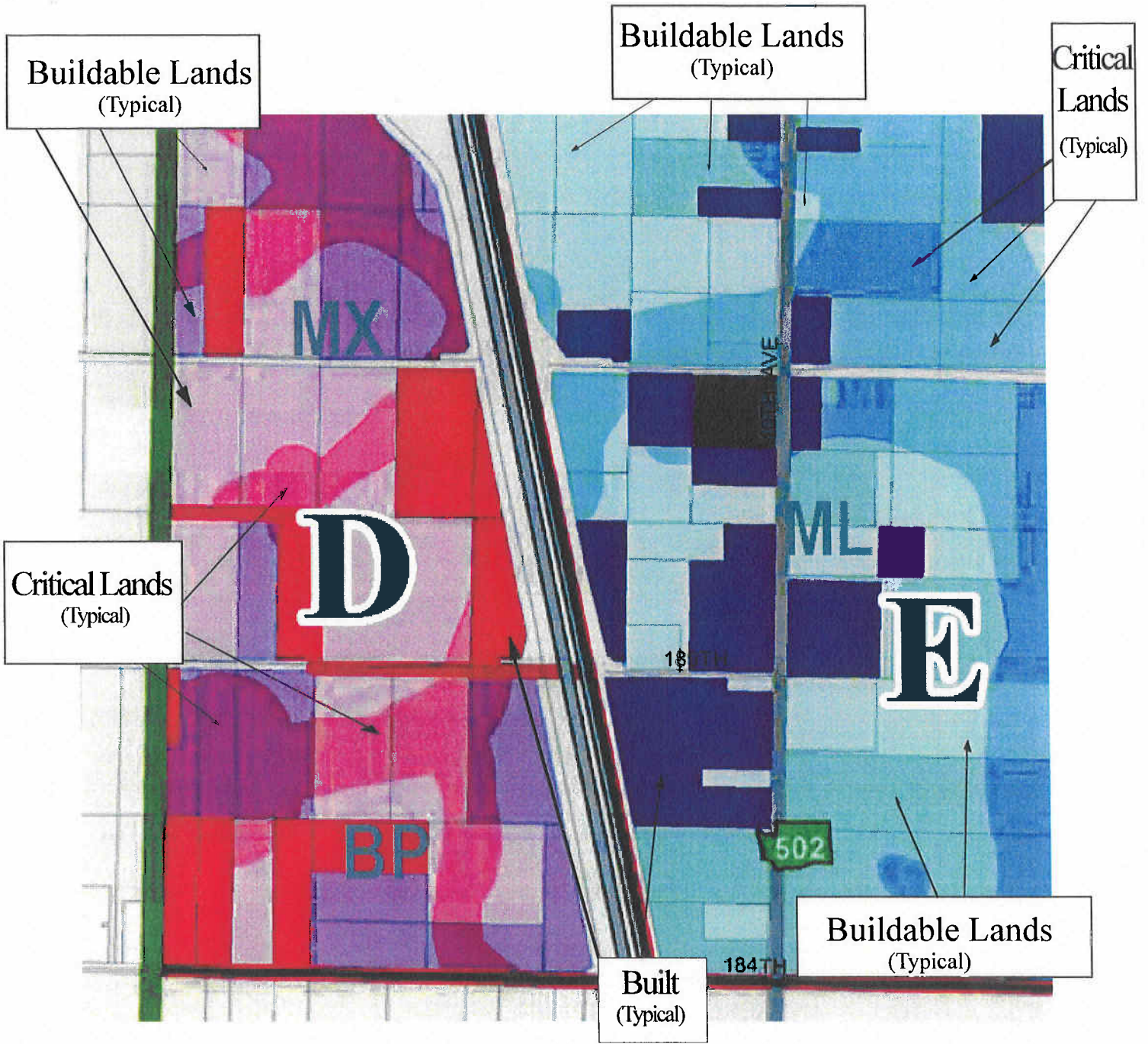
Population accommodated on Critical Lands = 39,268

JOBS			
	GROSS CRITICAL ACRES	DEVELOPED CRITICAL ACRES	JOBS ON CRITICAL ACRES
Existing Commercial	553	442	6,968
Existing BP	1,856	1,485	23,385
Existing Industrial	1,777	889	6,294
Expansion Area Commercial	70	56	882
Expansion Area BP	244	195	3,074
Expansion Area Industrial	766	383	2,714
TOTAL	5,266	3,450	43,320

New jobs accommodated on Critical Lands = 43,320

Total Vacant and Underutilized Gross Critical Acres = 12,203

Total Proposed Developed Critical Acres = 6,898



Urban Holding
Areas "D" and "E"

Alternative 1 UGA Capacity Analysis

Residential	Battle Ground		Camas		La Center		Ridgefield		Vancouver		Washougal		Yacolt		Total
	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA
Gross Acres	59	293	94	445	2266	311	66	3533							
Vacant	98	0	7	0	301	0	0	406							
Vacant Mixed use	64	507	43	458	1341	213	15	2641							
Vacant w/Critical	32	0	5	5	143	0	0	184							
Vacant w/crt. Mixed Use	142	338	142	346	2782	264	6	4020							
Underutilized	96	0	0	0	198	0	0	294							
Underutilized Mixed Use	57	304	62	270	901	156	5	1754							
Underutilized w/Critical	35	0	0	0	71	0	0	106							
Underutilized w/Critical MU															
Total	582	1442	352	1524	8003	943	92	12936							
Less 25% Mixed Use Com.	65	0	3	1	178	0	0	247							
Gross Acres	517	1442	349	1523	7824	943	92	12689							
Gross Acres less 50% critical															
Vacant	132	293	99	445	2491	311	66	3837							
Vacant w/Critical	87	507	47	461	1448	213	15	2779							
Total	176	547	122	676	3215	417	73	5226							
Underutilized	213	338	142	346	2931	264	6	4240							
Underutilized w/Critical	84	304	62	270	954	156	5	1833							
Total	255	490	173	481	3408	342	8	5157							
Acres less never-to-convert factor															
Vacant - 10%	158	492	110	608	2894	376	66	4704							
Underutilized - 30%	179	343	121	337	2385	239	6	3610							
Total	337	835	231	945	5279	615	72	8313							
Battle Ground	244	603	167	683	3817	445	52	6011							
Battle Ground	1461	3621	667	4100	30536	2667	208	43260							
Battle Ground	3785	9378	1729	10618	79087	6908	538	112043							
Net Capacity as % of expansion area population capacity	3.4%	8.4%	1.5%	9.5%	70.6%	6.2%	0.5%	100.0%							
Population Capacity w/ redevelopment	3984	9672	1820	11177	83250	7271	567	117940							

Total
Critical Lands

*50% of critical lands
*50% of critical lands

9854
25521
26797

Alternative 1 UGA Capacity Analysis

Commercial/Retail		Battle Ground	Camas	La Center	Ridgefield	Vancouver	Washougal	Yacolt	Total
Gross Acres		UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA
Vacant	76	48	19	21	750	46	16	974	
Vacant Mixed Use (25%)	25	0	2	0	75	0	0	102	
Vacant w/critical	132	74	6	32	182	7	0	433	
Vac w/ Crit Mixed Use	8	0	1	1	36	0	0	46	
Underutilized	6	7	4	7	71	0	0	94	
Underutil Mixed Use (25%)	24	0	0	0	49	0	0	73	
Underutilized w/critical	6	7	8	10	18	0	0	48	
Underutil w/ Crit Mixed Use	9	0	0	0	18	0	0	26	
Total	285	136	39	71	1199	53	16	1797	
Gross less 20% critical factor		155	81	15	43	253	7	554	
Critical acres		254	119	36	62	1148	51	1686	
Total		190	90	27	46	861	39	1265	
Acres less 25% infrastructure		190	90	27	46	861	39	1265	
Capacity at 20 jobs per net acre		3808	1790	540	928	17219	771	25291	
Capacity with redevelopment factor		3998	1880	567	975	18080	809	26556	
Net Capacity as % of expansion area net acres		15.1%	7.1%	2.1%	3.7%	68.1%	3.0%	100%	

Total	Critical Lands
442	332
6636	6636
6968	

*80% of critical lands

Business Park		Battle Ground	Camas	La Center	Ridgefield	Vancouver	Washougal	Yacolt	Total
Gross Acres		UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA
Vacant	238	296	0	137	501	0	0	1172	
Vacant w/critical	56	521	0	306	442	0	0	1325	
Underutilized	23	86	0	119	421	0	0	650	
Underutilized w/critical	36	19	0	183	292	0	0	531	
Total	352	923	0	745	1656	0	0	3677	
Gross less 20% critical factor		91	541	0	489	735	0	1856	
Critical acres		334	815	0	648	1509	0	3306	
Total		250	611	0	486	1132	0	2480	
Acres less 25% infrastructure		250	611	0	486	1132	0	2480	
Capacity at 20 jobs per net acre		5009	12229	0	9713	22639	0	46590	
Capacity with redevelopment factor		5260	12240	0	10199	23771	0	52070	
Net Capacity as % of total net acres		10.1%	24.7%	0.0%	19.6%	45.7%	0.0%	100.0%	

Total	Critical Lands
1114	22772
23385	
1485	

*80% of critical lands

Industrial	Battle Ground		Camas		La Center		Ridgefield		Vancouver		Washougal		Yacolt		Total
	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA
Gross Acres less tax exempt parcels (except park)															
Vacant	23	21	0	232	21	986	34	8	1305						1129
Vacant w/Critical	171	63	0	121	701	423	21	0	603						648
Underutilized	14	21	0	117	468	8	10	0	3684						1777
Underutilized w/critical	45	10	0	595	2578	134	10	0	0						0
Total	252	115	0	955	3278	1426	52	10	3684						5507
Gross Acres less 50% critical acres															
Critical acres	216	73	0	239	1169	80	2	1777							889
Total	145	79	0	475	1994	94	9	2796							889

*50% of critical lands

Capacity with redevelopment factor	Battle Ground		Camas		La Center		Ridgefield		Vancouver		Washougal		Yacolt		Total
	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA
Acres less 25% infrastructure	108	59	0	357	1495	71	7	2097							666
Capacity at 9 jobs per net acre	975	530	0	3209	13459	637	69	18870							5954
Net Capacity as % of total net acres	10.24%	5.57%	0.00%	17.09%	71.33%	3.42%	0.33%	100.00%							6294
Total Added Job Capacity	10282	15276	567	14543	55982	1478	310	98439							36647

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Internal Review Map "R" UGA Capacity Analysis

Residential	Battle Ground		Camas		La Center		Ridgefield		Vancouver		Washougal		Yacolt		Total
	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA
Gross Acres	148	79	102	333	492	135	0	0	0	0	0	0	0	1289	
Vacant	0	25	0	0	0	0	0	0	0	0	0	0	0	25	
Vacant Mixed use	34	72	137	289	196	74	0	0	0	0	0	0	0	802	
Vacant w /Critical	0	19	0	0	0	0	0	0	0	0	0	0	0	19	
Vacant w/crit. Mixed Use	0	151	226	487	1267	171	0	0	0	0	0	0	0	2748	
Underutilized	446	24	0	0	35	38	0	0	0	0	0	0	0	59	
Underutilized Mixed Use	0	63	187	459	528	38	0	0	0	0	0	0	0	1435	
Underutilized w/Critical	161	95	0	0	1	0	0	0	0	0	0	0	0	97	
Underutilized w/Critical MU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	788	529	653	1567	2519	417	0	0	0	0	0	0	0	6473	
Less 25% Mixed Use Com.	0	41	0	0	9	0	0	0	0	0	0	0	0	50	
Gross Acres	788	488	653	1567	2510	417	0	0	0	0	0	0	0	6423	
Gross Acres less 50% critical	148	98	102	333	492	135	0	0	0	0	0	0	0	1308	
Vacant w /Critical	34	87	137	289	196	74	0	0	0	0	0	0	0	816	411
Total	164	141	170	478	590	172	0	0	0	0	0	0	0	1716	411
Underutilized	446	169	226	487	1293	171	0	0	0	0	0	0	0	2792	730
Underutilized w/critical	161	134	187	459	529	38	0	0	0	0	0	0	0	1507	730
Total	526	236	320	716	1557	189	0	0	0	0	0	0	0	3545	730
Acres/less paved-to-conversion	148	127	153	430	531	155	0	0	0	0	0	0	0	1544	370
Vacant - 10%	368	166	224	501	1090	132	0	0	0	0	0	0	0	2482	511
Underutilized - 30%	516	293	377	931	1621	288	0	0	0	0	0	0	0	4026	881
Total	1032	686	754	1862	2742	575	0	0	0	0	0	0	0	5052	1261
Acres less 27.7% infrastructure	373	212	273	673	1172	208	0	0	0	0	0	0	0	2911	637
Capacity for DU's	2240	1269	1091	4038	9377	1248	0	0	0	0	0	0	0	19264	4586
Population Capacity	5801	3288	2827	10460	24287	3231	0	0	0	0	0	0	0	49893	11878
Net Capacity as % of expansion area population capacity	11.6%	6.6%	5.7%	21.0%	48.7%	6.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	12471
Population Capacity w/ redevelopment	6106	3461	2975	11010	25565	3401	0	0	0	0	0	0	0	52519	12471

50% of critical lands
50% of critical lands

Internal Review Map "R" UGA Capacity Analysis

Commercial/Retail	Battle Ground		Camas		La Center		Ridgefield		Vancouver		Washougal		Yacolt		Total	
	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA
Gross Acres	0	0	0	25	4	3	0	0	0	0	5	0	0	0	37	6
Vacant	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Vacant Mixed Use (25%)	0	1	0	11	2	0	1	0	0	0	0	0	0	0	5	5
Vac w/ Crit Mixed Use	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	80
Underutilized	6	4	4	16	7	41	9	0	0	0	7	0	0	0	15	26
Underutil Mixed Use (25%)	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	26
Underutilized w/critical	3	6	6	7	10	0	10	0	0	0	0	0	0	0	24	24
Underutil w/ Crit Mixed Use	0	24	24	0	0	0	0	0	0	0	0	0	0	0	0	70
Total	9	52	59	59	22	53	12	12	0	0	12	0	0	0	208	195
<i>Gross less 20% critical factor</i>																
Critical acres	3	36	18	18	12	1	0	0	0	0	0	0	0	0	0	56
Total	9	45	55	42	20	53	12	12	0	0	12	0	0	0	194	145
<i>Acres less 25% infrastructure</i>																
Critical acres	6	34	42	831	15	40	9	0	0	0	9	0	0	0	145	42
Total	128	677	831	299	791	180	0	0	0	0	180	0	0	0	2967	840

*80% of critical lands

Business Park	Battle Ground		Camas		La Center		Ridgefield		Vancouver		Washougal		Yacolt		Total	
	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA	UGA
Gross Acres	114	35	0	0	16	0	13	0	4	0	89	0	0	254	139	
Vacant	77	45	0	0	0	0	0	0	0	0	4	0	0	139	139	
Vacant w/critical	130	51	0	0	22	0	22	0	0	0	45	0	0	248	105	
Underutilized	20	20	0	0	26	0	3	0	0	0	3	0	0	105	105	
Underutilized w/critical	56	20	0	0	26	0	3	0	0	0	141	0	0	244	244	
Total	377	151	0	0	78	0	141	0	0	0	141	0	0	746	746	
<i>Gross less 20% critical factor</i>																
Critical acres	133	65	0	0	39	0	7	0	0	0	7	0	0	244	195	
Total	350	138	0	0	70	0	139	0	0	0	139	0	0	697	195	

*80% of critical lands

Capacity with redevelopment factor		Capacity at 20 jobs per net acre		Acres less 25% infrastructure		Acres less 25% infrastructure	
Net Capacity as % of total net acres	50.2%	2172	19.8%	0	0.0%	1098	10.0%
Critical acres	523	2928	146	0	0.0%	0	0.0%
Total	10982	10466	3074	100.0%			

Total Critical Lands	146
Total	3074

	Battle Ground		Camas		La Center		Ridgefield		Vancouver		Washougal		Yacolt		Total	
	USA	UGA	USA	UGA	USA	UGA	USA	UGA	USA	UGA	USA	UGA	USA	UGA	USA	UGA
Industrial																
Gross Acres less tax exempt parcels (except port)																
Vacant	44	0	0	0	88	53	76	117	178	117	23	0	0	0	0	480
Vacant w/Critical	1	0	0	0	115	117	51	288	231	25	0	0	0	0	0	469
Underutilized	19	0	0	0	87	82	106	231	814	180	16	0	0	0	0	435
Underutilized w/critical	0	0	0	0	82	286	814	180	1715	0	0	0	0	0	0	1715
Total	64	0	0	0	372	286	814	180	1715	0	0	0	0	0	0	1715
Gross Acres less 50% critical factor																
Critical acres	1	0	0	0	197	182	348	39	766	39	0	0	0	0	0	766
Total	63	0	0	0	273	195	640	161	1332	0	0	0	0	0	0	1332
Acres less 25% Infrastructure	48	0	0	0	205	146	480	121	999	121	0	0	0	0	0	999
Capacity at 9 jobs per net acre	428	0	0	0	1844	1317	4318	1085	8992	1085	0	0	0	0	0	8992
Capacity with redevelopment factor	450	0	0	0	1937	1382	4534	1139	9442	1139	0	0	0	0	0	9442
Net Capacity as % of total net acres	4.8%	0.0%	0.0%	0.0%	20.5%	14.8%	48.0%	12.1%	100.0%	12.1%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Total Added Job Capacity	6101	2883	2810	2794	5364	3524	0	23476	6283	0	0	0	0	0	0	6283

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*50% of critical lands

Direction on Planning Assumptions Through October 4, 2005

Policy Call Assumptions

1. Population forecast – 584,310 (2% rate through 2024. Assume 2.2% for first six years of capital facilities plan).
2. Base year for plan – 2004. End year for plan - 2024
3. Urban/rural population split – 90 :10 split.
4. Market factors – 0% factor for industrial lands, 0% factor for commercial lands and 10% factor for residential lands.
5. Job creation goals – 1: 1.75 new jobs to new population ratio (includes rural population). The following sources of jobs will be counted toward the 110,077 jobs target:
 - vacant and buildable lands added to existing urban growth areas as needed to meet the target;
 - vacant and buildable lands inside existing urban growth areas;
 - sites not within the vacant buildable lands inventory for which development approvals have been granted;
 - sites where transportation studies, planning studies, and development agreements indicate that the employment potential is larger than that assigned under the employment density assumptions;
 - public sector employment on tax exempt lands;
 - vacant rural industrial and commercial lands (largely in rural centers);
 - proposed rural industrial land bank at La Center junction;
 - rural home businesses
6. Redevelopment factor – 5%
7. Employment density factors - 20 employees per commercial acre; 9 employees per industrial acre; and 20 employees per business park acre.
8. Development on tax exempt properties factors – do not include tax exempt properties, except those owned by ports and housing authorities in the buildable lands inventory.

Consultative Assumptions (*countywide planning policies*)

9. Housing density factors – 8 units per acre in the Vancouver urban growth area; 6 units per acre in the Battle Ground, Camas, Ridgefield and Washougal urban growth areas and 4 units per acre in the La Center urban growth area.
10. Detached/attached housing split factors – new housing shall be “no more than 75% of any one product type” (detached or attached housing units).
11. Persons per household factor – 2.59 persons per household.

Data-Driven Assumptions

12. Infrastructure factors – 27.7% set aside for residential areas inside existing urban growth areas (set aside addresses both on and off-site infrastructure). In urban growth expansion areas, supplement the 27.7% figure by comparison between the acreage needed to meet school and park standards and current school and park land ownership. If a school or park land deficit exists, assure sufficient land set aside for these purposes in urban growth capacity calculations to meet standards.

25% infrastructure set aside for commercial, industrial and business park zones.

13. Vacant residential land never to convert factor - 10 % of the vacant residential inventory will not convert during the plan horizon.

14. Underutilized land – For residential land apply the following criteria to assess capacity to accommodate growth within the plan horizon:

- 30% of the underutilized residential inventory will not convert during the plan horizon.
- Apply a building value per acre calibrated to the lowest 10 percentile (\$256,000) to determine the properties that will accommodate future growth;
- Acreage properties in subdivisions are to be excluded from the underutilized inventory if 50% of the building value per acre criteria is apparent (\$128,000).

For commercial land the following criteria shall apply:

- Apply a building value per acre of \$50,000.

For industrial land the following criteria shall apply:

- abandon the primary, secondary and tertiary classification system. Redesign the model to more closely resemble the residential and commercial models.
- Apply a building value per acre of \$50, 000 to determine the properties that will accommodate future growth.

15. Development on critical lands factors – Exclude that portion of a parcel encumbered by critical areas from the buildable lands inventory. Include that portion of a parcel not encumbered by critical areas in the buildable lands inventory.

- The 2004 critical areas map set should be used, augmented by updated critical area ordinances maps that cities have adopted.
- The critical aquifer recharge areas map is not to be considered a constraint to development.
- For industrial lands, abandon the primary, secondary and tertiary classification system. Redesign the model to more closely resemble the residential and commercial models.
- Assume that 50% of land designated vacant critical will convert (based on development data between 1996 and 2004) for both residential and industrial models.

Assume that 80% of land designated vacant critical will convert (based on development data between 1996 and 2004) for the commercial model.

Addendum on Parks and Schools

At the present time, there are no specific allocations of proposed urban land for parks or schools.

PARKS

Urban Population Increase = 173,373
At "6 acres/1000 population for urban parks"= 1,040 Acres

Expressed as a percentage of vacant buildable residential lands = 7.4%

SCHOOLS

I don't have all of the data, therefore this is an approximation. It varies significantly by school district and I have used Camas data and projected it to the whole county.

Camas schools student generation numbers applied countywide:

192,635 population for K-5 =	0.256/2.59=	19,040 Elementary Students
192,635 populations for 6-8 =	0.129/2.59=	9,594 Middle School Students
192,635 populations for 9-12 =	0.165/2.59=	<u>12,272</u> High School Students
		40,906

Elementary 19,040 =	30 schools at 10 acres =	300 acres
Middle School 9,594 =	10 schools at 20 acres =	200 acres
High School 12,272 =	7 schools at 35 acres =	<u>245 acres</u>
		745 acres

Expressed as a percentage of vacant buildable lands = 5.3%

Note: 27.7% + 7.4% + 5.3% = 40.4%