Analyzing Planning Factors for Characterization of Okanogan County's Shorelines

Supplemental Methodology Report to Accompany the Shoreline Master Program
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Introduction and Rationale

Shorelines throughout Okanogan County reflect both biophysical and human influences. To accurately characterize shoreline environments, the Shoreline Master Program Guidelines (Chapter 173-26 of WAC) require SMPs to "identify and assemble the most current, accurate, and complete scientific and technical information available that is applicable to the issues of concern."

The Okanogan Regional SMP is based on inventories and evaluations of biophysical and human influences. This report described the use of technical information that pertains to man-made patterns across the landscape that shape the overall shoreline uses. Referred to here as ***planning factors***, these influences provide information that can be used to inform future development decisions as well as explain why or how certain shoreline conditions have occurred. A separate report, the *Okanogan County Shoreline Ecological Characterization* (Appendix A) written by ENTRIX, Inc. ("ENTRIX"), discusses the use of biophysical data and the influence of ***science factors***. By integrating the planning factors with the science factors an overall picture of the shorelines can be created. The characterization provided in Chapter 4 for each shoreline zone reflects the accumulation of science and planning factors across multiple analysis units. The characterization was used to assign shoreline environment designations. The designation process is described in *Chapter 10: Shoreline Environment Designations* in the SMP.

The treatment of planning factors for this SMP differ from the methods used to analyze the scientific analysis in two primary ways. First, planning factors were neither viewed as positive or negative attributes to a given shoreline. While some planning factors were quantified and reported in terms of percentages or sums, each planning factor was treated objectively to provide a qualitative description that could be used to understand the built elements the landscape. Second, because planning factors were used qualitatively they were not weighted. That is, an individual factor did not uniformly influence the final environmental designation process. However, at the individual analysis unit scale certain planning factors often exhibited more influence than others. When this occurred, that planning factor often directed the decision process for designation. For instance, an analysis unit might have a high density of lot subdivision and therefore exhibits an exiting or anticipated pattern of land development, whereas the current *land use* (DOR code) still read as agricultural. In this case, the parcel size and density (planning factor) would influence the character and designation of the shoreline more than its current land use, as it is assumed the land use is in the process of change.

The purpose of this paper is to provide a clear and concise representation of the planning factors used to characterize the shorelines of Okanogan County. This paper also describes the sources of information inventoried and the methods used to evaluate the planning factors.

Planning Factors, Data Sources, and Methods

The planning factors listed below were inventoried and evaluated alongside science factors to derive a characterization of Okanogan County's shoreline areas (found in Chapter 4). Each planning factor was evaluated spatially by displaying the information on maps to inform the characterization and eventual designation process. Planning factor data were collected from a variety of sources; types of data used are listed in the subsection headings below. Similarly, certain planning factors were tabulated and summarized at analysis unit (AU) scale and were entered into the Characterization Database housed at the County. A list of the planning factors evaluated for this SMP follows:

a. Relative Parcel size and density
b. Current land use
c. Building Setbacks and Number of Structures
d. Public Access
e. Transportation facilities
f. Current Comprehensive Plans and Zoning maps
g. Local Knowledge (input from SAG and TAG + staff and consultants)
h. Ownership Patterns
i. Other built elements (Over-water Structures, levees, dikes).

Relative Parcel Size and Density

Parcel size and density of subdivision reveals patterns of land development across the landscape that can be used to understand growth patterns and future land uses. For shoreline designations, legally established lot patterns can and should be considered in the process (Stewart, J."*The Art and Science of Environmental Designation*". DOE: http://www.ecy.wa.gov/programs/sea/sma/st_guide/SMP/download/ArtandScience.pdf accessed June 2007.) Okanogan County is expected to continue to experience a growth in real estate development Therefore, its shoreline and associated river valleys and lakefronts will likely see continued development pressure. The current (amended 1987) SMP that regulates shoreline development in Okanogan County does not allow for subdivision in shorelines that fall under the "Conservancy", "Natural" or "Rural" designation. This has resulted in a moratorium on subdivision along the vast majority of county's shorelines and a pattern of minimal development along waterways has emerged. The moratorium on subdivision, however, has not halted development of shoreline parcels that have stayed intact.

The size of parcel relates directly to Comprehensive Land Use designation, Zoning designation, associated land uses, and Okanogan County Health District requirements for water availability and sewage disposal. Agricultural land parcels, for example, are

typically larger than rural residential parcels. The term "relative" is used here to refer to a comparison of parcel sizes within and among analysis units. Therefore, relative sizes of parcels in an analysis unit were viewed alongside other factors such as comp plan designations, zoning, proximity in or to UGAs and LAMIRDs, and land use codes to estimate the likelihood of future development in a reach. This estimation is reflected in both the recommendations found in the *Chapter 4: Characterization* as well as within the final designations (*Chapter 7*). Similarly, parcel density is related to size. The smaller the parcels, the denser the development pattern and the likelihood of certain uses can be assumed.

Method:

Okanogan County's GIS provided a parcel database that was used to visually display the level of subdivision and parcel size throughout the shoreline environment. This parcel database served as source layer for information regarding land use, shoreline permits, shoreline exemptions, parcel size, and ownership patterns. The parcel layer was clipped to represent all parcels that intersect the shoreline boundaries. Okanogan County GIS personnel produced and provided the parcel layer used as the source data for all analyses.

Current land use

Okanogan County uses DOR (Department of Revenue) codes to identify current land uses on a parcel level. DOR codes were used to quantify land uses in shoreline parcels for every analysis unit. For the purpose of this SMP analysis, new land use categories were produced to simplify the analysis and depict land uses that would include water-oriented uses. Okanogan County's DOR categories were consolidated and amended as follows:

Okanogan County DOR Categories	**Okanogan SMP Land Use Categories**
Residential	Residential
Manufacturing Transportation Communication Utilities	Industrial
Trade Services (exceptions marked with * below)	Commercial
Cultural Entertainment Recreational	Public Use
Agricultural Resource Production and Extraction Open Space (exceptions marked with ** below)	Agricultural
Undeveloped Lands (exceptions marked with *** below)	Undeveloped
*Resorts, Group Camps, Dude Ranches	Resort

** Pits, Mines	Mining
***Water	Water

Method:

The number of parcels in each Land Use category was calculated for each analysis unit. The resulting percentages thus show the number of parcels dedicated to a given land use, rather than the percentage of the total area dedicated to that use. The rationale for tabulating land uses by number of parcels rather than area is twofold: land use zoning follows parcel boundaries (rather than other geographic boundaries); and by using parcels rather than acreage we captured the context of neighboring land uses.

Building Setbacks and Number of Structures

Average setbacks were used to characterize the building patterns along the shorelines for two primary purposes. First, by understanding the current pattern of building setbacks, consistent and fair requirements can be adopted in this SMP. Second, setback requirements and standards can be carefully tailored to consider aesthetic and environmental impacts along shorelines by knowing current setbacks and visual impacts.

The unincorporated and unclassified portions of Okanogan County's shorelines exhibit a wide range of building types for various uses ranging from agricultural production facilities to vacation cabins. Setbacks for buildings also range depending on the type and use. Current building codes require 50 foot minimum setback for residential structures from the ordinary high water mark (OHWM) in unincorporated portions of the county (cite comp ordinance or SMP). Discussion of conflict with flooding etc

Agricultural, commercial, and industrial buildings in the county are subject to setback standards. Small structures (less the 400 sq ft) such as picnic shelters and sheds are currently unregulated in the shoreline areas and non-permanent structures such as trailers and tent platforms are also unregulated. These small structures, over time, have the potential to alter sensitive shoreline environments, impede riverine processes, or contribute waste materials during high flows. Most importantly their placement and value can create an incentive for owners to permanently modify shorelines by placing riprap or modifying vegetation.

Method:

Aerial photography from the 2007 National Aerial Photo Program (NAIP) was provided by Okanogan County for location and measurement of structures within and adjacent to the shoreline boundaries. A GIS system was used to measure every building setback visible in the NAPP photos that fell within or adjacent to shoreline areas. However, tree canopy cover obscured visibility in highly vegetated riparian areas making an accurate count and measurement for every building in the shoreline environment nearly impossible. The types of small structures mentioned above were particularly difficult to locate. Therefore, the average setback calculations provided in this analysis should be used as a general guide, not a statistically accurate measure. Nonetheless, the setbacks

and structure count do provide a wealth of information regarding the built elements within the shorelines of Okanogan County, which can be used to describe, characterize, designate, and establish regulations for shoreline areas.

Public Access and Recreation

SMA prioritizes seven preferred uses of shorelines in Washington State in RCW 90.58.020. The SMA identifies public access and the development and expansion of recreational facilities along shorelines as the 5th and 6th priorities, respectively. Furthermore, Shorelines of Statewide Significance carry increased priority for protection of the shoreline in a natural state, increased public access, and increased recreational opportunities. The vast majority of Okanogan County's major river systems are declared Shorelines of Statewide Significance and therefore warrant such provisions.

Method:

An inventory of existing public access sites was compiled by ENTRIX and Highlands Associates. Locations of access points were gathered from printed maps, state and agency websites, and local knowledge. Access points consisted of boat ramps, launches, parks, fishing access areas, public docks and public lands along shorelines. These sites were then digitized in a GIS to create a point shapefile. The number of public access points was then summed for each analysis unit.

In addition to the above existing public access sites, potential access site were identified and digitized into GIS by Highlands Associates. Criteria to identify potential sites consisted of the following:

- publicly owned shorelines (including PUD lands)
- dead end streets that terminate at shorelines
- rights of way and bridge crossings
- large undeveloped areas adjacent to UGAs

A level of service area analysis to determine the density and frequency of a public access to rivers and lakes was not developed for the Okanogan Regional SMP. However, such a report would add needed information to the county's existing outdoor recreation plan.

Existing plans for expansion of recreational plans for the county's shorelines and waterbodies can be found the *Okanogan County Outdoor Recreation Plan* (March, 2004). The *Outdoor Recreation Plan* Demand/Need Analysis identified "a significant desire for improved and expanded access to water bodies including identified "river trails" in the County as well as improvements to those accesses which already exist." Similarly, the plan identified specific projects that have the potential to include connector trails or new recreation access to rivers and lakes that may be located in shoreline areas. These include but are not limited to: Silvernail Lake to Similkameen River trail, BLM lands along the Similkameen, Douglas County PUD lands along the Columbia River, Okanogan County Enloe Dam project, Winthrop to Twisp Trail, Okanogan River in the vicinity of McLaughlin and Keystone Canyons, Okanogan to Omak Greenway, Chief Tonasket Riverfront Park Development, Riverfront Trail Completion in Brewster. The capital

improvement plan of the *Okanogan County Recreation Plan* calls for development of increased river and lake access to begin in 2006.

Transportation/Circulation (existing roads and rail/AU)

Current Comprehensive Plans and Zoning (1964 Comprehensive Plan)

Comprehensive plans describe future land use goals for communities and set forth local vision as to how a community will look and operate in the future. Okanogan County is currently in the process of updating its 1964 comprehensive plan. Therefore, concurrency between the Okanogan Regional SMP and the County's Comprehensive Plan is a difficult requirement to fulfill as the goals, visions, and zoning that will accompany the comprehensive plan will not be clearly articulated before completion of the SMP. Despite this conflict, the county is committed to developing and adopting shoreline designations, regulations, and development standards that are consistent with anticipated land use needs and development patterns. This will likely be achieved through the application as (of?) zoning overlays in shoreline areas to concur with the comprehensive plan (Huston, Perry, Planning Director, direct communication Planning Summit June 11, 2008).

Land use categories expressed in the 1964 comprehensive plan include intensive agriculture areas, suburban residential areas, recreational residential areas, tourist commercial areas, industrial areas, and unclassified (Timber, Grazing , and Dryland Agriculture) areas. There are three (?) sub areas called out in the 1964 plan and subsequent amendments that designate special land use categories. They include the Barnholt Residential Agricultural District, Hwy 97 North of Oroville, both of which (?) include agricultural residential, suburban residential, and commercial areas; and the upper Methow Valley (School District 350?) which includes a wider array of land use areas. The remainder of the county is zoned Minimum Requirement District which has no prohibited uses and requires no planned development standards for any land use proposal. The Methow Valley has an updated comprehensive plan known as *Upper Methow Valley Comprehensive Plan* (March, 2006) (also known as the Sub-Unit A plan) which more rigidly defines land uses and zoning for those portions of planning sub unit A. The county's comprehensive planning process (underway as of June, 2008) seeks to provide a common language and code system to serve all areas of the county including those portions of sub unit A, Barnholt, and Oroville.

Methods:

The vast majority of the shorelines fall within the Minimum Requirement District zone of the 1964 plan. Therefore, little guidance was provided by reviewing the comprehensive plan and zoning (?) in these areas. Those areas in the Barnholt, Methow, and Oroville zones were reviewed for logical consistency between draft designations and zoning.

Incorporated towns within the county also have comprehensive plans. The planning factors analysis included a review of current comprehensive plans and zoning district boundaries within incorporated towns. AU boundaries and designations were adjusted to logically align with existing land use designations in those plans and regulations.

Ownership (public/private/PUD)

Ownership information was gathered from the Okanogan County parcel database (part of the County's GIS). Ownership patterns in Okanogan County are closely tied to topographic patterns. Private ownership is largely consolidated in the lower elevations along river valleys, whereas most publicly-owned land is in large tracts at mid to high elevations. ___% of the shorelines of in Okanogan County are within private ownership, whereas __% fall in public ownership.

The Douglas County PUD holds a significant amount of land (amount in miles) along the Wells Pool (Columbia River) shoreline. This unique ownership pattern places a large portion of undeveloped shorelines into public (? Semi? Quasi?) ownership.

Methods:

The percentage of parcels in each type of ownership was summed for each analysis unit. For instance, if an analysis unit had 9/10 parcels in private ownership, the characterization would read 90% private ownership. Ownership was characterized by number of parcels rather than areal extent because shoreline environment boundaries will lie along property lines. Ownership by area was calculated by ENTRIX in the science factors characterization report.

Local Knowledge (input from SAG and TAG)

The public participation portion of this SMP provided the opportunity to gain insight and knowledge from local caucus representatives and technical staff. Throughout the process, local information was openly accepted to help inform the characterization. Although there was no formal protocol to elicit feedback, issues of interest and concern were openly expressed and were recorded at meetings. When appropriate, stakeholder input was used to inform the characterization. This was especially useful with regards to towns' and cities' ambitions for riverfront developments that are currently being proposed or underway.

Other Built Elements in the Shorelines

Structures sited and located in shoreline environments represent a cultural (and economic?) value as well as a potential ecological stressor.

Overwater structures include docks, piers, ramps, and floats. These elements were inventoried using aerial photographs and digitized in GIS. ENTRIX staff used this information to characterize shoreline conditions, and listed overwater structures as a stressor in their analysis. As a planning factor, overwater structures present information about the relative intensity of use of the shoreline and the types of uses in a given

Analysis Unit. By knowing the number of structures within an analysis unit, conclusions can be drawn about the level of development along a shoreline.

Levees and dikes in the shorelines of Okanogan County consist of Army Corps of Engineers approved levees and un-approved levees. The presence of levees greatly alters the shoreline character and neighboring uses. Areas that were once frequently flooded are now protected and have undergone vast land transformation as land previously considered undevelopable has been made "safe." Neighborhoods and agricultural lands protected by levees and dikes exhibit land development patterns that are a direct result of the presence of these structures. In most instances areas protected by Army Corps of Engineers flood control levees are located within or near population centers and can expect to continue to see development.

Other small structures such as pipeline crossings, bridges, pedestrian bridges, pulleys, gaging stations, and irrigation diversions were noted, where known, to inform the characterization. However, the effect of such structures on shoreline character at the scale of this an entire analysis are typically small, localized influences. The placement of future small structures will be addressed in the designation regulations.

Synthesizing Ecological and Planning Factors for Characterization and Draft Environmental Designations

The shoreline characterization (Chapter 4) is a collection of descriptive elements (? Summaries?) for the shoreline zones in Okanogan County. The characterization report provided by ENTRIX delineated ---# of analysis units. The analysis units provided a detailed unit of assessment that could be inventoried and analyzed to arrive at ecological determinations at the AU scale. However, the number of analysis units made analyzing planning factors a difficult task. Planning factors, on the other hand, are meaningful at scales that show patterns independent of biophysical parameters, such as ownership and zoning. Therefore, a more inclusive unit, the character zone, was established to describe and characterize zones of the shorelines.

Character Zones

The purpose of the character zones is provide a concise and user-friendly description of the shorelines throughout Okanogan County. Character zones were delineated based on geographic and topographic (and jurisdictional?) boundaries to establish units of description for this characterization. The zones are purely descriptive and provide a boundary for mapping units as well as descriptive information. No analysis was done within the zones (at the zone scale? I think this means that there was no analysis of the group of AUs that constitute a zone, but the sentence isn't entirely clear to me.). Each character zone includes a number of analysis units whose associated ecological and planning factors are summarized and presented as part of the characterization in Chapter 4: Shoreline Inventory and Characterization. This information can be used as a reference to understand the final environment designations found in Chapter 10. Similarly, the zones can be used as an index tool for SMP administrators and plan users.

From Characterization to Designation

Environment designations may vary within zones, as the designations are based on multiple factors. Designations reflect the combined information from the ecological characterization, cumulative impacts assessment, and planning factors.