Yakima County Shoreline Mater Program Update
Cumulative Impacts Analysis

I. Introduction

The updated Yakima County Shoreline Master Program contains policies and standards for the regulation of development that achieves a no net loss of ecological function. The intent of this analysis is to address the potential cumulative impacts on shoreline ecological functions that would result from reasonably foreseeable future shoreline development and uses. Cumulative impacts result when the effects of an action such as land development are added to or interact with other effects at any particular place and within any particular time. It is the combination of these effects that is the focus of this analysis.

While impacts can be singled out by direct, indirect, and cumulative, the whole concept of cumulative impacts takes into account all impacts, considering cumulative impacts result in the compounding of the effects of all actions over time. Thus, the cumulative impacts of an action can be viewed as the total effects on shoreline areas.

To comply with the requirement to assure no net loss of shoreline ecological function, state guidelines assert that cumulative impacts must be evaluated along with the direct effects and indirect effects of each policy and regulation. By requiring the consideration of cumulative impacts, the regulations ensure that the range of actions that is considered in development includes not only the project proposal, but also all actions that could contribute to cumulative impacts.

a. Regulatory Setting and Guidance

Evaluating and addressing cumulative impacts shall be consistent with the guiding principle found in the Washington Administrative Code (WAC) 173-26-186 (8)(d). An appropriate evaluation of cumulative impacts on ecological functions will consider the factors identified in WAC 173-26-186 (8)(d)(i) through (iii)

(i) Current circumstances affecting the shorelines and relevant natural processes;
(ii) Reasonably foreseeable future development and use of the shoreline, and;
(iii) Beneficial effects of any established regulatory programs under other local, state, and federal laws.

The above guidelines must be used to ensure that the County's actions achieve a no-net loss of ecological functions. For such commonly occurring and planned development, policies and regulations should be designed without reliance on an individualized cumulative impacts analysis. Local government shall fairly allocate the burden of addressing cumulative impacts. For development projects that may have unanticipatable or uncommon impacts that cannot be reasonably identified at the time of master program development, the master program policies and regulations should use the permitting or conditional use permitting processes to ensure that all impacts are addressed and that there is no net loss of ecological function of the shoreline after mitigation.

Similarly, local government shall consider and address cumulative impacts on other functions and uses of the shoreline that are consistent with the act.

b. Current Circumstances
Important current circumstances to consider are (1) ownership patterns, (2) level of development, and (3) zoning designations. As described in Section III, below, the majority of Shoreline jurisdiction in Yakima County is within public and tribal ownership, which greatly reduces the jurisdiction of Yakima County. In addition, a large potion of the Shorelines in private ownership are already developed, which also limits the impacts of new development on Shorelines.

A large portion of the Shorelines within Yakima County jurisdiction are zoned for rural and natural resource use, thereby limiting densities of development within the Shoreline. Yakima County currently has the Rural/Extremely Limited Development Potential (R/ELDP) zoning designation along the major Shorelines with a FEMA designated floodway. The R/ELDP zone has a minimum lot size of 40 acres, which has a significant affect on the density of development within that zone.

The current draft of the updated SMP contains the proposed Floodway/CMZ environment, which is similar to zoning. The Floodway/CMZ environment is comprised of the FEMA designated Floodway and a landscape inventory of Channel Migration Zones (CMZ) for select Shoreline reaches. The basic concept of the Floodway/CMZ environment is that it is the most hazardous and environmentally sensitive area of the Shoreline, with a limited number of allowed uses. By concentrating the most restrictive standards within the Floodway/CMZ environment, standards in the other environments can be more flexible.

c. Reasonably Foreseeable Future Development.
While current circumstances are important to consider as a baseline, they can also be used to predict potential future development. Important attributes to consider are (1) public/private/tribal ownership, (2) zoning, (3) potential sub-division, and (4) existing level of development. Publicly owned lands have limited development pressure. Developed parcels may not be more intensely developed. The rural and natural resource zoned areas outside of the urban areas generally do not get rezoned for other uses. An analysis of existing zoning and the potential for sub-division can predict where future development and parcel division may occur.

The proposed Floodway/CMZ environment is intended to concentrate the more protective standards to the most sensitive and hazardous Shoreline areas. So, parcels within this environment have limited development potential. By focusing the more restrictive standards in the Floodway/CMZ environment, more commercial uses have the opportunity to be established in other environments; generally at the edges of Shoreline jurisdiction, within the lower elevation Shoreline reaches where more development happens.

For those Shoreline parcels that are developed, future development will generally consist of additions, outbuildings, and the occasional bulkhead. Most future development on undeveloped lots will probably consist of residential construction, which is exempt from a Substantial Development Permit. There are very little commercial or industrial areas within Shoreline jurisdiction, and where there are, it is usually an existing use. Any small scale commercial development will probably occur in the rural areas, generally as support for agricultural and recreational uses. Undeveloped and partially developed lots are expected to see some degradation due to owner use; especially due to incremental yard encroachment, which can be influenced but not totally controlled through land use permitting. The analysis also attempts to

consider some of the environmental limitations that can affect developability within Shoreline jurisdiction.

d. Beneficial effects of any established regulatory programs

There are numerous local, state, and federal controls that affect development within Shoreline jurisdiction, and fortunately within the Yakima Basin, there are numerous agencies and organizations that foster voluntary programs to protect and restore important Shoreline ecological functions. The Shorelines of Yakima County make up a very small percentage of the total area of Yakima County, and therefore have not seen an intense level of development since the adoption of the SMP in 1974. State and Federal regulatory authorities that also contribute to no net loss of Shoreline ecological function include, but may not be limited to:

- Washington Department of Fish and Wildlife Hydraulic Code authority;
- Washington Department of Ecology Shoreline Management Act authority;
- Washington Department of Ecology Clean Water Act authority;
- Washington Department of Natural Resources Forest Practices Act authority;
- Washington Department of Natural Resources Surface Mining Act authority;
- Washington Department of Natural Resources Aquatic Lands Act authority;
- US Army Corps of Engineers Rivers and Harbors Act authority, and;
- US Environmental Protection Agency/ Army Corps of Engineers Clean Water Act authority.

II. Mapping Methodology

The Yakima County Geographic Information Systems (GIS) Department conducted an analysis, utilizing existing data, to assess the potential development opportunities and limitations within Shoreline areas.

a. Private and Public Land Ownership Data: The Shoreline jurisdictional area was over-laid with the county's Parcel map layer. Parcel information was used to determine how much of the shoreline jurisdictional area is owned privately or publicly. The information contained in the public/private land ownership data was based on just the land contained within shoreline jurisdictional area. Many parcels extend out beyond the shoreline jurisdictional area and the areas outside the jurisdictional area were not included in the data. Public ownership includes any government owned agency or organization (i.e. Yakima City, Yakima County, Yakama Indian Nation). Private was an individual or private held company or organization (i.e. Yakima Greenway Foundation, Yakima Fruit & Cold Storage).

b. Developed, Minor Developed, and No Development Data: Using just privately owned lands within the shoreline jurisdictional area, parcel information was utilized to determine if a parcel had been developed or not. The parcel attribute table contains a value that shows estimated value of land improvement on the parcel as determined by the Yakima County Assessor. Three categories were determined:

- No Development – No improvement value listed for that parcel
- Minor Developed – improvement value was greater than 0, but less than $30,000.
- Developed – improvement value was greater than $30,000.

c. Yakima Zoning Data: Privately owned parcels that are contained or partially contained within the jurisdictional area were used in this analysis. Zoning for each parcel was determined using county and city zoning maps.

d. Dividable Parcel Data: Privately owned parcels that are contained within the Shoreline jurisdictional area were used in this analysis. A land use zone from county and applicable city zoning ordinances for each parcel was determined. Most land use zones have a minimum parcel size. This minimum parcel size was used to determine how much a parcel could be divided till it reached the minimum parcel size for that zone.

e. Environmental Limitations: Privately owned parcels that are contained or partially contained within the Shoreline jurisdictional area were used in this analysis. An analysis of potential development limits included the presence of FEMA Floodway, geologic hazards, degree of slope, and wetlands within the shoreline area.

III. Current Circumstances

There are three (3) key factors relating to current circumstances that affect shoreline development: land ownership, level of development and current zoning of the parcel. Using these three factors, a baseline can be established of the current conditions along Yakima County's shoreline areas so as to provide the County with a clear picture of how development may affect Shoreline areas. While these three factors set a baseline of current conditions, land ownership and zoning also provide a view into foreseeable future development. Public ownership generally remains stable or in the case of conservancy ownership, actually increases. Current zoning within Shoreline areas, which determines development potential, generally remains stable, especially within resource lands (agriculture and forestry).

a. Land Ownership

Yakima County has a diverse array of ownership dispersed between federal, state, tribal and private entities. The majority of federal ownership is divided between the Forest Service and the Department of Defense. The majority of state ownership is divided between the Department of Natural Resources and the Department of Fish and Wildlife. The Yakama Nation is also divided between the Closed Area and the Open Area. Yakima County has limited jurisdiction within the Yakama Nation Open Area and no jurisdiction within the Yakama Nation Closed Area. Public ownership is not distributed evenly across the County, but is generally concentrated to specific areas. Federal ownership is generally segregated, with National Forest and Wilderness Areas dominating the western half, and Department of Defense ownership occupying the northeast corner of the County. State ownership generally comprises a checkerboard pattern along the fringe of federal ownership, and a large portion along the boundary with Kittitas County to the north. The Yakama Nation Closed Area dominates the southwestern 1/3 of the County; Figure 1 depicts this general pattern. The distribution of ownership, as outlined in Table 1, identifies the amount of private and public ownership within Shoreline jurisdiction.

Figure 1

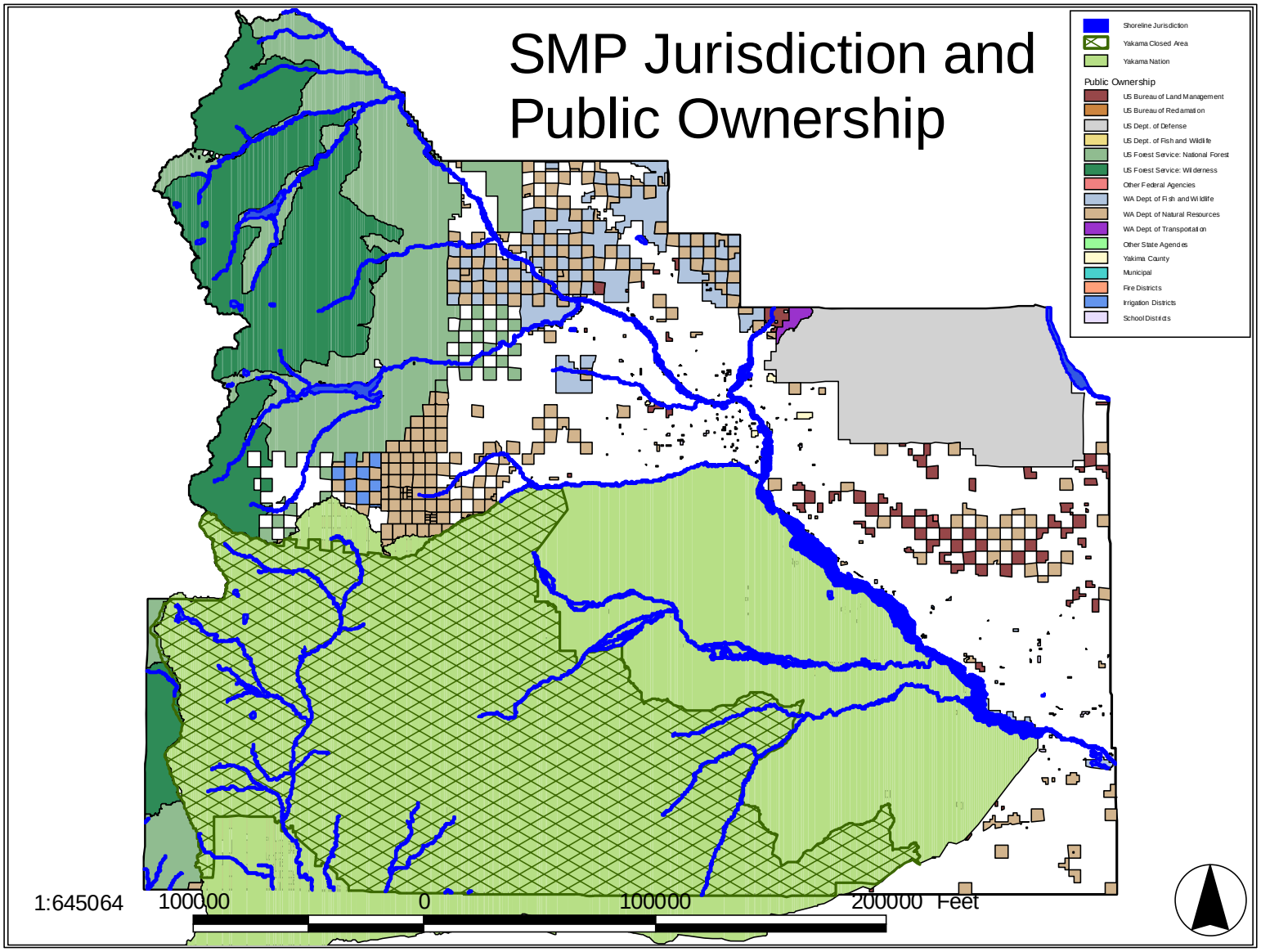

SMP Jurisdiction and Public Ownership
Shoreline Jurisdiction
Yakama Closed Area
Yakama Nation
Public Ownership
US Bureau of Land Management
US Bureau of Reclamation
US Dept. of Defense
US Dept. of Fish and Wildlife
US Forest Service: National Forest
US Forest Service: Wilderness
Other Federal Agencies
WA Dept. of Fish and Wildlife
WA Dept. of Natural Resources
WA Dept. of Transportation
Other State Agencies
Yakima County
Municipal
Fire Districts
Irrigation Districts
School Districts
1:645064
100000
0
100000
200000 Feet

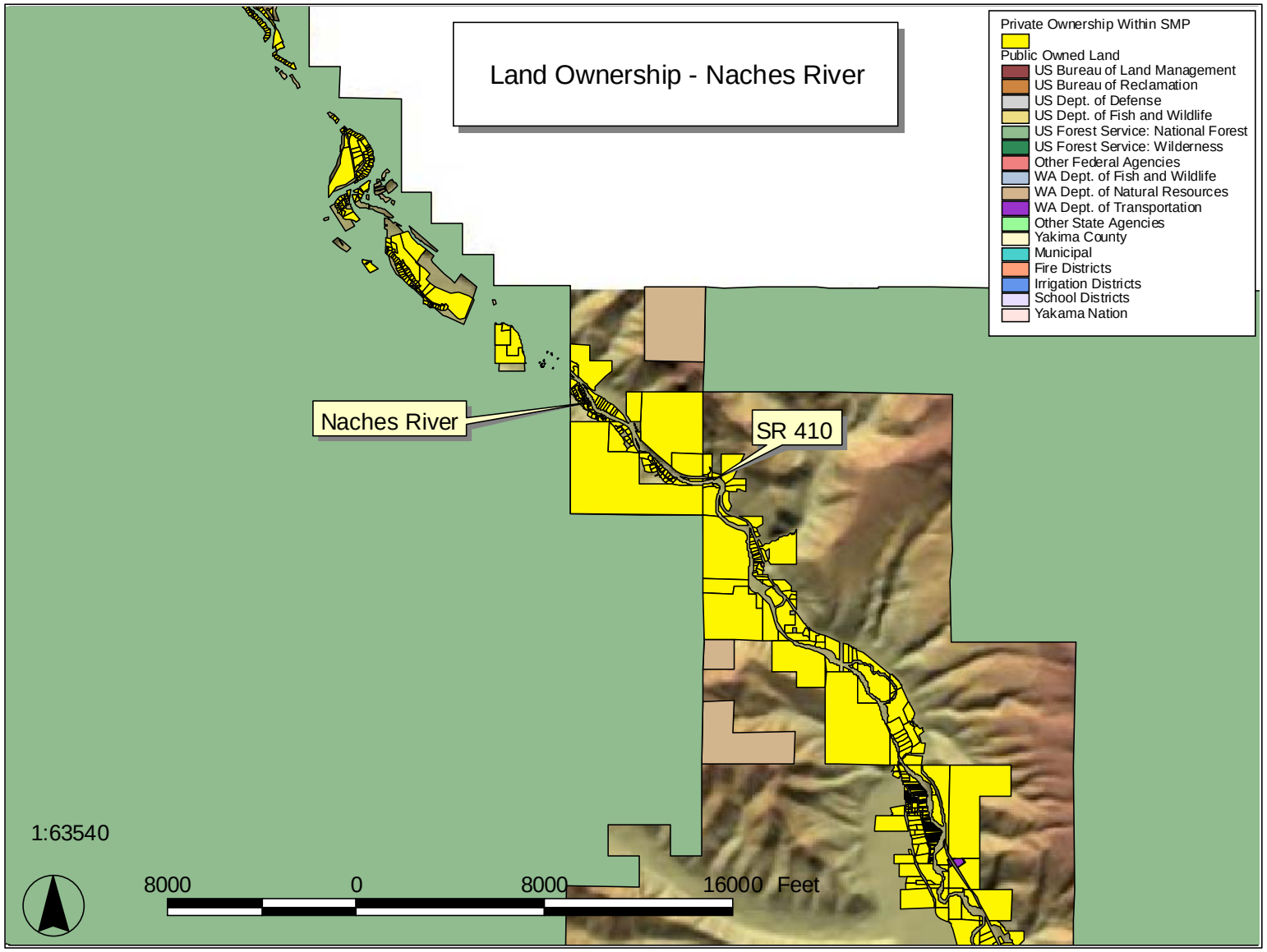
Table 1. Land Ownership

Shoreline Area	Total Acres	Private Acres	Public Acres
Streams			
Ahtanum Creek (N & S Fork)	2,827.17	1,598.51	1,228.66
Bumping River Basin	5,122.28	44.20	5,078.08
Cowiche Creek	899.29	563.40	335.89
Klickitat River Basin	9,590.40	411.48	9,178.92
Little Naches River	1,757.36	2.21	1,755.15
Naches River	5,812.39	3,029.32	2,783.07
Rattlesnake Creek	1,298.76	165.09	1,133.67
Satus Creek Basin	4,090.14	242.99	3,847.15
Tieton River Basin	3,775.74	235.77	3,539.98
Toppenish Creek Basin	8,186.60	1,501.17	6,685.43
Yakima River	22,852.50	4,312.69	18,539.81
Lakes			
Bumping Lake	1593	3.94	1589.06
Big Elton Pond	46.72	3.54	43.18
Byron Ponds	181.83	0.00	181.83
Priest Rapids Pool/Columbia River	2,495.31	101.03	2,394.27
Buchanan Lake	86.10	65.70	20.40
CB-E-300	52.62	10.15	42.47
Clear Lake	329.90	14.29	315.61
CB-E-301	84.37	22.80	61.57
Dewey Lake	81.94	0.00	81.94
Cowiche Reservoir	58.62	54.25	4.36
Cougar Lake	122.16	0.00	122.16
Griffin Lake	210.68	0.00	210.68
Horseshoe Lake	128.59	18.17	110.42
Grandview WWTP	230.07	0.00	230.07
Freeway Lake	46.28	0.00	46.28
Fish Lake	129.27	0.00	129.27
Dog Lake	93.67	0.00	93.67
Graham & Morris Pits	108.89	20.43	88.46
Pear Lake	46.23	0.00	46.23
Leech Lake	71.55	0.00	71.55
Lake Aspen/Willow Lake	143.96	96.63	47.32
Horseshoe Pond	81.52	0.00	81.52
Howard Lake	82.92	0.00	82.92
Parker Pits	114.19	39.90	74.29
PS-E-311	90.55	0.00	90.55
Mud Lake	67.62	0.01	67.60
Mt Adams Lake	105.25	0.00	105.25
Morgan Pond	74.95	0.03	74.92
Rimrock Lake	2,971.04	6.65	2,964.40
Selah Pits	375.42	292.37	83.05
Slaughterhouse Lake	80.37	26.64	53.72
Swamp Lake	82.06	0.00	82.06

Shoreline Area	Total Acres	Private Acres	Public Acres
Totus Rd Pond #1	105.96	0.00	105.96
Totus Rd Pond #2	140.00	0.00	140.00
Totus Rd Pond #3	233.12	0.00	233.12
Twin Sisters Lake	233.02	0.00	233.02
Two Lakes - Lower	216.91	0.00	216.91
Two Lakes - Upper	327.22	0.00	327.22
Un-named	60.94	0.00	60.94
Unnamed Lake	33.01	32.89	0.12
Wenas Lake	158.34	81.93	76.41
Totals	**76,549.06**	**12,990.72**	**63,558.34**
Percent %		**17%**	**83%**

Table 1 above illustrates that only 17% of the total shoreline area is privately owned, while the publicly owned land encompasses 83% of the total. A small percentage of land within the shoreline areas is privately owned, therefore only a small percentage of land has development potential. An important distinction between public and privately owned land can be viewed as those lands which have the greater possibility of developing. Typically, public land is not available for development, while privately owned land will probably be developed over time. When public land is developed, it is generally developed for public access, and therefore consistent with the SMA. Figure 2 below illustrates how limited the private development potential is within a portion of the Upper Naches River.

Figure 2


Land Ownership - Naches River
Private Ownership Within SMP
Public Owned Land
US Bureau of Land Management
US Bureau of Reclamation
US Dept. of Defense
US Dept. of Fish and Wildlife
US Forest Service: National Forest
US Forest Service: Wilderness
Other Federal Agencies
WA Dept. of Fish and Wildlife
WA Dept. of Natural Resources
WA Dept. of Transportation
Other State Agencies
Yakima County
Municipal
Fire Districts
Irrigation Districts
School Districts
Yakama Nation
Naches River
SR 410
1:63540
8000
0
8000
16000 Feet

b. Level of Development

The second factor to help identify the current circumstances along shoreline areas is the level of existing development. Identifying the parcels that have already been developed allows us to easily record "what's on the ground" or the current circumstances. This ultimately provides for a baseline to estimate future development. Table 2 below identifies total acreage within Shoreline jurisdiction that has been developed, contain minor development or no development at all, as defined in the GIS methodology in section II.

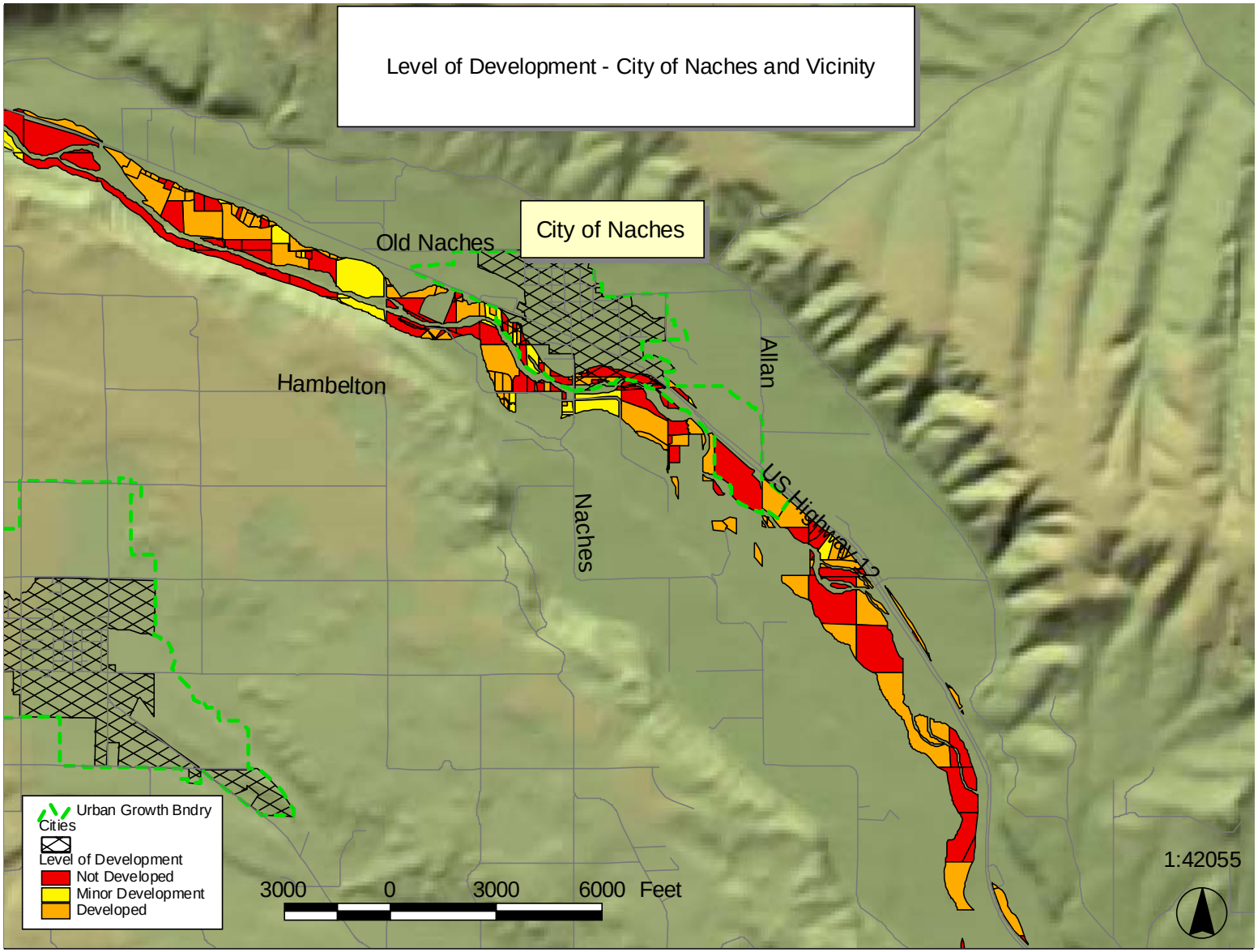
Table 2 Level of Development

SHORELINE	Total Acres	No Development	Minor Development	Developed
Ahtanum Creek	1,598.51	702.07	256.42	640.02
Buchanan Lake	65.70	65.66	0.00	0.05
Bumping River	44.20	0.74	8.46	35.00
CB-E-300	10.15	0.40	0.62	9.13
CB-E-301	22.80	3.78	4.29	14.72
Clear Lake	14.29	0.00	0.00	14.29
Cowiche Creek	563.40	246.29	84.79	232.32
Cowiche Reservoir	54.25	5.40	46.23	2.63
Graham & Morris Pits	20.43	12.58	0.66	7.19
Horseshoe Lake	18.17	0.00	0.00	18.17
Klickitat River	411.48	411.48	0.00	0.00
Lake Aspen	96.63	65.37	0.00	31.27
Little Naches River	2.21	0.00	0.92	1.29
Morgan Pond	0.03	0.00	0.00	0.03
Mud Lake	0.01	0.00	0.00	0.01
Naches River	3,029.32	1,341.66	331.73	1,355.93
Parker Pits	39.90	27.18	10.19	2.53
Priest Rapids Pool	101.03	77.35	0.00	23.68
Rattlesnake Creek	165.09	112.25	10.75	42.08
Rimrock Lake	6.65	0.00	0.65	6.00
Satus Creek	242.99	229.11	0.33	13.55
Selah Pits	292.37	276.56	2.68	13.13
Slaughterhouse Lake	26.64	0.00	0.00	26.64
Tieton River	235.77	202.14	1.64	31.99
Toppenish Creek	1,501.17	867.55	195.05	438.56
Unnamed Lake	32.89	26.87	0.89	5.13
Wenas Lake	81.93	48.96	32.74	0.23
Yakima River	4,312.69	2,373.67	373.31	1,565.71
Totals	**12,990.72**	**7,097.07**	**1,362.35**	**4,531.30**
		55%	**10%**	**35%**

The data in Table 2 identifies that approximately 45% of all the private land within the Shoreline areas has been developed. While the 55% of undeveloped private parcels have the potential for development, not all can be fully developed. Many of the undeveloped parcels are located within areas that limit or restrict their development potential such as the FEMA Floodway and the Channel Migration Zone. This analysis also does not take into account the presence of critical

areas (wetlands, geologically hazardous areas, and wildlife habitat) that may limit the level of development. Figure 3 below illustrates the overall development pattern within the Lower Naches River area.

Figure 3


Level of Development - City of Naches and Vicinity
City of Naches
Old Naches
Hambelton
Allan
Naches
US Highway 12
Urban Growth Bndry
Cities
Level of Development
Not Developed
Minor Development
Developed
3000
0
3000
6000 Feet
1:42055

c. Zoning

The third key factor to help with identifying the current circumstances and potential future development of shoreline areas is zoning. Each parcel is zoned for a particular use; this can range from commercial to residential to agricultural. Each zone has its own development standards and restrictions, which can limit a parcel's potential for development. Zoning also determines the division potential, since the minimum parcel size and densities are located in the Zoning Ordinance. Table 3 below identifies the number and type of zoned parcels within Shoreline areas.

Table 3. Current Zoning

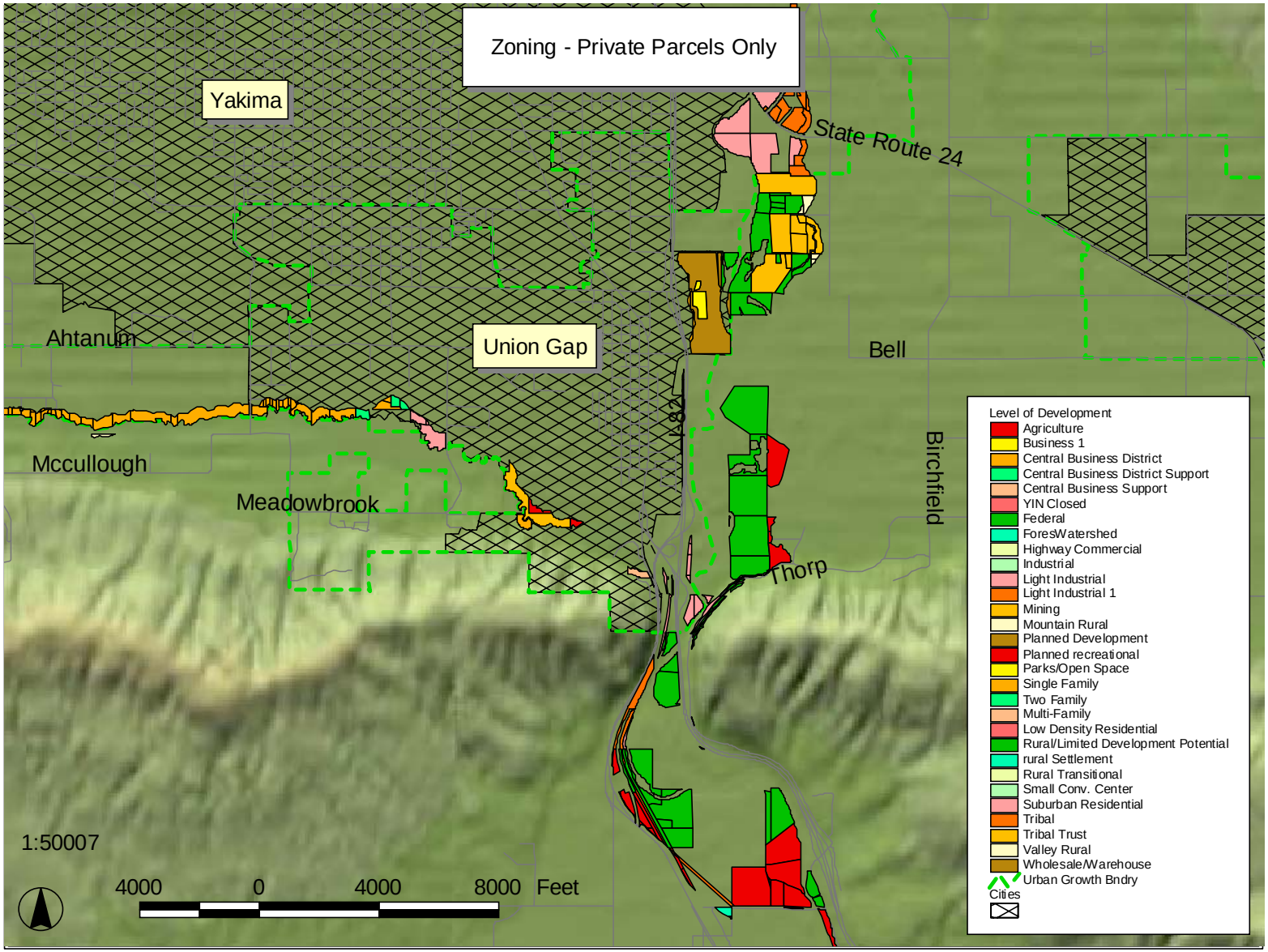
Number of parcels in each group																															
Zoning	**All Count**	**AG**	**B-1**	**CBD**	**CBDS**	**CBS**	**CLSD**	**FED**	**FW**	**HC**	**I**	**L-1**	**LIM**	**M-1**	**MIN**	**MR**	**PD**	**PRc**	**PKO**	**R-1**	**R-2**	**R-3**	**RL-1**	**RLDP**	**RS**	**RT**	**SCC**	**SR**	**TRIB**	**TT**	**VR**	**W/W**	**Total**
Reach																																
AhtanumCreek	442	59	0	0	0	0	3	0	123	0	0	6	0	0	0	0	0	2	0	63	3	1	0	42	0	9	0	3	1	1	126	0	442
Buchanan Lake	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4
BumpingRiver	113	0	0	0	0	0	0	0	106	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	113
CB-E-300	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	5	0	9
CB-E-301	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	12
CLEARLAKE	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
CowicheCreek	209	88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	4	0	0	16	0	0	0	39	0	0	46	0	209
CowicheReservoir	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Graham&MorrisPits	11	4	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	11
KlickitatRiver	21	0	0	0	0	0	1	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
LakeAspen	122	0	21	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	97	0	0	0	0	1	0	0	0	0	0	122
LittleNachesRiver	12	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
MorganPond	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MudLake	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
NachesRiver	1428	70	0	0	0	0	0	0	25	6	4	0	29	0	0	182	15	0	0	22	0	0	0	841	61	23	0	26	0	0	124	0	1428
ParkerPits	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
PriestRapidsPool	18	9	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
RIMROCKLAKE	69	0	0	0	0	0	0	0	69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69
RattlesnakeCreek	38	0	0	0	0	0	0	0	10	0	0	0	0	0	0	8	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	38
SatusCreek	108	9	0	0	0	0	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0	5	0	0	0	108
SelahPits	26	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	15	0	26
Slaughterhouse Lake	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TietonRiver	58	1	0	0	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	0	0	0	0	0	0	0	58
ToppenishCreek	129	96	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	13	0	0	0	3	0	0	0	129
Unnamed Lake	14	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	14
WenasLake	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	11
YakimaRiver	842	177	0	5	6	8	0	0	0	1	3	0	136	50	15	0	3	0	2	39	2	0	5	223	2	7	0	78	12	0	64	4	842
Totals	**3708**	**522**	**21**	**5**	**6**	**8**	**78**	**9**	**390**	**7**	**7**	**6**	**165**	**53**	**28**	**204**	**18**	**2**	**2**	**140**	**9**	**98**	**5**	**1186**	**115**	**51**	**1**	**150**	**21**	**1**	**396**	**4**	**3708**

Table 3. Current Zoning (Continued)

Zoning	AG	B-1	CBD	CBDS	CBS	CLSD	FED	FW	HC	I	L-1	LIM	M-1	MIN	MR	PD	PRc	PKO	R-1	R-2	R-3	RL-1	RLDP	RS	RT	SCC	SR	TRIB	TT	VR	W/W	Total
Reach Percentage																																
Ahtanum Creek	13.35%	0.00%	0.00%	0.00%	0.00%	0.68%	0.00%	27.83%	0.00%	0.00%	1.36%	0.00%	0.00%	0.00%	0.00%	0.00%	0.45%	0.00%	14.25%	0.68%	0.23%	0.00%	9.50%	0.00%	2.04%	0.00%	0.68%	0.23%	0.23%	28.51%	0.00%	100.00%
Buchanan Lake	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%
Bumping River	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	93.81%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
CB-E-300	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	44.44%	0.00%	0.00%	0.00%	0.00%	0.00%	55.56%	0.00%	100.00%
CB-E-301	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%
Clearlake	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
Cowiche Creek	42.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.66%	1.91%	0.00%	0.00%	7.66%	0.00%	0.00%	0.00%	18.66%	0.00%	0.00%	22.01%	0.00%	100.00%
Cowiche Reservoir	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
Graham& Morris Pits	36.36%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	27.27%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	36.36%	0.00%	100.00%
KlickitatRiver	0.00%	0.00%	0.00%	0.00%	0.00%	4.76%	0.00%	95.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
LakeAspen	0.00%	17.21%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.46%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	79.51%	0.00%	0.00%	0.00%	0.00%	0.82%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
LittleNaches River	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
MorganPond	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
MudLake	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
NachesRiver	4.90%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.75%	0.42%	0.28%	0.00%	2.03%	0.00%	0.00%	12.75%	1.05%	0.00%	0.00%	1.54%	0.00%	0.00%	0.00%	58.89%	4.27%	1.61%	0.00%	1.82%	0.00%	0.00%	8.68%	0.00%	100.00%
ParkerPits	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
PriestRapids Pool	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
Rimrock Lake	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
Rattlesnake Creek	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	26.32%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	21.05%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	52.63%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
SatusCreek	8.33%	0.00%	0.00%	0.00%	0.00%	67.59%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	19.44%	0.00%	0.00%	0.00%	0.00%	4.63%	0.00%	0.00%	0.00%	100.00%
SelahPits	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	38.46%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.85%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	57.69%	0.00%	100.00%
Slaughterhouse Lake	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
TietonRiver	1.72%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	37.93%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	60.34%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
Toppenish Creek	74.42%	0.00%	0.00%	0.00%	0.00%	0.78%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.40%	10.08%	0.00%	0.00%	0.00%	2.33%	0.00%	0.00%	0.00%	100.00%
Unnamed Lake	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	85.71%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
WenasLake	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	63.64%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	36.36%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
YakimaRiver	21.02%	0.00%	0.59%	0.71%	0.95%	0.00%	0.00%	0.00%	0.12%	0.36%	0.00%	16.15%	5.94%	1.78%	0.00%	0.36%	0.00%	0.24%	4.63%	0.24%	0.00%	0.59%	26.48%	0.24%	0.83%	0.00%	9.26%	1.43%	0.00%	7.60%	0.48%	100.00%
Zone Percentage	14.08%	0.57%	0.13%	0.16%	0.22%	2.10%	0.24%	10.52%	0.19%	0.19%	0.16%	4.45%	1.43%	0.76%	5.50%	0.49%	0.05%	0.05%	3.78%	0.24%	2.64%	0.13%	31.98%	3.10%	1.38%	0.03%	4.05%	0.57%	0.03%	10.68%	0.11%	100.00%

The data provided in Table 3 indicates that the Agricultural (AG), Remote/Extremely Limited Development Potential (R/ELDP), and Forest Watershed (FW) zones make up approximately 57% of the private lands within Shoreline areas. The minimum lot size allowed in the R/ELDP and AG zone is 40 acres (with limited smaller lots available in the AG zone), and the minimum lot size in the FW zoned is 80 acres, which suggests that those parcels within these zones have limited development potential and pose limited residential impacts to shoreline areas. Valley Rural (VR) and Mountain Rural (MR) make up approximately 16% of the Shoreline area. Both of these zones have a 5 to 10 acre minimum lot size depending on location and road conditions. The addition of these two categories, resource and rural zones, equates to approximately 73% of the private Shoreline area. The Residential Zones, which include all of the R zones (R-1, R-2, R-3, RL-1), the Suburban Residential, (SR), and the Rural Settlement (RS) zones comprise approximately 15% of the private Shoreline area. The business and commercial zones (B1, CBD, CBDS, BBS, HC, W/W) equal about 1%, and the industrial zones (I, L-1, M-1) equal about 2%. Minimum parcel size and density within the residential, business, commercial, and industrial zones is dependent on the availability of public sewer and water. Without public sewer and water, development potential is very limited. Tribal (TRIB, TT, CLSD) and federal (FED) zoning equals about 3%. Recreational (PRc) and Open Space zoning (PKO) account for only .1%. The "city limit" zone (LIM) is an anomaly of the County Zoning data to acknowledge a boundary with the cities, and is not actually a zoning designation. Yakima County no longer has a Planned Development zone, which only makes up .49%, and has been replaced with a Master Planned Resort zone, of which none have been designated. Figure 4 below depicts the zoning distribution of private lands at the confluence of the Ahtanum Creek and the Yakima River. This area includes that cites of Yakima and Union Gap, portions of their Urban Growth Areas (UGA), and the border with the Yakama Indian Nation.

Figure 4


Zoning - Private Parcels Only
Yakima
State Route 24
Ahtanum
Union Gap
Bell
Mccullough
Meadowbrook
Thorp
Birchfield
1:50007
4000 0 4000 8000 Feet
Level of Development
Agriculture
Business 1
Central Business District
Central Business District Support
Central Business Support
YIN Closed
Federal
ForesWatershed
Highway Commercial
Industrial
Light Industrial
Light Industrial 1
Mining
Mountain Rural
Planned Development
Planned recreational
Parks/Open Space
Single Family
Two Family
Multi-Family
Low Density Residential
Rural/Limited Development Potential
rural Settlement
Rural Transitional
Small Conv. Center
Suburban Residential
Tribal
Tribal Trust
Valley Rural
Wholesale/Warehouse
Urban Growth Bndry
Cities

IV. Foreseeable Future Development

The specific methods of determining reasonably foreseeable future development varies according to local circumstances, including economic and demographic characteristics, as well as the physical extent of local shoreline areas. Cumulative impacts are the impacts on the shoreline areas resulting from the accumulation of the incremental impacts of past, present, and reasonably foreseeable future actions regardless of who undertakes such actions. Cumulative impacts can result from individually minor actions occurring over time, most of which are land use projects.

Local land use projects are often the result of private and public planning and investments. The general public is usually unaware of specific private project plans, or funding until local project permit applications are submitted, and that is when these private projects are typically available for public review. Therefore, many specific land use developments over the next 20 years cannot be reasonably identified. However, it is reasonable to assume that some level of development will occur (both public and private actions), with resulting developmental impacts mitigated through the permitting process. The overall level of development can only be predicted at this point and time. There are many factors that can directly affect the future development: parcel ownership, the availability of developable land, potential segregations, zoning, and especially the economy or future job market.

The demographic characteristics of Yakima County can provide current population, and population projections, which can help with predicting the foreseeable future development. Population projections can identify potential additions to the housing stock as well, although for the most part the vast majority of the County's projected population increases will be absorbed by the incorporated cites, not the rural areas, and not the restrictive shoreline areas. The Washington State Office of Financial Management (OFM) has an estimated 2005 population of 229,300[1] and a projected population of 283,884[2] by 2025 for Yakima County. That equates to roughly a 1% annual growth rate for Yakima County. The County's estimated annual growth rate is less then the state's projected average annual growth rate of 1.09%, which suggests that Yakima County will remain behind the state's average for the next 20 years and is projected not to experience significant growth. Those OFM numbers are just estimates and projections and are based only on current circumstances affecting the county. The County growth rate can change at anytime. Also, it was not possible to attribute any specific population data to the Shoreline area based on current census tract configuration.

a. Parcel Ownership

Table 1 in Section III identifies the ownership distribution within the Shoreline area. This is a useful tool in estimating the foreseeable future growth along shoreline areas. As illustrated in Table 1, only 17% of the total shoreline areas are privately owned. Typically, publicly owned lands are not available for future development. There are however situations where publicly owned lands are sold to private parties and developed, however those situations are rare and should not be counted on. Generally, when public lands are developed, it is so for public purposes. Generally, private ownership is concentrated in the valley bottoms at lower elevations. This is where most of the development has occurred over the last 150 years. Most of the

[1] Office of Financial Management, Forecasting Division, June 28th 2005.
[2] Office of Financial Management, WA. State County Population Projections, Release

developable land has already been converted to farmland of residential uses. Generally, the remaining parcels are un-developable due to a number of limiting factors, including but not limited to flood hazards.

b. Availability of Developable Land

Table 2 in Section III identifies that approximately 45% of all the private land within the shoreline areas is developed. However not all of the undeveloped private parcels can be developed, many of the parcels are located with areas that limit their development potential, such as the FEMA Floodway and the Channel Migration Zone. Of the 75,703 acres of undeveloped, private land within Shoreline jurisdiction, 32,599 acres, or 43%, is within the proposed Floodway/CMZ environment. There are other factors that can limit development potential, including the availability of services and the presence of critical areas (i.e. wetlands, geologic hazards, wildlife habitat).

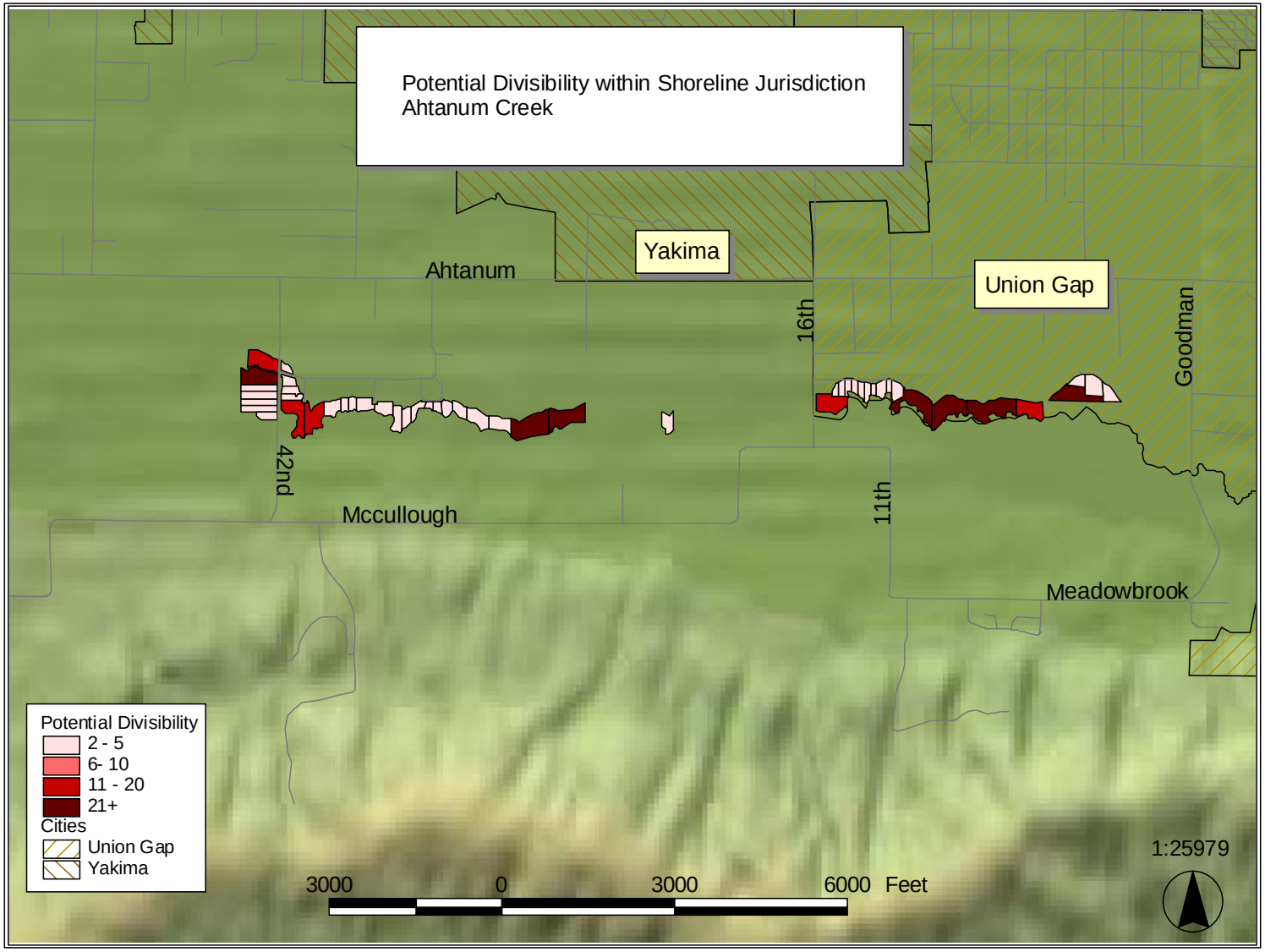
c. Parcel Division Potential

Table 4, below, indicates the number of potential divisible parcels, based on zoning, within the shoreline area. A particular parcel's zoning designation and minimum parcel size is the basis for determining it's potential for division, although the minimum lot size does not take into consideration the area necessary for services and easements for those services. As stated in section IIc, the zoning distribution within Shoreline jurisdiction is heavily weighted to the resources zones, such as Ag, R/ELDP, and FW. These zones have very limited division potential. It is important to note that the existence of a divisible parcel along a shoreline area doesn't necessarily provide for an indication of the foreseeable development. The parcels may have several limits to development besides minimum lot size. In Table 4, below, the number of potential parcels that could theoretically be created has been calculated. GIS analysis clipped the private, divisible parcels to the Shoreline jurisdiction, thereby reducing the size of the existing parcel to the area only within Shoreline jurisdiction. 145 parcels have a dividable area within Shoreline jurisdiction. There are 101 parcels within Shoreline jurisdiction that are zoned Single Family (R-1). Division within the residential, commercial, and industrial zones is dependant on the availability of public sewer and water. In the R-1 zone, minimum parcel size is limited to 2½ acre without public water or sewer. Of the 145 parcels with potential divisibility, only 20 are not currently developed. Of those, 16 are R-1, and 1 is Highway Commercial. Of those 20 undeveloped parcels, 12 intersect with proposed Floodway/CMZ environment, which may limit development potential. This is a general calculation that does not take any other conditions into account. Figure 5 below depicts the potential divisibility of the lower Ahtanum Creek, in and around the City of Union Gap.

Table 4 . Parcel Division Potential

Zone	Total Number of Dividable Parcels within Zone	Number of Potential Parcels
Agriculture	1	2
Highway/Tourist Commercial	6	40
Industrial	3	19
Multi-family	5	55
Professional Business	6	13
Rural/Limited Development Potential	2	5
Single Family (R-1)	101	1359
Two Family (R-2)	6	74
Valley Rural	3	8
Total	145	2484

Figure 5


Potential Divisibility within Shoreline Jurisdiction
Ahtanum Creek
Yakima
Ahtanum
Union Gap
16th
Goodman
42nd
Mccullough
11th
Meadowbrook
Potential Divisibility
2 - 5
6- 10
11 - 20
21+
Cities
Union Gap
Yakima
3000
0
3000
6000 Feet
1:25979

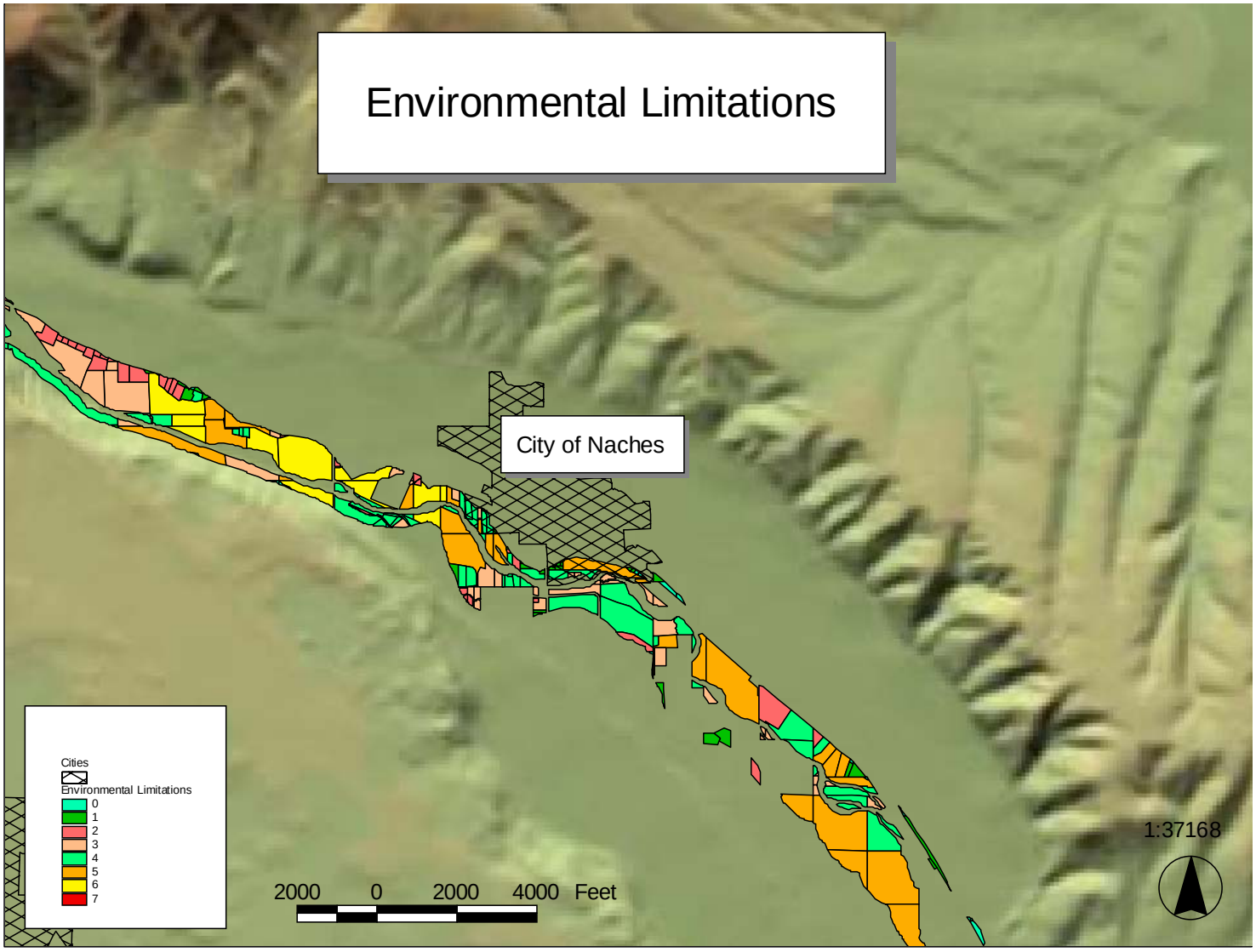
d. Environmental Limitations.

Analysis of environmental limitations included the presence of the FEMA designated floodway, FEMA designated Floodplain, geologic hazards, wetlands, and Type 1 through 5 streams. All 5 factors were determined to be present or absent, and the additive score for limitations are calculated for each parcel, with a maximum score of 7. The FEMA floodway is double weighted, since development within it is severely restricted. A significant number of parcels contained more than one geologic hazard, so a parcel could get two points for multiple geologic hazards. Table 5, below, illustrates the distribution of parcels with environmental limitations. The presence of an environmental limitation does not prohibit development, but these are factors that will have to be taken into consideration when permitting any development. Most development impacts on streams and wetlands can be mitigated to provide for no net loss of ecological function, but some geologic hazards can be cost prohibitive to develop. Construction of any permanent residence, which is the main development choice, is prohibited in the FEMA floodway. Figure 6 below depicts a portion of the Naches River in and around the City of Naches, and the distribution of environmental limitations. It is important to note that the more limitations a parcel has, the more difficult and costly it is to develop. This reduces the likelihood that parcels with several limitations will be developed. 54% of the Shoreline parcels have 2 or more limitations.

Table 5

Number of Limitations	Number of Parcels with Limitations	% of Total
0	727	19%
1	1037	27%
2	704	18.36%
3	642	16.7%
4	501	13.06%
5	189	5%
6	31	.8%
7	3	.08%
Total	**3834**	**100%**

Figure 6


Environmental Limitations
City of Naches
Cities
Environmental Limitations
0
1
2
3
4
5
6
7
2000 0 2000 4000 Feet
1:37168

V. Benefits of Established Regulatory Programs.
As noted in the introduction, there are numerous federal, state, and local regulatory programs that also protect Shorelines, and which all work to manage the cumulative impacts on Shoreline areas.

Yakima County has a number of codes that regulate development, from zoning and subdivision to the building and nuisance codes, all of which have an affect on development in Shoreline jurisdiction. But the basis for regulating development within Shoreline jurisdiction is the Shoreline Master Program. Yakima County has recently drafted an updated Shoreline Master Program that also integrates GMA Critical Areas and Flood Hazard standards.

The updated SMP contains goals, policies, and regulations that address individual and cumulative impacts on Shoreline ecological functions. The existing SMP contains standards for variances, conditional uses, exemptions, and substantial developments, all of which the County has the authority to require mitigation of impacts on a project by project basis. The existing CAO, adopted in 1995, is a partially integrated SMA/GMA ordinance that incorporates mitigation sequencing and the use of restoration as mitigation. The updated CAO/SMP has re-emphasized mitigation sequencing and incorporated more specific standards for reports that may be required to ensure that there is no net loss of ecological function.

As a matter of perspective, Yakima County has processed approximately 420 Shoreline applications since 1974. Approximately 186 of those were exemptions, which leaves approximately 234 full permits, which averages out to 8 permits per year. While Yakima County has a large amount of Shoreline area, the majority of it is in public or tribal ownership that has next to no development pressure. Shoreline areas within the incorporated cities of Yakima County are generally already developed, or are maintained as recreational open space. The greatest potential for development in the Shoreline is found in the rural areas. It is the rural areas where most of the limits to development exist (i.e. zoning, limited services, access, and public ownership). The majority of development within the rural areas will be limited to single family homes on existing lots. The development of single family homes is exempt from the Shoreline Substantial Development permit process, but the County has authority to condition such developments to ensure a no net loss of ecological function.

The updated CAO/SMP has specified low impact or maintenance uses that are allowed without a permit or review in order to add more clarification on what is and what is not regulated. In addition, the updated CAO/SMP has explicitly outlined what developments are exempt from the permit process, what it means to be exempt, and what the project proponent must do to be exempt from the permit process. This will ensure, to the extent that development controls can, no net loss of Shoreline ecological functions.

VI. Conclusion.
Cumulative impacts from future development are difficult to predict. Although, from the data analyzed above, additional impacts from future development within Yakima County Shorelines will most likely be limited, based on the following data:

- 83% of Shoreline jurisdiction is publicly/tribally owned;

- 17% of the Shoreline jurisdiction is privately owned;
- There are 3708 parcels, or 3.6%,, out of 101,891, with Shoreline jurisdiction;
- Only 297 parcels, or 8%, of the 3708 parcels, have division potential;
- Only 2484 parcels have the potential to be created within Shoreline jurisdiction across the entire county. Mainly concentrated within the cities Urban Growth Areas;
- 45% of the private lands within Shoreline jurisdiction are already developed to some degree, with impacts already established;
- Development of the remaining 55% will be subject to the Critical Areas Ordinance and the Shoreline master Program, which will consider and address existing environmental limits;
- 81%, of the private Shoreline parcels have one or more environmental limitations. 54% have two or more limitations. This increases the difficulty in developing, and reduces the likelihood of their development;
- Other beneficial regulatory programs listed in Section V, will also protect Shorelines and reduce cumulative impacts.

The cumulative impacts of foreseeable future development within Yakima County can be adequately addressed through the land use permitting process by requiring developments to closely follow mitigation sequencing, and relying on the conditional uses established in the SMP.