1. INTRODUCTION

King County is reevaluating its 30-year old Shoreline Master Program to ensure that it complies with State regulations adopted by the Washington Department of Ecology (Ecology) in 2003 (WAC 173-26). Ecology's regulations require all local governments updating their Shoreline Master Programs to conduct a shoreline inventory and characterization. This document evaluates several different elements of the shoreline, including ecology, public access and recreation, land use, and archaeological and historic resources. Also included are proposed methods for identifying cumulative impacts associated with shoreline management actions and for planning for shoreline restoration.

This document is organized according to the seven major sections listed below, with attachments. An overview is provided at the beginning of each section.

1. Introduction
2. Characterization of ecological processes
3. Public access and recreation
4. Land use
5. Archaeological and historic resources
6. Cumulative impact analysis
7. Restoration planning analysis

This introductory section provides an overview of the State's Shoreline Management Act and Shoreline Master Program Guidelines, discusses the reason for King County's reevaluation of it's existing Shoreline Master Program, defines King County's shoreline jurisdiction, and discusses how the inventory and characterization will be used.

A. Overview of the Shoreline Management Act

In 1972, Washington voters approved the Shoreline Management Act (Act). The Act has three broad policy goals (RCW 90.58.020):

1. Encourage water-dependent uses: "uses shall be preferred which are consistent with control of pollution and prevention of damage to the natural environment, or are unique to or dependent upon use of the states' shorelines..."
2. Protect shoreline natural resources, including "...the land and its vegetation and wildlife, and the waters of the state and their aquatic life..."
3. Promote public access: "the public's opportunity to enjoy the physical and aesthetic qualities of natural shorelines of the state shall be preserved to the greatest extent feasible consistent with the overall best interest of the state and the people generally."

The Act recognizes that "the shorelines of the state are among the most valuable and fragile of its natural resources" (RCW 90.58.020). In order to protect this fragile resource, the State is responsible for adopting guidelines for Shoreline Master Programs, reviewing and adopting local Programs, and reviewing shoreline development permits and variances for approval. The Act requires counties and cities to develop plans and adopt regulations to "prevent the inherent

harm in an uncoordinated and piecemeal development of the state's shorelines" (RCW 90.58.020). The Act makes protection of the shoreline environment an essential statewide policy goal consistent with the other policy goals of the Act.

The Shoreline Management Act establishes general policy goals for Shorelines of the State and special policy goals for Shorelines of Statewide Significance. (See Attachment A for definitions of these and other terms used in this document.) These policy goals provide guidance for use in the development of goals for each of the Master Program elements that must be addressed in local Shoreline Master Programs (RCW 90.58.100(2)).

The Act and Ecology's Guidelines establish the requirements for Shoreline Master Programs. In adopting Shoreline Master Programs, Local governments are required, to the extent feasible, to:

(a) Utilize a systematic interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts;

(b) Consult with and obtain the comments of any federal, state, regional, or local agency having any special expertise with respect to any environmental impact;

(c) Consider all plans, studies, surveys, inventories, and systems of classification made or being made by federal, state, regional, or local agencies, by private individuals, or by organizations dealing with pertinent shorelines of the state;

(d) Conduct or support further research, studies, surveys, and interviews as are deemed necessary[1];

(e) Utilize all available information regarding hydrology, geography, topography, ecology, economics and other pertinent data; and

(f) Employ, when feasible, all appropriate, modern scientific data processing and computer techniques to store, index, analyze and manage the information gathered. (RCW 90.58.100(1)).

B. Overview of Shoreline Master Program Guidelines

The Act gives Ecology authority to adopt Shoreline Master Program Guidelines (WAC Ch. 173-26; Guidelines) that local governments must follow when adopting and updating their Shoreline Master Programs. After adopting Guidelines in the 1970s to implement the then recently adopted Shoreline Management Act, Ecology did not substantially revise the Guidelines until 2003. The 2003 Guidelines include additional requirements designed to ensure that local Shoreline Master Programs do not result in a net loss of current and potential ecological functions necessary to sustain shoreline natural resources. The revised Guidelines also reinforce as a goal of shoreline master planning the improvement of the overall condition of habitat and resources within the shoreline area (WAC 173-26-201(2)(c)). The Guidelines also require local governments to plan for restoration of ecological functions where they have been impaired (WAC 173-26-201(2)(a)). The concept of 'net' as used in the Guidelines recognizes that development has impacts. Although development regulations and mitigation address most of the impacts of development, restoration plans will fill in the gaps so that the program, as a

[1] Ecology has determined that local governments are only required to use existing data and literature for the purposes of the shoreline inventory and characterization. This determination is embodied in the grant agreement between Ecology and King County (Shoreline Grant G0600095, as amended, March 2006).

whole, does not diminish shoreline resources as they existed when the Shoreline Master Program was adopted (WAC 173-26-201(2)(c)).

The Guidelines define two steps that must be incorporated into local Shoreline Master Program updates to ensure that local governments are meeting the requirements of the Act. First, local governments must to identify and assemble the most current, accurate and complete scientific and technical information available that is applicable to the issues of concern. Second, Master Program provisions must be based on an analysis that that scientific or technical information. The analysis should generally include identification of:

(a) Scientific information and management recommendations on which the Master Program provisions are based;

(b) Assumptions made concerning, and data gaps in, the scientific information; and

(c) Risks to ecological functions associated with Master Program provisions. Potential risks are to be addressed as described in WAC 173-26-201(3)(d). (WAC 173-26-201(2))

WAC 173-26-020 defines ecological functions (or shoreline functions) as the "work performed or role played by the physical, chemical, and biological processes that contribute to the maintenance of the aquatic and terrestrial environments that constitute the shoreline's natural ecosystem." Ecosystem-wide processes are defined as "the suite of naturally occurring physical and geologic processes of erosion, transport, and deposition; and specific chemical processes that shape landforms within a specific shoreline ecosystem and determine both the types of habitat and the associated ecological functions."

The Guidelines identify three main steps in characterizing shorelines:

1. Identify the ecosystem-wide processes and functions.
2. Assess the ecosystem-wide processes to determine which ecological functions are present within the jurisdiction and identify which functions are healthy, which have been significantly altered or adversely impacted and which functions may have previously existed and are missing.
3. Identify specific measures necessary to protect or restore processes and functions. Characterization may be accomplished by using an existing regional environmental management plan, available scientific and technical information, and/or a characterization approach that is greater in scope or complexity. (WAC 173-26-201(3))

Shoreline ecological functions analyzed in the characterization can include but are not limited to hydrologic functions, shoreline vegetation, hyporheic functions, and habitat. Characterization of these functions is tailored to the type of shoreline: rivers, lakes, marine, associated wetlands and floodplains. The overall condition of the shoreline is determined by the following ecosystem processes and functions:

- Distribution, diversity and complexity of the watersheds and shoreline environments
- Spatial and temporal connectivity within and between watersheds and shorelines
- Physical framework of the aquatic system
- Timing, volume, and distribution of woody debris

- Water quality
- Sediment regime
- Range of flow variability
- Species composition and structural diversity of plant communities (WAC 173-26-201(3)(d)

C. King County's Shoreline Master Program

King County's current Shoreline Master Program is guided by a policy document that was adopted by ordinance 3692 in 1978 entitled *Goals, Policies, Objectives – King County Shoreline Master Program.* The implementing development regulations were adopted by Ordinance 3688 and are codified in Title 25 of the King County Code. The development regulations include the standards for the four shoreline designations – natural, conservancy, rural and urban – and associated development standards. The County maintains a list and map of the specific shorelines subject to the Program (King County 1978); http://www.metrokc.gov/shorelines/original-shoreline-plan.aspx). The King County Shoreline Master Program applies only in the unincorporated area.

Except for minor amendments, King County's Program has not been modified since it was adopted, while King County has seen considerable change over that same period. A number of areas covered by the original program have been annexed or have incorporated. In addition, King County's population has grown significantly and many areas that had little or no development now have significant levels of development. As a result, existing shoreline designations may not reflect current conditions in the County's shorelines.

D. Schedule for Shoreline Master Program Update

The Act requires King County to complete an update its Shoreline Master Program to be consistent with new State Shoreline Management Guidelines by December 2009 (RCW 90.58.080). The following is the tentative schedule King County will follow in order to complete this update as required:

1. Review and prepare draft update of shoreline jurisdiction map (area subject to the Shoreline Master Program) (2005-2007)
2. Inventory and characterize the existing conditions of shorelines (2006-2007)
3. Public review of existing conditions and discussion of priorities for future shoreline management (January-February 2007)
4. Prepare draft Shoreline Master Program, including goals and policies, shoreline designations and development standards (spring 2007)
5. Public review of draft Shoreline Master Program (May-June 2007)
6. Public review of revised draft Shoreline Master Program (along with draft Comprehensive Plan update) (fall 2007)
7. King County Executive proposes Shoreline Master Program to King County Council (March 2008)
8. King County Council consideration of Executive proposal (2008)

E. Overview of King County Shorelines

King County covers 2,130 square miles and is geographically complex. It extends from Puget Sound in the west to 8,000-foot Mt. Daniel at the Cascade crest to the east. King County's landforms include saltwater coastline, river floodplains, plateaus, slopes and mountains, and extensive lakes and streams.

With more than 1.7 million people, King County is the most populous county in Washington State and the 13th most populous in the United States. The population of unincorporated King County, the territory outside of cities, includes about 352,000 people, about 20% of the County's population on 82% of its land area. King County's total population, both incorporated and unincorporated, has grown by 11% since 1994, and is expected to grow another 15% by 2022 (King County 2004A).

King County's diverse shorelines fringe or flow into Puget Sound and reflect an extensive history of tectonic, volcanic, depositional, and glacial influences (Booth et al. 2003). Puget Sound and surrounding lowland lakes and river valleys are relatively young in geologic terms and are the culmination of scouring and deposition of several major ice sheets, the most recent of which peaked about 16,000 years ago and ended about 10,000 years ago (Thorson 1980). Today, Puget Sound is seen as a glacially carved, relatively deep (average depth of 165 meters) fjord between the Cascade and Olympic Mountains (Burns 1985).

Puget Sound is King County's link to the Pacific Ocean via two connections: the Strait of Juan de Fuca and the Strait of Georgia. Although the Strait of Georgia is larger in area than the Strait of Juan de Fuca, the latter accounts for the vast majority (80 to 90%) of Puget Sound's tidal exchange with the Pacific Ocean due to its proximity to the main body of Puget Sound and less flow interference from islands and underwater shelves (Crean et al. 1998, Harrison et al. 1994). Water, people, and a diverse array of fish and wildlife travel freely between the ocean and King County via the Sound and these straits.

Puget Sound is a large estuary complex created by the large amounts of freshwater it receives (from streams, rivers and springs) and the constriction in tidal exchange caused by the two straits making it generally much less saline than the open ocean. It is one of the more prominent and productive estuaries in the world. In 1988, it was identified as an Estuary of National Significance by the U.S. government (U.S. Environmental Protection Agency, 1988). Within the Sound are numerous small to large estuaries, including many in greater King County. The largest estuary in King County is the Green-Duwamish, although it has been highly altered and is now a small remnant of its pre-development state (Kerwin, John and Nelson 2000).

King County's portion of the Sound lies within the Central Basin and includes Vashon-Maury Island (Burns 1985). The Central or Main Basin extends from Admiralty Inlet to Tacoma Narrows. It is the largest and deepest of the five basins, accounting for about 45% of the surface area and holding about 60% of the Sound's water (Burns 1985). The major drainages to the Central basin – the Cedar River/Lake Washington watershed, including Lake Sammamish and the Sammamish River; the Green-Duwamish watershed; and the Puyallup River/White River watershed – drain a total area of about 2,700 square miles and contribute slightly less than 20% of Puget Sound's freshwater input. The Snohomish watershed, including the Snoqualmie River basin that lies mostly in King County, has its outlet into Puget Sound in Everett.

As noted above, Puget Sound is a region that has great overlap between valuable natural resources and a burgeoning human population. The productivity, diversity and value of the resources are greatly affected by the extent and density of the population. Due to proximity to transportation routes and abundant food and water resources, most of the region's human development since the mid-1800s, when settlers of European descent started to explore and develop the region, has occurred along Puget Sound's shorelines, large lakes, and rivers (Chasen 1981).

Development has caused profound alterations in King County's shorelines (Bortleson et al. 1980; Canning and Shipman 1995; Chrzastowski 1983; Haas and Collins 2001; Bolton and Shellberg 2001; King County 1993; Williams and Thom 2001; Nightingale and Simenstad 2001). Typically, the most basic and extensive effect of these alterations is in altered hydrology, erosion patterns and water quality; these alterations result from the conversion of native vegetation and pervious soils to impervious and often pollution-generating surfaces such as roads, parking lots, rooftops and lawns (Booth 1989; Hicks, et al. 1991; Booth and Reinelt 1993; Booth and Jackson 1997; Booth and Henshaw 2001; Booth et al. 2002; National Research Council 2002). Additionally, development tends to fragment and reduce the size, structural complexity, and connectivity of key habitats and migration and dispersal corridors for plants and animals and to increase the prevalence of invasive species (Noss and Cooperrider 1994; Forman 1995; Tiebout et al. 1997; Mortberg 2001; Porter et al. 2001; Tewksbury et al. 2002; Aznar 2003; Fahrig 2003; Forman et al. 2003; Haddad et al. 2003; Wissmar and Bisson 2003). Ecologically, the result of these alterations is a reduction in the diversity, productivity and resiliency of native species and communities that do not tolerate pollution or change (Karr and Chu 1999)

Land use policies and regulations are used to manage development impacts in King County. Development-related impacts are often intended to be off-set or mitigated by engineered systems (e.g., stormwater pipes and ponds) or on- or off-site restoration actions. Such efforts do not restore the pre-existing conditions, and full mitigation of effects is rarely achieved (National Research Council 2001; National Research Council 2002). These projects are often costly and not self-sustaining, and though they may fix or lessen a near-term, local problem, they tend to exacerbate long-term problems or create new ones (Terich 1987). For example, bank hardening and bulkheading along marine and freshwater shorelines often refocuses and diverts water energy into adjacent areas causing sediments to be eroded and deposited elsewhere and exacerbating or creating new impacts. The result is often a cycle of ongoing, costly ecosystem impacts involving facility construction, repair, and maintenance (Terich 1987).

F. King County's Shoreline Jurisdiction

Shorelines of the state include all marine shorelines, lakes greater than 20 acres, and rivers and streams with a minimum of 20 cubic feet per second (cfs) mean annual flow (RCW 90.58.030). The Act applies to these water bodies and shorelands. Shorelands are defined as those areas extending landward for 200 feet from the ordinary high water mark, floodways and contiguous floodplain areas landward two hundred feet from such floodways[2], and all associated wetlands[3]

[2] King County currently includes the zero-rise floodway, essentially the 100-year floodplain, in its shoreline jurisdiction. For the purposes of the King County Shoreline Master Program, floodways and contiguous floodplain areas 200 feet from such floodways are currently defined as those zero-rise floodways that are adjacent to shorelines of the state. Zero-rise floodway is defined in King County Code 21A.06.505 as "the channel of a stream and that portion of the adjoining floodplain that is necessary to contain and discharge the base flood flow without any measurable increase in base flood elevation. A. measurable increase in base flood elevation means a calculated upward rise in the base flood elevation, equal to or greater than 0.01 foot, resulting from a comparison of existing conditions and changed

and river deltas. Taken together, shorelines of the state and shorelands comprise the shoreline jurisdiction.

Within the shoreline jurisdiction, some areas are identified as shorelines of statewide significance. Shorelines of statewide significance include Puget Sound shorelines (those on Vashon-Maury Island), lakes that are 1,000 acres or greater in size, and rivers with a mean annual flow of 1,000 cfs or greater (RCW 90.58.030). The State has adopted guidelines specific to these major shoreline areas. See Volume 2, Map 2 to view the locations of shorelines of statewide significance.

King County's shoreline jurisdiction was last evaluated in the 1970s, shortly after the adoption of the Act. At that time, federal lands, such as national parks and wilderness areas, were excluded. A then current United States Geological Survey report was used to identify the point at which streams meet the 20 cfs threshold. With respect to lakes, the original state legislation and policies included in WAC 173.20 identified lakes meeting the 20-acre threshold by name, largely based on surface acreage published in the 1965 edition of E. Wolcott's 'Lakes of Washington, Vol. 1. Western Washington.'

As part of its Shoreline Master Program update, King County is reevaluating its shoreline jurisdiction. With respect to federal lands, Ecology has determined that streams and lakes meeting the statutory definition should be included in Shoreline Master Programs. With respect to streams, a more recent United States Geological Survey report will be used to identify the point where streams meet the 20 cfs threshold. With respect to lakes, King County has used more recent data, as described below, to identify lakes subject to the Act.

Table 1 below shows the number of shoreline miles managed under the current Program, and additional miles that would be managed if shoreline jurisdiction is extended. ***NOTE: Extension of the shoreline jurisdiction is subject to adoption by the King County Council and approval by Ecology.***

Table 1. Miles of Shoreline Included in King County Shoreline Master Program

	Shoreline (miles)			
	Lake	**River/Stream** (includes both banks)	**Marine**	**Total**
Current Jurisdiction (existing Shoreline Master Program)	162	1,196	51	1,409
Potential Extension of Jurisdiction (draft updated shoreline jurisdiction)	72	500	0	572
Total (current jurisdiction and potential extension)	234	1,696	51	1,981

The number of parcels completely or partially within the total shoreline jurisdiction is 15,659. This number of parcels amounts to 10.9% of all parcels in the unincorporated area of King County.

conditions directly attributable to alterations of the topography or any other flow obstructions in the floodplain. Zero-rise floodway is broader than the FEMA floodway, but always includes the FEMA floodway. B. Zero-rise floodway includes the entire floodplain unless a critical areas report demonstrates otherwise."

[3] For the purposes of this document, associated wetlands include all wetlands that are fully or partially with the shoreland area, as there is no more specific data on associated wetlands.

Following is a description of the general methods used to prepare the draft updated shoreline jurisdiction map – for each type of water body (see Volume 2, Map 1; see Attachment I for more detail on the geographic information systems analysis used to update the map).

Rivers and Stream Shorelines
Ecology directed the County to use *Determination of Upstream Boundaries on Western Washington Streams and Rivers under the Requirements of the Shoreline Management Act of 1971* (US Geological Study, 1998) to identify the point where stream and river flows meet the 20 cfs threshold. These threshold locations were used to identify the full extent of streams and rivers that should be managed under the Shoreline Master Program. Approximately 500 miles of river and stream shorelines would be added to the shoreline jurisdiction.

Marine Shorelines
No study was required to identify marine shorelines. Vashon-Maury Island is the only unincorporated marine shoreline in King County; all other marine shorelines in King County are in incorporated areas and managed by cities.

Lake Shorelines
New information, land use decisions, changes in jurisdiction, and differing approaches to defining lake boundaries all were recognized to have potential impact on which lakes would be managed under the Shoreline Management Act. The original list of lakes was reviewed and updated. Lake surface areas were verified and the list was compared to the current King County Department of Development and Environmental Services (DDES) list of lakes regulated under the current Shoreline Master Program. Each lake that was determined to be above the threshold of 20 acres in surface area is listed in Attachment C, which includes the acreage for each lake published by different sources, as well as a new King County analysis of surface area for those lakes very close to the 20-acre threshold.

<u>Changes in Lake Shoreline Jurisdiction</u>
Fifty lakes would be added to King County's shoreline jurisdiction based on Ecology's direction to include lakes located on federal lands. In addition, one lake will be removed from the list and another will be reassigned to a different category. The addition of 50 lakes will nearly double the original number of lakes included in King County's shoreline jurisdiction. The vast majority of these lakes are located in areas with natural or nearly natural conditions, with land use in their catchment basins generally limited to logging or roadless alpine recreational activities (as is typical on federal forest lands and recreation areas).

The body of water that will be removed from the King County's shoreline jurisdiction is listed in WAC 173-20 as Mill Pond, also known as Boise Lake, White River Mill Pond, and as a class 2 wetland (White River 54). It could not be located in recent aerial photographs of the area. DDES records indicate that a permit application was submitted by the property owner to fill the water body.

The water body that will be reclassified is listed in WAC 173-20 as Mud Mountain Reservoir. The reservoir results from water impoundment by a flood-control dam on the White River that straddles the border of King County and Pierce County. For most of each year, the reservoir exists only as a river running through the valley, since the function of the dam is to detain flood waters in order to limit impacts on the Puget Sound lowlands during large precipitation and rain-on-snow events. The need to impound water does occur every year; there are often long periods of time when little or no water is impounded. Thus, the reservoir does not function as a

lake, but more as a high capacity floodplain. As a floodplain, it will still be within King County's shoreline jurisdiction.

In addition to these changes, two lakes listed separately in WAC 173-20 were combined in the revised list: Chester Morse reservoir and Masonry Pool, which is immediately downstream. These are impoundments that are directly adjacent to each other and nearly confluent in the Seattle water supply system, drawing from precisely the same catchment and are essentially the same from the shoreline management point of view.

Through its implementation of the current Shoreline Master Program, DDES determined that several lakes not listed in WAC 173-20 were subject to the program because they met the Act's thresholds. All of these lakes are included within King County's shoreline jurisdiction.

For all lakes, geographic information systems information on lake surface acreage was compared with four other sources for lake size.

1. The primary ArcGIS/ArcView shapefile 'wtrbdy.shp' and wetland data were used as the basis for mapping lakes throughout the County and was compiled from a variety of sources at the time of its creation. Unfortunately, it was not always possible to trace the precise source for the surface acreage listed for each lake in this shapefile.
2. The surface acres listed in Lakes of Washington (Wolcott, 1965) were compared to wtrbdy.shp, as well as the acreage listed in WAC 173-20 for all lakes included.
3. A list of lakes identified by the Washington Department of Ecology as meeting the 20-acre threshold was compared to the two previous sources to look for major discrepancies between the lists (Betty Renkor, Northwest Regional Office of Washington Department of Ecology, October 11, 2005).
4. Discrepancies between the data that might impact listing and all lakes with surface areas close to 20 acres were noted and the shorelines were redrawn by King County staff using aerial photos from series taken in 1996, 1998, 2000, and 2002, as well as Lidar hillshade and 5-foot isocontour shapefiles.

<u>Ordinary High Water Mark</u>
The term "ordinary high water mark" is used in the Shoreline Management Act RCW 90.58 as the basis for establishing whether or not a lake surpassed the 20-acre threshold requirement. In RCW 90.58, it is defined as:

> "Ordinary high water mark on all lakes, streams, and tidal water is that mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation as that condition exists on June 1, 1971, as it may naturally change thereafter, or as it may change thereafter in accordance with permits issued by a local government or the department…"

The terms "so common and usual" and "so long-continued," as well as "ordinary years" are open to different interpretations. Similarly, by not precisely defining the well-marked soil characteristic to be used by listing quantitative thresholds that could be measured or the species and community associations of vegetation types to be used as signals, the Act leaves open the question of which key characteristics should be used and what the threshold of determination should be.

For lakes very near the 20-acre threshold, wetland types were evaluated via geographic data on the size and location of water bodies and 2002 aerial photographs of shorelands to define a persistent hydrological connection between adjacent wetlands and the lake. If a connection was determined likely to exist based on this analysis, the wetland acreage was included in the overall lake size. In the absence of adequate geographic data, best professional judgment concerning the line marking the shore in the aerial photos was used to delineate the extent of the lake proper. Soil characteristics, vegetation types and persistence of water at the ordinary high water mark over time were not verified in the field.

Navigable Waters

The Guidelines direct local governments to collect information regarding navigation, as it relates to shorelines of the state (WAC 173-26-201(3)(c)). The Washington Department of Natural Resources (WDNR) defines navigable waters for the purposes of shoreline management.

WDNR classifies navigable waters into four categories.

Definitely navigable rivers and lakes are considered to be navigable for one or more of the following reasons:

(a) They have been adjudicated as being navigable.

(b) They are tidally influenced.

(c) There is sufficient documented evidence of use for transportation and/or commerce.

Probably Navigable rivers and lakes would likely be found to be navigable, if the matter were adjudicated, for one or more of the following reasons:

(a) There is some documented evidence of use for transportation and/or commerce.

(b) Their size and geographic location with respect to historical settlement patterns and transportation routes makes them susceptible to use for commerce or transportation.

(c) They were meandered based on historical U.S. Government Land Office surveys.

Not Navigable rivers and lakes have been adjudicated as being non-navigable in a case in which the State of Washington was party or because, in the opinion of WDNR, research clearly indicates that a portion of the river is impassable.

In addition, some rivers and lakes (classified as *Unknown*) appear to meet some of the conditions for navigability, but more research is needed in order to determine their status.

In addition to the WDNR definitions of navigable waters, the National Oceanic and Atmospheric Administration identifies navigation lanes. Volume 2, Map 3.a; shows navigable waters as identified by WDNR in King County. Volume 2, Map 3.b shows National Oceanic and Atmospheric Administration navigation lanes.

G. Inventory and Characterization

The inventory and characterization of King County's shorelines as described in this document will be used by King County to update its Shoreline Master Program.

The inventory:

- Centralizes all known and relevant information about existing shoreline conditions and uses;
- Ensures that King County has compiled the information required by the State's Shoreline Master Program Guidelines; and
- Establishes the body of technical information from which policy decisions will be made when reevaluating the existing King County Shoreline Master Program.

The shoreline use analyses and characterization:

- Distill and summarize the extensive inventory information such that a meaningful public discussion of shoreline management tradeoffs and goals can take place;
- Enable the public, expert technical peer reviewers, Tribes, cities, and Ecology to review and understand in a transparent manner the basis for King County decision-making;
- Prepare shoreline information so that it can be used in a geographic information system analysis to prepare draft shoreline designations;
- Define baseline conditions from which a cumulative impact analysis will be conducted (to assess proposed shoreline management actions); and
- Help identify priority areas for shoreline restoration and public access.

Content and Goal of Inventory

Under WAC 173-26-201, local governments are required to gather and incorporate all pertinent and available information, existing inventory data and materials from state agencies, affected Indian Tribes, watershed management planning efforts, port districts, and other appropriate sources. Local governments are required to inventory, at a minimum, the elements listed in the first column in Table 2 below. The second column indicates where in this document King County addresses those elements. King County's goal in compiling the shoreline inventory information is to ensure that all relevant information is available to the public and King County resource managers before decisions for future shoreline management are made.

Table 2. Guide to Addressing Shoreline Inventory Requirements

Inventory (WAC 173-26-201)	Section that Addresses Requirement in this Document
(i) Shoreline and adjacent land use patterns and transportation and utility facilities, including the extent of existing structures, impervious surfaces, vegetation and shoreline modifications in shoreline jurisdiction. Special attention should be paid to identification of water-oriented uses and related navigation, transportation and utility facilities.	Section 1.D. Section 2 Section 4 Attachment D
(ii) Critical areas, including wetlands, aquifer recharge areas, fish and wildlife conservation areas, geologically hazardous areas, and frequently flooded areas. See also WAC 173-26-221.	Section 2 Attachment D
(iii) Degraded areas and sites with potential for ecological restoration.	Section 2 Attachment D
(iv) Areas of special interest, such as priority habitats, developing or redeveloping harbors and waterfronts, previously identified toxic or hazardous material clean-up sites, dredged material disposal sites, or eroding shorelines, to be addressed through new master program provisions.	Section 2 Attachment D
(v) Conditions and regulations in shoreland and adjacent areas that affect shorelines, such as surface water management and land use regulations. This information may be useful in achieving mutual consistency between the master program and other development regulations.	Section 4
(vi) Existing and potential shoreline public access sites, including public rights-of-way and utility corridors.	Section 3 Attachment D
(vii) General location of channel migration zones, and flood plains.	Section 1.D. Section 4 Attachment D
(viii) Gaps in existing information. During the initial inventory, local governments should identify what additional information may be necessary for more effective shoreline management.	Attachment D
(ix) If the shoreline is rapidly developing or subject to substantial human changes such as clearing and grading, past and current records or historical aerial photographs may be necessary to identify cumulative impacts, such as bulkhead construction, intrusive development on priority habitats, and conversion of harbor areas to non-water oriented uses.	Section 6 Attachment D
(x) If archaeological or historic resources have been identified in shoreline jurisdiction, consult with the state historic preservation office and local affected Indian tribes regarding existing archaeological and historical information.	Section 5

Content and Goal of Required Shorelines Use Analyses and Ecological Characterization
The Guidelines require local governments to analyze gathered information before they adopt specific master program provisions. Required elements of analysis, called out specifically in WAC 173-26-201, are listed in the first column in Table 3 below. The second column indicates where in this document King County addresses those elements. King County's goal in conducting the shoreline use analyses and ecological characterization is to distill and summarize the extensive inventory information so that:

1. a comprehensive understanding of existing shoreline conditions is gained; and
2. a meaningful discussion of shoreline management tradeoffs and goals can take place between the public and County resource managers.

Table 3. Analysis of Shoreline Issues Of Concern

Analysis Requirement (WAC 173-26-201)	Section that Addresses Requirement in this Document
o Characterization of functions and ecosystem-wide processes	Section 2
o Shoreline use analysis and priorities	Section 3 Section 4 Shoreline use priorities will be discussed with the public in January 2007.
o Addressing cumulative impacts in developing master programs	Section 6 Methodology for this analysis is described; methodology will be applied in 2007 when Shoreline Master Program is drafted.
o Shorelines of statewide significance	Shorelines of statewide significance are evaluated in all elements of the analysis in this document.
o Public access needs and opportunities	Section 3
o Enforcement and coordination with other programs	Coordination with other programs will be addressed in Sections 3-5 and 7. Enforcement is not addressed in this document; it will be addressed in the draft King County Code Title 25A in 2007.
o Water quality and quantity	Section 2
o Vegetation conservation	Section 2
o Special area planning	There are no areas chosen for special analysis at this time.

The results of the shoreline use analyses and ecological characterization will effectively be layered over each other, using geographic information systems, to identify priority areas for restoration and public access and to identify areas appropriate for shoreline uses of varying intensity (ranging from rural residential to high intensity urban uses). This work is also intended to minimize areas of conflict between uses.